DRAINAGE REPORT

for

VISTA DEL SOL MOBILE HOME PARK

4501 BLAKE RD. , S.W.

for

ROGER COX & ASSOCIATES,INC

500 FOURTH STREET,N.W.

ALBUQUERQUE,NEW MEXICO

Boyle Engineering Corporation
consulting engineers / architects
Suite D
3939 San Pedro, N E
Albuquerque, New Mexico 87110
505 / 883-7700

N-10 + R-1
RECEIVED
AUG 1 1 1986
HYDROLOGY SECTION

JULY, 1986

®

Boyle Engineering Corporation

Suite D
3939 San Pedro, N.E.
Albuquerque, New Mexico 87110

consulting engineers

505 / 883-7700

RECEIVED
AUG 11 1986
HYDROLOGY SECTION

City of Albuquerque
Design Hydrology Section
P.O. Box 1293
Albuquerque, New Mexico 87103

August 5, 1986
AL-C21-101-02

ATTN: Mr. Billy Goolsby
Civil Engineer/Hydrology

RE: DRAINAGE REPORT FOR VISTA DEL SOL MOBILE HOME PARK, N10-D1
A DEVELOPMENT OF ROGER COX & ASSOCIATES, INC.

Dear Billy:

Transmitted herewith is one copy of the subject drainage report.

The report serves the dual purpose of providing engineering analysis for overall on- and off-site drainage into a 42-inch storm drain system (City Project 2951) and for building permitting requirements for a small 4,000 sq ft community center building occupying 0.78 acres within the Park.

Please call if you need any additional information or have questions during your review.

Sincerely,

BOYLE ENGINEERING CORPORATION

Thornton

Thornton D. Schwenk, P.E.
Senior Civil Engineer II

Enclosures

T A B L E O F C O N T E N T S

LETTER OF TRANSMITTAL

INFORMATION SHEET

CONFERENCE RECAP

I. PURPOSE

II. SCOPE

III. PROJECT DESCRIPTION

IV. PROJECT LOCATION

V. EXISTING DRAINAGE CONDITIONS

VI. DEVELOPED DRAINAGE CONDITIONS

VII. CONCLUSIONS AND RECOMMENDATIONS

A P P E N D I X

CORRESPONDENCE

Conceptual Drainage Report Approval (10-3-85)

Infrastructure Listing (Rev. 2-27-86)

EPC Findings

Letter from J. Fink on use of excess R.O.W. (3-5-86)

CALCULATIONS

Hymo analysis of basins 37D, 39D & 40D, Amole Del Norte

Hydrograph Computation Worksheets, Subbasins 1-10

Runoff Data Summary Table

LAWSPG Analysis for Flow in 42"/48" RCP

FIGURES

1 - Zone Atlas Sheet N-10

2 - Soils Survey of Bernalillo County Sheet 40, SCS, June 1977

PLATES

I - Amole Detention Basin Upland Drainage Areas

II - Grading Plan

III - Drainage Details

DRAINAGE INFORMATION SHEET

*Vista Del Sol

PROJECT TITLE: Mobile Home Park ZONE ATLAS/DRNG. FILE #: N-10, D-1

EGAL DESCRIPTION: Replat of Lands of Roger Cox Southwest Development Comprising Tract 3-A-1 & 3-B-1, Town of Atrisco Grant

CITY ADDRESS: 4501 Blake Rd., SW.

NGINEERING FIRM: Boyle Engineering Corp. CONTACT: Thornton D. Schwenk

ADDRESS: 3939 San Pedro Suite D PHONE: (505) 883-7700

WNER: Roger Cox & Associates, Inc. CONTACT: Ron McCulloch

ADDRESS: 500 4th St., NW PHONE: 842-6400

ARCHITECT: Bill J. Shelton & Assoc. CONTACT: Bill Winkler

ADDRESS: 1113 Rhode Island, NE PHONE: 262-2363

URVEYOR: A& E Engineering, Inc. CONTACT: John Esquibel, LS 5949

ADDRESS: 1330 San Pedro, NE PHONE: 266-8791

ONTRACTOR: Moore & Cowart Contractors, Inc. CONTACT: George Cowart

ADDRESS: 3100 Princeton Dr., NE PHONE: 884-2228

RECEIVED AUG 11 1986 HYDROLOGY SECTION

PRE-DESIGN MEETING:

X YES 9-17-84, 1-8-86

___ NO

X COPY OF CONFERENCE RECAP SHEET PROVIDED

84-165
-272
-453

DRB NO. 85-4

EPC NO. Z-84-101-2

PROJ. NO. 2951 (Previously part of Project No. 2832)

.YPE OF SUBMITTAL:

X DRAINAGE REPORT

___ DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

X Q,V, & HGL Calculations for 42"

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

X BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

X OTHER Proj. 2951 (SPECIFY)

ATE SUBMITTED: 8-5-86 ~~6-28-86~~

BY: Thornton D. Schwenk

Thornton D. Schwenk, P. E.

* Previously known as Casa Del Sueno & Cosa De Ver

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION/DESIGN HYDROLOGY SECTION

CONFERENCE RECAP

DRAINAGE FILE/ZONE ATLAS PAGE NO.: N10 DATE: 1/8/86

PLANNING DIVISION NOS: EPC: _____ DRB: 85-4

SUBJECT: Vista Del Sol

STREET ADDRESS (IF KNOWN): _____

SUBDIVISION NAME: Lands of Roger Cox Southwest Dev.

APPROVAL REQUESTED:

____	PRELIMINARY PLAT	____	FINAL PLAT
X	SITE DEVELOPMENT PLAN	X	BUILDING PERMIT
____	OTHER	____	ROUGH GRADING

ATTENDANCE:	WHO	REPRESENTING
	Thornton Schwenk	Boyle Engineering
	Ron McCulloch	Roger Cox
	Billy Goolsby	City / Design Hyd.

FINDINGS:

① The infrastructure listing, as presented, is acceptable for Site Development Plan sign-off. It is understood that a detailed Drainage Report will be submitted for approval prior to W.O. and Building Permit sign-off.

② Prior to sign-off on the Site Development Plan, recorded easements will be provided for the off-site channel improvements.

RECEIVED
Boyle Engineering Corporation
JAN 8 1986
Albuquerque Office

FILE _____

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED:	Billy J. Goolsby	SIGNED:	Thornton H. Schwenk
TITLE:	CE/Design Hydrology	TITLE:	SR. CIVIL ENGR.
DATE:	1/8/86	DATE:	1-8-86

DRAINAGE REPORT

for

VISTA DEL SOL MOBILE HOME PARK

occupying a 77.17-acre tract legally described as

Lands of Roger Cox Southwest Development

comprising Tract 3-A-1 & Tract 3-B-1
formerly being Tract 3A & Tract 3B
Town of Atrisco Grant, Bernalillo County, New Mexico\

4501 Blake Road, S.W.

Albuquerque, New Mexico

N-10, D-1

July 28, 1986

I. PURPOSE

The purpose of this report is to present information, calculations, drawings and recommendations relative to storm runoff for the site of a proposed mobile home park located at 4501 Blake Road, S.W.

II. SCOPE

This report is limited to an investigation of the existing and proposed conditions which affect storm flows on the study site. The proposed development is to be protected from flooding due to storm runoff, without increasing the threat of damage to downstream properties. Any upstream areas which may have been constructed since 1972 are presumed to meet the restrictions of applicable drainage ordinances and resolutions, beginning with AMAFCA

Resolution 1972-2. Estimation of maximum runoff is based on the site being developed as proposed and on the "Notice of Emergency Rule" published by Mayor Ken Schultz on January 14, 1985, which modified volume and hydrograph determinations prescribed by the Development Process Manual.

III. PROJECT DESCRIPTION

The proposed development is for a mobile home park, containing approximately 473 lots on a usable area of 70.06 acres. Typical lot size is 42' x 105'. Internal streets are private and are to be constructed of asphalt pavement, with 24 feet being the distance from flowline to flowline. A one-foot wide curb, constructed integrally with a four-foot wide sidewalk, will be constructed on each side.

Each lot shall provide off-street parking for two vehicles. Additional off-street parking of 1/2 vehicle per dwelling unit shall be available in small parking lots distributed throughout the project.

A 7' x 20' patio pad and approximately 64 sf. storage area will be provided for each unit. A connecting walkway between the patio pad and on-lot parking will be provided. The remainder of the lot area will be seeded and landscaped with other plantings in accordance with the landscape plan.

Infrastructure improvements shall remain privately owned. Dwelling spaces shall be rented, and no subdivision of land will take place.

IV. PROJECT LOCATION

The mobile home park is located in projected Section 3, T9N, R2E, in the southwest quadrant of Albuquerque, approximately 2150 feet west of Coors Road at the north edge of Blake Road (Zone Atlas Sheet N-10, Figure 1). Its eastern boundary is coincident with the Amole del Norte Diversion Channel right-of-way purchased by the City of Albuquerque in 1981-82. The property was annexed into the City via the "Annexation Plat of the Lands of Roger Cox, Southwest Development, Formerly Tract 3 of Lands of Westland Development Company, Inc.", filed in the office of the County Clerk on February 19, 1985, in book C26, page 89. The current Re-plat comprising Tracts 3-A-1 and 3-B-1 was filed April 8, 1986, in book C30, page 16.

V. EXISTING CONDITIONS

A. AREA DEVELOPMENT

Development in the area is moderate. There are existing mobile home parks along the south side of the project. Westgate Heights Addition Unit Two, a single-family residential area, is located approximately 800 feet to the northwest. Large areas of undeveloped land are at the north and west boundaries. Blake Road is a

24-foot wide paved street (without curb and gutter or sidewalk), from Coors Road westward for approximately 3500 feet, where it becomes a gravel road. The transition to gravel occurs 500 feet east of the park property.

As shown on map 350002 0039 C of the Flood Insurance Rate Map, the project site is not within a flood hazard area.

B. TOPOGRAPHY AND SOILS

The project is situated on Bluepoint loamy fine sand with a slope of approximately 2% from west to east as described on pages 13, 64, 74 and map page 40 of the Bernalillo County Soil Survey prepared by the U.S. Department of Agriculture. The soil is classified as SCS hydrologic group "A". Vegetative cover is poor, and risk of erosion from wind and storm runoff is significant. This soil has a great capacity to absorb moisture. (Figure 2)

C. OFF-SITE DRAINAGE

Drainage considerations for the mobile home park will be designed to fully utilize the downstream capacity of the Amole Del Norte Storm Diversion Facility (a concrete-lined trapezoidal channel) coupled with the 492-acre-foot Amole Detention Basin. Existing and developed flow conditions have been reported in the

following documents prepared by Boyle Engineering Corporation::

(1) "Investigation Phase Report for the Re-Evaluation Study of the Amole Del Norte Storm Diversion Facility", Project 1814, July 30, 1984

(2) "Design Development Report for the Re-Evaluation Study of the Amole Del Norte Storm Diversion Facility", Project 1814, February 28, 1985

(3) "Design Analysis Report for the Amole Del Norte Storm Diversion Facility, Phases I & II, Project 2480, January 17, 1986

There are three upland basins that contribute storm runoff to the site from the west. A map of the Amole Detention Basin Upland Drainage Areas is enclosed, showing the outline of these basins: 37D, 39D and 41D. Hydrographs of these basins, as well as for Basin 40D containing the site itself, were made for developed conditions, using a modified version of the USDA's HYMO program. As predicted by the HYMO model, a fully-developed flow of 102 cfs would enter the site through the existing arroyo at station 26+90 (Ref. Offsite Infrastructure drawings for Phase O-4, Project 2951) from the routed and combined hydrographs from Basins 37D 39D. Flows from Basins 40D and 41D currently flow overland through the site. Undeveloped runoff from portions of Basin 41D is currently collected in Blake Road.

VI. DEVELOPED DRAINAGE CONDITIONS

A. OFF SITE DRAINAGE

An Infrastructure Listing was approved by the Development Review Board on January 14, 1986, for the required offsite improvements, including permanent drainage easements. The 30-ft easement through the site was granted to the City through the platting process (recorded on April 8, 1986) and the 25-ft easements adjacent to the south property line (1000 feet north of and parallel to Blake Road) were obtained as "paper" easements from the four participating property owners. Each of these owners was willing to grant a 25-ft easement at the north end of his individual tract, as this action would relocate the natural flows to the north and permit reclamation of 100 to 150-ft wide strips of land which heretofore had been unusable. The Infrastructure Listing ultimately resulted in the preparation of detailed construction drawings for the following City projects, which were reviewed and approved by the Design Review Committee:

(1) Project 2791, Master-planned Water Line Extension
(2) Project 2831, Master-planned Sanitary Sewer Line
(3) Project 2832, Paving of Blake and Wendell Roads
(4) Project 2951, Reinforced Concrete Pipe Storm Drain

Portions of the offsite runoff from basins 37D and 39D which does not naturally enter the existing arroyo will be diverted into the arroyo. Vee ditches, with 3:1

side slopes and 0.33% longitudinal slopes, will be graded both north and south from the existing arroyo at Sta. 26+90 to divert the flow along the west edge of Tract 3-B-1. These flows are included in the previously-mentioned flow of 102 cfs.

The remainder of the flow from basin 41D (subbasin 41D-a) will be diverted south along the proposed CMU perimeter wall surrounding tract 3-B-1. Assuming a CN = 60 for the existing undeveloped area of 24.8 acres results in a peak runoff of 11.3 cfs being diverted south to Blake Road. This flow will combine with the 2.4 cfs already in Blake Road from the 5.3 acres in subbasin 41D-b.

Basins 1 and 2 on the site itself will discharge south out of the entry driveway into the new City-standard paved street section of Blake Road. This flow totals 14 cfs. The total flow in the half section of Blake Road is thus 27.7 cfs, which results in a depth of flow of 0.55 feet for a 2.1% roadway slope, according to DPM Plate 22.3 D-3.

B. ON SITE DRAINAGE

As previously mentioned, onsite detention is not required, due to the available downstream capacity of the Amole Del Norte system, which will receive discharge directly from the site. (Interim drainage

study submittals for this project showed that interim on-site detention was required; however construction of Phase I of the Amole Del Norte system has rapidly progressed to a point where on-site detention is no longer needed.) Accordingly the site grading plan and drainage structure details were designed in such a way that all runoff (with the exception of basins 1 and 2) will directly enter the Amole Del Norte channel. Runoff will enter the channel either through a side inlet at the top of the lining at ADN Sta. 28+50 or through a 42-in/48-in storm drain system penetrating the ADN lining at ADN Sta. 20+85. Runoff from the interior private streets is collected at appropriately-spaced catch basins, which connect to the 42-inch RCP with 24-inch CMP culverts.

Hydrographs for each basin were developed on DPM Hydrograph Computation Worksheets. (See Appendix) A channel on the east property line of Basin No. 3 will collect overland flow of 9.16 cfs from basin No. 3 and 4. This channel will discharge the runoff into the storm drain at Sta 20+18. (See Drainage Detail Sht. 4 of the On-site Infrastructure drawings.) The discharge of 24 cfs, from basins No. 5-8, will be collected at catch basins located at Stations 16+65, 13+78.50, 9+79 and 4+20, respectively. A total of 139 cfs is discharged to the Amole del Norte Channel from basins No. 3-8. A flow of 28 cfs from basin No. 10 will flow into

a concrete vee ditch then sheet flow to the channel inlet at station 28+50 of the Amole del Norte channel. Basin No. 9 discharges 11 cfs to another concrete vee ditch which is then diverted in a side ditch to the ADN channel inlet. A summary table with all runoff data is included in the appendix.

Flows in the 42-inch RCP, including lateral inflows, were analyzed using the Los Angeles (County) Water Surface and Pressure Gradient Program (LAWSPG), which can take into account losses at manholes and due to changes in the alignment. The input/output for this analysis appears in the appendix. The HGL thus computed is plotted on the profile sheet 2, of Project 2951 drawings.

C. COMMUNITY CENTER BUILDING AND PARKING LOT

A 4000-sq ft community center and parking lot ocupies an area of 0.78 acres within the 4.1 acres comprising Subbasin 2 on the site. The fine grading for the landscaped areas surrounding the building will conform to the overall grading plan of the 77-acre site. Runoff from the building area will enter the adjacent private street (Paseo De Canto)), which carries an estimated 14.0 cfs out the main entrance to the Park onto Blake Road.

VII. CONCLUSIONS AND RECOMMENDATIONS

A. The peak discharge from the on site drainage basins will reach the 42-inch storm drain before the peak discharge of 102.2 cfs reaches the inlet of the 42-inch RCP culvert.

B. The peak discharge to be introduced into the Amole Del Norte channel is 139 cfs, which agrees with the design flow for this analysis point from the Amole Del Norte design report.

C. If the designed drainage improvements are made in in accordance with the construction drawings, it is the conclusion of this report that the proposed development will be protected from storm runoff and that it will not increase the threat of flood damage to contiguous properties.

Respectfully submitted,

BOYLE ENGINEERING CORPORATION

Thornton D. Schwenk

Thornton D. Schwenk, P.E.

Senior Civil Engineer II

REGISTERED PROFESSIONAL ENGINEER
STATE OF NEW MEXICO
No. 4739
THORNTON D. SCHWENK

8-5-86

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

RECEIVED
Boyle Engineering Corporation
OCT 10 1985
Albuquerque Office

October 3, 1985

FILE _____

Mr. Thornton Schwenk
Boyle Engineering Corporation
3939 San Pedro NE, Suite D
Albuquerque, NM 87110

REF: CONCEPTUAL DRAINAGE REPORT FOR VISTA DEL SOL MOBILE HOME PARK (N10-D1)
RECEIVED AUGUST 12, 1985

Dear Mr. Schwenk:

I have reviewed the above referenced submittal and hereby give conceptual approval. However, prior to Site Development Plan sign-off at DRB the necessity for other required infrastructure improvements will need to be established. If other departments have requirements, then a detailed drainage report and an approved infrastructure listing will be required for sign-off. If the other departments do not have any specific requirements for infrastructure improvements, then the drainage improvements may be deferred to the building permit process.

Should you have any questions or comments, please call this office at 766-7644.

Cordially,

Billy J. Goolsby
CE/Design Hydrology

BJM/cl

D.R.B. Case No. DRB-85-4
D.R.B. Project No. 2796
Date Submitted 1-14-86

Figure 11

EXHIBIT "D"
to Subdivision Improvements Agreement

D.R.B. REQUIRED INFRASTRUCTURE LISTING
for Vista Del Sol Mobile Home Park
Lands of Roger Cox

Following is a summary of Public/Private Infrastructure required to be constructed or financially guaranteed to be constructed for the above development.

	ITEM	SIZE	TYPE OF IMPROVEMENT	LOCATION	FROM	TO
	1.	16"	Master-planned Water Line	Southward along Section line in new 20' easement	End of exist. 10" line in Camino San Martin	NW Corner SEC 3,T9N,R2E
	2.	8"	Water Line extension	Eastward inside N. property line in new 20' easement	NW Corner SEC3,T9N,R2E	Meter box at E. R.O.W. line Unser (proposed)
	*3.	8"	Pressure Reducing Valve	Upstream side of Master water meter	At NW Property Corner	
added from 12-31-85	*4.	3" (Max.)	~~Surge~~ Pressure Relief Valve	Upstream side of Master water meter	At NW Property Corner	
**	5.	8"	Sanitary Sewer	Southward in W. 20' of Amole Del Norte (City) R.O.W.	S.E. Corner M.H.P. Property	Blake Rd.
	6.	12"	Sanitary Sewer	Blake Rd.	Crossing of Amole Del Norte (west side)	48" Interceptor (Coors Rd.)
	7.	10'	1000-ft Drainage Channel	Southeasterly thru property in new 30' easement	W. Property line (SEC 3)	S. Prop. line 430' W / Wendell
***	8.	10'	1530-ft Drainage Channel Drainage Channel	Along S. Prop. line in new 25' easement (1000' N. Blake Rd)	430' W. of Wendell Rd.	W. R.O.W. Amole Del Norte
	9.	2.1 Ac-ft	Temporary Storm Water Detention Basin	Excess City R.O.W. west of Amole Del Norte channel	SW Prop. Cor.	Blake Rd.
	10.	7.5 Ac-ft	Temporary Storm Water Detention Basin	Temporary Use of 140' City ROW until channel const. begins	Blake Rd.	1400' N. of Blake
THIS ITEM IS BEING DELETED. Ref. MEETING WITH ANDRE HOULE ON 2-27-86						
	11.	4'	440-ft Concrete Sidewalk	N. side Blake Rd.	SE Prop. Cor. at Blake R.O.W.	SW Property Cor.
	12.	STD	440-ft Curb & Gutter	N. side Blake Rd.	SE Prop. Cor. at Blake R.O.W.	SW Property Cor.
	13.	24'	440' Paving: Collector City Std. (P-4)	Blake Rd.	SE Prop. Cor. at Blake R.O.W.	SW Property Cor.
	14.	24'	600' Paving City Std. (P-2)	Blake Rd.	End of Exist. pavement	SE Property Cor. at Blake R.O.W.
	15.	24'	1100' Paving City Std (P-2)	Wendell Rd. (North leg)	Blake Rd.	S. Prop. line

* Final requirement for this item to be determined by DRC.
** Contingent upon approval by the City Engineer
*** To be acquired by the developer prior to Work Order (i.e., the Drainage Easement).

Prepared by: Thornton D. Schwenk, P.E. 4739
Print Name Thornton D. Schwenk
Firm Boyle Engineering Corporation

Page 1 of 1

****

Development Review Board Member Approvals

Robert A. Fornaro 1-14-86 — Traffic, Date
Jon E. Entzminger 1-14-86 — WRD, Date
Mark Valdez 1-14-86 — Parks & Rec., Date

N. Duran 1/14/86 — DRB Chairman, Date
Fred D. Chavez 1/14/86 — City Engineer/AMAFCA, Date

Rev. 8/85 (ID2602E)

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
PLANNING DIVISION

AGENDA NUMBER:09
ENVIRONMENTAL PLANNING COMMISSION
August 15, 1985
Z-84-101-2

Z-84-101-2 Ronald S. McCulloch agent for Roger Cox requests a change of zone from SU-1 (Mobile Home Subdivision) to SU-1 (Mobile Home Park) for Tract 3B and approval of a Site Development Plan for Tract 3A and 3B, Lands of Roger Cox Southwest Development (SP-85-67), located on the north side of Blake Road approximately 225 feet west of Wendell Road SW, containing approximately 77.2 acres. (N-10)

COMMENTS FROM OTHER DEPARTMENTS:

ENVIRONMENTAL HEALTH AND ENERGY DEPARTMENT

Air Pollution Control Division	"If the Unser Blvd. facility is constructed adjacent to the proposed project, the western row of mobile homes may be subject to adverse noise impacts from future arterial traffic. It is virtually impossible to reduce interior noise levels in mobile homes by structurally reinforcing or altering floor plan layouts. The detention ponds should not retain water for greater than 5 days to prevent mosquito breeding problems. The soils in this area are extremely susceptible to erosion and an extensive Dust Control Plan will be required for application of a top soil disturbance permit. If soils are disturbed but not under active construction for long periods, long term ground stabilization measures such as revegetation, crimped-in-straw etc. will be required."
Administration	"No comment."
FIRE/Planning	Fire Plans Checking may have comment."
HUMAN SERVICE/Neighborhood Coordination	South Valley area council has been notified."
MUNICIPAL DEVELOPMENT	
Engineering	An approved conceptual grading and drainage plan appropriate for preliminary approval of the proposed drainage scheme. An approved drainage report will be required for site plan sign-off by the City Engineer. The proposed scheme is dependent on the City's acceptance of the proposed ponding within the City's Right-of-Way and in Tract A1-11B. Recommend another pre-design to the tie down items such as maintenance responsibilities, infrastructure requirements and required easements. Recommend deferral unless the items above have been satisfied prior to the EPC Public Hearing.
Zoning Enforcement Officer	
PARKS AND RECREATION/Planning	"Under Ordinance 7-1976, as amended, the developer is required to dedicate land or pay cash-in-lieu of land; plus pay a development fee at building permit time. Various City departments have discussed selection of a site on the southwest mesa where several public facilities could be co-located (park, recreation center, school, library, senior citizen center, pool, etc.). However, no site has been selected. An attempt would be made to acquire a neighborhood park site south of Arenal to serve those areas annexed into the City."

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
PLANNING DIVISION

AGENDA NUMBER:09
ENVIRONMENTAL PLANNING COMMISSION
August 15, 1985
Z-84-101-2

POLICE/Planning	"No adverse comment."
PROPERTY MANAGEMENT/Real Estate Officer	"Would recommend that Unser right of way be dedicated on plat at this time. A lease back at no charge could be arranged to let present owner use land until needed for actual construction."
REFUSE REMOVAL AND SERVICES/Refuse Division	"This project falls under City Refuse Ordinance #42-1980 (commerical). Must meet with residential collection Supervisor, John Finley, Refuse Department, 823-4000. Not approved for residential service.
TRANSIT/Planning	"No comment."
TRANSPORTATION Traffic Engineer	"See Planning and Programming Division comments regarding Rights-of-way for Unser and Blake. The distribution of guest parking spaces throughout the project is too heavily concentrated in the area of the tennis courts. One space per 2 units is the desired ratio, not including more than about 10 provided for the tennis courts. The wdithof the private (west entrance from Blake road should provide a 22' exit width and 20' entrance width where the median is utilized. Minimum centerline radius should be 75' (not 40') for all 90 degree turns in private streets. All circular turnarounds must meet DPM requirements (47'R) for roadway with center island. Recommend streets have 24' face to face of curb (22' shown by applicant) with 4'-0" sidewalk not including sloping curb (3' inclu. curb shown). Streets should be labeled for identification. A north-south private street connection is recommended from the east-west street at the end of Wendell north the second east-west street -- to reduce circuitous travel. A pedestrian link to the north should be stubbed out for future access to schools to the north. Internal streets should be identified as private. Developer is responsible for internal street improvements. Recommend developer to required to pave 24' on Wendell, with sidewalk one side, out to Blake, 24' pavement. One on Blake from end of existing pavement east of Wendell to west line of this site, with C&G and 4' sidewalk where site abuts Blake. (note: condition of existing Blake pavement, Wendell to Coors, is poor--street is in County)."

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
PLANNING DIVISION

AGENDA NUMBER:09
ENVIRONMENTAL PLANNING COMMISSION
August 15, 1985
Z-84-101-2

Planning/Programming

"Unser Boulevard is designated as a principal arterial (right-of-way width of 156 feet required) and Blake Road is designated as a collector (right-of-way width of 68 feet required) on the Long Range Major Street Plan. The Bikeways Master Plan identifies Blake Road as the location for a bicycle lane. Dedication of 156 feet of right-of-way for Unser and 40 feet from centerline for Blake Road (34 feet for roadway plus 6 feet for bikeway) should be required as a condition of approval. The proposed location of the right-of-way for Unser Boulevard meets our previous specification. The main entrance to the development from Blake Road should be 36 feet wide to allow one lane for ingress and two lanes for egress. The median should be eliminated, and 4 additional feet of right-of-way on each side for sidewalks is needed. Generally, the parking areas that do not have through access lack appropriate keyways for the space that is located at the end away from the lot entrance/exit. The temporary right-of-way located along an extension of Wendell Road appears to improve access to the northern portion of the development and internal circulation. We suggest that it be retained, and the parking lot associated with it be relocated. The typical cul-de-sac should have an overall minimum radius of 48 feet, with 18 feet for the interior circle radius and a minimum width of 30 feet for the driving aisle. Provision for meeting the requirements of the Street Tree Ordinance along Unser Boulevard and for providing an adequate buffer or solid wall to reduce potential noise intrusion from traffic along this future principal arterial into this proposed development should be made at this time. The internal streets do not meet City standards and will be private streets. We understand that the applicant is preparing a draft agreement concerning interim use and ultimate conveyance of Unser Boulevard right-of-way. This

Department's minimum requirements for such an instrument are:)1) interim use will not include construction of permanent structures on the relevant property; (2) right-of-way will be conveyed at such time as it is needed, as determined by the City; (3) improvements will be removed (or abandoned in place as appropriate) by owner/applicant at his expense and in a timely manner; and (4) conveyance will be at no cost to the City."

WATER RESOURCES/Engineering Department

"No comment on the zone change request. Continued coordination with WRD is necessary to work out the water and sanitary sewer service details."

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
PLANNING DIVISION

AGENDA NUMBER:09
ENVIRONMENTAL PLANNING COMMISSION
August 15, 1985
Z-84-101-2

COMMENTS FROM OTHER AGENCIES

ALBUQUERQUE FLOOD CONTROL AUTHORITY	"See City Engineers comments."
ALBUQUERQUE PUBLIC SCHOOLS	
MIDDLE RIO GRANDE COUNCIL OF GOVERNMENTS	"The Long Range Major Street Plan (LRMSP) designated Blake Road as a Collector which requires 68 feet of right-of-way. Adequate right-of-way for Blake Road should be reserved. There is currently a proposal before the Urban Transportation Planning Policy Board (UTPPB) to extend Unser Boulevard as a Principal Arterial south of Arenal Road to Rio Bravo Boulevard. However, the exact location of Unser Boulevard has not been defined. This area would be defined as the Unser Boulevard Location Study Corridor. The required right-of-way for Unser Boulevard would be 156 feet. Unser may also be defined as a limited access facility south of Arenal Road. Provisions should be made for easements for Unser Boulevard if this Principal Arterial is designated to be extended to Rio Bravo Boulevard."

PLANNING DIVISION COMMENTS TO THE ENVIRONMENTAL PLANNING COMMISSION, 8/15/85

Request Summary:

This is a request for a change of zone from Mobile Home Subdivision to Mobile Home Park for the eastern portion of this development containing approximately 42 acres and Site Development Plan approval for the entire parcel containing approximately 77.2 acres.

Applicable Plans and Policies:

The Comprehensive Plan designates the area Developing Urban in which moderate densities of 3-6 dwellings per gross acre or higher net densities with cluster development area appropriate for residential development. The Albuquerque International Airport Plan, to be adopted by the City Council, contains aircraft noise/land use compatibility recommendations which may affect the site.

Area Characteristics and Zoning History:

Environmental characteristics of the general area effect the site's habitability. The Albuquerque International Airport Plan identifies existing noise contours as they relate to various parts of the City. Aircraft operations in 1983 generated enough noise exposure in the general vicinity to be identified as a complaint location. The 60 Ldn contour extends to the north of this site, but does not include the property in this request.

The City Council, on July 22, 1985, adopted the Airport Noise Compatibility Program which includes a Land Use Guidance Chart. The chart does not permit Mobile Homes within the 60 Ldn noise contour.

The site is bounded on the north by vacant R-1 zoning in the City and on the west by vacant R-1 zoned land also in the City that is part of the Snow Vista Master Plan. Property on these two sides of the site is in large parcels. Land to the east is primarily vacant and zoned County A-1 and MH. Land to the south is County property zoned MH and developed with that use.

The property in question was annexed in 1984 and zoned for Mobile Home Subdivision and Mobile Home Park (AX-84-19/Z-84-101).

The original site development plan for Tract 3A was indefinitely deferred by the Environmental Planning Commission on October 18, 1984 (Z-84-101-1).

Analysis

1. Zone Change:

The zone change requested for Tract 3B from SU-1 for Mobile Home Subdivision to SU-1 for Mobile Home Park does not have any unusual public facility or public service needs that did not exist with the present zoning.

2. Site Plan

The site plan shows a 77-acre site with 511 lots to be developed with mobile homes. The density on the site is 6.7 du/acre. The project will be developed in two phases. Phase I is the west side of the property. The plan includes a community center and tennis courts.

The main entrance to the Park is from Blake Road. A second access is shown on Wendell Road. The temporary right-of-way shown as an extension of the entrance on Wendell Road should be permanent. It improves access to the northern portion of the development and improves internal circulation. The parking area that would be eliminated by the retention of the right-of-way should be relocated.

Additional right-of-way on Blake Road is required to total 40 feet from 80' centerline (34 feet for roadway plus 6 feet for bikeway). The developer should pave 24 feet on Wendell Road with the sidewalk on one side out to Blake Road. The width of the west entrance onto Blake Road should be 36 feet wide to allow one lane for ingress and two lanes for egress. The median should be eliminated. Minimum centerline radius should be 75 feet for all 90 degree turns on private streets. All turnarounds should have an overall radius of 48 feet with 18 feet for the interior circle radius and a minimum width of 30 feet for the driving aisle. Streets should be labeled for identification. The developer is responsible for internal street improvements.

A pedestrian link to the north should be stubbed out for future access to schools to the north.

Each mobile home lot provides off-street parking for two vehicles. The visitor parking is provided at one space per two units as suggested by the Traffic Engineer. He also suggested, however, that no more than 10 spaces be provided for the tennis courts. A better distribution of visitor parking could be achieved. Keyways need to be provided in all visitor parking lots which may reduce the number of space possible in each of the lots. No reduction in visitor parking spaces should be allowed.

The proposed location of the right-of-way for Unser Boulevard meets the Transportation Department's specifications. Provision for meeting the requirement of the Street Tree Ordinance along Unser Boulevard and for providing an adequate buffer to reduce potential noise intrusion from traffic along this future principal arterial should be shown at this time. This will reduce the size of lots along the west property line, thus affecting their development.

An agreement to include a plat, concerning interim use and ultimate conveyance of Unser Boulevard right-of-way must be signed by the City and the owner prior to final plan sign-off. The agreement should include the four items requested by the Transportation Department in their staff comments.

This site has not been approved for residential service by the Refuse Department. The Refuse Department must approve a plan for trash removal.

A drainage plan has not been approved for this site. The Engineering Department comments recommend deferral.

Detailed landscaping plans are shown for a typical lot, for the community center, and for the visitor parking areas. The landscaping plans are adequate except for the information needed once Unser Boulevard is developed. Also need landscaping details for the tennis court area and the other drainage basins.

An elevation, with colors and height, is included. A six-foot wall is shown to surround the entire site. The wall will be the same material and color as the community center.

One sign is shown to be located on the wall at the Blake Road entrance and to be illuminated with ground floodlights.

FINDINGS:

1. The zone map amendment is compatible with the intent of the Comprehensive Plan and is consistent with Resolution 270-1980.

2. The plan includes the major elements required for a site development plan.

3. The Site Development Plan will allow a more integrated development on the property which will be more compatible with similar existing and proposed development in the general area.

4. The concerns of dedicating right-of-way for Unser Boulevard have been addressed on this plan, however, the plan does not address the landscaping treatment and ultimate design once Unser Boulevard is complete.

5. The drainage plan is not approved at this time and the Engineering Department has recommended deferral.

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
PLANNING DIVISION

AGENDA NUMBER:09
ENVIRONMENTAL PLANNING COMMISSION
August 15, 1985
Z-84-101-2

RECOMMENDATION:

APPROVAL of Z-84-101-2 as it relates to the zone change is recommended but deferral of the Site Development Plan is recommended based on Finding 4 and 5.

Susan Montgomery

Susan Montgomery
Associate Planner

SM/djw

cc: Roger Cox, 500 4th NW Suite 510; 87102
Herbert M. Denish and Associates, PO Box 2001; 87103

IT IS REQUESTED THAT THE APPLICANT/AGENT BE PRESENT AT THE HEARING.

CITY OF ALBUQUERQUE

MUNICIPAL DEVELOPMENT DEPARTMENT

PLANNING DIVISION

Z-84-101-2

Ronald S. McCulloch agent for Roger Cox requests change of zone from SU-1 (Mobile Home Subdivision) to SU-1 (Mobile Home Park) for Tract 3B and approval of site Development Plan for Tract 3A and 3B Lands of Roger Cox Southwest Development (SP-85-67), located on the north side of Blake Road approximately 225 feet west of Wendell Road SW, containing approximately 77.2 acres. (N-10)

HEARING: 5-16-85	MAP: N-10
FILE: Z-84-101-2	

®

Boyle Engineering Corporation

Suite D
3939 San Pedro N.E.
Albuquerque, New Mexico 87110

consulting engineers

505 / 883-7700

City of Albuquerque
Municipal Development Department
P.O. Box 1293
Albuquerque, New Mexico 87103

March 5, 1986
AL-C21-101-02

ATTN: Mr. Jim Fink, P.E./Planning & Programming Hydrology

RE: USE OF EXCESS PUBLIC RIGHT-OF-WAY FOR A 2.1 AC-FT TEMPORARY DETENTION BASIN FOR PROJ. 2796, ADJACENT TO THE AMOLE DEL NORTE STORM DIVERSION FACILITY (PROJ. 2480)

Dear Mr. Fink:

During the planning stages for the site development of the Vista Del Sol mobile home park early in 1985, several schemes were investigated for detaining storm runoff. Drainage solutions for this 70-acre site were complicated by the uncertainty of the construction schedule for the Amole Del Norte (ADN) channel adjacent to the east property line of the site.

On June 21, 1985, a meeting was held at Fred Aguirre's office, attended by Roger Cox's representatives and by Steve Boberg of your office. It was agreed that Vista Del Sol could use 1.3 acres of excess ADN right-of-way for a 2.1 ac-ft temporary basin (Basin No. 2) to detain a portion of the 10-year developed runoff and 4.0 acres of the ADN channel right-of-way for a 7.5 ac-ft temporary basin (Basin No. 3) to detain the 100-year runoff from all contributing watersheds. (Basin No. 1 provides 1.6 ac-ft storage within the development.) This solution assumed that the ADN system would not be in place prior to complete build-out of the mobile home park. Once construction began on the ADN, Basin 3 would have been abandoned and excavated to the ADN design grades.

This concept was developed for submittal for the EPC hearing on October 17, 1985 (File: Z-84-101-2), and was approved by Billy Goolsby on October 3, 1985. The requirement for both temporary basins was subsequently included on the approved infrastructure listing (DRB-85-4), dated January 14, 1986.

With construction to commence soon on the ADN channel, Basin 3 must now be eliminated and the approved drainage concept and right-of-way agreement must be modified. As a result of construction phasing within Vista Del Sol, Basins 1 and 2 may furnish sufficient storage. If needed, a new temporary basin may be built within the site as discussed with Billy Goolsby on February 27.

Use of excess ADN right-of-way is now restricted to Basin 2. This basin, with a spillway and discharge pipe, would be constructed by the Vista Del Sol contractor immediately after he lays the 8-in master-planned sewer in this same right-of-way. (Reference your letter of approval for the alignment of this sewer line, dated February 25, 1986.) Once the ADN channel and outfall have been completed past Sta. 23+00, and the Vista Del Sol channels (Infrastructure Items 7 and 8) have been completed, westerly flows will be directed into the ADN channel through the 48" RCP at Sta. 20+85. Then Basin 2 will be filled by the Vista Del Sol contractor.

As we discussed earlier, we need your written approval on behalf of the City Engineer/Hydrology for the use of the excess Amole Del Norte right-of-way for this temporary detention basin. Please indicate your approval below and return a signed copy for our file, and I will make disribution to Fred Aguirre's office.

Please call if you need any additional information.

Sincerely,

BOYLE ENGINEERING CORPORATION

Thornton D. Schwenk

Thornton D. Schwenk, P.E.
Senior Civil Engineer II

I, Jim Fink, do hereby acknowledge and accept this agreement for use of excess Amole Del Norte right-of-way as shown on the Project 2796 drawings (Phase O-3, Sheet 5). Excavation, maintenance and subsequent filling of this basin must be accomplished by the developer's contractor at no cost to the City.

Jim Fink — 3/7/86

Jim Fink, Planning & Programming Hydrologist — Date

A P P E N D I X

D R A I N G E C A L C U L A T I O N S

HYMO ANALYSIS OF 100-YEAR DEVELOPED CONDITIONS

AMOLE DEL NORTE WATERSHED

Reference: "Investigation Phase Report for the Re-Evaluation Study of the Amole Del Norte Storm Diversion Facility", Project No. 1814, prepared by Boyle Engineering Corporation, July 30, 1984.

```
*
*       BASIN NO 37D
*
COMPUTE HYD                 ID=2
                            HYD NO=137
                            DT=.02
                            DA=.160
                            CN=77
                            K=-.17
                            TP=-.33
                            MASS RAINFL=-1.
     SHAPE CONSTANT, N =  7.642
     UNIT PEAK =       267.1CFS

PRINT HYD                   ID=2        CODE=10

                      HYDROGRAPH NUMBER  137

      TIME        FLOW            TIME        FLOW            TIME        FLOW
       HRS         CFS             HRS         CFS             HRS         CFS
     0.000          0.            2.000          7.            4.000          3.
     0.200         24.            2.200          6.            4.200          3.
     0.400         64.            2.400          6.            4.400          3.
     0.600         39.            2.600          5.            4.600          3.
     0.800         23.            2.800          5.            4.800          3.
     1.000         17.            3.000          4.            5.000          3.
     1.200         14.            3.200          4.            5.200          2.
     1.400         11.            3.400          4.            5.400          2.
     1.600          9.            3.600          3.            5.600          2.
     1.800          8.            3.800          3.            5.800          2.

     RUNOFF VOLUME =        4.665 ACRE-FT
     PEAK DISCHARGE RATE =        65.0 CFS
     PEAK OCCURRED AT  0.38 HRS.
```

HYMO ANALYSIS OF 100-YEAR DEVELOPED CONDITIONS

AMOLE DEL NORTE WATERSHED

Reference: "Investigation Phase Report for the Re-Evaluation Study of the Amole Del Norte Storm Diversion Facility", Project No. 1814, prepared by Boyle Engineering Corporation, July 30, 1984.

```
*
*        BASIN NO 39D
*
COMPUTE HYD                 ID=3
                            HYD NO=139
                            DT=.02
                            DA=.082
                            CN=77
                            K=-.13
                            TP=-.27
                            MASS RAINFL=-1.
     SHAPE CONSTANT, N =   8.353
     UNIT PEAK =        176.8CFS

PRINT HYD                   ID=3        CODE=10

                      HYDROGRAPH NUMBER  139
```

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.	2.000	3.	4.000	2.
0.200	24.	2.200	3.	4.200	1.
0.400	32.	2.400	3.	4.400	1.
0.600	16.	2.600	2.	4.600	1.
0.800	10.	2.800	2.	4.800	1.
1.000	8.	3.000	2.	5.000	1.
1.200	6.	3.200	2.	5.200	1.
1.400	5.	3.400	2.	5.400	1.
1.600	4.	3.600	2.	5.600	1.
1.800	4.	3.800	2.	5.800	1.

```
     RUNOFF VOLUME =        2.395 ACRE-FT
     PEAK DISCHARGE RATE =        40.5 CFS
     PEAK OCCURRED AT  0.30 HRS.
```

HYMO ANALYSIS OF 100-YEAR DEVELOPED CONDITIONS

AMOLE DEL NORTE WATERSHED

Reference: "Investigation Phase Report for the Re-Evaluation Study of the Amole Del Norte Storm Diversion Facility", Project No. 1814, prepared by Boyle Engineering Corporation, July 30, 1984.

```
*
*       BASIN NO 40D
*
COMPUTE HYD                 ID=6
                            HYD NO=140
                            DT=.02
                            DA=.101
                            CN=77
                            K=-.13
                            TP=-.27
                            MASS RAINFL=-1.
     SHAPE CONSTANT, N =     9.353
     UNIT PEAK =          217.8CFS

PRINT HYD                   ID=6        CODE=10
```

HYDROGRAPH NUMBER 140

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.	2.000	4.	4.000	2.
0.200	30.	2.200	3.	4.200	2.
0.400	40.	2.400	3.	4.400	2.
0.600	19.	2.600	3.	4.600	2.
0.800	13.	2.800	3.	4.800	2.
1.000	10.	3.000	3.	5.000	2.
1.200	8.	3.200	2.	5.200	1.
1.400	6.	3.400	2.	5.400	1.
1.600	5.	3.600	2.	5.600	1.
1.800	5.	3.800	2.	5.800	1.

```
RUNOFF VOLUME =          2.954 ACRE-FT
PEAK DISCHARGE RATE =          49.9 CFS
PEAK OCCURRED AT  0.30 HRS.
```

HYMO ANALYSIS OF 100-YEAR DEVELOPED CONDITIONS

AMOLE DEL NORTE WATERSHED

Reference: "Investigation Phase Report for the Re-Evaluation Study of the Amole Del Norte Storm Diversion Facility", Project No. 1814, prepared by Boyle Engineering Corporation, July 30, 1984.

```
*
*       COMBINE HYDROS FROM AREAS 370 & 390
*
ADD HYD                 ID=4        HYD=139.1    ID I=3          ID I1=2
PRINT HYD               ID=4        CODE=10
```

HYDROGRAPH NUMBER 139.1

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.	2.000	10.	4.000	5.
0.200	48.	2.200	9.	4.200	4.
0.400	97.	2.400	8.	4.400	4.
0.600	54.	2.600	7.	4.600	4.
0.800	33.	2.800	7.	4.800	4.
1.000	25.	3.000	6.	5.000	4.
1.200	20.	3.200	6.	5.200	4.
1.400	16.	3.400	5.	5.400	4.
1.600	14.	3.600	5.	5.600	3.
1.800	12.	3.800	5.	5.800	3.

RUNOFF VOLUME = 7.060 ACRE-FT
PEAK DISCHARGE RATE = 102.2 CFS
PEAK OCCURRED AT 0.34 HRS.

```
*
*       ROUTE HYDRO 139.1 TO DOWNSTREAM END OF AREA 400
*       ASSUME OPEN CHANNEL
*
ROUTE                   ID=5        HYD=140.1    INFLOW ID=4     DT=.02
PRINT HYD               ID=5        CODE=10
```

HYDROGRAPH NUMBER 140.1

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.	2.000	11.	4.000	5.
0.200	14.	2.200	10.	4.200	5.
0.400	95.	2.400	9.	4.400	4.
0.600	64.	2.600	8.	4.600	4.
0.800	38.	2.800	7.	4.800	4.
1.000	27.	3.000	6.	5.000	4.
1.200	21.	3.200	6.	5.200	4.
1.400	18.	3.400	6.	5.400	4.
1.600	15.	3.600	5.	5.600	3.
1.800	12.	3.800	5.	5.800	3.

RUNOFF VOLUME = 6.994 ACRE-FT
PEAK DISCHARGE RATE = 95.0 CFS
PEAK OCCURRED AT 0.40 HRS.

HYMO ANALYSIS OF 100-YEAR DEVELOPED CONDITIONS

AMOLE DEL NORTE WATERSHED

Reference: "Investigation Phase Report for the Re-Evaluation Study of the Amole Del Norte Storm Diversion Facility", Project No. 1814, prepared by Boyle Engineering Corporation, July 30, 1984.

```
*
*       COMBINE HYDROS FROM AREA 40D & ROUTED AREAS 37D & 39D
*       RESULTING HYDRO ENTERS AMOLE DIVERSION CHANNEL APPROX
*       1100 FT NORTH OF BLAKE
*
ADD HYD                 ID=1        HYD=140.1    ID I=6          ID II=5
PRINT HYD               ID=1        CODE=10

                        HYDROGRAPH NUMBER  140.1

      TIME      FLOW          TIME      FLOW          TIME      FLOW
       HRS      CFS            HRS      CFS            HRS      CFS
      0.000      0.           2.000     15.           4.000      7.
      0.200     44.           2.200     13.           4.200      6.
      0.400    135.           2.400     12.           4.400      6.
      0.600     83.           2.600     10.           4.600      6.
      0.800     51.           2.800     10.           4.800      6.
      1.000     37.           3.000      9.           5.000      5.
      1.200     29.           3.200      8.           5.200      5.
      1.400     24.           3.400      8.           5.400      5.
      1.600     20.           3.600      7.           5.600      5.
      1.800     17.           3.800      7.           5.800      5.

      RUNOFF VOLUME =        9.948 ACRE-FT
      PEAK DISCHARGE RATE =        137.1 CFS
      PEAK OCCURRED AT   0.36 HRS.
```

HYDROGRAPH COMPUTATION WORKSHEET

DATE 7-86
COMPUTED BY MH
CHECK BY

PROJECT ROGER COX SUBDIVISION VISTA DEL SOL

LOCATION BASIN #1 BLAKE RD S.W. INTERSECTION @ PASEO

ANALYSIS POINT # DEL CANTO & BLAKE RD

(DR. AREA) A = 1.5 ACRES

T_c 10 MIN

POINT RAINFALL 2.2 IN. FROM PLATE 22.2 D-1

CN = 77 FROM PLATES 22.2 C-2, 22.2 C-3

RUNOFF VOLUME R = .56 IN. FROM PLATE 22.2 C-4

COMPUTED T_p = 10 MIN. $T_p = T_c$
(Rounded to even minute)

$q_p = \frac{45.4A}{T_p}$ = 6.81 CFS./INCH OF RUNOFF

$(R \times q_p) = Q_{peak}$ = 3.81 CFS

t(COLUMN)=(t/T_p) $t=T_p(t/T_p)$

$y = \frac{Q}{Q_{peak}}$ $Q = y(Q_{peak})$

$S = \frac{1000 - comp(10)}{comp}$

$R = \frac{(P-.2S)^2}{P+.8S}$

$t_c = .0078 \frac{L^{1.155}}{O^{.385}}$

	(t/T_p)	t (min.)	y	Q (cfs)
1	0	0	0	0
2	.1	1	.03	.11
3	.2	2	.10	.38
4	.3	3	.190	.72
5	.4	4	.310	1.18
6	.5	5	.470	1.79
7	.6	6	.660	2.51
8	.7	7	.820	3.12
9	.8	8	.930	3.54
10	.9	9	.990	3.77
11	1.0	10	1.00	3.81
12	1.1	11	.990	3.77
13	1.2	12	.930	3.54
14	1.3	13	.860	3.27
15	1.4	14	.780	2.97
16	1.5	15	.680	2.59
17	1.6	16	.560	2.13
18	1.7	17	.480	1.25
19	1.8	18	.390	1.49
20	1.9	19	.330	1.26
21	2.0	20	.280	1.01
22	2.2	22	.207	.79
23	2.4	24	.147	.56
24	2.6	26	.107	.41
25	2.8	28	.077	.29
26	3.0	30	.055	.21
27	3.2	32	.040	.15
28	3.4	34	.029	.11
29	3.6	36	.021	.08
30	3.8	38	.015	.06
31	4.0	40	.011	.04
32	4.5	45	.005	.02
33	5.0	50	.000	0

PLATE 22.2 F-1

HYDROGRAPH COMPUTATION WORKSHEET

DATE 7-86
COMPUTED BY MA
CHECK BY

PROJECT ROGER COX SUBDIVISION
VISTA DEL SOL

LOCATION BASIN #2
INTERSECTION @ 10TH & 4TH

ANALYSIS POINT # TABLE 22

(DR. AREA) A = 4.1 ACRES

T_c 10 MIN

POINT RAINFALL 2.2 IN. FROM PLATE 22.2 D-1

CN = 77 FROM PLATES 22.2 C-2, 22.2 C-3

RUNOFF VOLUME R = .56 IN. FROM PLATE 22.2 C-4

COMPUTED T_p = 10 MIN. $T_p = T_c$
(Rounded to even minute)

$q_p = \frac{45.4A}{T_p}$ = 18.6 CFS./INCH OF RUNOFF

$(R \times q_p) = Q_{peak}$ = 10.42 CFS

t(COLUMN)=(t/T_p) $t=T_p(t/T_p)$

$y = \frac{Q}{Q_{peak}}$ $Q = y(Q_{peak})$

$S = \frac{1000 - comp(10)}{comp}$

$R = \frac{(P-.2S)^2}{P+.8S}$

$t_c = .0078 \frac{L^{1.155}}{D^{.385}}$

	(t/T_p)	t (min.)	y	Q (cfs)
1	0	0	0	0
2	.1	1	.03	.31
3	.2	2	.10	1.04
4	.3	3	.190	1.98
5	.4	4	.310	3.23
6	.5	5	.470	4.90
7	.6	6	.660	6.88
8	.7	7	.820	8.54
9	.8	8	.930	9.69
10	.9	9	.990	10.32
11	1.0	10	1.00	10.42
12	1.1	11	.990	10.32
13	1.2	12	.930	9.69
14	1.3	13	.860	8.96
15	1.4	14	.780	8.12
16	1.5	15	.680	7.09
17	1.6	16	.560	5.84
18	1.7	17	.460	4.79
19	1.8	18	.390	4.06
20	1.9	19	.330	3.44
21	2.0	20	.280	2.92
22	2.2	22	.207	2.16
23	2.4	24	.147	1.53
24	2.6	26	.107	1.15
25	2.8	28	.077	.80
26	3.0	30	.055	.57
27	3.2	32	.040	.42
28	3.4	34	.029	.30
29	3.6	36	.021	.22
30	3.8	38	.015	.16
31	4.0	40	.011	.11
32	4.5	45	.005	.05
33	5.0	50	.000	0

PLATE 22.2 F-1

HYDROGRAPH COMPUTATION WORKSHEET

DATE 7-86
COMPUTED BY [illegible]
CHECK BY

PROJECT ROGER LOY SUBDIVISION
VISTA DEL SOL

LOCATION [illegible] #3

ANALYSIS POINT # SE corner of BASIN #3

(DR. AREA) A = 5.6 ACRES

T_c 16 MIN

POINT RAINFALL 2.2 IN. FROM PLATE 22.2 D-1

CN = 77 FROM PLATES 22.2 C-2, 22.2 C-3

RUNOFF VOLUME R = .86 IN. FROM PLATE 22.2 C-4

COMPUTED T_p = 16 MIN. $T_p = T_c$
(Rounded to even minute)

$q_p = \frac{45.4A}{T_p}$ = 15.99 CFS./INCH OF RUNOFF

$(R \times q_p) = Q_{peak}$ = 8.90 CFS

t(COLUMN)=(t/T_p) $t=T_p(t/T_p)$

$y = \frac{Q}{Q_{peak}}$ $Q = y(Q_{peak})$

$S = \frac{1000 - CN(10)}{CN}$

$R = \frac{(P-.25)^2}{P+.85}$

$t_c = .0078 \frac{L^{1.155}}{C^{.385}}$

	(t/T_p)	t (min.)	y	Q (cfs)
1	0	0	0	0
2	.1	1.6	.03	.27
3	.2	3.2	.10	.89
4	.3	4.8	.190	1.69
5	.4	6.4	.310	2.76
6	.5	8.0	.470	4.18
7	.6	9.6	.660	5.87
8	.7	11.2	.820	7.30
9	.8	12.8	.930	8.28
10	.9	14.4	.990	8.81
11	1.0	16	1.00	8.90
12	1.1	17.6	.990	8.81
13	1.2	19.2	.930	8.28
14	1.3	20.8	.860	7.65
15	1.4	22.40	.780	6.94
16	1.5	24.0	.680	6.05
17	1.6	25.6	.560	4.98
18	1.7	27.2	.460	4.09
19	1.8	28.8	.390	3.47
20	1.9	30.4	.330	2.94
21	2.0	32.0	.280	2.49
22	2.2	35.2	.207	1.84
23	2.4	38.4	.147	1.31
24	2.6	41.6	.107	.95
25	2.8	44.8	.077	.69
26	3.0	48	.055	.49
27	3.2	51.2	.040	.36
28	3.4	54.4	.029	.26
29	3.6	57.6	.021	.19
30	3.8	60.8	.015	.13
31	4.0	64.0	.011	.10
32	4.5	72	.005	.04
33	5.0	80	.000	0

PLATE 22.2 F-1

HYDROGRAPH COMPUTATION WORKSHEET

DATE 7-86
COMPUTED BY [illegible]
CHECK BY

PROJECT ROGER COX SUBDIVISION
VISTA DEL SOL

LOCATION BASIN #4

ANALYSIS POINT # South Basin Boundary of #4

(DR. AREA) A = 3.1 ACRES

T_c 10 MIN

POINT RAINFALL 2.2 IN. FROM PLATE 22.2 D-1

CN = 77 FROM PLATES 22.2 C-2, 22.2 C-3

RUNOFF VOLUME R = .56 IN. FROM PLATE 22.2 C-4

COMPUTED T_p = 10 MIN. $T_p = T_c$
(Rounded to even minute)

$q_p = \frac{45.4A}{T_p}$ = 14.09 CFS./INCH OF RUNOFF

$(R \times q_p) = Q_{peak}$ = 7.88 CFS

t(COLUMN)=(t/T_p) $t=T_p(t/T_p)$

$y = \frac{Q}{Q_{peak}}$ $Q = y(Q_{peak})$

$S = \frac{1000 - comp(10)}{comp}$

$R = \frac{(P-.2S)^2}{P+.8S}$

$t_c = .0078 \frac{L^{1.155}}{D^{.385}}$

	(t/T_p)	t (min.)	y	Q (cfs)
1	0	0	0	0
2	.1	1	.03	.24
3	.2	2	.10	.79
4	.3	3	.190	1.50
5	.4	4	.310	2.44
6	.5	5	.470	3.70
7	.6	6	.660	5.20
8	.7	7	.820	6.46
9	.8	8	.930	7.32
10	.9	9	.990	7.80
11	1.0	10	1.00	7.88
12	1.1	11	.990	7.80
13	1.2	12	.930	7.33
14	1.3	13	.860	6.78
15	1.4	14	.780	6.15
16	1.5	15	.680	5.36
17	1.6	16	.590	4.65
18	1.7	17	.460	3.62
19	1.8	18	.390	3.07
20	1.9	19	.330	2.60
21	2.0	20	.280	2.21
22	2.2	22	.207	1.63
23	2.4	24	.147	1.16
24	2.6	26	.107	.84
25	2.8	28	.077	.61
26	3.0	30	.055	.44
27	3.2	32	.040	.32
28	3.4	34	.029	.23
29	3.6	36	.021	.17
30	3.8	38	.015	.12
31	4.0	40	.011	.09
32	4.5	45	.005	.04
33	5.0	50	.000	-0-

PLATE 22.2 F-1

HYDROGRAPH COMPUTATION WORKSHEET

DATE 7-86
COMPUTED BY [illegible]
CHECK BY

PROJECT ROGER COX SUBDIVISION
11STA CEL SOL

LOCATION BASIN #5

ANALYSIS POINT # STA 116+65

(DR. AREA) A = 9.0 ACRES

T_c 12 MIN

POINT RAINFALL 2.2 IN. FROM PLATE 22.2 D-1

CN = 77 FROM PLATES 22.2 C-2, 22.2 C-3

RUNOFF VOLUME R = .56 IN. FROM PLATE 22.2 C-4

COMPUTED T_p = 12 MIN. $T_p = T_c$
(Rounded to even minute)

$q_p = \frac{45.4A}{T_p}$ = 34.1 CFS./INCH OF RUNOFF

$(R \times q_p) = Q_{peak}$ = 19.1 CFS

t(COLUMN)=(t/T_p) $t=T_p(t/T_p)$

$y = \frac{Q}{Q_{peak}}$ $Q = y(Q_{peak})$

$S = \frac{1000 - comp(10)}{comp}$

$R = \frac{(P-.2S)^2}{P+.8S}$

$t_c = .0078 \frac{L^{1.155}}{p^{.385}}$

	(t/T_p)	t (min.)	y	Q (cfs)
1	0	0	0	0
2	.1	1.2	.03	.57
3	.2	2.4	.10	1.91
4	.3	3.6	.190	3.63
5	.4	4.8	.310	5.92
6	.5	6.0	.470	8.98
7	.6	7.2	.660	12.6
8	.7	8.4	.820	15.7
9	.8	9.6	.930	17.8
10	.9	10.8	.990	18.9
11	1.0	12.0	1.00	19.1
12	1.1	13.2	.990	18.9
13	1.2	14.4	.930	17.8
14	1.3	15.6	.860	16.4
15	1.4	16.8	.780	14.9
16	1.5	18.0	.680	13.[illegible]
17	1.6	19.2	.560	10.7
18	1.7	20.4	.480	9.2
19	1.8	21.6	.390	7.4
20	1.9	22.8	.330	6.3
21	2.0	24.0	.280	5.3
22	2.2	25.2	.207	4.0
23	2.4	26.4	.147	2.8
24	2.6		.107	
25	2.8		.077	
26	3.0		.055	
27	3.2		.040	
28	3.4		.029	
29	3.6		.021	
30	3.8		.015	
31	4.0		.011	
32	4.5		.005	
33	5.0		.000	

PLATE 22.2 F-1

HYDROGRAPH COMPUTATION WORKSHEET

DATE 7-86
COMPUTED BY [illegible]
CHECK BY

PROJECT ROGER ROY SUBDIVISION
VISTA DEL OJL

LOCATION BASIN #6

ANALYSIS POINT # STA 13+78.50

(DR. AREA) A = 18.9 ACRES

T_c 11.29 MIN

POINT RAINFALL 2.2 IN. FROM PLATE 22.2 D-1

CN = 77 FROM PLATES 22.2 C-2, 22.2 C-3

RUNOFF VOLUME R = .56 IN. FROM PLATE 22.2 C-4

COMPUTED T_p = 11 MIN. $T_p = T_c$
(Rounded to even minute)

$q_p = \frac{45.4A}{T_p}$ = 57.4 CFS./INCH OF RUNOFF

$(R \times q_p) = Q_{peak}$ = 32.1 CFS

t(COLUMN)=(t/T_p) $t=T_p(t/T_p)$

$y = \frac{Q}{Q_{peak}}$ $Q = y(Q_{peak})$

$S = \frac{1000 - comp(10)}{comp}$

$R = \frac{(P-.25)^2}{P+.85}$

$T_c = .0078 \frac{L^{1.155}}{D^{.385}}$

	(t/T_p)	t (min.)	y	Q (cfs)
1	0	0	0	0
2	.1	1.1	.03	.96
3	.2	2.2	.10	3.21
4	.3	3.3	.190	6.1
5	.4	4.4	.310	10.0
6	.5	5.5	.470	15.1
7	.6	6.6	.660	21.2
8	.7	7.7	.820	26.3
9	.8	8.8	.930	29.9
10	.9	9.9	.990	31.8
11	1.0	11	1.00	32.1
12	1.1	12.1	.990	31.8
13	1.2	13.2	.930	29.9
14	1.3	14.3	.860	27.6
15	1.4	15.4	.780	25.0
16	1.5	16.5	.680	21.8
17	1.6	17.6	.560	18
18	1.7	18.7	.460	14.8
19	1.8	19.8	.390	12.5
20	1.9	20.9	.330	10.6
21	2.0	22.0	.280	9.0
22	2.2	24.2	.207	6.6
23	2.4	26.4	.147	4.7
24	2.6	28.6	.107	3.4
25	2.8	30.8	.077	2.47
26	3.0		.055	
27	3.2		.040	
28	3.4		.029	
29	3.6		.021	
30	3.8		.015	
31	4.0		.011	
32	4.5		.005	
33	5.0		.000	

PLATE 22.2 F-1

HYDROGRAPH COMPUTATION WORKSHEET

DATE 7-86
COMPUTED BY [illegible]
CHECK BY

PROJECT ROGER COX SUBDIVISION
VISTA DEL SOL

LOCATION BASIN #7

ANALYSIS POINT # CTA 9-79

(DR. AREA) A = 10.5 ACRES

T_c 10.2 MIN

POINT RAINFALL 2.2 IN. FROM PLATE 22.2 D-1

CN = 77 FROM PLATES 22.2 C-2, 22.2 C-3

RUNOFF VOLUME R = .56 IN. FROM PLATE 22.2 C-4

COMPUTED T_p = 10 MIN. $T_p = T_c$
(Rounded to even minute)

$q_p = \frac{45.4A}{T_p}$ = 47.7 CFS./INCH OF RUNOFF

$(R \times q_p) = Q_{peak}$ = 26.7 CFS

t(COLUMN)=(t/T_p) $t=T_p(t/T_p)$

$y = \frac{Q}{Q_{peak}}$ $Q = y(Q_{peak})$

$S = \frac{1000 - comp(10)}{comp}$

$R = \frac{(P - .2S)^2}{P + .8S}$

$T_c = .0073 \frac{L^{1.155}}{D^{.385}}$

	(t/T_p)	t (min.)	y	Q (cfs)
1	0	0	0	0
2	.1	1	.03	.80
3	.2	2	.10	2.67
4	.3	3	.190	5.07
5	.4	4	.310	8.3
6	.5	5	.470	12.5
7	.6	6	.660	17.6
8	.7	7	.820	21.9
9	.8	8	.930	24.8
10	.9	9	.990	26.4
11	1.0	10	1.00	26.7
12	1.1	11	.990	26.4
13	1.2	12	.930	24.8
14	1.3	13	.860	23.0
15	1.4	14	.780	20.8
16	1.5	15	.680	18.2
17	1.6	16	.560	15.0
18	1.7	17	.460	12.28
19	1.8	18	.390	10.4
20	1.9	19	.330	8.81
21	2.0	20	.280	7.5
22	2.2	22	.207	5.5
23	2.4	24	.147	3.9
24	2.6	26	.107	2.86
25	2.8	28	.077	2.1
26	3.0		.055	
27	3.2		.040	
28	3.4		.029	
29	3.6		.021	
30	3.8		.015	
31	4.0		.011	
32	4.5		.005	
33	5.0		.000	

PLATE 22.2 F-1

HYDROGRAPH COMPUTATION WORKSHEET

DATE 7-86
COMPUTED BY MK
CHECK BY

PROJECT ROGER COX SUBDIVISION VISTA DEL SOL

LOCATION BASIN #8

ANALYSIS POINT # STA 4+20

(DR. AREA) A = 5.6 ACRES

T_c 10 MIN

POINT RAINFALL 2.2 IN. FROM PLATE 22.2 D-1

CN = 77 FROM PLATES 22.2 C-2, 22.2 C-3

RUNOFF VOLUME R = .56 IN. FROM PLATE 22.2 C-4

COMPUTED T_p = 10 MIN. $T_p = T_c$
(Rounded to even minute)

$q_p = \frac{45.4A}{T_p}$ = 25.42 CFS./INCH OF RUNOFF

$(R \times q_p) = Q_{peak}$ = 14.24 CFS

t(COLUMN)=(t/T_p) $t=T_p(t/T_p)$

$y = \frac{Q}{Q_{peak}}$ $Q = y(Q_{peak})$

$S = \frac{1000 - comp(10)}{comp}$

$R = \frac{(P - .25)^2}{P + .85}$

$T_c = .0078 \frac{L^{1.155}}{D^{.385}}$

	(t/T_p)	t (min.)	y	Q (cfs)
1	0	0	0	0
2	.1	1	.03	.43
3	.2	2	.10	1.42
4	.3	3	.190	2.71
5	.4	4	.310	4.41
6	.5	5	.470	6.69
7	.6	6	.660	9.40
8	.7	7	.820	11.68
9	.8	8	.930	13.24
10	.9	9	.990	14.10
11	1.0	10	1.00	14.24
12	1.1	11	.990	14.10
13	1.2	12	.930	13.24
14	1.3	13	.860	12.25
15	1.4	14	.780	11.11
16	1.5	15	.680	9.68
17	1.6	16	.560	7.97
18	1.7	17	.460	6.55
19	1.8	18	.390	5.55
20	1.9	19	.330	4.70
21	2.0	20	.280	3.99
22	2.2	22	.207	2.94
23	2.4	24	.147	2.09
24	2.6	26	.107	1.52
25	2.8	28	.077	1.10
26	3.0	30	.055	.78
27	3.2	32	.040	.57
28	3.4	34	.029	.41
29	3.6	36	.021	.30
30	3.8		.015	
31	4.0		.011	
32	4.5		.005	
33	5.0		.000	

PLATE 22.2 F-1

HYDROGRAPH COMPUTATION WORKSHEET

DATE 7-86
COMPUTED BY MH
CHECK BY

PROJECT ROGER COX SUBDIVISION VISTA DEL SOL

LOCATION BASIN #9

ANALYSIS POINT #

(DR. AREA) A = 5.7 ACRES

T_c 13 MIN

POINT RAINFALL 2.2 IN. FROM PLATE 22.2 D-1

CN = 79 FROM PLATES 22.2 C-2, 22.2 C-3

RUNOFF VOLUME R = .56 IN. FROM PLATE 22.2 C-4

COMPUTED T_p = 13 MIN. $T_p = T_c$
(Rounded to even minute)

$q_p = \frac{45.4A}{T_p}$ = 19.91 CFS./INCH OF RUNOFF

$(R \times q_p) = Q_{peak}$ = 11.15 CFS

t(COLUMN)=(t/T_p) $t=T_p(t/T_p)$

$y = \frac{Q}{Q_{peak}}$ $Q = y(Q_{peak})$

$S = \frac{1000 - CN(10)}{CN}$

$R = \frac{(P - .2S)^2}{P + .8S}$

$T_c = .0078 \frac{L^{1.155}}{D^{.385}}$

	(t/T_p)	t (min.)	y	Q (cfs)
1	0	0	0	0
2	.1	1.3	.03	.33
3	.2	2.6	.10	1.12
4	.3	3.9	.190	2.12
5	.4	5.2	.310	3.46
6	.5	6.5	.470	5.24
7	.6	7.8	.660	7.36
8	.7	9.1	.820	9.14
9	.8	10.4	.930	10.37
10	.9	11.7	.990	11.04
11	1.0	13.0	1.00	11.15
12	1.1	14.3	.990	11.04
13	1.2	15.6	.930	10.37
14	1.3	16.9	.860	9.59
15	1.4	18.2	.780	8.70
16	1.5	19.5	.680	7.58
17	1.6	20.8	.560	6.24
18	1.7	22.1	.460	5.13
19	1.8	23.4	.390	4.35
20	1.9	24.7	.330	3.68
21	2.0	26.0	.280	3.12
22	2.2	28.6	.207	2.31
23	2.4	31.2	.147	1.64
24	2.6	33.8	.107	1.19
25	2.8	36.4	.077	.86
26	3.0		.055	
27	3.2		.040	
28	3.4		.029	
29	3.6		.021	
30	3.8		.015	
31	4.0		.011	
32	4.5		.005	
33	5.0		.000	

PLATE 22.2 F-1

HYDROGRAPH COMPUTATION WORKSHEET

DATE 7-86
COMPUTED BY MT
CHECK BY

PROJECT ROGER COX SUBDIVISION
VISTA DEL SOL

LOCATION BASIN # 10

ANALYSIS POINT #

(DR. AREA) A = 11.1 ACRES

T_c 10 MIN

POINT RAINFALL 2.2 IN. FROM PLATE 22.2 D-1

CN = 77 FROM PLATES 22.2 C-2, 22.2 C-3

RUNOFF VOLUME R = .56 IN. FROM PLATE 22.2 C-4

COMPUTED T_p = 10 MIN. $T_p = T_c$
(Rounded to even minute)

$q_p = \frac{45.4A}{T_p}$ = 50.39 CFS./INCH OF RUNOFF

$(R \times q_p) = Q_{peak}$ = 28.22 CFS

t(COLUMN)=(t/T_p) $t=T_p(t/T_p)$

$y = \frac{Q}{Q_{peak}}$ $Q = y(Q_{peak})$

$S = \frac{1000 - (comp(10))}{comp}$

$R = \frac{(P - .25)^2}{P + .85}$

$T_c = \frac{.0078\,(L)^{1.155}}{D^{.385}}$

	(t/T_p)	t (min.)	y	Q (cfs)
1	0	0	0	0
2	.1	1	.03	.85
3	.2	2	.10	2.82
4	.3	3	.190	5.36
5	.4	4	.310	8.75
6	.5	5	.470	13.26
7	.6	6	.660	18.63
8	.7	7	.820	23.14
9	.8	8	.930	26.24
10	.9	9	.990	27.94
11	1.0	10	1.00	28.22
12	1.1	11	.990	27.94
13	1.2	12	.930	26.24
14	1.3	13	.860	24.27
15	1.4	14	.780	22.01
16	1.5	15	.680	19.19
17	1.6	16	.560	15.80
18	1.7	17	.460	12.98
19	1.8	18	.390	11.01
20	1.9	19	.330	9.31
21	2.0	20	.280	7.90
22	2.2	22	.207	5.84
23	2.4	24	.147	4.15
24	2.6	26	.107	3.02
25	2.8	28	.077	2.17
26	3.0	30	.055	1.58
27	3.2	32	.040	1.13
28	3.4		.029	
29	3.6		.021	
30	3.8		.015	
31	4.0		.011	
32	4.5		.005	
33	5.0		.000	

PLATE 22.2 F-1

HYDROGRAPH COMPUTATION WORKSHEET

DATE 7-86
COMPUTED BY [illegible]
CHECK BY

PROJECT ROGERS DRY SUBDIVISION

LOCATION BASIN [illegible] OF [illegible]

ANALYSIS POINT #: [illegible]

(DR. AREA) A = 24.8 ACRES

T_c 9 46 MIN

POINT RAINFALL 2.2 IN. FROM PLATE 22.2 D-1

CN = 60 FROM PLATES 22.2 C-2, 22.2 C-3

RUNOFF VOLUME R = .10 IN. FROM PLATE 22.2 C-4

COMPUTED T_p = 10 MIN. $T_p = T_c$
(Rounded to even minute)

$q_p = \frac{45.4A}{T_p}$ = 112.6 CFS./INCH OF RUNOFF

$(R \times q_p) = Q_{peak}$ = 11.3 CFS

$t(\text{COLUMN}) = (t/T_p)$ $t = T_p(t/T_p)$

$y = \frac{Q}{Q_{peak}}$ $Q = y(Q_{peak})$

	(t/T_p)	t (min.)	y	Q (cfs)
1	0	0	0	0
2	.1	1	.03	.34
3	.2	2	.10	1.13
4	.3	3	.190	2.15
5	.4	4	.310	3.50
6	.5	5	.470	5.3
7	.6	6	.660	7.5
8	.7	7	.820	9.3
9	.8	8	.930	10.5
10	.9	9	.990	11.2
11	1.0	10	1.00	11.3
12	1.1	11	.990	11.2
13	1.2	12	.930	10.5
14	1.3	13	.860	9.7
15	1.4	14	.780	8.8
16	1.5	15	.680	7.7
17	1.6	16	.580	6.6
18	1.7	17	.460	5.2
19	1.8	18	.390	4.4
20	1.9	19	.330	3.7
21	2.0	20	.280	3.2
22	2.2		.207	
23	2.4		.147	
24	2.6		.107	
25	2.8		.077	
26	3.0		.055	
27	3.2		.040	
28	3.4		.029	
29	3.6		.021	
30	3.8		.015	
31	4.0		.011	
32	4.5		.005	
33	5.0		.000	

PLATE 22.2 F-1

HYDROGRAPH COMPUTATION WORKSHEET

DATE 7-86
COMPUTED BY ML
CHECK BY

PROJECT [illegible]

LOCATION BASIN WEST OF PROPERTY line

ANALYSIS POINT # SW corner of Blake & property line

(DR. AREA) A = 5.25 ACRES

T_c 7.58 MIN

POINT RAINFALL 2.2 IN. FROM PLATE 22.2 D-1

CN = 60 FROM PLATES 22.2 C-2, 22.2 C-3

RUNOFF VOLUME R = .10 IN. FROM PLATE 22.2 C-4

COMPUTED T_p = 10 MIN. $T_p = T_c$
(Rounded to even minute)

$q_p = \frac{45.4A}{T_p}$ = 23.9 CFS./INCH OF RUNOFF

$(R \times q_p) = Q_{peak}$ = 2.39 CFS

t(COLUMN)=(t/T_p) ; $t=T_p(t/T_p)$

$y = \frac{Q}{Q_{peak}}$ $Q = y(Q_{peak})$

	(t/T_p)	t (min.)	y	Q (cfs)
1	0	0	0	0
2	.1	1	.03	.07
3	.2	2	.10	.24
4	.3	3	.190	.45
5	.4	4	.310	.94
6	.5	5	.470	1.1
7	.6	6	.660	1.6
8	.7	7	.820	2.0
9	.8	8	.930	2.2
10	.9	9	.990	2.36
11	1.0	10	1.00	2.39
12	1.1	11	.990	2.36
13	1.2	12	.930	2.2
14	1.3	13	.860	2.1
15	1.4	14	.780	1.9
16	1.5	15	.680	1.6
17	1.6	16	.560	1.3
18	1.7	17	.460	1.1
19	1.8	18	.390	.93
20	1.9	19	.330	.79
21	2.0	20	.280	.67
22	2.2		.207	
23	2.4		.147	
24	2.6		.107	
25	2.8		.077	
26	3.0		.055	
27	3.2		.040	
28	3.4		.029	
29	3.6		.021	
30	3.8		.015	
31	4.0		.011	
32	4.5		.005	
33	5.0		.000	

PLATE 22.2 F-1

RUNOFF DATA
SUMMARY TABLE

BASIN NO.	L (Ft.)	D (Ft.)	TC * (Min.)	S %	R (In.)	A (Acres)	QP (cfs/in)	QP (cfs)	Tp'* (Min.)	Q'* (cfs)
1	650	6	10	.92	.56	1.5	6.81	3.81		
2	1000	16	10	1.6	.56	4.1	18.6	10.42		
3	1850	15	16	.81	.56	5.6	15.89	8.90	21.2	7.30
4	600	6	10	1.0	.56	3.1	14.07	7.88	21.2	1.86
5	1600	20	12	1.3	.56	9.0	34.1	19.1	21.6	7.4
6	1550	23	11	1.5	.56	13.9	57.4	32.1	21.9	9.14
7	1200	14	10	1.1	.56	10.5	47.7	26.7	22.4	5.18
8	900	10	10	1.1	.56	5.6	25.42	14.24	23.0	2.52
9	1800	26	13	1.4	.56	5.7	19.91	11.15		
10	1150	13	10	1.1	.56	11.1	50.39	28.22		

* Round to nearest minute, must be 10 or greater Tc
Tp' - Time to Peak from each offsite flow to Catch Basin
Qp' - Flow at Tp' from Hydrograph Computation Worksheet
Flows added into 42 inch Storm Drain

LAWSPG ANALYSIS

LOS ANGELES COUNTY

FLOOD CONTROL DISTRICT

WATER SURFACE & PRESSURE GRADIENT PROGRAM

INPUT/OUTPUT

```
( 1)INVALID COMMAND
**LL
  1
  2      T1  VISTA DEL SOL MOBLE HOME PARK
  3      T2   42" STORM DRAIN
  4      T3   STA. 0+04 TO STA. 26+90
  5      SO  4 4986.58 4 4996.0
  6      JX  220.8 4986.75 4 4 0 .013 1691 0 4987.1 0 .1 0
  7      R   244.8 4987.10 4 .013 0 0 44.88
  8      WX  0 0 1
  9      R   374.7 4992.95 1 .013
 10      R   416 4993.74 1 .013 0 0 28.43 1
 11      JX  424 4993.9 1 3 0 .013 2.52  0 4994.80 0 45 0
 12      R   470 4994.78 1 .013
 13      TS  474 4994.90 2 .013
 14      R   977 5004.11 2 .013 0 0 30 2
 15      JX  981 5004.18 2 3 0 .013 5.18   0 5004.90 0 45 0
 16      R   1000 5004.53 2 .013
 17      R   1280 5008.79 2 .013 0 0 0 1
 18      R   1384 5011.08 2 .013
 19      JX  1392 5011.25 2 3 0 .013 9.14  0 5011.93 0 45 0
 20      R   1661 5017.17 2 .013
 21      JX  1669 5017.34 2 5 0 .013 7.4  0 5018.26 0 45 0
 22      R   1700 5018.03 2 .013 0 0 0 1
 23      R   1895.71 5023.10 2 .013 0 0 0 1
 24      R   2013 5025.12 2 .013
 25      JX  2021 5025.26 2 0 3 .013 0 9.16 0 5025.95 0 30
 26      R   2311.05 5030.24 2 .013 0 0 0 1
 27      R   2690 5037.97 2 .013
 28      WE  0 0 6 0.20
 29      TS  2699.16 5038.15 7
 29.1    SH 0 0 7
 30      CD 1 4 4
 31      CD 2 4 3.5
 32      CD 3 4 2
 33      CD 4 1 0 0 10 10 2 2
 34      CD 5 4 1.5
 35      CD 6 2 0 0 6.5 6.0
 35.1    CD 7 2 0 0 6.5 16.0
 36
 37
 38      Q 102
**E
/E

END OF PROGRAM
:
```

```
UNKNOWN COMMAND NAME.  (CIERR 975)
:FILE FTN05=VDS42SD,OLD
:RUN LAWSPGF.PUB.ENG
```

PROGRAM F0515A INPUT FILE LISTING

```
T1  VISTA DEL SOL MOBLE HOME PARK                                    00002000
T2   42" STORM DRAIN                                                 00003000
T3   STA. 0+04 TO STA. 26+90                                         00004000
SO  4 4986.58 4 4996.0                                               00005000
JX  220.8 4986.75 4 4 0 .013 1691 0 4987.1 0 .1 0                    00006000
R   244.8 4987.10 4 .013 0 0 44.88                                   00007000
WX  0 0 1                                                            00008000
R   374.7 4992.95 1 .013                                             00009000
R   416 4993.74 1 .013 0 0 28.43 1                                   00010000
JX  424 4993.9 1 3 0 .013 2.52  0 4994.80 0 45 0                     00011000
R   470 4994.78 1 .013                                               00012000
TS  474 4994.90 2 .013                                               00013000
R   977 5004.11 2 .013 0 0 30 2                                      00014000
JX  981 5004.18 2 3 0 .013 5.18   0 5004.90 0 45 0                   00015000
R   1000 5004.53 2 .013                                              00016000
R   1280 5008.79 2 .013 0 0 0 1                                      00017000
R   1384 5011.08 2 .013                                              00018000
JX  1392 5011.25 2 3 0 .013 9.14  0 5011.93 0 45 0                   00019000
R   1661 5017.17 2 .013                                              00020000
JX  1669 5017.34 2 5 0 .013 7.4   0 5018.26 0 45 0                   00021000
R   1700 5018.03 2 .013 0 0 0 1                                      00022000
R   1895.71 5023.10 2 .013 0 0 0 1                                   00023000
R   2013 5025.12 2 .013                                              00024000
JX  2021 5025.26 2 0 3 .013 0 9.16 0 5025.95 0 30                    00025000
R   2311.05 5030.24 2 .013 0 0 0 1                                   00026000
R   2690 5037.97 2 .013                                              00027000
WE  0 0 6 0.20                                                       00028000
TS  2699.16 5038.15 7                                                00029000
SH 0 0 7                                                             00029100
```

F051GP

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

CARD CODE	SECT NO	CHN TYPE	NO OF PILRS	AVE PIER WIDTH	HEIGHT 1 DIAMETER	BASE WIDTH	ZL	ZR	INV DROP	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4			4.00														
CD	2	4			3.50														
CD	3	4			2.00														
CD	4	1	0	.00	10.00	10.00	2.00	2.00	.00										
CD	5	4			1.50														
CD	6	2	0	.00	6.50	6.00			.00										
CD	7	2	0	.00	6.50	16.00			.00										

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

VISTA DEL SOL MOBLE HOME PARK 00002

HEADING LINE NO 2 IS -

42" STORM DRAIN 00003

HEADING LINE NO 3 IS -

STA. 0+04 TO STA. 26+90 00004

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 1 IS A SYSTEM OUTLET

U/S DATA	STATION	INVERT	SECT	W S ELEV
	4.00	4986.58	4	4996.00

ELEMENT NO 2 IS A JUNCTION

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	220.80	4986.75	4	4	0	.013	1691.0	.0	4987.10	.00	.10	.00

ELEMENT NO 3 IS A REACH

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	244.80	4987.10	4	.013	.00	.00	44.88	0

ELEMENT NO 4 IS A WALL EXIT

U/S DATA	STATION	INVERT	SECT
	244.80	4987.10	1

ELEMENT NO 5 IS A REACH

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	374.70	4992.95	1	.013	.00	.00	.00	0

ELEMENT NO 6 IS A REACH

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	416.00	4993.74	1	.013	.00	.00	28.43	1

ELEMENT NO 7 IS A JUNCTION

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	424.00	4993.90	1	3	0	.013	2.5	.0	4994.80	.00	45.00	.00

ELEMENT NO 8 IS A REACH

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	470.00	4994.78	1	.013	.00	.00	.00	0

ELEMENT NO 9 IS A TRANSITION

U/S DATA	STATION	INVERT	SECT	N
	474.00	4994.90	2	.013

ELEMENT NO 10 IS A REACH

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	977.00	5004.11	2	.013	.00	.00	30.00	2

ELEMENT NO 11 IS A JUNCTION

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	981.00	5004.18	2	3	0	.013	5.2	.0	5004.90	.00	45.00	.00

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO 12 IS A REACH

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1000.00	5004.53	2	.013	.00	.00	.00	0

ELEMENT NO 13 IS A REACH

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1280.00	5008.79	2	.013	.00	.00	.00	1

ELEMENT NO 14 IS A REACH

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1384.00	5011.00	2	.013	.00	.00	.00	0

ELEMENT NO 15 IS A JUNCTION

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1392.00	5011.25	2	3	0	.013	9.1	.0	5011.93	.00	45.00	.00

ELEMENT NO 16 IS A REACH

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1661.00	5017.17	2	.013	.00	.00	.00	0

ELEMENT NO 17 IS A JUNCTION

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	1669.00	5017.34	2	5	0	.013	7.4	.0	5018.26	.00	45.00	.00

ELEMENT NO 18 IS A REACH

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1700.00	5018.03	2	.013	.00	.00	.00	1

ELEMENT NO 19 IS A REACH

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	1895.71	5023.10	2	.013	.00	.00	.00	1

ELEMENT NO 20 IS A REACH

U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	2013.00	5025.12	2	.013	.00	.00	.00	0

ELEMENT NO 21 IS A JUNCTION

U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
	2021.00	5025.26	2	0	3	.013	.0	9.2	.00	5025.95	.00	30.00

WATER SURFACE PROFILE - ELEMENT CARD LISTING

```
ELEMENT NO  22 IS A REACH              *          *      *
               U/S DATA   STATION     INVERT   SECT                N                                  RADIUS  ANGLE  ANG PT  MAN H
                          2311.05 5030.24     2                 .013                                    .00     .00     .00      1

ELEMENT NO  23 IS A REACH              *          *      *
               U/S DATA   STATION     INVERT   SECT                N                                  RADIUS  ANGLE  ANG PT  MAN H
                          2690.00 5037.97     2                 .013                                    .00     .00     .00      0

ELEMENT NO  24 IS A  WALL  ENTRANCE                           *
               U/S DATA   STATION     INVERT   SECT               FP
                          2690.00 5037.97     6                 .200

ELEMENT NO  25 IS A TRANSITION         *          *      *
               U/S DATA   STATION     INVERT   SECT                N
                          2699.16 5038.15     7                 .014

ELEMENT NO  26 IS A SYSTEM HEADWORKS                          *                        *
               U/S DATA   STATION     INVERT   SECT                                                W S ELEV
                          2699.16 5038.15     7                                                      .00
NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING
** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKDS, W.S.ELEV = INV + .DC
```

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH		HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
L/ELEM	SO					SF AVE	HF			NORM DEPTH			ZR		
4.00	4986.58	9.420	4996.000	1026.4	6.72	.702	4996.702	.00	6.683		10.00	10.00	2.00	0	.00
JUNCT STR	.00078					.000192	.04						2.00		
220.00	4986.75	9.991	4996.741	135.4	.45	.003	4996.744	.00	1.596		10.00	10.00	2.00	0	.00
19.33	.01458					.000002	.00			.957			2.00		
240.13	4987.03	9.708	4996.740	135.4	.47	.003	4996.743	.00	1.596		10.00	10.00	2.00	0	.00
4.67	.01458					.000002	.00			.957			2.00		
244.80	4987.10	9.640	4996.740	135.4	.48	.004	4996.744	.00	1.596		10.00	10.00	2.00	0	.00
WALL EXIT													2.00		
244.80	4987.10	9.641	4996.741	135.4	10.78	1.803	4998.544	.00	3.467		4.00	.00	.00	0	.00
129.90	.04504					.008885	1.15			1.867			.00		
374.70	4992.95	4.945	4997.895	135.4	10.78	1.803	4999.698	.00	3.467		4.00	.00	.00	0	.00
41.30	.01913					.008885	.37			2.422			.00		
416.00	4993.74	4.781	4998.521	135.4	10.78	1.803	5000.324	.00	3.467		4.00	.00	.00	0	.00
JUNCT STR	.02000					.008723	.07						.00		
424.00	4993.90	4.820	4998.720	132.9	10.58	1.737	5000.457	.00	3.442		4.00	.00	.00	0	.00
8.45	.01913					.008560	.07			2.393			.00		
432.45	4994.06	4.728	4998.790	132.9	10.58	1.737	5000.527	.00	3.442		4.00	.00	.00	0	.00
HYDRAULIC JUMP													.00		
432.45	4994.06	2.395	4996.457	132.9	16.92	4.447	5000.904	.00	3.442		4.00	.00	.00	0	.00
37.55	.01913					.019073	.72			2.393			.00		
470.00	4994.78	2.396	4997.176	132.9	16.91	4.443	5001.619	.00	3.442		4.00	.00	.00	0	.00
TRANS STR	.03000					.018694	.07						.00		

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH		HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
L/ELEM	SO					SF AVE	HF			NORM DEPTH			ZR		
474.00	4994.90	2.795	4997.695	132.9	16.13	4.042	5001.737	.00	3.323		3.50	.00	.00	0	.00
120.26	.01831					.018327	2.20			2.795			.00		
594.26	4997.10	2.795	4999.897	132.9	16.13	4.042	5003.939	.00	3.323		3.50	.00	.00	0	.00
274.21	.01831					.017620	4.83			2.795			.00		
868.47	5002.12	2.921	5005.044	132.9	15.49	3.726	5008.770	.00	3.323		3.50	.00	.00	0	.00
81.67	.01831					.016268	1.33			2.795			.00		
950.14	5003.62	3.093	5006.711	132.9	14.77	3.387	5010.098	.00	3.323		3.50	.00	.00	0	.00
26.86	.01831					.015367	.41			2.795			.00		
977.00	5004.11	3.323	5007.433	132.9	14.08	3.079	5010.512	.00	3.323		3.50	.00	.00	0	.00
JUNCT STR	.01750					.015610	.06						.00		
981.00	5004.18	3.871	5008.051	127.7	13.27	2.736	5010.787	.00	3.297		3.50	.00	.00	0	.00
19.00	.01842					.016110	.31			2.683			.00		
1000.00	5004.53	3.827	5008.357	127.7	13.27	2.736	5011.093	.00	3.297		3.50	.00	.00	0	.00
280.00	.01521					.016110	4.51			2.970			.00		
1280.00	5008.79	4.214	5013.004	127.7	13.27	2.736	5015.740	.00	3.297		3.50	.00	.00	0	.00
67.01	.02202					.016110	1.08			2.490			.00		
1347.01	5010.27	3.816	5014.082	127.7	13.27	2.736	5016.818	.00	3.297		3.50	.00	.00	0	.00
HYDRAULIC JUMP													.00		
1347.01	5010.27	2.749	5013.015	127.7	15.75	3.853	5016.868	.00	3.297		3.50	.00	.00	0	.00
36.99	.02202					.016744	.62			2.490			.00		
1384.00	5011.08	2.881	5013.961	127.7	15.07	3.527	5017.488	.00	3.297		3.50	.00	.00	0	.00
JUNCT STR	.02125					.018807	.15						.00		

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH		HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVWPR
L/ELEM	SO					SF AVE	HF			NORM DEPTH			ZR		
1392.00	5011.25	2.372	5013.622	118.6	17.09	4.535	5018.157	.00	3.239		3.50	.00	.00	0	.00
161.38	.02201					.021038	3.40			2.356			.00		
1553.38	5014.80	2.421	5017.223	118.6	16.70	4.332	5021.555	.00	3.239		3.50	.00	.00	0	.00
107.62	.02201					.019359	2.08			2.356			.00		
1661.00	5017.17	2.530	5019.700	118.6	15.93	3.938	5023.638	.00	3.239		3.50	.00	.00	0	.00
JUNCT STR	.02125					.020834	.17						.00		
1669.00	5017.34	2.204	5019.544	111.2	17.42	4.714	5024.258	.00	3.181		3.50	.00	.00	0	.00
31.00	.02226					.023562	.73			2.242			.00		
1700.00	5018.03	2.194	5020.224	111.2	17.52	4.765	5024.989	.00	3.181		3.50	.00	.00	0	.00
85.26	.02591					.022630	1.93			2.130			.00		
1785.26	5020.24	2.268	5022.507	111.2	16.86	4.412	5026.919	.00	3.181		3.50	.00	.00	0	.00
54.66	.02591					.020343	1.11			2.130			.00		
1839.92	5021.65	2.365	5024.020	111.2	16.07	4.011	5028.031	.00	3.181		3.50	.00	.00	0	.00
33.41	.02591					.018106	.60			2.130			.00		
1873.33	5022.52	2.469	5024.989	111.2	15.32	3.646	5028.635	.00	3.181		3.50	.00	.00	0	.00
22.38	.02591					.016166	.36			2.130			.00		
1895.71	5023.10	2.583	5025.683	111.2	14.61	3.315	5028.998	.00	3.181		3.50	.00	.00	0	.00
12.43	.01722					.015160	.19			2.460			.00		
1908.14	5023.31	2.598	5025.912	111.2	14.52	3.274	5029.186	.00	3.181		3.50	.00	.00	0	.00
58.97	.01722					.014294	.84			2.460			.00		
1967.11	5024.33	2.723	5027.053	111.2	13.84	2.976	5030.029	.00	3.181		3.50	.00	.00	0	.00
30.42	.01722					.012898	.39			2.460			.00		

STATION / L/ELEM	INVERT - ELEV / SO	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD / SF AVE	ENERGY GRD.EL. / HF	SUPER ELEV	CRITICAL DEPTH	NORM DEPTH	HGT/ DIA	BASE/ ID NO.	ZL / ZR	NO PIER	AVBPR
1997.53	5024.85	2.862	5027.716	111.2	13.20	2.706	5030.422	.00	3.181		3.50	.00	.00	0	.00
15.47	.01722					.011752	.18			2.460			.00		
2013.00	5025.12	3.023	5028.143	111.2	12.59	2.460	5030.603	.00	3.181		3.50	.00	.00	0	.00
JUNCT STR	.01750					.014299	.11						.00		
2021.00	5025.26	2.303	5027.563	102.0	15.19	3.585	5031.148	.00	3.091		3.50	.00	.00	0	.00
134.98	.01717					.017581	2.37			2.311			.00		
2155.98	5027.58	2.281	5029.859	102.0	15.35	3.661	5033.520	.00	3.091		3.50	.00	.00	0	.00
155.07	.01717					.018942	2.94			2.311			.00		
2311.05	5030.24	2.190	5032.430	102.0	16.11	4.028	5036.458	.00	3.091		3.50	.00	.00	0	.00
136.95	.02040					.019661	2.69			2.177			.00		
2448.00	5033.03	2.221	5035.255	102.0	15.84	3.895	5039.150	.00	3.091		3.50	.00	.00	0	.00
116.73	.02040					.018170	2.12			2.177			.00		
2564.73	5035.41	2.315	5037.730	102.0	15.10	3.542	5041.272	.00	3.091		3.50	.00	.00	0	.00
52.26	.02040					.016151	.84			2.177			.00		
2616.99	5036.48	2.415	5038.896	102.0	14.40	3.219	5042.115	.00	3.091		3.50	.00	.00	0	.00
30.60	.02040					.014396	.44			2.177			.00		
2647.59	5037.11	2.524	5039.629	102.0	13.73	2.926	5042.555	.00	3.091		3.50	.00	.00	0	.00
19.69	.02040					.012879	.25			2.177			.00		
2667.28	5037.51	2.642	5040.149	102.0	13.09	2.661	5042.810	.00	3.091		3.50	.00	.00	0	.00
12.68	.02040					.011575	.15			2.177			.00		
2679.96	5037.77	2.772	5040.537	102.0	12.48	2.419	5042.956	.00	3.091		3.50	.00	.00	0	.00
7.45	.02040					.010476	.08			2.177			.00		

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH		HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
L/ELEM	SO					SF AVE	HF			NORM DEPTH			ZR		
2687.41	5037.92	2.918	5040.835	102.0	11.90	2.199	5043.034	.00	3.091		3.50	.00	.00	0	.00
2.59	.02040					.009595	.02			2.177			.00		
2690.00	5037.97	3.091	5041.061	102.0	11.34	1.998	5043.059	.00	3.091		3.50	.00	.00	0	.00
WALL ENTRANCE													.00		
2690.00	5037.97	6.633	5044.603	102.0	2.56	.102	5044.705	.00	2.079		6.50	6.00	.00	0	.00
TRANS STR	.01965					.000119	.00						.00		
2699.16	5038.15	6.551	5044.701	102.0	.97	.015	5044.716	.00	1.081		6.50	16.00	.00	0	.00

VISTO DEL SOL MOBILE HOME PARK
42" STORM DRAIN
STA. 0+04 TO STA. 26+90

```
                                                                                                                                  00002
                                                                                                                                  00003
                                                                                                                                  00004

   4.00   .I          C    WX                                                                                                  .
  32.37   .                                                                                                                    .    JX
  60.74   .                                                                                                                    .
  89.11   .                                                                                                                    .
 117.48   .                                                                                                                    .
 145.85   .                                                                                                                    .
 174.22   .                                                                                                                    .
 202.59   .                                                                                                                    .
 230.96   .I  C              X                                                                                                 .
 259.33   .I  C              X                                                                                                 .    R
 287.70   .IYYCYYYYYYYYYYYYXH                                                                                                  .    R
 316.07   .I     CH          W  E                                                                                              .    WX
 344.44   .                                                                                                                    .    R
 372.81   .                                                                                                                    .
 401.18   .          I     CH W  E                                                                                             .
 429.55   .            I     CHW  E                                                                                            .    R
 457.92   .            I     CHW  E                                                                                            .    JX
 486.29   .            I     CH W E                                                                                            .    R
 514.66   .            I   W CH    E                                                                                           .    R
 543.03   .              I   W X    E                                                                                          .    R
 571.40   .              I    WX     E                                                                                         .    TX
 599.77   .                  I   WCH    E                                                                                      .    R
 628.14   .                                                                                                                    .    R
 656.51   .                                                                                                                    .
 684.88   .                                                                                                                    .
 713.25   .                                                                                                                    .
 741.62   .                                                                                                                    .
 769.99   .                                                                                                                    .
 798.36   .                                                                                                                    .
 826.73   .                                                                                                                    .
 855.10   .                                                                                                                    .
 883.47   .                                  I    WX     E                                                                    .
 911.84   .                                                                                                                    .    R
 940.21   .                                                                                                                    .
 968.58   .                                     I    WX    E                                                                  .
 996.95   .                                      I    XH    E                                                                 .    R
1025.32   .                                      I    CX    E                                                                 .    JX
1053.69   .                                      I     XW    E                                                                .    R
1082.06   .                                                                                                                    .    R
1110.43   .                                                                                                                    .
1138.80   .                                                                                                                    .
1167.17   .                                                                                                                    .
1195.54   .                                                                                                                    .
1223.91   .                                                                                                                    .
1252.28   .                                                                                                                    .
1280.65   .                                                  I    CHW    E                                                    .
1309.02   .                                                                                                                    .    R
1337.39   .                                                                                                                    .
1365.77   .                                                    I     XW    E                                                 .
1394.14   .                                                    I    WX     E                                                 .    R
1422.51   .                                                      I    XH    E                                                 .    R
1450.88   .                                                      I   W X     E                                               .    JX
1479.25   .                                                                                                                    .    R
1507.62   .                                                                                                                    .
1535.99   .                                                                                                                    .    ****
1564.36   .                                                            I   W X     E                                         .
1592.73   .                                                                                                                    .    R
1621.10   .                                                                                                                    .
1649.47   .                                                                                                                    .
```

LAWSPG-14

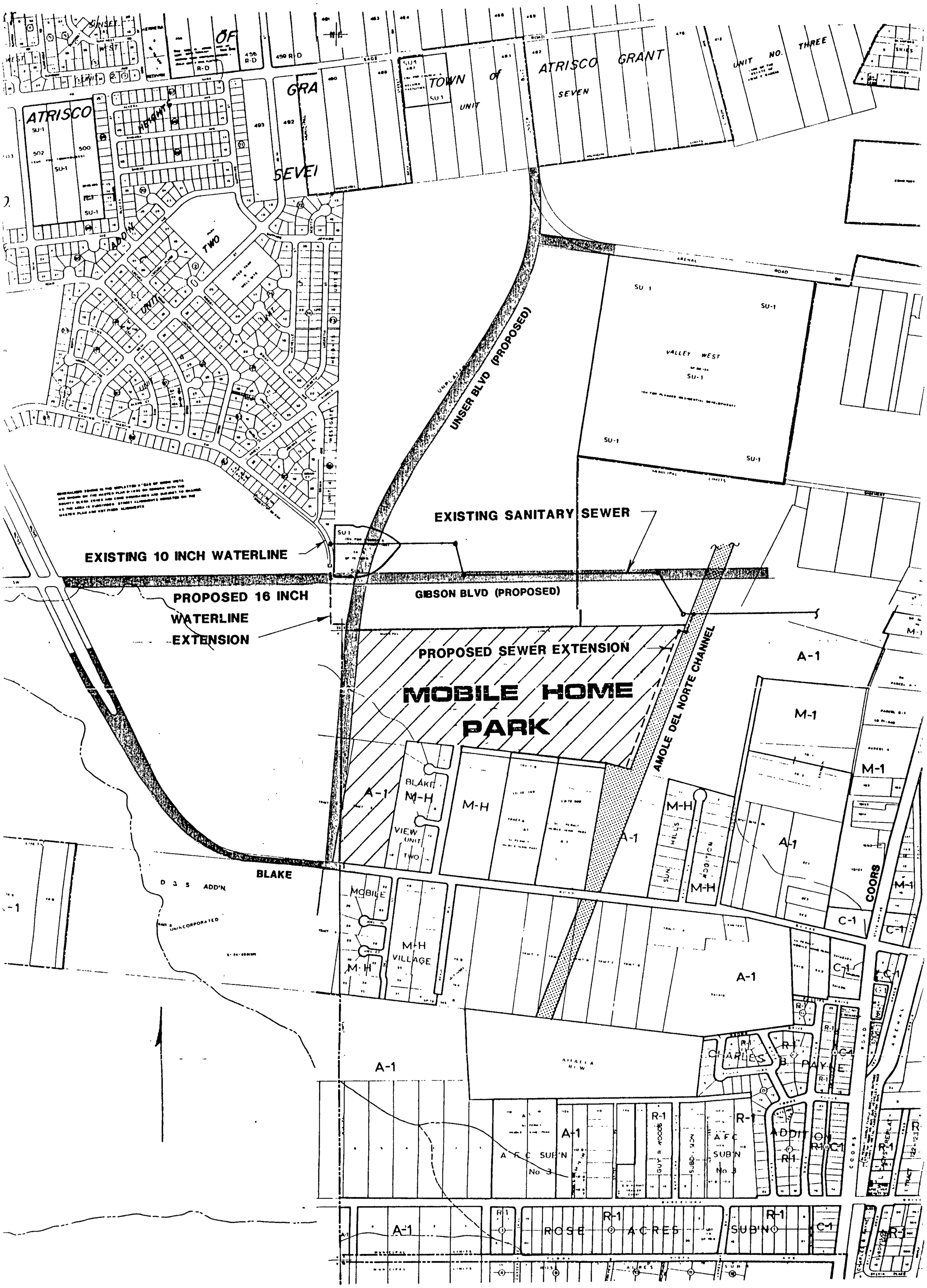
```
 677.84   .
1706.21   .  I   W X    E                                          .  JX
1734.58   .  I   W X     E                                         .  R
1762.95   .   I  W CH     E                                        .  R
1791.32   .                                                        .
1819.69   .       I   W X     E                                    .  R
1848.06   .                                                        .
1876.43   .          I   WCH    E                                  .  R
1904.80   .           I    WX    E                                 .  R
1933.17   .            I    WX   E                                 .  R
1961.54   .             I   WCH   E                                .  R
1989.91   .                                                        .
2018.28   .              I    WX   E                               .  R
2046.65   .               I    WX   E                              .  R
2075.02   .                I    XH  E                              .  JX
2103.39   .                I   WCH   E                             .  R
2131.76   .                                                        .
2160.13   .                                                        .
2188.50   .                     I   WCH   E                        .  R
2216.87   .                                                        .
2245.24   .                                                        .
2273.61   .                                                        .
2301.98   .                                                        .
2330.35   .                                                        .
2358.72   .                          I  W CH   E                   .  R
2387.09   .                                                        .
2415.46   .                                                        .
2443.83   .                                                        .
2472.20   .                                I   W X    E            .  R
2500.57   .                                                        .
2528.94   .                                                        .
2557.31   .                                                        .
2585.68   .                                                        .
2614.05   .                                  I   W CH   E          .  R
2642.42   .                                                        .
2670.79   .                                   I   W X   E          .  R
2699.16   .                                    I    WX   E         .  R
          .                                     I    XH  E         .  R
          .        .        .        .        .        .        .        .        .        .        .
        4986.58  4992.39  4998.21  5004.02  5009.83  5015.65  5021.46  5027.27  5033.09  5038.90  5044.72
```

N O T E S

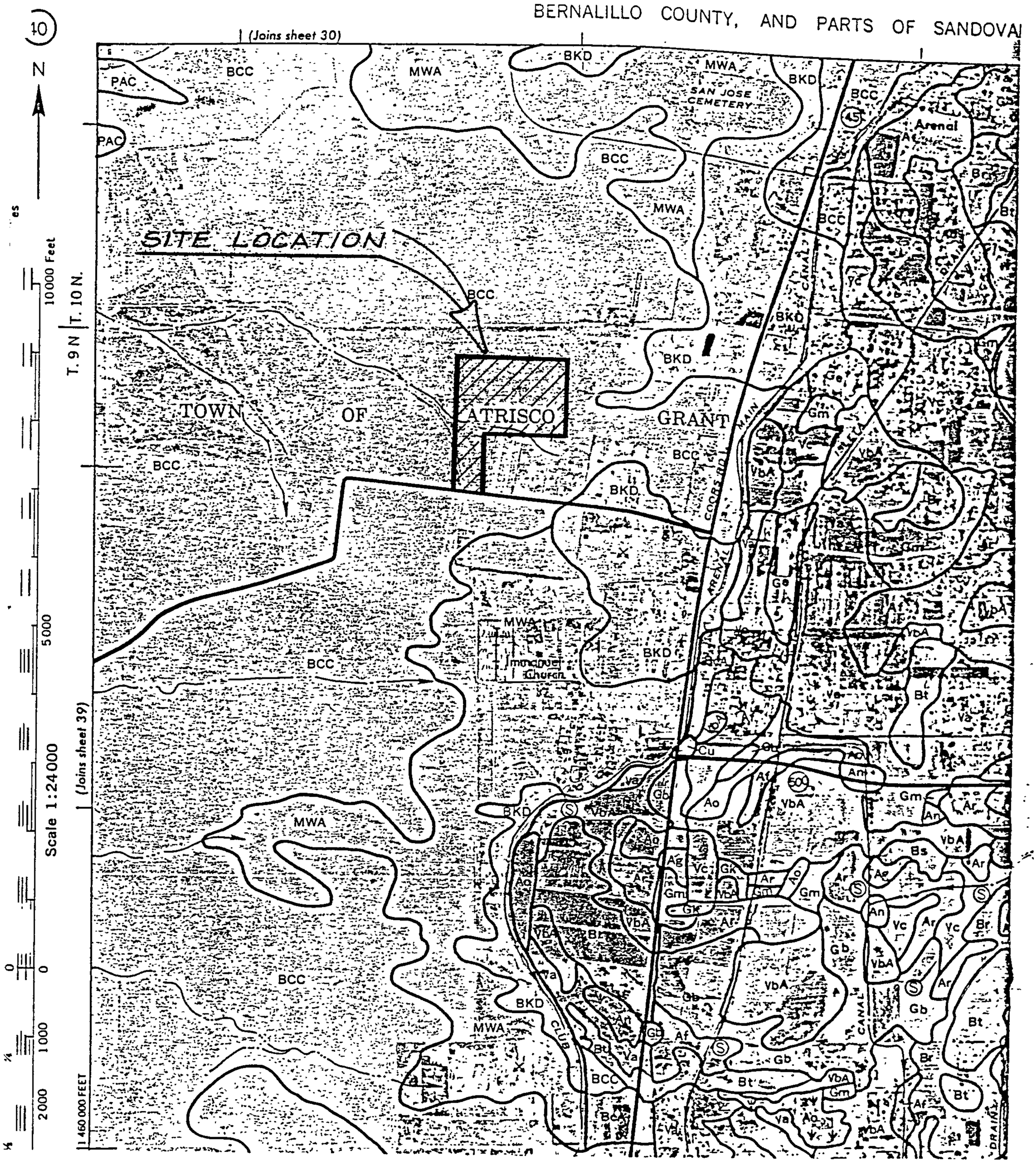
1. GLOSSARY

I = INVERT ELEVATION
C = CRITICAL DEPTH
W = WATER SURFACE ELEVATION
H = HEIGHT OF CHANNEL
E = ENERGY GRADE LINE
X = CURVES CROSSING OVER
B = BRIDGE ENTRANCE OR EXIT
Y = WALL ENTRANCE OR EXIT

2. STATIONS FOR POINTS AT A JUMP MAY NOT BE PLOTTED EXACTLY



ROGER COX & ASSOCIATES
MOBILE HOME PARK 1986
FIGURE 1



SOIL SURVEY OF
BERNALILLO COUNTY
(SHEET 40)
SCS, JUNE, 1977

FIGURE 2

Arenal / Unser Pond – Constructed w/
Desert Springs Unit 4 M/O/D8

[redacted]

MARK GOODWIN & ASSOCIATES
CONSULTING ENGINEERS

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

June 5, 2000

Gregory J. Krenik, P.E.
Mark Goodwin & Associates, PA
P. O. Box 90606
Albuquerque, New Mexico 87199

RE: Drainage Report Re-Evaluating the Arenal/Unser Detention Pond for El Rancho Grande I Subdivision, and Desert Springs Subdivision, Unit Three, (M10/D8), Engineer's Stamp Dated 5/12/00.

Dear Mr. Krenik:

Based on the information provided with the submittal of May 12, 2000, the above referenced Report is approved.

Since the final improvements for the Arenal/Unser detention pond are required by the Infrastructure List for Desert Springs Subdivision Unit 4, your revised configuration for the pond is acceptable for the change order to the Work Order plans.

Since the final volume of the Arenal/Unser pond is over 10 acre-feet, approval from the State Engineer's Office for the pond is also required. Please provide me with a copy of the state's approval letter for my files.

If you have any questions, or if I may be of further assistance to you, please call me at 924-3982.

Sincerely,

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Bo K. Johnson, P.E., Curb Inc.
File

DRAINAGE INFORMATION SHEET

PROJECT TITLE: El Rancho Grande, Units 1 & 2 & 3 ZONE ATLAS#: M-9

DRB#: 00460-00000-00116 EPC# WORKORDER#:

LEGAL DESCRIPTION: Tracts C & D, ABQ South, Unit 4, TRACT E, ABQ SOUTH, UNIT 1 AND PARCE 4, EL RANCHO GRANDE I

CITY ADDRESS:

ENGINEERING FIRM: Mark Goodwin & Associates, PA CONTACT: Gregory J. Krenik

ADDRESS: P.O. Box 90606, Albuquerque, NM 87199 PHONE: 828-2200

OWNER: Curb, Inc. CONTACT: Chuck Haegelin

ADDRESS: 6301 Indian School Road NE PHONE: 881-9190

ARCHITECT: N/A CONTACT:

ADDRESS: PHONE:

SURVEYOR: N/A CONTACT:

ADDRESS: PHONE:

CONTACTOR: N/A CONTACT:

ADDRESS: PHONE:

TYPE OF SUBMITTAL:

X DRAINAGE REPORT
X DRAINAGE PLAN
___ CONCEPTUAL GRADING & DRAINAGE PLAN
X GRADING PLAN
___ EROSION CONTROL
___ ENGINEER'S CERTIFICATION
X OTHER POND RE-EVALUATION
___ EASEMENT VACATION

PRE-DESIGN MEETING:

___ YES
___ NO
___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APRROVAL
X PRELIMINARY PLAT APRROVAL
___ S. DEV. PLAN FOR SUB'D APPROVAL
___ S. DEV. PLAN FOR BLDG PERMIT APPROVAL
___ SECTOR PLAN APPROVAL
___ FINAL PLAT APPROVAL
___ FOUNDATION PERMIT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATION OF OCCUPANCY APPROVAL
X GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ S.A.D. DRAINAGE REPORT
___ DRAINAGE REQUIREMENTS
X OTHER POND RE-EVALUATION
___ RELEASE OF FINANCIAL GUARANTY
___ TRAFFIC CIRCULATION LAYOUT

RECEIVED MAY 1 3 2000 HYDROLOGY SECTION

DATE SUBMITTED: 5-12-00

BY:

Gregory J. Krenik PE

Pond
Desert Spring
unit 4

RE-EVALUATION OF

ARENAL/UNSER DETENTION POND

FOR

EL RANCHO GRANDE I, UNITS 1, 2 & 3

RECEIVED
MAY 12 2000
HYDROLOGY SECTION

GREGORY JAMES KRENK
NEW MEXICO
11929
5-12-00
REGISTERED PROFESSIONAL ENGINEER

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

PROJECT EL RANCHO GRANDE I
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-27-00
CHECKED _____ DATE _____
SHEET 1 OF ____

RE-EVALUATION OF ARENAL/UNSER POND.

THE DETENTION POND ON THE SE CORNER OF ARENAL AND UNSER HAS BEEN SHAPED PER CONSTRUCTION PHASING AND NOW THAT CONSTRUCTION IS COMPLETED IN THE AREA, THE FINAL GRADING OF THE POND IS REQUIRED.

THIS PORTION OF THE REPORT WILL SHOW THAT THE DESIGNED POND VOLUME IS TOO LARGE. THE REASON FOR THIS IS WHEN THE MASTER PLANS WERE DONE, ERRORS WERE MADE IN THE DIRECTION OF EXISTING FLOWS.

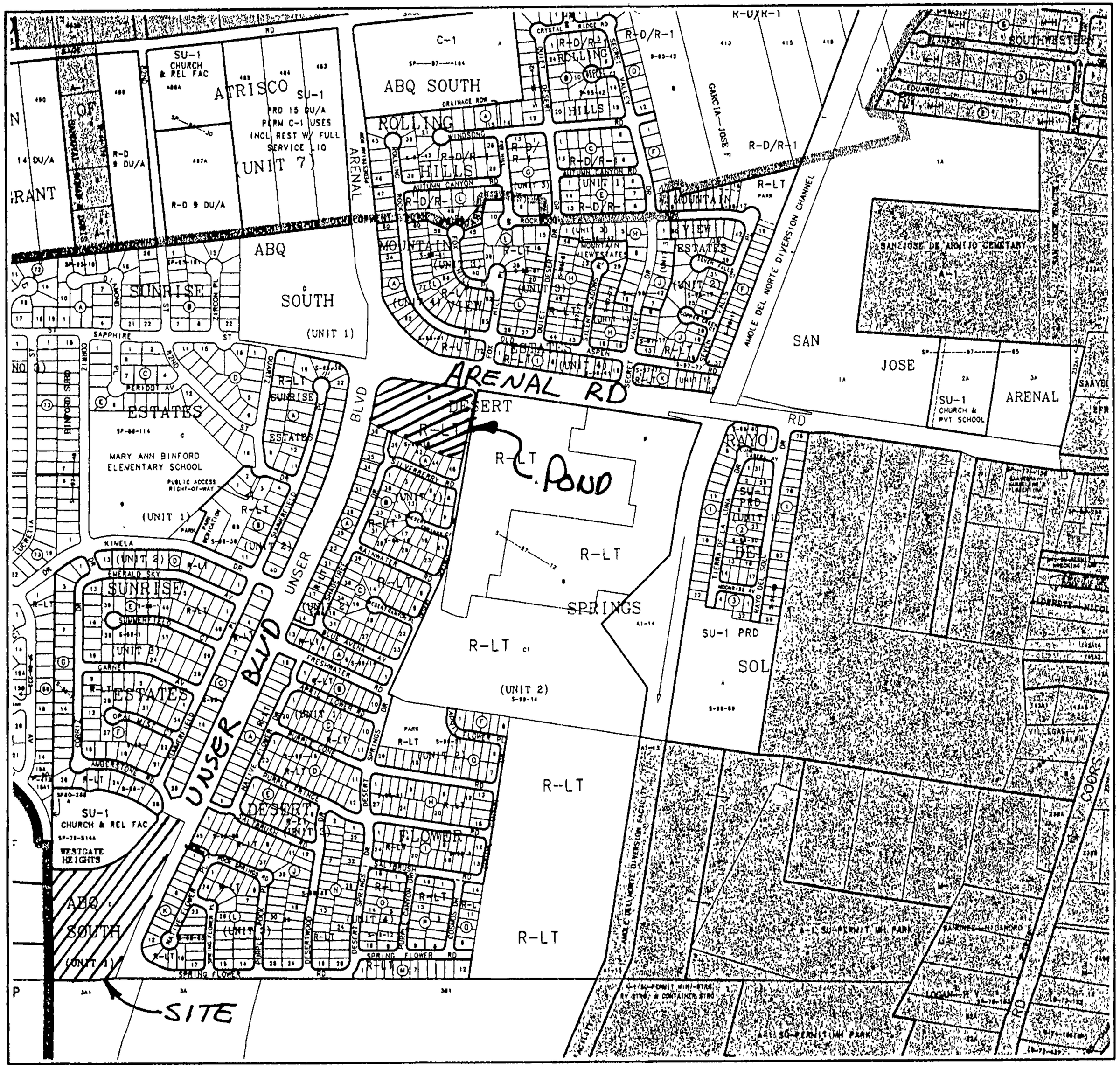
IN THIS SECTION ARE:

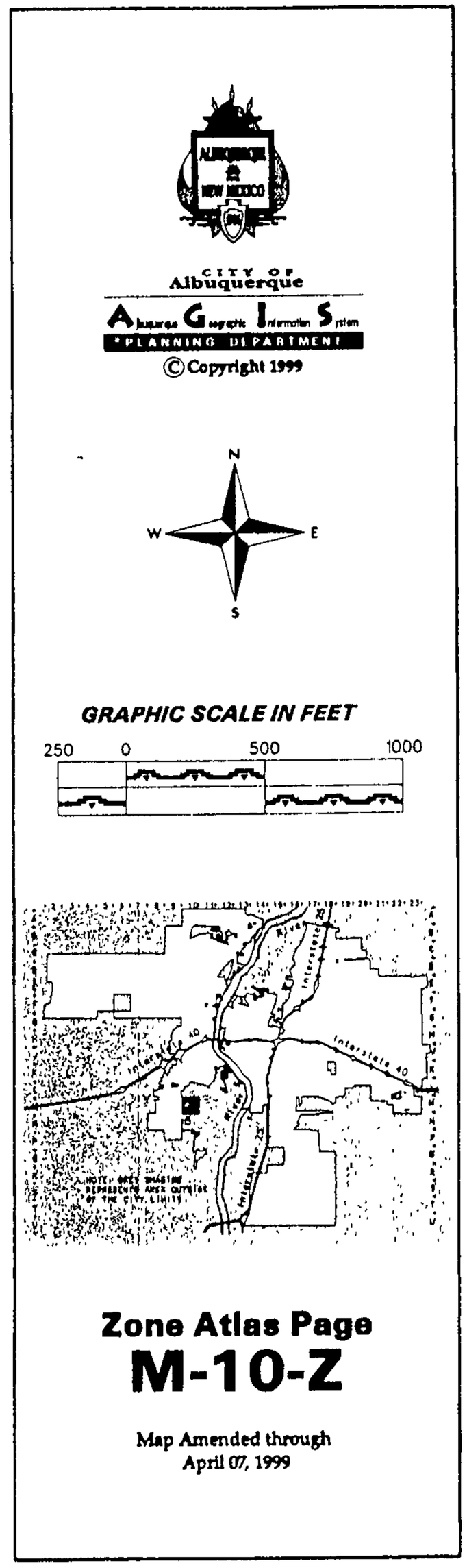
1) THE CURRENT POND CONDITION
2) THE DESIGNED POND PLAN
3) THE REVISED POND PLAN

THE REVISED PLAN SHOWS THAT THE WATER SURFACE IS BELOW ALL ADJACENT HOUSE PADS SO THAT THE CLAY PLUG REQUIRED WITH THE ORIGINAL PLAN IS NOT NECESSARY.

THE SECTION REQUIRED WHERE STREET GRADE ALONG THE EAST SIDE OF THE POND IS LOWER THAN THE WATER SURFACE IS SHOWN BELOW.

SCALE: 1" = 10'


ARENAL RD
UNSER BLVD
SITE
POND
ABQ SOUTH
ATRISCO
SUNRISE
ESTATES
ROLLING HILLS
MOUNTAIN VIEW
DESERT SPRINGS
SAN JOSE
ARENAL
SAN JOSE DE ARNEIO CEMETARY
AMOLE DEL NORTE DIVERSION CHANNEL
MARY ANN BINFORD ELEMENTARY SCHOOL
WESTGATE HEIGHTS
SU-1 CHURCH & REL FAC
SU-1 CHURCH & PVT SCHOOL
SU-1 PRD
R-LT
R-D/R-1
C-1


CITY OF
Albuquerque
Albuquerque Geographic Information System
PLANNING DEPARTMENT
©Copyright 1999
N
W
E
S
GRAPHIC SCALE IN FEET
250
0
500
1000
Zone Atlas Page
M-10-Z
Map Amended through
April 07, 1999

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

PROJECT EL RANCHO GRANDE I
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-27-00
CHECKED _____ DATE _____
SHEET 2 OF ____

• ANALIZE DETENTION POND AT ARENAL & UNSER

• USING THE ANALYSIS OF SAGE POINTE? SUBDIVISION (11-9/021) AND EL RANCHO GRANDE REPORT WE WILL RE-EVALUATE THE ARENAL/UNSER DRAINAGE MANAGEMENT PLAN PREPARED BY ISAACSON & ARFMAN (6-23-97). (ADM)

• WE WILL BE RE-EVALUATING ANALYSIS POINTS A, B, C & D.

ANALYSIS POINT C

• THIS AREA CONSISTS OF A PORTION OF WESTGATE HEIGHTS UNIT 2, 3 & 4, MARY ANN BINFORD SCHOOL AND SUNRISE ESTATES UNIT 3

AREA = 2.88 AC
50% B 50% D

• WESTGATE HEIGHTS UNIT 3

BASIN	AREA	"B"	"D"
W3(2)	2.3 AC	50%	50%
W3(3)	4.1 AC	50	50
W3(4)	3.4 AC	50	50
BINF.	4.29 AC	50	50
W3(6)	0.4 AC	50	50
W3(7)	2.08 AC	50	50

• WESTGATE HEIGHTS UNIT 4

BASIN	AREA	"B"	"D"
B-4	0.37 AC	0	100
B-5	1.37 AC	49	51
B-6	0.75 AC	50	50
B-7	3.56 AC	55	45

• WESTGATE HEIGHTS UNIT 2

		"B"	"D"
BASIN 2	2.88 AC	50	50

• FOR BASINS 202 & 202.05 (BINFORD SCHOOL) AND BASIN 402 (SUNRISE ESTATES UNIT 3) WE USED THE HYMO INFORMATION FROM THE ADM.

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

PROJECT EL RANCHO GRANDE I
SUBJECT DRAINAGE CALCS
BY GJK DATE 4-27-00
CHECKED _____ DATE _____
SHEET 3 OF ____

ANALYSIS POINT A

- THIS IS THE SAME AS PER THE SAGE POINTE DRAINAGE REPORT

ANALYSIS POINT B

- THIS AREA FOLLOWS THE ADM EXCEPT BASIN 404 IS ADDED AND THE REVISED ANALYSIS POINT A IS ADDED.

ANALYSIS POINT D

- THIS AREA COMBINES ALL.

FROM AHYMO OUTPUT SHEETS 4-92

ANALYSIS PT.	Q	Q per ADM
A	238.60 CFS	423.63 CFS
B	446.51 CFS	607.35 CFS
C	101.21 CFS	146.56 CFS
D	651.01 CFS	880.30 CFS — 229 cfs ?

- INSERTING THE ACTUAL POND INTO THE AHYMO RUN GIVES THE FOLLOWING RESULTS.

	THIS ANALYSIS	PREVIOUS POND ANALYSIS
PEAK DISCHARGE	163.3 CFS	183.8 CFS
MAX WATER SURFACE	26.30	28.21
POND STORAGE	11.83 AC-FT	17.4 AC-FT

- PER THE LOMR THERE IS A 2' FREEBOARD.
- THIS REVISED WATERSURFACE IS NOW BELOW ALL FINISHED PADS ADJACENT TO IT.
- THE FINAL GRADING OF THE POND NEED ONLY MEET THE NEW REQUIREMENTS.
- ASBUILT POND VOLUME

ELEV	AREA (AC)	VOL. (AC-FT)
20	0.5368	0
21	1.5199	1.0284
22	1.6811	2.6289
23	1.7825	4.3607
24	1.8772	6.1905
25	1.9840	8.1211

```
START                    TIME=0.0
*****
*****  HYDROGRAPH FOR ANALYSIS POINT D
*****
*****  HYDROGRAPH OF ANALISIS POINTS A & B
*****
RAINFALL                 TYPE=1 RAIN QUARTER=0.0 IN
                         RAIN ONE=1.87 IN RAIN SIX=2.20 IN
                         RAIN DAY=2.66 IN DT=0.0333 HR
*****
***** SUB-BASIN 100 (UNDEVELOPED) ASSUME COMMERCIAL DEVELOPED
*****
COMPUTE NM HYD           ID=1 HYD NO=100.0 AREA=0.0219 SQ MI
                         PER A=0 PER B=5 PER C=5 PER D=90
                         TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD                ID=1 CODE=1
*****
***** MAXIMUM FLOW FROM SB 100 IS 1.4 CFS
***** ROUTE THROUGH DETENTION POND (APPROX. DIMENSIONS 181'x181')
***** ORIFICE OPENING
*****
ROUTE RESERVOIR          ID=2  HYD=POND.101  INFLOW=1  CODE=10
                         OUTFLOW(CFS)     STORAGE(AC FT)     ELEV(FT)
                         0                0                  19.0
                         .36              .3104              19.5
                         .77              .6325              20.0
                         .99              .9663              20.5
                         1.15            1.3122              21.0
                         1.45            2.0406              22.0
                         1.70            2.8188              23.0
PRINT HYD                ID=2 CODE=1
*****
***** SUB-BASIN 101 SUN SAGE HILLS TOWNHOMES (6.9 UN/AC)
*****
COMPUTE NM HYD           ID=1 HYD NO=101.0 AREA=0.0131 SQ MI
                         PER A=0 PER B=21 PER C=15 PER D=64
                         TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD                ID=1 CODE=1
*****
*****ADD SB 100 AND SB 101
*****
ADD HYD                  ID=3 HYD=101 ID=1  ID=2
PRINT HYD                ID=3 CODE=1
*****
***** ROUTE 250 FT SOUTH ON 94TH STREET 32' FF 50' ROW
***** @ 0.005 FT/FT
*****
COMPUTE RATING CURVE CID=1 VS NO=9  NO SEGS=1
                         MIN ELEV=0.0     MAX ELEV=.87
                         CH SLP=.005      FP SLP=0.005  N=0.017
                         DIST=50
                         DIST  ELEV      DIST  ELEV      DIST  ELEV
                            0   .87       9.0   .67      9.05    0.
                           11  .125        25  .405       39  .125
                           41    0.     41.05   .67       50   .87
COMPUTE TRAVEL TIME ID=4 REACH NO=1  NO VS=1 LENGTH=250 FT SLOPE=0.005
ROUTE                    ID=4 HYD NO=201  INFLOW ID=3 DT=0.0
PRINT HYD                ID=4 CODE=1
*****
***** SUB-BASIN 104 RESIDENTIAL (4.0 UN/AC)
*****
```

```
COMPUTE NM HYD        ID=1 HYD NO=104.0 AREA=0.01350 SQ MI
                      PER A=0 PER B=34 PER C=24 PER D=42
                      TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD             ID=1 CODE=1
*****
***** ADD SB 100 AND 101 AND 104
*****
ADD HYD               ID=2 HYD=104 ID=1  ID=4
PRINT HYD             ID=2 CODE=1
*****
***** ROUTE 770 FT EAST ON REBA AVE 32' 50' ROW
***** FF @ 0.0164 FT/FT
*****
COMPUTE RATING CURVE CID=1 VS NO=9  NO SEGS=1
                      MIN ELEV=0.0    MAX ELEV=.87
                      CH SLP=.0164     FP SLP=0.0164  N=0.017
                      DIST=50
                      DIST  ELEV     DIST  ELEV     DIST  ELEV
                        0   .87      9.0   .67     9.05    0.
                       11  .125       25  .405       39  .125
                       41    0.    41.05   .67       50   .87
COMPUTE TRAVEL TIME ID=3 REACH NO=1  NO VS=1 LENGTH=770 FT SLOPE=0.0164
ROUTE                 ID=3 HYD NO=204  INFLOW ID=2 DT=0.0
PRINT HYD             ID=3 CODE=1
*****
***** SUB-BASIN 102 RESIDENTIAL (5.1 UN/AC)
*****
COMPUTE NM HYD        ID=1 HYD NO=102.0 AREA=0.01310 SQ MI
                      PER A=0 PER B=30 PER C=20 PER D=50
                      TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD             ID=1 CODE=1
*****
***** SUB-BASIN 103 RESIDENTIAL (4.6 UN/AC)
*****
COMPUTE NM HYD        ID=2 HYD NO=103.0 AREA=0.00398 SQ MI
                      PER A=0 PER B=32 PER C=21 PER D=47
                      TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD             ID=2 CODE=1
*****
***** ADD SB 102 AND 103
*****
ADD HYD               ID=4 HYD=103 ID=1  ID=2
PRINT HYD             ID=4 CODE=1
*****
***** ADD SB 100, 101, 102, 103, 104
*****
ADD HYD               ID=2 HYD=104 ID=3  ID=4
PRINT HYD             ID=2 CODE=1
*****
***** ROUTE 150 FT SOUTHEAST ON BLAZICK AVE 32' FF 50' ROW
***** @ 0.02 FT/FT
*****
COMPUTE RATING CURVE CID=1 VS NO=9  NO SEGS=1
                      MIN ELEV=0.0    MAX ELEV=.87
                      CH SLP=.02       FP SLP=0.02  N=0.017
                      DIST=50
                      DIST  ELEV     DIST  ELEV     DIST  ELEV
                        0   .87      9.0   .67     9.05    0.
                       11  .125       25  .405       39  .125
                       41    0.    41.05   .67       50   .87
COMPUTE TRAVEL TIME ID=3 REACH NO=1  NO VS=1 LENGTH=150 FT SLOPE=0.02
```

```
ROUTE                  ID=3 HYD NO=203  INFLOW ID=2 DT=0.0
PRINT HYD              ID=3 CODE=1
*****
***** SUB-BASIN 105 RESIDENTIAL (4.0 UN/AC)
*****
COMPUTE NM HYD         ID=1 HYD NO=105.0 AREA=0.00526 SQ MI
                       PER A=0 PER B=34 PER C=24 PER D=42
                       TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD              ID=1 CODE=1
*****
***** ADD SB 100 THRU 104 AND 105
*****
ADD HYD                ID=2 HYD=105 ID=1  ID=3
PRINT HYD              ID=2 CODE=1
*****
***** ROUTE 1050 FT EAST ON SONYA AVE 32' FF 50' ROW
***** @ 0.0112 FT/FT
*****
COMPUTE RATING CURVE CID=1 VS NO=9  NO SEGS=1
                       MIN ELEV=0.0    MAX ELEV=.87
                       CH SLP=.0112    FP SLP=0.0112  N=0.017
                       DIST=50
                       DIST  ELEV     DIST  ELEV     DIST  ELEV
                          0   .87      9.0   .67     9.05    0.
                         11  .125       25  .405       39  .125
                         41    0.    41.05   .67       50   .87
COMPUTE TRAVEL TIME ID=3 REACH NO=1  NO VS=1 LENGTH=1050 FT SLOPE=0.0112
ROUTE                  ID=3 HYD NO=205  INFLOW ID=2 DT=0.0
PRINT HYD              ID=3 CODE=1
*****
***** SUB-BASIN 106 RESIDENTIAL (4.5 UN/AC)
*****
COMPUTE NM HYD         ID=1 HYD NO=106.0 AREA=0.01893 SQ MI
                       PER A=0 PER B=32 PER C=22 PER D=46
                       TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD              ID=1 CODE=1
*****
***** ADD SB 100 THRU 105 AND 106
*****
ADD HYD                ID=2 HYD=106 ID=1  ID=3
PRINT HYD              ID=2 CODE=1
*****
***** ROUTE 400 FT SOUTHEAST ON SAPPHIRE ST. TO 86TH ST.
***** 32' FF 50' ROW @ 0.0135 FT/FT
*****
COMPUTE RATING CURVE CID=1 VS NO=9  NO SEGS=1
                       MIN ELEV=0.0    MAX ELEV=.87
                       CH SLP=.0135    FP SLP=0.0135  N=0.017
                       DIST=50
                       DIST  ELEV     DIST  ELEV     DIST  ELEV
                          0   .87      9.0   .67     9.05    0.
                         11  .125       25  .405       39  .125
                         41    0.    41.05   .67       50   .87
COMPUTE TRAVEL TIME ID=3 REACH NO=1  NO VS=1 LENGTH=400 FT SLOPE=0.0135
ROUTE                  ID=3 HYD NO=206  INFLOW ID=2 DT=0.0
PRINT HYD              ID=3 CODE=1
*****
***** SUB-BASIN 107 RESIDENTIAL (PARK/RESIDENTIAL/WATER TNK)
*****
COMPUTE NM HYD         ID=1 HYD NO=107.0 AREA=0.0267 SQ MI
                       PER A=0 PER B=54 PER C=23 PER D=23
```

```
                    TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*****
***** SUB-BASIN 108 UNDEVELOPED ASSUME RESIDENTIAL @ 4.0 UN/AC
*****
COMPUTE NM HYD      ID=2 HYD NO=108.0 AREA=0.0102 SQ MI
                    PER A=0 PER B=35 PER C=23 PER D=42
                    TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
*****
***** ADD SB 107 AND 108
*****
ADD HYD             ID=4 HYD=108 ID=1  ID=2
PRINT HYD           ID=4 CODE=1
*****
***** ADD SB 100 THRU 108
*****
ADD HYD             ID=2 HYD=108 ID=3  ID=4
PRINT HYD           ID=2 CODE=1
*****
***** ROUTE 300 FT SOUTHEAST ON SAPPHIRE ST. TO MICHELLES
***** 40' FF 60' ROW @ 0.014 FT/FT
***** INCLUDES 8" DIVERSION BERM
COMPUTE RATING CURVE CID=1 VS NO=11  NO SEGS=1
                    MIN ELEV=0.0    MAX ELEV=1.67
                    CH SLP=.014    FP SLP=0.014  N=0.017
                    DIST=60.05
                    DIST  ELEV     DIST  ELEV     DIST  ELEV
                       0  1.67     0.05   1.0       10  0.67
                   10.05    0.       12  .125       30  .485
                      48  .125       50    0.    50.05   0.67
                      60   1.0    60.05  1.67
COMPUTE TRAVEL TIME ID=3 REACH NO=1  NO VS=1 LENGTH=300 FT SLOPE=0.014
ROUTE               ID=3 HYD NO=208  INFLOW ID=2 DT=0.0
PRINT HYD           ID=3 CODE=1
*****
***** SUB-BASIN 109 RESIDENTIAL (3.8 UN/AC)
*****
COMPUTE NM HYD      ID=1 HYD NO=109.0 AREA=0.0057 SQ MI
                    PER A=0 PER B=36 PER C=25 PER D=39
                    TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*****
***** SUB-BASIN 110 UNDEVELOPED ASSUME RESIDENTIAL @ 4.0 UN/AC
*****
COMPUTE NM HYD      ID=2 HYD NO=110.0 AREA=0.0232 SQ MI
                    PER A=0 PER B=46.56 PER C=0 PER D=53.44
                    TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
*****
***** ADD SB 109 AND 110
*****
ADD HYD             ID=4 HYD=110 ID=1  ID=2
PRINT HYD           ID=4 CODE=1
*****
***** ADD SB 100 thru 110
*****
ADD HYD             ID=2 HYD=110 ID=3  ID=4
PRINT HYD           ID=2 CODE=1
*****
***** ROUTE 200 FT EAST ON SAPPHIRE ST. FROM MICHELLE ST. TO INLETS
```

```
***** 40' FF 60' ROW @ 0.014 FT/FT
COMPUTE RATING CURVE CID=1 VS NO=9  NO SEGS=1
                     MIN ELEV=0.0    MAX ELEV=1.0
                     CH SLP=.014    FP SLP=0.014  N=0.017
                     DIST=60
                     DIST  ELEV     DIST  ELEV     DIST  ELEV
                        0   1.0       10  0.67   10.05     0.
                       12  .125       30  .485      48   .125
                       50    0.    50.05  0.67      60   1.0
COMPUTE TRAVEL TIME ID=3 REACH NO=1  NO VS=1 LENGTH=200 FT SLOPE=0.014
ROUTE               ID=3 HYD NO=210  INFLOW ID=2 DT=0.0
PRINT HYD           ID=3 CODE=1
*
**ANALYSIS POINT B
**BASIN401.12
COMPUTE NM HYD      ID=19 HYD NO=401.12 AREA=0.01126 SQ MI
                    PER A=0 B=29 C=29 D=42
                    TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=19 CODE=1
*
ADD HYD             ID=20 HYD NO=401.13 ID=19 ID=3
PRINT HYD           ID=20 CODE=1
*
**BASIN 300.2
COMPUTE NM HYD      ID=1 HYD NO=300.2 AREA=0.0118 SQ MI
                    PER A=0 B=29 C=29 D=42
                    TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*
**BASIN 401.14
COMPUTE NM HYD      ID=2 HYD NO=401.14 AREA=0.01117 SQ MI
                    PER A=0 B=29 C=29 D=42
                    TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
*
ADD HYD             ID=3 HYD NO=401.15  ID=1 ID=2
PRINT HYD           ID=3 CODE=1
*
ADD HYD             ID=4 HYD NO=401.16  ID=3 ID=20
PRINT HYD           ID=4 CODE=1
*
**BASIN 401.17
COMPUTE NM HYD      ID=5 HYD NO=401.17 AREA=0.00661 SQ MI
                    PER A=0 B=29 C=29 D=42
                    TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=5 CODE=1
*
ADD HYD             ID=6 HYD NO=401.18  ID=4 ID=5
PRINT HYD           ID=6 CODE=1
*
**BASIN 405
COMPUTE NM HYD      ID=7 HYD NO=405 AREA=0.013934 SQ MI
                    PER A=0 B=28 C=28 D=44
                    TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=7 CODE=1
*
ADD HYD             ID=8 HYD NO=405.1  ID=6 ID=7
PRINT HYD           ID=8 CODE=1
*
**BASIN 404
COMPUTE NM HYD      ID=27 HYD NO=127 AREA=0.0108 SQ MI
```

```
                    PER A=0 B=29 C=29 D=42
                    TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=27 CODE=1
*
**BASIN 403
COMPUTE NM HYD      ID=9 HYD NO=403 AREA=0.0148 SQ MI
                    PER A=0 B=29 C=29 D=42
                    TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=9 CODE=1
*
ADD HYD             ID=10 HYD NO=405.15  ID=9 ID=27
PRINT HYD           ID=10 CODE=1
*
ADD HYD             ID=12 HYD NO=112  ID=8 ID=10
PRINT HYD           ID=12 CODE=1
*
**BASIN 400.2
COMPUTE NM HYD      ID=11 HYD NO=400.2 AREA=0.032215 SQ MI
                    PER A=0 B=28 C=28 D=44
                    TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD           ID=11 CODE=1
*
ADD HYD             ID=40 HYD NO=405.16  ID=10 ID=12
PRINT HYD           ID=40 CODE=1
*****
*****   HYDROGRAPH FOR ANALYSIS POINT C
*****
**BASIN W3(2)
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.90 IN RAIN SIX=2.20 IN
                     RAIN DAY=2.70 IN DT=0.03333 HR

COMPUTE NM HYD       ID=1 HYD NO=101 AREA=0.003594 SQ MI
                     PER A=0 PER B=50 PER C=0 PER D=50
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1
*
**BASIN W3(3)
COMPUTE NM HYD       ID=2 HYD NO=102 AREA=0.006406 SQ MI
                     PER A=0 PER B=50 PER C=0 PER D=50
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
*
**BASIN W3(4)
COMPUTE NM HYD       ID=3 HYD NO=103 AREA=0.005313 SQ MI
                     PER A=0 PER B=50 PER C=0 PER D=50
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=3 CODE=1
*
**BASIN BINF
COMPUTE NM HYD       ID=4 HYD NO=104 AREA=0.006708 SQ MI
                     PER A=0 PER B=50 PER C=0 PER D=50
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=4 CODE=1
*
**BASIN W3(6)
COMPUTE NM HYD       ID=5  HYD NO=105  AREA=0.000625 SQ MI
                     PER A=0 B=50 C=0 D=50
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=5 CODE=1
*
```

```
**BASIN W3(7)
COMPUTE NM HYD          ID=6 HYD NO=106 AREA=0.003250 SQ MI
                        PER A=0 PER B=50 PER C=0 PER D=50
                        TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=6 CODE=1
*
**BASIN B-4
COMPUTE NM HYD          ID=7 HYD NO=107 AREA=0.000578 SQ MI
                        PER A=0 PER B=0 PER C=0 PER D=100
                        TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=7 CODE=1
*
**BASIN B-5
COMPUTE NM HYD          ID=8 HYD NO=108 AREA=0.002141 SQ MI
                        PER A=0 PER B=49 PER C=0 PER D=51
                        TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=8 CODE=1
*
**BASIN B-6
COMPUTE NM HYD          ID=9  HYD NO=109  AREA=0.001172 SQ MI
                        PER A=0 B=50 C=0 D=50
                        TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=9 CODE=1
*
**BASIN B-7
COMPUTE NM HYD          ID=10 HYD NO=110 AREA=0.005563 SQ MI
                        PER A=0 PER B=55 PER C=0 PER D=45
                        TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=10 CODE=1
*
**BASIN UNIT 2
COMPUTE NM HYD          ID=11 HYD NO=111 AREA=0.004500 SQ MI
                        PER A=0 PER B=50 PER C=0 PER D=50
                        TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=11 CODE=1
*
**BASIN 202
COMPUTE NM HYD          ID=22 HYD NO=122 AREA=0.009253 SQ MI
                        PER A=100 B=0 C=0 D=0
                        TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=22 CODE=1
*
**BASIN 202.05
COMPUTE NM HYD          ID=23 HYD NO=123 AREA=0.003747
                        PER A=0 B=0 C=0 D=100
                        TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=23 CODE=1
*
**BASIN 402
COMPUTE NM HYD          ID=26 HYD NO=126 AREA=0.052 SQ MI
                        PER A=0 B=29 C=29 D=42
                        TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=26 CODE=1
*
ADD HYD                 ID=12 HYD NO=112  ID=1  ID=2
PRINT HYD               ID=12 CODE=1
*
ADD HYD                 ID=13 HYD NO=113  ID=3  ID=4
PRINT HYD               ID=13 CODE=1
*
ADD HYD                 ID=14 HYD NO=114  ID=5  ID=6
```

```
PRINT HYD              ID=14 CODE=1
*
ADD HYD                ID=15 HYD NO=115  ID=7  ID=8
PRINT HYD              ID=15 CODE=1
*
ADD HYD                ID=16 HYD NO=116  ID=9  ID=10
PRINT HYD              ID=16 CODE=1
*
ADD HYD                ID=17 HYD NO=117  ID=12  ID=13
PRINT HYD              ID=17 CODE=1
*
ADD HYD                ID=18 HYD NO=118  ID=14  ID=17
PRINT HYD              ID=18 CODE=1
*
ADD HYD                ID=19 HYD NO=119  ID=15  ID=16
PRINT HYD              ID=19 CODE=1
*
ADD HYD                ID=20 HYD NO=120  ID=11  ID=19
PRINT HYD              ID=20 CODE=1
*
ADD HYD                ID=21 HYD NO=121  ID=18  ID=20
PRINT HYD              ID=21 CODE=1
*
ADD HYD                ID=24 HYD NO=124  ID=22  ID=23
PRINT HYD              ID=24 CODE=1
*
**ANALYSIS POINT C
ADD HYD                ID=25 HYD NO=125  ID=21  ID=24
PRINT HYD              ID=25 CODE=1
*
**FLOW IN KIMELA DR. THAT WILL GO TO ANALYSIS POINT D
ADD HYD                ID=29 HYD NO=129  ID=25  ID=26
PRINT HYD              ID=29 CODE=1
*
**ANALYSIS POINT D
ADD HYD                ID=30 HYD NO=404.2 ID=40 ID= 29
PRINT HYD              ID=30 CODE=1
*
ROUTE RESERVOIR         ID=31 HYD NO=405.4 INFLOW ID=30 CODE=1
                       OUTFLOW(CFS)   STORAGE(AF)   ELEV(FT)
                           0              0           21
                         104.75           1.06        22
                         120.95           3.08        23
                         135.23           5.61        24
                         148.14           8.24        25
                         160.00          10.98        26
                         171.05          13.82        27
                         181.43          16.76        28
                         191.24          19.81        29
                         200.58          22.98        30
PRINT HYD              ID=31 CODE=1
FINISH
```

```
        AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January,
1994
              RUN DATE (MON/DAY/YR) = 04/28/2000
              START TIME (HR:MIN:SEC) = 11:05:53     USER NO.=
M_GOODWN.I01
              INPUT FILE = analptd.dat

     START                  TIME=0.0
     *****
     *****  HYDROGRAPH FOR ANALYSIS POINT D
     *****
     *****  HYDROGRAPH OF ANALISIS POINTS A & B
     *****
     RAINFALL               TYPE=1 RAIN QUARTER=0.0 IN
                            RAIN ONE=1.87 IN RAIN SIX=2.20 IN
                            RAIN DAY=2.66 IN DT=0.0333 HR

                            COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA
     ATLAS 2 - PEAK AT 1.40 HR.
                            DT =    .033300 HOURS        END TIME =     5.994000
     HOURS
                               .0000   .0016   .0033   .0050   .0067   .0085
     .0103
                               .0121   .0140   .0160   .0180   .0200   .0221
     .0243
                               .0265   .0288   .0312   .0336   .0361   .0387
     .0414
                               .0442   .0471   .0501   .0533   .0566   .0600
     .0636
                               .0674   .0714   .0757   .0808   .0863   .0922
     .1044
                               .1323   .1754   .2374   .3221   .4335   .5756
     .7527
                               .9690  1.1767  1.2619  1.3336  1.3972  1.4551
     1.5084
                              1.5579  1.6041  1.6474  1.6881  1.7266  1.7629
     1.7973
                              1.8298  1.8607  1.8900  1.9178  1.9442  1.9515
     1.9573
                              1.9627  1.9680  1.9729  1.9777  1.9823  1.9867
     1.9909
                              1.9950  1.9990  2.0029  2.0066  2.0102  2.0137
     2.0172
                              2.0205  2.0238  2.0269  2.0300  2.0331  2.0360
     2.0389
                              2.0418  2.0446  2.0473  2.0500  2.0526  2.0552
     2.0578
                              2.0603  2.0627  2.0651  2.0675  2.0698  2.0721
     2.0744
                              2.0766  2.0788  2.0810  2.0832  2.0853  2.0873
     2.0894
                              2.0914  2.0934  2.0954  2.0974  2.0993  2.1012
     2.1031
                              2.1050  2.1068  2.1086  2.1104  2.1122  2.1140
     2.1157
                              2.1174  2.1191  2.1208  2.1225  2.1242  2.1258
     2.1274
                              2.1290  2.1306  2.1322  2.1338  2.1353  2.1369
     2.1384
                              2.1399  2.1414  2.1429  2.1444  2.1459  2.1473
```

```
2.1487
                    2.1502  2.1516  2.1530  2.1544  2.1558  2.1571
2.1585
                    2.1599  2.1612  2.1625  2.1639  2.1652  2.1665
2.1678
                    2.1691  2.1703  2.1716  2.1729  2.1741  2.1754
2.1766
                    2.1778  2.1791  2.1803  2.1815  2.1827  2.1839
2.1850
                    2.1862  2.1874  2.1886  2.1897  2.1909  2.1920
2.1931
                    2.1943  2.1954  2.1965  2.1976  2.1987  2.1998

     *****
     ***** SUB-BASIN 100 (UNDEVELOPED) ASSUME COMMERCIAL DEVELOPED
     *****
     COMPUTE NM HYD       ID=1 HYD NO=100.0 AREA=0.0219 SQ MI
                          PER A=0 PER B=5 PER C=5 PER D=90
                          TP=0.1333 HR MASS RAINFALL=-1

          K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   77.816    CFS   UNIT VOLUME =    .9992       B =
526.28      P60 = 1.8700
          AREA =      .019710 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300


          K =   .118429HR    TP =   .133300HR    K/TP RATIO =   .888442
SHAPE CONSTANT, N =  3.992480
          UNIT PEAK =   5.8269    CFS   UNIT VOLUME =    .9982       B =
354.67      P60 = 1.8700
          AREA =      .002190 SQ MI    IA =    .42500 INCHES    INF =
1.04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300

     PRINT HYD            ID=1 CODE=1

                                          PARTIAL HYDROGRAPH   100.00

          RUNOFF VOLUME =     1.85049 INCHES     =       2.1614 ACRE-FEET
          PEAK DISCHARGE RATE =      58.56 CFS  AT   1.499 HOURS   BASIN
AREA =    .0219 SQ. MI.


     *****
     ***** MAXIMUM FLOW FROM SB 100 IS 1.4 CFS
     ***** ROUTE THROUGH DETENTION POND (APPROX. DIMENSIONS 181'x181')
     ***** ORIFICE OPENING
     *****
     ROUTE RESERVOIR      ID=2  HYD=POND.101  INFLOW=1  CODE=10
                          OUTFLOW(CFS)    STORAGE(AC FT)    ELEV(FT)
                          0               0                 19.0
                          .36             .3104             19.5
                          .77             .6325             20.0
                          .99             .9663             20.5
```

1.15	1.3122	21.0
1.45	2.0406	22.0
1.70	2.8188	23.0

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	19.00	.000	.00
.33	.00	19.00	.000	.00
.67	.00	19.00	.000	.00
1.00	.00	19.00	.000	.00
1.33	16.89	19.13	.083	.10
1.67	29.83	20.85	1.207	1.10
2.00	14.08	21.57	1.726	1.32
2.33	3.00	21.80	1.896	1.39
2.66	1.24	21.82	1.911	1.40
3.00	.66	21.80	1.898	1.39
3.33	.44	21.77	1.874	1.38
3.66	.36	21.73	1.847	1.37
4.00	.32	21.70	1.819	1.36
4.33	.31	21.66	1.790	1.35
4.66	.32	21.62	1.762	1.34
5.00	.33	21.58	1.734	1.32
5.33	.35	21.54	1.707	1.31
5.66	.37	21.51	1.681	1.30
5.99	.40	21.47	1.656	1.29
6.33	.04	21.43	1.626	1.28
6.66	.01	21.38	1.592	1.27
6.99	.00	21.34	1.558	1.25
7.33	.00	21.29	1.523	1.24
7.66	.00	21.24	1.489	1.22
7.99	.00	21.20	1.456	1.21
8.33	.00	21.15	1.423	1.20
8.66	.00	21.11	1.390	1.18
8.99	.00	21.06	1.358	1.17
9.32	.00	21.02	1.326	1.16
9.66	.00	20.97	1.294	1.14
9.99	.00	20.93	1.263	1.13
10.32	.00	20.88	1.232	1.11
10.66	.00	20.84	1.202	1.10
10.99	.00	20.80	1.172	1.09
11.32	.00	20.75	1.142	1.07
11.66	.00	20.71	1.113	1.06
11.99	.00	20.67	1.084	1.04
12.32	.00	20.63	1.055	1.03
12.65	.00	20.59	1.027	1.02
12.99	.00	20.55	.999	1.01
13.32	.00	20.51	.972	.99
13.65	.00	20.47	.945	.98
13.99	.00	20.43	.918	.96
14.32	.00	20.39	.892	.94
14.65	.00	20.35	.866	.92
14.99	.00	20.31	.841	.91
15.32	.00	20.28	.816	.89
15.65	.00	20.24	.792	.88
15.98	.00	20.20	.768	.86
16.32	.00	20.17	.745	.84
16.65	.00	20.13	.722	.83
16.98	.00	20.10	.699	.81

```
        17.32        .00     20.07        .677        .80
        17.65        .00     20.03        .655        .78
        17.98        .00     20.00        .634        .77
        18.32        .00     19.97        .613        .74

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

        18.65        .00     19.94        .593        .72
        18.98        .00     19.91        .573        .69
        19.31        .00     19.88        .554        .67
        19.65        .00     19.85        .536        .65
     PEAK DISCHARGE =         1.397 CFS - PEAK OCCURS AT HOUR    2.60
     MAXIMUM WATER SURFACE ELEVATION =       21.823
     MAXIMUM STORAGE =        1.9113 AC-FT      INCREMENTAL TIME=
.033300HRS

    PRINT HYD            ID=2 CODE=1

                                                HYDROGRAPH FROM AREA
POND.101


        RUNOFF VOLUME =     1.40559 INCHES     =       1.6417 ACRE-FEET
        PEAK DISCHARGE RATE =       1.40 CFS  AT   2.597 HOURS   BASIN
AREA =   .0219 SQ. MI.


    *****
    ***** SUB-BASIN 101 SUN SAGE HILLS TOWNHOMES (6.9 UN/AC)
    *****
    COMPUTE NM HYD       ID=1 HYD NO=101.0 AREA=0.0131 SQ MI
                         PER A=0 PER B=21 PER C=15 PER D=64
                         TP=0.1333 HR MASS RAINFALL=-1

        K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
        UNIT PEAK =   33.100    CFS   UNIT VOLUME =    .9990       B =
526.28      P60 = 1.8700
        AREA =      .008384 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300


        K =   .120523HR    TP =   .133300HR    K/TP RATIO =   .904149
SHAPE CONSTANT, N =  3.918663
        UNIT PEAK =   12.372    CFS   UNIT VOLUME =    .9994       B =
349.71      P60 = 1.8700
        AREA =      .004716 SQ MI    IA =    .43750 INCHES    INF =
1.07500 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300

    PRINT HYD            ID=1 CODE=1

                                              PARTIAL HYDROGRAPH   101.00


        RUNOFF VOLUME =     1.54209 INCHES     =       1.0774 ACRE-FEET
```

PEAK DISCHARGE RATE = 30.61 CFS AT 1.499 HOURS BASIN AREA = .0131 SQ. MI.

```
*****
*****ADD SB 100 AND SB 101
*****
ADD HYD              ID=3 HYD=101 ID=1  ID=2
PRINT HYD            ID=3 CODE=1
```

PARTIAL HYDROGRAPH 101.00

RUNOFF VOLUME = 1.45667 INCHES = 2.7191 ACRE-FEET
PEAK DISCHARGE RATE = 31.34 CFS AT 1.499 HOURS BASIN AREA = .0350 SQ. MI.

```
*****
***** ROUTE 250 FT SOUTH ON 94TH STREET 32' FF 50' ROW
***** @ 0.005 FT/FT
*****
COMPUTE RATING CURVE CID=1 VS NO=9  NO SEGS=1
                     MIN ELEV=0.0    MAX ELEV=.87
                     CH SLP=.005     FP SLP=0.005  N=0.017
                     DIST=50
                     DIST  ELEV     DIST  ELEV     DIST  ELEV
                       0   .87      9.0   .67     9.05    0.
                      11  .125       25  .405       39  .125
                      41    0.    41.05   .67       50   .87
```

RATING CURVE VALLEY SECTION

9.0

FLOW RATE FT	TOP WIDTH	WATER SURFACE ELEV	FLOW AREA SQ FT	CFS
.00	.00	.00	.00	
.02	1.45	.05	.03	
.10	2.91	.09	.13	
.27	5.21	.14	.30	
.64	9.79	.18	.65	
1.39	14.38	.23	1.20	
2.63	18.96	.27	1.97	
4.46	23.55	.32	2.94	
6.97	28.14	.37	4.12	
10.38	32.01	.41	5.51	

15.35	32.02
21.05	32.03
27.44	32.03
34.47	32.04
42.12	32.05
48.98	33.56
54.42	37.67
60.93	41.78
68.53	45.89
77.24	50.00

COMPUTE TRAVEL TIME ID=4 REACH NO=1 NO VS=1 LENGTH=250 FT SLOPE=0.005

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS
.1449	.046	.033	.02
.0913	.092	.133	.10
.0770	.137	.305	.27
.0703	.183	.648	.64
.0600	.229	1.202	1.39
.0519	.275	1.965	2.63
.0458	.321	2.938	4.46
.0411	.366	4.122	6.97
.0369	.412	5.513	10.38
.0316	.458	6.979	15.35
.0279	.504	8.445	21.05
.0251	.549	9.911	27.44
.0229	.595	11.378	34.47
.0212	.641	12.845	42.12
	.687	14.326	48.98
	.46	6.98	
	.50	8.44	
	.55	9.91	
	.60	11.38	
	.64	12.85	
	.69	14.33	
	.73	15.96	
	.78	17.78	
	.82	19.78	
	.87	21.98	

```
.0203
                                        .733      15.956       54.42
.0204
                                        .778      17.776       60.93
.0203
                                        .824      19.783       68.53
.0200
                                        .870      21.978       77.24
.0198
     ROUTE                ID=4 HYD NO=201  INFLOW ID=3 DT=0.0
     PRINT HYD            ID=4 CODE=1

                                          PARTIAL HYDROGRAPH   201.00


         RUNOFF VOLUME =     1.45470 INCHES     =       2.7154 ACRE-FEET
         PEAK DISCHARGE RATE =      31.14 CFS  AT   1.532 HOURS   BASIN
AREA =   .0350 SQ. MI.


     *****
     ***** SUB-BASIN 104 RESIDENTIAL (4.0 UN/AC)
     *****
     COMPUTE NM HYD       ID=1 HYD NO=104.0 AREA=0.01350 SQ MI
                          PER A=0 PER B=34 PER C=24 PER D=42
                          TP=0.1333 HR MASS RAINFALL=-1

         K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
         UNIT PEAK =   22.385    CFS   UNIT VOLUME =    .9988       B =
526.28      P60 = 1.8700
         AREA =      .005670 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300


         K =   .120595HR    TP =   .133300HR    K/TP RATIO =   .904691
SHAPE CONSTANT, N =  3.916166
         UNIT PEAK =   20.532    CFS   UNIT VOLUME =    .9998       B =
349.54      P60 = 1.8700
         AREA =      .007830 SQ MI    IA =    .43793 INCHES    INF =
1.07621 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300

     PRINT HYD            ID=1 CODE=1

                                          PARTIAL HYDROGRAPH   104.00


         RUNOFF VOLUME =     1.28283 INCHES     =        .9236 ACRE-FEET
         PEAK DISCHARGE RATE =      27.72 CFS  AT   1.499 HOURS   BASIN
AREA =   .0135 SQ. MI.


     *****
     ***** ADD SB 100 AND 101 AND 104
     *****
```

```
ADD HYD              ID=2 HYD=104 ID=1  ID=4
PRINT HYD            ID=2 CODE=1

                                        PARTIAL HYDROGRAPH   104.00


     RUNOFF VOLUME =     1.40686 INCHES     =       3.6390 ACRE-FEET
     PEAK DISCHARGE RATE =      58.10 CFS  AT   1.532 HOURS   BASIN
AREA =   .0485 SQ. MI.


*****
***** ROUTE 770 FT EAST ON REBA AVE 32' 50' ROW
***** FF @ 0.0164 FT/FT
*****
COMPUTE RATING CURVE CID=1 VS NO=9  NO SEGS=1
                     MIN ELEV=0.0    MAX ELEV=.87
                     CH SLP=.0164     FP SLP=0.0164  N=0.017
                     DIST=50
                     DIST  ELEV     DIST  ELEV     DIST  ELEV
                       0    .87      9.0   .67     9.05    0.
                      11   .125       25  .405       39  .125
                      41     0.    41.05   .67       50   .87

                                        RATING CURVE VALLEY SECTION
9.0
                                            WATER        FLOW
FLOW          TOP
                                           SURFACE       AREA
RATE          WIDTH
                                            ELEV         SQ FT        CFS
FT
                                             .00          .00
.00           .00
                                             .05          .03
.03          1.45
                                             .09          .13
.18          2.91
                                             .14          .30
.50          5.21
                                             .18          .65
1.16          9.79
                                             .23         1.20
2.52         14.38
                                             .27         1.97
4.77         18.96
                                             .32         2.94
8.07         23.55
                                             .37         4.12
12.62         28.14
                                             .41         5.51
18.80         32.01
                                             .46         6.98
27.79         32.02
                                             .50         8.44
38.12         32.03
                                             .55         9.91
49.69         32.03
                                             .60        11.38
62.43         32.04
```

		.64	12.85
76.28	32.05		
		.69	14.33
88.71	33.56		
		.73	15.96
98.56	37.67		
		.78	17.78
110.35	41.78		
		.82	19.78
124.11	45.89		
		.87	21.98
139.89	50.00		

COMPUTE TRAVEL TIME ID=3 REACH NO=1 NO VS=1 LENGTH=770 FT SLOPE=0.0164

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS
.2464	.046	.033	.03
.1552	.092	.133	.18
.1310	.137	.305	.50
.1195	.183	.648	1.16
.1020	.229	1.202	2.52
.0882	.275	1.965	4.77
.0778	.321	2.938	8.07
.0699	.366	4.122	12.62
.0627	.412	5.513	18.80
.0537	.458	6.979	27.79
.0474	.504	8.445	38.12
.0427	.549	9.911	49.69
.0390	.595	11.378	62.43
.0360	.641	12.845	76.28
.0345	.687	14.326	88.71
.0346	.733	15.956	98.56
.0345	.778	17.776	110.35
.0341	.824	19.783	124.11
	.870	21.978	139.89

```
.0336
     ROUTE                ID=3 HYD NO=204  INFLOW ID=2 DT=0.0
     PRINT HYD            ID=3 CODE=1

                                        PARTIAL HYDROGRAPH   204.00


         RUNOFF VOLUME =     1.40424 INCHES     =       3.6323 ACRE-FEET
         PEAK DISCHARGE RATE =      56.61 CFS  AT   1.532 HOURS   BASIN
AREA =   .0485 SQ. MI.


     *****
     ***** SUB-BASIN 102 RESIDENTIAL (5.1 UN/AC)
     *****
     COMPUTE NM HYD       ID=1 HYD NO=102.0 AREA=0.01310 SQ MI
                          PER A=0 PER B=30 PER C=20 PER D=50
                          TP=0.1333 HR MASS RAINFALL=-1

         K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
         UNIT PEAK =   25.860    CFS   UNIT VOLUME =    .9989       B =
526.28      P60 = 1.8700
         AREA =      .006550 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300


         K =   .120942HR    TP =   .133300HR    K/TP RATIO =   .907291
SHAPE CONSTANT, N =  3.904285
         UNIT PEAK =   17.136    CFS   UNIT VOLUME =    .9996       B =
348.74      P60 = 1.8700
         AREA =      .006550 SQ MI    IA =    .44000 INCHES    INF =
1.08200 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300

     PRINT HYD            ID=1 CODE=1

                                        PARTIAL HYDROGRAPH   102.00


         RUNOFF VOLUME =     1.37477 INCHES     =        .9605 ACRE-FEET
         PEAK DISCHARGE RATE =      28.19 CFS  AT   1.499 HOURS   BASIN
AREA =   .0131 SQ. MI.


     *****
     ***** SUB-BASIN 103 RESIDENTIAL (4.6 UN/AC)
     *****
     COMPUTE NM HYD       ID=2 HYD NO=103.0 AREA=0.00398 SQ MI
                          PER A=0 PER B=32 PER C=21 PER D=47
                          TP=0.1333 HR MASS RAINFALL=-1

         K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
         UNIT PEAK =   7.3852    CFS   UNIT VOLUME =    .9978       B =
526.28      P60 = 1.8700
```

```
        AREA =      .001871 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300


        K =   .121037HR    TP =   .133300HR    K/TP RATIO =   .908002
SHAPE CONSTANT, N =  3.901043
        UNIT PEAK =   5.5151    CFS   UNIT VOLUME =    .9980       B =
348.52      P60 = 1.8700
        AREA =      .002109 SQ MI    IA =    .44057 INCHES    INF =
1.08358 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300

     PRINT HYD           ID=2 CODE=1

                                          PARTIAL HYDROGRAPH   103.00


        RUNOFF VOLUME =     1.33869 INCHES     =         .2842 ACRE-FEET
        PEAK DISCHARGE RATE =       8.42 CFS  AT   1.499 HOURS   BASIN
AREA =   .0040 SQ. MI.


     *****
     ***** ADD SB 102 AND 103
     *****
     ADD HYD             ID=4 HYD=103 ID=1  ID=2
     PRINT HYD           ID=4 CODE=1

                                          PARTIAL HYDROGRAPH   103.00


        RUNOFF VOLUME =     1.36633 INCHES     =       1.2446 ACRE-FEET
        PEAK DISCHARGE RATE =      36.61 CFS  AT   1.499 HOURS   BASIN
AREA =   .0171 SQ. MI.


     *****
     ***** ADD SB 100, 101, 102, 103, 104
     *****
     ADD HYD             ID=2 HYD=104 ID=3  ID=4
     PRINT HYD           ID=2 CODE=1

                                          PARTIAL HYDROGRAPH   104.00


        RUNOFF VOLUME =     1.39436 INCHES     =       4.8769 ACRE-FEET
        PEAK DISCHARGE RATE =      92.11 CFS  AT   1.532 HOURS   BASIN
AREA =   .0656 SQ. MI.


     *****
     ***** ROUTE 150 FT SOUTHEAST ON BLAZICK AVE 32' FF 50' ROW
     ***** @ 0.02 FT/FT
     *****
     COMPUTE RATING CURVE CID=1 VS NO=9  NO SEGS=1
```

MIN ELEV=0.0 MAX ELEV=.87
CH SLP=.02 FP SLP=0.02 N=0.017
DIST=50

DIST	ELEV	DIST	ELEV	DIST	ELEV
0	.87	9.0	.67	9.05	0.
11	.125	25	.405	39	.125
41	0.	41.05	.67	50	.87

9.0

RATING CURVE VALLEY SECTION

FLOW RATE FT	TOP WIDTH
.00	.00
.03	1.45
.20	2.91
.55	5.21
1.28	9.79
2.78	14.38
5.26	18.96
8.92	23.55
13.93	28.14
20.76	32.01
30.69	32.02
42.10	32.03
54.88	32.03
68.94	32.04
84.23	32.05
97.96	33.56
108.84	37.67
121.86	41.78
137.06	45.89
154.48	50.00

WATER SURFACE ELEV	FLOW AREA SQ FT	CFS
.00	.00	
.05	.03	
.09	.13	
.14	.30	
.18	.65	
.23	1.20	
.27	1.97	
.32	2.94	
.37	4.12	
.41	5.51	
.46	6.98	
.50	8.44	
.55	9.91	
.60	11.38	
.64	12.85	
.69	14.33	
.73	15.96	
.78	17.78	
.82	19.78	
.87	21.98	

COMPUTE TRAVEL TIME ID=3 REACH NO=1 NO VS=1 LENGTH=150 FT
SLOPE=0.02

TRAVEL TIME TABLE
REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS
.0435	.046	.033	.03
.0274	.092	.133	.20
.0231	.137	.305	.55
.0211	.183	.648	1.28
.0180	.229	1.202	2.78
.0156	.275	1.965	5.26
.0137	.321	2.938	8.92
.0123	.366	4.122	13.93
.0111	.412	5.513	20.76
.0095	.458	6.979	30.69
.0084	.504	8.445	42.10
.0075	.549	9.911	54.88
.0069	.595	11.378	68.94
.0064	.641	12.845	84.23
.0061	.687	14.326	97.96
.0061	.733	15.956	108.84
.0061	.778	17.776	121.86
.0060	.824	19.783	137.06
.0059	.870	21.978	154.48

```
     ROUTE                ID=3 HYD NO=203  INFLOW ID=2 DT=0.0
     PRINT HYD            ID=3 CODE=1

                                        PARTIAL HYDROGRAPH   203.00


         RUNOFF VOLUME =     1.39402 INCHES     =       4.8757 ACRE-FEET
         PEAK DISCHARGE RATE =      92.38 CFS  AT   1.532 HOURS   BASIN
AREA =   .0656 SQ. MI.


     *****
     ***** SUB-BASIN 105 RESIDENTIAL (4.0 UN/AC)
     *****
     COMPUTE NM HYD       ID=1 HYD NO=105.0 AREA=0.00526 SQ MI
```

```
                    PER A=0 PER B=34 PER C=24 PER D=42
                    TP=0.1333 HR MASS RAINFALL=-1

        K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
        UNIT PEAK =    8.7220    CFS   UNIT VOLUME =    .9980       B =
526.28      P60 = 1.8700
        AREA =       .002209 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300


        K =    .120595HR    TP =    .133300HR    K/TP RATIO =    .904691
SHAPE CONSTANT, N =  3.916166
        UNIT PEAK =    7.9999    CFS   UNIT VOLUME =    .9988       B =
349.54      P60 = 1.8700
        AREA =       .003051 SQ MI    IA =    .43793 INCHES    INF =
1.07621 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300

     PRINT HYD           ID=1 CODE=1

                                        PARTIAL HYDROGRAPH   105.00


        RUNOFF VOLUME =     1.28283 INCHES     =        .3599 ACRE-FEET
        PEAK DISCHARGE RATE =      10.81 CFS  AT   1.499 HOURS   BASIN
AREA =    .0053 SQ. MI.


     *****
     ***** ADD SB 100 THRU 104 AND 105
     *****
     ADD HYD             ID=2 HYD=105 ID=1  ID=3
     PRINT HYD           ID=2 CODE=1

                                        PARTIAL HYDROGRAPH   105.00


        RUNOFF VOLUME =     1.38576 INCHES     =       5.2355 ACRE-FEET
        PEAK DISCHARGE RATE =     102.90 CFS  AT   1.532 HOURS   BASIN
AREA =    .0708 SQ. MI.


     *****
     ***** ROUTE 1050 FT EAST ON SONYA AVE 32' FF 50' ROW
     ***** @ 0.0112 FT/FT
     *****
     COMPUTE RATING CURVE CID=1 VS NO=9  NO SEGS=1
                         MIN ELEV=0.0    MAX ELEV=.87
                         CH SLP=.0112    FP SLP=0.0112  N=0.017
                         DIST=50
                         DIST  ELEV     DIST  ELEV     DIST  ELEV
                            0   .87      9.0   .67     9.05    0.
                           11  .125       25  .405       39  .125
                           41    0.    41.05   .67       50   .87
```

9.0

FLOW RATE FT	TOP WIDTH
.00	.00
.02	1.45
.15	2.91
.41	5.21
.96	9.79
2.08	14.38
3.94	18.96
6.67	23.55
10.43	28.14
15.53	32.01
22.97	32.02
31.50	32.03
41.07	32.03
51.59	32.04
63.03	32.05
73.31	33.56
81.45	37.67
91.19	41.78
102.56	45.89
115.60	50.00

RATING CURVE VALLEY SECTION

WATER SURFACE ELEV	FLOW AREA SQ FT	CFS
.00	.00	
.05	.03	
.09	.13	
.14	.30	
.18	.65	
.23	1.20	
.27	1.97	
.32	2.94	
.37	4.12	
.41	5.51	
.46	6.98	
.50	8.44	
.55	9.91	
.60	11.38	
.64	12.85	
.69	14.33	
.73	15.96	
.78	17.78	
.82	19.78	
.87	21.98	

COMPUTE TRAVEL TIME ID=3 REACH NO=1 NO VS=1 LENGTH=1050 FT SLOPE=0.0112

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS
	.046	.033	.02

.092	.133	.15
.137	.305	.41
.183	.648	.96
.229	1.202	2.08
.275	1.965	3.94
.321	2.938	6.67
.366	4.122	10.43
.412	5.513	15.53
.458	6.979	22.97
.504	8.445	31.50
.549	9.911	41.07
.595	11.378	51.59
.641	12.845	63.03
.687	14.326	73.31
.733	15.956	81.45
.778	17.776	91.19
.824	19.783	102.56
.870	21.978	115.60

.4066
.2562
.2161
.1972
.1683
.1455
.1284
.1153
.1035
.0886
.0782
.0704
.0643
.0594
.0570
.0571
.0569
.0563
.0555

```
     ROUTE                ID=3 HYD NO=205  INFLOW ID=2 DT=0.0
     PRINT HYD            ID=3 CODE=1

                                          PARTIAL HYDROGRAPH   205.00

         RUNOFF VOLUME =     1.38279 INCHES     =       5.2243 ACRE-FEET
         PEAK DISCHARGE RATE =      92.41 CFS  AT   1.565 HOURS   BASIN
AREA =   .0708 SQ. MI.


     *****
     ***** SUB-BASIN 106 RESIDENTIAL (4.5 UN/AC)
     *****
     COMPUTE NM HYD       ID=1 HYD NO=106.0 AREA=0.01893 SQ MI
                          PER A=0 PER B=32 PER C=22 PER D=46
                          TP=0.1333 HR MASS RAINFALL=-1

         K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
         UNIT PEAK =   34.379    CFS   UNIT VOLUME =    .9990       B =
526.28      P60 = 1.8700
         AREA =      .008708 SQ MI    IA =    .10000 INCHES    INF =
```

```
.04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300


         K =   .120756HR    TP =   .133300HR    K/TP RATIO =   .905895
SHAPE CONSTANT, N =  3.910652
         UNIT PEAK =   26.776    CFS   UNIT VOLUME =    .9999       B =
349.17      P60 = 1.8700
         AREA =      .010222 SQ MI    IA =    .43889 INCHES    INF =
1.07889 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300

     PRINT HYD           ID=1 CODE=1

                                          PARTIAL HYDROGRAPH   106.00

         RUNOFF VOLUME =     1.32880 INCHES     =       1.3415 ACRE-FEET
         PEAK DISCHARGE RATE =      39.79 CFS  AT   1.499 HOURS   BASIN
AREA =   .0189 SQ. MI.


     *****
     ***** ADD SB 100 THRU 105 AND 106
     *****
     ADD HYD             ID=2 HYD=106 ID=1  ID=3
     PRINT HYD           ID=2 CODE=1

                                          PARTIAL HYDROGRAPH   106.00


         RUNOFF VOLUME =     1.37140 INCHES     =       6.5659 ACRE-FEET
         PEAK DISCHARGE RATE =     126.54 CFS  AT   1.565 HOURS   BASIN
AREA =   .0898 SQ. MI.


     *****
     ***** ROUTE 400 FT SOUTHEAST ON SAPPHIRE ST. TO 86TH ST.
     ***** 32' FF 50' ROW @ 0.0135 FT/FT
     *****
     COMPUTE RATING CURVE CID=1 VS NO=9  NO SEGS=1
                         MIN ELEV=0.0    MAX ELEV=.87
                         CH SLP=.0135    FP SLP=0.0135  N=0.017
                         DIST=50
                         DIST  ELEV     DIST  ELEV     DIST  ELEV
                            0   .87      9.0   .67     9.05    0.
                           11  .125       25  .405       39  .125
                           41    0.    41.05   .67       50   .87

                                          RATING CURVE VALLEY SECTION
9.0
                                              WATER       FLOW
FLOW        TOP
                                             SURFACE      AREA
RATE        WIDTH
                                              ELEV        SQ FT       CFS
FT
```

.00	.00
.03	1.45
.17	2.91
.45	5.21
1.05	9.79
2.29	14.38
4.32	18.96
7.33	23.55
11.45	28.14
17.05	32.01
25.22	32.02
34.59	32.03
45.09	32.03
56.64	32.04
69.20	32.05
80.48	33.56
89.42	37.67
100.12	41.78
112.60	45.89
126.92	50.00

COMPUTE TRAVEL TIME ID=3 REACH NO=1 NO VS=1 LENGTH=400 FT SLOPE=0.0135

TRAVEL TIME HRS
.1411
.0889
.0750
.0684

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS
.046	.033	.03
.092	.133	.17
.137	.305	.45
.183	.648	1.05
.229	1.202	2.29
.00		.00
.05		.03
.09		.13
.14		.30
.18		.65
.23		1.20
.27		1.97
.32		2.94
.37		4.12
.41		5.51
.46		6.98
.50		8.44
.55		9.91
.60		11.38
.64		12.85
.69		14.33
.73		15.96
.78		17.78
.82		19.78
.87		21.98

.275	1.965	4.32
.321	2.938	7.33
.366	4.122	11.45
.412	5.513	17.05
.458	6.979	25.22
.504	8.445	34.59
.549	9.911	45.09
.595	11.378	56.64
.641	12.845	69.20
.687	14.326	80.48
.733	15.956	89.42
.778	17.776	100.12
.824	19.783	112.60
.870	21.978	126.92

.0584
.0505
.0446
.0400
.0359
.0307
.0271
.0244
.0223
.0206
.0198
.0198
.0197
.0195
.0192

```
     ROUTE                ID=3 HYD NO=206  INFLOW ID=2 DT=0.0
     PRINT HYD            ID=3 CODE=1

                                        PARTIAL HYDROGRAPH   206.00


         RUNOFF VOLUME =     1.37058 INCHES     =       6.5619 ACRE-FEET
         PEAK DISCHARGE RATE =     125.13 CFS  AT   1.565 HOURS   BASIN
AREA =   .0898 SQ. MI.


     *****
     ***** SUB-BASIN 107 RESIDENTIAL (PARK/RESIDENTIAL/WATER TNK)
     *****
     COMPUTE NM HYD       ID=1 HYD NO=107.0 AREA=0.0267 SQ MI
                          PER A=0 PER B=54 PER C=23 PER D=23
                          TP=0.1333 HR MASS RAINFALL=-1

         K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
         UNIT PEAK =   24.245    CFS   UNIT VOLUME =    .9989       B =
526.28      P60 = 1.8700
         AREA =      .006141 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300


         K =   .123487HR    TP =   .133300HR    K/TP RATIO =   .926384
SHAPE CONSTANT, N =  3.819526
         UNIT PEAK =   52.894    CFS   UNIT VOLUME =    1.000       B =
```

```
342.95      P60 = 1.8700
         AREA =      .020559 SQ MI    IA =    .45519 INCHES    INF =
1.12455 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300

     PRINT HYD           ID=1 CODE=1

                                        PARTIAL HYDROGRAPH   107.00


         RUNOFF VOLUME =     1.03176 INCHES     =       1.4692 ACRE-FEET
         PEAK DISCHARGE RATE =      46.95 CFS  AT   1.499 HOURS   BASIN
AREA =   .0267 SQ. MI.


     *****
     ***** SUB-BASIN 108 UNDEVELOPED ASSUME RESIDENTIAL @ 4.0 UN/AC
     *****
     COMPUTE NM HYD      ID=2 HYD NO=108.0 AREA=0.0102 SQ MI
                         PER A=0 PER B=35 PER C=23 PER D=42
                         TP=0.1333 HR MASS RAINFALL=-1

         K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
         UNIT PEAK =   16.913    CFS   UNIT VOLUME =    .9986       B =
526.28      P60 = 1.8700
         AREA =      .004284 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300


         K =   .121029HR    TP =   .133300HR    K/TP RATIO =   .907941
SHAPE CONSTANT, N =  3.901327
         UNIT PEAK =   15.468    CFS   UNIT VOLUME =    .9995       B =
348.54      P60 = 1.8700
         AREA =      .005916 SQ MI    IA =    .44052 INCHES    INF =
1.08345 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300

     PRINT HYD           ID=2 CODE=1

                                        PARTIAL HYDROGRAPH   108.00


         RUNOFF VOLUME =     1.27962 INCHES     =        .6961 ACRE-FEET
         PEAK DISCHARGE RATE =      20.89 CFS  AT   1.499 HOURS   BASIN
AREA =   .0102 SQ. MI.


     *****
     ***** ADD SB 107 AND 108
     *****
     ADD HYD             ID=4 HYD=108 ID=1  ID=2
     PRINT HYD           ID=4 CODE=1

                                        PARTIAL HYDROGRAPH   108.00
```

```
          RUNOFF VOLUME =      1.10025 INCHES      =        2.1653 ACRE-FEET
          PEAK DISCHARGE RATE =       67.84 CFS  AT   1.499 HOURS   BASIN
AREA =    .0369 SQ. MI.


     *****
     ***** ADD SB 100 THRU 108
     *****
     ADD HYD              ID=2 HYD=108 ID=3  ID=4
     PRINT HYD            ID=2 CODE=1

                                          PARTIAL HYDROGRAPH   108.00


          RUNOFF VOLUME =      1.29183 INCHES      =        8.7272 ACRE-FEET
          PEAK DISCHARGE RATE =      184.52 CFS  AT   1.565 HOURS   BASIN
AREA =    .1267 SQ. MI.


     *****
     ***** ROUTE 300 FT SOUTHEAST ON SAPPHIRE ST. TO MICHELLES
     ***** 40' FF 60' ROW @ 0.014 FT/FT
     ***** INCLUDES 8" DIVERSION BERM
     COMPUTE RATING CURVE CID=1 VS NO=11  NO SEGS=1
                         MIN ELEV=0.0    MAX ELEV=1.67
                         CH SLP=.014    FP SLP=0.014  N=0.017
                         DIST=60.05
                         DIST  ELEV     DIST  ELEV     DIST  ELEV
                            0  1.67     0.05   1.0       10  0.67
                        10.05    0.       12  .125       30  .485
                           48  .125       50    0.    50.05   0.67
                           60   1.0    60.05  1.67

                                          RATING CURVE VALLEY SECTION
11.0
                                              WATER        FLOW
FLOW          TOP
                                             SURFACE       AREA
RATE          WIDTH
                                              ELEV         SQ FT        CFS
FT
                                               .00          .00
.00            .00
                                               .09          .37
.40           8.51
                                               .18         1.48
2.55         16.43
                                               .26         3.25
7.33         23.92
                                               .35         5.69
15.46         31.41
                                               .44         8.78
27.58         38.90
                                               .53        12.44
45.89         42.16
                                               .62        16.08
69.36         40.86
```

93.94	42.05
120.55	47.35
152.43	52.65
189.99	57.95
238.86	59.96
296.03	59.97
357.91	59.98
424.30	60.00
495.01	60.01
569.91	60.02
648.85	60.04
731.70	60.05

COMPUTE TRAVEL TIME ID=3 REACH NO=1 NO VS=1 LENGTH=300 FT SLOPE=0.014

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS
.0777	.088	.374	.40
.0484	.176	1.481	2.55
.0370	.264	3.254	7.33
.0307	.352	5.686	15.46
.0265	.439	8.777	27.58
.0226	.527	12.435	45.89
.0193	.615	16.084	69.36
.0174	.703	19.659	93.94
.0163	.791	23.588	120.55
.0153	.879	27.983	152.43
.0144	.967	32.843	189.99
.0133	1.055	38.080	238.86
	1.143	43.350	296.03
	.70	19.66	
	.79	23.59	
	.88	27.98	
	.97	32.84	
	1.05	38.08	
	1.14	43.35	
	1.23	48.62	
	1.32	53.90	
	1.41	59.17	
	1.49	64.44	
	1.58	69.72	
	1.67	75.00	

```
.0122
                                        1.231      48.622      357.91
.0113
                                        1.318      53.895      424.30
.0106
                                        1.406      59.169      495.01
.0100
                                        1.494      64.444      569.91
.0094
                                        1.582      69.721      648.85
.0090
                                        1.670      74.998      731.70
.0085
     ROUTE                ID=3 HYD NO=208  INFLOW ID=2 DT=0.0
     PRINT HYD            ID=3 CODE=1

                                          PARTIAL HYDROGRAPH   208.00


         RUNOFF VOLUME =     1.29123 INCHES     =       8.7231 ACRE-FEET
         PEAK DISCHARGE RATE =     185.36 CFS  AT   1.565 HOURS   BASIN
AREA =   .1267 SQ. MI.


     *****
     ***** SUB-BASIN 109 RESIDENTIAL (3.8 UN/AC)
     *****
     COMPUTE NM HYD       ID=1 HYD NO=109.0 AREA=0.0057 SQ MI
                          PER A=0 PER B=36 PER C=25 PER D=39
                          TP=0.1333 HR MASS RAINFALL=-1

         K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
         UNIT PEAK =   8.7765    CFS   UNIT VOLUME =    .9980       B =
526.28      P60 = 1.8700
         AREA =      .002223 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300


         K =   .120695HR    TP =   .133300HR    K/TP RATIO =   .905437
SHAPE CONSTANT, N =  3.912748
         UNIT PEAK =   9.1114    CFS   UNIT VOLUME =    .9989       B =
349.31      P60 = 1.8700
         AREA =      .003477 SQ MI    IA =    .43852 INCHES    INF =
1.07787 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300

     PRINT HYD            ID=1 CODE=1

                                          PARTIAL HYDROGRAPH   109.00


         RUNOFF VOLUME =     1.24675 INCHES     =        .3790 ACRE-FEET
         PEAK DISCHARGE RATE =      11.48 CFS  AT   1.499 HOURS   BASIN
AREA =   .0057 SQ. MI.
```

```
*****
***** SUB-BASIN 110 UNDEVELOPED ASSUME RESIDENTIAL @ 4.0 UN/AC
*****
COMPUTE NM HYD        ID=2 HYD NO=110.0 AREA=0.0232 SQ MI
                      PER A=0 PER B=46.56 PER C=0 PER D=53.44
                      TP=0.1333 HR MASS RAINFALL=-1

     K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   48.948    CFS   UNIT VOLUME =    .9991       B =
526.28      P60 = 1.8700
     AREA =      .012398 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300

     K =   .130992HR    TP =   .133300HR    K/TP RATIO =   .982685
SHAPE CONSTANT, N =  3.593448
     UNIT PEAK =   26.505    CFS   UNIT VOLUME =    .9998       B =
327.09      P60 = 1.8700
     AREA =      .010802 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300

PRINT HYD             ID=2 CODE=1

                                        PARTIAL HYDROGRAPH   110.00


     RUNOFF VOLUME =     1.36107 INCHES     =       1.6841 ACRE-FEET
     PEAK DISCHARGE RATE =      48.62 CFS  AT   1.499 HOURS   BASIN
AREA =   .0232 SQ. MI.


*****
***** ADD SB 109 AND 110
*****
ADD HYD               ID=4 HYD=110 ID=1  ID=2
PRINT HYD             ID=4 CODE=1

                                        PARTIAL HYDROGRAPH   110.00


     RUNOFF VOLUME =     1.33850 INCHES     =       2.0631 ACRE-FEET
     PEAK DISCHARGE RATE =      60.11 CFS  AT   1.499 HOURS   BASIN
AREA =   .0289 SQ. MI.


*****
***** ADD SB 100 thru 110
*****
ADD HYD               ID=2 HYD=110 ID=3  ID=4
PRINT HYD             ID=2 CODE=1

                                        PARTIAL HYDROGRAPH   110.00
```

RUNOFF VOLUME = 1.30001 INCHES = 10.7862 ACRE-FEET
PEAK DISCHARGE RATE = 237.13 CFS AT 1.532 HOURS BASIN
AREA = .1556 SQ. MI.

*****
***** ROUTE 200 FT EAST ON SAPPHIRE ST. FROM MICHELLE ST. TO INLETS
***** 40' FF 60' ROW @ 0.014 FT/FT
COMPUTE RATING CURVE CID=1 VS NO=9 NO SEGS=1
MIN ELEV=0.0 MAX ELEV=1.0
CH SLP=.014 FP SLP=0.014 N=0.017
DIST=60

DIST	ELEV	DIST	ELEV	DIST	ELEV
0	1.0	10	0.67	10.05	0.
12	.125	30	.485	48	.125
50	0.	50.05	0.67	60	1.0

9.0

FLOW RATE FT	TOP WIDTH
.00	.00
.04	1.67
.25	3.34
.66	7.26
1.73	12.53
3.79	17.81
7.09	23.08
11.88	28.35
18.37	33.62
26.76	38.89
39.16	40.03
54.05	40.04
70.76	40.04
88.08	40.91
104.16	44.09
122.18	47.27
142.24	50.45

RATING CURVE VALLEY SECTION

WATER SURFACE ELEV	FLOW AREA SQ FT	CFS
.00	.00	
.05	.04	
.11	.18	
.16	.43	
.21	.95	
.26	1.75	
.32	2.83	
.37	4.18	
.42	5.81	
.47	7.72	
.53	9.82	
.58	11.93	
.63	14.03	
.68	16.15	
.74	18.39	
.79	20.79	
.84	23.36	

```
        AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January,
1994
             RUN DATE (MON/DAY/YR) = 04/28/2000
             START TIME (HR:MIN:SEC) = 11:05:53     USER NO.=
M_GOODWN.I01
             INPUT FILE = analptd.dat

     START                TIME=0.0
     *****
     *****  HYDROGRAPH FOR ANALYSIS POINT D
     *****
     *****  HYDROGRAPH OF ANALISIS POINTS A & B
     *****
     RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                          RAIN ONE=1.87 IN RAIN SIX=2.20 IN
                          RAIN DAY=2.66 IN DT=0.0333 HR

                     COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA
ATLAS 2 - PEAK AT 1.40 HR.
                     DT =    .033300 HOURS       END TIME =     5.994000
HOURS
                        .0000   .0016   .0033   .0050   .0067   .0085
.0103
                        .0121   .0140   .0160   .0180   .0200   .0221
.0243
                        .0265   .0288   .0312   .0336   .0361   .0387
.0414
                        .0442   .0471   .0501   .0533   .0566   .0600
.0636
                        .0674   .0714   .0757   .0808   .0863   .0922
.1044
                        .1323   .1754   .2374   .3221   .4335   .5756
.7527
                        .9690  1.1767  1.2619  1.3336  1.3972  1.4551
1.5084
                       1.5579  1.6041  1.6474  1.6881  1.7266  1.7629
1.7973
                       1.8298  1.8607  1.8900  1.9178  1.9442  1.9515
1.9573
                       1.9627  1.9680  1.9729  1.9777  1.9823  1.9867
1.9909
                       1.9950  1.9990  2.0029  2.0066  2.0102  2.0137
2.0172
                       2.0205  2.0238  2.0269  2.0300  2.0331  2.0360
2.0389
                       2.0418  2.0446  2.0473  2.0500  2.0526  2.0552
2.0578
                       2.0603  2.0627  2.0651  2.0675  2.0698  2.0721
2.0744
                       2.0766  2.0788  2.0810  2.0832  2.0853  2.0873
2.0894
                       2.0914  2.0934  2.0954  2.0974  2.0993  2.1012
2.1031
                       2.1050  2.1068  2.1086  2.1104  2.1122  2.1140
2.1157
                       2.1174  2.1191  2.1208  2.1225  2.1242  2.1258
2.1274
                       2.1290  2.1306  2.1322  2.1338  2.1353  2.1369
2.1384
                       2.1399  2.1414  2.1429  2.1444  2.1459  2.1473
```

```
2.1487
                    2.1502  2.1516  2.1530  2.1544  2.1558  2.1571
2.1585
                    2.1599  2.1612  2.1625  2.1639  2.1652  2.1665
2.1678
                    2.1691  2.1703  2.1716  2.1729  2.1741  2.1754
2.1766
                    2.1778  2.1791  2.1803  2.1815  2.1827  2.1839
2.1850
                    2.1862  2.1874  2.1886  2.1897  2.1909  2.1920
2.1931
                    2.1943  2.1954  2.1965  2.1976  2.1987  2.1998

     *****
     ***** SUB-BASIN 100 (UNDEVELOPED) ASSUME COMMERCIAL DEVELOPED
     *****
     COMPUTE NM HYD       ID=1 HYD NO=100.0 AREA=0.0219 SQ MI
                          PER A=0 PER B=5 PER C=5 PER D=90
                          TP=0.1333 HR MASS RAINFALL=-1

          K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   77.816    CFS   UNIT VOLUME =    .9992       B =
526.28       P60 = 1.8700
          AREA =       .019710 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300


          K =    .118429HR    TP =    .133300HR    K/TP RATIO =    .888442
SHAPE CONSTANT, N =  3.992480
          UNIT PEAK =   5.8269    CFS   UNIT VOLUME =    .9982       B =
354.67       P60 = 1.8700
          AREA =       .002190 SQ MI    IA =    .42500 INCHES    INF =
1.04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300

     PRINT HYD            ID=1 CODE=1

                                          PARTIAL HYDROGRAPH   100.00

          RUNOFF VOLUME =     1.85049 INCHES     =       2.1614 ACRE-FEET
          PEAK DISCHARGE RATE =      58.56 CFS  AT   1.499 HOURS   BASIN
AREA =    .0219 SQ. MI.


     *****
     ***** MAXIMUM FLOW FROM SB 100 IS 1.4 CFS
     ***** ROUTE THROUGH DETENTION POND (APPROX. DIMENSIONS 181'x181')
     ***** ORIFICE OPENING
     *****
     ROUTE RESERVOIR      ID=2  HYD=POND.101  INFLOW=1  CODE=10
                          OUTFLOW(CFS)     STORAGE(AC FT)     ELEV(FT)
                          0                0                  19.0
                          .36              .3104              19.5
                          .77              .6325              20.0
                          .99              .9663              20.5
```

1.15	1.3122	21.0
1.45	2.0406	22.0
1.70	2.8188	23.0

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	19.00	.000	.00
.33	.00	19.00	.000	.00
.67	.00	19.00	.000	.00
1.00	.00	19.00	.000	.00
1.33	16.89	19.13	.083	.10
1.67	29.83	20.85	1.207	1.10
2.00	14.08	21.57	1.726	1.32
2.33	3.00	21.80	1.896	1.39
2.66	1.24	21.82	1.911	1.40
3.00	.66	21.80	1.898	1.39
3.33	.44	21.77	1.874	1.38
3.66	.36	21.73	1.847	1.37
4.00	.32	21.70	1.819	1.36
4.33	.31	21.66	1.790	1.35
4.66	.32	21.62	1.762	1.34
5.00	.33	21.58	1.734	1.32
5.33	.35	21.54	1.707	1.31
5.66	.37	21.51	1.681	1.30
5.99	.40	21.47	1.656	1.29
6.33	.04	21.43	1.626	1.28
6.66	.01	21.38	1.592	1.27
6.99	.00	21.34	1.558	1.25
7.33	.00	21.29	1.523	1.24
7.66	.00	21.24	1.489	1.22
7.99	.00	21.20	1.456	1.21
8.33	.00	21.15	1.423	1.20
8.66	.00	21.11	1.390	1.18
8.99	.00	21.06	1.358	1.17
9.32	.00	21.02	1.326	1.16
9.66	.00	20.97	1.294	1.14
9.99	.00	20.93	1.263	1.13
10.32	.00	20.88	1.232	1.11
10.66	.00	20.84	1.202	1.10
10.99	.00	20.80	1.172	1.09
11.32	.00	20.75	1.142	1.07
11.66	.00	20.71	1.113	1.06
11.99	.00	20.67	1.084	1.04
12.32	.00	20.63	1.055	1.03
12.65	.00	20.59	1.027	1.02
12.99	.00	20.55	.999	1.01
13.32	.00	20.51	.972	.99
13.65	.00	20.47	.945	.98
13.99	.00	20.43	.918	.96
14.32	.00	20.39	.892	.94
14.65	.00	20.35	.866	.92
14.99	.00	20.31	.841	.91
15.32	.00	20.28	.816	.89
15.65	.00	20.24	.792	.88
15.98	.00	20.20	.768	.86
16.32	.00	20.17	.745	.84
16.65	.00	20.13	.722	.83
16.98	.00	20.10	.699	.81

```
        17.32        .00     20.07       .677       .80
        17.65        .00     20.03       .655       .78
        17.98        .00     20.00       .634       .77
        18.32        .00     19.97       .613       .74

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

        18.65        .00     19.94       .593       .72
        18.98        .00     19.91       .573       .69
        19.31        .00     19.88       .554       .67
        19.65        .00     19.85       .536       .65
     PEAK DISCHARGE =        1.397 CFS - PEAK OCCURS AT HOUR    2.60
     MAXIMUM WATER SURFACE ELEVATION =       21.823
     MAXIMUM STORAGE =        1.9113 AC-FT      INCREMENTAL TIME=
.033300HRS

    PRINT HYD           ID=2 CODE=1

                                                HYDROGRAPH FROM AREA
POND.101

        RUNOFF VOLUME =     1.40559 INCHES     =       1.6417 ACRE-FEET
        PEAK DISCHARGE RATE =       1.40 CFS  AT   2.597 HOURS   BASIN
AREA =   .0219 SQ. MI.


    *****
    ***** SUB-BASIN 101 SUN SAGE HILLS TOWNHOMES (6.9 UN/AC)
    *****
    COMPUTE NM HYD      ID=1 HYD NO=101.0 AREA=0.0131 SQ MI
                        PER A=0 PER B=21 PER C=15 PER D=64
                        TP=0.1333 HR MASS RAINFALL=-1

        K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
        UNIT PEAK =   33.100    CFS   UNIT VOLUME =    .9990       B =
526.28      P60 = 1.8700
        AREA =      .008384 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300


        K =   .120523HR    TP =   .133300HR    K/TP RATIO =   .904149
SHAPE CONSTANT, N =  3.918663
        UNIT PEAK =   12.372    CFS   UNIT VOLUME =    .9994       B =
349.71      P60 = 1.8700
        AREA =      .004716 SQ MI    IA =    .43750 INCHES    INF =
1.07500 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300

    PRINT HYD           ID=1 CODE=1

                                          PARTIAL HYDROGRAPH   101.00


        RUNOFF VOLUME =     1.54209 INCHES     =       1.0774 ACRE-FEET
```

```
        PEAK DISCHARGE RATE =      30.61 CFS  AT   1.499 HOURS   BASIN
AREA =   .0131 SQ. MI.

     *****
     *****ADD SB 100 AND SB 101
     *****
     ADD HYD              ID=3 HYD=101 ID=1  ID=2
     PRINT HYD            ID=3 CODE=1

                                        PARTIAL HYDROGRAPH   101.00

        RUNOFF VOLUME =     1.45667 INCHES     =       2.7191 ACRE-FEET
        PEAK DISCHARGE RATE =      31.34 CFS  AT   1.499 HOURS   BASIN
AREA =   .0350 SQ. MI.

     *****
     ***** ROUTE 250 FT SOUTH ON 94TH STREET 32' FF 50' ROW
     ***** @ 0.005 FT/FT
     *****
     COMPUTE RATING CURVE CID=1 VS NO=9  NO SEGS=1
                          MIN ELEV=0.0    MAX ELEV=.87
                          CH SLP=.005     FP SLP=0.005  N=0.017
                          DIST=50
                          DIST  ELEV     DIST  ELEV     DIST  ELEV
                             0   .87      9.0   .67     9.05    0.
                            11  .125       25  .405       39  .125
                            41    0.    41.05   .67       50   .87

                                        RATING CURVE VALLEY SECTION
9.0
                                            WATER        FLOW
FLOW        TOP
                                           SURFACE       AREA
RATE        WIDTH
                                            ELEV         SQ FT       CFS
FT
                                              .00          .00
.00         .00
                                              .05          .03
.02         1.45
                                              .09          .13
.10         2.91
                                              .14          .30
.27         5.21
                                              .18          .65
.64         9.79
                                              .23         1.20
1.39        14.38
                                              .27         1.97
2.63        18.96
                                              .32         2.94
4.46        23.55
                                              .37         4.12
6.97        28.14
                                              .41         5.51
10.38        32.01
```

15.35	32.02
21.05	32.03
27.44	32.03
34.47	32.04
42.12	32.05
48.98	33.56
54.42	37.67
60.93	41.78
68.53	45.89
77.24	50.00

COMPUTE TRAVEL TIME ID=4 REACH NO=1 NO VS=1 LENGTH=250 FT SLOPE=0.005

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS
.1449	.046	.033	.02
.0913	.092	.133	.10
.0770	.137	.305	.27
.0703	.183	.648	.64
.0600	.229	1.202	1.39
.0519	.275	1.965	2.63
.0458	.321	2.938	4.46
.0411	.366	4.122	6.97
.0369	.412	5.513	10.38
.0316	.458	6.979	15.35
.0279	.504	8.445	21.05
.0251	.549	9.911	27.44
.0229	.595	11.378	34.47
.0212	.641	12.845	42.12
	.687	14.326	48.98
	.46	6.98	
	.50	8.44	
	.55	9.91	
	.60	11.38	
	.64	12.85	
	.69	14.33	
	.73	15.96	
	.78	17.78	
	.82	19.78	
	.87	21.98	

```
.0203
                                        .733      15.956       54.42
.0204
                                        .778      17.776       60.93
.0203
                                        .824      19.783       68.53
.0200
                                        .870      21.978       77.24
.0198
     ROUTE                  ID=4 HYD NO=201  INFLOW ID=3 DT=0.0
     PRINT HYD              ID=4 CODE=1

                                          PARTIAL HYDROGRAPH   201.00


         RUNOFF VOLUME =     1.45470 INCHES     =       2.7154 ACRE-FEET
         PEAK DISCHARGE RATE =      31.14 CFS  AT   1.532 HOURS   BASIN
AREA =   .0350 SQ. MI.


     *****
     ***** SUB-BASIN 104 RESIDENTIAL (4.0 UN/AC)
     *****
     COMPUTE NM HYD         ID=1 HYD NO=104.0 AREA=0.01350 SQ MI
                            PER A=0 PER B=34 PER C=24 PER D=42
                            TP=0.1333 HR MASS RAINFALL=-1

         K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
         UNIT PEAK =   22.385    CFS   UNIT VOLUME =    .9988       B =
526.28      P60 = 1.8700
         AREA =      .005670 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300


         K =   .120595HR    TP =   .133300HR    K/TP RATIO =   .904691
SHAPE CONSTANT, N =  3.916166
         UNIT PEAK =   20.532    CFS   UNIT VOLUME =    .9998       B =
349.54      P60 = 1.8700
         AREA =      .007830 SQ MI    IA =    .43793 INCHES    INF =
1.07621 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300

     PRINT HYD              ID=1 CODE=1

                                          PARTIAL HYDROGRAPH   104.00


         RUNOFF VOLUME =     1.28283 INCHES     =        .9236 ACRE-FEET
         PEAK DISCHARGE RATE =      27.72 CFS  AT   1.499 HOURS   BASIN
AREA =   .0135 SQ. MI.


     *****
     ***** ADD SB 100 AND 101 AND 104
     *****
```

```
ADD HYD              ID=2 HYD=104 ID=1  ID=4
PRINT HYD            ID=2 CODE=1

                                        PARTIAL HYDROGRAPH   104.00


     RUNOFF VOLUME =     1.40686 INCHES     =       3.6390 ACRE-FEET
     PEAK DISCHARGE RATE =      58.10 CFS  AT   1.532 HOURS   BASIN
AREA =   .0485 SQ. MI.


*****
***** ROUTE 770 FT EAST ON REBA AVE 32' 50' ROW
***** FF @ 0.0164 FT/FT
*****
COMPUTE RATING CURVE CID=1 VS NO=9  NO SEGS=1
                     MIN ELEV=0.0    MAX ELEV=.87
                     CH SLP=.0164     FP SLP=0.0164  N=0.017
                     DIST=50
                     DIST  ELEV     DIST  ELEV     DIST  ELEV
                       0    .87      9.0   .67     9.05    0.
                      11   .125       25  .405       39  .125
                      41     0.    41.05   .67       50   .87

                                        RATING CURVE VALLEY SECTION
9.0
                                            WATER        FLOW
FLOW          TOP
                                           SURFACE       AREA
RATE          WIDTH
                                            ELEV         SQ FT        CFS
FT
                                              .00          .00
.00           .00
                                              .05          .03
.03          1.45
                                              .09          .13
.18          2.91
                                              .14          .30
.50          5.21
                                              .18          .65
1.16          9.79
                                              .23         1.20
2.52         14.38
                                              .27         1.97
4.77         18.96
                                              .32         2.94
8.07         23.55
                                              .37         4.12
12.62         28.14
                                              .41         5.51
18.80         32.01
                                              .46         6.98
27.79         32.02
                                              .50         8.44
38.12         32.03
                                              .55         9.91
49.69         32.03
                                              .60        11.38
62.43         32.04
```

.64	12.85
.69	14.33
.73	15.96
.78	17.78
.82	19.78
.87	21.98

76.28	32.05
88.71	33.56
98.56	37.67
110.35	41.78
124.11	45.89
139.89	50.00

COMPUTE TRAVEL TIME ID=3 REACH NO=1 NO VS=1 LENGTH=770 FT SLOPE=0.0164

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS
.2464	.046	.033	.03
.1552	.092	.133	.18
.1310	.137	.305	.50
.1195	.183	.648	1.16
.1020	.229	1.202	2.52
.0882	.275	1.965	4.77
.0778	.321	2.938	8.07
.0699	.366	4.122	12.62
.0627	.412	5.513	18.80
.0537	.458	6.979	27.79
.0474	.504	8.445	38.12
.0427	.549	9.911	49.69
.0390	.595	11.378	62.43
.0360	.641	12.845	76.28
.0345	.687	14.326	88.71
.0346	.733	15.956	98.56
.0345	.778	17.776	110.35
.0341	.824	19.783	124.11
	.870	21.978	139.89

```
.0336
     ROUTE                    ID=3 HYD NO=204  INFLOW ID=2 DT=0.0
     PRINT HYD                ID=3 CODE=1

                                          PARTIAL HYDROGRAPH   204.00


          RUNOFF VOLUME =     1.40424 INCHES     =       3.6323 ACRE-FEET
          PEAK DISCHARGE RATE =      56.61 CFS  AT   1.532 HOURS   BASIN
AREA =    .0485 SQ. MI.


     *****
     ***** SUB-BASIN 102 RESIDENTIAL (5.1 UN/AC)
     *****
     COMPUTE NM HYD           ID=1 HYD NO=102.0 AREA=0.01310 SQ MI
                              PER A=0 PER B=30 PER C=20 PER D=50
                              TP=0.1333 HR MASS RAINFALL=-1

          K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   25.860    CFS   UNIT VOLUME =    .9989       B =
526.28       P60 = 1.8700
          AREA =       .006550 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300


          K =    .120942HR    TP =    .133300HR    K/TP RATIO =    .907291
SHAPE CONSTANT, N =  3.904285
          UNIT PEAK =   17.136    CFS   UNIT VOLUME =    .9996       B =
348.74       P60 = 1.8700
          AREA =       .006550 SQ MI    IA =    .44000 INCHES    INF =
1.08200 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300

     PRINT HYD                ID=1 CODE=1

                                          PARTIAL HYDROGRAPH   102.00


          RUNOFF VOLUME =     1.37477 INCHES     =        .9605 ACRE-FEET
          PEAK DISCHARGE RATE =      28.19 CFS  AT   1.499 HOURS   BASIN
AREA =    .0131 SQ. MI.


     *****
     ***** SUB-BASIN 103 RESIDENTIAL (4.6 UN/AC)
     *****
     COMPUTE NM HYD           ID=2 HYD NO=103.0 AREA=0.00398 SQ MI
                              PER A=0 PER B=32 PER C=21 PER D=47
                              TP=0.1333 HR MASS RAINFALL=-1

          K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =    7.3852    CFS   UNIT VOLUME =    .9978       B =
526.28       P60 = 1.8700
```

```
        AREA =      .001871 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300


        K =   .121037HR    TP =   .133300HR    K/TP RATIO =   .908002
SHAPE CONSTANT, N =  3.901043
        UNIT PEAK =   5.5151    CFS   UNIT VOLUME =    .9980       B =
348.52      P60 = 1.8700
        AREA =      .002109 SQ MI    IA =    .44057 INCHES    INF =
1.08358 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300

     PRINT HYD           ID=2 CODE=1

                                          PARTIAL HYDROGRAPH   103.00


        RUNOFF VOLUME =     1.33869 INCHES     =        .2842 ACRE-FEET
        PEAK DISCHARGE RATE =       8.42 CFS  AT   1.499 HOURS   BASIN
AREA =  .0040 SQ. MI.


     *****
     ***** ADD SB 102 AND 103
     *****
     ADD HYD             ID=4 HYD=103 ID=1  ID=2
     PRINT HYD           ID=4 CODE=1

                                          PARTIAL HYDROGRAPH   103.00


        RUNOFF VOLUME =     1.36633 INCHES     =       1.2446 ACRE-FEET
        PEAK DISCHARGE RATE =      36.61 CFS  AT   1.499 HOURS   BASIN
AREA =  .0171 SQ. MI.


     *****
     ***** ADD SB 100, 101, 102, 103, 104
     *****
     ADD HYD             ID=2 HYD=104 ID=3  ID=4
     PRINT HYD           ID=2 CODE=1

                                          PARTIAL HYDROGRAPH   104.00


        RUNOFF VOLUME =     1.39436 INCHES     =       4.8769 ACRE-FEET
        PEAK DISCHARGE RATE =      92.11 CFS  AT   1.532 HOURS   BASIN
AREA =  .0656 SQ. MI.


     *****
     ***** ROUTE 150 FT SOUTHEAST ON BLAZICK AVE 32' FF 50' ROW
     ***** @ 0.02 FT/FT
     *****
     COMPUTE RATING CURVE CID=1 VS NO=9  NO SEGS=1
```

MIN ELEV=0.0 MAX ELEV=.87
CH SLP=.02 FP SLP=0.02 N=0.017
DIST=50

DIST	ELEV	DIST	ELEV	DIST	ELEV
0	.87	9.0	.67	9.05	0.
11	.125	25	.405	39	.125
41	0.	41.05	.67	50	.87

RATING CURVE VALLEY SECTION

WATER SURFACE ELEV	FLOW AREA SQ FT	CFS
.00	.00	
.05	.03	
.09	.13	
.14	.30	
.18	.65	
.23	1.20	
.27	1.97	
.32	2.94	
.37	4.12	
.41	5.51	
.46	6.98	
.50	8.44	
.55	9.91	
.60	11.38	
.64	12.85	
.69	14.33	
.73	15.96	
.78	17.78	
.82	19.78	
.87	21.98	

9.0

FLOW RATE FT	TOP WIDTH
.00	.00
.03	1.45
.20	2.91
.55	5.21
1.28	9.79
2.78	14.38
5.26	18.96
8.92	23.55
13.93	28.14
20.76	32.01
30.69	32.02
42.10	32.03
54.88	32.03
68.94	32.04
84.23	32.05
97.96	33.56
108.84	37.67
121.86	41.78
137.06	45.89
154.48	50.00

COMPUTE TRAVEL TIME ID=3 REACH NO=1 NO VS=1 LENGTH=150 FT
SLOPE=0.02

TRAVEL TIME TABLE
REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS
.0435	.046	.033	.03
.0274	.092	.133	.20
.0231	.137	.305	.55
.0211	.183	.648	1.28
.0180	.229	1.202	2.78
.0156	.275	1.965	5.26
.0137	.321	2.938	8.92
.0123	.366	4.122	13.93
.0111	.412	5.513	20.76
.0095	.458	6.979	30.69
.0084	.504	8.445	42.10
.0075	.549	9.911	54.88
.0069	.595	11.378	68.94
.0064	.641	12.845	84.23
.0061	.687	14.326	97.96
.0061	.733	15.956	108.84
.0061	.778	17.776	121.86
.0060	.824	19.783	137.06
.0059	.870	21.978	154.48

```
     ROUTE                ID=3 HYD NO=203  INFLOW ID=2 DT=0.0
     PRINT HYD            ID=3 CODE=1

                                        PARTIAL HYDROGRAPH   203.00


         RUNOFF VOLUME =     1.39402 INCHES     =       4.8757 ACRE-FEET
         PEAK DISCHARGE RATE =      92.38 CFS  AT   1.532 HOURS   BASIN
AREA =   .0656 SQ. MI.


     *****
     ***** SUB-BASIN 105 RESIDENTIAL (4.0 UN/AC)
     *****
     COMPUTE NM HYD       ID=1 HYD NO=105.0 AREA=0.00526 SQ MI
```

```
                    PER A=0 PER B=34 PER C=24 PER D=42
                    TP=0.1333 HR MASS RAINFALL=-1

        K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
        UNIT PEAK =    8.7220    CFS   UNIT VOLUME =    .9980       B =
526.28      P60 = 1.8700
        AREA =       .002209 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300


        K =    .120595HR    TP =    .133300HR    K/TP RATIO =    .904691
SHAPE CONSTANT, N =  3.916166
        UNIT PEAK =    7.9999    CFS   UNIT VOLUME =    .9988       B =
349.54      P60 = 1.8700
        AREA =       .003051 SQ MI    IA =    .43793 INCHES    INF =
1.07621 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300

     PRINT HYD           ID=1 CODE=1

                                        PARTIAL HYDROGRAPH   105.00


        RUNOFF VOLUME =     1.28283 INCHES     =        .3599 ACRE-FEET
        PEAK DISCHARGE RATE =      10.81 CFS  AT   1.499 HOURS   BASIN
AREA =    .0053 SQ. MI.


     *****
     ***** ADD SB 100 THRU 104 AND 105
     *****
     ADD HYD             ID=2 HYD=105 ID=1  ID=3
     PRINT HYD           ID=2 CODE=1

                                        PARTIAL HYDROGRAPH   105.00


        RUNOFF VOLUME =     1.38576 INCHES     =       5.2355 ACRE-FEET
        PEAK DISCHARGE RATE =     102.90 CFS  AT   1.532 HOURS   BASIN
AREA =    .0708 SQ. MI.


     *****
     ***** ROUTE 1050 FT EAST ON SONYA AVE 32' FF 50' ROW
     ***** @ 0.0112 FT/FT
     *****
     COMPUTE RATING CURVE CID=1 VS NO=9  NO SEGS=1
                         MIN ELEV=0.0    MAX ELEV=.87
                         CH SLP=.0112    FP SLP=0.0112  N=0.017
                         DIST=50
                         DIST  ELEV     DIST  ELEV     DIST  ELEV
                            0   .87      9.0   .67     9.05    0.
                           11  .125       25  .405       39  .125
                           41    0.    41.05   .67       50   .87
```

9.0

FLOW RATE FT	TOP WIDTH
.00	.00
.02	1.45
.15	2.91
.41	5.21
.96	9.79
2.08	14.38
3.94	18.96
6.67	23.55
10.43	28.14
15.53	32.01
22.97	32.02
31.50	32.03
41.07	32.03
51.59	32.04
63.03	32.05
73.31	33.56
81.45	37.67
91.19	41.78
102.56	45.89
115.60	50.00

RATING CURVE VALLEY SECTION

WATER SURFACE ELEV	FLOW AREA SQ FT	CFS
.00	.00	
.05	.03	
.09	.13	
.14	.30	
.18	.65	
.23	1.20	
.27	1.97	
.32	2.94	
.37	4.12	
.41	5.51	
.46	6.98	
.50	8.44	
.55	9.91	
.60	11.38	
.64	12.85	
.69	14.33	
.73	15.96	
.78	17.78	
.82	19.78	
.87	21.98	

COMPUTE TRAVEL TIME ID=3 REACH NO=1 NO VS=1 LENGTH=1050 FT SLOPE=0.0112

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS
	.046	.033	.02

```
.4066
.2562
.2161
.1972
.1683
.1455
.1284
.1153
.1035
.0886
.0782
.0704
.0643
.0594
.0570
.0571
.0569
.0563
.0555
```

.092	.133	.15
.137	.305	.41
.183	.648	.96
.229	1.202	2.08
.275	1.965	3.94
.321	2.938	6.67
.366	4.122	10.43
.412	5.513	15.53
.458	6.979	22.97
.504	8.445	31.50
.549	9.911	41.07
.595	11.378	51.59
.641	12.845	63.03
.687	14.326	73.31
.733	15.956	81.45
.778	17.776	91.19
.824	19.783	102.56
.870	21.978	115.60

```
     ROUTE                ID=3 HYD NO=205  INFLOW ID=2 DT=0.0
     PRINT HYD            ID=3 CODE=1

                                   PARTIAL HYDROGRAPH   205.00

          RUNOFF VOLUME =     1.38279 INCHES     =       5.2243 ACRE-FEET
          PEAK DISCHARGE RATE =      92.41 CFS  AT   1.565 HOURS   BASIN
AREA =    .0708 SQ. MI.


     *****
     ***** SUB-BASIN 106 RESIDENTIAL (4.5 UN/AC)
     *****
     COMPUTE NM HYD       ID=1 HYD NO=106.0 AREA=0.01893 SQ MI
                          PER A=0 PER B=32 PER C=22 PER D=46
                          TP=0.1333 HR MASS RAINFALL=-1

          K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   34.379    CFS   UNIT VOLUME =    .9990       B =
526.28       P60 = 1.8700
          AREA =       .008708 SQ MI    IA =    .10000 INCHES    INF =
```

```
.04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300


         K =    .120756HR    TP =    .133300HR    K/TP RATIO =    .905895
SHAPE CONSTANT, N =  3.910652
         UNIT PEAK =   26.776    CFS   UNIT VOLUME =    .9999       B =
349.17       P60 = 1.8700
         AREA =       .010222 SQ MI    IA =    .43889 INCHES    INF =
1.07889 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300

     PRINT HYD           ID=1 CODE=1

                                          PARTIAL HYDROGRAPH   106.00

         RUNOFF VOLUME =     1.32880 INCHES     =       1.3415 ACRE-FEET
         PEAK DISCHARGE RATE =      39.79 CFS  AT   1.499 HOURS   BASIN
AREA =   .0189 SQ. MI.


     *****
     ***** ADD SB 100 THRU 105 AND 106
     *****
     ADD HYD             ID=2 HYD=106 ID=1  ID=3
     PRINT HYD           ID=2 CODE=1

                                          PARTIAL HYDROGRAPH   106.00


         RUNOFF VOLUME =     1.37140 INCHES     =       6.5659 ACRE-FEET
         PEAK DISCHARGE RATE =     126.54 CFS  AT   1.565 HOURS   BASIN
AREA =   .0898 SQ. MI.


     *****
     ***** ROUTE 400 FT SOUTHEAST ON SAPPHIRE ST. TO 86TH ST.
     ***** 32' FF 50' ROW @ 0.0135 FT/FT
     *****
     COMPUTE RATING CURVE CID=1 VS NO=9  NO SEGS=1
                         MIN ELEV=0.0    MAX ELEV=.87
                         CH SLP=.0135    FP SLP=0.0135  N=0.017
                         DIST=50
                         DIST  ELEV     DIST  ELEV     DIST  ELEV
                            0   .87      9.0   .67     9.05    0.
                           11  .125       25  .405       39  .125
                           41    0.    41.05   .67       50   .87

                                          RATING CURVE VALLEY SECTION
9.0
                                              WATER       FLOW
FLOW        TOP
                                             SURFACE      AREA
RATE        WIDTH
                                              ELEV        SQ FT       CFS
FT
```

.00	.00
.03	1.45
.17	2.91
.45	5.21
1.05	9.79
2.29	14.38
4.32	18.96
7.33	23.55
11.45	28.14
17.05	32.01
25.22	32.02
34.59	32.03
45.09	32.03
56.64	32.04
69.20	32.05
80.48	33.56
89.42	37.67
100.12	41.78
112.60	45.89
126.92	50.00

COMPUTE TRAVEL TIME ID=3 REACH NO=1 NO VS=1 LENGTH=400 FT SLOPE=0.0135

TRAVEL TIME HRS
.1411
.0889
.0750
.0684

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS
.00	.00	
.05	.03	
.09	.13	
.14	.30	
.18	.65	
.23	1.20	
.27	1.97	
.32	2.94	
.37	4.12	
.41	5.51	
.46	6.98	
.50	8.44	
.55	9.91	
.60	11.38	
.64	12.85	
.69	14.33	
.73	15.96	
.78	17.78	
.82	19.78	
.87	21.98	
.046	.033	.03
.092	.133	.17
.137	.305	.45
.183	.648	1.05
.229	1.202	2.29

```
.0584
                                        .275      1.965       4.32
.0505
                                        .321      2.938       7.33
.0446
                                        .366      4.122      11.45
.0400
                                        .412      5.513      17.05
.0359
                                        .458      6.979      25.22
.0307
                                        .504      8.445      34.59
.0271
                                        .549      9.911      45.09
.0244
                                        .595     11.378      56.64
.0223
                                        .641     12.845      69.20
.0206
                                        .687     14.326       80.48
.0198
                                        .733     15.956       89.42
.0198
                                        .778     17.776      100.12
.0197
                                        .824     19.783      112.60
.0195
                                        .870     21.978      126.92
.0192
     ROUTE                ID=3 HYD NO=206  INFLOW ID=2 DT=0.0
     PRINT HYD            ID=3 CODE=1

                                        PARTIAL HYDROGRAPH   206.00


         RUNOFF VOLUME =     1.37058 INCHES     =       6.5619 ACRE-FEET
         PEAK DISCHARGE RATE =     125.13 CFS  AT   1.565 HOURS   BASIN
AREA =   .0898 SQ. MI.


     *****
     ***** SUB-BASIN 107 RESIDENTIAL (PARK/RESIDENTIAL/WATER TNK)
     *****
     COMPUTE NM HYD       ID=1 HYD NO=107.0 AREA=0.0267 SQ MI
                          PER A=0 PER B=54 PER C=23 PER D=23
                          TP=0.1333 HR MASS RAINFALL=-1

         K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
         UNIT PEAK =   24.245    CFS   UNIT VOLUME =    .9989       B =
526.28      P60 = 1.8700
         AREA =      .006141 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300


         K =   .123487HR    TP =   .133300HR    K/TP RATIO =   .926384
SHAPE CONSTANT, N =  3.819526
         UNIT PEAK =   52.894    CFS   UNIT VOLUME =    1.000       B =
```

```
342.95      P60 = 1.8700
         AREA =      .020559 SQ MI    IA =    .45519 INCHES    INF =
1.12455 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300

     PRINT HYD           ID=1 CODE=1

                                        PARTIAL HYDROGRAPH   107.00

         RUNOFF VOLUME =     1.03176 INCHES     =       1.4692 ACRE-FEET
         PEAK DISCHARGE RATE =      46.95 CFS  AT   1.499 HOURS   BASIN
AREA =   .0267 SQ. MI.


     *****
     ***** SUB-BASIN 108 UNDEVELOPED ASSUME RESIDENTIAL @ 4.0 UN/AC
     *****
     COMPUTE NM HYD      ID=2 HYD NO=108.0 AREA=0.0102 SQ MI
                         PER A=0 PER B=35 PER C=23 PER D=42
                         TP=0.1333 HR MASS RAINFALL=-1

         K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
         UNIT PEAK =   16.913    CFS   UNIT VOLUME =    .9986       B =
526.28      P60 = 1.8700
         AREA =      .004284 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300


         K =   .121029HR    TP =   .133300HR    K/TP RATIO =   .907941
SHAPE CONSTANT, N =  3.901327
         UNIT PEAK =   15.468    CFS   UNIT VOLUME =    .9995       B =
348.54      P60 = 1.8700
         AREA =      .005916 SQ MI    IA =    .44052 INCHES    INF =
1.08345 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300

     PRINT HYD           ID=2 CODE=1

                                        PARTIAL HYDROGRAPH   108.00

         RUNOFF VOLUME =     1.27962 INCHES     =        .6961 ACRE-FEET
         PEAK DISCHARGE RATE =      20.89 CFS  AT   1.499 HOURS   BASIN
AREA =   .0102 SQ. MI.


     *****
     ***** ADD SB 107 AND 108
     *****
     ADD HYD             ID=4 HYD=108 ID=1  ID=2
     PRINT HYD           ID=4 CODE=1

                                        PARTIAL HYDROGRAPH   108.00
```

```
        RUNOFF VOLUME =     1.10025 INCHES     =       2.1653 ACRE-FEET
        PEAK DISCHARGE RATE =      67.84 CFS  AT   1.499 HOURS   BASIN
AREA =  .0369 SQ. MI.


     *****
     ***** ADD SB 100 THRU 108
     *****
     ADD HYD              ID=2 HYD=108 ID=3  ID=4
     PRINT HYD            ID=2 CODE=1

                                        PARTIAL HYDROGRAPH   108.00


        RUNOFF VOLUME =     1.29183 INCHES     =       8.7272 ACRE-FEET
        PEAK DISCHARGE RATE =     184.52 CFS  AT   1.565 HOURS   BASIN
AREA =  .1267 SQ. MI.


     *****
     ***** ROUTE 300 FT SOUTHEAST ON SAPPHIRE ST. TO MICHELLES
     ***** 40' FF 60' ROW @ 0.014 FT/FT
     ***** INCLUDES 8" DIVERSION BERM
     COMPUTE RATING CURVE CID=1 VS NO=11  NO SEGS=1
                         MIN ELEV=0.0    MAX ELEV=1.67
                         CH SLP=.014    FP SLP=0.014  N=0.017
                         DIST=60.05
                         DIST  ELEV     DIST  ELEV     DIST  ELEV
                            0  1.67     0.05   1.0       10  0.67
                        10.05    0.       12  .125       30  .485
                           48  .125       50    0.    50.05   0.67
                           60   1.0    60.05  1.67

                                        RATING CURVE VALLEY SECTION
11.0
                                            WATER       FLOW
FLOW        TOP
                                           SURFACE      AREA
RATE        WIDTH
                                           ELEV         SQ FT       CFS
FT
                                            .00          .00
.00          .00
                                            .09          .37
.40         8.51
                                            .18         1.48
2.55       16.43
                                            .26         3.25
7.33       23.92
                                            .35         5.69
15.46       31.41
                                            .44         8.78
27.58       38.90
                                            .53        12.44
45.89       42.16
                                            .62        16.08
69.36       40.86
```

93.94	42.05
120.55	47.35
152.43	52.65
189.99	57.95
238.86	59.96
296.03	59.97
357.91	59.98
424.30	60.00
495.01	60.01
569.91	60.02
648.85	60.04
731.70	60.05

COMPUTE TRAVEL TIME ID=3 REACH NO=1 NO VS=1 LENGTH=300 FT SLOPE=0.014

TRAVEL TIME TABLE

REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS
.0777	.088	.374	.40
.0484	.176	1.481	2.55
.0370	.264	3.254	7.33
.0307	.352	5.686	15.46
.0265	.439	8.777	27.58
.0226	.527	12.435	45.89
.0193	.615	16.084	69.36
.0174	.703	19.659	93.94
.0163	.791	23.588	120.55
.0153	.879	27.983	152.43
.0144	.967	32.843	189.99
.0133	1.055	38.080	238.86
	1.143	43.350	296.03
	.70	19.66	
	.79	23.59	
	.88	27.98	
	.97	32.84	
	1.05	38.08	
	1.14	43.35	
	1.23	48.62	
	1.32	53.90	
	1.41	59.17	
	1.49	64.44	
	1.58	69.72	
	1.67	75.00	

```
.0122
                                        1.231      48.622      357.91
.0113
                                        1.318      53.895      424.30
.0106
                                        1.406      59.169      495.01
.0100
                                        1.494      64.444      569.91
.0094
                                        1.582      69.721      648.85
.0090
                                        1.670      74.998      731.70
.0085
     ROUTE                ID=3 HYD NO=208  INFLOW ID=2 DT=0.0
     PRINT HYD            ID=3 CODE=1

                                          PARTIAL HYDROGRAPH   208.00

         RUNOFF VOLUME =     1.29123 INCHES     =       8.7231 ACRE-FEET
         PEAK DISCHARGE RATE =     185.36 CFS  AT   1.565 HOURS   BASIN
AREA =   .1267 SQ. MI.


     *****
     ***** SUB-BASIN 109 RESIDENTIAL (3.8 UN/AC)
     *****
     COMPUTE NM HYD       ID=1 HYD NO=109.0 AREA=0.0057 SQ MI
                          PER A=0 PER B=36 PER C=25 PER D=39
                          TP=0.1333 HR MASS RAINFALL=-1

         K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
         UNIT PEAK =   8.7765    CFS   UNIT VOLUME =    .9980       B =
526.28      P60 = 1.8700
         AREA =      .002223 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300


         K =   .120695HR    TP =   .133300HR    K/TP RATIO =   .905437
SHAPE CONSTANT, N =  3.912748
         UNIT PEAK =   9.1114    CFS   UNIT VOLUME =    .9989       B =
349.31      P60 = 1.8700
         AREA =      .003477 SQ MI    IA =    .43852 INCHES    INF =
1.07787 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300

     PRINT HYD            ID=1 CODE=1

                                          PARTIAL HYDROGRAPH   109.00


         RUNOFF VOLUME =     1.24675 INCHES     =        .3790 ACRE-FEET
         PEAK DISCHARGE RATE =      11.48 CFS  AT   1.499 HOURS   BASIN
AREA =   .0057 SQ. MI.
```

```
*****
***** SUB-BASIN 110 UNDEVELOPED ASSUME RESIDENTIAL @ 4.0 UN/AC
*****
COMPUTE NM HYD        ID=2 HYD NO=110.0 AREA=0.0232 SQ MI
                      PER A=0 PER B=46.56 PER C=0 PER D=53.44
                      TP=0.1333 HR MASS RAINFALL=-1

        K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
        UNIT PEAK =   48.948    CFS   UNIT VOLUME =    .9991       B =
526.28      P60 = 1.8700
        AREA =       .012398 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300

        K =    .130992HR    TP =    .133300HR    K/TP RATIO =    .982685
SHAPE CONSTANT, N =  3.593448
        UNIT PEAK =   26.505    CFS   UNIT VOLUME =    .9998       B =
327.09      P60 = 1.8700
        AREA =       .010802 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300

     PRINT HYD            ID=2 CODE=1

                                          PARTIAL HYDROGRAPH   110.00


        RUNOFF VOLUME =     1.36107 INCHES     =       1.6841 ACRE-FEET
        PEAK DISCHARGE RATE =      48.62 CFS  AT   1.499 HOURS   BASIN
AREA =   .0232 SQ. MI.


     *****
     ***** ADD SB 109 AND 110
     *****
     ADD HYD              ID=4 HYD=110 ID=1  ID=2
     PRINT HYD            ID=4 CODE=1

                                          PARTIAL HYDROGRAPH   110.00


        RUNOFF VOLUME =     1.33850 INCHES     =       2.0631 ACRE-FEET
        PEAK DISCHARGE RATE =      60.11 CFS  AT   1.499 HOURS   BASIN
AREA =   .0289 SQ. MI.


     *****
     ***** ADD SB 100 thru 110
     *****
     ADD HYD              ID=2 HYD=110 ID=3  ID=4
     PRINT HYD            ID=2 CODE=1

                                          PARTIAL HYDROGRAPH   110.00
```

RUNOFF VOLUME = 1.30001 INCHES = 10.7862 ACRE-FEET
PEAK DISCHARGE RATE = 237.13 CFS AT 1.532 HOURS BASIN
AREA = .1556 SQ. MI.

*****
***** ROUTE 200 FT EAST ON SAPPHIRE ST. FROM MICHELLE ST. TO INLETS
***** 40' FF 60' ROW @ 0.014 FT/FT
COMPUTE RATING CURVE CID=1 VS NO=9 NO SEGS=1
MIN ELEV=0.0 MAX ELEV=1.0
CH SLP=.014 FP SLP=0.014 N=0.017
DIST=60

DIST	ELEV	DIST	ELEV	DIST	ELEV
0	1.0	10	0.67	10.05	0.
12	.125	30	.485	48	.125
50	0.	50.05	0.67	60	1.0

9.0

RATING CURVE VALLEY SECTION

FLOW RATE FT	TOP WIDTH
.00	.00
.04	1.67
.25	3.34
.66	7.26
1.73	12.53
3.79	17.81
7.09	23.08
11.88	28.35
18.37	33.62
26.76	38.89
39.16	40.03
54.05	40.04
70.76	40.04
88.08	40.91
104.16	44.09
122.18	47.27
142.24	50.45

WATER SURFACE ELEV	FLOW AREA SQ FT	CFS
.00	.00	
.05	.04	
.11	.18	
.16	.43	
.21	.95	
.26	1.75	
.32	2.83	
.37	4.18	
.42	5.81	
.47	7.72	
.53	9.82	
.58	11.93	
.63	14.03	
.68	16.15	
.74	18.39	
.79	20.79	
.84	23.36	

164.43	53.64	.89	26.10
188.84	56.82	.95	29.01
215.55	60.00	1.00	32.08

COMPUTE TRAVEL TIME ID=3 REACH NO=1 NO VS=1 LENGTH=200 FT
SLOPE=0.014

TRAVEL TIME TABLE
REACH= 1.0

TRAVEL TIME HRS	WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS
.0631	.053	.044	.04
.0398	.105	.176	.25
.0362	.158	.433	.66
.0305	.211	.954	1.73
.0257	.263	1.752	3.79
.0221	.316	2.828	7.09
.0196	.368	4.181	11.88
.0176	.421	5.812	18.37
.0160	.474	7.720	26.76
.0139	.526	9.820	39.16
.0123	.579	11.927	54.05
.0110	.632	14.034	70.76
.0102	.684	16.148	88.08
.0098	.737	18.385	104.16
.0095	.789	20.790	122.18
.0091	.842	23.361	142.24
.0088	.895	26.101	164.43
.0085	.947	29.007	188.84
.0083	1.000	32.081	215.55

ROUTE ID=3 HYD NO=210 INFLOW ID=2 DT=0.0
TRAVEL TIME TABLE EXCEEDED
PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 210.00

```
          RUNOFF VOLUME =      1.29977 INCHES      =       10.7842 ACRE-FEET
          PEAK DISCHARGE RATE =      238.60 CFS  AT    1.565 HOURS   BASIN
AREA =    .1556 SQ. MI.


     *
     **ANALYSIS POINT B
     **BASIN401.12
     COMPUTE NM HYD       ID=19 HYD NO=401.12 AREA=0.01126 SQ MI
                          PER A=0 B=29 C=29 D=42
                          TP=0.1333 HR MASS RAINFALL=-1

          K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   18.671    CFS   UNIT VOLUME =    .9987       B =
526.28       P60 = 1.8700
          AREA =       .004729 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300


          K =    .118429HR    TP =    .133300HR    K/TP RATIO =    .888442
SHAPE CONSTANT, N =  3.992480
          UNIT PEAK =   17.376    CFS   UNIT VOLUME =    .9997       B =
354.67       P60 = 1.8700
          AREA =       .006531 SQ MI    IA =    .42500 INCHES    INF =
1.04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300

     PRINT HYD            ID=19 CODE=1

                                                  HYDROGRAPH FROM AREA
401.12


          RUNOFF VOLUME =      1.29864 INCHES      =         .7799 ACRE-FEET
          PEAK DISCHARGE RATE =       23.42 CFS  AT    1.499 HOURS   BASIN
AREA =    .0113 SQ. MI.


     *
     ADD HYD              ID=20 HYD NO=401.13 ID=19 ID=3
     PRINT HYD            ID=20 CODE=1

                                                  HYDROGRAPH FROM AREA
401.13


          RUNOFF VOLUME =      1.29969 INCHES      =       11.5641 ACRE-FEET
          PEAK DISCHARGE RATE =      258.75 CFS  AT    1.565 HOURS   BASIN
AREA =    .1668 SQ. MI.


     *
```

```
**BASIN 300.2
COMPUTE NM HYD        ID=1 HYD NO=300.2 AREA=0.0118 SQ MI
                      PER A=0 B=29 C=29 D=42
                      TP=0.1333 HR MASS RAINFALL=-1

     K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   19.567    CFS   UNIT VOLUME =    .9987       B =
526.28      P60 = 1.8700
     AREA =      .004956 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300


     K =   .118429HR    TP =   .133300HR    K/TP RATIO =   .888442
SHAPE CONSTANT, N =  3.992480
     UNIT PEAK =   18.210    CFS   UNIT VOLUME =    .9997       B =
354.67      P60 = 1.8700
     AREA =      .006844 SQ MI    IA =    .42500 INCHES    INF =
1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300

PRINT HYD             ID=1 CODE=1

                                                HYDROGRAPH FROM AREA
300.20


     RUNOFF VOLUME =     1.29864 INCHES     =        .8173 ACRE-FEET
     PEAK DISCHARGE RATE =      24.55 CFS  AT   1.499 HOURS   BASIN
AREA =   .0118 SQ. MI.


*
**BASIN 401.14
COMPUTE NM HYD        ID=2 HYD NO=401.14 AREA=0.01117 SQ MI
                      PER A=0 B=29 C=29 D=42
                      TP=0.1333 HR MASS RAINFALL=-1

     K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   18.522    CFS   UNIT VOLUME =    .9987       B =
526.28      P60 = 1.8700
     AREA =      .004691 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300


     K =   .118429HR    TP =   .133300HR    K/TP RATIO =   .888442
SHAPE CONSTANT, N =  3.992480
     UNIT PEAK =   17.237    CFS   UNIT VOLUME =    .9997       B =
354.67      P60 = 1.8700
     AREA =      .006479 SQ MI    IA =    .42500 INCHES    INF =
1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300
```

```
     PRINT HYD            ID=2 CODE=1

                                                HYDROGRAPH FROM AREA
401.14

          RUNOFF VOLUME =     1.29864 INCHES     =         .7736 ACRE-FEET
          PEAK DISCHARGE RATE =      23.24 CFS  AT   1.499 HOURS   BASIN
AREA =    .0112 SQ. MI.


     *
     ADD HYD              ID=3 HYD NO=401.15  ID=1 ID=2
     PRINT HYD            ID=3 CODE=1

                                                HYDROGRAPH FROM AREA
401.15

          RUNOFF VOLUME =     1.29862 INCHES     =        1.5909 ACRE-FEET
          PEAK DISCHARGE RATE =      47.78 CFS  AT   1.499 HOURS   BASIN
AREA =    .0230 SQ. MI.


     *
     ADD HYD              ID=4 HYD NO=401.16  ID=3 ID=20
     PRINT HYD            ID=4 CODE=1

                                                HYDROGRAPH FROM AREA
401.16

          RUNOFF VOLUME =     1.29956 INCHES     =       13.1550 ACRE-FEET
          PEAK DISCHARGE RATE =     301.16 CFS  AT   1.532 HOURS   BASIN
AREA =    .1898 SQ. MI.


     *
     **BASIN 401.17
     COMPUTE NM HYD       ID=5 HYD NO=401.17 AREA=0.00661 SQ MI
                          PER A=0 B=29 C=29 D=42
                          TP=0.1333 HR MASS RAINFALL=-1

          K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   10.961    CFS   UNIT VOLUME =    .9984       B =
526.28       P60 = 1.8700
          AREA =       .002776 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300


          K =    .118429HR    TP =    .133300HR    K/TP RATIO =    .888442
SHAPE CONSTANT, N =  3.992480
          UNIT PEAK =   10.201    CFS   UNIT VOLUME =    .9992       B =
354.67       P60 = 1.8700
          AREA =       .003834 SQ MI    IA =    .42500 INCHES    INF =
```

```
1.04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300

     PRINT HYD            ID=5 CODE=1

                                                  HYDROGRAPH FROM AREA
401.17


         RUNOFF VOLUME =      1.29864 INCHES      =          .4578 ACRE-FEET
         PEAK DISCHARGE RATE =       13.76 CFS  AT    1.499 HOURS   BASIN
AREA =   .0066 SQ. MI.


     *
     ADD HYD              ID=6 HYD NO=401.18  ID=4 ID=5
     PRINT HYD            ID=6 CODE=1

                                                  HYDROGRAPH FROM AREA
401.18


         RUNOFF VOLUME =      1.29953 INCHES      =        13.6128 ACRE-FEET
         PEAK DISCHARGE RATE =      314.53 CFS  AT    1.532 HOURS   BASIN
AREA =   .1964 SQ. MI.


     *
     **BASIN 405
     COMPUTE NM HYD       ID=7 HYD NO=405 AREA=0.013934 SQ MI
                          PER A=0 B=28 C=28 D=44
                          TP=0.1333 HR MASS RAINFALL=-1

         K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
         UNIT PEAK =   24.205    CFS   UNIT VOLUME =    .9989       B =
526.28       P60 = 1.8700
         AREA =       .006131 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300


         K =    .118429HR    TP =    .133300HR    K/TP RATIO =    .888442
SHAPE CONSTANT, N =  3.992480
         UNIT PEAK =   20.761    CFS   UNIT VOLUME =    .9998       B =
354.67       P60 = 1.8700
         AREA =       .007803 SQ MI    IA =    .42500 INCHES    INF =
1.04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300

     PRINT HYD            ID=7 CODE=1

                                                  HYDROGRAPH FROM AREA
405.00
```

```
        RUNOFF VOLUME =     1.32163 INCHES     =         .9822 ACRE-FEET
        PEAK DISCHARGE RATE =      29.33 CFS  AT   1.499 HOURS   BASIN
AREA =  .0139 SQ. MI.


    *
    ADD HYD             ID=8 HYD NO=405.1  ID=6 ID=7
    PRINT HYD           ID=8 CODE=1

                                                HYDROGRAPH FROM AREA
405.10


        RUNOFF VOLUME =     1.30099 INCHES     =      14.5949 ACRE-FEET
        PEAK DISCHARGE RATE =     343.00 CFS  AT   1.532 HOURS   BASIN
AREA =  .2103 SQ. MI.

    *
    **BASIN 404
    COMPUTE NM HYD      ID=27 HYD NO=127 AREA=0.0108 SQ MI
                        PER A=0 B=29 C=29 D=42
                        TP=0.1333 HR MASS RAINFALL=-1

        K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
        UNIT PEAK =   17.908    CFS   UNIT VOLUME =    .9987       B =
526.28      P60 = 1.8700
        AREA =      .004536 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300


        K =   .118429HR    TP =   .133300HR    K/TP RATIO =   .888442
SHAPE CONSTANT, N =  3.992480
        UNIT PEAK =   16.666    CFS   UNIT VOLUME =    .9997       B =
354.67      P60 = 1.8700
        AREA =      .006264 SQ MI    IA =    .42500 INCHES    INF =
1.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033300

    PRINT HYD           ID=27 CODE=1

                                            PARTIAL HYDROGRAPH   127.00


        RUNOFF VOLUME =     1.29864 INCHES     =         .7480 ACRE-FEET
        PEAK DISCHARGE RATE =      22.47 CFS  AT   1.499 HOURS   BASIN
AREA =  .0108 SQ. MI.


    *
    **BASIN 403
    COMPUTE NM HYD      ID=9 HYD NO=403 AREA=0.0148 SQ MI
                        PER A=0 B=29 C=29 D=42
                        TP=0.1333 HR MASS RAINFALL=-1
```

```
        K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
        UNIT PEAK =    24.541    CFS   UNIT VOLUME =    .9989       B =
526.28      P60 = 1.8700
        AREA =       .006216 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300


        K =    .118429HR    TP =    .133300HR    K/TP RATIO =    .888442
SHAPE CONSTANT, N =  3.992480
        UNIT PEAK =    22.839    CFS   UNIT VOLUME =    .9999       B =
354.67      P60 = 1.8700
        AREA =       .008584 SQ MI    IA =    .42500 INCHES    INF =
1.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300

     PRINT HYD            ID=9 CODE=1

                                                HYDROGRAPH FROM AREA
403.00


        RUNOFF VOLUME =     1.29864 INCHES     =       1.0251 ACRE-FEET
        PEAK DISCHARGE RATE =      30.78 CFS  AT   1.499 HOURS   BASIN
AREA =  .0148 SQ. MI.


     *
     ADD HYD              ID=10 HYD NO=405.15  ID=9 ID=27
     PRINT HYD            ID=10 CODE=1

                                                HYDROGRAPH FROM AREA
405.15


        RUNOFF VOLUME =     1.29862 INCHES     =       1.7730 ACRE-FEET
        PEAK DISCHARGE RATE =      53.25 CFS  AT   1.499 HOURS   BASIN
AREA =  .0256 SQ. MI.


     *
     ADD HYD              ID=12 HYD NO=112  ID=8 ID=10
     PRINT HYD            ID=12 CODE=1

                                          PARTIAL HYDROGRAPH   112.00


        RUNOFF VOLUME =     1.30074 INCHES     =      16.3680 ACRE-FEET
        PEAK DISCHARGE RATE =     394.76 CFS  AT   1.532 HOURS   BASIN
AREA =  .2359 SQ. MI.


     *
     **BASIN 400.2
```

```
     COMPUTE NM HYD        ID=11 HYD NO=400.2 AREA=0.032215 SQ MI
                           PER A=0 B=28 C=28 D=44
                           TP=0.1333 HR MASS RAINFALL=-1

         K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
         UNIT PEAK =   55.962    CFS   UNIT VOLUME =    .9991       B =
526.28       P60 = 1.8700
         AREA =       .014175 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300


         K =    .118429HR    TP =    .133300HR    K/TP RATIO =    .888442
SHAPE CONSTANT, N =  3.992480
         UNIT PEAK =   48.000    CFS   UNIT VOLUME =    1.000       B =
354.67       P60 = 1.8700
         AREA =       .018040 SQ MI    IA =    .42500 INCHES    INF =
1.04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033300

     PRINT HYD             ID=11 CODE=1

                                                HYDROGRAPH FROM AREA
400.20


         RUNOFF VOLUME =     1.32163 INCHES     =       2.2707 ACRE-FEET
         PEAK DISCHARGE RATE =      67.78 CFS  AT   1.499 HOURS   BASIN
AREA =   .0322 SQ. MI.


     *
     ADD HYD               ID=40 HYD NO=405.16  ID=10 ID=12
     PRINT HYD             ID=40 CODE=1

                                                HYDROGRAPH FROM AREA
405.16


         RUNOFF VOLUME =     1.30053 INCHES     =      18.1410 ACRE-FEET
         PEAK DISCHARGE RATE =     446.51 CFS  AT   1.532 HOURS   BASIN
AREA =   .2615 SQ. MI.


     *****
     *****   HYDROGRAPH FOR ANALYSIS POINT C
     *****
     **BASIN W3(2)
     RAINFALL                TYPE=1 RAIN QUARTER=0.0 IN
                             RAIN ONE=1.90 IN RAIN SIX=2.20 IN
                             RAIN DAY=2.70 IN DT=0.03333 HR


                     COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA
ATLAS 2 - PEAK AT 1.40 HR.
                     DT =    .033330 HOURS       END TIME =     5.999400
```

HOURS

.0000	.0013	.0027	.0041	.0055	.0069
.0084					
.0099	.0115	.0131	.0147	.0164	.0181
.0199					
.0217	.0236	.0256	.0276	.0296	.0318
.0340					
.0363	.0387	.0412	.0438	.0465	.0493
.0523					
.0554	.0587	.0622	.0675	.0731	.0791
.0920					
.1208	.1651	.2289	.3159	.4302	.5759
.7574					
.9790	1.1846	1.2704	1.3429	1.4074	1.4661
1.5201					
1.5702	1.6171	1.6610	1.7023	1.7413	1.7781
1.8130					
1.8460	1.8774	1.9071	1.9353	1.9621	1.9681
1.9736					
1.9789	1.9839	1.9887	1.9932	1.9976	2.0018
2.0059					
2.0098	2.0136	2.0172	2.0208	2.0242	2.0275
2.0308					
2.0339	2.0370	2.0400	2.0430	2.0458	2.0486
2.0514					
2.0540	2.0567	2.0592	2.0617	2.0642	2.0666
2.0690					
2.0714	2.0737	2.0759	2.0781	2.0803	2.0825
2.0846					
2.0867	2.0887	2.0907	2.0927	2.0947	2.0966
2.0985					
2.1004	2.1023	2.1041	2.1059	2.1077	2.1095
2.1112					
2.1130	2.1147	2.1164	2.1180	2.1197	2.1213
2.1229					
2.1245	2.1261	2.1277	2.1292	2.1307	2.1322
2.1337					
2.1352	2.1367	2.1382	2.1396	2.1410	2.1425
2.1439					
2.1452	2.1466	2.1480	2.1494	2.1507	2.1520
2.1533					
2.1547	2.1560	2.1572	2.1585	2.1598	2.1611
2.1623					
2.1635	2.1648	2.1660	2.1672	2.1684	2.1696
2.1708					
2.1720	2.1731	2.1743	2.1754	2.1766	2.1777
2.1789					
2.1800	2.1811	2.1822	2.1833	2.1844	2.1855
2.1866					
2.1876	2.1887	2.1897	2.1908	2.1918	2.1929
2.1939					
2.1949	2.1960	2.1970	2.1980	2.1990	2.2000

COMPUTE NM HYD ID=1 HYD NO=101 AREA=0.003594 SQ MI
PER A=0 PER B=50 PER C=0 PER D=50
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 7.0947 CFS UNIT VOLUME = .9978 B =
526.28 P60 = 1.9000

```
        AREA =      .001797 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033330


        K =   .130761HR    TP =   .133300HR    K/TP RATIO =   .980950
SHAPE CONSTANT, N =  3.599930
        UNIT PEAK =   4.4157    CFS   UNIT VOLUME =    .9973       B =
327.55      P60 = 1.9000
        AREA =      .001797 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033330

     PRINT HYD            ID=1 CODE=1

                                          PARTIAL HYDROGRAPH   101.00


        RUNOFF VOLUME =     1.32370 INCHES     =        .2537 ACRE-FEET
        PEAK DISCHARGE RATE =       7.47 CFS  AT   1.500 HOURS   BASIN
AREA =   .0036 SQ. MI.


     *
     **BASIN W3(3)
     COMPUTE NM HYD       ID=2 HYD NO=102 AREA=0.006406 SQ MI
                          PER A=0 PER B=50 PER C=0 PER D=50
                          TP=0.1333 HR MASS RAINFALL=-1

        K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
        UNIT PEAK =   12.646    CFS   UNIT VOLUME =    .9985       B =
526.28      P60 = 1.9000
        AREA =      .003203 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033330


        K =   .130761HR    TP =   .133300HR    K/TP RATIO =   .980950
SHAPE CONSTANT, N =  3.599930
        UNIT PEAK =   7.8706    CFS   UNIT VOLUME =    .9987       B =
327.55      P60 = 1.9000
        AREA =      .003203 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033330

     PRINT HYD            ID=2 CODE=1

                                          PARTIAL HYDROGRAPH   102.00


        RUNOFF VOLUME =     1.32370 INCHES     =        .4522 ACRE-FEET
        PEAK DISCHARGE RATE =      13.31 CFS  AT   1.500 HOURS   BASIN
AREA =   .0064 SQ. MI.
```

```
*
**BASIN W3(4)
COMPUTE NM HYD          ID=3 HYD NO=103 AREA=0.005313 SQ MI
                        PER A=0 PER B=50 PER C=0 PER D=50
                        TP=0.1333 HR MASS RAINFALL=-1

        K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
        UNIT PEAK =   10.488    CFS   UNIT VOLUME =    .9982       B =
526.28      P60 = 1.9000
        AREA =      .002657 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033330


        K =   .130761HR    TP =   .133300HR    K/TP RATIO =   .980950
SHAPE CONSTANT, N =  3.599930
        UNIT PEAK =   6.5277    CFS   UNIT VOLUME =    .9982       B =
327.55      P60 = 1.9000
        AREA =      .002657 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033330

     PRINT HYD          ID=3 CODE=1

                                        PARTIAL HYDROGRAPH   103.00


        RUNOFF VOLUME =     1.32370 INCHES     =        .3751 ACRE-FEET
        PEAK DISCHARGE RATE =      11.04 CFS  AT   1.500 HOURS   BASIN
AREA =   .0053 SQ. MI.


*
**BASIN BINF
COMPUTE NM HYD          ID=4 HYD NO=104 AREA=0.006708 SQ MI
                        PER A=0 PER B=50 PER C=0 PER D=50
                        TP=0.1333 HR MASS RAINFALL=-1

        K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
        UNIT PEAK =   13.242    CFS   UNIT VOLUME =    .9985       B =
526.28      P60 = 1.9000
        AREA =      .003354 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033330


        K =   .130761HR    TP =   .133300HR    K/TP RATIO =   .980950
SHAPE CONSTANT, N =  3.599930
        UNIT PEAK =   8.2416    CFS   UNIT VOLUME =    .9987       B =
327.55      P60 = 1.9000
        AREA =      .003354 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033330
```

```
PRINT HYD              ID=4 CODE=1

                                        PARTIAL HYDROGRAPH   104.00

        RUNOFF VOLUME =     1.32370 INCHES     =         .4736 ACRE-FEET
        PEAK DISCHARGE RATE =      13.93 CFS  AT   1.500 HOURS   BASIN
AREA =  .0067 SQ. MI.

*
**BASIN W3(6)
COMPUTE NM HYD         ID=5  HYD NO=105  AREA=0.000625 SQ MI
                       PER A=0 B=50 C=0 D=50
                       TP=0.1333 HR MASS RAINFALL=-1

        K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
        UNIT PEAK =   1.2338    CFS   UNIT VOLUME =    .9897       B =
526.28      P60 = 1.9000
        AREA =      .000313 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD -. DT =   .033330


        K =   .130761HR    TP =   .133300HR    K/TP RATIO =   .980950
SHAPE CONSTANT, N =  3.599930
        UNIT PEAK =   .76789    CFS   UNIT VOLUME =    .9822       B =
327.55      P60 = 1.9000
        AREA =      .000313 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033330

PRINT HYD              ID=5 CODE=1

                                        PARTIAL HYDROGRAPH   105.00

        RUNOFF VOLUME =     1.32370 INCHES     =         .0441 ACRE-FEET
        PEAK DISCHARGE RATE =       1.31 CFS  AT   1.500 HOURS   BASIN
AREA =  .0006 SQ. MI.

*
**BASIN W3(7)
COMPUTE NM HYD         ID=6 HYD NO=106 AREA=0.003250 SQ MI
                       PER A=0 PER B=50 PER C=0 PER D=50
                       TP=0.1333 HR MASS RAINFALL=-1

        K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
        UNIT PEAK =   6.4156    CFS   UNIT VOLUME =    .9976       B =
526.28      P60 = 1.9000
        AREA =      .001625 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
```

```
METHOD - DT =    .033330

         K =    .130761HR    TP =    .133300HR    K/TP RATIO =    .980950
SHAPE CONSTANT, N =  3.599930
         UNIT PEAK =    3.9930    CFS   UNIT VOLUME =    .9970       B =
327.55       P60 = 1.9000
         AREA =       .001625 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033330

     PRINT HYD          ID=6 CODE=1

                                        PARTIAL HYDROGRAPH   106.00

         RUNOFF VOLUME =     1.32370 INCHES     =        .2294 ACRE-FEET
         PEAK DISCHARGE RATE =       6.76 CFS  AT   1.500 HOURS   BASIN
AREA =   .0033 SQ. MI.


     *
     **BASIN B-4
     COMPUTE NM HYD        ID=7 HYD NO=107 AREA=0.000578 SQ MI
                           PER A=0 PER B=0 PER C=0 PER D=100
                           TP=0.1333 HR MASS RAINFALL=-1

         K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
         UNIT PEAK =    2.2820    CFS   UNIT VOLUME =    .9941       B =
526.28       P60 = 1.9000
         AREA =       .000578 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033330

     PRINT HYD          ID=7 CODE=1

                                        PARTIAL HYDROGRAPH   107.00

         RUNOFF VOLUME =     1.96638 INCHES     =        .0606 ACRE-FEET
         PEAK DISCHARGE RATE =       1.65 CFS  AT   1.500 HOURS   BASIN
AREA =   .0006 SQ. MI.


     *
     **BASIN B-5
     COMPUTE NM HYD        ID=8 HYD NO=108 AREA=0.002141 SQ MI
                           PER A=0 PER B=49 PER C=0 PER D=51
                           TP=0.1333 HR MASS RAINFALL=-1

         K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
         UNIT PEAK =    4.3109    CFS   UNIT VOLUME =    .9965       B =
526.28       P60 = 1.9000
         AREA =       .001092 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
```

```
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033330


        K =   .130761HR    TP =   .133300HR    K/TP RATIO =   .980950
SHAPE CONSTANT, N =  3.599930
        UNIT PEAK =   2.5779    CFS   UNIT VOLUME =    .9948       B =
327.55      P60 = 1.9000
        AREA =      .001049 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033330

     PRINT HYD            ID=8 CODE=1

                                          PARTIAL HYDROGRAPH   108.00


        RUNOFF VOLUME =     1.33655 INCHES     =        .1526 ACRE-FEET
        PEAK DISCHARGE RATE =       4.49 CFS  AT   1.500 HOURS   BASIN
AREA =   .0021 SQ. MI.


     *
     **BASIN B-6
     COMPUTE NM HYD       ID=9  HYD NO=109  AREA=0.001172 SQ MI
                          PER A=0 B=50 C=0 D=50
                          TP=0.1333 HR MASS RAINFALL=-1

        K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
        UNIT PEAK =   2.3136    CFS   UNIT VOLUME =    .9941       B =
526.28      P60 = 1.9000
        AREA =      .000586 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033330


        K =   .130761HR    TP =   .133300HR    K/TP RATIO =   .980950
SHAPE CONSTANT, N =  3.599930
        UNIT PEAK =   1.4399    CFS   UNIT VOLUME =    .9911       B =
327.55      P60 = 1.9000
        AREA =      .000586 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033330

     PRINT HYD            ID=9 CODE=1

                                          PARTIAL HYDROGRAPH   109.00


        RUNOFF VOLUME =     1.32370 INCHES     =        .0827 ACRE-FEET
        PEAK DISCHARGE RATE =       2.45 CFS  AT   1.500 HOURS   BASIN
AREA =   .0012 SQ. MI.


     *
```

```
     **BASIN B-7
     COMPUTE NM HYD        ID=10 HYD NO=110 AREA=0.005563 SQ MI
                           PER A=0 PER B=55 PER C=0 PER D=45
                           TP=0.1333 HR MASS RAINFALL=-1

         K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
         UNIT PEAK =    9.8834    CFS   UNIT VOLUME =    .9982       B =
526.28      P60 = 1.9000
         AREA =       .002503 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033330


         K =    .130761HR    TP =    .133300HR    K/TP RATIO =    .980950
SHAPE CONSTANT, N =  3.599930
         UNIT PEAK =    7.5183    CFS   UNIT VOLUME =    .9985       B =
327.55      P60 = 1.9000
         AREA =       .003060 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033330

     PRINT HYD             ID=10 CODE=1

                                        PARTIAL HYDROGRAPH   110.00


         RUNOFF VOLUME =      1.25943 INCHES     =        .3737 ACRE-FEET
         PEAK DISCHARGE RATE =       11.13 CFS  AT   1.500 HOURS   BASIN
AREA =   .0056 SQ. MI.


     *
     **BASIN UNIT 2
     COMPUTE NM HYD        ID=11 HYD NO=111 AREA=0.004500 SQ MI
                           PER A=0 PER B=50 PER C=0 PER D=50
                           TP=0.1333 HR MASS RAINFALL=-1

         K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
         UNIT PEAK =    8.8831    CFS   UNIT VOLUME =    .9981       B =
526.28      P60 = 1.9000
         AREA =       .002250 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033330


         K =    .130761HR    TP =    .133300HR    K/TP RATIO =    .980950
SHAPE CONSTANT, N =  3.599930
         UNIT PEAK =    5.5288    CFS   UNIT VOLUME =    .9978       B =
327.55      P60 = 1.9000
         AREA =       .002250 SQ MI    IA =    .50000 INCHES    INF =
1.25000 INCHES PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =    .033330

     PRINT HYD             ID=11 CODE=1
```

```
                                        PARTIAL HYDROGRAPH   111.00

        RUNOFF VOLUME =      1.32370 INCHES      =         .3177 ACRE-FEET
        PEAK DISCHARGE RATE =        9.35 CFS  AT   1.500 HOURS   BASIN
AREA =   .0045 SQ. MI.


     *
     **BASIN 202
     COMPUTE NM HYD        ID=22 HYD NO=122 AREA=0.009253 SQ MI
                           PER A=100 B=0 C=0 D=0
                           TP=0.1333 HR MASS RAINFALL=-1

        K =    .162928HR    TP =    .133300HR    K/TP RATIO =  1.222262
SHAPE CONSTANT, N =  2.911962
        UNIT PEAK =   19.059    CFS   UNIT VOLUME =    .9989       B =
274.56      P60 = 1.9000
        AREA =       .009253 SQ MI    IA =    .65000 INCHES    INF =
1.67000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033330

     PRINT HYD             ID=22 CODE=1

                                        PARTIAL HYDROGRAPH   122.00


        RUNOFF VOLUME =       .44920 INCHES      =         .2217 ACRE-FEET
        PEAK DISCHARGE RATE =        7.86 CFS  AT   1.533 HOURS   BASIN
AREA =   .0093 SQ. MI.


     *
     **BASIN 202.05
     COMPUTE NM HYD        ID=23 HYD NO=123 AREA=0.003747
                           PER A=0 B=0 C=0 D=100
                           TP=0.1333 HR MASS RAINFALL=-1

        K =    .072649HR    TP =    .133300HR    K/TP RATIO =   .545000
SHAPE CONSTANT, N =  7.106420
        UNIT PEAK =   14.793    CFS   UNIT VOLUME =    .9987       B =
526.28      P60 = 1.9000
        AREA =       .003747 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033330

     PRINT HYD             ID=23 CODE=1

                                        PARTIAL HYDROGRAPH   123.00


        RUNOFF VOLUME =      1.96638 INCHES      =         .3930 ACRE-FEET
        PEAK DISCHARGE RATE =       10.64 CFS  AT   1.500 HOURS   BASIN
AREA =   .0037 SQ. MI.
```

```
*
**BASIN 402
COMPUTE NM HYD          ID=26 HYD NO=126 AREA=0.052 SQ MI
                        PER A=0 B=29 C=29 D=42
                        TP=0.1333 HR MASS RAINFALL=-1

        K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
        UNIT PEAK =   86.225    CFS   UNIT VOLUME =    .9992       B =
526.28      P60 = 1.9000
        AREA =       .021840 SQ MI    IA =    .10000 INCHES    INF =
.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033330


        K =    .118483HR    TP =    .133300HR    K/TP RATIO =    .888844
SHAPE CONSTANT, N =  3.990548
        UNIT PEAK =   80.217    CFS   UNIT VOLUME =    1.000       B =
354.54      P60 = 1.9000
        AREA =       .030160 SQ MI    IA =    .42500 INCHES    INF =
1.04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER
METHOD - DT =   .033330

PRINT HYD               ID=26 CODE=1

                                        PARTIAL HYDROGRAPH   126.00


        RUNOFF VOLUME =     1.30833 INCHES     =       3.6284 ACRE-FEET
        PEAK DISCHARGE RATE =     109.73 CFS  AT   1.500 HOURS   BASIN
AREA =   .0520 SQ. MI.


*
ADD HYD                 ID=12 HYD NO=112  ID=1  ID=2
PRINT HYD               ID=12 CODE=1

                                        PARTIAL HYDROGRAPH   112.00


        RUNOFF VOLUME =     1.32364 INCHES     =        .7059 ACRE-FEET
        PEAK DISCHARGE RATE =      20.78 CFS  AT   1.500 HOURS   BASIN
AREA =   .0100 SQ. MI.


*
ADD HYD                 ID=13 HYD NO=113  ID=3  ID=4
PRINT HYD               ID=13 CODE=1

                                        PARTIAL HYDROGRAPH   113.00


        RUNOFF VOLUME =     1.32365 INCHES     =        .8486 ACRE-FEET
        PEAK DISCHARGE RATE =      24.97 CFS  AT   1.500 HOURS   BASIN
AREA =   .0120 SQ. MI.
```

```
*
ADD HYD                ID=14 HYD NO=114  ID=5  ID=6
PRINT HYD              ID=14 CODE=1

                                    PARTIAL HYDROGRAPH   114.00


     RUNOFF VOLUME =     1.32356 INCHES     =        .2735 ACRE-FEET
     PEAK DISCHARGE RATE =       8.07 CFS  AT   1.500 HOURS   BASIN
AREA =   .0039 SQ. MI.


*
ADD HYD                ID=15 HYD NO=115  ID=7  ID=8
PRINT HYD              ID=15 CODE=1

                                    PARTIAL HYDROGRAPH   115.00


     RUNOFF VOLUME =     1.47021 INCHES     =        .2132 ACRE-FEET
     PEAK DISCHARGE RATE =       6.14 CFS  AT   1.500 HOURS   BASIN
AREA =   .0027 SQ. MI.


*
ADD HYD                ID=16 HYD NO=116  ID=9  ID=10
PRINT HYD              ID=16 CODE=1

                                    PARTIAL HYDROGRAPH   116.00


     RUNOFF VOLUME =     1.27052 INCHES     =        .4564 ACRE-FEET
     PEAK DISCHARGE RATE =      13.58 CFS  AT   1.500 HOURS   BASIN
AREA =   .0067 SQ. MI.


*
ADD HYD                ID=17 HYD NO=117  ID=12  ID=13
PRINT HYD              ID=17 CODE=1

                                    PARTIAL HYDROGRAPH   117.00


     RUNOFF VOLUME =     1.32364 INCHES     =       1.5545 ACRE-FEET
     PEAK DISCHARGE RATE =      45.75 CFS  AT   1.500 HOURS   BASIN
AREA =   .0220 SQ. MI.


*
ADD HYD                ID=18 HYD NO=118  ID=14  ID=17
PRINT HYD              ID=18 CODE=1

                                    PARTIAL HYDROGRAPH   118.00
```

```
        RUNOFF VOLUME =      1.32363 INCHES      =        1.8281 ACRE-FEET
        PEAK DISCHARGE RATE =       53.83 CFS  AT   1.500 HOURS   BASIN
AREA =  .0259 SQ. MI.


    *
    ADD HYD              ID=19 HYD NO=119  ID=15  ID=16
    PRINT HYD            ID=19 CODE=1

                                        PARTIAL HYDROGRAPH   119.00


        RUNOFF VOLUME =      1.32795 INCHES      =         .6696 ACRE-FEET
        PEAK DISCHARGE RATE =       19.72 CFS  AT   1.500 HOURS   BASIN
AREA =  .0095 SQ. MI.

    *
    ADD HYD              ID=20 HYD NO=120  ID=11  ID=19
    PRINT HYD            ID=20 CODE=1

                                        PARTIAL HYDROGRAPH   120.00


        RUNOFF VOLUME =      1.32656 INCHES      =         .9872 ACRE-FEET
        PEAK DISCHARGE RATE =       29.08 CFS  AT   1.500 HOURS   BASIN
AREA =  .0140 SQ. MI.


    *
    ADD HYD              ID=21 HYD NO=121  ID=18  ID=20
    PRINT HYD            ID=21 CODE=1

                                        PARTIAL HYDROGRAPH   121.00


        RUNOFF VOLUME =      1.32466 INCHES      =        2.8153 ACRE-FEET
        PEAK DISCHARGE RATE =       82.90 CFS  AT   1.500 HOURS   BASIN
AREA =  .0399 SQ. MI.

    *
    ADD HYD              ID=24 HYD NO=124  ID=22  ID=23
    PRINT HYD            ID=24 CODE=1

                                        PARTIAL HYDROGRAPH   124.00


        RUNOFF VOLUME =       .88647 INCHES      =         .6146 ACRE-FEET
        PEAK DISCHARGE RATE =       18.31 CFS  AT   1.500 HOURS   BASIN
AREA =  .0130 SQ. MI.


    *
    **ANALYSIS POINT C
    ADD HYD              ID=25 HYD NO=125  ID=21  ID=24
```

```
PRINT HYD              ID=25 CODE=1

                                        PARTIAL HYDROGRAPH   125.00

     RUNOFF VOLUME =     1.21687 INCHES     =       3.4299 ACRE-FEET
     PEAK DISCHARGE RATE =     101.21 CFS  AT   1.500 HOURS   BASIN
AREA =   .0529 SQ. MI.


*
**FLOW IN KIMELA DR. THAT WILL GO TO ANALYSIS POINT D
ADD HYD                ID=29 HYD NO=129  ID=25  ID=26
PRINT HYD              ID=29 CODE=1

                                        PARTIAL HYDROGRAPH   129.00

     RUNOFF VOLUME =     1.26223 INCHES     =       7.0583 ACRE-FEET
     PEAK DISCHARGE RATE =     210.94 CFS  AT   1.500 HOURS   BASIN
AREA =   .1049 SQ. MI.


*
**ANALYSIS POINT D
ADD HYD                ID=30 HYD NO=404.2 ID=40 ID= 29
PRINT HYD              ID=30 CODE=1

                                          HYDROGRAPH FROM AREA
404.20

     RUNOFF VOLUME =     1.28924 INCHES     =      25.1930 ACRE-FEET
     PEAK DISCHARGE RATE =     651.01 CFS  AT   1.532 HOURS   BASIN
AREA =   .3664 SQ. MI.


*
ROUTE RESERVOIR         ID=31 HYD NO=405.4 INFLOW ID=30 CODE=1
                       OUTFLOW(CFS)   STORAGE(AF)   ELEV(FT)
                          0               0           21
                        104.75            1.06        22
                        120.95            3.08        23
                        135.23            5.61        24
                        148.14            8.24        25
                        160.00           10.98        26
                        171.05           13.82        27
                        181.43           16.76        28
                        191.24           19.81        29
                        200.58           22.98        30

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

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

   .00         .00      21.00       .000        .00
   .03         .00      21.00       .000        .00
```

.07	.00	21.00	.000	.00
.10	.00	21.00	.000	.00
.13	.00	21.00	.000	.00
.17	.00	21.00	.000	.00
.20	.00	21.00	.000	.00
.23	.00	21.00	.000	.00
.27	.00	21.00	.000	.00
.30	.00	21.00	.000	.00
.33	.00	21.00	.000	.00
.37	.00	21.00	.000	.00
.40	.00	21.00	.000	.00
.43	.00	21.00	.000	.00
.47	.00	21.00	.000	.00
.50	.00	21.00	.000	.00
.53	.00	21.00	.000	.00
.57	.00	21.00	.000	.00
.60	.00	21.00	.000	.00
.63	.00	21.00	.000	.00
.67	.00	21.00	.000	.00
.70	.00	21.00	.000	.00
.73	.00	21.00	.000	.00
.77	.00	21.00	.000	.00
.80	.00	21.00	.000	.00
.83	.00	21.00	.000	.00
.87	.00	21.00	.000	.00
.90	.00	21.00	.000	.00
.93	.00	21.00	.000	.00
.97	.00	21.00	.000	.00
1.00	.00	21.00	.000	.00
1.03	.00	21.00	.000	.00
1.07	.00	21.00	.000	.00
1.10	.00	21.00	.000	.00
1.13	.02	21.00	.000	.00
1.17	.41	21.00	.001	.05
1.20	3.66	21.01	.005	.53
1.23	13.74	21.02	.025	2.48
1.27	32.45	21.07	.075	7.42
1.30	60.06	21.16	.169	16.72
1.33	101.07	21.31	.324	32.00
1.37	167.81	21.54	.572	56.53
1.40	269.26	21.91	.964	95.31
1.43	404.21	22.27	1.610	109.16
1.47	544.98	22.76	2.605	117.14
1.50	638.93	23.32	3.900	125.58
1.53	651.01	23.88	5.318	133.58
1.57	609.11	24.40	6.675	140.46
1.60	540.90	24.86	7.863	146.29
1.63	474.34	25.22	8.851	150.78
1.67	409.72	25.51	9.648	154.23
1.70	358.50	25.74	10.277	156.96
1.73	314.15	25.92	10.767	159.08
1.76	277.09	26.06	11.141	160.63
1.80	245.17	26.15	11.416	161.70
1.83	218.71	26.22	11.608	162.45

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
1.86	197.44	26.27	11.733	162.93
1.90	179.79	26.29	11.804	163.20
1.93	164.94	26.30	11.829	163.30

1.96	152.26	26.29	11.816	163.25
2.00	141.32	26.28	11.771	163.08
2.03	131.60	26.25	11.698	162.79
2.06	120.47	26.22	11.597	162.40
2.10	106.12	26.17	11.463	161.88
2.13	90.55	26.11	11.289	161.20
2.16	76.51	26.03	11.076	160.37
2.20	65.27	25.95	10.831	159.36
2.23	56.66	25.85	10.562	158.19
2.26	50.04	25.74	10.275	156.95
2.30	44.81	25.63	9.976	155.65
2.33	40.54	25.52	9.667	154.32
2.36	36.79	25.41	9.350	152.95
2.40	33.38	25.29	9.028	151.55
2.43	30.32	25.17	8.700	150.13
2.46	27.66	25.05	8.369	148.70
2.50	25.35	24.92	8.035	147.13
2.53	23.29	24.79	7.699	145.49
2.56	21.42	24.67	7.363	143.83
2.60	19.74	24.54	7.026	142.18
2.63	18.25	24.41	6.689	140.53
2.66	16.90	24.28	6.353	138.88
2.70	15.66	24.16	6.018	137.23
2.73	14.53	24.03	5.684	135.59
2.76	13.53	23.90	5.352	133.77
2.80	12.62	23.77	5.022	131.91
2.83	11.81	23.64	4.695	130.07
2.86	11.08	23.51	4.371	128.24
2.90	10.42	23.38	4.051	126.43
2.93	9.81	23.26	3.733	124.64
2.96	9.25	23.13	3.419	122.86
3.00	8.74	23.01	3.108	121.11
3.03	8.29	22.86	2.801	118.71
3.06	7.88	22.71	2.500	116.30
3.10	7.51	22.57	2.204	113.93
3.13	7.17	22.42	1.914	111.60
3.16	6.84	22.28	1.629	109.32
3.20	6.55	22.14	1.350	107.08
3.23	6.30	22.01	1.076	104.88
3.26	6.06	21.79	.835	82.54
3.30	5.86	21.61	.650	64.21
3.33	5.66	21.48	.508	50.21
3.36	5.48	21.38	.400	39.53
3.40	5.32	21.30	.317	31.35
3.43	5.17	21.24	.254	25.10
3.46	5.04	21.19	.206	20.32
3.50	4.90	21.16	.168	16.64
3.53	4.77	21.13	.140	13.81
3.56	4.66	21.11	.118	11.64
3.60	4.54	21.09	.101	9.95
3.63	4.44	21.08	.087	8.64
3.66	4.34	21.07	.077	7.63
3.70	4.26	21.07	.069	6.83

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
3.73	4.19	21.06	.063	6.21
3.76	4.12	21.05	.058	5.71
3.80	4.07	21.05	.054	5.33
3.83	4.02	21.05	.051	5.02

3.86	3.97	21.05	.048	4.78
3.90	3.92	21.04	.046	4.58
3.93	3.88	21.04	.045	4.41
3.96	3.85	21.04	.043	4.28
4.00	3.82	21.04	.042	4.18
4.03	3.78	21.04	.041	4.09
4.06	3.76	21.04	.041	4.01
4.10	3.74	21.04	.040	3.95
4.13	3.72	21.04	.039	3.90
4.16	3.70	21.04	.039	3.85
4.20	3.68	21.04	.039	3.81
4.23	3.66	21.04	.038	3.78
4.26	3.64	21.04	.038	3.75
4.30	3.64	21.04	.038	3.72
4.33	3.64	21.04	.037	3.70
4.36	3.63	21.04	.037	3.69
4.40	3.63	21.04	.037	3.67
4.43	3.63	21.03	.037	3.66
4.46	3.62	21.03	.037	3.65
4.50	3.61	21.03	.037	3.64
4.53	3.60	21.03	.037	3.64
4.56	3.61	21.03	.037	3.63
4.60	3.62	21.03	.037	3.63
4.63	3.63	21.03	.037	3.63
4.66	3.62	21.03	.037	3.62
4.70	3.62	21.03	.037	3.62
4.73	3.63	21.03	.037	3.62
4.76	3.64	21.03	.037	3.63
4.80	3.64	21.03	.037	3.63
4.83	3.64	21.03	.037	3.63
4.86	3.65	21.03	.037	3.64
4.90	3.66	21.03	.037	3.64
4.93	3.67	21.03	.037	3.65
4.96	3.68	21.03	.037	3.65
5.00	3.69	21.03	.037	3.66
5.03	3.70	21.04	.037	3.67
5.06	3.71	21.04	.037	3.68
5.09	3.73	21.04	.037	3.69
5.13	3.74	21.04	.037	3.70
5.16	3.76	21.04	.038	3.71
5.19	3.77	21.04	.038	3.72
5.23	3.77	21.04	.038	3.73
5.26	3.78	21.04	.038	3.74
5.29	3.80	21.04	.038	3.75
5.33	3.82	21.04	.038	3.77
5.36	3.84	21.04	.038	3.78
5.39	3.86	21.04	.038	3.80
5.43	3.87	21.04	.039	3.81
5.46	3.89	21.04	.039	3.83
5.49	3.91	21.04	.039	3.85
5.53	3.93	21.04	.039	3.86
5.56	3.95	21.04	.039	3.88

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
5.59	3.96	21.04	.039	3.90
5.63	3.97	21.04	.040	3.92
5.66	3.99	21.04	.040	3.93
5.69	4.01	21.04	.040	3.95
5.73	4.03	21.04	.040	3.96

5.76	4.06	21.04	.040	3.98
5.79	4.08	21.04	.041	4.00
5.83	4.10	21.04	.041	4.02
5.86	4.12	21.04	.041	4.04
5.89	4.14	21.04	.041	4.07
5.93	4.17	21.04	.041	4.09
5.96	4.19	21.04	.042	4.11
5.99	4.21	21.04	.042	4.13
6.03	4.22	21.04	.042	4.15
6.06	4.11	21.04	.042	4.16
6.09	3.79	21.04	.042	4.11
6.13	3.35	21.04	.040	3.98
6.16	2.92	21.04	.038	3.78
6.19	2.60	21.03	.036	3.53
6.23	2.37	21.03	.033	3.28
6.26	2.20	21.03	.031	3.05
6.29	2.08	21.03	.029	2.83
6.33	1.99	21.03	.027	2.64
6.36	1.90	21.02	.025	2.47
6.39	1.83	21.02	.024	2.33
6.43	1.76	21.02	.022	2.20
6.46	1.71	21.02	.021	2.09
6.49	1.66	21.02	.020	1.99
6.53	1.61	21.02	.019	1.91
6.56	1.57	21.02	.019	1.83
6.59	1.53	21.02	.018	1.76
6.63	1.50	21.02	.017	1.70
6.66	1.47	21.02	.017	1.65
6.69	1.44	21.02	.016	1.61
6.73	1.42	21.01	.016	1.56
6.76	1.40	21.01	.015	1.53
6.79	1.38	21.01	.015	1.49
6.83	1.36	21.01	.015	1.46
6.86	1.35	21.01	.015	1.44
6.89	1.34	21.01	.014	1.42
6.93	1.32	21.01	.014	1.39
6.96	1.32	21.01	.014	1.38
6.99	1.31	21.01	.014	1.36
7.03	1.30	21.01	.014	1.35
7.06	1.29	21.01	.014	1.34
7.09	1.29	21.01	.013	1.32
7.13	1.28	21.01	.013	1.32
7.16	1.28	21.01	.013	1.31
7.19	1.27	21.01	.013	1.30
7.23	1.27	21.01	.013	1.29
7.26	1.27	21.01	.013	1.29
7.29	1.27	21.01	.013	1.28
7.33	1.26	21.01	.013	1.28
7.36	1.26	21.01	.013	1.27
7.39	1.26	21.01	.013	1.27
7.43	1.26	21.01	.013	1.27

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
7.46	1.25	21.01	.013	1.26
7.49	1.25	21.01	.013	1.26
7.53	1.25	21.01	.013	1.26
7.56	1.25	21.01	.013	1.26
7.59	1.25	21.01	.013	1.25
7.63	1.24	21.01	.013	1.25

7.66	1.24	21.01	.013	1.25
7.69	1.24	21.01	.013	1.25
7.73	1.24	21.01	.013	1.25
7.76	1.24	21.01	.013	1.24
7.79	1.24	21.01	.013	1.24
7.83	1.24	21.01	.013	1.24
7.86	1.23	21.01	.013	1.24
7.89	1.23	21.01	.013	1.24
7.93	1.23	21.01	.013	1.24
7.96	1.23	21.01	.013	1.24
7.99	1.23	21.01	.012	1.23
8.03	1.23	21.01	.012	1.23
8.06	1.23	21.01	.012	1.23
8.09	1.22	21.01	.012	1.23
8.13	1.22	21.01	.012	1.23
8.16	1.22	21.01	.012	1.23
8.19	1.22	21.01	.012	1.23
8.23	1.22	21.01	.012	1.22
8.26	1.22	21.01	.012	1.22
8.29	1.22	21.01	.012	1.22
8.33	1.21	21.01	.012	1.22
8.36	1.21	21.01	.012	1.22
8.39	1.21	21.01	.012	1.22
8.42	1.21	21.01	.012	1.22
8.46	1.21	21.01	.012	1.21
8.49	1.21	21.01	.012	1.21
8.52	1.21	21.01	.012	1.21
8.56	1.20	21.01	.012	1.21
8.59	1.20	21.01	.012	1.21
8.62	1.20	21.01	.012	1.21
8.66	1.20	21.01	.012	1.21
8.69	1.20	21.01	.012	1.20
8.72	1.20	21.01	.012	1.20
8.76	1.20	21.01	.012	1.20
8.79	1.20	21.01	.012	1.20
8.82	1.19	21.01	.012	1.20
8.86	1.19	21.01	.012	1.20
8.89	1.19	21.01	.012	1.20
8.92	1.19	21.01	.012	1.20
8.96	1.19	21.01	.012	1.19
8.99	1.19	21.01	.012	1.19
9.02	1.19	21.01	.012	1.19
9.06	1.18	21.01	.012	1.19
9.09	1.18	21.01	.012	1.19
9.12	1.18	21.01	.012	1.19
9.16	1.18	21.01	.012	1.19
9.19	1.18	21.01	.012	1.18
9.22	1.18	21.01	.012	1.18
9.26	1.18	21.01	.012	1.18
9.29	1.18	21.01	.012	1.18

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
9.32	1.17	21.01	.012	1.18
9.36	1.17	21.01	.012	1.18
9.39	1.17	21.01	.012	1.18
9.42	1.17	21.01	.012	1.18
9.46	1.17	21.01	.012	1.17
9.49	1.17	21.01	.012	1.17
9.52	1.17	21.01	.012	1.17

9.56	1.16	21.01	.012	1.17
9.59	1.16	21.01	.012	1.17
9.62	1.16	21.01	.012	1.17
9.66	1.16	21.01	.012	1.17
9.69	1.16	21.01	.012	1.16
9.72	1.16	21.01	.012	1.16
9.76	1.16	21.01	.012	1.16
9.79	1.16	21.01	.012	1.16
9.82	1.15	21.01	.012	1.16
9.86	1.15	21.01	.012	1.16
9.89	1.15	21.01	.012	1.16
9.92	1.15	21.01	.012	1.16
9.96	1.15	21.01	.012	1.15
9.99	1.15	21.01	.012	1.15
10.02	1.15	21.01	.012	1.15
10.06	1.14	21.01	.012	1.15
10.09	1.14	21.01	.012	1.15
10.12	1.14	21.01	.012	1.15
10.16	1.14	21.01	.012	1.15
10.19	1.14	21.01	.012	1.14
10.22	1.14	21.01	.012	1.14
10.26	1.14	21.01	.012	1.14
10.29	1.13	21.01	.012	1.14
10.32	1.13	21.01	.012	1.14
10.36	1.13	21.01	.012	1.14
10.39	1.13	21.01	.011	1.14
10.42	1.13	21.01	.011	1.13
10.46	1.13	21.01	.011	1.13
10.49	1.13	21.01	.011	1.13
10.52	1.12	21.01	.011	1.13
10.56	1.12	21.01	.011	1.13
10.59	1.12	21.01	.011	1.13
10.62	1.12	21.01	.011	1.13
10.66	1.12	21.01	.011	1.12
10.69	1.12	21.01	.011	1.12
10.72	1.12	21.01	.011	1.12
10.76	1.11	21.01	.011	1.12
10.79	1.11	21.01	.011	1.12
10.82	1.11	21.01	.011	1.12
10.86	1.11	21.01	.011	1.12
10.89	1.11	21.01	.011	1.11
10.92	1.11	21.01	.011	1.11
10.96	1.11	21.01	.011	1.11
10.99	1.10	21.01	.011	1.11
11.02	1.10	21.01	.011	1.11
11.06	1.10	21.01	.011	1.11
11.09	1.10	21.01	.011	1.11
11.12	1.10	21.01	.011	1.10
11.16	1.10	21.01	.011	1.10

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
11.19	1.10	21.01	.011	1.10
11.22	1.10	21.01	.011	1.10
11.26	1.09	21.01	.011	1.10
11.29	1.09	21.01	.011	1.10
11.32	1.09	21.01	.011	1.10
11.36	1.09	21.01	.011	1.09
11.39	1.09	21.01	.011	1.09
11.42	1.09	21.01	.011	1.09

11.46	1.09	21.01	.011	1.09
11.49	1.08	21.01	.011	1.09
11.52	1.08	21.01	.011	1.09
11.56	1.08	21.01	.011	1.09
11.59	1.08	21.01	.011	1.09
11.62	1.08	21.01	.011	1.08
11.66	1.08	21.01	.011	1.08
11.69	1.08	21.01	.011	1.08
11.72	1.07	21.01	.011	1.08
11.75	1.07	21.01	.011	1.08
11.79	1.07	21.01	.011	1.08
11.82	1.07	21.01	.011	1.08
11.85	1.07	21.01	.011	1.07
11.89	1.07	21.01	.011	1.07
11.92	1.07	21.01	.011	1.07
11.95	1.07	21.01	.011	1.07
11.99	1.06	21.01	.011	1.07
12.02	1.06	21.01	.011	1.07
12.05	1.06	21.01	.011	1.07
12.09	1.06	21.01	.011	1.06
12.12	1.06	21.01	.011	1.06
12.15	1.06	21.01	.011	1.06
12.19	1.06	21.01	.011	1.06
12.22	1.05	21.01	.011	1.06
12.25	1.05	21.01	.011	1.06
12.29	1.05	21.01	.011	1.06
12.32	1.05	21.01	.011	1.06
12.35	1.05	21.01	.011	1.05
12.39	1.05	21.01	.011	1.05
12.42	1.05	21.01	.011	1.05
12.45	1.05	21.01	.011	1.05
12.49	1.04	21.01	.011	1.05
12.52	1.04	21.01	.011	1.05
12.55	1.04	21.01	.011	1.05
12.59	1.04	21.01	.011	1.04
12.62	1.04	21.01	.011	1.04
12.65	1.04	21.01	.011	1.04
12.69	1.04	21.01	.011	1.04
12.72	1.03	21.01	.011	1.04
12.75	1.03	21.01	.011	1.04
12.79	1.03	21.01	.010	1.04
12.82	1.03	21.01	.010	1.04
12.85	1.03	21.01	.010	1.03
12.89	1.03	21.01	.010	1.03
12.92	1.03	21.01	.010	1.03
12.95	1.03	21.01	.010	1.03
12.99	1.02	21.01	.010	1.03
13.02	1.02	21.01	.010	1.03

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
13.05	1.02	21.01	.010	1.03
13.09	1.02	21.01	.010	1.02
13.12	1.02	21.01	.010	1.02
13.15	1.02	21.01	.010	1.02
13.19	1.02	21.01	.010	1.02
13.22	1.01	21.01	.010	1.02
13.25	1.01	21.01	.010	1.02
13.29	1.01	21.01	.010	1.02
13.32	1.01	21.01	.010	1.02

13.35	1.01	21.01	.010	1.01
13.39	1.01	21.01	.010	1.01
13.42	1.01	21.01	.010	1.01
13.45	1.01	21.01	.010	1.01
13.49	1.00	21.01	.010	1.01
13.52	1.00	21.01	.010	1.01
13.55	1.00	21.01	.010	1.01
13.59	1.00	21.01	.010	1.01
13.62	1.00	21.01	.010	1.00
13.65	1.00	21.01	.010	1.00
13.69	1.00	21.01	.010	1.00
13.72	1.00	21.01	.010	1.00
13.75	.99	21.01	.010	1.00
13.79	.99	21.01	.010	1.00
13.82	.99	21.01	.010	1.00
13.85	.99	21.01	.010	.99
13.89	.99	21.01	.010	.99
13.92	.99	21.01	.010	.99
13.95	.99	21.01	.010	.99
13.99	.98	21.01	.010	.99
14.02	.98	21.01	.010	.99
14.05	.98	21.01	.010	.99
14.09	.98	21.01	.010	.98
14.12	.98	21.01	.010	.98
14.15	.98	21.01	.010	.98
14.19	.97	21.01	.010	.98
14.22	.97	21.01	.010	.98
14.25	.97	21.01	.010	.98
14.29	.97	21.01	.010	.97
14.32	.97	21.01	.010	.97
14.35	.96	21.01	.010	.97
14.39	.96	21.01	.010	.97
14.42	.96	21.01	.010	.97
14.45	.96	21.01	.010	.97
14.49	.96	21.01	.010	.96
14.52	.96	21.01	.010	.96
14.55	.95	21.01	.010	.96
14.59	.95	21.01	.010	.96
14.62	.95	21.01	.010	.96
14.65	.95	21.01	.010	.96
14.69	.95	21.01	.010	.95
14.72	.95	21.01	.010	.95
14.75	.94	21.01	.010	.95
14.79	.94	21.01	.010	.95
14.82	.94	21.01	.010	.95
14.85	.94	21.01	.010	.95
14.89	.94	21.01	.010	.94

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
14.92	.94	21.01	.010	.94
14.95	.93	21.01	.010	.94
14.99	.93	21.01	.009	.94
15.02	.93	21.01	.009	.94
15.05	.93	21.01	.009	.94
15.08	.93	21.01	.009	.93
15.12	.93	21.01	.009	.93
15.15	.92	21.01	.009	.93
15.18	.92	21.01	.009	.93
15.22	.92	21.01	.009	.93

15.25	.92	21.01	.009	.93
15.28	.92	21.01	.009	.92
15.32	.92	21.01	.009	.92
15.35	.91	21.01	.009	.92
15.38	.91	21.01	.009	.92
15.42	.91	21.01	.009	.92
15.45	.91	21.01	.009	.92
15.48	.91	21.01	.009	.91
15.52	.91	21.01	.009	.91
15.55	.90	21.01	.009	.91
15.58	.90	21.01	.009	.91
15.62	.90	21.01	.009	.91
15.65	.90	21.01	.009	.91
15.68	.90	21.01	.009	.90
15.72	.90	21.01	.009	.90
15.75	.89	21.01	.009	.90
15.78	.89	21.01	.009	.90
15.82	.89	21.01	.009	.90
15.85	.89	21.01	.009	.90
15.88	.89	21.01	.009	.89
15.92	.89	21.01	.009	.89
15.95	.88	21.01	.009	.89
15.98	.88	21.01	.009	.89
16.02	.88	21.01	.009	.89
16.05	.88	21.01	.009	.89
16.08	.88	21.01	.009	.88
16.12	.88	21.01	.009	.88
16.15	.88	21.01	.009	.88
16.18	.87	21.01	.009	.88
16.22	.87	21.01	.009	.88
16.25	.87	21.01	.009	.88
16.28	.87	21.01	.009	.87
16.32	.87	21.01	.009	.87
16.35	.87	21.01	.009	.87
16.38	.86	21.01	.009	.87
16.42	.86	21.01	.009	.87
16.45	.86	21.01	.009	.87
16.48	.86	21.01	.009	.87
16.52	.86	21.01	.009	.86
16.55	.86	21.01	.009	.86
16.58	.86	21.01	.009	.86
16.62	.85	21.01	.009	.86
16.65	.85	21.01	.009	.86
16.68	.85	21.01	.009	.86
16.72	.85	21.01	.009	.85
16.75	.85	21.01	.009	.85

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
16.78	.85	21.01	.009	.85
16.82	.84	21.01	.009	.85
16.85	.84	21.01	.009	.85
16.88	.84	21.01	.009	.85
16.92	.84	21.01	.009	.85
16.95	.84	21.01	.009	.84
16.98	.84	21.01	.009	.84
17.02	.84	21.01	.009	.84
17.05	.83	21.01	.008	.84
17.08	.83	21.01	.008	.84
17.12	.83	21.01	.008	.84

17.15	.83	21.01	.008	.83
17.18	.83	21.01	.008	.83
17.22	.83	21.01	.008	.83
17.25	.82	21.01	.008	.83
17.28	.82	21.01	.008	.83
17.32	.82	21.01	.008	.83
17.35	.82	21.01	.008	.83
17.38	.82	21.01	.008	.82
17.42	.82	21.01	.008	.82
17.45	.82	21.01	.008	.82
17.48	.81	21.01	.008	.82
17.52	.81	21.01	.008	.82
17.55	.81	21.01	.008	.82
17.58	.81	21.01	.008	.82
17.62	.81	21.01	.008	.81
17.65	.81	21.01	.008	.81
17.68	.81	21.01	.008	.81
17.72	.80	21.01	.008	.81
17.75	.80	21.01	.008	.81
17.78	.80	21.01	.008	.81
17.82	.80	21.01	.008	.81
17.85	.80	21.01	.008	.80
17.88	.80	21.01	.008	.80
17.92	.80	21.01	.008	.80
17.95	.79	21.01	.008	.80
17.98	.79	21.01	.008	.80
18.02	.79	21.01	.008	.80
18.05	.79	21.01	.008	.80
18.08	.79	21.01	.008	.79
18.12	.79	21.01	.008	.79
18.15	.79	21.01	.008	.79
18.18	.78	21.01	.008	.79
18.22	.78	21.01	.008	.79
18.25	.78	21.01	.008	.79
18.28	.78	21.01	.008	.79
18.32	.78	21.01	.008	.78
18.35	.78	21.01	.008	.78
18.38	.77	21.01	.008	.78
18.41	.77	21.01	.008	.78
18.45	.77	21.01	.008	.78
18.48	.77	21.01	.008	.78
18.51	.77	21.01	.008	.77
18.55	.76	21.01	.008	.77
18.58	.76	21.01	.008	.77
18.61	.76	21.01	.008	.77

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
18.65	.76	21.01	.008	.77
18.68	.76	21.01	.008	.76
18.71	.75	21.01	.008	.76
18.75	.75	21.01	.008	.76
18.78	.75	21.01	.008	.76
18.81	.75	21.01	.008	.75
18.85	.74	21.01	.008	.75
18.88	.74	21.01	.008	.75
18.91	.74	21.01	.008	.75
18.95	.74	21.01	.008	.75
18.98	.73	21.01	.008	.74
19.01	.73	21.01	.007	.74

19.05	.73	21.01	.007	.74
19.08	.73	21.01	.007	.74
19.11	.72	21.01	.007	.73
19.15	.72	21.01	.007	.73
19.18	.72	21.01	.007	.73
19.21	.72	21.01	.007	.73
19.25	.71	21.01	.007	.72
19.28	.71	21.01	.007	.72
19.31	.71	21.01	.007	.72
19.35	.71	21.01	.007	.72
19.38	.70	21.01	.007	.71
19.41	.70	21.01	.007	.71
19.45	.70	21.01	.007	.71
19.48	.70	21.01	.007	.71
19.51	.70	21.01	.007	.70
19.55	.69	21.01	.007	.70
19.58	.69	21.01	.007	.70
19.61	.69	21.01	.007	.70
19.65	.69	21.01	.007	.69
19.68	.68	21.01	.007	.69
19.71	.68	21.01	.007	.69
19.75	.68	21.01	.007	.69
19.78	.68	21.01	.007	.68
19.81	.67	21.01	.007	.68
19.85	.67	21.01	.007	.68
19.88	.67	21.01	.007	.68
19.91	.67	21.01	.007	.68
19.95	.66	21.01	.007	.67

PEAK DISCHARGE = 163.303 CFS - PEAK OCCURS AT HOUR 1.93
MAXIMUM WATER SURFACE ELEVATION = 26.299
MAXIMUM STORAGE = 11.8288 AC-FT INCREMENTAL TIME= .033300HRS

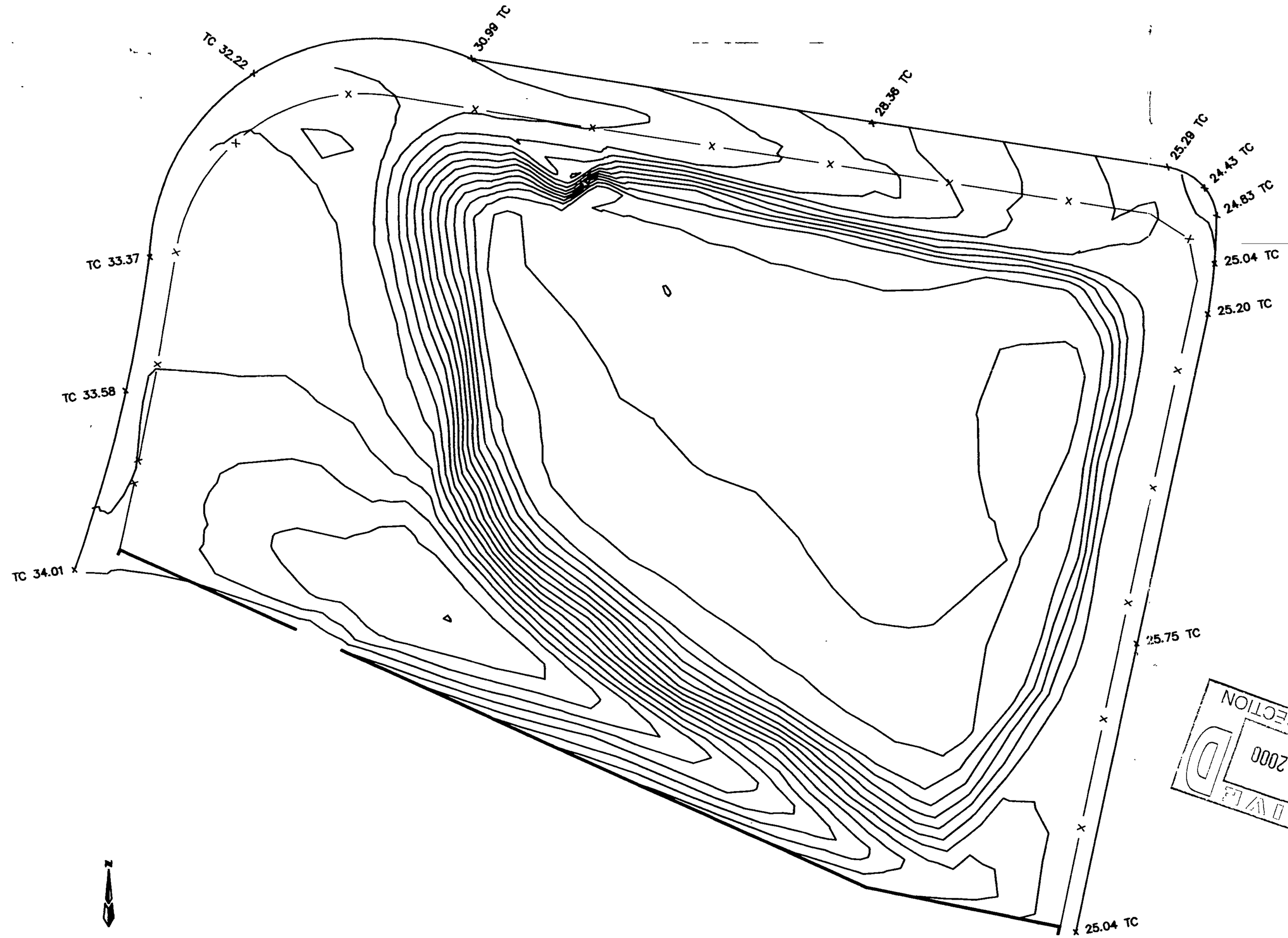
PRINT HYD ID=31 CODE=1

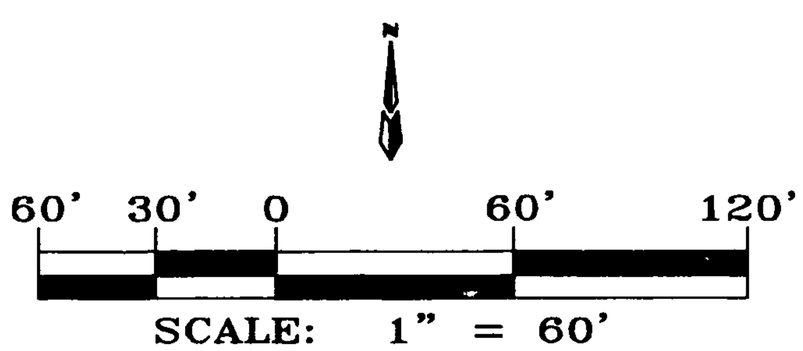
HYDROGRAPH FROM AREA 405.40

RUNOFF VOLUME = 1.28890 INCHES = 25.1862 ACRE-FEET
PEAK DISCHARGE RATE = 163.30 CFS AT 1.931 HOURS BASIN AREA = .3664 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 11:05:55





RECEIVED
MAY 1 3 2000
HYDROLOGY SECTION

GREGORY JAMES KRENK
NEW MEXICO
1929
REGISTERED PROFESSIONAL ENGINEER
5-12-00

RECEIVED
MAY 1 3 2000
HYDROLOGY SECTION

FIGURE 1

ARENAL/UNSER POND

EXISTING CONDITION

dmg
MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505)828-2200, FAX (505)797-9539

Designed: GJK	Drawn: ACH	Checked: DMG	Sheet 1 of 1
Scale: 1" = 60'	Date: 5/04/00	Job: 99137	

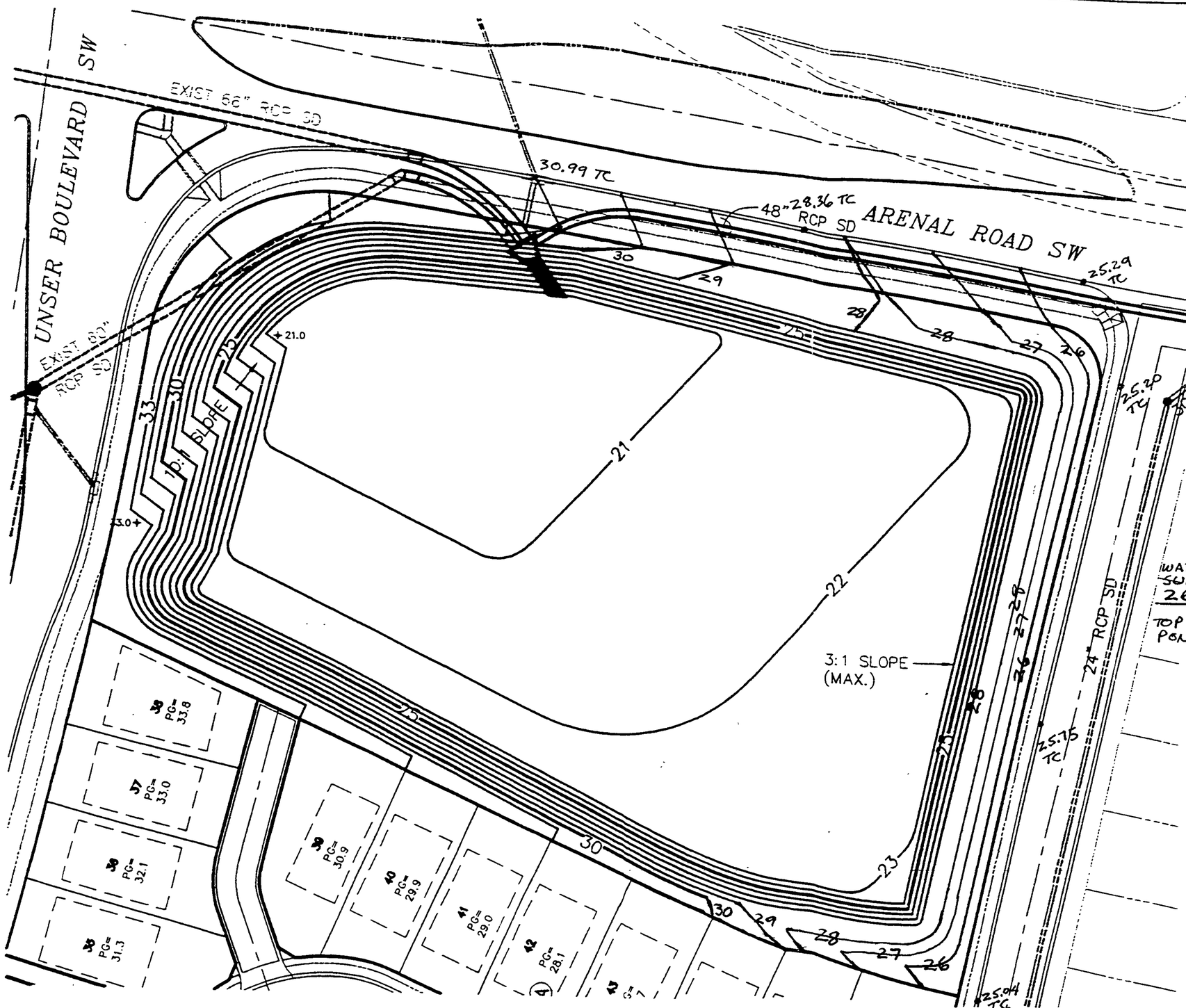
99137\POND\05-04-00\ACH

DS unit 4

Change order

to workorder

REVISED PERMANENT DETENTION POND



RECEIVED MAY 1 9 2009 HYDROLOGY SECTION

SCALE: 1"=80'

GREGORY JAMES KRENIK NEW MEXICO 11828 REGISTERED PROFESSIONAL ENGINEER 5-12-09

ELEV	H (ft)	AREA (ac)	STORAGE (af)
21	0	0.54	0
22	1	1.57	1.06
23	2	2.48	3.08
24	3	2.58	5.61
WATER SURFACE 25	4	2.68	8.24
26.30 26	5	2.79	10.98 11.83
27	6	2.89	13.82
TOP OF POND → 28	7	3.00	16.76
~~29~~	~~8~~	~~3.11~~	~~19.81~~
~~30~~	~~9~~	~~3.21~~	~~22.98~~

PEAK DISCHARGE TO POND = Q_{100} = ~~798~~ 651.01 cfs

PEAK DISCHARGE = ~~183.8~~ 163.3 cfs

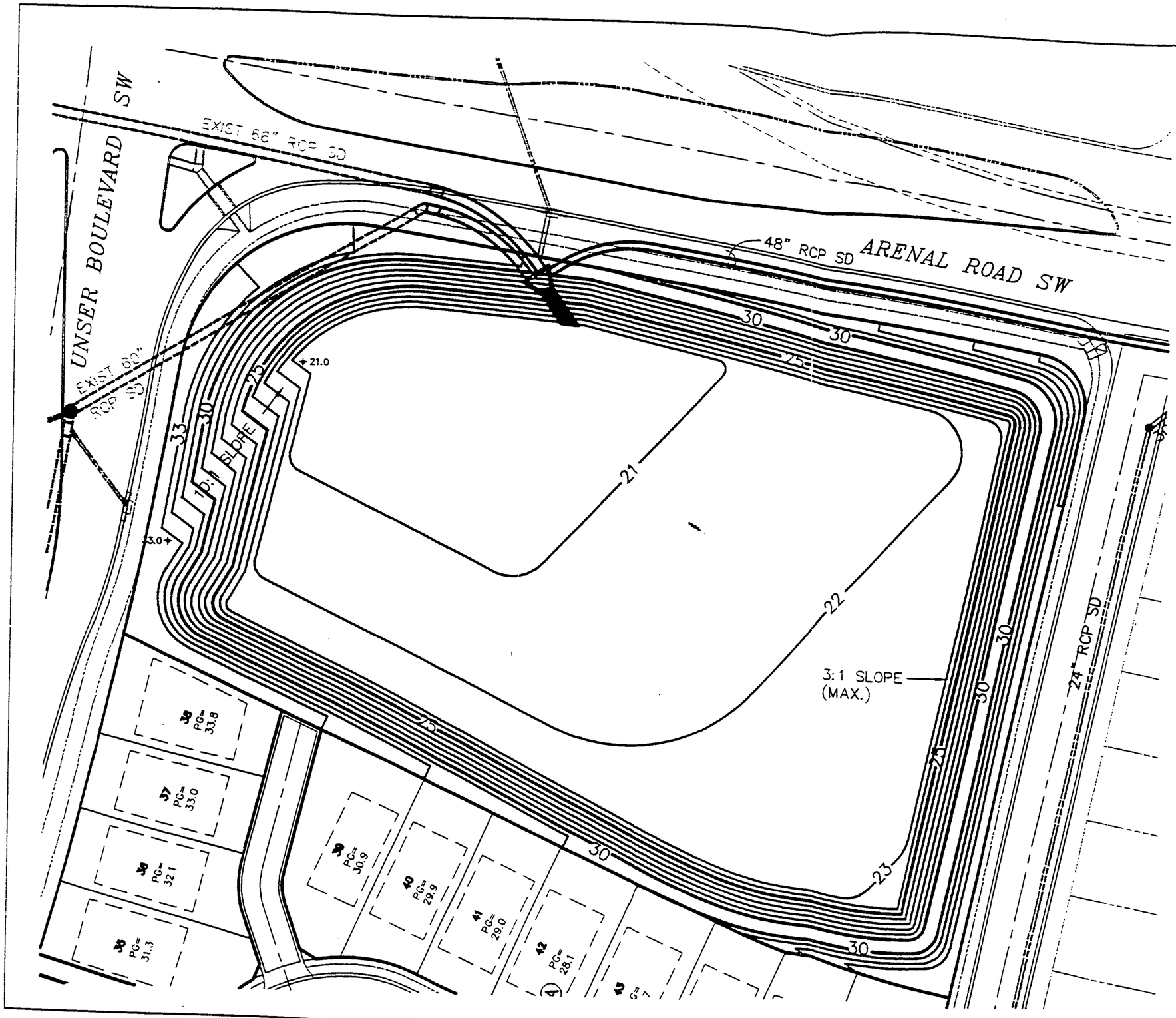
MAX WATER SURFACE ELEV = ~~28.21~~ 26.30 ft

POND STORAGE = ~~17.4~~ 11.83 ac ft

MAX POND STORAGE = ~~22.98~~ 16.76 ac ft

FIGURE 3

dmg MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539



PERMANENT RETENTION POND

SCALE: 1" = 60'

ELEV	H (ft)	AREA (ac)	STORAGE (af)
21	0	0.54	0
22	1	1.57	1.06
23	2	2.48	3.08
24	3	2.58	5.61
25	4	2.68	8.24
26	5	2.79	10.98
27	6	2.89	13.82
28	7	3.00	16.76
29	8	3.11	19.81
30	9	3.21	22.98

PEAK DISCHARGE TO POND = Q_{100} = 798cfs
= Q_{10} = 435 cfs

PEAK DISCHARGE = 183.8 cfs
MAX WATER SURFACE ELEV = 28.21 ft
POND STORAGE = 17.4 ac ft
MAX POND STORAGE = 22.98 ac ft

RECEIVED MAY 12 2000 HYDROLOGY SECTION

FIGURE 2

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque New Mexico

921EXH10.DWGems 09/16/97

SAGE POINTE REVISION

SUNSAGE HILLS

FIGURE 3

REVISED BASINS

100 101 102 103 104 105 106 107 108 109 110

TOWN OF ATRISCO (SC) C-1

SU-1 TH

COUNTRY GRANT (UNIT 7)

SQUIRE

WESTGATE HEIGHTS (UNIT NO 2)

WESTGATE HEIGHTS PARK

WESTGATE HEIGHTS (UNIT NO 4)

TOWN OF GRANT

SU-1 CHURCH & REL FAC

ATRISCO SU-1 PRO 15 DU/A PERM C-1 USES INCL REST W/ FULL SERVICE LIQ

R-D 9 DU/A

ABQ SOUTH C-1 R-D R-1

VISTA NUEVA

MARY ANN BINFORD ELEMENTARY SCHOOL

SU-1 PRD

ABQ SOUTH UNIT 1

VALLEY WEST SU-1 PRD

SAN JOSE ARENA

ATRISCO VILLAGE (SC) C-1

SNOW VISTA

TRUMAN MIDDLE SCHOOL

SU-1 WESTSIDE BAPTIST CHURCH

ATRISCO VILLAGE

(UNIT 1) (UNIT 5) C-2 (SC)

WALL OVERLAY ZONE R-1/WO-4

DIVERSION CHANNEL DRAINAGE R O W

SNOW VISTA DIVERSION CHANNEL

ARENAL

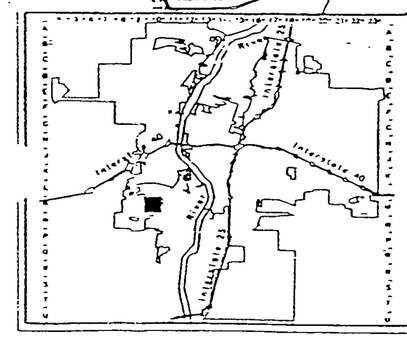
ANDIE DEL NORTE DIVERSION CHANNEL

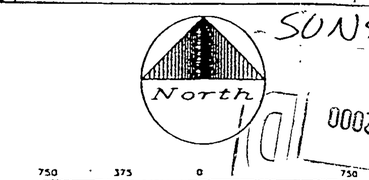
DIVERSION FACILITY

SU-1 CHURCH & REL FAC WESTGATE HEIGHTS

RIO BRAVO SECTOR DEVELOPMENT PLAN BOUNDARY

TOWER / UNSER SECTOR DEVELOPMENT PLAN BOUNDARY





© Planning Department July 04, 1993

LEGAL DESCRIPTION T10N R2E SEC 33

UNIFORM PROPERTY CODE 1-009-055

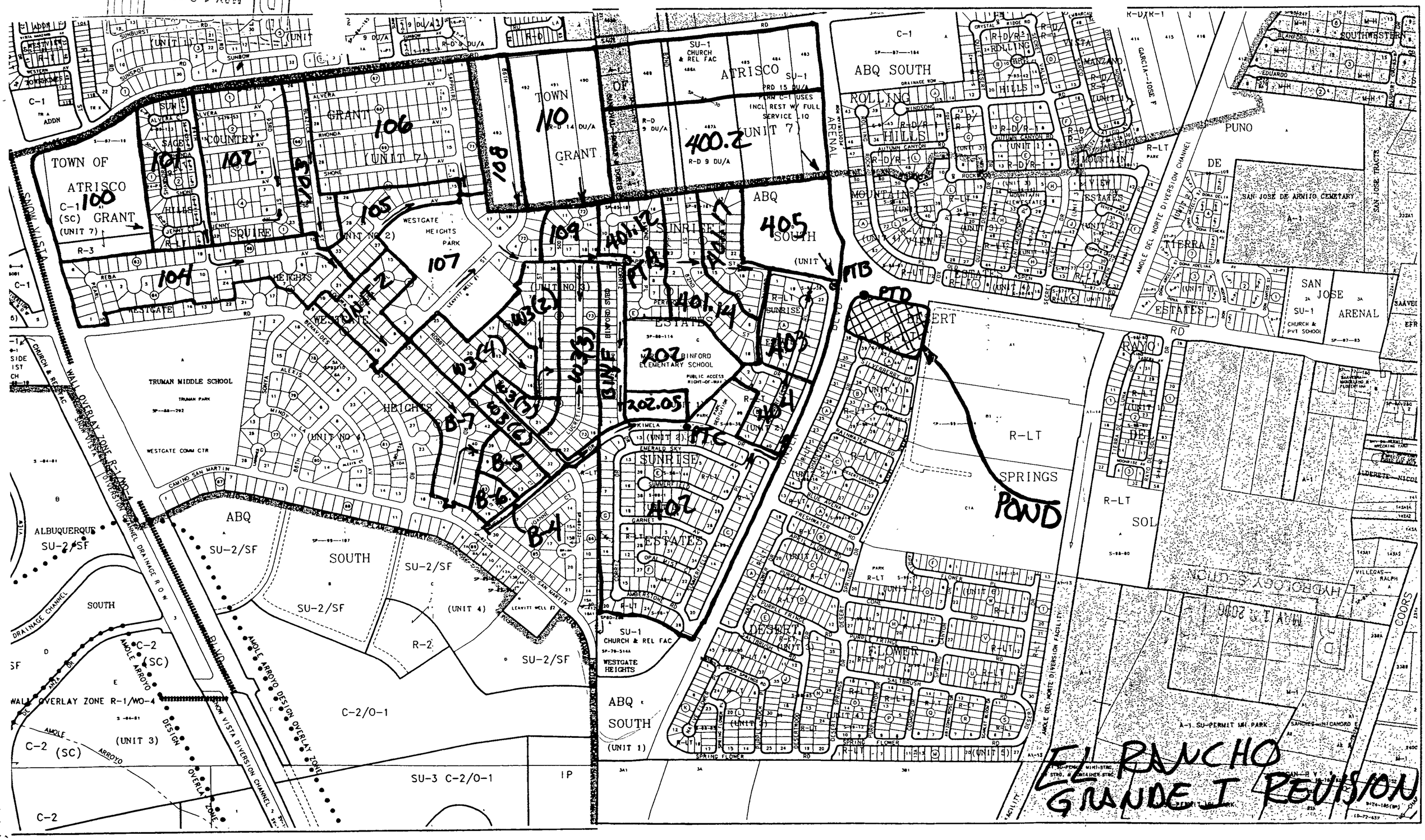
LEGAL DESCRIPTION T10N R2E SEC 34

UNIFORM PROPERTY CODE 1-010-055

M-9-Z M-10-Z

MAY 12 2000
MAY 12 2000

HYDROLOGY SECTION
MAY 12 2000



9711 320

7633

PERMANENT EASEMENT # 578581

Grant of Permanent Easement, between Builders Investment Co. of NM Ltd., Inc. ("Grantor"), whose address is 7007 Wyoming Blvd. Ste. D-6, Albuq. NM 87110 and the City of Albuquerque, a New Mexico municipal corporation ("City"), whose address is P.O. Box 1293, Albuquerque, New Mexico, 87103.

Grantor grants to the City an exclusive, permanent easement ("Easement") in, over, upon and across the real property described on Exhibit "A" attached hereto ("Property") for the construction, installation, maintenance, repair, modification, replacement and operation of Public Roadway, Storm Drainage, Water and Sewer Easement together with the right to remove trees, bushes, undergrowth and any other obstacles upon the Property if the City determines they interfere with the appropriate use of this Easement.

Grantor covenants and warrants that Grantor is the owner in fee simple of the Property, that Grantor has a good lawful right to convey the Property or any part thereof and that Grantor will forever warrant and defend the title to the Property against all claims from all persons or entities.

The grant and other provisions of this Easement constitute covenants running with the land for the benefit of the City and its successors and assigns until terminated.

WITNESS my hand and seal this 31st day of October, 1997.

GRANTOR:

_____
(Individual)

GRANTOR: BUILDERS INVESTMENT COMPANY OF NEW MEXICO LTD., CO.

By: Shelby M. Sane
Its: Chief Executive Officer
(Corporation or Partnership)

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
FILED

1997 NOV 13 AM 10:50

EX 97-31 PG 7633-
JUDY D. WOODWARD
CO. CLERK DEPUTY 7635

153C
9/90

INDIVIDUAL

STATE OF _____)
)ss
COUNTY OF _____)

This instrument was acknowledged before me on ____ day of _____, 19__ by [name of person:] _____, [title of capacity, for instance, "President" or "Owner":] _____ of [Subdivider:] _____.

_____
Notary Public

My commission Expires:

_____

CORPORATION

STATE OF New Mexico
)ss
COUNTY OF Bernalillo

This instrument was acknowledged before me on 31st day of October, 1997 by [name of person: Stanley G. Lane, CEO, [title of capacity, for instance, "President" or "Owner":] _____ of [Subdivider:] Builders Investment Co. of NM, a New Mexico corporation, on behalf of the corporation. Ltd. Co.

_____
Notary Public

NOTARY PUBLIC
STATE OF
NEW MEXICO
PATTY A. duPLESSIS
Expires 6/12/00

My commission Expires:

6/12/00

PARTNERSHIP

STATE OF _____)
)ss
COUNTY OF _____)

This instrument was acknowledged before me on ____ day of _____, 19__ by _____, partner(s), on behalf of _____, a partnership.

_____
Notary Public

My commission Expires:

_____

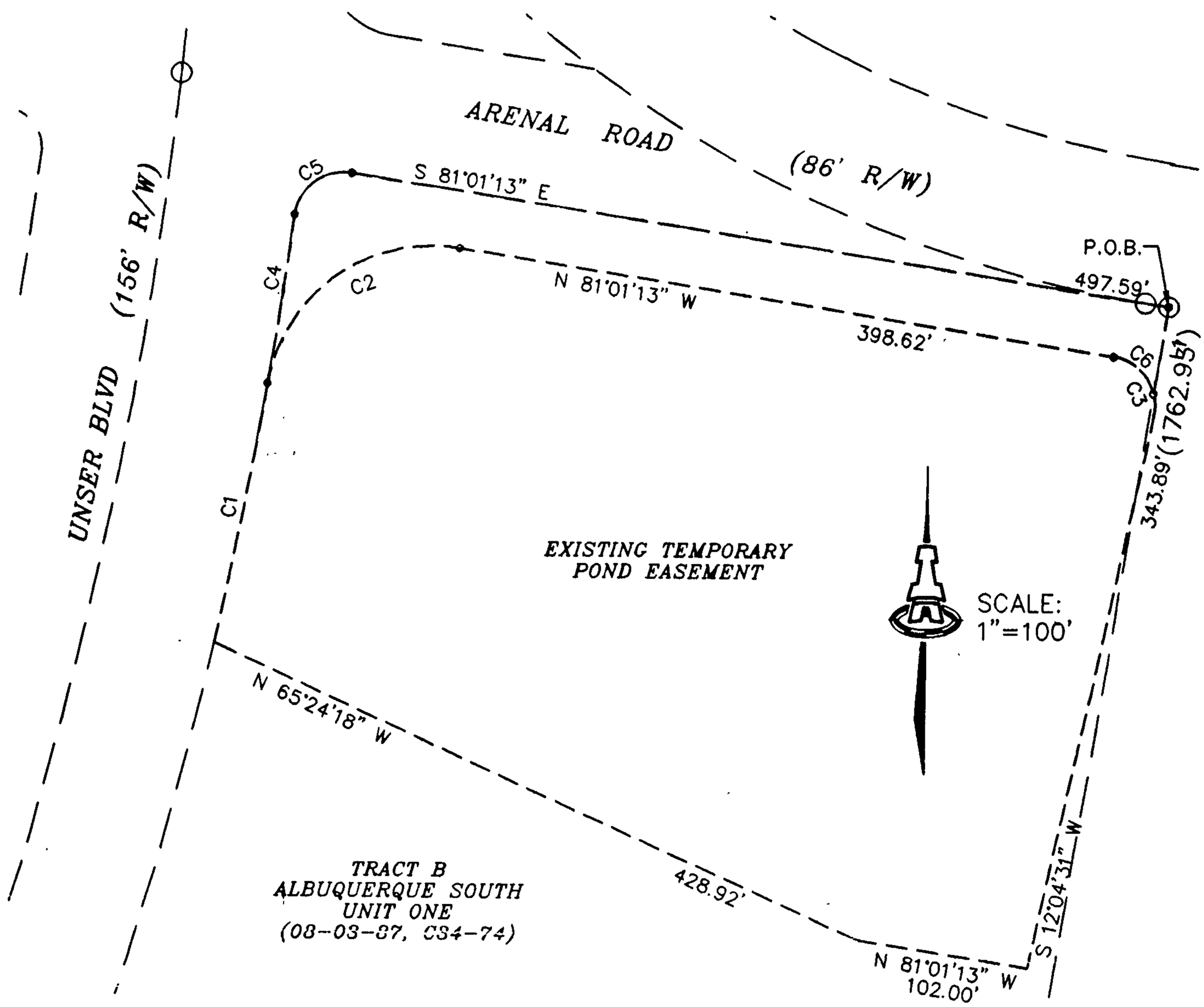
(EXHIBIT "A" ATTACHED)

7635

LEGAL DESCRIPTION

A certain parcel of land situate within the Town of Atrisco Grant, projected Section 34, Township 10 North, Range 2 East, New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico being a portion of TRACT B, ALBUQUERQUE SOUTH, UNIT ONE filed for record in the Office of the County Clerk of Bernalillo County, New Mexico, on August 3, 1987, in Book C34, Folio 74, and being more particularly described as a Public Roadway, Storm Drainage, Public Water and Sewer Easement as follows:

Beginning at the northeast corner of said tract, said point being the Point of Beginning of the easterly limits of a Public Roadway, Storm Drainage, Public Water and Sewer Easement, said point also being the northeast corner of said TRACT B, ALBUQUERQUE SOUTH, UNIT ONE; thence continuing along the easterly edge of said tract S. 08°59'07" W, a distance of 52.99' feet to a point of non-tangency; thence 34.77 feet along a curve to the left whose radius is 30.00 feet and whose long chord bears N 47°49'15" W, 32.85 feet to a point of tangency; thence N 81°01'13" W a distance of 398.62 feet to a point of tangency; thence 156.69 feet along a curve to the left whose radius is 100.00 feet and whose lone chord bears N 54°05'34" E, 141.14 feet through central angle of 89°46'26" to a point of non-tangency; thence 103.66 feet along a curve to the left whose radius is 2878.00 feet and whose long chord bears N 08°10'26" E, 103.65 feet through a central angle of 02°03'49" to a point of compound curvature; thence 48.09 feet along a curve to the right whose radius is 30.00 feet and whose long chord bears N 53°03'39" E, 43.10 feet through a central angle of 91°50'15" to a point of tangency; thence S 81°01'13" E, a distance of 497.59 feet to the Point of Beginning and containing 0.4728 acres more or less.



EASEMENT CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	2878.00'	160.05'	80.04'	160.02'	N 10°47'56" E	03°11'10"
C2	100.00'	156 69'	99.61'	141.14'	N 54°05'34" E	89°46'26"
C3	30.00'	48.74'	31.67'	43.56'	N 34°28'21" W	93°05'44"
C4	2878.00'	103.66'	51.84'	103 65'	N 08°10'26" E	02°03'49"
C5	30.00'	48.09'	30.98'	43.10'	N 53°03'39" E	91°50'15"
C6	30.00'	34.77'	19.63'	32.85'	N 47°49'15" W	66°23'56"

EASEMENT LINE TABLE

LINE	BEARING	DISTANCE
L1	S 08°59'07" W	52.99'

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque New Mexico

974EXH1.DWGems 10/28/97

971277 B

0330

AGREEMENT AND COVENANT

#5285 81

This Agreement and Covenant, between the City of Albuquerque, New Mexico ("City") and Builders Investment Company ~~of NM Ltd., Inc.~~, ("User") is made in Albuquerque, New Mexico and is entered into as of the date of recording this Agreement with the Bernalillo County Clerk.

1. Recital. The User is the owner of certain real property ("User's Property") located at Desert Springs Subd(Unser & Arenal), in Albuquerque, New Mexico, and more particularly described as:

Desert Springs Subdivision: Tracts A, B, and C. Recorded 2/20/97 (97C-55) records Bernalillo County Clerk, Bernalillo County, NM.

The City is the owner of certain real property, easement or public right-of-way ("City's Property") in the vicinity of, contiguous to, abutting or within User's Property, and more particularly described as:

A temporary blanket drainage easement over Desert Springs Subdivision, Tracts A, B, and C.

The User wishes to construct upon, improve or repair and to maintain the following "Improvement" on the City's Property (or already has done so):

Two temporary storm water retention ponds

A sketch of the proposed or existing Improvement is attached as Exhibit A and made a part of this Agreement.

The City agrees to permit the Improvement to exist on the City's Property provided the User complies with the terms of this Agreement.

2. City Use of City's Property and City Liability. The City has the right to enter upon the City's Property at any time and perform whatever inspection, installation, maintenance, repair, modification or removal ("Work") it deems appropriate without liability to the User. If the Work affects the Improvement the City will not be financially or otherwise responsible for rebuilding or repairing the Improvement. The User promptly will repair the Improvement to the City's satisfaction. The cost of repairing the Improvement will be paid by User.

3. User's Responsibility for Improvement. The User will be solely responsible for constructing, maintaining, repairing and, if required, removing the Improvement, all in accordance with standards required by the City as per the approved Grading and Drainage Plan M10/D8 on file at City Hydrology. The User will be solely responsible for paying all related costs. The User will not permit the Improvement to constitute a hazard to the health or safety of the general public or to interfere with the City's use of the City's Property. The User will conform with all applicable laws, ordinances and regulations.

4. Use of the Improvement. If the City's Property is a public right-of-way, it shall be open to the use of the general public at all times, subject to reasonable curtailment during periods of construction, maintenance or repair.

5. Demand for Repair, Modification or Removal. The City may send written notice ("Notice") to the User requiring the User to repair, modify or remove the Improvement within ___ days ("Deadline") and the User will comply promptly with the requirements of the Notice. If removal is demanded, the City also may require the User to return the City's Property to its original condition by the Deadline. The User will perform all required work by the Deadline, at User's sole expense.

6. Failure to Perform by User and Emergency Work by City. If the User fails to comply with the terms of the Notice by the Deadline stated, or, if the City determines that an emergency condition exists, the City may perform the work itself. The City then may assess the User for the cost of the work and for any other expenses or damages which result from User's failure to perform. The User agrees promptly to pay the City the amount assessed. If the User fails to pay the City within thirty (30) days after the City gives the User written notice of the amount due, the City may impose a lien against User's Property for the total resulting amount.

7. Cancellation of Agreement and Release of Covenant. This Agreement may be cancelled and User's covenants released by the City at will by the City's mailing to the User notice of the City's intention to record a Cancellation and Release with the Bernalillo County Clerk. The Cancellation and Release will be effective thirty (30) days after the date of mailing the notice to the User unless a later date is stated in the notice or the Cancellation and Release. After the effective date, the City will record the Cancellation and Release with the Bernalillo County Clerk.

8. Condemnation. If any part of the User's Property is ever condemned by the City, the User will forego all claims to compensation for any portion of User's structure which encroaches on City Property and for severance damage to the remaining portion of User's structure on User's Property.

9. Assessment. Nothing in this Agreement shall be construed to relieve the User, his heirs, assigns and successors from an assessment against User's Property for improvements to the City Property under a duly authorized and approved Special Assessment District. The parties specifically agree that the value of the Improvement will not reduce the amount assessed by the City.

10. Notice. For purposes of giving formal written notice to the User, User's address is:

7007 Wyoming Blvd. NE, Suite D-6
Albuquerque, NM 87109

Approved as to form by
Legal Department 2/23/95

Notice may be given to the User either in person or by mailing the notice by regular U.S. mail, postage paid. Notice will be considered to have been received by the User within 3 days after the notice is mailed if there is no actual evidence of receipt. The User may change User's address by giving written notice of the change by certified mail, return receipt requested, to the City Engineer at P.O. Box 1293, Albuquerque, New Mexico 87103.

11. Indemnification. The User agrees to defend, indemnify and hold harmless the City, its officials, agents and employees from and against any and all claims, actions, suits or proceedings of any kind brought against said parties as a result of User's use of the City's Property. To the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Agreement, this Agreement to indemnify will not extend to liability, claims, damages, losses or expenses, including attorney's fees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications by the indemnitee, or the agents or employees of the indemnitee; or (2) the giving of or the failure to give direction or instructions by the indemnitee, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property.

12. Term. This Agreement shall continue until revoked by the City pursuant to Section 7 above.

13. Binding on User's Property. The covenants and obligations of the User set forth herein shall be binding on User, his heirs, assigns and successors and on User's Property and constitute covenants running with User's Property until released by the City.

14. Entire Agreement. This Agreement contains the entire agreement of the parties and supersedes any and all other agreements or understandings, oral or written, whether previous to the execution hereof or contemporaneous herewith.

15. Changes of Agreement. Changes to this Agreement are not binding unless made in writing, signed by both parties.

16. Construction and Severability. If any part of this Agreement is held to be invalid or unenforceable, the remainder of the Agreement will remain valid and enforceable if the remainder is reasonably capable of completion.

Approved as to form by
Legal Department 2/23/95

17. Captions. The captions to the sections or paragraphs of this Agreement are not part of this Agreement and will not affect the meaning or construction of any of its provisions.

CITY OF ALBUQUERQUE

By: _____
Lawrence Rael
Chief Administrative Officer

Dated: _____

CITY OF ALBUQUERQUE

By: _____
Public Works Director

Dated: 11/24/97

CITY OF ALBUQUERQUE

By: _____ 11/21/97
Ric Roybal
City Engineer

Dated: _____

USER: Builders Investment Company of NM Ltd., Inc.

By: _____
Its: Chief Executive Officer

Dated: October 8, 1997

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on Dec 1, 1997, by Lawrence Rael, Chief Administrative Officer of the City of Albuquerque, a municipal corporation, on behalf of said municipal corporation.

My Commission Expires: 1/3/98

OFFICIAL SEAL
Irene Herrera
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires _____

_____
Notary Public

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on November 25, 1997, by Jay Czar Hetins, Public Works Director of the City of Albuquerque, a municipal corporation, on behalf of said municipal corporation.

My Commission Expires: July 7, 1998

OFFICIAL SEAL
Roberta Duran
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires 7-7-98

_____
Notary Public

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on October 8th, 1997, by Stanley G. Lane, Chief Executive Officer, on behalf of Builders Investment Company of New Mexico ltd. Co.

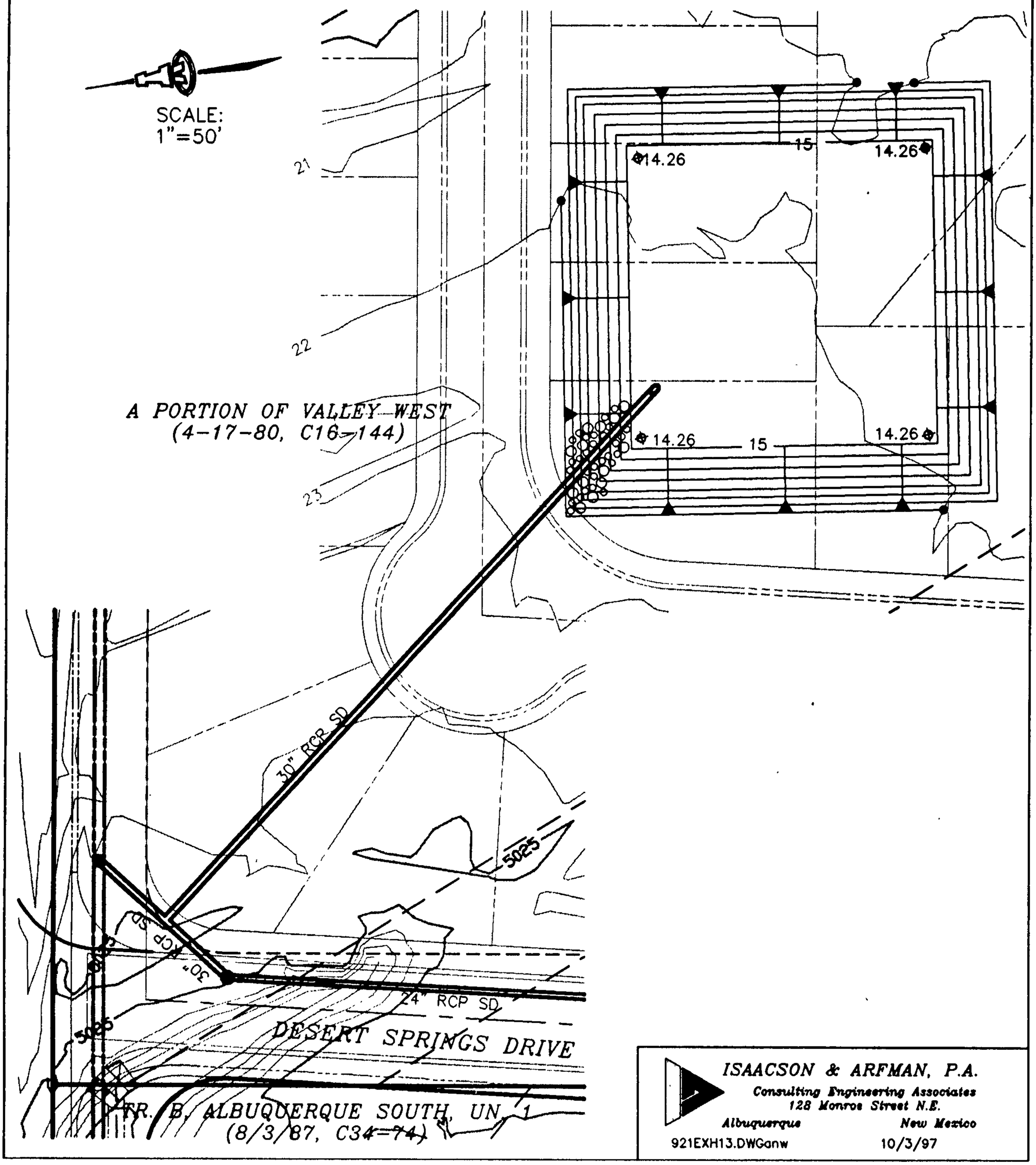
My Commission Expires: 6/12/00

_____
Notary Public

NOTARY PUBLIC
STATE OF
NEW MEXICO
PATTY A. duPLESSIS
My Commission Expires 6/12/00

TEMPORARY RETENTION POND #1

DESERT SPRINGS SUBDIVISION--UNIT ONE



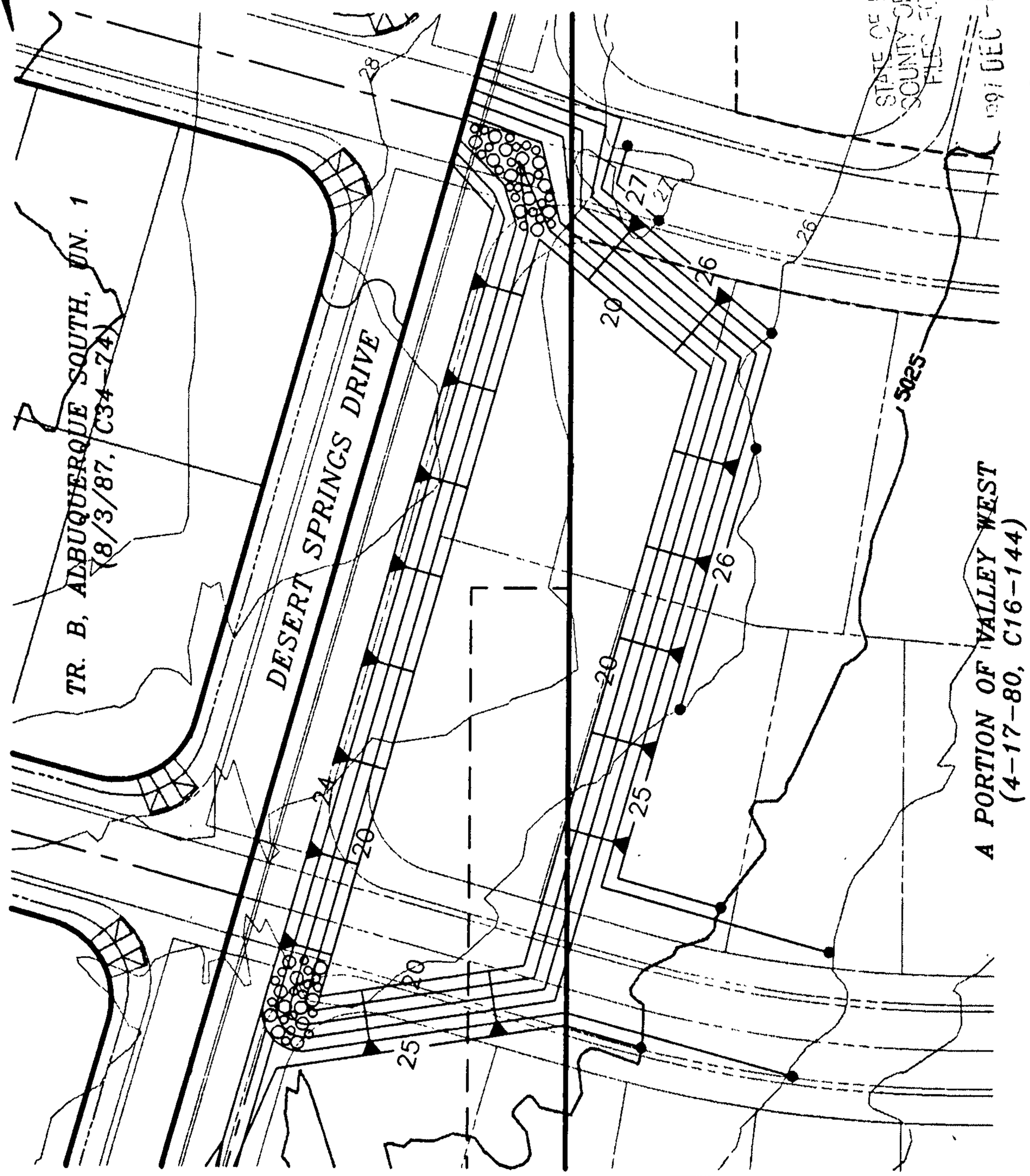
ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque New Mexico

921EXH13.DWGanw 10/3/97

TEMPORARY RETENTION POND #2

DESERT SPRINGS SUBDIVISION--UNIT ONE

SCALE:
1"=50'



STATE OF NEW MEXICO
COUNTY OF BERNALILLO
FILED
'97 DEC -4 AM 10:17
BK 330 PG 335
RECORDED
CLERK OF COUNTY CLERK

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque New Mexico

921EXH13.DWGanw 10/3/97

CONTRACT CONTROL FORM

PRELIMINARY REVIEW

Project # 578581

Contact Person TERRI MARTIN

CCN # 9800839

Phone No. 924-3997

~~Nor~~ or Ext. #

File w/SIA

~~Type of Agreement~~ : AGREEMENT AND COVENANT & perm. easement

Description/Project: DESERT SPRINGS UNIT 1

Public Works/Div.: PROJECT REVIEW SECTION

Developer: SIGNATURE J. HOMES

Contract Amount $ 0

SIA Contract Period: 11/2/97 - (SEE SIA)

Contract Amount $

SW'S Contract Period: ____ - ____

Project Completed Date:

DRAFT CONTRACT:

Rec'd by Legal: ____ Rejected/Returned to Dept.: ____ / ____

Returned to Legal: ____ / ____ Approved: ____ Initials: ____

FINANCIAL GUARANTY:

Letter of Credit No.: ____ Date: ____ Attached: Yes___ No___ Initial____

Other: Type ____ Date: ____ Attached: Yes___ No___ Initial____

FINAL CONTRACT REVIEW

APPROVALS REQUIRED:

	Date Delivered	Returned to Dept.	Approved By	Approval Date:
~~Purchasing~~ HYDRO:	11-21-97		SMC	11-21-97
Asst. City Attorney:	11-21-97 TSL			11/21/97
~~CIP~~ WATER:	11-21-97			11/21/97
City Attorney:				
~~CAOT~~ PWO Director	11-21-97 TSL			11/21/97
Other:				
Council:	EC No.:	Approved:		Date:

DISTRIBUTION:

	Date:	By:
User Department		
Vendor		
City Clerk	2-20 98 TSL	
Treasury		

Revised 9/6/95 WP+125805/tsl

ADDENDUM TO COVER PAGE

10-21-97
(Date)

TO: Kevin Curran, Assistant City Attorney, Legal Department

FROM: Project Administrator, Project Review Sec., PWD

SUBJECT: PROJECT TITLE: Desert Springs unit 1 PROJECT # 578581

The attached documents have been review, approved, initialed and/or signed by Bill Dolsby, DRC Chairman and are submitted for your action as noted.

ITEM	ACTION: Review & Approval	ACTION: Reference
Procedure "A"		
Procedure "B"		
Procedure "B" Modified		
Procedure "C"		
Procedure "C" Modified		
Special Agreement		
Sidewalk Deferral Agreement		
Amendment		
Financial Guarantee		
Construction Paperwork:		
Contractors Proposal		
Performance/Warranty Bonds		
Labor/Material Bonds		
Certificate of Insurance		
Engineers Cost Estimate		
Extension		
Release/Agreement		
Release/Financial Guarantee		
Calling Notice		
Letter of Commitment		
Reduction Letter		
License Agreement		
Easement		
Monitoring Well Permit		
Agreement & Covenant	✓	
Drainage Covenant		
Revocable Permit		
Encroachment		
Permanent Easement		

Other:
1
2
3

Please Call Terri at 924-3997 if you have any questions regarding the above or when the documents are ready to be picked up.

ATTACHMENTS (1)

971277 9
2

0336

PERMANENT EASEMENT #578581

Grant of Permanent Easement, between Builders Investment Company of NM Ltd., Inc. ("Grantor"), whose address is 7007 Wyoming Blvd. NE, Ste. D-6, Albuq. NM 87109 and the City of Albuquerque, a New Mexico municipal corporation ("City"), whose address is P.O. Box 1293, Albuquerque, New Mexico, 87103.

Grantor grants to the City an exclusive, permanent easement ("Easement") in, over, upon and across the real property described on Exhibit "A" attached hereto ("Property") for the construction, installation, maintenance, repair, modification, replacement and operation of sanitary sewer, together with the right to remove trees, bushes, undergrowth and any other obstacles upon the Property if the City determines they interfere with the appropriate use of this Easement.

Grantor covenants and warrants that Grantor is the owner in fee simple of the Property, that Grantor has a good lawful right to convey the Property or any part thereof and that Grantor will forever warrant and defend the title to the Property against all claims from all persons or entities.

The grant and other provisions of this Easement constitute covenants running with the land for the benefit of the City and its successors and assigns until terminated.

WITNESS my hand and seal this 8th day of October, 1997.

GRANTOR:

(Individual)

GRANTOR:

By:
Its: Chief Executive Officer
(Corporation or Partnership)

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
FILED

'97 DEC -4 AM 10:17

97234 336-339

CO. CLERK

Drawer

153C

9/90

INDIVIDUAL

STATE OF _____)
)ss
COUNTY OF _____)

This instrument was acknowledged before me on ____ day of _____, 19__ by [name of person:] _____, [title of capacity, for instance, "President" or "Owner":] _____ of [Subdivider:] _____.

_____
Notary Public

My commission Expires:

_____

CORPORATION

STATE OF NEW MEXICO)
)ss
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on 8th day of October, 19 97 by [name of person:] STANLEY G. LANE, [title of capacity, for instance, "President" or "Owner":] Chief Executive Officer of [Subdivider:] Builders Investment Company, a New Mexico limited liability company ~~corporation~~, on behalf of the ~~corporation~~ company.

NOTARY PUBLIC
STATE OF
NEW MEXICO
PATTY A. duPLESSIS
My Commission expires 6/12/00

Notary Public

My commission Expires:
6/12/00

PARTNERSHIP

STATE OF _____)
)ss
COUNTY OF _____)

This instrument was acknowledged before me on ____ day of _____, 19__ by _____, partner(s), on behalf of _____, a partnership.

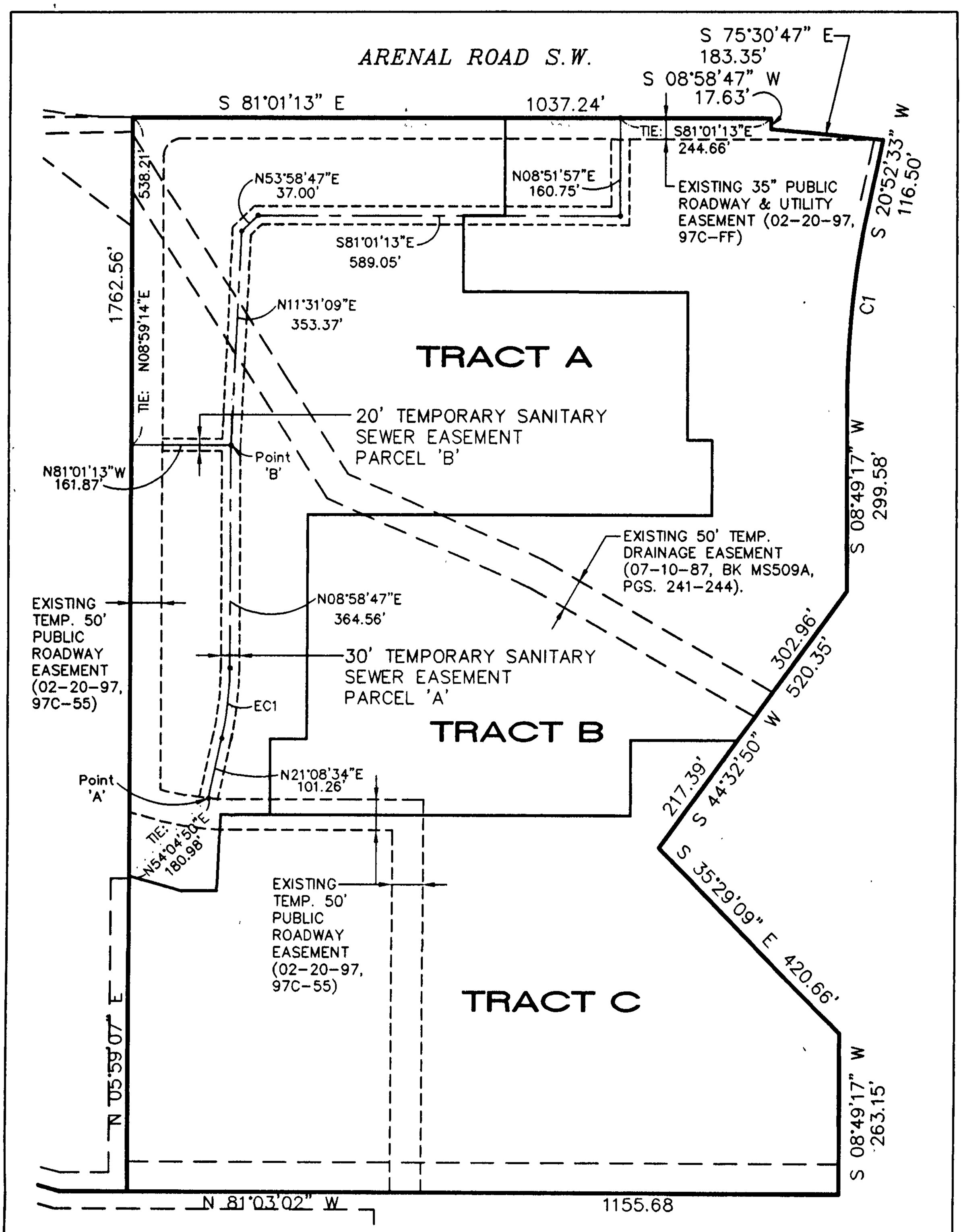
_____
Notary Public

My commission Expires:

_____

(EXHIBIT "A" ATTACHED)

WP+125610



CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	1563.00'	328.84' (329.02')	165.03'	328.23'	S 14°50'55" W	12°03'16" (12°03'40")

EASEMENT CURVE TABLE						
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
EC1	553.00	117.42	58.93	117.20	N15°03'46"E	12°09'57"

EXHIBIT 'A'

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque New Mexico

921EASE.DWGems VIEW: 1 10/07/97

LEGAL DESCRIPTION

A parcel of land situate within the Town of Atrisco Grant, projected Section 34, Township 10 North, Range 2 East, New Mexico Principal Meridian, City of Albuquerque, Bernalillo County, New Mexico being A PORTION OF DESERT SPRINGS SUBDIVISION as the same is shown and designated on said plat filed for record in the office of the County Clerk of Bernalillo County, New Mexico on February 20, 1997, in Volume 97C, Folio 55 and being more particularly described as a thirty-foot (30') wide Sanitary Sewer Easement together with a twenty-foot (20') wide Sanitary Sewer Easement as follows:

Parcel A: A 30.00-foot (Sanitary Sewer) temporary easement, the centerline of which begins at Point 'A', whence a tie to the southwest corner of TRACT A, said point being common with the northwest corner of TRACT C, bears N 54°04'50" E, 180.98 feet;

THENCE, N 21°08'34" E, 101.26 feet along a centerline to a point of curvature;

THENCE, continuing 117.42 feet along a curve to the left, whose radius is 553.00 feet through a central angle of 12°09'57" and whose whose chord bears N 15°03'46" E, 117.20 feet to a point of tangency;

THENCE, N 08°58'47" E, 364.56 feet to Point 'B';

THENCE, N 11°31'09" E, 353.37 feet to an angle point;

THENCE, N 53°58'47" E, 37.00 feet to an angle point;

THENCE, S 81°01'13" E, 589.05 feet to an angle point;

THENCE, N 08°51'57" E, 160.75 feet to a point on the northerly line of TRACT B, whence a tie to the northwest corner of TRACT B bears S 81°01'13" E, 244.66 feet, the side lines of the said 30-foot easement to be extended or shortened to meet at angle points and to terminate at intersecting easements.

Parcel B: A 20.00-foot (Sanitary Sewer) temporary easement, the centerline of which begins at the herein above described Point 'B';

THENCE, N 81°01'13" W, 161.87 feet to a point on the westerly line of TRACT A whence a tie to the northwest corner of TRACT A bears N 08°59'14" E, 538.71 feet, the side lines of said 20-foot easement to terminate at intersecting easements.

ISAACSON & ARFMAN, P.A.
Consulting Engineering Associates
128 Monroe Street N.E.
Albuquerque *New Mexico*

921EASE.DWGems VIEW: 2 10/07/97

CONTRACT CONTROL FORM

PRELIMINARY REVIEW

Project # 578581

CCN # 9800839

Contact Person TERRI MARTIN

Phone No. 924-3997

~~Number~~ Ext. #

File w/SIA

Type of Agreement : PERMANENT EASEMENT (2)

Description/Project: DESERT SPRINGS SUBD UNIT 1

Public Works/Div.: PROJECT MGMT SECTION

Developer: BUILDERS INVESTMENT LTD CO.

Contract Amount $ -0-

SIA Contract Period: 11-24-97 - (See SIA)

Contract Amount $

SW'S Contract Period: ____ - ____

Project Completed Date: ____

DRAFT CONTRACT:

Rec'd by Legal: ____ Rejected/Returned to Dept.: ____/____

Returned to Legal: ____/____ Approved: ____ Initials: ____

FINANCIAL GUARANTY:

Letter of Credit No.: ____ Date: ____ Attached: Yes___ No___ Initial____

Other: Type ____ Date: ____ Attached: Yes___ No___ Initial____

FINAL CONTRACT REVIEW

APPROVALS REQUIRED:

	Date Delivered	Returned to Dept.	Approved By	Approval Date:
~~Purchasing:~~				
Asst. City Attorney:	11-12-97 TBL		[signature]	11/12/97
CIP:				
City Attorney:				
CAO:				
Other:				
Council:	EC No.:	Approved:	Date:	

DISTRIBUTION:	Date:	By:
User Department		
Vendor		
City Clerk	2-20-98 TBL	[signature]
Treasury		

Revised 9/6/95 WP+125805/tsl

ADDENDUM TO COVER PAGE

11-7-97
(Date)

TO: Kevin Curran, Assistant City Attorney, Legal Department

FROM: Project Administrator, Project Review Sec., PWD

SUBJECT: PROJECT TITLE: Desert Springs Subd Unit 1 PROJECT # 578581

The attached documents have been review, approved, initialed and/or signed by Billy Colsby, DRC Chairman and are submitted for your action as noted.

ITEM	ACTION: Review & Approval	ACTION: Reference
Procedure "A"		
Procedure "B"		
Procedure "B" Modified		
Procedure "C"		
Procedure "C" Modified		
Special Agreement		
Sidewalk Deferral Agreement		
Amendment		
Financial Guarantee		
Construction Paperwork:		
Contractors Proposal		
Performance/Warranty Bonds		
Labor/Material Bonds		
Certificate of Insurance		
Engineers Cost Estimate		
Extension		
Release/Agreement		
Release/Financial Guarantee		
Calling Notice		
Letter of Commitment		
Reduction Letter		
License Agreement		
Easement	(2) ✓	✓
Monitoring Well Permit		
Agreement & Covenant		
Drainage Covenant		
Revocable Permit		
Encroachment		
Permanent Easement		

Other:
1
2
3

Please Call Terri at 924-3997 if you have any questions regarding the above or when the documents are ready to be picked up.

ATTACHMENTS (2)

9.00

#578581

TERMINATION AND RELEASE OF PERMANENT EASEMENT

THIS TERMINATION AND RELEASE OF PERMANENT EASEMENT is made and entered into as of the 10th day of July, ~~1998~~ 2001, by the City of Albuquerque, (the "City").

WHEREAS, The Presley Companies, a California corporation, Albuquerque South, a New Mexico general partnership,Great Western Land Company, a New Mexico general partnership , as Grantor, entered into a Drainage Easement, (the "Easement") with the City of Albuquerque, as Grantee, which Easement was recorded January 20, 1994, in the office of the County Clerk of Bernalillo County, New Mexico, in Book 94-2, Page 9787-9794; as Document No. 94008857; and

WHEREAS, The Presley Companies, a California corporation, Albuquerque South, a New Mexico general partnership,Great Western Land Company, a New Mexico general partnership , as Grantor, entered into an Amended and Restated Drainage Easement and Agreement, (the Amended Easement") with the City of Albuquerque, as Grantee, which Amended Easement was recorded April 24, 1995, in the office of the County Clerk of Bernalillo County, New Mexico, in Book 95-9, Page 9716-9734; as Document No. 95040032,

WHEREAS, The Presley Companies, a California corporation, Albuquerque South, a New Mexico general partnership, Great Western Land Company, a New Mexico general partnership , as Grantor, entered into a Second Amended and Restated Drainage Easement and Agreement, (the "Second Amended Easement") with the City of Albuquerque, as Grantee, which Easement was recorded December 31, 1996, in the office of the County Clerk of Bernalillo County, New Mexico, in Book 96-34, Page 2910-2927; as Document No. 96138908

WHEREAS, the City of Albuquerque has determined that the Easement, the Amended Easement and the Second Amended Easement, ("collectively the "Easements") are no longer required.

THEREFORE, City of Albuquerque, terminates the Easements and hereby releases and discharges the property described in the grant of Easements:

IN WITNESS WHEREOF, the undersigned has executed this Termination and Release of Easements as of the day and year first above written.

CITY OF ALBUQUERQUE
a municipal corporation

By: _____
City Engineer 7/10/2001

cf 6/12/01

Mary Herrera Bern. Co. TERM R 9.00

2001079389
5530465
Page: 1 of 2
07/10/2001 03:03P
Bk-A21 Pg-7738

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on July 10, ~~1998~~ 2001, by Fred J. Aguirre, City Engineer, for the City of Albuquerque, a New Mexico municipal corporation on behalf of said corporation.

Gloria D. Saavedra

Notary Public

My Commission Expires:
11-15-2003

Mary Herrera Bern. Co. TERM R 9.00

2001079389
5530465
Page: 2 of 2
07/10/2001 03:03P
Bk-A21 Pg-7738

CONTRACT CONTROL FORM

PRELIMINARY REVIEW

Project # 578581
CCN# 9800839
~~New~~ or Ext. #

Contact Person Kathy Jaramillo
Phone No. 924-3946

Type of Agreement: termination & release of permanent easement

Description/Project Name: Desert Springs Unit 1
Public Works Dept./Div.: Design Review
Developer:
Contract Amount $ -0- SIA Contract Period: 7/18/2001 CLOSED
Contract Amount $ SIA Contract Period: -
Contract Amount $ S/W Contract Period: -

DRAFT CONTRACT:
Rec'd by Legal: Rejected/Returned to Dept.: /
Returned to Legal: / Appproved: Initials:

FINANCIAL GUARANTY:
Letter of Credit No.: Date: Attached: Yes___ No.___ Initial
Other: Type Date: Attached: Yes___ No.___ Initial

FINAL CONTRACT REVIEW

APPROVALS REQUIRED:

	Date Delivered	Returned to Dept.	Approved By	Approval Date
Utilitiy Div				
Hydrology Div	5/31/01	6/12/01	BLB	6/12/01
Transportation Div				
DRC Chairman	6/12/01	6-12-01		6-12-01
Legal Dept	6/12/01	6/12/01		6/12/01
City Engineer	6/12/01	7/10/01		7/10/01
PWD Director				
Finance				
City Clerk				
CAO				

DISTRIBUTION:

	Date:	By:
User Department.	7/11/01	
Vendor		
City Clerk	7-12-01	
Treasury		
Other:		

ALBUQUERQUE CITY CLERK RECEIVED 2001 JUL 12 AM 9:50

9787

94008857

578581

DRAINAGE EASEMENT

THIS DRAINAGE EASEMENT ("Easement") is entered into by and among THE PRESLEY COMPANIES, a California corporation ("Presley"), ALBUQUERQUE SOUTH, a New Mexico general partnership ("Alb. South"), and GREAT WESTERN LAND COMPANY, a New Mexico general partnership ("Great West").

RECITALS:

A. Presley is the owner of the following property (the "Presley Property"):

> TRACT A-1 PLAT OF VISTA NUEVA as shown on the plat thereof recorded in the Bernalillo County, New Mexico real estate records on April 12, 1988, in Vol. C-36, Folio 69

B. Alb. South is the owner of the following property (the "Alb. South Property"):

> TRACTS B, C and D, ALBUQUERQUE SOUTH UNIT 1, as shown on the plat thereof recorded in the Bernalillo County, New Mexico real estate records on August 3, 1987, in Vol. C-34, Folio 74

C. Great West is the owner of the following property (the "Great West Property"):

> 44.5280 acres of Valley West as shown on the plat thereof recorded in the Bernalillo County, New Mexico real estate records on April 17, 1980, in Vol. C-16, Folio 144, which 44.5280 acres is shown on Exhibit "A" attached hereto

D. Presley is in the process of developing the Presley Property into a single family residential subdivision (the "Presley Subdivision"), and as a condition of approval of the Presley Subdivision, the City of Albuquerque (the "City") requires Presley

to obtain this Easement.

NOW, THEREFORE, in consideration of the mutual covenants and conditions, the parties agree as follows:

1. Grants of Easement. Great West grants to Alb. South and to Presley a non-exclusive easement over all of the Great West Property for purposes of accepting storm drainage waters from the Presley Property and the Alb. South Property. Alb. South grants to Presley a non-exclusive easement over all of the Alb. South Property for purposes of accepting storm drainage waters from the Presley Property.

The storm drainage waters which the Alb. South Property shall be obligated to accept shall be the historic storm waters which have flowed from the Presley Property to the Alb. South Property (the "Presley Property Historic Flows"), and the increased flows from the Presley Property resulting from the development of the Presley Subdivision (the "Presley Property Developed Flows"). The Presley Property Historic Flows and the Presley Property Developed Flows are jointly referred to herein as the "Presley Flows".

The storm drainage waters which the Great West Property shall be obligated to accept shall be the Presley Property Historic Flows, the Presley Property Developed Flows, the historic storm waters which have flowed from the Alb. South Property to the Great West Property (the "Alb. South Property Historic Flows"), and the increased flows resulting from the development of the Alb. South Property into a single family subdivision (the "Alb. South Property Developed Flows"). The Alb. South Historic Flows and the Alb.

9789

South Developed Flows are jointly referred to herein as the Alb. South Flows. The Presley Flows and the Alb. South Flows are jointly refereed to as the "Upstream Flows".

2. Points of Discharge or Flows. Upon construction of the Presley Subdivision, Presley, at Presley's sole expense or public expense, shall construct drainage facilities upon the Presley Property which collect the Presley Flows and discharge the Presley Flows onto the Alb. South Property in not more than three (3) locations (the "Presley Discharge Points"). The Presley Discharge Points shall be shown and designated on the Presley Subdivision Plat.

Upon construction of the Alb. South Subdivision, Alb. South, at Alb. South's sole expense or public expense, shall construct drainage facilities upon the Alb. South Property to collect and discharge the Upstream Flows onto the Great West Property in not more than three (3) locations (the "Alb. South Discharge Points"). The Alb. South Discharge Points shall be shown and designated on the Alb. South Subdivision Plat.

Upon construction of the Great Western Subdivision, Great Western at Great Western's sole expense or public expense, shall construct drainage facilities upon the Great Western Property to collect and discharge the Upstream Flows into the Amole Del Norte Diversion Channel.

The drainage facilities to be constructed pursuant to this section may be, but are not limited to pipes, culverts, channels or streets. Each of the Discharge Points shall be no greater than

forty feet (40') in width.

3. Right to Limit Alb. South Easement. Upon execution of this Easement, the easement across the Alb. South Property shall be a "Blanket Easement", that is the easement shall permit the discharge of the Presley Flows onto the Alb. South Property, in any manner and at any location.

Upon the recording of the Presley Subdivision Plat in the Bernalillo County, New Mexico real estate records, Alb. South's sole obligation shall be to accept the Presley Flows at the Presley Discharge Points and to convey the Presley Flows across the Alb. South Property, in any manner acceptable to Alb. South. Upon Alb. South recording a subdivision plat of the Alb. South Property defining easements for the passage of the Presley Flows across the Alb. South Property, this Easement to the extent it encumbers the Alb. South Property shall automatically terminate and be of no further force and effect. This termination shall occur without any further consent or action by Presley.

4. Right to Limit Great West Easement. Upon execution of this Easement, the easement across the Great West Property shall be a "Blanket Easement", that is permitting the discharge of the Upstream Flows onto the Great West Property in any manner and at any location.

Upon the recording of the Alb. South Subdivision in the Bernalillo County, New Mexico real estate records, Great West's sole obligation shall be to accept the Upstream Flows at the Alb. South Discharge Points and to convey the Upstream Flows across the

Great West Property, in any manner acceptable to Great West. Upon Great West recording a subdivision plat or approval of a site development plan of the Great West Property defining easements for the passage of the Upstream Flows across the Great West Property, this Easement to the extent it encumbers the Great West Property shall automatically terminate and be of no further force and effect. This termination shall occur without any further consent or action by Presley or Albuquerque South.

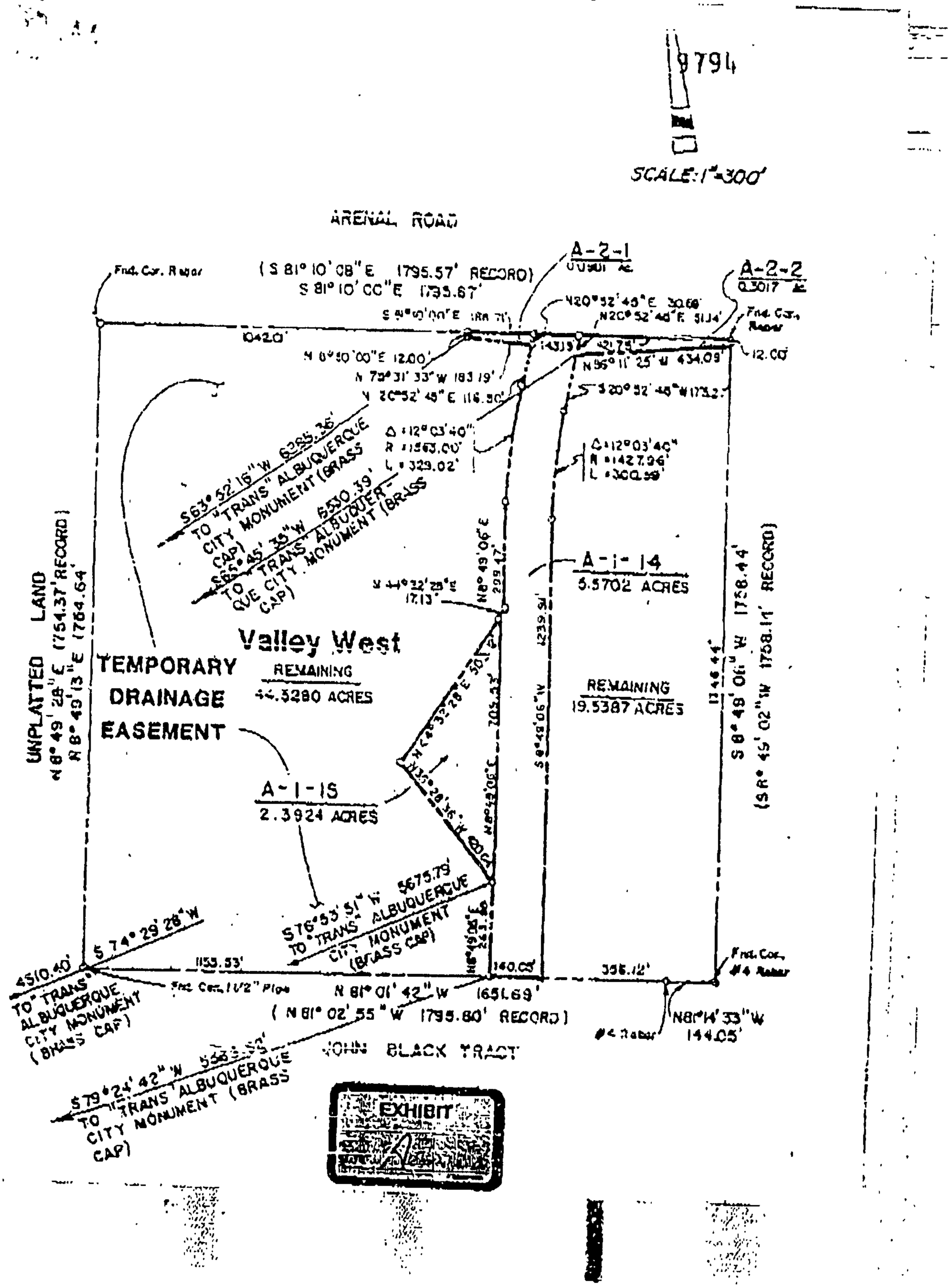
5. Automatic Termination. In the event that Presley does not record the Presley Subdivision Plat in the Bernalillo County, New Mexico real estate records on or before the second anniversary date of the recording of this Easement, this Easement shall automatically terminate and be of no further force or effect. The termination of this Easement shall not enlarge or diminish any common law rights which the parties hereto have with respect to the acceptance or discharge of historic storm drainage waters.

6. Rights to Enter Into Agreement. The parties represent that they are the owners of their respective properties described herein, and that they have the right to grant property interests conveyed herein.

7. Appurtenant Agreement. The rights and obligations set out herein are appurtenant to the properties, shall run with, benefit and burden the properties and shall be binding upon the parties' successors and assigns.

8. Execution. This Easement may be executed in counterparts.

EXECUTED December _____, 1993.


9794
SCALE: 1"=300'
ARENAL ROAD
A-2-1
A-2-2
0.3017 AC.
Fnd. Cor. Rebar
(S 81° 10' 08" E 1795.57' RECORD)
S 81° 10' 00" E 1795.67'
1042.0'
12.00'
N 89° 50' 00" E 12.00'
N 73° 31' 33" W 183.19'
N 20° 52' 45" E 116.30'
N 20° 52' 45" E 30.68'
N 20° 52' 45" E 51.34'
N 96° 11' 25" W 434.09'
S 20° 52' 45" W 173.2'
Δ = 12° 03' 40"
R = 1563.00'
L = 329.02'
Δ = 12° 03' 40"
R = 1427.96'
L = 300.99'
S 63° 52' 16" W 6285.36'
TO "TRANS" ALBUQUERQUE CITY MONUMENT (BRASS CAP)
S 65° 45' 35" W 5530.39'
TO "TRANS" ALBUQUERQUE CITY MONUMENT (BRASS CAP)
UNPLATTED LAND
N 8° 49' 28" E (1754.37' RECORD)
N 8° 49' 13" E 1764.64'
N 8° 49' 06" E 299.47'
A-1-14
5.5702 ACRES
Valley West
REMAINING
44.5280 ACRES
TEMPORARY DRAINAGE EASEMENT
REMAINING
19.5387 ACRES
S 8° 49' 06" W 1239.91'
S 8° 49' 06" W 1758.44'
(S 8° 45' 02" W 1758.11' RECORD)
A-1-15
2.3924 ACRES
S 76° 53' 51" W 5675.79'
TO "TRANS" ALBUQUERQUE CITY MONUMENT (BRASS CAP)
S 74° 29' 28" W
4510.40'
TO "TRANS" ALBUQUERQUE CITY MONUMENT (BRASS CAP)
1153.53'
Fnd. Cor. 1/2" Pipe
N 81° 01' 42" W 1651.69'
(N 81° 02' 55" W 1795.80' RECORD)
140.02'
356.12'
Fnd. Cor. #4 Rebar
N 81° W 33" W 144.05'
#4 Rebar
JOHN BLACK TRACT
S 79° 24' 42" W 5533.55'
TO "TRANS" ALBUQUERQUE CITY MONUMENT (BRASS CAP)
EXHIBIT

578581

PORTION OF 1513 SHT. ONLY

9716

/95040032

AMENDED AND RESTATED DRAINAGE EASEMENT AND AGREEMENT

THIS AMENDED AND RESTATED DRAINAGE EASEMENT AND AGREEMENT supersedes, replaces and restates that certain Drainage Easement recorded in the Bernalillo County, New Mexico real estate records on January 20, 1994, in Book 94-2, Pages 9787-9794 ("Agreement") and is entered into by and among THE PRESLEY COMPANIES, a California corporation ("Presley"), ALBUQUERQUE SOUTH, a New Mexico general partnership ("Alb. South"), and GREAT WESTERN LAND COMPANY, a New Mexico general partnership ("Great Western") [Presley, Alb. South and Great Western are sometimes collectively referred to herein as the "Owners"], and the CITY OF ALBUQUERQUE, a municipal corporation (the "City").

RECITALS:

A. Presley is the owner of the following property (the "Presley Property"):

> TRACT A-1 PLAT OF VISTA NUEVA as shown on the plat thereof recorded in the Bernalillo County, New Mexico real estate records on April 12, 1988, in Vol. C-36, Folio 69

B. Alb. South is the owner of the following property (the "Alb. South Property"):

> TRACTS B, C and D, ALBUQUERQUE SOUTH UNIT 1, as shown on the plat thereof recorded in the Bernalillo County, New Mexico real estate records on August 3, 1987, in Vol. C-34, Folio 74

C. Great Western is the owner of the following property (the "Great Western Property"):

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
FILED FOR RECORD
1995 APR 24 PM 3:02
BK 95-9 PG 9716
JUDY D. WOODWARD
CO. CLERK & RECORDER

9717

44.5280 acres of Valley West as shown on the plat thereof recorded in the Bernalillo County, New Mexico real estate records on April 17, 1980, in Vol. C-16, Folio 144, which 44.5280 acres is shown on Exhibit "A" attached hereto

D. Presley is in the process of developing the Presley Property into a single family residential subdivision (the "Presley Subdivision"), and as a condition of approval of the Presley Subdivision, the City requires Presley to obtain this Agreement, and the easements described herein (the "Easements").

NOW, THEREFORE, in consideration of the mutual covenants and conditions, the parties agree as follows:

1. Grants of Easement. Great Western grants to Alb. South, to Presley and to the City a non-exclusive blanket easement over all of the Great Western Property for purposes of accepting storm drainage waters from the Presley Property and the Alb. South Property. Alb. South grants to Presley and the City a non-exclusive blanket easement over all of the Alb. South Property for purposes of accepting storm drainage waters from the Presley Property.

The storm drainage waters which the Alb. South Property shall be obligated to accept shall be the historic storm waters which have flowed from the Presley Property to the Alb. South Property and flows from upstream properties developed as of the date of this Agreement (the "Presley Property Historic Flows"), and the increased flows from the Presley Property resulting from the development of the Presley Subdivision (the "Presley Property Developed Flows"). The Presley Property Historic Flows and the

Presley Property Developed Flows are jointly referred to herein as the "Presley Flows".

The storm drainage waters which the Great Western Property shall be obligated to accept shall be the Presley Property Historic Flows, the Presley Property Developed Flows, the historic storm waters which have flowed from the Alb. South Property to the Great Western Property (the "Alb. South Property Historic Flows"), and the increased flows resulting from the future development of the Alb. South Property (the "Alb. South Property Developed Flows"). The Alb. South Property Historic Flows and the Alb. South Property Developed Flows are jointly referred to herein as the Alb. South Flows. The Presley Flows and the Alb. South Flows are jointly referred to as the "Upstream Flows".

The Owner of the beneficial interest in the Easements granted herein shall have the right to construct temporary drainage facilities within the Easements to detain and/or alter the flow characteristics of the storm drainage waters which facilities may include, but are not limited to, pipes, culverts, channels and/or ponds (the "Temporary Facilities"). The Temporary Facilities shall be those approved by the City pursuant to drainage plans submitted to, and approved by, the City for the benefitted properties. The Temporary Facilities to be constructed upon the Alb. South Property are described and shown on Exhibit "B" attached hereto (the "Albuquerque South Facility").

2. Points of Discharge of Flows. Upon development of the Presley Subdivision, Presley, at Presley's sole expense (or public

DESERT SPRINGS FOUR & FIVE

578581

96138908

2910

SECOND AMENDED AND RESTATED DRAINAGE EASEMENT AND AGREEMENT

THIS DRAINAGE EASEMENT AND AGREEMENT ("Agreement") is entered into by and among PRESLEY HOMES, a California corporation d/b/a in New Mexico as Presley Homes, Inc. ("Presley"), ALBUQUERQUE SOUTH, a New Mexico general partnership, its purchasers, successors and assigns ("Alb. South"), and GREAT WESTERN LAND COMPANY, a New Mexico general partnership ("Great Western") [Presley, Alb. South and Great Western are sometimes collectively referred to herein as the "Owners"], and the CITY OF ALBUQUERQUE, a municipal corporation (the "City").

RECITALS:

A. Presley is the owner of the following property (the "Presley Property"):

> Tract A-1, Sunrise Estates, Unit One, as the same is shown and designated on the plat thereof, recorded in the Bernalillo County, New Mexico real estate records on August 4, 1995, in Vol. 95-C, Folio 286
>
> and
>
> TRACT C, ALBUQUERQUE SOUTH UNIT 1, as the same is shown and designated on the plat thereof recorded in the Bernalillo County, New Mexico real estate records on August 3, 1987, in Vol. C-34, Folio 74

B. Alb. South is the owner of the following property (the "Alb. South Property"):

> TRACTS B and D, ALBUQUERQUE SOUTH UNIT 1, as shown on the plat thereof recorded in the Bernalillo County, New Mexico real estate records on August 3, 1987, in Vol. C-34, Folio 74

STATE OF NEW MEXICO COUNTY OF BERNALILLO FILED IN OFFICE
96 DEC 31 AM 9:43
96-31 2910-926
JOSEPH E. CAMPOS
CO. CLERK, BERNALILLO CO.
Onoc106

2911

C. Great Western is the owner of the following property (the "Great Western Property"):

> The westerly 44.5280 acres of Valley West as shown on the plat thereof recorded in the Bernalillo County, New Mexico real estate records on April 17, 1980, in Vol. C-16, Folio 144, which 44.5280 acres is shown on Exhibit "A" attached hereto

D. In conjunction with the development by Presley of another upstream subdivision, Presley, Alb. South and Great Western entered into that certain Drainage Easement dated on or about January 20, 1994, and recorded in the Bernalillo County New Mexico Real Estate Records on January 20, 1994, in Book 94-2, Pages 9787 - 9794 and, further, the parties entered into that certain Amended and Restated Drainage Easement recorded in the Bernalillo County, New Mexico real estate records on April 24, 1995, in Book 95-9, pages 9716-9734 (the "Prior Easement").

E. Presley is in the process of developing the Presley Property into a single family residential subdivision (the "Presley Subdivision") pursuant to a plat thereof (the "Presley Subdivision Plat"), and as a condition of approval of the Presley Subdivision, the City requires Presley to obtain this Agreement, and the easements described herein (the "Easements").

F. These Easements granted herein will entirely replace the Prior Easements, and therefore, upon the recording of this Agreement in the Bernalillo County, New Mexico real estate records, all of the parties terminate and release the Prior Easements and agree that the Prior Easements are of no further force and effect except that the termination of the City's rights in the Prior

Easements shall only be perfected when, and if, the City approves a vacation of the Prior Easements, and all conditions of the vacation decision are satisfied.

NOW, THEREFORE, in consideration of the mutual covenants and conditions, the parties agree as follows:

1. Grants of Easement. Great Western grants to Alb. South, to Presley and to the City a non-exclusive blanket easement over the Great Western Property for purposes of accepting storm drainage waters from the Presley Property and the Alb. South Property. Alb. South grants to Presley and the City a non-exclusive blanket easement over the Alb. South Property for purposes of accepting storm drainage waters from the Presley Property.

The storm drainage waters which the Alb. South Property shall be obligated to accept are the historic storm waters which have flowed from the Presley Property to the Alb. South Property and flows from upstream properties developed as of the date of this Agreement and flows from upstream future development pursuant to the City of Albuquerque Drainage Ordinance (the "Presley Property Historic Flows"), and the increased flows from the Presley Property resulting from the development of the Presley Subdivision (the "Presley Property Developed Flows"). The Presley Property Historic Flows and the Presley Property Developed Flows are jointly referred to herein as the "Presley Flows".

The storm drainage waters which the Great Western Property shall be obligated to accept shall be the Presley Property Historic Flows, the Presley Property Developed Flows, the historic storm

waters which have flowed from the Alb. South Property to the Great Western Property (the "Alb. South Property Historic Flows"), and the increased flows resulting from the future development of the Alb. South Property (the "Alb. South Property Developed Flows"). The Alb. South Property Historic Flows and the Alb. South Property Developed Flows are jointly referred to herein as the Alb. South Flows. The Presley Flows and the Alb. South Flows are jointly referred to as the "Upstream Flows".

The Owner of the beneficial interest in the Easements granted herein shall have the right to construct temporary drainage facilities within the Easements to detain and/or alter the flow characteristics of the storm drainage waters which facilities may include, but are not limited to, pipes, culverts, channels and/or ponds (the "Temporary Facilities"). The Temporary Facilities shall be those approved by the City pursuant to drainage plans submitted to, and approved by, the City for the benefitted properties. The Temporary Facilities to be constructed upon the Alb. South Property are described and shown on Exhibit "A" attached hereto (the "Albuquerque South Facility").

2. Points of Discharge of Flows. Upon development of the Presley Subdivision, Presley, at Presley's sole expense (or public expense if agreed upon by the public agency) shall construct drainage facilities upon the Presley Property which collect the Presley Flows and discharge the Presley Flows onto the Alb. South Property at the location shown on Exhibit "A" (the "Presley Discharge Point"). The Presley Discharge Point shall be shown and

2914

designated on the approved Drainage Plan on file with the City, and Easements and/or rights-of-way required by the City shall be granted on the Presley Subdivision Plat.

Upon development of the Alb. South Property, Alb. South, at Alb. South's sole expense (or public expense if agreed upon by the public agency) shall construct drainage facilities upon the Alb. South Property to collect and discharge the Upstream Flows onto the Great Western Property at the northern four hundred feet of the boundary between the Alb. South Property and the Great Western Property (the "Alb. South Discharge Point").

Upon development of the Great Western Subdivision, Great Western, at Great Western's sole expense (or public expense if agreed upon by the public agency) shall construct drainage facilities upon or adjacent to the Great Western Property to collect and discharge the Upstream Flows into the Amole Del Norte Diversion Channel (the "Channel").

3. Right to Limit Alb. South Easement. Upon execution of this Agreement, the easement across the Alb. South Property shall be a "Blanket Easement", that is the easement shall permit the flow of the Presley Flows across all of the Alb. South Property, in any manner, but upon development of the Presley Subdivision the flow shall be discharged onto the Alb. South Property only at the Presley Discharge Point.

2915

Upon the recording of the Presley Subdivision Plat in the Bernalillo County, New Mexico real estate records, Alb. South's obligation shall be to: (i) accept the Presley Flows at the Presley Discharge Point and to convey the Presley Flows across the Alb. South Property as set forth on Exhibit "A", in any manner acceptable to Alb. South and approved by the City; and (ii) to satisfy the obligation of the Agreement and Covenant regarding maintenance of the Alb. South Property Facilities entered into by and between the City and Alb. South on even date herewith, a copy of which is attached as Exhibit "B" (the "Drainage Covenant"). Upon (i) Alb. South recording a subdivision plat of the Alb. South Property ("Albuquerque South Subdivision") defining Easements for the passage of the Presley Flows across the Alb. South Property, (ii) Alb. South granting Easements to the City acceptable to the City, (iii) Alb. South constructing or causing to be constructed, drainage improvements acceptable to the City, and (iv) the City accepting the drainage improvements, this Blanket Easement to the extent it encumbers the Alb. South Property shall automatically (except as provided below) terminate and be of no further force and effect. To the extent that this Easement benefits Presley or Alb. South, this termination shall occur without any further consent or action by Presley or Alb. South. The termination of the City's rights in this Agreement shall require the approval of the City, if the City approves a vacation of the Prior Easements, and all conditions of the vacation decision are satisfied.

2916

4. Right to Limit Great Western Easement. Upon execution of this Agreement, the easement across the Great Western Property shall be a "Blanket Easement", that is permitting the discharge of the Upstream Flows onto the Great Western Property in any manner and at any location.

Upon the recording of the Alb. South Subdivision or any portion hereof in the Bernalillo County, New Mexico real estate records, Great Western's sole obligation shall be to accept the Upstream Flows at the Alb. South Discharge Point and to convey the Upstream Flows across the Great Western Property, in any manner acceptable to Great Western, so long as the Upstream Flows are confined to the Great Western Property. Upon (i) Great Western recording a subdivision plat or approval of a site development plan of the Great Western Property or any portion thereof defining easements for the passage of the Upstream Flows across the Great Western Property, (ii) Great Western granting easements to the City acceptable to the City, (iii) Great Western constructing drainage improvements acceptable to the City and (iv) the City accepting the drainage improvements, this Easement to the extent it encumbers the Great Western Property shall automatically terminate and be of no further force and effect. To the extent that this Easement benefits Presley or Alb. South, this termination shall occur without any further consent or action by Presley or Albuquerque South. The termination of the City's rights in this Easement shall require approval of the City if the City approves a vacation of the

Prior Easements, and all conditions of the vacation decision are satisfied.

5. Automatic Termination. In the event that Presley does not record the Presley Subdivision Plat in the Bernalillo County, New Mexico real estate records on or before the second anniversary date of the recording of this Easement, this Easement shall automatically terminate and be of no further force or effect. The termination of this Easement shall not enlarge or diminish any common law rights which the parties hereto have with respect to the acceptance or discharge of historic storm drainage waters.

6. Maintenance Responsibilities. Alb. South shall have the obligation of maintaining the Alb. South Property Facilities, pursuant to the terms of the Drainage Covenant. Great Western agrees to confine the Upstream Flows to within the Great Western Property until they discharge into the Channel.

7. City Responsibility. In the event that any of the Owners fail to maintain the Temporary Facilities which they are obligated to maintain, then the City shall have the right, but not the obligation, to enter upon the easement properties to perform any required maintenance and to remove any improvements, and/or landscaping required for the performance of such maintenance, pursuant to the Drainage Covenant. The Drainage Covenant grants the City certain rights, as are more fully set out therein, in the event that the owners default in their maintenance obligations. The City shall not be responsible for any damage to the improvements and/or landscaping of the Owner's properties resulting from the exercise of such rights.

2918

8. Indemnity. The Owners agree to indemnify and hold the City harmless from claims, actions, suits or proceedings of any kind including any claims of third (3rd) parties resulting from the use of the Easement and properties pursuant to this Easement, except those resulting from the negligence of the City. To the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Agreement, this obligation will not extend to liability, claims, damages, losses or expenses, including attorney's fees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications by the City, or the agents or employees of the City; or (2) the giving of or the failure to give direction or instructions by the City, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property.

9. Termination/Modification. This Easement may not be terminated, nor may any of the City's rights hereunder be modified without the written joinder of the City.

10. Warranty. The Owners covenant and warrant that they are owners in fee simple of their respective Properties and that they have a good lawful right to convey the Easements or any part thereof, that their respective properties are free from all encumbrances except encumbrances of record and taxes due and owing the Treasurer of Bernalillo County, and that the Owners will forever warrant and defend the title to their respective properties against all claims from all persons or entities.

11. Appurtenant Agreement. The rights and obligations set out herein are appurtenant to the Presley Property, the Alb. South Property and the Great Western Property, as applicable, shall run with, benefit and burden the Presley Property, the Alb. South Property and the Great Western Property and shall be binding upon the parties' successors and assigns.

12. City Drainage Ordinance. The City is a beneficiary of the easements granted by this Agreement because (i) public storm drainage waters which flow off of City Streets are being deposited on the down stream properties, and (ii) this Easement and Agreement is a requirement imposed by the City as a condition of the development of the Presley Property pursuant to the City's Flood Hazard and Drainage Control Ordinance [§14-5-1 et seq., City of Albuquerque, New Mexico] (the "Ordinance"). Presley and Alb. South are beneficiaries of the easements because they are discharging storm drainage waters upon the down stream property owners in a different manner, a greater volume and a greater rate than it would have flowed naturally.

Notwithstanding that Presley and Alb. South are beneficiaries of the easements, nothing herein shall permit Presley and/or Alb. South to use the easements in any manner contrary to approved drainage plans or contrary to the terms of the Ordinance, or to construct any drainage facilities within the easements contrary to any approved drainage plans or contrary to the Ordinance.

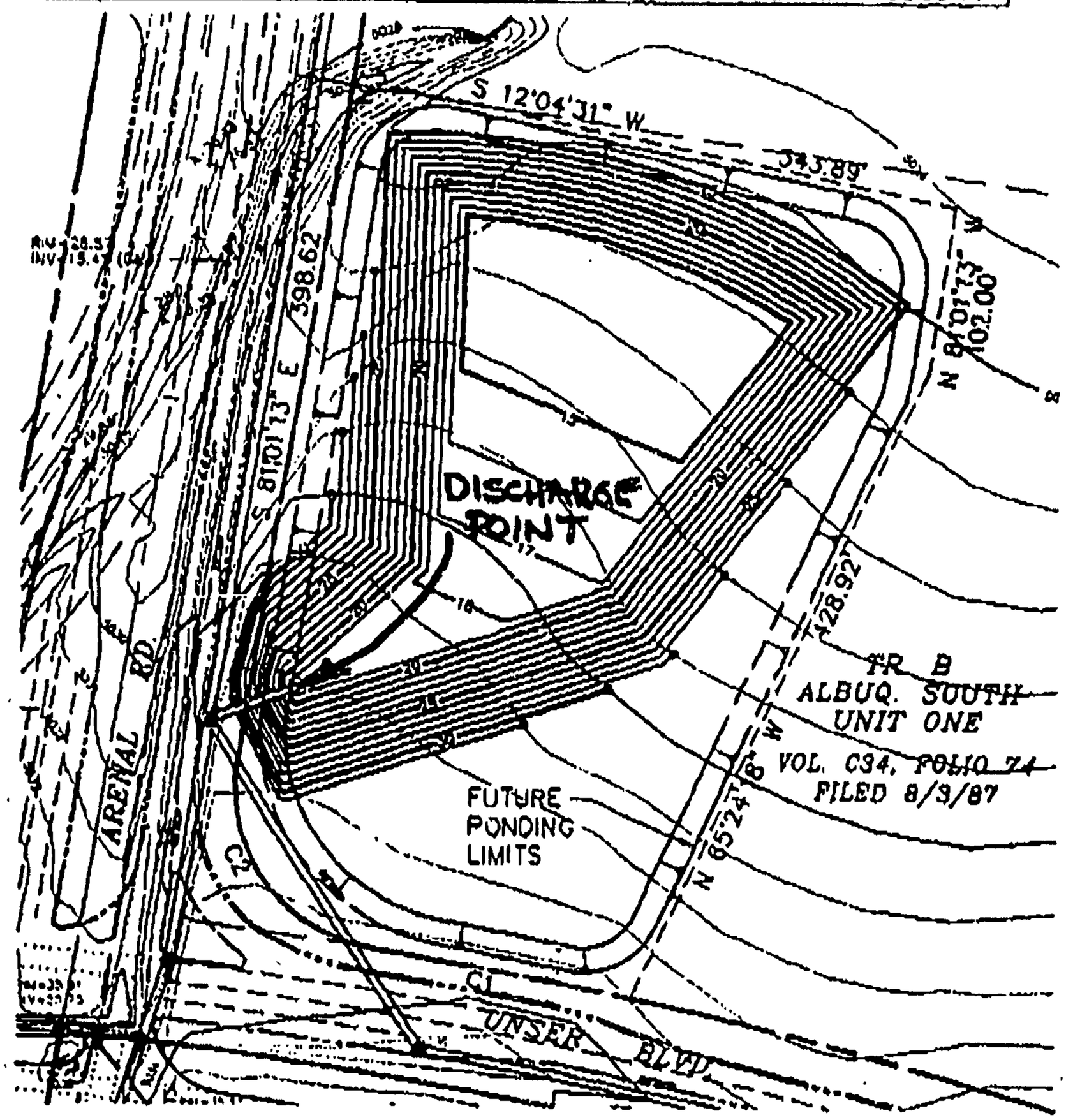
13. Execution. This Easement may be executed in counterparts.

5419

2927

EASEMENT CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	2878.00'	160.05'	80.04'	160.02'	N 10°47'56" E	03°11'10"
C2	100.00'	156.69'	99.61'	141.14'	S 54°05'34" W	89°46'26"
C3	30.00'	48.74'	31.67'	43.56'	N 34°28'21" W	93°05'44"



TEMPORARY POND EASEMENT

1"=100'

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
FILED FOR RECORD
96 DEC -9 PM 2:49

96-30 5415-5419

mg Hooker

903E016.DWGanw 9/27/96

EXHIBIT "A"

ADDENDUM TO COVER PAGE

5/31/01
(Date)

TO: Kevin Curran, Assistant City Attorney, Legal Department

FROM: Project Administrator, Project Review Sec., PWD

SUBJECT: PROJECT TITLE: Desert Springs Unit 1 PROJECT # 578581

The attached documents have been review, approved, initialed and/or signed by the DRC Chairman and are submitted for your action as noted. 6-12-01

ITEM	ACTION: Review & Approval	ACTION: Reference	ACTION: Comments
Procedure "A"	☐☐☐	☐☐	
Procedure "B"	☐☐☐	☐☐	
Procedure "B" Modified Non Work Order	☐☐☐	☐☐	
Procedure "C"	☐☐☐	☐☐	
Procedure "C" Modified	☐☐☐	☐☐	
Special Agreement	☐☐☐	☐☐	
Sidewalk Deferral Agreement	☐☐☐	☐☐	
Amendment	☐☐☐	☐☐	
Assignment	☐☐☐	☐☐	
Financial Guarantee	☐☐☐	☐☐	
Construction Paperwork:			
Contractors Proposal	☐☐☐	☐☐	
Performance/Warranty Bonds	☐☐☐	☐☐	
Labor/Material Bonds	☐☐☐	☐☐	
Certificate of Insurance	☐☐☐	☐☐	
Engineers Cost Estimate	☐☐☐	☐☐	
Extension	☐☐☐	☐☐	
Release/Agreement	☐☐☐	☐☐	
Release/Financial Guarantee	☐☐☐	☐☐	
Calling Notice	☐☐☐	☐☐	
Letter of Commitment	☐☐☐	☐☐	
Reduction Letter	☐☐☐	☐☐	
License Agreement	☐☐☐	☐☐	
Monitoring Well Permit	☐☐☐	☐☐	
Agreement & Covenant	☐☐☐	☐☐	
Drainage Covenant	☐☐☐	☐☐	
Revocable Permit	☐☐☐	☐☐	
Encroachment	☐☐☐	☐☐	
Permanent Easement ... release of	☑☐☐	☑☑✓	
Temporary Easement	☐☐☐	☐☐	

Other:

Please Call Kathy at 3996 if you have any questions regarding the above or when the documents are ready to be picked up.

No. of Attachments (4)