

MASTER DRAINAGE PLAN

for the

ATRISCO BUSINESS PARK

SEPTEMBER 1992

REVISED

MARCH 1993

OCTOBER 1993

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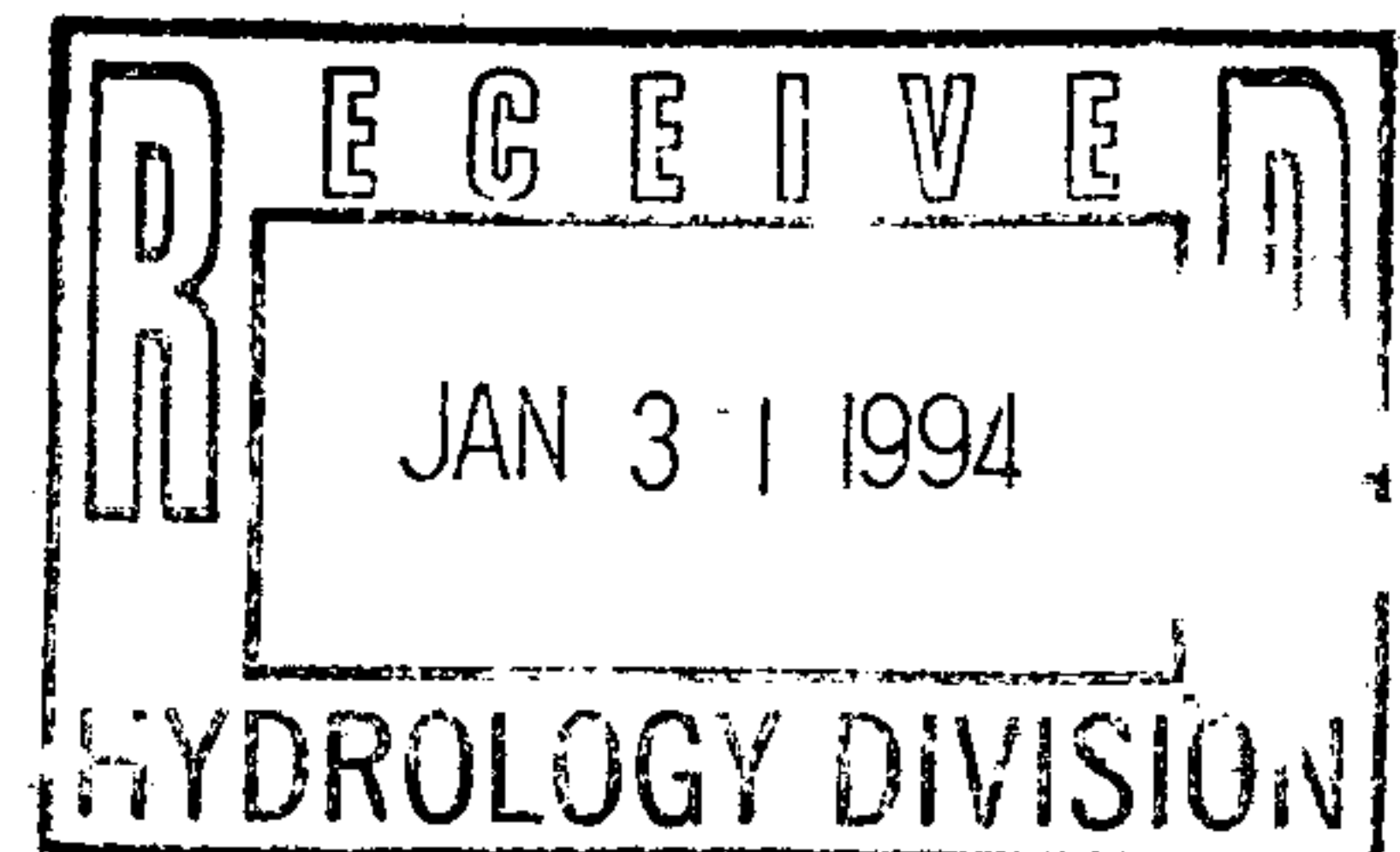
MARCH 1993
OCTOBER 1993

PREPARED FOR:

SUNWEST BANK
SPECIAL ASSETS DEPARTMENT
303 Roma Avenue, N.W.
Albuquerque, New Mexico 87102

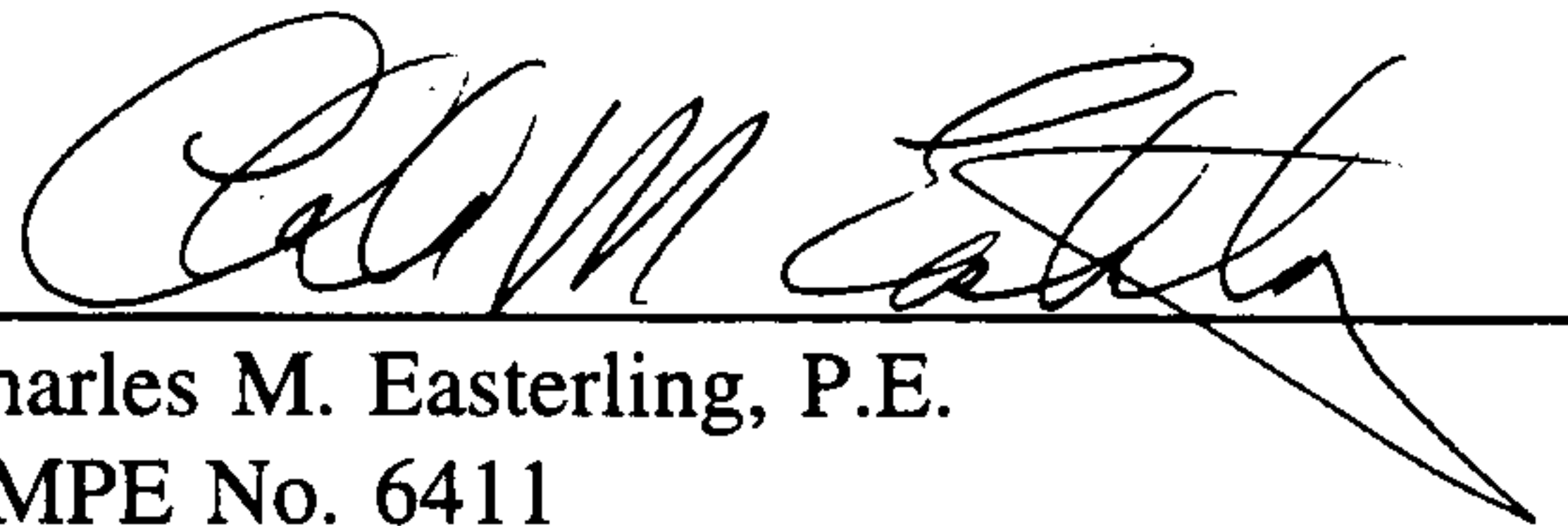
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I, Charles M. Easterling, do hereby certify that this report was prepared by me or under my direction and that I am a duly registered Professional Engineer under the laws of the State of New Mexico.




Charles M. Easterling, P.E.
NMPE No. 6411

Date

OCT 22, 1993

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INTRODUCTION

This is an updated version of the Master Drainage Plan for the Atrisco Business Park. Since the time that the March 1993 version was approved, some of the planned facilities have been constructed and the concepts for other facilities have changed. The purpose of this revision is to update the plan to reflect these changes.

Changes found in this revision include the following:

Coors connection Storm Drain Watershed

- The area of required conservation treatment has been reduced.
- The conservation treatment plan has been modified.
- The proposed Conservation Treatment for Tract "M," Unit 2 consists of perimeter dikes only.
- Airport Drive Storm Drain and Airport Drive Storm Drain Outfall are constructed.

Tierra Bayita Storm Drain Watershed

- The proposed Unser Diversion has been modified from sedimentation/detention ponds with a lined channel outfall to a series of ponds connected by storm drains with a storm drain outfall.
- Because the outflow from the Unser Diversion is reduced, it is not routed through the S.A.D. 214 Pond.
- Because the inflow to the S.A.D. 214 Pond is reduced, the need for conservation treatment in the 214 Pond watershed is eliminated. The need for the S.A.D. 214 Pond to be expanded is greatly reduced. Modifications to the pond to convert it from a retention facility to a detention facility are required to serve the developed condition. The proposed pond modification to be constructed with the Tierra Bayita Storm Drain will result in a small increase in pond volume.
- The AHYMO model of the watershed has been updated per the changes noted above, and the data tables have been updated to reflect the output from the updated model.

ATRISCO BUSINESS PARK MASTER DRAINAGE PLAN

I. GENERAL

A. Purpose and Authorization

This document has been prepared by Easterling & Associates, Inc. under contract to Sunwest Bank. Its purpose is to provide a drainage solution conducive to removal of the Flood Plain included in the subject area and to provide drainage criteria for subsequent development in the area.

B. Description of the Plan Area

Drainage areas which are discussed in this plan are illustrated in Figure 1. The focus of this plan is on the tracts of land identified as the onsite watershed in Figure 1. The onsite watershed more specifically includes the following tracts of land within the Atrisco Business Park; Unit 2 Subdivision:

<u>Parcel</u>	<u>Acres</u>
Tract T	40.5
Lot 2	33.1
Parcel A-1	26.1
Parcel C	28.6
Tract M	88.1
Tract L-1	4.5
Tract S-1	<u>133.2</u>
Total	354.1

In addition to the onsite area, an offsite area of approximately 794 acres contributes flow either directly to the onsite area or to proposed drainage outfalls for the onsite area. These offsite areas are illustrated on Figure 1. These offsite areas were included in the analysis performed for this plan for the purpose of verifying capacity in existing and proposed storm drainage facilities. This document is not intended to serve as a master plan for these offsite areas but does identify potential storm water discharge constraints for these areas.

In the existing condition there is no outfall for storm water developed upstream of or on the onsite area. Much of this flow is ponded in natural depressions located in the onsite area. Due to this, much of the area is within a 100 Year FEMA Flood Plain as shown on Figure 2. This plan proposes to divide this area into two watersheds as shown on Figure 1. The dividing line is primarily the east right-of-way line of Unser Boulevard. The west watershed will outfall to the future Tierra Bayita Storm Drain in Unser Boulevard. This watershed

includes parcel A-1 located east of Unser Boulevard. The east watershed will outfall to the existing North/South Coors Connection Storm Drain via the Airport Drive Storm Drain (Constructed in 1993). Both of the outfalls identified here outfall to the Amole del Norte Channel.

C. Methodology for Analysis

Hydrologic analysis was performed based on the August 1991, Section 22.2, Volume 2, DPM Drainage Criteria for the City of Albuquerque. Hydrologic Modeling was performed utilizing AMAFCA's AHYMO, March 1992 version. Model runs for the 100 year and 10 year storms were performed in order to verify street capacities and satisfy drainage ordinance criteria. A copy of the model input data is included in Appendix B of this report. Output summary tables are included in Appendix A.

Flow depths in the streets were determined from D.P.M. nomographs for street flow where typical street sections were analyzed and from Manning equation elsewhere.

D. Responsibility for Infrastructure

All of the land in the onsite watershed is included in the 1992 "Atrisco Business Park Master Development Plan for IP Uses." Developer responsibilities for future infrastructure construction are defined in the Master Development Plan.

II. TIERRA BAYITA STORM DRAIN WATERSHED

A. Background Information

The existing condition watershed is primarily undeveloped as shown by the photo based background on Plates 1 and 2. Existing street and drainage improvements within the onsite watershed were constructed by S.A.D. 214. These improvements include a portion of Unser Boulevard, a portion of Bluewater Road, a storm drain in Unser Boulevard, and a 9.5 ac-ft retention pond located on Tract A-1.

1. Existing Constraints

- Development of the property requires drainage improvements to be constructed along the western edge of the Business Park to intercept the flows from the large offsite watershed located west of the Business Park.
- Discharge of flow from the property limited in volume by lack of a drainage outfall from the area and in rate by the size of the existing Unser Storm Drain.

- F.E.M.A. Flood Plain covers a portion of the area.

2. Previous Studies

Several previous studies have been prepared which have referenced this watershed. The previous studies which have pertinence to the drainage plan proposed here are listed and discussed below.

- a. Drainage Plan for the Design of S.A.D. 214 Unser Boulevard by Scanlon and Associates dated February 14, 1983.
 - Set discharge criteria for property discharging into the Unser Storm Drain.
- b. West Bluff Drainage Plan Phase III by Andrews, Asbury, and Roberts, Inc. dated January 1987.
 - Delineated the boundaries of the offsite watershed.
 - Proposed the I-40 interceptor channel be constructed north of I-40. This project which will reduce the size of the offsite watershed.
 - Proposed the Unser Diversion Channel be constructed along the western and southern boundaries of the Business Park to intercept flow from the offsite watershed to the west and convey it to Unser Boulevard.
 - Proposed flow from the Unser Diversion Channel and the Unser Storm Drain be conveyed in a storm drain facility down Unser Boulevard from the south boundary of the Business Park to the Amole del Norte Channel.
- c. Preliminary Analysis Report for Amole del Norte Storm Diversion Facilities/Tierra Bayita Drainage Facilities by Greiner, Inc. dated October 31, 1990.
 - Proposed expansion and conversion of the existing S.A.D. 214 pond from a 9.5 ac-ft retention pond to a permanent 19 ac-ft detention pond.

The design concept analyzed in the report assumed the flow from the Unser Diversion would be routed through the S.A.D. 214 Pond. The current plan for the Unser Diversion makes this routing unnecessary. Thus, the pond volume expansion is also unnecessary. Conversion

to a detention pond is required in the current drainage plan.

- Established the design flow rate for the S.A.D. 214 pond outfall (the Tierra Bayita Storm Drain) in Unser Boulevard at 311 cfs.

B. Drainage Schemes

Plates 1 and 2 illustrate the drainage schemes for the interim and the fully developed conditions in the watershed.

1. Interim Condition

The interim condition illustrated on Plate 1 shows the facilities required to remove the FEMA Flood Plain from the onsite watershed. These facilities include:

- The Unser Diversion a series of collection facilities and detention/retention/sedimentation ponds to be located along the western boundary of the Atrsico Business Park. These facilities will collect and treat runoff from the offsite watershed located north and west of the Business Park.

2. Fully Developed Condition

The Fully Developed condition illustrated on Plate 2 shows the watershed in the fully developed condition and assumes the I-40 Interceptor will be constructed. The public drainage infrastructure requirements include:

- The Tierra Bayita Storm Drain in Unser Boulevard to provide an outfall for the S.A.D. 214 Pond and the Unser Diversion.
- Modification of the S.A.D. 214 Pond to convert it from a retention facility to a detention facility.

C. Developed Condition Constraints

- Lots discharging flow to the existing Unser Storm Drain must control peak flow rates to those established by the Drainage Plan for the Design of S.A.D. 214 Unser Boulevard, by Scanlon & Associates dated February 14, 1983.
- A master drainage plan should be developed for the watershed west of the Unser Diversion prior to discharge of developed flow from that area. This future drainage plan should determine allowable release rates from

the area based on downstream capacity. The "Agreement for Atrisco Business Park Storm Water Improvements" filed with the City of Albuquerque Clerk's office on August 25, 1993 as document #93093160 limits the discharge constraint for this property to not be less than 1.3 cfs/acre. A higher discharge rate may be possible depending upon how drainage facilities are configured within the area. The modeling performed for this plan assumed flow rates from the developed condition Unser Diversion Watershed of 2.2 to 2.5 cfs per acre. Because a multiple basin detention facility is very sensitive to the timing of inflow, drainage planning for the developed Unser Diversion Watershed should include modeling of the entire Unser Diversion System and Watershed.

- Lot 2, Unit 2 is allowed free discharge into the Unser Diversion Storm Drain.
- Parcel A-1 and Lot 1, Unit 2 are allowed free discharge into the modified S.A.D. 214 pond.
- Peak 100 year flow rates corresponding to the above criteria are noted on Plate 2.
- In regard to the S.A.D. 214 Pond modifications, it is recommended that the invert of the outfall for the S.A.D. 214 Pond be designed as low as possible in order to provide the opportunity for future vertical expansion of the pond.

III. COORS CONNECTION STORM DRAIN WATERSHED

A. Background Information

As illustrated on the photo based background of Plate 1, the existing condition watershed is largely undeveloped. Paved streets within the onsite watershed include the following:

- Bluewater Road from Unser Boulevard to Airport Drive.
- Airport Road from Los Volcanes to Bluewater Road.
- Airport Drive from Bluewater to the south line of the Business Park.
- No drainage facilities are constructed within the onsite watershed.

1. Existing Constraints

- At the time of the first draft of this report, no drainage outfall or collector system existed. The Airport Drive Storm Drain was constructed in early 1993 to provide an outfall.
- FEMA Flood plain covers much of the onsite watershed. Much of this Flood plain is caused by flow from the large offsite watershed west of Unser. Some of the flood plain is caused by flow from the public streets which is discharged onto Parcel C, Unit II, Atrisco Business Park.

2. Previous Studies

Several previous studies have included all of or portions of this watershed. Some of the most recent and pertinent studies are listed and discussed below.

a. West Bluff Drainage Plan Phase III by Andrews, Asbury and Roberts, Inc. dated January 1987.

- Proposed the onsite watershed outfall to the West Bluff Outfall via the Future I-40 Interceptor, and the Future West Mesa Diversion.
- Due to the fact that completion of the projects listed above will be very costly and not expected to occur in the near future, another outfall for the onsite area is proposed in the plan presented here.

b. Drainage Management Study for the North/South Coors Connection by Denny-Gross and Associates dated June 1983.

- Hydrologic and hydraulic analysis pertaining to the existing Coors Connection Storm Drain established the peak discharge rate from the entire Coors Connection Storm Drain at 138 cfs.

As-built drawings of the Coors Connection Storm Drain show a larger storm drain than the one analyzed in the study. A hydrologic analysis coinciding with the higher peak flow rates associated with the upsized storm drain could not be located. The analysis done for the Drainage Plan presented here includes the Coors Connection Storm Drain per the as-built drawings for the Project. The Watershed assumed for the Coors Connection Storm Drain includes the area which contributes flow to the

storm drain in the existing condition. The allowable discharge rates, determined by this analysis, for the area currently discharging to the Coors Connection Storm Drain are in excess of 138 cfs.

- c. Letter/Report RE: North/South Coors Connection/Airport Drive Storm Drain Capacity by Easterling & Associates, Inc., dated April 7, 1992.
 - Presented preliminary modeling of the watersheds of the subject storm drains and preliminary hydraulic analysis of the subject storm drains.
- d. Design Analysis Report for Airport Drive Storm Drain Outfall by Easterling & Associates, Inc., dated October 1992.
- e. Design Analysis Report for Airport Drive/Bluewater Storm Drain by Easterling & Associates, Inc., dated February 1993.

B. Drainage Schemes

Plates 1 and 2 illustrate the drainage schemes and associated peak flow rates for the interim and the fully developed conditions in the watershed.

1. The interim condition illustrated on Plate 1 shows the facilities required to remove the physical flood plain from the onsite watershed. These facilities include:
 - Airport Drive Storm Drain Outfall, approximately 780 LF of 48" diameter storm drain to be located in the median of Coors Boulevard downstream of Airport Drive. This storm drain will parallel existing 24" and 30" diameter segments of the existing Coors Connection Storm Drain and will connect to an existing 54" segment of the same. (*CONSTRUCTED 1993*)
 - Airport Drive Storm Drain, a 48" diameter storm drain to be located in Airport Drive extending from the Coors Connection Storm Drain to the south line of the Atrisco Business Park. (*CONSTRUCTED 1993*)
 - Airport Drive/Bluewater Road Storm Drain, a 48" diameter storm drain extending from the Airport Drive Storm Drain to the intersection of Airport Road and Bluewater Road. (*PLANNED FOR EARLY 1994 CONSTRUCTION*)

- Conservation treatment as illustrated on Plate 1, Plate 5 and Plate 6 applied to the indicated portions of onsite undeveloped tracts to retain runoff and thus sediment onsite. This conservation treatment or other retention or detention facilities should be in place prior to the extension of the Airport Drive Storm Drain into the Business Park. This is due to the fact that the existing condition flow rate is greater than the developed condition flow rates proposed for the onsite area by this Plan.

In addition to providing protection for the Airport Drive storm drain, the conservation treatment can be modified in the future to protect individual developing lots from the sheet flow generated on undeveloped lots located upstream.

A drainage covenant to facilitate the maintenance of the interim drainage facilities will be required to be in place prior to the issuance of building permits within the onsite area of the Coors Connection Storm Drain Watershed.

2. The fully developed condition illustrated in Plate 2 requires the public storm drain facilities as listed for the interim condition and the additional public facilities listed below.

- Airport Road Storm Drain, a 30" to 36" diameter storm drain extending north along Airport Road from the Airport/Bluewater Storm Drain to the intersection of Airport Road and Los Volcanes Road.
- Bluewater Road Storm Drain, a 24" diameter storm drain extending west along Bluewater Road from the Airport Drive/Bluewater Road Storm Drain to the eastern boundary of Tract L-1. The purpose of this storm drain is to provide an outfall for the proposed private detention ponds along Bluewater Road.
- Tract "M" Storm Drain, a 24" diameter storm drain extending down the back lot line of the lots in Tract "M." The purpose of this storm drain is to provide an outfall from the proposed private detention ponds located in the northern portion of Tract "M."
- Los Volcanes Storm Drain, a 24" diameter storm drain extending west from the Airport Road Storm Drain to the east lot line of Lot 6, Tract S-1. The purpose of this storm drain is to provide an outfall for the proposed private detention ponds to be located along Los Volcanes Road.

C. Developed Condition Drainage Constraints

1. Onsite Watershed

The maximum allowable peak 100 year discharge rates from lots in the onsite watershed are limited to the following:

- 0.1 cfs per acre except as provided below.
- Small areas of those lots located on the uphill side of a street may discharge uncontrolled to the street where required to facilitate grading. This provision is subject to the following criteria.
 - The total area allowed free discharge from the lot shall not be larger than an area equivalent to a strip 10 feet wide along the total street frontage of the lot.
 - Impervious areas allowed free discharge to the street shall not be larger than an equivalent area two feet wide along the total street frontage of the lot.
 - The free discharge from the small areas defined above shall not be considered a part of the 0.1 cfs allowable discharge from the lot.

Pond areas outside of the parking areas shall be fully landscaped. A minimum of 85% of the surface area of the pond area shall consist of pervious ground treatments. Bark or other landscape materials which are prone to float under submerged conditions shall not be allowed as a surface treatment material within the limits of pond areas.

Low flow channels shall connect all inlets to the outlet in the detention pond(s). Low flow channels shall be constructed with durable, erosion resistant materials which facilitate long term maintenance of the pond area.

A covenant insuring the perpetuity and the maintenance of the required detention facilities on individual lots will be required to replace the interim condition drainage covenant at the time of development of individual lots.

2. Offsite Watershed

- Peak 100 year discharge from lots discharging into the Airport Drive Storm Drain is limited to 0.1 cfs per acre. This includes

Basins 200.6, 210.4, 211.1, 220.2, 220.4 and 220.5 as shown on Plate 2.

- Peak 100 year discharge rates from all other lots contributing flow to the Coors Connection Storm Drain should be limited to rates which will not cause the aggregate flow rate at the point of connection to the Coors Connection Storm Drain to exceed the aggregate existing condition flow rates established by this Plan.

FIGURES

Figure 1 – Location Map

Figure 2 – F.E.M.A. Flood Plain Map

FLOODWAY
FLOOD BOUNDARY AND
FLOODWAY MAP

CITY OF
**ALBUQUERQUE,
NEW MEXICO**
BERNALILLO COUNTY

PANEL 27 OF 50

COMMUNITY-PANEL NUMBER
350002 0027
EFFECTIVE DATE:

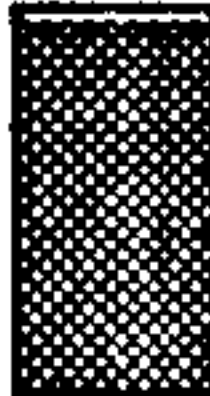


Federal Emergency Management Agency

LEGEND

FLOOD BOUNDARY

PROJECT AREA



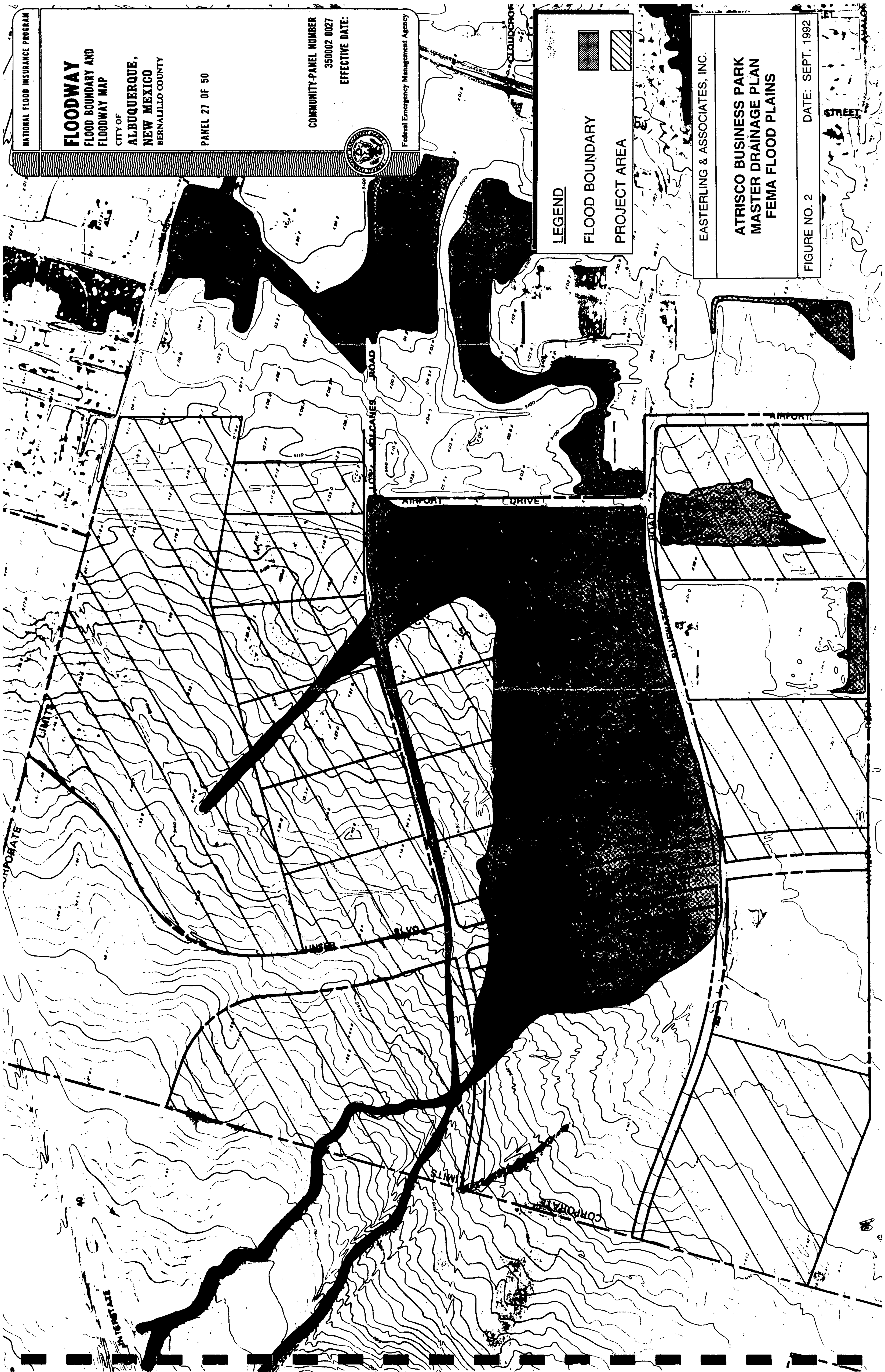
EASTERLING & ASSOCIATES, INC.

**ATRISCO BUSINESS PARK
MASTER DRAINAGE PLAN
FEMA FLOOD PLAINS**

FIGURE NO. 2

DATE: SEPT. 1992

5 FEET



APPENDIX A

AHYMO SUMMARY TABLES

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COORS CONNECTION STORM DRAIN WATERSHED (INTERIM) 100 YEAR 24 HOUR STORM
 AHYNO SUMMARY TABLE (AHYNO392) - ANAFCA VERSION OF HYNO - MARCH, 1992
 INPUT FILE = ccsdwl.hml

RUN DATE (MON/DAY/YR) = 09/22/1992
 USER NO. = D_HARRIS.S92

COMMAND	HYDROGRAPH IDENTIFICATION	FROM NO.	TO NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
START											TIME= .00
RAINFALL TYPE= 2											RAIN24= 2.660
*S BEGIN THE WATERSHED FOR THE AIRPORT ROAD STORM DRAIN *****											
COMPUTE NM HYD	200.10	-	2	.20810	201.15	5.307	.47815	1.500	1.510	PER INP=	.00
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO RUNOFF											
*S LEAVES THE SITE											
COMPUTE NM HYD	200.40	-	3	.00420	10.40	.469	2.09267	1.500	3.868	PER INP=	81.00
ROUTE	200.45	3	11	.00420	7.01	.469	2.09280	1.600	2.606		
COMPUTE NM HYD	200.50	-	4	.00350	8.67	.391	2.09267	1.500	3.869	PER INP=	81.00
ADD HYD	200.51	116	4	.00770	14.30	.859	2.09259	1.550	2.903		
ROUTE	200.66	3	11	.00770	11.60	.859	2.09269	1.650	2.354		
COMPUTE NM HYD	210.10	-	2	.07480	67.68	1.908	.47815	1.500	1.414	PER INP=	.00
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO RUNOFF											
*S LEAVES THE SITE											
COMPUTE NM HYD	210.30	-	2	.00250	6.19	.279	2.09268	1.500	3.871	PER INP=	81.00
ADD HYD	210.31	116	2	.01020	15.71	1.138	2.09257	1.600	2.407		
ROUTE	210.47	12	11	.01020	13.77	1.138	2.09263	1.700	2.110		
COMPUTE NM HYD	210.50	-	2	.00240	5.95	.268	2.09267	1.500	3.871	PER INP=	81.00
ADD HYD	210.51	2611	11	.01260	16.65	1.406	2.09254	1.650	2.065		
COMPUTE NM HYD	210.60	-	3	.07000	63.19	1.785	.47815	1.500	1.411	PER INP=	.00
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO RUNOFF											
*S LEAVES THE SITE											
COMPUTE NM HYD	210.70	-	2	.00330	8.17	.368	2.09267	1.500	3.869	PER INP=	81.00
ROUTE	210.71	2	12	.00330	4.83	.368	2.09282	1.600	2.285		
COMPUTE NM HYD	210.80	-	3	.00280	6.94	.313	2.09267	1.500	3.871	PER INP=	81.00
ADD HYD	210.81	3612	12	.00610	10.56	.681	2.09252	1.550	2.706		
COMPUTE NM HYD	210.90	-	2	.00170	4.22	.190	2.09267	1.500	3.876	PER INP=	81.00
ADD HYD	210.91	126	2	.00780	14.64	.870	2.09251	1.500	2.933		
ADD HYD	210.92	12611	11	.02040	29.41	2.277	2.09253	1.550	2.253		
ROUTE	211.13	11	10	.02040	26.71	2.277	2.09257	1.650	2.046		
*S BEGIN THE AREA SOUTH OF BLUEWATER ROAD											
COMPUTE NM HYD	220.10	-	2	.00350	8.67	.391	2.09267	1.500	3.869	PER INP=	81.00
COMPUTE NM HYD	220.20	-	3	.03130	77.77	3.488	2.08937	1.500	3.882	PER INP=	80.00
ROUTE RESERVOIR	220.21	3	4	.03130	2.01	3.162	1.89413	2.550	.100	AC-FT=	2.528
ROUTE	220.22	4	5	.03130	2.01	3.158	1.89148	2.650	.100		
ADD HYD	220.23	26	5	.03480	9.29	3.548	1.91170	1.500	.417		
COMPUTE NM HYD	220.30	-	2	.04470	40.21	1.140	.47815	1.500	1.406	PER INP=	.00
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO RUNOFF											
*S LEAVES THE SITE											
ADD HYD	220.53	106	3	.05520	32.95	5.825	1.97853	1.600	.933		
ROUTE	220.54	2	10	.05520	32.91	5.823	1.97806	1.600	.931		
*S BEGIN THE AREA SOUTH OF THE ATRISCO BUSINESS PARK											
COMPUTE NM HYD	220.60	-	2	.01980	49.20	2.206	2.08937	1.500	3.883	PER INP=	80.00
ROUTE RESERVOIR	220.61	2	3	.01980	1.27	1.992	1.88671	2.550	.100	AC-FT=	1.599
COMPUTE NM HYD	220.70	-	4	.00270	6.69	.301	2.09267	1.500	3.871	PER INP=	81.00
ADD HYD	220.71	46	3	.02250	7.40	2.294	1.91141	1.500	.514		
ADD HYD	220.72	106	5	.07770	38.42	8.117	1.95876	1.600	.773		
ROUTE	220.73	2	10	.07770	36.34	8.100	1.95467	1.700	.731		

COORS CONNECTION STORM DRAIN WATERSHED (INTERIM) 100 YEAR 24 HOUR STORM (CONTINUED)

COMMAND	HYDROGRAPH IDENTIFICATION	FROM NO.	TO NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2	NOTATION
*S BEGIN AREA SOUTH OF CENTRAL BOULEVARD											
COMPUTE NM HYD	230.10	-	2	.00180	3.80	.137	1.42332	1.500	3.294	PER IMP=	30.00
ROUTE	230.11	2	3	.00180	3.14	.137	1.42358	1.550	2.724		
COMPUTE NM HYD	230.20	-	2	.00520	10.93	.395	1.42332	1.500	3.285	PER IMP=	30.00
ADD HYD	230.21	26 3	4	.00700	13.54	.531	1.42325	1.500	3.023		
ROUTE	230.22	4	11	.00700	13.40	.531	1.42336	1.500	2.990		
COMPUTE NM HYD	230.30	-	2	.00240	6.09	.277	2.16311	1.500	3.963	PER IMP=	85.00
ADD HYD	230.31	2611	1	.00940	19.48	.808	1.61212	1.500	3.239		
ADD HYD	230.32	1610	3	.08710	49.29	8.908	1.91770	1.600	.884		
ROUTE	230.33	3	10	.08710	49.32	8.907	1.91742	1.600	.885		
*S END OF AIRPORT ROAD STORM DRAIN											
*S BEGIN COORS CONNECTION STORM DRAIN											
COMPUTE NM HYD	230.60	-	2	.00230	6.13	.280	2.28382	1.500	4.162	PER IMP=	90.00
ROUTE	230.61	2	3	.00230	4.53	.280	2.28404	1.600	3.080		
COMPUTE NM HYD	230.70	-	2	.00580	14.69	.669	2.16311	1.500	3.958	PER IMP=	85.00
ADD HYD	230.71	36 2	4	.00810	18.45	.949	2.19732	1.500	3.559		
COMPUTE NM HYD	230.50	-	2	.00660	6.49	.183	.52015	1.500	1.536	PER IMP=	.00
ADD HYD	230.51	26 4	5	.01470	24.94	1.132	1.44430	1.500	2.651		
ROUTE	230.52	5	4	.01470	24.72	1.132	1.44435	1.500	2.627		
COMPUTE NM HYD	230.80	-	2	.01120	15.84	.532	.89042	1.500	2.210	PER IMP=	15.00
ADD HYD	230.82	26 4	5	.02590	40.56	1.664	1.20477	1.500	2.447		
ROUTE	230.83	5	2	.02590	39.99	1.664	1.20480	1.500	2.413		
ADD HYD	230.84	2610	11	.11300	86.64	10.571	1.75408	1.550	1.198		
ROUTE	230.85	11	10	.11300	86.71	10.570	1.75395	1.550	1.199		
ROUTE	230.86	10	11	.11300	86.96	10.569	1.75375	1.550	1.202		
*S BEGIN THE AREA NORTH OF CENTRAL AVENUE BETWEEN UNSER AND THE WEST 66											
*S ADDITION											
COMPUTE NM HYD	240.10	-	2	.03330	58.74	2.655	1.49503	1.550	2.756	PER IMP=	35.00
ROUTE	240.11	2	3	.03330	56.78	2.655	1.49504	1.600	2.664		
COMPUTE NM HYD	240.20	-	4	.01250	25.65	1.319	1.97801	1.550	3.206	PER IMP=	71.00
ADD HYD	240.21	46 3	5	.04580	80.95	3.974	1.62683	1.550	2.762		
ROUTE	240.22	5	15	.04580	80.73	3.974	1.62685	1.600	2.754		
COMPUTE NM HYD	240.30	-	3	.00800	12.85	.577	1.35161	1.550	2.509	PER IMP=	25.00
ROUTE	240.31	3	4	.00800	12.27	.577	1.35166	1.600	2.397		
ADD HYD	240.32	4615	16	.05380	93.00	4.550	1.58590	1.600	2.701		
COMPUTE NM HYD	240.40	-	2	.02310	42.45	2.260	1.83425	1.600	2.871	PER IMP=	60.00
ROUTE RESERVOIR	240.41	2	3	.02310	29.29	1.074	.87164	1.850	1.981	AC-FT=	1.190
ADD HYD	240.42	3616	15	.07690	93.00	5.624	1.37135	1.600	1.890		
COMPUTE NM HYD	240.50	-	4	.00930	24.26	1.133	2.28382	1.500	4.075	PER IMP=	90.00
ADD HYD	240.51	4615	16	.08620	110.29	6.757	1.46979	1.600	1.999		
ROUTE RESERVOIR	240.52	16	15	.08620	92.22	6.757	1.46979	1.700	1.672	AC-FT=	.499
ROUTE	240.53	15	5	.08620	92.27	6.757	1.46978	1.700	1.672		
COMPUTE NM HYD	240.60	-	2	.00650	16.96	.792	2.28382	1.500	4.076	PER IMP=	90.00
*S BEGIN AREA SOUTH OF CENTRAL AVENUE BETWEEN UNSER AND AIRPORT											
ADD HYD	240.61	26 5	3	.09270	100.86	7.549	1.52686	1.650	1.700		
ROUTE	240.62	3	4	.09270	87.46	7.549	1.52680	1.800	1.474		
COMPUTE NM HYD	250.10	-	2	.02470	33.20	1.650	1.25219	1.600	2.100	PER IMP=	30.00
ADD HYD	250.11	46 2	3	.11740	110.19	9.198	1.46902	1.750	1.466		
COMPUTE NM HYD	250.20	-	2	.00790	14.90	.599	1.42095	1.500	2.946	PER IMP=	35.00
ADD HYD	250.21	36 2	4	.12530	117.95	9.797	1.46599	1.700	1.471		
ROUTE	250.22	4	3	.12530	117.24	9.797	1.46597	1.750	1.462		

COORS CONNECTION STORM DRAIN WATERSHED (INTERIM) 100 YEAR 24 HOUR STORM (CONTINUED)

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3	NOTATION
COMPUTE NM HYD	260.10	-	2	.03980	33.14	1.099	.51796	1.550	1.301	PER INP=	2.00
ADD HYD	260.11	3& 2	4	.16510	134.74	10.896	1.23743	1.700	1.275		
ROUTE	260.12	4	2	.16510	134.85	10.896	1.23743	1.700	1.276		
ROUTE	260.13	2	4	.16510	135.33	10.896	1.23743	1.700	1.281		
COMPUTE NM HYD	270.10	-	3	.02220	21.27	.637	.53787	1.500	1.497	PER INP=	3.00
ADD HYD	270.11	3& 4	4	.18730	145.68	11.533	1.15451	1.650	1.215		
ADD HYD	260.13	4&11	10	.30030	222.15	22.102	1.38000	1.650	1.156		
COMPUTE NM HYD	270.20	-	3	.00710	17.98	.819	2.16311	1.500	3.957	PER INP=	85.00
ADD HYD	270.23	10& 3	4	.30740	231.82	22.921	1.39809	1.650	1.178		
ROUTE	270.24	4	10	.30740	232.17	22.920	1.39800	1.650	1.180		
COMPUTE NM HYD	280.10	-	2	.00660	6.59	.203	.57768	1.500	1.560	PER INP=	5.00
ADD HYD	280.11	10& 2	3	.31400	236.11	23.123	1.38075	1.650	1.175		
COMPUTE NM HYD	280.20	-	4	.00250	6.34	.288	2.16311	1.500	3.963	PER INP=	85.00
ADD HYD	280.21	3& 4	5	.31650	239.52	23.411	1.38693	1.650	1.182		
COMPUTE NM HYD	280.30	-	6	.00450	8.64	.359	1.49614	1.500	2.990	PER INP=	50.00
ADD HYD	280.31	5& 6	7	.32100	244.30	23.771	1.38846	1.650	1.189		
ROUTE	280.32	7	10	.32100	244.86	23.768	1.38834	1.650	1.192		
COMPUTE NM HYD	290.10	-	2	.03144	28.78	.840	.50557	1.500	1.430	PER INP=	2.00
ADD HYD	290.12	10& 2	3	.35244	262.22	24.616	1.30959	1.650	1.163		
ROUTE	290.13	3	4	.35244	262.97	24.615	1.30955	1.650	1.166		
ROUTE	290.14	4	10	.35244	263.41	24.614	1.30946	1.650	1.168		
COMPUTE NM HYD	290.20	-	2	.00690	17.48	.796	2.16311	1.500	3.958	PER INP=	85.00
ADD HYD	290.21	10& 2	3	.35934	272.98	25.410	1.32585	1.600	1.187		
ROUTE	290.22	3	4	.35934	273.04	25.409	1.32582	1.650	1.187		
ROUTE	290.23	4	5	.35934	273.70	25.408	1.32576	1.650	1.190		
FINISH											

COORS CONNECTION STORM DRAIN WATERSHED (DEVELOPED) 100 YEAR 24 HOUR STORM
 AHYMO SUMMARY TABLE (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992
 INPUT FILE = ccsdwd.hml

RUN DATE (MON/DAY/YR) =09/22/1992
 USER NO.= D_HARRIS.S92

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
START											TIME= .00
RAINFALL TYPE= 2											RAIN24= 2.660
*****S BEGIN THE WATERSHED FOR THE AIRPORT ROAD STORM DRAIN*****											
COMPUTE NM HYD	200.10	-	2	.20810	513.44	23.189	2.08937	1.500	3.855	PER IMP=	80.00
ROUTE RESERVOIR	200.11	2	3	.20810	13.32	21.211	1.91113	2.600	.100	AC-FT=	16.792
COMPUTE NM HYD	200.20	-	2	.00420	10.15	.453	2.02224	1.500	3.777	PER IMP=	77.00
ADD HYD	200.21	3& 2	4	.21230	18.01	21.664	1.91333	1.500	.133		
COMPUTE NM HYD	200.30	-	2	.00760	17.97	.820	2.02224	1.500	3.695	PER IMP=	77.00
COMPUTE NM HYD	200.40	-	3	.00420	10.40	.469	2.09267	1.500	3.868	PER IMP=	81.00
ADD HYD	200.41	2& 3	5	.01180	28.37	1.288	2.04726	1.500	3.756		
ROUTE	200.45	5	11	.01180	21.24	1.288	2.04731	1.600	2.813		
COMPUTE NM HYD	200.50	-	3	.00350	8.67	.391	2.09267	1.500	3.869	PER IMP=	81.00
ADD HYD	200.51	11& 3	3	.01530	28.34	1.679	2.05761	1.550	2.894		
COMPUTE NM HYD	200.60	-	1	.00700	17.40	.780	2.08937	1.500	3.885	PER IMP=	80.00
ROUTE RESERVOIR	200.61	1	2	.00700	.45	.713	1.90867	2.550	.100	AC-FT=	.566
ADD HYD	200.62	4& 2	1	.21930	18.31	22.377	1.91318	1.550	.130		
ROUTE	200.65	1	10	.21930	18.17	22.361	1.91184	1.550	.129		
ROUTE	200.66	3	11	.01530	24.28	1.679	2.05766	1.650	2.480		
COMPUTE NM HYD	210.10	-	2	.07480	185.71	8.335	2.08937	1.500	3.879	PER IMP=	80.00
ROUTE RESERVOIR	210.11	2	3	.07480	4.78	7.510	1.88246	2.600	.100	AC-FT=	6.043
ADD HYD	210.12	10& 3	10	.29410	21.38	29.871	1.90437	1.600	.114		
COMPUTE NM HYD	210.20	-	2	.00780	18.09	.841	2.02224	1.500	3.623	PER IMP=	77.00
DIVIDE HYD	210.21	2	3	.00705	11.00	.760	2.02219	1.450	2.440		
	210.22	AND	6	.00075	7.09	.081	2.02219	1.500	14.670		
ADD HYD	210.23	10& 3	10	.30115	32.38	30.630	1.90712	1.600	.168		
COMPUTE NM HYD	210.30	-	2	.00250	6.19	.279	2.09268	1.500	3.871	PER IMP=	81.00
ADD HYD	210.31	11& 2	11	.01780	27.66	1.958	2.06251	1.600	2.428		
COMPUTE NM HYD	210.40	-	2	.01170	29.08	1.304	2.08937	1.500	3.883	PER IMP=	80.00
ROUTE RESERVOIR	210.41	2	4	.01170	.73	1.179	1.88920	2.600	.098	AC-FT=	.946
ADD HYD	210.42	10& 4	13	.31285	32.93	31.809	1.90645	1.600	.164		
ADD HYD	210.43	6& 11	12	.01855	31.08	2.039	2.06087	1.550	2.617		
ROUTE	210.46	13	10	.31285	32.84	31.789	1.90521	1.600	.164		
ROUTE	210.47	12	11	.01855	26.75	2.039	2.06091	1.650	2.253		
COMPUTE NM HYD	210.50	-	2	.00240	5.95	.268	2.09267	1.500	3.871	PER IMP=	81.00
ADD HYD	210.51	2& 11	11	.02095	29.96	2.307	2.06449	1.650	2.234		
COMPUTE NM HYD	210.60	-	3	.07000	173.84	7.800	2.08937	1.500	3.880	PER IMP=	80.00
ROUTE RESERVOIR	210.61	3	4	.07000	4.45	7.167	1.91968	2.600	.099	AC-FT=	5.652
ADD HYD	210.62	4& 10	10	.38285	36.25	38.955	1.90786	1.600	.148		
COMPUTE NM HYD	210.70	-	2	.00330	8.17	.368	2.09267	1.500	3.869	PER IMP=	81.00
ROUTE	210.71	2	12	.00330	4.83	.368	2.09282	1.600	2.285		
COMPUTE NM HYD	210.80	-	3	.00280	6.94	.313	2.09267	1.500	3.871	PER IMP=	81.00
ADD HYD	210.81	3& 12	12	.00610	10.56	.681	2.09252	1.550	2.706		
COMPUTE NM HYD	210.90	-	2	.00170	4.22	.190	2.09267	1.500	3.876	PER IMP=	81.00
ADD HYD	210.91	12& 2	12	.00780	14.64	.870	2.09251	1.500	2.933		
ADD HYD	210.92	12& 11	11	.02875	41.59	3.178	2.07209	1.600	2.260		
ADD HYD	210.93	11& 10	10	.41160	77.84	42.133	1.91933	1.600	.295		
COMPUTE NM HYD	211.10	-	2	.01170	29.08	1.304	2.08937	1.500	3.883	PER IMP=	80.00
ROUTE RESERVOIR	211.11	2	3	.01170	.74	1.185	1.89842	2.600	.098	AC-FT=	.947
ADD HYD	211.12	3& 10	11	.42330	78.38	43.318	1.91875	1.600	.289		

COORS CONNECTION STORM DRAIN WATERSHED (DEVELOPED) 100 YEAR 24 HOUR STORM (CONTINUED)

COMMAND	HYDROGRAPH IDENTIFICATION	FROM TO		AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2	NOTATION
		NO.	NO.								
ROUTE	211.13	11	10	.42330	73.25	43.248	1.91567	1.700	.270		
*S BEGIN THE AREA SOUTH OF BLUEWATER ROAD											
COMPUTE NM HYD	220.10	-	2	.00350	8.67	.391	2.09267	1.500	3.869	PER IMP=	81.00
COMPUTE NM HYD	220.20	-	3	.03130	77.77	3.488	2.08937	1.500	3.882	PER IMP=	80.00
ROUTE RESERVOIR	220.21	3	4	.03130	2.01	3.162	1.89413	2.550	.100	AC-FT=	2.528
ROUTE	220.22	4	5	.03130	2.01	3.158	1.89148	2.650	.100		
ADD HYD	220.23	2& 5	3	.03480	9.29	3.548	1.91170	1.500	.417		
COMPUTE NM HYD	220.30	-	2	.04470	111.05	4.981	2.08937	1.500	3.882	PER IMP=	80.00
ROUTE RESERVOIR	220.31	2	4	.04470	2.87	4.490	1.88324	2.550	.100	AC-FT=	3.611
ADD HYD	220.32	3& 4	2	.07950	10.90	8.038	1.89570	1.500	.214		
COMPUTE NM HYD	220.40	-	4	.00180	4.36	.194	2.02224	1.500	3.784	PER IMP=	77.00
ADD HYD	220.41	2& 4	1	.08130	15.26	8.232	1.89850	1.500	.293		
COMPUTE NM HYD	220.50	-	3	.03130	77.77	3.488	2.08937	1.500	3.882	PER IMP=	80.00
ROUTE RESERVOIR	220.51	3	4	.03130	2.01	3.162	1.89413	2.550	.100	AC-FT=	2.528
ADD HYD	220.52	4& 1	3	.11260	16.42	11.394	1.89728	1.500	.228		
ADD HYD	220.53	10& 3	2	.53590	84.94	54.642	1.91181	1.650	.248		
ROUTE	220.54	2	10	.53590	84.82	54.632	1.91147	1.700	.247		
*S BEGIN THE AREA SOUTH OF THE ATRISCO BUSINESS PARK											
COMPUTE NM HYD	220.60	-	2	.01980	49.20	2.206	2.08937	1.500	3.883	PER IMP=	80.00
ROUTE RESERVOIR	220.61	2	3	.01980	1.27	1.992	1.88671	2.550	.100	AC-FT=	1.599
COMPUTE NM HYD	220.70	-	4	.00270	6.69	.301	2.09267	1.500	3.871	PER IMP=	81.00
ADD HYD	220.71	4& 3	5	.02250	7.40	2.294	1.91141	1.500	.514		
ADD HYD	220.72	10& 5	2	.55840	89.29	56.926	1.91147	1.650	.250		
ROUTE	220.73	2	10	.55840	86.34	56.848	1.90885	1.750	.242		
*S BEGIN AREA SOUTH OF CENTRAL BOULEVARD											
COMPUTE NM HYD	230.10	-	2	.00180	4.49	.201	2.08937	1.500	3.895	PER IMP=	80.00
ROUTE RESERVOIR	230.11	2	20	.00180	3.55	.201	2.08922	1.550	3.084	AC-FT=	.017
ROUTE	230.12	20	3	.00180	3.34	.201	2.08965	1.650	2.899		
COMPUTE NM HYD	230.20	-	2	.00520	12.93	.579	2.08937	1.500	3.886	PER IMP=	80.00
ROUTE RESERVOIR	230.21	2	20	.00520	10.88	.579	2.08931	1.550	3.269	AC-FT=	.040
ADD HYD	230.22	20& 3	4	.00700	13.81	.780	2.08930	1.600	3.083		
ROUTE	230.23	4	11	.00700	13.89	.780	2.08941	1.600	3.100		
COMPUTE NM HYD	230.30	-	2	.00240	6.09	.277	2.16311	1.500	3.963	PER IMP=	85.00
ADD HYD	230.31	2& 11	3	.00940	19.03	1.057	2.10812	1.550	3.164		
ADD HYD	230.32	10& 3	1	.56780	99.75	57.905	1.91215	1.700	.274		
ROUTE	230.33	1	10	.56780	99.79	57.901	1.91203	1.700	.275		
*S END OF AIRPORT ROAD STORM DRAIN											
*S BEGIN COORS CONNECTION STORM DRAIN											
COMPUTE NM HYD	230.50	-	2	.00660	16.59	.741	2.10487	1.500	3.927	PER IMP=	80.00
ROUTE RESERVOIR	530.51	2	20	.00660	6.52	.741	2.10483	1.750	1.544	AC-FT=	.225
ROUTE	230.52	20	4	.00660	6.52	.741	2.10490	1.750	1.544		
COMPUTE NM HYD	230.60	-	2	.00230	6.13	.280	2.28382	1.500	4.162	PER IMP=	90.00
ROUTE	230.61	2	3	.00230	4.53	.280	2.28404	1.600	3.080		
COMPUTE NM HYD	230.70	-	2	.00580	14.69	.669	2.16311	1.500	3.958	PER IMP=	85.00
ADD HYD	230.71	3& 2	1	.00810	18.45	.949	2.19732	1.500	3.559		
ADD HYD	230.72	4& 1	5	.01470	23.53	1.690	2.15577	1.500	2.501		
ROUTE	230.73	5	4	.01470	23.55	1.690	2.15582	1.550	2.503		
COMPUTE NM HYD	230.80	-	2	.01120	28.14	1.257	2.10487	1.500	3.926	PER IMP=	80.00
ROUTE RESERVOIR	230.81	2	20	.01120	15.80	1.257	2.10485	1.650	2.205	AC-FT=	.249
ADD HYD	230.82	20& 4	5	.02590	38.39	2.947	2.13375	1.550	2.316		
ROUTE	230.83	5	2	.02590	38.60	2.947	2.13378	1.550	2.328		
ADD HYD	230.84	2& 10	11	.59370	133.12	60.849	1.92170	1.650	.350		

COORS CONNECTION STORM DRAIN WATERSHED (DEVELOPED) 100 YEAR 24 HOUR STORM (CONTINUED)

COMMAND	HYDROGRAPH IDENTIFICATION	FROM TO		AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3	NOTATION
		ID NO.	ID NO.								
ROUTE	230.85	11	10	.59370	132.96	60.844	1.92155	1.650	.350		
ROUTE	230.85	10	11	.59370	133.07	60.837	1.92133	1.700	.350		
*S BEGIN THE AREA NORTH OF CENTRAL AVENUE BETWEEN UNSER AND THE WEST 66											
*S ADDITION											
COMPUTE NM HYD	240.10	-	2	.03330	81.24	3.581	2.01648	1.500	3.812	PER IMP=	75.00
ROUTE RESERVOIR	240.11	2	20	.03330	58.81	3.581	2.01647	1.600	2.760	AC-FT=	.416
ROUTE	240.12	20	3	.03330	58.37	3.581	2.01649	1.600	2.739		
COMPUTE NM HYD	240.20	-	4	.01250	25.65	1.319	1.97801	1.550	3.206	PER IMP=	71.00
ADD HYD	240.21	4& 3	5	.04580	82.53	4.900	2.00597	1.600	2.815		
ROUTE	240.22	5	15	.04580	81.93	4.900	2.00599	1.600	2.795		
COMPUTE NM HYD	240.30	-	3	.00800	20.10	.898	2.10487	1.500	3.926	PER IMP=	80.00
ROUTE RESERVOIR	240.31	3	20	.00800	12.49	.898	2.10483	1.600	2.439	AC-FT=	.151
ROUTE	240.32	20	4	.00800	12.28	.898	2.10492	1.650	2.398		
ADD HYD	240.33	4&15	16	.05380	93.78	5.798	2.02058	1.600	2.724		
COMPUTE NM HYD	240.40	-	2	.02310	42.45	2.260	1.83425	1.600	2.871	PER IMP=	60.00
ROUTE RESERVOIR	240.41	2	3	.02310	29.29	1.074	.87164	1.850	1.981	AC-FT=	1.190
ADD HYD	240.42	3&16	15	.07690	93.79	6.872	1.67552	1.600	1.906		
COMPUTE NM HYD	240.50	-	4	.00930	24.26	1.133	2.28382	1.500	4.075	PER IMP=	90.00
ADD HYD	240.51	4&15	16	.08620	111.07	8.005	1.74114	1.600	2.013		
ROUTE RESERVOIR	240.52	16	15	.08620	96.76	8.005	1.74114	1.700	1.754	AC-FT=	.562
ROUTE	240.53	15	5	.08620	97.17	8.005	1.74114	1.700	1.761		
COMPUTE NM HYD	240.60	-	2	.00650	16.96	.792	2.28382	1.500	4.076	PER IMP=	90.00
*S BEGIN AREA SOUTH OF CENTRAL AVENUE BETWEEN UNSER AND AIRPORT											
ADD HYD	240.61	2& 5	3	.09270	105.09	8.796	1.77919	1.700	1.771		
ROUTE	240.62	3	4	.09270	104.46	8.796	1.77918	1.700	1.761		
COMPUTE NM HYD	250.10	-	2	.02470	62.04	2.773	2.10488	1.500	3.925	PER IMP=	80.00
ADD HYD	250.11	4& 2	3	.11740	146.40	11.569	1.84770	1.500	1.948		
COMPUTE NM HYD	250.20	-	2	.00790	14.90	.599	1.42095	1.500	2.946	PER IMP=	35.00
ADD HYD	250.21	3& 2	4	.12530	161.30	12.168	1.82079	1.500	2.011		
ROUTE	250.22	4	3	.12530	164.12	12.168	1.82079	1.550	2.047		
COMPUTE NM HYD	260.10	-	2	.03980	97.10	4.280	2.01648	1.500	3.812	PER IMP=	75.00
ADD HYD	260.11	2& 3	4	.16510	256.28	16.448	1.86796	1.500	2.425		
ROUTE	260.12	4	2	.16510	257.18	16.448	1.86796	1.550	2.434		
COMPUTE NM HYD	270.10	-	3	.02220	54.17	2.388	2.01648	1.500	3.812	PER IMP=	75.00
ADD HYD	270.11	3& 2	4	.18730	304.84	18.835	1.88555	1.550	2.543		
ROUTE RESERVOIR	270.12	4	20	.18730	145.37	18.835	1.88553	2.000	1.213	AC-FT=	5.010
ADD HYD	270.13	20&11	10	.78100	267.15	79.672	1.91274	1.750	.534		
COMPUTE NM HYD	270.20	-	3	.00710	17.98	.819	2.16311	1.500	3.957	PER IMP=	85.00
DIVIDE HYD	270.21	3	2	.00326	2.00	.376	2.16307	1.300	.958		
	270.22	AND	4	.00384	15.98	.443	2.16307	1.500	6.504		
ADD HYD	270.23	10& 2	3	.78426	269.15	80.048	1.91378	1.750	.536		
ROUTE	270.24	3	10	.78426	269.53	80.039	1.91357	1.750	.537		
ROUTE	270.25	4	3	.00384	15.18	.443	2.16508	1.500	6.178		
ADD HYD	270.26	10& 3	4	.78810	275.09	80.483	1.91479	1.750	.545		
COMPUTE NM HYD	280.10	-	2	.00660	16.11	.710	2.01647	1.500	3.815	PER IMP=	75.00
ROUTE RESERVOIR	280.11	2	20	.00660	6.51	.710	2.01643	1.750	1.540	AC-FT=	.213
ADD HYD	280.12	4&20	3	.79470	281.60	81.192	1.91564	1.750	.554		
COMPUTE NM HYD	280.20	-	4	.00250	6.34	.288	2.16311	1.500	3.963	PER IMP=	85.00
ADD HYD	280.21	3& 4	5	.79720	284.08	81.481	1.91641	1.750	.557		
COMPUTE NM HYD	280.30	-	6	.00450	8.64	.359	1.49614	1.500	2.998	PER IMP=	50.00
ADD HYD	280.31	5& 6	7	.80170	287.31	81.840	1.91405	1.750	.560		
ROUTE	280.32	7	10	.80170	287.38	81.825	1.91371	1.700	.560		

COORS CONNECTION STORM DRAIN WATERSHED (DEVELOPED) 100 YEAR 24 HOUR STORM (CONTINUED)

COMMAND	HYDROGRAPH IDENTIFICATION	FROM TO		AREA (SQ MI)	PEAK	RUNOFF	TIME TO PEAK (HOURS)	CFS	PAGE = 4
		ID NO.	ID NO.		DISCHARGE (CFS)	VOLUME (AC-FT)		RUNOFF (INCHES)	
COMPUTE NM HYD	290.10	-	2	.03144	67.47	2.789	1.66330	1.500	3.353 PER IMP= 55.00
ROUTE RESERVOIR	290.11	2	20	.03144	28.20	2.789	1.66329	1.700	1.402 AC-FT= .836
ADD HYD	290.12	10620	3	.83314	315.58	84.614	1.90426	1.700	.592
ROUTE	290.13	3	4	.83314	315.84	84.607	1.90410	1.700	.592
ROUTE	290.14	4	10	.83314	315.86	84.595	1.90383	1.700	.592
COMPUTE NM HYD	290.20	-	2	.00690	17.48	.796	2.16311	1.500	3.958 PER IMP= 85.00
ADD HYD	290.21	1062	3	.84004	323.70	85.391	1.90596	1.700	.602
ROUTE	290.22	3	4	.84004	323.72	85.388	1.90589	1.700	.602
ROUTE	290.23	4	5	.84004	324.01	85.380	1.90570	1.700	.603
FINISH									

COORS CONNECTION STORM DRAIN WATERSHED (INTERIM) 10 YEAR 24 HOUR STORM
 AHYMO SUMMARY TABLE (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992
 INPUT FILE = ccsdwi.hmi

RUN DATE (MON/DAY/YR) = 09/22/1992
 USER NO. = D_HARRIS.S92

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
START											
RAINFALL TYPE= 2											TIME= .00 RAIN24= 1.650
*S BEGIN THE WATERSHED FOR THE AIRPORT ROAD STORM DRAIN *****											
COMPUTE NM HYD	200.10	-	2	.20810	41.20	1.124	.10130	1.550	.309 PER IMP=		.00
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO RUNOFF											
*S LEAVES THE SITE											
COMPUTE NM HYD	200.40	-	3	.00420	6.56	.267	1.19139	1.500	2.440 PER IMP=	81.00	
ROUTE	200.45	3	11	.00420	4.09	.267	1.19149	1.600	1.523		
COMPUTE NM HYD	200.50	-	4	.00350	5.47	.222	1.19139	1.500	2.441 PER IMP=	81.00	
ADD HYD	200.51	11& 4	3	.00770	8.61	.489	1.19128	1.550	1.746		
ROUTE	200.66	3	11	.00770	6.71	.489	1.19138	1.650	1.362		
COMPUTE NM HYD	210.10	-	2	.07480	14.47	.404	.10130	1.550	.302 PER IMP=		.00
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO RUNOFF											
*S LEAVES THE SITE											
COMPUTE NM HYD	210.30	-	2	.00250	3.91	.159	1.19139	1.500	2.442 PER IMP=	81.00	
ADD HYD	210.31	11& 2	12	.01020	9.11	.648	1.19126	1.600	1.395		
ROUTE	210.47	12	11	.01020	7.79	.648	1.19133	1.750	1.194		
COMPUTE NM HYD	210.50	-	2	.00240	3.75	.152	1.19139	1.500	2.442 PER IMP=	81.00	
ADD HYD	210.51	2&11	11	.01260	9.42	.801	1.19124	1.700	1.168		
COMPUTE NM HYD	210.60	-	3	.07000	13.53	.378	.10130	1.550	.302 PER IMP=		.00
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO RUNOFF											
*S LEAVES THE SITE											
COMPUTE NM HYD	210.70	-	2	.00330	5.15	.210	1.19139	1.500	2.441 PER IMP=	81.00	
ROUTE	210.71	2	12	.00330	2.76	.210	1.19151	1.600	1.307		
COMPUTE NM HYD	210.80	-	3	.00280	4.38	.178	1.19139	1.500	2.441 PER IMP=	81.00	
ADD HYD	210.81	3&12	12	.00610	6.34	.388	1.19121	1.550	1.624		
COMPUTE NM HYD	210.90	-	2	.00170	2.66	.108	1.19139	1.500	2.444 PER IMP=	81.00	
ADD HYD	210.91	12& 2	12	.00780	8.93	.496	1.19121	1.500	1.788		
ADD HYD	210.92	12&11	11	.02040	17.08	1.296	1.19123	1.550	1.308		
ROUTE	211.13	11	10	.02040	15.15	1.296	1.19126	1.700	1.160		
*S BEGIN THE AREA SOUTH OF BLUEWATER ROAD											
COMPUTE NM HYD	220.10	-	2	.00350	5.47	.222	1.19139	1.500	2.441 PER IMP=	81.00	
COMPUTE NM HYD	220.20	-	3	.03130	49.09	1.984	1.18860	1.500	2.450 PER IMP=	80.00	
ROUTE RESERVOIR	220.21	3	4	.03130	1.57	1.857	1.11233	2.450	.078 AC-FT=	1.525	
ROUTE	220.22	4	5	.03130	1.57	1.854	1.11092	2.500	.078		
ADD HYD	220.23	2& 5	3	.03480	5.76	2.077	1.11900	1.500	.259		
COMPUTE NM HYD	220.30	-	2	.04470	8.63	.242	.10130	1.550	.302 PER IMP=		.00
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO RUNOFF											
*S LEAVES THE SITE											
ADD HYD	220.53	10& 3	2	.05520	18.97	3.373	1.14569	1.650	.537		
ROUTE	220.54	2	10	.05520	19.00	3.372	1.14551	1.650	.538		
*S BEGIN THE AREA SOUTH OF THE ATRISCO BUSINESS PARK											
COMPUTE NM HYD	220.60	-	2	.01980	31.06	1.255	1.18860	1.500	2.451 PER IMP=	80.00	
ROUTE RESERVOIR	220.61	2	3	.01980	1.01	1.168	1.10617	2.450	.080 AC-FT=	.965	
COMPUTE NM HYD	220.70	-	4	.00270	4.22	.172	1.19139	1.500	2.442 PER IMP=	81.00	
ADD HYD	220.71	4& 3	5	.02250	4.64	1.340	1.11638	1.500	.322		
ADD HYD	220.72	10& 5	2	.07770	22.30	4.712	1.13707	1.600	.448		
ROUTE	220.73	2	10	.07770	20.96	4.705	1.13532	1.750	.422		

COORS CONNECTION STORM DRAIN WATERSHED (INTERIM) 10 YEAR 24 HOUR STORM (CONTINUED)

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2	NOTATION
*S BEGIN AREA SOUTH OF CENTRAL BOULEVARD											
COMPUTE NM HYD	230.10	-	2	.00180	2.17	.070	.72693	1.500	1.883	PER IMP=	30.00
ROUTE	230.11	2	3	.00180	1.68	.070	.72727	1.600	1.456		
COMPUTE NM HYD	230.20	-	2	.00520	6.25	.202	.72693	1.500	1.878	PER IMP=	30.00
ADD HYD	230.21	2& 3	4	.00700	7.53	.271	.72686	1.500	1.682		
ROUTE	230.22	4	11	.00700	7.50	.271	.72697	1.550	1.675		
COMPUTE NM HYD	230.30	-	2	.00240	3.88	.159	1.23955	1.500	2.527	PER IMP=	85.00
ADD HYD	230.31	2&11	1	.00940	11.29	.430	.85772	1.500	1.876		
ADD HYD	230.32	1&10	3	.08710	27.45	5.135	1.10536	1.600	.492		
ROUTE	230.33	3	10	.08710	27.49	5.134	1.10523	1.650	.493		
*S END OF AIRPORT ROAD STORM DRAIN											
*S BEGIN COORS CONNECTION STORM DRAIN											
COMPUTE NM HYD	230.60	-	2	.00230	3.99	.162	1.32112	1.500	2.709	PER IMP=	90.00
ROUTE	230.61	2	3	.00230	2.80	.162	1.32130	1.600	1.905		
COMPUTE NM HYD	230.70	-	2	.00580	9.37	.383	1.23955	1.500	2.524	PER IMP=	85.00
ADD HYD	230.71	3& 2	4	.00810	11.54	.545	1.26262	1.500	2.225		
COMPUTE NM HYD	230.50	-	2	.00660	1.60	.044	.12523	1.500	.379	PER IMP=	.00
ADD HYD	230.51	2& 4	5	.01470	13.14	.590	.75195	1.500	1.396		
ROUTE	230.52	5	4	.01470	12.96	.590	.75200	1.500	1.377		
COMPUTE NM HYD	230.80	-	2	.01120	6.73	.223	.37289	1.500	.938	PER IMP=	15.00
ADD HYD	230.82	2& 4	5	.02590	19.68	.812	.58802	1.500	1.187		
ROUTE	230.83	5	2	.02590	19.69	.812	.58805	1.550	1.188		
ADD HYD	230.84	2&10	11	.11300	45.23	5.946	.98668	1.550	.625		
ROUTE	230.85	11	10	.11300	45.50	5.946	.98663	1.550	.629		
ROUTE	230.86	10	11	.11300	45.47	5.946	.98655	1.550	.629		
*S BEGIN THE AREA NORTH OF CENTRAL AVENUE BETWEEN UNSER AND THE WEST 66											
*S ADDITION											
COMPUTE NM HYD	240.10	-	2	.03330	33.58	1.379	.77645	1.550	1.576	PER IMP=	35.00
ROUTE	240.11	2	3	.03330	32.47	1.379	.77646	1.600	1.523		
COMPUTE NM HYD	240.20	-	4	.01250	15.90	.740	1.11053	1.550	1.987	PER IMP=	71.00
ADD HYD	240.21	4& 3	5	.04580	47.48	2.119	.86761	1.600	1.620		
ROUTE	240.22	5	15	.04580	46.76	2.119	.86763	1.600	1.595		
COMPUTE NM HYD	240.30	-	3	.00800	7.08	.289	.67742	1.600	1.383	PER IMP=	25.00
ROUTE	240.31	3	4	.00800	6.59	.289	.67745	1.600	1.287		
ADD HYD	240.32	4&15	16	.05380	53.35	2.408	.83932	1.600	1.549		
COMPUTE NM HYD	240.40	-	2	.02310	25.81	1.245	1.01075	1.600	1.746	PER IMP=	60.00
ROUTE RESERVOIR	240.41	2	3	.02310	.14	.060	.04833	17.500	.010	AC-FT=	1.190
ADD HYD	240.42	3&16	15	.07690	53.35	2.468	.60172	1.600	1.084		
COMPUTE NM HYD	240.50	-	4	.00930	15.78	.655	1.32112	1.500	2.651	PER IMP=	90.00
ADD HYD	240.51	4&15	16	.08620	64.57	3.123	.67933	1.600	1.170		
ROUTE RESERVOIR	240.52	16	15	.08620	61.33	3.123	.67932	1.650	1.112	AC-FT=	.142
ROUTE	240.53	15	5	.08620	61.27	3.123	.67932	1.650	1.111		
COMPUTE NM HYD	240.60	-	2	.00650	11.03	.458	1.32112	1.500	2.652	PER IMP=	90.00
*S BEGIN AREA SOUTH OF CENTRAL AVENUE BETWEEN UNSER AND AIRPORT											
ADD HYD	240.61	2& 5	3	.09270	68.95	3.581	.72432	1.600	1.162		
ROUTE	240.62	3	4	.09270	51.35	3.581	.72426	1.750	.866		
COMPUTE NM HYD	250.10	-	2	.02470	17.22	.809	.61449	1.600	1.089	PER IMP=	30.00
ADD HYD	250.11	4& 2	3	.11740	64.59	4.390	.70116	1.700	.860		
COMPUTE NM HYD	250.20	-	2	.00790	8.24	.306	.72659	1.500	1.629	PER IMP=	35.00
ADD HYD	250.21	3& 2	4	.12530	68.68	4.696	.70276	1.700	.856		
ROUTE	250.22	4	3	.12530	67.26	4.696	.70274	1.750	.839		
COMPUTE NM HYD	260.10	-	2	.03980	7.96	.272	.12815	1.550	.312	PER IMP=	2.00

COORS CONNECTION STORM DRAIN WATERSHED (INTERIM) 10 YEAR 24 HOUR STORM (CONTINUED)

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3	NOTATION
ADD HYD	260.11	3& 2	4	.16510	71.01	4.968	.56423	1.750	.672		
ROUTE	260.12	4	2	.16510	70.66	4.968	.56422	1.750	.669		
ROUTE	260.13	2	4	.16510	70.58	4.968	.56422	1.750	.668		
COMPUTE NM HYD	270.10	-	3	.02220	5.32	.168	.14157	1.500	.374	PER IMP=	3.00
ADD HYD	270.11	3& 4	4	.18730	72.56	5.136	.51412	1.750	.605		
ADD HYD	260.13	4&11	10	.30030	107.68	11.081	.69189	1.750	.560		
COMPUTE NM HYD	270.20	-	3	.00710	11.47	.469	1.23955	1.500	2.524	PER IMP=	85.00
ADD HYD	270.23	10& 3	4	.30740	112.14	11.551	.70454	1.750	.570		
ROUTE	270.24	4	10	.30740	112.25	11.550	.70450	1.750	.571		
COMPUTE NM HYD	280.10	-	2	.00660	1.81	.059	.16841	1.500	.428	PER IMP=	5.00
ADD HYD	280.11	10& 2	3	.31400	112.93	11.609	.69324	1.750	.562		
COMPUTE NM HYD	280.20	-	4	.00250	4.04	.165	1.23955	1.500	2.527	PER IMP=	85.00
ADD HYD	280.21	3& 4	5	.31650	114.50	11.775	.69755	1.750	.565		
COMPUTE NM HYD	280.30	-	6	.00450	4.79	.189	.78701	1.500	1.663	PER IMP=	50.00
ADD HYD	280.31	5& 6	7	.32100	116.34	11.964	.69880	1.750	.566		
ROUTE	280.32	7	10	.32100	116.52	11.963	.69875	1.750	.567		
COMPUTE NM HYD	290.10	-	2	.03144	6.55	.203	.12120	1.550	.325	PER IMP=	2.00
ADD HYD	290.12	10& 2	3	.35244	119.01	12.166	.64723	1.750	.528		
ROUTE	290.13	3	4	.35244	119.01	12.166	.64722	1.750	.528		
ROUTE	290.14	4	10	.35244	119.17	12.165	.64718	1.750	.528		
COMPUTE NM HYD	290.20	-	2	.00690	11.15	.456	1.23955	1.500	2.524	PER IMP=	85.00
ADD HYD	290.21	10& 2	3	.35934	123.51	12.621	.65855	1.750	.537		
ROUTE	290.22	3	4	.35934	123.50	12.621	.65854	1.750	.537		
ROUTE	290.23	4	5	.35934	123.45	12.620	.65851	1.750	.537		
FINISH											

COORS CONNECTION STORM DRAIN WATERSHED (DEVELOPED) 10 YEAR 24 HOUR STORM
 AHYMO SUMMARY TABLE (AHYMO392) - AMAFCA VERSION OF HYMO - MARCH, 1992
 INPUT FILE = ccsdwd.hml

RUN DATE (MON/DAY/YR) = 09/22/1992
 USER NO. = D_HARRIS.S92

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
START											TIME= .00
RAINFALL TYPE= 2											RAIN24= 1.650
*S BEGIN THE WATERSHED FOR THE AIRPORT ROAD STORM DRAIN *****											
COMPUTE NM HYD	200.10	-	2	.20810	313.99	13.192	1.18860	1.500	2.358	PER IMP=	80.00
ROUTE RESERVOIR	200.11	2	3	.20810	10.61	12.457	1.12234	2.450	.080	AC-FT=	10.081
COMPUTE NM HYD	200.20	-	2	.00420	6.33	.256	1.14323	1.500	2.355	PER IMP=	77.00
ADD HYD	200.21	3& 2	4	.21230	12.14	12.713	1.12275	1.550	.089		
COMPUTE NM HYD	200.30	-	2	.00760	11.21	.463	1.14323	1.500	2.304	PER IMP=	77.00
COMPUTE NM HYD	200.40	-	3	.00420	6.56	.267	1.19139	1.500	2.440	PER IMP=	81.00
ADD HYD	200.41	2& 3	5	.01180	17.77	.730	1.16032	1.500	2.353		
ROUTE	200.45	5	11	.01180	12.57	.730	1.16038	1.600	1.664		
COMPUTE NM HYD	200.50	-	3	.00350	5.47	.222	1.19139	1.500	2.441	PER IMP=	81.00
ADD HYD	200.51	11& 3	3	.01530	16.74	.953	1.16739	1.550	1.709		
COMPUTE NM HYD	200.60	-	1	.00700	10.98	.444	1.18860	1.500	2.452	PER IMP=	80.00
ROUTE RESERVOIR	200.61	1	2	.00700	.35	.419	1.12128	2.450	.079	AC-FT=	.341
ADD HYD	200.62	4& 2	1	.21930	12.37	13.131	1.12271	1.550	.088		
ROUTE	200.65	1	10	.21930	12.26	13.123	1.12202	1.600	.087		
ROUTE	200.66	3	11	.01530	13.89	.953	1.16744	1.650	1.418		
COMPUTE NM HYD	210.10	-	2	.07480	116.91	4.742	1.18860	1.500	2.442	PER IMP=	80.00
ROUTE RESERVOIR	210.11	2	3	.07480	3.73	4.408	1.10498	2.450	.078	AC-FT=	3.646
ADD HYD	210.12	10& 3	10	.29410	15.50	17.531	1.11769	2.050	.082		
COMPUTE NM HYD	210.20	-	2	.00780	11.28	.476	1.14323	1.500	2.259	PER IMP=	77.00
DIVIDE HYD	210.21	2	3	.00778	11.00	.474	1.14318	1.500	2.209		
	210.22	AND	6	.00002	.28	.001	1.14318	1.500	23.054		
ADD HYD	210.23	10& 3	10	.30188	24.28	18.006	1.11834	1.550	.126		
COMPUTE NM HYD	210.30	-	2	.00250	3.91	.159	1.19139	1.500	2.442	PER IMP=	81.00
ADD HYD	210.31	11& 2	11	.01780	15.97	1.111	1.17074	1.650	1.402		
COMPUTE NM HYD	210.40	-	2	.01170	18.35	.742	1.18859	1.500	2.451	PER IMP=	80.00
ROUTE RESERVOIR	210.41	2	4	.01170	.58	.694	1.11191	2.450	.077	AC-FT=	.571
ADD HYD	210.42	10& 4	13	.31358	24.64	18.700	1.11810	1.550	.123		
ADD HYD	210.43	6& 11	12	.01782	15.97	1.113	1.17071	1.650	1.400		
ROUTE	210.46	13	10	.31358	24.22	18.689	1.11745	1.600	.121		
ROUTE	210.47	12	11	.01782	14.24	1.113	1.17074	1.750	1.249		
COMPUTE NM HYD	210.50	-	2	.00240	3.75	.152	1.19139	1.500	2.442	PER IMP=	81.00
ADD HYD	210.51	2& 11	11	.02022	15.70	1.265	1.17314	1.750	1.213		
COMPUTE NM HYD	210.60	-	3	.07000	109.55	4.437	1.18859	1.500	2.445	PER IMP=	80.00
ROUTE RESERVOIR	210.61	3	4	.07000	3.57	4.214	1.12866	2.450	.080	AC-FT=	3.401
ADD HYD	210.62	4& 10	10	.38358	26.88	22.902	1.11950	1.600	.109		
COMPUTE NM HYD	210.70	-	2	.00330	5.15	.210	1.19139	1.500	2.441	PER IMP=	81.00
ROUTE	210.71	2	12	.00330	2.76	.210	1.19151	1.600	1.307		
COMPUTE NM HYD	210.80	-	3	.00280	4.38	.178	1.19139	1.500	2.441	PER IMP=	81.00
ADD HYD	210.81	3& 12	12	.00610	6.34	.388	1.19121	1.550	1.624		
COMPUTE NM HYD	210.90	-	2	.00170	2.66	.108	1.19139	1.500	2.444	PER IMP=	81.00
ADD HYD	210.91	12& 2	12	.00780	8.93	.496	1.19121	1.500	1.788		
ADD HYD	210.92	12& 11	11	.02802	21.22	1.761	1.17817	1.700	1.183		
ADD HYD	210.93	11& 10	10	.41160	47.22	24.663	1.12349	1.600	.179		
COMPUTE NM HYD	211.10	-	2	.01170	18.35	.742	1.18859	1.500	2.451	PER IMP=	80.00
ROUTE RESERVOIR	211.11	2	3	.01170	.57	.700	1.12165	2.450	.076	AC-FT=	.571
ADD HYD	211.12	3& 10	11	.42330	47.66	25.363	1.12344	1.600	.176		

COORS CONNECTION STORM DRAIN WATERSHED (DEVELOPED) 10 YEAR 24 HOUR STORM (CONTINUED)

COMMAND	HYDROGRAPH IDENTIFICATION	FROM TO		AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2	NOTATION
		ID NO.	ID NO.								
ROUTE	211.13	11	10	.42330	44.98	25.327	1.12187	1.700	.166		
*S BEGIN THE AREA SOUTH OF BLUEWATER ROAD											
COMPUTE NM HYD	220.10	-	2	.00350	5.47	.222	1.19139	1.500	2.441 PER IMP=	81.00	
COMPUTE NM HYD	220.20	-	3	.03130	49.09	1.984	1.18860	1.500	2.450 PER IMP=	80.00	
ROUTE RESERVOIR	220.21	3	4	.03130	1.57	1.857	1.11233	2.450	.078 AC-FT=	1.525	
ROUTE	220.22	4	5	.03130	1.57	1.854	1.11092	2.500	.078		
ADD HYD	220.23	2& 5	3	.03480	5.76	2.077	1.11900	1.500	.259		
COMPUTE NM HYD	220.30	-	2	.04470	70.10	2.834	1.18859	1.500	2.450 PER IMP=	80.00	
ROUTE RESERVOIR	220.31	2	4	.04470	2.25	2.633	1.10441	2.450	.079 AC-FT=	2.179	
ADD HYD	220.32	3& 4	2	.07950	6.71	4.710	1.11080	1.500	.132		
COMPUTE NM HYD	220.40	-	4	.00180	2.72	.110	1.14323	1.500	2.359 PER IMP=	77.00	
ADD HYD	220.41	2& 4	1	.08130	9.43	4.820	1.11151	1.500	.181		
COMPUTE NM HYD	220.50	-	3	.03130	49.09	1.984	1.18860	1.500	2.450 PER IMP=	80.00	
ROUTE RESERVOIR	220.51	3	4	.03130	1.57	1.857	1.11233	2.450	.078 AC-FT=	1.525	
ADD HYD	220.52	4& 1	3	.11260	10.12	6.676	1.11174	1.500	.140		
ADD HYD	220.53	10& 3	2	.53590	52.83	32.004	1.11975	1.700	.154		
ROUTE	220.54	2	10	.53590	52.79	31.999	1.11957	1.700	.154		
*S BEGIN THE AREA SOUTH OF THE ATRISCO BUSINESS PARK											
COMPUTE NM HYD	220.60	-	2	.01980	31.06	1.255	1.18860	1.500	2.451 PER IMP=	80.00	
ROUTE RESERVOIR	220.61	2	3	.01980	1.01	1.168	1.10617	2.450	.080 AC-FT=	.965	
COMPUTE NM HYD	220.70	-	4	.00270	4.22	.172	1.19139	1.500	2.442 PER IMP=	81.00	
ADD HYD	220.71	4& 3	5	.02250	4.64	1.340	1.11638	1.500	.322		
ADD HYD	220.72	10& 5	2	.55840	55.47	33.338	1.11944	1.700	.155		
ROUTE	220.73	2	10	.55840	54.30	33.298	1.11807	1.800	.152		
*S BEGIN AREA SOUTH OF CENTRAL BOULEVARD											
COMPUTE NM HYD	230.10	-	2	.00180	2.83	.114	1.18859	1.500	2.458 PER IMP=	80.00	
ROUTE RESERVOIR	230.11	2	20	.00180	2.50	.114	1.18842	1.550	2.171 AC-FT=	.007	
ROUTE	230.12	20	3	.00180	2.20	.114	1.18899	1.600	1.909		
COMPUTE NM HYD	230.20	-	2	.00520	8.16	.330	1.18859	1.500	2.453 PER IMP=	80.00	
ROUTE RESERVOIR	230.21	2	20	.00520	7.40	.330	1.18854	1.550	2.223 AC-FT=	.016	
ADD HYD	230.22	20& 3	4	.00700	9.37	.444	1.18856	1.550	2.092		
ROUTE	230.23	4	11	.00700	9.25	.444	1.18866	1.550	2.065		
COMPUTE NM HYD	230.30	-	2	.00240	3.88	.159	1.23955	1.500	2.527 PER IMP=	85.00	
ADD HYD	230.31	2& 11	3	.00940	12.65	.602	1.20154	1.550	2.102		
ADD HYD	230.32	10& 3	1	.56780	60.53	33.900	1.11945	1.750	.167		
ROUTE	230.33	1	10	.56780	60.53	33.898	1.11939	1.750	.167		
*S END OF AIRPORT ROAD STORM DRAIN											
*S BEGIN COORS CONNECTION STORM DRAIN											
COMPUTE NM HYD	230.50	-	2	.00660	10.51	.422	1.19856	1.500	2.489 PER IMP=	80.00	
ROUTE RESERVOIR	230.51	2	20	.00660	5.04	.422	1.19851	1.700	1.194 AC-FT=	.118	
ROUTE	230.52	20	4	.00660	5.06	.422	1.19859	1.700	1.196		
COMPUTE NM HYD	230.60	-	2	.00230	3.99	.162	1.32112	1.500	2.709 PER IMP=	90.00	
ROUTE	230.61	2	3	.00230	2.80	.162	1.32130	1.600	1.905		
COMPUTE NM HYD	230.70	-	2	.00580	9.37	.383	1.23955	1.500	2.524 PER IMP=	85.00	
ADD HYD	230.71	3& 2	1	.00810	11.54	.545	1.26262	1.500	2.225		
ADD HYD	230.72	4& 1	5	.01470	15.41	.967	1.23382	1.550	1.638		
ROUTE	230.73	5	4	.01470	15.70	.967	1.23387	1.550	1.669		
COMPUTE NM HYD	230.80	-	2	.01120	17.83	.716	1.19856	1.500	2.488 PER IMP=	80.00	
ROUTE RESERVOIR	230.81	2	20	.01120	11.77	.716	1.19853	1.600	1.642 AC-FT=	.121	
ADD HYD	230.82	20& 4	5	.02590	27.07	1.683	1.21856	1.550	1.633		
ROUTE	230.83	5	2	.02590	27.02	1.683	1.21859	1.550	1.630		
ADD HYD	230.84	2& 10	11	.59370	83.32	35.581	1.12371	1.700	.219		

COORS CONNECTION STORM DRAIN WATERSHED (DEVELOPED) 10 YEAR 24 HOUR STORM (CONTINUED)

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3	NOTATION
ROUTE	230.85	11	10	.59370	83.29	35.579	1.12363	1.650	.219		
ROUTE	230.86	10	11	.59370	83.41	35.575	1.12351	1.700	.220		
*S BEGIN THE AREA NORTH OF CENTRAL AVENUE BETWEEN UNSER AND THE WEST 66											
*S ADDITION											
COMPUTE NM HYD	240.10	-	2	.03330	50.75	2.021	1.13800	1.500	2.381	PER IMP=	75.00
ROUTE RESERVOIR	240.11	2	20	.03330	41.75	2.021	1.13799	1.550	1.959	AC-FT=	.176
ROUTE	240.12	20	3	.03330	41.09	2.021	1.13802	1.600	1.928		
COMPUTE NM HYD	240.20	-	4	.01250	15.90	.740	1.11053	1.550	1.987	PER IMP=	71.00
ADD HYD	240.21	4& 3	5	.04580	56.11	2.761	1.13050	1.600	1.914		
ROUTE	240.22	5	15	.04580	55.57	2.761	1.13051	1.600	1.896		
COMPUTE NM HYD	240.30	-	3	.00800	12.74	.511	1.19856	1.500	2.489	PER IMP=	80.00
ROUTE RESERVOIR	240.31	3	20	.00800	9.14	.511	1.19851	1.600	1.784	AC-FT=	.073
ROUTE	240.32	20	4	.00800	8.87	.511	1.19860	1.650	1.732		
ADD HYD	240.33	4&15	16	.05380	64.29	3.273	1.14062	1.600	1.867		
COMPUTE NM HYD	240.40	-	2	.02310	25.81	1.245	1.01075	1.600	1.746	PER IMP=	60.00
ROUTE RESERVOIR	240.41	2	3	.02310	.14	.060	.04833	17.500	.010	AC-FT=	1.190
ADD HYD	240.42	3&16	15	.07690	64.30	3.332	.81250	1.600	1.306		
COMPUTE NM HYD	240.50	-	4	.00930	15.78	.655	1.32112	1.500	2.651	PER IMP=	90.00
ADD HYD	240.51	4&15	16	.08620	75.52	3.988	.86737	1.600	1.369		
ROUTE RESERVOIR	240.52	16	15	.08620	68.82	3.988	.86737	1.650	1.248	AC-FT=	.229
ROUTE	240.53	15	5	.08620	69.06	3.988	.86736	1.650	1.252		
COMPUTE NM HYD	240.60	-	2	.00650	11.03	.458	1.32112	1.500	2.652	PER IMP=	90.00
*S BEGIN AREA SOUTH OF CENTRAL AVENUE BETWEEN UNSER AND AIRPORT											
ADD HYD	240.61	2& 5	3	.09270	75.23	4.446	.89918	1.650	1.268		
ROUTE	240.62	3	4	.09270	74.99	4.446	.89917	1.600	1.264		
COMPUTE NM HYD	250.10	-	2	.02470	39.32	1.579	1.19856	1.500	2.488	PER IMP=	80.00
ADD HYD	250.11	4& 2	3	.11740	107.60	6.024	.96216	1.550	1.432		
COMPUTE NM HYD	250.20	-	2	.00790	8.24	.306	.72659	1.500	1.629	PER IMP=	35.00
ADD HYD	250.21	3& 2	4	.12530	115.76	6.331	.94730	1.550	1.443		
ROUTE	250.22	4	3	.12530	115.99	6.330	.94730	1.550	1.446		
COMPUTE NM HYD	260.10	-	2	.03980	60.66	2.416	1.13800	1.500	2.381	PER IMP=	75.00
ADD HYD	260.11	2& 3	4	.16510	169.39	8.746	.99327	1.550	1.603		
ROUTE	260.12	4	2	.16510	165.53	8.746	.99326	1.550	1.567		
COMPUTE NM HYD	270.10	-	3	.02220	33.84	1.347	1.13800	1.500	2.382	PER IMP=	75.00
ADD HYD	270.11	3& 2	4	.18730	195.32	10.093	1.01041	1.550	1.629		
ROUTE RESERVOIR	270.12	4	20	.18730	107.70	10.093	1.01040	1.850	.898	AC-FT=	2.542
ADD HYD	270.13	20&11	10	.78100	188.02	45.668	1.09638	1.750	.376		
COMPUTE NM HYD	270.20	-	3	.00710	11.47	.469	1.23955	1.500	2.524	PER IMP=	85.00
DIVIDE HYD	270.21	3	2	.00367	2.00	.242	1.23950	1.350	.853		
	270.22	AND	4	.00343	9.47	.227	1.23950	1.500	4.307		
ADD HYD	270.23	10& 2	3	.78467	190.02	45.910	1.09705	1.750	.378		
ROUTE	270.24	3	10	.78467	190.13	45.905	1.09693	1.800	.379		
ROUTE	270.25	4	3	.00343	8.90	.227	1.24176	1.550	4.047		
ADD HYD	270.26	10& 3	4	.78810	192.82	46.133	1.09756	1.700	.382		
COMPUTE NM HYD	280.10	-	2	.00660	10.07	.401	1.13800	1.500	2.383	PER IMP=	75.00
ROUTE RESERVOIR	280.11	2	20	.00660	4.94	.401	1.13795	1.650	1.170	AC-FT=	.110
ADD HYD	280.12	4&20	3	.79470	197.76	46.533	1.09790	1.700	.389		
COMPUTE NM HYD	280.20	-	4	.00250	4.04	.165	1.23955	1.500	2.527	PER IMP=	85.00
ADD HYD	280.21	3& 4	5	.79720	199.55	46.698	1.09834	1.700	.391		
COMPUTE NM HYD	280.30	-	6	.00450	4.79	.189	.78701	1.500	1.663	PER IMP=	50.00
ADD HYD	280.31	5& 6	7	.80170	201.68	46.887	1.09659	1.700	.393		
ROUTE	280.32	7	10	.80170	201.34	46.880	1.09642	1.750	.392		

COORS CONNECTION STORM DRAIN WATERSHED (DEVELOPED) 10 YEAR 24 HOUR STORM (CONTINUED)

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 4 NOTATION
COMPUTE NM HYD	290.10	-	2	.03144	39.30	1.504	.89678	1.500	1.953	PER IMP= 55.00
ROUTE RESERVOIR	290.11	2	20	.03144	20.80	1.504	.89677	1.650	1.034	AC-FT= .386
ADD HYD	290.12	10&20	3	.83314	221.81	48.384	1.08888	1.700	.416	
ROUTE	290.13	3	4	.83314	221.96	48.381	1.08882	1.750	.416	
ROUTE	290.14	4	10	.83314	222.12	48.375	1.08868	1.750	.417	
COMPUTE NM HYD	290.20	-	2	.00690	11.15	.456	1.23955	1.500	2.524	PER IMP= 85.00
ADD HYD	290.21	10&2	3	.84004	226.46	48.831	1.08992	1.750	.421	
ROUTE	290.22	3	4	.84004	226.45	48.829	1.08988	1.750	.421	
ROUTE	290.23	4	5	.84004	226.70	48.824	1.08978	1.750	.422	
FINISH										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
START											TIME= .00
*S 100 YEAR STORM											
RAINFALL TYPE= 2											RAIN24= 2.660
*S BEGIN UNSER DIVERSION WATERSHED											
COMPUTE NM HYD	120.10	-	1	.02590	21.31	.607	.43936	1.500	1.286 PER IMP=		.00
COMPUTE NM HYD	120.20	-	2	.05450	32.28	1.277	.43936	1.600	.925 PER IMP=		.00
ADD HYD	120.21	1& 2	3	.08040	52.81	1.884	.43936	1.550	1.026		
ROUTE	120.22	3	4	.08040	44.95	1.884	.43937	1.650	.874		
COMPUTE NM HYD	120.30	-	1	.01990	16.38	.466	.43936	1.500	1.286 PER IMP=		.00
ADD HYD	120.31	1& 4	10	.10030	57.56	2.350	.43936	1.600	.897		
COMPUTE NM HYD	130.10	-	3	.07430	36.76	1.741	.43936	1.600	.773 PER IMP=		.00
COMPUTE NM HYD	130.20	-	4	.04890	30.09	1.146	.43936	1.550	.962 PER IMP=		.00
COMPUTE NM HYD	130.30	-	5	.00470	12.93	.608	2.42724	1.500	4.298 PER IMP=		100.00
ADD HYD	130.21	4& 3	6	.12320	66.48	2.887	.43936	1.600	.843		
ADD HYD	130.31	5& 6	1	.12790	75.17	3.495	.51241	1.600	.918		
ROUTE	130.32	1	11	.12790	72.32	3.495	.51241	1.650	.884		
COMPUTE NM HYD	130.40	-	1	.06120	46.64	1.434	.43936	1.550	1.191 PER IMP=		.00
ADD HYD	130.41	1&11	12	.18910	111.03	4.929	.48876	1.600	.917		
COMPUTE NM HYD	130.60	-	11	.07100	42.71	1.664	.43936	1.550	.940 PER IMP=		.00
ROUTE	130.61	11	15	.07100	42.83	1.664	.43938	1.600	.943		
ROUTE	130.62	15	11	.07100	43.40	1.664	.43938	1.600	.955		
ROUTE	130.42	12	1	.18910	110.96	4.929	.48877	1.600	.917		
COMPUTE NM HYD	130.50	-	3	.01040	18.39	.784	1.41342	1.500	2.762 PER IMP=		49.00
ADD HYD	130.51	1& 3	4	.19950	123.89	5.713	.53697	1.600	.970		
COMPUTE NM HYD	130.70	-	1	.01696	15.02	.425	.46988	1.500	1.384 PER IMP=		.00
COMPUTE NM HYD	130.90	-	2	.00954	8.45	.239	.46988	1.500	1.385 PER IMP=		.00
ADD HYD	130.91	1& 2	1	.02650	23.48	.664	.46988	1.500	1.384		
ROUTE	130.52	4	3	.19950	123.01	5.713	.53697	1.600	.963		
ADD HYD	130.72	1& 3	4	.22600	141.78	6.377	.52910	1.600	.980		
ADD HYD	130.73	4&11	2	.29700	185.18	8.041	.50765	1.600	.974		
COMPUTE NM HYD	130.80	-	1	.03270	25.40	.766	.43936	1.550	1.214 PER IMP=		.00
ROUTE	130.74	2	3	.29700	180.78	8.041	.50765	1.650	.951		
ADD HYD	130.81	3& 1	11	.32970	197.70	8.807	.50088	1.650	.937		
ROUTE	120.32	10	3	.10030	57.13	2.350	.43937	1.600	.890		
COMPUTE NM HYD	120.40	-	1	.00910	16.09	.686	1.41342	1.500	2.763 PER IMP=		49.00
ADD HYD	120.41	3& 1	2	.10940	68.44	3.036	.52038	1.600	.978		
ROUTE	120.42	2	1	.10940	63.84	3.036	.52039	1.650	.912		
COMPUTE NM HYD	120.50	-	2	.01620	13.33	.380	.43936	1.500	1.286 PER IMP=		.00
ADD HYD	120.51	2& 1	3	.12560	71.98	3.416	.50993	1.650	.896		
DIVIDE HYD	120.52	3	15	.12560	75.58	3.587	.53543	1.650	.940		
	120.53	AND	16	.12560	3.60	.171	.02550	1.650	.045		
COMPUTE NM HYD	120.60	-	6	.03280	28.25	.838	.47912	1.500	1.346 PER IMP=		2.00
DIVIDE HYD	120.61	6	17	.03280	28.53	.846	.48390	1.500	1.359		
	120.62	AND	16	.03280	.28	.008	.00479	1.500	.013		
ADD HYD	120.63	15&17	18	.15840	93.65	4.433	.52476	1.600	.924		
STORE HYD	120.64	-	15	.00010	2.93	.242	45.40292	5.000	45.781		
MODIFY TIME	120.64	15	15	.00010	5.86	.242	45.39693	4.900	91.550		
ADD HYD	120.65	15&18	7	.15850	93.65	4.675	.55307	1.600	.923		
ROUTE RESERVOIR	120.66	7	5	.15850	.01	.034	.00406	24.400	.000 AC-FT=		4.647

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2	NOTATION
DIVIDE HYD	130.82	11	17	.32970	211.53	9.424	.53594	1.650	1.002		
	130.83	AND	16	.32970	13.84	.617	.03506	1.650	.066		
STORE HYD	130.84	-	15	.00010	5.87	.485	90.96078	5.000	91.719		
MODIFY TIME	130.84	15	15	.00010	11.74	.485	90.94878	4.900	183.413		
ADD HYD	130.85	15&17	7	.32980	211.53	9.909	.56335	1.650	1.002		
ROUTE RESERVOIR	130.86	7	5	.32980	142.68	8.726	.49608	1.800	.676	AC-FT=	2.590
ROUTE	130.87	5	11	.32980	142.34	8.726	.49607	1.850	.674		
ROUTE RESERVOIR	130.88	11	5	.32980	75.56	5.468	.31088	2.100	.358	AC-FT=	4.516
ROUTE	130.89	5	10	.32980	78.05	5.468	.31088	2.100	.370		
COMPUTE NM HYD	140.10	-	1	.01960	18.50	.522	.49901	1.500	1.475	PER IMP=	.00
ROUTE	140.11	1	12	.01960	17.17	.522	.49908	1.550	1.368		
ROUTE	140.12	12	15	.01960	17.47	.522	.49909	1.600	1.393		
COMPUTE NM HYD	140.20	-	1	.08920	78.50	2.196	.46166	1.500	1.375	PER IMP=	.00
ADD HYD	140.21	15&1	2	.10880	92.62	2.718	.46840	1.550	1.330		
DIVIDE HYD	140.22	2	17	.10880	100.03	2.935	.50587	1.550	1.437		
	140.23	AND	16	.10880	7.41	.217	.03747	1.550	.106		
ADD HYD	140.24	17&10	2	.43860	100.03	8.404	.35925	1.550	.356		
ROUTE RESERVOIR	140.25	2	4	.43860	68.61	6.433	.27502	2.250	.244	AC-FT=	2.729
ROUTE	140.26	4	10	.43860	68.47	6.433	.27502	2.250	.244		
ROUTE RESERVOIR	140.27	10	5	.43860	3.22	.557	.02380	5.650	.011	AC-FT=	5.930
ROUTE	130.28	5	10	.43860	3.23	.557	.02380	5.650	.011		
COMPUTE NM HYD	150.10	-	1	.15250	85.35	3.692	.45390	1.600	.874	PER IMP=	.00
DIVIDE HYD	150.11	1	17	.15250	89.62	3.876	.47660	1.600	.918		
	150.12	AND	16	.15250	4.27	.185	.02270	1.600	.044		
ADD HYD	150.13	10&17	10	.59110	89.62	4.433	.14062	1.600	.237		
ROUTE RESERVOIR	150.14	10	5	.59110	.02	.038	.00122	29.950	.000	AC-FT=	4.395
ROUTE	150.15	5	10	.59110	.02	.038	.00121	29.950	.000		
ROUTE	150.16	10	2	.59110	.02	.038	.00121	29.900	.000		
ROUTE	160.17	3	2	.59110	.00	.000	.00000	.000	.000		
ROUTE	160.18	2	19	.59110	.00	.000	.00000	.000	.000		
*S BEGIN UNSER BOULEVARD STORM DRAIN SYSTEM BETWEEN I-40 AND THE FUTURE TIERRA											
*S 100 YEAR STORM											
RAINFALL TYPE= 2											
COMPUTE NM HYD	170.10	-	2	.06330	43.97	1.549	.45893	1.567	1.085	PER IMP=	.00
COMPUTE NM HYD	170.30	-	3	.00370	10.01	.436	2.21010	1.500	4.226	PER IMP=	90.00
ADD HYD	170.31	2&3	2	.06700	52.21	1.985	.55564	1.533	1.218		
COMPUTE NM HYD	170.20	-	3	.00770	14.60	.550	1.33850	1.500	2.962	PER IMP=	40.00
ADD HYD	170.21	3&2	2	.07470	66.40	2.535	.63633	1.533	1.389		
COMPUTE NM HYD	170.40	-	3	.00600	12.73	.509	1.59017	1.500	3.315	PER IMP=	55.00
ADD HYD	170.41	2&3	5	.08070	78.68	3.044	.70725	1.533	1.523		
DIVIDE HYD	170.42	5	2	.06602	41.00	2.490	.70725	1.433	.970		
	170.43	AND	11	.01468	37.68	.554	.70725	1.533	4.011		
ROUTE	170.44	2	1	.06602	42.07	2.490	.70708	1.467	.996		
ROUTE	170.45	1	3	.06602	41.99	2.489	.70695	1.467	.994		
COMPUTE NM HYD	170.50	-	2	.00290	7.25	.311	2.00962	1.500	3.907	PER IMP=	80.00
ADD HYD	170.51	2&3	4	.06892	48.74	2.800	.76177	1.500	1.105		
ROUTE	170.52	11	2	.01468	33.70	.554	.70760	1.567	3.588		
ADD HYD	170.52	4&2	1	.08360	80.84	3.354	.75225	1.567	1.511		
ROUTE	170.55	1	3	.08360	79.51	3.353	.75204	1.600	1.486		
COMPUTE NM HYD	170.60	-	2	.00180	4.51	.193	2.00964	1.500	3.912	PER IMP=	80.00
ADD HYD	170.61	2&3	4	.08540	83.20	3.546	.77855	1.567	1.522		
COMPUTE NM HYD	170.70	-	1	.08590	51.38	2.048	.44708	1.600	.935	PER IMP=	.00

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3	NOTATION
COMPUTE NM HYD	170.80	-	2	.00540	14.60	.637	2.21009	1.500	4.224	PER IMP=	90.00
ADD HYD	170.81	14 2	5	.09130	62.87	2.685	.55135	1.567	1.076		
ADD HYD	170.82	44 5	2	.17670	146.07	6.231	.66116	1.567	1.292		
COMPUTE NM HYD	170.90	-	3	.00470	11.74	.504	2.00961	1.500	3.904	PER IMP=	80.00
ADD HYD	170.91	34 2	4	.18140	155.81	6.734	.69610	1.567	1.342		
DIVIDE HYD	170.92	4	2	.15473	92.00	5.745	.69610	1.467	.929		
	170.93	AND	10	.02667	63.81	.990	.69610	1.567	3.739		
DIVIDE HYD	170.95	10	11	.02369	48.00	.880	.69610	1.533	3.165		
	170.94	AND	3	.00297	15.81	.110	.69610	1.567	8.316		
ROUTE	170.96	3	4	.00297	10.43	.111	.69783	1.600	5.486		
ROUTE	170.97	2	3	.15473	92.90	5.743	.69589	1.500	.938		
COMPUTE NM HYD	171.10	-	2	.00210	5.57	.244	2.17741	1.500	4.145	PER IMP=	90.00
ADD HYD	171.11	44 2	5	.00507	14.27	.354	1.31046	1.600	4.398		
ADD HYD	171.12	34 5	2	.15981	106.27	6.097	.71539	1.600	1.039		
DIVIDE HYD	171.13	2	3	.15890	100.00	6.063	.71539	1.567	.983		
	171.14	AND	9	.00091	6.27	.035	.71539	1.600	10.789		
ROUTE	171.15	3	10	.15890	100.17	6.062	.71534	1.600	.985		
COMPUTE NM HYD	171.00	-	3	.00220	5.84	.255	2.17741	1.500	4.145	PER IMP=	90.00
ROUTE	171.01	11	4	.02369	46.92	.880	.69631	1.633	3.094		
ADD HYD	171.02	34 4	2	.02589	50.33	1.135	.82213	1.633	3.037		
DIVIDE HYD	171.03	2	3	.01614	20.00	.708	.82213	1.533	1.936		
	171.04	AND	6	.00975	30.33	.427	.82213	1.633	4.861		
COMPUTE NM HYD	160.10	-	1	.05170	47.24	1.321	.47911	1.533	1.428	PER IMP=	.00
COMPUTE NM HYD	160.20	-	2	.03500	59.72	2.247	1.20361	1.500	2.666	PER IMP=	35.00
ADD HYD	160.21	14 2	4	.08670	106.03	3.568	.77159	1.500	1.911		
ADD HYD	160.22	44 3	2	.10284	125.55	4.276	.77952	1.533	1.907		
ROUTE	160.23	2	1	.10284	126.38	4.276	.77949	1.533	1.920		
ADD HYD	160.24	14 10	2	.26174	224.26	10.338	.74055	1.533	1.339		
COMPUTE NM HYD	<u>180.10</u>	-	1	.03380	<u>34.23</u>	1.135	.62982	1.533	1.582	PER IMP=	10.00
ADD HYD	180.11	24 1	3	.29554	258.50	11.473	.72789	1.533	1.367		
ROUTE RESERVOIR	180.12	3	10	.29554	89.48	11.473	.72790	1.900	.473	AC-FT=	4.348
ROUTE	180.13	10	2	.29554	89.47	11.472	.72784	1.900	.473		
ADD HYD	180.15	64 9	1	.01066	35.65	.462	.81304	1.600	5.227		
ADD HYD	180.16	24 1	2	.30620	114.62	11.935	.73080	1.633	.585		
FINISH											

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
START											TIME= .00
*S 100 YEAR STORM											
RAINFALL TYPE= 2											RAIN24= 2.660
*S BEGIN UNSER DIVERSION WATERSHED											
COMPUTE NM HYD	120.00	-	1	.11250	273.85	12.099	2.01648	1.500	3.803 PER IMP=	75.00	
COMPUTE NM HYD	120.00	-	1	.11250	188.65	12.099	2.01647	1.650	2.620 PER IMP=	75.00	
ROUTE RESERVOIR	120.02	1	5	.11250	65.22	12.101	2.01688	2.150	.906 AC-FT=	4.505	
ROUTE	120.03	5	1	.11250	65.23	12.101	2.01689	2.150	.906		
ROUTE	120.04	1	11	.11250	65.22	12.101	2.01689	2.150	.906		
COMPUTE NM HYD	130.00	-	1	.06880	167.77	7.399	2.01648	1.500	3.810 PER IMP=	75.00	
COMPUTE NM HYD	130.00	-	1	.06880	115.74	7.399	2.01648	1.650	2.629 PER IMP=	75.00	
ADD HYD	130.02	1&11	10	.18130	161.44	19.500	2.01672	1.650	1.391		
ROUTE RESERVOIR	130.03	10	5	.18130	98.61	19.500	2.01672	2.200	.850 AC-FT=	4.027	
ROUTE	130.04	5	10	.18130	98.70	19.500	2.01673	2.200	.851		
ROUTE RESERVOIR	130.05	10	5	.18130	93.19	19.500	2.01673	2.400	.803 AC-FT=	2.665	
ROUTE	130.06	5	10	.18130	93.07	19.500	2.01674	2.450	.802		
COMPUTE NM HYD	140.00	-	1	.14840	284.06	15.960	2.01648	1.600	2.991 PER IMP=	75.00	
COMPUTE NM HYD	140.00	-	1	.14840	212.35	15.960	2.01648	1.750	2.236 PER IMP=	75.00	
ADD HYD	140.02	10&1	12	.32970	234.80	35.460	2.01661	1.750	1.113		
ROUTE RESERVOIR	140.03	12	5	.32970	144.35	35.460	2.01663	2.400	.684 AC-FT=	6.588	
ROUTE	140.04	5	10	.32970	144.33	35.460	2.01663	2.400	.684		
COMPUTE NM HYD	150.00	-	1	.04300	104.90	4.624	2.01648	1.500	3.812 PER IMP=	75.00	
COMPUTE NM HYD	150.00	-	1	.04300	72.39	4.624	2.01647	1.650	2.630 PER IMP=	75.00	
ADD HYD	150.02	10&1	10	.37270	158.40	40.085	2.01661	2.150	.664		
ROUTE RESERVOIR	150.03	10	5	.37270	125.02	40.085	2.01661	2.750	.524 AC-FT=	5.610	
ROUTE	150.04	5	10	.37270	124.95	40.085	2.01661	2.750	.524		
ROUTE	150.05	10	2	.37270	124.93	40.085	2.01661	2.750	.524		
COMPUTE NM HYD	160.10	-	1	.05170	126.11	5.560	2.01648	1.500	3.811 PER IMP=	75.00	
ADD HYD	160.12	1&2	11	.42440	147.57	45.645	2.01659	1.500	.543		
ROUTE	160.13	11	2	.42440	147.38	45.645	2.01659	1.500	.543		
ROUTE	160.14	2	19	.42440	144.67	45.645	2.01659	1.550	.533		
*S BEGIN UNSER BOULEVARD STORM DRAIN SYSTEM BETWEEN I-40 AND THE FUTURE TIERRA											
*S BAYITA STORM DRAIN											
COMPUTE NM HYD	170.10	-	2	.06330	160.19	7.303	2.16311	1.500	3.954 PER IMP=	85.00	
ROUTE RESERVOIR	170.15	2	6	.06330	47.17	7.303	2.16310	1.900	1.164 AC-FT=	2.776	
COMPUTE NM HYD	170.20	-	3	.00770	14.44	.563	1.37071	1.500	2.929 PER IMP=	40.00	
COMPUTE NM HYD	170.30	-	4	.00370	9.65	.444	2.25115	1.500	4.074 PER IMP=	90.00	
ADD HYD	170.31	6&4	5	.06700	50.35	7.747	2.16795	1.800	1.174		
ADD HYD	170.32	3&5	2	.07470	61.91	8.310	2.08577	1.550	1.295		
COMPUTE NM HYD	170.40	-	3	.00600	12.57	.523	1.63484	1.500	3.273 PER IMP=	55.00	
ADD HYD	170.43	2&3	5	.08070	73.11	8.833	2.05224	1.550	1.416		
DIVIDE HYD	170.44	5	2	.06936	41.00	7.591	2.05224	1.400	.924		
	170.45	AND	11	.01134	32.11	1.242	2.05224	1.550	4.423		
ROUTE	170.46	2	1	.06936	42.95	7.591	2.05225	1.450	.968		
ROUTE	170.47	1	3	.06936	43.50	7.591	2.05225	1.450	.980		
COMPUTE NM HYD	170.50	-	2	.00290	7.14	.321	2.07506	1.500	3.848 PER IMP=	80.00	
ADD HYD	170.51	2&3	4	.07226	49.76	7.912	2.05315	1.450	1.076		
ROUTE	170.48	11	2	.01134	29.01	1.242	2.05292	1.600	3.996		
ADD HYD	170.52	4&2	2	.08360	75.18	9.154	2.05312	1.600	1.405		

COMMAND	HYDROGRAPH IDENTIFICATION	FROM TO		AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2 NOTATION
		ID NO.	ID NO.							
ROUTE	170.55	2	3	.08360	75.48	9.154	2.05312	1.600	1.411	
COMPUTE NM HYD	170.60	-	2	.00180	4.44	.199	2.07507	1.500	3.853	PER IMP= 80.00
ADD HYD	170.61	2 & 3	4	.08540	78.51	9.353	2.05357	1.600	1.437	
COMPUTE NM HYD	170.70	-	2	.08590	217.10	9.910	2.16311	1.500	3.949	PER IMP= 85.00
ROUTE RESERVOIR	170.71	2	3	.08590	56.59	9.910	2.16310	1.950	1.029	AC-FT= 4.098
COMPUTE NM HYD	170.80	-	2	.00540	14.07	.648	2.25115	1.500	4.072	PER IMP= 90.00
ADD HYD	170.81	3 & 2	5	.09130	60.85	10.558	2.16830	1.800	1.041	
ADD HYD	170.82	4 & 5	2	.17670	138.92	19.912	2.11285	1.600	1.228	
COMPUTE NM HYD	170.90	-	3	.00470	11.56	.520	2.07507	1.500	3.844	PER IMP= 80.00
ADD HYD	170.91	3 & 2	4	.18140	146.81	20.432	2.11187	1.600	1.265	
DIVIDE HYD	170.92	4	2	.15976	92.00	17.994	2.11187	1.450	.900	
	170.93	AND	10	.02164	54.81	2.438	2.11187	1.600	3.957	
DIVIDE HYD	170.95	10	11	.02113	48.00	2.380	2.11187	1.550	3.549	
	170.94	AND	3	.00051	6.81	.058	2.11187	1.600	20.715	
ROUTE	170.96	3	4	.00051	4.18	.058	2.12695	1.650	12.711	
ROUTE	170.97	2	3	.15976	92.91	17.994	2.11188	1.500	.909	
COMPUTE NM HYD	171.10	-	2	.00210	5.48	.252	2.25115	1.500	4.078	PER IMP= 90.00
ADD HYD	171.11	4 & 2	5	.00261	7.35	.310	2.22638	1.600	4.396	
ADD HYD	171.12	3 & 5	2	.16237	99.43	18.304	2.11372	1.600	.957	
DIVIDE HYD	171.13	2	3	.16237	99.43	18.304	2.11372	1.600	.957	
	171.14	AND	9	.00000	.00	.000	.00000	-.050	.000	
ROUTE	171.15	3	10	.16237	99.34	18.304	2.11372	1.600	.956	
COMPUTE NM HYD	171.00	-	3	.00220	5.74	.264	2.25115	1.500	4.078	PER IMP= 90.00
ROUTE	171.01	11	4	.02113	47.97	2.380	2.11224	1.650	3.547	
ADD HYD	171.02	3 & 4	2	.02333	51.05	2.645	2.12530	1.650	3.419	
DIVIDE HYD	171.03	2	3	.01407	20.00	1.595	2.12530	1.500	2.221	
	171.04	AND	6	.00926	31.05	1.049	2.12530	1.650	5.240	
COMPUTE NM HYD	160.20	-	1	.03500	85.38	3.764	2.01648	1.500	3.812	PER IMP= 75.00
ADD HYD	160.21	1 & 3	2	.04907	105.38	5.359	2.04766	1.500	3.355	
ROUTE	160.22	2	1	.04907	104.56	5.359	2.04769	1.500	3.329	
ADD HYD	160.23	1 & 10	2	.21144	203.02	23.663	2.09839	1.500	1.500	
COMPUTE NM HYD	180.10	-	1	.03380	77.86	3.380	1.87475	1.500	3.599	PER IMP= 68.00
ADD HYD	180.11	1 & 2	3	.24524	280.88	27.043	2.06757	1.500	1.790	
ROUTE RESERVOIR	180.12	3	10	.24524	100.80	27.076	2.07009	2.450	.642	AC-FT= 6.984
ROUTE	180.13	10	2	.24524	100.80	27.076	2.07009	2.450	.642	
ADD HYD	180.14	19 & 2	3	.66964	226.80	72.721	2.03618	2.750	.529	
ADD HYD	180.15	6 & 9	1	.00926	31.05	1.049	2.12530	1.650	5.240	
ADD HYD	180.16	3 & 1	2	.67890	248.30	73.770	2.03740	1.550	.571	
FINISH										

$$.03380 = 21.63 \text{ acres} \quad \frac{77.86}{21.63} = \frac{3.59 \text{ CFS}}{\text{acre}}$$

COMMAND	HYDROGRAPH IDENTIFICATION	FROM TO		AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
		ID NO.	ID NO.								
START											TIME= .00
*S 10 YEAR STORM											
RAINFALL TYPE= 2											RAIN24= 1.770
*S BEGIN UNSER DIVERSION WATERSHED											
COMPUTE NM HYD	120.10	-	1	.02590	4.08	.116	.08362	1.550	.246 PER IMP=		.00
COMPUTE NM HYD	120.20	-	2	.05450	5.99	.243	.08362	1.600	.172 PER IMP=		.00
ADD HYD	120.21	14 2	3	.08040	9.81	.359	.08361	1.550	.191		
ROUTE	120.22	3	4	.08040	6.80	.359	.08362	1.700	.132		
COMPUTE NM HYD	120.30	-	1	.01990	3.13	.089	.08362	1.550	.246 PER IMP=		.00
ADD HYD	120.31	14 4	10	.10030	8.57	.447	.08361	1.650	.134		
COMPUTE NM HYD	130.10	-	3	.07430	6.66	.331	.08362	1.650	.140 PER IMP=		.00
COMPUTE NM HYD	130.20	-	4	.04890	5.57	.218	.08362	1.600	.178 PER IMP=		.00
COMPUTE NM HYD	130.30	-	5	.00470	8.56	.386	1.53972	1.500	2.846 PER IMP=		100.00
ADD HYD	130.21	44 3	6	.12320	12.11	.549	.08362	1.600	.154		
ADD HYD	130.31	54 6	1	.12790	18.64	.935	.13712	1.550	.228		
ROUTE	130.32	1	11	.12790	14.93	.935	.13713	1.700	.182		
COMPUTE NM HYD	130.40	-	1	.06120	8.94	.273	.08362	1.550	.228 PER IMP=		.00
ADD HYD	130.41	1411	12	.18910	21.68	1.208	.11981	1.600	.179		
COMPUTE NM HYD	130.60	-	11	.07100	7.93	.317	.08362	1.600	.174 PER IMP=		.00
ROUTE	130.61	11	15	.07100	7.96	.317	.08363	1.600	.175		
ROUTE	130.62	15	11	.07100	8.10	.317	.08363	1.600	.178		
ROUTE	130.42	12	1	.18910	21.63	1.208	.11981	1.600	.179		
COMPUTE NM HYD	130.50	-	3	.01040	10.08	.442	.79711	1.500	1.515 PER IMP=		49.00
ADD HYD	130.51	14 3	4	.19950	28.58	1.650	.15511	1.600	.224		
COMPUTE NM HYD	130.70	-	1	.01696	3.27	.092	.10184	1.550	.301 PER IMP=		.00
COMPUTE NM HYD	130.90	-	2	.00954	1.84	.052	.10184	1.550	.301 PER IMP=		.00
ADD HYD	130.91	14 2	1	.02650	5.11	.144	.10183	1.550	.301		
ROUTE	130.52	4	3	.19950	27.71	1.650	.15512	1.650	.217		
ADD HYD	130.72	14 3	4	.22600	31.01	1.794	.14887	1.650	.214		
ADD HYD	130.73	4411	2	.29700	39.02	2.111	.13327	1.600	.205		
COMPUTE NM HYD	130.80	-	1	.03270	4.91	.146	.08362	1.550	.235 PER IMP=		.00
ROUTE	130.74	2	3	.29700	36.28	2.111	.13327	1.700	.191		
ADD HYD	130.81	34 1	11	.32970	38.97	2.257	.12834	1.700	.185		
ROUTE	120.32	10	3	.10030	8.47	.447	.08362	1.700	.132		
COMPUTE NM HYD	120.40	-	1	.00910	8.82	.387	.79711	1.500	1.515 PER IMP=		49.00
ADD HYD	120.41	34 1	2	.10940	13.97	.834	.14296	1.550	.200		
ROUTE	120.42	2	1	.10940	11.57	.834	.14297	1.750	.165		
COMPUTE NM HYD	120.50	-	2	.01620	2.55	.072	.08362	1.550	.246 PER IMP=		.00
ADD HYD	120.51	24 1	3	.12560	12.71	.906	.13531	1.700	.158		
DIVIDE HYD	120.52	3	15	.12560	13.34	.952	.14207	1.700	.166		
	120.53	AND	16	.12560	.64	.045	.00677	1.700	.008		
COMPUTE NM HYD	120.60	-	6	.03280	6.10	.197	.11274	1.550	.291 PER IMP=		2.00
DIVIDE HYD	120.61	6	17	.03280	6.16	.199	.11386	1.550	.294		
	120.62	AND	16	.03280	.06	.002	.00113	1.550	.003		
ADD HYD	120.63	15417	18	.15840	17.75	1.151	.13623	1.600	.175		
STORE HYD	120.64	-	15	.00010	2.93	.242	45.40292	5.000	45.781		
MODIFY TIME	120.64	15	15	.00010	5.86	.242	45.39693	4.900	91.550		
ADD HYD	120.65	15418	7	.15850	17.75	1.393	.16478	1.600	.175		
ROUTE RESERVOIR	120.66	7	5	.15850	.01	.027	.00320	24.350	.000 AC-FT=		1.371

COMMAND	HYDROGRAPH IDENTIFICATION	FROM TO		AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2 NOTATION
		ID NO.	ID NO.							
DIVIDE HYD	130.82	11	17	.32970	41.70	2.415	.13733	1.700	.198	
	130.83	AND	16	.32970	2.73	.158	.00898	1.700	.013	
STORE HYD	130.84	-	15	.00010	5.87	.485	90.96078	5.000	91.719	
MODIFY TIME	130.84	15	15	.00010	11.74	.485	90.94878	4.900	183.413	
ADD HYD	130.85	15&17	7	.32980	41.70	2.900	.16486	1.700	.198	
ROUTE RESERVOIR	130.86	7	5	.32980	16.57	1.717	.09759	2.150	.078	AC-FT= 1.357
ROUTE	130.87	5	11	.32980	16.68	1.717	.09759	2.150	.079	
ROUTE RESERVOIR	130.88	11	5	.32980	.01	.028	.00161	29.950	.000	AC-FT= 1.688
ROUTE	130.89	5	10	.32980	.01	.028	.00161	29.950	.000	
COMPUTE NM HYD	140.10	-	1	.01960	4.43	.124	.11841	1.550	.353	PER IMP= .00
ROUTE	140.11	1	12	.01960	3.65	.124	.11845	1.600	.291	
ROUTE	140.12	12	15	.01960	3.62	.124	.11845	1.650	.289	
COMPUTE NM HYD	140.20	-	1	.08920	16.45	.462	.09721	1.550	.288	PER IMP= .00
ADD HYD	140.21	15&1	2	.10880	18.54	.586	.10103	1.550	.266	
DIVIDE HYD	140.22	2	17	.10880	20.02	.633	.10911	1.550	.288	
	140.23	AND	16	.10880	1.48	.047	.00808	1.550	.021	
ADD HYD	140.24	17&10	2	.43860	20.02	.661	.02828	1.550	.071	
ROUTE RESERVOIR	140.25	2	4	.43860	.01	.026	.00113	29.950	.000	AC-FT= .635
ROUTE	140.26	4	10	.43860	.01	.026	.00113	29.950	.000	
ROUTE RESERVOIR	140.27	10	5	.43860	.01	.023	.00100	29.950	.000	AC-FT= .003
ROUTE	130.28	5	10	.43860	.01	.023	.00100	29.950	.000	
COMPUTE NM HYD	150.10	-	1	.15250	16.02	.753	.09263	1.650	.164	PER IMP= .00
DIVIDE HYD	150.11	1	17	.15250	16.82	.791	.09726	1.650	.172	
	150.12	AND	16	.15250	.80	.038	.00463	1.650	.008	
ADD HYD	150.13	10&17	10	.59110	16.82	.814	.02583	1.650	.044	
ROUTE RESERVOIR	150.14	10	5	.59110	.01	.028	.00089	8.350	.000	AC-FT= .790
ROUTE	150.15	5	10	.59110	.01	.028	.00088	8.450	.000	
ROUTE	150.16	10	2	.59110	.01	.028	.00088	8.450	.000	
ROUTE	160.17	3	2	.59110	.00	.000	.00000	.000	.000	
ROUTE	160.18	2	19	.59110	.00	.000	.00000	.000	.000	
*S BEGIN UNSER BOULEVARD STORM DRAIN SYSTEM BETWEEN I-40 AND THE FUTURE TIERRA										
RAINFALL TYPE= 2										RAIN24= 1.770
COMPUTE NM HYD	170.10	-	2	.06330	8.89	.320	.09489	1.567	.220	PER IMP= .00
COMPUTE NM HYD	170.30	-	3	.00370	6.53	.272	1.38052	1.500	2.757	PER IMP= 90.00
ADD HYD	170.31	2&3	2	.06700	14.70	.593	.16588	1.533	.343	
COMPUTE NM HYD	170.20	-	3	.00770	7.89	.299	.72877	1.500	1.602	PER IMP= 40.00
ADD HYD	170.21	3&2	2	.07470	22.40	.892	.22391	1.533	.468	
COMPUTE NM HYD	170.40	-	3	.00600	7.39	.294	.91792	1.500	1.925	PER IMP= 55.00
ADD HYD	170.41	2&3	5	.08070	29.54	1.186	.27550	1.533	.572	
DIVIDE HYD	170.42	5	2	.08070	29.54	1.186	.27550	1.533	.572	
	170.43	AND	11	.00000	.00	.000	.00000	-.033	.000	
ROUTE	170.44	2	1	.08070	29.72	1.185	.27542	1.533	.575	
ROUTE	170.45	1	3	.08070	29.72	1.185	.27535	1.533	.575	
COMPUTE NM HYD	170.50	-	2	.00290	4.58	.191	1.23318	1.500	2.467	PER IMP= 80.00
ADD HYD	170.51	2&3	4	.08360	34.10	1.376	.30857	1.533	.637	
ROUTE	170.52	11	2	.00000	.00	.000	.00000	-.033	.000	
ADD HYD	170.52	4&2	1	.08360	34.10	1.376	.30857	1.533	.637	
ROUTE	170.55	1	3	.08360	33.58	1.375	.30844	1.567	.628	
COMPUTE NM HYD	170.60	-	2	.00180	2.84	.118	1.23318	1.500	2.469	PER IMP= 80.00
ADD HYD	170.61	2&3	4	.08540	35.94	1.494	.32793	1.533	.658	
COMPUTE NM HYD	170.70	-	1	.08590	9.65	.401	.08750	1.600	.175	PER IMP= .00
COMPUTE NM HYD	170.80	-	2	.00540	9.52	.398	1.38051	1.500	2.755	PER IMP= 90.00

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3 NOTATION
ADD HYD	170.81	14	2	5	.09130	17.65	.798	.16398	1.533	.302
ADD HYD	170.82	44	5	2	.17670	53.59	2.292	.24322	1.533	.474
COMPUTE NM HYD	170.90	-	3		.00470	7.41	.309	1.23317	1.500	2.465 PER IMP= 80.00
ADD HYD	170.91	34	2	4	.18140	60.68	2.601	.26887	1.533	.523
DIVIDE HYD	170.92	4	2		.18140	60.68	2.601	.26887	1.533	.523
	170.93	AND	10		.00000	.00	.000	.00000	-.033	.000
DIVIDE HYD	170.95	10	11		.00000	.00	.000	.00005	-.033	.000
	170.94	AND	3		.00000	.00	.000	.00000	-.033	.000
ROUTE	170.96	3	4		.00000	.00	.000	.00000	-.033	.000
ROUTE	170.97	2	3		.18140	60.31	2.600	.26875	1.567	.519
COMPUTE NM HYD	171.10	-	2		.00210	3.61	.152	1.35928	1.500	2.684 PER IMP= 90.00
ADD HYD	171.11	44	2	5	.00210	3.61	.152	1.35928	1.500	2.684
ADD HYD	171.12	34	5	2	.18350	63.28	2.752	.28123	1.567	.539
DIVIDE HYD	171.13	2	3		.18350	63.28	2.752	.28123	1.567	.539
	171.14	AND	9		.00000	.00	.000	.00000	-.033	.000
ROUTE	171.15	3	10		.18350	63.52	2.752	.28120	1.567	.541
COMPUTE NM HYD	171.00	-	3		.00220	3.78	.159	1.35928	1.500	2.683 PER IMP= 90.00
ROUTE	171.01	11	4		.00000	.00	.000	.00000	-.033	.000
ADD HYD	171.02	34	4	2	.00220	3.78	.159	1.35928	1.500	2.683
DIVIDE HYD	171.03	2	3		.00220	3.78	.159	1.35928	1.500	2.683
	171.04	AND	6		.00000	.00	.000	.00000	-.033	.000
COMPUTE NM HYD	160.10	-	1		.05170	10.82	.296	.10742	1.533	.327 PER IMP= .00
COMPUTE NM HYD	160.20	-	2		.03500	30.69	1.183	.63367	1.500	1.370 PER IMP= 35.00
ADD HYD	160.21	14	2	4	.08670	40.99	1.479	.31986	1.500	.739
ADD HYD	160.22	44	3	2	.08890	44.77	1.639	.34559	1.500	.787
ROUTE	160.23	2	1		.08890	44.58	1.638	.34557	1.500	.784
ADD HYD	160.24	14	10	2	.27240	106.31	4.391	.30221	1.533	.610
COMPUTE NM HYD	180.10	-	1		.03380	10.76	.402	.22291	1.500	.498 PER IMP= 10.00
ADD HYD	180.11	24	1	3	.30620	117.06	4.792	.29346	1.533	.597
ROUTE RESERVOIR	180.12	3	10		.30620	63.24	4.792	.29345	1.733	.323 AC-FT= .814
ROUTE	180.13	10	2		.30620	63.24	4.792	.29341	1.733	.323
ADD HYD	180.15	64	9	1	.00000	.00	.000	.00000	-.033	.000
ADD HYD	180.16	24	1	2	.30620	63.24	4.792	.29341	1.733	.323
FINISH										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE - 1	NOTATION
START											TIME= .00
*S 10 YEAR STORM											
RAINFALL TYPE= 2											RAIN24= 1.770
*S BEGIN UNSER DIVERSION WATERSHED											
COMPUTE NM HYD	120.00	-	1	.11250	169.74	7.375	1.22911	1.500	2.357	PER IMP=	75.00
COMPUTE NM HYD	120.00	-	1	.11250	115.71	7.375	1.22911	1.650	1.607	PER IMP=	75.00
ROUTE RESERVOIR	120.02	1	5	.11250	48.58	7.378	1.22965	2.050	.675	AC-FT=	2.339
ROUTE	120.03	5	1	.11250	48.58	7.378	1.22967	2.050	.675		
ROUTE	120.04	1	11	.11250	48.58	7.378	1.22967	2.050	.675		
COMPUTE NM HYD	130.00	-	1	.06880	105.01	4.510	1.22911	1.500	2.385	PER IMP=	75.00
COMPUTE NM HYD	130.00	-	1	.06880	71.96	4.510	1.22911	1.650	1.634	PER IMP=	75.00
ADD HYD	130.02	1&11	10	.18130	106.61	11.888	1.22945	1.700	.919		
ROUTE RESERVOIR	130.03	10	5	.18130	57.75	11.892	1.22989	2.350	.498	AC-FT=	2.799
ROUTE	130.04	5	10	.18130	57.75	11.892	1.22990	2.350	.498		
ROUTE RESERVOIR	130.05	10	5	.18130	49.28	11.903	1.23103	3.000	.425	AC-FT=	2.287
ROUTE	130.06	5	10	.18130	49.26	11.903	1.23103	3.000	.425		
COMPUTE NM HYD	140.00	-	1	.14840	173.65	9.728	1.22911	1.600	1.828	PER IMP=	75.00
COMPUTE NM HYD	140.00	-	1	.14840	128.42	9.728	1.22911	1.750	1.352	PER IMP=	75.00
ADD HYD	140.02	10&1	12	.32970	146.84	21.631	1.23016	1.750	.696		
ROUTE RESERVOIR	140.03	12	5	.32970	67.31	21.631	1.23017	2.400	.319	AC-FT=	4.310
ROUTE	140.04	5	10	.32970	67.34	21.631	1.23017	2.400	.319		
COMPUTE NM HYD	150.00	-	1	.04300	65.75	2.819	1.22911	1.500	2.389	PER IMP=	75.00
COMPUTE NM HYD	150.00	-	1	.04300	45.09	2.819	1.22911	1.650	1.638	PER IMP=	75.00
ADD HYD	150.02	10&1	10	.37270	85.98	24.450	1.23004	1.700	.360		
ROUTE RESERVOIR	150.03	10	5	.37270	68.94	24.450	1.23004	2.700	.289	AC-FT=	2.115
ROUTE	150.04	5	10	.37270	68.94	24.450	1.23004	2.700	.289		
ROUTE	150.05	10	2	.37270	68.94	24.450	1.23004	2.700	.289		
COMPUTE NM HYD	160.10	-	1	.05170	79.05	3.389	1.22911	1.500	2.389	PER IMP=	75.00
ADD HYD	160.12	1&2	11	.42440	97.31	27.839	1.22993	1.500	.358		
ROUTE	160.13	11	2	.42440	97.52	27.839	1.22993	1.500	.359		
ROUTE	160.14	2	19	.42440	96.24	27.839	1.22993	1.550	.354		
*S BEGIN UNSER BOULEVARD STORM DRAIN SYSTEM BETWEEN I-40 AND THE FUTURE TIERRA											
*S BAYITA STORM DRAIN											
COMPUTE NM HYD	170.10	-	2	.06330	102.43	4.531	1.34207	1.500	2.528	PER IMP=	85.00
ROUTE RESERVOIR	170.15	2	6	.06330	36.67	4.531	1.34207	1.800	.905	AC-FT=	1.524
COMPUTE NM HYD	170.20	-	3	.00770	7.79	.308	.74912	1.500	1.582	PER IMP=	40.00
COMPUTE NM HYD	170.30	-	4	.00370	6.25	.278	1.40796	1.500	2.637	PER IMP=	90.00
ADD HYD	170.31	6&4	5	.06700	39.05	4.809	1.34569	1.700	.911		
ADD HYD	170.32	3&5	2	.07470	44.00	5.116	1.28419	1.550	.920		
COMPUTE NM HYD	170.40	-	3	.00600	7.29	.303	.94677	1.500	1.898	PER IMP=	55.00
ADD HYD	170.43	2&3	5	.08070	50.47	5.419	1.25910	1.550	.977		
DIVIDE HYD	170.44	5	2	.07795	41.00	5.234	1.25910	1.500	.822		
	170.45	AND	11	.00275	9.47	.185	1.25910	1.550	5.374		
ROUTE	170.46	2	1	.07795	42.01	5.234	1.25911	1.500	.842		
ROUTE	170.47	1	3	.07795	42.12	5.234	1.25911	1.500	.844		
COMPUTE NM HYD	170.50	-	2	.00290	4.51	.197	1.27619	1.500	2.428	PER IMP=	80.00
ADD HYD	170.51	2&3	4	.08085	46.63	5.432	1.25971	1.500	.901		
ROUTE	170.48	11	2	.00275	6.88	.185	1.26192	1.600	3.906		
ADD HYD	170.52	4&2	2	.08360	50.68	5.617	1.25978	1.600	.947		

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2	NOTATION
ROUTE	170.55	2	3	.08360	50.58	5.617	1.25979	1.650	.945		
COMPUTE NM HYD	170.60	-	2	.00180	2.80	.123	1.27619	1.500	2.430	PER IMP=	80.00
ADD HYD	170.61	2& 3	4	.08540	52.48	5.739	1.26012	1.550	.960		
COMPUTE NM HYD	170.70	-	2	.08590	138.16	6.148	1.34207	1.500	2.513	PER IMP=	85.00
ROUTE RESERVOIR	170.71	2	3	.08590	44.26	6.148	1.34207	1.850	.805	AC-FT=	2.259
COMPUTE NM HYD	170.80	-	2	.00540	9.11	.405	1.40796	1.500	2.636	PER IMP=	90.00
ADD HYD	170.81	3& 2	5	.09130	47.41	6.554	1.34595	1.750	.811		
ADD HYD	170.82	4& 5	2	.17670	98.99	12.293	1.30447	1.650	.875		
COMPUTE NM HYD	170.90	-	3	.00470	7.30	.320	1.27619	1.500	2.426	PER IMP=	80.00
ADD HYD	170.91	3& 2	4	.18140	103.98	12.613	1.30374	1.550	.896		
DIVIDE HYD	170.92	4	2	.17727	92.00	12.326	1.30374	1.500	.811		
	170.93	AND	10	.00413	11.98	.287	1.30374	1.550	4.532		
DIVIDE HYD	170.95	10	11	.00413	11.98	.287	1.30374	1.550	4.532		
	170.94	AND	3	.00000	.00	.000	.00000	-.050	.000		
ROUTE	170.96	3	4	.00000	.00	.000	.00000	-.050	.000		
ROUTE	170.97	2	3	.17727	93.28	12.326	1.30374	1.550	.822		
COMPUTE NM HYD	171.10	-	2	.00210	3.55	.158	1.40796	1.500	2.639	PER IMP=	90.00
ADD HYD	171.11	4& 2	5	.00210	3.55	.158	1.40781	1.500	2.639		
ADD HYD	171.12	3& 5	2	.17937	96.37	12.484	1.30495	1.550	.840		
DIVIDE HYD	171.13	2	3	.17937	96.37	12.484	1.30495	1.550	.840		
	171.14	AND	9	.00000	.00	.000	.00000	-.050	.000		
ROUTE	171.15	3	10	.17937	96.49	12.484	1.30496	1.550	.841		
COMPUTE NM HYD	171.00	-	3	.00220	3.72	.165	1.40795	1.500	2.639	PER IMP=	90.00
ROUTE	171.01	11	4	.00413	10.58	.288	1.30561	1.650	4.002		
ADD HYD	171.02	3& 4	2	.00633	12.56	.453	1.34102	1.650	3.099		
DIVIDE HYD	171.03	2	3	.00633	12.56	.453	1.34102	1.650	3.099		
	171.04	AND	6	.00000	.00	.000	.00000	-.050	.000		
COMPUTE NM HYD	160.20	-	1	.03500	53.52	2.294	1.22911	1.500	2.389	PER IMP=	75.00
ADD HYD	160.21	1& 3	2	.04133	57.86	2.747	1.24625	1.500	2.187		
ROUTE	160.22	2	1	.04133	57.80	2.747	1.24627	1.500	2.185		
ADD HYD	160.23	1&10	2	.22070	151.90	15.231	1.29396	1.550	1.075		
COMPUTE NM HYD	180.10	-	1	.03380	47.54	2.029	1.12536	1.500	2.198	PER IMP=	68.00
ADD HYD	180.11	1& 2	3	.25450	197.33	17.259	1.27157	1.500	1.212		
ROUTE RESERVOIR	180.12	3	10	.25450	87.80	17.287	1.27363	2.200	.539	AC-FT=	4.040
ROUTE	180.13	10	2	.25450	87.80	17.287	1.27364	2.200	.539		
ADD HYD	180.14	19& 2	3	.67890	164.80	45.126	1.24631	2.050	.379		
ADD HYD	180.15	6& 9	1	.00000	.00	.000	.00000	-.050	.000		
ADD HYD	180.16	3& 1	2	.67890	164.80	45.126	1.24631	2.050	.379		
FINISH											

APPENDIX B
AHYMO INPUT DATA

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START 0.0 HOURS ****ONE HUNDRED YEAR TWENTY FOUR HOUR STORM ****
 ** FILE NAME : CCSDWI.HMI (COORS CONNECTION STORM DRAIN WATERSHED INTERIM)****
 ** ANALYSIS FOR THE ATRISCO BUSINESS PARK MASTER DRAINAGE PLAN *****
 ** INCLUDES THE WATERSHED OF THE AIRPORT DRIVE AND COORS BLVD S.D.SYSTEM *****
 ** INTERIM CONDITION *****
 ** AREAS OUTSIDE OF THE ATRISCO BUSINESS PARK INCLUDED TO DETERMINE TOTAL
 ** POTENTIAL FLOWS TO THE AIRPORT DRIVE AND COORS CONNECTION STORM DRAINS*****

 ** ANALYSIS ASSUMPTIONS:

 ** FLOW FROM ALL PRIVATE LAND DIRECTLY CONTRIBUTING FLOW TO THE AIRPORT ROAD
 ** STORM DRAIN IS RESTRICTED TO 0.1cfs PER ACRE.*****
 ** PUBLIC STREETS CONTRIBUTING FLOW TO THE AIRPORT DRIVE STORM DRAIN HAVE
 ** FREE DISCHARGE INTO THE SYSTEM *****
 ** PUBLIC PLATTED STREETS IN THE ATRISCO BUSINESS PARK ASSUMED TO BE FULLY
 ** DEVELOPED.*****
 ** PRIVATE PROPERTY WITHIN THE BUSINESS PARK WHICH HAS THE POTENTIAL TO
 ** DISCHARGE FLOW TO THE AIRPORT ROAD STORM DRAIN SYSTEM WILL HAVE
 ** CONSERVATION TREATMENT APPLIED TO IT AND SO WILL CONTRIBUTE NO FLOW TO THE
 ** STORM DRAIN SYSTEM IN THE INTERIM CONDITION.*****
 ** IN AREAS OF THE ATRISCO BUSINESS PARK WHERE THE POTENTIAL EXISTS FOR SOME OF
 ** OF THE PROPERTY ADJACENT TO THE STREETS TO DISCHARGE TO THE STREETS
 ** UNCONTROLLED DUE TO GRADE CONSTRAINTS, APPROXIMATELY 10 ADDITIONAL FEET OF
 ** WIDTH WAS USED IN CALCULATING STREET AREAS *****
 ** THE EXISTING CONDITION LAND TREATMENTS WERE USED IN AREAS OUTSIDE OF THE
 ** THE ATRISCO BUSINESS PARK AND THE WATERSHED OF THE AIRPORT DRIVE STORM
 ** DRAIN. ASSUMPTIONS WERE MADE AS TO WHERE FLOW FROM THESE AREAS WILL ENTER
 ** THE STORM DRAIN SYSTEM IN THE DEVELOPED CONDITION AND THE BASINS WERE
 ** MODELED ASSUMING THESE CONNECTIONS WERE IN PLACE. THIS WAS DONE TO VERIFY
 ** CAPACITY FOR THE EXISTING CONDITION FLOWS WAS AVAILABLE IN THE STORM DRAIN
 ** SYSTEM.
 ** UPDATED 9-14-92
 **RAINFALL TYPE-2 0.0 1.25 1.45 1.65
 RAINFALL TYPE-2 0.0 1.87 2.20 2.66 DT=0.05

 *S BEGIN THE WATERSHED FOR THE AIRPORT ROAD STORM DRAIN *****

 ** COMPUTE HYDROGRAPH FOR TRACT "S-1"
 ** AREA = 133.2 ACRES
 COMPUTE NM HYD ID=2 HYD=200.1 DA=-0.2081 SM
 %A=90.0 %B=0.0 %C=10.0 %D=0.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 *S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO RUNOFF
 *S LEAVES THE SITE
 ** COMPUTE HYDROGRAPH FOR LOS VOLCANES BETWEEN UNSER BLVD AND 1250 LF WEST
 ** OF AIRPORT ROAD
 COMPUTE NM HYD ID=3 HYD=200.4 DA=-0.0042
 %A=0.0 %B=19.0 %C=0.0 %D=81.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=3 CODE=1
 ** ROUTE THE FLOW IN THE STREET FROM 1250' WEST OF AIRPORT IN THE STREET TO

** THE INTERSECTION WITH AIRPORT
 COMPUTE RATING CURVECID=1 VS NO=1 NUMBER OF SEGS=3
 MINIMUM ELEV=100.00 MAXIMUM ELEV=100.87
 CHANNEL SLOPE=0.0082 FLOOD PLAIN SLOPE=0.0082
 N=0.025 DIST=10.0 N=-0.017 DIST=58.0 N=0.025 DIST=68.0
 DIST ELEV DIST ELEV DIST ELEV DIST ELEV
 0.0 100.87 10.00 100.67 10.05 100.00 12.0 100.13
 34.0 100.57 56.00 100.13 57.95 100.00 58.00 100.67
 68.00 100.87
 COMPUTE TRAVEL TIME ID=11 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=1250 FT SLOPE=0.0082
 ROUTE ID=11 HYDROGRAPH NO=200.45 INFLOW ID=3 DT=0.0
 PRINT HYD ID=11 CODE=1
 ** COMPUTE HYDROGRAPH FOR LOS VOLCANES BETWEEN 1250 LF WEST OF AIRPORT ROAD
 ** AND AIRPORT ROAD
 COMPUTE NM HYD ID=4 HYD=200.5 DA=-0.0035
 %A=0.0 %B=19.0 %C=0.0 %D=81.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=4 CODE=1
 ** ADD THE FLOW FROM THE EASTERN SEGMENT OF LOS VOLCANES TO THE ROUTED FLOW
 ** IN THE STREET AT THE INTERSECTION OF LOS VOLCANES AND AIRPORT ROAD
 ADD HYD ID=3 HYDROGRAPH NO=200.51 ID I=11 ID II=4
 PRINT HYD ID=3 CODE=1
 ** ROUTE THE FLOW IN THE STREET DOWN AIRPORT ROAD FROM LOS VOLCANES TO THE
 ** BACK LOT LINE OF LOT 9, TRACT "M"
 COMPUTE RATING CURVECID=1 VS NO=1 NUMBER OF SEGS=3
 MINIMUM ELEV=100.00 MAXIMUM ELEV=100.87
 CHANNEL SLOPE=0.0048 FLOOD PLAIN SLOPE=0.0048
 N=0.025 DIST=10.0 N=-0.017 DIST=58.0 N=0.025 DIST=68.0
 DIST ELEV DIST ELEV DIST ELEV DIST ELEV
 0.0 100.87 10.00 100.67 10.05 100.00 12.0 100.13
 34.0 100.57 56.00 100.13 57.95 100.00 58.00 100.67
 68.00 100.87
 COMPUTE TRAVEL TIME ID=11 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=850 FT SLOPE=0.0048
 ROUTE ID=11 HYDROGRAPH NO=200.66 INFLOW ID=3 DT=0.0
 PRINT HYD ID=11 CODE=1
 ** COMPUTE HYDROGRAPH FOR THE NORTHERN PART OF TRACT "M" ATRISCO BUSINESS PARK
 ** LOTS 5 TO 9. AREA = 47.9 ACRES
 COMPUTE NM HYD ID=2 HYD=210.1 DA=-0.0748 SM
 %A=90.0 %B=0.0 %C=10.0 %D=0.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 *S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO RUNOFF
 *S LEAVES THE SITE
 ** COMPUTE HYDROGRAPH FOR AIRPORT RD. FROM THE INTERSECTION OF LOS VOLCANES TO
 ** THE INTERSECTION WITH THE BACK LOT LINE OF LOT 9 TRACT "M"
 COMPUTE NM HYD ID=2 HYD=210.3 DA=-0.0025
 %A=0.0 %B=19.0 %C=0.0 %D=81.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ADD THE FLOW FROM THE NORTHERN PORTION OF AIRPORT RD. TO THE ROUTED FLOW IN
 ** THE STREET
 ADD HYD ID=12 HYDROGRAPH NO=210.31 ID I=11 ID II=2

PRINT HYD ID=12 CODE=1
 ** ROUTE THE FLOW IN THE STREET DOWN AIRPORT ROAD FROM THE BACK LOT LINE OF LOT
 ** OF LOT 9 TRACT "M" TO THE INTERSECTION WITH BLUEWATER ROAD
 COMPUTE RATING CURVECID=1 VS NO=1 NUMBER OF SEGS=3
 MINIMUM ELEV=100.00 MAXIMUM ELEV=100.87
 CHANNEL SLOPE=0.0048 FLOOD PLAIN SLOPE=0.0048
 N=0.025 DIST=10.0 N=-0.017 DIST=58.0 N=0.025 DIST=68.0

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0.0	100.87	10.00	100.67	10.05	100.00	12.0	100.13
34.0	100.57	56.00	100.13	57.95	100.00	58.00	100.67
68.00	100.87						

 COMPUTE TRAVEL TIME ID=11 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=850 FT SLOPE=0.0048
 ROUTE ID=11 HYDROGRAPH NO=210.47 INFLOW ID=12 DT=0.0
 PRINT HYD ID=11 CODE=1
 ** COMPUTE HYDROGRAPH FOR AIRPORT RD. FROM THE INTERSECTION WITH THE BACK
 ** LOT LINE OF LOT 9 TRACT "M" TO THE INTERSECTION WITH BLUEWATER ROAD
 COMPUTE NM HYD ID=2 HYD=210.5 DA=-0.0024
 %A=0.0 %B=19.0 %C=0.0 %D=81.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ADD THE ROUTED FLOW IN THE STREET TO THE FLOW FROM THE SOUTHERN SEGMENT OF
 ** AIRPORT ROAD AT THE INTERSECTION AIRPORT ROAD AND BLUEWATER
 ADD HYD ID=11 HYDROGRAPH NO=210.51 ID I=2 ID II=11
 PRINT HYD ID=11 CODE=1
 ** COMPUTE HYDROGRAPH FOR THE SOUTHERN PART OF TRACT "M" ATRISCO BUSINESS PARK
 * LOTS 1 TO 4 AND TRACT "L-1". AREA = 44.8 ACRES
 COMPUTE NM HYD ID=3 HYD=210.6 DA=-0.0700 SM
 %A=90.0 %B=0.0 %C=10.0 %D=0.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=3 CODE=1
 *S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO RUNOFF
 *S LEAVES THE SITE
 ** COMPUTE HYDROGRAPH FOR BLUEWATER RD. FROM THE INTERSECTION OF UNSER BLVD. TO
 ** 1050 LF WEST OF THE INTERSECTION WITH AIRPORT ROAD
 COMPUTE NM HYD ID=2 HYD=210.7 DA=-0.0033
 %A=0.0 %B=19.0 %C=0.0 %D=81.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ROUTE FLOW FROM WESTERN PORTION OF BLUEWATER RD. DOWN THE STREET FROM 1050 LF
 ** WEST OF AIRPORT ROAD TO THE INTERSECTION WITH AIRPORT ROAD
 COMPUTE RATING CURVECID=1 VS NO=1 NUMBER OF SEGS=3
 MINIMUM ELEV=100.00 MAXIMUM ELEV=100.87
 CHANNEL SLOPE=0.0030 FLOOD PLAIN SLOPE=0.0030
 N=0.025 DIST=10.0 N=-0.017 DIST=58.0 N=0.025 DIST=68.0

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0.0	100.87	10.00	100.67	10.05	100.00	12.0	100.13
34.0	100.57	56.00	100.13	57.95	100.00	58.00	100.67
68.00	100.87						

 COMPUTE TRAVEL TIME ID=12 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=1050 FT SLOPE=0.0030
 ROUTE ID=12 HYDROGRAPH NO=210.71 INFLOW ID=2 DT=0.0
 PRINT HYD ID=12 CODE=1
 ** COMPUTE HYDROGRAPH FOR BLUEWATER RD. FROM 1050 LF WEST OF AIRPORT TO THE

**** INTERSECTION WITH AIRPORT ROAD**

COMPUTE NM HYD ID=3 HYD=210.8 DA=-0.0028
 %A=0.0 %B=19.0 %C=0.0 %D=81.0 TP=0.13333
 MASS RAINFALL=-1

PRINT HYD ID=3 CODE=1

**** ADD THE ROUTED FLOW FROM THE BLUEWATER RD. TO THE FLOW FROM THE EASTERN
 ** SEGMENT OF BLUEWATER AT THE INTERSECTION OF AIRPORT AND BLUEWATER**

ADD HYD ID=12 HYDROGRAPH NO=210.81 ID I=3 ID II=12

PRINT HYD ID=12 CODE=1

**** COMPUTE HYDROGRAPH FOR BLUEWATER RD. FROM THE INTERSECTION WITH AIRPORT
 ** ROAD TO THE GRADE BREAK EAST OF THE INTERSECTION WITH AIRPORT DRIVE**

COMPUTE NM HYD ID=2 HYD=210.9 DA=-0.0017
 %A=0.0 %B=19.0 %C=0.0 %D=81.0 TP=0.13333
 MASS RAINFALL=-1

PRINT HYD ID=2 CODE=1

**** ADD THE FLOW FROM THE FAR EAST SEGMENT OF BLUEWATER RD TO THE BLUEWATER
 ** FLOW FROM THE WEST AT THE INTERSECTION OF AIRPORT AND BLUEWATER**

ADD HYD ID=12 HYDROGRAPH NO=210.91 ID I=12 ID II=2

PRINT HYD ID=12 CODE=1

**** ADD THE FLOW FROM BLUEWATER RD TO THE FLOW IN THE STREET AT THE
 ** INTERSECTION OF AIRPORT AND BLUEWATER**

ADD HYD ID=11 HYDROGRAPH NO=210.92 ID I=12 ID II=11

PRINT HYD ID=11 CODE=1

**** ROUTE FLOW IN A STORM DRAIN FROM THE INTERSECTION OF BLUEWATER AND AIRPORT
 ** DOWN AIRPORT RD. TO THE SOUTH LINE OF ATRISCO BUSINESS PARK**

COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0027
 PIPE DIA=4.0 N=0.013

COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=1850 FT SLOPE=0.0027

ROUTE ID=10 HYDROGRAPH NO=211.13 INFLOW ID=11 DT=0.0

PRINT HYD ID=10 CODE=1

***S BEGIN THE AREA SOUTH OF BLUEWATER ROAD**

**** COMPUTE HYDROGRAPH FOR AIRPORT ROAD SOUTH OF BLUEWATER TO THE SOUTH LINE OF
 ** THE ATRISCO BUSINESS PARK**

COMPUTE NM HYD ID=2 HYD=220.1 DA=-0.0035
 %A=0.0 %B=19.0 %C=0.0 %D=81.0 TP=0.1333
 MASS RAINFALL=-1

PRINT HYD ID=2 CODE=1

**** COMPUTE HYDROGRAPH FOR TRACT B, UNIT 2, A.B.P. AREA = 20.0 ACRES**

COMPUTE NM HYD ID=3 HYD=220.2 DA=-0.0313
 %A=0.0 %B=15.0 %C=5.0 %D=80.0 TP=0.13333
 MASS RAINFALL=-1

PRINT HYD ID=3 CODE=1

**** ROUTE FLOW THRU AN ASSUMED POND WITH A DISCHARGE OF .1 CFS PER ACRE
 ** ALLOWABLE RELEASE RATE=2.0cfs**

ROUTE RESERVOIR ID=4 HYDROGRAPH NO=220.21 INFLOW ID=3 CODE=20
 OUTFLOW(cfs) STORAGE(ac ft) ELEV(ft)

0	0	100.0
1.12	0.80	101.0
1.68	1.70	102.0
2.04	2.60	103.0
4.00	3.50	104.0


```

PRINT HYD          ID=4  CODE=1
** ROUTE FLOW IN A STORM DRAIN FROM THE TRACT "B", UNIT 2 POND TO THE AIRPORT
** ROAD STORM DRAIN
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.007
                        PIPE DIA=1.5  N=0.013
COMPUTE TRAVEL TIME ID=5  REACH=1  NUMBER OF VALLEY SECTIONS=1
                        LENGTH=1100 FT  SLOPE=0.007
ROUTE              ID=5  HYDROGRAPH NO=220.22  INFLOW ID=4  DT=0.0
PRINT HYD          ID=5  CODE=1
** ADD THE ROUTED FLOW FROM PARCEL "B", UNIT 2 TO THE FLOW FROM AIRPORT ROAD
ADD HYD            ID=3  HYDROGRAPH NO=220.23  ID I=2 ID= II=5
PRINT HYD          ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR PARCEL "C", UNIT 2, A.B.P. AREA = 28.6 ACRES
COMPUTE NM HYD     ID=2  HYD=220.3  DA=-0.0447
                        %A=90.0  %B=0.0  %C10.0  %D=0.0  TP=0.13333
                        MASS RAINFALL=-1

PRINT HYD          ID=2  CODE=1
*S ASSUME CONSERVATION TREATMENT IS APPLIED TO THE BASIN AND NO  RUNOFF
*S LEAVES THE SITE
** ADD THE ROUTED FLOW FROM THE NORTH IN THE AIRPORT ROAD STORM DRAIN TO THE
** TOTAL FLOW IN AIRPORT ROAD AT THE SOUTH LINE OF THE ATRISCO BUSINESS PARK
ADD HYD            ID=2  HYDROGRAPH NO=220.53  ID I=10 ID= II=3
PRINT HYD          ID=2  CODE=1
** ROUTE FLOW IN A STORM DRAIN FROM THE SOUTH LINE OF THE BUSINESS PARK
** TO AIRPORT RD STORM DRAIN STA 28+80 THE JUNCTION WITH FLOW FROM THE
** WEST 66 ADDITION
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0040
                        PIPE DIA=4.0  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                        LENGTH=250 FT  SLOPE=0.0037
ROUTE              ID=10  HYDROGRAPH NO=220.54  INFLOW ID=2  DT=0.0
PRINT HYD          ID=10  CODE=1
*****
*S BEGIN THE AREA SOUTH OF THE ATRISCO BUSINESS PARK
*****
** COMPUTE HYDROGRAPH FOR THE WEST 66 ADDITION  AREA = 12.7 ACRES
COMPUTE NM HYD     ID=2  HYD=220.6  DA=-0.0198
                        %A=0.0  %B=15.0  %C=5.0  %D=80.0  TP=0.1333
                        MASS RAINFALL=-1

PRINT HYD          ID=2  CODE=1
** ROUTE FLOW THRU AN ASSUMED POND WITH A DISCHARGE OF .1 CFS PER ACRE
** ALLOWABLE RELEASE RATE=1.27 cfs
ROUTE RESERVOIR    ID=3  HYDROGRAPH NO=220.61  INFLOW ID=2  CODE=20
                        OUTFLOW(cfs)  STORAGE(ac ft)  ELEV(ft)
                        0 0 100.0
                        0.70 0.52 101.0
                        1.06 1.04 102.0
                        1.29 1.65 103.0
                        2.00 2.55 104.0

PRINT HYD          ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR AIRPORT ROAD SOUTH OF THE SOUTH LINE OF
** THE ATRISCO BUSINESS PARK TO CENTRAL AVE.
COMPUTE NM HYD     ID=4  HYD=220.7  DA=-0.0027
                        %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.1333

```


MASS RAINFALL--1
 PRINT HYD ID=4 CODE=1
 ** ADD CONTROLLED DISCHARGE FROM POND TO FLOW FROM AIRPORT ROAD
 ADD HYD ID=5 HYDROGRAPH NO=220.71 ID I=4 ID II=3
 PRINT HYD ID=5 CODE=1
 ** ADD FLOWS TO THE AIRPORT ROAD STORM DRAIN AT STA 28+80
 ADD HYD ID=2 HYDROGRAPH NO=220.72 ID I=10 ID II=5
 PRINT HYD ID=2 CODE=1
 ** ROUTE FLOW DOWN AIRPORT ROAD STORM DRAIN FROM STA 28+80 TO STA 9+85
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0037
 PIPE DIA=4.0 N=0.013
 COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=1895 FT SLOPE=0.0037
 ROUTE ID=10 HYDROGRAPH NO=220.73 INFLOW ID=2 DT=0.0
 PRINT HYD ID=10 CODE=1

 *S BEGIN AREA SOUTH OF CENTRAL BOULEVARD

 ** COMPUTE HYDROGRAPH FOR LOT 59, UNIT 6, TOWN OF ATRISCO GRANT
 COMPUTE NM HYD ID=2 HYD=230.1 DA=-0.0018
 %A=0.0 %B=0.0 %C=70.0 %D=30.0 TP=0.1333
 MASS RAINFALL--1
 PRINT HYD ID=2 CODE=1
 ** ROUTE THE FLOW FROM LOT 59, UNIT 6 DOWN AIRPORT ROAD
 ** USE AVERAGE STREET SLOPE
 COMPUTE RATING CURVE CID=1 VS NO=1 NUMBER OF SEGS=3
 MINIMUM ELEV=100.00 MAXIMUM ELEV=100.87
 CHANNEL SLOPE=0.0097 FLOOD PLAIN SLOPE=0.0097
 N=0.025 DIST=10.0 N=-0.017 DIST=58.0 N=0.025 DIST=68.0

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0.0	100.87	10.00	100.67	10.05	100.00	12.0	100.13
34.0	100.57	56.00	100.13	57.95	100.00	58.00	100.67
68.00	100.87						

 COMPUTE TRAVEL TIME ID=3 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=550 FT SLOPE=0.0097
 ROUTE ID=3 HYDROGRAPH NO=230.11 INFLOW ID=2 DT=0.0
 PRINT HYD ID=3 CODE=1
 ** COMPUTE HYDROGRAPH FOR TRACT "B", TOWN OF ATRISCO GRANT
 COMPUTE NM HYD ID=2 HYD=230.2 DA=-0.0052
 %A=0.0 %B=0.0 %C=70.0 %D=30.0 TP=0.1333
 MASS RAINFALL--1
 PRINT HYD ID=2 CODE=1
 ** ADD THE FLOW FROM TRACT "B", TOWN OF ATRISCO GRANT TO THE ROUTED FLOW
 ** IN THE STREET
 ADD HYD ID=4 HYDROGRAPH NO=230.21 ID I=2 ID II=3
 PRINT HYD ID=4 CODE=1
 ** ROUTE THE COMBINED FLOW IN THE STREET DOWN AIRPORT ROAD TO THE INLET AT THE
 ** END OF AIRPORT ROAD
 COMPUTE RATING CURVE CID=1 VS NO=1 NUMBER OF SEGS=3
 MINIMUM ELEV=100.00 MAXIMUM ELEV=100.87
 CHANNEL SLOPE=0.014 FLOOD PLAIN SLOPE=0.014
 N=0.025 DIST=10.0 N=-0.017 DIST=58.0 N=0.025 DIST=68.0

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0.0	100.87	10.00	100.67	10.05	100.00	12.0	100.13

34.0 100.57 56.00 100.13 57.95 100.00 58.00 100.67
 68.00 100.87
 COMPUTE TRAVEL TIME ID=11 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=100 FT SLOPE=0.0097
 ROUTE ID=11 HYDROGRAPH NO=230.22 INFLOW ID=4 DT=0.0
 PRINT HYD ID=11 CODE=1
 ** COMPUTE HYDROGRAPH FOR AIRPORT ROAD SOUTH OF CENTRAL TO THE SOUTH END OF
 ** AIRPORT ROAD
 COMPUTE NM HYD ID=2 HYD=230.3 DA=-0.0024
 %A=0.0 %B=15.0 %C=0.0 %D=85.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ADD THE FLOW FROM AIRPORT DRIVE TO THE ROUTED FLOW IN THE STREET AT
 ** THE SOUTH END OF AIRPORT ROAD
 ADD HYD ID=1 HYDROGRAPH NO=230.31 ID I=2 ID II=11
 PRINT HYD ID=1 CODE=1
 ** ADD THE FLOW IN THE STREET TO THE STORM DRAIN AT THE SOUTH END OF AIRPORT
 ** DRIVE
 ADD HYD ID=3 HYDROGRAPH NO=230.32 ID I=1 ID II=10
 PRINT HYD ID=3 CODE=1
 ** ROUTE FLOW DOWN AIRPORT ROAD STORM DRAIN FROM STA 10+50 TO M.H ON
 ** COORS STORM DRAIN AT STA 82+30
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0040
 PIPE DIA=3.5 N=0.013
 COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=150 FT SLOPE=0.0202
 ROUTE ID=10 HYDROGRAPH NO=230.33 INFLOW ID=3 DT=0.050
 PRINT HYD ID=10 CODE=1

 *S END OF AIRPORT ROAD STORM DRAIN
 *S BEGIN COORS CONNECTION STORM DRAIN

 ** COMPUTE HYDROGRAPH FOR THE SOUTH HALF OF CENTRAL AVE R.W. BETWEEN AIRPORT
 ** AND COORS
 COMPUTE NM HYD ID=2 HYD=230.6 DA=0.0023
 %A=0.0 %B=0.0 %C=10.00 %D=90.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ROUTE FLOW DOWN THE WEST SIDE OF COORS BLVD.
 COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
 MINIMUM ELEV=99.31 FT MAXIMUM ELEV=100.62 FT
 CHANNEL SLOPE=0.005 FLOOD PLAIN SLOPE=0.005
 N=0.017 DIST=34

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	100.0	1	99.98	1.01	99.31	34.0	100.67
34.01	101.17						

 COMPUTE TRAVEL TIME ID=3 REACH NO=1 VALLEY SECTIONS=1
 LENGTH=1000 SLOPE=0.005
 ROUTE ID=3 HYDROGRAPH NO=230.61 INFLOW ID=2 DT=0.0
 PRINT HYD ID=3 CODE=1
 ** COMPUTE HYDROGRAPH FOR COORS BLVD R.W. FROM CENTRAL TO STA 89+20 COORS
 COMPUTE NM HYD ID=2 HYD=230.7 DA=0.0058
 %A=0.0 %B=15.0 %C=0.0 %D=85.0 TP=0.1333
 MASS RAINFALL=-1

PRINT HYD ID=2 CODE=1
 ** ADD FLOW FROM COORS TO THE ROUTED FLOW AT COORS STA. 89+20
 ADD HYD ID=4 HYDROGRAPH NO=230.71 ID I=3 ID II=2
 PRINT HYD ID=4 CODE=1
 ** COMPUTE HYDROGRAPH FOR THE AREA S. & W. OF THE INTERSECTION OF COORS BLVD
 ** AND CENTRAL BOULEVARD. ASSUME ALL FLOW IS ROUTED TO THE SOUTH TO COORS
 COMPUTE NM HYD ID=2 HYD=230.5 DA=0.0066
 %A=80.0 %B=0.0 %C=20.0 %0.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ADD BASIN 230.5 FLOW TO ROUTED FLOW IN COORS BOULEVARD
 ADD HYD ID=5 HYDROGRAPH NO=230.51 ID I=2 ID II=4
 PRINT HYD ID=5 CODE=1
 ** ROUTE FLOW IN COORS STORM DRAIN FROM STA 89+00 TO STA 85+70
 ** USE FRICTION SLOPE
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0111
 PIPE DIA=2.5 N=0.013
 COMPUTE TRAVEL TIME ID=4 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=330 FT SLOPE=0.0111
 ROUTE ID=4 HYDROGRAPH NO=230.52 INFLOW ID=5 DT=0.0
 PRINT HYD ID=4 CODE=1
 ** COMPUTE HYDROGRAPH FOR AREA 230.8. ASSUME ALL FLOW FROM THIS AREA WILL BE
 ** ROUTED TO THE SOUTH TO COORS
 COMPUTE NM HYD ID=2 HYD=230.8 DA=0.0112
 %A=50.0 %B=0.0 %C=35.0 %15.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ADD BASIN 230.8 FLOW TO THE ROUTED FLOW IN COORS BOULEVARD STORM DRAIN
 ** AT THE MANHOLE AT STA. 85+70
 ADD HYD ID=5 HYDROGRAPH NO=230.82 ID I=2 ID II=4
 PRINT HYD ID=5 CODE=1
 ** ROUTE FLOW IN COORS STORM DRAIN FROM STA 85+70 TO STA 82+33
 ** PRESUURE FLOW USE FRICTION SLOPE
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0111
 PIPE DIA=2.5 N=0.013
 COMPUTE TRAVEL TIME ID=2 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=337 FT SLOPE=0.0111
 ROUTE ID=2 HYDROGRAPH NO=230.83 INFLOW ID=5 DT=0.0
 PRINT HYD ID=2 CODE=1
 ** ADD FLOW FROM AIRPORT STORM DRAIN TO COORS STORM DRAIN AT STA 82+33
 ADD HYD ID=11 HYDROGRAPH NO=230.84 ID I=2 ID II=10
 PRINT HYD ID=11 CODE=1
 ** ROUTE FLOW IN COORS STORM DRAIN FROM STA 82+33 TO STA 79+32
 ** NOTE THE EXISTING PIPE IS A 24" RCP PIPE. UPGRADE TO 48"
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0550
 PIPE DIA=4.0 N=0.013
 COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=301 FT SLOPE=0.0550
 ROUTE ID=10 HYDROGRAPH NO=230.85 INFLOW ID=11 DT=0.0
 PRINT HYD ID=10 CODE=1
 ** ROUTE FLOW IN COORS STORM DRAIN FROM STA 79+32 TO STA 75+80
 ** NOTE THE EXISTING PIPE IS A 30" DIA RCP PIPE . UPGRADE TO 48"
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.03
 PIPE DIA=4.0 N=0.013

COMPUTE TRAVEL TIME ID=11 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=352 FT SLOPE=0.066
 ROUTE ID=11 HYDROGRAPH NO=230.86 INFLOW ID=10 DT=0.0
 PRINT HYD ID=11 CODE=1

 *S BEGIN THE AREA NORTH OF CENTRAL AVENUE BETWEEN UNSER AND THE WEST 66
 *S ADDITION

 ** COMPUTE HYDROGRAPH FOR AREA 240.1
 COMPUTE NM HYD ID=2 HYD=240.1 DA=0.0333
 %A=0.0 %B=0.0 %C=65.0 %D=35.0 TP=0.19
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ROUTE FLOW DOWN SWALE NORTH OF CENTRAL AVE
 COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
 MINIMUM ELEV=100.0 FT MAXIMUM ELEV=102 FT
 CHANNEL SLOPE=0.0025 FLOOD PLAIN SLOPE=0.0025
 N=0.025 DIST=22

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	102.0	1	101.9	11.0	100.0	15.0	100.1
25	101.9	26	102.0				

 COMPUTE TRAVEL TIME ID=3 REACH NO=1 VALLEY SECTIONS=1
 LENGTH=320 SLOPE=0.0025
 ROUTE ID=3 HYDROGRAPH NO=240.11 INFLOW ID=2 DT=0.0
 PRINT HYD ID=3 CODE=1
 ** COMPUTE HYDROGRAPH FOR AREA 240.2
 COMPUTE NM HYD ID=4 HYD=240.2 DA=0.0125
 %A=0.0 %B=9.0 %C=20.0 %D=71.0 TP=0.19
 MASS RAINFALL=-1
 PRINT HYD ID=4 CODE=1
 ** ADD FLOW FROM AREA 240.2 TO ROUTED FLOW IN SWALE NORTH OF CENTRAL
 ADD HYD ID=5 HYDROGRAPH NO=240.21 ID I=4 ID II=3
 PRINT HYD ID=5 CODE=1
 ** ROUTE FLOW DOWN SWALE NORTH OF CENTRAL AVE TO CULVERTS CROSSING CENTRAL
 COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
 MINIMUM ELEV=100.0 FT MAXIMUM ELEV=102 FT
 CHANNEL SLOPE=0.0025 FLOOD PLAIN SLOPE=0.0025
 N=0.025 DIST=22

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	102.0	1	101.9	11.0	100.0	15.0	100.1
25	101.9	26	102.0				

 COMPUTE TRAVEL TIME ID=15 REACH NO=1 VALLEY SECTIONS=1
 LENGTH=300 SLOPE=0.0025
 ROUTE ID=15 HYDROGRAPH NO=240.22 INFLOW ID=5 DT=0.0
 PRINT HYD ID=15 CODE=1
 ** COMPUTE HYDROGRAPH FOR AREA 240.3
 COMPUTE NM HYD ID=3 HYD=240.3 DA=0.0080
 %A=0.0 %B=0.0 %C=75.00 %D=25.0 TP=0.20
 MASS RAINFALL=-1
 PRINT HYD ID=3 CODE=1
 ** ROUTE FLOW DOWN SWALE NORTH OF CENTRAL AVE
 COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
 MINIMUM ELEV=100.0 FT MAXIMUM ELEV=102 FT
 CHANNEL SLOPE=0.0025 FLOOD PLAIN SLOPE=0.0025

N=0.025 DIST=22
 DIST ELEV DIST ELEV DIST ELEV DIST ELEV
 0 102.0 1 101.9 11.0 100.0 21.0 101.9
 22.0 102.0
 COMPUTE TRAVEL TIME ID=4 REACH NO=1 VALLEY SECTIONS=1
 LENGTH=350 SLOPE=0.0025
 ROUTE ID=4 HYDROGRAPH NO=240.31 INFLOW ID=3 DT=0.050
 PRINT HYD ID=4 CODE=1
 ** ADD ROUTED FLOW IN THE SWALE FROM THE EAST TO ROUTED FLOW FROM THE WEST AT
 ** ENTRANCE TO THE 3 - 36" DIA CULVERTS
 ADD HYD ID=16 HYDROGRAPH NO=240.32 ID I=4 ID II=15
 PRINT HYD ID=16 CODE=1
 ** COMPUTE HYDROGRAPH FOR AREA 240.4
 COMPUTE NM HYD ID=2 HYD=240.4 DA=0.0231
 %A=0.0 %B=5.0 %C=35.00 %D=60.0 TP=0.21
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ROUTE FLOW THROUGH THE EXISTING RETENTION POND ON THE CHURCH PROPERTY.
 ** POND VOLUME TAKEN FROM DRAINAGE PLAN FOR CHURCH SITE. ASSUME FREE DISCHARGE
 ** OF FLOW FROM POND AFTER POND STAGE REACHES ELEV. 5088
 ROUTE RESERVOIR ID=3 HYDROGRAPH NO=240.41 INFLOW ID=2 CODE=5
 OUTFLOW(cfs) STORAGE(ac ft) ELEV(ft)
 0 0 5083.0
 0.01 1.19 5088.0
 100.00 1.191 5088.01
 100.01 1.192 5089.0
 PRINT HYD ID=3 CODE=1
 ** ADD ROUTED FLOW IN THE SWALE TO FLOW FROM AREA 240.4
 ADD HYD ID=15 HYDROGRAPH NO=240.42 ID I=3 ID II=16
 PRINT HYD ID=15 CODE=1
 ** COMPUTE HYDROGRAPH FOR THE NORTH SIDE OF CENTRAL AVE BETWEEN UNSER & AIRPORT
 COMPUTE NM HYD ID=4 HYD=240.5 DA=0.0093
 %A=0.0 %B=0.0 %C=10.0 %D=90.0 TP=0.14
 MASS RAINFALL=-1
 PRINT HYD ID=4 CODE=1
 ** ADD FLOW FROM THE NORTH SIDE OF CENTRAL AVE. TO FLOW IN SWALE AT THE NORTH
 ** SIDE OF CENTRAL AVE. THIS IS THE TOTAL FLOW AT THE ENTRANCE TO THE 3 - 36"
 ** CULVERTS WHICH CROSS CENTRAL
 ADD HYD ID=16 HYDROGRAPH NO=240.51 ID I=4 ID II=15
 PRINT HYD ID=16 CODE=1
 ** ROUTE FLOW THROUGH THE SWALE AND THE VOLUME OF THE RETENTION POND AND
 ** PARKING AREA WHICH IS LOCATED ABOVE ELEVATION 5088 . ASSUME FLOW FROM THIS
 ** AREA IS CONTROLLED BY THE ENTRANCE OF THE 3 - 36" CULVERTS
 ROUTE RESERVOIR ID=15 HYDROGRAPH NO=240.52 INFLOW ID=16 CODE=5
 OUTFLOW(cfs) STORAGE(ac ft) ELEV(ft)
 0 0 5085.9
 21 0.046 5087.0
 60 0.127 5088.0
 105 0.647 5089.0
 150 1.437 5090.0
 PRINT HYD ID=15 CODE=1
 ** ROUTE FLOW FROM THE NORTH SIDE OF CENTRAL THROUGH 3 EXISTING 36" CULVERTS TO
 ** THE SOUTH SIDE OF CENTRAL. SLOPE UNKNOWN ASSUME 0.005. USE 1 54" PIPE AS
 ** EQUIVILANT CONVEYANCE.

COMPUTE RATING CURVE CID-1 VALLEY SECTION NO-1 CODE=-1 SLOPE=0.005
 PIPE DIA=4.5 N=0.013
 COMPUTE TRAVEL TIME ID-5 REACH-1 NUMBER OF VALLEY SECTIONS-1
 LENGTH=140 FT SLOPE=0.005
 ROUTE ID-5 HYDROGRAPH NO=240.53 INFLOW ID-15 DT=0.0
 PRINT HYD ID-5 CODE=1
 ** COMPUTE HYDROGRAPH FOR THE SOUTH SIDE OF CENTRAL AVE BETWEEN UNSER & AIRPORT
 COMPUTE NM HYD ID-2 HYD=240.6 DA=0.0065
 %A=0.0 %B=0.0 %C=10.0 %D=90.0 TP=0.14
 MASS RAINFALL=-1
 PRINT HYD ID-2 code=1

 *S BEGIN AREA SOUTH OF CENTRAL AVENUE BETWEEN UNSER AND AIRPORT
 ** ASSUME A CHANNEL WILL BE CONSTRUCTED BETWEEN THE CULVERTS AT CENTRAL AVE
 ** AND THE COORS CONNECTION STORM DRAIN

 ** ADD FLOW FROM THE SOUTH SIDE OF CENTRAL TO THE ROUTED FLOW FROM THE NORTH
 ** SIDE OF CENTRAL
 ADD HYD ID-3 HYDROGRAPH NO=240.61 ID I-2 ID II-5
 PRINT HYD ID-3 CODE=1
 ** NOTE: NO WELL DEFINED FLOW PATH IS APPARENT IN THE FOLLOWING REACH
 ** ROUTE FLOW DOWN AN ASSUMED WIDE DEPRESSION SECTION FROM THE SOUTH SIDE OF
 ** CENTRAL TO THE SOUTH EAST CORNER OF AREA 250.1
 COMPUTE RATING CURVE CID-1 VALLEY SECTION-1 NUMBER OF SEGMENTS-1
 MINIMUM ELEV=100.0 FT MAXIMUM ELEV=105.1 FT
 CHANNEL SLOPE=0.003 FLOOD PLAIN SLOPE=0.003
 N=0.055 DIST=122

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	102	30	100	100	100	130	102

 COMPUTE TRAVEL TIME ID-4 REACH NO-1 VALLEY SECTIONS-1
 LENGTH=700 SLOPE=0.003
 ROUTE ID-4 HYDROGRAPH NO=240.62 INFLOW ID-3 DT=0.0
 PRINT HYD ID-4 CODE=1
 ** COMPUTE HYDROGRAPH FOR AREA 250.1
 COMPUTE NM HYD ID-2 HYD=250.1 DA=0.0247
 %A=20.0 %B=10.0 %C=40.0 %D=30.0 TP=0.22
 MASS RAINFALL=-1
 PRINT HYD ID-2 code=1
 ** ADD FLOW FROM AREA 250.1 TO FLOW IN THE ASSUMED CHANNEL AT SOUTH EAST CORNER OF AREA
 ** OF AREA 250.1
 ADD HYD ID-3 HYDROGRAPH NO=250.11 ID I-4 ID II-2
 PRINT HYD ID-3 CODE=1
 ** COMPUTE HYDROGRAPH FOR AREA 250.2
 COMPUTE NM HYD ID-2 HYD=250.2 DA=0.0079
 %A=0.0 %B=20.0 %C=45.0 %D=35.0 TP=0.15
 MASS RAINFALL=-1
 PRINT HYD ID-2 code=1
 ** NOTE: NO WELL DEFINED FLOW PATH IS APPARENT IN THE FOLLOWING REACH
 ** ADD FLOW FROM AREA 250.2 TO FLOW IN ASSUMED CHANNEL AT SOUTH WEST CORNER OF
 ** AREA 260.1
 ADD HYD ID-4 HYDROGRAPH NO=250.21 ID I-3 ID II-2
 PRINT HYD ID-4 CODE=1
 ** ROUTE FLOW DOWN ASSUMED CHANNEL SECTION FROM THE SOUTH EAST CORNER OF
 ** OF AREA 250.1 TO THE SOUTH LINE OF AREA 260.1

COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
 MINIMUM ELEV=100.0 FT MAXIMUM ELEV=102 FT
 CHANNEL SLOPE=0.011 FLOOD PLAIN SLOPE=0.011
 N=0.045 DIST=102

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	102	30	100	80	100	110	102

 COMPUTE TRAVEL TIME ID=3 REACH NO=1 VALLEY SECTIONS=1
 LENGTH=450 SLOPE=0.011
 ROUTE ID=3 HYDROGRAPH NO=250.22 INFLOW ID=4 DT=0.0
 PRINT HYD ID=3 CODE=1
 ** COMPUTE HYDROGRAPH FOR AREA 260.1
 COMPUTE NM HYD ID=2 HYD=260.1 DA=0.0398
 %A=88.0 %B=0.0 %C=10.0 %D=2.0 TP=0.1555
 MASS RAINFALL=-1
 PRINT HYD ID=2 code=1
 ** ADD FLOW FROM AREA 260.1 TO FLOW IN ASSUMED CHANNEL AT SOUTH LINE OF
 ** AREA 260.1
 ADD HYD ID=4 HYDROGRAPH NO=260.11 ID I=3 ID II=2
 PRINT HYD ID=4 CODE=1
 ** ROUTE FLOW DOWN ASSUMED CHANNEL SECTION FROM THE SOUTH LINE
 ** OF AREA 260.1 TO THE START OF INCISED CHANNEL
 COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
 MINIMUM ELEV=100.0 FT MAXIMUM ELEV=105.1FT
 CHANNEL SLOPE=0.027 FLOOD PLAIN SLOPE=0.027
 N=0.040 DIST=102

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	102	30	100	80	100	110	102

 COMPUTE TRAVEL TIME ID=2 REACH NO=1 VALLEY SECTIONS=1
 LENGTH=450 SLOPE=0.027
 ROUTE ID=2 HYDROGRAPH NO=260.12 INFLOW ID=4 DT=0.0
 PRINT HYD ID=2 CODE=1
 ** ROUTE FLOW DOWN ASSUMED CHANNEL SECTION FROM THE START OF THE INCISED
 ** CHANNEL TO THE S.E. CORNER OF AREA 270.1
 COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
 MINIMUM ELEV=100.0 FT MAXIMUM ELEV=105.1FT
 CHANNEL SLOPE=0.05 FLOOD PLAIN SLOPE=0.05
 N=0.035 DIST=31

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	105.12	1	105.0	10	100.1	20	100.0
30	105.0	31	105.1				

 COMPUTE TRAVEL TIME ID=2 REACH NO=1 VALLEY SECTIONS=1
 LENGTH=400 SLOPE=0.050
 ROUTE ID=4 HYDROGRAPH NO=260.13 INFLOW ID=2 DT=0.0
 PRINT HYD ID=4 CODE=1
 ** COMPUTE HYDROGRAPH FOR AREA 270.1. ASSUME ALL FLOW FROM THIS AREA WILL BE
 ** ROUTED TO THE SOUTH TO COORS STORM DRAIN
 COMPUTE NM HYD ID=3 HYD=270.1 DA=0.0222
 %A=87.0 %B=0.0 %C=10.0 %D=3.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=3 CODE=1
 ** ADD BASIN 270.1 FLOW TO THE ROUTED FLOW IN THE ASSUMED CHANNEL
 ** AT THE SOUTHEAST CORNER OF BASIN 270.1
 ADD HYD ID=4 HYDROGRAPH NO=270.11 ID I=3 ID II=4
 PRINT HYD ID=4 CODE=1

** ADD FLOW FROM THE ASSSUMED CHANNEL TO THE COORS STORM DRAIN AT STA 75+79
 ADD HYD ID=10 HYDROGRAPH NO=260.13 ID I=4 ID II=11
 PRINT HYD ID=10 CODE=1
 ** COMPUTE HYDROGRAPH FOR AREA 270.2 COORS BLVD R.W. STA 89+20 TO STA 76+15
 COMPUTE NM HYD ID=3 HYD=270.2 DA=0.0071
 %A=0.0 %B=15.0 %C=0.0 %D=85.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=3 code=1
 ** ADD FLOW FROM AREA 270.2 TO FLOW IN COORS S.D MANHOLE AT STA. 75+80
 ADD HYD ID=4 HYDROGRAPH NO=270.23 ID I=10 ID II=3
 PRINT HYD ID=4 CODE=1
 ** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 75+80
 ** TO COORS S.D. MANHOLE AT STA 71+29 PRESURE FLOW USE FRICTION SLOPE
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0303
 PIPE DIA=4.5 N=0.013
 COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=450 FT SLOPE=0.0303
 ROUTE ID=10 HYDROGRAPH NO=270.24 INFLOW ID=4 DT=0.0
 PRINT HYD ID=10 CODE=1
 ** COMPUTE HYDROGRAPH FOR AREA 280.1
 COMPUTE NM HYD ID=2 HYD=280.1 DA=0.0066
 %A=85.0 %B=0.0 %C=10.0 %D=5.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=2 code=1
 ** ADD FLOW FROM AREA 280.1 TO FLOW IN COORS S.D MANHOLE AT STA. 71+29
 ADD HYD ID=3 HYDROGRAPH NO=280.11 ID I=10 ID II=2
 PRINT HYD ID=3 CODE=1
 ** COMPUTE HYD. FOR AREA 280.2 COORS BLVD R.W. FROM STA 76+15 TO STA 71+70
 COMPUTE NM HYD ID=4 HYD=280.2 DA=0.0025
 %A=0.0 %B=15.0 %C=0.0 %D=85.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=4 code=1
 ** ADD FLOW FROM AREA 280.2 TO FLOW IN COORS S.D AT MANHOLE AT STA. 71+29
 ADD HYD ID=5 HYDROGRAPH NO=280.21 ID I=3 ID II=4
 PRINT HYD ID=5 CODE=1
 ** COMPUTE HYDROGRAPH FOR AREA 280.3 A PORTION OF AIRPORT DRIVE
 COMPUTE NM HYD ID=6 HYD=280.3 DA=0.0045
 %A=20.0 %B=30.0 %C=0.0 %D=50.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=6 code=1
 ** ADD FLOW FROM AREA 280.3 TO FLOW IN COORS S.D AT MANHOLE AT STA. 71+29
 ADD HYD ID=7 HYDROGRAPH NO=280.31 ID I=5 ID II=6
 PRINT HYD ID=7 CODE=1
 ** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 71+29
 ** TO COORS S.D. MANHOLE AT STA 66+79
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.010
 PIPE DIA=6.0 N=0.013
 COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=450 SLOPE=0.010
 ROUTE ID=10 HYDROGRAPH NO=280.32 INFLOW ID=7 DT=0.0
 PRINT HYD ID=10 CODE=1
 ** COMPUTE HYDROGRAPH FOR AREA 290.1
 COMPUTE NM HYD ID=2 HYD=290.1 DA=0.03144
 %A=90.0 %B=2.0 %C=6.0 %D=2.0 TP=0.1333

MASS RAINFALL=-1
 PRINT HYD ID=2 code=1
 ** ADD FLOW FROM AREA 290.1 TO FLOW IN COORS S.D MANHOLE AT STA. 66+79
 ADD HYD ID=3 HYDROGRAPH NO=290.12 ID I=10 ID II=2
 PRINT HYD ID=3 CODE=1
 ** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 66+79
 ** TO COORS S.D. MANHOLE AT STA 62+29
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.075
 PIPE DIA=6.0 N=0.013
 COMPUTE TRAVEL TIME ID=4 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=450 SLOPE=0.075
 ROUTE ID=4 HYDROGRAPH NO=290.13 INFLOW ID=3 DT=0.0
 PRINT HYD ID=4 CODE=1
 ** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 62.29
 ** TO COORS S.D. MANHOLE AT STA 58+89
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0075
 PIPE DIA=6.0 N=0.013
 COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=340 SLOPE=0.0075
 ROUTE ID=10 HYDROGRAPH NO=290.14 INFLOW ID=4 DT=0.
 PRINT HYD ID=10 CODE=1
 ** COMPUTE HYDROGRAPH FOR AREA 290.2 COORS BLVD.RW FROM STA. 71+70 TO STA 59+40
 COMPUTE NM HYD ID=2 HYD=290.2 DA=0.0069
 %A=0.0 %B=15.0 %C=0.0 %D=85.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=2 code=1
 ** ADD FLOW FROM AREA 290.2 TO FLOW IN COORS S.D MANHOLE AT STA. 58+89
 ADD HYD ID=3 HYDROGRAPH NO=290.21 ID I=10 ID II=2
 PRINT HYD ID=3 CODE=1
 ** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 58+89
 ** TO COORS S.D. MANHOLE AT STA 58+00
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0075
 PIPE DIA=6.0 N=0.013
 COMPUTE TRAVEL TIME ID=4 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=89 SLOPE=0.0075
 ROUTE ID=4 HYDROGRAPH NO=290.22 INFLOW ID=3 DT=0.050
 PRINT HYD ID=4 CODE=1
 ** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 58+00
 ** TO OUTLET AT POND AT STA 56+10 (170' LEFT)
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0075
 PIPE DIA=6.0 N=0.013
 COMPUTE TRAVEL TIME ID=5 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=248 SLOPE=0.0075
 ROUTE ID=5 HYDROGRAPH NO=290.23 INFLOW ID=4 DT=0.050
 PRINT HYD ID=5 CODE=1
 FINISH

START 0.0 HOURS ****ONE HUNDRED YEAR TWENTY FOUR HOUR STORM ****
 ** FILE NAME : CCSDWD.HMI (COORS CONNECTION STORM DRAIN WATERSHED DEVELOPED)**
 ** ANALYSIS FOR THE ATRISCO BUSINESS PARK MASTER DRAINAGE PLAN *****
 ** INCLUDES THE WATERSHED OF THE AIRPORT DRIVE AND COORS BLVD S.D.SYSTEM *****
 ** FULLY DEVELOPED CONNDITION *****
 ** AREAS OUTSIDE OF THE ATRISCO BUSINESS PARK INCLUDED TO DETERMINE TOTAL
 ** POTENTIAL FLOWS TO THE AIRPORT DRIVE AND COORS CONNECTION STORM DRAINS*****

 ** ANALYSIS ASSUMPTIONS:

 ** FLOW FROM ALL PRIVATE LAND NORTH OF CENTRAL AVE. CONTRIBUTING FLOW TO THE
 ** AIRPORT ROAD STORM DRAIN IS RESTRICTED TO 0.1cfs PER ACRE.*****
 ** LOTS SOUTH OF CENTRAL AVE. LOCATED ALONG THE EAST SIDE OF AIRPORT DRIVE
 ** ARE ASSUMED TO DISCHARGE AT THE EXISTING CONDITION FLOW RATE INTO AIRPORT
 ** DRIVE AND THEN flow IS ROUTED IN THE STREET TO THE CUL-DE-SAC BEFORE
 ** ENTERING THE STORM DRAIN *****
 ** PUBLIC STREETS CONTRIBUTING FLOW TO THE AIRPORT DRIVE STORM DRAIN HAVE
 ** FREE DISCHARGE INTO THE SYSTEM *****
 ** IN AREAS OF THE ATRISCO BUSINESS PARK WHERE THE POTENTIAL EXISTS FOR SOME OF
 ** OF THE PROPERTY ADJACENT TO THE STREETS TO DISCHARGE TO THE STREETS
 ** UNCONTROLLED DUE TO GRADE CONSTRAINTS, APPROXIMATELY 10 ADDITIONAL FEET OF
 ** WIDTH WAS USED IN CALCULATING STREET AREAS *****
 ** FLOW FROM THE AREAS OUTSIDE OF THE ATRISCO BUSINESS PARK AND THE WATERSHED
 ** OF THE AIRPORT DRIVE STORM DRAIN LIMITED TO THE EXISTING CONDITION FLOW
 ** RATE AT THE POINT WHERE THE FLOW ENTERS THE COORS STORM DRAIN *****
 ** UPDATED 9-14-92
 **RAINFALL TYPE=2 0.0 1.25 1.45 1.65
 RAINFALL TYPE=2 0.0 1.87 2.20 2.66 DT=0.05

 *S BEGIN THE WATERSHED FOR THE AIRPORT ROAD STORM DRAIN *****

 ** COMPUTE HYDROGRAPH FOR TRACT "S-1"*****
 ** AREA = 133.2 ACRES
 COMPUTE NM HYD ID=2 HYD=200.1 DA=-0.2081 SM
 %A=0.0 %B=15.0 %C=5.0 %D=80.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ROUTE FLOW FROM TRACT "S-1"THRU A POND WITH A MAX. DISCHARGE RATE OF .1 CFS
 ** PER ACRE. ALLOWABLE RELEASE RATE=13.32 cfs
 ROUTE RESERVOIR ID=3 HYDROGRAPH NO=200.11 INFLOW ID=2 CODE=20

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0	100.0
7.46	5.0	101.0
11.18	11.0	102.0
13.58	17.5	103.0
22.91	24.0	104.0

 PRINT HYD ID=3 CODE=1
 ** COMPUTE A HYDROGRAPH FOR FUTURE PUBLIC STREETS IN THE EASTERN PORTION OF
 ** TRACT "S-1"
 COMPUTE NM HYD ID=2 HYD=200.2 DA=-0.0042
 %A=0.0 %B=23.0 %C=0.0 %D=77.0 TP=0.1333
 MASS RAINFALL=-1

PRINT HYD ID=2 CODE=1
 ** ADD THE FLOW FROM THE FUTURE STREETS TO THE CONTROLLED FLOW FROM TRACT "S-1"
 ** AT THE INTERSECTION OF LOS VOLCANES AND AIRPORT ASSUME FLOW TO BE ROUTED TO
 ** THE AIRPORT ROAD STORM DRAIN
 ADD HYD ID=4 HYDROGRAPH NO=200.21 ID I=3 ID II=2
 PRINT HYD ID=4 CODE=1
 ** COMPUTE A HYDROGRAPH FOR FUTURE PUBLIC STREETS IN THE WESTERN PORTION OF
 ** OF TRACT "S-1"
 COMPUTE NM HYD ID=2 HYD=200.3 DA=-0.0076
 %A=0.0 %B=23.0 %C=0.0 %D=77.0 TP=0.1400
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** COMPUTE HYDROGRAPH FOR LOS VOLCANES BETWEEN UNSER BLVD AND 1250 LF WEST
 ** OF AIRPORT ROAD
 COMPUTE NM HYD ID=3 HYD=200.4 DA=-0.0042
 %A=0.0 %B=19.0 %C=0.0 %D=81.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=3 CODE=1
 ** ADD THE FLOW FROM THE FUTURE STREETS IN THE WEST PORTION OF TRACT "S-1" TO
 ** THE FLOW FROM THE WESTERN SEGMENT OF LOS VOLCANES 1250 WEST OF AIRPORT RD.
 ADD HYD ID=5 HYDROGRAPH NO=200.41 ID I=2 ID II=3
 PRINT HYD ID=5 CODE=1
 ** ROUTE THE FLOW IN THE STREET FROM 1250' WEST OF AIRPORT IN THE STREET TO
 ** THE INTERSECTION WITH AIRPORT
 COMPUTE RATING CURVE CID=1 VS NO=1 NUMBER OF SEGS=3
 MINIMUM ELEV=100.00 MAXIMUM ELEV=100.87
 CHANNEL SLOPE=0.0082 FLOOD PLAIN SLOPE=0.0082
 N=0.025 DIST=10.0 N=-0.017 DIST=58.0 N=0.025 DIST=68.0

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0.0	100.87	10.00	100.67	10.05	100.00	12.0	100.13
34.0	100.57	56.00	100.13	57.95	100.00	58.00	100.67
68.00	100.87						

 COMPUTE TRAVEL TIME ID=11 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=1250 FT SLOPE=0.0082
 ROUTE ID=11 HYDROGRAPH NO=200.45 INFLOW ID=5 DT=0.0
 PRINT HYD ID=11 CODE=1
 ** COMPUTE HYDROGRAPH FOR LOS VOLCANES BETWEEN 1250 LF WEST OF AIRPORT ROAD
 ** AND AIRPORT ROAD
 COMPUTE NM HYD ID=3 HYD=200.5 DA=-0.0035
 %A=0.0 %B=19.0 %C=0.0 %D=81.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=3 CODE=1
 ** ADD THE FLOW FROM THE EASTERN SEGMENT OF LOS VOLCANES TO THE ROUTED FLOW
 ** IN THE STREET AT THE INTERSECTION OF LOS VOLCANES AND AIRPORT ROAD
 ADD HYD ID=3 HYDROGRAPH NO=200.51 ID I=11 ID II=3
 PRINT HYD ID=3 CODE=1
 ** COMPUTE A HYDROGRAPH FOR THE WESTERN PORTION OF LOT 2, TRACT "N", A.B.P.
 ** AREA = 4.5 ACRES
 COMPUTE NM HYD ID=1 HYD=200.6 DA=-0.0070
 %A=0.0 %B=15.0 %C=5.0 %D=80.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1
 ** ROUTE FLOW FROM THE WESTERN PORTION OF LOT 2, TRACT "N", A.B.P. THRU A
 ** POND TO CONTROL DISCHARGE TO A MAX. OF 0.1 CFS PER ACRE. ALLOWABLE RELEASE

** RATE = .45 CFS

ROUTE RESERVOIR

ID=2 HYDROGRAPH NO=200.61 INFLOW ID=1 CODE=20

OUTFLOW(cfs) STORAGE(ac ft) ELEV(ft)

0	0	100.0
0.252	0.17	101.0
0.378	0.38	102.0
0.459	0.59	103.0
0.774	0.90	104.0

PRINT HYD ID=2 CODE=1

** ADD THE CONTROLLED FLOW FROM LOT 2, TRACT "N", A.B.P. TO THE FLOW AT
** FROM TRACT "S-1" AT THE INTERSECTION OF LOS VOLCANES AND AIRPORT ALL OF
** THIS FLOW TO BE ROUTED IN THE AIRPORT RD. S.D.

ADD HYD ID=1 HYDROGRAPH NO=200.62 ID I=4 ID II=2

PRINT HYD ID=1 CODE=1

** ROUTE FLOW IN A STORM DRAIN FROM THE INTERSECTION OF LOS VOLCANES AND
** AIRPORT DOWN AIRPORT RD. TO A POINT APPROXIMATELY 850 LF. SOUTH OF
** LOS VOLCANES

COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0050

PIPE DIA=2.5 N=0.013

COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1

LENGTH=850 FT SLOPE=0.0050

ROUTE ID=10 HYDROGRAPH NO=200.65 INFLOW ID=1 DT=0.0

PRINT HYD ID=10 CODE=1

** ROUTE THE FLOW IN THE STREET DOWN AIRPORT ROAD FROM LOS VOLCANES TO THE
** BACK LOT LINE OF LOT 9, TRACT "M"

COMPUTE RATING CURVE CID=1 VS NO=1 NUMBER OF SEGS=3

MINIMUM ELEV=100.00 MAXIMUM ELEV=100.87

CHANNEL SLOPE=0.0048 FLOOD PLAIN SLOPE=0.0048

N=0.025 DIST=10.0 N=-0.017 DIST=58.0 N=0.025 DIST=68.0

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV

0.0	100.87	10.00	100.67	10.05	100.00	12.0	100.13

34.0	100.57	56.00	100.13	57.95	100.00	58.00	100.67

68.00	100.87

COMPUTE TRAVEL TIME ID=11 REACH=1 NUMBER OF VALLEY SECTIONS=1

LENGTH=850 FT SLOPE=0.0048

ROUTE ID=11 HYDROGRAPH NO=200.66 INFLOW ID=3 DT=0.0

PRINT HYD ID=11 CODE=1

** COMPUTE HYDROGRAPH FOR THE NORTHERN PART OF TRACT "M" ATRISCO BUSINESS PARK

** LOTS 5 TO 9. AREA = 47.9 ACRES

COMPUTE NM HYD ID=2 HYD=210.1 DA=-0.0748 SM

%A=0.0 %B=15.0 %C=5.0 %D=80.0 TP=0.13333

MASS RAINFALL=-1

PRINT HYD ID=2 CODE=1

** ROUTE FLOW FROM TRACT "M" LOTS 5 - 9 THRU A THEORETICAL POND WITH A

** MAX. DISCHARGE OF 0.1 CFS PER ACRE. ALLOWABLE RELEASE RATE=4.79 cfs

ROUTE RESERVOIR ID=3 HYDROGRAPH NO=210.11 INFLOW ID=2 CODE=5

OUTFLOW(cfs) STORAGE(ac ft) ELEV(ft)

0	0	100.0
2.68	2.00	101.0
4.02	4.10	102.0
4.88	6.30	103.0
6.00	7.00	104.0

PRINT HYD ID=3 CODE=1

** ADD CONTROLLED DISCHARGE FROM TRACT "M" LOTS 5 - 9 TO THE ROUTED FLOW IN THE


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** AIRPORT ROAD STORM DRAIN
ADD HYD          ID=10  HYDROGRAPH NO=210.12  ID I=10  ID II=3
PRINT HYD        ID=10  CODE=1
** COMPUTE A HYDROGRAPH FOR FUTURE PUBLIC STREETS IN TRACT "M"
COMPUTE NM HYD    ID=2  HYD=210.2  DA=0.0078 SM
                  %A=0.0  %B=23.0  %C=0.0  %D=77.0  TP=0.1450
                  MASS RAINFALL=-1
PRINT HYD        ID=2  CODE=1
** ASSUME TWO TYPE DOUBLE "C" INLETS INTERCEPT FLOW FROM THE FUTURE PUBLIC
** STREETS IN TRACT "M" DIVIDE OUT THE APPROXIMATE FLOW INTERCEPTED BY THE
** INLETS  Q10=8cfs  Q100=11cfs
** HYD 210.21 = FLOW TO THE AIRPORT ROAD STORM DRAIN
** HYD 210.22 = FLOW TO REMAIN IN THE STREET
DIVIDE HYD        ID=2  Q=11.00  ID I=3  HYD I=210.21
                  ID II=6  HYD II=210.22
PRINT HYD        ID=3  CODE=1
PRINT HYD        ID=6  CODE=1
** ADD THE INTERCEPTED FLOW FROM THE FUTURE STREETS TO THE AIRPORT RD. S.D.
ADD HYD          ID=10  HYDROGRAPH NO=210.23  ID I=10  ID II=3
PRINT HYD        ID=10  CODE=1
** COMPUTE HYDROGRAPH FOR AIRPORT RD. FROM THE INTERSECTION OF LOS VOLCANES TO
** THE INTERSECTION WITH THE BACK LOT LINE OF LOT 9 TRACT "M"
COMPUTE NM HYD    ID=2  HYD=210.3  DA=-0.0025
                  %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.13333
                  MASS RAINFALL=-1
PRINT HYD        ID=2  CODE=1
** ADD THE FLOW FROM THE NORTHERN PORTION OF AIRPORT RD. TO THE ROUTED FLOW IN
** THE STREET
ADD HYD          ID=11  HYDROGRAPH NO=210.31  ID I=11  ID II=2
PRINT HYD        ID=11  CODE=1
** COMPUTE A HYDROGRAPH FOR LOT 1, TRACT "A", A.B.P.
** AREA = 7.5 ACRES
COMPUTE NM HYD    ID=2  HYD=210.4  DA=-0.0117
                  %A=0.0  %B=15.0  %C=5.0  %D=80.0  TP=0.13333
                  MASS RAINFALL=-1
PRINT HYD        ID=2  CODE=1
** ROUTE FLOW FROM LOT 1, TRACT "A", A.B.P. THRU A POND TO CONTROL THE
** DISCHARGE TO A MAX. OF 0.1 CFS PER ACRE. ALLOWABLE RELEASE RATE
** = .75 CFS
ROUTE RESERVOIR  ID=4  HYDROGRAPH NO=210.41  INFLOW ID=2  CODE=20
                  OUTFLOW(cfs)  STORAGE(ac ft)  ELEV(ft)
                  0              0              100.0
                  0.42           0.30           101.0
                  0.63           0.66           102.0
                  0.76           1.02           103.0
                  1.00           1.50           104.0
PRINT HYD        ID=4  CODE=1
** ADD THE CONTROLLED FLOW FROM LOT 1, TRACT "A", A.B.P. TO THE STORM DRAIN AT
** THE INTERSECTION OF THE BACK LOT LINE OF LOT 9, TRACT "M" AND AIRPORT RD.
ADD HYD          ID=13  HYDROGRAPH NO=210.42  ID I=10  ID II=4
PRINT HYD        ID=13  CODE=1
** ADD THE FLOW FROM THE FUTURE STREETS IN TRACT "M" THAT BYPASSES THE INLETS
** TO THE ROUTED FLOW IN THE STREET AT THE INTERSECTION OF THE BACK LOT
** LOT LINE OF LOT 9, TRACT "M" AND AIRPORT ROAD

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ADD HYD ID-12 HYDROGRAPH NO-210.43 ID I-6 ID II-11
 PRINT HYD ID-12 CODE-1
 ** ROUTE FLOW IN A STORM DRAIN FROM THE INTERSECTION OF THE BACK LOT LINE
 ** OF LOT 9, TRACT "M" AND AIRPORT ROAD
 ** DOWN AIRPORT RD. TO A THE INTERSECTION WITH BLUEWATER ROAD
 COMPUTE RATING CURVE CID-1 VALLEY SECTION NO-1 CODE--1 SLOPE=0.0048
 PIPE DIA=3.0 N=0.013
 COMPUTE TRAVEL TIME ID-10 REACH-1 NUMBER OF VALLEY SECTIONS-1
 LENGTH=850 FT SLOPE=0.0048
 ROUTE ID-10 HYDROGRAPH NO-210.46 INFLOW ID-13 DT=0.0
 PRINT HYD ID-10 CODE-1
 ** ROUTE THE FLOW IN THE STREET DOWN AIRPORT ROAD FROM THE BACK LOT LINE OF LOT
 ** OF LOT 9 TRACT "M" TO THE INTERSECTION WITH BLUEWATER ROAD
 COMPUTE RATING CURVE CID-1 VS NO-1 NUMBER OF SEGS-3
 MINIMUM ELEV=100.00 MAXIMUM ELEV=100.87
 CHANNEL SLOPE=0.0048 FLOOD PLAIN SLOPE=0.0048
 N=0.025 DIST=10.0 N=-0.017 DIST=58.0 N=0.025 DIST=68.0

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0.0	100.87	10.00	100.67	10.05	100.00	12.0	100.13
34.0	100.57	56.00	100.13	57.95	100.00	58.00	100.67
68.00	100.87						

 COMPUTE TRAVEL TIME ID-11 REACH-1 NUMBER OF VALLEY SECTIONS-1
 LENGTH=850 FT SLOPE=0.0048
 ROUTE ID-11 HYDROGRAPH NO-210.47 INFLOW ID-12 DT=0.0
 PRINT HYD ID-11 CODE-1
 ** COMPUTE HYDROGRAPH FOR AIRPORT RD. FROM THE INTERSECTION WITH THE BACK
 ** LOT LINE OF LOT 9 TRACT "M" TO THE INTERSECTION WITH BLUEWATER ROAD
 COMPUTE NM HYD ID-2 HYD=210.5 DA=-0.0024
 %A=0.0 %B=19.0 %C=0.0 %D=81.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID-2 CODE-1
 ** ADD THE ROUTED FLOW IN THE STREET TO THE FLOW FROM THE SOUTHERN SEGMENT OF
 ** AIRPORT ROAD AT THE INTERSECTION AIRPORT ROAD AND BLUEWATER
 ADD HYD ID-11 HYDROGRAPH NO-210.51 ID I-2 ID II-11
 PRINT HYD ID-11 CODE-1
 ** COMPUTE HYDROGRAPH FOR THE SOUTHERN PART OF TRACT "M" ATRISCO BUSINESS PARK
 * LOTS 1 TO 4 AND TRACT "L-1". AREA = 44.8 ACRES
 COMPUTE NM HYD ID-3 HYD=210.6 DA=-0.0700 SM
 %A=0.0 %B=15.0 %C=5.0 %D=80.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID-3 CODE-1
 ** ROUTE FLOW FROM TRACT "M" LOTS 1 - 4 AND TRACT "L-1" THRU A POND WITH A
 ** MAX. DISCHARGE OF 0.1 CFS PER ACRE. ALLOWABLE RELEASE RATE=4.48 cfs
 ROUTE RESERVOIR ID-4 HYDROGRAPH NO-210.61 INFLOW ID-3 CODE=20

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0	100.0
2.5	1.60	101.0
3.75	3.70	102.0
4.50	5.80	103.0
6.00	8.00	104.0

 PRINT HYD ID-4 CODE=1
 ** ADD THE ROUTED FLOW IN THE AIRPORT ROAD STORM DRAIN TO THE CONTROLLED FLOW
 ** FROM THE SOUTHERN PART OF TRACT "M" AT THE WEST INTERSECTION OF BLUEWATER
 ** AND AIRPORT ROAD

ADD HYD ID=10 HYDROGRAPH NO=210.62 ID I=4 ID II=10
 PRINT HYD ID=10 CODE=1
 ** COMPUTE HYDROGRAPH FOR BLUEWATER RD. FROM THE INTERSECTION OF UNSER BLVD. TO
 ** 1050 LF WEST OF THE INTERSECTION WITH AIRPORT ROAD
 COMPUTE NM HYD ID=2 HYD=210.7 DA=-0.0033
 %A=0.0 %B=19.0 %C=0.0 %D=81.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ROUTE FLOW FROM WESTERN PORTION OF BLUEWATER RD. DOWN THE STREET FROM 1050 LF
 ** WEST OF AIRPORT ROAD TO THE INTERSECTION WITH AIRPORT ROAD
 COMPUTE RATING CURVE CID=1 VS NO=1 NUMBER OF SEGS=3
 MINIMUM ELEV=100.00 MAXIMUM ELEV=100.87
 CHANNEL SLOPE=0.0030 FLOOD PLAIN SLOPE=0.0030
 N=0.025 DIST=10.0 N=-0.017 DIST=58.0 N=0.025 DIST=68.0

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0.0	100.87	10.00	100.67	10.05	100.00	12.0	100.13
34.0	100.57	56.00	100.13	57.95	100.00	58.00	100.67
68.00	100.87						

 COMPUTE TRAVEL TIME ID=12 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=1050 FT SLOPE=0.0030
 ROUTE ID=12 HYDROGRAPH NO=210.71 INFLOW ID=2 DT=0.0
 PRINT HYD ID=12 CODE=1
 ** COMPUTE HYDROGRAPH FOR BLUEWATER RD. FROM 1050 LF WEST OF AIRPORT TO THE
 ** WEST INTERSECTION WITH AIRPORT ROAD
 COMPUTE NM HYD ID=3 HYD=210.8 DA=-0.0028
 %A=0.0 %B=19.0 %C=0.0 %D=81.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=3 CODE=1
 ** ADD THE ROUTED FLOW FROM THE BLUEWATER RD. TO THE FLOW FROM THE EASTERN
 ** SEGMENT OF BLUEWATER AT THE INTERSECTION OF AIRPORT AND BLUEWATER
 ADD HYD ID=12 HYDROGRAPH NO=210.81 ID I=3 ID II=12
 PRINT HYD ID=12 CODE=1
 ** COMPUTE HYDROGRAPH FOR BLUEWATER RD. FROM THE INTERSECTION WITH AIRPORT
 ** ROAD TO THE GRADE BREAK EAST OF THE INTERSECTION WITH AIRPORT DRIVE
 COMPUTE NM HYD ID=2 HYD=210.9 DA=-0.0017
 %A=0.0 %B=19.0 %C=0.0 %D=81.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ADD THE FLOW FROM THE FAR EAST SEGMENT OF BLUEWATER RD TO THE BLUEWATER
 ** FLOW FROM THE WEST AT THE INTERSECTION OF AIRPORT AND BLUEWATER
 ADD HYD ID=12 HYDROGRAPH NO=210.91 ID I=12 ID II=2
 PRINT HYD ID=12 CODE=1
 ** ADD THE FLOW FROM BLUEWATER RD TO THE FLOW IN THE STREET AT THE
 ** INTERSECTION OF AIRPORT ROAD AND BLUEWATER ROAD
 ADD HYD ID=11 HYDROGRAPH NO=210.92 ID I=12 ID II=11
 PRINT HYD ID=11 CODE=1
 ** ADD THE TOTAL FLOW IN THE STREET TO THE STORM DRAIN FLOW AT THE INTERSECTION
 ** OF BLUEWATER ROAD AND AIRPORT ROAD
 ADD HYD ID=10 HYDROGRAPH NO=210.93 ID I=11 ID II=10
 PRINT HYD ID=10 CODE=1
 ** COMPUTE A HYDROGRAPH FOR LOT 2, TRACT "A", A.B.P.
 ** AREA = 7.5 ACRES
 COMPUTE NM HYD ID=2 HYD=211.10 DA=-0.0117
 %A=0.0 %B=15.0 %C=5.0 %D=80.0 TP=0.13333

MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ROUTE FLOW FROM LOT 2, TRACT "A", A.B.P. THRU A POND TO CONTROL THE
 ** DISCHARGE TO A MAX. OF 0.1 CFS PER ACRE. ALLOWABLE RELEASE RATE
 ** = .75 CFS
 ROUTE RESERVOIR ID=3 HYDROGRAPH NO=211.11 INFLOW ID=2 CODE=20
 OUTFLOW(cfs) STORAGE(ac ft) ELEV(ft)
 0 0 100.0
 0.42 0.28 101.0
 0.60 0.64 102.0
 0.75 0.98 103.0
 1.00 1.50 104.0
 PRINT HYD ID=3 CODE=1
 ** ADD THE CONTROLLED FLOW FROM LOT 2, TRACT "A", A.B.P. TO THE TOTAL FLOW IN
 ** THE STORM DRAIN AT THE INTERSECTION OF BLUEWATER RD. AND AIRPORT RD.
 ADD HYD ID=11 HYDROGRAPH NO=211.12 ID I=3 ID II=10
 PRINT HYD ID=11 CODE=1
 ** ROUTE FLOW IN A STORM DRAIN FROM THE INTERSECTION OF BLUEWATER AND AIRPORT
 ** DOWN AIRPORT RD. TO THE SOUTH LINE OF ATRISCO BUSINESS PARK
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0027
 PIPE DIA=4.0 N=0.013
 COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=1850 FT SLOPE=0.0027
 ROUTE ID=10 HYDROGRAPH NO=211.13 INFLOW ID=11 DT=0.0
 PRINT HYD ID=10 CODE=1

 *S BEGIN THE AREA SOUTH OF BLUEWATER ROAD

 ** COMPUTE HYDROGRAPH FOR AIRPORT ROAD SOUTH OF BLUEWATER TO THE SOUTH LINE OF
 ** THE ATRISCO BUSINESS PARK
 COMPUTE NM HYD ID=2 HYD=220.1 DA=-0.0035
 % A=0.0 % B=19.0 % C=0.0 % D=81.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** COMPUTE HYDROGRAPH FOR TRACT B, UNIT 2, A.B.P. AREA = 20.0 ACRES
 COMPUTE NM HYD ID=3 HYD=220.2 DA=-0.0313
 % A=0.0 % B=15.0 % C=5.0 % D=80.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=3 CODE=1
 ** ROUTE FLOW THRU AN ASSUMED POND WITH A DISCHARGE OF .1 CFS PER ACRE
 ** ALLOWABLE RELEASE RATE=2.0cfs
 ROUTE RESERVOIR ID=4 HYDROGRAPH NO=220.21 INFLOW ID=3 CODE=20
 OUTFLOW(cfs) STORAGE(ac ft) ELEV(ft)
 0 0 100.0
 1.12 0.80 101.0
 1.68 1.70 102.0
 2.04 2.60 103.0
 4.00 3.50 104.0
 PRINT HYD ID=4 CODE=1
 ** ROUTE FLOW IN A STORM DRAIN FROM THE TRACT "B", UNIT 2 POND TO THE AIRPORT
 ** ROAD STORM DRAIN
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.007
 PIPE DIA=1.5 N=0.013
 COMPUTE TRAVEL TIME ID=5 REACH=1 NUMBER OF VALLEY SECTIONS=1

LENGTH=1100 FT SLOPE=0.007
 ROUTE ID=5 HYDROGRAPH NO=220.22 INFLOW ID=4 DT=0.0
 PRINT HYD ID=5 CODE=1
 ** ADD THE ROUTED FLOW FROM PARCEL "B", UNIT 2 TO THE FLOW FROM AIRPORT ROAD
 ADD HYD ID=3 HYDROGRAPH NO=220.23 ID I=2 ID= II=5
 PRINT HYD ID=3 CODE=1
 ** COMPUTE HYDROGRAPH FOR PARCEL "C", UNIT 2, A.B.P. AREA = 28.6 ACRES
 COMPUTE NM HYD ID=2 HYD=220.3 DA=-0.0447
 %A=0.0 %B=15.0 %C=5.0 %D=80.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ROUTE FLOW THRU AN ASSUMED POND WITH A DISCHARGE OF .1 CFS PER ACRE
 ** ALLOWABLE RELEASE RATE=2.86 cfs
 ROUTE RESERVOIR ID=4 HYDROGRAPH NO=220.31 INFLOW ID=2 CODE=20

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0	100.0
1.60	1.20	101.0
2.40	2.40	102.0
2.90	3.70	103.0
3.50	5.00	104.0

 PRINT HYD ID=4 CODE=1
 ** ADD THE CONTROLLED FLOW FROM TRACT "C", UNIT 2 TO THE TOTAL FLOW IN AIRPORT
 ** ROAD AT THE SOUTH LINE OF THE ATRISCO BUSINESS PARK
 ADD HYD ID=2 HYDROGRAPH NO=220.32 ID I=3 ID= II=4
 PRINT HYD ID=2 CODE=1
 ** COMPUTE HYDROGRAPH FOR FUTURE STREETS IN PARCEL "C"
 COMPUTE NM HYD ID=4 HYD=220.40 DA=-0.0018
 %A=0.0 %B=23.0 %C=0.0 %D=77.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=4 CODE=1
 ** ADD THE FLOW FROM FUTURE STREETS IN PARCEL "C" TO THE TOTAL FLOW IN AIRPORT
 ** ROAD AT THE SOUTH LINE OF THE ATRISCO BUSINESS PARK
 ADD HYD ID=1 HYDROGRAPH NO=220.41 ID I=2 ID= II=4
 PRINT HYD ID=1 CODE=1
 ** COMPUTE HYDROGRAPH FOR TRACT "B", UNIT 1, A.B.P. AREA = 20.0 ACRES
 COMPUTE NM HYD ID=3 HYD=220.50 DA=-0.0313
 %A=0.0 %B=15.0 %C=5.0 %D=80.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=3 CODE=1
 ** ROUTE FLOW THRU AN ASSUMED POND WITH A DISCHARGE OF .1 CFS PER ACRE
 ** ALLOWABLE RELEASE RATE=2.00 cfs
 ROUTE RESERVOIR ID=4 HYDROGRAPH NO=220.51 INFLOW ID=3 CODE=20

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0	100.0
1.12	0.80	101.0
1.68	1.70	102.0
2.04	2.60	103.0
4.00	3.50	104.0

 PRINT HYD ID=4 CODE=1
 ** ADD THE CONTROLLED FLOW FROM TRACT "B", UNIT 1 TO THE TOTAL FLOW IN AIRPORT
 ** ROAD AT THE SOUTH LINE OF THE ATRISCO BUSINESS PARK
 ADD HYD ID=3 HYDROGRAPH NO=220.52 ID I=4 ID= II=1
 PRINT HYD ID=3 CODE=1
 ** ADD THE ROUTED FLOW FROM THE NORTH IN THE AIRPORT ROAD STORM DRAIN TO THE


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** TOTAL FLOW IN AIRPORT ROAD AT THE SOUTH LINE OF THE ATRISCO BUSINESS PARK
ADD HYD          ID-2  HYDROGRAPH NO-220.53  ID I-10 ID- II-3
PRINT HYD        ID-2  CODE=1
** ROUTE FLOW IN A STORM DRAIN FROM THE SOUTH LINE OF THE BUSINESS PARK
** TO AIRPORT RD STORM DRAIN STA 28+80 THE JUNCTION WITH FLOW FROM THE
** WEST 66 ADDITION
COMPUTE RATING CURVE CID-1  VALLEY SECTION NO-1  CODE=-1  SLOPE=0.0040
                      PIPE DIA=4.0  N=0.013
COMPUTE TRAVEL TIME ID-10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                      LENGTH=250 FT  SLOPE=0.0037
ROUTE            ID-10  HYDROGRAPH NO-220.54  INFLOW ID-2  DT=0.0
PRINT HYD        ID-10  CODE=1
*****
*S BEGIN THE AREA SOUTH OF THE ATRISCO BUSINESS PARK
*****
** COMPUTE HYDROGRAPH FOR THE WEST 66 ADDITION  AREA = 12.7 ACRES
COMPUTE NM HYD    ID-2  HYD=220.6  DA=-0.0198
                  %A=0.0  %B=15.0  %C=5.0  %D=80.0  TP=0.1333
                  MASS RAINFALL=-1
PRINT HYD        ID-2  CODE=1
** ROUTE FLOW THRU AN ASSUMED POND WITH A DISCHARGE OF .1 CFS PER ACRE
** ALLOWABLE RELEASE RATE=1.27 cfs
ROUTE RESERVOIR  ID-3  HYDROGRAPH NO-220.61  INFLOW ID-2  CODE=20
                  OUTFLOW(cfs)  STORAGE(ac ft)  ELEV(ft)
                  0              0              100.0
                  0.70           0.52           101.0
                  1.06           1.04           102.0
                  1.29           1.65           103.0
                  2.00           2.55           104.0
PRINT HYD        ID-3  CODE=1
** COMPUTE HYDROGRAPH FOR AIRPORT ROAD SOUTH OF THE SOUTH LINE OF
** THE ATRISCO BUSINESS PARK TO CENTRAL AVE.
COMPUTE NM HYD    ID-4  HYD=220.7  DA=-0.0027
                  %A=0.0  %B=19.0  %C=0.0  %D=81.0  TP=0.1333
                  MASS RAINFALL=-1
PRINT HYD        ID-4  CODE=1
** ADD CONTROLLED DISCHARGE FROM POND TO FLOW FROM AIRPORT ROAD
ADD HYD          ID-5  HYDROGRAPH NO-220.71  ID I-4  ID II-3
PRINT HYD        ID-5  CODE=1
** ADD FLOWS TO THE AIRPORT ROAD STORM DRAIN AT STA 28+80
ADD HYD          ID-2  HYDROGRAPH NO-220.72  ID I-10 ID II-5
PRINT HYD        ID-2  CODE=1
** ROUTE FLOW DOWN AIRPORT ROAD STORM DRAIN FROM STA 28+80 TO STA 9+85
COMPUTE RATING CURVE CID-1  VALLEY SECTION NO-1  CODE=-1  SLOPE=0.0037
                      PIPE DIA=4.0  N=0.013
COMPUTE TRAVEL TIME ID-10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                      LENGTH=1895 FT  SLOPE=0.0037
ROUTE            ID-10  HYDROGRAPH NO-220.73  INFLOW ID-2  DT=0.0
PRINT HYD        ID-10  CODE=1
*****
*S BEGIN AREA SOUTH OF CENTRAL BOULEVARD
*****
** COMPUTE HYDROGRAPH FOR LOT 59, UNIT 6, TOWN OF ATRISCO GRANT
COMPUTE NM HYD    ID-2  HYD=230.1  DA=-0.0018

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%A=0.0 %B=15.0 %C=5.0 %D=80.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ROUTE FLOW THRU AN ASSUMED POND WITH A MAX. DISCHARGE OF 3.80 CFS
 ROUTE RESERVOIR ID=20 HYDROGRAPH NO=230.11 INFLOW ID=2 CODE=20

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0	100.0
2.20	0.005	101.0
3.11	0.012	102.0
3.80	0.02	103.0
5.00	1.00	104.0

 PRINT HYD ID=20 CODE=1
 ** ROUTE THE FLOW FROM LOT 59, UNIT 6 DOWN AIRPORT ROAD
 ** USE AVERAGE STREET SLOPE
 COMPUTE RATING CURVECID=1 VS NO=1 NUMBER OF SEGS=3
 MINIMUM ELEV=100.00 MAXIMUM ELEV=100.87
 CHANNEL SLOPE=0.0097 FLOOD PLAIN SLOPE=0.0097
 N=0.025 DIST=10.0 N=-0.017 DIST=58.0 N=0.025 DIST=68.0

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0.0	100.87	10.00	100.67	10.05	100.00	12.0	100.13
34.0	100.57	56.00	100.13	57.95	100.00	58.00	100.67
68.00	100.87						

 COMPUTE TRAVEL TIME ID=3 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=550 FT SLOPE=0.0097
 ROUTE ID=3 HYDROGRAPH NO=230.12 INFLOW ID=20 DT=0.0
 PRINT HYD ID=3 CODE=1
 ** COMPUTE HYDROGRAPH FOR TRACT "B", TOWN OF ATRISCO GRANT
 COMPUTE NM HYD ID=2 HYD=230.2 DA=-0.0052
 %A=0.0 %B=15.0 %C=5.0 %D=80.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ROUTE FLOW THRU AN ASSUMED POND WITH A PEAK DISCHARGE OF 10.93 CFS
 ROUTE RESERVOIR ID=20 HYDROGRAPH NO=230.21 INFLOW ID=2 CODE=20

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0	100.0
6.34	0.01	101.0
8.96	0.024	102.0
10.93	0.04	103.0
15.00	1.50	104.0

 PRINT HYD ID=20 CODE=1
 ** ADD THE FLOW FROM TRACT "B", TOWN OF ATRISCO GRANT TO THE ROUTED FLOW.
 ** IN THE STREET
 ADD HYD ID=4 HYDROGRAPH NO=230.22 ID I=20 ID II=3
 PRINT HYD ID=4 CODE=1
 ** ROUTE THE COMBINED FLOW IN THE STREET DOWN AIRPORT ROAD TO THE INLET AT THE
 ** END OF AIRPORT ROAD
 COMPUTE RATING CURVECID=1 VS NO=1 NUMBER OF SEGS=3
 MINIMUM ELEV=100.00 MAXIMUM ELEV=100.87
 CHANNEL SLOPE=0.014 FLOOD PLAIN SLOPE=0.014
 N=0.025 DIST=10.0 N=-0.017 DIST=58.0 N=0.025 DIST=68.0

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0.0	100.87	10.00	100.67	10.05	100.00	12.0	100.13
34.0	100.57	56.00	100.13	57.95	100.00	58.00	100.67
68.00	100.87						

COMPUTE TRAVEL TIME ID=11 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=100 FT SLOPE=0.0097
 ROUTE ID=11 HYDROGRAPH NO=230.23 INFLOW ID=4 DT=0.0
 PRINT HYD ID=11 CODE=1
 ** COMPUTE HYDROGRAPH FOR AIRPORT ROAD SOUTH OF CENTRAL TO THE SOUTH END OF
 ** AIRPORT ROAD
 COMPUTE NM HYD ID=2 HYD=230.30 DA=-0.0024
 %A=0.0 %B=15.0 %C=0.0 %D=85.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ADD AIRPORT DRIVE FLOWS TO THE ROUTED FLOWS IN AIRPORT DRIVE
 ADD HYD ID=3 HYDROGRAPH NO=230.31 ID I=2 ID II=11
 PRINT HYD ID=3 CODE=1
 ** ADD THE FLOW IN THE STREET TO THE ROUTED FLOW IN THE STORM DRAIN AT
 ** THE SOUTH END OF AIRPORT ROAD
 ADD HYD ID=1 HYDROGRAPH NO=230.32 ID I=10 ID II=3
 PRINT HYD ID=1 CODE=1
 ** ROUTE FLOW DOWN AIRPORT ROAD STORM DRAIN FROM STA 9+85 TO M.H ON
 ** COORS STORM DRAIN AT STA 82+30
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.01
 PIPE DIA=4.0 N=0.013
 COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=130 FT SLOPE=0.01
 ROUTE ID=10 HYDROGRAPH NO=230.33 INFLOW ID=1 DT=0.050
 PRINT HYD ID=10 CODE=1

 *S END OF AIRPORT ROAD STORM DRAIN
 *S BEGIN COORS CONNECTION STORM DRAIN

 ** COMPUTE HYDROGRAPH FOR THE AREA S. & W. OF THE INTERSECTION OF COORS BLVD.
 ** AND CENTRAL BOULEVARD. ASSUME ALL FLOW IS ROUTED TO THE SOUTH TO COORS
 COMPUTE NM HYD ID=2 HYD=230.5 DA=0.0066
 %A=0.0 %B=10.0 %C=10.0 %80.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ROUTE FLOW THRU AN ASSUMED POND WITH A PEAK DISCHARGE OF 6.49 CFS
 ROUTE RESERVOIR ID=20 HYDROGRAPH NO=530.51 INFLOW ID=2 CODE=20

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0	100.0
3.75	0.06	101.0
5.32	0.13	102.0
6.49	0.22	103.0
15.00	1.50	104.0

 PRINT HYD ID=20 CODE=1
 ** ROUTE FLOW IN COORS STORM DRAIN FROM STA 91+38 TO STA 89+00
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0059
 PIPE DIA=2.0 N=0.013
 COMPUTE TRAVEL TIME ID=4 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=330 FT SLOPE=0.0059
 ROUTE ID=4 HYDROGRAPH NO=230.52 INFLOW ID=20 DT=0.0
 PRINT HYD ID=4 CODE=1
 ** COMPUTE HYDROGRAPH FOR THE SOUTH HALF OF CENTRAL AVE R.W. BETWEEN AIRPORT
 ** AND COORS
 COMPUTE NM HYD ID=2 HYD=230.6 DA=0.0023


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      %A=0.0 %B=0.0 %C=10.00 %D=90.0 TP=0.1333
      MASS RAINFALL=-1
PRINT HYD      ID=2 CODE=1
** ROUTE FLOW DOWN THE WEST SIDE OF COORS BLVD.
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
      MINIMUM ELEV=99.31 FT MAXIMUM ELEV=100.62 FT
      CHANNEL SLOPE=0.005 FLOOD PLAIN SLOPE=0.005
      N=0.017 DIST=34
      DIST  ELEV    DIST  ELEV    DIST  ELEV    DIST  ELEV
        0   100.0    1    99.98   1.01   99.31   34.0   100.67
      34.01  101.17
COMPUTE TRAVEL TIME ID=3 REACH NO=1 VALLEY SECTIONS=1
      LENGTH=1000 SLOPE=0.005
ROUTE          ID=3 HYDROGRAPH NO=230.61 INFLOW ID=2 DT=0.0
PRINT HYD      ID=3 CODE=1
** COMPUTE HYDROGRAPH FOR COORS BLVD R.W. FROM CENTRAL TO STA 89+20 COORS
COMPUTE NM HYD ID=2 HYD=230.7 DA=0.0058
      %A=0.0 %B=15.0 %C=0.0 %D=85.0 TP=0.13333
      MASS RAINFALL=-1
PRINT HYD      ID=2 CODE=1
** ADD FLOW FROM COORS TO THE ROUTED FLOW AT COORS STA. 89+20
ADD HYD        ID=1 HYDROGRAPH NO=230.71 ID I=3 ID II=2
PRINT HYD      ID=1 CODE=1
** ADD THE FLOW IN COORS BOULEVARD TO THE ROUTED FLOW IN THE STORM DRAIN
** AT STA 89+00
ADD HYD        ID=5 HYDROGRAPH NO=230.72 ID I=4 ID II=1
PRINT HYD      ID=5 CODE=1
** ROUTE FLOW IN COORS STORM DRAIN FROM STA 89+00 TO STA 85+70
** USE FRICTION SLOPE
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0111
      PIPE DIA=2.5 N=0.013
COMPUTE TRAVEL TIME ID=4 REACH=1 NUMBER OF VALLEY SECTIONS=1
      LENGTH=330 FT SLOPE=0.0111
ROUTE          ID=4 HYDROGRAPH NO=230.73 INFLOW ID=5 DT=0.0
PRINT HYD      ID=4 CODE=1
** COMPUTE HYDROGRAPH FOR AREA 230.8. ASSUME ALL FLOW FROM THIS AREA WILL BE
** ROUTED TO THE SOUTH TO COORS
COMPUTE NM HYD ID=2 HYD=230.8 DA=0.0112
      %A=0.0 %B=10.0 %C=10.0 %D=80.0 TP=0.13333
      MASS RAINFALL=-1
PRINT HYD      ID=2 CODE=1
** ROUTE FLOW THRU AN ASSUMED POND WITH A PEAK DISCHARGE OF 15.84 CFS
ROUTE RESERVOIR ID=20 HYDROGRAPH NO=230.81 INFLOW ID=2 CODE=20
      OUTFLOW(cfs) STORAGE(ac ft) ELEV(ft)
        0           0           100.0
        9.18        0.06        101.0
       12.99        0.15        102.0
       15.84        0.25        103.0
       25.00        2.00        104.0
PRINT HYD      ID=20 CODE=1
** ADD BASIN 230.8 FLOW TO THE ROUTED FLOW IN COORS BOULEVARD STORM DRAIN
** AT THE MANHOLE AT STA. 85+70
ADD HYD        ID=5 HYDROGRAPH NO=230.82 ID I=20 ID II=4
PRINT HYD      ID=5 CODE=1

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** ROUTE FLOW IN COORS STORM DRAIN FROM STA 85+70 TO STA 82+33
** PRESUURE FLOW USE FRICTION SLOPE
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0111
      PIPE DIA=2.5 N=0.013
COMPUTE TRAVEL TIME ID=2 REACH=1 NUMBER OF VALLEY SECTIONS=1
      LENGTH=337 FT SLOPE=0.0111
ROUTE      ID=2 HYDROGRAPH NO=230.83 INFLOW ID=5 DT=0.0
PRINT HYD      ID=2 CODE=1
** ADD FLOW FROM AIRPORT STORM DRAIN TO COORS STORM DRAIN AT STA 82+33
ADD HYD      ID=11 HYDROGRAPH NO=230.84 ID I=2 ID II=10
PRINT HYD      ID=11 CODE=1
** ROUTE FLOW IN COORS STORM DRAIN FROM STA 82+33 TO STA 79+32
** NOTE THE EXISTING PIPE IS A 24" RCP PIPE. UPGRADE TO 48"
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0550
      PIPE DIA=4.0 N=0.013
COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
      LENGTH=301 FT SLOPE=0.0550
ROUTE      ID=10 HYDROGRAPH NO=230.85 INFLOW ID=11 DT=0.0
PRINT HYD      ID=10 CODE=1
** ROUTE FLOW IN COORS STORM DRAIN FROM STA 79+32 TO STA 75+80
** NOTE THE EXISTING PIPE IS A 30" DIA RCP PIPE . UPGRADE TO 48"
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.03
      PIPE DIA=4.0 N=0.013
COMPUTE TRAVEL TIME ID=11 REACH=1 NUMBER OF VALLEY SECTIONS=1
      LENGTH=352 FT SLOPE=0.066
ROUTE      ID=11 HYDROGRAPH NO=230.86 INFLOW ID=10 DT=0.0
PRINT HYD      ID=11 CODE=1
*****
*S BEGIN THE AREA NORTH OF CENTRAL AVENUE BETWEEN UNSER AND THE WEST 66
*S ADDITION
*****
** COMPUTE HYDROGRAPH FOR AREA 240.1
COMPUTE NM HYD      ID=2 HYD=240.1 DA=0.0333
      %A=0.0 %B=15.0 %C=10.0 %D=75.0 TP=0.1333
      MASS RAINFALL=-1
PRINT HYD      ID=2 CODE=1
** ROUTE FLOW THRU AN ASSUMED POND WITH A PEAK DISCHARGE OF 58.74CFS
ROUTE RESERVOIR      ID=20 HYDROGRAPH NO=240.11 INFLOW ID=2 CODE=20
      OUTFLOW(cfs) STORAGE(ac ft) ELEV(ft)
              0 0 100.0
              34.00 0.10 101.0
              48.20 0.24 102.0
              58.74 0.40 103.0
              75.00 4.00 104.0
PRINT HYD      ID=20 CODE=1
** ROUTE FLOW DOWN SWALE NORTH OF CENTRAL AVE
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
      MINIMUM ELEV=100.0 FT MAXIMUM ELEV=102 FT
      CHANNEL SLOPE=0.0025 FLOOD PLAIN SLOPE=0.0025
      N=0.025 DIST=22
      DIST ELEV DIST ELEV DIST ELEV DIST ELEV
              0 102.0 1 101.9 11.0 100.0 15.0 100.1
              25 101.9 26 102.0
COMPUTE TRAVEL TIME ID=3 REACH NO=1 VALLEY SECTIONS=1

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LENGTH=320 SLOPE=0.0025
 ROUTE ID-3 HYDROGRAPH NO=240.12 INFLOW ID=20 DT=0.0
 PRINT HYD ID-3 CODE=1
 ** COMPUTE HYDROGRAPH FOR AREA 240.2
 COMPUTE NM HYD ID-4 HYD=240.2 DA=0.0125
 %A=0.0 %B=9.0 %C=20.0 %D=71.0 TP=0.19
 MASS RAINFALL=-1
 PRINT HYD ID-4 CODE=1
 ** ADD FLOW FROM AREA 240.2 TO ROUTED FLOW IN SWALE NORTH OF CENTRAL
 ADD HYD ID-5 HYDROGRAPH NO=240.21 ID I=4 ID II=3
 PRINT HYD ID-5 CODE=1
 ** ROUTE FLOW DOWN SWALE NORTH OF CENTRAL AVE TO CULVERTS CROSSING CENTRAL
 COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
 MINIMUM ELEV=100.0 FT MAXIMUM ELEV=102 FT
 CHANNEL SLOPE=0.0025 FLOOD PLAIN SLOPE=0.0025
 N=0.025 DIST=22

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	102.0	1	101.9	11.0	100.0	15.0	100.1
25	101.9	26	102.0				

 COMPUTE TRAVEL TIME ID=15 REACH NO=1 VALLEY SECTIONS=1
 LENGTH=300 SLOPE=0.0025
 ROUTE ID=15 HYDROGRAPH NO=240.22 INFLOW ID=5 DT=0.0
 PRINT HYD ID=15 CODE=1
 ** COMPUTE HYDROGRAPH FOR AREA 240.3
 COMPUTE NM HYD ID=3 HYD=240.3 DA=0.0080
 %A=0.0 %B=10.0 %C=10.00 %D=80.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=3 CODE=1
 ** ROUTE FLOW THRU AN ASSUMED POND WITH A PEAK DISCHARGE OF 12.85 CFS
 ROUTE RESERVOIR ID=20 HYDROGRAPH NO=240.31 INFLOW ID=3 CODE=20

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0	100.0
7.45	0.04	101.0
10.54	0.10	102.0
12.85	0.16	103.0
20.00	1.50	104.0

 PRINT HYD ID=20 CODE=1
 ** ROUTE FLOW DOWN SWALE NORTH OF CENTRAL AVE
 COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
 MINIMUM ELEV=100.0 FT MAXIMUM ELEV=102 FT
 CHANNEL SLOPE=0.0025 FLOOD PLAIN SLOPE=0.0025
 N=0.025 DIST=22

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	102.0	1	101.9	11.0	100.0	21.0	101.9
22.0	102.0						

 COMPUTE TRAVEL TIME ID=4 REACH NO=1 VALLEY SECTIONS=1
 LENGTH=350 SLOPE=0.0025
 ROUTE ID=4 HYDROGRAPH NO=240.32 INFLOW ID=20 DT=0.0
 PRINT HYD ID=4 CODE=1
 ** ADD ROUTED FLOW IN THE SWALE FROM THE EAST TO ROUTED FLOW FROM THE WEST AT
 ** ENTRANCE TO THE 3 - 36" DIA CULVERTS
 ADD HYD ID=16 HYDROGRAPH NO=240.33 ID I=4 ID II=15
 PRINT HYD ID=16 CODE=1
 ** COMPUTE HYDROGRAPH FOR AREA 240.4

COMPUTE NM HYD ID=2 HYD=240.4 DA=0.0231
 %A=0.0 %B=5.0 %C=35.00 %D=60.0 TP=0.21
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ROUTE FLOW THROUGH THE EXISTING RETENTION POND ON THE CHURCH PROPERTY.
 ** POND VOLUME TAKEN FROM DRAINAGE PLAN FOR CHURCH SITE. ASSUME FREE DISCHARGE
 ** OF FLOW FROM POND AFTER POND STAGE REACHES ELEV. 5088
 ROUTE RESERVOIR ID=3 HYDROGRAPH NO=240.41 INFLOW ID=2 CODE=5
 OUTFLOW(cfs) STORAGE(ac ft) ELEV(ft)
 0 0 5083.0
 0.01 1.19 5088.0
 100.00 1.191 5088.01
 100.01 1.192 5089.0
 PRINT HYD ID=3 CODE=1
 ** ADD ROUTED FLOW IN THE SWALE TO FLOW FROM AREA 240.4
 ADD HYD ID=15 HYDROGRAPH NO=240.42 ID I=3 ID II=16
 PRINT HYD ID=15 CODE=1
 ** COMPUTE HYDROGRAPH FOR THE NORTH SIDE OF CENTRAL AVE BETWEEN UNSER & AIRPORT
 COMPUTE NM HYD ID=4 HYD=240.5 DA=0.0093
 %A=0.0 %B=0.0 %C=10.0 %D=90.0 TP=0.14
 MASS RAINFALL=-1
 PRINT HYD ID=4 code=1
 ** ADD FLOW FROM THE NORTH SIDE OF CENTRAL AVE. TO FLOW IN SWALE AT THE NORTH
 ** SIDE OF CENTRAL AVE. THIS IS THE TOTAL FLOW AT THE ENTRANCE TO THE 3 - 36"
 ** CULVERTS WHICH CROSS CENTRAL
 ADD HYD ID=16 HYDROGRAPH NO=240.51 ID I=4 ID II=15
 PRINT HYD ID=16 CODE=1
 ** ROUTE FLOW THROUGH THE SWALE AND THE VOLUME OF THE RETENTION POND AND
 ** PARKING AREA WHICH IS LOCATED ABOVE ELEVATION 5088 . ASSUME FLOW FROM THIS
 ** AREA IS CONTROLLED BY THE ENTRANCE OF THE 3 - 36" CULVERTS
 ROUTE RESERVOIR ID=15 HYDROGRAPH NO=240.52 INFLOW ID=16 CODE=5
 OUTFLOW(cfs) STORAGE(ac ft) ELEV(ft)
 0 0 5085.9
 21 0.046 5087.0
 60 0.127 5088.0
 105 0.647 5089.0
 150 1.437 5090.0
 PRINT HYD ID=15 CODE=1
 ** ROUTE FLOW FROM THE NORTH SIDE OF CENTRAL THROUGH 3 EXISTING 36" CULVERTS TO
 ** THE SOUTH SIDE OF CENTRAL. SLOPE UNKNOWN ASSUME 0.005. USE 1 54" PIPE AS
 ** EQUIVILANT CONVEYANCE.
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.005
 PIPE DIA=4.5 N=0.013
 COMPUTE TRAVEL TIME ID=5 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=140 FT SLOPE=0.005
 ROUTE ID=5 HYDROGRAPH NO=240.53 INFLOW ID=15 DT=0.0
 PRINT HYD ID=5 CODE=1
 ** COMPUTE HYDROGRAPH FOR THE SOUTH SIDE OF CENTRAL AVE BETWEEN UNSER & AIRPORT
 COMPUTE NM HYD ID=2 HYD=240.6 DA=0.0065
 %A=0.0 %B=0.0 %C=10.0 %D=90.0 TP=0.14
 MASS RAINFALL=-1
 PRINT HYD ID=2 code=1

 *S BEGIN AREA SOUTH OF CENTRAL AVENUE BETWEEN UNSER AND AIRPORT


```

** ASSUME A CHANNEL WILL BE CONSTRUCTED BETWEEN THE CULVERTS AT CENTRAL AVE
** AND THE COORS CONNECTION STORM DRAIN
*****
** ADD FLOW FROM THE SOUTH SIDE OF CENTRAL TO THE ROUTED FLOW FROM THE NORTH
** SIDE OF CENTRAL
ADD HYD          ID=3  HYDROGRAPH NO=240.61  ID I=2  ID II=5
PRINT HYD        ID=3  CODE=1
** ROUTE FLOW DOWN AN ASSUMED CHANNEL FROM THE SOUTH SIDE OF CENTRAL
** TO THE SOUTH EAST CORNER OF AREA 250.1
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                      MINIMUM ELEV=100.0  MAXIMUM ELEV=106.0
                      CHANNEL SLOPE=0.0070  FLOOD PLAIN SLOPE=0.0070
                      N=0.013  DIST=50.0
                      DIST  ELEV    DIST  ELEV    DIST  ELEV    DIST  ELEV
                        0   106.2    2.0   106.0   20.0   100.0   30.0   100.01
                      48.0   106.0   50.0   106.2
COMPUTE TRAVEL TIME ID=4  REACH NO=1  VALLEY SECTIONS=1
                      LENGTH=700  SLOPE=0.0070
ROUTE             ID=4  HYDROGRAPH NO=240.62  INFLOW ID=3  DT=0.0
PRINT HYD        ID=4  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 250.1
COMPUTE NM HYD    ID=2  HYD=250.1  DA=0.0247
                      %A=0.0  %B=10.0  %C=10.0  %D=80.0  TP=0.1333
                      MASS RAINFALL=-1
PRINT HYD        ID=2  code=1
** ADD FLOW FROM AREA 250.1 TO FLOW IN THE ASSUMED CHANNEL AT THE SOUTH EAST
** CORNER OF AREA 250.1
ADD HYD          ID=3  HYDROGRAPH NO=250.11  ID I=4  ID II=2
PRINT HYD        ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 250.2
COMPUTE NM HYD    ID=2  HYD=250.2  DA=0.0079
                      %A=0.0  %B=20.0  %C=45.0  %D=35.0  TP=0.15
                      MASS RAINFALL=-1
PRINT HYD        ID=2  code=1
** ADD FLOW FROM AREA 250.2 TO FLOW IN THE ASSUMED CHANNEL AT SOUTH EAST
** CORNER OF AREA 250.1
ADD HYD          ID=4  HYDROGRAPH NO=250.21  ID I=3  ID II=2
PRINT HYD        ID=4  CODE=1
** ROUTE FLOW DOWN ASSUMED CHANNEL FROM THE SOUTH EAST CORNER OF
** OF AREA 250.1 TO THE SOUTH LINE OF AREA 260.1
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                      MINIMUM ELEV=100.0  MAXIMUM ELEV=106.0
                      CHANNEL SLOPE=0.0070  FLOOD PLAIN SLOPE=0.0070
                      N=0.013  DIST=50.0
                      DIST  ELEV    DIST  ELEV    DIST  ELEV    DIST  ELEV
                        0   106.2    2.0   106.0   20.0   100.0   30.0   100.01
                      48.0   106.0   50.0   106.2
COMPUTE TRAVEL TIME ID=3  REACH NO=1  VALLEY SECTIONS=1
                      LENGTH=350  SLOPE=0.007
ROUTE             ID=3  HYDROGRAPH NO=250.22  INFLOW ID=4  DT=0.0
PRINT HYD        ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR AREA 260.1
COMPUTE NM HYD    ID=2  HYD=260.1  DA=0.0398
                      %A=0.0  %B=15.0  %C=10.0  %D=75.0  TP=0.1333

```


MASS RAINFALL--1
 PRINT HYD ID=2 code=1
 ** ADD FLOW FROM AREA 260.1 TO FLOW IN ASSUMED CHANNEL AT THE SOUTH LINE OF
 ** AREA 260.1
 ADD HYD ID=4 HYDROGRAPH NO=260.11 ID I=2 ID II=3
 PRINT HYD ID=4 CODE=1
 ** ROUTE FLOW DOWN ASSUMED CHANNEL FROM THE SOUTH LINE
 ** OF AREA 260.1 TO THE SOUTH EAST CORNER OF AREA 270.1
 COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
 MINIMUM ELEV=100.0 MAXIMUM ELEV=106.0
 CHANNEL SLOPE=0.0025 FLOOD PLAIN SLOPE=0.0025
 N=0.013 DIST=50.0

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	106.2	2.0	106.0	20.0	100.0	30.0	100.01
48.0	106.0	50.0	106.2				

 COMPUTE TRAVEL TIME ID=2 REACH NO=1 VALLEY SECTIONS=1
 LENGTH=800 SLOPE=0.025
 ROUTE ID=2 HYDROGRAPH NO=260.12 INFLOW ID=4 DT=0.0
 PRINT HYD ID=2 CODE=1
 ** COMPUTE HYDROGRAPH FOR AREA 270.1. ASSUME ALL FLOW FROM THIS AREA WILL BE
 ** ROUTED TO THE SOUTH TO COORS STORM DRAIN
 COMPUTE NM HYD ID=3 HYD=270.1 DA=0.0222
 %A=0.0 %B=15.0 %C=10.0 %D=75.0 TP=0.1333
 MASS RAINFALL--1
 PRINT HYD ID=3 CODE=1
 ** ADD BASIN 270.1 FLOW TO THE ROUTED FLOW IN THE ASSUMED CHANNEL FROM THE WEST
 ** AT THE SOUTHEAST CORNER OF BASIN 270.1
 ADD HYD ID=4 HYDROGRAPH NO=270.11 ID I=3 ID II=2
 PRINT HYD ID=4 CODE=1
 ** ROUTE THE TOTAL FLOW IN THE ASSUMED CHANNEL FROM THE WEST THRU AN
 ** ASSUMED DETENTION BASIN
 ROUTE RESERVOIR ID=20 HYDROGRAPH NO=270.12 INFLOW ID=4 CODE=20

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0	100.0
87.0	1.40	101.0
116.0	3.00	102.0
145.0	5.00	103.0
200.0	6.50	104.0

 PRINT HYD ID=20 CODE=1
 ** ADD THE DETAINED FLOW FROM THE CHANNEL FROM THE WEST TO THE COORS STORM
 ** DRAIN AT STATION 75+79
 ADD HYD ID=10 HYDROGRAPH NO=270.13 ID I=20 ID II=11
 PRINT HYD ID=10 CODE=1
 ** COMPUTE HYDROGRAPH FOR AREA 270.2 COORS BLVD R.W. STA 89+20 TO STA 76+15
 COMPUTE NM HYD ID=3 HYD=270.2 DA=0.0071
 %A=0.0 %B=15.0 %C=0.0 %D=85.0 TP=0.1333
 MASS RAINFALL--1
 PRINT HYD ID=3 code=1
 ** ASSUME HGL AT STREET LEVEL IN THE 100 YEAR STORM. MOST FLOW FROM AREA
 ** 270.2 BYPASSES INLETS AND FLOWS IN STREET
 ** HYD 270.21 = FLOW TO THE COORS STORM DRAIN
 ** HYD 270.22 = FLOW TO REMAIN IN COORS
 DIVIDE HYD ID=3 Q=2.00 ID I=2 HYD I=270.21
 ID II=4 HYD II=270.22


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PRINT HYD ID-2 CODE=1
PRINT HYD ID-4 CODE=1
** ADD A PORTION OF THE AREA 270.3 FLOW TO THE STORM DRAIN AT THE MANHOLE AT
** STA. 75+80
ADD HYD ID-3 HYDROGRAPH NO=270.23 ID I=10 ID II=2
PRINT HYD ID-3 CODE=1
** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 75+80
** TO COORS S.D. MANHOLE AT STA 71+29 PRESURE FLOW USE FRICTION SLOPE
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0303
PIPE DIA=4.5 N=0.013
COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
LENGTH=450 FT SLOPE=0.0303
ROUTE ID=10 HYDROGRAPH NO=270.24 INFLOW ID=3 DT=0.0
PRINT HYD ID=10 CODE=1
** ROUTE THE REMAINING FLOW FROM AREA 270.2 DOWN COORS BLVD FROM STA 75+80 TO
** STA 71+29
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
MINIMUM ELEV=99.31 FT MAXIMUM ELEV=101.17 FT
CHANNEL SLOPE=0.0215 FLOOD PLAIN SLOPE=0.0215
N=0.017 DIST=117.00
DIST ELEV DIST ELEV DIST ELEV DIST ELEV
0 100.0 1 99.98 1.01 99.31 34.0 100.67
34.01 101.17 81.98 101.17 82.00 100.67 116.00 99.31
116.02 99.98 117.0 100.00
COMPUTE TRAVEL TIME ID=3 REACH NO=1 VALLEY SECTIONS=1
LENGTH=450 SLOPE=0.0215
ROUTE ID=3 HYDROGRAPH NO=270.25 INFLOW ID=4 DT=0.0
PRINT HYD ID=3 CODE=1
** ADD THE ROUTED FLOW IN THE STREET TO THE FLOW IN THE STORM DRAIN AT STA
** STA. 71+29
ADD HYD ID=4 HYDROGRAPH NO=270.26 ID I=10 ID II=3
PRINT HYD ID=4 CODE=1
** COMPUTE HYDROGRAPH FOR AREA 280.1
COMPUTE NM HYD ID=2 HYD=280.1 DA=0.0066
%A=0.0 %B=15.0 %C=10.0 %D=75.0 TP=0.1333
MASS RAINFALL=-1
PRINT HYD ID=2 code=1
** ROUTE FLOW THRU AN ASSUMED POND WITH A PEAK DISCHARGE OF 6.59 CFS
ROUTE RESERVOIR ID=20 HYDROGRAPH NO=280.11 INFLOW ID=2 CODE=20
OUTFLOW(cfs) STORAGE(ac ft) ELEV(ft)
0 0 100.0
3.8 0.06 101.0
5.4 0.13 102.0
6.6 0.22 103.0
10.00 1.50 104.0
PRINT HYD ID=20 CODE=1
** ADD FLOW FROM AREA 280.1 TO FLOW IN COORS S.D MANHOLE AT STA. 71+29
ADD HYD ID=3 HYDROGRAPH NO=280.12 ID I=4 ID II=20
PRINT HYD ID=3 CODE=1
** COMPUTE HYD. FOR AREA 280.2 COORS BLVD R.W. FROM STA 76+15 TO STA 71+70
COMPUTE NM HYD ID=4 HYD=280.2 DA=0.0025
%A=0.0 %B=15.0 %C=0.0 %D=85.0 TP=0.1333
MASS RAINFALL=-1
PRINT HYD ID=4 code=1

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** ADD FLOW FROM AREA 280.2 TO FLOW IN COORS S.D AT MANHOLE AT STA. 71+29
ADD HYD ID=5 HYDROGRAPH NO=280.21 ID I=3 ID II=4
PRINT HYD ID=5 CODE=1
** COMPUTE HYDROGRAPH FOR AREA 280.3 A PORTION OF AIRPORT DRIVE
COMPUTE NM HYD ID=6 HYD=280.3 DA=0.0045
%A=20.0 %B=30.0 %C=0.0 %D=50.0 TP=0.1333
MASS RAINFALL=-1
PRINT HYD ID=6 code=1
** ADD FLOW FROM AREA 280.3 TO FLOW IN COORS S.D AT MANHOLE AT STA. 71+29
ADD HYD ID=7 HYDROGRAPH NO=280.31 ID I=5 ID II=6
PRINT HYD ID=7 CODE=1
** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 71+29
** TO COORS S.D. MANHOLE AT STA 66+79
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.010
PIPE DIA=6.0 N=0.013
COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
LENGTH=450 SLOPE=0.010
ROUTE ID=10 HYDROGRAPH NO=280.32 INFLOW ID=7 DT=0.0
PRINT HYD ID=10 CODE=1
** COMPUTE HYDROGRAPH FOR AREA 290.1
COMPUTE NM HYD ID=2 HYD=290.1 DA=0.03144
%A=0.0 %B=35.00 %C=10.0 %D=55.0 TP=0.1333
MASS RAINFALL=-1
PRINT HYD ID=2 code=1
** ROUTE FLOW THRU AN ASSUMED POND WITH A PEAK DISCHARGE OF 28.8 CFS
ROUTE RESERVOIR ID=20 HYDROGRAPH NO=290.11 INFLOW ID=2 CODE=20
OUTFLOW(cfs) STORAGE(ac ft) ELEV(ft)
0 0 100.0
16.7 0.22 101.0
23.6 0.50 102.0
28.8 0.88 103.0
35.0 4.00 104.0
PRINT HYD ID=20 CODE=1
** ADD FLOW FROM AREA 290.1 TO FLOW IN COORS S.D MANHOLE AT STA. 66+79
ADD HYD ID=3 HYDROGRAPH NO=290.12 ID I=10 ID II=20
PRINT HYD ID=3 CODE=1
** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 66+79
** TO COORS S.D. MANHOLE AT STA 62+29
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.075
PIPE DIA=6.0 N=0.013
COMPUTE TRAVEL TIME ID=4 REACH=1 NUMBER OF VALLEY SECTIONS=1
LENGTH=450 SLOPE=0.075
ROUTE ID=4 HYDROGRAPH NO=290.13 INFLOW ID=3 DT=0.0
PRINT HYD ID=4 CODE=1
** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 62.29
** TO COORS S.D. MANHOLE AT STA 58+89
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0075
PIPE DIA=6.0 N=0.013
COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
LENGTH=340 SLOPE=0.0075
ROUTE ID=10 HYDROGRAPH NO=290.14 INFLOW ID=4 DT=0.
PRINT HYD ID=10 CODE=1
** COMPUTE HYDROGRAPH FOR AREA 290.2 COORS BLVD.RW FROM STA. 71+70 TO STA 59+40
COMPUTE NM HYD ID=2 HYD=290.2 DA=0.0069

```


%A=0.0 %B=15.0 %C=0.0 %D=85.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=2 code=1
 ** ADD FLOW FROM AREA 290.2 TO FLOW IN COORS S.D MANHOLE AT STA. 58+89
 ADD HYD ID=3 HYDROGRAPH NO=290.21 ID I=10 ID II=2
 PRINT HYD ID=3 CODE=1
 ** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 58+89
 ** TO COORS S.D. MANHOLE AT STA 58+00
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0075
 PIPE DIA=6.0 N=0.013
 COMPUTE TRAVEL TIME ID=4 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=89 SLOPE=0.0075
 ROUTE ID=4 HYDROGRAPH NO=290.22 INFLOW ID=3 DT=0.050
 PRINT HYD ID=4 CODE=1
 ** ROUTE FLOW IN STORM DRAIN FROM COORS STORM DRAIN M.H. AT STA 58+00
 ** TO OUTLET AT POND AT STA 56+10 (170' LEFT)
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0075
 PIPE DIA=6.0 N=0.013
 COMPUTE TRAVEL TIME ID=5 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=248 SLOPE=0.0075
 ROUTE ID=5 HYDROGRAPH NO=290.23 INFLOW ID=4 DT=0.050
 PRINT HYD ID=5 CODE=1
 FINISH


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*****
*****
** FILE NAME: TBSDI.HMI(TIERRA BAYITA STORM DRAIN (WATERSHED) INTERIM)
** CURRENT FILE UPDATED: 9-29-93
** ANALYSIS FOR ATRISCO BUSINESS PARK MASTER DRAINAGE PLAN
** UPPER WATERSHED OF THE FUTURE TIERRA BAYITA STORM DRAIN
** INCLUDES THE PROPOSED UNSER DIVERSION WATERSHED, THE UNSER STORM
** DRAIN WATERSHED AND TRACT A-1 OF ATRISCO BUSINESS PARK
** INTERIM CONDITION
** 24 HOUR STORM DT=0.05 HOURS IS THE BASE STORM FOR THE UNSER DIVERSION
** SYSTEM WATERSHED. ADDITIONAL VOLUME WAS ADDED TO HYDROGRAPHS WHERE
** APPROPRIATE TO SIMULATE THE 10 DAY STORM FOR POND ROUTING PURPOSES
** 24 HOUR STORM DT=0.03333 IS THE STORM USED IN THE UNSER BOULEVARD WATERSHED
** THE SHORTER TIME STEPS WERE USED TO ELIMINATE PROBLEMS IN SOME ROUTING
** ROUTINES USED IN THE MODEL. SOME OF THE DIVIDE HYD ROUTINES DID NOT PRODUCE
** ENOUGH TIME STEPS WITH FLOW TO SATISFY THE REQUIREMENTS OF THE ROUTING
** ROUTING ROUTINES WHEN THE LONGER TIME STEP WAS USED.
*****
*****
START          0.0 HOURS ***** 24-HOUR STORM*****
** 100 YEAR STORM
RAINFALL          TYPE=2  0.0  1.87  2.20  2.66      DT=0.0500
** 50 YEAR STORM
**RAINFALL          TYPE=2  0.0  1.70  1.98  2.39      DT=0.0500
** 25 YEAR STORM
**RAINFALL          TYPE=2  0.0  1.51  1.76  2.12      DT=0.0500
** 10 YEAR STORM
**RAINFALL          TYPE=2  0.0  1.25  1.47  1.77      DT=0.0500
** 5 YEAR STORM
**RAINFALL          TYPE=2  0.0  1.04  1.24  1.51      DT=0.0500
** 2 YEAR STORM
**RAINFALL          TYPE=2  0.0  0.74  0.95  1.15      DT=0.0500
*****
**S BEGIN UNSER DIVERSION WATERSHED
*****
** WATERSHED CONDITION)
** ANALYSIS OF THE UNSER DIVERSION SYSTEM IN THE INTERIN CONDITION IN WHICH THE
** WATERSHED IS IN THE EXISTING, MOSTLY UNDEVELOPED CONDITION
** 10 DAY STORM IS MODELED BY ADDING A HYDROGRAPH REPRESENTING THE ADDITIONAL
** VOLUME OF THE STORM WHICH OCCURS AFTER THE 24 HOUR BASE STORM
*****
*****
** ANALYSIS ASSUMPTIONS: OFFSITE WATERSHED IN EXISTING CONDITON
** THE UNSER DIVERSION IS ASSUMED TO HAVE NO OUTFALL IN THE INTERIM CONDITION
** AN OUTFALL IS PLANNED FOR THE SYSTEM BUT MAY NOT BE IN PLACE WHEN THE SYSTEM
** IS PUT INTO OPERATION THEREFORE THE SYSTEM IS DESIGNED TO RETAIN THE 100 YR.
** 10 DAY STORM.
*****
** BEGIN WATERSHED NORTH OF THE FUTURE PROPOSED INTERSTATE 40
** INTERCEPTOR CHANNEL
*****
** COMPUTE HYDROGRAPH BASIN 120.1 *****
COMPUTE NM HYD      ID=1  HYDROGRAPH NO=120.1  DA=0.0259
                    %A=100.0  %B=0.0  %C=0.0  %D=0.0  TP=0.1333
                    MASS RAINFALL=-1
PRINT HYD           ID=1  CODE=1

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** COMPUTE HYDROGRAPH BASIN 120.2 *****
COMPUTE NM HYD      ID=2  HYDROGRAPH NO=120.2  DA=0.0545
                    %A=100.0  %B=0.0  %C=0.0  %D=0.0  TP=0.193
                    MASS RAINFALL=-1
PRINT HYD           ID=2  CODE=1
** ADD HYDROGRAPHS FOR BASIN 120.1 AND BASIN 120.2
ADD HYD             ID=3  HYDROGRAPH NO=120.21 ID I=1  ID II=2
PRINT HYD           ID=3  CODE=1
** ROUTE FLOW DOWN MIREHAVEN ARROYO "B" TO THE NORTH SIDE OF I-40
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100.0 FT  MAXIMUM ELEV=106.0 FT
                    CHANNEL SLOPE=0.0229  FLOOD PLAIN SLOPE=0.0256
                    N=0.035  DIST=47
                    DIST  ELEV    DIST  ELEV    DIST  ELEV    DIST  ELEV
                      0   106.0    20   105.0    30   100.0    40   100.0
                      45   105.0    47   106.0
COMPUTE TRAVEL TIME ID=4  REACH NO=1  VALLEY SECTIONS=1
                    LENGTH=1750 FT  SLOPE=0.0229
ROUTE              ID=4  HYDROGRAPH NO=120.22 INFLOW ID=3  DT=0.0
PRINT HYD          ID=4  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 120.3 *****
COMPUTE NM HYD      ID=1  HYDROGRAPH NO=120.3  DA=0.0199
                    %A=100.0  %B=0.0  %C=0.0  %D=0.0  TP=0.1333
                    MASS RAINFALL=-1
PRINT HYD           ID=1  CODE=1
** ADD HYDROGRAPH FOR BASIN 120.3 TO ROUTED FLOW IN MIREHAVEN ARROYO "B" NORTH
** OF I-40
ADD HYD             ID=10  HYDROGRAPH NO=120.31 ID I=1  ID II=4
PRINT HYD           ID=10  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 130.1 *****
COMPUTE NM HYD      ID=3  HYDROGRAPH NO=130.1  DA=0.0743
                    %A=100.0  %B=0.0  %C=0.0  %D=0.0  TP=0.237
                    MASS RAINFALL=-1
PRINT HYD           ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 130.2 *****
COMPUTE NM HYD      ID=4  HYDROGRAPH NO=130.2  DA=0.0489
                    %A=100.0  %B=0.0  %C=0.0  %D=0.0  TP=0.1856
                    MASS RAINFALL=-1
PRINT HYD           ID=4  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 130.3 (SEGMENT OF NOLASCO STREET) *****
COMPUTE NM HYD      ID=5  HYDROGRAPH NO=130.3  DA=0.0047
                    %A=0.0  %B=0.0  %C=0.0  %D=100.0  TP=0.133333
                    MASS RAINFALL=-1
PRINT HYD           ID=5  CODE=1
** ADD BASINS 130.1 AND 130.2 HYDROGRAPHS *****
ADD HYD             ID=6  HYDROGRAPH NO=130.21 ID I=4  ID II=3
PRINT HYD           ID=6  CODE=1
** ADD BASIN 130.3 HYDROGRAPH TO BASIN 130.1 AND 130.2 COMBINED HYDRGRAPH *****
ADD HYD             ID=1  HYDROGRAPH NO=130.31 ID I=5  ID II=6
PRINT HYD           ID=1  CODE=1
** ROUTE FLOW FROM BASINS 130.1, 130.2 AND 130.3 DOWN MIREHAVEN ARROYO "C" TO
** THE NORTH SIDE OF I-40 *****
COMPUTE RATING CURVE CID=2  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100.0 FT  MAXIMUM ELEV=106.0 FT
                    CHANNEL SLOPE=0.0310  FLOOD PLAIN SLOPE=0.0310
                    N=0.035  DIST=47
                    DIST  ELEV    DIST  ELEV    DIST  ELEV    DIST  ELEV

```


0	106.0	20	105.0	30	100.0	40	100.0
45	105.0	47	106.0				

COMPUTE TRAVEL TIME ID=11 REACH NO=2 VALLEY SECTIONS=1
 LENGTH=1500 FT SLOPE=0.0310
 ROUTE ID=11 HYDROGRAPH NO=130.32 INFLOW ID=1 DT=0.0
 PRINT HYD ID=11 CODE=1
 COMPUTE HYDROGRAPH FOR BASIN 130.4 ***
 COMPUTE NM HYD ID=1 HYDROGRAPH NO=130.4 DA=0.0612
 %A=100.0 %B=0.0 %C=0.0 %D=0.0 TP=0.1454
 MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1
 ** ADD THE HYDROGRAPH FOR BASIN 130.4 TO MIREHAVEN ARROYO "C" NORTH OF I-40*****
 ADD HYD ID=12 HYDROGRAPH NO=130.41 ID I=1 ID II=11
 PRINT HYD ID=12 CODE=1
 COMPUTE HYDROGRAPH FOR BASIN 130.6 ***
 COMPUTE NM HYD ID=11 HYDROGRAPH NO=130.6 DA=0.0710
 %A=100.0 %B=0.0 %C=0.0 %D=0.0 TP=0.1902
 MASS RAINFALL=-1
 PRINT HYD ID=11 CODE=1

 ** BEGIN WATERSHED SOUTH OF FUTURE PROPOSED INTERSTATE 40
 ** INTERCEPTOR CHANNEL

 **ROUTE THE FLOW FROM BASIN 130.6 THROUGH AN EXISTING 30" CULVERT UNDER I-40
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.015
 PIPE DIA=30 N=0.013
 COMPUTE TRAVEL TIME ID=15 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=237 FT SLOPE=0.015
 ROUTE ID=15 HYDROGRAPH NO=130.61 INFLOW ID=11 DT=0.0
 PRINT HYD ID=15 CODE=1
 ** ROUTE FLOWS DOWN EXISTING INCISED TRAIL FROM THE SOUTH SIDE OF I-40 TO SOUTH
 ** SIDE OF BASIN 130.7*****
 COMPUTE RATING CURVE CID=4 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
 MINIMUM ELEV=100 FT MAXIMUM ELEV=101.5 FT
 CHANNEL SLOPE=0.025 FLOOD PLAIN SLOPE=0.025
 N=0.035 DIST=16

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	101.5	4	100.0	12	100.0	16	101.5

 COMPUTE TRAVEL TIME ID=11 REACH NO=2 VALLEY SECTIONS=1
 LENGTH=550 FT SLOPE=0.025
 ROUTE ID=11 HYDROGRAPH NO=130.62 INFLOW ID=15 DT=0.0
 PRINT HYD ID=11 CODE=1
 ** ROUTE FLOWS FROM BASIN 130.4 AND ABOVE THROUGH BOX CULVERT UNDER I-40*****
 COMPUTE RATING CURVE CID=3 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
 MINIMUM ELEV=100 FT MAXIMUM ELEV=112 FT
 CHANNEL SLOPE=0.031 FLOOD PLAIN SLOPE=0.031
 N=-0.015 DIST=20.1

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	108	0.10	100	10.1	100	10.15	108
11	108	11.1	100	20.0	100	20.1	108

 COMPUTE TRAVEL TIME ID=1 REACH NO=3 VALLEY SECTIONS=1
 LENGTH=350 FT SLOPE=0.020
 ROUTE ID=1 HYDROGRAPH NO=130.42 INFLOW ID=12 DT=0.0
 PRINT HYD ID=1 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 130.5 (PORTION OF I-40)*****
 COMPUTE NM HYD ID=3 HYDROGRAPH NO=130.5 DA=0.0104
 %A=51.0 %B=0.0 %C=0.0 %D=49.0 TP=0.133333

MASS RAINFALL=-1
 PRINT HYD ID=3 CODE=1
 ** ADD BASIN 130.5 HYDROGRAPH TO MIREHAVEN ARROYO "C" FLOW SOUTH OF I-40*****
 ADD HYD ID=4 HYDROGRAPH NO=130.51 ID I=1 ID II=3

 PRINT HYD ID=4 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 130.7*****
 COMPUTE NM HYD ID=1 HYDROGRAPH NO=130.70 DA=0.01696
 %A=86.0 %B=12.0 %C=2.0 %D=0.0 TP=0.133333
 MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 130.9*****
 COMPUTE NM HYD ID=2 HYDROGRAPH NO=130.90 DA=0.00954
 %A=86.0 %B=12.0 %C=2.0 %D=0.0 TP=0.133333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ADD BASIN 130.7 HYDROGRAPH TO BASIN 130.9 HYDROGRAPH*****
 ADD HYD ID=1 HYDROGRAPH NO=130.91 ID I=1 ID II=2
 PRINT HYD ID=1 CODE=1
 ** ROUTE FLOWS DOWN MIREHAVEN ARROYO "C" FROM THE SOUTH SIDE OF I-40 TO SOUTH
 ** BOUNDARY OF BASIN 130.9*****
 COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
 MINIMUM ELEV=100 FT MAXIMUM ELEV=106 FT
 CHANNEL SLOPE=0.025 FLOOD PLAIN SLOPE=0.025
 N=0.032 DIST=44

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	105.0	20	104.0	26	100.0	36	100.0
42	104.0	44	105.0				

 COMPUTE TRAVEL TIME ID=3 REACH NO=4 VALLEY SECTIONS=1
 LENGTH=1000 FT SLOPE=0.025
 ROUTE ID=3 HYDROGRAPH NO=130.52 INFLOW ID=4 DT=0.0
 PRINT HYD ID=3 CODE=1
 ** ADD THE HYDROGRAPH FOR BASIN 130.7 TO THE MIREHAVEN ARROYO "C" FLOW*****
 ADD HYD ID=4 HYDROGRAPH NO=130.72 ID I=1 ID II=3
 PRINT HYD ID=4 CODE=1
 ** ADD THE ROUTED FLOW IN THE INCISED TRAIL TO THE MIREHAVEN ARROYO "C" FLOW
 ** AT THE SOUTHERN BOUNDARY OF BASIN 130.7
 ADD HYD ID=2 HYDROGRAPH NO=130.73 ID I=4 ID II=11
 PRINT HYD ID=2 CODE=1
 COMPUTE HYDROGRAPH FOR BASIN 130.8***
 COMPUTE NM HYD ID=1 HYDROGRAPH NO=130.8 DA=0.0327
 %A=100.0 %B=0.0 %C=0.0 %D=0.0 TP=0.1410
 MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1
 ** ROUTE FLOWS IN ARROYO FROM BASIN 130.7 TO POND No. 5 OF THE PROPOSED
 ** UNSER DIVERSION
 COMPUTE RATING CURVE CID=5 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
 MINIMUM ELEV=100 FT MAXIMUM ELEV=105 FT
 CHANNEL SLOPE=0.023 FLOOD PLAIN SLOPE=0.023
 N=0.032 DIST=42

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	105.0	20	104.0	24	100.0	36	100.0
40	104.0	42.0	105.0				

 COMPUTE TRAVEL TIME ID=3 REACH NO=5 VALLEY SECTIONS=1
 LENGTH=1600 FT SLOPE=0.023
 ROUTE ID=3 HYDROGRAPH NO=130.74 INFLOW ID=2 DT=0.0
 PRINT HYD ID=3 CODE=1


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** ADD HYDROGRAPH FOR BASIN 130.8 TO FLOW IN THE MIREHAVEN ARROYO "C" AT POND
** No. 5 OF THE PROPOSED UNSER DIVERSION
ADD HYD          ID=11  HYDROGRAPH NO=130.81 ID I=3  ID II=1
PRINT HYD        ID=11  CODE=1
*****
**PICKUP MIREHAVEN ARROYO "B" FLOWS ON THE NORTH SIDE OF I-40
*****
** ROUTE FLOWS IN MIREHAVEN ARROYO "B" FROM THE NORTH SIDE OF I-40 THROUGH
** 3x6x4' BOX CULVERT TO THE SOUTH SIDE OF I-40
COMPUTE RATING CURVE CID=6  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
      MINIMUM ELEV=100.0 FT  MAXIMUM ELEV=104FT
      CHANNEL SLOPE=0.022 FLOOD PLAIN SLOPE=0.022
      N=-0.013  DIST=20.1
      DIST  ELEV    DIST  ELEV    DIST  ELEV    DIST  ELEV
        0   104      0.1   100      6.0   100      6.1   104
        7   104      7.1   100     13.0   100     13.1   104
       14   104     14.1   100     20.0   100     20.1   104
COMPUTE TRAVEL TIME ID=3  REACH NO=6  VALLEY SECTIONS=1
      LENGTH=306 FT  SLOPE=0.022
ROUTE          ID=3  HYDROGRAPH NO=120.32 INFLOW ID=10  DT=0.0
PRINT HYD      ID=3  CODE=1
** COMPUTE HYDROGRAPH BASIN 120.4 (A SEGMENT OF I-40)*****
COMPUTE NM HYD  ID=1  HYDROGRAPH NO=120.4 DA=0.0091
      %A=51.0  %B=0.0  %C=0.0  %D=49.0  TP=0.133333
      MASS RAINFALL=-1
PRINT HYD      ID=1  CODE=1
** ADD HYDROGRAPH FOR BASIN 120.4 TO THE FLOW IN THE MIREHAVEN ARROYO "B"*****
ADD HYD        ID=2  HYDROGRAPH NO=120.41  ID I=3  ID II=1
PRINT HYD      ID=2  CODE=1
** ROUTE FLOWS IN MIREHAVEN ARROYO "B" TO POND No. 6 OF THE PROPOSED UNSER
** DIVERSION
COMPUTE RATING CURVE CID=6  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
      MINIMUM ELEV=100 FT  MAXIMUM ELEV=106 FT
      CHANNEL SLOPE=0.023 FLOOD PLAIN SLOPE=0.023
      N=0.030  DIST=34
      DIST  ELEV    DIST  ELEV    DIST  ELEV    DIST  ELEV
        0   106.0     2   105.0    12   100.0    22   100.0
       32   105.0    34   106.0
COMPUTE TRAVEL TIME ID=1  REACH NO=7  VALLEY SECTIONS=1
      LENGTH=1700 FT  SLOPE=0.023
ROUTE          ID=1  HYDROGRAPH NO=120.42 INFLOW ID=2  DT=0.0
PRINT HYD      ID=1  CODE=1
**COMPUTE HYDROGRAPH FOR BASIN 120.5 *****
COMPUTE NM HYD  ID=2  HYDROGRAPH NO=120.5  DA=0.0162
      %A=100.0  %B=0.0  %C=0.0  %D=0.0  TP=0.133333
      MASS RAINFALL=-1
PRINT HYD      ID=2  CODE=1
** ADD HYDROGRAPH FOR BASIN 120.5 TO MIREHAVEN ARROYO "B" FLOW AT POND No. 6 OF
** THE PROPOSED UNSER DIVERSION PROJECT
ADD HYD        ID=3  HYDROGRAPH NO=120.51  ID I=2  ID II=1
PRINT HYD      ID=3  CODE=1
** BULK THE FLOW IN MIREHAVEN ARROYO "B" TO REFLECT THE AVERAGE BULKING FACTOR
** COMPUTED BY THE SEDIMENT TRANSPORT MODEL FOR THE IMMEDIATE UPSTREAM REACH
DIVIDE HYD      ID=3  PER=-105  ID=15  HYD=120.52
      ID=16  HYD=120.53
PRINT HYD      ID=15  CODE=1
PRINT HYD      ID=16  CODE=1

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**COMPUTE HYDROGRAPH FOR BASIN 120.6*****
COMPUTE NM HYD      ID=6  HYDROGRAPH NO=120.6  DA=0.0328
                    %A=98.0  %B=0.0  %C=0.0  %D=2.0  TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD           ID=6    CODE=1
** BULK THE FLOW FROM BASIN 120.6 TO REFLECT THE AVERAGE BULKING FACTOR
** COMPUTED BY THE SEDIMENT TRANSPORT MODEL FOR THE EARTHEN CHANNEL FROM BASIN
** 120.6
DIVIDE HYD           ID=6  PER=-101    ID=17    HYD=120.61
                    ID=16    HYD=120.62
PRINT HYD           ID=17  CODE=1
PRINT HYD           ID=16  CODE=1
** ADD HYDROGRAPH FOR BASIN 120.6 TO MIREHAVEN ARROYO "B" FLOW AT POND No. 6
** OF THE PROPOSED UNSER DIVERSION
ADD HYD              ID=18  HYDROGRAPH NO=120.63  ID I=15  ID II=17
PRINT HYD            ID=18  CODE=24
** STORE A HYDROGRAPH TO REPRESENT THE ADDITIONAL VOLUME OF FLOW WHICH IS
** DEVELOPED AFTER THE 24 HR STORM. THIS FLOW COMES FROM THE IMPERVIOUS AREAS
** ONLY. THE VOLUME CALCULATED PER SECTION 22.2 OF COA DPM IS AS FOLLOWS:
** 0.0045*640*(3.67-2.66)*.0833=0.242ac*ft
** THIS FLOW SHOULD BE ADDED TO THE HYDROGRAPH AFTER THE PEAK FLOW HAS PASSED
STORE HYD            ID=15  HYD=120.64  DT=1 HR    DA=.0001
                    FLOW RATES = 0  0  0  0  0  2.93  0
PRINT HYD            ID=15  CODE=24
MODIFY TIME          ID=15    DT=0.05 HR    CODE=3
PRINT HYD            ID=15  CODE=1
** ADD THE HYDROGRAPH REPRESENTING THE ADDITIONAL INFLOW VOLUME TO THE INFLOW
** TO UNSER DIVERSION POND No. 6
ADD HYD              ID=7  HYDROGRAPH NO=120.65  ID I=15  ID II=18
PRINT HYD            ID=7  CODE=1
*****
** BEGIN PROPOSED UNSER DIVERSION  APPROXIMATELY 1000 LF NORTH OF LOS
** VOLCANES ROAD
*****
**ROUTE THE BULKED COMBINED FLOW FROM MIREHAVEN  ARROYO "B" AND BASIN 120.6
**THROUGH UNSER DIVERSION POND #6 LOCATED SOUTH OF DAYTONA ROAD
**IN THE INTERIM CONDITION THIS POND WILL RETAIN ALL OF THE FLOWS FROM THE
**CONTRIBUTING WATERSHED IN THE 100 YEAR 10 DAY STORM.
**A SMALL INSIGNIFICANT RATE OF OUTFLOW IS INPUT IN TO THE MODEL IN ORDER TO
**SATISFY THE INPUT DATA REQUIREMENTS OF THE MODEL
**.09 ACRE*FT OF VOLUME WHICH REPRESENTS 5 X THE ESTIMATED ANNUAL AVERAGE
**SEDIMENT YIELD IS OMITED FROM THE STAGE STORAGE CURVE
ROUTE RESERVOIR      ID=5  HYDROGRAPH NO=120.66  INFLOW ID=7  CODE=24
                    OUTFLOW(cfs)    STORAGE(ac ft)    ELEV(ft)
                        0              0.0              70.0
                        0.01           0.1416           71.0
                        0.011          0.8272           72.0
                        0.012          1.7707           73.0
                        0.013          2.7859           74.0
                        0.014          3.8744           75.0
                        0.015          5.0362           76.0  TOP OF OUTLET STR
                        66.0            6.2749           77.0
                        91.4            7.4619           77.9  EMERGENCY SPILLWAY
                        100.0           7.5982           78.0
                        409.0           9.0118           79.0
PRINT HYD            ID=5  CODE=1
** BULK THE FLOW IN MIREHAVEN  ARROYO "C" TO REFLECT THE BULKING FACTOR

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** COMPUTED BY THE SEDIMENT TRANSPORT MODEL FOR THE IMMEDIATE UPSTREAM REACH
 DIVIDE HYD ID=11 PER=-107 ID=17 HYD=130.82
 ID=16 HYD=130.83
 PRINT HYD ID=17 CODE=1
 PRINT HYD ID=16 CODE=1
 ** STORE A HYDROGRAPH TO REPRESENT THE ADDITIONAL VOLUME OF FLOW WHICH IS
 ** DEVELOPED AFTER THE 6 HR STORM. THIS FLOW COMES FROM THE IMPERVIOUS AREAS
 ** ONLY. THE VOLUME CALCULATED PER SECTION 22.2 OF COA DPM IS AS FOLLOWS:
 ** $0.0090 \times 640 \times (3.67 - 2.66) \times 0.0833 = 0.4846 \text{ ac} \cdot \text{ft}$
 ** THIS FLOW SHOULD BE ADDED TO THE HYDROGRAPH AFTER THE PEAK FLOW HAS PASSED
 STORE HYD ID=15 HYD=130.84 DT=1 HR DA=.0001
 FLOW RATES = 0 0 0 0 0 5.87 0
 PRINT HYD ID=15 CODE=1
 MODIFY TIME ID=15 DT=0.05 HR CODE=3
 PRINT HYD ID=15 CODE=1
 ** ADD THE HYDROGRAPH REPRESENTING THE ADDITIONAL INFLOW VOLUME TO THE INFLOW
 ** TO UNSER DIVERSION POND No. 5
 ADD HYD ID=7 HYDROGRAPH NO=130.85 ID I=15 ID II=17
 PRINT HYD ID=7 CODE=1
 **ROUTE THE FLOW FROM MIREHAVEN ARROYO "C" THROUGH POND No. 5 OF THE UNSER
 **DIVERSION. THIS POND IS INTENDED TO SERVE AS A SEDIMENTATION AND PARTIAL
 **RETENTION POND. THE UPPER PORTION OF THE POND WILL BE USED FOR DETENTION
 **OUTFLOW STRUCTURE IS AN 8' X 8' CONCRETE BOX SOLID TO 4.0' DEPTH
 **FLOW IS CONTROLLED BY WEIR FLOW OVER THE TOP OF THE CONCRETE BOX TO 5.5'
 ** DEPTH. FLOWS => 5.5' ARE BASED ON ORIFICE CONTROL OF A 48" DIA OUTLET PIPE
 ** C=0.59 INVERT AT 59.0
 **.29 ACRE*FT OF VOLUME WHICH REPRESENTS 5 X THE ESTIMATED ANNUAL AVERAGE
 **SEDIMENT YIELD IS OMITED FROM THE STAGE STORAGE CURVE
 ROUTE RESERVOIR ID=5 HYDROGRAPH NO=130.86 INFLOW ID=7 CODE=24

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0.00	0.00	60.0
0.01	0.0204	61.0
0.011	0.3695	62.0
0.012	0.7585	63.0
0.013	1.1886	64.0 TOP OF OUTLET STR
23.3	1.4249	64.5
66.0	1.6611	65.0
121.3	1.8892	65.5
133.1	2.1173	66.0
145.7	2.7385	67.0
157.4	3.3458	68.0
165.6	3.8689	68.8 EMERGENCY SPILLWAY
190.1	4.0055	69.0
522.0	4.7259	70.0

 PRINT HYD ID=5 CODE=1
 **ROUTE THE OUTFLOW FROM THE POND THROUGH A 48" DIA STORM DRAIN
 **TO POND 4 ON THE SOUTH SIDE OF LOS VOLCANES
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.026
 PIPE DIA=48 N=0.013
 COMPUTE TRAVEL TIME ID=11 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=305 FT SLOPE=0.026
 ROUTE ID=11 HYDROGRAPH NO=130.87 INFLOW ID=5 DT=0.0
 PRINT HYD ID=11 CODE=1
 **ROUTE THE FLOW FROM THE STORM DRAIN
 **THROUGH UNSER DIVERSION POND NO. 4 LOCATED SOUTH OF LOS VOLCANES ROAD
 **IN THE INTERIM CONDITION THE LOWER PORTION OF THIS POND WILL BE USED FOR
 **RETENTION. THE UPPER PORTION OF THE POND WILL BE USED FOR DETENTION

**OUTFLOW STRUCTURE IS AN 8' X 8' CONCRETE BOX SOLID TO ELEV 51.9
 **FLOW IS CONTROLLED BY WEIR FLOW OVER THE CONCRETE STRUCTURE BETWEEN
 **ELEV. 51.9 AND 53.0 FLOW IS THEN CONTROLLED BY THE ENTRANCE OF THE 42"
 **DIA OUTLET PIPE

ROUTE RESERVOIR ID=5 HYDROGRAPH NO=130.88 INFLOW ID=11 CODE=24

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0.0	47.0
0.01	0.0823	48.0
0.011	0.5114	49.0
0.012	1.2988	50.0
0.013	2.2910	51.0
0.014	3.2577	51.9 TOP OF OUTLET STR
2.1	3.3651	52.0
30.7	3.9439	52.5
76.1	4.5226	53.0
111.1	5.7648	54.0
120.1	7.1829	55.1 EMERGENCY SPILLWAY
359.0	8.5077	56.0

PRINT HYD ID=5 CODE=1
 **ROUTE THE OUTFLOW FROM THE POND THROUGH A 42" DIA S.D. TO UNSER DIVERSION
 **POND NO. 3

COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.013
 PIPE DIA=42 N=0.013

COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=139FT SLOPE=0.013

ROUTE ID=10 HYDROGRAPH NO=130.89 INFLOW ID=5 DT=0.0
 PRINT HYD ID=10 CODE=1

** COMPUTE HYDROGRAPH FOR BASIN 140.1 *****

COMPUTE NM HYD ID=1 HYDROGRAPH NO=140.1 DA=0.0196
 %A=74.0 %B=22.0 %C=4.0 %D=0.0 TP=0.133333
 MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1
 ** ROUTE FLOWS FROM BASIN 140.1 DOWN EXISTING INSISED TRAIL FROM THE SOUTH SIDE
 ** OF BASIN 140.1 TO LOS VOLCANES ROAD *****

COMPUTE RATING CURVE CID=4 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
 MINIMUM ELEV=100 FT MAXIMUM ELEV=101.0 FT
 CHANNEL SLOPE=0.026 FLOOD PLAIN SLOPE=0.026
 N=0.035 DIST=16

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	101.0	4	100.0	12	100.0	16	101.0

COMPUTE TRAVEL TIME ID=12 REACH NO=2 VALLEY SECTIONS=1
 LENGTH=1800 FT SLOPE=0.026
 ROUTE ID=12 HYDROGRAPH NO=140.11 INFLOW ID=1 DT=0.0
 PRINT HYD ID=12 CODE=1

** ROUTE FLOWS FROM BASIN 140.1 ALONG THE DIVERSION DIKE TO A
 ** DETENTION AND SEDIMENTATION BASIN NORTH OF BLUEWATER ROAD
 COMPUTE RATING CURVE CID=4 VALLEY SECTION=1 NUMBER OF SEGMENTS=1

MINIMUM ELEV=100 FT MAXIMUM ELEV=101.0 FT
 CHANNEL SLOPE=0.015 FLOOD PLAIN SLOPE=0.015
 N=0.035 DIST=48

DIST	ELEV	DIST	ELEV	DIST	ELEV
0	101.0	3	100.0	48	101.0

COMPUTE TRAVEL TIME ID=15 REACH NO=2 VALLEY SECTIONS=1
 LENGTH=660 FT SLOPE=0.015
 ROUTE ID=15 HYDROGRAPH NO=140.12 INFLOW ID=12 DT=0.0
 PRINT HYD ID=15 CODE=1

** COMPUTE HYDROGRAPH FOR BASIN 140.2 *****

COMPUTE NM HYD ID=1 HYDROGRAPH NO=140.2 DA=0.0892
 %A=92.0 %B=4.0 %C=4.0 %D=0.0 TP=0.133333
 MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1
 ** ADD FLOWS FROM BASIN 140.2 TO THE ROUTED FLOW FROM BASIN 140.1
 ADD HYD ID=2 HYDROGRAPH NO=140.21 ID I=15 ID II=1
 PRINT HYD ID=2 CODE=1
 ** BULK THE COMBINED FLOW FROM BASINS 140.1 & 140.2 TO REFLECT THE ESTIMATED
 ** SEDIMENT YIELD FROM THE BASIN
 DIVIDE HYD ID=2 PER=-108 ID=17 HYD=140.22
 ID=16 HYD=140.23
 PRINT HYD ID=17 CODE=1
 PRINT HYD ID=16 CODE=1
 ** ADD THE BULKED FLOW FROM BASIN 140 TO THE ROUTED FLOW FROM UNSER DIVERSION
 ** POND NO.4.
 ADD HYD ID=2 HYDROGRAPH NO=140.24 ID I=17 ID II=10
 PRINT HYD ID=2 CODE=1
 **ROUTE THE COMBINED FLOW THROUGH UNSER DIVERSION POND NO.3.
 **IN THE INTERIM CONDITION THE LOWER PORTION OF THIS POND WILL BE USED FOR
 **RETENTION. THE UPPER PORTION OF THE POND WILL BE USED FOR DETENTION
 **ASSUME OUTFLOW STRUCTURE IS AN 8' X 8' CONCRETE BOX SOLID TO ELEVATION 47.5
 **FLOW IS CONTROLLED BY WIER FLOW OVER THE TOP OF THE CONCRETE BOX TO
 **ELEVATION 48.5. AT ELEVATIONS GREATER THAN 48.5 THE FLOW IS CONTROLLED
 **BY ORIFICE CONTROL AT THE ENTRANCE TO THE 42" DIA. OUTLET PIPE.
 **.10 ACRE*FT OF VOLUME WHICH REPRESENTS 5 X THE ESTIMATED ANNUAL AVERAGE
 **SEDIMENT YIELD IS OMITED FROM THE STAGE STORAGE CURVE
 ROUTE RESERVOIR ID=4 HYDROGRAPH NO=140.25 INFLOW ID=2 CODE=24

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0.00	43.0
0.01	0.0688	44.0
0.011	0.4970	45.0
0.012	1.0426	46.0
0.013	1.6424	47.0
0.014	1.9702	47.5 TOP OF OUTLET STRUC
23.3	2.2979	48.0
66.0	2.6543	48.5
78.5	3.0106	49.0
85.3	3.7821	50.0
91.7	4.6138	51.0
93.2	4.7875	51.2 EMERGENCY SPILLWAY
194.2	5.5069	52.0

 PRINT HYD ID=4 CODE=1
 **ROUTE THE OUTFLOW FROM THE POND THROUGH A 42" DIA STORM DRAIN UNDER BLUEWATER
 **ROAD
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.010
 PIPE DIA=42 N=0.013
 COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=168 FT SLOPE=0.010
 ROUTE ID=10 HYDROGRAPH NO=140.26 INFLOW ID=4 DT=0.0
 PRINT HYD ID=10 CODE=1
 **ROUTE THE OUTFLOW THROUGH UNSER DIVERSION POND NO. 2
 **IN THE INTERIM CONDITION THE LOWER PORTION OF THIS POND WILL BE USED FOR
 **RETENTION. THE UPPER PORTION OF THE POND WILL BE USED FOR DETENTION
 **ASSUME OUTFLOW STRUCTURE IS AN 8' X 8' CONCRETE BOX SOLID TO ELEV 44.8
 **FLOW IS CONTROLLED BY WEIR FLOW BETWEEN ELEV 44.8 AND 46.0 THEN IT IS
 **CONTROLLED BY THE ENTRANCE OF THE 48" DIA OUTLET PIPE
 ROUTE RESERVOIR ID=5 HYDROGRAPH NO=140.27 INFLOW ID=10 CODE=24

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0.0000	37.9
0.01	0.0003	38.0
0.011	0.1818	39.0
0.012	0.7343	40.0
0.013	1.5680	41.0
0.014	2.4956	42.0
0.015	3.5621	43.0
0.016	4.6788	44.0
0.017	5.8772	44.8 TOP OF OUTLET STR
38.6	6.5179	45.5
86.8	7.1586	46.0
169.3	8.5245	47.0
178.5	9.8262	47.9 EMERGENCY SPILLWAY
500.5	11.5100	49.0

PRINT HYD ID=5 CODE=1

**ROUTE THE OUTFLOW FROM THE POND THROUGH A 48" DIA STORM DRAIN TO UNSER

**DIVERSION POND NO 1

COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0125

PIPE DIA=48 N=0.013

COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1

LENGTH=128 FT SLOPE=0.0125

ROUTE ID=10 HYDROGRAPH NO=130.28 INFLOW ID=5 DT=0.0

PRINT HYD ID=10 CODE=1

** COMPUTE HYDROGRAPH FOR BASIN 150.1

COMPUTE NM HYD ID=1 HYDROGRAPH NO=150.1 DA=0.1525

%A=96.0 %B=0.0 %C=4.0 %D=0.0 TP=0.2285

MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1

** BULK THE FLOW FROM BASIN 150.1 TO REFLECT THE ESTIMATED SEDIMENT YIELD

** FROM THE BASIN

DIVIDE HYD ID=1 PER=-105 ID=17 HYD=150.11

ID=16 HYD=150.12

PRINT HYD ID=17 CODE=1

PRINT HYD ID=16 CODE=1

** ADD THE OUTFLOW FROM POND 2 TO THE BULKED FLOW FROM BASIN 150.1

ADD HYD ID=10 HYDROGRAPH NO=150.13 ID I=10 ID II=17

PRINT HYD ID=10 CODE=1

**ROUTE THE FLOW THROUGH UNSER DIVERSION POND #1

**IN THE INTERIM CONDITION THIS POND WILL RETAIN ALL OF THE 100 YEAR 10 DAY

**FLOW THAT REACHES IT. OUTFLOW CURVE ABOVE OUTLET BASED ON WIER FLOW OVER THE

**TOP OF THE STRUCTURE AND ORIFICE CONTROL BY THE ENTRANCE OF THE 42" DIA

**OUTLET PIPE

** .07 ACRE*FT OF VOLUME WHICH REPRESENTS 5 X THE ESTIMATED ANNUAL AVERAGE

**SEDIMENT YIELD IS OMITED FROM THE STAGE STORAGE CURVE

ROUTE RESERVOIR ID=5 HYDROGRAPH NO=150.14 INFLOW ID=10 CODE=24

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0.00	33.5
0.01	0.0001	34
0.011	0.2932	35
0.012	0.8646	36
0.013	1.5370	37
0.014	2.2720	38
0.015	3.0712	39
0.016	3.9358	40
0.017	4.8673	41 TOP OF OUTLET STR
66.0	5.8673	42

134.8	6.9372	43
142.2	7.9609	43.9 EMERGENCY SPILLWAY
460.0	9.2922	45

PRINT HYD ID=5 CODE=1

**NOTE: UNDER EXISTING 100 YEAR 10 DAY STORM CONDITIONS NO OUT FLOW IS REQUIRED
 **FROM THE UNSER DIVERSION PONDS. A 42" DIA. STORM DRAIN OUTFALL IS PLANNED TO
 **BE CONSTRUCTED WITH THE UNSER DIVERSION PONDS TO SERVE THE SYSTEM AS THE
 **WATERSHED DEVELOPS. IN THE FUTURE AS DOWNSTREAM DRAINAGE OUTFALLS ARE
 **COMPLETED IT IS LIKELY THAT THE SYSTEM SERVING THE EXISTING CONDITION
 **WATERSHED WILL BE CONVERTED TO EXTENDED DETENTION. THIS WILL BE ACCOMPLISHED
 **BY MODIFYING THE OUTLET STRUCTURES TO ALLOW VERY LOW RATES OF DISCHARGE TO
 **OCCUR FROM THE INVERTS OF THE PONDS.

**ROUTE THE OUTFLOW FROM THE POND THROUGH A 42" DIA STORM DRAIN LOCATED ALONG
 **THE BACK LOT LINE OF LOT 2, UNIT 2, ATRISCO BUSINESS PARK

COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0165

PIPE DIA=42 N=0.013

COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1

LENGTH=994 FT SLOPE=0.0165

ROUTE ID=10 HYDROGRAPH NO=150.15 INFLOW ID=5 DT=0.0

PRINT HYD ID=10 CODE=1

**ROUTE THE STORM DRAIN FLOW TO EAST LINE OF LOT 2, UNIT 2, ATRISCO BUSINESS
 **PARK IN A 42" STORM DRAIN

COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.019

PIPE DIA=42 N=0.013

COMPUTE TRAVEL TIME ID=2 REACH=1 NUMBER OF VALLEY SECTIONS=1

LENGTH=246 FT SLOPE=0.019

ROUTE ID=2 HYDROGRAPH NO=150.16 INFLOW ID=10 DT=0.0

PRINT HYD ID=2 CODE=1

**ROUTE THE FLOW DOWN A 48" DIA. STORM DRAIN

COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.019

PIPE DIA=48 N=0.013

COMPUTE TRAVEL TIME ID=2 REACH=1 NUMBER OF VALLEY SECTIONS=1

LENGTH=382 FT SLOPE=0.019

ROUTE ID=2 HYDROGRAPH NO=160.17 INFLOW ID=2 DT=0.0

PRINT HYD ID=2 CODE=1

**ROUTE THE FLOW DOWN A 48" DIA. STORM DRAIN TO THE TIERRA BAYITA STORM DRAIN
 **IN UNSER BOULEVARD

COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.015

PIPE DIA=48 N=0.013

COMPUTE TRAVEL TIME ID=19 REACH=1 NUMBER OF VALLEY SECTIONS=1

LENGTH=880 FT SLOPE=0.015

ROUTE ID=19 HYDROGRAPH NO=160.18 INFLOW ID=2 DT=0.0

PRINT HYD ID=19 CODE=1

*S BEGIN UNSER BOULEVARD STORM DRAIN SYSTEM BETWEEN I-40 AND THE FUTURE TIERRA
 ** BAYITA STORM DRAIN

** ASSUMPTIONS: ALL WATER ON EAST SIDE OF UNSER IS INTERCEPTED BY THE STORM
 ** DRAIN EXCEPT THE FLOW WHICH IS IN EXCESS OF THE S.D. CAPACITY BELOW THE
 ** INLETS ADJACENT TO THE SAD 214 POND.

** FLOW IN EXCESS OF THE STORM DRAIN CAPACITY IN OTHER AREAS IS ASSUMED TO BE
 ** CARRIED IN THE WEST SIDE OF UNSER WITH A SMALL PORTION OF THE FLOW CROSSING
 ** OVER TO THE EAST SIDE AT THE INTERSECTION WITH BLUEWATER RD.

** LOS VOLCANES ROAD AND BLUEWATER ROAD ARE ASSUMED TO BE IN PLACE BETWEEN


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** UNSER BOULEVARD AND THE WEST LINE OF THE ATRISCO BUSINESS PARK.
** FLOWS FROM TRACT "T" ARE ADDED TO THE FLOW IN UNSER BLVD. AT LOS VOLCANES.
** FLOWS FROM TRACTS "J" AND TRACT "K" ARE ADDED TO THE FLOW IN UNSER AT
** BLUEWATER. FLOW FROM LOTS 1 AND 2 SOUTH OF BLUEWATER ARE ASSUMED TO FLOW TO
** THE EXISTING CULVERT UNDER UNSER BOULEVARD AND ARE ROUTED TO THE SAD 214
** POND.
*****
** CHANGE THE TIME STEP TO 0.033333 HOURS
** 10 YEAR STORM
**RAINFALL          TYPE=2  0.0  1.25  1.47  1.77  DT=0.03333
**S 100 YEAR STORM
RAINFALL          TYPE=2  0.0  1.87  2.20  2.66  DT=0.033333
*****
** COMPUTE A HYDROGRAPH FOR BASIN 170.1 TRACT "T" (UNDEVELOPED CONDITION)
COMPUTE NM HYD      ID=2  HYD=170.1  DA==0.0633
                    %A=95.0  %B=00.0  %C=05.0  %D=00.0  TP=0.1738
                    MASS RAINFALL=-1
PRINT HYD           ID=2  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 170.3 LOS VOLCANES WEST OF UNSER
COMPUTE NM HYD      ID=3  HYD=170.3  DA==0.0037
                    %A=0.0  %B=0.0  %C=10.0  %D=90.0  TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD           ID=3  CODE=1
** ADD THE HYDROGRAPHS FROM BASIN 170.1 AND 170.3
ADD HYD             ID=2  HYDROGRAPH NO=170.31  ID I=2  ID II=3
PRINT HYD           ID=2  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 170.2 THE WEST PORTION OF UNSER BOULEVARD
** AND HIGHWAY RIGHT OF WAY NORTH OF LOS VOLCANES
** ASSUME ALL WATER ABOVE THIS BASIN IS INTERCEPTED BY THE INLETS IN UNSER AND
** ROUTED TO THE HIGHWAY INTERCHANGE POND
COMPUTE NM HYD      ID=3  HYD=170.2  DA==0.0077
                    %A=0.0  %B=60.0  %C=0.0  %D=40.0  TP=0.133333
                    MASS RAINFALL=-1
PRINT HYD           ID=3  CODE=1
** ADD THE HYDROGRAPH FROM BASIN 170.2 TO THE HYDROGRPH FROM BASINS 170.1
** AND 170.3 AT THE INTERSECTION OF LOS VOLCANES AND UNSER
ADD HYD             ID=2  HYDROGRAPH NO=170.21  ID I=3  ID II=2
PRINT HYD           ID=2  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 170.4 THE EAST PORTION OF UNSER BOULEVARD
** AND HIGHWAY RIGHT OF WAY NORTH OF LOS VOLCANES
** ASSUME ALL WATER ABOVE THIS BASIN IS INTERCEPTED BY THE INLETS IN UNSER AND
** ROUTED TO THE HIGHWAY INTERCHANGE POND
COMPUTE NM HYD      ID=3  HYD=170.4  DA==0.0060
                    %A=0.0  %B=45.0  %C=0.0  %D=55.0  TP=0.133333
                    MASS RAINFALL=-1
PRINT HYD           ID=3  CODE=1
** ADD THE FLOW FROM THE EAST SIDE OF UNSER TO THE TOTAL FLOW ON THE WEST
** SIDE OF UNSER
ADD HYD             ID=5  HYDROGRAPH NO=170.41  ID I=2  ID II=3
PRINT HYD           ID=5  CODE=1
** ASSUME INLET CAPACITY IS SUFFICIENT TO INTERCEPT FLOW UP TO THE NON PRESSURE
** FLOW CAPACITY OF THE UNSER BLVD. STORM DRAIN
** DIVIDE OUT FLOW WHICH EXCEEDS THE NON PRESSURE PIPE CAPACITY OF THE DOWN
** STREAM PORTION OF UNSER BLVD STORM DRAIN. S.D.= 30" RCP MIN SLOPE = 0.01
** HYD 170.42 = FLOW TO UNSER STORM DRAIN
** HYD 170.43= FLOW TO REMAIN IN STREET
DIVIDE HYD          ID=5  Q=41.0  ID I=2  HYD I=170.42

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ID II=11 HYD II=170.43

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PRINT HYD          ID=2  CODE=2
PRINT HYD          ID=11 CODE=1
** ROUTE THE FLOW IN THE UNSER BLVD STORM DRAIN FROM THE INTERSECTION OF
** LOS VOLCANES AND UNSER TO THE SECOND MANHOLE SOUTH OF THE INTERSECTION
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.010
                      PIPE DIA=30 N=0.013
COMPUTE TRAVEL TIME ID=1 REACH=1 NUMBER OF VALLEY SECTIONS=1
                      LENGTH=447 FT SLOPE=0.010
ROUTE              ID=1  HYDROGRAPH NO=170.44 INFLOW ID=2 DT=0.0
PRINT HYD          ID=1  CODE=1
** ROUTE THE FLOW DOWN UNSER BLVD. STORM DRAIN FROM THE SECOND M.H. SOUTH OF
** LOS VOLCANES TO THE THIRD MANHOLE SOUTH OF LOS VOLCANES
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.01744
                      PIPE DIA=30 N=0.013
COMPUTE TRAVEL TIME ID=3 REACH=1 NUMBER OF VALLEY SECTIONS=1
                      LENGTH=450 FT SLOPE=0.01744
ROUTE              ID=3  HYDROGRAPH NO=170.45 INFLOW ID=1 DT=0.0
PRINT HYD          ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 170.5 THE WEST HALF OF UNSER BOULEVARD BETWEEN
** LOS VOLCANES AND THE THIRD MANHOLE SOUTH OF THE INTERSECTION
COMPUTE NM HYD      ID=2  HYD=170.5 DA=0.0029
                      %A=0.0 %B=20.0 %C=0.0 %D=80.0 TP=0.13333
                      MASS RAINFALL=-1
PRINT HYD          ID=2  CODE=1
** ADD THE HYDROGRAPH FROM BASINS 170.5 TO THE ROUTED UNSER STORM DRAIN FLOW
ADD HYD             ID=4  HYDROGRAPH NO=170.51 ID I=2 ID II=3
PRINT HYD          ID=4  CODE=1
** ROUTE THE FLOW IN THE STREET FROM THE LOS VOLCANES & UNSER INTERSECTION TO
** THE THIRD MANHOLE SOUTH OF THE INTERSECTION. USE AVERAGE SLOPE. USE FUTURE
** CROSS SECTION AS SHOWN ON SAD 214 DRAINAGE PLAN SHEET. ADD EXISTING SIDEWALK
** ALONG CURB. ASSUME ALL FLOW THAT COULD NOT ENTER THE STORM DRAIN AT
** LOS VOLCANES REMAINS ON THE WEST SIDE OF THE STREET.
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=3
                      MINIMUM ELEV=100.00 FT MAXIMUM ELEV=100.87 FT
                      CHANNEL SLOPE=0.0130 FLOOD PLAIN SLOPE=0.0130
                      N=0.035 DIST=5 N=0.017 DIST=10 N=-0.017 DIST=46.15
                      DIST ELEV DIST ELEV DIST ELEV DIST ELEV
                        0 100.87 5 100.77 10 100.67 10.15 100.00
                        12 100.13 46 100.81 46.15 100.31
COMPUTE TRAVEL TIME ID=2 REACH NO=1 VALLEY SECTIONS=1
                      LENGTH=700 FT SLOPE=0.0130
ROUTE              ID=2  HYDROGRAPH NO=170.52 INFLOW ID=11 DT=0.0
PRINT HYD          ID=2  CODE=1
** ADD THE ROUTED FLOW IN THE STREET TO THE TOTAL FLOW ON THE WEST SIDE OF
** UNSER BOULEVARD @ THE THIRD MANHOLE SOUTH OF LOS VOLCANES
ADD HYD             ID=1  HYDROGRAPH NO=170.52 ID I=4 ID II=2
PRINT HYD          ID=1  CODE=1
** ROUTE THE FLOW IN THE UNSER BLVD STORM DRAIN FROM THE THIRD MANHOLE SOUTH
** OF LOS VOLCANES TO THE FIRST MANHOLE SOUTH OF THE INTERSECTION OF BLUEWATER
** AND UNSER. USE AVERAGE SLOPE.
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.016
                      PIPE DIA=36 N=0.013
COMPUTE TRAVEL TIME ID=3 REACH=1 NUMBER OF VALLEY SECTIONS=1
                      LENGTH=795 FT SLOPE=0.016
ROUTE              ID=3  HYDROGRAPH NO=170.55 INFLOW ID=1 DT=0.0
PRINT HYD          ID=3  CODE=1

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** COMPUTE HYDROGRAPH FOR BASIN 170.6 THE WEST PORTION OF UNSER BOULEVARD
 ** BETWEEN THE THIRD MANHOLE SOUTH OF LOS VOLCANES AND THE INTERSECTION OF
 ** BLUEWATER AND UNSER

COMPUTE NM HYD ID=2 HYD=170.6 DA==0.0018
 %A=0.0 %B=20.0 %C=0.0 %D=80.0 TP=0.13333
 MASS RAINFALL=-1

PRINT HYD ID=2 CODE=1

** ADD THE HYDROGRAPH FROM BASINS 170.6 TO THE UNSER STORM DRAIN FLOW.

ADD HYD ID=4 HYDROGRAPH NO=170.61 ID I=2 ID II=3

PRINT HYD ID=4 CODE=1

**COMPUTE A HYDROGRAPH FOR TRACTS "J" AND "K", THE RIO GRANDE ALBUQUERQUE SITE
 **EXISTING CONDITION

COMPUTE NM HYD ID=1 HYD=170.7 DA==0.0859
 %A= 98.0 %B=0.0 %C=02.0 %D=0.0 TP=0.2001
 MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1

** COMPUTE HYDROGRAPH FOR BASIN 170.8 BLUEWATER RD.FROM THE WEST BOUNDARY OF
 ** ATRISCO BUSINESS PARK TO UNSER BOULEVARD

COMPUTE NM HYD ID=2 HYD=170.8 DA==0.0054 SQ MI
 %A=0.0 %B=0.0 %C=10.0 %D=90.0 TP=0.13333
 MASS RAINFALL=-1

PRINT HYD ID=2 CODE=1

** ADD THE FLOW FROM BLUEWATER RD. TO THE FLOW FROM TRACTS "J" & "K"

ADD HYD ID=5 HYDROGRAPH NO=170.81 ID I=1 ID II=2

PRINT HYD ID=5 CODE=1

** ADD THE COMBINED FLOW FROM TRACTS "J" AND "K" & BLUEWATER ROAD TO THE FLOW
 ** IN STORM DRAIN AT THE UNSER & BLUEWATER INTERSECTION

ADD HYD ID=2 HYDROGRAPH NO=170.82 ID I=4 ID II=5

PRINT HYD ID=2 CODE=1

** COMPUTE A HYDROGRAPH FOR THE EAST SIDE OF UNSER BLVD. BETWEEN LOS VOLCANES
 ** AND BLUWATER

COMPUTE NM HYD ID=3 HYD=170.9 DA==0.0047 SQ MI
 %A=0.0 %B=20.0 %C=0.0 %D=80.0 TP=0.13333
 MASS RAINFALL=-1

PRINT HYD ID=3 CODE=1

** ADD THE FLOW FROM THE EAST SIDE OF UNSER TO THE TOTAL FLOW IN THE STORM
 ** DRAIN AND IN THE STREET AT THE INTERSECTION OF BLUEWATER AND UNSER

ADD HYD ID=4 HYDROGRAPH NO=170.91 ID I=3 ID II=2

PRINT HYD ID=4 CODE=1

** DIVIDE OUT FLOW WHICH EXCEEDS THE NON PRESSURE PIPE CAPACITY OF THE DOWN
 ** STREAM PORTION OF UNSER BLVD STORM DRAIN. S.D.= 42" RCP MIN. SLOPE = 0.00842

** HYD 170.92= FLOW TO UNSER STORM DRAIN

** HYD 170.93= FLOW TO REMAIN IN STREET

DIVIDE HYD ID=4 Q=92 ID I=2 HYD I=170.92
 ID II=10 HYD II=170.93

PRINT HYD ID=2 CODE=1

PRINT HYD ID=10 CODE=1

** DIVIDE OUT THE STREET FLOW WHICH MAY CROSS FROM THE WEST SIDE TO THE EAST
 ** SIDE OF UNSER BOULEVARD AT THE INTERSECTION WITH BLUEWATER. PLANS FOR
 ** UNSER BOULEVARD SHOW 0.3' DIFFERENTIAL BETWEEN THE FLOW LINE ELEVATION AND
 ** THE CROWN ELEVATION AT THE CENTER OF THE INTERSECTION. ESTIMATE CROSSOVER
 ** FLOW UTILIZING A BROAD CRESTED WIER FORMULA.

** HYD 170.94= FLOW TO CROSS OVER TO EAST SIDE OF STREET

** HYD 170.95= FLOW TO REMAIN ON WEST SIDE OF STREET

DIVIDE HYD ID=10 Q=48.0 ID I=11 HYD I=170.95
 ID II=3 HYD II=170.94

PRINT HYD ID=3 CODE=1


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PRINT HYD ID=11 CODE=1
** ROUTE THE STREET FLOW ON THE EAST SIDE OF UNSER BLVD. FROM THE INTERSECTION
** WITH BLUEWATER TO THE INLETS ADJACENT TO THE SAD 214 POND. USE THE FUTURE
** STREET SECTION AS SHOWN ON SAD 214 DRAINAGE PLAN SHEET. ADD EXISTING
** SIDEWALK ALONG CURB. USE AN AVERAGE STREET SLOPE
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=3
MINIMUM ELEV=100.00 FT MAXIMUM ELEV=100.87 FT
CHANNEL SLOPE=0.0130 FLOOD PLAIN SLOPE=0.0130
N=0.035 DIST=5 N=0.017 DIST=10 N=-0.017 DIST=46.15
DIST ELEV DIST ELEV DIST ELEV DIST ELEV
0 100.87 5 100.77 10 100.67 10.15 100.00
12 100.13 46 100.81 46.15 100.31
COMPUTE TRAVEL TIME ID=4 REACH NO=1 VALLEY SECTIONS=1
LENGTH=700 FT SLOPE=0.0130
ROUTE ID=4 HYDROGRAPH NO=170.96 INFLOW ID=3 DT=0.0
PRINT HYD ID=4 CODE=1
** ROUTE FLOW DOWN UNSER STORM DRAIN FROM THE INTERSECTION OF UNSER AND
** BLUEWATER TO THE JUNCTION WITH THE INLETS NEAR THE SAD 214 POND
** USE AVERAGE SLOPE
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0093
PIPE DIA=42 N=0.013
COMPUTE TRAVEL TIME ID=3 REACH=1 NUMBER OF VALLEY SECTIONS=1
LENGTH=688 FT SLOPE=0.0093
ROUTE ID=3 HYDROGRAPH NO=170.97 INFLOW ID=2 DT=0.0
PRINT HYD ID=3 CODE=1
** COMPUTE HYDROGRAPH FOR THE EAST SIDE OF UNSER BOULEVARD BETWEEN BLUEWATER
** ROAD AND THE INLETS ADJACENT TO THE SAD 214 POND
COMPUTE NM HYD ID=2 HYD=171.1 DA=0.0021
%A=0.0 %B=10.0 %C=0.0 %D=90.0 TP=0.133333
MASS RAINFALL=-1
PRINT HYD ID=2 CODE=1
** ADD THE FLOW FROM BASIN 171.1 TO THE ROUTED STREET FLOW ON THE EAST SIDE OF
** UNSER AT THE INLETS ADJACENT TO THE SAD 214 POND
ADD HYD ID=5 HYDROGRAPH NO=171.11 ID I=4 ID II=2
PRINT HYD ID=5 CODE=1
** ADD THE TOTAL STREET FLOW ON THE EAST SIDE OF UNSER TO THE ROUTED FLOW IN
** UNSER STORM DRAIN
ADD HYD ID=2 HYDROGRAPH NO=171.12 ID I=3 ID II=5
PRINT HYD ID=2 CODE=1
** DIVIDE OUT FLOW WHICH EXCEEDS THE FULL PIPE CAPACITY OF THE DOWN
** STREAM PORTION OF UNSER BLVD STORM DRAIN. S.D.= 42" RCP MIN SLOPE = 0.00993
** HYD 171.13 = FLOW TO UNSER STORM DRAIN
** HYD 171.14 = FLOW TO REMAIN IN STREET
DIVIDE HYD ID=2 Q=100 ID I=3 HYD I=171.13
ID II=9 HYD II=171.14
PRINT HYD ID=3 CODE=1
PRINT HYD ID=9 CODE=1
** ROUTE FLOW DOWN UNSER STORM DRAIN FROM THE JUNCTION WITH THE INLETS ADJACENT
** TO THE SAD 214 POND TO THE SAD 214 POND
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.00993
PIPE DIA=42 N=0.013
COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
LENGTH=150 FT SLOPE=0.00993
ROUTE ID=10 HYDROGRAPH NO=171.15 INFLOW ID=3 DT=0.0
PRINT HYD ID=10 CODE=1
** COMPUTE HYDROGRAPH FOR THE WEST SIDE OF UNSER BOULEVARD BETWEEN BLUEWATER
** ROAD AND THE INLETS ADJACENT TO THE SAD 214 POND

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COMPUTE NM HYD ID=3 HYD=171.0 DA=0.0022
 %A=0.0 %B=10.0 %C=0.0 %D=90.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=3 CODE=1
 ** ROUTE THE STREET FLOW ON THE WEST SIDE OF UNSER BLVD. FROM THE INTERSECTION
 ** WITH BLUEWATER TO THE INLETS ADJACENT TO THE SAD 214 POND. USE THE FUTURE
 ** STREET SECTION AS SHOWN ON SAD 214 DRAINAGE PLAN SHEET. ADD EXISTING
 ** SIDEWALK ALONG CURB. USE AN AVERAGE STREET SLOPE
 COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=3
 MINIMUM ELEV=100.00 FT MAXIMUM ELEV=100.87 FT
 CHANNEL SLOPE=0.0130 FLOOD PLAIN SLOPE=0.0130
 N=0.035 DIST=5 N=0.017 DIST=10 N=-0.017 DIST=46.15

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	100.87	5	100.77	10	100.67	10.15	100.00
12	100.13	46	100.81	46.15	100.31		

 COMPUTE TRAVEL TIME ID=4 REACH NO=1 VALLEY SECTIONS=1
 LENGTH=800 FT SLOPE=0.0130
 ROUTE ID=4 HYDROGRAPH NO=171.01 INFLOW ID=11 DT=0.0
 PRINT HYD ID=4 CODE=1
 ** ADD THE ROUTED STREET FLOW ON THE WEST SIDE OF UNSER TO THE FLOW FROM BASIN
 ** 171.0
 ADD HYD ID=2 HYDROGRAPH NO=171.02 ID I=3 ID II=4
 PRINT HYD ID=2 CODE=1
 ** DIVIDE OUT FLOW WHICH EXCEEDS THE CAPACITY OF THE CONNECTOR PIPE BETWEEN THE
 ** INLETS AND THE CULVERT CROSSING UNSER TO THE SAD 214 POND. PIPE IS AN 18"
 ** RCP. ESTIMATE CAPACITY ASSUMING PRESSURE PIPE FLOW WITH HGL AT THE SOFFIT
 ** AT THE OUTLET END OF THE 18" PIPE
 ** HYD 171.03 = FLOW TO THE CULVERT CROSSING UNSER BLVD.
 ** HYD 171.04 = FLOW TO REMAIN IN STREET
 DIVIDE HYD ID=2 Q=20 ID I=3 HYD I=171.03
 ID II=6 HYD II=171.04
 PRINT HYD ID=3 CODE=1
 PRINT HYD ID=6 CODE=1
 ** COMPUTE HYDROGRAPH FOR LOT 2 (UNDEVELOPED CONDITION)*****
 ** FLOWS FROM LOT 2 IN THE UNDEVELOPED CONDITION WILL NOT BE INTERCEPTED BY THE
 ** UNSER STORM DRAIN. MOST OF THESE FLOWS WILL CROSS THE SOUTHERN PART OF LOT 1
 ** THE HONEYWELL SITE AND BE ROUTED THROUGH THE EXISTING CULVERT UNDER UNSER TO
 ** THE SAD 214 POND
 COMPUTE NM HYD ID=1 HYDROGRAPH NO=160.1 DA=0.0517
 %A=90.0 %B=0.0 %C=10.0 %D=0.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1
 ** COMPUTE HYDROGRAPH FOR LOT 1 (THE HONEYWELL SITE) EXISTING, PARTIALLY
 ** DEVELOPED CONDITION
 COMPUTE NM HYD ID=2 HYDROGRAPH NO=160.2 DA=0.0350
 %A=40.0 %B=5.0 %C=20.0 %D=35.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ADD THE HYDROGRAPH FROM LOT 1 TO THE HYDROGRAPH FROM LOT 2
 ADD HYD ID=4 HYDROGRAPH NO=160.21 ID I=1 ID II=2
 PRINT HYD ID=4 CODE=1
 ** ADD THE INTERCEPTED STREET FLOW FROM THE WEST SIDE OF UNSER TO THE FLOW
 ** FROM LOT 1 AND LOT 2
 ADD HYD ID=2 HYDROGRAPH NO=160.22 ID I=4 ID II=3
 PRINT HYD ID=2 CODE=1
 ** ROUTE FLOW FROM THE INLETS ON THE WEST SIDE OF UNSER AND THE FLOW
 ** FROM THE UNSER DIVERSION


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** THROUGH THE EXISTING 38" X 68" CULVERT EQUIV. SIZE = 48"
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.01
      PIPE DIA=48 N=0.013
COMPUTE TRAVEL TIME ID=1 REACH=1 NUMBER OF VALLEY SECTIONS=1
      LENGTH=100 FT SLOPE=0.005
ROUTE      ID=1 HYDROGRAPH NO=160.23 INFLOW ID=2 DT=0.0
PRINT HYD      ID=1 CODE=1
** ADD THE FLOW IN EXISTING CULVERT TO THE FLOW FROM THE UNSER STORM DRAIN AT
** THE SAD 214 POND
ADD HYD      ID=2 HYDROGRAPH NO=160.24 ID I=1 ID II=10
PRINT HYD      ID=2 CODE=1
** COMPUTE A HYDROGRAPH FOR PARCEL A-1
COMPUTE NM HYD      ID=1 HYD=180.1 DA=0.0338
      %A=90.0 %B=0.0 %C=0.0 %D=10.0 TP=0.133333
      MASS RAINFALL=-1
PRINT HYD      ID=1 CODE=1
** ADD THE FLOW FROM PARCAEL A-1 DIRECTLY TO THE MODIFIED SAD 214 POND
ADD HYD      ID=3 HYDROGRAPH NO=180.11 ID I=2 ID II=1
PRINT HYD      ID=3 CODE=1
*****
** ROUTE THE FLOW THROUGH THE SAD 214 POND.
** ASSUME OUTFLOW IS CONTROLLED BY ENTRANCE CONTROL OF A 42" STORM DRAIN TO
** ELEVATION 5096 THEN ASSUME HGL IN TIERRA BAYITA S.D. IS AT 5093.4 AND THE
** 42" STORM DRAINS FLOWS FULL WITH A SUBMERGED OUTLET.
** THE INVERT OF THE OUTLET PIPE IS ASSUMED TO BE DEPRESSED 2' BELOW THE INVERT
** OF THE POND TO 5091.0.
** VOLUME ESTIMATED FROM E.A.I. PROPOSED POND MODIFICATION CONTOURS
** ASSUMES THE POND BOTTOM IS RESTORED TO THE ORIGINAL DESIGN ELEV. OF 5095.
** ALSO ASSUMES A DEPRESSED AREA IS CONSTRUCTED AT THE WEST END OF THE POND
** WITH A INVERT ELEVATION OF 5093. THIS DEPRESSED AREA WILL PREVENT FREQUENT
** FLOWS FROM ENTERING THE LARGE FLAT AREA OF THE POND BOTTOM.
*****
ROUTE RESERVOIR      ID=10 HYDROGRAPH NO=180.12 INFLOW ID=3 CODE=24
      OUTFLOW(cfs)      STORAGE(ac ft)      ELEV(ft)
      0.00      0.00      5093.0
      42.0      0.017      5094.0
      56.0      0.088      5095.0
      76.0      2.093      5096.0
      89.0      4.238      5097.0
      99.0      6.539      5098.0
      109.0      9.007      5099.0
      114.0      10.564      5099.6
      120.0      11.653      5100.0
PRINT HYD      ID=10 CODE=1
** ROUTE THE OUTFLOW FROM THE POND TO THE TIERRA BAYITA STORM DRAIN IN UNSER
** BOULEVARD. THE FRICTION SLOPE @ THE PEAK Q IS INPUT AS THE PIPE SLOPE
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0104
      PIPE DIA=42 N=0.013
COMPUTE TRAVEL TIME ID=2 REACH=1 NUMBER OF VALLEY SECTIONS=1
      LENGTH=220 FT SLOPE=0.0135
ROUTE      ID=2 HYDROGRAPH NO=180.13 INFLOW ID=10 DT=0.0
PRINT HYD      ID=2 CODE=1

**ADD THE ROUTED OUTFLOW FROM THE SAD 214 POND TO THE FLOW FROM THE
**THE UNSER DIVERSION STORM DRAIN AT THE TIERRA BAYITA STORM DRAIN
**NO FLOW IS IN THE UNSER STORM DRAIN IN THIS CONDITION
**ADD HYD      ID=3 HYDROGRAPH NO=180.14 ID I=19 ID II=2

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**PRINT HYD ID=3 CODE=1
**ADD THE FLOW LEFT IN THE STREET ON THE EAST AND WEST SIDES OF UNSER BLVD. AS
**IT EXITS THE ATRISCO BUSINESS PARK
ADD HYD ID=1 HYDROGRAPH NO=180.15 ID I=6 ID II=9
PRINT HYD ID=1 CODE=1
** ASSUME INLETS WILL BE CONSTRUCTED TO INTERCEPT THE FLOW LEFT IN UNSER BLVD
** ADD THE FLOW IN THE STREET TO THE TIERRA BAYITA STORM DRAIN
ADD HYD ID=2 HYDROGRAPH NO=180.16 ID I=2 ID II=1
PRINT HYD ID=2 CODE=3
FINISH

 ** FILE NAME: TBSDWD.HMI (TIERRA BAYITA STORM DRAIN WATERSHED DEVELOPED)
 ** CURRENT FILE UPDATED: 9-27-93
 ** ANALYSIS FOR ATRISCO BUSINESS MASTER DRAINAGE PLAN
 ** UPPER WATERSHED OF THE FUTURE TIERRA BAYITA STORM DRAIN
 ** INCLUDES THE PROPOSED UNSER DIVERSION WATERSHED, THE UNSER STORM
 ** DRAIN WATERSHED AND TRACT A-1 OF ATRISCO BUSINESS PARK
 ** ANALYSIS ASSUMPTIONS:
 ** FLOWS NORTH OF I-40 ARE CUT OFF BY FUTURE I-40 INTERCEPTER CHANNEL
 ** THE UNSER DIVERSION WATERSHED IS FULLY DEVELOPED
 ** ALL OF THE PROPERTY IN ATRISCO BUSINESS PARK IS FULLY DEVELOPED
 ** LAND TREATMENT FACTORS SIMILAR TO THE LAND USES REFLECTED IN THE CURVE
 ** NUMBERS USED IN THE WEST BLUFF STUDY.*****

 START 0.0 HOURS ***** TWENTY FOUR HOUR STORM*****
 *S 100 YEAR STORM
 RAINFALL TYPE=2 0.0 1.87 2.20 2.66 DT=0.0500
 ** 50 YEAR STORM
 **RAINFALL TYPE=2 0.0 1.70 1.98 2.39 DT=0.0500
 ** 25 YEAR STORM
 **RAINFALL TYPE=2 0.0 1.51 1.76 2.12 DT=0.0500
 ** 10 YEAR STORM
 **RAINFALL TYPE=2 0.0 1.25 1.47 1.77 DT=0.0500
 ** 5 YEAR STORM
 **RAINFALL TYPE=2 0.0 1.04 1.24 1.51 DT=0.0500
 ** 2 YEAR STORM
 **RAINFALL TYPE=2 0.0 0.74 0.95 1.15 DT=0.0500

 *S BEGIN UNSER DIVERSION WATERSHED

 ** THE UNSER DIVERSION SYSTEM WAS MODELED USING DESIGN POND VOLUMES REDUCED
 ** BY A QUANTITY ROUGHLY EQUIVALENT TO .5 cf PER sf OF POND BOTTOM. THIS
 ** REDUCTION WAS MADE TO ACCOUNT FOR ANTICIPATED GRADING MODIFICATIONS TO THE
 ** POND BOTTOMS TO CHANNELIZE THE FREQUENT FLOWS EXPECTED FROM THE WATERSHED
 ** AS IT IS DEVELOPED IN THE FUTURE.
 ** INITIAL MODEL RUNS INDICATED THAT IF THE DEVELOPED CONDITION WATERSHED WERE
 ** ALLOWED TO DISCHARGE TO THE PONDS UNCONTROLLED FREEBOARD BELOW THE EMERGENCY
 ** SPILLWAY WOULD BE BETWEEN ONE AND TWO FEET. BECAUSE THE GOAL OF THE DESIGN
 ** IS TO PROVIDE 2 FEET OF FREEBOARD IN THE 100 YEAR STORM THE RUNOFF FROM
 ** THE WATERSHED WAS MODELED TO SIMULATE DETENTION IN WATERSHED ABOVE THE
 ** SYSTEM. IT WAS ASSUMED THAT RUNOFF FROM THE PUBLIC STREETS WILL DISCHARGE
 ** UNCONTROLLED TO THE SYSTEM. DETENTION OF FLOWS WILL OCCUR ON INDIVIDUAL
 ** TRACTS. TO APPROXIMATE THIS CONDITION THE TIMES TO PEAK IN INDIVIDUAL BASINS
 ** WERE INCREASED BY A UNIFORM AMOUNT OF TIME ABOVE THE CALCULATED TIME TO PEAK.
 ** IT WAS FOUND THAT INCREASING THE TIMES TO PEAK BY 0.14 HOURS REDUCED THE
 ** PEAK FLOW RATES FROM THE WATERSHED TO ABOUT 2.6 cfs PER ac AND ALLOWED
 ** APPROXIMATELY 2' OF FREEBOARD IN ALL OF THE PONDS. THEREFORE .14 hrs WAS
 ** WAS ADDED TO THE TIMES TO PEAK IN BASIN 120, 130, 140, & 150 TO CALCULATE
 ** THE HYDROGRAPHS USED IN POND ROUTING. A SECOND HYDROGRAPH WAS CALCULATED FOR
 ** EACH BASIN UTILIZING THE CALCULATED TIME TO PEAK FOR THE BASIN.
 ** BECAUSE THE SYSTEM IS SENSITIVE TO TIMING DETAILED MODELING OF THE WATERSHED
 ** AND THE PONDS SHOULD BE DONE AS A PART OF PLANS FOR DEVELOPMENT IN THE
 ** WATERSHED

** FUTURE PLANNERS MAY FIND THAT IT IS MORE DESIREABLE TO ENLARGE THE PONDS OF
 ** THE UNSER DIVERSION SYSTEM THAN TO PROVIDE DETENTION ON INDIVIDUAL TRACTS.

 ** COMPUTE HYDROGRAPH FOR BASIN 120.0 (BASIN ABOVE DAYTONA) FOR UNCONTROLLED
 ** FLOW CONDITION
 COMPUTE NM HYD ID=1 HYDROGRAPH NO=120.0 DA=0.1125
 %A=0.0 %B=15.0 %C=10.0 %D=75.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1
 ** COMPUTE HYDROGRAPH BASIN 120.0 (BASIN ABOVE DAYTONA) ASSUME DETENTION OCCURS
 ** IN THE BASIN
 COMPUTE NM HYD ID=1 HYDROGRAPH NO=120.0 DA=0.1125
 %A=0.0 %B=15.0 %C=10.0 %D=75.0 TP=0.2733
 MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1
 **ROUTE THE FLOW FROM BASIN 120.0
 **THROUGH UNSER DIVERSION POND NO. 6 LOCATED IMMEDIATELY SOUTH OF DAYTONA ROAD
 **ASSUME ORIFICE CONTROL AT THE ENTRANCE TO THE 36" DIA OUTLET PIPE AND
 **THROUGH 9 10" DIA HOLES CORED THROUGH THE CONCRETE OUTLET STRUCTURE
 **TOP OF OUTLET STRUCTURE AT ELEV 76.0
 **OUTFLOW CURVE DOES NOT INCLUDE EMERGENCY SPILLWAY CAPACITY
 ROUTE RESERVOIR ID=5 HYDROGRAPH NO=120.02 INFLOW ID=1 CODE=24

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0.00	70
10.3	0.0001	71
23.4	0.5072	72
38.6	1.4507	73
50.0	2.4659	74
59.0	3.5544	75
66.6	4.7162	76 TOP OF OUTLET STRCTR
85.3	5.9549	77
91.7	7.2782	77.9 EMERGENCY SPILLWAY
97.6	8.6918	79

 PRINT HYD ID=5 CODE=2
 **ROUTE THE OUTFLOW FROM THE POND THROUGH A 36" DIA STORM DRAIN
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.027
 PIPE DIA=36 N=0.013
 COMPUTE TRAVEL TIME ID=1 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=429 FT SLOPE=0.027
 ROUTE ID=1 HYDROGRAPH NO=120.03 INFLOW ID=5 DT=0.0
 PRINT HYD ID=1 CODE=1
 **ROUTE THE STORM DRAIN FLOW THROUGH A 48" DIA STORM DRAIN
 **TO UNSER DIVERSION POND #4
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.028
 PIPE DIA=48 N=0.013
 COMPUTE TRAVEL TIME ID=11 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=253 FT SLOPE=0.028
 ROUTE ID=11 HYDROGRAPH NO=120.04 INFLOW ID=1 DT=0.0
 PRINT HYD ID=11 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 130.0 (THE BASIN BETWEEN LAS VOLCANES AND
 ** DAYTONA RD) FOR UNCONTROLLED FLOW CONDITION.
 COMPUTE NM HYD ID=1 HYDROGRAPH NO=130.0 DA=0.0688
 %A=0.0 %B=15.0 %C=10.0 %D=75.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 130.0 (THE BASIN BETWEEN LAS VOLCANES AND

** DAYTONA RD) ASSUME DETENTION OCCURS IN THE BASIN

COMPUTE NM HYD ID=1 HYDROGRAPH NO=130.0 DA=0.0688
%A=0.0 %B=15.0 %C=10.0 %D75.0 TP=0.273333
MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1

** ADD THE FLOW FROM BASIN 130.0 TO THE FLOW IN THE STORM DRAIN

ADD HYD ID=10 HYDROGRAPH NO=130.02 ID I=1 ID II=11

PRINT HYD ID=10 CODE=1

**ROUTE THE FLOW IN THE STORM DRAIN THROUGH UNSER DIVERSION POND #4

**OUTFLOW BASED ON ORIFICE CONTROL AT THE ENTRANCE TO THE 42" DIA OUTLET PIPE

**AND 12 10" DIA HOLES CORED THROUGH THE CONCRETE OUTLET STRUCTURE

**IMEDIATELY HIGHER THAN THE OUTLET STRUCTURE FLOW IS ALSO CONTROLLED BY WIER

**FLOW OVER THE TOP OF THE STRUCTURE.

**OUTFLOW CURVE DOES NOT INCLUDE EMERGENCY SPILLWAY CAPACITY

ROUTE RESERVOIR ID=5 HYDROGRAPH NO=130.03 INFLOW ID=10 CODE=24

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0.0	47
8.6	0.0001	48
20.2	0.0914	49
29.2	0.8788	50
47.0	1.8710	51
57.4	2.7303	51.9 TOP OF OUTLET STR
58.5	2.9451	52
101.4	4.1026	53
111.0	5.3448	54
120.1	6.6728	55.1 EMERGENCY SPILLWAY
128.4	8.0877	56

PRINT HYD ID=5 CODE=2

**ROUTE THE OUTFLOW FROM THE POND THROUGH A 42" DIA STORM DRAIN TO UNSER

**DIVERSION POND #3

COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.013

PIPE DIA=42 N=0.013

COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1

LENGTH=139 FT SLOPE=0.013

ROUTE ID=10 HYDROGRAPH NO=130.04 INFLOW ID=5 DT=0.0

PRINT HYD ID=10 CODE=1

**ROUTE FLOW THROUGH UNSER DIVERSION POND # 3 NORTH OF BLUEWATER ROAD

**OUTFLOW IS BASED ON ORIFICE CONTROL AT THE ENTRANCE OF THE 42" DIA. OUTLET

**PIPE AND THROUGH 9 10" DIA HOLES CORED THROUGH THE CONCRETE OUTLET STRUCTURE

**OUTFLOW CURVE DOES NOT INCLUDE EMERGENCY SPILLWAY CAPACITY

ROUTE RESERVOIR ID=5 HYDROGRAPH NO=130.05 INFLOW ID=10 CODE=24

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0.00	43
7.7	0.0001	44
17.5	0.3570	45
28.9	0.9026	46
36.5	1.5024	47
40.0	2.1579	47.5 TOP OF OUTLET STRCT
65.7	2.5143	48
98.3	2.6925	48.5
103.4	2.8706	49
113.9	3.6421	50
123.0	4.4738	51.2 EMERGENCY SPILLWAY
130.8	5.3669	52

PRINT HYD ID=5 CODE=2

**ROUTE THE OUTFLOW FROM THE POND THROUGH A 42" DIA S.D. UNDER BLUWATER RD

**TO UNSER DIVERSION POND #2

COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.015
 PIPE DIA=42 N=0.013
 COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=168 FT SLOPE=0.010
 ROUTE ID=10 HYDROGRAPH NO=130.06 INFLOW ID=5 DT=0.0
 PRINT HYD ID=10 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 140.0 (BASIN BETWEEN LOS VOLCANES AND BLUEWATER)
 ** FOR UNCONTROLLED FLOW CONDITION
 COMPUTE NM HYD ID=1 HYDROGRAPH NO=140.0 DA=0.1484
 %A=0.0 %B=15.0 %C=10.0 %D75.0 TP=0.2098
 MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 140.0 (BASIN BETWEEN LOS VOLCANES AND BLUEWATER)
 ** ASSUME DETENTION OCCURS IN THE BASIN
 COMPUTE NM HYD ID=1 HYDROGRAPH NO=140.0 DA=0.1484
 %A=0.0 %B=15.0 %C=10.0 %D75.0 TP=0.3498
 MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1
 **ADD THE FLOWS FROM BASIN 140.0 TO THE FLOW FROM THE UPSTREAM POND
 ADD HYD ID=12 HYDROGRAPH NO=140.02 ID I=10 ID II=1
 PRINT HYD ID=12 CODE=1
 **ROUTE THE COMBINED FLOW THROUGH UNSER DIVERSION POND #2 SOUTH OF BLUEWATER RD
 **OUTFLOW BASED ON INLET CONTROL THE 48" DIA OUTLET PIPE AND 9 10" DIA HOLES
 **CORED IN THE CONCRETE OUTLET STRUCTURE. THE FLOW THROUGH THE 10" DIA HOLES
 **AND OVER THE TOP OF THE OUTLET STRUCTURE IS THE CONTROL FOR A SHORT DISTANCE
 **OVER THE TOP OF THE OUTLET STRUCTURE.
 **OUTFLOW CURVE DOES NOT INCLUDE EMERGENCY SPILLWAY CAPACITY
 ROUTE RESERVOIR ID=5 HYDROGRAPH NO=140.03 INFLOW ID=12 CODE=24

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0.0	0.0	37.9
10.8	0.0001	39
24.3	0.3643	40
39.9	1.1980	41
50.0	2.1556	42
58.8	3.1921	43
67.3	4.3088	44
77.0	5.2675	44.8 TOP OF OUTLET STR
79.0	5.5072	45
156.5	6.7886	46
167.3	8.1545	47
179.5	9.4600	47.9 EMERGENCY SPILLWAY
189.0	11.1410	49

 PRINT HYD ID=5 CODE=2
 **ROUTE THE OUTFLOW FROM THE POND THROUGH 1 48" DIA CULVERT UNDER A CHECK
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.025
 PIPE DIA=48 N=0.013
 COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=128 FT SLOPE=0.0125
 ROUTE ID=10 HYDROGRAPH NO=140.04 INFLOW ID=5 DT=0.0
 PRINT HYD ID=10 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 150.0 (THE AREA SOUTH OF BLUEWATER) FOR
 ** UNCONTROLLED FLOW CONDITION
 COMPUTE NM HYD ID=1 HYDROGRAPH NO=150.0 DA=0.0430
 %A=0.0 %B=15.0 %C=10.0 %D=75.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 150.0 (THE AREA SOUTH OF BLUEWATER) ASSUME


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** DETENTION OCCURS IN THE BASIN
COMPUTE NM HYD      ID=1  HYDROGRAPH NO=150.0  DA=0.0430
                    %A=0.0  %B=15.0  %C=10.0  %D=75.0  TP=0.2733
                    MASS RAINFALL=-1
PRINT HYD          ID=1  CODE=1
** ADD THE OUTFLOW FROM THE POND TO THE FLOW FROM BASIN 150.0
ADD HYD            ID=10  HYDROGRAPH NO=150.02  ID I=10  ID II=1
PRINT HYD          ID=10  CODE=1
**ROUTE THE COMBINED FLOW THROUGH UNSER DIVERSION POND #1 NORTH OF THE
**SOUTH BOUNDARY LINE OF THE ATRISCO BUSINESS PARK
**OUTFLOW BASED ON INLET CONTROL OF THE 42" DIA OUTLET PIPE AND 12 10" DIA
**HOLES CORED IN THE CONCRETE OUTLET STRUCTURE. THE FLOW THROUGH 10" DIA HOLES
**AND OVER THE TOP OF THE OUTLET STRUCTURE IS THE CONTROL FOR A SHORT DISTANCE
**OVER THE TOP OF THE OUTLET STRUCTURE.
**OUTFLOW CURVE DOES NOT INCLUDE EMERGENCY SPILLWAY CAPACITY
ROUTE RESERVOIR    ID=5  HYDROGRAPH NO=150.03  INFLOW ID=10  CODE=24
                    OUTFLOW(cfs)      STORAGE(ac ft)      ELEV(ft)
                    0                  0.00                33.5
                    15.7                0.0932             35.0
                    34.6                0.6646             36.0
                    56.0                1.3370             37.0
                    68.4                2.0720             38.0
                    78.6                2.8712             39.0
                    87.6                3.7358             40.0
                    95.7                4.6673             41.0 TOP OF OUTLET
                    126.8               5.6673             42.0
                    134.8               6.7372             43.0
                    142.2               7.7642             43.9 EMERGENCY SPILLWAY
                    427.0               9.0922             45.0

PRINT HYD          ID=5  CODE=2
*****
*****
**ROUTE THE OUTFLOW FROM THE POND THROUGH A 42" DIA STORM DRAIN LOCATED ALONG
**THE BACK LOT LINE OF LOT 2, UNIT 2, ATRISCO BUSINESS PARK
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.0165
                    PIPE DIA=42  N=0.013
COMPUTE TRAVEL TIME ID=10  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=994 FT  SLOPE=0.0165
ROUTE              ID=10  HYDROGRAPH NO=150.04  INFLOW ID=5  DT=0.0
PRINT HYD          ID=10  CODE=1
**ROUTE THE STORM DRAIN FLOW TO EAST LINE OF LOT 2, UNIT 2, ATRISCO BUSINESS
**PARK IN A 42" STORM DRAIN
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.019
                    PIPE DIA=42  N=0.013
COMPUTE TRAVEL TIME ID=2  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=246 FT  SLOPE=0.019
ROUTE              ID=2  HYDROGRAPH NO=150.05  INFLOW ID=10  DT=0.0
PRINT HYD          ID=2  CODE=1
** COMPUTE HYDROGRAPH FOR LOT 2 (DEVELOPED CONDITION)*****
COMPUTE NM HYD      ID=1  HYDROGRAPH NO=160.1  DA=0.0517
                    %A=0.0  %B=15.0  %C=10.0  %D=75.0  TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD          ID=1  CODE=1
** ADD FLOWS FROM LOT 2 TO THE STORM DRAIN *****
ADD HYD            ID=11  HYDROGRAPH NO=160.12  ID I=1  ID II=2
PRINT HYD          ID=11  CODE=1
**ROUTE THE FLOW DOWN A 48" DIA. STORM DRAIN

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COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.019
 PIPE DIA=48 N=0.013
 COMPUTE TRAVEL TIME ID=2 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=382 FT SLOPE=0.019
 ROUTE ID=2 HYDROGRAPH NO=160.13 INFLOW ID=11 DT=0.0
 PRINT HYD ID=2 CODE=1
 **ROUTE THE FLOW DOWN A 48" DIA. STORM DRAIN TO THE TIERRA BAYITA STORM DRAIN
 **IN UNSER BOULEVARD
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.015
 PIPE DIA=48 N=0.013
 COMPUTE TRAVEL TIME ID=19 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=880 FT SLOPE=0.015
 ROUTE ID=19 HYDROGRAPH NO=160.14 INFLOW ID=2 DT=0.0
 PRINT HYD ID=19 CODE=1

 *S BEGIN UNSER BOULEVARD STORM DRAIN SYSTEM BETWEEN I-40 AND THE FUTURE TIERRA
 *S BAYITA STORM DRAIN

 ** ASSUMPTIONS: ALL WATER ON EAST SIDE OF UNSER IS INTERCEPTED BY THE STORM
 ** DRAIN EXCEPT THE FLOW WHICH IS IN EXCESS OF THE S.D. CAPACITY BELOW THE
 ** INLETS ADJACENT TO THE SAD 214 POND.*****
 ** FLOW IN EXCESS OF THE STORM DRAIN CAPACITY IN OTHER AREAS IS ASSUMED TO BE
 ** CARRIED IN THE WEST SIDE OF UNSER WITH A SMALL PORTION OF THE FLOW CROSSING
 ** OVER TO THE EAST SIDE AT THE INTERSECTION WITH BLUEWATER. FLOWS FROM TRACT
 ** "T" ARE ASSUMED TO ENTER THE STORM DRAIN AT THE INTERSECTION OF LOS VOLCANES
 ** AND UNSER. FLOWS FROM TRACTS "J" AND TRACT "K" ARE ASSUMED TO ENTER THE
 ** STORM DRAIN AT THE INTERSECTION OF BLUEWATER AND UNSER. FLOW FROM
 ** THE HONEYWELL SITE ARE ASSUMED TO DISCHARGE DIRECTLY INTO THE S.A.D. 214
 ** POND. FLOW FROM PARCEL A-1, UNIT 2 ATRISCO BUSINESS PARK IS ASSUMED TO
 ** DISCHARGE DIRECTLY TO THE S.A.D. 214 POND
 ** FLOW FROM TRACTS "T", "J", AND "K" ARE RESTRICTED TO THE UNDEVELOPED FLOW
 ** RATES AS REPORTED IN THE DRAINAGE REPORT FOR SAD 214. THIS RESTRICTION IS
 ** DUE TO LIMITED CAPACITY AVAILABLE IN THE EXISTING UNSER BOULEVARD STORM
 ** DRAIN.

 ** COMPUTE HYDROGRAPH FOR BASIN 170.1 TRACT "T"
 COMPUTE NM HYD ID=2 HYD=170.1 DA=0.0633
 %A=0.0 %B=15.0 %C=0.0 %D=85.0 TP=0.133333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ROUTE FLOW FROM BASIN 170.1 THRU AN ASSUMED POND
 ** ALLOWABLE RELEASE RATE=47.2cfs PER THE SAD 214 DRAINAGE PLAN
 ROUTE RESERVOIR ID=6 HYDROGRAPH NO=170.15 INFLOW ID=2 CODE=24

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0.00	0.00	100.00
25.96	0.70	101.00
38.70	1.68	102.00
47.20	2.78	103.00
54.00	4.00	104.00

 PRINT HYD ID=6 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 170.2 THE WEST PORTION OF UNSER BOULEVARD
 ** AND HIGHWAY RIGHT OF WAY NORTH OF LOS VOLCANES
 ** ASSUME ALL WATER ABOVE THIS BASIN IS INTERCEPTED BY THE INLETS IN UNSER AND
 ** ROUTED TO THE HIGHWAY INTERCHANGE POND

COMPUTE NM HYD ID=3 HYD=170.2 DA==0.0077
 %A=0.0 %B=60.0 %C=0.0 %D=40.0 TP=0.133333
 MASS RAINFALL=-1
 PRINT HYD ID=3 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 170.3 LOS VOLCANES WEST OF UNSER
 COMPUTE NM HYD ID=4 HYD=170.3 DA==0.0037
 %A=0.0 %B=10.0 %C=0.0 %D=90.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=4 CODE=1
 ** ADD THE HYDROGRAPHS FROM BASINS 170.1 AND 170.3
 ADD HYD ID=5 HYDROGRAPH NO=170.31 ID I=6 ID II=4
 PRINT HYD ID=5 CODE=1
 ** ADD THE COMBINED HYDROGRAPH FROM BASINS 170.2 AND 170.3 TO BASIN 170.1 HYD.
 ** AT THE INTERSECTION OF LOS VOLCANES AND UNSER
 ADD HYD ID=2 HYDROGRAPH NO=170.32 ID I=3 ID II=5
 PRINT HYD ID=2 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 170.4 THE EAST PORTION OF UNSER BOULEVARD
 ** AND HIGHWAY RIGHT OF WAY NORTH OF LOS VOLCANES
 ** ASSUME ALL WATER ABOVE THIS BASIN IS INTERCEPTED BY THE INLETS IN UNSER AND
 ** ROUTED TO THE HIGHWAY INTERCHANGE POND
 COMPUTE NM HYD ID=3 HYD=170.4 DA==0.0060
 %A=0.0 %B=45.0 %C=0.0 %D=55.0 TP=0.133333
 MASS RAINFALL=-1
 PRINT HYD ID=3 CODE=1
 ** ADD THE FLOW FROM THE EAST SIDE OF UNSER TO THE TOTAL FLOW ON THE WEST
 ** SIDE OF UNSER
 ADD HYD ID=5 HYDROGRAPH NO=170.43 ID I=2 ID II=3
 PRINT HYD ID=5 CODE=1
 ** DIVIDE OUT FLOW WHICH EXCEEDS THE NON PRESSURE PIPE CAPACITY OF THE DOWN
 ** STREAM PORTION OF UNSER BLVD STORM DRAIN. S.D.= 30" RCP, MIN SLOPE = 0.01
 ** HYD 170.44 = FLOW TO UNSER STORM DRAIN
 ** HYD 170.45= FLOW TO REMAIN IN STREET
 DIVIDE HYD ID=5 Q=41.0 ID I=2 HYD I=170.44
 ID II=11 HYD II=170.45
 PRINT HYD ID=2 CODE=1
 PRINT HYD ID=11 CODE=1
 ** ROUTE THE FLOW IN THE UNSER BLVD STORM DRAIN FROM THE INTERSECTION OF
 ** LOS VOLCANES AND UNSER TO THE SECOND MANHOLE SOUTH OF THE INTERSECTION
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.010
 PIPE DIA=30 N=0.013
 COMPUTE TRAVEL TIME ID=1 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=447 FT SLOPE=0.010
 ROUTE ID=1 HYDROGRAPH NO=170.46 INFLOW ID=2 DT=0.0
 PRINT HYD ID=1 CODE=1
 ** ROUTE THE FLOW DOWN UNSER STORM DRAIN FROM THE SECOND M.H. SOUTH OF
 ** LOS VOLCANES TO THE THIRD MANHOLE SOUTH OF LOS VOLCANES
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.01744
 PIPE DIA=30 N=0.013
 COMPUTE TRAVEL TIME ID=3 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=450 FT SLOPE=0.01744
 ROUTE ID=3 HYDROGRAPH NO=170.47 INFLOW ID=1 DT=0.0
 PRINT HYD ID=3 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 170.5 THE WEST HALF OF UNSER BOULEVARD BETWEEN
 ** LOS VOLCANES AND THE THIRD MANHOLE SOUTH OF THE INTERSECTION
 COMPUTE NM HYD ID=2 HYD=170.5 DA==0.0029
 %A=0.0 %B=20.0 %C=0.0 %D=80.0 TP=0.13333
 MASS RAINFALL=-1


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PRINT HYD          ID=2 CODE=1
** ADD THE HYDROGRAPH FROM BASIN 170.5 TO THE ROUTED UNSER STORM DRAIN FLOW
ADD HYD            ID=4  HYDROGRAPH NO=170.51  ID I=2  ID II=3
PRINT HYD          ID=4  CODE=1
** ROUTE THE FLOW IN THE STREET FROM THE LOS VOLCANES & UNSER INTERSECTION TO
** THE THIRD MANHOLE SOUTH OF THE INTERSECTION. USE AVERAGE SLOPE. USE FUTURE
** CROSS SECTION AS SHOWN ON SAD 214 DRAINAGE PLAN SHEET. ADD EXISTING SIDEWALK
** ALONG CURB. ASSUME ALL FLOW THAT COULD NOT ENTER THE STORM DRAIN AT
** LOS VOLCANES REMAINS ON THE WEST SIDE OF THE STREET.
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=3
                      MINIMUM ELEV=100.00 FT  MAXIMUM ELEV=100.87 FT
                      CHANNEL SLOPE=0.013  FLOOD PLAIN SLOPE=0.0129
                      N=0.035  DIST=5  N=0.017  DIST=10  N=-0.017  DIST=46.15
                      DIST  ELEV    DIST  ELEV    DIST  ELEV    DIST  ELEV
                        0   100.87    5   100.77   10   100.67   10.15 100.00
                        12   100.13   46   100.81  46.15 100.31

COMPUTE TRAVEL TIME ID=2  REACH NO=1  VALLEY SECTIONS=1
                      LENGTH=950 FT  SLOPE=0.0129
ROUTE                ID=2  HYDROGRAPH NO=170.48  INFLOW ID=11 DT=0.0
PRINT HYD            ID=2  CODE=1
** ASSUME THE FLOW IN THE STREET IS INTERCEPTED BY EXISTING INLETS LOCATED
** ALONG UNSER BOULEVARD
** ADD THE ROUTED FLOW IN THE STREET TO THE STORM DRAIN FLOW
** @ THE THIRD MANHOLE SOUTH OF LOS VOLCANES
ADD HYD              ID=2  HYDROGRAPH NO=170.52  ID I=4  ID II=2
PRINT HYD            ID=2  CODE=1
** ROUTE THE FLOW IN THE UNSER BLVD STORM DRAIN FROM THE THIRD MANHOLE SOUTH
** OF LOS VOLCANES TO THE FIRST MANHOLE SOUTH OF THE INTERSECTION OF BLUEWATER
** AND UNSER. USE AVERAGE SLOPE.
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.016
                      PIPE DIA=36  N=0.013
COMPUTE TRAVEL TIME ID=3  REACH=1  NUMBER OF VALLEY SECTIONS=1
                      LENGTH=795 FT  SLOPE=0.016
ROUTE                ID=3  HYDROGRAPH NO=170.55  INFLOW ID=2  DT=0.0
PRINT HYD            ID=3  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 170.6 THE WEST PORTION OF UNSER BOULEVARD
** BETWEEN THE THIRD MANHOLE SOUTH OF LOS VOLCANES AND THE INTERSECTION OF
** BLUEWATER AND UNSER
COMPUTE NM HYD       ID=2  HYD=170.6  DA==0.0018
                      %A=0.0  %B=20.0  %C=0.0  %D=80.0  TP=0.13333
                      MASS RAINFALL=-1
PRINT HYD            ID=2  CODE=1
** ASSUME THE FLOW IS INTERCEPTED BY INLETS LOCATED ALONG UNSER BOULEVARD
** ADD THE HYDROGRAPH FROM BASINS 170.6 TO THE UNSER STORM DRAIN FLOW
ADD HYD              ID=4  HYDROGRAPH NO=170.61  ID I=2  ID II=3
PRINT HYD            ID=4  CODE=1
** COMPUTE A HYDROGRAPH FOR TRACTS "J" AND "K", THE BELL GROUP SITE
COMPUTE NM HYD       ID=2  HYD=170.7  DA==0.0859
                      %A=0.0  %B=15.0  %C=0.0  %D=85.0  TP=0.13333
                      MASS RAINFALL=-1
PRINT HYD            ID=2  CODE=1
** ROUTE FLOW FROM TRACTS "J" AND "K" THRU AN ASSUMED POND
** ALLOWABLE RELEASE RATE=56.6 cfs PER THE SAD 214 DRAINAGE PLAN
ROUTE RESERVOIR      ID=3  HYDROGRAPH NO=170.71  INFLOW ID=2  CODE=24
                      OUTFLOW(cfs)    STORAGE(ac ft)    ELEV(ft)
                        0.00             0.00             100.00
                        31.13            1.03             101.00

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	46.41	2.46	102.00
	56.60	4.10	103.00
	65.00	6.00	104.00

PRINT HYD ID=3 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 170.8 BLUEWATER RD. FROM THE WEST BOUNDARY OF
 ** ATRISCO BUSINESS PARK TO UNSER BOULEVARD
 COMPUTE NM HYD ID=2 HYD=170.8 DA==0.0054 SQ MI
 %A=0.0 %B=10.0 %C=0.0 %D=90.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ADD THE FLOW FROM BLUEWATER RD. TO THE CONTROLLED FLOW FROM TRACTS "J" & "K"
 ADD HYD ID=5 HYDROGRAPH NO=170.81 ID I=3 ID II=2
 PRINT HYD ID=5 CODE=1
 ** ADD THE COMBINED FLOW FROM TRACTS "J" AND "K" & BLUEWATER ROAD TO THE FLOW
 ** IN THE STORM DRAIN AT THE UNSER & BLUEWATER INTERSECTION
 ADD HYD ID=2 HYDROGRAPH NO=170.82 ID I=4 ID II=5
 PRINT HYD ID=2 CODE=1
 ** COMPUTE A HYDROGRAPH FOR THE EAST SIDE OF UNSER BLVD. BETWEEN LOS VOLCANES
 ** AND BLUEWATER
 COMPUTE NM HYD ID=3 HYD=170.9 DA==0.0047 SQ MI
 %A=0.0 %B=20.0 %C=0.0 %D=80.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=3 CODE=1
 ** ADD THE FLOW FROM THE EAST SIDE OF UNSER TO THE TOTAL FLOW IN THE STORM
 ** DRAIN AND IN THE STREET AT THE INTERSECTION OF BLUEWATER AND UNSER
 ADD HYD ID=4 HYDROGRAPH NO=170.91 ID I=3 ID II=2
 PRINT HYD ID=4 CODE=1
 ** DIVIDE OUT FLOW WHICH EXCEEDS THE NON PRESSURE PIPE CAPACITY OF THE DOWN
 ** STREAM PORTION OF UNSER BLVD STORM DRAIN. S.D.= 42" RCP, MIN SLOPE = 0.00842
 ** HYD 170.92= FLOW TO UNSER STORM DRAIN
 ** HYD 170.93= FLOW TO REMAIN IN STREET
 DIVIDE HYD ID=4 Q=92 ID I=2 HYD I=170.92
 ID II=10 HYD II=170.93
 PRINT HYD ID=2 CODE=1
 PRINT HYD ID=10 CODE=1
 ** DIVIDE OUT THE STREET FLOW WHICH MAY CROSS FROM THE WEST SIDE TO THE EAST
 ** SIDE OF UNSER BOULEVARD AT THE INTERSECTION WITH BLUEWATER. PLANS FOR
 ** UNSER BOULEVARD SHOW 0.3' DIFFERENTIAL BETWEEN THE FLOW LINE ELEVATION AND
 ** THE CROWN ELEVATION AT THE CENTER OF THE INTERSECTION. ESTIMATE CROSSOVER
 ** FLOW UTILIZING A BROAD CRESTED WEIR FORMULA.
 ** HYD 170.94= FLOW TO CROSS OVER TO EAST SIDE OF STREET
 ** HYD 170.95= FLOW TO REMAIN ON WEST SIDE OF STREET
 DIVIDE HYD ID=10 Q=48.0 ID I=11 HYD I=170.95
 ID II=3 HYD II=170.94
 PRINT HYD ID=3 CODE=1
 PRINT HYD ID=11 CODE=1
 ** ROUTE THE STREET FLOW ON THE EAST SIDE OF UNSER BLVD. FROM THE INTERSECTION
 ** WITH BLUEWATER TO THE INLETS ADJACENT TO THE SAD 214 POND. USE THE FUTURE
 ** STREET SECTION AS SHOWN ON SAD 214 DRAINAGE PLAN SHEET. ADD EXISTING
 ** SIDEWALK ALONG CURB. USE AN AVERAGE STREET SLOPE
 COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=3
 MINIMUM ELEV=100.00 FT MAXIMUM ELEV=100.87 FT
 CHANNEL SLOPE=0.0130 FLOOD PLAIN SLOPE=0.0130
 N=0.035 DIST=5 N=0.017 DIST=10 N=-0.017 DIST=46.15

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	100.87	5	100.77	10	100.67	10.15	100.00
12	100.13	46	100.81	46.15	100.31		

COMPUTE TRAVEL TIME ID=4 REACH NO=1 VALLEY SECTIONS=1
 LENGTH=700 FT SLOPE=0.0130
 ROUTE ID=4 HYDROGRAPH NO=170.96 INFLOW ID=3 DT=0.0
 PRINT HYD ID=4 CODE=1
 ** ROUTE FLOW DOWN UNSER STORM DRAIN FROM THE INTERSECTION OF UNSER AND
 ** BLUEWATER TO THE JUNCTION WITH THE INLETS NEAR THE SAD 214 POND
 ** USE AVERAGE SLOPE
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0093
 PIPE DIA=42 N=0.013
 COMPUTE TRAVEL TIME ID=3 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=688 FT SLOPE=0.0093
 ROUTE ID=3 HYDROGRAPH NO=170.97 INFLOW ID=2 DT=0.0
 PRINT HYD ID=3 CODE=1
 ** COMPUTE HYDROGRAPH FOR THE EAST SIDE OF UNSER BOULEVARD BETWEEN BLUEWATER
 ** ROAD AND THE INLETS ADJACENT TO THE SAD 214 POND
 COMPUTE NM HYD ID=2 HYD=171.1 DA=0.0021
 %A=0.0 %B=10.0 %C=0.0 %D=90.0 TP=0.133333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ADD THE FLOW FROM BASIN 171.1 TO THE ROUTED STREET FLOW ON THE EAST SIDE OF
 ** UNSER AT THE INLETS ADJACENT TO THE SAD 214 POND
 ADD HYD ID=5 HYDROGRAPH NO=171.11 ID I=4 ID II=2
 PRINT HYD ID=5 CODE=1
 ** ADD THE TOTAL STREET FLOW ON THE EAST SIDE OF UNSER TO THE ROUTED FLOW IN
 ** UNSER STORM DRAIN
 ADD HYD ID=2 HYDROGRAPH NO=171.12 ID I=3 ID II=5
 PRINT HYD ID=2 CODE=1
 ** DIVIDE OUT FLOW WHICH EXCEEDS THE FULL PIPE CAPACITY OF THE DOWN
 ** STREAM PORTION OF UNSER BLVD STORM DRAIN. S.D.= 42" RCP, MIN SLOPE = 0.00993
 ** HYD 171.13 = FLOW TO UNSER STORM DRAIN
 ** HYD 171.14 = FLOW TO REMAIN IN STREET
 DIVIDE HYD ID=2 Q=100 ID I=3 HYD I=171.13
 ID II=9 HYD II=171.14
 PRINT HYD ID=3 CODE=1
 PRINT HYD ID=9 CODE=1
 ** ROUTE FLOW DOWN UNSER STORM DRAIN TO THE SAD 214 POND FROM THE
 ** INLETS ADJACENT TO THE SAD 214 POND.
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.00993
 PIPE DIA=42 N=0.013
 COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=56 FT SLOPE=0.00993
 ROUTE ID=10 HYDROGRAPH NO=171.15 INFLOW ID=3 DT=0.0
 PRINT HYD ID=10 CODE=1
 ** COMPUTE HYDROGRAPH FOR THE WEST SIDE OF UNSER BOULEVARD BETWEEN BLUEWATER
 ** ROAD AND THE INLETS ADJACENT TO THE SAD 214 POND
 COMPUTE NM HYD ID=3 HYD=171.0 DA=0.0022
 %A=0.0 %B=10.0 %C=0.0 %D=90.0 TP=0.133333
 MASS RAINFALL=-1
 PRINT HYD ID=3 CODE=1
 ** ROUTE THE STREET FLOW ON THE WEST SIDE OF UNSER BLVD. FROM THE INTERSECTION
 ** WITH BLUEWATER TO THE INLETS ADJACENT TO THE SAD 214 POND. USE THE FUTURE
 ** STREET SECTION AS SHOWN ON SAD 214 DRAINAGE PLAN SHEET. ADD EXISTING
 ** SIDEWALK ALONG CURB. USE AN AVERAGE STREET SLOPE
 COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=3
 MINIMUM ELEV=100.00 FT MAXIMUM ELEV=100.87 FT
 CHANNEL SLOPE=0.0130 FLOOD PLAIN SLOPE=0.0130
 N=0.035 DIST=5 N=0.017 DIST=10 N=-0.017 DIST=46.15

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	100.87	5	100.77	10	100.67	10.15	100.00
12	100.13	46	100.81	46.15	100.31		

COMPUTE TRAVEL TIME ID=4 REACH NO=1 VALLEY SECTIONS=1
 LENGTH=800 FT SLOPE=0.0130
 ROUTE ID=4 HYDROGRAPH NO=171.01 INFLOW ID=11 DT=0.0
 PRINT HYD ID=4 CODE=1
 ** ADD THE ROUTED STREET FLOW ON THE WEST SIDE OF UNSER TO THE FLOW FROM BASIN
 ** 171.0
 ADD HYD ID=2 HYDROGRAPH NO=171.02 ID I=3 ID II=4
 PRINT HYD ID=2 CODE=1
 ** DIVIDE OUT FLOW WHICH EXCEEDS THE CAPACITY OF THE CONNECTOR PIPE BETWEEN THE
 ** INLETS AND THE CULVERT CROSSING UNSER TO THE SAD 214 POND. PIPE IS AN 18"
 ** RCP. ESTIMATE CAPACITY ASSUMING PRESSURE PIPE FLOW WITH HGL AT THE SOFFIT
 ** AT THE OUTLET END OF THE 18" PIPE
 ** HYD 171.03 = FLOW TO THE CULVERT CROSSING UNSER BLVD.
 ** HYD 171.04 = FLOW TO REMAIN IN STREET
 DIVIDE HYD ID=2 Q=20 ID I=3 HYD I=171.03
 ID II=6 HYD II=171.04
 PRINT HYD ID=3 CODE=1
 PRINT HYD ID=6 CODE=1
 ** COMPUTE HYDROGRAPH FOR LOT 1 (THE HONEYWELL SITE) *****
 COMPUTE NM HYD ID=1 HYDROGRAPH NO=160.2 DA=0.0350
 %A=0.0 %B=15.0 %C=10.0 %D=75.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1
 ** ADD THE INTERCEPTED FLOW FROM THE WEST SIDE OF UNSER TO THE FLOW FROM LOT 1
 ADD HYD ID=2 HYDROGRAPH NO=160.21 ID I=1 ID II=3
 PRINT HYD ID=2 CODE=1
 ** ROUTE THE COMBINED FLOW FROM THE INLETS ON THE WEST SIDE AND LOT 1
 ** THROUGH THE EXISTING 38" X 68" CULVERT EQUIV. SIZE = 48"
 ** UNDER UNSER BOULEVARD TO THE S.A.D. 214 POND
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.005
 PIPE DIA=48 N=0.013
 COMPUTE TRAVEL TIME ID=1 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=100 FT SLOPE=0.005
 ROUTE ID=1 HYDROGRAPH NO=160.22 INFLOW ID=2 DT=0.0
 PRINT HYD ID=1 CODE=1
 ** ADD THE FLOW IN EXISTING CULVERT TO THE FLOW FROM THE UNSER STORM DRAIN AT
 ** THE EXPANDED SAD 214 POND
 ADD HYD ID=2 HYDROGRAPH NO=160.23 ID I=1 ID II=10
 PRINT HYD ID=2 CODE=1
 ** COMPUTE A HYDROGRAPH FOR PARCEL A-1, UNIT 2, ATRISCO BUSINESS PARK
 ** THIS HYDROGRAPH INCLUDES THE SAD 214 POND AREA
 COMPUTE NM HYD ID=1 HYD=180.1 DA=0.0338
 %A=0.0 %B=28.0 %C=4.0 %D=68.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1
 ** ADD THE FLOW FROM PARCEL A-1 DIRECTLY TO THE MODIFIED SAD 214 POND
 ** THIS HYDROGRAPH REPRESENTS THE TOTAL INFLOW TO THE POND
 ADD HYD ID=3 HYDROGRAPH NO=180.11 ID I=1 ID II=2
 PRINT HYD ID=3 CODE=3

 ** ROUTE THE FLOW THROUGH SAD 214 POND.
 ** ASSUME OUTFLOW IS CONTROLLED BY ENTRANCE CONTROL OF A 42" STORM DRAIN TO
 ** ELEVATION 5096 THEN ASSUME HGL IN TIERRA BAYITA S.D. IS AT 5093.4 AND THE
 ** 42" STORM DRAINS FLOWS FULL WITH A SUBMERGED OUTLET.

** THE INVERT OF THE OUTLET PIPE IS ASSUMED TO BE DEPRESSED 2' BELOW THE INVERT
 ** OF THE POND TO 5091.0.
 ** VOLUME ESTIMATED FROM E.A.I. PROPOSED POND MODIFICATION CONTOURS
 ** ASSUMES THE POND BOTTOM IS RESTORED TO THE ORIGINAL DESIGN ELEV. OF 5095.
 ** ALSO ASSUMES A DEPRESSED AREA IS CONSTRUCTED AT THE WEST END OF THE POND
 ** WITH A INVERT ELEVATION OF 5093. THIS DEPRESSED AREA WILL PREVENT FREQUENT
 ** FLOWS FROM ENTERING THE LARGE FLAT AREA OF THE POND BOTTOM.

ROUTE RESERVOIR ID=10 HYDROGRAPH NO=180.12 INFLOW ID=3 CODE=10
 OUTFLOW(cfs) STORAGE(ac ft) ELEV(ft)
 0.00 0.00 5093.0
 42.0 0.017 5094.0
 56.0 0.088 5095.0
 76.0 2.093 5096.0
 89.0 4.238 5097.0
 99.0 6.539 5098.0
 109.0 9.007 5099.0
 114.0 10.564 5099.6
 120.0 11.653 5100.0

PRINT HYD ID=10 CODE=1
 ** ROUTE THE OUTFLOW FROM THE POND TO THE TIERRA BAYITA STORM DRAIN IN UNSER
 ** BOULEVARD. THE FRICTION SLOPE @ THE PEAK Q IS INPUT AS THE PIPE SLOPE
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0104
 PIPE DIA=42 N=0.013

COMPUTE TRAVEL TIME ID=2 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=220 FT SLOPE=0.0135

ROUTE ID=2 HYDROGRAPH NO=180.13 INFLOW ID=10 DT=0.0
 PRINT HYD ID=2 CODE=1

**ADD THE ROUTED OUTFLOW FROM THE SAD 214 POND TO THE FLOW FROM THE
 **THE UNSER DIVERSION STORM DRAIN AT THE TIERRA BAYITA STORM DRAIN
 ADD HYD ID=3 HYDROGRAPH NO=180.14 ID I=19 ID II=2

PRINT HYD ID=3 CODE=1
 **ADD THE FLOW LEFT IN THE STREET ON THE EAST AND WEST SIDES OF UNSER BLVD. AS
 **IT EXITS THE ATRISCO BUSINESS PARK

ADD HYD ID=1 HYDROGRAPH NO=180.15 ID I=6 ID II=9
 PRINT HYD ID=1 CODE=1

** ASSUME INLETS WILL BE CONSTRUCTED TO INTERCEPT THE FLOW LEFT IN UNSER BLVD
 ** ADD THE FLOW IN THE STREET TO THE TIERRA BAYITA STORM DRAIN
 ADD HYD ID=2 HYDROGRAPH NO=180.16 ID I=3 ID II=1

PRINT HYD ID=2 CODE=3
 FINISH

Easterling & Associates, Inc.

10131 Coors Rd. NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 898-8021

FAX No. 505-898-8501**FAX TRANSMITTAL**Date: 1/19/94Number of Pages: 3
(includes this cover page)Job No.: 3324.3Job Name: Unser Diversion / Atasco Bus Pk CLMRTo: CDA HydrologyAttention: Gilbert AldazFAX No.: 768-3629From: Laurie SchullerItem Description: Letter detailing Easterling's responses to Dec 14
meeting reviewing 1st CLMR submittal

Message:

We tried to contact Howard Stone +/or
Larry Blair regarding progress of current
review but were unable to reach them

Reply Needed: Please contact us if there's anything we can
do to help expedite the CLMR submittal.
Thanks.

If you do not receive all information as noted, please notify us at once, 505-898-8021.

Easterling & Associates, Inc.

January 19, 1994

10131 Coors Rd., NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 898-8021
FAX (505) 898-8501

Gilbert Aldaz, P.E. & P.S.
Floodplain Administrator
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

**RE: Request for FEMA Conditional Letter of Map Revision (CLOMR)
for Unser Diversion/Atrisco Business Park**

Dear Mr. Aldaz:

The following details our responses to the review of our initial CLOMR submittal. The review was conducted by Howard Stone, P.E. of Bohannon-Huston, Inc. and discussed at a meeting held at AMAFCA on 14 December 1993.

MEETING SUMMARY *and Responses*

- General consensus that forms should be emphasized. Text will supplement, reference text in forms. Forms 4, 5, 7, 8, and 12 should be included in submittal.

The forms were emphasized by rearrangement of the submittal. Forms were placed directly after a one page introduction. Explanatory text follows as a supplement to the package. Forms 4, 5, 7, 8, and 12 were added.

- With respect to Form 8 (Levee/Floodwall), FEMA allows levees with 2' freeboard if there is low probability of failure — C. Anderson.

Form 8 was used to describe the far upstream berm designed to guide nuisance flows to Pond 6. Form 8 and the design show three feet of freeboard.

- Provide clearer explanation of removal of FEMA floodplain from Tract S-1. Retain explanation that drainage area reduced to less than 1 square mile, therefore becomes local drainage matter. Add mention of I-25/Unser Intersection cutting off basin. Explain abandoned airport runway was erroneously shown as flooded arroyo.

Some controversy arose over basic approach, i.e. CLOMR submittal being based on the Unser Diversion removing FEMA floodplain, with remaining drainage basin subsequently under local jurisdiction only. This matter had been resolved with the COA in August 31, 1993 meeting.

Clearer explanation was provided.

- USGS quadrangle will be included.

Gilbert Aldaz, P.E. & P.S.
January 19, 1994
Page 2

The appropriate 1" = 2000' USGS quadrangle map showing the business park and proposed diversion site was added as Plate 3.

- Volume discrepancy appears to be a reviewing error.

The recheck of the contributing volumes turned up no discrepancy. No change was made.

- Checking to see if State Engineer has any jurisdiction over this series of ponds appears to be AMAFCA's call.

All at meeting concurred. EAI has not pursued this matter.

- Emergency Spillway criteria – Refer to COA Notice of Emergency Rules Criteria, Soil Conservation Service criteria.

These were referred to.

- Remove discussion with respect to storms greater than 100 year.

This discussion was removed.

- General opinion of COA and AMAFCA representatives was that applicants could take their own approach in requesting CLOMR. COA and AMAFCA would support it, but they could not guarantee acceptance.

All suggestions given at the meeting were complied with in the resubmittal to AMAFCA and COA.

Should further clarification be needed, please do not hesitate to contact us. Thank you.

Sincerely,



Laurie B. Schuller

LBS:das
Job No. 3324.3



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

January 6, 1994

Vancel Fossinger
Easterling & Associates
10131 Coors Road
Suite H-7
Albuquerque, NM 87114-4048

RE: REVISED DRAINAGE REPORT FOR ATRISCO BUSINESS PARK, (K10/D23),
ENGINEER'S STAMP DATED OCTOBER 22, 1993.

Dear Mr. Fossinger:

Based on the drainage information provided, the above referenced Master
Drainage Plan is acceptable for Site Plan.

As for the conservation treatments proposed, the plan must be implemented and
maintenance covenants executed prior to release of Building Permits. The
covenants should include the developer as responsible for maintenance and
should also include semi-annual inspections required by the engineer to assure
the plan is being maintained.

If you should have any questions, please do not hesitate to contact me at
768-2666.

Cordially,

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

xc: Fred Aguirre, City Hydrologist
Ted Garrett, the Garrett Group Inc.
(File)

wp+3739

PUBLIC WORKS DEPARTMENT

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LETTER OF TRANSMITTAL

TO GILBERT ALDAZ
CDA HYDROLOGY

DATE <u>Jan 6 1994</u>	JOB NO. <u>3324.3</u>
ATTENTION <u>G. ALDAZ</u>	
RE: <u>UNSER DIVERSION / ATRISCO</u> <u>BUSINESS PARK CUMR</u>	

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

- ☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☒ _____

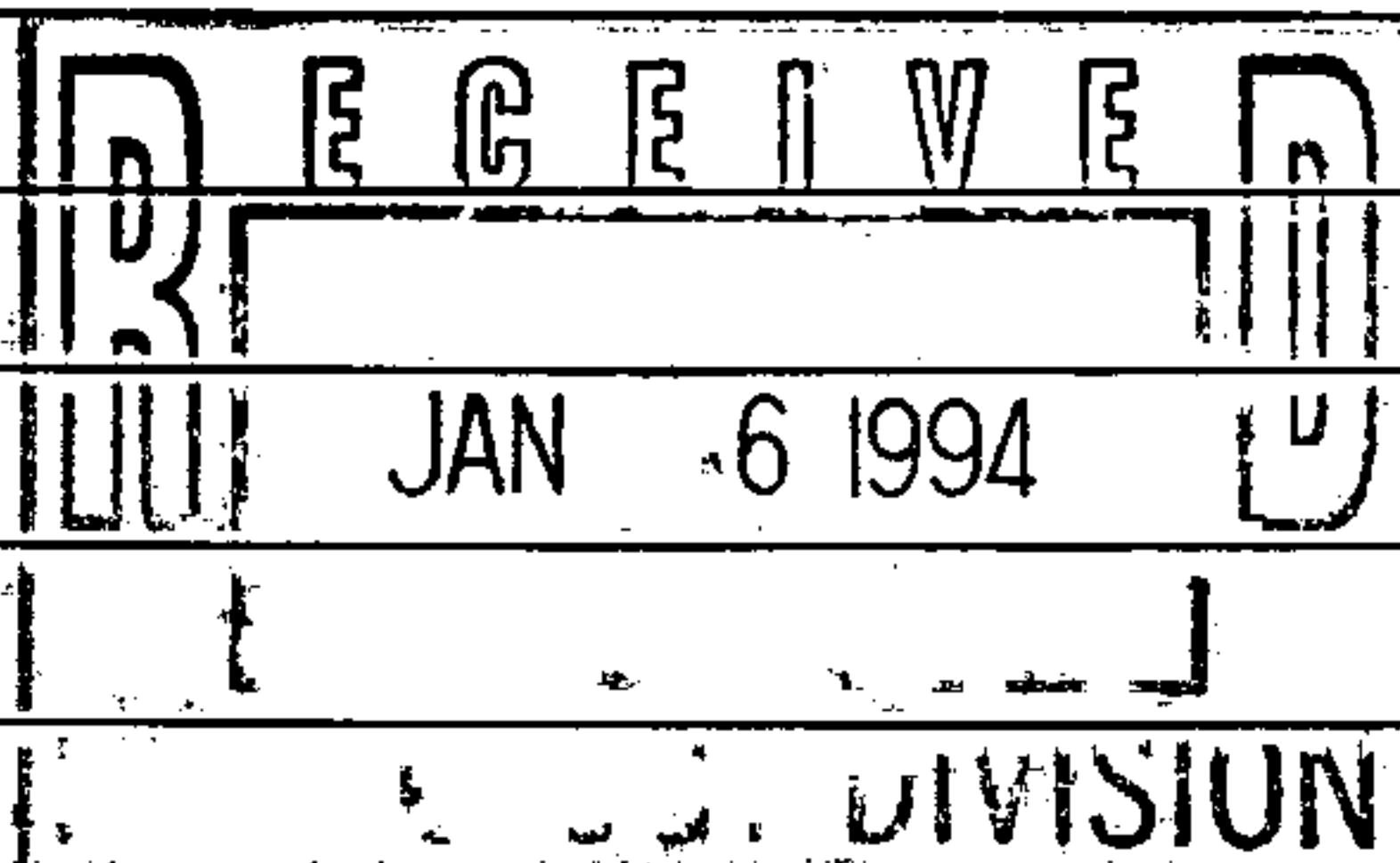
COPIES	DATE	NO.	DESCRIPTION
<u>1</u>	<u>Jan 94</u>	<u>-</u>	<u>UNSER DIVERSION / ATRISCO BUSINESS PARK</u> <u>CUMR</u>

THESE ARE TRANSMITTED as checked below:

- ☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS

Copy has been sent to Howard Stone for review. We need
to submit letter of approval from COA in order to complete
package for FEMA.



COPY TO _____

SIGNED: Lane Schuller



40% Pre-Consumer Content • 10% Post-Consumer Content

DRAINAGE INFORMATION SHEET

PROJECT TITLE: ATRISCO BUSINESS PARK ZONE ATLAS/DRNG. FILE #: K-10-A23
 DRB #: _____ EPC #: _____ WORK ORDER #: _____
 LEGAL DESCRIPTION: TRACT T, LOT 2, PARCEL A-1, PARCEL C, TRACT M, TRACT L-1
 CITY ADDRESS: TRACT 5-1, UNIT 2, ATRISCO BUSINESS PARK
 ENGINEERING FIRM: EASTERLING & ASSOCIATES CONTACT: VANCEL FOSSINGER
 ADDRESS: 10131 COORS NW, SUITE H-7 PHONE: 898-8021
 OWNER: SUNWEST BANK CONTACT: JEN GARRETT
 ADDRESS: 303 ROMA AVENUE, NW PHONE: 828-0552
 ARCHITECT: N/A CONTACT: _____
 ADDRESS: _____ PHONE: _____
 SURVEYOR: N/A CONTACT: _____
 ADDRESS: _____ PHONE: _____
 CONTRACTOR: N/A CONTACT: _____
 ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

- ☒ DRAINAGE REPORT
☐ DRAINAGE PLAN
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERTIFICATION
☐ OTHER _____

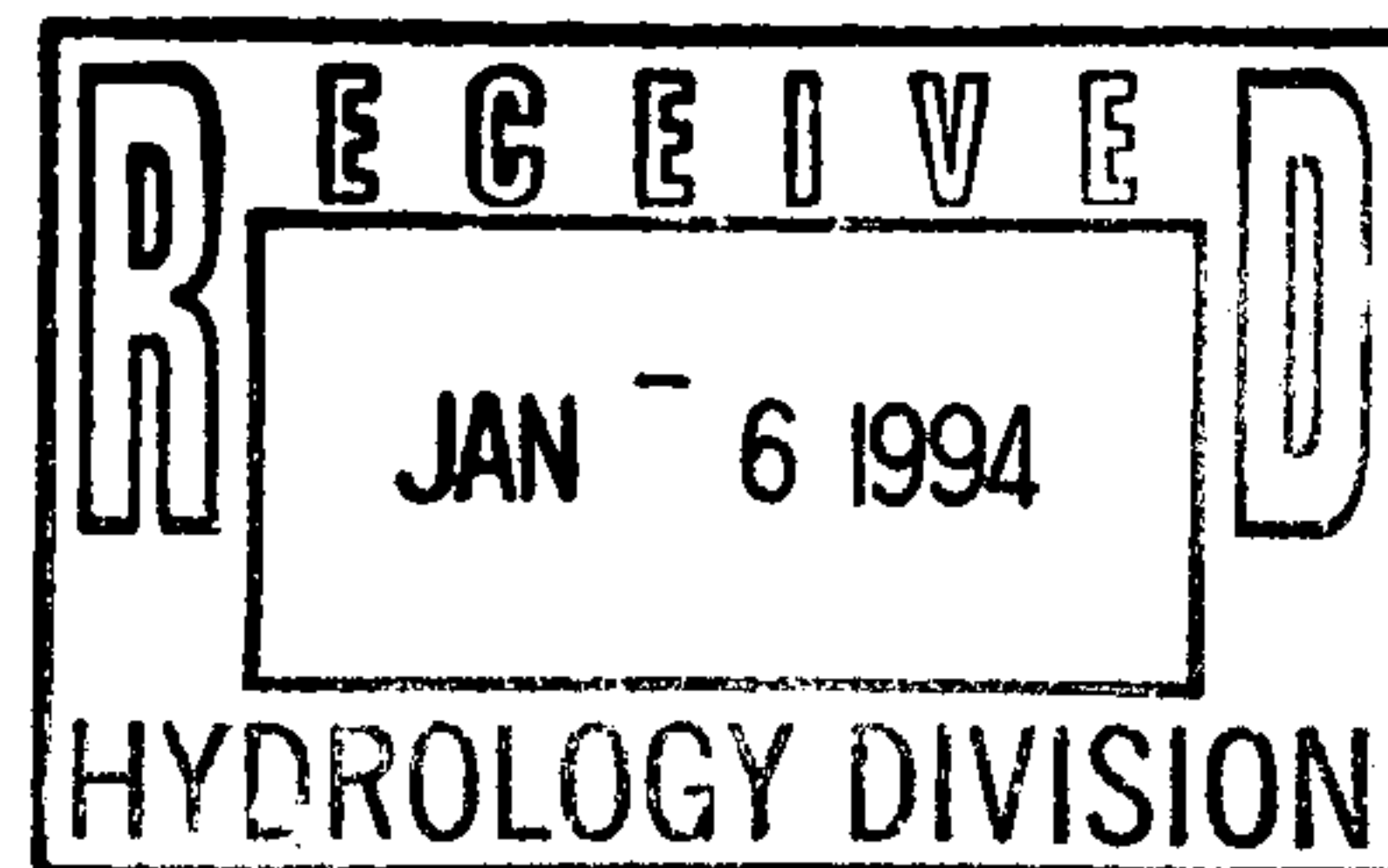
PRE-DESIGN MEETING:

- ☒ YES
☐ NO
☐ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SKETCH PLAT APPROVAL
☐ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D. APPROVAL
☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☐ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY APPROVAL
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ S.A.D. DRAINAGE REPORT
☐ DRAINAGE REQUIREMENTS
☒ OTHER DRAINAGE PLAN REVISION (SPECIFY)
CHOMR REQUEST

DATE SUBMITTED: 1/6/94
 BY: Vancel Fossinger by M.L.C.



Easterling & Associates, Inc.

January 5, 1994

10131 Coors Rd., NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 898-8021
FAX (505) 898-8501

Howard Stone, P.E.
Bohannon-Huston, Inc.
Courtyard I
7500 Jefferson, NE
Albuquerque, NM 87109

RE: CLOMR for Unser Diversion/Atrisco Business Park

Dear Howard:

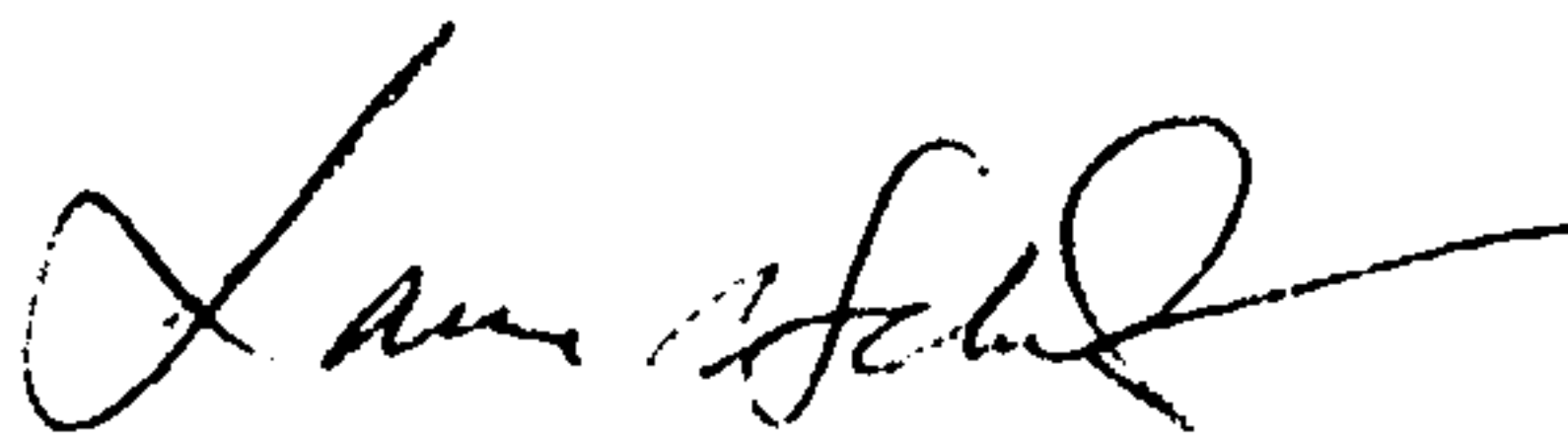
In accordance with our phone conversation with Larry Blair on 5 January 1994, we are transmitting a copy of the Unser Diversion CLOMR request to you for final review. This copy includes changes resulting from your earlier review of 9 December 1993.

Two attachments have been included in your package; "Design Analysis Report for the Unser Diversion" and "Master Drainage Plan for the Atrisco Business Park." The construction plan set for the Unser Diversion is being finalized at this writing and is available upon your request.

Should you have any specific questions regarding format or content of the CLOMR, please contact Vance Fossinger or me directly. All final review comments are to be transmitted to AMAFCA.

Thank you for your prompt attention to this matter.

Sincerely,

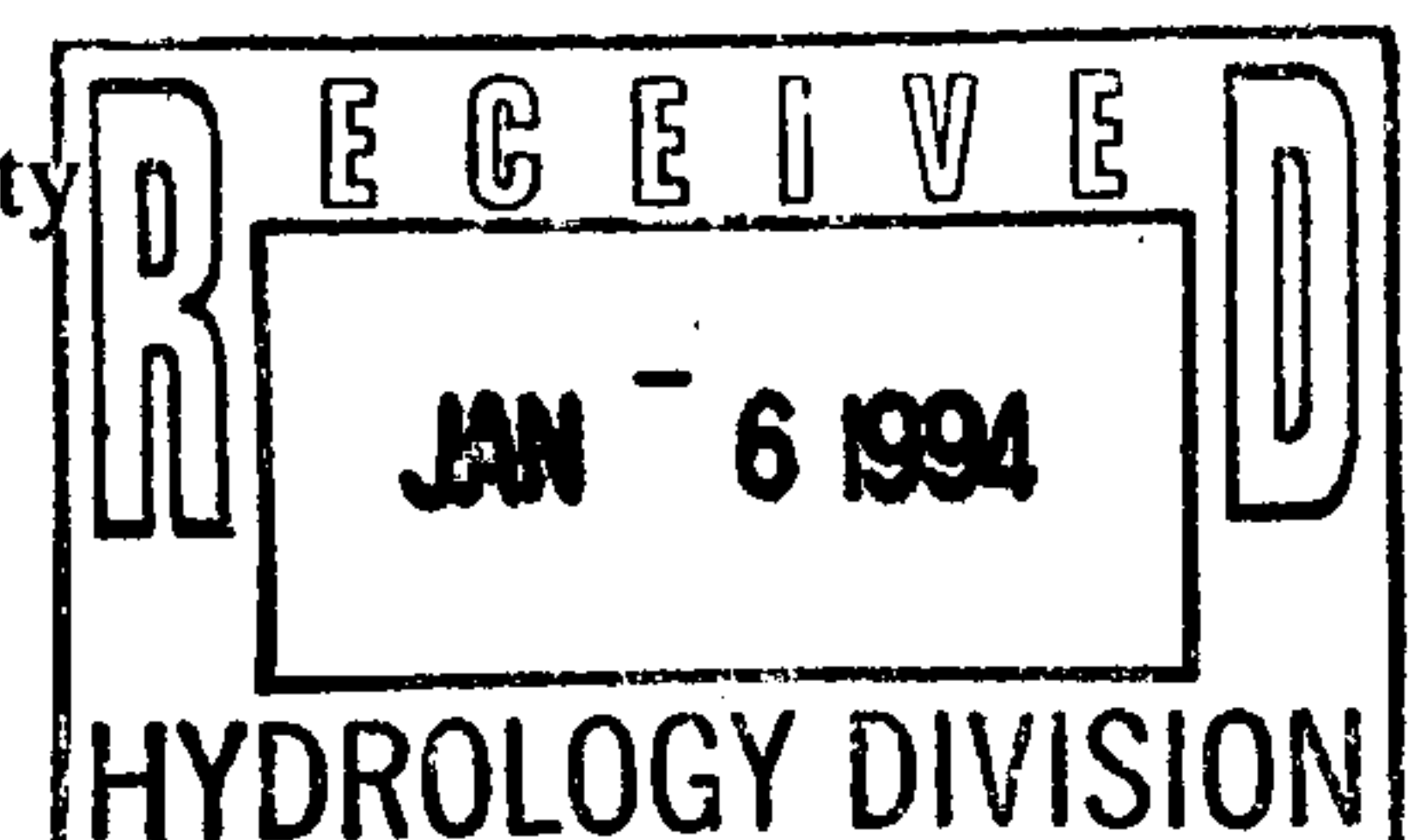


Laurie B. Schuller

LBS:das
Job No. 3324.3

Enclosure

cc: Larry Blair, Albuquerque Metropolitan Arroyo Flood Control Authority
Gilbert Aldaz, City of Albuquerque



REVIEW OF MEETING

SUBJECT: CLOMR Application for Unser Diversion, Review by Bohannon-Huston, Inc.

DATE: December 14, 1993

PLACE: Albuquerque Metropolitan Arroyo Flood Control Authority

ATTENDEES:

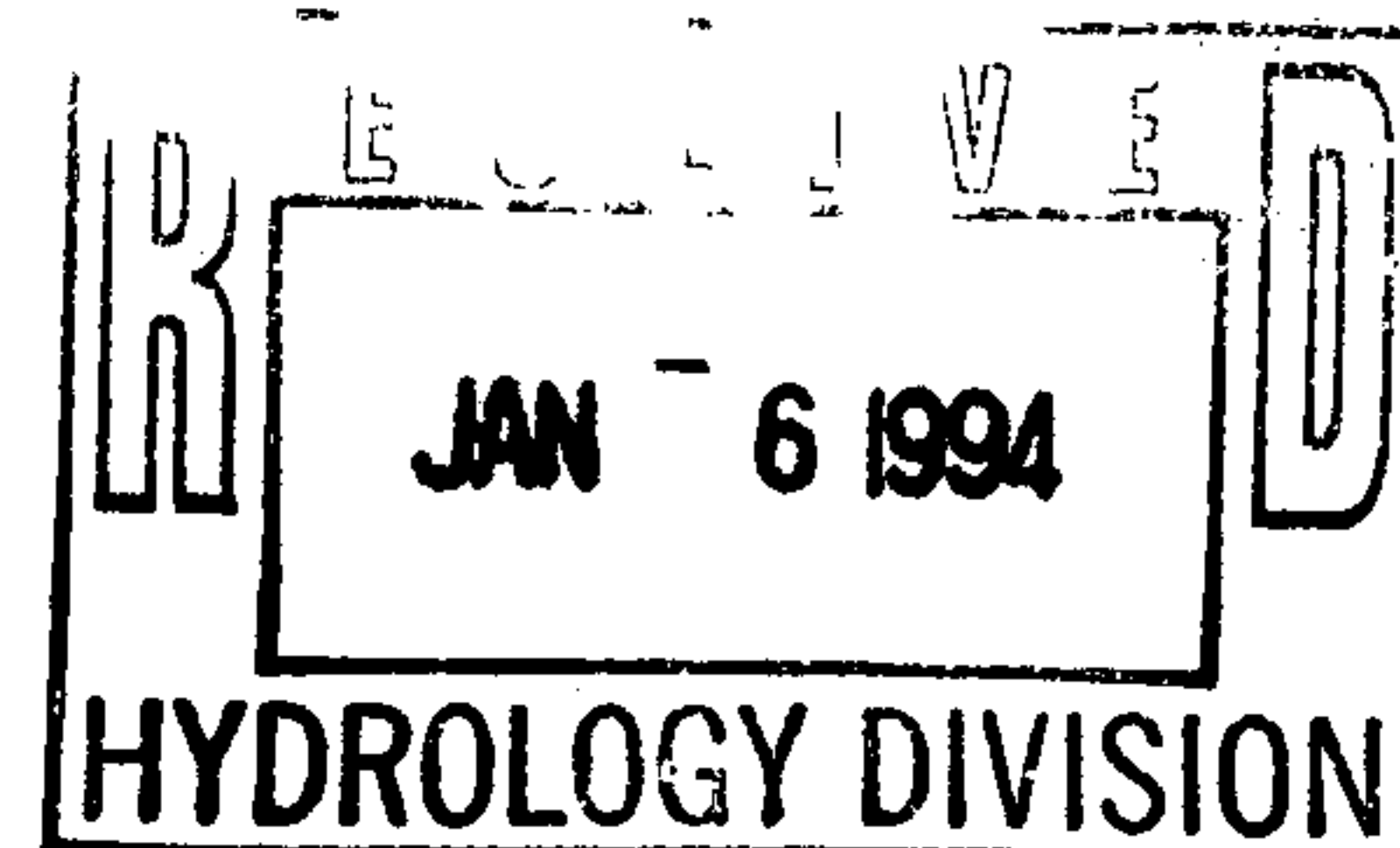
G. Aldaz City of Albuquerque
C. Anderson Albuquerque Metropolitan Arroyo Flood Control Authority
L. Blair Albuquerque Metropolitan Arroyo Flood Control Authority
R. P. Bohannon Easterling & Associates, Inc.
V. Fossinger Easterling & Associates, Inc.
T. Garrett Garrett Group, Inc.
L. Schuller Easterling & Associates, Inc.
H. Stone Bohannon-Huston, Inc.

MEETING SUMMARY:

- General consensus that forms should be emphasized. Text will supplement, reference text in forms. Forms 4, 5, 7, 8, and 12 should be included in submittal.
- With respect to Form 8 (Levee/Floodwall), FEMA allows levees with 2' freeboard if there is low probability of failure — C. Anderson.
- Provide clearer explanation of removal of FEMA floodplain from Tract S-1. Retain explanation that drainage area reduced to less than 1 square mile, therefore becomes local drainage matter. Add mention of I-25/Unser Intersection cutting off basin. Explain abandoned airport runway was erroneously shown as flooded arroyo.

Some controversy arose over basic approach, i.e. CLOMR submittal being based on the Unser Diversion removing FEMA floodplain, with remaining drainage basin subsequently under local jurisdiction only. This matter had been resolved with the COA in August 31, 1993 meeting (See attached).

- USGS quadrangle will be included.
- Volume discrepancy appears to be a reviewing error.
- Checking to see if State Engineer has any jurisdiction over this series of ponds appears to be AMAFCA's call.



REVIEW OF MEETING

December 14, 1993

Page 2

- Emergency Spillway criteria – Refer to COA Notice of Emergency Rules Criteria, Soil Conservation Service criteria.
- Remove discussion with respect to storms greater than 100 year.
- General opinion of COA and AMAFCA representatives was that applicants could take their own approach in requesting CLOMR. COA and AMAFCA would support it, but they could not guarantee acceptance.
- Submittals

Three to G. Aldaz - He will distribute

1. FEMA
2. AMAFCA
3. COA will keep one

LBS:das

Job No. 3324.3

Attachment

REVIEW OF MEETING

SUBJECT: FEMA CLOMR Submittal/Conservation Treatment

DATE: August 31, 1993

PLACE: City of Albuquerque, Hydrology

ATTENDEES:

G. Aldaz City of Albuquerque
F. Aguirre City of Albuquerque
C. Easterling Easterling & Associates, Inc.
V. Fossinger Easterling & Associates, Inc.
L. Schuller Easterling & Associates, Inc.

MEETING SUMMARY:

Several options regarding conservation treatment and the remnant flood plain left on the southeast corner of Tract "M" were discussed.

- Gilbert said he interprets the CLOMR Forms to require the local drainage organization to accept maintenance responsibility for any drainage facilities required to eliminate a flood plain.
- Fred said the City of Albuquerque (COA) did not want to take maintenance responsibility of conservation treatment.
- One approach discussed was that we would apply for two CLOMRS; one for the bulk of the flood plain to be removed by Unser Diversion. Another for the remnant flood plain to be removed by total buildout of the property and the implementation of the fully developed drainage requirements.
- Gilbert raised the concern that FEMA might want the fully developed onsite ponds to be publicly maintained. He also said they still may not want to completely remove the flood plain due to the fact that no high flow outfall is available.
- Fred suggested that the CLOMR be submitted based on the Unser Diversion removing the FEMA flood plain. The remaining drainage basin would be addressed as local drainage which will be addressed as development occurs per the COA approved master drainage plan. Gilbert supported this approach.

VSF:das
Job No. 3324.3

DRAINAGE INFORMATION SHEET

K10/O 23

PROJECT TITLE: Atrisco Business Park ZONE ATLAS/DRNG. FILE #: J-9, J-10, K-9, K-10LEGAL DESCRIPTION: Tract T, lot 2, Parcel A-1, Parcel C, Tract M, Tract L-1CITY ADDRESS: Tract S-1, unit 2, Atrisco Business ParkENGINEERING FIRM: Easterling & Associates CONTACT: Vancel FossingerADDRESS: 10131 Cools Rd. NW, Suite 7 PHONE: 898-8021OWNER: Sunwest Bank CONTACT: Ted GarrettADDRESS: 303 Roma Avenue N.W. PHONE: 828-0552ARCHITECT: N.A. CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: N.A. CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: N.A. CONTACT: _____

ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

☒ YES☐ NO☐ COPY OF CONFERENCE RECAP
SHEET PROVIDED

DRB NO. _____

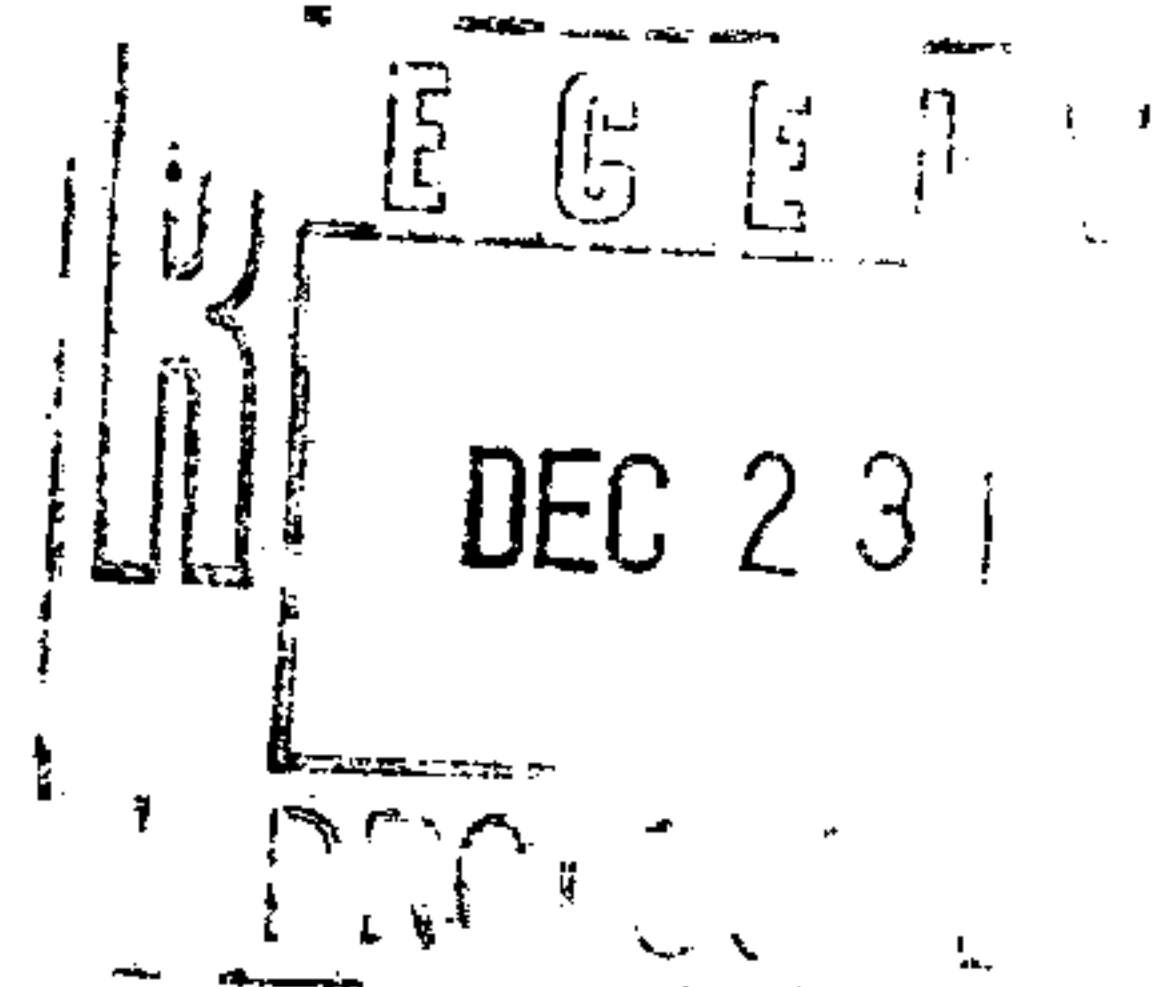
EPC NO. _____

PROJ. NO. _____

TYPE OF SUBMITTAL:

☒ DRAINAGE REPORT☐ DRAINAGE PLAN☐ CONCEPTUAL GRADING & DRAINAGE PLAN☐ GRADING PLAN☐ EROSION CONTROL PLAN☐ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT APPROVAL☐ PRELIMINARY PLAT APPROVAL☐ SITE DEVELOPMENT PLAN APPROVAL☐ FINAL PLAT APPROVAL☐ BUILDING PERMIT APPROVAL☐ FOUNDATION PERMIT APPROVAL☐ CERTIFICATE OF OCCUPANCY APPROVAL☐ ROUGH GRADING PERMIT APPROVAL☐ GRADING/PAVING PERMIT APPROVAL☒ MASTER
OTHER Drainage Plan Revision (SPECIFY)DATE SUBMITTED: 12-22-93BY: Vancel Fossinger

DRAINAGE COVENANT

This Drainage Covenant, between _____
("owner"), whose address is _____, and
the City of Albuquerque, New Mexico municipal corporation ("City"), whose
address is P.O. Box 1293, Albuquerque, New Mexico 87103, is made in
Albuquerque, Bernalillo County, New Mexico and is entered into as of the date
Owner signs this Covenant.

1. Recital. Owner is the owner of certain real property described as:

in Bernalillo County, New Mexico (the "Property").

Pursuant to City ordinances, regulations and other applicable laws, the
Owner is required to construct and maintain certain Drainage Facilities on the
Property, and the parties wish to enter into this Agreement to establish the
obligations and responsibilities of the parties.

2. Description and Construction of Drainage Facilities. Owner shall
construct the following "Drainage Facility" within the Property at Owner's
sole expense in accordance with the standards, plans and specifications
approved by the City pursuant to Drainage File No. _____:

The Drainage Facility is more particularly described in the attached
Exhibit A. The Owner will not permit the Drainage to constitute a hazard to
the health or safety of the general public.

3. Maintenance of Drainage Facility. The Owner will maintain the Drainage
Facility and any downstream public facilities that may be impacted by run-off
or sedimentation from the facility at Owner's cost in accordance with the
approved Drainage Report and plans. During the term of this agreement, the
Owner will submit a semi-annual report prepared by a certified Engineer
certifying with Engineer's stamp that the facility has been inspected and that
the facility is in compliance and conforms to the Interim Drainage Treatment
Plan dated June 24, 1993. Attached hereto and incorporated herein by
reference.

4. City's Right of Entry. The City has the right to enter upon the Property
at any time and perform whatever inspection, maintenance or repair of the
Drainage Facility it deems appropriate, without liability to the Owner.

5. Demand for Construction or Repair. The City may send written notice
("Notice") to the Owner requiring the Owner to construct or repair the
Drainage Facility within _____ days ("Deadline") of receipt of the Notice,
as provided in Section 11, and the Owner will comply promptly with the
requirements of the Notice. The Owner will perform all required work by the
Deadline, at Owner's sole expense.

6. Failure to Perform by Owner and Emergency Work by City. If the Owner
fails to comply with the terms of the Notice by the Deadline, or if the city
determines that an emergency condition exists, the City may perform the work
itself. The City may assess the Owner for the cost of the work and for any
other expenses or damages which result from Owner's failure to perform. The
Owner agrees promptly to pay the City the amount assessed. If the Owner fails
to pay the City within thirty (30) days after the City gives the Owner written
notice of the amount due, the City may impose a lien against Owner's Property
for the total resulting amount.

7. Liability of City for Repair after Notice or as a Result of Emergency.

The City shall not be liable to the Owner for any damages resulting from the City's repair or maintenance following notice to the Owner as required in this agreement or in an emergency unless the damages are the result of the reckless conduct or gross negligence of the City.

8. Indemnification. Owner agrees to indemnify and save the City, its officials, agents and employees harmless from all claims, actions, suits and proceedings arising out of or resulting from the Owner's maintenance, construction, repair, use or modification of the Drainage Facility. 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 directions or instructions is the primary cause of bodily injury to persons or damage to property.

9. Cancellation of Agreement and Release of Covenant. This Agreement may be released if the Drainage Facility is no longer required for the protection of the public health, safety and welfare by the City filing a "Notice of Release" with the Bernalillo County Clerk. The Notice of Release must be signed by the City's Chief Administrative Officer, or his designee, and the approval of the City Hydrologist must be endorsed thereon.

10. Assessment. Nothing in this agreement shall be construed to relieve the Owner, his heirs, assigns, and successors from an assessment against Owner's Property for improvements to the property under a duly authorized and approved Special Assessment District. The parties specifically agree that the value of the Drainage Facility will not reduce the amount assessed by the City.

11. Notice. For purposes of given formal written notice to the Owner, Owner's address is:

Notice may be given to the Owner 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 Owner within three days after the notice is mailed if there is no actual evidence of receipt. The Owner may change Owner's address by given written notice of the change by Certified Mail, return receipt requested, to the City Public Works Department, P.O. Box 1293, Albuquerque, New Mexico, 87103.

12. Term. This Agreement shall continue until terminated by the City pursuant to Section 9 above.

DRAINAGE COVENANT

This Drainage Covenant, between _____ ("owner"), whose address is _____, and the City of Albuquerque, New Mexico municipal corporation ("City"), whose address is P.O. Box 1293, Albuquerque, New Mexico 87103, is made in Albuquerque, Bernalillo County, New Mexico and is entered into as of the date Owner signs this Covenant.

1. Recital. Owner is the owner of certain real property described as: _____ in Bernalillo County, New Mexico (the "Property").

Pursuant to City ordinances, regulations and other applicable laws, the Owner is required to construct and maintain certain Drainage Facilities on the Property, and the parties wish to enter into this Agreement to establish the obligations and responsibilities of the parties.

2. Description and Construction of Drainage Facilities. Owner shall construct the following "Drainage Facility" within the Property at Owner's sole expense in accordance with the standards, plans and specifications approved by the City pursuant to Drainage File No. _____:

The Drainage Facility is more particularly described in the attached Exhibit A. The Owner will not permit the Drainage to constitute a hazard to the health or safety of the general public.

3. Maintenance of Drainage Facility. *During the term of this agreement,* The Owner will maintain the Drainage Facility and any downstream public facilities that may be impacted by run-off or sedimentation from the facility at Owner's cost in accordance with the approved Drainage Report and plans. *Prepared* The Owner will submit a semi-annual report by a certified Engineer *Certifying with Engineer's Stamp* that the facility has been inspected and ~~the Engineer certifies~~ that the facility is in compliance and conforms to the Interim Drainage Treatment Plan dated June 24, 1993. *attached hereto and incorporated herein by reference*

4. City's Right of Entry. The City has the right to enter upon the Property at any time and perform whatever inspection, maintenance or repair of the Drainage Facility it deems appropriate, without liability to the Owner.

5. Demand for Construction or Repair. The City may send written notice ("Notice") to the Owner requiring the Owner to construct or repair the Drainage Facility within _____ days ("Deadline") of receipt of the Notice, as provided in Section 11, and the Owner will comply promptly with the requirements of the Notice. The Owner will perform all required work by the Deadline, at Owner's sole expense.

6. Failure to Perform by Owner and Emergency Work by City. If the Owner fails to comply with the terms of the Notice by the Deadline, or if the city determines that an emergency condition exists, the City may perform the work itself. The City may assess the Owner for the cost of the work and for any other expenses or damages which result from Owner's failure to perform. The Owner agrees promptly to pay the City the amount assessed. If the Owner fails to pay the City within thirty (30) days after the City gives the Owner written notice of the amount due, the City may impose a lien against Owner's Property for the total resulting amount.

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The City shall not be liable to the Owner for any damages resulting from the City's repair or maintenance following notice to the Owner as required in this agreement or in an emergency unless the damages are the result of the reckless conduct or gross negligence of the City.

8. Indemnification. Owner agrees to indemnify and save the City, its officials, agents and employees harmless from all claims, actions, suits and proceedings arising out of or resulting from the Owner's maintenance, construction, repair, ^{or use} of the Drainage Facility. 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 directions or instructions is the primary cause of bodily injury to persons or damage to property.

9. Cancellation of Agreement and Release of Covenant. This Agreement may be released if the Drainage Facility is no longer required for the protection of the public health, safety and welfare by the City filing a "Notice of Release" with the Bernalillo County Clerk. The Notice of Release must be signed by the City's Chief Administrative Officer, or his designee, and the approval of the City Hydrologist must be endorsed thereon.

10. Assessment. Nothing in this agreement shall be construed to relieve the Owner, his heirs, assigns, and successors from an assessment against Owner's Property for improvements to the property under a duly authorized and approved Special Assessment District. The parties specifically agree that the value of the Drainage Facility will not reduce the amount assessed by the City.

11. Notice. For purposes of given formal written notice to the Owner, Owner's address is:

Notice may be given to the Owner 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 Owner within three days after the notice is mailed if there is no actual evidence of receipt. The Owner may change Owner's address by given written notice of the change by Certified Mail, return receipt requested, to the City Public Works Department, P.O. Box 1293, Albuquerque, New Mexico, 87103.

12. Term. This Agreement shall continue until terminated by the City pursuant to Section 9 above.

DRAINAGE COVENANT

This Drainage Covenant, between _____
("Owner"), whose address is _____, and
the City of Albuquerque, New Mexico municipal corporation ("City"), whose
address is P.O. Box 1293, Albuquerque, New Mexico 87103, is made in
Albuquerque, Bernalillo County, New Mexico and is entered into as of the date
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Property, and the parties wish to enter into this Agreement to establish the
obligations and responsibilities of the parties.

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sole expense in accordance with the standards, plans and specifications
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The Drainage Facility is more particularly described in the attached
Exhibit A. The Owner will not permit the Drainage Facility to constitute a
hazard to the health or safety of the general public.

3. Maintenance of Drainage Facility. The Owner will maintain the Drainage
Facility at Owner's cost in accordance with the approved Drainage Report and
plans. *Public facilities that may be impacted by improper maintenance from the facility*
and any downstream *the owner will submit a semi-annual*
report by a certified engineer that the facility has been inspected and the engineer
4. City's Right of Entry. The City has the right to enter upon the
Property at any time and perform whatever inspection, maintenance or repair of
the Drainage Facility it deems appropriate, without liability to the Owner. *certifies that the facility is in*

5. Demand for Construction or Repair. The City may send written notice
("Notice") to the Owner requiring the Owner to construct or repair the
Drainage Facility within _____ days ("Deadline") of receipt of the Notice, as
provided in Section 11, and the Owner will comply promptly with the
requirements of the Notice. The Owner will perform all required work by the
Deadline, at Owner's sole expense. *compliance and*
confers to the
retain

6. Failure to Perform by Owner and Emergency Work by City. If the Owner
fails to comply with the terms of the Notice by the Deadline, or if the City
determines that an emergency condition exists, the City may perform the work
itself. The City may assess the Owner for the cost of the work and for any
other expenses or damages which result from Owner's failure to perform. The
Owner agrees promptly to pay the City the amount assessed. If the Owner fails
to pay the City within thirty (30) days after the City gives the Owner written
notice of the amount due, the City may impose a lien against Owner's Property
for the total resulting amount. *Drainage Plan*
Treatment
Am. File
Dated
June 24, 1993

(Approved by Legal Dept.
as to form only 06/90)

7. Liability of City for Repair after Notice or as a Result of Emergency. The City shall not be liable to the Owner for any damages resulting from the City's repair or maintenance following notice to the Owner as required in this agreement or in an emergency unless the damages are the result of the reckless conduct or gross negligence of the City.

8. Indemnification. Owner agrees to indemnify and save the City, its officials, agents and employees harmless from all claims, actions, suits and proceedings arising out of or resulting from the Owner's ~~negligent~~ maintenance, construction, repair or use of the Drainage Facility. 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.

9. Cancellation of Agreement and Release of Covenant. This Agreement may be released if the Drainage Facility is no longer required for the protection of the public health, safety and welfare by the City filing a "Notice of Release" with the Bernalillo County Clerk. The Notice of Release must be signed by the City's Chief Administrative Officer, or his designee; and the approval of the City Hydrologist must be endorsed thereon.

10. Assessment. Nothing in this agreement shall be construed to relieve the Owner, his heirs, assigns, and successors from an assessment against Owner's Property for improvements to the property under a duly authorized and approved Special Assessment District. The parties specifically agree that the value of the Drainage Facility will not reduce the amount assessed by the City.

11. Notice. For purposes of given formal written notice to the Owner, Owner's address is:

Notice may be given to the Owner 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 Owner within three days after the notice is mailed if there is no actual evidence of receipt. The Owner may change Owner's address by given written notice of the change by Certified Mail, return receipt requested, to the City Public Works Department, P.O. Box 1293, Albuquerque, New Mexico, 87103.

12. Term. This Agreement shall continue until terminated by the City pursuant to Section 9 above.

(Approved by Legal Dept.
as to form only 06/90)

13. Binding on Owner's Property. The covenants and obligations of the Owner said forth herein shall be binding on Owner, its heirs, personal representatives, assigns and successors and on Owner's Property and shall constitute covenants running the Owner's Property until released by the City.

14. Entire Agreement. This Agreement contains the entire agreement of the parties and supercedes any and all other agreements or understanding, oral or written, whether previous to the execution hereof or contemporaneous herewith regarding this subject matter.

15. Changes to 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.

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.

OWNER:

By: _____
Its: _____
Dated: _____

STATE OF _____)
) ss
COUNTY OF _____)

The foregoing instrument was acknowledged before me this ____ day of _____, 199____, [by name of person:] _____, [title or capacity, for instance "president" or "owner":] _____ of [Subdivider:] _____.

Notary Public

My Commission Expires:

CITY OF ALBUQUERQUE:

Approved:

By: _____
Title: _____
Dated: _____

(EXHIBIT A ATTACHED)

(Approved by Legal Dept.
as to form only 06/90)

93032846

EASEMENT

This Easement is between Sunwest Bank of Albuquerque, N.A., a national banking association ("Grantor"), whose address is 303 Roma N.W. (Post Office Box 25500), Albuquerque, New Mexico 98125-0500, and the City of Albuquerque, a New Mexico municipal corporation ("Grantee"), whose address is Post Office Box 1293, Albuquerque, New Mexico 87103.

WHEREAS, Grantor is the owner of the five (5) lots described in Exhibit "A" attached hereto and made a part of hereof (the "Property"), and

WHEREAS, Grantee desires an easement for a sanitary sewer and a storm drain conveyance facility across a portion of the Property to serve all of the Property.

FOR VALUABLE CONSIDERATION, the receipt and sufficiency of which is hereby acknowledged, Grantor grants to Grantee an exclusive thirty five foot (35') easement in, over, upon and across a portion of the Property as shown and described in Exhibit "B" attached hereto and made a part hereof, for the construction, installation, maintenance, repair, modification, replacement and operation of sanitary sewer and a storm drain conveyance facility, together with the right to remove trees, bushes, undergrowth and any other obstacles within the easement as the Grantee determines interfere with the use thereof (the "Easement").

This Easement is granted upon the express condition that it shall be in perpetuity unless on or before commencement of construction of the sanitary sewer and/or the storm drain conveyance facility within the Easement, an owner/Grantor of the Property submits an application to the appropriate governmental authority and receives approval to combine the

FILE WITH ADRIAN
BUSINESS WORK 0003171

lots constituting the Property in a manner which no longer requires this Easement (the "Event"). Coincident with the occurrence of the Event, this Easement shall be deemed terminated automatically and without notice to Grantee. Upon termination of this Easement, Grantee shall sign, acknowledge and deliver to the then owner of the Property, a quitclaim deed in recordable form quitclaiming all right, title and interest of Grantee in the Easement to such owner.

The Easement granted hereby and the terms and conditions contained herein shall run with the Property and shall inure to the benefit of and be binding upon the parties and their respective successors and assigns.

Grantor covenants and warrants that Grantor is the owner in fee simple of the Property, that Grantor has good and lawful right to grant this Easement, and that Grantor will forever warrant and defend title to that portion of that Property covered by the Easement against all claims from all persons and entities.

WITNESS its hand on this 25th day of March, 1993.

Grantor:

Sunwest Bank of Albuquerque, N.A., a national
banking association

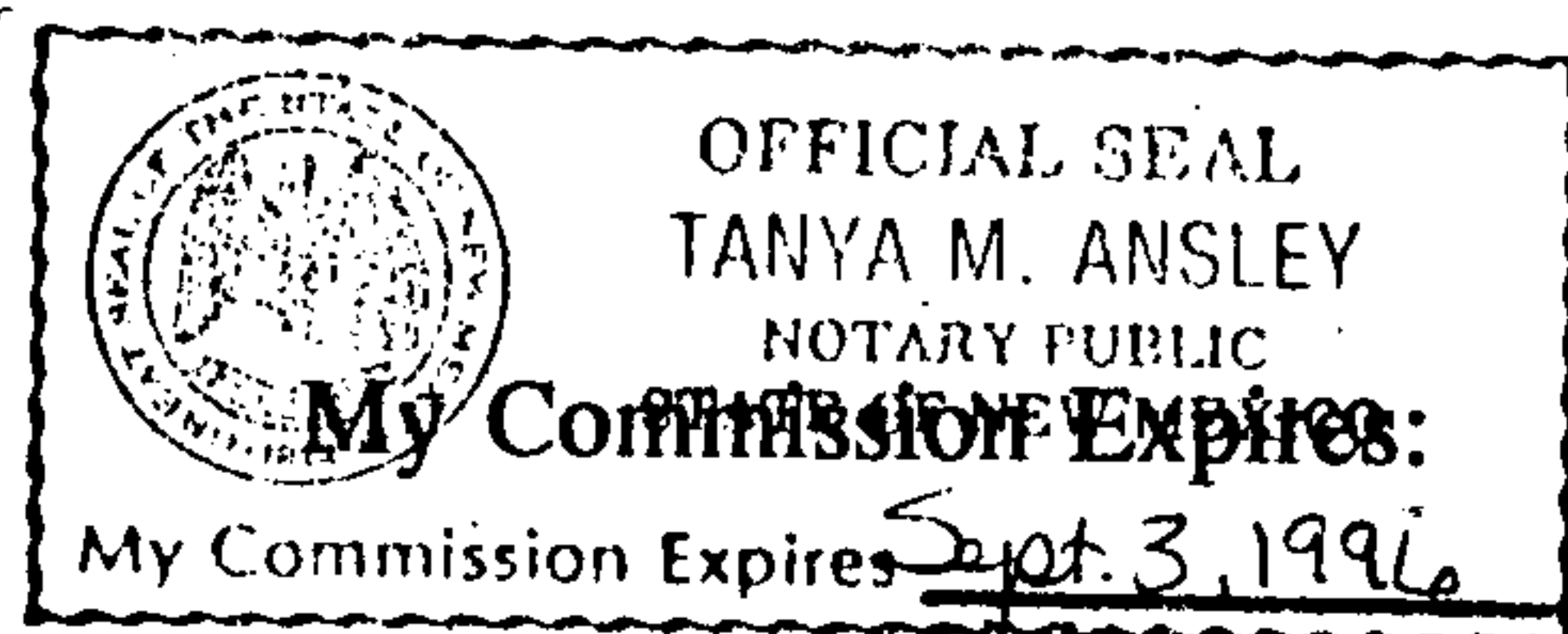
by:



Patrick J. Romo
Vice President

STATE OF NEW MEXICO)
)ss.
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me this 30th day of March,
1993, by Patrick J. Romo, Vice President of Sunwest Bank of Albuquerque, N.A., a national
banking association on behalf of said association.



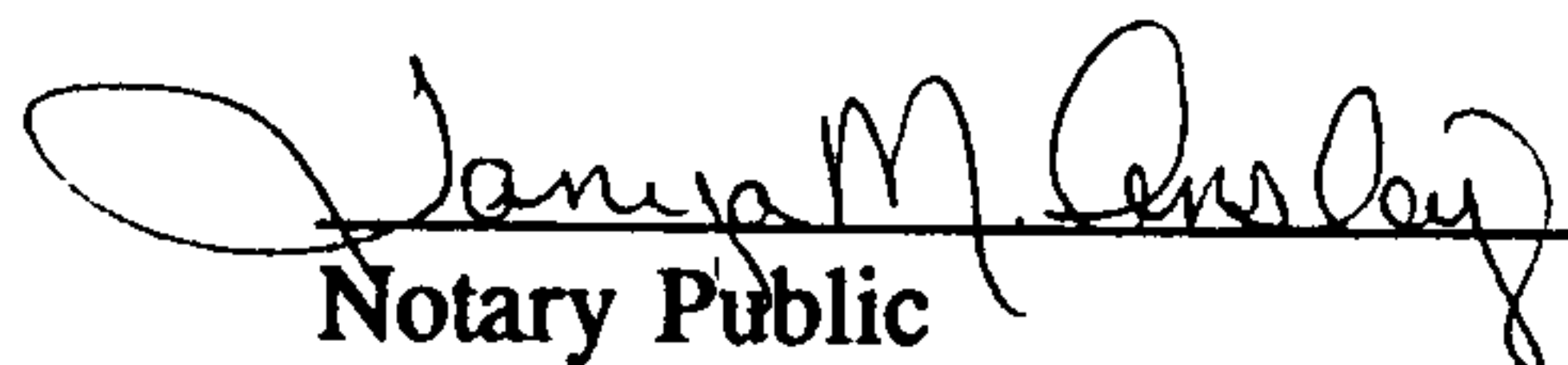
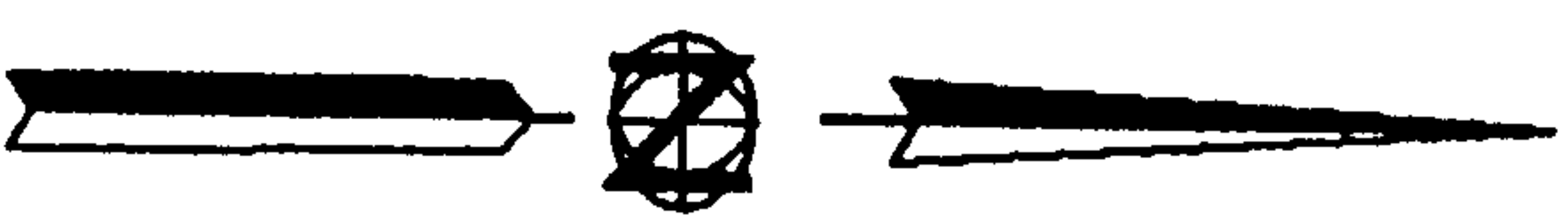
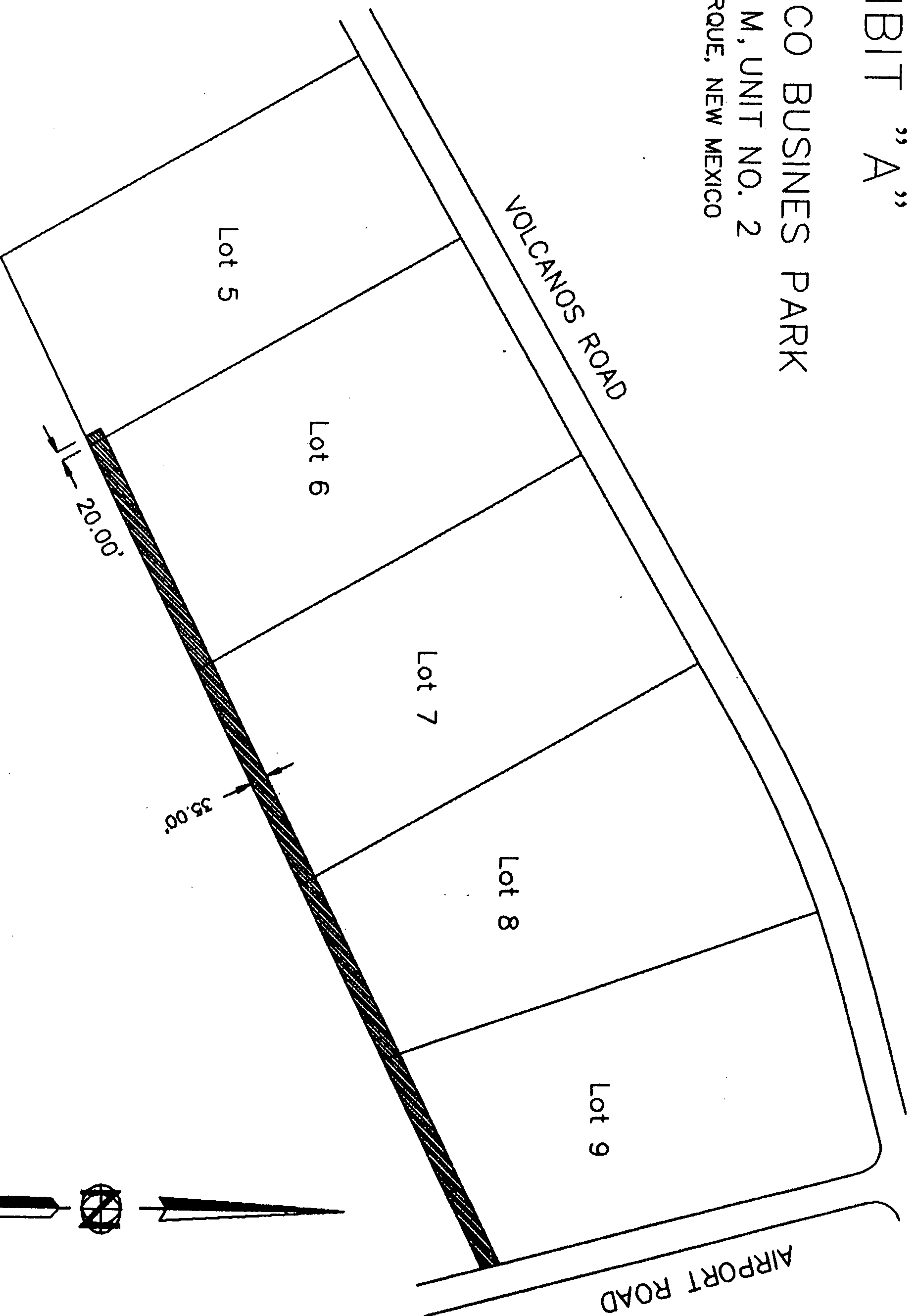
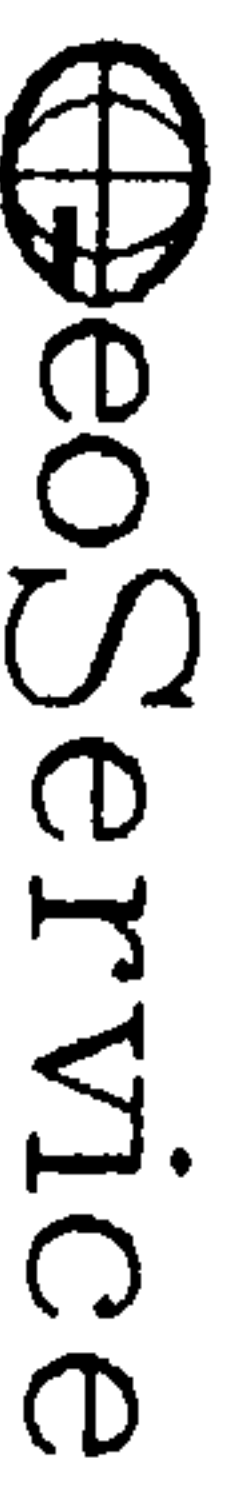

Notary Public

EXHIBIT "A"

ATRISCO BUSINESS PARK
TRACT M, UNIT NO. 2
ALBUQUERQUE, NEW MEXICO



SCALE: 1"=300'



Professional Land Surveying and Geodetic Services

P.O. Box 15317, Rio Rancho, NM 87174

tel. (505) 898-2174

0003174

0003175

LEGAL DESCRIPTION

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Rick O. Fencel
Rick O. Fencel, NMPS No. 10202

11/27/92
Date



0003176

LEGAL DESCRIPTION

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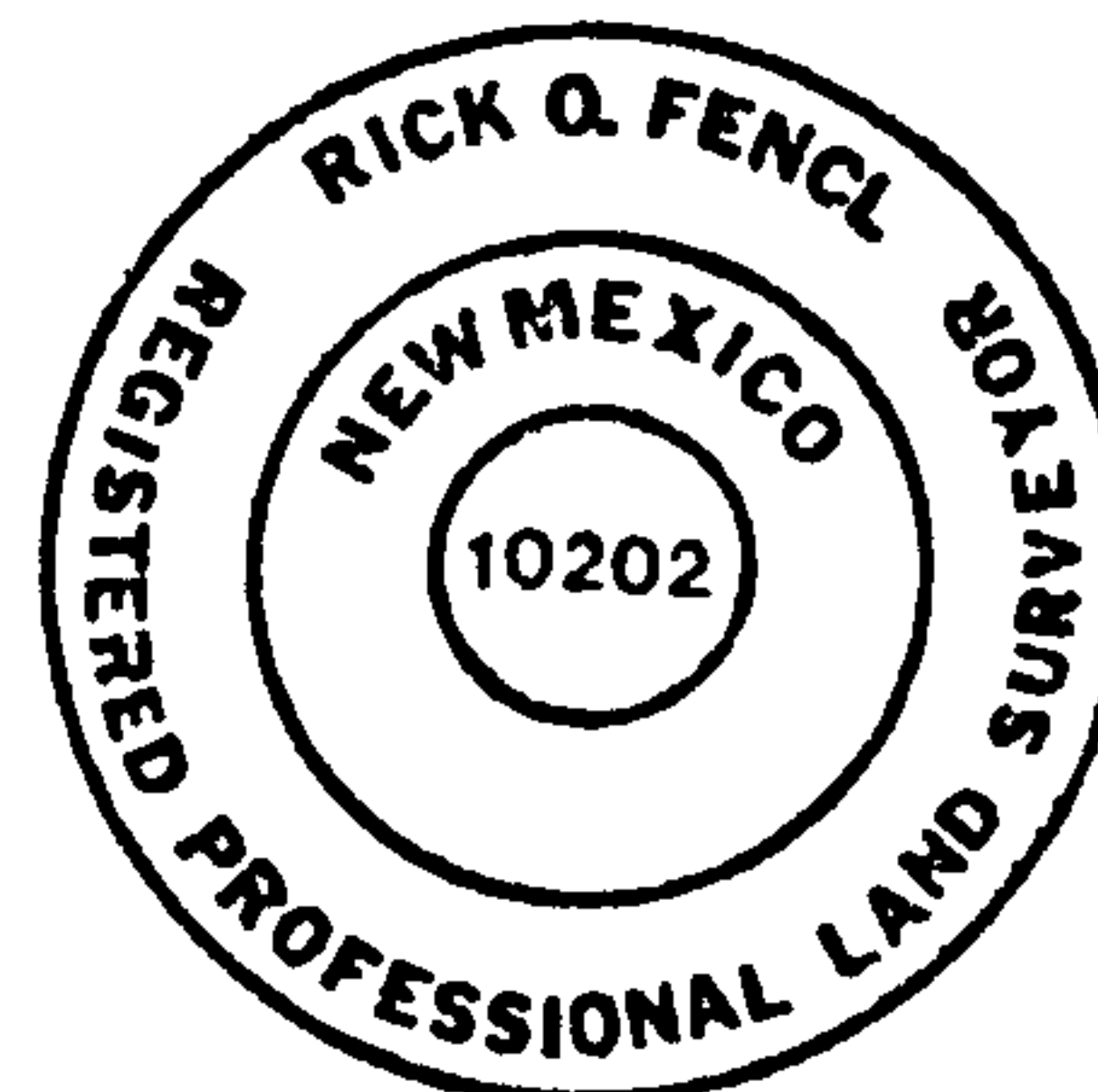
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Rick O. Fencil, NMPS No. 10202

11/27/92
Date



0003177

LEGAL DESCRIPTION

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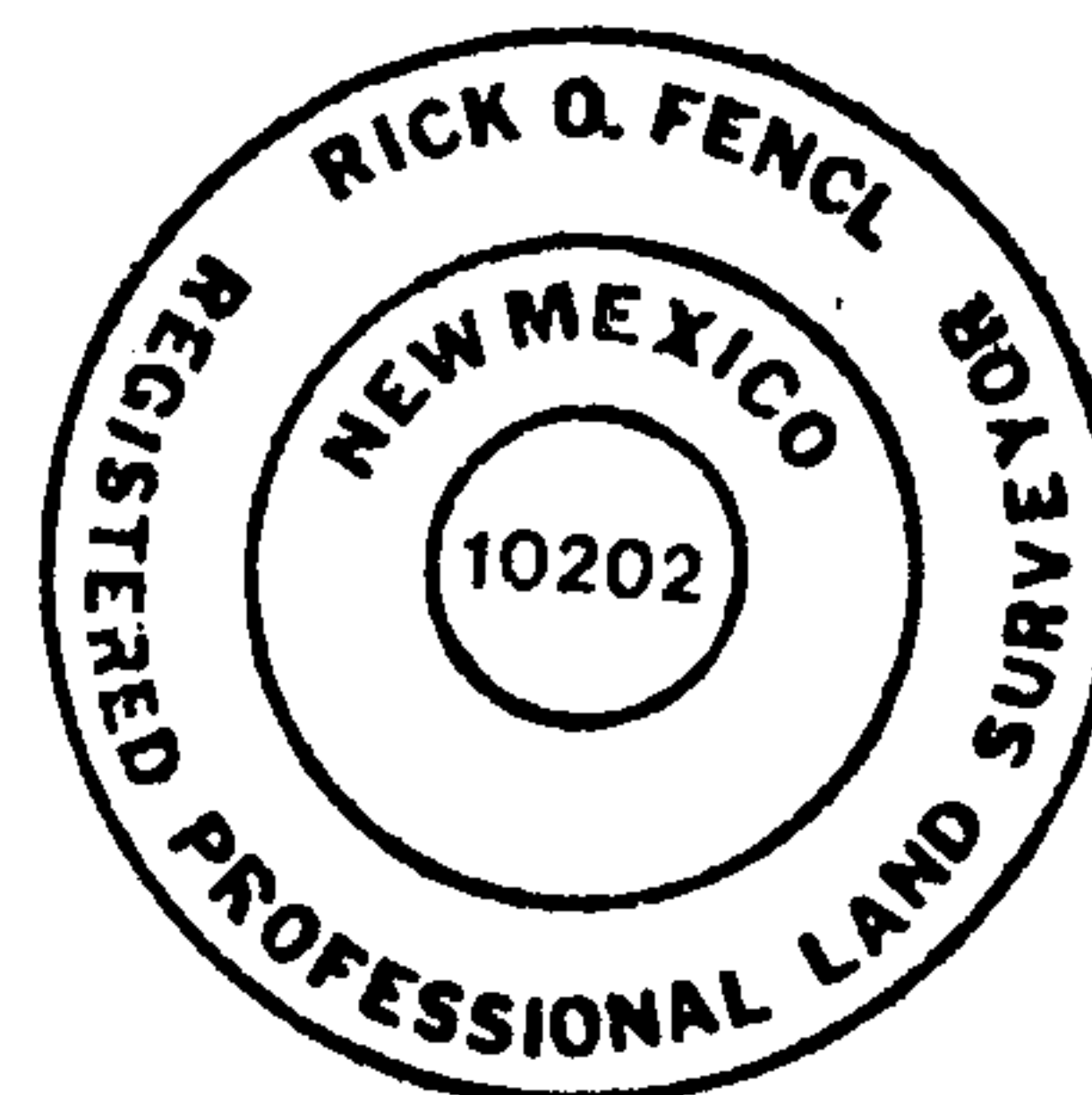
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Rick O. Fencil, NMPS No. 10202

11/27/92
Date



0003178

LEGAL DESCRIPTION

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N 63°47'27" E, 396.32 feet distance northeasterly to the northeast corner of the parcel of land herein described; thence,

S 19°37'42" E, 35.23 feet distance southerly along the easterly boundary line of Lot 8 to the southeast corner of Lot 8 and POINT OF BEGINNING of the parcel of land herein described, said parcel contains 13,760 square feet (0.3159 acre), more or less.


Rick O. Fencil, NMPS No. 10202

11/27/92
Date



0003179

LEGAL DESCRIPTION

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Rick O. Fencel
Rick O. Fencel, NMPS No. 10202

11/27/92

Date



STATE OF NEW MEXICO
COUNTY OF BERNALILLO
FILED FOR RECORD

93 APR -1 AM 8:19

938

3171-3179

JUDY D. WOODWARD
CO. CLERK & RECORDER
DEPUTY

93032846

0003171

EASEMENT

This Easement is between Sunwest Bank of Albuquerque, N.A., a national banking association ("Grantor"), whose address is 303 Roma N.W. (Post Office Box 25500), Albuquerque, New Mexico 98125-0500, and the City of Albuquerque, a New Mexico municipal corporation ("Grantee"), whose address is Post Office Box 1293, Albuquerque, New Mexico 87103.

WHEREAS, Grantor is the owner of the five (5) lots described in Exhibit "A" attached hereto and made a part of hereof (the "Property"), and

WHEREAS, Grantee desires an easement for a sanitary sewer and a storm drain conveyance facility across a portion of the Property to serve all of the Property.

FOR VALUABLE CONSIDERATION, the receipt and sufficiency of which is hereby acknowledged, Grantor grants to Grantee an exclusive thirty five foot (35') easement in, over, upon and across a portion of the Property as shown and described in Exhibit "B" attached hereto and made a part hereof, for the construction, installation, maintenance, repair, modification, replacement and operation of sanitary sewer and a storm drain conveyance facility, together with the right to remove trees, bushes, undergrowth and any other obstacles within the easement as the Grantee determines interfere with the use thereof (the "Easement").

This Easement is granted upon the express condition that it shall be in perpetuity unless on or before commencement of construction of the sanitary sewer and/or the storm drain conveyance facility within the Easement, an owner/Grantor of the Property submits an application to the appropriate governmental authority and receives approval to combine the

lots constituting the Property in a manner which no longer requires this Easement (the "Event"). Coincident with the occurrence of the Event, this Easement shall be deemed terminated automatically and without notice to Grantee. Upon termination of this Easement, Grantee shall sign, acknowledge and deliver to the then owner of the Property, a quitclaim deed in recordable form quitclaiming all right, title and interest of Grantee in the Easement to such owner.

The Easement granted hereby and the terms and conditions contained herein shall run with the Property and shall inure to the benefit of and be binding upon the parties and their respective successors and assigns.

Grantor covenants and warrants that Grantor is the owner in fee simple of the Property, that Grantor has good and lawful right to grant this Easement, and that Grantor will forever warrant and defend title to that portion of that Property covered by the Easement against all claims from all persons and entities.

WITNESS its hand on this 25th day of March, 1993.

Grantor:

Sunwest Bank of Albuquerque, N.A., a national
banking association

by:


Patrick J. Romo
Vice President

STATE OF NEW MEXICO)
)ss.
COUNTY OF BERNALILLO)

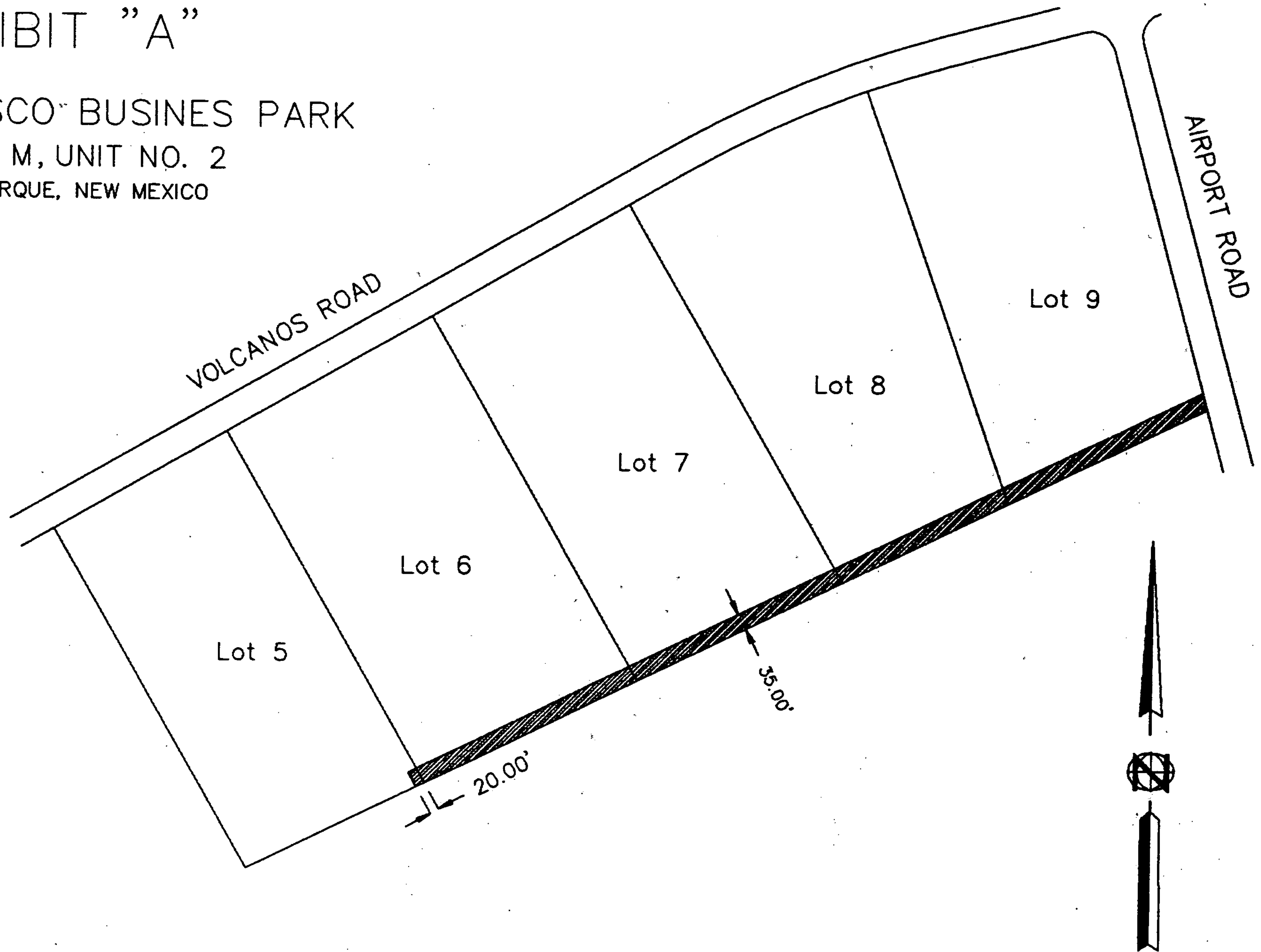
The foregoing instrument was acknowledged before me this 30th day of March,
1993, by Patrick J. Romo, Vice President of Sunwest Bank of Albuquerque, N.A., a national
banking association on behalf of said association.



Tanya M. Ansley
Notary Public

EXHIBIT "A"

ATRISCO BUSINESS PARK
TRACT M, UNIT NO. 2
ALBUQUERQUE, NEW MEXICO



0003175

LEGAL DESCRIPTION

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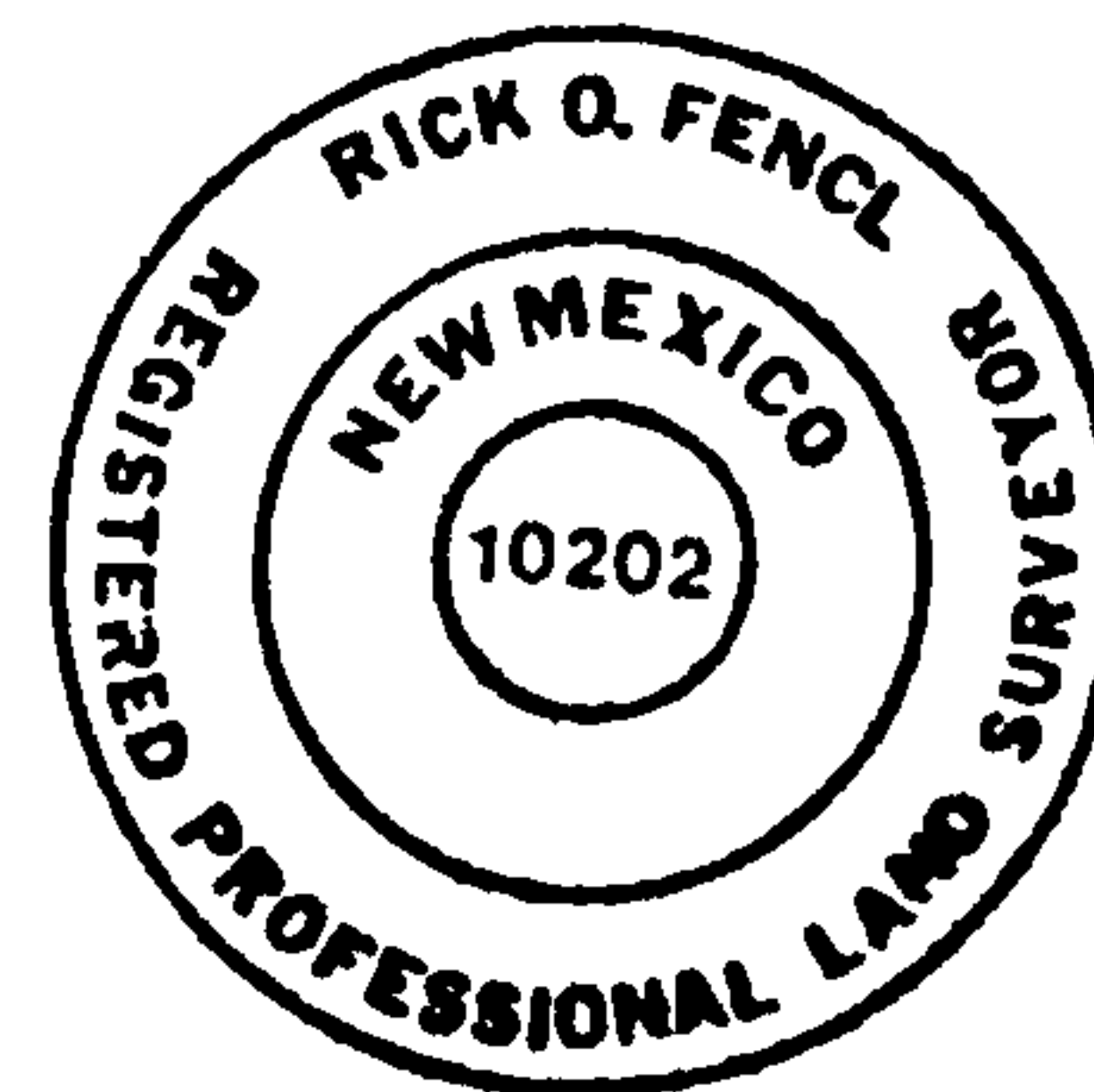
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Rick O. Fencil
Rick O. Fencil, NMPS No. 10202

11/27/92
Date



0003176

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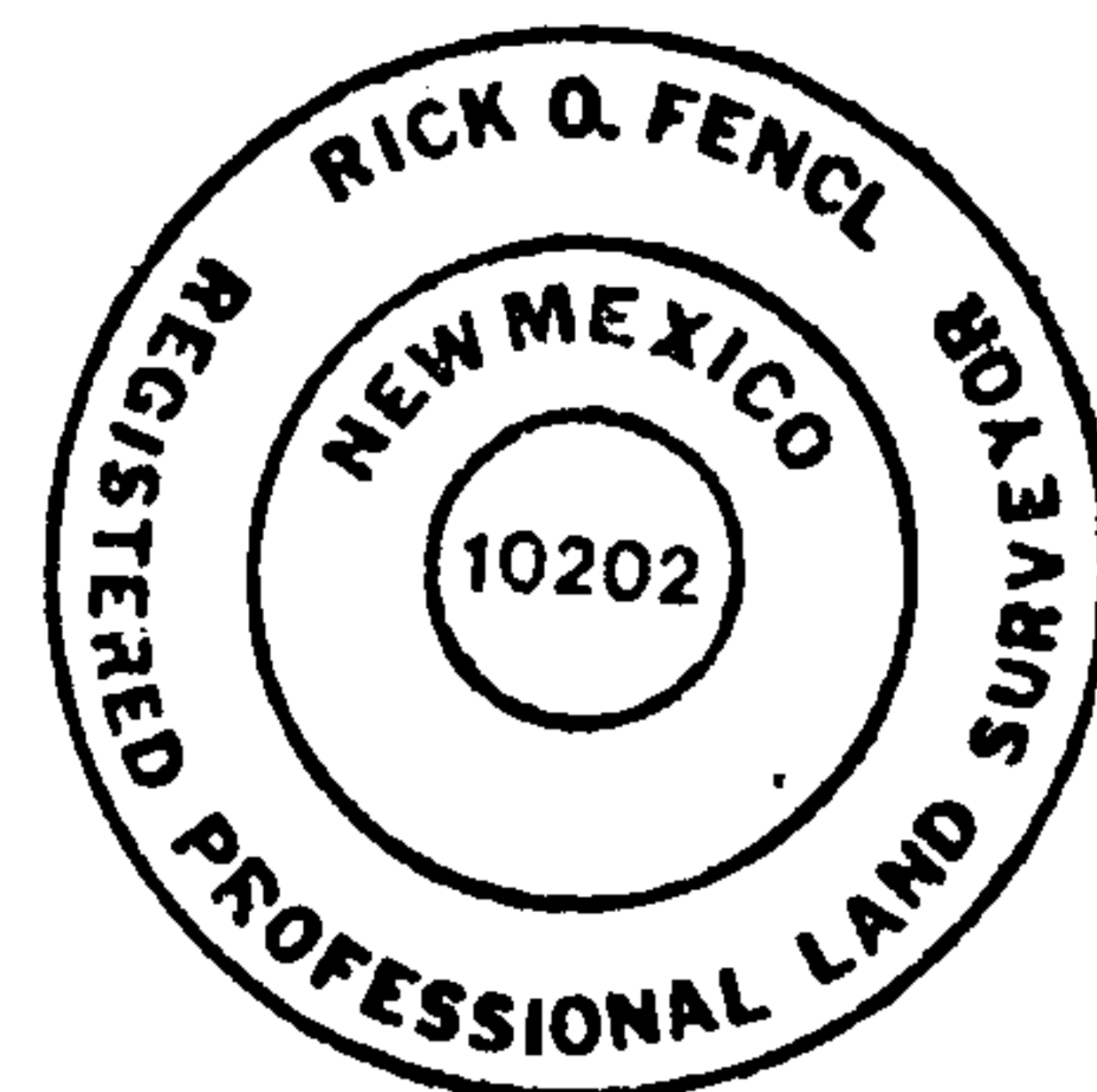
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Rick O. Fencel, NMPS No. 10202

11/27/92
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11/27/92
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0003179

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Rick O. Fencel

11/27/92

Rick O. Fencel, NMPS No. 10202

Date



STATE OF NEW MEXICO
COUNTY OF BERNALILLO
FILED FOR RECORD

93 APR -1 AM 8:19

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3171-3179

JUDY D. WOODWARD
CO. CLERK & RECORDER
DEPUTY



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

December 13, 1993

Charles M. Easterling, P.E.
Easterling & Associates
10131 Coors Rd. NW
Suite H-7
Albuquerque, NM 87114-4048

RE: CLOMR FOR ATRISCO BUSINESS PARK (K10-D23) RECEIVED OCTOBER 26, 1993.

Dear Mr. Easterling:

We are in receipt of the letter dated December 9, 1993 from Bohannon-Huston to AMAFCA, regarding their review of this submittal.

After performing a review of your submittal we concur with the comments dated December 9, 1993. I would like to add that you need additional existing analysis at the lower end of Tract M and Parcel C to show these floodplains have been removed in their entirety. I believe the photographs added to your submittal will aide in FEMA's review. Good idea.

If you should have any questions, please don't hesitate to call me at 768-2650.

Cordially,

Gilbert Aldaz, PE & PS
City/County Floodplain Administrator

xc: Larry Blair, AMAFCA
Howard C. Stone, Bohannon-Huston
File

wp+3739

PUBLIC WORKS DEPARTMENT

December 9, 1993

Larry Blair, P.E.
Executive Engineer
AMAFCA
2600 Prospect, NE
Albuquerque, NM 87107

Re: Review of CLOMR Application for Unser Diversion

Dear Larry:

I have completed my review of the Unser Diversion CLOMR prepared by Easterling & Associates, Inc. In general, this hydrologic and hydraulic analysis is quite complete. I have concentrated most of my comments with respect to the completeness of the information from a CLOMR perspective. I did, however, spend some time reviewing the plans and the Engineering Analysis Report just so I could gain a better understanding of the project.

The following are the comments I have with respect to the CLOMR submittal. I have also made some pencil comments on the CLOMR submittal and construction plans.

General Comments:

1. The CLOMR request is structured by presenting most of the information in a report up front. The forms then follow this short report. The forms themselves sometimes have very short and sometimes generic responses to the FEMA questions. In addition, Form 6 has been produced in a word processor and the length increased to accommodate the answers. I do not know if this is acceptable to FEMA. I suspect it is not.

I suggest that the up front report be restructured so it is tailored to answer questions in the forms. In other words, pieces of the report could follow the form with a reference in the form. Any place where the accompanying reports provide answers, then a reference should be placed in the form to refer the reviewer to the correct report and location.

Finally, in regards to report format, it would be advisable to submit the report in a 3-ring binder so information could be easily inserted or removed without having to redo the CLOMR application.

2. On Plate 1 in the CLOMR submittal, the FEMA floodplain on Tract S-1 is being removed; however, no discussion or analysis is provided on this. Since the construction of the Unser Diversion System would not affect this floodplain, a discussion needs to be included.

i:\hydro\9027622\blair.ltr-12/9/93

PRINCIPALS

LARRY W. HUSTON, C.P.

MICHAEL M. EMERY, P.E.

BRIAN G. BURNETT, P.E.

KERRY L. DAVIS, P.E.

LARRY A. LARRAÑAGA, P.E.

HOWARD C. STONE, P.E.

WILLIAM L. VREEKE, P.E.

GORDON A. WALHOOD JR., P.E.



3. As per recent advice from AMAFCA (in previous CLOMR's), the 1"=2000' USGS Quadrangle should be included with the project site delineated.
4. A number of forms have not been included in the CLOMR. The following lists the forms that should be included along with a brief explanation as to why:

Form 4 - Riverine Hydraulic Analysis - This form requests information about what models are available in the area. Although no flows have been published in the FEMA report, this form should be submitted to explain the lack of past models.

Form 5 - Riverine/Costal Mapping Form - This form is required by FEMA for all CLOMRs. This form asks the applicant questions about mapping available for the project. FEMA would prefer an overall topographic map of the project using the most recent mapping. Can this be done, or was only strip mapping along the pond sites performed? Explain this here.

Form 7 Bridge/Culvert Form - The instructions indicate that one form is required per each culvert. This might be avoided, and only one copy of the form provided if the pipes can be described as one system. This form is required for the pipe system.

Form 8 Levee/Floodwall System - The CLOMR submittal states that "Neither Form II, for Dams, nor Form 8, for Levees, were deemed appropriate as the design water level everywhere in the system is below existing natural ground level. Constructed berms serve only to provide additional protection in the form of freeboard." I do not agree. The earthen channel upstream of Pond 6 has one area where the water surface is above existing ground. Also, the ground east of this earthen channel is lower than the channel bottom.

In addition, the gathering berms for the ponds are all above ground with no channel constructed below ground. Therefore, they also are berms by FEMA criteria.

If the applicant does not agree, then I am not opposed to submitting the CLOMR without this form to see what the FEMA reviewer says.

Form 12 Alluvial Fans - Although this area does not appear to be in an Alluvial Fan, this form is required so the applicant can so state this.

5. A quick check of the total volume of flow produced by the contributing basins is approximately 19.43 ac-ft for the 100-yr storm (prior to sediment bulking). The total volume retained in the ponds is approximately 16.93 ac-ft (including

Larry Blair
December 9, 1993
Page 3

sediment bulking). The difference seems significant. I suggest the applicant recheck to make sure no areas were left out by accident.

6. Although no single basin is larger than 10 ac-ft, the ponds are interrelated and combined have a total storage volume of 41 ac-ft. I suggest that the applicant also pass this by the State Engineer to insure that this does not require their approval. In the past, the State Engineer's Office has sometimes ruled that a series of ponds might fall under their jurisdiction.

I could find no discussion as to the criteria used for the emergency spillway design with respect to return event storm it must be able to pass.

7. The up-front report in the CLOMR mixes together the existing and developed conditions aspects of the proposed drainage structures. I think FEMA might find this confusing. A simplified explanation of how the ponds are intended to work using only existing conditions would seem more appropriate. I agree that Form 11 for Dams does not seem appropriate in this case. The FEMA forms state that Form 11 is required for areas studied in detail. This area was studied by approximate methods in the original FIA Study.
8. A discussion is provided with respect to flow events higher than the 100-yr storm. I think this discussion is not pertinent and should be removed.

This suffices my overall comments. I think in general, it should be stressed that FEMA wants as much information as possible contained within the forms.

Sincerely,



Howard C. Stone, P.E.
Water Resources Manager

HCS/rkl

cc: Gilbert Aldaz, City/County Floodplain Administrator, City of Albuquerque
Vance Fossinger, Easterling & Associates, Inc.

23
K10/020PROJECT TITLE: Atrisco Business Park ZONE ATLAS/DRNG. FILE #: ~~T-9, J-10, K-9, K-10~~LEGAL DESCRIPTION: Tract T, lot 2, Parcel A-1, Parcel C, Tract M, Tract L-1CITY ADDRESS: Tract S-1, Unit 2, Atrisco Business ParkENGINEERING FIRM: Easterling & Associates CONTACT: Vancel FossingerADDRESS: 10131 Cools Rd. NW, Suite 7 PHONE: 898-8021OWNER: Sunwest Bank CONTACT: Ted GarrettADDRESS: 303 Roma Avenue N.W. PHONE: 828-0552ARCHITECT: N.A. CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: N.A. CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: N.A. CONTACT: _____

ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

☒ YES☐ NO☐ COPY OF CONFERENCE RECAP
SHEET PROVIDED

DRB NO. _____

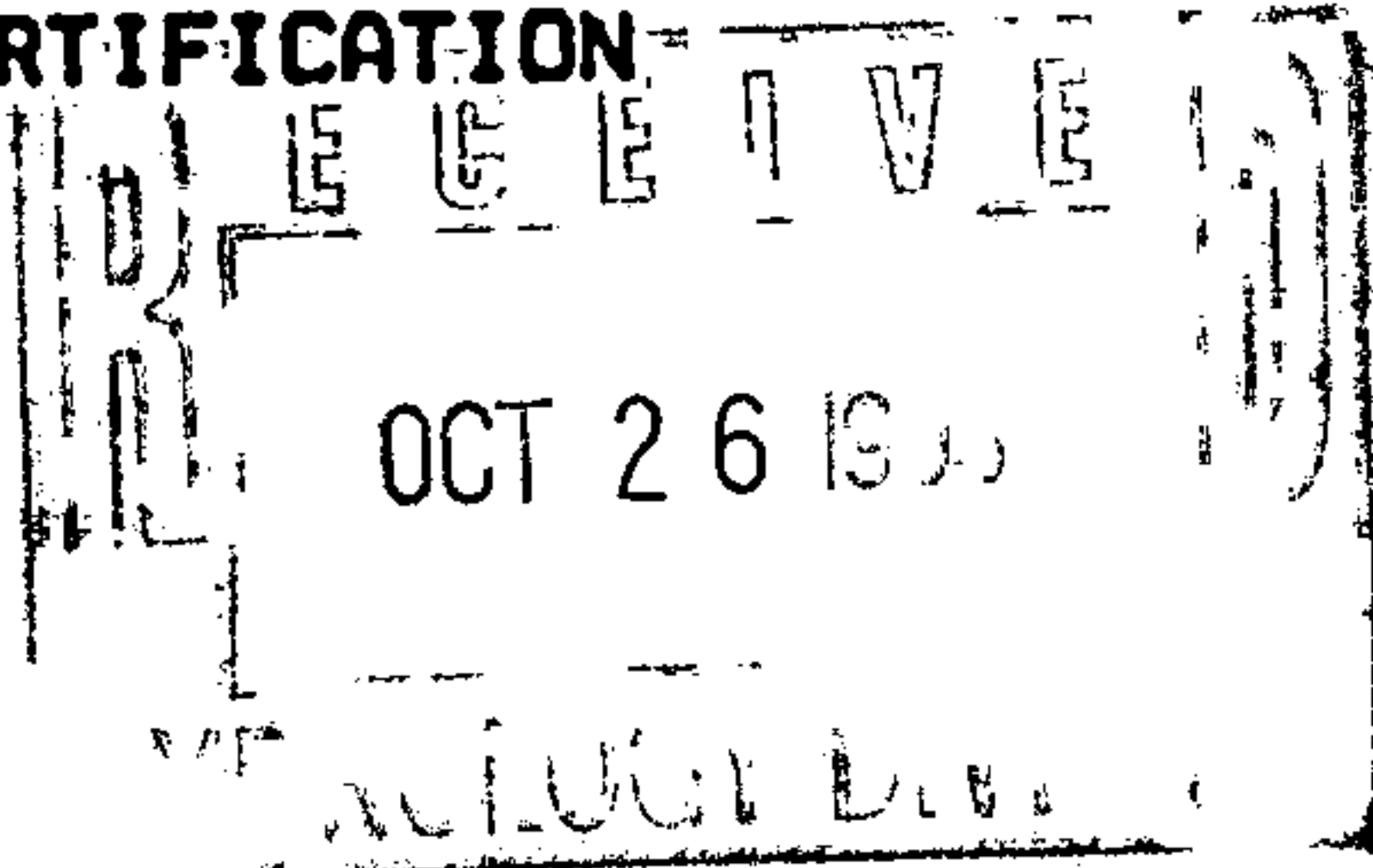
EPC NO. _____

PROJ. NO. _____

TYPE OF SUBMITTAL:

☒ DRAINAGE REPORT☐ DRAINAGE PLAN☐ CONCEPTUAL GRADING & DRAINAGE PLAN☐ GRADING PLAN☐ EROSION CONTROL PLAN☐ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT APPROVAL☐ PRELIMINARY PLAT APPROVAL☐ SITE DEVELOPMENT PLAN APPROVAL☐ FINAL PLAT APPROVAL☐ BUILDING PERMIT APPROVAL☐ FOUNDATION PERMIT APPROVAL☐ CERTIFICATE OF OCCUPANCY APPROVAL☐ ROUGH GRADING PERMIT APPROVAL☐ GRADING/PAVING PERMIT APPROVAL☒ OTHER Drainage Plan Revision (SPECIFY)
CLOMR RequestDATE SUBMITTED: 10-25-93BY: Vancel Fossinger

Easterling & Associates, Inc.

October 25, 1993

10131 Coors Rd., NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 898-8021
FAX (505) 898-8501

Mr. Gilbert Aldaz
Hydrology Department
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

RE: Atrisco Business Park

Dear Mr. Aldaz:

OCT 26 1993

RECEIVED

Transmitted with this letter for your review and approval are the following documents:

1. Draft copy of the Request for Conditional Letter of Map Revision for the Unser Diversion and the Atrisco Business Park
2. Redline copy of the October 1993 revision of the Master Drainage Plan for Atrisco Business Park
3. Draft copy of the Design Analysis Report for the Unser Diversion
4. Copy of the preliminary construction plans for the Unser Diversion
5. Drainage Information Sheet

I am requesting the following approvals for this submittal.

- Approval of the October 1993 revision of the Master Drainage Plan
- Approval of the Request for Conditional Letter of Map Revision for the Unser Diversion and the Atrisco Business Park

I have included a copy of the preliminary construction plan set, and the Design Analysis Report for the Unser Diversion, in this submittal to facilitate your review of the CLOMR request.

The Master Drainage Plan for the Atrisco Business Park (Engineer Stamp dated March 8, 1993) was approved by you in March of this year. Since then portions of the drainage scheme have changed. The changes are mostly due to changes in the configuration of the Unser Diversion. The October 1993 revision of the Master Drainage Plan incorporates these changes.

Mr. Gilbert Aldaz
October 25, 1993
Page 2

To facilitate your review of the revised Master Drainage Plan, I have submitted a "redline" copy. The text we have added to the report is italicized. I have also provided an introduction inside the cover which notes the significant changes.

Please note that all of the references listed as "Attachments" in the CLOMR request will be included in full in the package we plan to send to FEMA. We would also appreciate your opinion on the "Initial Review Fee" box which appears on page 20 of the CLOMR Request report.

I am transmitting a copy of the revised Master Drainage Plan and the CLOMR request to Cliff Anderson for his comments. A copy of the Design Analysis Report and the preliminary construction plans have been submitted previously to AMAFCA.

Please do not hesitate to call me if you have questions or comments regarding this submittal.

Sincerely,



Vancel Fossinger
Staff Engineer

VSF/das
Job No. 3324.3

Attachments

cc: Larry Blair, Albuquerque Metropolitan Arroyo Flood Control Authority
Ted Garrett, Garrett Group, Inc.

10131 Coors Rd., NW, Suite H-7
ALBUQUERQUE, NEW MEXICO 87114-4048

TO

COA - Hydrology

DATE	10/25/93	JOB NO.	3324.3
ATTENTION	Robert A. Gray		
RE	Attn: Business Park		

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1	10/23/93		Copy of letter to A MA FCA - CHDMR
1			Drainage Information Sheet-
1	"		Request for Conditional Letter of
			Map Revision - Unseal & Attested
1	"		Draft Analysis Report - A MA FCA
			for Unseal Division
1	"		Master Drainage Plan - for Attested
			Business Park

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☒ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS

COPY TO

 40% Pre-Consumer Content • 10% Post-Consumer Content

SIGNED:

"If enclosures are not as noted, kindly notify us at once.

Easterling & Associates, Inc.

10131 Coors Rd., NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 898-8021
FAX (505) 898-8501

October 25, 1993

Mr. Clifford Anderson
Albuquerque Metropolitan Arroyo
Flood Control Authority
2600 Prospect Avenue, NE
Albuquerque, NM 87107

Dear Cliff:

Enclosed is a draft of our request for a CLOMR for the Unser Diversion/Atrisco Business Park. We hope you can review it in conjunction with your review of the Unser Diversion Design Analysis Report. An October 1993 edition of the Master Drainage Plan for the Atrisco Business Park has been included to facilitate review. This version has been annotated to highlight updates made since the September 1992 version.

Please note that all of the references listed as "Attachments" will be included in full in the package that FEMA receives. We would also appreciate your opinion on the "Initial Review Fee" Box on page 20 of this report.

Thank you for the time you've spent working on this project.

Sincerely,



Laurie B. Schuller

LBS:das

Job No. 3324.3

OCT 26

Attachments

cc: Gilbert Aldaz, City of Albuquerque, Hydrology Department
Larry Blair, Albuquerque Metropolitan Arroyo Flood Control Authority
Ted Garrett, Garrett Group, Inc.

Easterling & Associates, Inc.
10131 Coors Rd., NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 898-8021 FAX (505) 898-8501

☒ DELIVERY ☐ PICK UP ☐ OTHER _____

ACTION REQUIRED BY: DATE 10-25-93 TIME _____

JOB NAME Airport/Bluewater S.D. JOB NO. 3323.1 PHASE _____

REQUESTED BY: Vance Fossinger APPROVED BY: _____

COMPANY NAME: C.O.A. Hydrology

ADDRESS: _____

ATTENTION: Gilbert Aldaz TELEPHONE: _____

ITEM DESCRIPTION: Letter of recommendation of award for
the Airport Dr. / Bluewater Rd S.D.

SPECIAL INSTRUCTIONS: _____

RECEIVED

OCT 26 1993

RECEIVED BY: _____

COMPANY: _____ DATE _____ TIME _____



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 23, 1993

Charles Easterling, P.E.
Easterling & Associates
10131 Coors Road
Suite H-7
Albuquerque, NM 87114-4048

RE: ATRISCO BUSINESS PARK (K10-D23) RECEIVED 8/18/93 FOR ROUGH GRADING
APPROVAL, ENGINEER'S STAMP DATED 8/17/93.

Dear Mr. Easterling:

Based on the information provided, the following notes should be added to the
Rough Grading Plan as "Conditions of Approval":

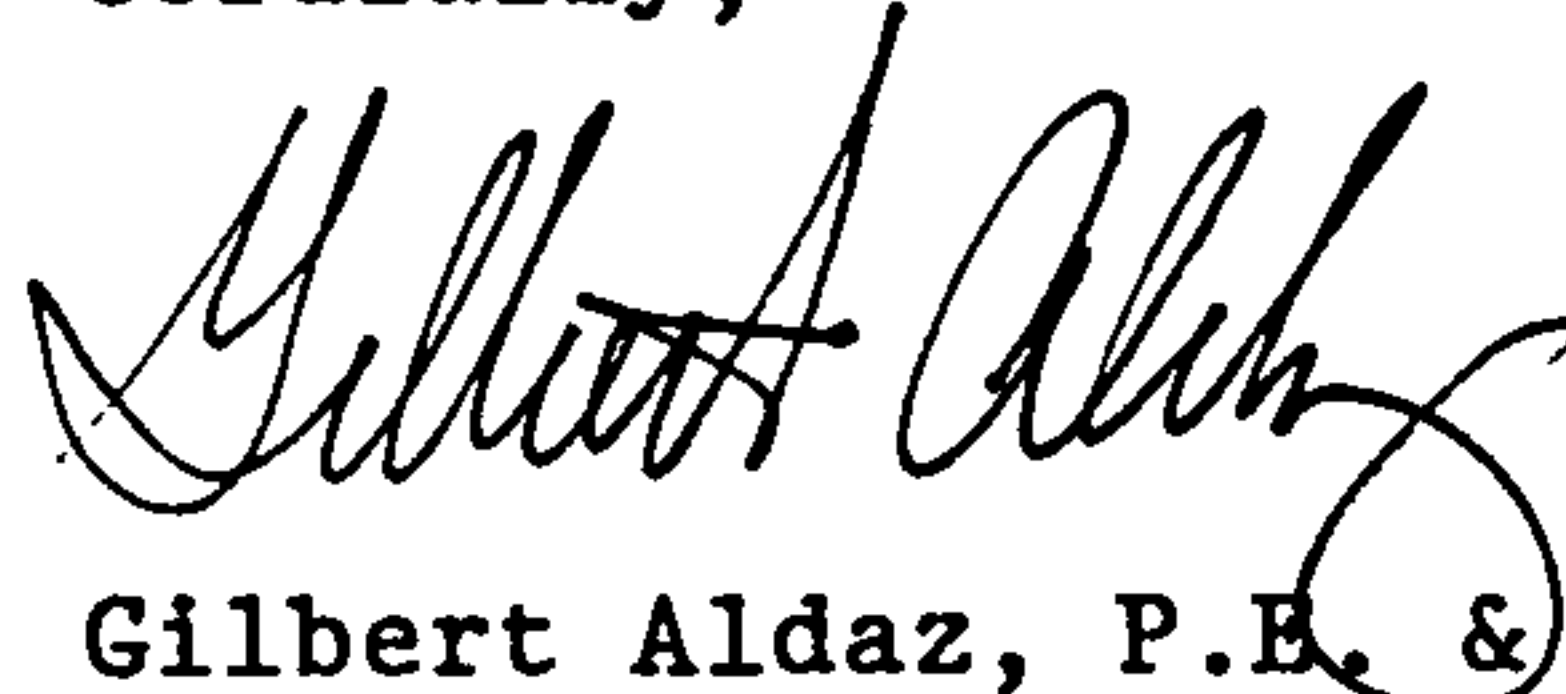
1. A covenant between affected property owners in the watershed will be required at the time of building permit application. The purpose of this covenant will be to grant the property owners within the watershed the ability to maintain the upstream treatment which protects their property from offsite drainage.
2. Evaluation and certification of the condition of the treatment and its ability to control the offsite flows to a developing property would be done, as a part of the drainage plan required for Building Permit application, by the developing property engineer.
3. This treatment does not meet FEMA criteria. A CLOMR or LOMR may not be issued by FEMA because this interim treatment does not meet levee or freeboard criteria.
4. The owner shall maintain the Drainage Facility at the owner's sole expense until such time that the covenants between affected property owner's is executed.
5. The City shall have no duty or obligation whatsoever to perform any inspection, maintenance, or repair of the Drainage Facility, it being the owner, its heirs, successors and assignees responsibility to construct and maintain these interim facilities.

PUBLIC WORKS DEPARTMENT

Charles Easterling, P.E.
Page 2

Add a signature block on the plan below these notes for "Rough Grading Approval". If you have any questions, please do not hesitate to contact me at 768-2650.

Cordially,

A handwritten signature in black ink, appearing to read 'Gilbert Aldaz', written in a cursive style.

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

Ga/d1/WPHYD/3739

xc: Dan Hogan, Hydrology Div. Manager
Fred Aguirre, City Hydrologist
Ted Garrett, The Garrett Group Inc.
File.

Easterling & Associates, Inc.
10131 Coors Rd., NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 898-8021 FAX (505) 898-8501

☒ DELIVERY ☐ PICK UP ☐ OTHER _____

ACTION REQUIRED BY: DATE 8-17-93 TIME _____

JOB NAME Conservation Treatment JOB NO. 3321.5 PHASE _____

REQUESTED BY: Varrel Forrester APPROVED BY: _____

COMPANY NAME: C.O.A. Hydrology

ADDRESS: _____

ATTENTION: Gilbert Aldaz TELEPHONE: _____

ITEM DESCRIPTION: 1 set of blue lines for Atrisco Business

Park Tracts "S-1" & "M", Unit 2, Interim

Drainage Treatment Plan

1 letter of transmittal

SPECIAL INSTRUCTIONS: _____

RECEIVED

AUG 18 1993

RECEIVED BY: _____

COMPANY: _____ DATE _____ TIME _____

DRAINAGE INFORMATION SHEET

K10/D23

PROJECT TITLE: Atrisco Business Park Tracts S-1 & M, Unit 2 Interim Drainage Plan ZONE ATLAS/DRNG. FILE #: J-9, K9, J-10 & KLEGAL DESCRIPTION: Tracts S-1 and M, Unit 2, Atrisco Business ParkCITY ADDRESS: N/AENGINEERING FIRM: Easterling & Associates, Inc.CONTACT: Vancel FossingerADDRESS: 10131 Coors Road, N.W., Suite H-7, 87114PHONE: 898-8021OWNER: Sunwest BankCONTACT: Ted GarrettADDRESS: 303 Roma Avenue, N.W., 87102PHONE: 828-0552ARCHITECT: N/A

CONTACT: _____

ADDRESS: _____

PHONE: _____

SURVEYOR: N/A

CONTACT: _____

ADDRESS: _____

PHONE: _____

CONTRACTOR: N/A

CONTACT: _____

ADDRESS: _____

PHONE: _____

PRE-DESIGN MEETING:

☐ YES☒ NO☐ COPY OF CONFERENCE RECAP
SHEET PROVIDED

DRB NO. _____

EPC NO. _____

PROJ. NO. _____

TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT☒ DRAINAGE PLAN☐ CONCEPTUAL GRADING & DRAINAGE PLAN☒ GRADING PLAN☐ EROSION CONTROL PLAN☐ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT APPROVAL☐ PRELIMINARY PLAT APPROVAL☐ SITE DEVELOPMENT PLAN APPROVAL☐ FINAL PLAT APPROVAL☐ BUILDING PERMIT APPROVAL☐ FOUNDATION PERMIT APPROVAL☐ CERTIFICATE OF OCCUPANCY APPROVAL☒ ROUGH GRADING PERMIT APPROVAL☐ GRADING/PAVING PERMIT APPROVAL☐ OTHER _____ (SPECIFY)DATE SUBMITTED: 8-18-93BY: Vancel Fossinger

AUG 18 1993

HYDROLOGY DIVISION

Easterling & Associates, Inc.

August 17, 1993

10131 Coors Rd., NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 898-8021
FAX (505) 898-8501

Mr. Gilbert Aldaz
Hydrology Department
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

**RE: Atrisco Business Park Tracts S-1 and M, Unit 2,
Interim Drainage Plan**

Dear Mr. Aldaz:

Transmitted herewith is a revised copy of the subject grading plan. Also attached is a copy of your review comments for the subject plan (letter dated July 14, 1993). The following are my responses to your comments:

Comment No. 1

Response: The C.O.A. D.P.M. does not contain design criteria for the types of treatment proposed by this plan. However, this type of treatment has been used successfully to control runoff from undeveloped land for many years. One local example of this is the Bernalillo Watershed Protection Project located in Cibola National Forest, which you and several other local drainage officials toured late last year.

The above mentioned tour also included a visit to the area included in the subject plan to view a demonstration plot on which ditch/dike treatment had been constructed. Based on discussions I had with Fred Aguirre and yourself subsequent to this tour, I believed we were in agreement on the following points:

1. The proposed treatment will reduce the existing condition runoff from the undeveloped watershed.
2. Without any maintenance, the treatment will still reduce the existing condition runoff from the undeveloped property, thus a covenant between the landowner and the C.O.A. is not necessary. (In fact, I did not think the C.O.A. desired to be a party to such a covenant.)
3. A covenant between affected property owners in the watershed will be required at the time of building permit application. The purpose of this covenant will be to grant the property owners within the watershed the ability to maintain the upstream treatment which protects their property from offsite drainage.
4. Evaluation ^{of Certification} of the condition of the treatment and its ability to control the offsite flows to a developing property would be done as a part of the drainage plan for the developing property by the Engineer preparing the plan.

Based on this understanding, the following text was included in the approved March 1993 Edition of the Master Drainage Plan for the Atrisco Business Park: *A drainage covenant to*

AUG 18 1993
HYDROLOGY DIVISION

Mr. Gilbert Aldaz,
August 17, 1993
Page 2

facilitate the maintenance of the interim drainage facilities will be required to be in place prior to the issuance of building permits within the onsite area of the Coors Connection Storm Drain watershed.

At this time our client, Sunwest Bank, only wants approval to construct the treatment proposed in the subject plan. Thus, based on the above, I do not think execution of a drainage covenant should be required at this time. Sunwest is continuing to work on a covenant to be used between property owners.

Comment No. 2

Response: The subject plan has been revised to include a construction note requiring the contractor to secure a topsoil disturbance permit from Environmental Health prior to proceeding with grading operations.

Comment No. 3

Response: We are continuing to monitor the demonstration plot containing ditch/dike treatment which is constructed in the subject plan area. The treatment there has been subjected to impact by vehicles. The dikes are holding up quite well to this vehicle traffic. I believe that the top widths and freeboard provided for in the subject plan are appropriate given the relatively small volume of water which will be ponded above ground level by individual dikes.

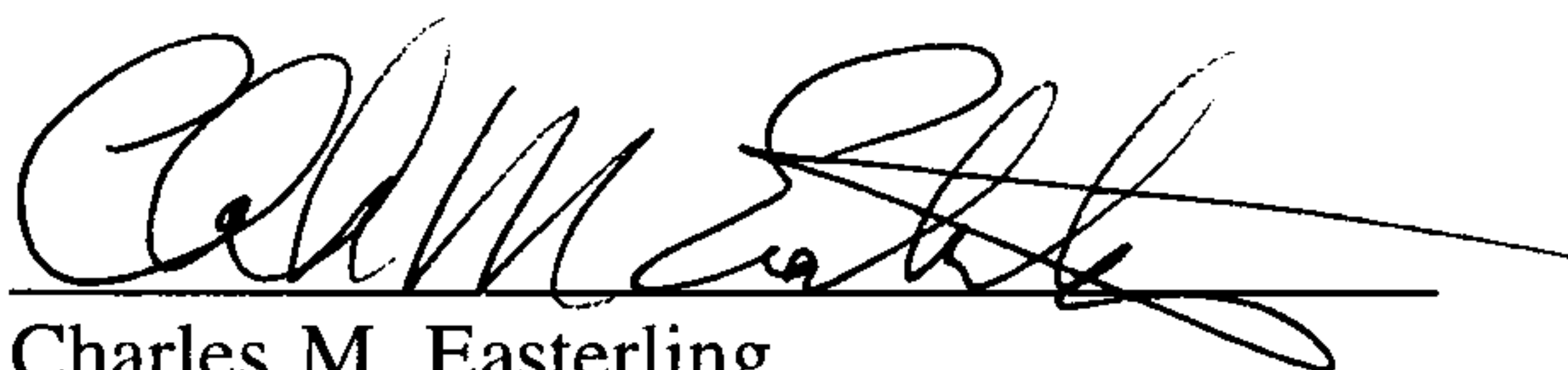
Please provide a letter of approval for the subject plan.

Sincerely,



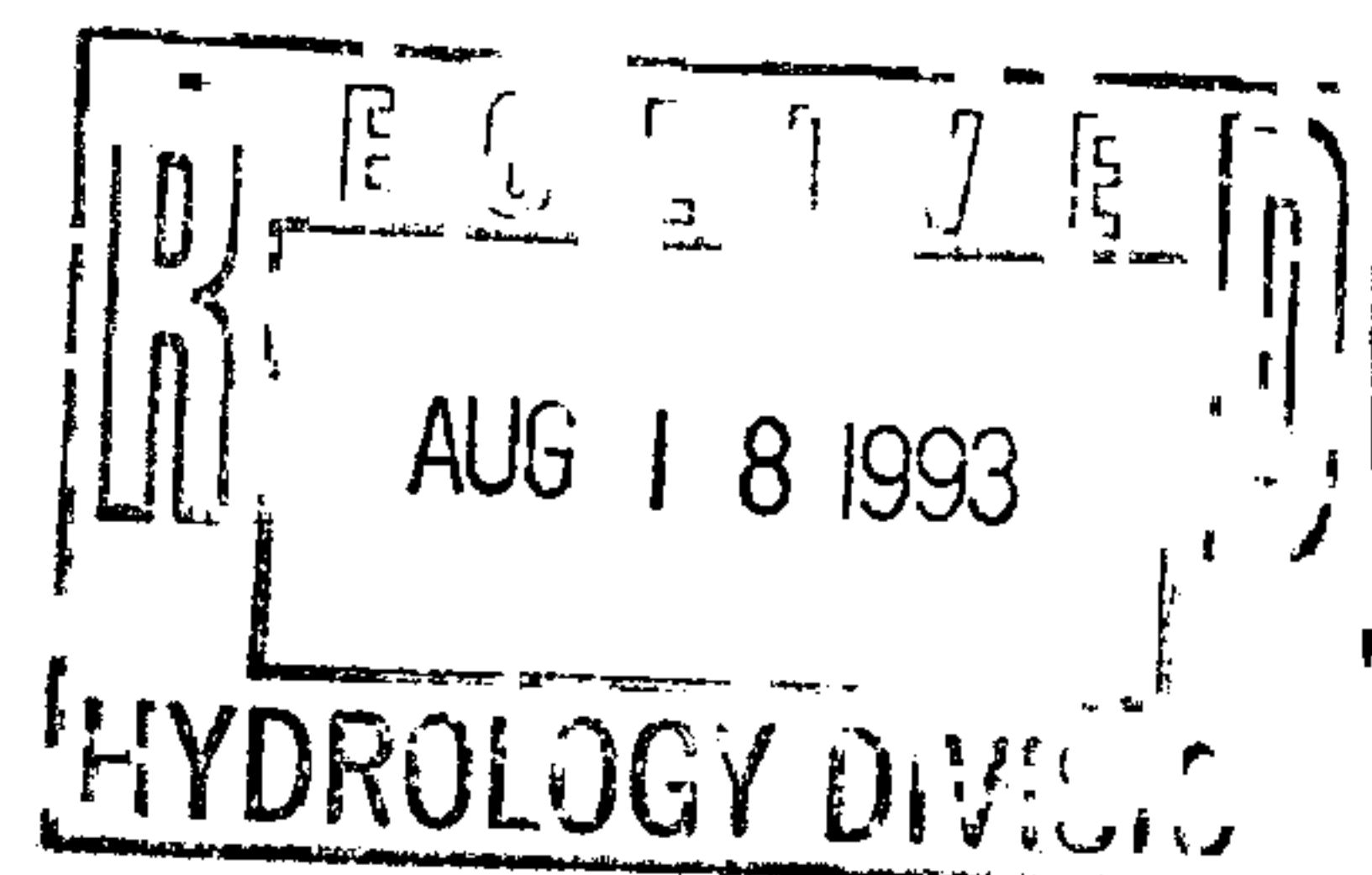
Vancel S. Fossinger
Staff Engineer

REVIEWED:



Charles M. Easterling

VSF:das
Job No. 3321.5
Attachments



cc: Pat Romo, Sunwest Bank
Ted Garrett, Garrett Group, Inc.



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

July 14, 1993

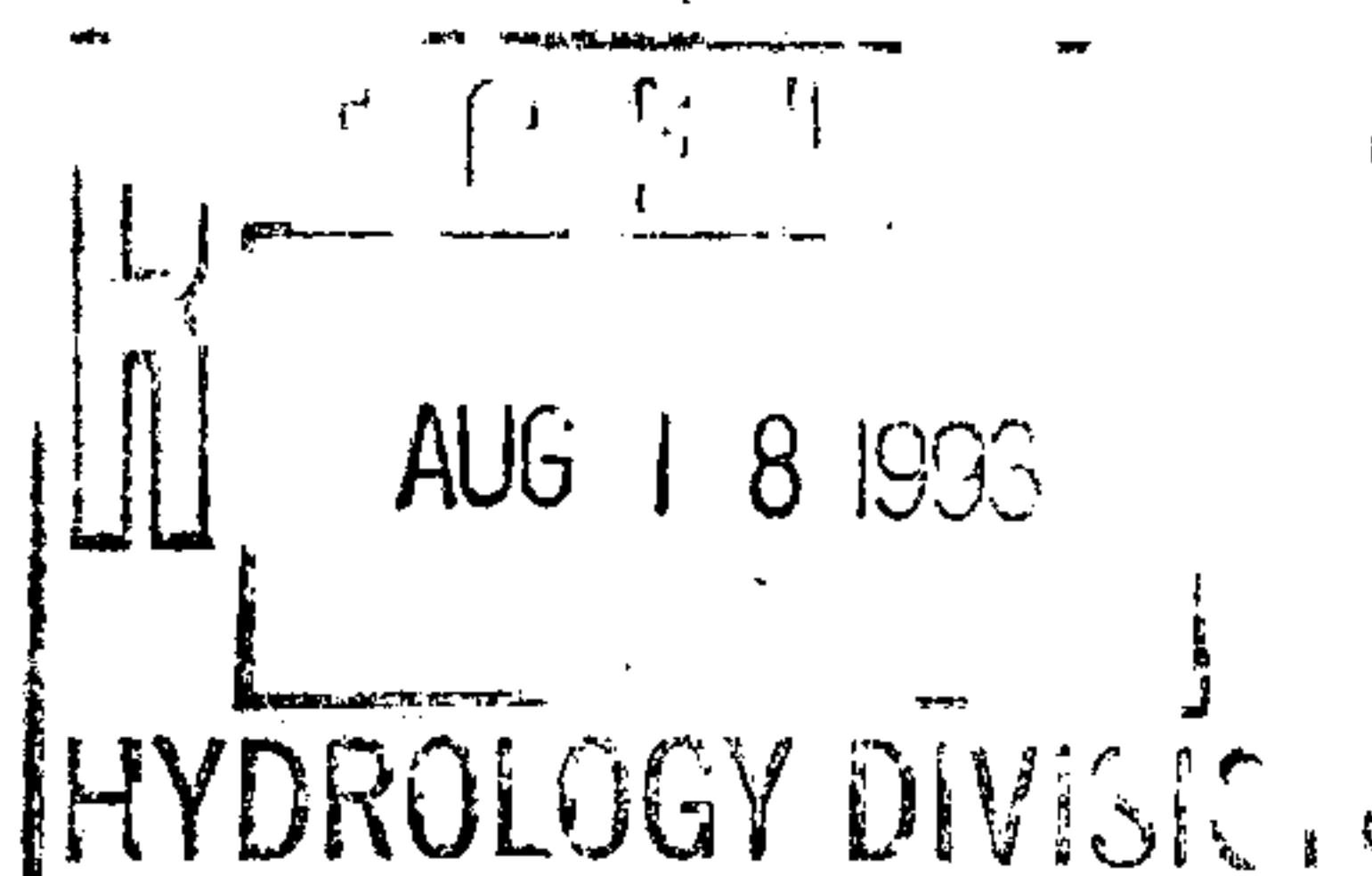
Charles Easterling, P.E.
Easterling & Associates
10131 Coors Road
Suite H-7
Albuquerque, New Mexico 87114-4048

RE: PROPOSED TERRACE AND PLUG LOCATIONS FOR ATRISCO BUSINESS PARK,
(K-10/D23), RECEIVED JUNE 24, 1993 FOR ROUGH GRADING APPROVAL,
ENGINEER'S STAMP DATED JUNE 24, 1993

Dear Mr. Easterling:

Based on the information provided, the following comments should be addressed prior to approval of Rough Grading for the terrace and plug:

1. Since the proposed conservation treatments are not City DPM standards, the attached Drainage Covenant needs to be executed. The covenant includes the developer as responsible for maintenance of this treatment, to include responsibility for downstream facilities and private property if the proposed facility is not properly maintained. Included also is the requirement for an yearly report to assure that semi-annual inspections are taking place to insure that this treatment is being properly maintained.
2. The plan should include a construction note that states that the contractor is required to secure a top soil disturbance permit from Environmental Health prior to proceeding with grading operations.
3. I would consider a wider levee width of 5 feet minimum and a freeboard of 1 foot minimum to insure that vehicles would hopefully have a minimal impact.

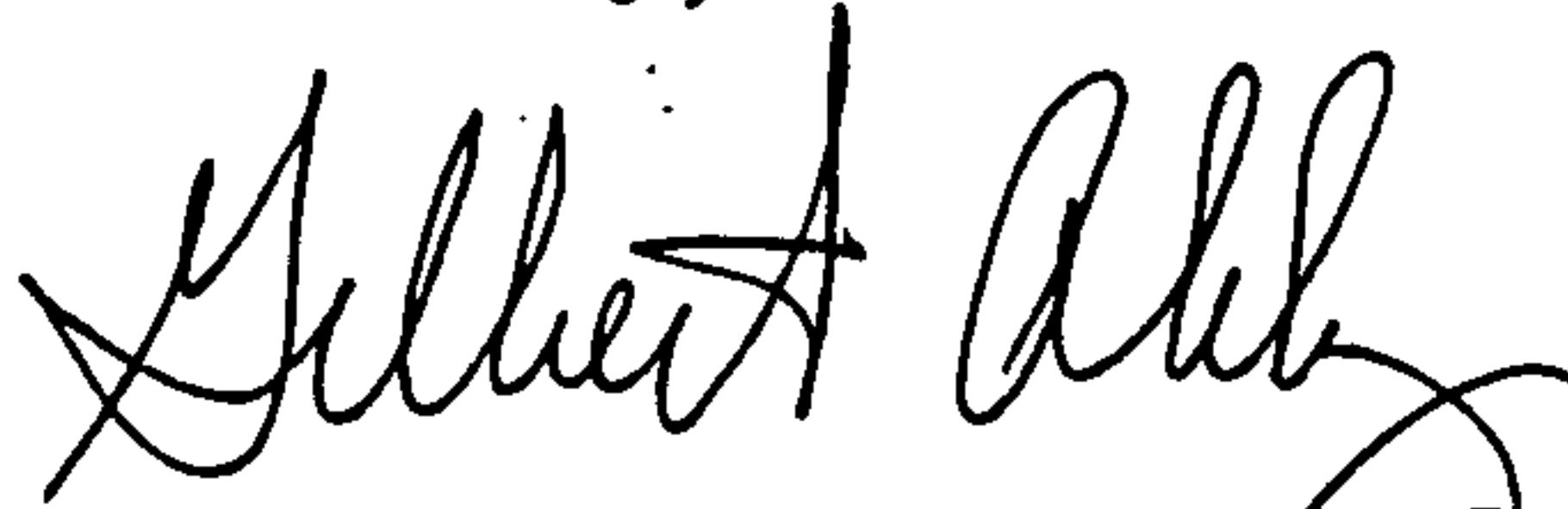


PUBLIC WORKS DEPARTMENT

Charles Easterling
Page 2

If you should have any questions, please do not hesitate to contact me at
768-2650.

Cordially,

A handwritten signature in dark ink, appearing to read "Gilbert Aldaz", written in a cursive style.

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

xc: Dan Hogan, Hydrology Div. Manager
Fred Aguirre, City Hydrologist
Ted Garrett, The Garrett Group Inc.
~~Edgar~~

wp+3739



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

July 14, 1993

Charles Easterling, P.E.
Easterling & Associates
10131 Coors Road
Suite H-7
Albuquerque, New Mexico 87114-4048

RE: PROPOSED TERRACE AND PLUG LOCATIONS FOR ATRISCO BUSINESS PARK,
(K-10/D23), RECEIVED JUNE 24, 1993 FOR ROUGH GRADING APPROVAL,
ENGINEER'S STAMP DATED JUNE 24, 1993

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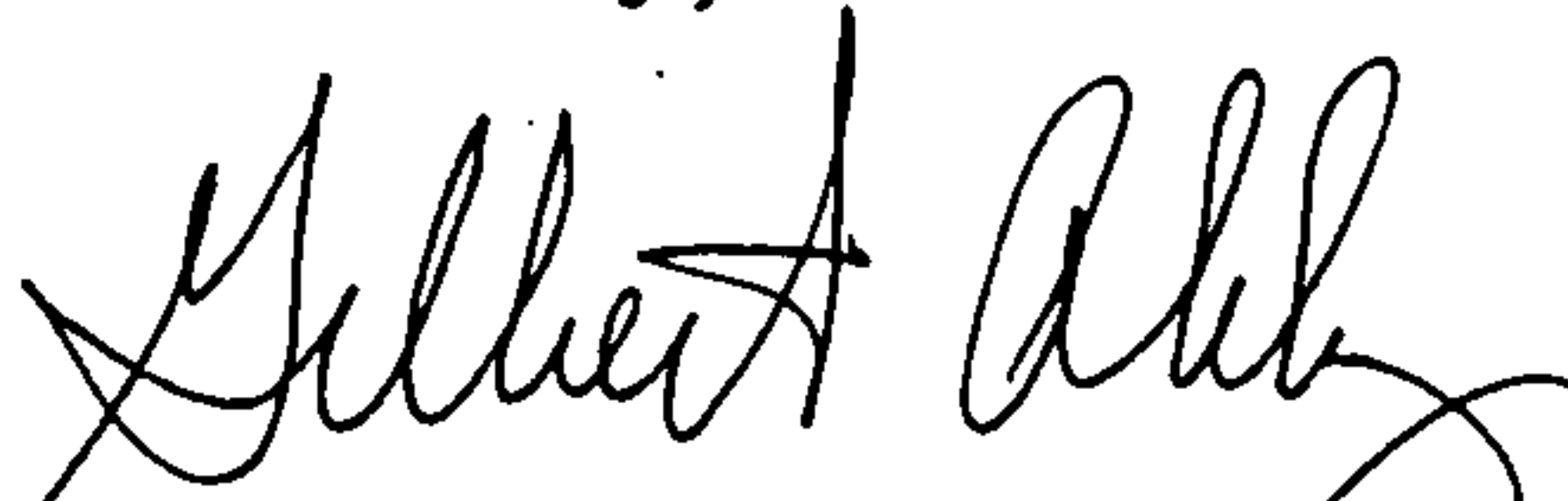
1. Since the proposed conservation treatments are not City DPM standards, the attached Drainage Covenant needs to be executed. The covenant includes the developer as responsible for maintenance of this treatment, to include responsibility for downstream facilities and private property if the proposed facility is not properly maintained. Included also is the requirement for an yearly report to assure that semi-annual inspections are taking place to insure that this treatment is being properly maintained.
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3. I would consider a wider levee width of 5 feet minimum and a freeboard of 1 foot minimum to insure that vehicles would hopefully have a minimal impact.

PUBLIC WORKS DEPARTMENT

Charles Easterling
Page 2

If you should have any questions, please do not hesitate to contact me at
768-2650.

Cordially,

A handwritten signature in cursive script, appearing to read "Gilbert Aldaz".

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

xc: Dan Hogan, Hydrology Div. Manager
Fred Aguirre, City Hydrologist
Ted Garrett, The Garrett Group Inc.
File

wp+3739

DRAINAGE INFORMATION SHEET

K10/023

PROJECT TITLE: Atrisco Business Park Tracts S-1 & M, Unit 2 Interim Drainage Plan ZONE ATLAS/DRNG: FILE #: J-9, K9, J-10 & K10LEGAL DESCRIPTION: Tracts S-1 and M, Unit 2, Atrisco Business ParkCITY ADDRESS: N/AENGINEERING FIRM: Easterling & Associates, Inc.CONTACT: Vancel FossingerADDRESS: 10131 Coors Road, N.W., Suite H-7, 87114PHONE: 898-8021OWNER: Sunwest BankCONTACT: Ted GarrettADDRESS: 303 Roma Avenue, N.W., 87102PHONE: 828-0552ARCHITECT: N/A

CONTACT: _____

ADDRESS: _____

PHONE: _____

SURVEYOR: N/A

CONTACT: _____

ADDRESS: _____

PHONE: _____

CONTRACTOR: N/A

CONTACT: _____

ADDRESS: _____

PHONE: _____

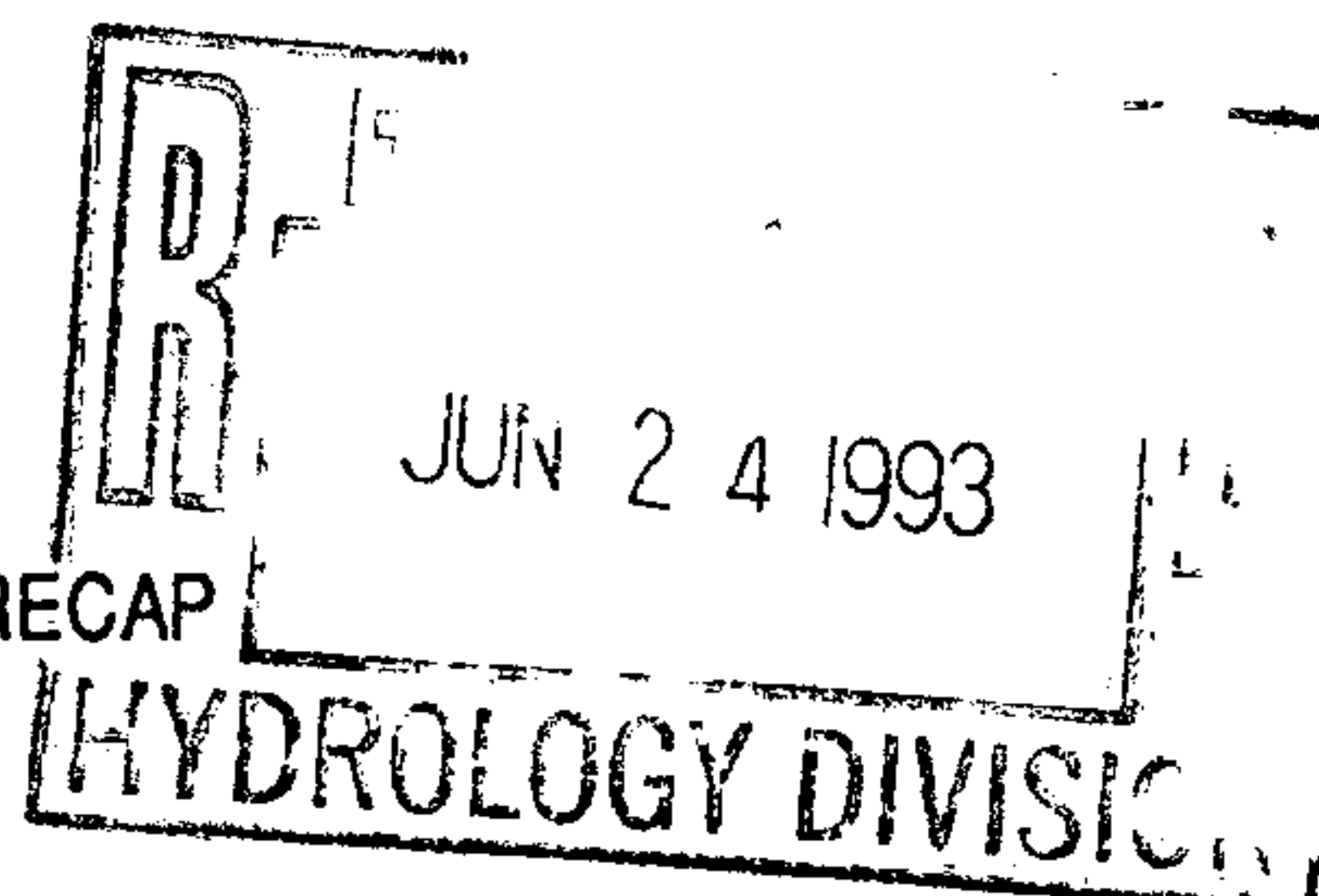
PRE-DESIGN MEETING:

☐ YES☒ NO☐ COPY OF CONFERENCE RECAP
SHEET PROVIDED

DRB NO. _____

EPC NO. _____

PROJ. NO. _____



TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT☒ DRAINAGE PLAN☐ CONCEPTUAL GRADING & DRAINAGE PLAN☒ GRADING PLAN☐ EROSION CONTROL PLAN☐ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT APPROVAL☐ PRELIMINARY PLAT APPROVAL☐ SITE DEVELOPMENT PLAN APPROVAL☐ FINAL PLAT APPROVAL☐ BUILDING PERMIT APPROVAL☐ FOUNDATION PERMIT APPROVAL☐ CERTIFICATE OF OCCUPANCY APPROVAL☒ ROUGH GRADING PERMIT APPROVAL☐ GRADING/PAVING PERMIT APPROVAL☐ OTHER _____ (SPECIFY)DATE SUBMITTED: June 24, 1993BY: Vancel Fossinger

EASTERLING & ASSOCIATES, INC.

10131 Coors Rd., NW, Suite H-7/8
ALBUQUERQUE, NEW MEXICO 87114

(505) 898-8021
FAX (505) 898-8501

LETTER OF TRANSMITTAL

TO C.O.A. Hydrology

DATE 6-24-93	JOB NO. 3321.5
ATTENTION	
RE: Atresco Business Park, Tract S-1 & M, Unit 2, Interim Drainage Treatment	

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

- ☐ Shop drawings ☐ Prints ☒ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1	June 93		2 - 24" x 36" Sheets, G+D Plans for Subject Project

THESE ARE TRANSMITTED as checked below:

- ☒ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Please Review

COPY TO _____

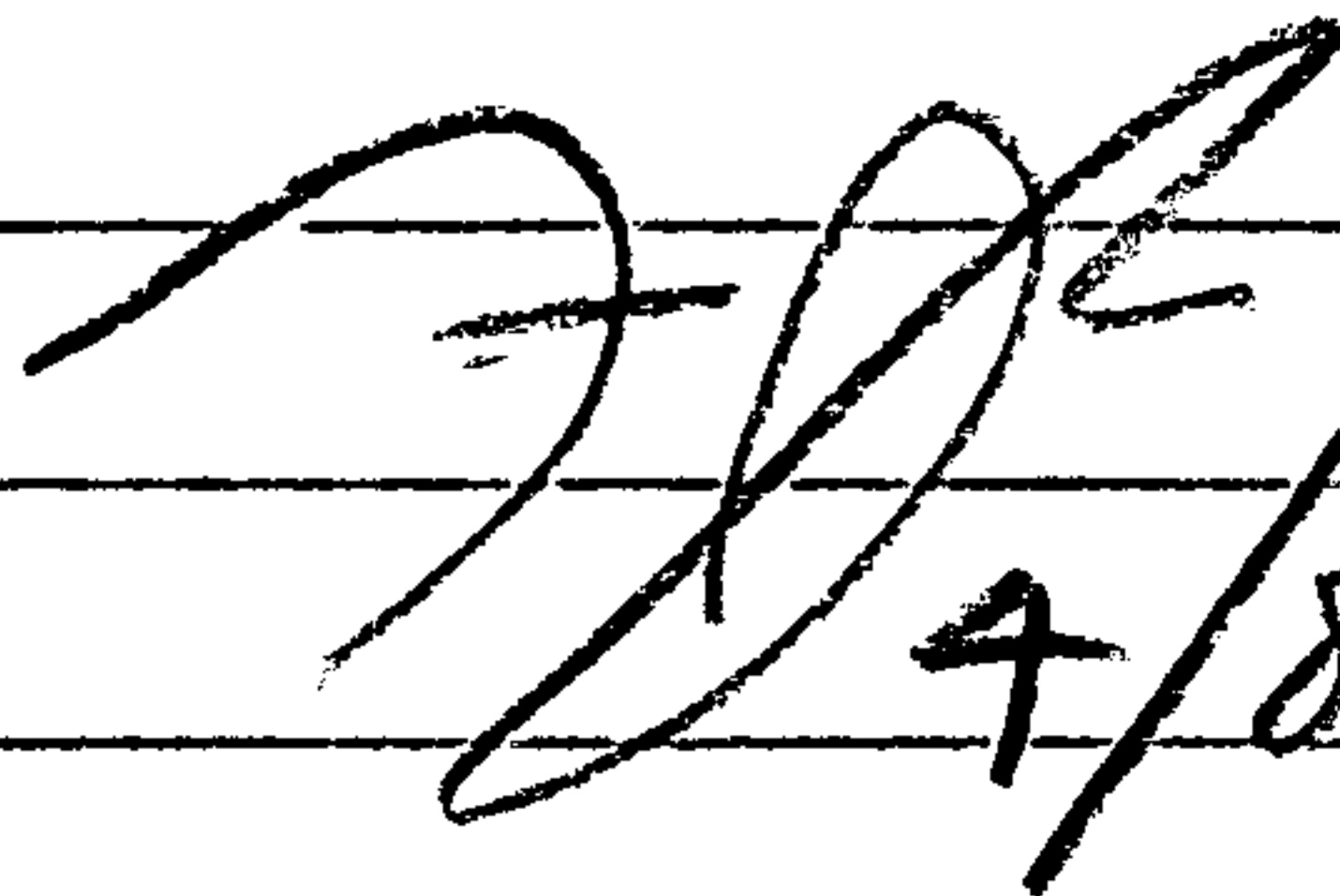
SIGNED: Harold Fossinger

TO: GILBERT

FROM: F.J.A.

SUBJECT: ATRISCO BUSINESS PARK.

GILBERT, Attached is a copy
of a recorded easement granted
to the City. Does the report
reflect a public easement? If
it DOES, the easement has
to be redone per our standard
easement - I copy attached.


4/8/93



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

March 25, 1993

Vance Fossinger
Easterling & Associates
10131 Coors Road
Suite H-7
Albuquerque, New Mexico 87114-4048

RE: DRAINAGE REPORT FOR ATRISCO BUSINESS PARK, (K-10/D23),
ENGINEER'S STAMP DATED MARCH 8, 1993

Dear Mr. Fossinger:

Based on the drainage information provided, the above referenced Master Drainage Plan is acceptable for Site Plan.

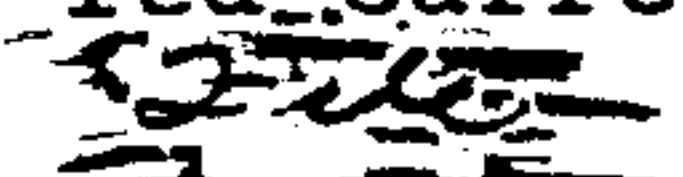
As for the conservation treatments proposed, the plan must be implemented and maintenance covenants executed prior to release of Building Permits. The covenants should include the developer as responsible for maintenance and should also include semi-annual inspections required by the engineer to assure the plan is being maintained.

If you should have any questions, please do not hesitate to contact me at 768-2666.

Cordially,

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

xc: Dan Hogan, Hydrology Div. Manager
Fred Aguirre, City Hydrologist
Ted Garrett, The Garrett Group Inc.


wp+3739

PUBLIC WORKS DEPARTMENT

DRAINAGE INFORMATION SHEET

Submitt

PROJECT TITLE: Atrisco Business Park ZONE ATLAS/DRNG. FILE #: J-9, J-10, K-9, K-10
 LEGAL DESCRIPTION: Tract T, Lot 2, Parcel A-1, Parcel C, Tract M, Tract L-1
 CITY ADDRESS: Tract S-1, Unit 2, Atrisco Business Park
 ENGINEERING FIRM: Easterling & Associates CONTACT: Vancel Fossinger
 ADDRESS: 10131 Coors Rd. NW, suite 7 PHONE: 898-8021
 OWNER: Sunwest Bank CONTACT: Ted Garrett
 ADDRESS: 303 Romo Ave N.W PHONE: 828-0552
 ARCHITECT: N.A. CONTACT: _____
 ADDRESS: _____ PHONE: _____
 SURVEYOR: N.A. CONTACT: _____
 ADDRESS: _____ PHONE: _____
 CONTRACTOR: N.A. CONTACT: _____
 ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

☒ YES
☐ NO
☐ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. _____
 EPC NO. _____
 PROJ. NO. _____

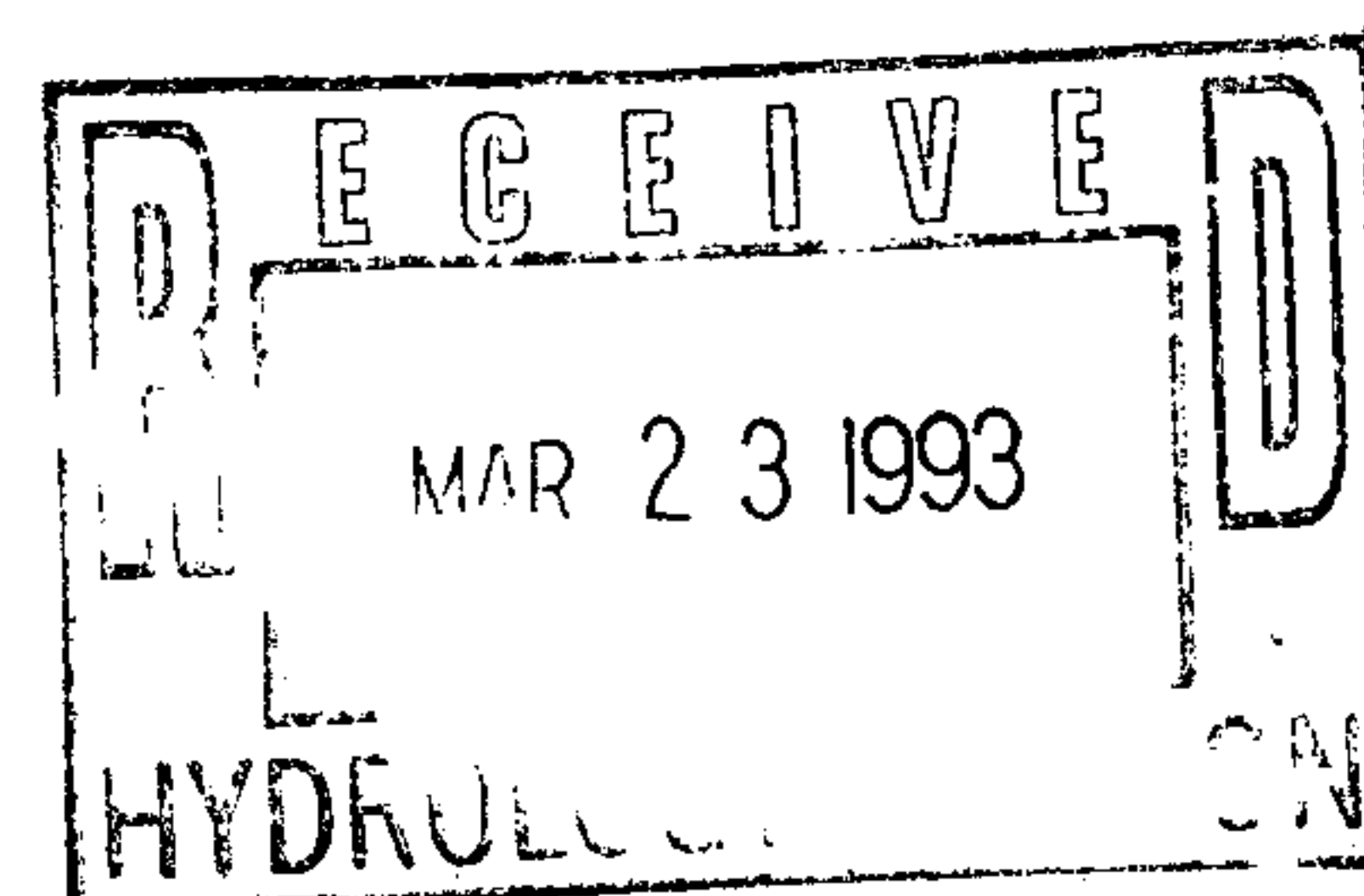
TYPE OF SUBMITTAL:

☒ DRAINAGE REPORT (letter addressing comments)
☐ DRAINAGE PLAN
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT APPROVAL
☐ PRELIMINARY PLAT APPROVAL
☒ SITE DEVELOPMENT PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ BUILDING PERMIT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY APPROVAL
☐ ROUGH GRADING PERMIT APPROVAL
☐ GRADING/PAVING PERMIT APPROVAL
☐ OTHER _____ (SPECIFY)

DATE SUBMITTED: 3-23-93
 BY: Vancel Fossinger



Easterling & Associates, Inc.

March 22, 1993

10131 Coors Rd., NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 898-8021
FAX (505) 898-8501

Mr. Gilbert Aldaz
Public Works Department
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

RE: Master Drainage Plan for Atrisco Business Park

Dear Mr. Aldaz:

The purpose of this letter is to address comments written by you in a letter dated October 28, 1992 about the subject drainage plan. I have attached a copy of your letter. The following is my response to your comments.

Comment #1:

Response: The 1992 "Atrisco Business Park Master Development Plan for IP Uses" addresses infrastructure responsibilities within the onsite plan area. Page two of the subject Master Drainage Plan contains the following reference to those requirements:

Responsibility for Infrastructure

All of the land in the onsite watershed is included in the 1992 "Atrisco Business Park Master Development Plan for IP Uses." Developer responsibilities for future infrastructure construction are defined in the Master Development Plan.

The 1992 "Atrisco Business Park Master Development Plan for IP Uses" includes the following applicable text:

INFRASTRUCTURE REQUIREMENTS

In order to obtain a Building Permit within the 1992 Atrisco Business Park Development Master Plan Area, applicants must meet with the Development Review Board (DRB) to develop an Infrastructure List which identifies the type, extent, and standards for construction of improvements. The Chairman of the DRB shall produce the Infrastructure List or a letter stating that no infrastructure is required. Approved financial guarantees for required infrastructure shall be provided to the City of Albuquerque before issuance of a building permit. The work order process will provide for inspection and acceptance of the infrastructure by the City of Albuquerque.

Mr. Gilbert Aldaz
March 22, 1993
Page 2

The Infrastructure List will be developed in accordance with the following:

. . . Drainage: Completion of that portion of the downstream public storm drain system defined in the 1992 Master Drainage Plan for the Atrisco Business Park and any subsequent amendments which is required to convey developed drainage from the developing lot. Where the planned storm drain system is intended to serve property upstream of the developing lot, the storm drain shall be extended to the furthest upstream boundary of the developing lot.

The subject storm drain extension will intercept nuisance flows from the north street gutter at the intersection of Los Volcanes and Airport and convey runoff from multiple lots. Therefore, the storm drain will be a public facility and the C.O.A. will have the responsibility for maintenance.

Comment #2:

To better define the proposed conservation treatment proposed for portions of the onsite watershed, I have added Appendix C and Plates 5 and 6 to the subject Master Drainage Plan. Plate 5 represents a conservation treatment plan utilizing ditch/dike structures similar to the structures you and other C.O.A. and Albuquerque Metropolitan Arroyo Flood Control Authority personnel toured in Atrisco Business Park on January 7, 1993. As a result of comments from the group participating in the January tour, I developed an alternative plan utilizing smaller structures at closer spacing. This alternative plan is represented on Plate 6 of the subject Master Drainage Plan. The calculations included in Appendix C of the subject drainage plan demonstrate the adequacy of both of the alternatives presented to collect and retain the runoff from the 100 year storm.

At the present time, the owner of the property (Sunwest Bank) would like to defer the selection of the type of treatment to be constructed (Alternative "A," Alternative "B" or detention/retention ponds) until the time that it is required to be constructed.

Comment #3:

Response: As was discussed at a meeting on November 6, 1992, attended by you and Fred Aguirre, discharge restrictions are identified in the subject Master Drainage Plan and the 1992 "Atrisco Business Park Master Development Plan for IP Uses." The requirement for drainage covenants has also been included in the subject Master Drainage Plan as follows:

(Bottom sentence on Page 7.)

A drainage covenant to facilitate the maintenance of the interim drainage facilities will be required to be in place prior to the issuance of building

Mr. Gilbert Aldaz
March 22, 1993
Page 3

permits within the onsite area of the Coors Connection Storm Drain Watershed.

(Middle of Page 8.)

A covenant insuring the perpetuity and the maintenance of the required detention facilities on individual lots will be required to replace the interim condition drainage covenant at the time of development of individual lots.

These statements reflect my understanding of the requirements discussed at the November 6, 1992 and subsequent meetings with Fred Aguirre. Sunwest Bank is currently preparing the covenant form to be executed to facilitate maintenance of the interim facilities.

Comment #4:

Response: As was discussed during the November 6, 1992 meeting, it may not be practical for 100% of runoff from some of the lots to be controlled. This assumption was made in the hydrologic analysis performed for the subject Master Drainage Plan. Per your suggestions, I have modified the text related to this subject to better define the small area which is allowed free discharge to the street. The modified text appears on Page 8 and 9 and Plates 3 and 4 of the subject Master Drainage Plan. The modified text reads as follows:

Onsite Watershed

The maximum allowable peak 100 year discharge rates from lots in the onsite watershed are limited to the following:

- *0.1 cfs per acre except as provided below.*
- *Small areas of those lots located on the uphill side of a street may discharge uncontrolled to the street where required to facilitate grading. This provision is subject to the following criteria.*
 - *The total area allowed free discharge from the lot shall not be larger than an area equivalent to a strip 10 feet wide along the total street frontage of the lot.*
 - *Impervious areas allowed free discharge to the street shall not be larger than an equivalent area two feet wide along the total street frontage of the lot.*
 - *The free discharge from the small areas defined above shall not be considered a part of the 0.1 cfs allowable discharge from the lot.*

Mr. Gilbert Aldaz
March 22, 1993
Page 4

Please do not hesitate to call me if you need additional information.

Sincerely,

A handwritten signature in black ink that reads "Vancel Fossinger". The signature is written in a cursive, slightly slanted style.

Vancel Fossinger
Staff Engineer

VSF/das
Job No. 3321.3

Attachment

cc: Fred Aguirre, City of Albuquerque, Public Works Department
Ted Garrett, Garrett Group, Inc.
Pat Romo, Sunwest Bank



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

NOV 2 1992

October 28, 1992

Vance Fossinger
Easterling & Associates
10131 Coors Road
Suite H-7
Albuquerque, New Mexico 87114-4048

RE: DRAINAGE REPORT FOR ATRISCO BUSINESS PARK, (K-10/D23),
ENGINEER'S STAMP DATED SEPTEMBER 30, 1992

Dear Mr. Fossinger:

Based on the drainage information provided, the above referenced Master Drainage Plan is acceptable for Site Plan. Prior to Site Plan sign-off by the City Engineer, the following information needs to be submitted in order to implement the Master Plan for future development of this site:

1. Your pre-design dated October 8, 1992 identifies a storm drain to be built from the south line of the Atrisco Business Park and extend to the northwest corner of the intersection of Bluewater Road and Airport Road. This system is identified by a separate agreement between the City and Developer. My question is who is responsible for extending the storm drain from the intersection of Bluewater Road and Airport Road to Los Volcanes Road and up to Lot 6 of Tract S? Who is responsible for the maintenance of the storm drain for this extension? As part of your Master Plan you need to identify who is responsible for constructing all the storm drain systems to implement this Master Plan.
2. A grading plan will need to be submitted for the entire Master Plan area for the interim grading windrows being proposed. Drainage maintenance covenants will need to be executed for these windrows, the covenants should also include semi-annual inspections required by the engineer to assure the windrows are being maintained.

PUBLIC WORKS DEPARTMENT

Vance Fossinger
Easterling & Associates
10131 Coors Road
Suite H-7
Albuquerque, NM 87114-4048
Page 2

3. An overall disclosure statement identifying covenants and restrictions needs to be executed for the Master Plan area which identifies that the purchaser of any of the lots understands that the site is only allowed 0.1cfs/acre. The purchaser also understands that he will need to enter into a drainage agreement and covenant with the City for the required detention pond on his site prior to release of the Building Permit. I have attached a copy of this Agreement and Covenant for your use. I realize that this request is not typical City requirements, but our concern is that all it takes is one property owner to not follow the requirements and he could overtax the downstream system and cause other private or public damages.
4. Page 8 of the report states "Small areas of the site may discharge uncontrolled to the street where required to facilitate grading". I believe this note is inappropriate at this time since future lot owners may really take advantage of this statement. Due to the stringent allowable release rate, the City will only allow this on a case by case basis in the future. Please remove this statement all together from the report.

If you should have any questions, please do not hesitate to contact me at 768-2666.

Cordially,



Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

xc: Dan Hogan, Hydrology Div. Manager
Fred Aguirre, City Hydrologist
Ted Garrett, The Garrett Group Inc.

wp+3739

59/DIB

PROJECT TITLE: AtRisco Business Park ZONE ATLAS/DRNG. FILE #: J-9, J-10, K-9, K-10LEGAL DESCRIPTION: Tract T, Lot 2, Parcel A-1, Parcel C, Tract M, Tract L-1CITY ADDRESS: Tract S-1, Unit 2, AtRisco Business ParkENGINEERING FIRM: Easterling and Associates CONTACT: Vancel FossingerADDRESS: 10131 Coors Rd. NW, Suite 7 PHONE: 898-8021OWNER: Sunwest Bank CONTACT: Ted GarrettADDRESS: 303 Roma Avenue NW PHONE: 828-0552ARCHITECT: N.A. CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: N.A. CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: N.A. CONTACT: _____

ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

☒ YES☐ NO☐ COPY OF CONFERENCE RECAP
SHEET PROVIDED

DRB NO. _____

EPC NO. 2-92-57

PROJ. NO. _____

TYPE OF SUBMITTAL:

☒ DRAINAGE REPORT☒ DRAINAGE PLAN☐ CONCEPTUAL GRADING & DRAINAGE PLAN☐ GRADING PLAN☐ EROSION CONTROL PLAN☐ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT APPROVAL☐ PRELIMINARY PLAT APPROVAL☒ SITE DEVELOPMENT PLAN APPROVAL☐ FINAL PLAT APPROVAL☐ BUILDING PERMIT APPROVAL☐ FOUNDATION PERMIT APPROVAL☐ CERTIFICATE OF OCCUPANCY APPROVAL☐ ROUGH GRADING PERMIT APPROVAL☐ GRADING/PAVING PERMIT APPROVAL☐ OTHER _____ (SPECIFY)DATE SUBMITTED: 3-8-93BY: Vancel Fossinger

March 8, 1993

10131 Coors Rd., NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 898-8021
FAX (505) 898-8501

Mr. Fred Aguirre
Public Works Department
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

RE: Atrisco Business Park Master Drainage Plan

Dear Mr. Aguirre:

Transmitted herewith are the following items for your review and approval:

1 - Copy of the Master Drainage Plan for Atrisco Business Park, March 1993 edition.

1 - 3½" Computer disk containing AHYMO input, output, and summary table files for the hydrological Models developed for the plan.

1 - Hard copy of the AHYMO output files for the Models of the 100 Year storm.

The following items are a part of the March 1993 edition of the Master Drainage Plan:

1. The following paragraph has been added to page 2 of the Plan:

Responsibility for Infrastructure

All of the land in the onsite watershed is included in the 1992 "Atrisco Business Park Master Development Plan for IP Uses." Developer responsibilities for future infrastructure construction are defined in the Master Development Plan.

2. The developed condition drainage constraints for the Tierra Bayita Storm Drain Watershed listed on Page 8 of the Plan have been revised to better define the small areas which are allowed uncontrolled discharge from individual sites.
3. Figure No. 2, a schematic drawing of the proposed connection to the Tierra Bayita Storm Drain has been modified.
4. As a result of the change in the proposed connection referenced in Item No. 3, the hydrologic model indicates the required water storage volume in the expanded SAD 214 Pond is 21 ac-ft. The text referring to this volume requirement on Page 5 of the Plan has been modified to reflect this.

Mr. Fred Aguirre

March 8, 1993

Page 2

5. The AHYMO Model for the Tierra Bayita System has been modified. Some of the offsite drainage areas have been revised to reflect changes in the proposed Unser Diversion Channel preliminary design and our expanded knowledge of the watershed.
6. A public storm drainage easement along the back of existing lots in Tract "M" is shown on Plate 2 of the Plan. The easement documents pertaining to this easement will be delivered to you in the near future under separate cover.
7. The bottom paragraph of Page 7 of the Plan includes the following sentence: "A drainage covenant to facilitate the maintenance of the interim drainage facilities will be required to be in place prior to the issuance of building permits within the onsite area of the Coors Connection Storm Drain Watershed." A copy of the proposed covenant form will be transmitted to you under separate cover in the near future.
8. The drainage plates have been updated to reflect modeling changes and the current status of proposed storm drainage facilities.
9. A supplementary section of text and calculations related to the proposed conservation treatment has been added in Appendix "C." Two plates titled Conservation Treatment Plan Alternate "A" and Alternate "B" have also been added to the plan.

Please do not hesitate to call me if you need additional information.

Sincerely,



Vancel Fossinger
Staff Engineer

VSF/das

Job No. 3321.3

Enclosures

cc: Ted Garrett, Garrett Group, Inc.
Pat Romo, Sunwest Bank

Easterling & Associates, Inc.
10131 Coors Rd., NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 898-8021 FAX (505) 898-8501

☒ DELIVERY ☐ PICK UP ☐ OTHER _____

ACTION REQUIRED BY: DATE 3-8-93 TIME _____

JOB NAME Atrisco Business Park MDP JOB NO. 3321.3 PHASE _____

REQUESTED BY: Vance Fossinger APPROVED BY: _____

COMPANY NAME: C.O.A. Hydrology

ADDRESS: _____

ATTENTION: Fred Aquino TELEPHONE: _____

ITEM DESCRIPTION: - Drainage Information Sheet

- letter of transmittal

- Revised Master Drainage Plan for Atrisco Business Park

- AHYMO output - hard copy

- 1 3/4" computer disk w/ input data (AHYMO)

SPECIAL INSTRUCTIONS: Have submittal logged in.

RECEIVED BY: _____

COMPANY: _____ DATE _____ TIME _____



PLANNING

CONSENSUS

MEMORANDUM

K'0/D 23 7

TO: Dave Carlson, Case Planner

FROM: Jim Strozier, Consensus Planning 

DATE: September 8, 1992

RE: Atrisco Business Park Case #Z-92-57

The purpose of this memorandum is to clarify Sunwest Bank of Albuquerque's position relative to the findings contained in the Staff Report presented at the EPC Study Session on September 3rd, 1992.

1. The staff has indicated that the design criteria presented should provide more detail regarding architectural criteria within the park. In addition, based upon discussions with staff, we have agreed that the design criteria should provide more direction regarding fencing and underground utilities. The following criteria are proposed for addition to the Master Development Plan for Atrisco Business Park:

Architectural Objectives

Specific architectural style shall not be dictated. The design shall, however, demonstrate a high degree of quality ensuring pleasing aesthetics throughout the project.

Architectural design should respond to climate, views, solar access, and aesthetic considerations, with development design being in harmony with adjoining projects.

All buildings shall conform to the following requirements:

- A. All buildings and structures erected within the site shall comply with all applicable City of Albuquerque zoning and building code requirements as well as other local applicable codes.
- B. Building design and construction shall be used to create a structure with attractive sides of high quality, rather than placing all emphasis on the front elevation of the structure and neglecting or downgrading the aesthetic appeal of the side and rear

elevations. Any accessory buildings and enclosures, whether attached or detached from the main building, shall be of similar compatible design and materials.

- C. Finished building materials must be applied to all exterior sides of buildings and structures. Each material must be compatible with the natural surroundings and other buildings and structures in the general vicinity. Pre-engineered metal buildings with masonry or equivalent skin applied to all facades are allowed. Metal skin is not considered a finished building material.
- D. Design techniques which can be utilized to help overcome typical unattractive and monotonous facades generally associated with industrial structures are as follows:
 - 1) Employ variety in structural forms that create visual character and interest.
 - 2) Avoid long, unarticulated facades. Facades should have varied front setbacks with wall planes not running in one continuous direction for more than 50 feet without an offset.
 - 3) Entries to industrial structures should portray a quality office appearance while being architecturally tied into the overall mass and building composition.
 - 4) Windows and doors are key elements of any structure's form and should relate to the scale of the elevation on which they appear. The use of recessed openings help to provide depth and contrast on elevation planes.
 - 5) Sensitive alteration of colors and materials can produce diversity and enhance architectural forms.
 - 6) The staggering of planes along an exterior wall elevation creates pockets of light and shadow, providing relief from monotonous expanses of facade.
 - 7) Corner lots are defined to have fronts on both streets they abut. All provisions relating to the front facade shall apply to both street faces of a corner lot.
- E. Design elements which are undesirable and should be avoided include:
 - 1) Highly reflective surfaces at the ground story.
 - 2) Exposed, untreated precision block walls.
 - 3) Chain link fence or barbed wire.
 - 4) Metal used as the main architectural feature.
 - 5) Attached mansard roofs on small portions of the roofline.
 - 6) Materials with high maintenance requirements. Wood facings are expressly prohibited.
- F. Wall materials should be chosen that will withstand abuse by vandals, easily repaired, or accidental damage by machinery.

- G. Berming in conjunction with landscaping can be used at the building edge to reduce structure mass and height along facades.
- H. Dock doors for loading docks shall be located on the inside of buildings to keep a clean, uncluttered appearance from the exterior.
- J. Design elements for roofs shall be as follows:
 - 1) If mansard roofs are to be used, they shall wrap around the entire perimeter of the structure.
 - 2) The roofline at the top of the structure shall incorporate offsets to prevent a continuous plane from occurring.
 - 3) All rooftop equipment shall be screened from the public view by materials of the same nature as the building's basic materials.
 - 4) Corrugated metal, highly reflective surfaces, and illuminated roofing are not permitted.
 - 5) The roof design should be considered an integral part of the overall architectural design theme.
 - 6) Concertina and/or barbed wire are not permitted on the roof.

Walls and Fences

To ensure that parking, storage, loading, and trash areas are not visible from offsite locations, the use of walls and other screening devices is required.

- A. Walls and fences serve a major function in the Atrisco Business Park landscape and will be used to screen automobiles, loading and storage areas, and utility structures. However, if not required for a specific screening or security purpose they should not be utilized. The intent is to keep walls and fences as low as possible while performing their screening and security functions.
- B. When security fencing is required, it should be a combination of masonry pillars or short solid wall segments combined with metal fencing. (The use of chain link fencing is not acceptable in front of the building setback line and shall be visually screened from adjacent public rights-of-way.)

Utilities

To ensure the overall aesthetic quality of the Atrisco Business Park:

- A. All electric distribution lines within the Atrisco Business Park shall be underground.

- B. When an above-ground backflow prevention device is required by the City of Albuquerque, the heated enclosure shall be constructed of materials compatible with the architectural materials used as the main elements of the building. The use of pre-fabricated fiberglass enclosures is prohibited.
2. On September 3rd, 1992 a meeting was held with the neighbors from the Mesa Manor Subdivision at 7:00 p.m. at West Mesa High School. Over 80 neighbors attended the meeting. While the overall response to the project was supportive (a representative of the neighborhood will be attending the EPC Hearing), there was potential concern over truck traffic on Fortuna Road:
 - A. Truck Traffic on Fortuna Road: Sunwest Bank agrees that heavy truck traffic on Fortuna Road could have a negative impact upon the neighborhood and request that the City sign Fortuna Road prohibiting trucks over 5 tons as soon as possible.
 3. In order to address the infrastructure concerns and ensure compliance with the Master Development Plan, the following information and checklist will be added to the Master Development Plan:

Land Use Mix:

The following land use mix ($\pm 15\%$) will control development within the Atrisco Business Park:

	<u>%</u>	<u>Acres</u>
Light Industrial	35.0%	123
Distribution Warehouse	20.0%	70
Office/Admin.	22.5%	78
Office/Warehouse	12.5%	44
R & D/Pilot Mfg.	5.0%	17
Other (Commercial)	<u>5.0%</u>	<u>17</u>
	100.0%	349

Note: Variation from the above mix will require a re-assessment of the traffic and air quality analyses and possible re-analysis.

Sunwest Bank requests that the EPC delegate individual site plan and development review to the Development Review Board (DRB) based upon the following checklist:

Master Development Plan Checklist:

The following conditions must be complied with prior to site plan approval by DRB:

- A. Compliance with the Master Development Plan

Reference Sheet No.

1)	Intensity/Floor Area Ratio	
	Maximum: Average .3	3, 4 of 9
2)	Setbacks	3 of 9
3)	Architecture	to be added
4)	Landscaping	3 of 9
5)	Parking	3, 4 of 9
6)	Lighting	4 of 9
7)	Signage	4 of 9
8)	Screening/Refuse/Storage	4 of 9
9)	Grading and Drainage	5, 7, 8 of 9

B. Public Infrastructure

- 1) The DRB shall review and approve an infrastructure list as outlined in the Master Development Plan (sheet 4 of 9).

C. Traffic and Air Quality Analyses

- 1) Conformance with Master Development Plan and Traffic/Air Quality Analysis (dated August 1992 - JHK & Associates, notes on sheet 1 of 9, and subsequent traffic/air quality analysis revisions).

4. The staff report recommends that a more detailed land use plan be prepared at this time. Sunwest Bank believes that the Land Use Mix (see above) and the delegation of site plan review to the DRB provides the maximum flexibility for the future development of the property while maintaining all the necessary controls for the City to ensure adequate infrastructure and compliance with the Master Development Plan's design criteria.
5. The staff report also requests that the EPC utilize the site design criteria prepared by Sunwest Bank to amend the entire Atrisco Business Park properties. Sunwest Bank is not opposed to this action. However, since several EPC members expressed concern over this action, we would not want to delay this action in order to address those lands outside of Sunwest Bank's control.

Based upon the above conditions which shall be integrated into Atrisco Business Park Master Development Plan, Sunwest Bank requests that this item not be deferred at this time but heard by the EPC at the Public Hearing scheduled for September 10, 1992. Thank you for your assistance in this matter.

c: Richard Dineen, Current Planning
Dave Harmon, Traffic Engineering
Alana Eager, Environmental Health
~~Fred Aguirre, Hydrology~~
EPC Members

October 28, 1992

Vance Fossinger
Easterling & Associates
10131 Coors Road
Suite H-7
Albuquerque, New Mexico 87114-4048

RE: DRAINAGE REPORT FOR ATRISCO BUSINESS PARK, (K-10/D23),
ENGINEER'S STAMP DATED SEPTEMBER 30, 1992

Dear Mr. Fossinger:

Based on the drainage information provided, the above referenced Master Drainage Plan is acceptable for Site Plan. Prior to Site Plan sign-off by the City Engineer, the following information needs to be submitted in order to implement the Master Plan for future development of this site:

1. Your pre-design dated October 8, 1992 identifies a storm drain to be built from the south line of the Atrisco Business Park and extend to the northwest corner of the intersection of Bluewater Road and Airport Road. This system is identified by a separate agreement between the City and Developer. My question is who is responsible for extending the storm drain from the intersection of Bluewater Road and Airport Road to Los Volcanes Road and up to Lot 6 of Tract S? Who is responsible for the maintenance of the storm drain for this extension? As part of your Master Plan you need to identify who is responsible for constructing all the storm drain systems to implement this Master Plan.
2. A grading plan will need to be submitted for the entire Master Plan area for the interim grading windrows being proposed. Drainage maintenance covenants will need to be executed for these windrows, the covenants should also include semi-annual inspections required by the engineer to assure the windrows are being maintained.

Vance Fossinger
Easterling & Associates
10131 Coors Road
Suite H-7
Albuquerque, NM 87114-4048
Page 2

3. An overall disclosure statement identifying covenants and restrictions needs to be executed for the Master Plan area which identifies that the purchaser of any of the lots understands that the site is only allowed 0.1cfs/acre. The purchaser also understands that he will need to enter into a drainage agreement and covenant with the City for the required detention pond on his site prior to release of the Building Permit. I have attached a copy of this Agreement and Covenant for your use. I realize that this request is not typical City requirements, but our concern is that all it takes is one property owner to not follow the requirements and he could overtax the downstream system and cause other private or public damages.
4. Page 8 of the report states "Small areas of the site may discharge uncontrolled to the street where required to facilitate grading". I believe this note is inappropriate at this time since future lot owners may really take advantage of this statement. Due to the stringent allowable release rate, the City will only allow this on a case by case basis in the future. Please remove this statement all together from the report.

If you should have any questions, please do not hesitate to contact me at 768-2666.

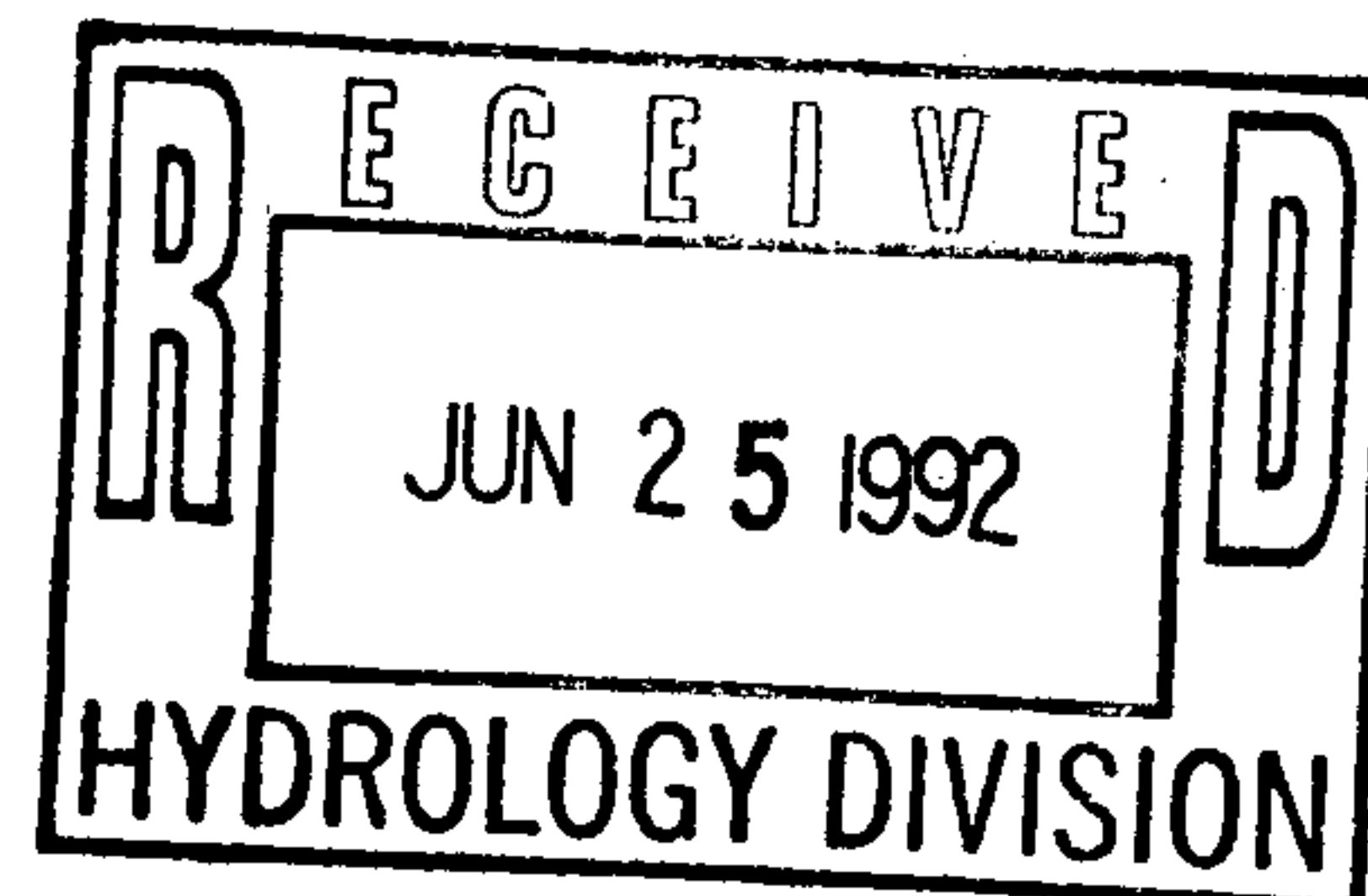
Cordially,

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

xc: Dan Hogan, Hydrology Div. Manager
Fred Aguirre, City Hydrologist
Ted Garrett, The Garrett Group Inc.

wp+3739

Easterling & Associates, Inc.
10131 Coors Rd., NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 898-8021 FAX (505) 898-8501



☒ DELIVERY ☐ PICK UP ☐ OTHER _____

ACTION REQUIRED BY: DATE 6-25-92 TIME _____

JOB Sunwest Bank JOB NO. 3321 PHASE _____

REQUESTED BY: Daniel Fossinger APPROVED BY: _____

1/10/023

COMPANY NAME: C.O.A. Hydrology

ADDRESS: _____

ATTENTION: Gilbert Aldaz TELEPHONE: _____

cc: Fred Agguire

ITEM DESCRIPTION: Memo: Recap of Pre design

Conferences for Atrisco-Business

Park Master Plan

SPECIAL INSTRUCTIONS: Please review, sign & return a

copy

RECEIVED BY: J. Lindley

COMPANY: _____ DATE 6/25/92 TIME _____

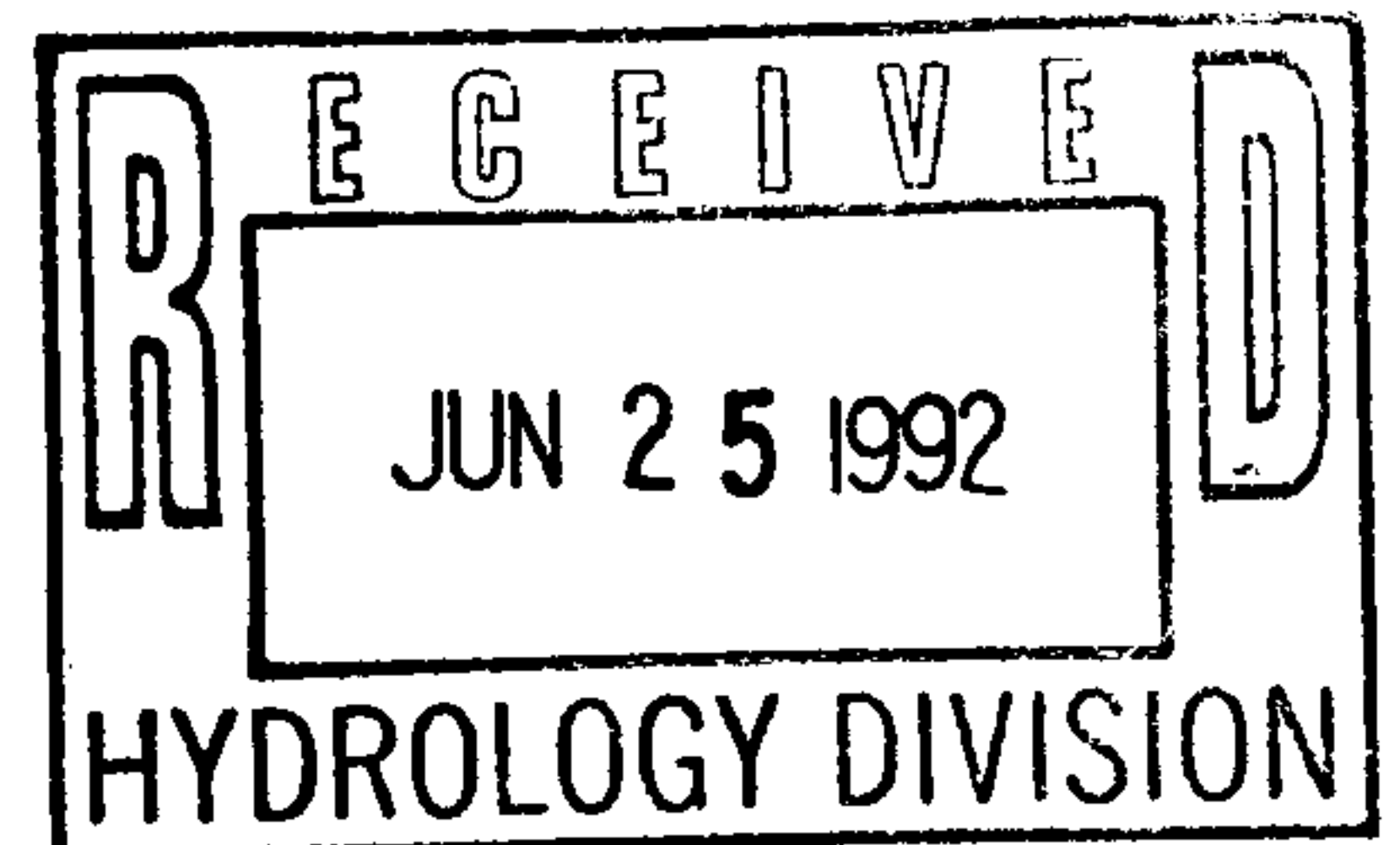
MEMORANDUM

TO: Gilbert Aldaz, City of Albuquerque, Hydrology

FROM: Vancel Fossinger, Easterling & Associates, Inc. *VSF*

RE: Recap of Pre-Design Conference for the
Atrisco Business Park Master Drainage Plan

DATE: May 14, 1992 - Revised June 25, 1992



This is a recap of the items discussed at a May 12th pre-design conference at which you, Charles M. Easterling, and myself were present and a June 5th pre-design conference at which Fred Aguirre was also present for the Atrisco Business Park Master Drainage Plan. I have prepared this memo in lieu of the completed pre-design form that the City Hydrology Department normally provides at the conclusions of such meetings, due to the complexity of this plan. Please sign this memo and return a copy to me or provide suggestions for revisions as soon as possible. Attached is a copy of the 1" = 500' base sheet we plan to use as a graphic for the plan. This sheet has been marked up to identify the specific drainage areas we propose to address in the plan.

As we discussed, there are five sub areas within the total area we propose to address in the plan. These areas and the proposed treatments of the areas are discussed in the following text:

AREA #1

This area includes a large off-site basin located west of the Atrisco Business Park and the tracts located west of Unser and south of Bluewater Road. The off-site basin is the principal source of flows to the Flood Plain areas within the Business Park.

The solution we propose to include in the drainage plan for this area is to construct a channel along the west and south boundaries of the Business Park to convey these flows to the AMOLE System. A channel titled the "Unser Diversion Channel" was proposed for this location in the West Bluff Study. The connection to the AMOLE System will be made via the proposed Unser Storm Drain (Tierra Bayita).

An AHYMO analysis will be provided for this area. The off-site basin will be analyzed in the existing and fully developed conditions. The analysis for the fully developed condition will be performed assuming the I-40 interceptor channel to be in place as the "West Bluff Study" did. Allowable release rates into the channel will be based on the planned capacity of the downstream detention basin and the Unser Storm Drain. The flow from the area of Atrisco Business Park, which will drain into the proposed channel, will be analyzed as fully developed.

AREA #2

This area includes property located west of Unser and north of Los Volcanes which is owned by Sunwest Bank. This property will discharge storm water into the existing Unser Storm Drain, which was constructed in S.A.D. 214. Allowable discharge rates were assigned to this property in the S.A.D. 214 Drainage Plan.

An AHYMO analysis of the Unser Storm Drain drainage basin will be performed. This will allow us to determine if the flow rates assigned by the S.A.D. 214 Drainage Plan are acceptable using current hydrology methods (AHYMO).

AREA #3

This area is a tract of land which includes the S.A.D. 214 pond. This retention pond currently serves as an outfall for the Unser Storm Drain. The City currently plans to increase the size of the pond and convert it to a detention pond when the proposed connection between the pond and the AMOLE Channel is constructed (Tierra Abeyta).

The plan will propose to allow this tract of land to discharge into the S.A.D. 214 pond. We will evaluate the AHYMO inflow and outflow hydrographs for the pond in order to set drainage criteria for the tract. This criteria will limit the impact that discharge from the tract will have on the downstream system.

AREA #4

This area includes property located between Unser Boulevard and Airport Road which is owned by Sunwest Bank. The drainage solution we will propose for this area includes modifications to the proposed Airport Drive Storm Drain and existing Coors Connection Storm Drain to enable these facilities to accept runoff from this area. The street rights-of-way will be allowed free discharge to the storm drain system and the private property will be allowed a discharge of 0.1 cfs/acre.

The plan will include an illustrated drainage solution for the existing platting. Text included in the plan will provide generic drainage criteria to address potential future subdivision of the property. An illustrative site plan has been prepared for the area by Consensus Planning which shows a possible future development scenario. The additional street areas shown in the illustrative site plan will be included in the AHYMO analysis to provide some additional capacity for potential future streets. The plan will not provide a detailed drainage plan for the illustrative site plan. As future development and/or subdivision occurs, specific drainage concerns will be addressed at that time.

The plan will propose that control of discharge be accomplished in on-site private detention ponds. We understand that the City has some concerns about the ponds remaining in place and functioning as designed in the long term future. We will address this issue in the plan. The plan will propose that ponds be directly connected to future proposed public storm drainage conveyances located in public streets or drainage easements. The plan will also indicate that ponding shall be accomplished in a combination of landscape and parking areas where possible.

The plan will also address the interim condition of Area 4 (partially developed condition). Due to the very low allowable release rate from this area, the existing condition 100 year runoff will exceed the capacity of the proposed storm drain. To address this condition, the plan will propose that the undeveloped property included in this area be level terraced or have similar treatment applied to it to prevent runoff from the property. This will eliminate concerns of overburdening the storm drain system and potential sediment problems.

The plan will propose that public storm drains be constructed in or adjacent to Airport Road, and portions of Bluewater Road, and Los Volcanes Road. These storm drains will connect to the planned Airport Drive Storm Drain. Private connector pipes will connect individual ponds to the public storm drains.

The plan will require that a drainage covenant insuring the maintenance of interim drainage facilities be put into place prior to or concurrent with the construction of storm drains in Area 4. The plan will further require that this covenant be replaced by a covenant insuring the perpetuity and maintenance of the required detention facilities on individual sites at the time of development.

AREA #5

Area 5 includes the remainder of the property which will drain to the proposed Airport Road Storm Drain. Peak allowable flow rates from these properties will be indicated in the plan and these rates will be included in the analysis of the Airport Road Storm Drain. This property is not under Sunwest Bank ownership, so this will be the extent of the detail the plan will give to this area.

AREA #6

Area 6 includes property which contributes flow to the Coors Connection Storm Drain in the existing condition. The plan will identify peak allowable flow rates from this area at junction points along the Coors Connection Storm Drain. These rates will be based on the downstream capacity of the proposed upgraded Coors Connection Storm Drain. Other flows which share this downstream capacity are the controlled flows from Areas 4 and 5 and flows

Gilbert Aldaz
June 25, 1992
Page 4 of 4

from Coors Boulevard. The allowable flow rates from Area 6 not to be lower than the flow rates which reach the Junction points in the existing condition as determined by an AHYMO analysis. These allowable release rates will be utilized in the hydraulic analysis of the upgraded Coors Connection Storm Drain.

GRAPHICS

Due to the large geographical area this plan will address, we propose to prepare the overall plan graphic at a scale of 1" = 500'. This graphic will include tables to present information regarding peak flow rates, basin areas, information about proposed storm drains and streets etc. In addition, we will prepare typical grading and drainage plans for a 2½, 10, and 20 acre site. These plans will show general flow paths and pond locations for developed conditions. A typical site plan for a 10-acre site will show the conservation treatment we are proposing to address the runoff on the undeveloped tracts.

Reviewed:

Gilbert Aldaz

VSF:das
Job No. 3321

Enclosure

cc: Ted Garrett, The Garrett Group, Inc.
Pat Romo, Sunwest Bank
Jim Strozier, Consensus Planning
Fred Aguirre, City of Albuquerque

FILE COPY



KEN SCHULTZ
MAYOR

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

December 26, 1988

Charles M. Easterling, P.E.
Easterling & Associates, Inc.
5643 Paradise Boulevard, NW
Albuquerque, New Mexico 87120

RE: CONCEPTUAL GRADING & DRAINAGE PLAN FOR ATRISCO BUSINESS
PARK, RESUBMITTED DECEMBER 6, 1988, FOR SITE DEVELOPMENT
PLAN APPROVAL FOR SUBDIVISION (J-9/D1B)

Dear Mr. Easterling:

Your submittal, referred to above, sheet 1 of 2, with your engineer's stamp dated 12-5-88, is approved for DRB Site Development Plan Approval by the Hydrology Section.

As we discussed, the drainage infrastructure must be in place before any development can proceed beyond this point. The obvious route is for the diversion channels and ponds to be built or financially guaranteed at this step in the development process. If your client has other wishes, we will certainly entertain any plan that is within the city's development guidelines and ordinance requirements.

If you have any questions, please call me at 768-2650.

Cordially,

G. Stuart Reeder, P.E.
C.E./Hydrology Section

xc: owner

Easterling & Associates, Inc.

5643 Paradise Boulevard, NW
Albuquerque, New Mexico 87114
(505) 898-8021

October 19, 1988

Steve Crawford, P.E.
Westland Development
Company, Inc.
401 Coors Road, NW
Albuquerque, NM 87105

**RE: DRAINAGE MASTER PLAN FOR ATRISCO BUSINESS PARK WEST OF UNSER
BOULEVARD**

Dear Steve:

Transmitted herewith is the revised Drainage Master Plan (October 19, 1988) which incorporates the assumptions from the approved SAD 214 Drainage Plan and makes provision to accept developed drainage from the proposed travel plaza on Daytona.

The temporary retention ponds shown along the future West Bluff Channel alignment were sized and sited in a way which best serves the property based upon the most current development sequencing information available. As development progresses within your property, it is envisioned that the proposed pond locations would change to accommodate then current needs, or that if they had been built, they would be relocated.

This scenario is based upon all off-site areas remaining undeveloped except for the travel plaza. Upstream development will require improvements to the West Bluff System by the upstream developers.

If I can be of further assistance, please do not hesitate to contact me.

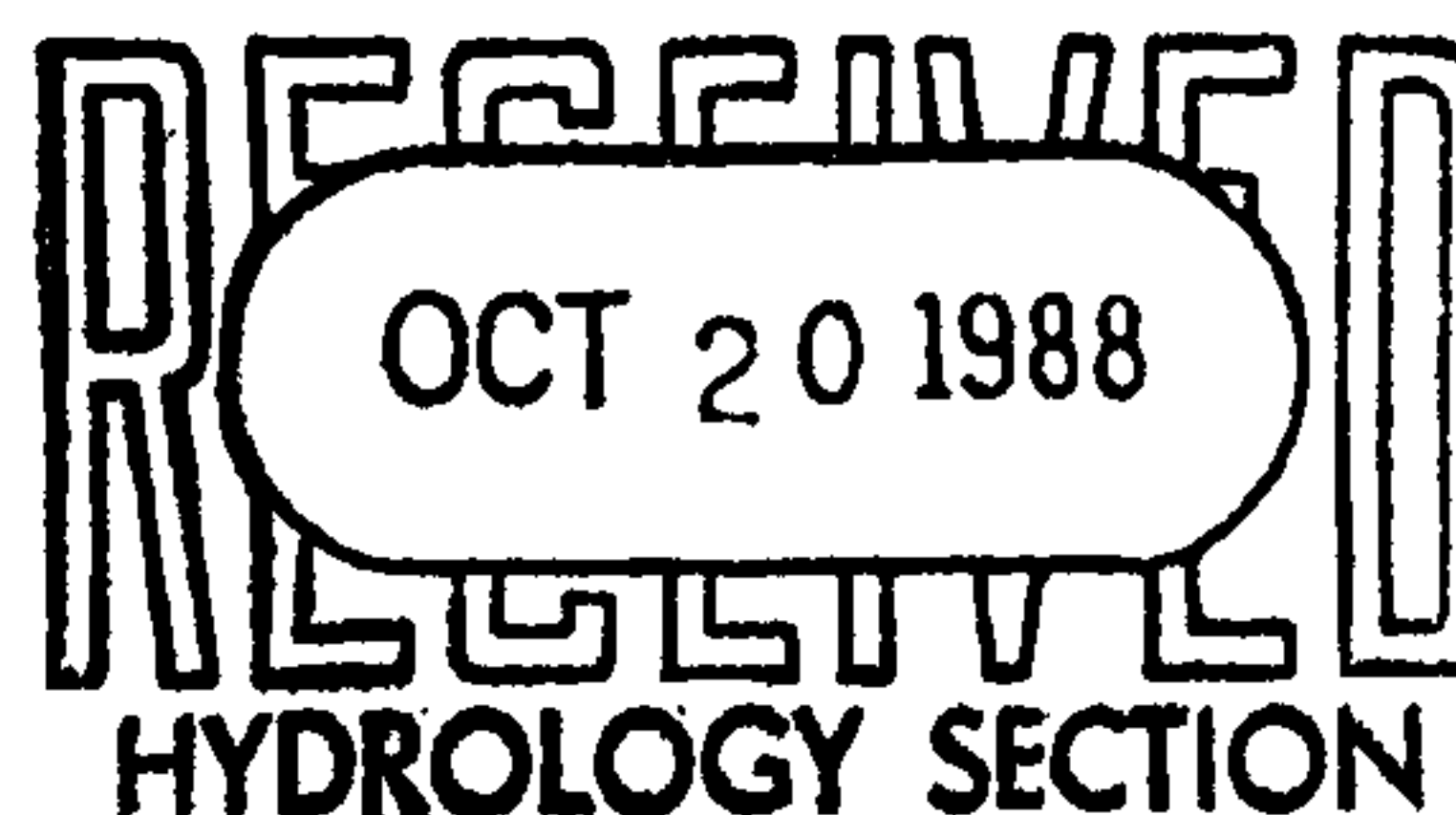
Sincerely,

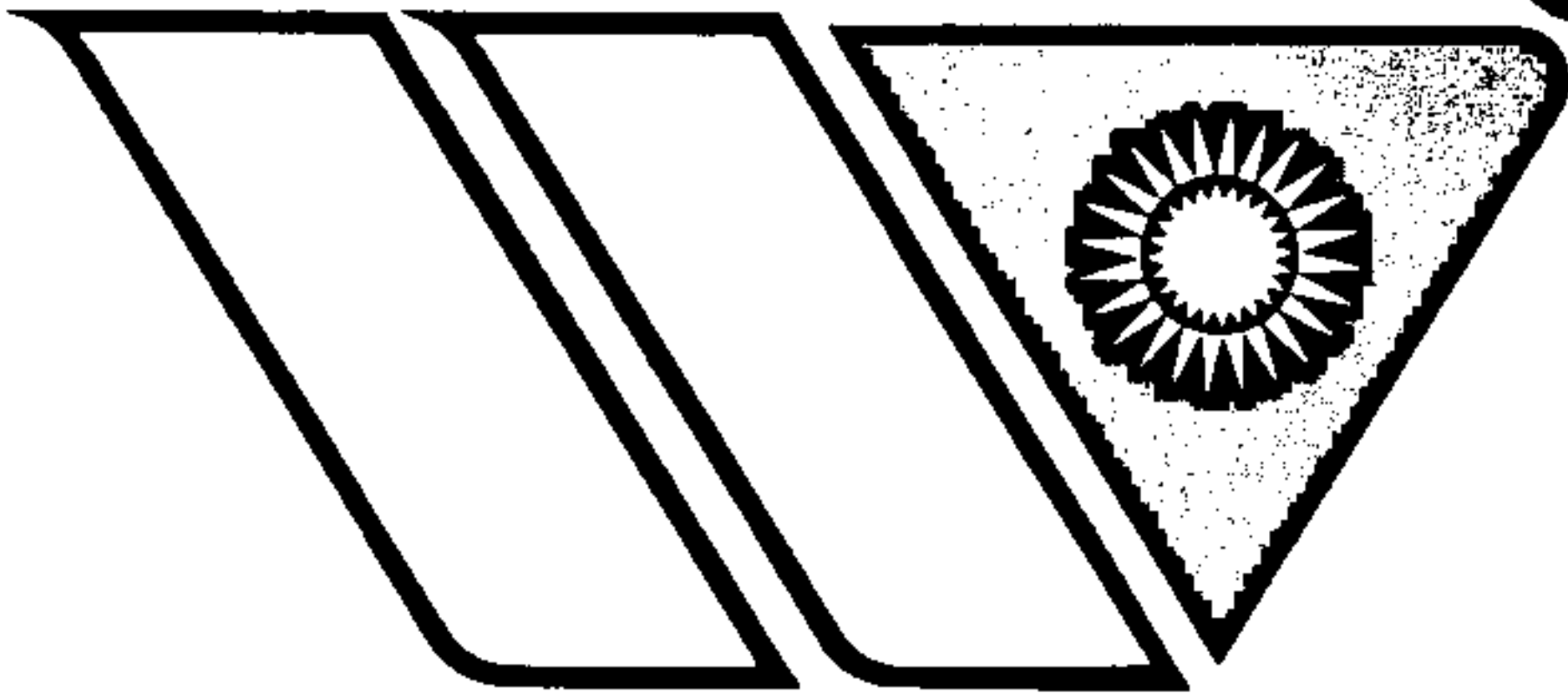


Charles M. Easterling, P.E.

CME/dlh
Job No. 2401

Enclosure

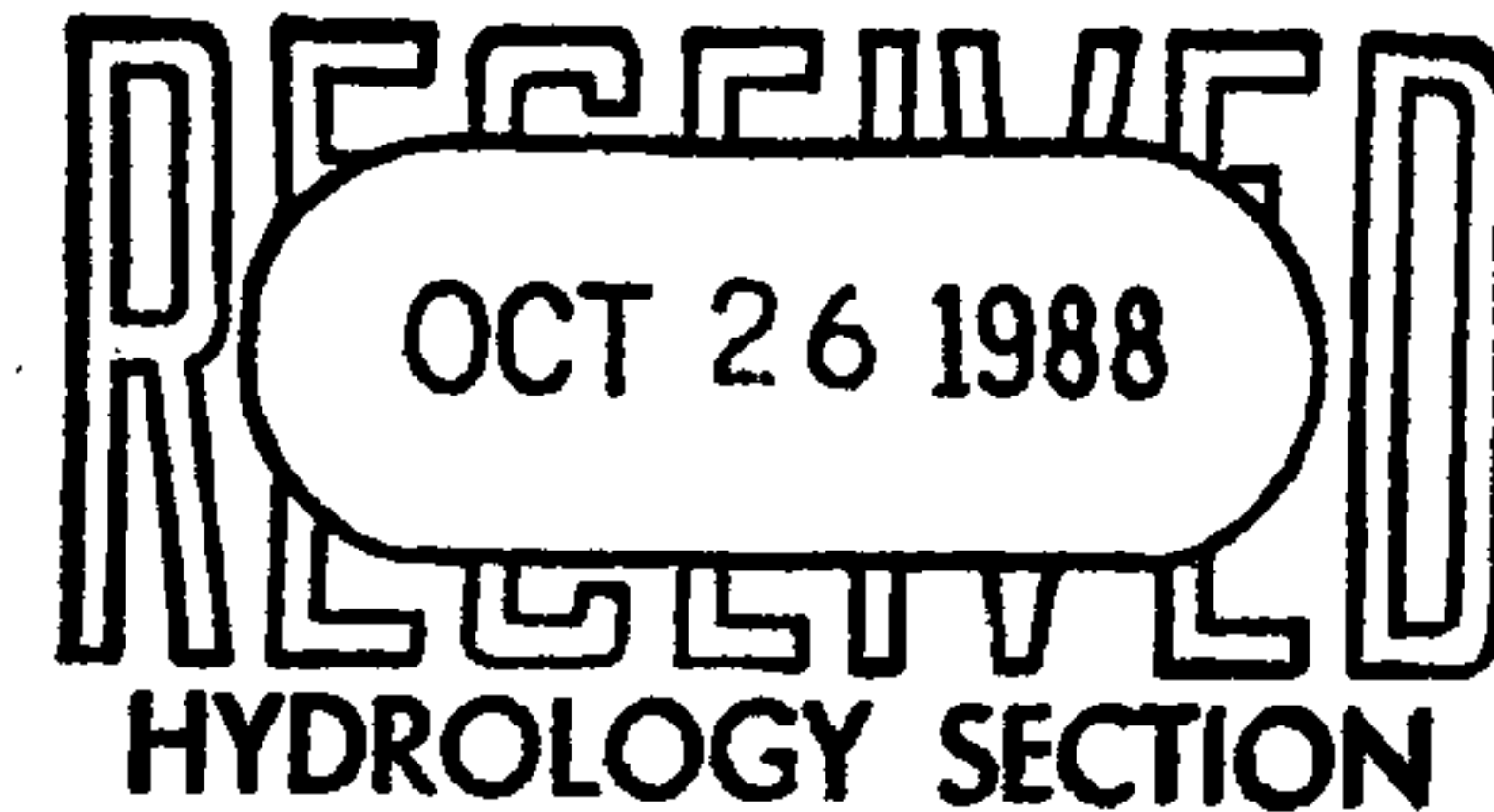




WESTLAND DEVELOPMENT CO., INC.

401 Coors Blvd. N.W., Albuquerque, New Mexico 87105
Phone (505) 831-9600

October 26, 1988



Fred Aguirre
City of Albuquerque
City Hydrology/Public Works
P.O. Box 1293
Albuquerque, NM 87103

RE: Letter of Agreement for Drainage Master Plan for Westerly
Portion of Atrisco Business Park

Dear Fred:

The attached letter and Drainage Master Plan are being submitted to help clarify the Conceptual Grading and Drainage Plans associated with EPC cases Z-88-73 and Z-88-73-2. It will further serve, in conjunction with this letter agreement, to correct a possible oversight in the placement of drainage facilities which was recently discovered by your office. The SAD 214 Drainage Plan assumed that off-site undeveloped flows coming from west of the Atrisco Business Park would be intercepted and retained in an area west of Unser Blvd. This assumption was based on a retention facility shown in the Atrisco Business Park Drainage Master Plan prepared in 1980 by Fred Denney and Associates.

The attached letter and Drainage Master Plan make reference to a proposed travel plaza and its developed flows. Westland's agreement with the City in this letter does not include the developed flows from the proposed travel plaza. That arrangement was strictly between the Purchaser of that land and Westland as the Seller of that land. If a different project or owner were involved, the acceptance of developed flows would not occur.

To correct prior drainage oversights, Westland will install and maintain (through drainage covenants) the temporary retention ponds shown on the attached plan. We agree to link the installation of retention ponds for off-site flows "A", "B", and "C" to the financial guarantee and infrastructure listing for proposed Daytona Road from Los Volcanes to the west edge of Tract T. With the City Hydrologist's permission, the installation of retention ponds for off-site flow "C" may instead be linked to the financial guarantee and infrastructure listing for Bluewater Road from Honeywell to the west edge of Tract T. The City agrees that the ponds will be vacated whenever the appropriate parts of the West Bluff and Amole del Norte drainage systems are in place and in accordance with current City Ordinances and Policies in affect at the time vacation is requested.

Fred Aguirre
October 26, 1988
Page 2

Sincerely,



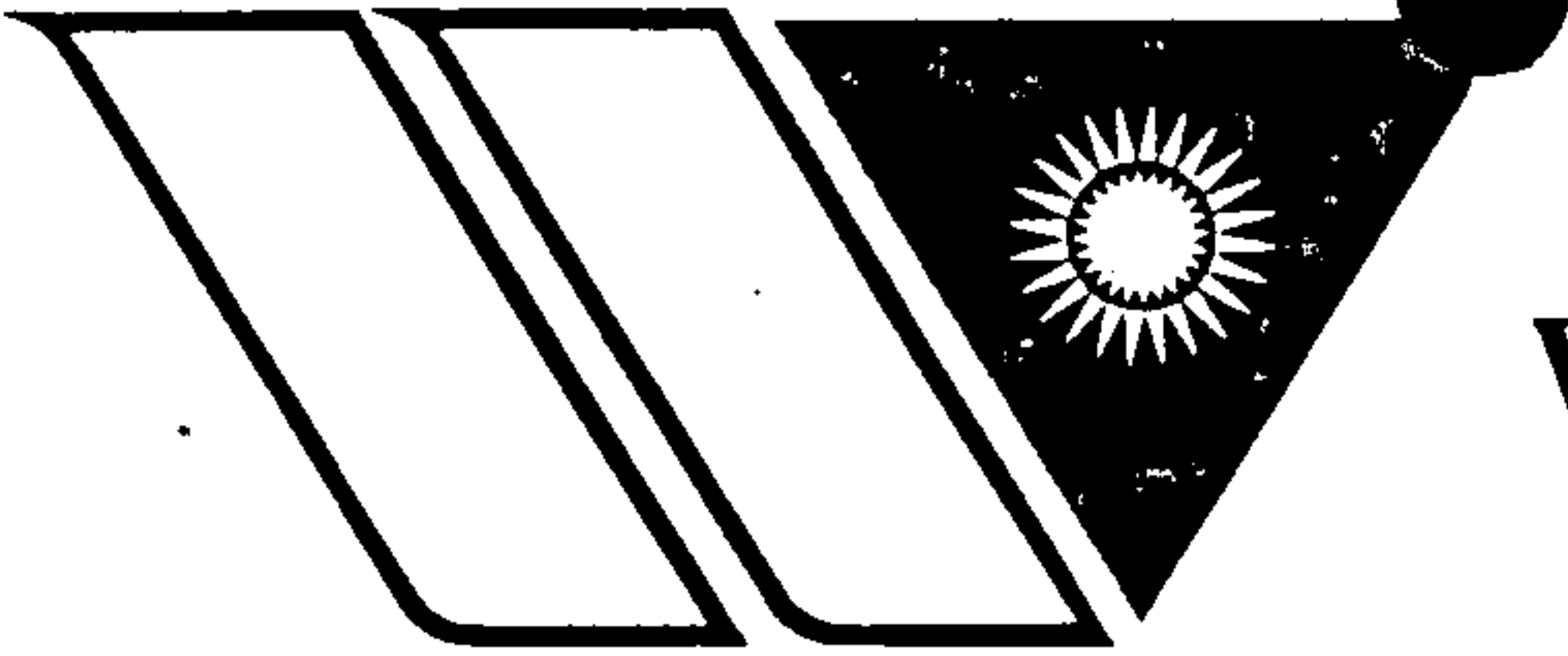
Stephen L. Crawford, P.E.
Engineering Manager

Agreed To:

Fred Aguirre, City Hydrologist
City of Albuquerque

Attachments

SLC/bd
ABPMASPN

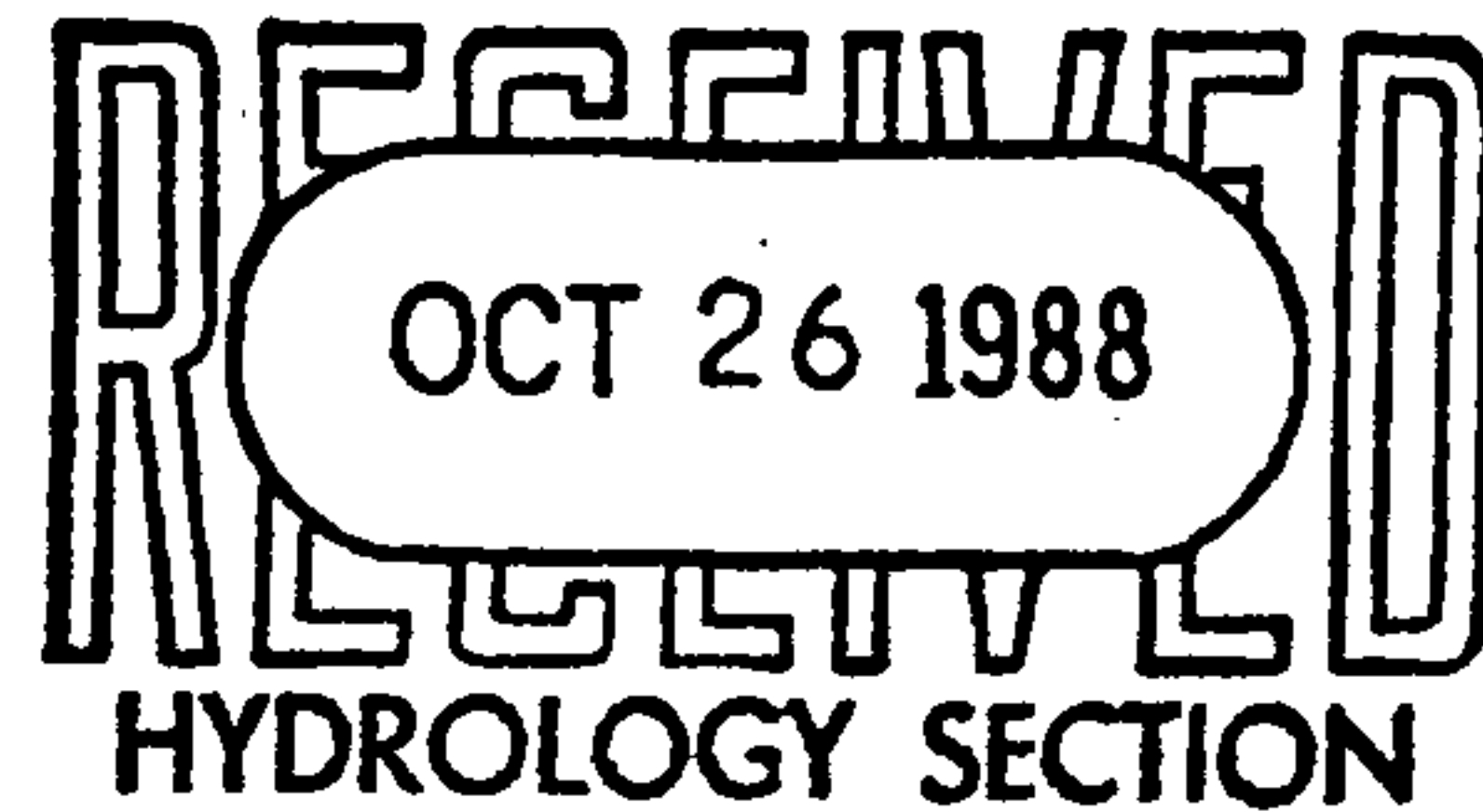


WESTLAND DEVELOPMENT CO., INC.

401 Coors Blvd. N.W., Albuquerque, New Mexico 87105
Phone (505) 831-9600

October 26, 1988

Fred Aguirre
City of Albuquerque
City Hydrology/Public Works
P.O. Box 1293
Albuquerque, NM 87103



RE: Letter of Agreement for Drainage Master Plan for Westerly
Portion of Atrisco Business Park

Dear Fred:

The attached letter and Drainage Master Plan are being submitted to help clarify the Conceptual Grading and Drainage Plans associated with EPC cases Z-88-73 and Z-88-73-2. It will further serve, in conjunction with this letter agreement, to correct a possible oversight in the placement of drainage facilities which was recently discovered by your office. The SAD 214 Drainage Plan assumed that off-site undeveloped flows coming from west of the Atrisco Business Park would be intercepted and retained in an area west of Unser Blvd. This assumption was based on a retention facility shown in the Atrisco Business Park Drainage Master Plan prepared in 1980 by Fred Denney and Associates.

? → The attached letter and Drainage Master Plan make reference to a proposed travel plaza and its developed flows. Westland's agreement with the City in this letter does not include the developed flows from the proposed travel plaza. That arrangement was strictly between the Purchaser of that land and Westland as the Seller of that land. If a different project or owner were involved, the acceptance of developed flows would not occur.

4.2 AC - Ft
6.1 AC - Ft

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Fred Aguirre
October 26, 1988
Page 2

Sincerely,



Stephen L. Crawford, P.E.
Engineering Manager

Agreed To:

Fred Aguirre, City Hydrologist
City of Albuquerque

Attachments

SLC/bd
ABPMASPN

EASTERLING & ASSOCIATES, INC.
5643 Paradise Blvd. NW
ALBUQUERQUE, NEW MEXICO 87114

LETTER OF TRANSMITTAL

(505) 898-8021

TO CITY OF ALBUQUERQUE
H&D. DIVISION

DATE	11-02-88	JOB NO.	2401
ATTENTION			
BARBARA			
RE: ATRISCO BONNERS PARK			
WEST OF U.S. 66			

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

- ☐ Shop drawings ☒ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1		1	CONTRACT G/D PLAN

RECEIVED
NOV 02 1988
HYDROLOGY SECTION

THESE ARE TRANSMITTED as checked below:

- ☒ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS

PLEASE SUBSTITUTE THIS COPY FOR THE
ONE SENT 11-1-88

THANKS

COPY TO

W12/88

SIGNED:

DOUG CRAWFORD

EASTERLING & ASSOCIATES, INC.
5643 Paradise Blvd. NW
ALBUQUERQUE, NEW MEXICO 87114

LETTER OF TRANSMITTAL

(505) 898-8021

TO CITY OF ALBUQ
HVD. DIVISION

DATE <u>11-1-88</u>	JOB NO. <u>2401</u>
ATTENTION	
RE: <u>ATRISCO BUSINESS PK</u> <u>WEST OF USAR RD</u>	

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

- ☐ Shop drawings ☒ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1		1-2	CONCEPTUAL G/D PLAN

RECEIVED
NOV 01 1988
ALBUQUERQUE
HYDROLOGY SECTION

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☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS _____

C.C. - File
C.C. George RAN/HAET
C.C. MARK WADE @ FMBSM
C.C. STEVE CRAWFORD @ WESTLAND

COPY TO _____

SIGNED: DAVE CREW

DRAINAGE INFORMATION SHEET

PROJECT TITLE: ATRISCO BUSINESS PARK
WEST OF UPPER RD ZONE ATLAS/DRNG. FILE #: U-9/1B
 LEGAL DESCRIPTION: TRACT T ATRISCO BUSINESS PK
 CITY ADDRESS: _____

ENGINEERING FIRM: SASTERLING ASSOC INC CONTACT: DEUG CORLEMAN
 ADDRESS: 5643 PARADISE BLVD NW 87114 PHONE: 878-8021

OWNER: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

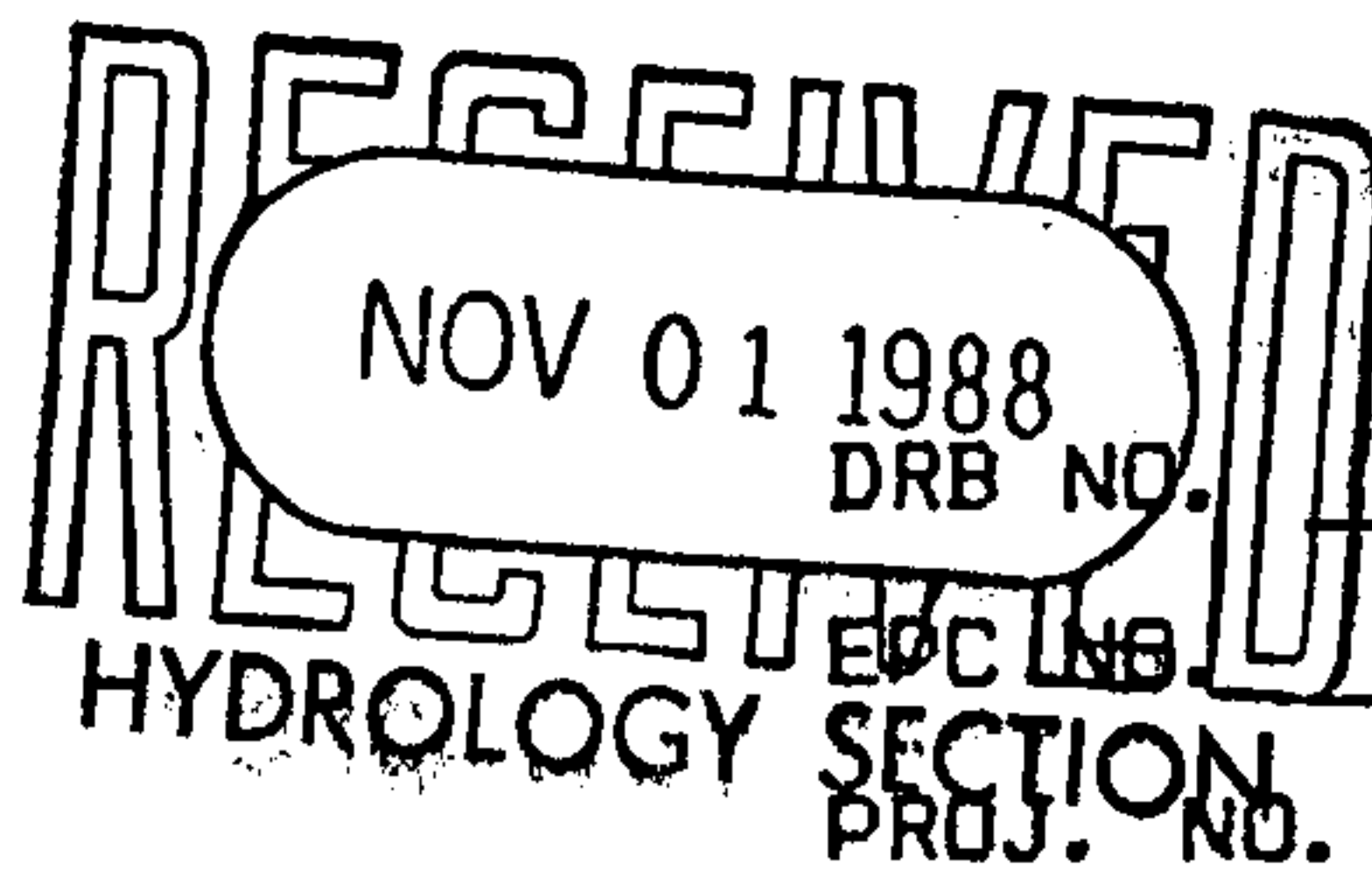
ARCHITECT: DE LA TORRE - RAINART CONTACT: GEORGE RAINART
2 WOODWARD CENTER
 ADDRESS: SUITE 200 700 COMAS NE 87102 PHONE: 842-9500

SURVEYOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

- ☐ YES
☐ NO
☐ COPY OF CONFERENCE RECAP SHEET PROVIDED



TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
☐ DRAINAGE PLAN
☒ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SKETCH PLAT APPROVAL
☐ PRELIMINARY PLAT APPROVAL
☒ SITE DEVELOPMENT PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ BUILDING PERMIT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY APPROVAL
☐ ROUGH GRADING PERMIT APPROVAL
☐ GRADING/PAVING PERMIT APPROVAL
☐ OTHER _____ (SPECIFY)

DATE SUBMITTED: DOUGLAS GREEN
 BY: 11/1/88

FILE COPY



KEN SCHULTZ
MAYOR

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

November 9, 1988

Douglas W. Copeland, P.E.
Easterling & Associates, Inc.
5643 Paradise Boulevard, NW
Albuquerque, New Mexico 87114

RE: CONCEPTUAL DRAINAGE PLAN FOR WESTERLY PORTION OF ATRISCO
BUSINESS PARK (J-9/D1B) RECEIVED OCTOBER 20, 1988

Dear Mr. Copeland:

I have reviewed the referenced plan and forward the following comments:

1. The allowable discharge has been established by the SAD 214. Please address what the allowable volume is, which can be released.
2. Please address how the off-site diversion ditch/dike will function. It appears as if it will convey flows between retention ponds. What portions of the diversion dike will be built with the retention ponds.
3. Please expand on what is meant in the second paragraph of Steve Crawford's letter dated October 26, 1988.
4. I assume from Steve's letter that no development can occur in the area without the construction of the two retention ponds and their diversions.

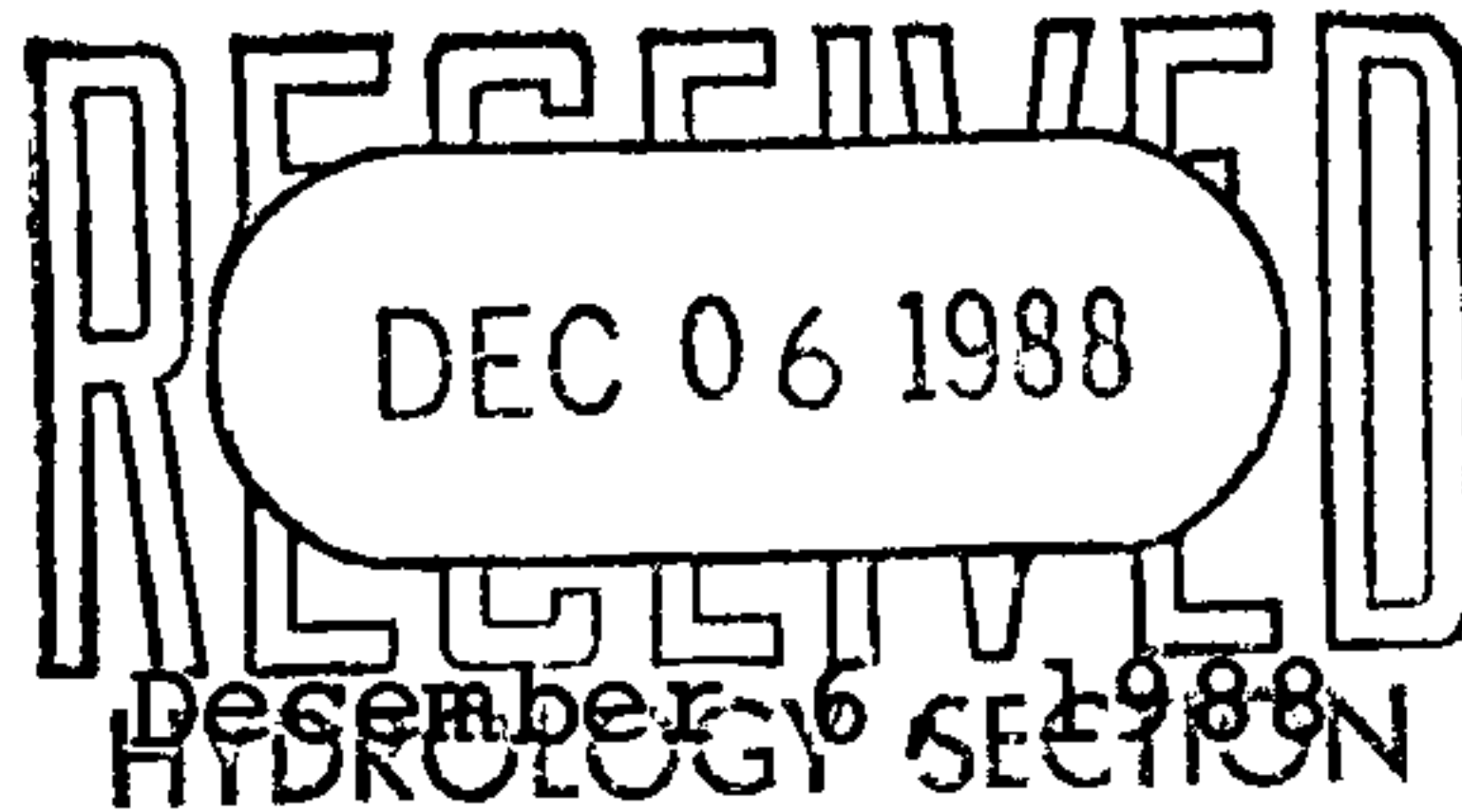
Should you have any questions, please call me at 768-2650.

Cordially,

Carlos A. Montoya, P.E.
City/County Floodplain Administrator

CAM/bsj
(WP+924)

Easterling & Associates, Inc.



5643 Paradise Boulevard, NW
Albuquerque, New Mexico 87114
(505) 898-8021

Mr. Carlos A. Montoya, P.E.
City/County Flood Plain Administrator
Engineering Group
Public Works Department
City Of Albauquerque
P.O. Box 1293
Albuquerque, NM 87103

Dear Mr. Montoya:

In response to your letter dated November 9, 1988 the developed volumes are shown in the conceptual grading and drainage plans. Please note that sufficient ponding to hold the 100 year developed flows exists, assuming the construction of the west bluff channel or the temporary retention ponds and trainer dikes.

There will be no flow between retention ponds, overflow arrows have been added to make our intentions clear.

Any development west of Unser Blvd. and North of Bluewater Road will require the construction of some or all of the temporary retention ponds and diversion ditch/dike system.

If you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in cursive script, appearing to read "C. M. Easterling".

Charles M. Easterling, P.E.

CME/kg
Job No. 2401

Enclosures

cc: Steve Crawford
Westland

5643 Paradise Blvd. NW
ALBUQUERQUE, NEW MEXICO 87114

(505) 898-8021

TO CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
HYDROLOGY SECTION

DATE	12-5-88	JOB NO.	2401
ATTENTION	STUART REEDER		
RE:	ATRISCO BUSINESS PARK		

☐ Shop drawings. ☒ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
2		1 OF 2	CONCEPTUAL G & D PLAN
1			DRAINAGE INFORMATION SHEET
1			LETTER

RECEIVED
 DEC 06 1988
 HYDROLOGY SECTION

☒ For approval ☐ Approved as submitted ☐ Resubmit_____copies for approval
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☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS

David A. Smith

COPY TO _____

SIGNED: _____

DRAINAGE INFORMATION SHEET

ZONE ATLAS/DRAINAGE FILE NO.

J-9/1001B

PROJECT TITLE:

ATRISCO BUSINESS PARK

LEGAL DESCRIPTION:

TRACTS T, J & K OF ATRISCO BUSINESS PARK

CITY ADDRESS:

ENGINEERING FIRM:

Easterling & Assoc. Inc.

CONTACT:

ADDRESS:

5643 Paradise Blvd. N.W.

PHONE:

898-8021

OWNER:

WESTLAND DEV. CO.

CONTACT:

STEVE CRAWFORD

ADDRESS:

401 COORS RD. N.W.

PHONE:

831-9600

ARCHITECT:

CONTACT:

ADDRESS:

PHONE:

SURVEYOR:

ESPEY-HOUSTON INC.

CONTACT:

ADDRESS:

3017 COMMERCIAL N.E.

PHONE:

242-1909

CONTRACTOR:

CONTACT:

ADDRESS:

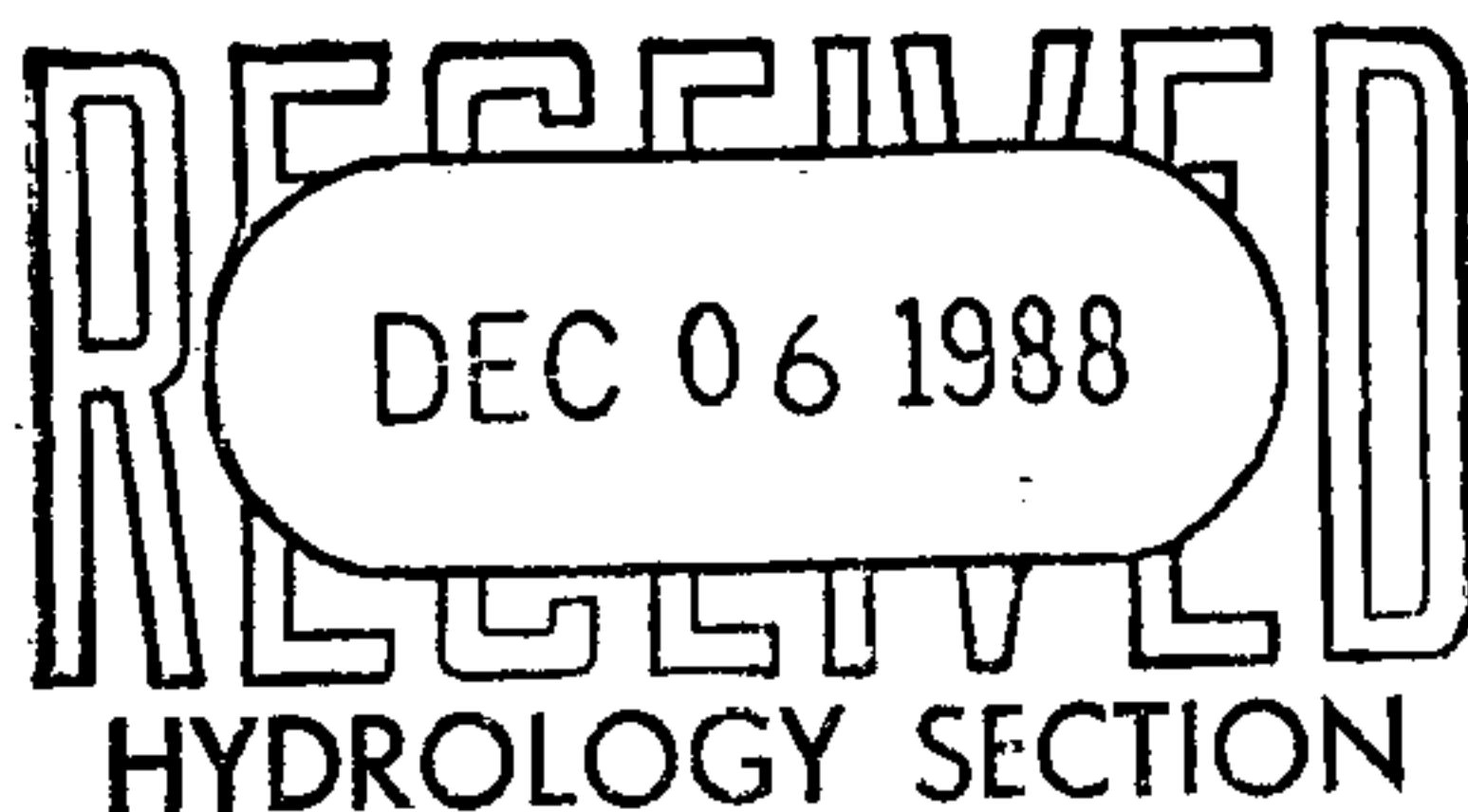
PHONE:

PRE-DESIGN MEETING:

☒ YES

☐ NO

☐ COPY OF CONFERENCE RECAP
SHEET PROVIDED



DRB NO.

EPC NO.

PROJECT NO.

TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT

☐ DRAINAGE PLAN

☒ CONCEPTUAL GRADING & DRAINAGE PLAN

☐ GRADING PLAN

☐ GRADING & DRAINAGE PLAN

☐ EROSION CONTROL PLAN

☐ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT APPROVAL

☐ PRELIMINARY PLAT APPROVAL

☒ SITE DEVELOPMENT PLAN APPROVAL FOR SUBDIVISION

☐ FINAL PLAT APPROVAL

☐ BUILDING PERMIT APPROVAL

☐ FOUNDATION PERMIT APPROVAL

☐ CERTIFICATE OF OCCUPANCY APPROVAL

☐ ROUGH GRADING PERMIT APPROVAL

☐ GRADING/PAVING PERMIT APPROVAL

☐ OTHER _____ (SPECIFY)

DATE SUBMITTED:

12-5-88

BY:

David L. Smith

January 19, 1994

Gilbert Aldaz, P.E.
City/County Floodplain Administrator
City of Albuquerque
Hydrology Division
3rd Floor
P.O. Box 1293
Albuquerque, NM 87103

Post-It™ brand fax transmittal memo 7671		# of pages
To	Gilbert Aldaz	From
Co.		Co.
Dept.	Hydrology Div.	Phone #
Fax #	768-3629	Fax #

Re: CLOMR Application of Unser Diversion

Dear Gilbert:

I have reviewed the second draft of the CLOMR Application prepared by Easterling & Associates. The application seems to be in good form, and my comments in a letter dated December 8, 1994 have been substantially addressed. I recommend at this time that you sign and send the application on to FEMA for their review.

Please check with Easterling & Associates to see if a letter of recommendation is still necessary from AMAFCA. It is still listed in the table of contents along with a letter from the City.

Should you have any questions with respect to this CLOMR, please call at your earliest convenience.

Sincerely,



Howard C. Stone, P.E.
Water Resources Manager

HCS/rkl

cc: Laurie Schuller
Larry Blair

j:\hydro\9027622\aldaz.1r-1/19/94

PRINCIPALS

LARRY W. HUSTON, C.R.

MICHAEL M. EMERY, P.E.

BRIAN G. BURNETT, P.E.

KERRY L. DAVIS, P.E.

LARRY A. LARRANAGA, P.E.

HOWARD C. STONE, P.E.

WILLIAM L. VREEKE, P.E.

GORDON A. WALHOOD JR., P.E.

MEMO

October 14, 1996

To: Fred Aguirre, COA Hydrology

Fr: Kurt Browning, AMAFCA *KB*

Post-it® Fax Note 7671		Date 10-14-96	# of pages 8
To FRED AGUIRRE		From KURT B.	
Co./Dept. CITY HYD.		Co. AMAFCA	
Phone #		Phone # 874-225	
Fax #		Fax #	

We talked about several items last Friday and I thought I would follow up with a short memo.
Call if you have questions

1. Alameda Road Extension - Attached is the Alameda letter that you asked about. A copy went to Dan, so you may want to discuss with him. County is the lead. Greiner may be interested.
2. Calabacillas Dedication as Park - We are meeting with Colleen Frenz and Carol Dumont this week to discuss the dedication of a portion of the Calabacillas to Parks and General Services. We would like to have this dedicated in fee to AMAFCA, if there is a way for the developer to still receive park credits. It appears it may have to go to Parks for the credits to work. Any way, we need to sign this plat.
3. ~~Atrisco Bus~~ Park (DRB-96-493) - This is the southwest corner of Unser and Los Volcanes that we discussed. We are still working on getting the project under way and are approximately 60 days out. You said you were going to make them wait. I suggest that we wait until a construction contract is signed. I will keep you posted. (A CLOMR submitted by Easterling has already been approved by FEMA, so we should be OK).
**** Also, per the agreement (see letter attached), the Owners (Bell Group) of this tract owe AMAFCA their monetary portion (\$21,575). We will not approve any plat until this is contributed. As the agent, you may want to inform Mark Goodwin of this situation.
4. Pond 16B/Future Park at Chaparral School - We received the attached correspondence regarding this future park and do not have concerns regarding joint use as a park. However, it appears we may still have an easement over this entire site. I thought this pond had been quitclaimed by AMAFCA to the COA. I know we have discussed this before and everyone thought it was the City's. We do not maintain it and consider it the City's. I recall some documentation that quitclaimed our interest to the City, perhaps as part of the Unser Road project. Do you recall? Perhaps Kevin or APS should research. We don't need to be in the loop, however, the easement situation should be cleaned up.

Call when you get a chance.
End

EASTERLING & ASSOCIATES, INC.

10131 Coors Rd., NW, Suite H-7
ALBUQUERQUE, NEW MEXICO 87114-4048

(505) 898-8021
FAX (505) 898-8501

LETTER OF TRANSMITTAL

TO COA Hydrology

DATE	1/27/94	JOB NO.	3324.3
ATTENTION	Gilbert Aldaz		
RE:	Unser Diversion / Artesco Business Park CLOMR Request		

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

- ☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☒ Update inserts for CLOMR

COPIES	DATE	NO.	DESCRIPTION
1	1/94	—	Table of Contents
1	1/94	pII.4	Review Fee, p 4 of 5 Revision Requestor + Community official form
1	1/94	pII.5	Signature p. 5 of 5 " " " "
1	1/24/94	pII.75	AMAFCA Letter
1	1/20/94	pII.76	COA letter
1	1/24/94		Copy Fedex
1	1/21/94		Copy check for \$1000.00

THESE ARE TRANSMITTED as checked below:

- ☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☒ for insertion in COA copy of CLOMR Request
☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS

Gilbert -

The entire package was Fedex'd to FEMA Region VI in Denton, TX on Monday 1/24/94. A copy of your letter was also mailed to Michael Buckley in Washington, D.C.

HYDROLOGY DIVISION

FEB - 3 1994

COPY TO



40% Pre-Consumer Content • 10% Post-Consumer Content

SIGNED

Lance Schiller

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REVISION REQUESTOR AND COMMUNITY OFFICIAL FORM

Forms Included

Form 2 entitled "Certification By Registered Professional Engineer And/Or Land Surveyor" must be submitted.

The following forms should be included with this request if (check the included forms):

• Hydrologic analysis for riverine flooding differs from that used to develop FIRM	☒ Hydrologic Analysis Form (Form 3)
• Hydraulic analysis for riverine flooding differs from that used to develop FIRM	☒ Riverine Hydraulic Analysis (Form 4)
• The request is based solely on updated topographic information	☒ Riverine/Coastal Mapping (Form 5)
• The request involves any type of channel modification	☒ Channelization (Form 6)
• The request involves new bridge or culvert or revised analysis of an existing bridge or culvert	☒ Bridge/Culvert Form (Form 7)
• The request involves a new or revised levee/floodwall system	☒ Levee/Floodwall System Analysis (Form 8)
• The request involves analysis of coastal flooding	☐ Coastal Analysis Form (Form 9)
• The request involves coastal structures credited as providing protection from the 100-year flood	☐ Coastal Structures Form (Form 10)
• The request involves an existing, proposed, or modified dam	☐ Dam Form (Form 11)
• This request involves structures credited as providing protection from the 100-year flood on an alluvial fan	☒ Alluvial Fan Flooding Form (Form 12)

Initial Review Fee

- The minimum initial review fee for the appropriate request category has been included.

☒ Yes ☐ No

If yes, the amount submitted is \$ 1,080.00

or

- This request is for a project that is for public benefit and is intended to reduce the flood hazard to existing development in identified flood hazard areas as opposed to planned floodplain development.

☐ Yes ☐ No

REVISION REQUESTOR AND COMMUNITY OFFICIAL FORM

Note: I understand that my signature indicates that all information submitted in support of this request is correct.



Signature of Revision Requestor

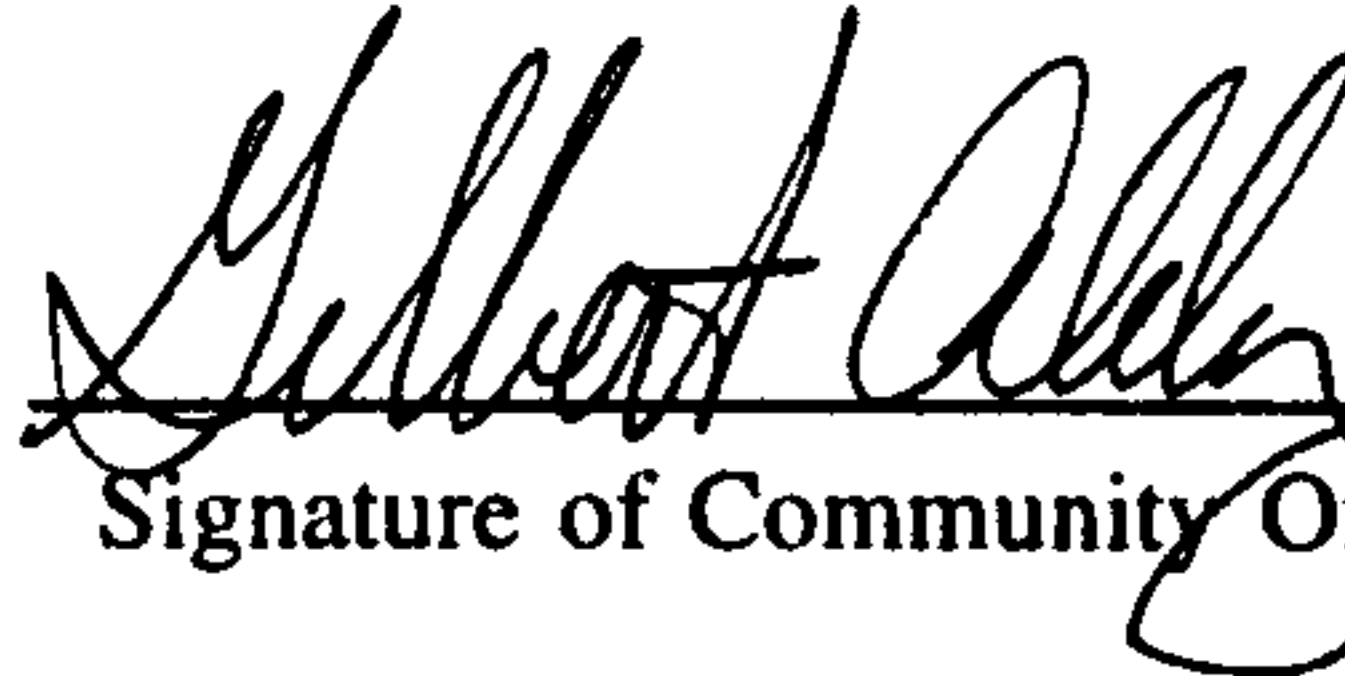
LARRY A. BAIR, EXECUTIVE ENGINEER

Printed Name and Title of Revision Requestor

Albuquerque Metropolitan Arroyo
Flood Control Authority

Company Name

Note: Signature indicates that the community understands, from the revision requestor, the impacts of the revision on flooding conditions in the community.



Signature of Community Official

City / County Floodplain Adm.

Printed Name and Title of Community
Official

City of Albuquerque, New Mexico

Community Name

Date 29 January 1994

Date January 21, 1994

Attach letters from all affected jurisdictions acknowledging revision request and approving changes to floodway, if applicable.

Letters attached at end of Section II.

Note: Although a photograph of physical changes is not required, it may be helpful for FEMA's review.

October 1992

DANIEL W. COOK, CHAIRMAN

PAT D. HIGDON, VICE-CHAIRMAN

RONALD BROWN, SECRETARY-TREASURER

GENEVA MEEKER, ASST. SECRETARY-TREASURER

MICHAEL MURPHY, DIRECTOR

LARRY A. BLAIR

EXECUTIVE ENGINEER



**Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority**

2600 PROSPECT N.E. - ALBUQUERQUE, N.M. 87107

TELEPHONE (505) 864-2215

January 24, 1994

Federal Emergency Management Agency

RE: Conditional Letter of Map Revision (CLOMR): Unser Diversion, Atrisco Business Park

This CLOMR is submitted as a result of a cooperative agreement between two public agencies (the City of Albuquerque and AMAFCA) and several private parties.

The collective effort of these parties is to provide flood protection for, and remove the floodplain from land in a rapidly-developing business park area. Currently, no business development can take place in the area; but because it is in a prime location, all the parties to the agreement have agreed to cooperate in making it developable.

In view of the current economic climate, opportunities for development are frequently presenting themselves to the community; therefore expeditious approval of this CLOMR is requested.

Sincerely,
AMAFCA

Larry A. Blair, P.E.
Executive Engineer

LAB:ij

attachment



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

January 20, 1994

Bob Hendrix, Branch Chief
Region VI, Federal Center
800 North Loop 288
Denton, Texas 76201-3698

RE: REQUEST FOR A CONDITIONAL LETTER OF MAP REVISION FOR THE UNSER
DIVERSION AND ATRISCO BUSINESS PARK, CITY OF ALBUQUERQUE, BERNALILLO
COUNTY, NEW MEXICO, COMMUNITY AND PANEL NO 350002-0027.

Dear Mr. Hendrix:

The purpose of this letter is to request a C L O M R. for the above referenced site. The request consists of a system of ponds and storm drains known as the Unser Diversion. Enclosed with this letter is the following information:

1. The new implemented detailed application and certification forms for requesting revisions to the National Flood Insurance Program (NFIP) maps. Along with the forms is a detailed technical and NFIP-related considerations in a fashion that should facilitate an efficient review.
2. A check for \$1080.00 to begin your review.

Our Community would greatly appreciate your expeditious cursory review and forwarding of this document to Headquarters for their technical review. If you should have any questions concerning this submittal, please do not hesitate to call me at (505) 768-2650.

Cordially,

Gilbert Aldaz, P.E. & L.S.
City/County Floodplain Administrator

xc: Michael K. Buckley, P.E., Chief, Hazard Identification Branch
Laurie Schuller, Easterling & Assoc.
Larry Blair, AMAFCA
File

(WP+1596)



USE THIS AIRBILL FOR SHIPMENTS WITHIN THE CONTINENTAL U.S.A., ALASKA AND HAWAII.
USE THE INTERNATIONAL AIR WAYBILL FOR SHIPMENTS TO PUERTO RICO AND ALL NON U.S. LOCATIONS.
QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL
PACKAGE
TRACKING NUMBER

7135909734

7135909734

SENDER'S COPY

SENDER'S COPY
DROP OFF YOUR PACKAGE AND SAVE

SENDER'S FEDERAL EXPRESS ACCOUNT NUMBER 1 1236-6008-7		Date 1-24-94			
From (Your Name) Please Print Laurie Schuller Company ENTERLINK & ASSOCIATES INC Street Address 10121 CROFT RD NW STE H7 City ALBUQUERQUE NM		Your Phone Number (Very Important) 605-998-8021 Department/Floor No.			
To (Recipient's Name) Please Print Bob Hendrix, Company Region VI, Federal Center Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.) 500 North Loop 288 City Denton, TX		Recipient's Phone Number (Very Important) (817) 898-5162 Department/Floor No.			
YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.) 33243					
PAYMENT 1 ☒ Bill Sender 2 ☐ Bill Recipient's FedEx Acct. No. 3 ☐ Bill 3rd Party FedEx Acct. No. 4 ☐ Bill Credit Card 5 ☐ Cash/Check Acct./Credit Card No. Exp. Date		IF HOLD FOR PICK-UP, Print FEDEX Address Here Street Address City State ZIP Required			
4 SERVICES (Check only one box) Priority Overnight (Delivery by next business morning) 11 ☒ OTHER PACKAGING 16 ☐ FEDEX LETTER 12 ☐ FEDEX PAK* 13 ☐ FEDEX BOX 14 ☐ FEDEX TUBE Economy Two-Day (Delivery by second business day) 30 ☐ ECONOMY* *Economy Letter rate not available. Minimum charge One pound economy rate. Freight Service (for packages over 150 lbs.) 70 ☐ OVERNIGHT FREIGHT** (Continued reservation required) 1 Delivery commitment may be later in some areas.		5 DELIVERY AND SPECIAL HANDLING (Check services required) 1 ☐ HOLD FOR PICK-UP (Fill in Box H) 2 ☐ DELIVER WEEKDAY 3 ☐ DELIVER SATURDAY (Extra charge) (Not available to all locations) 4 ☐ DANGEROUS GOODS (Extra charge) 5 ☐ 6 ☐ DRY ICE (Dangerous Goods Shipper's Declaration not required) Dry Ice: 9 LB 195L X kg 804 LB 7 ☐ OTHER SPECIAL SERVICE 8 ☐ 9 ☐ SATURDAY PICK-UP (Extra charge) 12 ☐ HOLIDAY DELIVERY (If offered) (Extra charge)		6 PACKAGES WEIGHT in Pounds Only YOUR DECLARED VALUE (See right) Total Total Total DIM SHIPMENT (Chargeable Weight) L x W x H 1 LB Required Size 1000 Drop Box 400 BSC 2000 1000 Size State	
SERVICE CONDITIONS, DECLARED VALUE AND LIMIT OF LIABILITY Use of this airbill constitutes your agreement to the service conditions in our current Service Guide, available upon request. See back of sender's copy of this airbill for information. Service conditions may vary for Government Overnight Service. See U.S. Government Service Guide for details. We will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, and document your actual loss for a timely claim. Limitations found in the current Federal Express Service Guide apply. Your right to recover from Federal Express for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the declared value specified to the left. Recovery cannot exceed actual documented loss. The maximum Declared Value for FedEx Letter and FedEx Pak packages is \$500.00. In the event of untimely delivery, Federal Express will at your request and with some limitations refund all transportation charges paid. See Service Guide for further information. Sender authorizes Federal Express to deliver this shipment without obtaining a delivery signature and shall indemnify and hold harmless Federal Express from any claims resulting therefrom.		Federal Express Use Base Charges Declared Value Charge Other 1 Other 2 Total Charges REVISION DATE 11/92 PART #137204 FXEM 2/93 FORMAT #155 155 PRINTED IN U.S.A.			
7 Release Signature					



SUN WEST
BANK

01-21-94

001219

DATE	INVOICE/CREDIT MEMO	TYPE	DESCRIPTION	QTY	DISCOUNT
01-21-94	Atrisco Business Park				
			TOTAL ▶		

THE ATTACHED CHECK IS IN PAYMENT FOR ITEMS DESCRIBED ABOVE

SUNWEST BANK

001219

ALBUQUERQUE, NEW MEXICO 87103

PAY

SHRIMP 1.080 dollars 00 cts

THE ORDER OF

DATE:

Federal Emergency Management Agency

01-21-94

1,080.00

Ed Williams

0001219 107000327 0109618488



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

February 10, 1994

Vance Fossinger
Easterling & Associates
10131 Coors Rd. NW
Suite H7
Albuquerque, NM 87114-4048

RE: ATRISCO BUSINESS PARK, (K10-D23) LETTER DATED 1/25/94.

Dear Mr. Fossinger:

I have no objection to the deletion of the semi-annual inspection of the conservation treatment by the developer. However, the site specific drainage report will require the property owner, as part of his building permit approval, to provide the necessary inspection of the conservation treatment to insure his protection and/or downstream property owners from any damages resulting from lack of maintenance. Additionally, until such time that the land is sold, the existing property owner will be responsible for maintaining the conservation treatment.

I hope this addresses your concerns stated in your letter. If I can be of further assistance, feel free to contact me at 768-2650.

Sincerely,

Fred J. Aguirre, P.E.
City Hydrologist

FJA/d1/WPHYD/7930

c: 'File'

PROJECT TITLE: AtNisco Business Park ZONE ATLAS/DRNG. FILE #: J-9, J-10, K-9, K-10LEGAL DESCRIPTION: Tract T, Lot 2, Parcel A-1, Parcel C, Tract M, Tract L-1CITY ADDRESS: Tract S-1, Unit 2, AtNisco Business ParkENGINEERING FIRM: Eastenling and Associates CONTACT: Vancel FossingerADDRESS: 10131 Coors Rd. NW, Suite 7 PHONE: 898-8021OWNER: Sunwest Bank CONTACT: Ted GarrettADDRESS: 303 Roma Avenue NW PHONE: 828-0552ARCHITECT: N.A. CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: N.A. CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: N.A. CONTACT: _____

ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

☒ YES☐ NO☐ COPY OF CONFERENCE RECAP
SHEET PROVIDED

DRB NO. _____

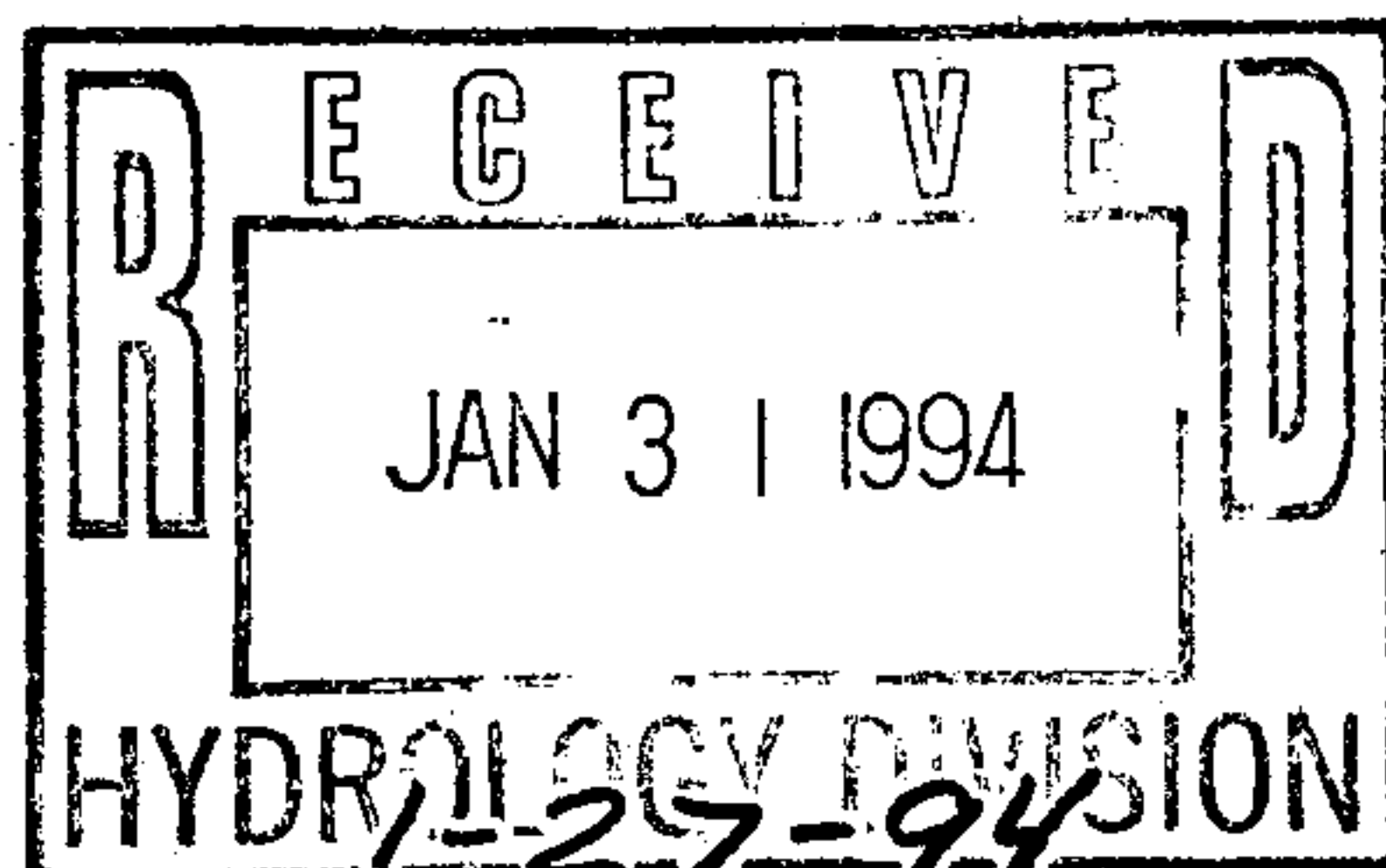
EPC NO. 2-92-57

PROJ. NO. _____

TYPE OF SUBMITTAL:

☒ DRAINAGE REPORT☒ DRAINAGE PLAN☐ CONCEPTUAL GRADING & DRAINAGE PLAN☐ GRADING PLAN☐ EROSION CONTROL PLAN☐ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT APPROVAL☐ PRELIMINARY PLAT APPROVAL☐ SITE DEVELOPMENT PLAN APPROVAL☐ FINAL PLAT APPROVAL☐ BUILDING PERMIT APPROVAL☐ FOUNDATION PERMIT APPROVAL☐ CERTIFICATE OF OCCUPANCY APPROVAL☐ ROUGH GRADING PERMIT APPROVAL☐ GRADING/PAVING PERMIT APPROVAL☒ OTHER amend report (SPECIFY)
approval letter

DATE SUBMITTED: _____

BY: Vancel Fossinger

Easterling & Associates, Inc.

January 25, 1994

10131 Coors Rd., NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 898-8021
FAX (505) 898-8501

Mr. Fred Aguirre
City Hydrologist
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

RE: Master Drainage Plan for the Atrisco Business Park

Dear Mr. Aguirre:

Transmitted with this letter is a final draft copy of the subject report, dated October 1993, to be placed in your file.

Also transmitted is a copy of a letter written by Gilbert Aldaz approving this October 1993 version of this report. The copy of the report that Gilbert reviewed was a "redline edition." "The redline edition" was produced to simplify review of the report by showing where changes had been made from previous editions. The current transmitted copy has had the "redlines" removed.

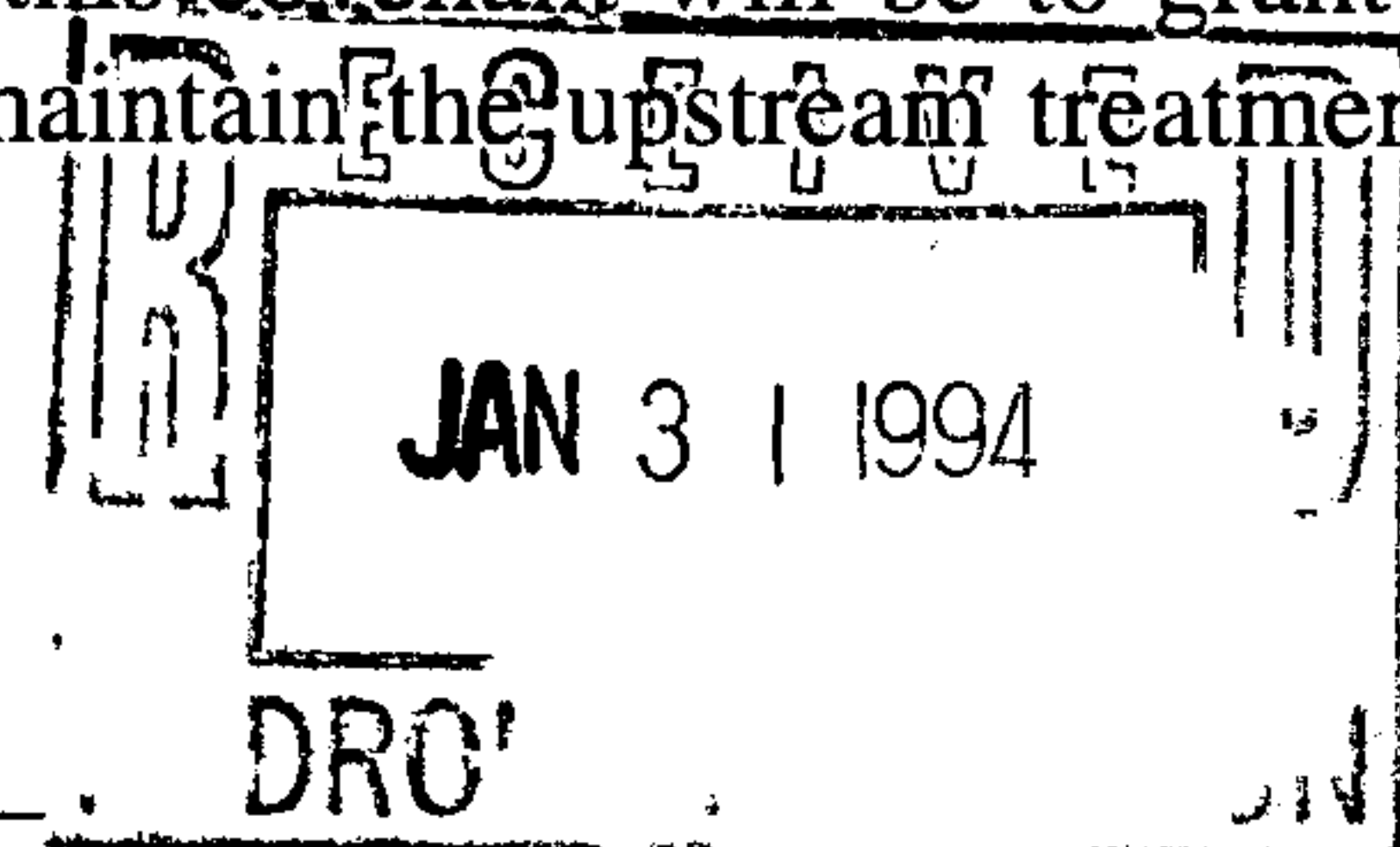
I would like to request a letter amending the January 6, 1994 approval letter written by Gilbert Aldaz. The amendment is requested for the second paragraph of the approval letter. The letter states:

"As for the conservation treatments proposed, the plan must be implemented and maintenance covenants executed prior to release of Building Permits. The covenants should include the developer as responsible for maintenance and should also include semi-annual inspections required by the engineer to assure the plan is being maintained."

The first sentence of the paragraph is consistent with the requirements of the subject report (Page 8) and our previous discussions of the subject. The second sentence of the paragraph is not consistent with the requirements of the subject report or my recollection of our previous discussions about the subject.

The approved plan for the conservation treatment "Atrisco Business Park Tracts 'S-1' and 'M' Unit 2, Interim Drainage Treatment Plan" includes the following conditions of approval:

1. A covenant between affected property owners in the watershed will be required at the time of building permit application. The purpose of this covenant will be to grant the property owners within the watershed the ability to maintain the upstream treatment which protects their property from offsite drainage.



Mr. Fred Aguirre
January 25, 1994
Page 2

2. Evaluation and certification of the condition of the treatment and its ability to control the offsite flows to a developing property would be done, as a part of the drainage plan required for building permit application, by the developing property engineer.
3. The owner shall maintain the drainage facility at the owner's sole expense until such time that the covenants between affected property owner's is executed.
4. The city shall have no duty or obligation whatsoever to perform any inspection, maintenance, or repair of the drainage facility, it being the owner, its heirs, successors and assignees responsibility to construct and maintain these interim facilities.

These conditions are acceptable to our client, Sunwest Bank. The requirement for semiannual inspections of the proposed treatment by the Engineer is not. It was my understanding that Condition 2 above was to be the criteria for inspection and certification of the conservation treatment.

Please provide a written response to this letter. Please call me if you have questions or comments I can address over the phone.

Sincerely,



Vancel Fossinger
Staff Engineer

VSF/das
Job No. 3326

cc: Pat Romo, Sunwest Bank
Ted Garrett, Garrett Group, Inc.

Attachments



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

January 6, 1994

RECEIVED
JAN 10 1994

Vancel Fossinger
Easterling & Associates
10131 Coors Road
Suite H-7
Albuquerque, NM 87114-4048

RE: REVISED DRAINAGE REPORT FOR ATRISCO BUSINESS PARK, (K10/D23),
ENGINEER'S STAMP DATED OCTOBER 22, 1993.

Dear Mr. Fossinger:

Based on the drainage information provided, the above referenced Master
Drainage Plan is acceptable for Site Plan.

As for the conservation treatments proposed, the plan must be implemented and
maintenance covenants executed prior to release of Building Permits. The
covenants should include the developer as responsible for maintenance and
should also include semi-annual inspections required by the engineer to assure
the plan is being maintained.

If you should have any questions, please do not hesitate to contact me at
768-2666.

Cordially,

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

xc: Fred Aguirre, City Hydrologist
Ted Garrett, the Garrett Group Inc.
File

wp+3739

PUBLIC WORKS DEPARTMENT

Easterling & Associates, Inc.
10131 Coors Rd., NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 898-8021 FAX (505) 898-8501

☒ DELIVERY ☐ PICK UP ☐ OTHER _____

ACTION REQUIRED BY: DATE 1-27-94 TIME _____

JOB NAME Sunwest Misc JOB NO. 3326 PHASE _____

REQUESTED BY: USF APPROVED BY: _____

COMPANY NAME: C.O.A. Hydrology

ADDRESS: _____

ATTENTION: Fred Aguirre TELEPHONE: _____

ITEM DESCRIPTION: letter of transmittal & attachment
items, Drainage Info sheet

SPECIAL INSTRUCTIONS: _____

RECEIVED

JAN 31 1994

RECEIVED BY: _____ HYDROLOGY DIVISION

COMPANY: _____ DATE _____ TIME _____

BOHANNAN-HUSTON INC.

COURTYARD 1, 7500 JEFFERSON STREET, N.E., ALBUQUERQUE, NM 87109.
TEL (505) 823-1000 FAX (505) 821-0892

January 19, 1994

Gilbert Aldaz, P.E.
City/County Floodplain Administrator
City of Albuquerque
Hydrology Division
3rd Floor
P.O. Box 1293
Albuquerque, NM 87103

Re: CLOMR Application of Unser Diversion

Dear Gilbert:

I have reviewed the second draft of the CLOMR Application prepared by Easterling & Associates. The application seems to be in good form, and my comments in a letter dated December 8, 1994 have been substantially addressed. I recommend at this time that you sign and send the application on to FEMA for their review.

Please check with Easterling & Associates to see if a letter of recommendation is still necessary from AMAFCA. It is still listed in the table of contents along with a letter from the City.

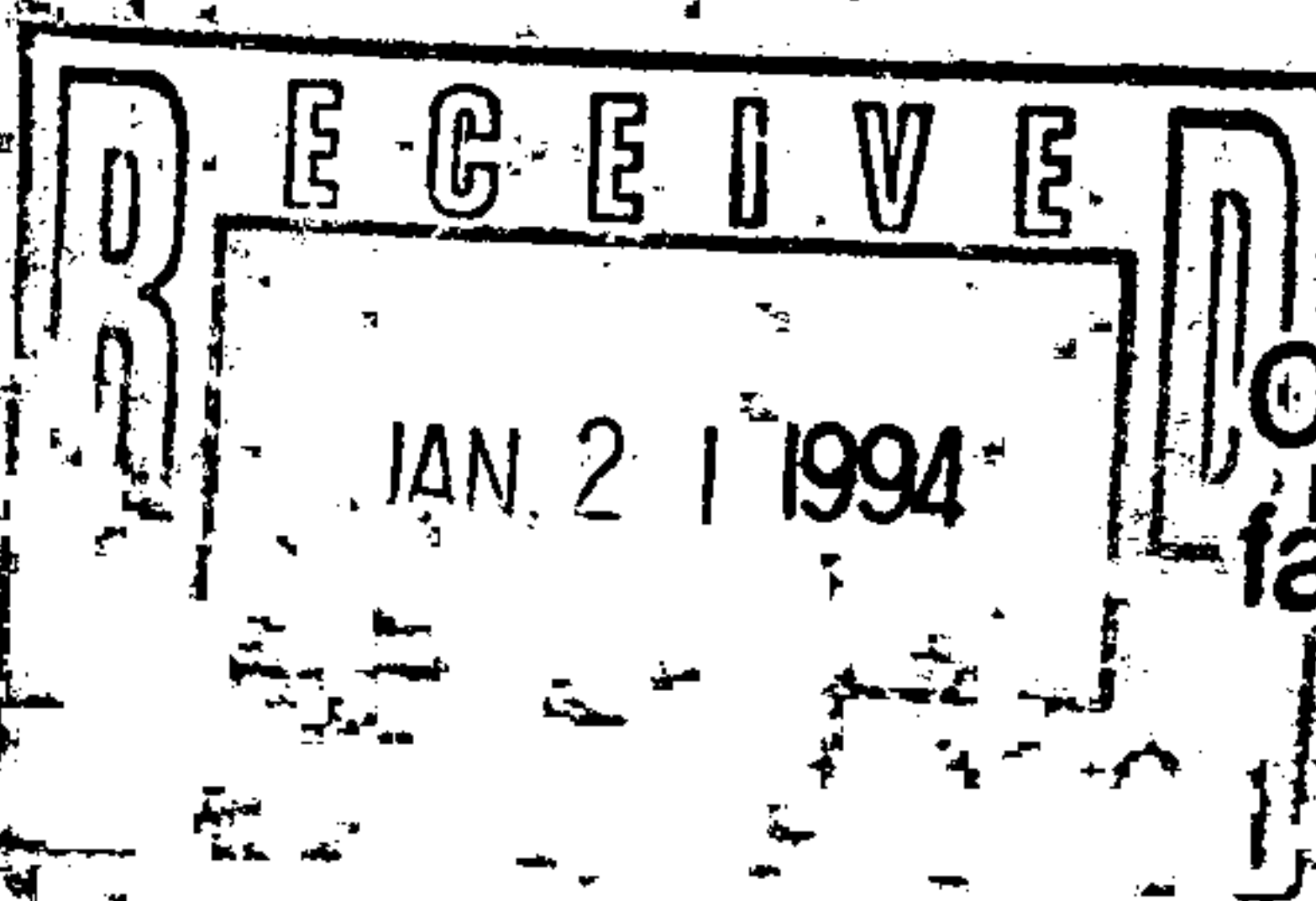
Should you have any questions with respect to this CLOMR, please call at your earliest convenience.

Sincerely,

Howard C. Stone, P.E.
Water Resources Manager

HCS/rkl

cc: Laurie Schuller
Larry Blair



Copy transmitted by
fax on 1-19-94

j:\hydro\9027622\aldaz.ltr-1/19/94

PRINCIPALS

LARRY W. HUSTON, C.P.

MICHAEL M. EMERY, P.E.

BRIAN G. BURNETT, P.E.

KERRY L. DAVIS, P.E.

LARRY A. LARRANAGA, P.E.

HOWARD C. STONE, P.E.

WILLIAM L. VREEKE, P.E.

GORDON A. WALHOOD JR., P.E.



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

January 20, 1994

Bob Hendrix, Branch Chief
Region VI, Federal Center
800 North Loop 288
Denton, Texas 76201-3698

RE: REQUEST FOR A CONDITIONAL LETTER OF MAP REVISION FOR THE UNSER
DIVERSION AND ATRISCO BUSINESS PARK, CITY OF ALBUQUERQUE, BERNALILLO
COUNTY, NEW MEXICO, COMMUNITY AND PANEL NO 350002-0027.

Dear Mr. Hendrix:

The purpose of this letter is to request a C L O M R. for the above referenced site. The request consists of a system of ponds and storm drains known as the Unser Diversion. Enclosed with this letter is the following information:

1. The new implemented detailed application and certification forms for requesting revisions to the National Flood Insurance Program (NFIP) maps. Along with the forms is a detailed technical and NFIP-related considerations in a fashion that should facilitate an efficient review.
2. A check for \$1080.00 to begin your review.

Our Community would greatly appreciate your expeditious cursory review and forwarding of this document to Headquarters for their technical review. If you should have any questions concerning this submittal, please do not hesitate to call me at (505) 768-2650.

Cordially,

Gilbert Aldaz, P.E. & L.S.
City/County Floodplain Administrator

xc: Michael K. Buckley, P.E., Chief, Hazard Identification Branch
Laurie Schuller, Easterling & Assoc.
Larry Blair, AMAFCA
File

(WP+1596)

PUBLIC WORKS DEPARTMENT

REVISION REQUESTOR AND COMMUNITY OFFICIAL FORM

Note: I understand that my signature indicates that all information submitted in support of this request is correct.

Signature of Revision Requestor

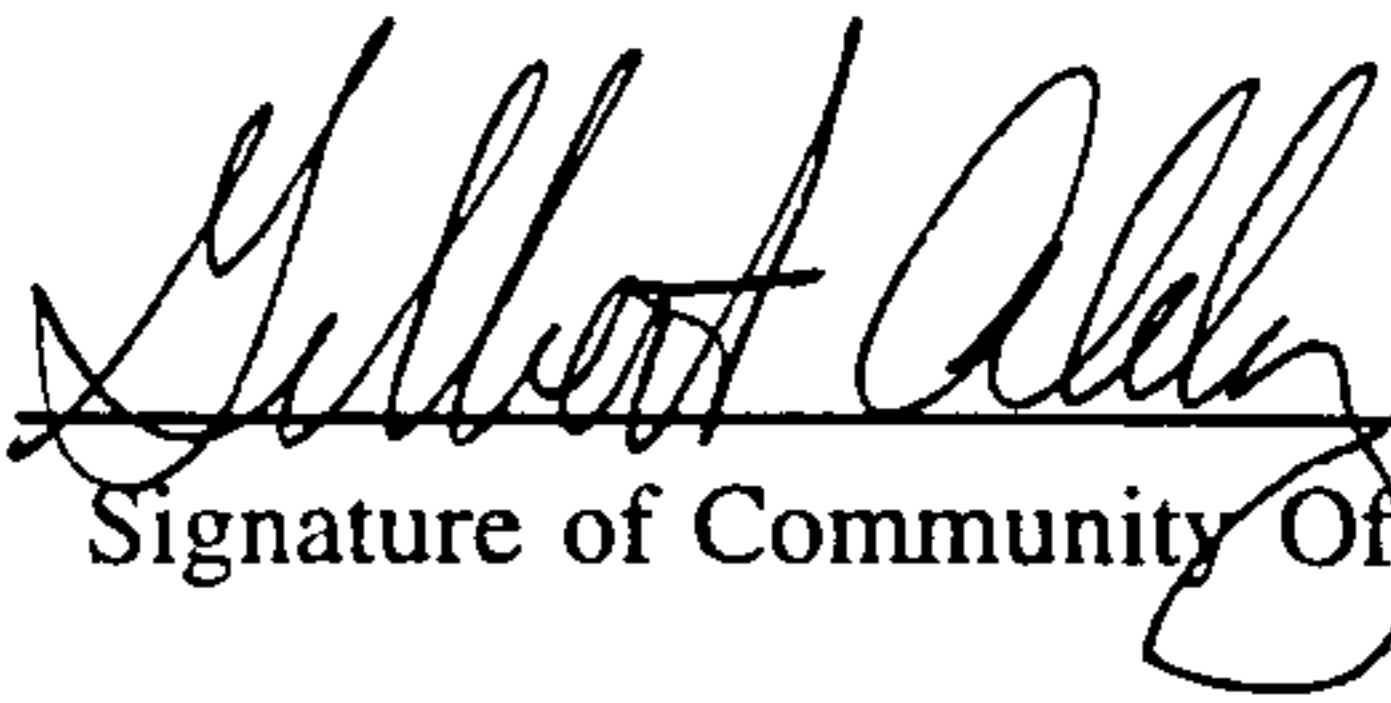
Printed Name and Title of Revision Requestor

**Albuquerque Metropolitan Arroyo
Flood Control Authority**

Company Name

Date _____

Note: Signature indicates that the community understands, from the revision requestor, the impacts of the revision on flooding conditions in the community.



Signature of Community Official

City / County Floodplain Adm.

Printed Name and Title of Community
Official

City of Albuquerque, New Mexico

Community Name

Date *January 21, 1994*

Attach letters from all affected jurisdictions acknowledging revision request and approving changes to floodway, if applicable.

Letters attached at end of Section II.

Note: Although a photograph of physical changes is not required, it may be helpful for FEMA's review.

October 1992

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Clifford West Business Park ZONE ATLAS/DRNG, FILE#: K10/D23
DRB #: 97-138 EPC #: S-97-21 WORK ORDER #: _____
LEGAL DESCRIPTION: ATRISCO BUSINESS PARK, UNIT 2, TRACT K-1 and
CITY ADDRESS: UNSER DIVERSION CHANNEL CORRIDOR J-1, TOWN OF ATRISCO
GRANT
ENGINEERING FIRM: Mark Goodwin + Assoc. PA CONTACT: Diane Hoelzer
ADDRESS: P.O. Box 90606 ABQ 87199 PHONE: 828-2200
OWNER: Grayland Inc. CONTACT: Jack Clifford
ADDRESS: P.O. Box 35640 ABQ 87176 PHONE: 881-0900
ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

☒ DRAINAGE REPORT
☒ DRAINAGE PLAN
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☒ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERTIFICATION
☐ OTHER

PRE-DESIGN MEETING:

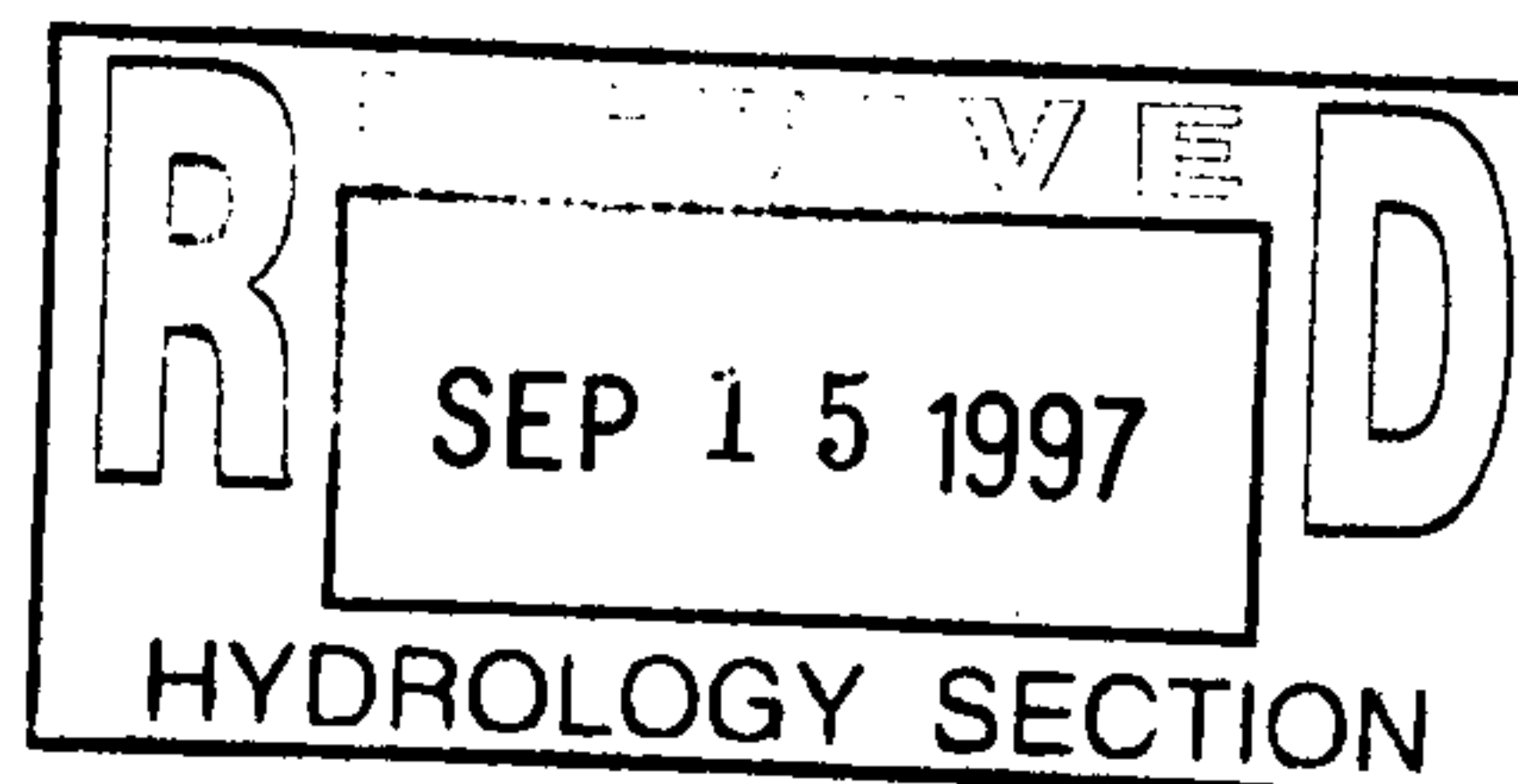
☐ YES
☐ NO
☐ COPY PROVIDED

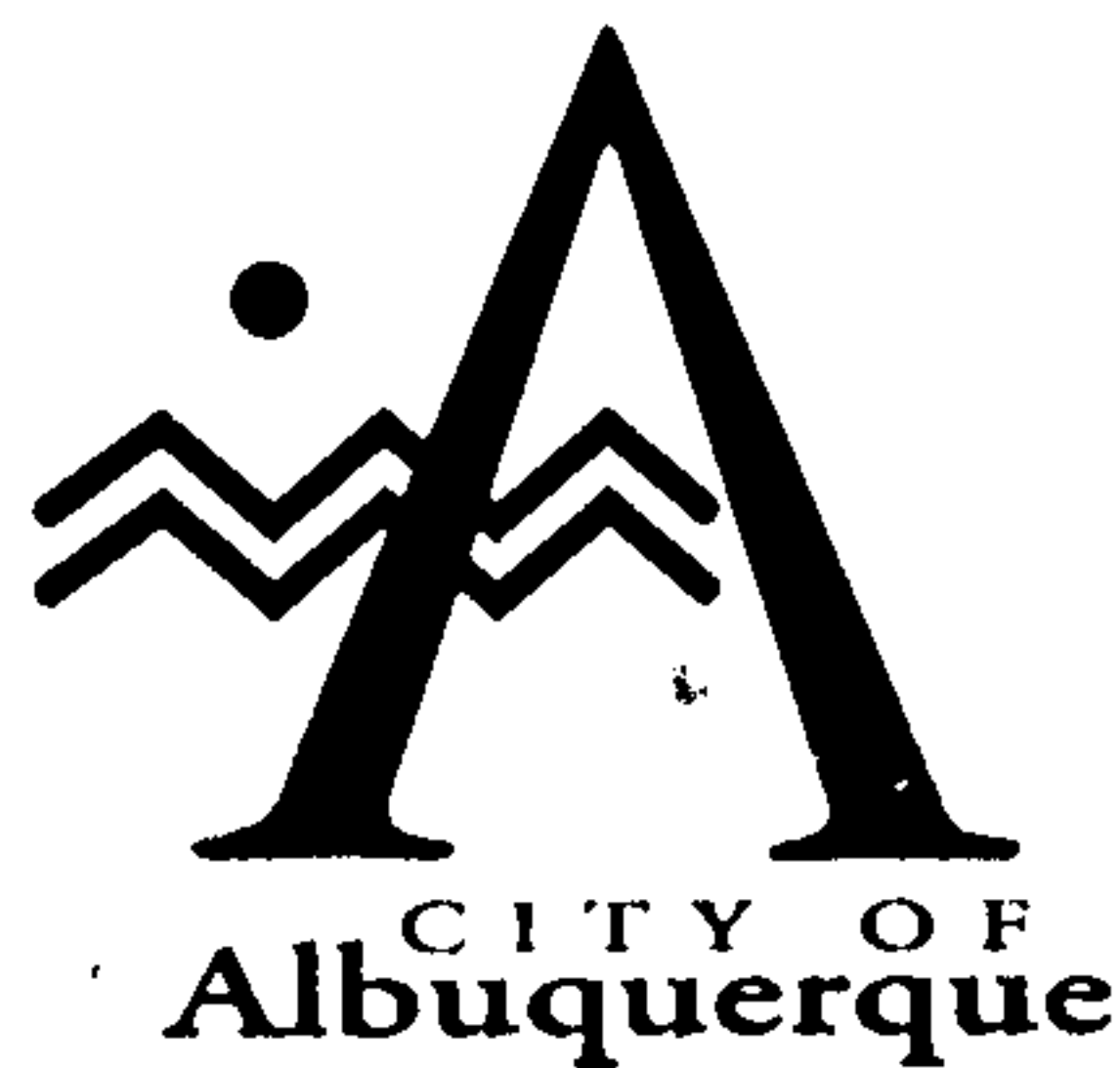
CHECK TYPE OF APPROVAL SOUGHT:

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

DATE SUBMITTED: 9-15-97

BY: Diane Hoelzer





Martin J. Chávez, Mayor

September 2, 1997

Diane Hoelzer
D. Mark Goodwin & Associates
P.O. Box 90606
Albuquerque, New Mexico 87199

RE: DRAINAGE PLAN FOR CLIFFORD WEST BUSINESS PARK (K10-D23) ENGINEER'S
STAMP DATED 7/30/97

Dear Ms. Hoelzer:

Based on the information provided on your July 30, 1997 submittal, listed are some concerns that will need to be addressed prior to Preliminary Plat and Grading approval:

1. Where do you propose to install the stub-outs from each lot? Glenn Jurgensen from Arroyo Maintenance will need to review your concept.
2. You will need to extend the proposed drainage easement further into lot 9.
3. Please identify all the easements shown on the plan drawing.
4. Proposed inlets on Unser must be "A"s.
5. Proposed drainage easements must be private.
6. Top of curb and flowline elevations on all the streets.
7. Please label the existing contours and the proposed if you are also seeking a Grading Permit.
8. What type of erosion and sediment control do you propose within the proposed 12" inch deep detention ditch on the south side of Los Volcanes Rd.. You will need Traffic concurrence.
9. Copy of the new infrastructure list.

Good for You, Albuquerque!



If I can be of further assistance, please feel free to contact me at 924-3986.

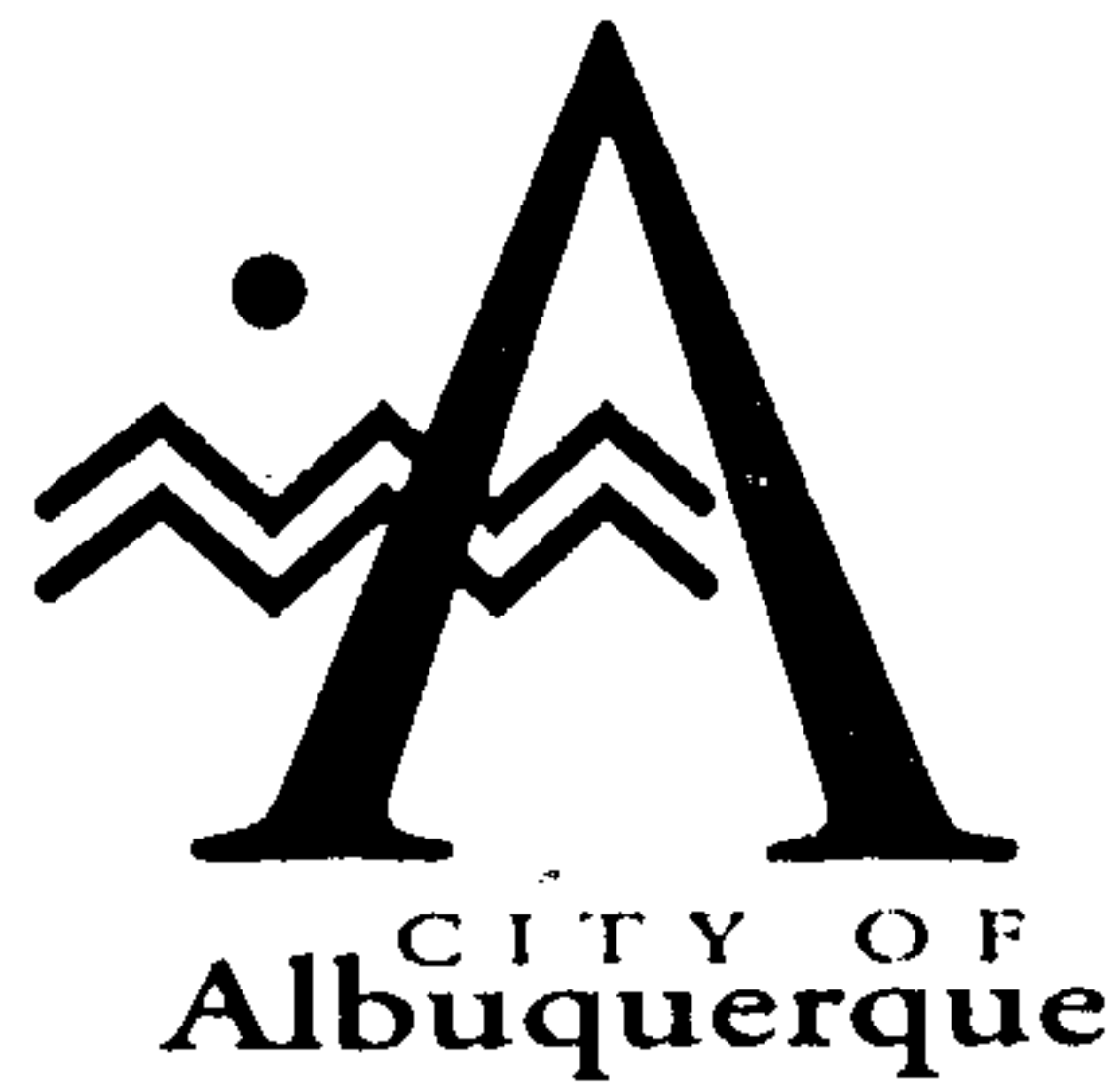
C: Andrew Garcia

File

Sincerely

A handwritten signature in cursive script, reading "Bernie J. Montoya".

Bernie J. Montoya CE
Associate Engineer



Martin J. Chávez, Mayor
October 8, 1997

Diane Hoelzer
D. Mark Goodwin & Associates
P.O. Box 90606
Albuquerque, New Mexico 87199

RE: REVISED DRAINAGE PLAN FOR CLIFFORD WEST BUSINESS PARK (K10-D23)
REVISION DATED 9/12/97

Dear Ms. Hoelzer:

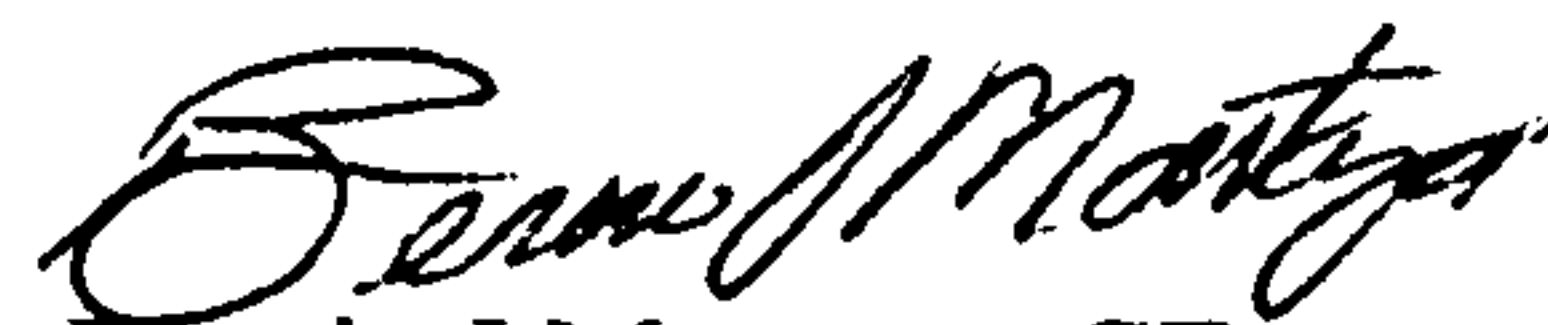
Based on the information provided on your September 15, 1997 resubmittal, the above referenced site is approved for Preliminary and Final Plat.

Also, please be advised that a site specific drainage plan for each lot will be required prior to Building Permit release.

If I can be of further assistance, please feel free to contact me at 924-3986.

C: Andrew Garcia
☒ File

Sincerely


Bernie J. Montoya CE
Associate Engineer



1

3/ 9/98 17:13:18

PAGE 10

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 5

CCHV= .100 CEHV= .300

*SECNO 1.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

1.00	.30	.30	.30	.00	.36	.06	.00	.00	1.00
6.	0.	6.	0.	0.	3.	0.	0.	0.	1.00
.00	.00	1.96	.00	.000	.017	.000	.000	.00	9.96
.009899	0.	0.	0.	0	14	7	.00	26.70	50.04

0

1

3/ 9/98 17:13:18

PAGE 11

THIS RUN EXECUTED 3/ 9/98 17:13:18

HEC2 RELEASE DATED SEP 88 UPDATED APR 1989

ERROR CORR - 01,02
MODIFICATION -

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FILE:40FFCLIF.DAT (1

SUMMARY PRINTOUT

Q	CWSEL	CRIWS	VCH	TOPWID	FRCH	EG
7.880	.31	.33	2.50	27.90	1.57	.40
4.240	.29	.00	1.50	26.29	1.00	.33
12.810	.34	.39	3.10	32.13	1.71	.49

5.210	.32	.00	1.48	29.60	.88	.35
5.690	.30	.30	1.96	26.70	1.28	.36

1 3/ 9/98 17:13:18 PAGE 12

SUMMARY OF ERRORS AND SPECIAL NOTES

**Type 'C' Sump Inlets Calculations
For Saul Bell Road**

Capacity is measured by the weir equation at the lip of the gutter assuming an allowable ponding elevation which is 0.67' (or top of curb elevation). The length of the grate facing the street is 2.95' with a corresponding ponding depth of 0.54' (at top of curb). The side width is 2.0' with a corresponding average ponding depth of 0.604'.

With these values and the using the weir equation, the design capacity for the two type 'C' grates is:

Front: $Q_{cap} = 3.0 \times 2.95' \times (.54')^{1.5} = 3.51 \text{ cfs}$

Sides: $Q_{cap} = 3.0 \times 2.0' \times (.604')^{1.5} \times (2 \text{ sides}) = 5.63 \text{ cfs}$

$\text{Design } Q_{cap} (\text{per inlet}) = 9.14 \text{ cfs}$

Total Design Capacity (2 inlets) $Q(\text{design}) = 18.28 \text{ cfs}$

$Q(100 \text{ yr.}) = 4.24 \text{ cfs}$

The storm drain has the capacity to handle twice the 4.24 cfs flow (or 8.48 cfs) and thus an emergency overflow spillway is not necessary.

1
HYDRAULIC REPORT FOR

0
CLIFFORD WEST BUS. PARK

@ UNSER AND BLUEWATER

100 YR 6 HR STORM

DMG & ASSOCIATES

MARCH 1998

BY: DLH

Run date: 03-10-1998
File: CLIFF.ST3

Return Period = 100 Yrs
Rainfall file: Your_County

LINE 1 / Q = 58.0 / HT = 36 / WID = 36 / N = .013 / L = 99 / JLC = .05

EXMH 1 - EXMH 2 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	12.00	36.00	6.41	8.21	13.05	0.00	5.73	7.07
UPSTRM	12.75	36.00	7.86	8.21	13.79	0.00	5.6	7.07

Drainage area (ac) =	0	Slope of invert (%)	= 1.465
Runoff coefficient =	0	Slope energy grade line (%)	= 0.756
Time of conc (min) =	13	Critical depth (in)	= 29.12
Inlet time (min) =	0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr) =	0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A =	0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs) =	58	Confluence angle (deg)	= 0
Default Q (cfs) =	58	Natural ground elev (ft)	= 16.47
Line capac. (cfs) =	80.7	Line storage (cuft)	= 700

LINE 2 / Q = 46.6 / HT = 36 / WID = 36 / N = .013 / L = 299.75 / JLC = .05

EXMH 2 - MH 14 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	12.80	36.00	7.86	6.59	13.48	0.00	5.6	7.07
UPSTRM	14.16	35.67	11.19	6.60	14.84	6.86	6.01	7.06

Drainage area (ac) = 0	Slope of invert (%) = 1.111
Runoff coefficient = 0	Slope energy grade line (%) = 0.455
Time of conc (min) = 11	Critical depth (in) = 26.10
Inlet time (min) = 0	Req'd length curb inlet (ft) = 0.0
Intensity (in/hr) = 0.00	Req'd grate area (sf) = 0.0
Cumulative C*A = 0.0	Depth at inlet opening (in) = 0
Flow contrib (cfs) = 46.5	Confluence angle (deg) = 0
Default Q (cfs) = 46.6	Natural ground elev (ft) = 20.2
Line capac. (cfs) = 70.3	Line storage (cuft) = 2117

LINE 3 / Q = 46.6 / HT = 30 / WID = 30 / N = .013 / L = 244.07 / JLC = .05

MH 14 - MH 13 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	14.20	30.00	11.24	9.50	15.60	0.00	6.46	4.91
UPSTRM	17.35	30.00	13.70	9.49	18.75	0.00	6.75	4.91

Drainage area (ac) = 0	Slope of invert (%) = 1.008
Runoff coefficient = 0	Slope energy grade line (%) = 1.291
Time of conc (min) = 10	Critical depth (in) = 27.45
Inlet time (min) = 0	Req'd length curb inlet (ft) = 0.0
Intensity (in/hr) = 0.00	Req'd grate area (sf) = 0.0
Cumulative C*A = 0.0	Depth at inlet opening (in) = 0
Flow contrib (cfs) = 46.5	Confluence angle (deg) = 0
Default Q (cfs) = 46.6	Natural ground elev (ft) = 22.96
Line capac. (cfs) = 41.2	Line storage (cuft) = 1198

LINE 4 / Q = 42.4 / HT = 30 / WID = 30 / N = .013 / L = 356.84 / JLC = .05

MH 13 - MH 12 / DNLN = 3

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	17.42	30.00	13.75	8.64	18.58	0.00	6.7	4.91
UPSTRM	21.24	30.00	17.35	8.64	22.40	0.00	7.72	4.91

Drainage area (ac) = 0	Slope of invert (%) = 1.009
Runoff coefficient = 0	Slope energy grade line (%) = 1.070
Time of conc (min) = 8	Critical depth (in) = 26.55
Inlet time (min) = 0	Req'd length curb inlet (ft) = 0.0
Intensity (in/hr) = 0.00	Req'd grate area (sf) = 0.0
Cumulative C*A = 0.0	Depth at inlet opening (in) = 0
Flow contrib (cfs) = 42.4	Confluence angle (deg) = 0
Default Q (cfs) = 42.42	Natural ground elev (ft) = 27.58
Line capac. (cfs) = 41.2	Line storage (cuft) = 1751

LINE 5 / Q = 40.1 / HT = 30 / WID = 30 / N = .013 / L = 288.73 / JLC = .1

MH 12 - MH 11 / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	21.30	30.00	17.40	8.16	22.33	0.00	7.68	4.91
UPSTRM	24.05	30.00	20.31	8.16	25.09	0.00	7.46	4.91

Drainage area (ac) =	0	Slope of invert (%)	=	1.008
Runoff coefficient =	0	Slope energy grade line (%)	=	0.954
Time of conc (min) =	6	Critical depth (in)	=	25.38
Inlet time (min) =	0	Req'd length curb inlet (ft)	=	0.0
Intensity (in/hr) =	0.00	Req'd grate area (sf)	=	0.0
Cumulative C*A =	0.0	Depth at inlet opening (in)	=	0
Flow contrib (cfs) =	40	Confluence angle (deg)	=	0
Default Q (cfs) =	40.06	Natural ground elev (ft)	=	30.27
Line capac. (cfs) =	41.2	Line storage (cuft)	=	1417

LINE 6 / Q = 20.7 / HT = 24 / WID = 24 / N = .013 / L = 241 / JLC = .05

MH 11-END BLUE / DNLN = 5

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	24.15	24.00	20.81	6.59	24.83	0.00	7.46	3.14
UPSTRM	27.66	19.35	26.00	7.63	28.56	18.97	5.4	2.71

Drainage area (ac) =	0	Slope of invert (%)	= 2.154
Runoff coefficient =	0	Slope energy grade line (%)	= 1.548
Time of conc (min) =	0	Critical depth (in)	= 19.33
Inlet time (min) =	0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr) =	0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A =	0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs) =	20.7	Confluence angle (deg)	= 0
Default Q (cfs) =	20.7	Natural ground elev (ft)	= 33.4
Line capac. (cfs) =	33.2	Line storage (cuft)	= 706

LINE 7 / Q = 19.4 / HT = 24 / WID = 24 / N = .013 / L = 26.45 / JLC = .05

MH 11 - MH 10 / DNLN = 5

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	24.15	24.00	20.81	6.18	24.75	0.00	7.46	3.14
UPSTRM	24.35	24.00	20.94	6.18	24.94	0.00	7.18	3.14

Drainage area (ac) =	0	Slope of invert (%)	= 0.491
Runoff coefficient =	0	Slope energy grade line (%)	= 0.736
Time of conc (min) =	6	Critical depth (in)	= 18.71
Inlet time (min) =	0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr) =	0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A =	0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs) =	19.3	Confluence angle (deg)	= -90
Default Q (cfs) =	19.4	Natural ground elev (ft)	= 30.13
Line capac. (cfs) =	15.9	Line storage (cuft)	= 83

LINE 8 / Q = 12.0 / HT = 24 / WID = 24 / N = .013 / L = 187.14 / JLC = .05

MH 10 - MH 9 / DNLN = 7

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	24.38	24.00	20.99	3.82	24.61	0.00	7.13	3.14
UPSTRM	24.91	24.00	21.97	3.82	25.13	0.00	8.71	3.14

Drainage area (ac) =	0	Slope of invert (%)	= 0.524
Runoff coefficient =	0	Slope energy grade line (%)	= 0.282
Time of conc (min) =	5	Critical depth (in)	= 14.72
Inlet time (min) =	0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr) =	0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A =	0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs) =	12	Confluence angle (deg)	= 0
Default Q (cfs) =	12	Natural ground elev (ft)	= 32.69
Line capac. (cfs) =	16.4	Line storage (cuft)	= 588

LINE 9 / Q = 11.6 / HT = 24 / WID = 24 / N = .013 / L = 135 / JLC = .05

MH 9 - MH 8 /, DNLN = 8

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	24.92	24.00	22.02	3.68	25.13	0.00	8.66	3.14
UPSTRM	25.27	24.00	22.69	3.68	25.48	0.00	10.15	3.14

Drainage area (ac) = 0	Slope of invert (%) = 0.496
Runoff coefficient = 0	Slope energy grade line (%) = 0.262
Time of conc (min) = 5	Critical depth (in) = 14.45
Inlet time (min) = 0	Req'd length curb inlet (ft) = 0.0
Intensity (in/hr) = 0.00	Req'd grate area (sf) = 0.0
Cumulative C*A = 0.0	Depth at inlet opening (in) = 0
Flow contrib (cfs) = 11.5	Confluence angle (deg) = 0
Default Q (cfs) = 11.57	Natural ground elev (ft) = 34.85
Line capac. (cfs) = 15.9	Line storage (cuft) = 424

LINE 10 / Q = 11.1 / HT = 24 / WID = 24 / N = .013 / L = 94.2 / JLC = .05

MH 8 - MH 7 / DNLN = 9

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	25.28	24.00	22.74	3.53	25.48	0.00	10.1	3.14
UPSTRM	25.51	24.00	23.21	3.53	25.70	0.00	11.13	3.14

Drainage area (ac) = 0	Slope of invert (%) = 0.499
Runoff coefficient = 0	Slope energy grade line (%) = 0.240
Time of conc (min) = 4	Critical depth (in) = 14.15
Inlet time (min) = 0	Req'd length curb inlet (ft) = 0.0
Intensity (in/hr) = 0.00	Req'd grate area (sf) = 0.0
Cumulative C*A = 0.0	Depth at inlet opening (in) = 0
Flow contrib (cfs) = 11	Confluence angle (deg) = 0
Default Q (cfs) = 11.09	Natural ground elev (ft) = 36.35
Line capac. (cfs) = 16.0	Line storage (cuft) = 296

LINE 11 / Q = 10.0 / HT = 24 / WID = 24 / N = .013 / L = 161.9 / JLC = .1

MH 7 - MH 5 / DNLN = 10

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	25.52	24.00	23.26	3.18	25.68	0.00	11.08	3.14
UPSTRM	25.80	20.73	24.07	3.47	25.98	16.47	12.84	2.88

Drainage area (ac) =	0	Slope of invert (%)	=	0.500
Runoff coefficient =	0	Slope energy grade line (%)	=	0.191
Time of conc (min) =	3	Critical depth (in)	=	13.44
Inlet time (min) =	0	Req'd length curb inlet (ft)	=	0.0
Intensity (in/hr) =	0.00	Req'd grate area (sf)	=	0.0
Cumulative C*A =	0.0	Depth at inlet opening (in)	=	0
Flow contrib (cfs) =	10	Confluence angle (deg)	=	0
Default Q (cfs) =	10	Natural ground elev (ft)	=	38.92
Line capac. (cfs) =	16.0	Line storage (cuft)	=	488

LINE 12 / Q = 4.0 / HT = 18 / WID = 18 / N = .013 / L = 157.3 / JLC = .05

MH 5 - MH 4 / DNLN = 11

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	25.82	14.35	24.62	2.59	25.92	14.01	12.79	1.54
UPSTRM	29.93	9.17	29.17	4.41	30.24	18.00	10.74	0.91

Drainage area (ac) =	0	Slope of invert (%) =	2.893
Runoff coefficient =	0	Slope energy grade line (%) =	2.744
Time of conc (min) =	2	Critical depth (in) =	9.15
Inlet time (min) =	0	Req'd length curb inlet (ft) =	0.0
Intensity (in/hr) =	0.00	Req'd grate area (sf) =	0.0
Cumulative C*A =	0.0	Depth at inlet opening (in) =	0
Flow contrib (cfs) =	3.9	Confluence angle (deg) =	0
Default Q (cfs) =	3.99	Natural ground elev (ft) =	41.42
Line capac. (cfs) =	17.9	Line storage (cuft) =	192

LINE 13 / Q = 3.6 / HT = 18 / WID = 18 / N = .013 / L = 138.81 / JLC =
.05

MH 4 - MH 3 / DNLN = 12

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	29.95	8.75	29.22	4.14	30.22	18.00	10.69	0.86
UPSTRM	33.96	8.68	33.24	4.22	34.24	17.99	8.87	0.84

Drainage area (ac) =	0	Slope of invert (%)	= 2.896
Runoff coefficient =	0	Slope energy grade line (%)	= 2.899
Time of conc (min) =	1	Critical depth (in)	= 8.64
Inlet time (min) =	0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr) =	0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A =	0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs) =	3.5	Confluence angle (deg)	= 0
Default Q (cfs) =	3.56	Natural ground elev (ft)	= 43.62
Line capac. (cfs) =	17.9	Line storage (cuft)	= 118

LINE 14 / Q = 2.3 / HT = 18 / WID = 18 / N = .013 / L = 128.4 / JLC = .05

MH 3 - MH 2 / DNLN = 13

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	33.98	8.24	33.29	2.84	34.10	17.95	8.82	0.80
UPSTRM	37.58	6.94	37.00	3.63	37.78	17.52	7.29	0.63

Drainage area (ac) =	0	Slope of invert (%) =	2.889
Runoff coefficient =	0	Slope energy grade line (%) =	2.867
Time of conc (min) =	1	Critical depth (in) =	6.91
Inlet time (min) =	0	Req'd length curb inlet (ft) =	0.0
Intensity (in/hr) =	0.00	Req'd grate area (sf) =	0.0
Cumulative C*A =	0.0	Depth at inlet opening (in) =	0
Flow contrib (cfs) =	2.2	Confluence angle (deg) =	0
Default Q (cfs) =	2.28	Natural ground elev (ft) =	45.8
Line capac. (cfs) =	17.9	Line storage (cuft) =	92

LINE 15 / Q = 1.1 / HT = 18 / WID = 18 / N = .013 / L = 131.4 / JLC = .05

MH 2 - MH 1 / DNLN = 14

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	37.59	6.46	37.05	1.96	37.65	17.34	7.25	0.59
UPSTRM	41.27	4.92	40.85	2.94	41.40	16.04	6.38	0.39

Drainage area (ac) =	0	Slope of invert (%)	= 2.892
Runoff coefficient =	0	Slope energy grade line (%)	= 2.856
Time of conc (min) =	0	Critical depth (in)	= 4.91
Inlet time (min) =	0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr) =	0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A =	0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs) =	1.1	Confluence angle (deg)	= 0
Default Q (cfs) =	1.15	Natural ground elev (ft)	= 48.73
Line capac. (cfs) =	17.9	Line storage (cuft)	= 64

LINE 16 / Q = 5.6 / HT = 18 / WID = 18 / N = .013 / L = 214.9 / JLC = .05

MH 5 - MH 6 / DNLN = 11

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	25.82	14.35	24.62	3.62	26.02	14.01	12.79	1.54
UPSTRM	26.61	10.91	25.70	4.98	26.99	17.59	10.93	1.12

Drainage area (ac) =	0	Slope of invert (%)	= 0.503
Runoff coefficient =	0	Slope energy grade line (%)	= 0.454
Time of conc (min) =	1	Critical depth (in)	= 10.82
Inlet time (min) =	0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr) =	0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A =	0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs) =	5.5	Confluence angle (deg)	= -90
Default Q (cfs) =	5.58	Natural ground elev (ft)	= 38.13
Line capac. (cfs) =	7.4	Line storage (cuft)	= 286

LINE 17 / Q = 4.2 / HT = 18 / WID = 18 / N = .013 / L = 197 / JLC = .05

MH 6 - MH 15 / DNLN = 16

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	26.63	10.54	25.75	3.91	26.87	17.71	10.88	1.08
UPSTRM	27.68	9.44	26.88	4.52	28.00	17.98	5	0.94

Drainage area (ac) =	0	Slope of invert (%) =	0.574
Runoff coefficient =	0	Slope energy grade line (%) =	0.567
Time of conc (min) =	0	Critical depth (in) =	9.43
Inlet time (min) =	0	Req'd length curb inlet (ft) =	0.0
Intensity (in/hr) =	0.00	Req'd grate area (sf) =	0.0
Cumulative C*A =	0.0	Depth at inlet opening (in) =	0
Flow contrib (cfs) =	4.2	Confluence angle (deg) =	0
Default Q (cfs) =	4.24	Natural ground elev (ft) =	33.38
Line capac. (cfs) =	8.0	Line storage (cuft) =	199

T1 BLUEWATER
T2 100YR 6HR
T3 40FF STD

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	5	0	0	.005					
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	4	0	-1	0	0	0	0	0	0	0

1 3/ 9/98 17:13:18 PAGE 8

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 4

CCHV= .100 CEHV= .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

1.00	.32	.32	.00	.00	.35	.03	.00	.00	1.00
5.	0.	5.	0.	0.	4.	0.	0.	0.	1.00
.00	.00	1.48	.00	.000	.017	.000	.000	.00	9.95
.004981	0.	0.	0.	0	0	7	.00	29.60	50.05

0
1 3/ 9/98 17:13:18 PAGE 9

T1 BLUEWATER
T2 100YR 6HR
T3 40FF STD

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	6	0	1	.010					
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	5	0	-1	0	0	0	0	0	0	0

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

1.00	.29	.29	.00	.00	.33	.03	.00	.00	1.00
4.	0.	4.	0.	0.	3.	0.	0.	0.	1.00
.00	.00	1.50	.00	.000	.017	.000	.000	.00	9.96
.005931	0.	0.	0.	0	0	7	.00	26.29	50.04

0
1

3/ 9/98 17:13:18

PAGE 5

T1 BLUEWATER
T2 100YR 6HR
T3 40FF STD

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	4	0	1	.020					
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3	0	-1	0	0	0	0	0	0	

1

3/ 9/98 17:13:18

PAGE 6

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 3

CCHV= .100 CEHV= .300

*SECNO 1.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

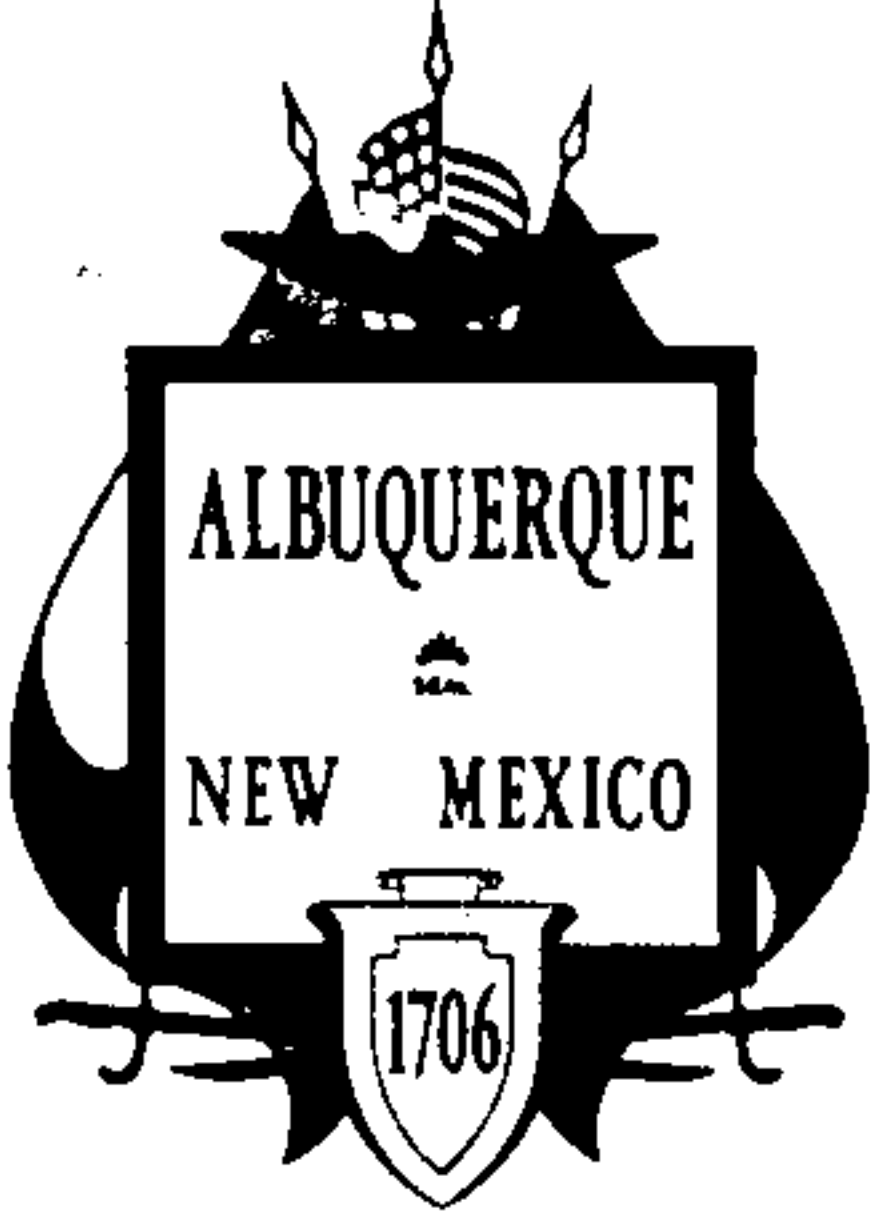
3265 DIVIDED FLOW

1.00	.34	.34	.39	.00	.49	.15	.00	.00	1.00
13.	0.	13.	0.	0.	4.	0.	0.	0.	1.00
.00	.00	3.10	.00	.000	.017	.000	.000	.00	9.95
.019969	0.	0.	0.	0	16	7	.00	32.13	50.05

0
1

3/ 9/98 17:13:18

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City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

October 28, 1992

Vance Fossinger
Easterling & Associates
10131 Coors Road
Suite H-7
Albuquerque, New Mexico 87114-4048

RE: DRAINAGE REPORT FOR ATRISCO BUSINESS PARK, (K-10/D23),
ENGINEER'S STAMP DATED SEPTEMBER 30, 1992

Dear Mr. Fossinger:

Based on the drainage information provided, the above referenced Master Drainage Plan is acceptable for Site Plan. Prior to Site Plan sign-off by the City Engineer, the following information needs to be submitted in order to implement the Master Plan for future development of this site:

1. Your pre-design dated October 8, 1992 identifies a storm drain to be built from the south line of the Atrisco Business Park and extend to the northwest corner of the intersection of Bluewater Road and Airport Road. This system is identified by a separate agreement between the City and Developer. My question is who is responsible for extending the storm drain from the intersection of Bluewater Road and Airport Road to Los Volcanes Road and up to Lot 6 of Tract S? Who is responsible for the maintenance of the storm drain for this extension? As part of your Master Plan you need to identify who is responsible for constructing all the storm drain systems to implement this Master Plan.
2. A grading plan will need to be submitted for the entire Master Plan area for the interim grading windrows being proposed. Drainage maintenance covenants will need to be executed for these windrows, the covenants should also include semi-annual inspections required by the engineer to assure the windrows are being maintained.

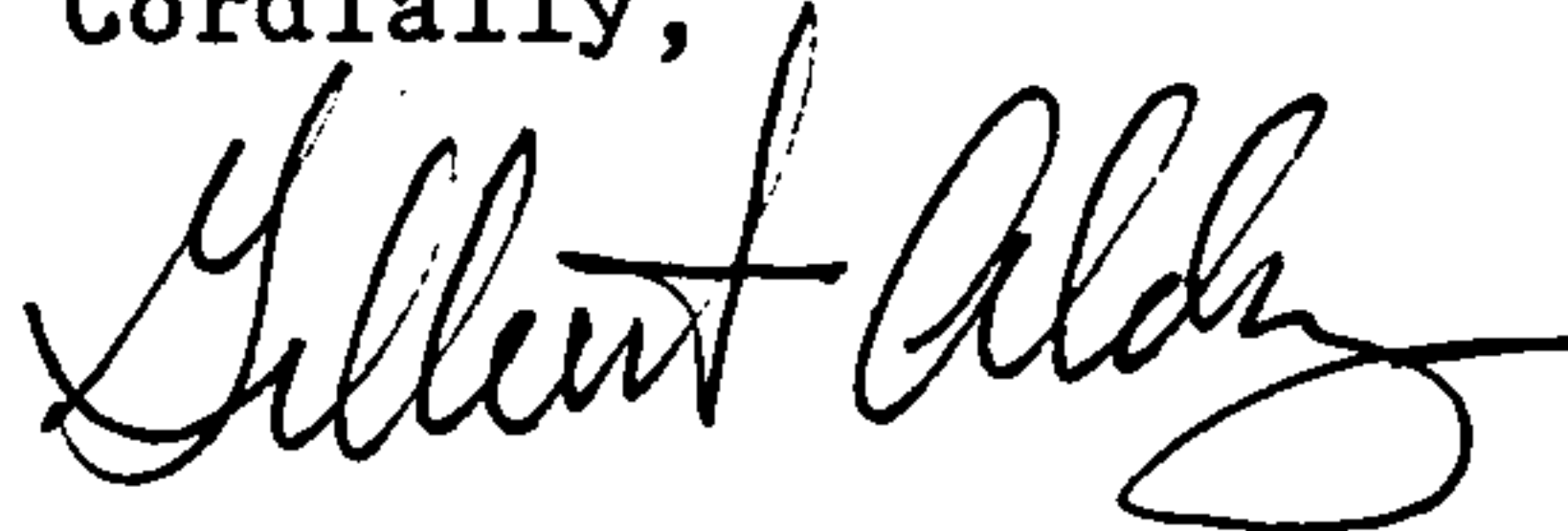
PUBLIC WORKS DEPARTMENT

Vance Fossinger
Easterling & Associates
10131 Coors Road
Suite H-7
Albuquerque, NM 87114-4048
Page 2

3. An overall disclosure statement identifying covenants and restrictions needs to be executed for the Master Plan area which identifies that the purchaser of any of the lots understands that the site is only allowed 0.1cfs/acre. The purchaser also understands that he will need to enter into a drainage agreement and covenant with the City for the required detention pond on his site prior to release of the Building Permit. I have attached a copy of this Agreement and Covenant for your use. I realize that this request is not typical City requirements, but our concern is that all it takes is one property owner to not follow the requirements and he could overtax the downstream system and cause other private or public damages.
4. Page 8 of the report states "Small areas of the site may discharge uncontrolled to the street where required to facilitate grading". I believe this note is inappropriate at this time since future lot owners may really take advantage of this statement. Due to the stringent allowable release rate, the City will only allow this on a case by case basis in the future. Please remove this statement all together from the report.

If you should have any questions, please do not hesitate to contact me at 768-2666.

Cordially,



Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

xc: Dan Hogan, Hydrology Div. Manager
Fred Aguirre, City Hydrologist
Ted Garrett, The Garrett Group Inc.
[file]

wp+3739

CITY OF ALBUQUERQUE
NOTICE OF D.R.C. MEETING5-15-95
(DATE)PROJECT NO: 4383.93
ZONE ATLAS: K-10PROJECT NAME: LOS VOLCANOS S.D. + PAVING + IMPROV.
LOCATION: _____TYPE OF PROJECT: AHBA _____ CIP ☒ PWC _____ SAD _____ ALL PRIVATE _____Contact Person: MARTIN LEWIS Phone: 898-800-1
Firm: EASTELLING & ASSOC.

_____, Scheduled with the D.R.C. on _____ at _____ in Conf. Room

~~NO DRC Meeting Scheduled. Please return any comments by 5-19-95~~The Project Is Scheduled For:

/ / Design Report Review	/ / Final Plan Review (<u>Approved Infra. List</u>)
/ / Pre-Design Meeting	/ / Signoff of Plans (<u>Mylars Required</u>)
/ / Preliminary Plan Review	<u>BY CONTRACT DOCUMENTS</u>

The Project Relates To:/ / Water / / San. Sewer / / Paving / / Storm Drainage / / _____The Attached Package Includes:

/D/ Drawings /S/ Spec's /E/ Estimate /R/ Report /M/ Memo Only

Indicated below are the Departments/Divisions that have received project documents and/or are invited to attend. It will be the Project Managers responsibility to notify consulting engineering firms of date and time of scheduled meetings.

<u>/S/ DRC Chairman</u>	Project Review Section	All
<u>/S/ Traffic Repres</u>	Transportation Development	All
<u>/ / Water Repres.</u>	Utility Design	All
<u>~~/S/ Hydro Repres.~~</u>	Hydrology	All
<u>/S/ Const. Repres.</u>	Construction	All
<u>/ / Bill Coleman</u>	Traffic Operations	
<u>/ / Dick Salas</u>	Street Maintenance	
<u>/ / Sergio Miranda</u>	Water (Shutoff Plan)	ALL WATER SHUTOFF
<u>/ / Diane Scena</u>	Parks & Recreation	ALL LANDSCAPING
<u>/ / Joe Luehring</u>	Utility Coordinator	ALL PWC & CIP
<u>/ / Sheryl Germack</u>	Transit Department	CIP/Memo
<u>/ / Rick Roybal</u>	Construction Coordinator	CIP/Memo
<u>/ / Jim Fink</u>	Line Maintenance	CIP-SAS/Memo
<u>/ / Joe Dellalonga</u>	City Architect	ARCHITECTURAL
<u>/ / Lee Lunsford</u>	SAD Engineer	SAD/Memo
<u>/ / Brett Locke</u>	Transportation Develop.	CIP/Memo
<u>/ / Roger Green</u>	Utility Design	CIP/WATER & SAS
<u>/ / Mike Minturn</u>	General Services Dept.	BUILDINGS
<u>/ / Greg Smith</u>	PWD/Legal	DWGS & SPECS
<u>/ / Richard Sertich</u>	Planning Department	CIP/Memos
<u>/ / CIP Manager</u>	CIP	CIP/Memos
<u>/ /</u>	_____	_____
<u>/ /</u>	_____	_____

EASTERLING & ASSOCIATES, INC.
10131 Coors Road, NW, Suite H-7
ALBUQUERQUE, NEW MEXICO 87114-4048
(505) 898-8021/FAX (505) 898-8501
Construction Office:
(505) 890-1630/FAX (505) 890-1647

LETTER OF TRANSMITTAL

TO Project Review Section

City of Albuquerque

One Civic Plaza

Albuquerque, NM 87102

Date	5/12/95	Job No.	3325
Attention	Terri Martin		
Re:	Airport Drive Storm Drain		
	Los Volcanes Road Storm Drain		
	Los Volcanes Road Paving Improvements		
	(COA Proj. 4383.93)		

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via courier the following items:

☐ Shop drawings

☐ Prints

☐ Plans

☐ Samples

☐ Specifications

☐ Copy of letter

☐ Change order

☒ As noted below

COPIES	DATE	NO.	DESCRIPTION
4	5/12/95		Draft Contract Documents

THESE ARE TRANSMITTED as checked below:

☐ For approval

☐ Approved as submitted

☐ Resubmit _____ copies for approval

☐ For your use

☐ Approved as noted

☐ Submit _____ copies for distribution

☐ As requested

☐ Returned for corrections

☐ Return _____ corrected prints

☒ For review and comment

☐ _____

☐ FOR BIDS DUE _____

19 _____

☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS

Terri —

It is our understanding that the City and the Developer are currently finalizing an infrastructure agreement for the construction project. We believe John Castillo will assign a City Project Manager in the next few days. In the meantime, the Developer has asked us to submit Draft Contract Documents for review, and Mr. Castillo has directed that they be sent to Project Review. Please let us know when a Project Manager has been assigned.

Thank you.

Copy To John Castillo, City of Albuquerque

SIGNED:

J. Martin Lewis
J. Martin Lewis

Received by: _____ Date: _____

CITY OF ALBUQUERQUE

CONTRACT DOCUMENTS

for

City Project No. 4383.93

**Airport Drive Storm Drain
Los Volcanes Road Storm Drain
Los Volcanes Road Paving
Improvements**

Easterling & Associates, Inc.

CITY OF ALBUQUERQUE, NEW MEXICO

MARTIN J. CHAVEZ

MAYOR

<u>CITY COUNCIL</u>	<u>District</u>	<u>ADMINISTRATION OFFICIALS</u>
VINCENT E. GRIEGO President	2	LAWRENCE RAE Chief Administrative Officer
STEVE D. GALLEGOS Vice President	3	MILLIE SANTILLANES City Clerk
ALAN B. ARMIJO	1	ROBERT E. GURULE Director, Public Works
HERB HUGHES	4	
ANGELA ROBBINS	5	
RUTH ADAMS	6	
VICKIE PEREA	7	
DEBORAH LATTIMORE	8	Project Manager
MICHAEL BRASHER	9	

CONTRACT DOCUMENTS

for

City Project No. 4383.93
Airport Drive Storm Drain
Los Volcanes Road Storm Drain
Los Volcanes Road Paving Improvements
Prepared For City of Albuquerque
by
Easterling & Associates, Inc.
10131 Coors Road NW, Suite H-7
Albuquerque, NM 87114-4048
(505) 898-8021

ADVERTISEMENT FOR BIDS

**For the Construction of:
Airport Drive Storm Drain, Los Volcanes Road Storm Drain
Los Volcanes Road Paving Improvements**

City Project No. 4383.93

Sealed bids will be received in the office of the City Clerk of the City of Albuquerque at the Albuquerque/Bernalillo County Government Center, 11th floor, One Civic Plaza N.W., Albuquerque, New Mexico for the project described herein no later than 1:30 p.m. local time, June 16, 1995 at which time the public opening and reading of bids received will begin in the Council Chambers, on the lowest level of the Government Center. Delivery of bids is the sole responsibility of the Bidder. The bids will be considered by the City following the opening of the bids, and an award of the Contract, if made, will be within thirty (30) days after the Bid Opening.

For Instructions to Bidders, bidding forms, and other Contract Documents, including plans, etc. to be used in connection with the submission of bids, the prospective Bidders are invited to contact the Architect or Engineer listed below. A \$ 50.00 deposit will be required for each set of plans, contract documents, and bidding forms. This deposit is refundable provided the bidding documents are returned in usable condition within ten (10) days after the Bid Opening. Portions of bidding documents may be purchased at the cost of reproduction.

The Bidder's attention is specifically directed to the Instructions To Bidders and Special Provisions contained in the Contract Documents.

**Airport Drive Storm Drain
Los Volcanes Road Storm Drain**

Name and Description of Project: Los Volcanes Road Paving Improvements
Construct approximately 3520 LF RCP Storm Drain adjacent to existing Airport Drive and Los Volcanes Road. Construct approximately 2550 LF collector street with curb and gutter, 48' F-F typical, in Los Volcanes Road Right-of-Way.

Name and Address of Architect/Engineer: Easterling & Associates, Inc.
10131 Coors Road NW, Suite H-7, Albuquerque, NM 87114-4048

**Advertised In:
Albuquerque Journal and
Albuquerque Tribune**

**For the City of Albuquerque
Albuquerque, New Mexico**

**Advertising Dates: 5/31/95
6/07/95**

**By: _____
Public Works Department
Date: _____**

UNIT PRICE

BID PROPOSAL

To the City of Albuquerque, New Mexico (hereinafter called "OWNER").

1. The undersigned (hereinafter called "Bidder") in compliance with your invitation for bids for the construction of **Airport Drive Storm Drain, Los Volcanes Road Storm Drain, Los Volcanes Road Paving Improvements, City of Albuquerque Project No. 4383.93**, having carefully examined the Contract Documents and the site of the proposed Work, and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the Project in accordance with the Contract Documents, within the time set forth herein, and at the unit prices stated below plus New Mexico Gross Receipts Tax. These unit prices plus New Mexico Gross Receipts Tax are to cover all expenses incurred in performing the Work required under the Contract Documents of which this proposal is a part. Quantities shown in this Unit Price Bid Proposal and in Alternates, if any, are estimated, and actual payment will be made on the basis of confirmed quantities as constructed.

2. UNIT PRICES

<u>BID</u> <u>ITEM</u>	<u>ITEM</u> <u>ID NO.</u>	<u>ITEM DESCRIPTION</u>	<u>UNIT</u>	<u>ESTIMATED</u> <u>QUANTITY</u>	<u>UNIT</u> <u>PRICE</u>	<u>AMOUNT</u>
1	0006.01	CONST SIGN	EA	3.00		
2	0019.01	TRAFF CONT & BARR	LS	1.00		
3	0201.01	SITE CLEAR & GRUB	AC	6.86		
4	0301.01	GRADING, <2' (EXCL. ROADWAY)	SY	4,440.00		
5	0301.02	SUBGRADE PREP, ART, 12"	SY	12,970.00		
6	0336.08	3" AC BS, (2 COURSES), 1800, M	SY	25,940.00		
7	0336.12	TK CT (2)	SY	25,940.00		
8	0336.17	1½" AC SFC, 1800, M	SY	12,970.00		
9	0340.01	SDWK, 4", PCC	SY	42.90		
10	0340.05	C & G, STD, PCC	LF	4,909.10		
11	0340.12	EXTR CURB, 8", PCC	LF	203.00		
12	0340.XX	6" MONOLITHIC PCC MEDIAN	SY	60.51		

2890

7-02-93

(Pink)

BP-1a

<u>BID ITEM</u>	<u>ITEM ID NO.</u>	<u>ITEM DESCRIPTION</u>	<u>UNIT</u>	<u>ESTIMATED QUANTITY</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
13	0343.03	AC PVMT, >4", SAW, REM & DISP	SY	290.40		
14	0343.08	CURB & GUT, PCC, REM & DISP	LF	322.00		
15	0343.09	SDWK & DRVPD, SAW, REM & DISP	SY	35.80		
16	0420.XX	RELOCATE TRAFF SIGNAL BOX	EA	1.00		
17	0420.XX	REFLECT PLAST STRIP, 4" WHITE, CIP	LF	272.00		
18	0420.XX	REFLECT PLAST LT. ARROW	EA	2.00		
19	0420.XX	REFLECT PLAST RT. ARROW	EA	2.00		
20	0420.XX	REFLECT PLAST THRU ARROW	EA	2.00		
21	0510.XX	CUTOFF WALL, PCC, REM & DISP	LF	50.00		
22	0701.10	TRCHG, BF & COMP, 18-36" SAS, <8'	LF	27.00		
23	0701.11	TRCHG, BF & COMP, 18-36" SAS, 8-12' D	LF	3,696.00		
24	0801.105	VLV BOX "A"	EA	2.00		
25	0801.111	WTR VLV BOX, ADJ	EA	4.00		
26	0801.XX	RELOC EXIST FH	EA	1.00		
27	0801.XX	FH, FURNISH & INSTALL POST	EA	2.00		
28	0910.XX	36" PLUG, REM	EA	1.00		
29	0910.05	18" RCP, III	LF	26.00		
30	0910.09	24" RCP, IV	LF	1,768.00		
31	0910.13	30" RCP, III	LF	913.00		
32	0910.17	36" RCP, III	LF	815.00		
33	0915.05	CTH BSN, D, SG	EA	1.00		
34	0920.08	MH, 4' DIA, E 10-14' D	EA	9.00		
35	0920.XX	MH, 6' DIA, E 10-14' D	EA	2.00		

<u>BID ITEM</u>	<u>ITEM ID NO.</u>	<u>ITEM DESCRIPTION</u>	<u>UNIT</u>	<u>ESTIMATED QUANTITY</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
36	0920.XX	MH F & C, ADJ W/RINGS, <2"	IN	16.00	_____	_____
37	0920.XX	MH F & C, ADJ W/MSNRY, >2"	IN	36.00	_____	_____
38	0920.XX	ADJ. SAS MH AND TSB TO FINAL SIDEWALK GRADE	LS	1.00	_____	_____
39	XXX.XX	FURNISH AND INSTALL STOP SIGN	EA	1.00	_____	_____
40	1011.11	SEEDING, CLASS A, NATIVE	AC	4.00	_____	_____
SUBTOTAL OF BID ITEMS 1 – 40 =						_____
NEW MEXICO GROSS RECEIPTS TAX (NMGRT) at 5.8125% =						_____
BASE BID - TOTAL OF BID ITEMS 1 – 40 PLUS NMGRT =						_____

3. ADDENDA: The Bidder acknowledges receipt of the following Addenda:

Addendum No. _____ Date _____ Addendum No. _____ Date _____
Addendum No. _____ Date _____ Addendum No. _____ Date _____

4. The Bidder agrees that this Bid Proposal may not be withdrawn for a period of fifty-five (55) calendar days after the scheduled closing time for receipt of bids.
5. If the Contract is to be awarded, the OWNER will give the apparent successful Bidder a Notice of Award within thirty (30) days after the scheduled closing time for receipt of bids.
6. Upon receipt of Notice of Award, Bidder will execute the formal Contract Documents within ten (10) days and deliver Performance Bond, Labor and Material Payment Bond, and Certificates of Insurance as required herein.
7. The attached Bid Security is to become the property of the OWNER, in the event the Agreement and bonds are not executed within the time specified in this Bid Proposal, as liquidated damages for the delay and additional expenses caused the OWNER.
8. The Bidder hereby agrees to commence Work under this Contract in accordance with the Notice to Proceed from the OWNER and to fully complete the Project as provided in the Contract Documents within 90 consecutive calendar days after the date Contract Time begins as provided in the Contract Documents.

The Bidder further agrees to pay, as liquidated damages, the amount of ONE HUNDRED DOLLARS (\$100.00) for each consecutive calendar day thereafter as provided in the Special Provisions.

9. The undersigned, as Bidder, hereby declares that the only persons or firms interested in the Bid Proposal as principal or principals is or are named herein and that no other persons or firms than herein mentioned have any interest in this Bid Proposal or in the Contract to be entered into; that this Bid Proposal is made without collusion with any person, company, or parties making a bid or proposal; and that it is in all respects fair and in good faith without collusion or fraud.
10. AFFIRMATIVE ACTION/EQUAL EMPLOYMENT OPPORTUNITY AND NONDISCRIMINATION: The Bidder hereby agrees if awarded the Contract, to comply with the Affirmative Action/Equal Employment Opportunity and Nondiscrimination requirements of the Special Provisions and to submit all information and reports required therein.

11. If requested, the Bidder agrees to furnish to the OWNER all information and data necessary for the OWNER to determine the ability of the Bidder to perform the Work.

This Bid Proposal is hereby respectfully submitted by:

Name of Bidder

By (Signature)

Date

Printed Name & Title of Bidder's Authorized Representative

Bidder's New Mexico Contractor's License No. & Classification

Resident Contractor Number:
(Bidders current New Mexico Resident Contractor number as issued by the State Purchasing Agent)

Address

Telephone Number

(SEAL) If Bid Proposal is
submitted by a corporation.

STANDARD SPECIFICATIONS

INCORPORATION OF CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS: The City of Albuquerque Standard Specifications for Public Works Construction, 1986 Edition, General Conditions and Technical Specifications, as updated, are incorporated by reference, the same as if fully written herein and shall govern this Project except where revised, updated or supplemented by the Special Provisions and/or the Supplemental Technical Specifications.

The City of Albuquerque Standard Specifications for Public Works Construction, 1986 Edition, may be purchased separately by contacting the Engineering Group, Public Works Department, P.O. Box 1293, Albuquerque, New Mexico 87103.

Updates to the City of Albuquerque Standard Specifications for Public Works Construction, 1986 edition, are listed on page SS-2.

UPDATES
TO
STANDARD SPECIFICATIONS

The following is a list of Updates which have been issued to the City of Albuquerque Standard Specifications for Public Works Construction, 1986 Edition:

<u>Update No.</u>	<u>Effective Date</u>
One	March 25, 1987
Two	January 1, 1988
Three	July 1, 1988
Four	February 16, 1993
Five	November 15, 1994

SUPPLEMENTAL GENERAL CONDITIONS TO THE
GENERAL CONDITIONS OF THE 1986
CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS
FOR PUBLIC WORKS CONSTRUCTION

1. Section 1.4: Add the following definition:

Architect -- This term shall be used interchangeably with "Engineer" throughout the Contract Documents.
2. Section 5.2.3.1:

Delete "comprehensive" on line 3.
3. Section 5.2.6.2:

The last sentence should be revised to read as follows: "The deductible for the flood and earthquake coverage shall not be greater than twenty percent (20%) of the insurable value of the work, and in no event shall the deductible be more than Twenty-Five Thousand Dollars (\$25,000.00)."
4. Section 6.1.2:

Delete "that" and replace with "who" on line 3.
5. Section 6.3:

Delete "accept" and replace with "be solely responsible for payment of" on line 23.
6. Section 6.11.2:

On line 18, after "construction work" insert "CONTRACTOR shall comply with 29 CFR Part 1926, Subpart P, Department of Labor Occupational Safety and Health Administration, Occupational Safety and Health Standards - Excavations, Final Rule, and all amendments thereto, whenever the CONTRACTOR is performing excavation activities."
7. Section 16.1:

Delete "award attorneys' fees and other costs in their discretion, and shall have the power to" on lines 25 through 27.
8. Section 16.4:

Delete the second sentence (lines 6 through 11).

SUPPLEMENTAL TECHNICAL SPECIFICATIONS

The following revisions and/or additions to the Technical Specifications of the Standard Specifications are hereby made a part of the Contract Documents.

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N/A	N/A	N/A

DESIGN ANALYSIS REPORT

for

**AIRPORT DRIVE STORM DRAIN
LOS VOLCANES ROAD STORM DRAIN
AND
LOS VOLCANES ROAD
PAVING IMPROVEMENTS**

FEBRUARY 1995

DESIGN ANALYSIS REPORT

for

AIRPORT DRIVE STORM DRAIN LOS VOLCANES ROAD STORM DRAIN AND LOS VOLCANES ROAD PAVING IMPROVEMENTS

FEBRUARY 1995

PREPARED FOR:

SUNWEST BANK
SPECIAL ASSETS DEPARTMENT
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Albuquerque, New Mexico 87102

PREPARED BY:

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10131 Coors Road, N.W.
Suite H-7
Albuquerque, New Mexico 87114-4048
Telephone (505) 898-8021

I, Ronald P. Bohannon, do hereby certify that this report was prepared by me or under my direction and that I am a duly registered Professional Engineer under the laws of the State of New Mexico.



R.P. Bohannon

Ronald P. Bohannon, P.E.
NMPE No. 9814

2/15/95

Date

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Design Analysis Report
for
Airport Drive Storm Drain
Los Volcanes Road Storm Drain
and
Los Volcanes Road Paving Improvements

February 1995

Purpose

To demonstrate the adequacy of the proposed storm drain and paving improvements.

Project Description

The project consists of approximately 2543 LF of collector street section, 48' wide (typ.), flaring to 66' wide at Unser Boulevard, and approximately 3520 LF of 24" to 36" diameter storm drain.

The construction of the proposed street section will complete Los Volcanes Road between Airport Drive and Unser Boulevard. The proposed storm drain will extend north from the future Airport/Bluewater Storm Drain [City of Albuquerque (COA) Project No. 4383.92] at the northwest quadrant of the intersection of Airport Drive and Bluewater Road in a proposed public drainage easement located adjacent to the west side of Airport Drive. The storm drain will cross under Los Volcanes Road then continue to the west in a proposed public drainage easement located along the north side of the Los Volcanes Road right-of-way. The proposed storm drain will terminate approximately 840 LF east of the intersection of Los Volcanes and Unser Boulevard.

The storm drain will serve as a low flow rate outfall for properties located adjacent to Airport Drive and Bluewater Road, as well as the northern portion of Tract S-1, Unit 2, Atrisco Business Park. The storm drain project will include only one inlet in the public right-of-way. This inlet will be located in the gutter along the north side of Los Volcanes Road at the intersection with Airport Drive. The purpose of this inlet is to intercept frequent minor nuisance flow, which collect in the standard gutter section, to prevent them from crossing the intersection. Because the existing Los Volcanes street section is superelevated in the intersection with cross fall from north to south, the major street flows will bypass this inlet.

Hydrology

The peak flow rates for the proposed storm drain were determined in the Master Drainage Plan for Atrisco Business Park, dated October 1993, and approved February 1994.

Discharge from the private property to be served by the storm drain is restricted to 0.1 cfs per acre. Runoff developed in the streets of the project area will be conveyed in the streets to inlets which will be constructed near the intersection of Airport Drive and Bluewater Road in the Airport/ Bluewater Storm Drain project.

Hydraulics

Hydraulic grade line calculations were performed for the proposed storm drain and the resultant hydraulic grade line is plotted on the plan and profile sheets. Calculations were performed in a spreadsheet utilizing equations published in the COA D.P.M., Chapter 22.3. In storm drain segments where the computed HGL is below the soffit of the pipe, the spreadsheet reports the soffit elevation as the HGL elevation. A summary of these calculations is included in Appendix "A."

The starting water surface elevation at the point of connection to the Airport Drive/Bluewater Road Storm Drain is 5096.09. This elevation corresponds to the HGL calculated for the connection point for the Airport Drive/Bluewater Road Storm Drain Project. (Refer to Design Analysis Report for COA Project 4383.92.)

Hydraulic grade line calculations performed for the main line of the storm drain system were based on peak 100-year flow rates in the main line. Lateral flow rates used to compute junction losses were determined as the differential between the main line flow out and flow in.

The peak flow rate assumed in the analysis of the proposed 24" diameter Los Volcanes Storm Drain equals the total allowable discharge from Tract S-1. While it is highly unlikely this flow rate will be imposed on the full length of the storm drain, it is unknown at this time where flows from Tract S-1 will enter the storm drain. The calculations demonstrate that the Los Volcanes Storm Drain is adequately sized to allow interception of the design flows from Tract S-1 at any point along its length.

Flow characteristics were determined for sections of the street that have the potential for the greatest flow depths. Results of these calculations are included in Appendix "B." The calculations demonstrate the flow depths will not exceed 0.5' depth in the 10-year storm or 0.87' in the 100-year storm as required by COA drainage ordinance.

Pipe Class and Bedding Class

An analysis was performed to demonstrate the adequacy of the pipe and bedding classes specified for the project. A copy of this analysis is included in Appendix "C." The analysis was performed per the method presented in the "Concrete Pipe Design Manual" published by the American Concrete Pipe Association, June 1980 edition.

The analysis indicated that Class III RCP is adequate for the 36" and 30" diameter reaches. Class IV pipe is required for the 24" diameter reach. Class "C" bedding is recommended for all reaches.

Paving Section

The proposed paving section is in accordance with the recommendations of the "Geotechnical Investigation and Pavement Section Design for Atrisco Business Park" by Vinyard and Associates, Inc. A copy of this report is included in Appendix "D."

Conclusions

The hydraulic calculations performed for this analysis demonstrate that the proposed storm drain will have capacity to convey the peak 100-year flow rates established in the October 1993 edition of the Atrisco Business Park Master Drainage Plan, as approved February 1994. It should be noted that it was the intent of the design to provide a limited amount of surplus capacity in the Airport Drive portion of the storm drain in order to provide conveyance for a limited amount of additional street runoff as provided for in the Master Drainage Plan. Any significant increase in the peak flows to be discharged to the storm drain should be analyzed to determine the effect on the HGL.

The calculations performed to check pipe class and bedding class indicate that the specified pipe and bedding are adequate for the project.

APPENDIX A

Hydraulic Grade Line Calculations

PROJECT: AIRPORT DRIVE STORM DRAIN BETWEEN BLUEWATER ROAD & LOS VOLCANES ROAD
 JOB#: SUNWEST 3325
 DATE: 6/19/1993
 TIME: 02:47 PM

STARTING CONDITONS:
 TAILWATER ELEVATION = 5096.09
 MANNING'S ROUGHNESS = 0.013
 ASSUMED STARTING HGL ELEV. = 5096.09

ANALYSIS BY VANCE FOSSINGER, EASTERLING & ASSOCIATES

STATION	STRUCTURE	MAINLINE FLOW RATE (cfs)	PIPE DIA. (inches)	LAY LENGTH (feet)	PIPE SLOPE (fpf)	INVERT (elev.)	FLOW VELOCITY (fps)	VELOCITY HEAD (feet)	FRICTION SLOPE (fpf)	FRICTION LOSS Hf	MANHOLE LOSS Hm	ANGLE PT. LOSS Hb	JUNCTION LOSS Hj	EXPANSION LOSS Hx	SUM OF LOSSES	ENERGY GRADE LINE ELEVATION	HYDRAULIC GRADE LINE ELEVATION	FINISHED GRADE ELEVATION
STORM DRAIN OUTFALL INITIAL CONDITIONS —→ @ OUTLET						5089.35										5096.09	5096.09	
28+02.91	M.H.	32.4	36	390.29	0.0050	5091.30	4.58	0.33	0.0024	0.921	0.016	0.000	0.000	0.326	1.264	5097.35	5097.03	5102.00
32+27.91	M.H.	32.4	36	425.00	0.0050	5093.43	4.58	0.33	0.0024	1.003	0.016	0.000	0.074	0.000	1.093	5098.45	5098.12	5104.00
36+77.91	M.H.	18.3	30	450.00	0.0050	5096.18	3.73	0.22	0.0020	0.896	0.011	0.000	0.000	0.013	0.919	5099.37	5099.15	5106.70
41+10.64	M.H.	18.3	30	432.73	0.0050	5098.34	3.73	0.22	0.0020	0.861	0.011	0.032	0.000	0.000	0.904	5101.06	5100.84	5108.29
41+10.64	DUMMY	18.3	30	0.01	0.0050	5098.34	3.73	0.22	0.0020	0.000	0.000	0.000	0.000	0.000	0.000	5101.06	5100.84	5108.29

PROJECT: LOS VOLCANES STORM DRAIN BETWEEN AIRPORT DRIVE & UNSER BOULEVARD
 JOB#: SUNWEST 3325
 DATE: 6/19/1993
 TIME: 03:32 PM

STARTING CONDITONS:
 TAILWATER ELEVATION = 5100.84
 MANNING'S ROUGHNESS = 0.013
 ASSUMED STARTING HGL ELEV. = 5100.95

ANALYSIS BY VANCE FOSSINGER, EASTERLING & ASSOCIATES
 UPDATED BY MARTIN LEWIS, EASTERLING & ASSOCIATES, 2/6/95

STATION	STRUCTURE	MAINLINE FLOW RATE (cfs)	PIPE DIA. (inches)	LAY LENGTH (feet)	PIPE SLOPE (fpf)	INVERT (elev.)	FLOW VELOCITY (fps)	VELOCITY HEAD (feet)	FRICTION SLOPE (fpf)	FRICTION LOSS Hf	MANHOLE LOSS Hm	ANGLE PT. LOSS Hb	JUNCTION LOSS Hj	EXPANSION LOSS Hx	SUM OF LOSSES	ENERGY GRADE LINE ELEVATION	HYDRAULIC GRADE LINE ELEVATION	FINISHED GRADE ELEVATION
STORM DRAIN OUTFALL INITIAL CONDITIONS → @ OUTLET						5098.45										5100.95	5100.84	
36+51.93	M.H.	18.3	30	30.00	0.0050	5098.60	3.73	0.22	0.0020	0.060	0.011	0.032	0.000	0.216	0.318	5101.32	5101.10	5109.80
33+30.80	M.H.	13.3	24	321.13	0.0075	5101.02	4.23	0.28	0.0035	1.110	0.014	0.000	0.000	0.005	1.129	5103.30	5103.02	5113.00
30+30.46	M.H.	13.3	24	305.31	0.0087	5103.68	4.23	0.28	0.0035	1.055	0.014	0.000	0.000	0.000	1.069	5105.95	5105.68	5115.60
27+24.39	M.H.	13.3	24	311.05	0.0081	5106.20	4.23	0.28	0.0035	1.075	0.014	0.000	0.000	0.000	1.089	5108.47	5108.20	5118.00
23+84.40	M.H.	13.3	24	339.99	0.0082	5109.00	4.23	0.28	0.0035	1.175	0.014	0.000	0.000	0.000	1.189	5111.28	5111.00	5121.00
21+39.40	M.H.	13.3	24	245.00	0.0191	5113.65	4.23	0.28	0.0035	0.847	0.014	0.000	0.000	0.000	0.861	5115.93	5115.65	5125.70
18+94.39	M.H.	13.3	24	245.00	0.0191	5118.33	4.23	0.28	0.0035	0.847	0.014	0.000	0.000	0.000	0.861	5120.61	5120.33	5130.50

APPENDIX B

Street Flow Analysis

Triangular Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: LOS VOLCANES FLOW

Comment: LOS VOLCANES 100YR. STRM FLOW DEPTH STA 33+00

Solve For Depth

Given Input Data:

Left Side Slope..	0.00:1 (H:V)
Right Side Slope.	50.00:1 (H:V)
Manning's n.....	0.017
Channel Slope....	0.0080 ft/ft
Discharge.....	<u>14.17 cfs</u>

Computed Results:

<u>Depth</u>	<u>0.45 ft</u>
Velocity.....	2.84 fps
Flow Area.....	4.99 sf
<u>Flow Top Width</u> ...	<u>22.34 ft</u>
Wetted Perimeter.	22.79 ft
Critical Depth...	0.46 ft
Critical Slope...	0.0071 ft/ft
Froude Number....	1.06 (flow is Supercritical)

Discharge = 1/2 At Nisco Business Park MDP. Hyd 200.51

*Total flow included in Hyd 200 51 assumed to be
evenly distributed between sides of street*

Cross slope = 0.02 ft/ft

Triangular Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: LOS VOLCANES FLOW

Comment: LOS VOLCANES 100YR. STRM FLOW DEPTH (STA_36+47)

Solve For Depth

Given Input Data:

Left Side Slope..	58.82:1 (H:V)
Right Side Slope.	0.00:1 (H:V)
Manning's n.....	0.017
Channel Slope....	0.0070 ft/ft
Discharge.....	(28.34 cfs)

~~Not Accurate~~

Computed Results:

Depth.....	(0.56 ft)
Velocity.....	3.09 fps
Flow Area.....	9.17 sf
Flow Top Width...	(32.85 ft) > 24'
Wetted Perimeter.	33.41 ft
Critical Depth...	0.57 ft
Critical Slope...	0.0066 ft/ft
Froude Number....	1.03 (flow is Supercritical)

Discharge = Attrisco Business Park M.D.P. HYD. 200.51

All flow is assumed to be on south side of street

Street cross slope = 0.017 ft/ft

Triangular Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: LOS VOLCANES FLOW

Comment: LOS VOLCANES 10 YR. STRM FLOW DEPTH STA 33+00

Solve For Depth

Given Input Data:

Left Side Slope..	0.00:1 (H:V)
Right Side Slope.	50.00:1 (H:V)
Manning's n.....	0.017
Channel Slope....	0.0080 ft/ft
Discharge.....	<u>8.37 cfs</u>

*does not account
for gutter lip.*

Computed Results:

Depth.....	<u>0.37 ft</u>
Velocity.....	2.49 fps
Flow Area.....	3.36 sf
Flow Top Width...	18.33 ft
Wetted Perimeter.	18.71 ft
Critical Depth...	0.37 ft
Critical Slope...	0.0076 ft/ft
Froude Number....	1.02 (flow is Supercritical)

Discharge = 1/2 Atrisco Business Park M.D.P. Hyd. 200.51
Total flow included in Hyd 200.51 assumed to be
evenly distributed between sides of street
Cross Slope = 0.02 ft/ft

Triangular Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: LOS VOLCANES FLOW

Comment: LOS VOLCANES 10 YR. STRM FLOW DEPTH STA 36+47

Solve For Depth

Given Input Data:

Left Side Slope..	58.82:1 (H:V)
Right Side Slope.	0.00:1 (H:V)
Manning's n.....	0.017
Channel Slope....	0.0070 ft/ft
Discharge.....	16.89 cfs

Computed Results:

Depth.....	0.46 ft
Velocity.....	2.71 fps
Flow Area.....	6.22 sf
Flow Top Width...	27.06 ft
Wetted Perimeter.	27.52 ft
Critical Depth...	0.46 ft
Critical Slope...	0.0070 ft/ft
Froude Number....	1.00 (flow is Critical)

Discharge = Atrisco Business Park M.D.P Hyd. 200.51

All flow assumed to be on south side of street

Street cross slope = 0.017 ft/ft

APPENDIX C

Pipe and Bedding Class Analysis

Easterling & Associates, Inc.

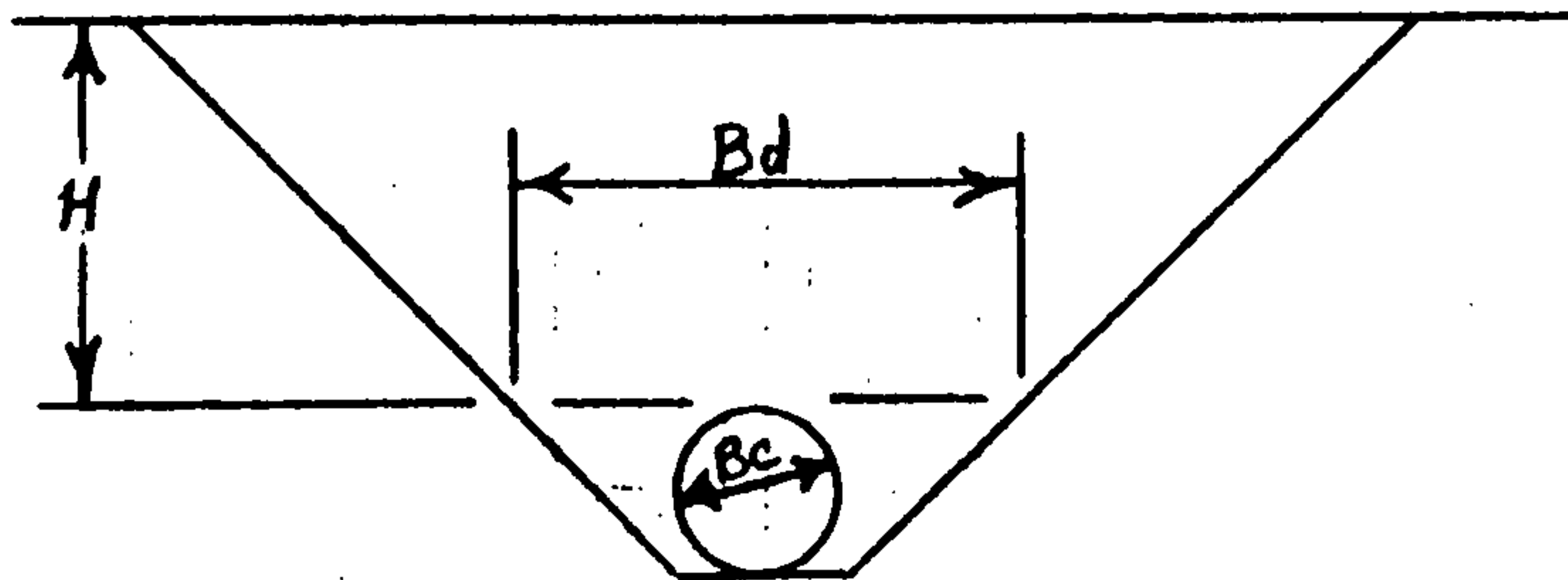
10131 Coors Rd., NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 898-8021
FAX (505) 898-8501

Project Name Airport Dr. / Los Volcanes S.D.
Project No. 3325 Date 6-22-93
Subject Pipe Class + Bedding Class
By VSF Sheet 1 of 2

Use the method presented in "Concrete Pipe Design Manual", by the American Concrete Pipe Association to check pipe and bedding class

Assumptions

1:1 Trench side slopes
Unit weight of backfill = 120 lb/cf
Class "C" Bedding $B_f = 1.5$



Check 36" dia. pipe $B_c = 3.6'$

Max. bury = 12' $H = 12 - 3.6 = 8.4'$

$B_d = 3.6' + 3.6(2)(1) = 10.8'$

- From table 24-A the transition width for $H = 8.4 = 6'-8"$

$B_d = 10.8 > 6.66'$ Use maximum backfill load for $H = 8.4 = 4509 \text{ lb/LF}$

Above load is for 100 lb/cf material - Adjust for 120 lb/cf material

$4509 \times 1.2 = 5,410.6 \text{ lb/cf}$

- From table 45 Live load = 360 lb/LF

- $D_{0.01} = D_{0.01} = \frac{W_L + W_E}{B_f \times D} \times F.S.$ For RCP $F.S. = 1$

- $D_{0.01} = \frac{360 + 5410.6}{1.5 \times 3} \times 1 = 1,282.3 \text{ lb/LF I.D.}$

- From ASTM C76 For Class III Pipe $D_{0.01} = 1,350 \text{ lb/LF I.D.}$

$1282.3 < 1350$

* Class III 36" RCP w/ Class "C" bedding is O.K.

Easterling & Associates, Inc.

10131 Coors Rd., NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 898-8021
FAX (505) 898-8501

Project Name Airport Dr. / Los Volcanes S.D.
Project No. 3325 Date 6-22-93
Subject Pipe Class + Bedding Class

By JSF Sheet 2 of 2

Check 30" dia Pipe

$$B_c = 3.2'$$

$$\text{Max. bury} = 11.5' \quad H = 11.5 - 3.2 = 8.3'$$

$$B_d = 3.2 + 3.2(2)(1) = 9.6'$$

- From table 22-A the transition width for $H = 8.3' = 5'-8"$

- $B_d = 9.6' > 5.66'$ Use Maximum backfill Load for $H = 8.3'$

- Backfill load = 3,759 lb/lf if backfill unit wt. = 100 lb/cf

- Adjust backfill load for 120 lb/cf material $3,759 \times 1.2 = 4,511 \text{ lb/lf}$

- From table 45 live load = 315 lb/lf.

$$D_{0.01} = \frac{315 + 4,511}{1.5 \times 2.5} = 1,286 \text{ lb/lf I.D.}$$

- From ASTM C76 For Class III Pipe $D_{0.01} = 1,350 \text{ lb/lf I.D.}$

$$1,286 < 1,350$$

* Class III 30" RCP w/ Class "C" bedding is O.K.

Check 24" dia. pipe

$$B_c = 2.5'$$

$$\text{Max. bury} = 13' \quad H = 13 - 2.5 = 10.5'$$

$$B_d = 2.5 + 2.5(2)(1) = 7.5'$$

- From table 20-A the transition width for $H = 10.5' = 5'-1"$

- $B_d = 7.5' > 5.1'$ Use maximum backfill load for $H = 10.5'$

Backfill load = 3,743 lb/lf if backfill unit wt = 100 lb/cf

- Adjust backfill load for 120 lb/cf mat. $3,743 \times 1.2 = 4,492 \text{ lb/lf}$

- Live load over 10' deep is insignificant

$$D_{0.01} = \frac{4,492}{1.5 \times 2} = 1,497 \text{ lb/lf of I.D.}$$

- From ASTM C76 for Class III Pipe $D_{0.01} = 1,350 \text{ lb/lf I.D.}$

$$1,497 > 1,350 \quad \text{No Good}$$

- From ASTM C76 for Class IV Pipe $D_{0.01} = 2,000 \text{ lb/lf I.D.}$

$$1,497 < 2,000$$

* Class IV 24" RCP w/ Class "C" bedding is OK

APPENDIX D

**Geotechnical Investigation and Pavement Section Design,
Atrisco Business Park**

**Prepared by
Vinyard and Associates, Inc.**

V
Vinyard & Associates, Inc.

4415-D Hawkins, NE
Albuquerque, New Mexico 87109
(505) 345-1937

Geotechnical Engineering • Materials Testing • Environmental Engineering

GEOTECHNICAL INVESTIGATION AND
PAVEMENT SECTION DESIGN
ATRISCO BUSINESS PARK

Prepared for:
Sunwest Bank

Project No.: 93-1-90
June 19, 1993

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1.0 INTRODUCTION

This report presents the results of our geotechnical investigation and pavement section design for a portion of the streets within the Atrisco Business Park. Location of the streets investigated is indicated on Figure 1.

The investigation was performed to determine the subsurface conditions at selected points along the proposed roadways. Based upon the soil conditions observed, geotechnical recommendations were developed for:

Asphaltic Concrete Pavement;
Lateral Earth Pressures;
Site Grading; and
Earthwork Construction.

The conclusions and recommendations presented are based on information provided to us regarding the proposed construction, on laboratory testing, and upon the local standards of our profession at the time this report was prepared. This investigation was not performed to determine the presence of potentially hazardous waste. Determination of the presence of potentially hazardous materials requires the use of exploration techniques and analytic testing which were not appropriate for this investigation.

2.0 PROPOSED CONSTRUCTION AND SITE CONDITIONS

This study addresses a portion of the roads within the Atrisco Business Park. Proposed configuration of the roads is indicated on the Site Plan, Figure 1.

Based upon information obtained from personnel with Easterling & Associates, we anticipate the proposed roads will be either two or four lanes wide. The proposed roadways will be paved with asphaltic concrete. Very limited cut and fill earthwork is anticipated.

The site slopes slightly to the east. Vegetation on site consists of weeds, native grass and occasional cactus. The portion of Bluewater Road adjacent to the Honeywell Facility is presently paved with asphaltic concrete.

3.0 SUBSURFACE CONDITIONS

To evaluate subsurface conditions along the proposed roads fifteen test pits were excavated along the proposed roads. Test pit locations are indicated on the Site Plan, Figure 1. Test pits were excavated on May 24, 1993.

The test pits were excavated using a rubber tired backhoe equipped with a twenty-four inch wide bucket. The test pits were

logged by a qualified field engineer using the Unified Soil Classification System. The field engineer logged the cuttings during excavation and examined the cut faces. Logs of the test pits are presented on Figures 2 through 16.

The soil profile within the study area is relatively uniform. The majority of the soils encountered consisted of slightly silty to silty fine-grained sand. The sands are loose to medium dense and slightly moist to moist.

Very infrequent lenses of clayey sand were encountered in the test pits. To provide a more economical pavement section a sandy soil subgrade was assumed. If clayey sand is encountered at subgrade depth it should be removed as necessary to allow a minimum of eighteen inches of silty sand soil below the pavement.

Flowing groundwater or bedrock was not encountered in the test pits. However, groundwater conditions may change with time due to precipitation, variations in groundwater level, seepage from ponding areas or leaking utilities.

4.0 LABORATORY TESTING

A laboratory testing program was performed on soil samples obtained during the field investigation which appeared representative of the materials encountered. The laboratory

testing program was structured to determine the physical properties of the soils necessary for development of geotechnical recommendations.

The laboratory testing program included:

- o Soil Moisture Content;
- o Sieve Analysis;
- o Atterberg Limits; and
- o R-Value.

Laboratory Moisture Content tests were performed to evaluate the in-place soil moisture content. Test results are presented on the Logs of Test Pits and are summarized on Table 1.

Sieve Analysis and Atterberg Limits tests were performed on selected soil samples to confirm field soil classifications and to provide information on general physical soil properties. Test results are presented on Table 1.

Three R-Value tests were performed on representative soil samples. Test results are presented on Figures 18 through 20. The test results indicate the silty sands which were encountered over most of the alignment have an average R-Value of 72.

5.0 PAVEMENT RECOMMENDATIONS

The pavement recommendations presented are based upon City of Albuquerque design procedures. Default traffic projections specified by the City of Albuquerque were utilized. All of the streets were assumed to be "collectors" with an average weighted daily traffic (AWDT) of 3000 vehicles per day, per lane.

Traffic distribution as specified by the City of Albuquerque is tabulated below:

<u>Automobile</u>	<u>Single Unit Truck</u>	<u>Single Trailer Truck</u>	<u>Multi- Trailer Truck</u>
95%	3%	1%	1%

Calculations to determine equivalent single axle loads (ESAL's) (18 kip) are presented on Figure 21. The design nomograph to determine required structural number is presented on Figure 22.

To evaluate the required weighted structural number the following parameters were utilized.

Serviceability Index	2.5
Regional Factor	2.0
Design Life (years)	20
R-Value	55

An R-Value of 55 was utilized instead of the average test value of 72 based upon standard correlations of grain size distribution versus R-Value developed by the New Mexico State Highway and Transportation Department.

To evaluate the required pavement section for the proposed construction the following structural coefficients were utilized in our analysis:

<u>Material</u>	<u>Structural Coefficient</u>
Asphaltic Concrete	0.42
Aggregate Base Course	0.10

Based upon the above criteria we recommend the following asphaltic concrete pavement sections:

	<u>Two Lane</u>	<u>Four Lane</u>
Asphaltic Concrete	5"	4.5"
Aggregate Base Course	7"	8"

6.0 CONSTRUCTION METHODS AND MATERIALS

We anticipate the project will be constructed as detailed in the "City of Albuquerque Standard Specifications for Public Works

Construction". Supplemental earthwork recommendations for the project are presented below:

Project earthwork should be performed as detailed in Section 200 of the "City of Albuquerque Standard Specifications for Public Works Construction" except as modified herein. Prior to placing fill or pavement, all paved areas should be cleared and grubbed as detailed in Section 201 of the "City of Albuquerque Standard Specifications for Public Works Construction".

All fill below the proposed roadway should be placed and compacted as detailed in Section 204 of the "City of Albuquerque Standard Specifications for Public Works Construction" with the following exceptions:

- o Subsequent to clearing and grubbing and prior to placing fill, the natural ground surface should be scarified to a depth of six inches and moisture conditioned to a near optimum (± 3 percent) moisture content. The natural ground surface should then be compacted with a minimum of ten passes of a vibratory compactor. The vibratory compactor should exert a minimum dynamic force of 40,000 pounds. However, if vibratory compaction poses a threat to the structural integrity of nearby structures, an equivalent static compactor should be utilized. Special care should be utilized to minimize distress to existing

structures and utilities if vibratory soil or asphalt compactors are utilized in the vicinity of the existing structures and utilities.

- o All fill below within 18" of subgrade elevation shall meet AASHTO Soil Classification A-2-4 or better.

Base course material shall conform to Section 302 of the "City of Albuquerque Standard Specifications for Public Works Construction". We suggest that base course be Class II material.

Plant mix bituminous pavement should conform to Section 116 of the "City of Albuquerque Standard Specifications for Public Works Construction".

7.0 TRENCHES AND EXCAVATIONS

All trenches greater than four feet in depth must be sloped, shored or braced or otherwise supported according to OSHA Construction and Safety Standards. Material excavated from the trench or spoil must be placed a minimum of two feet from the edge of the excavation. The spoil should be retained in an effective manner such that no loose material can fall into the excavation.

Fill in shallow utility line trenches below the pavement must be properly compacted to prevent localized pavement settlement. To

minimize settlement and maintenance of the pavement, all trenches should be backfilled as specified in the "City of Albuquerque Standard Specifications for Public Works Construction".

8.0 TEMPORARY AND PERMANENT SLOPES

Temporary construction slopes less than eight feet high should be sloped no steeper than 1-1/2:1 (horizontal:vertical). If deeper excavations are required, this office should be contacted for supplemental recommendations. Limited raveling of slopes will occur particularly as the exposed soils dry out. Heavy equipment and material stockpiles should be located a minimum of five feet from the top of slope.

Permanent cut and fill slopes less than eight feet in height should be sloped no steeper than 2:1 (horizontal:vertical). Permanent cut and fill slopes eight to twelve feet in height should be sloped no steeper than 2-1/2:1 (horizontal:vertical). If higher slopes are required this office should be contacted for supplemental recommendations.

9.0 RETAINING WALLS

Retaining walls constructed in conjunction with this project are not anticipated to exceed five feet in height. If higher walls or unusual loading conditions such as sloping backfill, slopes

below retaining wall footings or surcharges are anticipated, this office should be contacted for supplemental recommendations.

Foundations for retaining walls may be designed for a maximum toe bearing pressure of 1500 pounds per square foot. Retaining wall footings should be embedded a minimum of eighteen inches below lowest adjacent grade. Prior to placing footings, the exposed soils should be scarified to a depth of eight inches, moisture conditioned to a near optimum ($\pm 3\%$) moisture content and compacted to a minimum of 95% of maximum density as determined by ASTM D-1557.

We recommend that the following equivalent fluid pressures be utilized for design of retaining walls:

<u>Loading Condition</u>	<u>Equivalent Fluid Pressure*</u>
Active Earth Pressure	32 pcf
Passive Earth Pressure	
Undisturbed Natural Soils	300 pcf
Structural Fill	400 pcf
Earth Pressure at Rest	60 pcf

* Does not include a factor of safety.

The above earth pressures do not include hydrostatic pressure. If retaining walls are restrained against rotation the earth pressure at rest should be utilized for design.

Lateral retaining wall loads will be resisted by passive earth pressure at the toe and friction along the base of the wall. A coefficient of friction between soil and concrete of 0.4 may be used for design.

Backfill adjacent to retaining walls should be placed and compacted as detailed in Section 501 of the "City of Albuquerque Standard Specifications for Public Works Construction". Backfill adjacent to walls should be compacted with relatively light, hand operated equipment to prevent over stressing the wall and excessive lateral deflections.

To prevent staining of concrete, the back of retaining walls should be waterproofed prior to backfilling. Weep holes should be constructed near the base of exterior walls.

10.0 LANDSCAPING

Landscaping for the project should be designed and constructed to minimize the potential for saturation of soils supporting the proposed pavement. If subgrade soils become saturated, limited settlement and localized failure of the pavement may occur.

11.0 CLOSURE

This report completely supersedes our previous geotechnical report for the project. The recommendations presented in this report are based upon the subsurface conditions disclosed by the test pits. Soil and groundwater conditions may vary between test pits and with time.

Placement and compaction of structural fill should be observed and tested by a qualified Geotechnical Engineer or his representative. The purpose of the observation and testing is to confirm that the recommendations presented herein are followed and to provide supplemental recommendations if subsurface conditions differ from those anticipated. All asphaltic concrete should be tested by a qualified Geotechnical Engineer or his representative to confirm the recommendations presented herein are implemented.

If conditions are encountered during construction which differ from those presented herein, this office should be contacted for supplemental recommendations. The staff of Vinyard & Associates, Inc. is available for supplemental consultation as necessary.

This office would be pleased to review site grading and drainage plans to evaluate conformance with the recommendations presented herein. All site earthwork should be observed by a

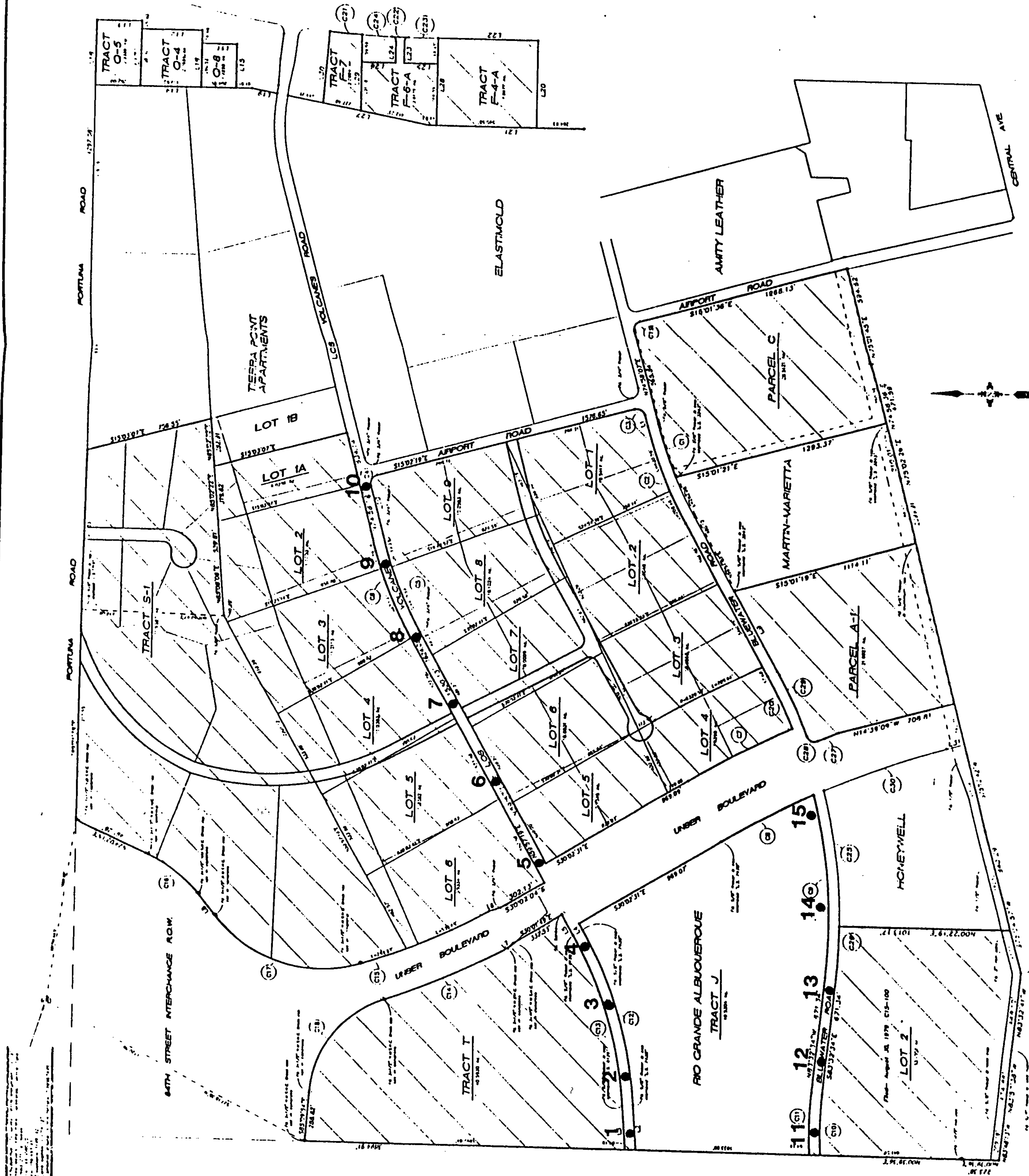
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qualified Geotechnical Engineer or his representative. Vinyard & Associates, Inc. would be pleased to provide these services.

Vinyard & Associates, Inc.

Martin D. Vinyard, PE

File: 93-1-90



LINE	DATE	DESCRIPTION	AMOUNT	BALANCE
1	1980	1/1	100.00	100.00
2	1980	2/1	50.00	50.00
3	1980	3/1	25.00	25.00
4	1980	4/1	12.50	12.50
5	1980	5/1	6.25	6.25
6	1980	6/1	3.12	3.12
7	1980	7/1	1.56	1.56
8	1980	8/1	.78	.78
9	1980	9/1	.39	.39
10	1980	10/1	.19	.19
11	1980	11/1	.09	.09
12	1980	12/1	.05	.05
13	1980	12/31		100.00

CURVE TABLE

CURVE	ANGLE	PERCENT	PERCENT
1	100	100	100
2	100	100	100
3	100	100	100
4	100	100	100
5	100	100	100
6	100	100	100
7	100	100	100
8	100	100	100
9	100	100	100
10	100	100	100
11	100	100	100
12	100	100	100
13	100	100	100
14	100	100	100
15	100	100	100
16	100	100	100
17	100	100	100
18	100	100	100
19	100	100	100
20	100	100	100
21	100	100	100
22	100	100	100
23	100	100	100
24	100	100	100
25	100	100	100
26	100	100	100
27	100	100	100
28	100	100	100
29	100	100	100
30	100	100	100
31	100	100	100
32	100	100	100
33	100	100	100
34	100	100	100
35	100	100	100
36	100	100	100
37	100	100	100
38	100	100	100
39	100	100	100
40	100	100	100
41	100	100	100
42	100	100	100
43	100	100	100
44	100	100	100
45	100	100	100
46	100	100	100
47	100	100	100
48	100	100	100
49	100	100	100
50	100	100	100
51	100	100	100
52	100	100	100
53	100	100	100
54	100	100	100
55	100	100	100
56	100	100	100
57	100	100	100
58	100	100	100
59	100	100	100
60	100	100	100
61	100	100	100
62	100	100	100
63	100	100	100
64	100	100	100
65	100	100	100
66	100	100	100
67	100	100	100
68	100	100	100
69	100	100	100
70	100	100	100
71	100	100	100
72	100	100	100
73	100	100	100
74	100	100	100
75	100	100	100
76	100	100	100
77	100	100	100
78	100	100	100
79	100	100	100
80	100	100	100
81	100	100	100
82	100	100	100
83	100	100	100
84	100	100	100
85	100	100	100
86	100	100	100
87	100	100	100
88	100	100	100
89	100	100	100
90	100	100	100
91	100	100	100
92	100	100	100
93	100	100	100
94	100	100	100
95	100	100	100
96	100	100	100
97	100	100	100
98	100	100	100
99	100	100	100
100	100	100	100

BOUNDARY RETACEMENT BY SURV-TEK, INC.
CONCEPTUAL DEVELOPMENT PLAN BY CONSENSUS PLANNING

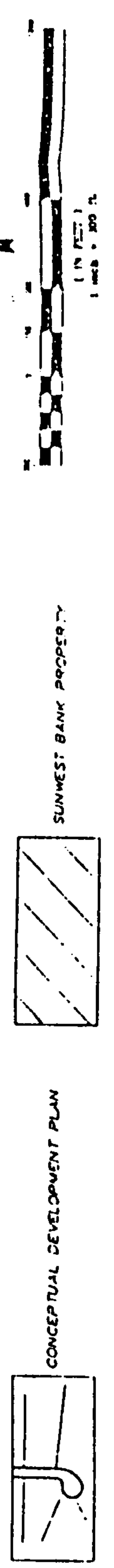
EASTERLING & ASSOCIATES, INC.
CONSULTING ENGINEERS
ONE JAMES ST., 10TH FLOOR
ALBANY, NEW YORK 12202
TEL: 783-0001 FAX: 783-0002

ATRISCO BUSINESS PARK
CITY OF ALBUQUERQUE
BERNALILLO COUNTY, NEW MEXICO

FIGURE NO.: 1

FIGURE 199J

• TEST PIT LOCATION



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LOG OF TEST PIT NO. 1

Project: Atrisco Business Park Project No. 93-1-90
 Elevation - Top of Test Hole: n/a Date Drilled: 5/24/93
 Depth to Groundwater: not encountered Drilling Method: 24" Backhoe

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5		B		6.2	1, 2	SM	SAND, silty, fine-grained, poorly graded, moist to medium moist, brown
							Slightly moist
		B		1.9	1		Very gravelly lens, fine to coarse, slightly silty
							Silty sand
							Weakly cemented
10							Bottom of pit at 10'
15							
20							
25							
30							

ADDITIONAL TESTS: 1 = Sieve Analysis · 2 = Atterberg Limits 3 = Direct Shear 4 = R-Value 5 = Other

V
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ALOG OF TEST PIT NO. 2

Project: Atrisco Business Park Project No. 93-1-90
Elevation - Top of Test Hole: n/a Date Drilled: 5/24/93
Depth to Groundwater: not encountered Drilling Method: 24" Backhoe

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5		B		5.5	1,2	SM	SAND, silty, fine-grained, poorly graded, moist, light brown
		B		4.6			Very silty, weakly cemented, slightly moist
		B		1.3			Slightly silty, fine to coarse-grained
10							Bottom of pit at 9-1/2'
15							
20							
25							
30							

ADDITIONAL TESTS: 1 = Sieve Analysis 2 = Atterberg Limits 3 = Direct Shear 4 = R-Value 5 = Other

Figure 3

V
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LOG OF TEST PIT NO. 3

Project: Atrisco Business Park Project No. 93-1-90
 Elevation - Top of Test Hole: n/a Date Drilled: 5/24/93
 Depth to Groundwater: not encountered Drilling Method: 24" Backhoe

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5		B		4.7		GM	GRAVEL, silty, fine to coarse-grained, very sandy, slightly moist, brown
		B					
10						SM	SAND, silty, fine-grained
15							Bottom of pit at 9'
20							
25							
30							

ADDITIONAL TESTS: 1 = Sieve Analysis 2 = Atterberg Limits 3 = Direct Shear 4 = R-Value 5 = Other

V
&
ALOG OF TEST PIT NO. 4

Project: Atrisco Business Park Project No. 93-1-90
Elevation - Top of Test Hole: n/a Date Drilled: 5/24/93
Depth to Groundwater: not encountered Drilling Method: 24" Backhoe

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5		B		2.4	1,2,4	SM	SAND, silty to slightly silty, fine to medium-grained, poorly graded, slightly moist, light brown
							Slightly silty, fine to coarse-grained, gravelly, fine to coarse
							Silty fine-grained
10							Bottom of pit at 9'
15							
20							
25							
30							

ADDITIONAL TESTS: 1 = Sieve Analysis 2 = Atterberg Limits 3 = Direct Shear 4 = R-Value 5 = Other

Figure 5

V
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LOG OF TEST PIT NO. 5

Project: Atrisco Business Park Project No. 93-1-90
 Elevation - Top of Test Hole: n/a Date Drilled: 5/24/93
 Depth to Groundwater: not encountered Drilling Method: 24" Backhoe

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5		B		4.1	1, 2	SM	SAND, silty, fine to medium-grained, poorly graded, slightly moist to moist, brown Very silty, weakly cemented Silty
10							Bottom of pit at 9'
15							
20							
25							
30							

ADDITIONAL TESTS: 1 = Sieve Analysis 2 = Atterberg Limits 3 = Direct Shear 4 = R-Value 5 = Other

V
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A

LOG OF TEST PIT NO. 6

Project: Atrisco Business Park Project No. 93-1-90
 Elevation - Top of Test Hole: n/a Date Drilled: 5/24/93
 Depth to Groundwater: not encountered Drilling Method: 24" Backhoe

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5		B	2.2	1,2		SM	SAND, silty, fine to medium-grained, poorly graded, slightly moist, brown
							Slightly silty
							Fine to coarse-grained lens, slightly moist
		B	2.8				
							Very silty
10							Bottom of pit at 9'
15							
20							
25							
30							

ADDITIONAL TESTS: 1 = Sieve Analysis 2 = Atterberg Limits 3 = Direct Shear 4 = R-Value 5 = Other

V
&
ALOG OF TEST PIT NO. 7Project: Atrisco Business Park Project No. 93-1-90Elevation - Top of Test Hole: n/a Date Drilled: 5/24/93Depth to Groundwater: not encountered Drilling Method: 24" Backhoe

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5		B		6.9	1, 2, 4	SM	SAND, very silty to silty, fine to medium-grained, poorly graded, moist, brown
		B					Slightly silty, fine to coarse-grained
							Gravelly
10							Bottom of pit at 9'
15							
20							
25							
30							

ADDITIONAL TESTS: 1 = Sieve Analysis 2 = Atterberg Limits 3 = Direct Shear 4 = R-Value 5 = Other

V
&
A

LOG OF TEST PIT NO. 8

Project: Atrisco Business Park Project No. 93-1-90
 Elevation - Top of Test Hole: n/a Date Drilled: 5/24/93
 Depth to Groundwater: not encountered Drilling Method: 24" Backhoe

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5		B		6.7	1,2	SM	SAND, silty to very silty, fine to medium-grained, poorly graded, moist, brown silty Fine to coarse-grained
10							Bottom of pit at 9'
15							
20							
25							
30							

ADDITIONAL TESTS: 1 = Sieve Analysis 2 = Atterberg Limits 3 = Direct Shear 4 = R-Value 5 = Other

V
&
A

LOG OF TEST PIT NO. 9

Project: Atrisco Business Park Project No. 93-1-90
 Elevation - Top of Test Hole: n/a Date Drilled: 5/24/93
 Depth to Groundwater: not encountered Drilling Method: 24" Backhoe

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5		B		4.7	1,2	SM	SAND, silty, fine to medium-grained, poorly graded, moist, light brown Very silty Silty to slightly silty, fine to coarse-grained Silty, fine-grained
10							Bottom of pit at 9'
15							
20							
25							
30							

ADDITIONAL TESTS: 1 = Sieve Analysis 2 = Atterberg Limits 3 = Direct Shear 4 = R-Value 5 = Other

V
&
A

LOG OF TEST PIT NO. 10

Project: Atrisco Business Park Project No. 93-1-90
 Elevation - Top of Test Hole: n/a Date Drilled: 5/24/93
 Depth to Groundwater: not encountered Drilling Method: 24" Backhoe

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5		B		5.6	1, 2	SM	SAND, silty, fine to medium-grained, poorly graded, moist, light brown
							Silty to slightly silty lens
		B					Very silty
10							Bottom of pit at 9'
15							
20							
25							
30							

ADDITIONAL TESTS: 1 = Sieve Analysis 2 = Atterberg Limits 3 = Direct Shear 4 = R-Value 5 = Other

V
&
A

LOG OF TEST PIT NO. 11

Project: Atrisco Business Park Project No. 93-1-90
 Elevation - Top of Test Hole: n/a Date Drilled: 5/24/93
 Depth to Groundwater: not encountered Drilling Method: 24" Backhoe

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5		B		6.0	1,2	SM	SAND, silty to very silty, fine-grained, poorly graded, moist, brown
							Silty, medium moist
							Very silty
							Silty, slightly moist
10		B					
15							Bottom of pit at 9-1/2'
20							
25							
30							

ADDITIONAL TESTS: 1 = Sieve Analysis 2 = Atterberg Limits 3 = Direct Shear 4 = R-Value 5 = Other

V
&
A

LOG OF TEST PIT NO. 12

Project: Atrisco Business Park Project No. 93-1-90
 Elevation - Top of Test Hole: n/a Date Drilled: 5/24/93
 Depth to Groundwater: not encountered Drilling Method: 24" Backhoe

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5				12.5	1,2	SM	SAND, silty, fine-grained, poorly graded, moist, light brown
		B				SC	Clayey sand lens
		B					
						SM	Slightly moist
		B					
10				1.9			Fine to coarse-grained
15							Bottom of pit at 9-1/2'
20							
25							
30							

ADDITIONAL TESTS: 1 = Sieve Analysis 2 = Atterberg Limits 3 = Direct Shear 4 = R-Value 5 = Other

V
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ALOG OF TEST PIT NO. 13

Project: Atrisco Business Park Project No. 93-1-90
Elevation - Top of Test Hole: n/a Date Drilled: 5/24/93
Depth to Groundwater: not encountered Drilling Method: 24" Backhoe

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5		B	2.1	1,2,4		SM	SAND, silty, fine to coarse-grained, slight fine to coarse gravel, poorly graded, sil. moist, light brown
		B	5.2	1			Mostly fine-grained, medium moist
							Very silty lenses
							Silty to slightly silty, fine to coarse-grained
10							Bottom of pit at 9-1/2'
15							
20							
25							
30							

ADDITIONAL TESTS: 1 = Sieve Analysis 2 = Atterberg Limits 3 = Direct Shear 4 = R-Value 5 = Other

V
&
A

LOG OF TEST PIT NO. 14

Project: Atrisco Business Park Project No. 93-1-90
 Elevation - Top of Test Hole: n/a Date Drilled: 5/24/93
 Depth to Groundwater: not encountered Drilling Method: 24" Backhoe

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5		B		4.2	1, 2	SM	SAND, silty, fine to medium-grained, poorly graded, moist, brown
		B		2.5	1		Mostly medium-grained
		B		2.1			Mostly fine-grained, slightly moist
10							Bottom of pit at 9'
15							
20							
25							
30							

ADDITIONAL TESTS: 1 = Sieve Analysis 2 = Atterberg Limits 3 = Direct Shear 4 = R-Value 5 = Other

V
&
A

LOG OF TEST PIT NO. 15

Project: Atrisco Business Park Project No. 93-1-90
Elevation - Top of Test Hole: n/a Date Drilled: 5/24/93
Depth to Groundwater: not encountered Drilling Method: 24" Backhoe

Depth, feet	Blows/Foot	Sample Type	Dry Density pcf	Water Content, %	Additional Testing	Unified Classification	Material Description
5		B		4.9	1,2	SM	SAND, silty to slightly silty, fine to medium-grained, poorly graded, moist, light brown
		B				SP-SM	SAND, slightly silty, fine to medium-grained, slight fine to coarse gravel, poorly graded, slightly moist, light brown
10							Bottom of pit at 9'
15							
20							
25							
30							

ADDITIONAL TESTS: 1 = Sieve Analysis 2 = Atterberg Limits 3 = Direct Shear 4 = R-Value 5 = Other

Figure 16

NOTES - LOGS OF TEST PITTS

Test pit locations were determined by compass bearing and pacing distances from known topographic points.

"Drilling Method" refers to the equipment utilized to advance the test pit. A rubber tired backhoe with a 24" bucket was utilized.

"S" under "Sample Type" indicates a Standard Penetration test (ASTM D-1586). The Standard Penetration sampler is 2 inches in outside diameter and 1 3/8 inches inside diameter.

"R" under "Sample Type" indicates a 3 inch outside diameter by 2.5 inch inside diameter sampler. The sampler is lined with 1 inch high brass rings.

"B" under "Sample Type" indicates a bulk sample.

"Blows Per Foot" indicates the number of blows of a 140 pound hammer falling 30 inches required to drive the indicated sampler 12 inches.

"NR" under "Blows/Foot" indicates that no sample was recovered.

"Dry Density PCF" indicates the laboratory determined soil dry density in pounds per cubic foot.

"Water Content %" indicates the laboratory determined soil moisture content in percent (ASTM D-2216).

"Unified Classification" indicates the field soil classification as per ASTM D-2488. When appropriate, the field classification is modified based upon subsequent laboratory tests.

Variations in soil profile, consistency, and moisture content may occur between test holes. Subsurface conditions may also vary between test holes and with time.

Vinyard & Associates, Inc.

R - Value Test Results

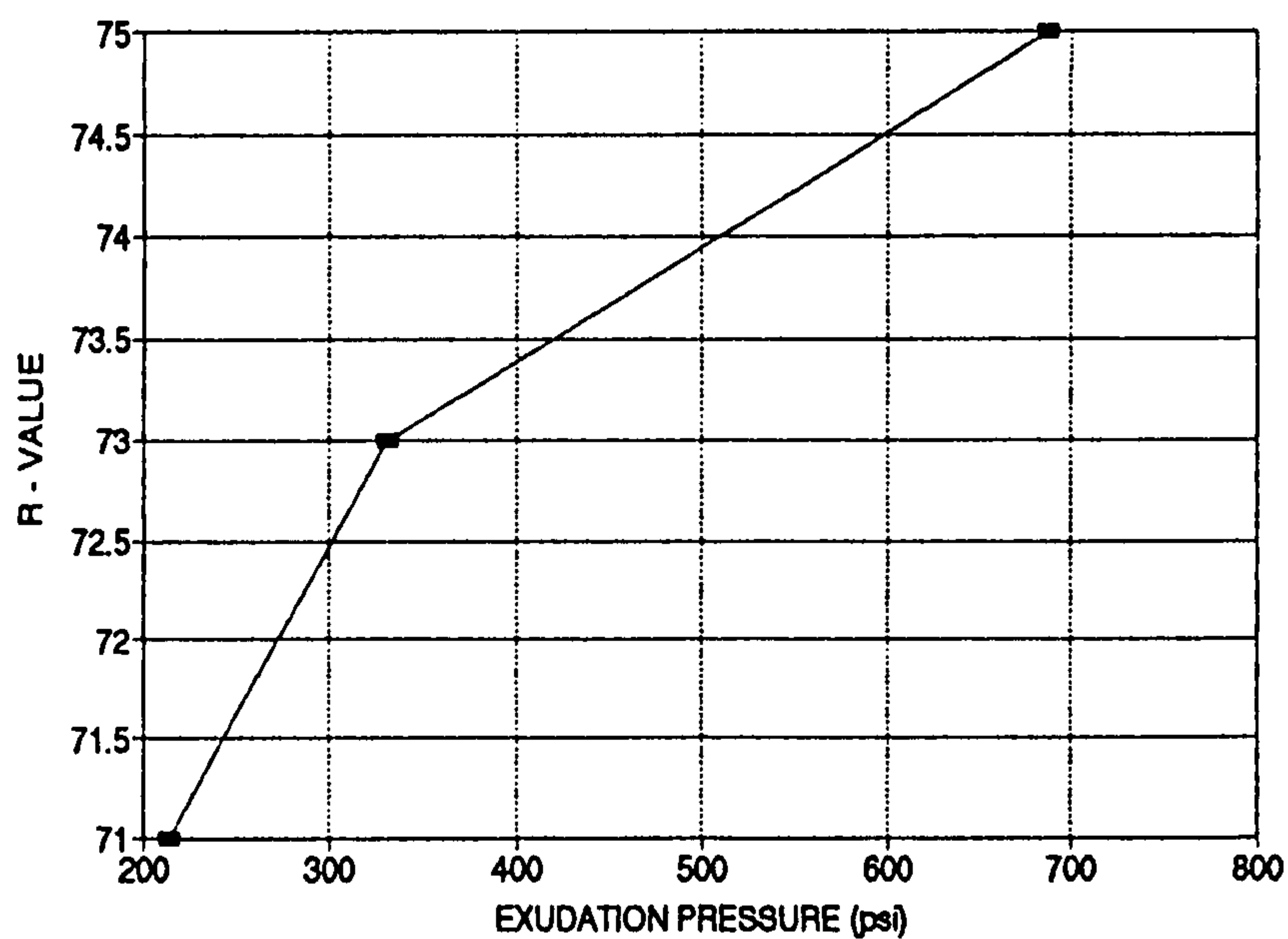
Project No.: 93-1-90

Client: SunWest Bank

Sample Location: Test Pit #4 @ 2'

Sample No.	A	B	C
Moisture Content (%)	11.5	11.9	11.1
Dry Density (PCF)	114	114	116.7
Expansion Pressure (PSI)	0.0	0.0	0.0
Exudation Pressure (PSI)	214	331	688
R - Value	71	73	75

R - Value at 300 PSI 72



Vinyard & Associates, Inc.

R - Value Test Results

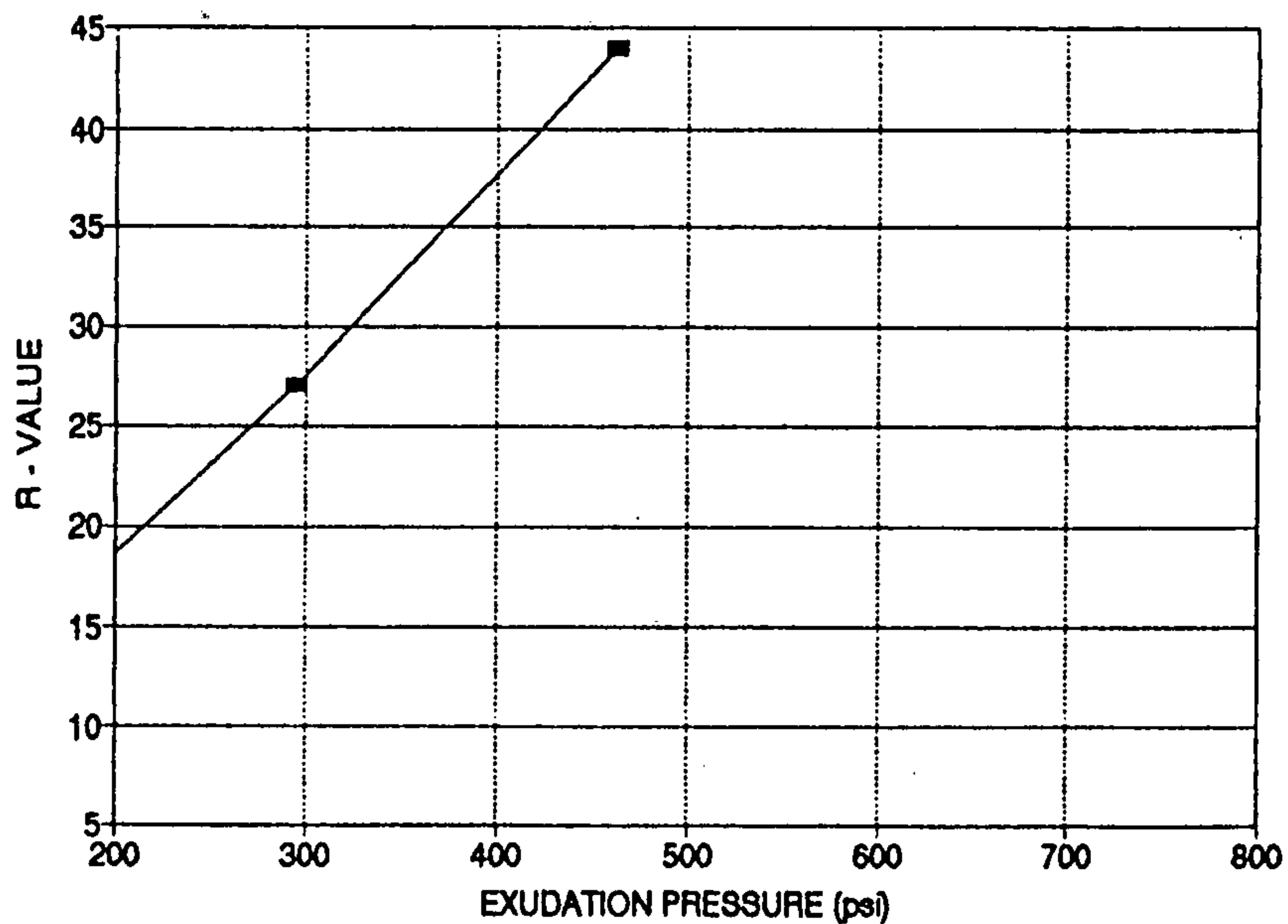
Project No.: 93-1-90

Client: SunWest Bank

Sample Location: Test Pit #7 @ 2'

Sample No.	A	B	C
Moisture Content (%)	13.6	12.2	10.9
Dry Density (PCF)	116.2	122.2	124.2
Expansion Pressure (PSI)	0.0	0.0	0.0
Exudation Pressure (PSI)	91	295	463
R - Value	9	27	44

R - Value at 300 PSI 27



Vinyard & Associates, Inc.

R - Value Test Results

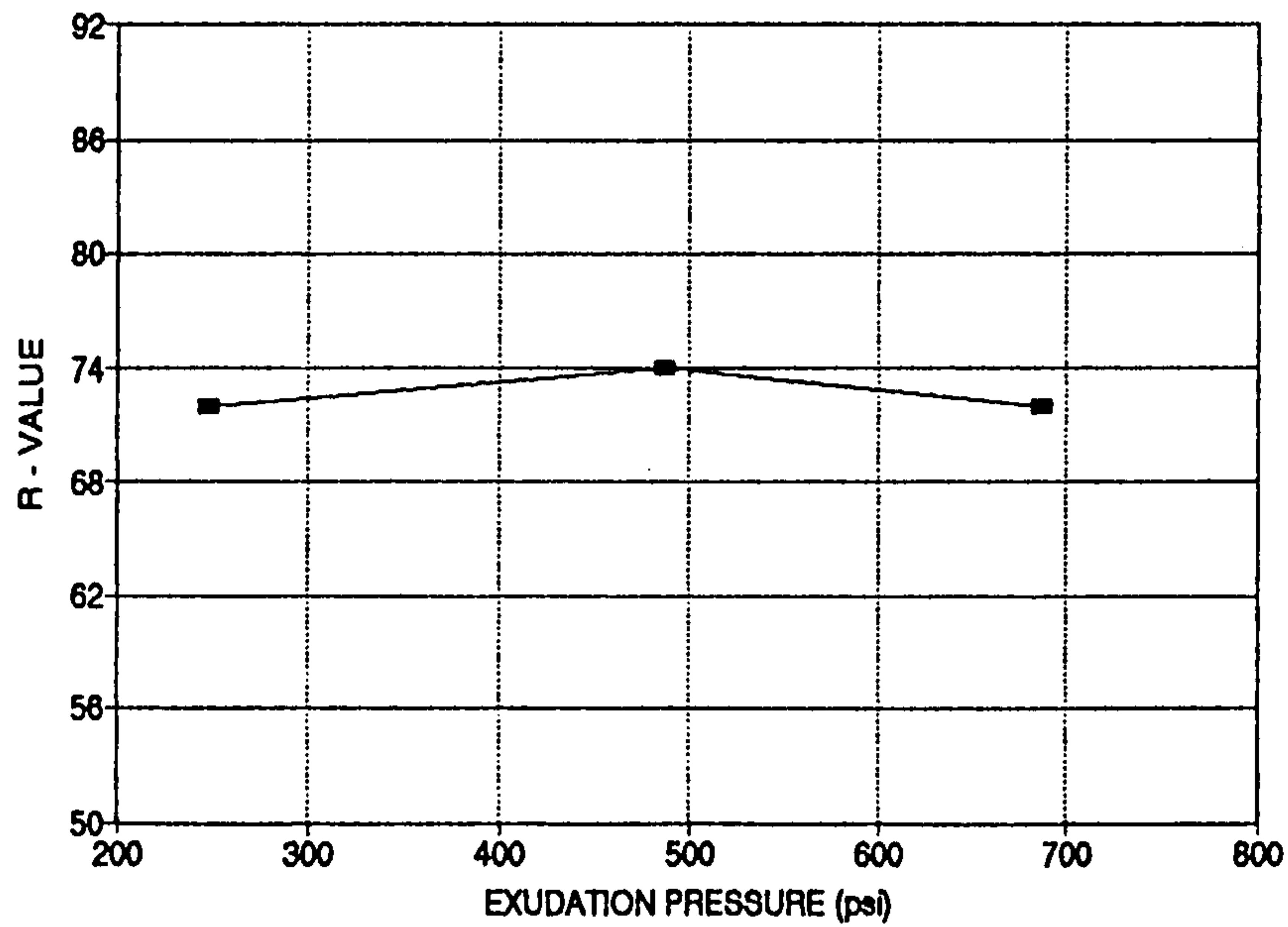
Project No.: 93-1-90

Client: SunWest Bank

Sample Location: Test Pit #13 @ 2'

Sample No.	A	B	C
Moisture Content (%)	12.5	11.9	11.5
Dry Density (PCF)	113	114.7	114.5
Expansion Pressure (PSI)	0.0	0.0	0.0
Exudation Pressure (PSI)	248	487	687
R - Value	72	74	72

R - Value at 300 PSI 72



PAVEMENT SECTION DESIGN

DESIGN R-VALUE = 55

SOIL SUPPORT VALUE = 6.920

CURRENT AWDT = 3000

TRAFFIC :

ESAL FACTOR

SUT = 3%

.1890

STT = 1%

2.3719

MTT = 1%

2.3187

CARS = 95%

.0008

GROWTH FACTOR = 4%

$$ESAL = [(3000)(29.78)(365)] [(.03)(.1890) + (.01)(2.3719) + (.01)(2.3187) + (.95)(.0008)]$$

$$ESAL = (32.6 \times 10^6)(.0533)$$

$$ESAL = 1.7 \times 10^6 \text{ (TWO LANE)}$$

$$\text{WEIGHTED STRUCTURAL NUMBER} = 2.78 \text{ (TWO LANE)}$$

$$ESAL \text{ (FOUR LANE)} = (1.7 \times 10^6)(0.9) = 1.5 \times 10^6$$

$$\text{WEIGHTED STRUCTURAL NUMBER} = 2.70 \text{ (FOUR LANE)}$$

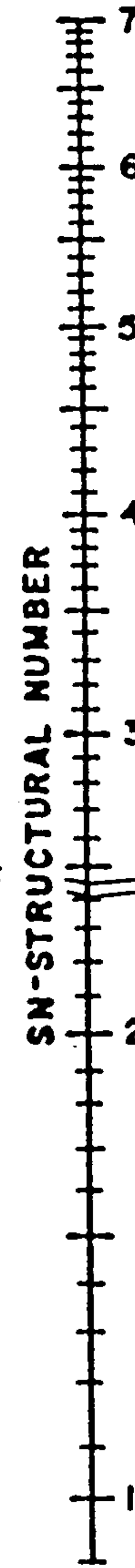
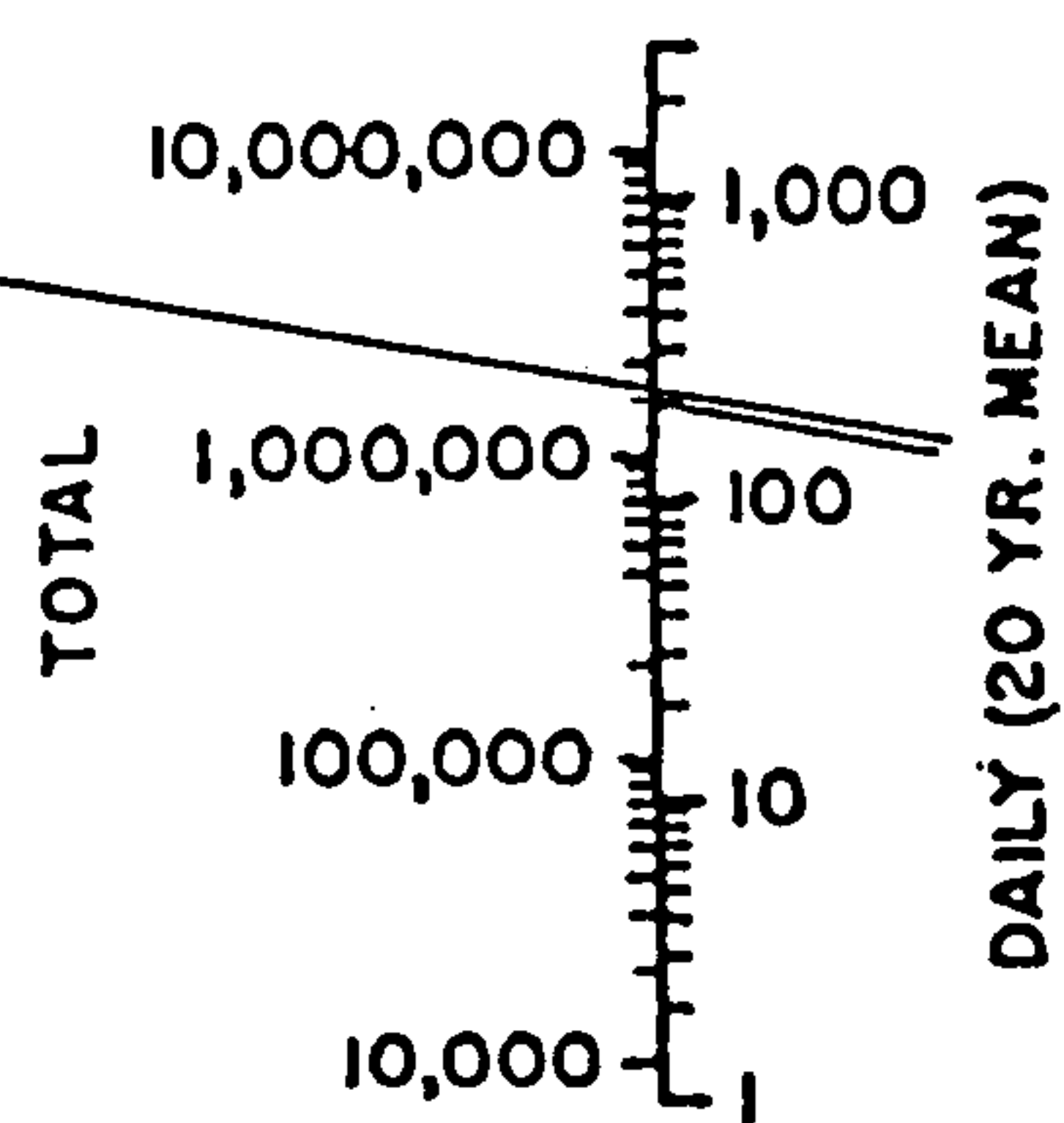
S-SOIL SUPPORT VALUE

$$SN = \left[\frac{1.0504 \cdot W_p^{0.10684} \cdot R^{0.10684}}{10^{0.039714(SS-3)} \cdot 10^{0.10684 G_{1/\beta}}} - 1 \right]$$

P_f = SERVICIBILITY INDEX = 2.5
 R = REGIONAL FACTOR
 USE 2.0 FOR CITY OF ALBUQUERQUE

Serviceability Index (P_f) = 2.5
 Regional Factor (R) = 2.0 for City of Albuquerque

EQUIV. 18^k SINGLE AXLE LOAD APPLICATIONS



R-REGIONAL FACTOR

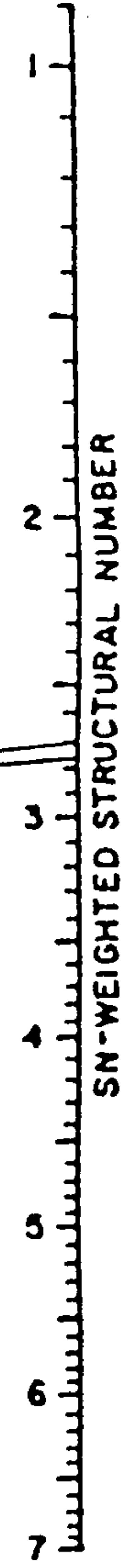
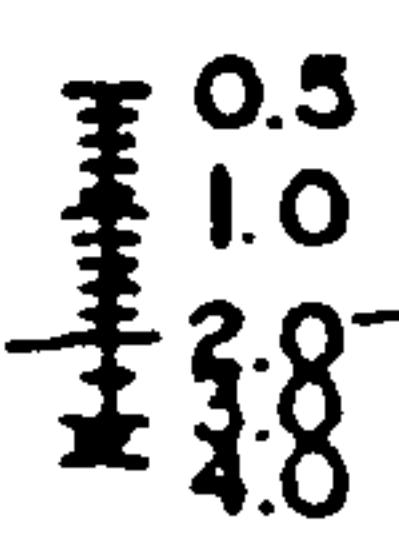


FIGURE 23.4.2

DESIGN CHART
 FLEXIBLE PAVEMENTS
 20-YEAR TRAFFIC ANALYSIS

FIGURE 23.4.3 - STRUCTURAL DESIGN COMPUTATION FORM

PROJECT NAME: ATRISLO BUSINESS PARK

STREET: _____

PROJECT NO. : 93-1-90

FROM: _____

TO: _____

DESIGN ADL _____

COMPUTED BY: M.D.V.

DESIGN SN 2.78 (TWO LANE)

Alternate	Subbase	CTB	BTB	ABC	AC	PMSC	SN
A	<u>x(0.08)=</u>	<u>x(0.20)=</u>	<u>x(0.25)=</u>	<u>x(0.10)=</u>	^{0.42} <u>x(~~0.25~~)=</u>	<u>x(0.25)=</u>	_____
B	_____	_____	_____	<u>11 (0.10)</u>	<u>(4) (.42)</u>	_____	<u>2.78</u>
C	_____	_____	_____	<u>7 (0.10)</u>	<u>(5) (.42)</u>	_____	<u>2.80</u>
D	_____	_____	_____	_____	_____	_____	_____
E	_____	_____	_____	_____	_____	_____	_____
F	_____	_____	_____	_____	_____	_____	_____

Design SN _____

FIGURE 23.4.3 - STRUCTURAL DESIGN COMPUTATION FORM

PROJECT NAME: ATRISCO BUSINESS PARK

PROJECT NO. : 93-1-90

STREET: _____

FROM: _____

TO: _____

DESIGN ADL _____

COMPUTED BY: NDV

DESIGN SN 2.70 (FOUR LANE)

Alternate	Subbase	CTB	BTB	ABC	AC	PMSC	SN
A	<u>x(0.08)=</u>	<u>x(0.20)=</u>	<u>x(0.25)=</u>	<u>x(0.10)=</u>	^{0.42} <u>~~x(0.25)=~~</u>	<u>x(0.25)=</u>	
B				<u>(10)(0.10)</u>	<u>4(.42)</u>		<u>2.68</u>
C				<u>(8)(0.10)</u>	<u>(4.5)(.42)</u>		<u>2.69</u>
D							
E							
F							

Design SN _____

V
&
A

SUMMARY OF LABORATORY TEST DATA

Test Hole No.	Depth (Feet)	Unified Classification	Natural Dry Density (pcf)	Natural Moisture Content (%)	Atterberg Limits		SIEVE ANALYSIS % PASSING BY WEIGHT										DESCRIPTION
					LL	PI	1 1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200	
1	2	SM	-	6.2	NV	NP	-	-	-	100	99	98	95	82	51	23.7	SAND, silty
1	5	SP-SM	-	1.9	-	-	100	94	88	80	72	63	53	41	22	9.3	SAND, slightly silty, gravelly
2	2	SM	-	5.5	NV	NP	-	-	100	99	98	95	87	70	41	19.2	SAND, silty
2	5	-	-	4.6	-	-	-	-	-	-	-	-	-	-	-	-	
2	8	-	-	1.3	-	-	-	-	-	-	-	-	-	-	-	-	
3	2	-	-	4.7	-	-	-	-	-	-	-	-	-	-	-	-	
4	2	SP-SM	-	2.4	NV	NP	-	-	-	100	99	97	86	58	20	5.2	SAND, slightly silty
5	2	SM	-	4.1	NV	NP	-	-	-	100	99	98	93	76	39	17.8	SAND, silty
6	2	SP	-	2.2	NV	NP	-	100	98	94	87	73	56	36	13	4.0	SAND, trace silt, slightly gravelly
6	6	-	-	2.8	-	-	-	-	-	-	-	-	-	-	-	-	
7	2	SM	-	6.9	18	3	-	-	-	-	100	99	95	82	53	28.7	SAND, silty, trace clay
8	2	SM	-	6.7	NV	NP	-	-	-	100	99	98	94	82	50	23.9	SAND, silty
9	2	SM	-	4.7	NV	NP	-	-	100	99	98	94	84	66	35	12.1	SAND, silty
10	2	SM	-	5.6	NV	NP	-	-	100	99	98	94	81	60	32	16.8	SAND, silty
11	1 1/2	SC	-	6.0	22	12	-	-	-	100	99	98	94	78	49	30.1	SAND, silty, clayey
12	3	SC	-	12.5	30	17	-	-	-	100	99	98	93	81	59	43.8	SAND, very clayey
12	6	-	-	1.9	-	-	-	-	-	-	-	-	-	-	-	-	
13	2	SP-SM	-	2.1	NV	NP	-	-	-	-	100	99	97	79	35	9.4	SAND, slightly silty
13	5	SM	-	5.2	-	-	-	-	-	100	99	97	92	81	56	33.2	SAND, very silty

NV - indicates no value
NP - indicates non-plastic

Project No. 93-1-90
Table 1

V
&
A

SUMMARY OF LABORATORY TEST DATA

Test Hole No.	Depth (Feet)	Unified Classification	Natural Dry Density (pcf)	Natural Moisture Content (%)	Atterberg Limits		SIEVE ANALYSIS % PASSING BY WEIGHT										DESCRIPTION
					LL	PI	1 1/2"	3/4"	3/8"	No. 4	No. 8	No. 16	No. 30	No. 50	No. 100	No. 200	
14	2	SM	-	4.2	NV	NP	-	100	99	98	96	92	82	63	32	13.0	SAND, silty, trace gravel
14	4	SP	-	2.5	-	-	-	-	100	98	93	78	54	32	12	4.5	SAND, trace silt, trace gravel
14	8	-	-	2.1	-	-	-	-	-	-	-	-	-	-	-	-	
15	2	SM	-	4.9	NV	NP	-	-	-	100	99	98	91	77	43	15.0	SAND, silty

NV - Indicates no value

NP - Indicates non-plastic

Project No. 93-1-90
Table 1 Cont.