CITY OF ALBUQUERQUE
NEW MEXICO

AMOLE DEL NORTE
STORM DRAINAGE FACILITIES

TOWER/SAGE
DRAINAGE MASTER PLAN

RECEIVED
OCT 15 1997
HYDROLOGY SECTION

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
ALBUQUERQUE, NEW MEXICO

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12-12-05

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ATTENTION: Hydrology
505-924-3900

Records Withdrawal Form

Project No. L-9/D31 **Date:** 12-12-05

Project Title: Tower/Sage Drainage Master Plan

a. File b. Mylars c. Redlines/Comments
d. Other _____

Requested by: Karen Kline Tierra West LLC **Phone No.:** 858-3100 x+220
Name and Company

Comments:
PLEASE COPY ENTIRE FILE & SEND (DELIVER) COPY TO TIERRA WEST LLC 8509 JEFFERSON & DELIVER ORIGINAL BACK TO KRISTAL METRO/Read Bingham @ ONE STOP SHOP - PLAZA DEL SOL 2nd FLR WEST SIDE

Anticipated Return Date: 12-13-05

I hereby accept full responsibility for the security of the above noted records/plans until return receipt acknowledgement is completed. Records/plans will be returned to the Development and Building Services Center on or before the indicted anticipated return date.

Delivery Picked Up By:

Name: Lance McClurkett **Organization:** Abq Reprographics
Print

Signed: _____ **Date:** 12/12/2005

Office Use Only

Return Acknowledged:

Received By: _____ **Date:** 12/13/05
Print

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Tower/Sage Drainage Master Plan ZONE ATLAS/DRNG. FILE #: L-9, L-10, M-9

DRB #: - EPC #: - WORK ORDER #: -

LEGAL DESCRIPTION: Lands within the Tower/Sage Drainage Basin, west of Coors Blvd., east of Snow Vista Channel, south of Central Avenue

CITY ADDRESS: Southwest Quadrant

ENGINEERING FIRM: Andrews, Asbury & Robert, Inc. CONTACT: Scott Beeson

ADDRESS: 149 Jackson St. N.E., Albuquerque, NM 87108 PHONE: 265-6631

OWNER: City of Albuquerque Hydrology Division CONTACT: Fred Aguirre

ADDRESS: PHONE: 768-2668

ARCHITECT: CONTACT:

ADDRESS: PHONE:

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

TYPE OF SUBMITTAL:

	DRAINAGE REPORT
X	DRAINAGE PLAN, Master
	CONCEPTUAL GRADING & DRAINAGE PLAN
	GRADING PLAN
	EROSION CONTROL PLAN
	ENGINEER'S CERTIFICATION
	OTHER

PRE-DESIGN MEETING:

X	YES
	NO
	COPY PROVIDED, None 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
X	OTHER Master Plan Approval (SPECIFY)

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HYDROLOGY SECTION

DATE SUBMITTED: October 14, 1997

BY: Scott Beeson

d:\projects\COA-57215\Drainage.Frm

DRAINAGE INFORMATION SHEET

PROJECT TITLE: SPECIAL ASSESSMENT DISTRICT 222 ZONE ATLAS/DRNG.FILE #: L-9 [illegible]

DRB #: N/A **EPC #:** N/A WORK ORDER #

LEGAL DESCRIPTION: N/A

CITY ADDRESS: N/A

ENGINEERING FIRM: THE LARKIN GROUP, INC. CONTACT: RAY MACY

ADDRESS: 8500 MENAUL NE, SUITE A-440, ALBUQUERQUE, NM PHONE: (505) 275-7500

OWNER: CITY OF ALBUQUERQUE CONTACT: ED ADAMS

ADDRESS: P.O. BOX 1293 ALBUQUERQUE, NM 87103 PHONE: (505) 768-3656

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:

_X_ YES

_____ NO

_____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

_____ SKETCH PLAT APPROVAL

_____ PRELIMINARY PLAT APPROVAL

_____ S. DEV. PLAN FOR BLDG. PERMIT 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

_X_ S.A.D. DRAINAGE REPORT

DRAINAGE REQUIREMENTS

OTHER (SPECIFY)

DATE SUBMITTED: May 19, 2000

BY: R.W. Macy

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ANDREWS, ASBURY & ROBERT, INC. CONSULTING ENGINEERS
149 JACKSON STREET NE., ALBUQUERQUE, NEW MEXICO 87108 505-265-6631 FAX 505-266-8112
e-mail: aarnm@ix.netcom.com

October 15, 1997

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

Subject: Tower/Sage Drainage Masterplan

Dear Mr. Aguirre:

Transmitted herewith is the Tower/Sage Drainage Master Plan for the City's final review, approval and acceptance.

This plan has previously been reviewed by the City and as the result of the review conference and comments received, we have incorporated these comments in this plan (dated - revised October 1997).

This master plan outlines the method of drainage for the Tower/Sage Drainage Basin which is a sub-basin of the Amole del Norte drainage area and has been coordinated with the Tierra Bayita Basin plan to the north and the Southern Basin plan to the south. This Southern Basin being more currently known as the Sunrise Estates Basin and the South Amole del Norte Basin.

As you are aware, the westerly (upper portion) of the Tower/Sage Drainage Basin is to be served by storm drainage infrastructure to be constructed under the City's Special Assessment District 222 and this firm is presently completing the detailed drainage analysis report for this Special Assessment District (SAD) project.

In addition, development within this drainage basin is presently taking place and this master plan is being utilized to coordinate the drainage requirements for the various areas of development.

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Although not analyzed in this master plan report, the detailed SAD drainage analysis will address the most current adjustments to the drainage basin boundaries such as the inclusion of the two five-acre tracts north of Drainage Basin A10-D located north of Eucariz Avenue between 86th Street and 90th Street. Also the SAD report will delete drainage basin A11-D directly east of 86th Street between Eucariz Avenue and Tower Road. These basin boundary adjustments are being made at the request of the City in coordination with the development taking place within and adjacent to these tracts and drainage basins.

The final SAD Drainage Analysis report will also reflect the proposed multi-purpose Park/Recreation/Detention Pond Facility to be constructed southeast of the intersection of Tower Road and 86th Street.

The City's early approval and acceptance of this Drainage Master Plan is requested. Please call should you have questions.

Very truly yours,

ANDREWS, ASBURY & ROBERT, INC.

John A. Andrews, P.E.

JAA:edm

Enclosures (2)

cc: Lee Lunsford, w/o encl.
cc: Dan Hogan, w/o encl.

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CITY OF ALBUQUERQUE
NEW MEXICO

AMOLE DEL NORTE
STORM DRAINAGE FACILITIES

TOWER/SAGE
DRAINAGE MASTER PLAN

APRIL 1995

REVISED OCTOBER 1997

Prepared By

ANDREWS, ASBURY & ROBERT, INC.
149 Jackson Street, N.E.
Albuquerque, New Mexico 87108

City of Albuquerque

TOWER/SAGE DRAINAGE MASTER PLAN

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City of Albuquerque

TOWER/SAGE DRAINAGE MASTER PLAN

1.0 INTRODUCTION

The Tower/Sage Drainage Basin is a sub-basin of an overall drainage area known as the Amole Del Norte Drainage Basin located on the West Mesa in the southwest quadrant of the Albuquerque metropolitan area. (See enclosed Vicinity Map, Map No. 1)

In February 1985, Boyle Engineering, Inc. submitted the Design-Development Report for the Evaluation Study of the Amole Del Norte Diversion Facility and the plan presented in such report was adopted by the City of Albuquerque as the Master Drainage Plan for the Amole Del Norte Drainage Basin.

The Amole Del Norte Drainage Basin, which encompasses an area of approximately 6.6 square miles can be broken down into three sub-basins and are identified as follows:

- The Tierra Bayita Drainage Basin - The northern sub-basin of the Amole Del Norte Basin
- The Tower/Sage Drainage Basin - The middle sub-basin of the Amole Del Norte Basin
- The Southern Basin - The southern sub-basin of the Amole Del Norte Basin

The analysis presented in the Boyle Engineering report was utilized in the design and construction of the Amole Del Norte Channel. This channel is to carry the storm water runoff from the overall Amole Del Norte Drainage Basin. Subsequent to the Boyle Engineering Report, and the construction of the Amole Del Norte Channel, the City of Albuquerque adopted revised hydrology standards called AHYMO (Albuquerque Hydrologic Model). This AHYMO standard creates substantially more runoff from drainage basins than the standard previously used. It is, therefore, necessary to re-analyze the drainage basins being served by the Amole Del Norte Channel, and to prepare a plan to manage the storm water runoff.

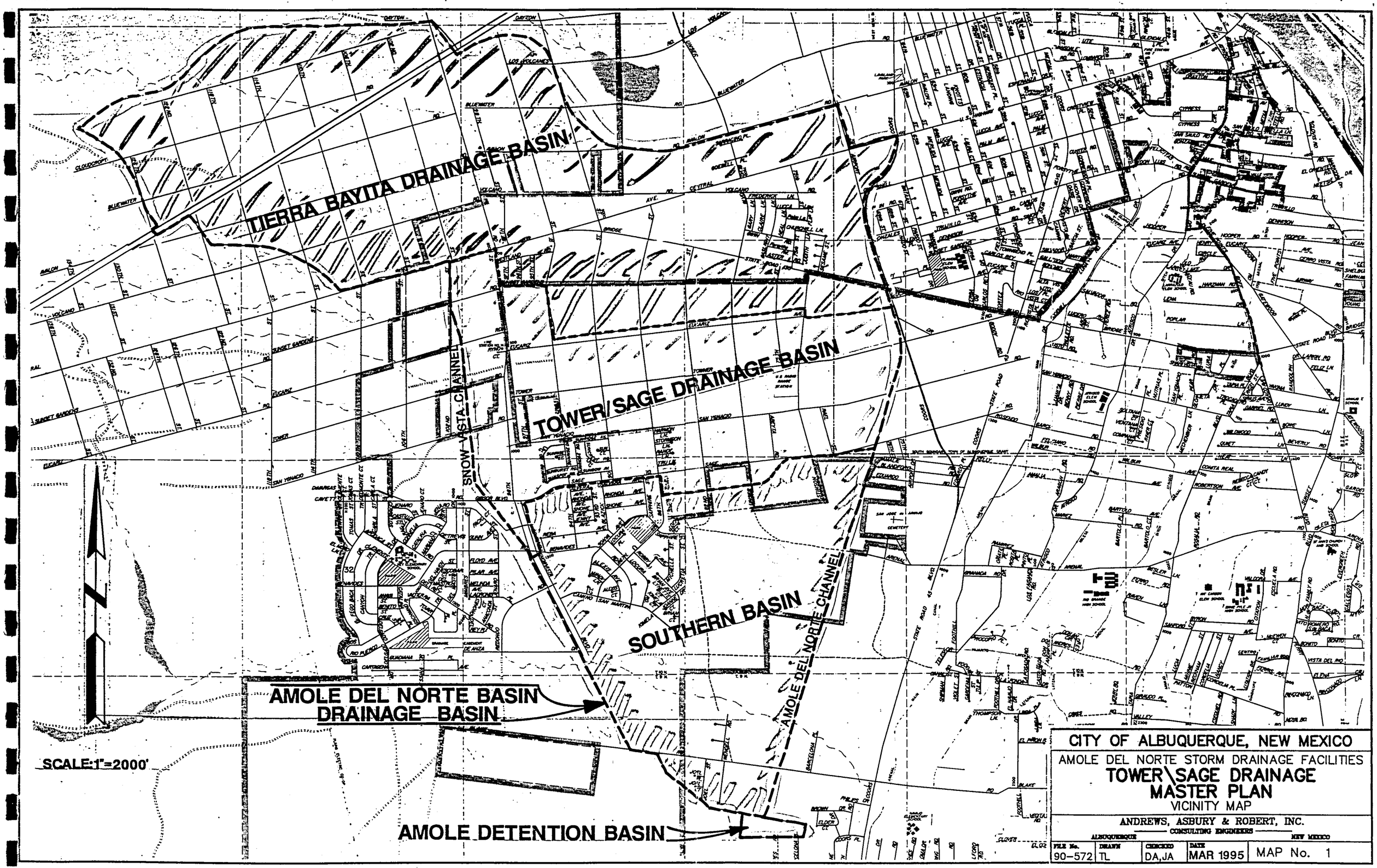
Greiner Inc. has developed a refined drainage plan including proposed drainage facilities for the Tierra Bayita Drainage Basin. The facilities proposed were to be constructed in four phases. Two of these four phases have been constructed, with the remaining two phases planned to be completed by December 1996. The ? what is the status? southern basin remains as presented in the Boyle Engineering, Inc. report and has not been refined or updated as of this date.

I thought this report analyzed the entire Amole De Norte Basin, Even if you consider the Tierra Bayita Basin to be complete, there is Tower/Sage and Southern Basin.

This Tower/Sage Drainage Master Plan is prepared to re-evaluate the runoff generated by the Tower/Sage Drainage Basin utilizing the current AHYMO hydrology standard and to present proposed facilities, as necessary, to accommodate the rate and volume of runoff, and to deliver the runoff to the Amole Del Norte Channel at an acceptable rate so as not to exceed the channel's capacity.

In addition, the City of Albuquerque presently has a Special Assessment District (SAD-222) project in progress for the construction of infrastructure improvements within the westerly portion of the Tower/Sage Drainage Basin. This master plan of drainage is to provide a method for managing the storm drainage from the City's SAD 222 project that is consistent with an overall drainage plan for the basin.

Ask Fred


TIERRA BAYITA DRAINAGE BASIN
TOWER/SAGE DRAINAGE BASIN
SNOW-VISTA CHANNEL
SOUTHERN BASIN
AMOLE DEL NORTE CHANNEL
AMOLE DEL NORTE BASIN
DRAINAGE BASIN
AMOLE DETENTION BASIN
SCALE:1"=2000'
CITY OF ALBUQUERQUE, NEW MEXICO
AMOLE DEL NORTE STORM DRAINAGE FACILITIES
TOWER\SAGE DRAINAGE
MASTER PLAN
VICINITY MAP
ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
ALBUQUERQUE NEW MEXICO
FILE No. 90-572
DRAWN TL
CHECKED DA,JA
DATE MAR 1995
MAP No. 1

2.0 DRAINAGE AREA BOUNDARIES

The basin boundaries are generally described as bounded on the east by the Amole Del Norte Channel; on the west by the Snow Vista Channel; on the north by the southerly boundary of the Tierra Bayita Basin; and, on the south, generally by Sage Road. Map No. 2, included in the back pocket of this report, shows the drainage area boundaries of the Tower/Sage Drainage Basin under the proposed, developed conditions.

The limits of the developed Tower/Sage Drainage Basin were determined primarily from information provided in the "Design-Development Report for the Re-evaluation Study of the Amole Del Norte Storm Diversion Facility." The "Improved Conditions Report for Amole Watershed Drainage Management Plan" was also used; however, to a lesser degree.

Updated topography of the Tower/Sage Basin area dated April 1991 was obtained from Resources Technology, Inc., who are currently preparing a restudy report of the area for FEMA. Based on the updated topography along with reviewing the existing platted streets, some adjustments to the previous boundary have been made:

2.1 The northwest corner of the boundary was modified by down-sizing sub-basin A1-D. A meeting was held with AMAFCA (Albuquerque Metropolitan Arroyo Flood Control Association) drainage engineer, and it was determined that the area west of 102nd Street could become part of the Amole Drainage Basin and allowed to drain into the Snow Vista Channel without significantly affecting the channel capacity.

it looks like it always was a part of the Amole Drainage Basin (Maxines Tower/Sage)

2.2 Area A8-D, located east of 98th Street between Sunset Gardens Road and Eucariz Avenue, was made a part of the Tower/Sage Basin for practical topographic reasons. This area slopes easterly to 94th Street and then 94th

Street slopes to Eucariz Avenue which lies within the Tower/Sage Basin. Previously, A8-D was a portion of the Tierra Bayita Basin.

2.3 At the northeast corner of the basin, the area between Bridge Boulevard and north of sub-basin A16-D was placed in the Tierra Bayita Basin. This area slopes steeply to the north and presently drains to the Tierra Bayita Channel.

2.4 The southern boundary was modified slightly by including a 400-strip south of Sage Road to sub-basins S5-D, S6-D, S7-D, and S8-D. The 400-foot wide strip is relatively flat and, when developed, could drain to Sage Road.

3.0 DRAINAGE BASIN CHARACTERISTICS

3.1 TOPOGRAPHY

The Tower/Sage Drainage Area generally slopes from the northwest to the southeast and has a surface gradient varying from approximately 1.5 percent to 3 percent. The upper northwesterly portions have the steeper slopes. A natural playa currently exists east of Unser Boulevard and west of Stinson Street. Also, fairly steep slopes occur in the far east portion of the drainage basin. The topography of the area is shown on Map No. 2 included in the back pocket of this report.

3.2 SOILS AND VEGETATION

The major portion of the soils within the drainage basin consist of hydrologic Soil Group A and Soil Group B. Generally, Group A soils occur on the westerly portion of the basin in the vicinity of 98th Street and on the far easterly portion of the basin on the steeper slopes directly west of the Amole Del Norte Channel. The remainder of the area consists of Group B soils.

Existing vegetation is relatively sparse throughout the area and consists of an open-type desert grassland. Generally, vegetative coverage is estimated at less than 20 percent. Under developed conditions, it is anticipated that the area will be covered with hard surfaces and various types of landscaping that are consistent with the Land Use proposed in the Tower/Unser Sector Development Plan.

3.3 LAND USE

Under existing conditions, approximately 90 percent of the Tower/Sage Basin area is currently undeveloped. Some development exists adjacent to 98th Street with most of this development near Sage Road at the southwest corner of the basin.

For drainage purposes, developed conditions of the Tower/Sage Drainage Basin assumes development occurring in accordance with zoning and land use presented in the Tower/Unser Sector Development Plan. The majority of the zoning presented in this sector plan provides for residential uses ranging from single family homes to multi-family units up to 20 dwelling units per acre. Proposed commercial and office zoning is minimal within the basin and is limited to areas near the major roadway intersections.

3.4 PLATTING

The major portion of the land in the Tower/Sage Basin area was originally subdivided in 1944, as part of the Town of Atrico Grant. This original subdivision divides the land on a grid into 25-acre blocks separated with public rights-of-way. Each block generally contains five rectangular parcels of approximately five acres, each measuring approximately 204 feet by 1067 feet. Generally, there are separate owners for each five acre parcel, although some individuals own multiple tracts. Replatting in the area is mostly limited to some lands adjacent to 98th Street and at the southwest corner of the basin, east of 98th Street and north of Sage Road.

3.5 ANNEXATION

The westerly portion of the drainage basin consisting of approximately 60 percent of the basin area has been annexed and is currently within the City of Albuquerque municipal limits. The easterly and remaining portion of the basin remains outside the municipal limits. A line designating the municipal limits generally extends north-south through the basin just east of 86th Street.

4.0 EXISTING DRAINAGE FACILITIES

Historically, the drainage areas impacting the Tower/Sage drainage basin from the west were relatively large. However, the construction of the Snow Vista Drainage Channel (concrete-lined) aligned north-south and located approximately 1000 feet west of 98th Street has intercepted and diverted the major historic storm water flows south to the Amole Arroyo and Amole Detention Basin, and away from the Tower/Sage drainage area. This Snow Vista Channel, therefore, determines the west boundary of the basin.

The Amole Del Norte Storm Diversion Facility, located at the east boundary of the drainage basin, consists of a sedimentation basin from Bridge Boulevard to Tower Road, then drains to a concrete-lined channel that begins at Tower Road and Coors Road, then extends southerly varying from approximately 300 feet to 1300 feet west of Coors Road and discharges into the Amole Detention Basin to the south. This facility was installed in 1989 and 1990 and serves as the outlet for the Amole Del Norte Drainage Basin.

Recently, a drainage channel to serve the northerly adjacent Tierra Bayita Drainage Basin was constructed along the southerly side of Bridge Boulevard and extends westerly from the Amole Del Norte Diversion Channel Sedimentation Basin. This channel intercepts flows from the Tierra Bayita Basin and serves as the north boundary of the Tower/Sage Basin along its easterly reaches. ? It looks like the channel serves the Tierra Bayita Basin as some distance North of the northe boundary limit of the Tower/Sage Basin.

At the present time, no drainage facilities exist within the basin itself. The drainage in the basin is basically natural and follows the terrain which slopes from west to east.

The City's ~~recent~~ adoption of AHYMO (Albuquerque Hydrologic Model) as its hydrology standard has caused many of its existing storm drainage systems to be undersized and the Amole Del Norte Channel is one of these systems. This channel

was designed from hydrology developed as part of the "Design Development Report for the Re-Evaluation Study of the Amole Del Norte Storm Diversion Facility" in 1985. The ~~recently~~ adopted AHYMO computer program, together with smaller sub-basin delineation, produces flows considerably higher than flows generated using the older HYMO computer program. Therefore, a drainage plan is required to be developed to control the flows from the drainage basins that are served by the Amole Del Norte Channel so that the capacity of the channel is not exceeded.

5.0 FLOOD PLAINS

use + reference current maps date Sept 1996.

In reviewing the flood boundary and floodway maps for the City of Albuquerque, New Mexico, Bernalillo County (Panel 32 of 50 Community-Panel Number 350002 0032 and Panel 33 of 50 Community-Panel Number 350002 0033) dated October 14, 1983, flood plains are shown to exist on properties in the drainage area. Since the construction of the Snow Vista Channel in 1987, there has been no Letter of Map Revision made for this area. A "Draft-Flood Insurance Restudy Report for Six Areas Within the City of Albuquerque, Bernalillo County, New Mexico Community Number 350002," December 1993 is currently being reviewed by FEMA; however, comments on this restudy report have not been received from FEMA at the time of the writing of this report. The proposed drainage plan, when implemented, will remove the flood plains from the basin.

6.0 HYDROLOGY

Frequency flows were quantified using the latest version of the computer program AHYMO (January 1994) according to "Section 22.2 Hydrology of the Development Process Manual, Volume 2, Design Criteria for the City of Albuquerque, New Mexico," January 1993. For the purpose of this master drainage plan, only fully developed conditions were considered in the computer model.

Rainfall amounts for the frequency events were derived from the NOAA Atlas and as shown in "Section 22.2 Hydrology of the Development Process Manual, Volume 2, Design Criteria for the City of Albuquerque, New Mexico, January 1993," Figures C-1, C-2, and C-3. Sub-basin boundaries were generally broken down into the platted blocks; however, in certain instances, topographic features were considered to determine appropriate boundaries. Sub-basin areas were computed from a 1" = 500' orthophoto topographic map that was produced from April 1991 photography. Land uses were determined from the recommended zoning documented in the "Tower/Unser Sector Development Plan." Time of concentrations were calculated using the SCS Upland Method.

hasn't there been substantial development in the last 6 years to change topo?

Table 1, included hereinafter, links the recommended zoning provided in the "Tower/Unser Sector Development Plan" to the appropriate land treatments used in the AHYMO computer model. Table 2, herein, contains the AHYMO basin parameter worksheet together with peak flows and volumes for each sub-basin. Table 3 presents peak flows and volumes at each analysis point as shown on Map No. 2. AHYMO Output Summary Tables are included in Appendix A of this report. Detailed computer printouts of the AHYMO Model are available for observation at the offices of Andrews, Asbury, & Robert, Inc.

why dont these get turned in?

TABLE 1

TOWER/SAGE DRAINAGE MASTER PLAN
LAND TREATMENTS

R-1 These seem high for "B" + Low "D"

	LAND TREATMENTS			
ZONE DESIGNATION	"A"	"B"	"C"	"D"
RESIDENTIAL				
R-1		50		50
R-T		35		65
R-D (9 UNITS/ACRE)		40		60
R-D (14 UNITS/ACRE)		35		65
R-D (20 UNITS/ACRE)		30		70
R-2		30		70
OFFICE				
O-1		20		80
COMMERCIAL				
C-1		10		90
C-2		10		90

NOTE: ZONING TAKEN FROM TOWER/UNSER SECTOR DEVELOPMENT PLAN

TABLE 2
TOWER/SAGE DRAINAGE MASTER PLAN
AHYMO BASIN PARAMETER WORKSHEET
PEAK BASIN FLOWS AND VOLUMES

(ALL FLOWS & VOLUMES INCLUDE A 5% BULKING FACTOR)

BASIN	AREA (ac.)	AREA (sq.mi.)	LENGTH (ft.)	ELEV. DIFF. (ft.)	SLOPE (%)	K	VEL (fps)	T(c) (hr.)	T(p) (hr.)	LAND TREATMENT (%) A	B	C	D	10 YEAR PEAK FLOW (6hr.) (cfs)	10 YEAR RUNOFF VOLUME (24hr.) (ac.ft.)	100 YEAR PEAK FLOW (6hr.) (cfs)	100 YEAR RUNOFF VOLUME (24hr.) (ac.ft.)
A1-D	29.3	0.0458	400	8.0	2.00	1.0	1.41	0.08	0.05								
			500	3.0	0.60	2.0	1.55	0.09	0.06								
			900	25.0	2.78	3.0	5.00	0.05	0.03								
		TOTAL =						0.22	0.15		24		76	70	3.2	112	5.2
A2-D	25.3	0.0395	200	6.0	3.00	0.7	1.21	0.05	0.03								
			850	23.0	2.71	3.0	4.93	0.05	0.03								
			1000	6.0	0.60	3.0	2.32	0.12	0.08								
		TOTAL =						0.21	0.14		30		70	59	2.6	96	4.2
A3-D	26.8	0.0419	200	4.0	2.00	0.7	0.99	0.06	0.04								
			900	9.0	1.00	3.0	3.00	0.08	0.06								
			750	18.0	2.40	3.0	4.65	0.04	0.03								
		TOTAL =						0.18	0.12		35		65	62	2.6	103	4.3
A4-D	28.1	0.0439	200	6.0	3.00	0.7	1.21	0.05	0.03								
			800	16.0	2.00	3.0	4.24	0.05	0.03								
			1000	6.0	0.60	3.0	2.32	0.12	0.08								
		TOTAL =						0.22	0.15		20		80	69	3.2	110	5.1
A5-D	28.9	0.0452	200	4.0	2.00	0.7	0.99	0.06	0.04								
			950	8.0	0.84	3.0	2.75	0.10	0.06								
			900	18.0	2.00	3.0	4.24	0.06	0.04								
		TOTAL =						0.21	0.14		40		60	61	2.6	103	4.4
A6-D	28.9	0.0452	200	4.0	2.00	0.7	0.99	0.06	0.04								
			950	8.0	0.84	3.0	2.75	0.10	0.06								
			900	18.0	2.00	3.0	4.24	0.06	0.04								
		TOTAL =						0.21	0.14		50		50	54	2.3	95	4.0

SEE MAP NO. 2 FOR BASIN IDENTIFICATION

TABLE 2
TOWER/SAGE DRAINAGE MASTER PLAN
AHYMO BASIN PARAMETER WORKSHEET
PEAK BASIN FLOWS AND VOLUMES

(ALL FLOWS & VOLUMES INCLUDE A 5% BULKING FACTOR)

BASIN	AREA (ac.)	AREA (sq.mi.)	LENGTH (ft.)	ELEV. DIFF. (ft.)	SLOPE (%)	K	VEL (fps)	T(c) (hr.)	T(p) (hr.)	LAND TREATMENT (%) A	B	C	D	10 YEAR PEAK FLOW (6hr.) (cfs)	10 YEAR RUNOFF VOLUME (24hr.) (ac.ft.)	100 YEAR PEAK FLOW (6hr.) (cfs)	100 YEAR RUNOFF VOLUME (24hr.) (ac.ft.)
A7-D	13.2	0.0206	150	1.0	0.67	0.7	0.57	0.07	0.05								
			400	1.0	0.25	3.0	1.50	0.07	0.05								
			900	18.0	2.00	3.0	4.24	0.06	0.04								
		TOTAL =						0.21	0.14		50		50	25	1.0	43	1.8
A8-D	36.5	0.0570	200	4.0	2.00	0.7	0.99	0.06	0.04								
			900	21.0	2.33	3.0	4.58	0.05	0.04								
			1250	6.0	0.48	3.0	2.08	0.17	0.11								
		TOTAL =						0.28	0.19		30		70	73	3.7	119	6.1
A9-D	6.5	0.0102	200	1.0	0.50	0.7	0.49	0.11	0.07								
			900	22.0	2.44	3.0	4.69	0.05	0.04								
		TOTAL =						0.17	0.11		50		50	13	0.5	23	0.9
A10-D	6.5	0.0102	150	2.0	1.33	0.7	0.81	0.05	0.03								
			900	18.0	2.00	3.0	4.24	0.06	0.04								
			100	2.0	2.00	3.0	4.24	0.01	0.00								
		TOTAL =						0.12	0.08		50		50	13	0.5	23	0.9
A11-D	5.5	0.0086	200	1.0	0.50	1.0	0.71	0.08	0.05								
			1000	13.0	1.30	3.0	3.42	0.08	0.05								
			200	2.0	1.00	3.0	3.00	0.02	0.01								
		TOTAL =						0.18	0.12		24		76	14	0.6	23	1.0
A12-D	23.0	0.0359	200	2.0	1.00	0.7	0.70	0.08	0.05								
			950	12.0	1.26	3.0	3.37	0.08	0.05								
			650	8.0	1.23	3.0	3.33	0.05	0.04								
		TOTAL =						0.21	0.14		24		76	56	2.5	91	4.1

SEE MAP NO. 2 FOR BASIN IDENTIFICATION

TABLE 2
TOWER/SAGE DRAINAGE MASTER PLAN
AHYMO BASIN PARAMETER WORKSHEET
PEAK BASIN FLOWS AND VOLUMES

(ALL FLOWS & VOLUMES INCLUDE A 5% BULKING FACTOR)

BASIN	AREA (ac.)	AREA (sq.mi.)	LENGTH (ft.)	ELEV. DIFF. (ft.)	SLOPE (%)	K	VEL (fps)	T(c) (hr.)	T(p) (hr.)	LAND TREATMENT (%) A	B	C	D	10 YEAR PEAK FLOW (6hr.) (cfs)	10 YEAR RUNOFF VOLUME (24hr.) (ac.ft.)	100 YEAR PEAK FLOW (6hr.) (cfs)	100 YEAR RUNOFF VOLUME (24hr.) (ac.ft.)
A13-D	28.9	0.0452	200	3.0	1.50	0.7	0.86	0.06	0.04								
			1000	3.0	0.30	3.0	1.64	0.17	0.11								
			850	7.0	0.82	3.0	2.72	0.09	0.06								
		TOTAL =						0.32	0.21		35		65	52	2.8	86	4.6
A14-D	28.9	0.0452	300	0.5	0.17	1.0	0.41	0.20	0.14								
			1000	4.0	0.40	3.0	1.90	0.15	0.10								
			800	1.0	0.13	3.0	1.06	0.21	0.14								
		TOTAL =						0.56	0.37		30		70	39	2.9	63	4.8
A15-D	16.2	0.0253	200	1.0	0.50	0.7	0.49	0.11	0.07								
			950	4.0	0.42	3.0	1.95	0.14	0.09								
			300	1.0	0.33	3.0	1.73	0.05	0.03								
		TOTAL =						0.30	0.20		40		60	28	1.4	48	2.5
A16-D	40.8	0.0638	200	0.5	0.25	0.7	0.35	0.16	0.11								
			950	1.0	0.11	3.0	0.97	0.27	0.18								
			500	3.0	0.60	3.0	2.32	0.06	0.04								
			1250	56.0	4.48	3.0	6.35	0.05	0.04								
		TOTAL =						0.54	0.36		50		50	43	3.2	76	5.6
A17-D	6.9	0.0108	150	3.0	2.00	0.7	0.99	0.04	0.03								
			900	14.0	1.56	3.0	3.74	0.07	0.04								
			100	1.0	1.00	3.0	3.00	0.01	0.01								
		TOTAL =						0.12	0.08		50		50	14	0.5	24	0.9

SEE MAP NO. 2 FOR BASIN IDENTIFICATION

TABLE 2
TOWER/SAGE DRAINAGE MASTER PLAN
AHYMO BASIN PARAMETER WORKSHEET
PEAK BASIN FLOWS AND VOLUMES

(ALL FLOWS & VOLUMES INCLUDE A 5% BULKING FACTOR)

BASIN	AREA (ac.)	AREA (sq.mi.)	LENGTH (ft.)	ELEV. DIFF. (ft.)	SLOPE (%)	K	VEL (fps)	T(c) (hr.)	T(p) (hr.)	LAND TREATMENT (%) A	B	C	D	10 YEAR PEAK FLOW (6hr.) (cfs)	10 YEAR RUNOFF VOLUME (24hr.) (ac.ft.)	100 YEAR PEAK FLOW (6hr.) (cfs)	100 YEAR RUNOFF VOLUME (24hr.) (ac.ft.)
A18-D	6.6	0.0103	150	2.0	1.33	0.7	0.81	0.05	0.03								
			900	8.0	0.89	3.0	2.83	0.09	0.06								
			100	1.0	1.00	3.0	3.00	0.01	0.01								
		TOTAL =						0.15	0.10		40		60	14	0.6	24	1.0
A19-D	6.9	0.0108	150	1.0	0.67	0.7	0.57	0.07	0.05								
			900	2.0	0.22	3.0	1.41	0.18	0.12								
			100	0.5	0.50	3.0	2.12	0.01	0.01								
		TOTAL =						0.26	0.18		40		60	13	0.6	22	1.1
A20-D	4.4	0.0069	150	1.0	0.67	0.7	0.57	0.07	0.05								
			500	1.0	0.20	3.0	1.34	0.10	0.07								
			100	0.5	0.50	3.0	2.12	0.01	0.01								
		TOTAL =						0.19	0.13		40		60	10	0.4	16	0.7
B1-D	14.7	0.0230	200	5.0	2.50	0.7	1.11	0.05	0.03								
			1150	25.0	2.17	3.0	4.42	0.07	0.05								
		TOTAL =						0.12	0.08		32		68	35	1.5	58	2.4
B2-D	22.4	0.0350	200	6.0	3.00	0.7	1.21	0.05	0.03								
			1100	19.0	1.73	3.0	3.94	0.08	0.05								
			700	15.0	2.14	3.0	4.39	0.04	0.03								
		TOTAL =						0.17	0.11		40		60	49	2.0	83	3.4
B3-D	27.9	0.0436	200	2.0	1.00	0.7	0.70	0.08	0.05								
			1000	16.0	1.60	3.0	3.79	0.07	0.05								
			900	13.0	1.44	3.0	3.61	0.07	0.05								
		TOTAL =						0.22	0.15		50		50	51	2.2	89	3.8

SEE MAP NO. 2 FOR BASIN IDENTIFICATION

TABLE 2
TOWER/SAGE DRAINAGE MASTER PLAN
AHYMO BASIN PARAMETER WORKSHEET
PEAK BASIN FLOWS AND VOLUMES

(ALL FLOWS & VOLUMES INCLUDE A 5% BULKING FACTOR)

BASIN	AREA (ac.)	AREA (sq.mi.)	LENGTH (ft.)	ELEV. DIFF. (ft.)	SLOPE (%)	K	VEL (fps)	T(c) (hr.)	T(p) (hr.)	LAND TREATMENT (%) A	B	C	D	10 YEAR PEAK FLOW (6hr.) (cfs)	10 YEAR RUNOFF VOLUME (24hr.) (ac.ft.)	100 YEAR PEAK FLOW (6hr.) (cfs)	100 YEAR RUNOFF VOLUME (24hr.) (ac.ft.)
B4-D	14.7	0.0230	200	5.0	2.50	0.7	1.11	0.05	0.03								
			450	6.0	1.33	3.0	3.46	0.04	0.02								
			1050	12.0	1.14	3.0	3.21	0.09	0.06								
		TOTAL =						0.18	0.12		50		50	29	1.1	51	2.0
B5-D TOWER POND	25.0	0.0391						0.20	0.13	30	50	15	5	21	0.6	55	1.6
B6-D	29.4	0.0459	200	1.0	0.50	0.7	0.49	0.11	0.07								
			950	1.0	0.11	3.0	0.97	0.27	0.18								
			850	5.0	0.59	3.0	2.30	0.10	0.07								
		TOTAL =						0.49	0.32		35		65	41	2.8	68	4.7
B7-D	37.8	0.0591	400	3.0	0.75	1.0	0.87	0.13	0.09								
			1000	3.0	0.30	3.0	1.64	0.17	0.11								
			950	5.0	0.53	3.0	2.18	0.12	0.08								
		TOTAL =						0.42	0.28		33		67	58	3.7	97	6.2
B8-D	57.0	0.0891	200	1.0	0.50	0.7	0.49	0.11	0.07								
			1000	1.0	0.10	3.0	0.95	0.29	0.20								
			800	1.0	0.13	3.0	1.06	0.21	0.14								
			950	5.0	0.53	3.0	2.18	0.12	0.08								
		TOTAL =						0.74	0.49		50		50	49	4.4	86	7.8

SEE MAP NO. 2 FOR BASIN IDENTIFICATION

TABLE 2
TOWER/SAGE DRAINAGE MASTER PLAN
AHYMO BASIN PARAMETER WORKSHEET
PEAK BASIN FLOWS AND VOLUMES

(ALL FLOWS & VOLUMES INCLUDE A 5% BULKING FACTOR)

BASIN	AREA (ac.)	AREA (sq.mi.)	LENGTH (ft.)	ELEV. DIFF. (ft.)	SLOPE (%)	K	VEL (fps)	T(c) (hr.)	T(p) (hr.)	LAND TREATMENT (%) A	B	C	D	10 YEAR PEAK FLOW (6hr.) (cfs)	10 YEAR RUNOFF VOLUME (24hr.) (ac.ft.)	100 YEAR PEAK FLOW (6hr.) (cfs)	100 YEAR RUNOFF VOLUME (24hr.) (ac.ft.)
S1-D	20.1	0.0314	100	2.0	2.00	0.7	0.99	0.03	0.02								
			675	10.0	1.48	3.0	3.65	0.05	0.03								
			325	8.0	2.46	3.0	4.71	0.02	0.01								
			400	8.0	2.00	3.0	4.24	0.03	0.02								
		TOTAL =						0.12	0.08		35		65	46	1.9	77	3.2
S2-D	10.4	0.0163	100	2.0	2.00	0.7	0.99	0.03	0.02								
			675	10.0	1.48	3.0	3.65	0.05	0.03								
			325	8.0	2.46	3.0	4.71	0.02	0.01								
			325	8.0	2.46	3.0	4.71	0.02	0.01								
			400	8.0	2.00	3.0	4.24	0.03	0.02								
		TOTAL =						0.14	0.10		50		50	21	0.8	36	1.4
S3-D	36.3	0.0567	50	1.0	2.00	0.7	0.99	0.01	0.01								
			400	9.0	2.25	3.0	4.50	0.02	0.02								
			500	5.0	1.00	3.0	3.00	0.05	0.03								
			250	6.0	2.40	3.0	4.65	0.01	0.01								
			250	2.0	0.80	3.0	2.68	0.03	0.02								
			850	14.0	1.65	3.0	3.85	0.06	0.04								
			150	1.0	0.67	3.0	2.45	0.02	0.01								
		TOTAL =						0.20	0.14		50		50	68	2.8	120	5.0
S4-D	27.9	0.0436	200	3.0	1.50	0.7	0.86	0.06	0.04								
			950	10.0	1.05	3.0	3.08	0.09	0.06								
			900	9.0	1.00	3.0	3.00	0.08	0.06								
		TOTAL =						0.23	0.16		40		60	55	2.5	93	4.2

SEE MAP NO. 2 FOR BASIN IDENTIFICATION

TABLE 2
TOWER/SAGE DRAINAGE MASTER PLAN
AHYMO BASIN PARAMETER WORKSHEET
PEAK BASIN FLOWS AND VOLUMES

(ALL FLOWS & VOLUMES INCLUDE A 5% BULKING FACTOR)

BASIN	AREA (ac.)	AREA (sq.mi.)	LENGTH (ft.)	ELEV. DIFF. (ft.)	SLOPE (%)	K	VEL (fps)	T(c) (hr.)	T(p) (hr.)	LAND TREATMENT (%) A	B	C	D	10 YEAR PEAK FLOW (6hr.) (cfs)	10 YEAR RUNOFF VOLUME (24hr.) (ac.ft.)	100 YEAR PEAK FLOW (6hr.) (cfs)	100 YEAR RUNOFF VOLUME (24hr.) (ac.ft.)
S5-D	15.2	0.0238	400	6.0	1.50	3.0	3.67	0.03	0.02								
			1000	4.0	0.40	3.0	1.90	0.15	0.10								
		TOTAL =						0.18	0.12		41		59	33	1.3	56	2.3
S6-D	24.2	0.0378	400	1.0	0.25	1.0	0.50	0.22	0.15								
			400	1.0	0.25	3.0	1.50	0.07	0.05								
			200	2.0	1.00	3.0	3.00	0.02	0.01								
			1100	5.0	0.45	3.0	2.02	0.15	0.10								
		TOTAL =						0.47	0.31		40		60	32	2.2	55	3.7
S7-D	36.5	0.0570	400	2.0	0.50	1.0	0.71	0.16	0.10								
			950	1.0	0.11	2.0	0.65	0.41	0.27								
			650	3.0	0.46	2.0	1.36	0.13	0.09								
		TOTAL =						0.70	0.46		29		71	43	3.7	70	6.2
S8-D	43.7	0.0683	400	2.0	0.50	1.0	0.71	0.16	0.10								
			1000	1.0	0.10	3.0	0.95	0.29	0.20								
			1100	6.0	0.55	3.0	2.22	0.14	0.09								
		TOTAL =						0.59	0.39		37		63	52	4.1	87	6.8
S9-D	47.9	0.0748	300	10.0	3.33	1.0	1.83	0.05	0.03								
			950	9.0	0.95	3.0	2.92	0.09	0.06								
			1150	33.0	2.87	3.0	5.08	0.06	0.04								
		TOTAL =						0.20	0.13		50		50	94	3.7	166	6.5

SEE MAP NO. 2 FOR BASIN IDENTIFICATION

TABLE 2
TOWER/SAGE DRAINAGE MASTER PLAN
AHYMO BASIN PARAMETER WORKSHEET
PEAK BASIN FLOWS AND VOLUMES

(ALL FLOWS & VOLUMES INCLUDE A 5% BULKING FACTOR)

BASIN	AREA (ac.)	AREA (sq.mi.)	LENGTH (ft.)	ELEV. DIFF. (ft.)	SLOPE (%)	K	VEL (fps)	T(c) (hr.)	T(p) (hr.)	LAND TREATMENT (%) A	B	C	D	10 YEAR PEAK FLOW (6hr.) (cfs)	10 YEAR RUNOFF VOLUME (24hr.) (ac.ft.)	100 YEAR PEAK FLOW (6hr.) (cfs)	100 YEAR RUNOFF VOLUME (24hr.) (ac.ft.)
C1-D	24.7	0.0386	200	6.0	3.00	0.7	1.21	0.05	0.03								
			500	3.0	0.60	3.0	2.32	0.06	0.04								
			850	23.0	2.71	3.0	4.93	0.05	0.03								
			250	4.0	1.60	3.0	3.79	0.02	0.01								
		TOTAL =						0.17	0.11		33		67	58	2.4	96	4.0
C2-D	12.0	0.0188	100	2.0	2.00	0.7	0.99	0.03	0.02								
			750	8.0	1.07	3.0	3.10	0.07	0.04								
			400	6.0	1.50	3.0	3.67	0.03	0.02								
		TOTAL =						0.13	0.08		35		65	28	1.1	46	1.9
C3-D	15.0	0.0234	400	8.0	2.00	2.0	2.83	0.04	0.03								
			200	2.0	1.00	3.0	3.00	0.02	0.01								
			800	13.0	1.63	3.0	3.82	0.06	0.04								
		TOTAL =						0.12	0.08		10		90	43	1.9	67	3.0
C4-D	19.7	0.0308	200	5.0	2.50	0.7	1.11	0.05	0.03								
			500	4.0	0.80	3.0	2.68	0.05	0.03								
			300	9.0	3.00	3.0	5.20	0.02	0.01								
			1050	13.0	1.24	3.0	3.34	0.09	0.06								
		TOTAL =						0.21	0.14		26		74	48	2.1	77	3.4
C5-D	5.8	0.0091	1250	4.0	0.32	3.0	1.70	0.20	0.14			50	50	13	0.5	22	0.9
C6-D	12.4	0.0194	1400	16.0	1.14	2.0	2.14	0.18	0.12		10		90	36	1.5	55	2.5

SEE MAP NO. 2 FOR BASIN IDENTIFICATION

TABLE 3

TOWER/SAGE DRAINAGE MASTER PLAN

SUMMARY OF PEAK DISCHARGES AND PEAK VOLUMES

(ALL FLOWS INCLUDE A 5% BULKING FACTOR)

ANALYSIS POINT	Q(10) (6hr.) (cfs)	V(10) (24hr.) (ac.ft.)	Q(100) (6hr.) (cfs)	V(100) (24hr.) (ac.ft.)
1	70	3.2	112	5.2
2	126	5.7	204	9.4
3	179	8.3	292	13.7
4	244	11.4	397	18.8
5	298	14.0	490	23.2
6	73	3.7	119	6.1
7	78	4.2	132	7.0
8	86	4.7	147	7.9
9	445	22.0	748	36.8
10	457	22.6	766	37.8
11	35	1.5	58	2.4
12	77	3.5	132	5.8
13	118	5.6	211	9.6
14	142	6.8	252	11.6
15	46	1.9	77	3.2
16	65	2.7	109	4.6
17	132	5.5	228	9.6
18	185	8.0	318	13.8
19	33	1.3	56	2.3
20	345	16.5	599	27.7
21	820	39.3	1414	67.2
22	23	39.3	25	67.2
23	59	42.1	90	71.9
24	111	45.8	178	78.1
25	151	50.2	250	85.9
26	56	2.5	91	4.1
27	104	5.2	170	8.7
28	127	8.2	207	13.5
29	14	0.5	24	0.9
30	22	1.1	39	1.9
31	24	1.7	46	3.0
32	30	2.1	57	3.7
33	180	11.7	303	19.6
34	217	14.9	368	25.2
35	32	2.2	55	3.7
36	71	5.9	118	9.8
37	120	9.9	201	16.7
38	149	13.7	251	23.2
39	58	2.4	96	4.0
40	83	3.6	138	5.9
41	124	5.4	199	8.9
42	48	2.1	77	3.4
43	171	7.5	276	12.3
44	175	8.0	283	13.2
45	36	1.5	55	2.5

NOTE: SEE MAP NO. 2 FOR LOCATION OF ANALYSIS POINTS

7.0 PROPOSED STORM DRAINAGE SYSTEM

The master planned Tower/Sage Storm Drainage System is shown on Map No. 3 included in the back pocket of this report. Pipe sizes shown are preliminary and may vary when the final facility design is performed.

As previously stated in the existing facilities section of this report, the Amole Del Norte Channel does not have the capacity to carry flows originating from the Sage/Tower Drainage Basin under developed conditions when applying the new AHYMO hydrology program. Therefore, a permanent detention facility is required upstream of the Amole Del Norte Channel to collect a portion of the storm water and then provisions for drainage of the pond at a controlled rate. Existing inlet pipes to the Amole Del Norte Channel have been provided at Tower Road and at Sage Road to serve the Tower/Sage Drainage Basin. These two inlets were designed to receive 601 cfs from the Tower Road storm drain line and 211 cfs from the Sage Road storm drain line.

The location of the detention pond is critical, so that the flows generated by the area below and east of the detention pond will be equal to or less than the rate of flow for which the Amole Del Norte Channel is designed to receive from the Tower/Sage Drainage Basin. To meet this criteria, a detention facility designated herein as the "Tower Detention Pond" is proposed to be constructed within the block bounded by Tower Road and San Ygnacio Road on the north and south respectively, and 86th Street and 82nd Street on the west and east respectively.

The pond will be designed to collect and detain the runoff from the upper, western portion of the Tower/Sage Drainage Basin (west of the Tower Detention Pond). The Tower/Unser Sector Development Plan proposes a Neighborhood City Park in the same vicinity as the proposed Tower Detention Pond. In this regard, City Parks and General Services was contacted and, in turn, they have expressed interest in

the concept of a joint-use facility consisting of a neighborhood park and storm water detention facility (see letter enclosed as Appendix B.

7.1 STORM DRAINS

Storm water from the westerly portion of Drainage Basin A (Sub-basins A-1 thru A-11) will be collected and carried to the detention pond by a storm drain located in 98th Street and Tower Road. This storm drain will discharge to the Tower Pond just east of 86th Street.

Storm water from the westerly portion of Drainage Basin S (Sub-basins S-1 thru S-5) will be collected and carried to the detention pond by a storm drain in Sage Road. This storm drain turns north at 86th Street to carry the flows to the detention pond. The northerly alignment of this storm drain was chosen as the farthest east and most feasible location relative to the existing topography as Sage Road ranges from four feet to six feet lower than the southerly side of the detention pond. Basin S5-D, South Mesa Patio Townhomes, will drain to an existing 10-foot wide drainage easement along its easterly property line. From there, runoff will be allowed to go north and enter the San Ygnacio system and then into the detention basin. No storm drains are sized for this subdivision with this Master Plan but a stub will be provided in San Ygnacio at the drainage easement.

Storm water from the westerly portion of Drainage Basin B (Sub-basins B-1 through B-4) will be collected and carried in San Ygnacio Street until the street capacity is reached; then a combination of street and storm drain will be utilized to carry and discharge the water to the detention pond.

Storm water runoff generated from Drainage Basin C (Sub-basins C-1 through C-6) west of 98th Street and south of Tower Road will be collected and carried south by

a storm drain in 98th Street and Snow Vista Boulevard. This storm drain will discharge into the Snow Vista Channel south of Benavidas Road. The discharge of the storm water from this basin to the Snow Vista Channel was reviewed at a meeting with AMAFCA's drainage engineer and it was determined that the flow from this basin could be drained to the Snow Vista Channel without significantly affecting the channel capacity.

Storm water runoff generated from the easterly portion of the Basin will be collected and carried to the Amole Del Norte Channel by storm drains located in Tower Road, San Ygnacio Road, and Sage Road as shown on Map No. 3

7.2 HYDRAULICS

The hydraulics of the proposed storm drain system are based on utilizing the following three basic system parts:

1. Streets - which act as open channels to convey storm water runoff to drop inlets.

2. Underground piping - which convey storm water runoff from the drop inlets to the Tower Detention Pond or to the Amole Del Norte Channel.

3. Tower Detention Pond - which will detain the storm water runoff and discharge it at a controlled rate to the Amole Del Norte Channel.

Street capacities were approximated within the Tower/Sage Drainage Area using Manning's Equation for open channel flow, proposed street sections, and existing terrain as street grades. Hydraulic grade lines were calculated for the storm drain pipes, again using Manning's principles for pressure flow and, in some instances, nonpressurized flow. Storm water runoff upstream of the Tower Detention Pond was routed through the pond as part of the AHYMO computer model. Table 4 displays a tabular version of the stage/storage curve and outflow curve for the Tower Detention Pond used in the AHYMO computer model. Section 7.3 below, discusses in more detail the proposed Tower Detention Pond configuration and hydraulic characteristics.

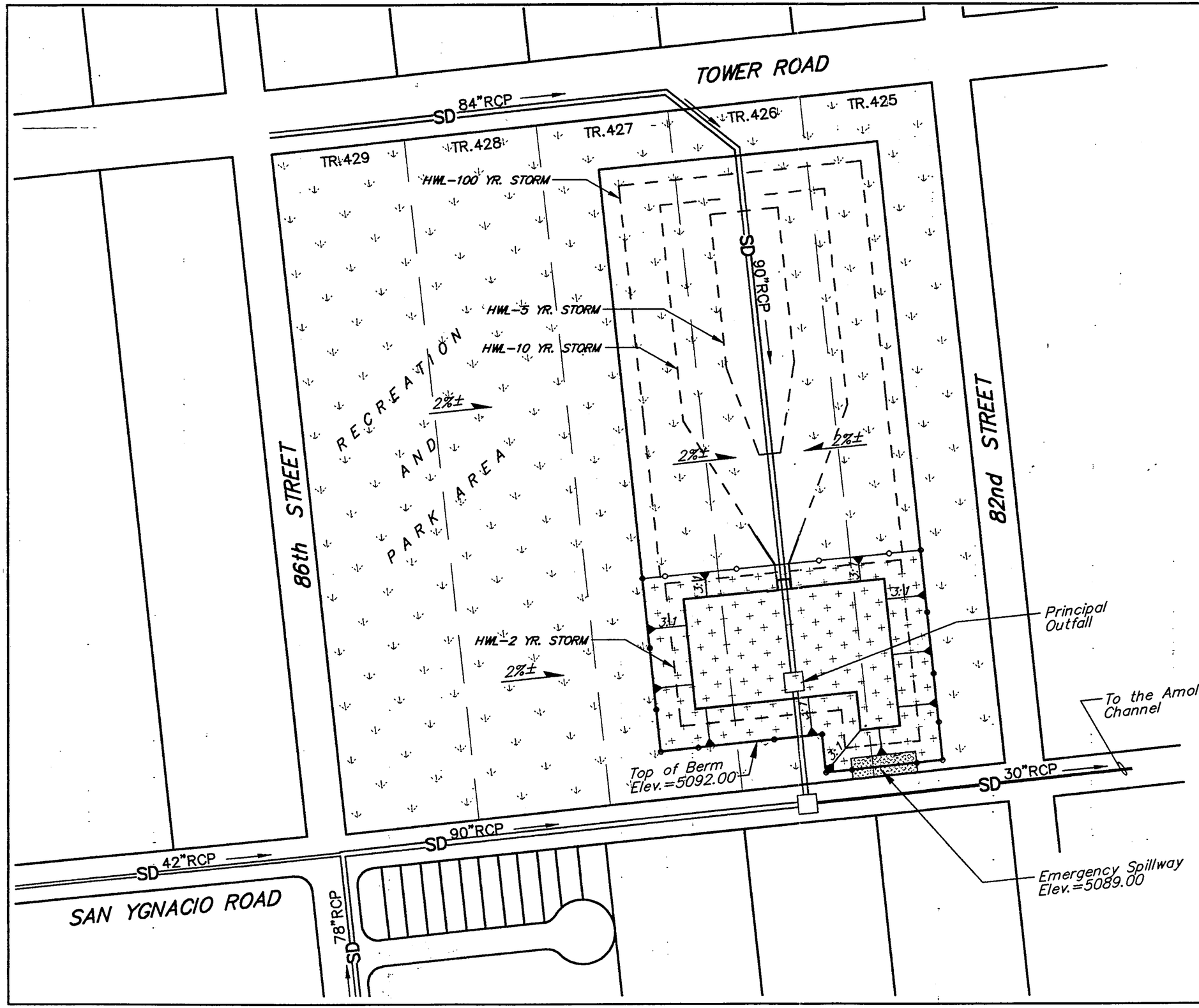
7.3 Neighborhood Park/Recreation/Pond Facility

The Neighborhood Park/Recreation/Pond Facility is proposed to be constructed within basin B5, east of 86th Street and south of Tower Road. A proposed Master Plan for the facility is to be completed with Special Assessment District 222. Figure 1 illustrates a conceptual layout of the facility and is not intended to represent the final design and layout of the facility, however, it is shown only to provide a stage/volume curve for use in routing of storm water flows. In concept the facility will be multi-purpose for recreation and storm water detention. The recreation facilities proposed are softball and soccer fields, lighting, some neighborhood park area, and parking. The reservoir is proposed to provide flood detention storage without a permanent pool, a controlled outlet structure and an emergency spillway.

The basin draining to the park/pond are basins A1-A11, basins B1-B5, and basins S1-S5. Runoff is conveyed by storm drains. At the facility it is propsed that a low lying area, designed for storm water detention only, will be constructed on the perimeters of the recreation facilities. The storm drains entering the pond from Tower Road and San Ygnacio Road will discharge into these low lying area. As the volume of runoff increases with storm intensity and the low lying non-recreational area becomes inundated then the next low lying recreational facility will become flooded. Thus, the overall facility will be constructed to reflect different stages of flooding. The more sensitive recreational facilities will be the last areas to be inundated, say with the 100 year flood, but these areas will also be the first to be drained.

The proposed principal outfall is to the Amole del Norte channel via a storm drain line in the San Ygnacio Road right-of-way, approximately 5000 feet distance from the south east corner of the facility. The principal outlet structure will be constructed in the non-recreational low lying area and will discharge at a controlled rate. An emergency overflow spillway is proposed at the southeast corner of the facility site. Emergency flows will discharge directly into San Ygnacio Road.

Due to the large volumetric runoff that will be detained by the detention facility the reservoir discharge and detention time shall comply with criteria established by the New Mexico State Engineer Office.



OWNERSHIP	
TR. 425	D. BACA
TR. 426 & 427	M. SIMMONS
TR. 428 & 429	G. KAEDAS

N

SCALE: 1"=150'±

REVISED: 10-97

CITY OF ALBUQUERQUE, NEW MEXICO

AMOLE DEL NORTE STORM DRAINAGE FACILITIES

TOWER/SAGE DRAINAGE MASTER PLAN

CONCEPTUAL LAYOUT

TOWER POND & NEIGHBORHOOD PARK

ANDREWS, ASBURY & ROBERT, INC.

CONSULTING ENGINEERS

ALBUQUERQUE NEW MEXICO

FILE No.	DRAWN	CHECKED	DATE	
90-572	TL	SB,JA	MAR. 1995	FIGURE No. 1

TABLE 4

TOWER/SAGE MASTER DRAINAGE PLAN

TOWER POND

STORAGE AND OUTFLOW RATING CURVE INFORMATION

ELEVATION (ft.)	INCREMENTAL VOLUME (ac.ft.)	TOTAL VOLUME (ac.ft.)	OUTFLOW (cfs)
5072		0.0	0.0
	5.8		
5076		5.8	11.9
	7.1		
5080		13.0	17.4
	2.2		
5081		15.2	18.5
	2.5		
5082		17.7	19.6
	2.8		
5083		20.5	20.6
	3.3		
5084		23.8	21.5
	4.4		
5085		28.2	22.5
	6.2		
5086		34.4	23.3
	15.4		
5088		49.9	25.0
	8.2		
5089		58.0	25.8
	26.4		
5092		84.4	3000*

TOP OF BERM ELEVATION = 5092.00 FT.
EMERGENCY SPILLWAY ELEVATION = 5089.00 FT.

* EMERGENCY SPILLWAY FLOW

TABLE 5

TOWER/SAGE MASTER DRAINAGE PLAN

TOWER POND DATA

	24 - HOUR STORM DURATION			
	2 - YEAR STORM	5 - YEAR STORM	10 - YEAR STORM	100 - YEAR STORM
TOTAL VOLUME ENTERING TOWER POND	21.8 ac.ft.	31.4 ac.ft.	39.3 ac.ft.	67.2 ac.ft.
HIGH WATER LEVEL IN TOWER POND	5080.9 ft.	5083.6 ft.	5085.1 ft.	5088.1 ft.
TIME TO DRAIN TOWER POND	63 hr.*	67 hr.*	70 hr.*	82 hr.*

TOP OF BERM ELEVATION = 5092.00 FT.
EMERGENCY SPILLWAY ELEVATION = 5089.00 FT.

* TIME TO DRAIN LAST FOOT OF STORM WATER IN POND = 38 HRS.

According to Drainage Ordinance, the pond must drain in 24 hrs.

8.0 RIGHT-OF-WAY

The major portion of the master-planned storm drain lines proposed herein are located within existing street right-of-way.

The City of Albuquerque is currently in the process of obtaining right-of-way for the widening and construction of 98th Street and includes the right-of-way to provide for realignment of the streets intersecting 98th Street. The storm drains proposed in 98th Street and in Tower Road can be constructed within the existing right-of-way and/or the street right-of-way being obtained.

8.1 TOWER DETENTION POND/NEIGHBORHOOD PARK

The lands on which the Tower Detention Pond and the Neighborhood Park are proposed to be constructed is presently in private ownership. Therefore, this pond and park area will require acquisition prior to construction of these facilities.

↑ Is owner willing to sell?

The detention pond and park are proposed for the block area bounded on the north by Tower Road, on the east by 82nd Street, on the south by San Ygnacio Road, and on the west by 86th Street, and consists of approximately 25 acres. Based on the conceptual layout plan included in this report (Figure 1), the required area for stormwater detention is 10 acres and therefore, the area for the park/recreation area is 15 acres.

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9.0 CONCLUSIONS AND RECOMMENDATIONS

This Master Plan of Drainage presents a storm drainage system and plan to manage the storm water generated by the Tower/Sage Drainage Basin using the City's current AHYMO hydrologic model.

Within the designated land uses and the limits established by the hydrologic analysis included herein, the implementation of this plan will allow the areas within the basin to be developed, based on approved drainage plans without restricting runoff.

Flood plains in the area can also be removed by providing proper documentation and application to FEMA when the construction of the facilities has been completed.

The plan provides for a system that can be separated into construction project phases and it is recommended that an initial phase be implemented as follows:

9.1 PHASE I

As mentioned previously in this report, the City of Albuquerque presently has Special Assessment District 222 in progress to provide for improvements in the westerly portion of the Tower/Sage Drainage Basin. It is recommended that the first phase of the planned facilities be constructed as a portion of this Special Assessment District 222. This first phase, Phase I, should include the following:

- 98th Street and Tower Road Storm Drain to Tower Detention Pond.
- San Ygnacio Road Storm Drain to Tower Detention Pond.
- Tower Detention Pond
- 98th Street Storm Drain to Snow Vista Channel

9.2 OTHER PHASES

Other phases, including one or all of the following systems, should be programmed and arrangements made for implementation based on their need and availability of funds. These other phases are:

- Sage Road Storm Drain to Tower Pond.
- Tower Road Storm Drain to Amole Del Norte Channel.
- San Ygnacio Storm Drain to Amole Del Norte Channel.
- Sage Road Storm Drain to Amole Del Norte Channel.

If this is not built in phase I how will pond drain?

10.0 EXISTING DRAINAGE DATA - REFERENCES

Previous drainage reports have been prepared relative to this area. These reports and appropriate criteria were reviewed and used in the preparation of this report. The references used are as follows:

Albuquerque Metropolitan Arroyo Flood Authority, January 1994, "AHYMO Computer Program Users Manual."

Andrews, Asbury & Robert, Inc., December 1990, "Sage Road Improvements Drainage Report."

Boyle Engineering Corp., July 1984, "Investigation Phase Report for the Re-evaluation Study of the Amole Del Norte Storm Diversion Facility."

Boyle Engineering, February 1985, "Design - Development Report for the Re-evaluation Study of the Amole Del Norte Storm Diversion Facility."

City of Albuquerque, January 1982, "Development Process Manual Volume 2, Design Criteria" (Including all revisions).

City of Albuquerque, January 1993, "Section 22.2, Hydrology of the Development Process Manual Volume 2, Design Criteria."

City of Albuquerque Planning Department, September 1989, "Tower/Unser Sector Development Plan."

Gordon Herkenhoff & Associates, Inc., December 1980, "Interim Design Report Westgate Diversion Channels."

Gordon Herkenhoff & Associates, Inc., July 1982, "Phase III Design Guidelines Snow Vista Channel Westgate Diversion Channels."

Greiner, Inc., October 1990, "Preliminary Design Report for Amole Del Norte Diversion Facilities Tierra Bayita Drainage Facilities."

Greiner, Inc., June 1994, "Design Report for Amole Del Norte Diversion Facilities Tierra Bayita Drainage Facilities phase IIIC."

Holmes and Narver Inc., November 1985, "Existing Conditions for Amole Watershed Drainage Management Plan."

Holmes and Narver Inc., April 1986, "Improved Conditions Report for Amole Watershed Drainage Management Plan."

Leedshill-Herkenoff, Inc., April 1994, "Drainage Report for Sunset West Unit 2 Albuquerque, New Mexico."

Resource Technology, Inc., December 1993, "Draft - Flood Insurance Restudy Report for Six Areas Within The City of Albuquerque, Bernalillo County, New Mexico Community Number 350002."

Soil Conservation Service, June 1977, "Soil Survey of Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico."

11.0 ESTIMATED CONSTRUCTION COSTS

City of Albuquerque
TOWER/SAGE DETENTION POND

SUMMARY
Estimated Construction Costs

11.1 PHASE I

	Estimated Construction Cost
• 98th Street and Tower Road Storm Drain System to Tower Detention Pond	$1,512,229.13
• San Ygnacio Road Storm Drain System to Tower Detention Pond	323,942.03
• Tower Detention Pond (Does this include purchase price of land?)	753,467.55
• 98th Street Storm Drain System to Snow Vista Channel	678,623.00
TOTAL ESTIMATED CONSTRUCTION COST	$3,268,261.71

- Right-of-Way for Tower Detention Pond/Neighborhood Park

  25 acres @ $28,314.00/Ac = $707,850.00

As an interim measure to drain the Tower Detention Pond, prior to the time the easterly portion of the San Ygnacio Storm Drain is constructed, an 18" dia. drain line may need to be installed from the Tower Detention Pond to the Amole Del Norte Channel. The estimated cost of this drain line is $150,000 to $200,000.

why not just put the entire system in?

11.2 OTHER PHASES

• Sage Road Storm Drain System to Tower Detention Pond	$739,435.40
• Tower Road Storm Drain System to Amole Del Norte Channel	941,204.00
• San Ygnacio Road Storm Drain System to Amole Del Norte Channel	609,650.00
• Sage Road Storm Drain System to Amole Del Norte Channel	521,891.15
TOTAL ESTIMATED CONSTRUCTION COST	$2,812,180.55

- Right-of-Way for Sage Road Storm Drain between Sage Road and San Ygnacio Road

  1 Acre @ $43,560/Ac = $43,560.00

ESTIMATED CONSTRUCTION COST

98TH STREET & TOWER ROAD STORM DRAIN SYSTEM TO TOWER DETENTION POND SERVING THE WESTERLY PORTION OF BASIN A

ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	AMOUNT
18" RCP, furnish & install in open trench, cip.	LF	1,175	$20.50	$24,087.50
Trenching, backfill & compaction for 18" sewer pipe, cip.	LF	1,175	$11.00	$12,925.00
24" RCP, furnish & install in open trench, cip.	LF	1,175	$27.20	$31,960.00
Trenching, backfill & compaction for 24" sewer pipe, cip.	LF	1,175	$12.50	$14,687.50
42" RCP, furnish & install in open trench, cip.	LF	1,375	$55.00	$75,625.00
Trenching, backfill & compaction for 42" sewer pipe, cip.	LF	1,375	$30.75	$42,281.25
48" RCP, furnish & install in open trench, cip.	LF	900	$60.00	$54,000.00
Trenching, backfill & compaction for 48" sewer pipe, cip.	LF	900	$35.00	$31,500.00
54" RCP, furnish & install in open trench, cip.	LF	2,400	$112.00	$268,800.00
Trenching, backfill & compaction for 54" sewer pipe, cip.	LF	2,400	$39.50	$94,800.00
60" RCP, furnish & install in open trench, cip.	LF	2,250	$104.00	$234,000.00
Trenching, backfill & compaction for 60" sewer pipe, cip.	LF	2,250	$43.75	$98,437.50
84" RCP, furnish & install in open trench, cip.	LF	800	$150.00	$120,000.00
Trenching, backfill & compaction for 84" sewer pipe, cip.	LF	800	$61.25	$49,000.00
Manhole, 6' diameter Type "C", cip.	EA	3	$2,300.00	$6,900.00
4' diam. tee manhole, cip.	EA	18	$2,000.00	$36,000.00
Furnish & install RCP Class IV bulkhead, cip.	EA	3	$1,250.00	$3,750.00
Furnish & install 54" RCP bend, cip.	EA	2	$700.00	$1,400.00
Furnish & install 84" RCP bend, cip.	EA	2	$1,500.00	$3,000.00
Catch basin, type "A", cip.	EA	78	$2,200.00	$171,600.00

ESTIMATED CONSTRUCTION COST SUBTOTAL	**$1,374,753.75**
10% CONTINGINCES	**$137,475.38**
ESTIMATED CONSTRUCTION COST	**$1,512,229.13**

ESTIMATED CONSTRUCTION COST

SAN YGNACIO ROAD STORM DRAIN SYSTEM TO TOWER DETENTION POND SERVING THE WESTERLY PORTION OF BASIN B

ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	AMOUNT
18" RCP, furnish & install in open trench, cip.	LF	395	$20.50	$8,097.50
Trenching, backfill & compaction for 18" sewer pipe, cip.	LF	395	$11.00	$4,345.00
24" RCP, furnish & install in open trench, cip.	LF	395	$27.20	$10,744.00
Trenching, backfill & compaction for 24" sewer pipe, cip.	LF	395	$12.50	$4,937.50
42" RCP, furnish & install in open trench, cip.	LF	1,075	$55.00	$59,125.00
Trenching, backfill & compaction for 42" sewer pipe, cip.	LF	1,075	$30.75	$33,056.25
90" RCP, furnish & install in open trench, cip.	LF	450	$160.00	$72,000.00
Trenching, backfill & compaction for 90" sewer pipe, cip.	LF	450	$65.75	$29,587.50
Manhole, 6' diameter Type "C", cip.	EA	3	$2,300.00	$6,900.00
4' diam. tee manhole, cip.	EA	2	$2,000.00	$4,000.00
Furnish & install RCP Class IV bulkhead, cip.	EA	2	$1,250.00	$2,500.00
Furnish & install 90" RCP bend, cip.	EA	1	$2,000.00	$2,000.00
Catch basin, type "A", cip.	EA	26	$2,200.00	$57,200.00

ESTIMATED CONSTRUCTION COST SUBTOTAL	**$294,492.75**
10% CONTINGINCES	**$29,449.28**
ESTIMATED CONSTRUCTION COST	**$323,942.03**

ESTIMATED CONSTRUCTION COST

TOWER DETENTION POND

ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	AMOUNT
Excavation for detention pond, cip.	CY	110,000	$3.00	$330,000.00
Reinforced structural concrete within pond, cip.	LS	Lump Sum	$60,000.00	$60,000.00
90" RCP, furnish & install in open trench, cip	LF	1,214	$160.00	$194,240.00
Trenching, Backfill & compaction for 90" sewer pipe, cip	LF	1,214	$65.75	$79,820.50
Chain link fence, inc. posts and hardware, cip.	SF	9,000	$2.10	$18,900.00
Gated for chain link fence, inc. all hardware, cip.	SF	300	$6.70	$2,010.00

ESTIMATED CONSTRUCTION COST SUBTOTAL	**$684,970.50**
10% CONTINGINCES	**$68,497.05**
ESTIMATED CONSTRUCTION COST	**$753,467.55**

ESTIMATED CONSTRUCTION COST

98TH STREET STORM DRAIN SYSTEM TO SNOW VISTA CHANNEL SERVING BASIN C

ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	AMOUNT
18" RCP, furnish & install in open trench, cip.	LF	525	$20.50	$10,762.50
Trenching, backfill & compaction for 18" sewer pipe, cip.	LF	525	$11.00	$5,775.00
24" RCP, furnish & install in open trench, cip.	LF	525	$27.20	$14,280.00
Trenching, backfill & compaction for 24" sewer pipe, cip.	LF	525	$12.50	$6,562.50
36" RCP, furnish & install in open trench, cip.	LF	1,750	$47.00	$82,250.00
Trenching, backfill & compaction for 36" sewer pipe, cip.	LF	1,750	$15.00	$26,250.00
42" RCP, furnish & install in open trench, cip.	LF	950	$55.00	$52,250.00
Trenching, backfill & compaction for 42" sewer pipe, cip.	LF	950	$30.75	$29,212.50
72" RCP, furnish & install in open trench, cip.	LF	1,625	$125.00	$203,125.00
Trenching, backfill & compaction for 72" sewer pipe, cip.	LF	1,625	$52.50	$85,312.50
Manhole, 6' diameter Type "C", cip.	EA	6	$2,300.00	$13,800.00
4' diam. tee manhole, cip.	EA	4	$2,000.00	$8,000.00
Furnish & install RCP Class IV bulkhead, cip.	EA	1	$1,250.00	$1,250.00
Furnish & install 72" RCP bend, cip.	EA	1	$1,100.00	$1,100.00
Catch basin, type "A", cip.	EA	35	$2,200.00	$77,000.00

ESTIMATED CONSTRUCTION COST SUBTOTAL	**$616,930.00**
10% CONTINGINCES	**$61,693.00**
ESTIMATED CONSTRUCTION COST	**$678,623.00**

ESTIMATED CONSTRUCTION COST

SAGE ROAD STORM DRAIN SYSTEM TO TOWER DETENTION POND SERVING THE WESTERLY PORTION OF BASIN S

ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	AMOUNT
18" RCP, furnish & install in open trench, cip.	LF	545	$20.50	$11,172.50
Trenching, backfill & compaction for 18" sewer pipe, cip.	LF	545	$11.00	$5,995.00
24" RCP, furnish & install in open trench, cip.	LF	545	$27.20	$14,824.00
Trenching, backfill & compaction for 24" sewer pipe, cip.	LF	545	$12.50	$6,812.50
36" RCP, furnish & install in open trench, cip.	LF	1,830	$47.00	$86,010.00
Trenching, backfill & compaction for 36" sewer pipe, cip.	LF	1,830	$15.00	$27,450.00
48" RCP, furnish & install in open trench, cip.	LF	1,080	$60.00	$64,800.00
Trenching, backfill & compaction for 48" sewer pipe, cip.	LF	1,080	$35.00	$37,800.00
78" RCP, furnish & install in open trench, cip.	LF	1,200	$140.00	$168,000.00
Trenching, backfill & compaction for 78" sewer pipe, cip.	LF	1,200	$57.00	$68,400.00
Manhole, 6' diameter Type "C", cip.	EA	5	$2,300.00	$11,500.00
4' diam. tee manhole, cip.	EA	7	$2,000.00	$14,000.00
Furnish & install RCP Class IV bulkhead, cip.	EA	1	$1,250.00	$1,250.00
Catch basin, type "A", cip.	EA	36	$2,200.00	$79,200.00
Arterial pavement removal & replacement, cip.	LS	LS	$75,000.00	$75,000.00

ESTIMATED CONSTRUCTION COST SUBTOTAL	**$672,214.00**
10% CONTINGINCES	**$67,221.40**
ESTIMATED CONSTRUCTION COST	**$739,435.40**

ESTIMATED CONSTRUCTION COST

TOWER ROAD STORM DRAIN SYSTEM TO AMOLE DEL NORTE CHANNEL SERVING THE EASTERLY PORTION OF BASIN A

ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	AMOUNT
18" RCP, furnish & install in open trench, cip.	LF	575	$20.50	$11,787.50
Trenching, backfill & compaction for 18" sewer pipe, cip.	LF	575	$11.00	$6,325.00
24" RCP, furnish & install in open trench, cip.	LF	575	$27.20	$15,640.00
Trenching, backfill & compaction for 24" sewer pipe, cip.	LF	575	$12.50	$7,187.50
36" RCP, furnish & install in open trench, cip.	LF	1,075	$47.00	$50,525.00
Trenching, backfill & compaction for 36" sewer pipe, cip.	LF	1,075	$15.00	$16,125.00
42" RCP, furnish & install in open trench, cip.	LF	1,175	$55.00	$64,625.00
Trenching, backfill & compaction for 42" sewer pipe, cip.	LF	1,175	$30.75	$36,131.25
48" RCP, furnish & install in open trench, cip.	LF	875	$60.00	$52,500.00
Trenching, backfill & compaction for 48" sewer pipe, cip.	LF	875	$35.00	$30,625.00
60" RCP, furnish & install in open trench, cip.	LF	1,075	$104.00	$111,800.00
Trenching, backfill & compaction for 60" sewer pipe, cip.	LF	1,075	$43.75	$47,031.25
66" RCP, furnish & install in open trench, cip.	LF	1,750	$114.00	$199,500.00
Trenching, backfill & compaction for 66" sewer pipe, cip.	LF	1,750	$48.25	$84,437.50
Manhole, 6' diameter Type "C", cip.	EA	6	$2,300.00	$13,800.00
4' diam. tee manhole, cip.	EA	9	$2,000.00	$18,000.00
Furnish & install RCP Class IV bulkhead, cip.	EA	4	$1,250.00	$5,000.00
Furnish & install 66" RCP bend, cip.	EA	1	$1,000.00	$1,000.00
Catch basin, type "A", cip.	EA	38	$2,200.00	$83,600.00
ESTIMATED CONSTRUCTION COST SUBTOTAL				**$855,640.00**
10% CONTINGINCES				**$85,564.00**
ESTIMATED CONSTRUCTION COST				**$941,204.00**

ESTIMATED CONSTRUCTION COST

SAN YGNACIO ROAD STORM DRAIN SYSTEM TO AMOLE DEL NORTE CHANNEL SERVING THE EASTERLY PORTION OF BASIN B

ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	AMOUNT
18" RCP, furnish & install in open trench, cip.	LF	390	$20.50	$7,995.00
Trenching, backfill & compaction for 18" sewer pipe, cip.	LF	390	$11.00	$4,290.00
24" RCP, furnish & install in open trench, cip.	LF	390	$27.20	$10,608.00
Trenching, backfill & compaction for 24" sewer pipe, cip.	LF	390	$12.50	$4,875.00
30" RCP, furnish & install in open trench, cip.	LF	1,300	$39.20	$50,960.00
Trenching, backfill & compaction for 30" sewer pipe, cip.	LF	1,300	$14.00	$18,200.00
48" RCP, furnish & install in open trench, cip.	LF	3,300	$60.00	$198,000.00
Trenching, backfill & compaction for 48" sewer pipe, cip.	LF	3,300	$35.00	$115,500.00
60" RCP, furnish & install in open trench, cip.	LF	200	$104.00	$20,800.00
Trenching, backfill & compaction for 60" sewer pipe, cip.	LF	200	$43.75	$8,750.00
Manhole, 6' diameter Type "C", cip.	EA	3	$2,300.00	$6,900.00
4' diam. tee manhole, cip.	EA	9	$2,000.00	$18,000.00
Furnish & install RCP Class IV bulkhead, cip.	EA	1	$1,250.00	$1,250.00
Furnish & install 60" RCP bend, cip.	EA	1	$900.00	$900.00
Catch basin, type "A", cip.	EA	26	$2,200.00	$57,200.00
Connect 60" RCP to Amole Del Norte Channel	LS	1	$30,000.00	$30,000.00

ESTIMATED CONSTRUCTION COST SUBTOTAL	**$554,228.00**
10% CONTINGINCES	**$55,422.80**
ESTIMATED CONSTRUCTION COST	**$609,650.80**

ESTIMATED CONSTRUCTION COST

SAGE ROAD STORM DRAIN SYSTEM TO AMOLE DEL NORTE CHANNEL SERVING THE EASTERLY PORTION OF BASIN S

ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	AMOUNT
18" RCP, furnish & install in open trench, cip.	LF	395	$20.50	$8,097.50
Trenching, backfill & compaction for 18" sewer pipe, cip.	LF	395	$11.00	$4,345.00
24" RCP, furnish & install in open trench, cip.	LF	395	$27.20	$10,744.00
Trenching, backfill & compaction for 24" sewer pipe, cip.	LF	395	$12.50	$4,937.50
30" RCP, furnish & install in open trench, cip.	LF	1,050	$39.20	$41,160.00
Trenching, backfill & compaction for 30" sewer pipe, cip.	LF	1,050	$14.00	$14,700.00
48" RCP, furnish & install in open trench, cip.	LF	2,700	$60.00	$162,000.00
Trenching, backfill & compaction for 48" sewer pipe, cip.	LF	2,700	$35.00	$94,500.00
60" RCP, furnish & install in open trench, cip.	LF	350	$104.00	$36,400.00
Trenching, backfill & compaction for 60" sewer pipe, cip.	LF	350	$43.75	$15,312.50
Manhole, 6' diameter Type "C", cip.	EA	3	$2,300.00	$6,900.00
4' diam. tee manhole, cip.	EA	8	$2,000.00	$16,000.00
Furnish & install RCP Class IV bulkhead, cip.	EA	1	$1,250.00	$1,250.00
Furnish & install 60" RCP bend, cip.	EA	1	$900.00	$900.00
Catch basin, type "A", cip.	EA	26	$2,200.00	$57,200.00

ESTIMATED CONSTRUCTION COST SUBTOTAL	**$474,446.50**
10% CONTINGINCES	**$47,444.65**
ESTIMATED CONSTRUCTION COST	**$521,891.15**

APPENDIX A

AHYMO SUMMARY FILES

AMOLE DEL NORTE STORM DRAINAGE FACILITIES
TOWER/SAGE DRAINAGE MASTER PLAN

AHYMO SUMMARY TABLE (AHYMO1 (MON/DAY/YR) =10/09/1997
INPUT FILE = MASTr26.IN USER NO.= ANASRONM.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= .960
SEDIMENT BULK										PK BF = 1.05
COMPUTE NM HYD	A1-D&AP#1	-	3	.04580	41.10	1.447	.59241	1.533	1.402	PER IMP= 76.00
ROUTE	AP-1R	3	2	.04580	39.74	1.447	.59242	1.533	1.356	
COMPUTE NM HYD	A2-D	-	3	.03950	33.73	1.151	.54633	1.500	1.334	PER IMP= 70.00
ADD HYD	AP#2	2& 3	10	.08530	72.85	2.598	.57107	1.533	1.334	
ROUTE	AP#2R	10	2	.08530	70.08	2.598	.57107	1.567	1.284	
COMPUTE NM HYD	A3-D	-	3	.04190	34.70	1.135	.50793	1.500	1.294	PER IMP= 65.00
ADD HYD	AP#3	2& 3	10	.12720	100.72	3.733	.55027	1.533	1.237	
ROUTE	AP#3R	10	2	.12720	99.81	3.733	.55027	1.567	1.226	
COMPUTE NM HYD	A4-D	-	3	.04390	41.43	1.459	.62313	1.533	1.475	PER IMP= 80.00
ADD HYD	AP#4	2& 3	10	.17110	138.21	5.192	.56896	1.533	1.262	
ROUTE	AP#4R	10	2	.17110	139.26	5.192	.56896	1.567	1.272	
COMPUTE NM HYD	A5-D	-	3	.04520	33.19	1.132	.46953	1.500	1.147	PER IMP= 60.00
ADD HYD	AP#5	2& 3	10	.21630	168.04	6.324	.54818	1.567	1.214	
ROUTE	AP#5R	10	2	.21630	168.66	6.324	.54818	1.567	1.218	
COMPUTE NM HYD	A6-D	-	3	.04520	27.78	.947	.39273	1.500	.960	PER IMP= 50.00
ADD HYD	PART_AP#9	2& 3	10	.26150	192.77	7.271	.52131	1.567	1.152	
COMPUTE NM HYD	A7-D	-	3	.02060	12.67	.431	.39273	1.500	.961	PER IMP= 50.00
ADD HYD	PART_AP#9	10& 3	10	.28210	203.77	7.702	.51192	1.567	1.129	
COMPUTE NM HYD	A8-D&AP#6	-	3	.05700	42.09	1.661	.54633	1.567	1.154	PER IMP= 70.00
ROUTE	AP&6R	3	2	.05700	37.54	1.661	.54633	1.633	1.029	
COMPUTE NM HYD	A9-D	-	3	.01020	6.54	.214	.39273	1.500	1.003	PER IMP= 50.00
ADD HYD	AP#7	2& 3	20	.06720	41.59	1.874	.52301	1.600	.967	
ROUTE	AP#7R	20	2	.06720	41.44	1.874	.52301	1.633	.964	
COMPUTE NM HYD	A10-D	-	3	.01020	6.54	.214	.39273	1.500	1.003	PER IMP= 50.00
ADD HYD	AP#8	2& 3	20	.07740	45.12	2.088	.50583	1.633	.911	
ROUTE	AP#8R	20	2	.07740	44.11	2.088	.50584	1.667	.890	
ADD HYD	AP#9	10& 2	10	.35950	238.62	9.790	.51061	1.567	1.037	
ROUTE	AP#9R	10	2	.35950	238.45	9.790	.51061	1.567	1.036	
COMPUTE NM HYD	A11-D	-	3	.00860	8.30	.272	.59241	1.500	1.509	PER IMP= 76.00
ADD HYD	AP#10	2& 3	20	.36810	245.10	10.062	.51252	1.567	1.040	
COMPUTE NM HYD	B1-D&AP#11	-	3	.02300	19.91	.651	.53097	1.500	1.353	PER IMP= 68.00
ROUTE	AP#11R	3	2	.02300	16.41	.651	.53098	1.567	1.115	
COMPUTE NM HYD	B2-D	-	3	.03500	26.81	.876	.46953	1.500	1.197	PER IMP= 60.00
ADD HYD	AP#12	2& 3	10	.05800	41.22	1.528	.49389	1.533	1.110	
ROUTE	AP#12R	10	2	.05800	34.89	1.528	.49389	1.567	.940	
COMPUTE NM HYD	B3-D	-	3	.04360	25.99	.913	.39273	1.533	.932	PER IMP= 50.00
ADD HYD	AP#13	2& 3	10	.10160	58.69	2.441	.45047	1.567	.903	
ROUTE	AP#13R	10	2	.10160	57.76	2.441	.45048	1.567	.888	
COMPUTE NM HYD	B4-D	-	3	.02300	14.75	.482	.39273	1.500	1.002	PER IMP= 50.00
ADD HYD	AP#14	2& 3	10	.12460	69.60	2.923	.43981	1.567	.873	
ROUTE	AP#14R	10	12	.12460	69.54	2.923	.43981	1.567	.872	
COMPUTE NM HYD	S1-D&AP#15	-	3	.03140	26.01	.851	.50793	1.500	1.294	PER IMP= 65.00
ROUTE	AP-15R	3	2	.03140	25.21	.851	.50794	1.533	1.254	
COMPUTE NM HYD	S2-D	-	3	.01630	10.46	.341	.39273	1.500	1.002	PER IMP= 50.00
ADD HYD	AP#16	2& 3	10	.04770	35.05	1.192	.46855	1.533	1.148	
ROUTE	AP#16R	10	2	.04770	34.72	1.192	.46856	1.533	1.137	

2 YEAR – 6 HOUR SUMMARY

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
COMPUTE NM HYD	S3-D	-	3	.05670	34.85	1.188	.39273	1.500	.960	PER IMP= 50.00
ADD HYD	AP#17	2& 3	10	.10440	68.96	2.380	.42737	1.533	1.032	
ROUTE	AP#17R	10	2	.10440	67.04	2.380	.42737	1.533	1.003	
COMPUTE NM HYD	S4-D	-	3	.04360	30.30	1.092	.46953	1.533	1.086	PER IMP= 60.00
ADD HYD	AP#18	2& 3	10	.14800	97.34	3.471	.43979	1.533	1.028	
*SXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX										
ROUTE	AP#18R	10	2	.14800	94.95	3.471	.43979	1.567	1.002	
ADD HYD	AP#14	12& 2	10	.27260	164.49	6.394	.43980	1.567	.943	
ROUTE	AP#14R	10	2	.27260	163.78	6.394	.43980	1.567	.939	
COMPUTE NM HYD	S5-D	-	3	.02380	17.93	.586	.46185	1.500	1.177	PER IMP= 59.00
ADD HYD	AP#19	2& 3	10	.29640	178.16	6.980	.44157	1.567	.939	
ROUTE	AP#20R	11	10	.29640	177.67	6.980	.44157	1.567	.937	
*SXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX										
ADD HYD	PART_AP#21	20&10	10	.66450	422.77	17.042	.48087	1.567	.994	
COMPUTE NM HYD	B5-D_TWRPND	-	3	.03910	2.47	.081	.03884	1.500	.099	PER IMP= 5.00
ADD HYD	AP#21	10& 3	20	.70360	424.75	17.123	.45631	1.567	.943	
ROUTE RESERVOIR	AP#22	20	12	.70360	18.39	15.973	.42566	2.567	.041	AC-FT= 14.982
ROUTE	AP#22R	12	2	.70360	18.39	15.955	.42518	2.600	.041	
COMPUTE NM HYD	B6-D	-	3	.04590	23.17	1.243	.50793	1.700	.789	PER IMP= 65.00
ADD HYD	AP#23	2& 3	10	.74950	35.94	17.199	.43025	1.733	.075	
ROUTE	AP#23R	10	2	.74950	35.08	17.173	.42962	1.800	.073	
COMPUTE NM HYD	B7-D	-	3	.05910	33.40	1.649	.52329	1.667	.883	PER IMP= 67.00
ADD HYD	AP#24	2& 3	10	.80860	64.32	18.823	.43647	1.733	.124	
ROUTE	AP#24R	10	2	.80860	63.54	18.799	.43591	1.767	.123	
COMPUTE NM HYD	B8-D	-	3	.08910	25.71	1.866	.39273	1.900	.451	PER IMP= 50.00
ADD HYD	AP#25	2& 3	30	.89770	86.06	20.665	.43162	1.800	.150	
COMPUTE NM HYD	A12-D&AP#26	-	3	.03590	33.24	1.134	.59241	1.500	1.447	PER IMP= 76.00
ROUTE	AP#26R	3	2	.03590	32.03	1.134	.59242	1.533	1.394	
COMPUTE NM HYD	A13-D	-	3	.04520	29.16	1.224	.50793	1.600	1.008	PER IMP= 65.00
ADD HYD	AP#27	2& 3	10	.08110	60.07	2.359	.54532	1.567	1.157	
ROUTE	AP#27R	10	2	.08110	57.56	2.359	.54532	1.600	1.109	
COMPUTE NM HYD	A14-D	-	3	.04520	22.40	1.317	.54633	1.767	.774	PER IMP= 70.00
ADD HYD	AP#28	2& 3	10	.12630	71.70	3.676	.54567	1.633	.887	
ROUTE	AP#28R	10	2	.12630	71.86	3.676	.54568	1.633	.889	
COMPUTE NM HYD	A15-D	-	3	.02530	15.61	.634	.46953	1.567	.964	PER IMP= 60.00
ADD HYD	PART_AP#33	2& 3	20	.15160	85.99	4.309	.53296	1.633	.886	
COMPUTE NM HYD	A17-D&AP#29	-	3	.01080	6.93	.226	.39273	1.500	1.003	PER IMP= 50.00
ROUTE	AP&29R	3	2	.01080	4.16	.226	.39275	1.600	.602	
COMPUTE NM HYD	A18-D	-	3	.01030	7.89	.258	.46953	1.500	1.197	PER IMP= 60.00
ADD HYD	AP#30	2& 3	10	.02110	11.04	.484	.43018	1.533	.818	
ROUTE	AP&30R	10	2	.02110	5.90	.484	.43020	1.733	.437	
COMPUTE NM HYD	A19-D	-	3	.01080	7.01	.270	.46953	1.567	1.014	PER IMP= 60.00
ADD HYD	AP#31	2& 3	10	.03190	11.69	.754	.44345	1.600	.573	
ROUTE	AP#31R	10	2	.03190	11.39	.754	.44346	1.633	.558	
COMPUTE NM HYD	A20-D	-	3	.00690	5.29	.173	.46953	1.500	1.197	PER IMP= 60.00
ADD HYD	AP#32	2& 3	10	.03880	14.74	.927	.44808	1.600	.594	
ROUTE	AP#32R	10	22	.03880	13.53	.927	.44809	1.667	.545	
ADD HYD	AP#33	20&22	10	.19040	99.36	5.236	.51567	1.633	.815	
ROUTE	AP#33R	10	2	.19040	97.80	5.236	.51567	1.667	.803	
COMPUTE NM HYD	A16-D	-	3	.06380	23.05	1.336	.39273	1.767	.564	PER IMP= 50.00
ADD HYD	AP#34	2& 3	10	.25420	118.37	6.573	.48481	1.667	.728	
COMPUTE NM HYD	S6-D&AP#35	-	3	.03780	18.00	.947	.46953	1.700	.744	PER IMP= 60.00

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE	AP#35R	3	2	.03780	17.43	.947	.46952	1.733	.720	
COMPUTE NM HYD	S7-D	-	3	.05700	24.87	1.684	.55401	1.867	.682	PER IMP= 71.00
ADD HYD	AP#36	2& 3	10	.09480	40.39	2.631	.52031	1.800	.666	
ROUTE	AP#36R	10	2	.09480	39.46	2.631	.52031	1.867	.650	
COMPUTE NM HYD	S8-D	-	3	.06830	29.30	1.794	.49257	1.800	.670	PER IMP= 63.00
ADD HYD	AP#37	2& 3	10	.16310	67.87	4.425	.50869	1.833	.650	
ROUTE	AP#37R	10	2	.16310	67.65	4.425	.50869	1.867	.648	
COMPUTE NM HYD	S9-D	-	3	.07480	47.59	1.567	.39273	1.500	.994	PER IMP= 50.00
ADD HYD	AP#38	2& 3	20	.23790	82.98	5.992	.47223	1.833	.545	
COMPUTE NM HYD	C1-D&AP#39	-	3	.03860	32.93	1.077	.52329	1.500	1.333	PER IMP= 67.00
ROUTE	AP#39R	3	2	.03860	31.97	1.077	.52330	1.533	1.294	
COMPUTE NM HYD	C2-D	-	3	.01880	15.57	.509	.50793	1.500	1.294	PER IMP= 65.00
ADD HYD	AP#40	2& 3	10	.05740	46.62	1.587	.51825	1.533	1.269	
ROUTE	AP#40R	10	2	.05740	46.29	1.587	.51826	1.533	1.260	
COMPUTE NM HYD	C3-D	-	3	.02340	26.67	.874	.69993	1.500	1.781	PER IMP= 90.00
ADD HYD	AP#41	2& 3	10	.08080	71.35	2.460	.57086	1.533	1.380	
COMPUTE NM HYD	C4-D&AP#42	-	3	.03080	27.78	.948	.57705	1.500	1.409	PER IMP= 74.00
ROUTE	AP#42R	3	2	.03080	27.81	.948	.57706	1.533	1.411	
ADD HYD	AP#43	10& 2	10	.11160	99.16	3.408	.57257	1.533	1.388	
ROUTE	AP#43R	10	2	.11160	93.46	3.408	.57257	1.567	1.309	
COMPUTE NM HYD	C5-D	-	3	.00910	6.96	.221	.45604	1.533	1.196	PER IMP= 50.00
ADD HYD	AP#44	2& 3	10	.12070	99.67	3.629	.56378	1.567	1.290	
COMPUTE NM HYD	C6-D&AP#45	-	3	.01940	22.11	.724	.69993	1.500	1.781	PER IMP= 90.00
FINISH										

2 YEAR - 24 HOUR SUMMARY

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA
INPUT FILE = MASTer2.IN

RUN DATE (MON/DAY/YR) =10/09/1997
USER NO.= ANASRONM.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
START										TIME= .00
RAINFALL TYPE= 2										RAIN24= 1.160
SEDIMENT BULK										PK BF = 1.05
COMPUTE NM HYD	A1-D&AP#1	-	3	.04580	40.45	1.842	.75409	1.500	1.380	PER IMP= 76.00
ROUTE	AP-1R	3	2	.04580	39.97	1.842	.75410	1.550	1.364	
COMPUTE NM HYD	A2-D	-	3	.03950	33.62	1.466	.69579	1.500	1.330	PER IMP= 70.00
ADD HYD	AP#2	2& 3	10	.08530	70.50	3.308	.72709	1.550	1.291	
ROUTE	AP#2R	10	2	.08530	70.77	3.308	.72710	1.550	1.296	
COMPUTE NM HYD	A3-D	-	3	.04190	34.25	1.446	.64721	1.500	1.277	PER IMP= 65.00
ADD HYD	AP#3	2& 3	10	.12720	100.19	4.754	.70078	1.550	1.231	
ROUTE	AP#3R	10	2	.12720	101.05	4.754	.70078	1.550	1.241	
COMPUTE NM HYD	A4-D	-	3	.04390	40.76	1.857	.79296	1.500	1.451	PER IMP= 80.00
ADD HYD	AP#4	2& 3	10	.17110	140.05	6.611	.72443	1.550	1.279	
ROUTE	AP#4R	10	2	.17110	140.22	6.611	.72443	1.550	1.280	
COMPUTE NM HYD	A5-D	-	3	.04520	33.17	1.443	.59863	1.500	1.147	PER IMP= 60.00
ADD HYD	AP#5	2& 3	10	.21630	170.37	8.054	.69814	1.550	1.231	
ROUTE	AP#5R	10	2	.21630	169.15	8.054	.69814	1.550	1.222	
COMPUTE NM HYD	A6-D	-	3	.04520	27.86	1.209	.50146	1.500	.963	PER IMP= 50.00
ADD HYD	PART_AP#9	2& 3	10	.26150	194.52	9.263	.66414	1.550	1.162	
COMPUTE NM HYD	A7-D	-	3	.02060	12.70	.551	.50146	1.500	.963	PER IMP= 50.00
ADD HYD	PART_AP#9	10& 3	10	.28210	206.09	9.813	.65226	1.550	1.141	
COMPUTE NM HYD	A8-D&AP#6	-	3	.05700	41.85	2.115	.69579	1.550	1.147	PER IMP= 70.00
ROUTE	AP&6R	3	2	.05700	37.67	2.115	.69580	1.600	1.033	
COMPUTE NM HYD	A9-D	-	3	.01020	6.49	.273	.50146	1.500	.995	PER IMP= 50.00
ADD HYD	AP#7	2& 3	20	.06720	41.94	2.388	.66629	1.600	.975	
ROUTE	AP#7R	20	2	.06720	41.44	2.388	.66630	1.650	.963	
COMPUTE NM HYD	A10-D	-	3	.01020	6.49	.273	.50146	1.500	.995	PER IMP= 50.00
ADD HYD	AP#8	2& 3	20	.07740	45.24	2.661	.64456	1.600	.913	
ROUTE	AP#8R	20	2	.07740	45.07	2.661	.64457	1.650	.910	
ADD HYD	AP#9	10& 2	10	.35950	238.50	12.474	.65060	1.550	1.037	
ROUTE	AP#9R	10	2	.35950	237.62	12.474	.65060	1.550	1.033	
COMPUTE NM HYD	A11-D	-	3	.00860	8.17	.346	.75409	1.500	1.485	PER IMP= 76.00
ADD HYD	AP#10	2& 3	20	.36810	244.63	12.820	.65302	1.550	1.038	
COMPUTE NM HYD	B1-D&AP#11	-	3	.02300	19.63	.830	.67636	1.500	1.334	PER IMP= 68.00
ROUTE	AP#11R	3	2	.02300	16.50	.830	.67638	1.550	1.121	
COMPUTE NM HYD	B2-D	-	3	.03500	26.50	1.117	.59863	1.500	1.183	PER IMP= 60.00
ADD HYD	AP#12	2& 3	10	.05800	40.73	1.947	.62944	1.500	1.097	
ROUTE	AP#12R	10	2	.05800	35.20	1.947	.62946	1.600	.948	
COMPUTE NM HYD	B3-D	-	3	.04360	25.73	1.166	.50146	1.500	.922	PER IMP= 50.00
ADD HYD	AP#13	2& 3	10	.10160	58.91	3.113	.57452	1.550	.906	
ROUTE	AP#13R	10	2	.10160	57.77	3.113	.57452	1.600	.888	
COMPUTE NM HYD	B4-D	-	3	.02300	14.64	.615	.50146	1.500	.994	PER IMP= 50.00
ADD HYD	AP#14	2& 3	10	.12460	69.46	3.728	.56103	1.550	.871	
ROUTE	AP#14R	10	12	.12460	69.06	3.728	.56103	1.550	.866	
COMPUTE NM HYD	S1-D&AP#15	-	3	.03140	25.67	1.084	.64721	1.500	1.277	PER IMP= 65.00
ROUTE	AP-15R	3	2	.03140	24.64	1.084	.64723	1.500	1.226	
COMPUTE NM HYD	S2-D	-	3	.01630	10.38	.436	.50146	1.500	.995	PER IMP= 50.00
ADD HYD	AP#16	2& 3	10	.04770	35.01	1.520	.59739	1.500	1.147	
ROUTE	AP#16R	10	2	.04770	34.72	1.520	.59741	1.550	1.137	

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
COMPUTE NM HYD	S3-D	-	3	.05670	34.95	1.516	.50146	1.500	.963	PER IMP= 50.00
ADD HYD	AP#17	2& 3	10	.10440	67.58	3.036	.54529	1.500	1.012	
ROUTE	AP#17R	10	2	.10440	68.61	3.036	.54529	1.550	1.027	
COMPUTE NM HYD	S4-D	-	3	.04360	29.38	1.392	.59862	1.550	1.053	PER IMP= 60.00
ADD HYD	AP#18	2& 3	10	.14800	97.99	4.428	.56100	1.550	1.035	
*SXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX										
ROUTE	AP#18R	10	2	.14800	95.68	4.428	.56100	1.550	1.010	
ADD HYD	AP#14	12& 2	10	.27260	164.75	8.156	.56101	1.550	.944	
ROUTE	AP#14R	10	2	.27260	163.35	8.156	.56101	1.550	.936	
COMPUTE NM HYD	S5-D	-	3	.02380	17.73	.748	.58891	1.500	1.164	PER IMP= 59.00
ADD HYD	AP#19	2& 3	10	.29640	178.59	8.904	.56325	1.550	.941	
ROUTE	AP#20R	11	10	.29640	177.49	8.904	.56325	1.550	.936	
*SXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX										
ADD HYD	PART_AP#21	20&10	10	.66450	422.12	21.724	.61298	1.550	.993	
COMPUTE NM HYD	B5-D_TWRPND	-	3	.03910	2.79	.112	.05389	1.500	.112	PER IMP= 5.00
ADD HYD	AP#21	10& 3	20	.70360	424.58	21.836	.58191	1.550	.943	
ROUTE RESERVOIR	AP#22	20	12	.70360	18.44	21.135	.56322	2.550	.041	AC-FT= 15.080
ROUTE	AP#22R	12	2	.70360	18.44	21.123	.56289	2.600	.041	
COMPUTE NM HYD	B6-D	-	3	.04590	23.22	1.584	.64721	1.700	.790	PER IMP= 65.00
ADD HYD	AP#23	2& 3	10	.74950	36.10	22.707	.56805	1.750	.075	
ROUTE	AP#23R	10	2	.74950	35.37	22.688	.56758	1.800	.074	
COMPUTE NM HYD	B7-D	-	3	.05910	33.40	2.101	.66664	1.650	.883	PER IMP= 67.00
ADD HYD	AP#24	2& 3	10	.80860	64.19	24.789	.57482	1.700	.124	
ROUTE	AP#24R	10	2	.80860	64.14	24.773	.57444	1.750	.124	
COMPUTE NM HYD	B8-D	-	3	.08910	25.88	2.383	.50146	1.900	.454	PER IMP= 50.00
ADD HYD	AP#25	2& 3	30	.89770	86.83	27.156	.56719	1.800	.151	
COMPUTE NM HYD	A12-D&AP#26	-	3	.03590	33.09	1.444	.75409	1.500	1.440	PER IMP= 76.00
ROUTE	AP#26R	3	2	.03590	31.80	1.444	.75411	1.550	1.384	
COMPUTE NM HYD	A13-D	-	3	.04520	28.90	1.560	.64721	1.600	.999	PER IMP= 65.00
ADD HYD	AP#27	2& 3	10	.08110	60.36	3.004	.69452	1.550	1.163	
ROUTE	AP#27R	10	2	.08110	58.12	3.004	.69452	1.600	1.120	
COMPUTE NM HYD	A14-D	-	3	.04520	22.40	1.677	.69579	1.750	.774	PER IMP= 70.00
ADD HYD	AP#28	2& 3	10	.12630	72.95	4.681	.69497	1.600	.903	
ROUTE	AP#28R	10	2	.12630	72.22	4.681	.69497	1.600	.893	
COMPUTE NM HYD	A15-D	-	3	.02530	15.45	.808	.59863	1.550	.954	PER IMP= 60.00
ADD HYD	PART_AP#33	2& 3	20	.15160	87.33	5.489	.67889	1.600	.900	
COMPUTE NM HYD	A17-D&AP#29	-	3	.01080	6.88	.289	.50146	1.500	.995	PER IMP= 50.00
ROUTE	AP&29R	3	2	.01080	4.23	.289	.50150	1.600	.613	
COMPUTE NM HYD	A18-D	-	3	.01030	7.80	.329	.59863	1.500	1.183	PER IMP= 60.00
ADD HYD	AP#30	2& 3	10	.02110	10.81	.618	.54886	1.500	.800	
ROUTE	AP&30R	10	2	.02110	6.01	.618	.54885	1.750	.445	
COMPUTE NM HYD	A19-D	-	3	.01080	7.04	.345	.59863	1.550	1.019	PER IMP= 60.00
ADD HYD	AP#31	2& 3	10	.03190	11.70	.962	.56566	1.600	.573	
ROUTE	AP#31R	10	2	.03190	11.43	.962	.56568	1.600	.560	
COMPUTE NM HYD	A20-D	-	3	.00690	5.23	.220	.59863	1.500	1.184	PER IMP= 60.00
ADD HYD	AP#32	2& 3	10	.03880	14.86	1.183	.57152	1.600	.598	
ROUTE	AP#32R	10	22	.03880	13.79	1.183	.57153	1.650	.555	
ADD HYD	AP#33	20&22	10	.19040	100.33	6.672	.65701	1.600	.823	
ROUTE	AP#33R	10	2	.19040	100.61	6.672	.65701	1.650	.826	
COMPUTE NM HYD	A16-D	-	3	.06380	23.21	1.706	.50146	1.750	.568	PER IMP= 50.00
ADD HYD	AP#34	2& 3	10	.25420	120.71	8.378	.61796	1.650	.742	
COMPUTE NM HYD	S6-D&AP#35	-	3	.03780	18.01	1.207	.59863	1.700	.744	PER IMP= 60.00

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE	AP#35R	3	2	.03780	17.52	1.207	.59863	1.750	.724	
COMPUTE NM HYD	S7-D	-	3	.05700	24.87	2.145	.70551	1.850	.682	PER IMP= 71.00
ADD HYD	AP#36	2& 3	10	.09480	40.63	3.351	.66287	1.800	.670	
ROUTE	AP#36R	10	2	.09480	39.76	3.352	.66288	1.850	.655	
COMPUTE NM HYD	S8-D	-	3	.06830	29.31	2.287	.62778	1.800	.671	PER IMP= 63.00
ADD HYD	AP#37	2& 3	10	.16310	68.00	5.638	.64817	1.850	.651	
ROUTE	AP#37R	10	2	.16310	68.32	5.638	.64817	1.850	.655	
COMPUTE NM HYD	S9-D	-	3	.07480	47.24	2.000	.50146	1.500	.987	PER IMP= 50.00
ADD HYD	AP#38	2& 3	20	.23790	83.36	7.639	.60204	1.800	.548	
COMPUTE NM HYD	C1-D&AP#39	-	3	.03860	32.48	1.372	.66664	1.500	1.315	PER IMP= 67.00
ROUTE	AP#39R	3	2	.03860	31.42	1.372	.66666	1.500	1.272	
COMPUTE NM HYD	C2-D	-	3	.01880	15.37	.649	.64721	1.500	1.277	PER IMP= 65.00
ADD HYD	AP#40	2& 3	10	.05740	46.79	2.021	.66027	1.500	1.274	
ROUTE	AP#40R	10	2	.05740	45.96	2.021	.66028	1.550	1.251	
COMPUTE NM HYD	C3-D	-	3	.02340	26.19	1.111	.89013	1.500	1.749	PER IMP= 90.00
ADD HYD	AP#41	2& 3	10	.08080	69.84	3.132	.72683	1.500	1.350	
COMPUTE NM HYD	C4-D&AP#42	-	3	.03080	27.67	1.207	.73466	1.500	1.403	PER IMP= 74.00
ROUTE	AP#42R	3	2	.03080	27.17	1.207	.73468	1.500	1.378	
ADD HYD	AP#43	10& 2	10	.11160	97.00	4.339	.72899	1.500	1.358	
ROUTE	AP#43R	10	2	.11160	94.99	4.339	.72900	1.550	1.330	
COMPUTE NM HYD	C5-D	-	3	.00910	6.89	.272	.56068	1.500	1.184	PER IMP= 50.00
ADD HYD	AP#44	2& 3	10	.12070	101.40	4.611	.71630	1.550	1.313	
COMPUTE NM HYD	C6-D&AP#45	-	3	.01940	21.71	.921	.89013	1.500	1.749	PER IMP= 90.00
FINISH										

AMOLE DEL NORTE STORM DRAINAGE FACILITIES
TOWER/SAGE DRAINAGE MASTER PLAN

AHYMO SUMMARY TABLE (AHYMO (MON/DAY/YR) =10/09/1997
INPUT FILE = MASTr56.IN USER NO.= ANASRONM.I01

PAGE = 1

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.250
SEDIMENT BULK										PK BF = 1.05
COMPUTE NM HYD	A1-D&AP#1	-	3	.04580	57.35	2.062	.84415	1.533	1.957	PER IMP= 76.00
ROUTE	AP-1R	3	2	.04580	55.82	2.062	.84416	1.533	1.904	
COMPUTE NM HYD	A2-D	-	3	.03950	47.76	1.659	.78746	1.500	1.889	PER IMP= 70.00
ADD HYD	AP#2	2& 3	10	.08530	102.82	3.721	.81789	1.533	1.883	
ROUTE	AP#2R	10	2	.08530	99.15	3.721	.81790	1.567	1.816	
COMPUTE NM HYD	A3-D	-	3	.04190	49.94	1.654	.74021	1.500	1.862	PER IMP= 65.00
ADD HYD	AP#3	2& 3	10	.12720	144.72	5.375	.79230	1.533	1.778	
ROUTE	AP#3R	10	2	.12720	142.86	5.375	.79230	1.567	1.755	
COMPUTE NM HYD	A4-D	-	3	.04390	57.29	2.065	.88195	1.533	2.039	PER IMP= 80.00
ADD HYD	AP#4	2& 3	10	.17110	197.81	7.440	.81530	1.533	1.806	
ROUTE	AP#4R	10	2	.17110	198.24	7.440	.81530	1.567	1.810	
COMPUTE NM HYD	A5-D	-	3	.04520	48.44	1.670	.69296	1.500	1.674	PER IMP= 60.00
ADD HYD	AP#5	2& 3	10	.21630	240.75	9.110	.78973	1.567	1.739	
ROUTE	AP#5R	10	2	.21630	242.86	9.110	.78974	1.567	1.754	
COMPUTE NM HYD	A6-D	-	3	.04520	42.22	1.443	.59846	1.500	1.460	PER IMP= 50.00
ADD HYD	PART_AP#9	2& 3	10	.26150	280.18	10.553	.75667	1.567	1.674	
COMPUTE NM HYD	A7-D	-	3	.02060	19.25	.658	.59846	1.500	1.460	PER IMP= 50.00
ADD HYD	PART_AP#9	10& 3	10	.28210	297.20	11.211	.74512	1.567	1.646	
COMPUTE NM HYD	A8-D&AP#6	-	3	.05700	59.51	2.394	.78746	1.567	1.631	PER IMP= 70.00
ROUTE	AP&6R	3	2	.05700	55.37	2.394	.78746	1.600	1.518	
COMPUTE NM HYD	A9-D	-	3	.01020	10.00	.326	.59846	1.500	1.532	PER IMP= 50.00
ADD HYD	AP#7	2& 3	20	.06720	62.18	2.719	.75876	1.600	1.446	
ROUTE	AP#7R	20	2	.06720	61.38	2.719	.75876	1.633	1.427	
COMPUTE NM HYD	A10-D	-	3	.01020	10.00	.326	.59846	1.500	1.532	PER IMP= 50.00
ADD HYD	AP#8	2& 3	20	.07740	67.87	3.045	.73763	1.600	1.370	
ROUTE	AP#8R	20	2	.07740	66.67	3.045	.73763	1.633	1.346	
ADD HYD	AP#9	10& 2	10	.35950	353.63	14.255	.74350	1.567	1.537	
ROUTE	AP#9R	10	2	.35950	353.93	14.255	.74351	1.567	1.538	
COMPUTE NM HYD	A11-D	-	3	.00860	11.59	.387	.84415	1.500	2.106	PER IMP= 76.00
ADD HYD	AP#10	2& 3	20	.36810	363.29	14.643	.74586	1.567	1.542	
COMPUTE NM HYD	B1-D&AP#11	-	3	.02300	28.39	.943	.76856	1.500	1.929	PER IMP= 68.00
ROUTE	AP#11R	3	2	.02300	24.08	.943	.76857	1.567	1.636	
COMPUTE NM HYD	B2-D	-	3	.03500	39.25	1.294	.69296	1.500	1.752	PER IMP= 60.00
ADD HYD	AP#12	2& 3	10	.05800	60.95	2.236	.72293	1.533	1.642	
ROUTE	AP#12R	10	2	.05800	54.80	2.236	.72293	1.567	1.476	
COMPUTE NM HYD	B3-D	-	3	.04360	39.62	1.392	.59846	1.533	1.420	PER IMP= 50.00
ADD HYD	AP#13	2& 3	10	.10160	91.35	3.628	.66951	1.567	1.405	
ROUTE	AP#13R	10	2	.10160	90.92	3.628	.66951	1.567	1.398	
COMPUTE NM HYD	B4-D	-	3	.02300	22.54	.734	.59846	1.500	1.532	PER IMP= 50.00
ADD HYD	AP#14	2& 3	10	.12460	109.42	4.362	.65639	1.567	1.372	
ROUTE	AP#14R	10	12	.12460	109.60	4.362	.65640	1.567	1.374	
COMPUTE NM HYD	S1-D&AP#15	-	3	.03140	37.43	1.240	.74021	1.500	1.862	PER IMP= 65.00
ROUTE	AP-15R	3	2	.03140	36.45	1.240	.74021	1.533	1.814	
COMPUTE NM HYD	S2-D	-	3	.01630	15.98	.520	.59846	1.500	1.532	PER IMP= 50.00
ADD HYD	AP#16	2& 3	10	.04770	51.67	1.760	.69176	1.533	1.692	
ROUTE	AP#16R	10	2	.04770	51.37	1.760	.69177	1.533	1.683	

5/6

5 YEAR - 6 HOUR SUMMARY

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
COMPUTE NM HYD	S3-D	-	3	.05670	52.96	1.810	.59846	1.500	1.460	PER IMP= 50.00
ADD HYD	AP#17	2& 3	10	.10440	103.88	3.570	.64109	1.533	1.555	
ROUTE	AP#17R	10	2	.10440	101.52	3.570	.64109	1.533	1.519	
COMPUTE NM HYD	S4-D	-	3	.04360	44.18	1.611	.69296	1.533	1.583	PER IMP= 60.00
ADD HYD	AP#18	2& 3	10	.14800	145.70	5.181	.65636	1.533	1.538	
*SXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX										
ROUTE	AP#18R	10	2	.14800	142.68	5.181	.65637	1.567	1.506	
ADD HYD	AP#14	12& 2	10	.27260	252.27	9.543	.65638	1.567	1.446	
ROUTE	AP#14R	10	2	.27260	251.61	9.543	.65638	1.567	1.442	
COMPUTE NM HYD	S5-D	-	3	.02380	26.35	.868	.68351	1.500	1.730	PER IMP= 59.00
ADD HYD	AP#19	2& 3	10	.29640	273.07	10.410	.65856	1.567	1.440	
ROUTE	AP#20R	11	10	.29640	272.73	10.410	.65856	1.567	1.438	
*SXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX										
ADD HYD	PART_AP#21	20&10	10	.66450	636.02	25.053	.70692	1.567	1.496	
COMPUTE NM HYD	B5-D_TWRPND	-	3	.03910	11.64	.318	.15244	1.533	.465	PER IMP= 5.00
ADD HYD	AP#21	10& 3	20	.70360	646.54	25.371	.67610	1.567	1.436	
ROUTE RESERVOIR	AP#22	20	12	.70360	21.15	22.792	.60738	2.666	.047	AC-FT= 22.505
ROUTE	AP#22R	12	2	.70360	21.15	22.761	.60655	2.700	.047	
COMPUTE NM HYD	B6-D	-	3	.04590	33.06	1.812	.74021	1.700	1.125	PER IMP= 65.00
ADD HYD	AP#23	2& 3	10	.74950	49.05	24.573	.61473	1.733	.102	
ROUTE	AP#23R	10	2	.74950	47.86	24.529	.61364	1.800	.100	
COMPUTE NM HYD	B7-D	-	3	.05910	47.44	2.393	.75911	1.667	1.254	PER IMP= 67.00
ADD HYD	AP#24	2& 3	10	.80860	90.40	26.922	.62427	1.733	.175	
ROUTE	AP#24R	10	2	.80860	89.63	26.883	.62337	1.733	.173	
COMPUTE NM HYD	B8-D	-	3	.08910	38.32	2.844	.59846	1.900	.672	PER IMP= 50.00
ADD HYD	AP#25	2& 3	30	.89770	122.74	29.727	.62090	1.800	.214	
COMPUTE NM HYD	A12-D&AP#26	-	3	.03590	46.37	1.616	.84415	1.500	2.018	PER IMP= 76.00
ROUTE	AP#26R	3	2	.03590	45.00	1.616	.84416	1.533	1.959	
COMPUTE NM HYD	A13-D	-	3	.04520	41.71	1.784	.74021	1.600	1.442	PER IMP= 65.00
ADD HYD	AP#27	2& 3	10	.08110	85.00	3.401	.78621	1.567	1.638	
ROUTE	AP#27R	10	2	.08110	81.71	3.401	.78622	1.600	1.574	
COMPUTE NM HYD	A14-D	-	3	.04520	31.58	1.898	.78745	1.766	1.092	PER IMP= 70.00
ADD HYD	AP#28	2& 3	10	.12630	102.44	5.299	.78665	1.600	1.267	
ROUTE	AP#28R	10	2	.12630	102.24	5.299	.78665	1.633	1.265	
COMPUTE NM HYD	A15-D	-	3	.02530	22.67	.935	.69296	1.567	1.400	PER IMP= 60.00
ADD HYD	PART_AP#33	2& 3	20	.15160	123.22	6.234	.77101	1.600	1.270	
COMPUTE NM HYD	A17-D&AP#29	-	3	.01080	10.59	.345	.59846	1.500	1.532	PER IMP= 50.00
ROUTE	AP&29R	3	2	.01080	6.79	.345	.59848	1.600	.982	
COMPUTE NM HYD	A18-D	-	3	.01030	11.55	.381	.69296	1.500	1.753	PER IMP= 60.00
ADD HYD	AP#30	2& 3	10	.02110	16.91	.725	.64455	1.533	1.252	
ROUTE	AP&30R	10	2	.02110	9.65	.725	.64457	1.700	.715	
COMPUTE NM HYD	A19-D	-	3	.01080	10.20	.399	.69296	1.567	1.476	PER IMP= 60.00
ADD HYD	AP#31	2& 3	10	.03190	18.34	1.124	.66089	1.600	.898	
ROUTE	AP#31R	10	2	.03190	17.96	1.124	.66090	1.633	.880	
COMPUTE NM HYD	A20-D	-	3	.00690	7.74	.255	.69296	1.500	1.753	PER IMP= 60.00
ADD HYD	AP#32	2& 3	10	.03880	22.97	1.379	.66658	1.600	.925	
ROUTE	AP#32R	10	22	.03880	21.29	1.379	.66659	1.667	.857	
ADD HYD	AP#33	20&22	10	.19040	144.06	7.613	.74973	1.633	1.182	
ROUTE	AP#33R	10	2	.19040	142.33	7.613	.74973	1.633	1.168	
COMPUTE NM HYD	A16-D	-	3	.06380	34.21	2.036	.59846	1.766	.838	PER IMP= 50.00
ADD HYD	AP#34	2& 3	10	.25420	173.02	9.650	.71176	1.667	1.063	
COMPUTE NM HYD	S6-D&AP#35	-	3	.03780	25.99	1.397	.69296	1.700	1.074	PER IMP= 60.00

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE	AP#35R	3	2	.03780	25.33	1.397	.69295	1.733	1.047	
COMPUTE NM HYD	S7-D	-	3	.05700	34.97	2.423	.79690	1.866	.959	PER IMP= 71.00
ADD HYD	AP#36	2& 3	10	.09480	57.64	3.820	.75544	1.800	.950	
ROUTE	AP#36R	10	2	.09480	56.37	3.820	.75545	1.866	.929	
COMPUTE NM HYD	S8-D	-	3	.06830	41.94	2.627	.72131	1.800	.960	PER IMP= 63.00
ADD HYD	AP#37	2& 3	10	.16310	97.38	6.447	.74115	1.833	.933	
ROUTE	AP#37R	10	2	.16310	97.19	6.447	.74115	1.833	.931	
COMPUTE NM HYD	S9-D	-	3	.07480	72.96	2.387	.59846	1.500	1.524	PER IMP= 50.00
ADD HYD	AP#38	2& 3	20	.23790	119.53	8.834	.69628	1.800	.785	
COMPUTE NM HYD	C1-D&AP#39	-	3	.03860	47.10	1.563	.75911	1.500	1.906	PER IMP= 67.00
ROUTE	AP#39R	3	2	.03860	45.88	1.563	.75911	1.533	1.857	
COMPUTE NM HYD	C2-D	-	3	.01880	22.41	.742	.74021	1.500	1.863	PER IMP= 65.00
ADD HYD	AP#40	2& 3	10	.05740	67.09	2.305	.75291	1.533	1.826	
ROUTE	AP#40R	10	2	.05740	66.81	2.305	.75291	1.533	1.819	
COMPUTE NM HYD	C3-D	-	3	.02340	36.15	1.219	.97645	1.500	2.414	PER IMP= 90.00
ADD HYD	AP#41	2& 3	10	.08080	100.80	3.523	.81764	1.533	1.949	
COMPUTE NM HYD	C4-D&AP#42	-	3	.03080	38.94	1.356	.82525	1.500	1.975	PER IMP= 74.00
ROUTE	AP#42R	3	2	.03080	39.00	1.356	.82526	1.533	1.979	
ADD HYD	AP#43	10& 2	10	.11160	139.81	4.879	.81974	1.533	1.957	
ROUTE	AP#43R	10	2	.11160	132.33	4.879	.81974	1.567	1.853	
COMPUTE NM HYD	C5-D	-	3	.00910	10.48	.336	.69268	1.533	1.800	PER IMP= 50.00
ADD HYD	AP#44	2& 3	10	.12070	141.72	5.215	.81016	1.567	1.835	
COMPUTE NM HYD	C6-D&AP#45	-	3	.01940	29.97	1.010	.97645	1.500	2.414	PER IMP= 90.00
FINISH										

AMOLE DEL NORTE STORM DRAINAGE FACILITIES
TOWER/SAGE DRAINAGE MASTER PLAN

AHYMO SUMMARY TABLE (AHYMO1 (MON/DAY/YR) =10/09/1997
INPUT FILE = MASTer5.IN USER NO.= ANASRONM.I01

PAGE = 1

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
START										TIME= .00
RAINFALL TYPE= 2										RAIN24= 1.510
SEDIMENT BULK										PK BF = 1.05
COMPUTE NM HYD	A1-D&AP#1	-	3	.04580	56.31	2.570	1.05230	1.500	1.921	PER IMP= 76.00
ROUTE	AP-1R	3	2	.04580	55.67	2.570	1.05231	1.550	1.899	
COMPUTE NM HYD	A2-D	-	3	.03950	47.41	2.063	.97905	1.500	1.875	PER IMP= 70.00
ADD HYD	AP#2	2& 3	10	.08530	99.05	4.633	1.01838	1.500	1.814	
ROUTE	AP#2R	10	2	.08530	99.73	4.633	1.01838	1.550	1.827	
COMPUTE NM HYD	A3-D	-	3	.04190	49.01	2.051	.91802	1.500	1.828	PER IMP= 65.00
ADD HYD	AP#3	2& 3	10	.12720	142.13	6.684	.98532	1.550	1.746	
ROUTE	AP#3R	10	2	.12720	144.11	6.684	.98532	1.550	1.770	
COMPUTE NM HYD	A4-D	-	3	.04390	56.30	2.578	1.10113	1.500	2.004	PER IMP= 80.00
ADD HYD	AP#4	2& 3	10	.17110	197.91	9.262	1.01503	1.550	1.807	
ROUTE	AP#4R	10	2	.17110	199.33	9.263	1.01503	1.550	1.820	
COMPUTE NM HYD	A5-D	-	3	.04520	48.09	2.066	.85698	1.500	1.662	PER IMP= 60.00
ADD HYD	AP#5	2& 3	10	.21630	243.31	11.328	.98200	1.550	1.758	
ROUTE	AP#5R	10	2	.21630	243.29	11.328	.98200	1.550	1.758	
COMPUTE NM HYD	A6-D	-	3	.04520	41.93	1.772	.73491	1.500	1.450	PER IMP= 50.00
ADD HYD	PART_AP#9	2& 3	10	.26150	281.86	13.100	.93929	1.550	1.684	
COMPUTE NM HYD	A7-D	-	3	.02060	19.11	.807	.73491	1.500	1.450	PER IMP= 50.00
ADD HYD	PART_AP#9	10& 3	10	.28210	299.44	13.907	.92436	1.550	1.659	
COMPUTE NM HYD	A8-D&AP#6	-	3	.05700	58.97	2.976	.97905	1.550	1.617	PER IMP= 70.00
ROUTE	AP&6R	3	2	.05700	55.63	2.976	.97906	1.600	1.525	
COMPUTE NM HYD	A9-D	-	3	.01020	9.82	.400	.73491	1.500	1.505	PER IMP= 50.00
ADD HYD	AP#7	2& 3	20	.06720	62.19	3.376	.94199	1.600	1.446	
ROUTE	AP#7R	20	2	.06720	61.60	3.376	.94200	1.600	1.432	
COMPUTE NM HYD	A10-D	-	3	.01020	9.82	.400	.73491	1.500	1.505	PER IMP= 50.00
ADD HYD	AP#8	2& 3	20	.07740	68.16	3.776	.91470	1.600	1.376	
ROUTE	AP#8R	20	2	.07740	66.98	3.776	.91470	1.650	1.352	
ADD HYD	AP#9	10& 2	10	.35950	352.50	17.683	.92228	1.550	1.532	
ROUTE	AP#9R	10	2	.35950	351.81	17.683	.92228	1.550	1.529	
COMPUTE NM HYD	A11-D	-	3	.00860	11.37	.483	1.05230	1.500	2.066	PER IMP= 76.00
ADD HYD	AP#10	2& 3	20	.36810	361.61	18.166	.92532	1.550	1.535	
COMPUTE NM HYD	B1-D&AP#11	-	3	.02300	27.86	1.171	.95464	1.500	1.893	PER IMP= 68.00
ROUTE	AP#11R	3	2	.02300	24.16	1.171	.95466	1.550	1.642	
COMPUTE NM HYD	B2-D	-	3	.03500	38.53	1.600	.85698	1.500	1.720	PER IMP= 60.00
ADD HYD	AP#12	2& 3	10	.05800	59.77	2.771	.89570	1.500	1.610	
ROUTE	AP#12R	10	2	.05800	54.02	2.771	.89571	1.550	1.455	
COMPUTE NM HYD	B3-D	-	3	.04360	38.59	1.709	.73491	1.500	1.383	PER IMP= 50.00
ADD HYD	AP#13	2& 3	10	.10160	91.38	4.480	.82670	1.550	1.405	
ROUTE	AP#13R	10	2	.10160	89.04	4.480	.82670	1.550	1.369	
COMPUTE NM HYD	B4-D	-	3	.02300	22.14	.901	.73491	1.500	1.504	PER IMP= 50.00
ADD HYD	AP#14	2& 3	10	.12460	108.35	5.381	.80975	1.550	1.359	
ROUTE	AP#14R	10	12	.12460	107.85	5.381	.80976	1.550	1.352	
COMPUTE NM HYD	S1-D&AP#15	-	3	.03140	36.73	1.537	.91802	1.500	1.828	PER IMP= 65.00
ROUTE	AP-15R	3	2	.03140	35.33	1.537	.91803	1.500	1.758	
COMPUTE NM HYD	S2-D	-	3	.01630	15.69	.639	.73491	1.500	1.504	PER IMP= 50.00
ADD HYD	AP#16	2& 3	10	.04770	51.02	2.176	.85544	1.500	1.671	
ROUTE	AP#16R	10	2	.04770	50.50	2.176	.85545	1.550	1.654	

5/24

5 YEAR - 24 HOUR SUMMARY

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
COMPUTE NM HYD	S3-D	-	3	.05670	52.60	2.222	.73491	1.500	1.449	PER IMP= 50.00
ADD HYD	AP#17	2& 3	10	.10440	100.58	4.399	.78997	1.500	1.505	
ROUTE	AP#17R	10	2	.10440	101.92	4.399	.78998	1.550	1.525	
COMPUTE NM HYD	S4-D	-	3	.04360	42.58	1.993	.85698	1.550	1.526	PER IMP= 60.00
ADD HYD	AP#18	2& 3	10	.14800	144.50	6.391	.80971	1.550	1.526	
*SXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX										
ROUTE	AP#18R	10	2	.14800	142.72	6.391	.80972	1.550	1.507	
ADD HYD	AP#14	12& 2	10	.27260	250.57	11.772	.80973	1.550	1.436	
ROUTE	AP#14R	10	2	.27260	249.09	11.772	.80973	1.550	1.428	
COMPUTE NM HYD	S5-D	-	3	.02380	25.87	1.072	.84477	1.500	1.698	PER IMP= 59.00
ADD HYD	AP#19	2& 3	10	.29640	271.53	12.845	.81254	1.550	1.431	
ROUTE	AP#20R	11	10	.29640	269.82	12.845	.81255	1.550	1.422	
*SXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX										
ADD HYD	PART_AP#21	20&10	10	.66450	631.42	31.011	.87502	1.550	1.485	
COMPUTE NM HYD	B5-D_TWRPND	-	3	.03910	11.33	.343	.16453	1.500	.453	PER IMP= 5.00
ADD HYD	AP#21	10& 3	20	.70360	642.23	31.354	.83553	1.550	1.426	
ROUTE RESERVOIR	AP#22	20	12	.70360	21.14	30.139	.80318	2.650	.047	AC-FT= 22.489
ROUTE	AP#22R	12	2	.70360	21.14	30.121	.80269	2.700	.047	
COMPUTE NM HYD	B6-D	-	3	.04590	32.98	2.247	.91802	1.700	1.123	PER IMP= 65.00
ADD HYD	AP#23	2& 3	10	.74950	48.82	32.368	.80975	1.750	.102	
ROUTE	AP#23R	10	2	.74950	47.90	32.342	.80909	1.800	.100	
COMPUTE NM HYD	B7-D	-	3	.05910	47.30	2.971	.94243	1.650	1.251	PER IMP= 67.00
ADD HYD	AP#24	2& 3	10	.80860	90.70	35.313	.81884	1.700	.175	
ROUTE	AP#24R	10	2	.80860	90.23	35.288	.81826	1.750	.174	
COMPUTE NM HYD	B8-D	-	3	.08910	38.26	3.492	.73491	1.900	.671	PER IMP= 50.00
ADD HYD	AP#25	2& 3	30	.89770	122.87	38.780	.80998	1.800	.214	
COMPUTE NM HYD	A12-D&AP#26	-	3	.03590	46.03	2.015	1.05230	1.500	2.003	PER IMP= 76.00
ROUTE	AP#26R	3	2	.03590	44.24	2.015	1.05231	1.550	1.925	
COMPUTE NM HYD	A13-D	-	3	.04520	41.11	2.213	.91802	1.600	1.421	PER IMP= 65.00
ADD HYD	AP#27	2& 3	10	.08110	85.04	4.228	.97745	1.550	1.638	
ROUTE	AP#27R	10	2	.08110	81.75	4.228	.97746	1.600	1.575	
COMPUTE NM HYD	A14-D	-	3	.04520	31.52	2.360	.97905	1.750	1.089	PER IMP= 70.00
ADD HYD	AP#28	2& 3	10	.12630	103.43	6.588	.97802	1.600	1.280	
ROUTE	AP#28R	10	2	.12630	102.75	6.588	.97803	1.600	1.271	
COMPUTE NM HYD	A15-D	-	3	.02530	22.32	1.156	.85698	1.550	1.379	PER IMP= 60.00
ADD HYD	PART_AP#33	2& 3	20	.15160	124.54	7.744	.95782	1.600	1.284	
COMPUTE NM HYD	A17-D&AP#29	-	3	.01080	10.40	.423	.73491	1.500	1.505	PER IMP= 50.00
ROUTE	AP&29R	3	2	.01080	6.82	.423	.73495	1.600	.986	
COMPUTE NM HYD	A18-D	-	3	.01030	11.34	.471	.85698	1.500	1.721	PER IMP= 60.00
ADD HYD	AP#30	2& 3	10	.02110	16.27	.894	.79446	1.550	1.205	
ROUTE	AP&30R	10	2	.02110	9.74	.894	.79445	1.700	.721	
COMPUTE NM HYD	A19-D	-	3	.01080	10.18	.494	.85698	1.550	1.473	PER IMP= 60.00
ADD HYD	AP#31	2& 3	10	.03190	18.22	1.388	.81559	1.600	.893	
ROUTE	AP#31R	10	2	.03190	17.85	1.388	.81560	1.600	.874	
COMPUTE NM HYD	A20-D	-	3	.00690	7.60	.315	.85698	1.500	1.721	PER IMP= 60.00
ADD HYD	AP#32	2& 3	10	.03880	22.90	1.703	.82294	1.600	.922	
ROUTE	AP#32R	10	22	.03880	21.53	1.703	.82295	1.650	.867	
ADD HYD	AP#33	20&22	10	.19040	145.20	9.447	.93033	1.600	1.192	
ROUTE	AP#33R	10	2	.19040	144.79	9.447	.93033	1.650	1.188	
COMPUTE NM HYD	A16-D	-	3	.06380	34.20	2.501	.73491	1.750	.838	PER IMP= 50.00
ADD HYD	AP#34	2& 3	10	.25420	174.99	11.948	.88128	1.650	1.076	
COMPUTE NM HYD	S6-D&AP#35	-	3	.03780	25.85	1.728	.85698	1.700	1.068	PER IMP= 60.00

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE	AP#35R	3	2	.03780	25.19	1.728	.85698	1.750	1.041	
COMPUTE NM HYD	S7-D	-	3	.05700	34.90	3.013	.99126	1.850	.957	PER IMP= 71.00
ADD HYD	AP#36	2& 3	10	.09480	57.66	4.741	.93770	1.800	.950	
ROUTE	AP#36R	10	2	.09480	56.61	4.741	.93771	1.850	.933	
COMPUTE NM HYD	S8-D	-	3	.06830	41.75	3.255	.89360	1.800	.955	PER IMP= 63.00
ADD HYD	AP#37	2& 3	10	.16310	97.31	7.996	.91923	1.800	.932	
ROUTE	AP#37R	10	2	.16310	97.38	7.996	.91924	1.850	.933	
COMPUTE NM HYD	S9-D	-	3	.07480	71.67	2.932	.73491	1.500	1.497	PER IMP= 50.00
ADD HYD	AP#38	2& 3	20	.23790	120.04	10.928	.86127	1.800	.788	
COMPUTE NM HYD	C1-D&AP#39	-	3	.03860	46.22	1.940	.94243	1.500	1.871	PER IMP= 67.00
ROUTE	AP#39R	3	2	.03860	44.71	1.940	.94245	1.500	1.810	
COMPUTE NM HYD	C2-D	-	3	.01880	22.00	.920	.91802	1.500	1.828	PER IMP= 65.00
ADD HYD	AP#40	2& 3	10	.05740	66.71	2.861	.93443	1.500	1.816	
ROUTE	AP#40R	10	2	.05740	65.45	2.861	.93444	1.550	1.782	
COMPUTE NM HYD	C3-D	-	3	.02340	35.46	1.527	1.22320	1.500	2.368	PER IMP= 90.00
ADD HYD	AP#41	2& 3	10	.08080	98.24	4.387	1.01805	1.500	1.900	
COMPUTE NM HYD	C4-D&AP#42	-	3	.03080	38.65	1.688	1.02788	1.500	1.961	PER IMP= 74.00
ROUTE	AP#42R	3	2	.03080	37.98	1.688	1.02790	1.500	1.927	
ADD HYD	AP#43	10& 2	10	.11160	136.22	6.076	1.02077	1.500	1.907	
ROUTE	AP#43R	10	2	.11160	133.80	6.076	1.02077	1.550	1.873	
COMPUTE NM HYD	C5-D	-	3	.00910	10.46	.403	.82943	1.500	1.795	PER IMP= 50.00
ADD HYD	AP#44	2& 3	10	.12070	143.51	6.478	1.00634	1.550	1.858	
COMPUTE NM HYD	C6-D&AP#45	-	3	.01940	29.40	1.266	1.22320	1.500	2.368	PER IMP= 90.00

FINISH

AMOLE DEL NORTE STORM DRAINAGE FACILITIES
TOWER/SAGE DRAINAGE MASTER PLAN

AHYMO SUMMARY TABLE (AI

INPUT FILE = MASTer10.IN

DATE (MON/DAY/YR) =10/09/1997

USER NO.= ANASRONM.I01

PAGE = 1

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.470
SEDIMENT BULK										PK BF = 1.05
COMPUTE NM HYD	A1-D&AP#1	-	3	.04580	69.84	2.555	1.04607	1.533	2.383	PER IMP= 76.00
ROUTE	AP-1R	3	2	.04580	68.19	2.555	1.04608	1.533	2.326	
COMPUTE NM HYD	A2-D	-	3	.03950	58.73	2.070	.98256	1.500	2.323	PER IMP= 70.00
ADD HYD	AP#2	2& 3	10	.08530	126.03	4.625	1.01666	1.533	2.309	
ROUTE	AP#2R	10	2	.08530	121.55	4.625	1.01666	1.567	2.227	
COMPUTE NM HYD	A3-D	-	3	.04190	62.00	2.077	.92964	1.500	2.312	PER IMP= 65.00
ADD HYD	AP#3	2& 3	10	.12720	178.95	6.703	.98799	1.533	2.198	
ROUTE	AP#3R	10	2	.12720	176.30	6.703	.98799	1.567	2.166	
COMPUTE NM HYD	A4-D	-	3	.04390	69.37	2.548	1.08841	1.533	2.469	PER IMP= 80.00
ADD HYD	AP#4	2& 3	10	.17110	244.00	9.251	1.01375	1.533	2.228	
ROUTE	AP#4R	10	2	.17110	243.66	9.251	1.01376	1.567	2.225	
COMPUTE NM HYD	A5-D	-	3	.04520	60.67	2.113	.87671	1.500	2.097	PER IMP= 60.00
ADD HYD	AP#5	2& 3	10	.21630	298.09	11.364	.98511	1.533	2.153	
ROUTE	AP#5R	10	2	.21630	300.22	11.364	.98512	1.567	2.169	
COMPUTE NM HYD	A6-D	-	3	.04520	54.14	1.858	.77086	1.500	1.872	PER IMP= 50.00
ADD HYD	PART_AP#9	2& 3	10	.26150	348.39	13.223	.94808	1.567	2.082	
COMPUTE NM HYD	A7-D	-	3	.02060	24.68	.847	.77086	1.500	1.872	PER IMP= 50.00
ADD HYD	PART_AP#9	10& 3	10	.28210	370.35	14.069	.93514	1.567	2.051	
COMPUTE NM HYD	A8-D&AP#6	-	3	.05700	73.08	2.987	.98256	1.567	2.003	PER IMP= 70.00
ROUTE	AP&6R	3	2	.05700	69.35	2.987	.98256	1.600	1.901	
COMPUTE NM HYD	A9-D	-	3	.01020	12.85	.419	.77086	1.500	1.968	PER IMP= 50.00
ADD HYD	AP#7	2& 3	20	.06720	78.19	3.406	.95042	1.600	1.818	
ROUTE	AP#7R	20	2	.06720	77.45	3.406	.95042	1.600	1.801	
COMPUTE NM HYD	A10-D	-	3	.01020	12.85	.419	.77086	1.500	1.968	PER IMP= 50.00
ADD HYD	AP#8	2& 3	20	.07740	86.29	3.826	.92675	1.600	1.742	
ROUTE	AP#8R	20	2	.07740	84.57	3.826	.92676	1.633	1.707	
ADD HYD	AP#9	10& 2	10	.35950	444.68	17.895	.93333	1.567	1.933	
ROUTE	AP#9R	10	2	.35950	445.31	17.895	.93333	1.567	1.935	
COMPUTE NM HYD	A11-D	-	3	.00860	14.12	.480	1.04607	1.500	2.566	PER IMP= 76.00
ADD HYD	AP#10	2& 3	20	.36810	456.74	18.375	.93596	1.567	1.939	
COMPUTE NM HYD	B1-D&AP#11	-	3	.02300	35.05	1.179	.96139	1.500	2.381	PER IMP= 68.00
ROUTE	AP#11R	3	2	.02300	30.26	1.179	.96140	1.567	2.056	
COMPUTE NM HYD	B2-D	-	3	.03500	49.22	1.637	.87671	1.500	2.197	PER IMP= 60.00
ADD HYD	AP#12	2& 3	10	.05800	76.96	2.816	.91028	1.533	2.073	
ROUTE	AP#12R	10	2	.05800	70.87	2.816	.91029	1.567	1.909	
COMPUTE NM HYD	B3-D	-	3	.04360	50.81	1.793	.77086	1.533	1.821	PER IMP= 50.00
ADD HYD	AP#13	2& 3	10	.10160	117.94	4.608	.85045	1.533	1.814	
ROUTE	AP#13R	10	2	.10160	118.15	4.608	.85045	1.567	1.817	
COMPUTE NM HYD	B4-D	-	3	.02300	28.97	.946	.77086	1.500	1.968	PER IMP= 50.00
ADD HYD	AP#14	2& 3	10	.12460	142.09	5.554	.83575	1.567	1.782	
ROUTE	AP#14R	10	12	.12460	142.64	5.554	.83576	1.567	1.789	
COMPUTE NM HYD	S1-D&AP#15	-	3	.03140	46.47	1.557	.92964	1.500	2.312	PER IMP= 65.00
ROUTE	AP-15R	3	2	.03140	45.36	1.557	.92964	1.533	2.257	
COMPUTE NM HYD	S2-D	-	3	.01630	20.53	.670	.77086	1.500	1.968	PER IMP= 50.00
ADD HYD	AP#16	2& 3	10	.04770	64.98	2.227	.87537	1.533	2.129	
ROUTE	AP#16R	10	2	.04770	64.75	2.227	.87538	1.533	2.121	

10/6

10 YEAR - 6 HOUR SUMMARY

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
COMPUTE NM HYD	S3-D	-	3	.05670	67.91	2.331	.77086	1.500	1.872	PER IMP= 50.00
ADD HYD	AP#17	2& 3	10	.10440	132.26	4.558	.81861	1.533	1.979	
ROUTE	AP#17R	10	2	.10440	129.72	4.558	.81861	1.533	1.942	
COMPUTE NM HYD	S4-D	-	3	.04360	55.28	2.039	.87671	1.533	1.981	PER IMP= 60.00
ADD HYD	AP#18	2& 3	10	.14800	185.00	6.597	.83572	1.533	1.953	
*SXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX										
ROUTE	AP#18R	10	2	.14800	181.22	6.597	.83572	1.567	1.913	
ADD HYD	AP#14	12& 2	10	.27260	323.86	12.150	.83574	1.567	1.856	
ROUTE	AP#14R	10	2	.27260	323.36	12.151	.83574	1.567	1.853	
COMPUTE NM HYD	S5-D	-	3	.02380	33.12	1.099	.86612	1.500	2.175	PER IMP= 59.00
ADD HYD	AP#19	2& 3	10	.29640	350.51	13.250	.83818	1.567	1.848	
ROUTE	AP#20R	11	10	.29640	350.26	13.250	.83818	1.567	1.846	
*SXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX										
ADD HYD	PART_AP#21	20&10	10	.66450	806.99	31.625	.89235	1.567	1.898	
COMPUTE NM HYD	B5-D_TWRPND	-	3	.03910	20.97	.559	.26796	1.533	.838	PER IMP= 5.00
ADD HYD	AP#21	10& 3	20	.70360	825.88	32.183	.85765	1.567	1.834	
ROUTE RESERVOIR	AP#22	20	12	.70360	22.56	27.416	.73061	2.733	.050	AC-FT= 28.645
ROUTE	AP#22R	12	2	.70360	22.56	27.368	.72931	2.767	.050	
COMPUTE NM HYD	B6-D	-	3	.04590	40.84	2.276	.92964	1.700	1.390	PER IMP= 65.00
ADD HYD	AP#23	2& 3	10	.74950	58.70	29.643	.74158	1.733	.122	
ROUTE	AP#23R	10	2	.74950	57.37	29.576	.73990	1.767	.120	
COMPUTE NM HYD	B7-D	-	3	.05910	58.43	2.997	.95081	1.667	1.545	PER IMP= 67.00
ADD HYD	AP#24	2& 3	10	.80860	110.87	32.573	.75531	1.700	.214	
ROUTE	AP#24R	10	2	.80860	109.93	32.514	.75395	1.733	.212	
COMPUTE NM HYD	B8-D	-	3	.08910	48.60	3.663	.77086	1.900	.852	PER IMP= 50.00
ADD HYD	AP#25	2& 3	30	.89770	151.33	36.178	.75563	1.767	.263	
COMPUTE NM HYD	A12-D&AP#26	-	3	.03590	56.49	2.003	1.04607	1.500	2.459	PER IMP= 76.00
ROUTE	AP#26R	3	2	.03590	55.04	2.003	1.04608	1.533	2.395	
COMPUTE NM HYD	A13-D	-	3	.04520	51.60	2.241	.92964	1.567	1.784	PER IMP= 65.00
ADD HYD	AP#27	2& 3	10	.08110	104.41	4.244	.98117	1.567	2.012	
ROUTE	AP#27R	10	2	.08110	100.48	4.244	.98117	1.600	1.936	
COMPUTE NM HYD	A14-D	-	3	.04520	38.70	2.369	.98256	1.767	1.338	PER IMP= 70.00
ADD HYD	AP#28	2& 3	10	.12630	126.50	6.612	.98166	1.600	1.565	
ROUTE	AP#28R	10	2	.12630	125.93	6.612	.98166	1.633	1.558	
COMPUTE NM HYD	A15-D	-	3	.02530	28.32	1.183	.87671	1.567	1.749	PER IMP= 60.00
ADD HYD	PART_AP#33	2& 3	20	.15160	152.70	7.795	.96414	1.600	1.574	
COMPUTE NM HYD	A17-D&AP#29	-	3	.01080	13.61	.444	.77086	1.500	1.968	PER IMP= 50.00
ROUTE	AP&29R	3	2	.01080	9.06	.444	.77088	1.600	1.311	
COMPUTE NM HYD	A18-D	-	3	.01030	14.49	.482	.87671	1.500	2.198	PER IMP= 60.00
ADD HYD	AP#30	2& 3	10	.02110	21.78	.926	.82249	1.533	1.613	
ROUTE	AP&30R	10	2	.02110	13.18	.926	.82251	1.667	.976	
COMPUTE NM HYD	A19-D	-	3	.01080	12.75	.505	.87671	1.567	1.845	PER IMP= 60.00
ADD HYD	AP#31	2& 3	10	.03190	24.19	1.430	.84080	1.600	1.185	
ROUTE	AP#31R	10	2	.03190	23.73	1.431	.84081	1.633	1.162	
COMPUTE NM HYD	A20-D	-	3	.00690	9.71	.323	.87671	1.500	2.199	PER IMP= 60.00
ADD HYD	AP#32	2& 3	10	.03880	30.03	1.753	.84717	1.600	1.209	
ROUTE	AP#32R	10	22	.03880	28.02	1.753	.84718	1.633	1.128	
ADD HYD	AP#33	20&22	10	.19040	179.65	9.548	.94031	1.600	1.474	
ROUTE	AP#33R	10	2	.19040	178.37	9.549	.94031	1.633	1.464	
COMPUTE NM HYD	A16-D	-	3	.06380	43.34	2.623	.77086	1.733	1.061	PER IMP= 50.00
ADD HYD	AP#34	2& 3	10	.25420	216.66	12.171	.89778	1.667	1.332	
COMPUTE NM HYD	S6-D&AP#35	-	3	.03780	32.34	1.767	.87671	1.700	1.337	PER IMP= 60.00

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COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE	AP#35R	3	2	.03780	31.61	1.767	.87671	1.733	1.307	
COMPUTE NM HYD	S7-D	-	3	.05700	42.77	3.019	.99315	1.867	1.173	PER IMP= 71.00
ADD HYD	AP#36	2& 3	10	.09480	71.13	4.787	.94670	1.800	1.172	
ROUTE	AP#36R	10	2	.09480	69.58	4.787	.94671	1.833	1.147	
COMPUTE NM HYD	S8-D	-	3	.06830	51.91	3.309	.90847	1.767	1.187	PER IMP= 63.00
ADD HYD	AP#37	2& 3	10	.16310	120.45	8.096	.93069	1.833	1.154	
ROUTE	AP#37R	10	2	.16310	120.46	8.096	.93069	1.833	1.154	
COMPUTE NM HYD	S9-D	-	3	.07480	93.91	3.075	.77086	1.500	1.962	PER IMP= 50.00
ADD HYD	AP#38	2& 3	20	.23790	148.71	11.171	.88043	1.800	.977	
COMPUTE NM HYD	C1-D&AP#39	-	3	.03860	58.26	1.957	.95081	1.500	2.358	PER IMP= 67.00
ROUTE	AP#39R	3	2	.03860	56.81	1.957	.95081	1.533	2.300	
COMPUTE NM HYD	C2-D	-	3	.01880	27.83	.932	.92964	1.500	2.313	PER IMP= 65.00
ADD HYD	AP#40	2& 3	10	.05740	83.20	2.889	.94386	1.533	2.265	
ROUTE	AP#40R	10	2	.05740	83.01	2.890	.94387	1.533	2.260	
COMPUTE NM HYD	C3-D	-	3	.02340	43.23	1.490	1.19426	1.500	2.887	PER IMP= 90.00
ADD HYD	AP#41	2& 3	10	.08080	123.65	4.380	1.01638	1.533	2.391	
COMPUTE NM HYD	C4-D&AP#42	-	3	.03080	47.58	1.684	1.02490	1.500	2.414	PER IMP= 74.00
ROUTE	AP#42R	3	2	.03080	47.65	1.684	1.02491	1.533	2.417	
ADD HYD	AP#43	10& 2	10	.11160	171.29	6.063	1.01873	1.533	2.398	
ROUTE	AP#43R	10	2	.11160	162.28	6.063	1.01873	1.567	2.272	
COMPUTE NM HYD	C5-D	-	3	.00910	13.14	.429	.88414	1.500	2.256	PER IMP= 50.00
ADD HYD	AP#44	2& 3	10	.12070	174.80	6.493	1.00858	1.533	2.263	
COMPUTE NM HYD	C6-D&AP#45	-	3	.01940	35.85	1.236	1.19426	1.500	2.887	PER IMP= 90.00
FINISH										

AMOLE DEL NORTE STORM DRAINAGE FACILITIES
TOWER/SAGE DRAINAGE MASTER PLAN

AHYMO SUMMARY TABLE (AHYM | TE (MON/DAY/YR) =10/09/1997
INPUT FILE = MAST2410.IN | USER NO.= ANASRONM.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
START										TIME= .00
RAINFALL TYPE= 2										RAIN24= 1.780
SEDIMENT BULK										PK BF = 1.05
COMPUTE NM HYD	A1-D&AP#1	-	3	.04580	68.62	3.162	1.29435	1.500	2.341	PER IMP= 76.00
ROUTE	AP-1R	3	2	.04580	67.80	3.162	1.29436	1.550	2.313	
COMPUTE NM HYD	A2-D	-	3	.03950	58.32	2.551	1.21103	1.500	2.307	PER IMP= 70.00
ADD HYD	AP#2	2& 3	10	.08530	121.60	5.713	1.25576	1.500	2.227	
ROUTE	AP#2R	10	2	.08530	122.25	5.713	1.25577	1.550	2.239	
COMPUTE NM HYD	A3-D	-	3	.04190	60.91	2.551	1.14160	1.500	2.271	PER IMP= 65.00
ADD HYD	AP#3	2& 3	10	.12720	175.06	8.264	1.21816	1.550	2.150	
ROUTE	AP#3R	10	2	.12720	177.74	8.264	1.21816	1.550	2.183	
COMPUTE NM HYD	A4-D	-	3	.04390	68.23	3.161	1.34990	1.500	2.429	PER IMP= 80.00
ADD HYD	AP#4	2& 3	10	.17110	242.91	11.425	1.25196	1.550	2.218	
ROUTE	AP#4R	10	2	.17110	244.83	11.425	1.25196	1.550	2.236	
COMPUTE NM HYD	A5-D	-	3	.04520	60.28	2.585	1.07217	1.500	2.084	PER IMP= 60.00
ADD HYD	AP#5	2& 3	10	.21630	300.08	14.009	1.21439	1.550	2.168	
ROUTE	AP#5R	10	2	.21630	300.55	14.009	1.21439	1.550	2.171	
COMPUTE NM HYD	A6-D	-	3	.04520	53.83	2.250	.93330	1.500	1.861	PER IMP= 50.00
ADD HYD	PART_AP#9	2& 3	10	.26150	350.21	16.259	1.16580	1.550	2.093	
COMPUTE NM HYD	A7-D	-	3	.02060	24.54	1.025	.93330	1.500	1.861	PER IMP= 50.00
ADD HYD	PART_AP#9	10& 3	10	.28210	372.85	17.284	1.14882	1.550	2.065	
COMPUTE NM HYD	A8-D&AP#6	-	3	.05700	72.44	3.682	1.21103	1.550	1.986	PER IMP= 70.00
ROUTE	AP&6R	3	2	.05700	69.75	3.682	1.21104	1.600	1.912	
COMPUTE NM HYD	A9-D	-	3	.01020	12.64	.508	.93330	1.500	1.936	PER IMP= 50.00
ADD HYD	AP#7	2& 3	20	.06720	78.23	4.189	1.16887	1.600	1.819	
ROUTE	AP#7R	20	2	.06720	78.03	4.189	1.16888	1.600	1.814	
COMPUTE NM HYD	A10-D	-	3	.01020	12.64	.508	.93330	1.500	1.936	PER IMP= 50.00
ADD HYD	AP#8	2& 3	20	.07740	86.51	4.697	1.13782	1.600	1.746	
ROUTE	AP#8R	20	2	.07740	84.14	4.697	1.13783	1.650	1.699	
ADD HYD	AP#9	10& 2	10	.35950	443.11	21.981	1.14645	1.550	1.926	
ROUTE	AP#9R	10	2	.35950	442.23	21.981	1.14645	1.550	1.922	
COMPUTE NM HYD	A11-D	-	3	.00860	13.87	.594	1.29435	1.500	2.519	PER IMP= 76.00
ADD HYD	AP#10	2& 3	20	.36810	454.18	22.575	1.14991	1.550	1.928	
COMPUTE NM HYD	B1-D&AP#11	-	3	.02300	34.43	1.451	1.18326	1.500	2.339	PER IMP= 68.00
ROUTE	AP#11R	3	2	.02300	30.50	1.451	1.18328	1.550	2.072	
COMPUTE NM HYD	B2-D	-	3	.03500	48.37	2.001	1.07217	1.500	2.159	PER IMP= 60.00
ADD HYD	AP#12	2& 3	10	.05800	75.46	3.453	1.11621	1.500	2.033	
ROUTE	AP#12R	10	2	.05800	70.44	3.453	1.11623	1.550	1.898	
COMPUTE NM HYD	B3-D	-	3	.04360	49.48	2.170	.93330	1.500	1.773	PER IMP= 50.00
ADD HYD	AP#13	2& 3	10	.10160	118.42	5.623	1.03772	1.550	1.821	
ROUTE	AP#13R	10	2	.10160	116.28	5.623	1.03772	1.550	1.788	
COMPUTE NM HYD	B4-D	-	3	.02300	28.48	1.145	.93330	1.500	1.935	PER IMP= 50.00
ADD HYD	AP#14	2& 3	10	.12460	141.21	6.768	1.01844	1.550	1.771	
ROUTE	AP#14R	10	12	.12460	140.69	6.768	1.01845	1.550	1.764	
COMPUTE NM HYD	S1-D&AP#15	-	3	.03140	45.64	1.912	1.14160	1.500	2.271	PER IMP= 65.00
ROUTE	AP-15R	3	2	.03140	44.09	1.912	1.14162	1.500	2.194	
COMPUTE NM HYD	S2-D	-	3	.01630	20.19	.811	.93330	1.500	1.935	PER IMP= 50.00
ADD HYD	AP#16	2& 3	10	.04770	64.28	2.723	1.07041	1.500	2.106	
ROUTE	AP#16R	10	2	.04770	63.42	2.723	1.07042	1.550	2.077	

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10 YEAR - 24 HOUR SUMMARY

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
COMPUTE NM HYD	S3-D	-	3	.05670	67.53	2.822	.93330	1.500	1.861	PER IMP= 50.00
ADD HYD	AP#17	2& 3	10	.10440	128.10	5.545	.99594	1.500	1.917	
ROUTE	AP#17R	10	2	.10440	129.55	5.545	.99595	1.550	1.939	
COMPUTE NM HYD	S4-D	-	3	.04360	53.32	2.493	1.07217	1.550	1.911	PER IMP= 60.00
ADD HYD	AP#18	2& 3	10	.14800	182.86	8.039	1.01840	1.550	1.931	
*SXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX										
ROUTE	AP#18R	10	2	.14800	181.19	8.039	1.01840	1.550	1.913	
ADD HYD	AP#14	12& 2	10	.27260	321.88	14.806	1.01842	1.550	1.845	
ROUTE	AP#14R	10	2	.27260	320.10	14.806	1.01842	1.550	1.835	
COMPUTE NM HYD	S5-D	-	3	.02380	32.55	1.343	1.05828	1.500	2.137	PER IMP= 59.00
ADD HYD	AP#19	2& 3	10	.29640	348.42	16.150	1.02162	1.550	1.837	
ROUTE	AP#20R	11	10	.29640	346.99	16.150	1.02162	1.550	1.829	
*SXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX										
ADD HYD	PART_AP#21	20&10	10	.66450	801.18	38.725	1.09268	1.550	1.884	
COMPUTE NM HYD	B5-D_TWRPND	-	3	.03910	20.53	.589	.28248	1.500	.821	PER IMP= 5.00
ADD HYD	AP#21	10& 3	20	.70360	820.44	39.314	1.04766	1.550	1.822	
ROUTE RESERVOIR	AP#22	20	12	.70360	22.55	37.240	.99238	2.700	.050	AC-FT= 28.612
ROUTE	AP#22R	12	2	.70360	22.55	37.213	.99167	2.750	.050	
COMPUTE NM HYD	B6-D	-	3	.04590	40.70	2.795	1.14160	1.700	1.385	PER IMP= 65.00
ADD HYD	AP#23	2& 3	10	.74950	58.44	40.007	1.00085	1.700	.122	
ROUTE	AP#23R	10	2	.74950	57.42	39.970	.99991	1.750	.120	
COMPUTE NM HYD	B7-D	-	3	.05910	58.27	3.686	1.16937	1.650	1.541	PER IMP= 67.00
ADD HYD	AP#24	2& 3	10	.80860	110.99	43.656	1.01230	1.700	.214	
ROUTE	AP#24R	10	2	.80860	110.01	43.623	1.01153	1.750	.213	
COMPUTE NM HYD	B8-D	-	3	.08910	48.46	4.435	.93330	1.900	.850	PER IMP= 50.00
ADD HYD	AP#25	2& 3	30	.89770	151.25	48.058	1.00377	1.750	.263	
COMPUTE NM HYD	A12-D&AP#26	-	3	.03590	56.08	2.478	1.29435	1.500	2.441	PER IMP= 76.00
ROUTE	AP#26R	3	2	.03590	53.92	2.478	1.29437	1.550	2.347	
COMPUTE NM HYD	A13-D	-	3	.04520	50.84	2.752	1.14160	1.600	1.758	PER IMP= 65.00
ADD HYD	AP#27	2& 3	10	.08110	104.48	5.230	1.20921	1.550	2.013	
ROUTE	AP#27R	10	2	.08110	100.28	5.230	1.20922	1.600	1.932	
COMPUTE NM HYD	A14-D	-	3	.04520	38.63	2.919	1.21103	1.750	1.335	PER IMP= 70.00
ADD HYD	AP#28	2& 3	10	.12630	127.40	8.150	1.20986	1.600	1.576	
ROUTE	AP#28R	10	2	.12630	126.72	8.150	1.20986	1.600	1.568	
COMPUTE NM HYD	A15-D	-	3	.02530	27.89	1.447	1.07217	1.550	1.723	PER IMP= 60.00
ADD HYD	PART_AP#33	2& 3	20	.15160	153.94	9.596	1.18688	1.600	1.587	
COMPUTE NM HYD	A17-D&AP#29	-	3	.01080	13.38	.538	.93330	1.500	1.936	PER IMP= 50.00
ROUTE	AP&29R	3	2	.01080	9.06	.538	.93334	1.600	1.311	
COMPUTE NM HYD	A18-D	-	3	.01030	14.24	.589	1.07217	1.500	2.160	PER IMP= 60.00
ADD HYD	AP#30	2& 3	10	.02110	21.01	1.127	1.00106	1.550	1.556	
ROUTE	AP&30R	10	2	.02110	13.26	1.126	1.00104	1.650	.982	
COMPUTE NM HYD	A19-D	-	3	.01080	12.72	.618	1.07217	1.550	1.841	PER IMP= 60.00
ADD HYD	AP#31	2& 3	10	.03190	24.03	1.744	1.02509	1.600	1.177	
ROUTE	AP#31R	10	2	.03190	23.54	1.744	1.02510	1.600	1.153	
COMPUTE NM HYD	A20-D	-	3	.00690	9.54	.395	1.07217	1.500	2.161	PER IMP= 60.00
ADD HYD	AP#32	2& 3	10	.03880	29.89	2.139	1.03345	1.600	1.204	
ROUTE	AP#32R	10	22	.03880	28.27	2.139	1.03345	1.650	1.138	
ADD HYD	AP#33	20&22	10	.19040	181.25	11.735	1.15561	1.600	1.487	
ROUTE	AP#33R	10	2	.19040	180.24	11.735	1.15561	1.650	1.479	
COMPUTE NM HYD	A16-D	-	3	.06380	43.27	3.176	.93330	1.750	1.060	PER IMP= 50.00
ADD HYD	AP#34	2& 3	10	.25420	218.83	14.910	1.09981	1.650	1.345	
COMPUTE NM HYD	S6-D&AP#35	-	3	.03780	32.14	2.161	1.07217	1.700	1.329	PER IMP= 60.00

10/24

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE	AP#35R	3	2	.03780	31.42	2.161	1.07217	1.700	1.299	
COMPUTE NM HYD	S7-D	-	3	.05700	42.70	3.724	1.22492	1.850	1.170	PER IMP= 71.00
ADD HYD	AP#36	2& 3	10	.09480	71.06	5.885	1.16400	1.800	1.171	
ROUTE	AP#36R	10	2	.09480	69.80	5.885	1.16400	1.850	1.150	
COMPUTE NM HYD	S8-D	-	3	.06830	51.63	4.057	1.11383	1.800	1.181	PER IMP= 63.00
ADD HYD	AP#37	2& 3	10	.16310	120.57	9.942	1.14298	1.800	1.155	
ROUTE	AP#37R	10	2	.16310	120.27	9.942	1.14299	1.850	1.152	
COMPUTE NM HYD	S9-D	-	3	.07480	92.37	3.723	.93330	1.500	1.929	PER IMP= 50.00
ADD HYD	AP#38	2& 3	20	.23790	148.94	13.666	1.07705	1.800	.978	
COMPUTE NM HYD	C1-D&AP#39	-	3	.03860	57.22	2.407	1.16937	1.500	2.316	PER IMP= 67.00
ROUTE	AP#39R	3	2	.03860	55.48	2.407	1.16939	1.500	2.246	
COMPUTE NM HYD	C2-D	-	3	.01880	27.33	1.145	1.14160	1.500	2.272	PER IMP= 65.00
ADD HYD	AP#40	2& 3	10	.05740	82.81	3.552	1.16027	1.500	2.254	
ROUTE	AP#40R	10	2	.05740	81.05	3.552	1.16028	1.550	2.206	
COMPUTE NM HYD	C3-D	-	3	.02340	42.41	1.858	1.48877	1.500	2.832	PER IMP= 90.00
ADD HYD	AP#41	2& 3	10	.08080	120.53	5.410	1.25540	1.500	2.331	
COMPUTE NM HYD	C4-D&AP#42	-	3	.03080	47.24	2.081	1.26658	1.500	2.396	PER IMP= 74.00
ROUTE	AP#42R	3	2	.03080	46.52	2.081	1.26660	1.500	2.360	
ADD HYD	AP#43	10& 2	10	.11160	167.05	7.490	1.25848	1.500	2.339	
ROUTE	AP#43R	10	2	.11160	164.06	7.491	1.25849	1.550	2.297	
COMPUTE NM HYD	C5-D	-	3	.00910	13.07	.508	1.04738	1.500	2.244	PER IMP= 50.00
ADD HYD	AP#44	2& 3	10	.12070	176.14	7.999	1.24257	1.550	2.280	
COMPUTE NM HYD	C6-D&AP#45	-	3	.01940	35.16	1.540	1.48877	1.500	2.832	PER IMP= 90.00

FINISH

AMOLE DEL NORTE STORM DRAINAGE FACILITIES
TOWER/SAGE DRAINAGE MASTER PLAN

AHYMO SUMMARY TABLE (AH
INPUT FILE = MASTer6.IN

DATE (MON/DAY/YR) =10/09/1997
USER NO.= ANASRONM.I01

PAGE = 1

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.210
SEDIMENT BULK										PK BF = 1.05
COMPUTE NM HYD	A1-D&AP#1	-	3	.04580	111.86	4.273	1.74932	1.533	3.816	PER IMP= 76.00
ROUTE	AP-1R	3	2	.04580	109.16	4.273	1.74933	1.533	3.724	
COMPUTE NM HYD	A2-D	-	3	.03950	95.91	3.514	1.66790	1.500	3.794	PER IMP= 70.00
ADD HYD	AP#2	2& 3	10	.08530	203.51	7.787	1.71161	1.533	3.728	
ROUTE	AP#2R	10	2	.08530	194.79	7.787	1.71162	1.567	3.568	
COMPUTE NM HYD	A3-D	-	3	.04190	102.87	3.576	1.60006	1.500	3.836	PER IMP= 65.00
ADD HYD	AP#3	2& 3	10	.12720	291.85	11.362	1.67486	1.533	3.585	
ROUTE	AP#3R	10	2	.12720	286.92	11.362	1.67487	1.533	3.524	
COMPUTE NM HYD	A4-D	-	3	.04390	109.89	4.223	1.80360	1.533	3.911	PER IMP= 80.00
ADD HYD	AP#4	2& 3	10	.17110	396.80	15.585	1.70789	1.533	3.624	
ROUTE	AP#4R	10	2	.17110	392.87	15.585	1.70790	1.567	3.588	
COMPUTE NM HYD	A5-D	-	3	.04520	102.56	3.694	1.53221	1.500	3.545	PER IMP= 60.00
ADD HYD	AP#5	2& 3	10	.21630	490.46	19.279	1.67118	1.533	3.543	
ROUTE	AP#5R	10	2	.21630	488.61	19.279	1.67118	1.567	3.530	
COMPUTE NM HYD	A6-D	-	3	.04520	95.37	3.367	1.39652	1.500	3.297	PER IMP= 50.00
ADD HYD	PART_AP#9	2& 3	10	.26150	573.77	22.645	1.62370	1.567	3.428	
COMPUTE NM HYD	A7-D	-	3	.02060	43.47	1.534	1.39651	1.500	3.297	PER IMP= 50.00
ADD HYD	PART_AP#9	10& 3	10	.28210	616.11	24.180	1.60711	1.533	3.413	
COMPUTE NM HYD	A8-D&AP#6	-	3	.05700	119.28	5.070	1.66790	1.567	3.270	PER IMP= 70.00
ROUTE	AP&6R	3	2	.05700	115.76	5.070	1.66791	1.600	3.173	
COMPUTE NM HYD	A9-D	-	3	.01020	22.61	.760	1.39652	1.500	3.464	PER IMP= 50.00
ADD HYD	AP#7	2& 3	20	.06720	131.61	5.830	1.62670	1.600	3.060	
ROUTE	AP#7R	20	2	.06720	131.12	5.830	1.62671	1.600	3.049	
COMPUTE NM HYD	A10-D	-	3	.01020	22.61	.760	1.39652	1.500	3.464	PER IMP= 50.00
ADD HYD	AP#8	2& 3	20	.07740	146.97	6.590	1.59636	1.600	2.967	
ROUTE	AP#8R	20	2	.07740	143.44	6.590	1.59637	1.633	2.896	
ADD HYD	AP#9	10& 2	10	.35950	747.50	30.769	1.60480	1.567	3.249	
ROUTE	AP#9R	10	2	.35950	747.19	30.769	1.60480	1.567	3.248	
COMPUTE NM HYD	A11-D	-	3	.00860	22.64	.802	1.74932	1.500	4.113	PER IMP= 76.00
ADD HYD	AP#10	2& 3	20	.36810	765.60	31.572	1.60817	1.567	3.250	
COMPUTE NM HYD	B1-D&AP#11	-	3	.02300	57.58	2.013	1.64077	1.500	3.912	PER IMP= 68.00
ROUTE	AP#11R	3	2	.02300	53.26	2.013	1.64077	1.533	3.618	
COMPUTE NM HYD	B2-D	-	3	.03500	83.14	2.860	1.53221	1.500	3.712	PER IMP= 60.00
ADD HYD	AP#12	2& 3	10	.05800	132.29	4.873	1.57525	1.533	3.564	
ROUTE	AP#12R	10	2	.05800	124.14	4.873	1.57526	1.567	3.344	
COMPUTE NM HYD	B3-D	-	3	.04360	89.24	3.247	1.39652	1.533	3.198	PER IMP= 50.00
ADD HYD	AP#13	2& 3	10	.10160	210.88	8.120	1.49854	1.533	3.243	
ROUTE	AP#13R	10	2	.10160	209.23	8.120	1.49855	1.567	3.218	
COMPUTE NM HYD	B4-D	-	3	.02300	50.97	1.713	1.39652	1.500	3.463	PER IMP= 50.00
ADD HYD	AP#14	2& 3	10	.12460	251.67	9.833	1.47971	1.567	3.156	
ROUTE	AP#14R	10	12	.12460	251.49	9.833	1.47971	1.567	3.154	
COMPUTE NM HYD	S1-D&AP#15	-	3	.03140	77.10	2.680	1.60006	1.500	3.836	PER IMP= 65.00
ROUTE	AP-15R	3	2	.03140	75.27	2.680	1.60006	1.533	3.745	
COMPUTE NM HYD	S2-D	-	3	.01630	36.13	1.214	1.39652	1.500	3.463	PER IMP= 50.00
ADD HYD	AP#16	2& 3	10	.04770	109.77	3.894	1.53049	1.533	3.596	
ROUTE	AP#16R	10	2	.04770	109.08	3.894	1.53050	1.533	3.573	

100 YEAR - 6 HOUR SUMMARY

100/6

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
COMPUTE NM HYD	S3-D	-	3	.05670	119.63	4.223	1.39652	1.500	3.297	PER IMP= 50.00
ADD HYD	AP#17	2& 3	10	.10440	227.71	8.117	1.45773	1.533	3.408	
ROUTE	AP#17R	10	2	.10440	224.43	8.117	1.45773	1.533	3.359	
COMPUTE NM HYD	S4-D	-	3	.04360	93.23	3.563	1.53221	1.533	3.341	PER IMP= 60.00
ADD HYD	AP#18	2& 3	10	.14800	317.66	11.679	1.47967	1.533	3.354	
*SXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX										
ROUTE	AP#18R	10	2	.14800	310.07	11.680	1.47967	1.567	3.274	
ADD HYD	AP#14	12& 2	10	.27260	561.56	21.513	1.47969	1.567	3.219	
ROUTE	AP#14R	10	2	.27260	560.09	21.513	1.47969	1.567	3.210	
COMPUTE NM HYD	S5-D	-	3	.02380	56.16	1.928	1.51864	1.500	3.687	PER IMP= 59.00
ADD HYD	AP#19	2& 3	10	.29640	606.42	23.440	1.48281	1.567	3.197	
ROUTE	AP#20R	11	10	.29640	608.87	23.440	1.48281	1.567	3.210	
*SXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX										
ADD HYD	PART_AP#21	20&10	10	.66450	1374.46	55.012	1.55226	1.567	3.232	
COMPUTE NM HYD	B5-D_TWRPND	-	3	.03910	54.90	1.551	.74390	1.500	2.194	PER IMP= 5.00
ADD HYD	AP#21	10& 3	20	.70360	1423.86	56.563	1.50733	1.567	3.162	
ROUTE RESERVOIR	AP#22	20	12	.70360	25.11	35.840	.95509	2.967	.056	AC-FT= 51.032
ROUTE	AP#22R	12	2	.70360	25.11	35.755	.95282	3.000	.056	
COMPUTE NM HYD	B6-D	-	3	.04590	67.94	3.917	1.60006	1.700	2.313	PER IMP= 65.00
ADD HYD	AP#23	2& 3	10	.74950	89.55	39.672	.99245	1.700	.187	
ROUTE	AP#23R	10	2	.74950	87.07	39.559	.98964	1.767	.182	
COMPUTE NM HYD	B7-D	-	3	.05910	96.51	5.129	1.62720	1.667	2.552	PER IMP= 67.00
ADD HYD	AP#24	2& 3	10	.80860	178.22	44.688	1.03624	1.700	.344	
ROUTE	AP#24R	10	2	.80860	176.44	44.591	1.03398	1.733	.341	
COMPUTE NM HYD	B8-D	-	3	.08910	85.98	6.636	1.39652	1.900	1.508	PER IMP= 50.00
ADD HYD	AP#25	2& 3	30	.89770	249.54	51.227	1.06996	1.767	.434	
COMPUTE NM HYD	A12-D&AP#26	-	3	.03590	90.60	3.349	1.74932	1.500	3.943	PER IMP= 76.00
ROUTE	AP#26R	3	2	.03590	88.53	3.349	1.74933	1.533	3.853	
COMPUTE NM HYD	A13-D	-	3	.04520	85.68	3.857	1.60006	1.567	2.962	PER IMP= 65.00
ADD HYD	AP#27	2& 3	10	.08110	170.19	7.207	1.66612	1.567	3.279	
ROUTE	AP#27R	10	2	.08110	163.37	7.207	1.66613	1.567	3.148	
COMPUTE NM HYD	A14-D	-	3	.04520	63.41	4.021	1.66790	1.767	2.192	PER IMP= 70.00
ADD HYD	AP#28	2& 3	10	.12630	206.62	11.227	1.66675	1.600	2.556	
ROUTE	AP#28R	10	2	.12630	205.14	11.227	1.66676	1.633	2.538	
COMPUTE NM HYD	A15-D	-	3	.02530	47.80	2.067	1.53221	1.567	2.952	PER IMP= 60.00
ADD HYD	PART_AP#33	2& 3	20	.15160	250.62	13.295	1.64430	1.600	2.583	
COMPUTE NM HYD	A17-D&AP#29	-	3	.01080	23.94	.804	1.39652	1.500	3.464	PER IMP= 50.00
ROUTE	AP&29R	3	2	.01080	17.25	.804	1.39654	1.567	2.496	
COMPUTE NM HYD	A18-D	-	3	.01030	24.48	.842	1.53221	1.500	3.713	PER IMP= 60.00
ADD HYD	AP#30	2& 3	10	.02110	39.23	1.646	1.46272	1.533	2.905	
ROUTE	AP&30R	10	2	.02110	27.05	1.646	1.46274	1.633	2.003	
COMPUTE NM HYD	A19-D	-	3	.01080	21.52	.883	1.53221	1.567	3.114	PER IMP= 60.00
ADD HYD	AP#31	2& 3	10	.03190	46.47	2.529	1.48619	1.600	2.276	
ROUTE	AP#31R	10	2	.03190	45.55	2.529	1.48621	1.633	2.231	
COMPUTE NM HYD	A20-D	-	3	.00690	16.40	.564	1.53221	1.500	3.715	PER IMP= 60.00
ADD HYD	AP#32	2& 3	10	.03880	56.70	3.092	1.49437	1.600	2.283	
ROUTE	AP#32R	10	22	.03880	53.24	3.092	1.49438	1.633	2.144	
ADD HYD	AP#33	20&22	10	.19040	302.55	16.387	1.61374	1.600	2.483	
ROUTE	AP#33R	10	2	.19040	300.65	16.387	1.61375	1.633	2.467	
COMPUTE NM HYD	A16-D	-	3	.06380	76.29	4.752	1.39652	1.733	1.868	PER IMP= 50.00
ADD HYD	AP#34	2& 3	10	.25420	368.19	21.139	1.55922	1.667	2.263	
COMPUTE NM HYD	S6-D&AP#35	-	3	.03780	54.70	3.089	1.53221	1.700	2.261	PER IMP= 60.00

100/6

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE	AP#35R	3	2	.03780	53.55	3.089	1.53221	1.733	2.213	
COMPUTE NM HYD	S7-D	-	3	.05700	69.88	5.112	1.68147	1.867	1.915	PER IMP= 71.00
ADD HYD	AP#36	2& 3	10	.09480	118.32	8.201	1.62194	1.800	1.950	
ROUTE	AP#36R	10	2	.09480	115.67	8.201	1.62195	1.833	1.906	
COMPUTE NM HYD	S8-D	-	3	.06830	87.17	5.730	1.57292	1.767	1.994	PER IMP= 63.00
ADD HYD	AP#37	2& 3	10	.16310	201.19	13.930	1.60141	1.800	1.927	
ROUTE	AP#37R	10	2	.16310	201.09	13.930	1.60141	1.833	1.926	
COMPUTE NM HYD	S9-D	-	3	.07480	165.79	5.571	1.39652	1.500	3.463	PER IMP= 50.00
ADD HYD	AP#38	2& 3	20	.23790	251.17	19.501	1.53698	1.767	1.650	
COMPUTE NM HYD	C1-D&AP#39	-	3	.03860	96.00	3.350	1.62720	1.500	3.886	PER IMP= 67.00
ROUTE	AP#39R	3	2	.03860	93.15	3.350	1.62720	1.533	3.771	
COMPUTE NM HYD	C2-D	-	3	.01880	46.17	1.604	1.60006	1.500	3.837	PER IMP= 65.00
ADD HYD	AP#40	2& 3	10	.05740	137.58	4.954	1.61830	1.500	3.745	
ROUTE	AP#40R	10	2	.05740	136.26	4.954	1.61831	1.533	3.709	
COMPUTE NM HYD	C3-D	-	3	.02340	66.79	2.420	1.93929	1.500	4.460	PER IMP= 90.00
ADD HYD	AP#41	2& 3	10	.08080	199.05	7.374	1.71126	1.533	3.849	
COMPUTE NM HYD	C4-D&AP#42	-	3	.03080	76.75	2.829	1.72218	1.500	3.893	PER IMP= 74.00
ROUTE	AP#42R	3	2	.03080	76.59	2.829	1.72219	1.533	3.885	
ADD HYD	AP#43	10& 2	10	.11160	275.63	10.203	1.71427	1.533	3.859	
ROUTE	AP#43R	10	2	.11160	261.93	10.203	1.71427	1.533	3.667	
COMPUTE NM HYD	C5-D	-	3	.00910	21.80	.762	1.57073	1.500	3.742	PER IMP= 50.00
ADD HYD	AP#44	2& 3	10	.12070	283.42	10.966	1.70345	1.533	3.669	
COMPUTE NM HYD	C6-D&AP#45	-	3	.01940	55.38	2.007	1.93929	1.500	4.460	PER IMP= 90.00

FINISH

AMOLE DEL NORTE STORM DRAINAGE FACILITIES
TOWER/SAGE DRAINAGE MASTER PLAN

AHYMO SUMMARY TABLE (AHYM
INPUT FILE = MASTer24.IN

DATE (MON/DAY/YR) =10/09/1997
USER NO.= ANASRONM.I01

PAGE = 1

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
START										
RAINFALL TYPE= 2										TIME= .00
SEDIMENT BULK										RAIN24= 2.670
COMPUTE NM HYD	A1-D&AP#1	-	3	.04580	113.50	5.173	2.11791	1.500	3.872	PK BF = 1.05 PER IMP= 76.00
ROUTE	AP-1R	3	2	.04580	107.48	5.173	2.11793	1.500	3.667	
COMPUTE NM HYD	A2-D	-	3	.03950	96.23	4.228	2.00699	1.500	3.807	PER IMP= 70.00
ADD HYD	AP#2	2& 3	10	.08530	203.71	9.401	2.06654	1.500	3.732	
ROUTE	AP#2R	10	2	.08530	190.27	9.401	2.06655	1.500	3.485	
COMPUTE NM HYD	A3-D	-	3	.04190	100.07	4.278	1.91456	1.500	3.732	PER IMP= 65.00
ADD HYD	AP#3	2& 3	10	.12720	290.34	13.680	2.01648	1.500	3.566	
ROUTE	AP#3R	10	2	.12720	281.53	13.680	2.01648	1.500	3.458	
COMPUTE NM HYD	A4-D	-	3	.04390	111.61	5.132	2.19186	1.500	3.973	PER IMP= 80.00
ADD HYD	AP#4	2& 3	10	.17110	393.14	18.812	2.06147	1.500	3.590	
ROUTE	AP#4R	10	2	.17110	381.04	18.812	2.06148	1.575	3.480	
COMPUTE NM HYD	A5-D	-	3	.04520	102.99	4.393	1.82213	1.500	3.560	PER IMP= 60.00
ADD HYD	AP#5	2& 3	10	.21630	483.12	23.204	2.01146	1.500	3.490	
ROUTE	AP#5R	10	2	.21630	478.95	23.204	2.01146	1.575	3.460	
COMPUTE NM HYD	A6-D	-	3	.04520	95.87	3.947	1.63726	1.500	3.314	PER IMP= 50.00
ADD HYD	PART_AP#9	2& 3	10	.26150	561.45	27.151	1.94677	1.500	3.355	
COMPUTE NM HYD	A7-D	-	3	.02060	43.70	1.799	1.63726	1.500	3.315	PER IMP= 50.00
ADD HYD	PART_AP#9	10& 3	10	.28210	605.15	28.950	1.92417	1.500	3.352	
COMPUTE NM HYD	A8-D&AP#6	-	3	.05700	113.88	6.101	2.00699	1.575	3.122	PER IMP= 70.00
ROUTE	AP&6R	3	2	.05700	119.56	6.101	2.00700	1.575	3.278	
COMPUTE NM HYD	A9-D	-	3	.01020	22.05	.891	1.63726	1.500	3.378	PER IMP= 50.00
ADD HYD	AP#7	2& 3	20	.06720	135.26	6.992	1.95087	1.575	3.145	
ROUTE	AP#7R	20	2	.06720	133.80	6.992	1.95088	1.575	3.111	
COMPUTE NM HYD	A10-D	-	3	.01020	22.05	.891	1.63726	1.500	3.378	PER IMP= 50.00
ADD HYD	AP#8	2& 3	20	.07740	149.49	7.883	1.90954	1.575	3.018	
ROUTE	AP#8R	20	2	.07740	145.17	7.883	1.90955	1.575	2.931	
ADD HYD	AP#9	10& 2	10	.35950	729.49	36.832	1.92102	1.575	3.171	
ROUTE	AP#9R	10	2	.35950	736.80	36.832	1.92102	1.575	3.202	
COMPUTE NM HYD	A11-D	-	3	.00860	21.98	.971	2.11791	1.500	3.994	PER IMP= 76.00
ADD HYD	AP#10	2& 3	20	.36810	752.06	37.804	1.92562	1.575	3.192	
COMPUTE NM HYD	B1-D&AP#11	-	3	.02300	55.98	2.417	1.97002	1.500	3.803	PER IMP= 68.00
ROUTE	AP#11R	3	2	.02300	50.88	2.417	1.97006	1.500	3.457	
COMPUTE NM HYD	B2-D	-	3	.03500	80.93	3.401	1.82213	1.500	3.613	PER IMP= 60.00
ADD HYD	AP#12	2& 3	10	.05800	131.81	5.818	1.88077	1.500	3.551	
ROUTE	AP#12R	10	2	.05800	123.25	5.818	1.88079	1.575	3.320	
COMPUTE NM HYD	B3-D	-	3	.04360	89.86	3.807	1.63726	1.500	3.220	PER IMP= 50.00
ADD HYD	AP#13	2& 3	10	.10160	204.50	9.625	1.77627	1.500	3.145	
ROUTE	AP#13R	10	2	.10160	207.31	9.625	1.77628	1.575	3.188	
COMPUTE NM HYD	B4-D	-	3	.02300	49.70	2.008	1.63726	1.500	3.377	PER IMP= 50.00
ADD HYD	AP#14	2& 3	10	.12460	242.69	11.633	1.75061	1.575	3.043	
ROUTE	AP#14R	10	12	.12460	247.71	11.633	1.75062	1.575	3.106	
COMPUTE NM HYD	S1-D&AP#15	-	3	.03140	74.99	3.206	1.91456	1.500	3.732	PER IMP= 65.00
ROUTE	AP-15R	3	2	.03140	75.47	3.206	1.91459	1.500	3.755	
COMPUTE NM HYD	S2-D	-	3	.01630	35.23	1.423	1.63726	1.500	3.377	PER IMP= 50.00
ADD HYD	AP#16	2& 3	10	.04770	110.70	4.630	1.81979	1.500	3.626	
ROUTE	AP#16R	10	2	.04770	107.85	4.630	1.81981	1.500	3.533	

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100 YEAR - 24 HOUR SUMMARY

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
COMPUTE NM HYD	S3-D	-	3	.05670	120.25	4.951	1.63726	1.500	3.314	PER IMP= 50.00
ADD HYD	AP#17	2& 3	10	.10440	228.11	9.581	1.72066	1.500	3.414	
ROUTE	AP#17R	10	2	.10440	221.21	9.581	1.72067	1.500	3.311	
COMPUTE NM HYD	S4-D	-	3	.04360	93.25	4.237	1.82213	1.500	3.342	PER IMP= 60.00
ADD HYD	AP#18	2& 3	10	.14800	314.46	13.818	1.75055	1.500	3.320	
*SXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX										
ROUTE	AP#18R	10	2	.14800	303.76	13.818	1.75055	1.575	3.207	
ADD HYD	AP#14	12& 2	10	.27260	551.47	25.451	1.75058	1.575	3.161	
ROUTE	AP#14R	10	2	.27260	557.94	25.451	1.75058	1.575	3.198	
COMPUTE NM HYD	S5-D	-	3	.02380	54.68	2.289	1.80364	1.500	3.590	PER IMP= 59.00
ADD HYD	AP#19	2& 3	10	.29640	596.49	27.740	1.75484	1.575	3.144	
ROUTE	AP#20R	11	10	.29640	599.33	27.740	1.75484	1.575	3.159	
*SXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX										
ADD HYD	PART_AP#21	20&10	10	.66450	1351.39	65.544	1.84944	1.575	3.178	
COMPUTE NM HYD	B5-D_TWRPND	-	3	.03910	54.37	1.589	.76216	1.500	2.173	PER IMP= 5.00
ADD HYD	AP#21	10& 3	20	.70360	1393.46	67.134	1.78902	1.575	3.094	
ROUTE RESERVOIR	AP#22	20	12	.70360	25.10	65.789	1.75319	2.925	.056	AC-FT= 50.954
ROUTE	AP#22R	12	2	.70360	25.10	65.769	1.75267	3.000	.056	
COMPUTE NM HYD	B6-D	-	3	.04590	66.90	4.687	1.91456	1.650	2.277	PER IMP= 65.00
ADD HYD	AP#23	2& 3	10	.74950	88.33	70.456	1.76258	1.725	.184	
ROUTE	AP#23R	10	2	.74950	87.72	70.428	1.76187	1.725	.183	
COMPUTE NM HYD	B7-D	-	3	.05910	95.84	6.151	1.95153	1.650	2.534	PER IMP= 67.00
ADD HYD	AP#24	2& 3	10	.80860	177.40	76.579	1.77573	1.650	.343	
ROUTE	AP#24R	10	2	.80860	177.33	76.552	1.77511	1.725	.343	
COMPUTE NM HYD	B8-D	-	3	.08910	85.62	7.780	1.63726	1.875	1.501	PER IMP= 50.00
ADD HYD	AP#25	2& 3	30	.89770	249.77	84.333	1.76143	1.725	.435	
COMPUTE NM HYD	A12-D&AP#26	-	3	.03590	90.86	4.055	2.11791	1.500	3.954	PER IMP= 76.00
ROUTE	AP#26R	3	2	.03590	87.50	4.055	2.11793	1.500	3.808	
COMPUTE NM HYD	A13-D	-	3	.04520	85.53	4.615	1.91456	1.575	2.957	PER IMP= 65.00
ADD HYD	AP#27	2& 3	10	.08110	164.54	8.670	2.00457	1.500	3.170	
ROUTE	AP#27R	10	2	.08110	166.80	8.670	2.00458	1.575	3.214	
COMPUTE NM HYD	A14-D	-	3	.04520	63.18	4.838	2.00699	1.725	2.184	PER IMP= 70.00
ADD HYD	AP#28	2& 3	10	.12630	210.49	13.509	2.00543	1.575	2.604	
ROUTE	AP#28R	10	2	.12630	208.19	13.509	2.00544	1.575	2.576	
COMPUTE NM HYD	A15-D	-	3	.02530	46.72	2.459	1.82213	1.575	2.885	PER IMP= 60.00
ADD HYD	PART_AP#33	2& 3	20	.15160	254.91	15.967	1.97484	1.575	2.627	
COMPUTE NM HYD	A17-D&AP#29	-	3	.01080	23.35	.943	1.63726	1.500	3.378	PER IMP= 50.00
ROUTE	AP&29R	3	2	.01080	17.53	.943	1.63735	1.575	2.536	
COMPUTE NM HYD	A18-D	-	3	.01030	23.83	1.001	1.82213	1.500	3.615	PER IMP= 60.00
ADD HYD	AP#30	2& 3	10	.02110	38.37	1.944	1.72749	1.500	2.842	
ROUTE	AP&30R	10	2	.02110	27.60	1.944	1.72754	1.650	2.044	
COMPUTE NM HYD	A19-D	-	3	.01080	21.07	1.050	1.82212	1.500	3.049	PER IMP= 60.00
ADD HYD	AP#31	2& 3	10	.03190	45.90	2.993	1.75950	1.575	2.248	
ROUTE	AP#31R	10	2	.03190	44.85	2.994	1.75953	1.575	2.197	
COMPUTE NM HYD	A20-D	-	3	.00690	15.97	.671	1.82213	1.500	3.616	PER IMP= 60.00
ADD HYD	AP#32	2& 3	10	.03880	56.10	3.664	1.77063	1.575	2.259	
ROUTE	AP#32R	10	22	.03880	53.42	3.664	1.77066	1.650	2.151	
ADD HYD	AP#33	20&22	10	.19040	306.33	19.631	1.93322	1.575	2.514	
ROUTE	AP#33R	10	2	.19040	303.88	19.631	1.93323	1.650	2.494	
COMPUTE NM HYD	A16-D	-	3	.06380	76.10	5.571	1.63726	1.725	1.864	PER IMP= 50.00
ADD HYD	AP#34	2& 3	10	.25420	374.90	25.202	1.85894	1.650	2.304	
COMPUTE NM HYD	S6-D&AP#35	-	3	.03780	54.29	3.673	1.82213	1.650	2.244	PER IMP= 60.00

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COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE	AP#35R	3	2	.03780	53.47	3.673	1.82214	1.725	2.210	
COMPUTE NM HYD	S7-D	-	3	.05700	68.95	6.157	2.02548	1.875	1.890	PER IMP= 71.00
ADD HYD	AP#36	2& 3	10	.09480	117.44	9.831	1.94438	1.800	1.936	
ROUTE	AP#36R	10	2	.09480	116.06	9.831	1.94439	1.800	1.913	
COMPUTE NM HYD	S8-D	-	3	.06830	86.10	6.839	1.87758	1.725	1.970	PER IMP= 63.00
ADD HYD	AP#37	2& 3	10	.16310	201.60	16.670	1.91641	1.800	1.931	
ROUTE	AP#37R	10	2	.16310	202.00	16.670	1.91641	1.800	1.935	
COMPUTE NM HYD	S9-D	-	3	.07480	161.65	6.532	1.63726	1.500	3.377	PER IMP= 50.00
ADD HYD	AP#38	2& 3	20	.23790	251.65	23.202	1.82864	1.725	1.653	
COMPUTE NM HYD	C1-D&AP#39	-	3	.03860	93.36	4.018	1.95153	1.500	3.779	PER IMP= 67.00
ROUTE	AP#39R	3	2	.03860	93.49	4.018	1.95155	1.500	3.784	
COMPUTE NM HYD	C2-D	-	3	.01880	44.91	1.920	1.91456	1.500	3.732	PER IMP= 65.00
ADD HYD	AP#40	2& 3	10	.05740	138.40	5.937	1.93941	1.500	3.767	
ROUTE	AP#40R	10	2	.05740	134.74	5.937	1.93943	1.500	3.668	
COMPUTE NM HYD	C3-D	-	3	.02340	64.76	2.966	2.37672	1.500	4.324	PER IMP= 90.00
ADD HYD	AP#41	2& 3	10	.08080	199.51	8.903	2.06606	1.500	3.858	
COMPUTE NM HYD	C4-D&AP#42	-	3	.03080	76.98	3.418	2.08094	1.500	3.905	PER IMP= 74.00
ROUTE	AP#42R	3	2	.03080	76.95	3.418	2.08097	1.500	3.904	
ADD HYD	AP#43	10& 2	10	.11160	276.45	12.322	2.07016	1.500	3.871	
ROUTE	AP#43R	10	2	.11160	256.81	12.322	2.07017	1.500	3.596	
COMPUTE NM HYD	C5-D	-	3	.00910	21.94	.881	1.81424	1.500	3.767	PER IMP= 50.00
ADD HYD	AP#44	2& 3	10	.12070	278.75	13.202	2.05087	1.500	3.608	
COMPUTE NM HYD	C6-D&AP#45	-	3	.01940	53.70	2.459	2.37672	1.500	4.325	PER IMP= 90.00

FINISH

APPENDIX B

DEC 13 1994

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CITY OF ALBUQUERQUE

Albuquerque, New Mexico

INTER-OFFICE MEMORANDUM

December 9, 1994

TO: Dan Hogan, Division Manager, Hydrology Division

FROM: Colleen K. Frenz, Assistant Div. Manager, Design & Dev. Div.

SUBJECT: **POTENTIAL FUTURE PARK SITE - 98TH & TOWER**
SAD 222 Master Drainage Plan

A meeting was held on September 23, 1994 regarding the above captioned project. This letter is to inform you that Parks and General Services is interested in pursuing the idea of joint use for a neighborhood park near the detention pond. The Tower/Unser Sector Development Plan identifies two park sites and the Park System Facility Plan supports the need for neighborhood parks in this area, specifically between 98th Street and Unser Boulevard.

Although the planning is in its infancy the opportunity to collocate facilities has proven to be beneficial for both providers of City services and to the public. Once the project progresses,some of the basic design concerns will need to be addressed and notification and approval from the administration will be required.

Thank you for this opportunity. Please continue to keep me informed of project status. My phone number is 857-8636.

cc: Lee Lunsford, SAD Engineer
Douglas L. Andrews
Sandy Zuschlag/Project File
R. J. Herbert/Carmen Chavez

macpark/park planning/new parks/sad222

APPENDIX B