CITY OF ALBUQUERQUE
NEW MEXICO

AMOLE DEL NORTE
STORM DRAINAGE FACILITIES

TOWER/SAGE
DRAINAGE MASTER PLAN

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

Tower/Dage

- Theirs new AHYDRO for Tierra Bonita (north 1/3 of ADNC basin)
- AAK Tower/Dage (new report)
- updated topo for T/S from KTI
- small sliver drains to Snow Vista (back to the west) OK? (report says Cliff OK'd)
- 5 are tracts from 1944
- half of area is in County; they should review and be aware of this
- * need to show any floodplains on map
- * all areas (FEMA) approved (except for 5 & 7 NAA) need to show new revisions
- * land treatments are low (30-50% B??)
- what about effects @ ADC??

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APRIL 1995

Prepared By

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City of Albuquerque

TOWER/SAGE DRAINAGE MASTER PLAN

TABLE OF CONTENTS

TABLE OF CONTENTS - CONTINUED

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 southern basin remains as presented in the Boyle Engineering, Inc. report and has not been refined or updated as of this date.

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.

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.	DRAWN	CHECKED	DATE	MAP No.
90-572	TL	DA,JA	MAR 1995	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.

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 Atrisco 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.

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

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.

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.

TABLE 1

TOWER/SAGE DRAINAGE MASTER PLAN
LAND TREATMENTS

	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	202	9.4	348	16.4
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 approximately 400 feet east of 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. It is proposed that the storm drain will be located on the easterly portion of the platted subdivision known as South Mesa Patio Townhomes. Although this area is subdivided, no development has occurred as of the date of this report. A 10-foot wide storm drainage easement exists along the easterly side of this subdivision; however, additional right-of-way for an easement of up to approximately 50 feet in width will be needed to accommodate the storm drain installation.

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.

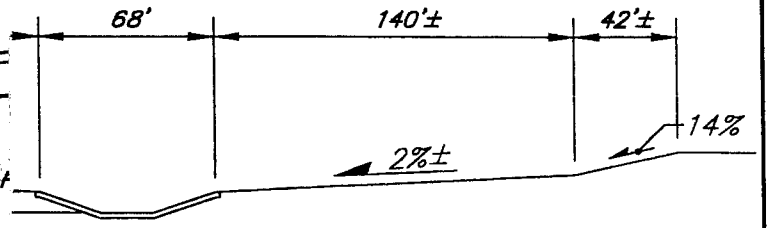
Street capacities were approximated within the Tower/Sage Drainage Area using Manning's Equation for open channel flow, proposed street sections, and existing terrain as street grades. Hydraulic grade lines were calculated for the storm drain pipes, again using Manning's principles for pressure flow 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 TOWER DETENTION POND/NEIGHBORHOOD PARK

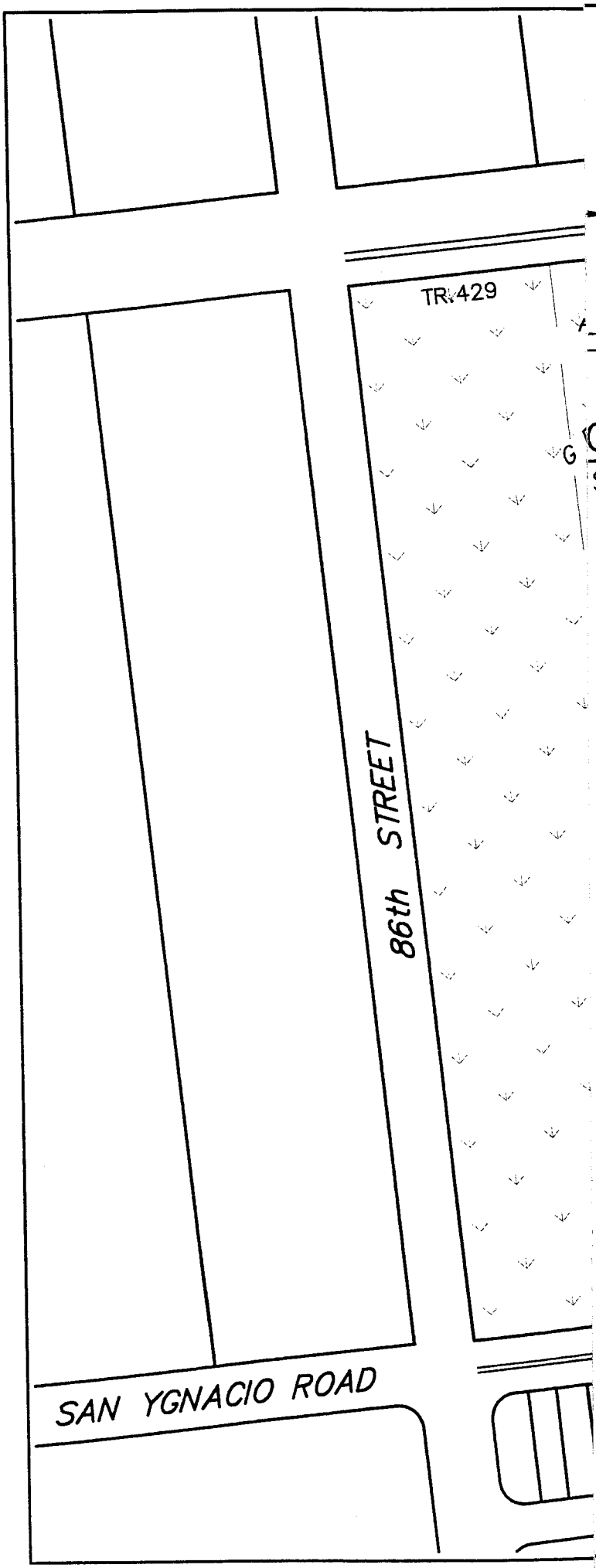
The Tower Detention Pond is proposed to be constructed south and east of the intersection of Tower Road and 86th Street. Figure 1 shows a conceptual Tower Detention Pond layout for a joint-use facility with a public neighborhood park. It is proposed that the block area outlined by public streets and consisting of 25 acres of land be made available for the City Park and the Tower Detention Pond. Twenty of the twenty-five available acres can be used as a neighborhood park. Six of these 20 acres will be utilized on infrequent occasions as part of the Tower Detention Pond. Approximately four to five acres of the 25 acres available will be used solely for detention pond purposes.

The park, in concept, will consist of grass and trees with slopes averaging two percent. A shallow concrete-lined low flow channel/swale will run through the park. Park patrons will be able to easily walk across the shallow channel/swale. There will be a 40-foot strip within the park, around the perimeter of the pond area, that will slope at 14 percent (7:1 ±). This slope is part of the overall detention pond that is required to contain the 100 year storm. The four to five acres to be used solely for detention purposes will be approximately 20 feet deep with three to one, horizontal to vertical, side slopes. This depth is required to receive the storm drain line from Sage Road. This area will be designed to contain a two-year storm and is proposed to be fenced and seeded with a native vegetation. Figure 1 also shows high water levels in the Tower Detention Pond for various 24-hour storm frequencies.



CTION A–A

SCALE



OWNERSHIP	
TR. 425	~~D. BACA~~ Dan B. Baca
TR. 426 & 427	~~M. SIMMONS~~ Marguerite M. Simonds
TR. 428 & 429	~~G. KAEDAS~~ Gerald T. Kardas

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	DA,TL	DA,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.

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 intersection 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.

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, the required area for the detention pond and park area is divided approximately equal (i.e., 12.5 acres for the detention pond and 12.5 acres for the neighborhood park).

8.2 SAGE ROAD STORM DRAIN

To provide for construction of the Sage Road Storm Drain between Sage Road and San Ygnacio Road, additional right-of-way will need to be acquired. An existing 10-foot wide drainage right-of-way exists along the east side of the South Mesa Townhomes Subdivision; however, additional right-of-way varying from 30 feet to

40 feet in width is required for construction of this portion of the Sage Road Storm Drain. The additional right-of-way area to be acquired is estimated at one (1) acre.

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.

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."

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

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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	344,303.03
• Tower Detention Pond	606,001.00
• 98th Street Storm Drain System to Snow Vista Channel	678,623.00
TOTAL ESTIMATED CONSTRUCTION COST	$3,141,216.16

- 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.

606
708
1314
941
2,255,000

606
283
889
941
1830

11.2 OTHER PHASES

• Sage Road Storm Drain System to Tower Detention Pond	$826,115.40
• 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	$2,898,8681.35

- 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
54" RCP, furnish & install in open trench, cip.	LF	450	$112.00	$50,400.00
Trenching, backfill & compaction for 54" sewer pipe, cip.	LF	450	$39.50	$17,775.00
90" RCP, furnish & install in open trench, cip.	LF	230	$160.00	$36,800.00
Trenching, backfill & compaction for 90" sewer pipe, cip.	LF	230	$65.75	$15,122.50
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	**$313,002.75**
10% CONTINGINCES	**$31,300.28**
ESTIMATED CONSTRUCTION COST	**$344,303.03**

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	$200,000.00	$200,000.00
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				**$550,910.00**
10% CONTINGINCES				**$55,091.00**
ESTIMATED CONSTRUCTION COST				**$606,001.00**

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	1,600	$140.00	$224,000.00
Trenching, backfill & compaction for 78" sewer pipe, cip.	LF	1,600	$57.00	$91,200.00
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	**$751,014.00**
10% CONTINGINCES	**$75,101.40**
ESTIMATED CONSTRUCTION COST	**$826,115.40**

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

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

AHYMO SUMMARY TABLE - 2 YEAR - 24 HOUR STORM

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =12/10/1994
INPUT FILE = MASTER2.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	PAGE = 1 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	
ROUTE	AP#18R	10	2	.14800	90.91	4.428	.56100	1.600	.960	
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	.17180	104.08	5.176	.56486	1.550	.947	
ADD HYD	AP#20	12&10	10	.29640	173.15	8.904	.56325	1.550	.913	
ADD HYD	PART_AP#21	20&10	10	.66450	417.78	21.724	.61298	1.550	.982	
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	420.24	21.836	.58191	1.550	.933	
ROUTE RESERVOIR	AP#22	20	12	.70360	18.44	21.136	.56324	2.550	.041	AC-FT= 15.081
ROUTE	AP#22R	12	2	.70360	18.44	21.123	.56291	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	36.14	22.708	.56807	1.750	.075	
ROUTE	AP#23R	10	2	.74950	35.42	22.689	.56760	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	64.31	24.790	.57484	1.700	.124	
ROUTE	AP#24R	10	2	.80860	64.24	24.774	.57445	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	86.89	27.156	.56721	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
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	

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	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										

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	
ROUTE	AP#18R	10	2	.14800	135.23	6.391	.80972	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	.17180	157.67	7.464	.81457	1.550	1.434	
ADD HYD	AP#20	12&10	10	.29640	265.52	12.845	.81254	1.550	1.400	
ADD HYD	PART_AP#21	20&10	10	.66450	627.13	31.011	.87502	1.550	1.475	
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	637.93	31.354	.83553	1.550	1.417	
ROUTE RESERVOIR	AP#22	20	12	.70360	21.14	30.140	.80320	2.650	.047	AC-FT= 22.490
ROUTE	AP#22R	12	2	.70360	21.14	30.122	.80271	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	48.86	32.369	.80977	1.750	.102	
ROUTE	AP#23R	10	2	.74950	47.94	32.343	.80912	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	90.81	35.314	.81886	1.700	.175	
ROUTE	AP#24R	10	2	.80860	90.32	35.289	.81828	1.750	.175	
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	122.92	38.781	.81001	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
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	

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	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 - 10 YEAR - 6 HOUR STORM

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =12/10/1994
INPUT FILE = MASTER10.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= 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	

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	
ROUTE	AP#18R	10	2	.14800	174.83	6.597	.83572	1.567	1.846	
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	.17180	201.97	7.696	.83993	1.567	1.837	
ADD HYD	AP#20	12&10	10	.29640	344.61	13.250	.83818	1.567	1.817	
ADD HYD	PART_AP#21	20&10	10	.66450	801.35	31.625	.89235	1.567	1.884	
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	820.24	32.184	.85765	1.567	1.822	
ROUTE RESERVOIR	AP#22	20	12	.70360	22.56	27.419	.73067	2.733	.050	AC-FT= 28.648
ROUTE	AP#22R	12	2	.70360	22.56	27.370	.72937	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	58.74	29.646	.74163	1.733	.122	
ROUTE	AP#23R	10	2	.74950	57.42	29.578	.73995	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	110.96	32.575	.75537	1.700	.214	
ROUTE	AP#24R	10	2	.80860	110.02	32.517	.75400	1.733	.213	
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	151.40	36.180	.75568	1.767	.264	
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
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	

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	
ROUTE	AP#18R	10	2	.14800	301.32	11.680	1.47967	1.567	3.181	
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	.17180	347.65	13.607	1.48506	1.567	3.162	
ADD HYD	AP#20	12&10	10	.29640	599.14	23.440	1.48281	1.567	3.158	
ADD HYD	PART_AP#21	20&10	10	.66450	1364.74	55.012	1.55226	1.567	3.209	
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	1414.13	56.563	1.50734	1.567	3.140	
ROUTE RESERVOIR	AP#22	20	12	.70360	25.11	35.845	.95522	2.967	.056	AC-FT= 51.036
ROUTE	AP#22R	12	2	.70360	25.11	35.760	.95294	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	89.59	39.676	.99257	1.700	.187	
ROUTE	AP#23R	10	2	.74950	87.10	39.564	.98976	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	178.28	44.693	1.03635	1.700	.345	
ROUTE	AP#24R	10	2	.80860	176.50	44.595	1.03409	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	249.59	51.232	1.07006	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
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	

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	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 - 10 YEAR - 24 HOUR STORM

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =12/10/1994
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	

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	
ROUTE	AP#18R	10	2	.14800	173.14	8.039	1.01840	1.550	1.828	
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	.17180	201.46	9.382	1.02392	1.550	1.832	
ADD HYD	AP#20	12&10	10	.29640	342.15	16.150	1.02162	1.550	1.804	
ADD HYD	PART_AP#21	20&10	10	.66450	796.34	38.725	1.09268	1.550	1.872	
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	815.60	39.314	1.04766	1.550	1.811	
ROUTE RESERVOIR	AP#22	20	12	.70360	22.55	37.241	.99242	2.700	.050	AC-FT= 28.615
ROUTE	AP#22R	12	2	.70360	22.55	37.214	.99170	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	58.48	40.009	1.00088	1.700	.122	
ROUTE	AP#23R	10	2	.74950	57.47	39.971	.99994	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	111.08	43.657	1.01233	1.700	.215	
ROUTE	AP#24R	10	2	.80860	110.07	43.624	1.01156	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	151.32	48.059	1.00379	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
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	

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

AHYMO SUMMARY TABLE - 100 YEAR - 6 HOUR STORM

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =12/10/1994
INPUT FILE = MASTER6.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=	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		

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	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										

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	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 - 100 YEAR - 24 HOUR STORM

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =12/10/1994
INPUT FILE = MASTER24.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	PAGE = 1
START										TIME=	.00
RAINFALL TYPE= 2										RAIN24=	2.670
SEDIMENT BULK										PK BF =	1.05
COMPUTE NM HYD	A1-D&AP#1	-	3	.04580	110.15	5.172	2.11755	1.500	3.758	PER IMP=	76.00
ROUTE	AP-1R	3	2	.04580	108.15	5.172	2.11756	1.550	3.690		
COMPUTE NM HYD	A2-D	-	3	.03950	95.25	4.228	2.00697	1.500	3.768	PER IMP=	70.00
ADD HYD	AP#2	2& 3	10	.08530	197.61	9.400	2.06634	1.500	3.620		
ROUTE	AP#2R	10	2	.08530	195.92	9.401	2.06635	1.550	3.589		
COMPUTE NM HYD	A3-D	-	3	.04190	101.17	4.279	1.91483	1.500	3.773	PER IMP=	65.00
ADD HYD	AP#3	2& 3	10	.12720	284.05	13.679	2.01643	1.550	3.489		
ROUTE	AP#3R	10	2	.12720	288.58	13.679	2.01643	1.550	3.545		
COMPUTE NM HYD	A4-D	-	3	.04390	108.30	5.130	2.19127	1.500	3.855	PER IMP=	80.00
ADD HYD	AP#4	2& 3	10	.17110	391.99	18.810	2.06129	1.550	3.580		
ROUTE	AP#4R	10	2	.17110	395.01	18.810	2.06129	1.550	3.607		
COMPUTE NM HYD	A5-D	-	3	.04520	101.94	4.394	1.82268	1.500	3.524	PER IMP=	60.00
ADD HYD	AP#5	2& 3	10	.21630	488.75	23.204	2.01143	1.550	3.531		
ROUTE	AP#5R	10	2	.21630	489.83	23.204	2.01143	1.550	3.538		
COMPUTE NM HYD	A6-D	-	3	.04520	94.89	3.950	1.63839	1.500	3.280	PER IMP=	50.00
ADD HYD	PART_AP#9	2& 3	10	.26150	577.67	27.153	1.94694	1.550	3.452		
COMPUTE NM HYD	A7-D	-	3	.02060	43.26	1.800	1.63839	1.500	3.281	PER IMP=	50.00
ADD HYD	PART_AP#9	10& 3	10	.28210	617.72	28.953	1.92441	1.550	3.421		
COMPUTE NM HYD	A8-D&AP#6	-	3	.05700	118.36	6.101	2.00698	1.550	3.245	PER IMP=	70.00
ROUTE	AP&6R	3	2	.05700	116.16	6.101	2.00698	1.600	3.184		
COMPUTE NM HYD	A9-D	-	3	.01020	22.28	.891	1.63839	1.500	3.412	PER IMP=	50.00
ADD HYD	AP#7	2& 3	20	.06720	131.46	6.992	1.95102	1.600	3.057		
ROUTE	AP#7R	20	2	.06720	132.02	6.992	1.95103	1.600	3.070		
COMPUTE NM HYD	A10-D	-	3	.01020	22.28	.891	1.63839	1.500	3.412	PER IMP=	50.00
ADD HYD	AP#8	2& 3	20	.07740	147.32	7.884	1.90982	1.600	2.974		
ROUTE	AP#8R	20	2	.07740	145.00	7.884	1.90983	1.600	2.927		
ADD HYD	AP#9	10& 2	10	.35950	747.91	36.837	1.92127	1.550	3.251		
ROUTE	AP#9R	10	2	.35950	745.86	36.837	1.92127	1.550	3.242		
COMPUTE NM HYD	A11-D	-	3	.00860	22.24	.971	2.11755	1.500	4.040	PER IMP=	76.00
ADD HYD	AP#10	2& 3	20	.36810	765.11	37.808	1.92586	1.550	3.248		
COMPUTE NM HYD	B1-D&AP#11	-	3	.02300	56.61	2.417	1.97012	1.500	3.845	PER IMP=	68.00
ROUTE	AP#11R	3	2	.02300	52.84	2.417	1.97014	1.550	3.589		
COMPUTE NM HYD	B2-D	-	3	.03500	81.81	3.402	1.82268	1.500	3.652	PER IMP=	60.00
ADD HYD	AP#12	2& 3	10	.05800	130.68	5.819	1.88114	1.500	3.521		
ROUTE	AP#12R	10	2	.05800	125.22	5.819	1.88115	1.550	3.373		
COMPUTE NM HYD	B3-D	-	3	.04360	87.28	3.810	1.63839	1.500	3.128	PER IMP=	50.00
ADD HYD	AP#13	2& 3	10	.10160	209.92	9.629	1.77697	1.550	3.228		
ROUTE	AP#13R	10	2	.10160	209.40	9.629	1.77697	1.550	3.220		
COMPUTE NM HYD	B4-D	-	3	.02300	50.21	2.010	1.63839	1.500	3.411	PER IMP=	50.00
ADD HYD	AP#14	2& 3	10	.12460	253.60	11.639	1.75138	1.550	3.180		
ROUTE	AP#14R	10	12	.12460	250.94	11.639	1.75139	1.550	3.147		
COMPUTE NM HYD	S1-D&AP#15	-	3	.03140	75.82	3.207	1.91483	1.500	3.773	PER IMP=	65.00
ROUTE	AP-15R	3	2	.03140	73.86	3.207	1.91484	1.500	3.675		
COMPUTE NM HYD	S2-D	-	3	.01630	35.59	1.424	1.63839	1.500	3.412	PER IMP=	50.00
ADD HYD	AP#16	2& 3	10	.04770	109.45	4.631	1.82035	1.500	3.585		
ROUTE	AP#16R	10	2	.04770	106.53	4.631	1.82037	1.550	3.489		

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	119.03	4.954	1.63839	1.500	3.280	PER IMP= 50.00
ADD HYD	AP#17	2& 3	10	.10440	222.73	9.585	1.72153	1.500	3.333	
ROUTE	AP#17R	10	2	.10440	222.44	9.586	1.72153	1.550	3.329	
COMPUTE NM HYD	S4-D	-	3	.04360	90.14	4.238	1.82268	1.550	3.230	PER IMP= 60.00
ADD HYD	AP#18	2& 3	10	.14800	312.58	13.824	1.75132	1.550	3.300	
ROUTE	AP#18R	10	2	.14800	300.36	13.824	1.75133	1.550	3.171	
COMPUTE NM HYD	S5-D	-	3	.02380	55.26	2.290	1.80425	1.500	3.628	PER IMP= 59.00
ADD HYD	AP#19	2& 3	10	.17180	348.69	16.114	1.75866	1.550	3.171	
ADD HYD	AP#20	12&10	10	.29640	599.64	27.753	1.75560	1.550	3.161	
ADD HYD	PART_AP#21	20&10	10	.66450	1364.74	65.561	1.84991	1.550	3.209	
COMPUTE NM HYD	B5-D_TWRPND	-	3	.03910	54.51	1.599	.76663	1.500	2.178	PER IMP= 5.00
ADD HYD	AP#21	10& 3	20	.70360	1415.47	67.160	1.78971	1.550	3.143	
ROUTE RESERVOIR	AP#22	20	12	.70360	25.11	53.623	1.42899	2.950	.056	AC-FT= 51.017
ROUTE	AP#22R	12	2	.70360	25.11	53.548	1.42698	3.000	.056	
COMPUTE NM HYD	B6-D	-	3	.04590	67.74	4.688	1.91483	1.700	2.306	PER IMP= 65.00
ADD HYD	AP#23	2& 3	10	.74950	89.59	58.235	1.45685	1.700	.187	
ROUTE	AP#23R	10	2	.74950	87.30	58.135	1.45433	1.750	.182	
COMPUTE NM HYD	B7-D	-	3	.05910	96.33	6.152	1.95169	1.650	2.547	PER IMP= 67.00
ADD HYD	AP#24	2& 3	10	.80860	178.07	64.286	1.49069	1.700	.344	
ROUTE	AP#24R	10	2	.80860	176.26	64.199	1.48865	1.700	.341	
COMPUTE NM HYD	B8-D	-	3	.08910	85.79	7.786	1.63839	1.900	1.504	PER IMP= 50.00
ADD HYD	AP#25	2& 3	30	.89770	249.51	71.984	1.50352	1.750	.434	
COMPUTE NM HYD	A12-D&AP#26	-	3	.03590	89.93	4.054	2.11755	1.500	3.914	PER IMP= 76.00
ROUTE	AP#26R	3	2	.03590	86.27	4.054	2.11756	1.550	3.755	
COMPUTE NM HYD	A13-D	-	3	.04520	84.50	4.616	1.91483	1.600	2.921	PER IMP= 65.00
ADD HYD	AP#27	2& 3	10	.08110	170.34	8.670	2.00456	1.550	3.282	
ROUTE	AP#27R	10	2	.08110	161.75	8.670	2.00457	1.600	3.116	
COMPUTE NM HYD	A14-D	-	3	.04520	63.35	4.838	2.00697	1.750	2.190	PER IMP= 70.00
ADD HYD	AP#28	2& 3	10	.12630	207.69	13.508	2.00542	1.600	2.569	
ROUTE	AP#28R	10	2	.12630	205.93	13.509	2.00542	1.600	2.548	
COMPUTE NM HYD	A15-D	-	3	.02530	47.15	2.459	1.82268	1.550	2.912	PER IMP= 60.00
ADD HYD	PART_AP#33	2& 3	20	.15160	252.00	15.968	1.97492	1.600	2.597	
COMPUTE NM HYD	A17-D&AP#29	-	3	.01080	23.59	.944	1.63839	1.500	3.412	PER IMP= 50.00
ROUTE	AP&29R	3	2	.01080	17.21	.944	1.63844	1.600	2.489	
COMPUTE NM HYD	A18-D	-	3	.01030	24.08	1.001	1.82268	1.500	3.654	PER IMP= 60.00
ADD HYD	AP#30	2& 3	10	.02110	37.99	1.945	1.72833	1.550	2.814	
ROUTE	AP&30R	10	2	.02110	27.33	1.945	1.72829	1.650	2.024	
COMPUTE NM HYD	A19-D	-	3	.01080	21.49	1.050	1.82268	1.550	3.110	PER IMP= 60.00
ADD HYD	AP#31	2& 3	10	.03190	46.33	2.995	1.76023	1.600	2.269	
ROUTE	AP#31R	10	2	.03190	45.57	2.995	1.76023	1.600	2.232	
COMPUTE NM HYD	A20-D	-	3	.00690	16.14	.671	1.82268	1.500	3.655	PER IMP= 60.00
ADD HYD	AP#32	2& 3	10	.03880	56.53	3.665	1.77133	1.600	2.276	
ROUTE	AP#32R	10	22	.03880	53.38	3.665	1.77131	1.650	2.150	
ADD HYD	AP#33	20&22	10	.19040	304.40	19.633	1.93343	1.600	2.498	
ROUTE	AP#33R	10	2	.19040	301.70	19.633	1.93343	1.650	2.476	
COMPUTE NM HYD	A16-D	-	3	.06380	76.21	5.575	1.63839	1.750	1.867	PER IMP= 50.00
ADD HYD	AP#34	2& 3	10	.25420	370.33	25.208	1.85938	1.650	2.276	
COMPUTE NM HYD	S6-D&AP#35	-	3	.03780	54.41	3.675	1.82268	1.700	2.249	PER IMP= 60.00
ROUTE	AP#35R	3	2	.03780	53.37	3.675	1.82269	1.700	2.206	
COMPUTE NM HYD	S7-D	-	3	.05700	69.82	6.157	2.02540	1.850	1.914	PER IMP= 71.00
ADD HYD	AP#36	2& 3	10	.09480	118.15	9.832	1.94456	1.800	1.947	
ROUTE	AP#36R	10	2	.09480	115.65	9.832	1.94456	1.850	1.906	

APPENDIX B

CITY OF ALBUQUERQUE

Albuquerque, New Mexico

572
DA

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

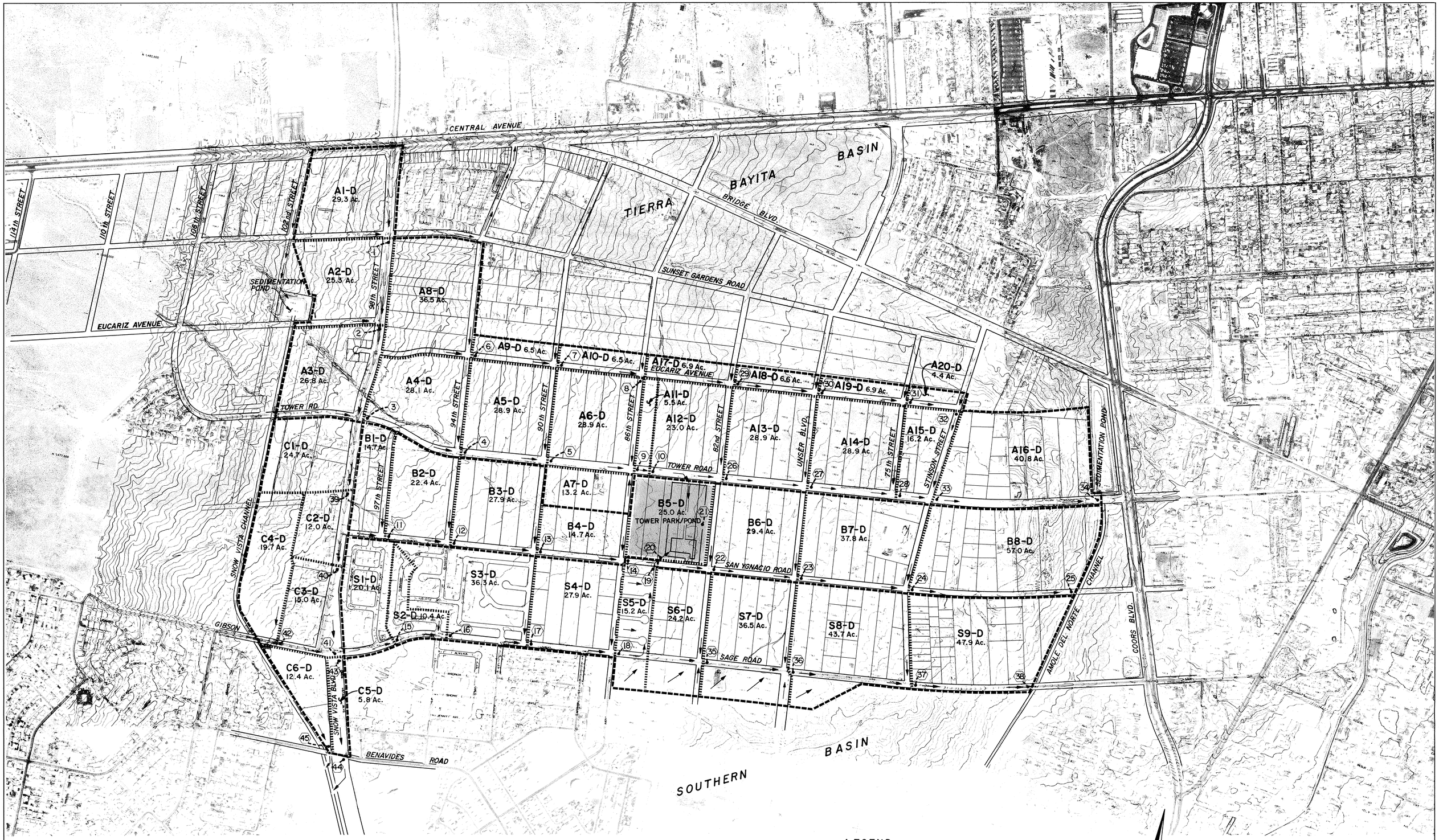
A meeting was held on September 23, 1994 regarding the above captioned project. This letter is to inform you that Parks and General Services is interested in pursuing the idea of joint use for a neighborhood park near the detention pond. The Tower/Unser Sector Development Plan identifies two park sites 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



LEGEND

- DRAINAGE BASIN BOUNDARY
- SUB-BASIN BOUNDARY
- A1-D — DRAINAGE BASIN DESIGNATION
- (1) — DRAINAGE ANALYSIS POINT
- SURFACE FLOW DIRECTION

DATE OF PHOTOGRAPHY: APRIL 1991

SCALE: 1" = 500'

CITY OF ALBUQUERQUE, NEW MEXICO

AMOLE DEL NORTE STORM DRAINAGE FACILITIES

TOWER/SAGE DRAINAGE MASTER PLAN

DRAINAGE AREA MAP

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

FILE No.	DRAWN	CHECKED	DATE	
90-572	TL	DA, JA	MAR. 1995	MAP No. 2

LEGEND

- 48" — STORM DRAIN LINE w/SIZE
- STORM DRAIN MANHOLE
- DRAINAGE BASIN BOUNDARY

NOTE: SEE MAP No. 2 FOR DRAINAGE SUB-BASINS AND ANALYSIS POINTS.

DATE OF PHOTOGRAPHY: APRIL 1991

SCALE: 1" = 500'

CITY OF ALBUQUERQUE, NEW MEXICO

AMOLE DEL NORTE STORM DRAINAGE FACILITIES

TOWER/SAGE DRAINAGE MASTER PLAN

STORM DRAIN SYSTEM MAP

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

FILE No.	DRAWN	CHECKED	DATE	
90-572	TL	JA, JA	MAR. 1995	MAP No. 3