

## DRAINAGE INFORMATION SHEET

G-16/D133

SMITH ENGINEERING CO.  
APPLICANT'S NAME: DOUGLAS L. ANDREWS ZONE ATLAS/DRNG. FILE #: G-16  
DRB #: N/A EPC #: N/A WORK ORDER #:  
LEGAL DESCRIPTION: COMANCHE PARK  
CITY ADDRESS: INTERSECTION OF COMANCHE RD. AND BEYN MAWE DR. NE  
ENGINEERING FIRM: SMITH ENGINEERING CO. CONTACT: DOUGLAS L. ANDREWS  
ADDRESS: 6400 UPTOWN BLVD. NE 87110 PHONE: 505-884-0700  
COA-DEPT. OF MUNICIPAL DEVELOPMENT  
OWNER: PARK & MEDIAN DESIGN DIVISION CONTACT: DAVID FLORES  
ADDRESS: 1801 4<sup>TH</sup> ST. NW 87102 PHONE: 505-768-5300  
ARCHITECT: CONSENSUS PLANNING CONTACT: CHRIS GREEN  
ADDRESS: 924 PARK AVE SW 87102 PHONE: 505-764-9801  
SURVEYOR: CONTACT:  
ADDRESS: PHONE:  
CONTRACTOR: CONTACT:  
ADDRESS: PHONE:

## TYPE OF SUBMITTAL:

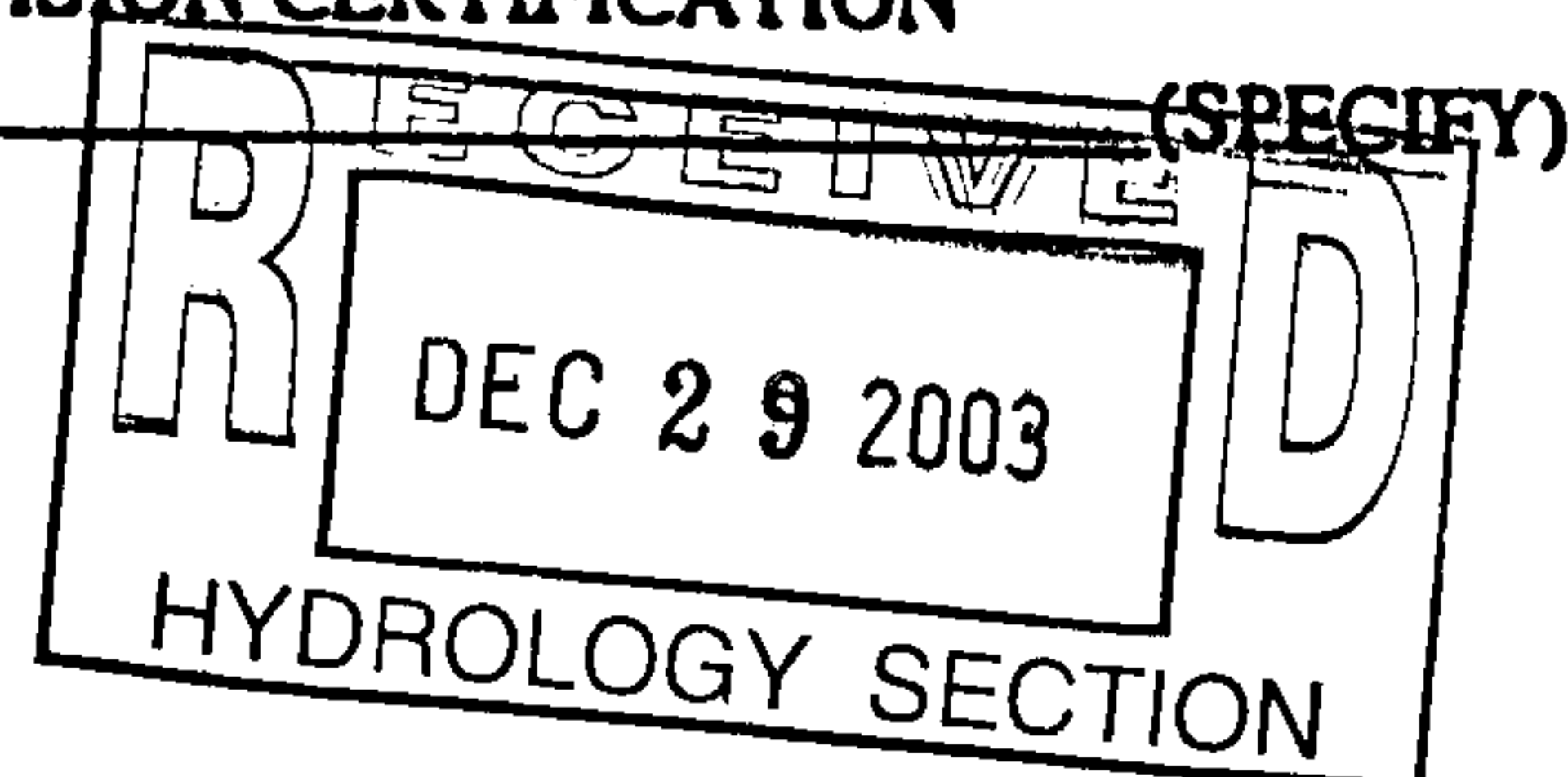
- ☒ DRAINAGE REPORT  
☐ DRAINAGE PLAN  
☐ CONCEPTUAL GRADING & DRAINAGE PLAN  
☐ GRADING PLAN  
☐ EROSION CONTROL PLAN  
☐ ENGINEER'S CERTIFICATION  
☐ OTHER

## PRE-DESIGN MEETING:

- ☐ YES  
☒ NO  
☐ COPY PROVIDED

## CHECK TYPE OF APPROVAL SOUGHT:

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

DATE SUBMITTED: 12-29-03BY: DOUGLAS L. ANDREWS



# ***City of Albuquerque***

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

February 16, 2004

Doug Andrews, PE  
Smith Engineering Co.  
6400 Uptown Blvd. Ste 500E  
Albuquerque, NM 87110

**Re: Comanche Park Drainage Report**  
**Engineer's Stamp dated 12-29-03, (G16/D133)**

Dear Mr. Andrews,

Based on your information provided in your submittal dated 12-29-03, the above referenced report is approved for Grading Permit. Please submit a copy of the plan, *with AMAFCA's signature denoting their approval to grade in their R/W*, for my signature in order to obtain the Permit. This project requires a National Pollutant Discharge Elimination System (NPDES) permit. Refer to the attachment that is provided with this letter for details. If you have any questions please feel free to call the Municipal Development Department, Hydrology section at 768-3654 (Charles Caruso) or 768-3645 (Bryan Wolfe).

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE  
Principal Engineer, Planning Dept.  
Development and Building Services

C: Chuck Caruso, CoA  
Lynn Mazur, AMAFCA  
file

# DRAINAGE REPORT

for

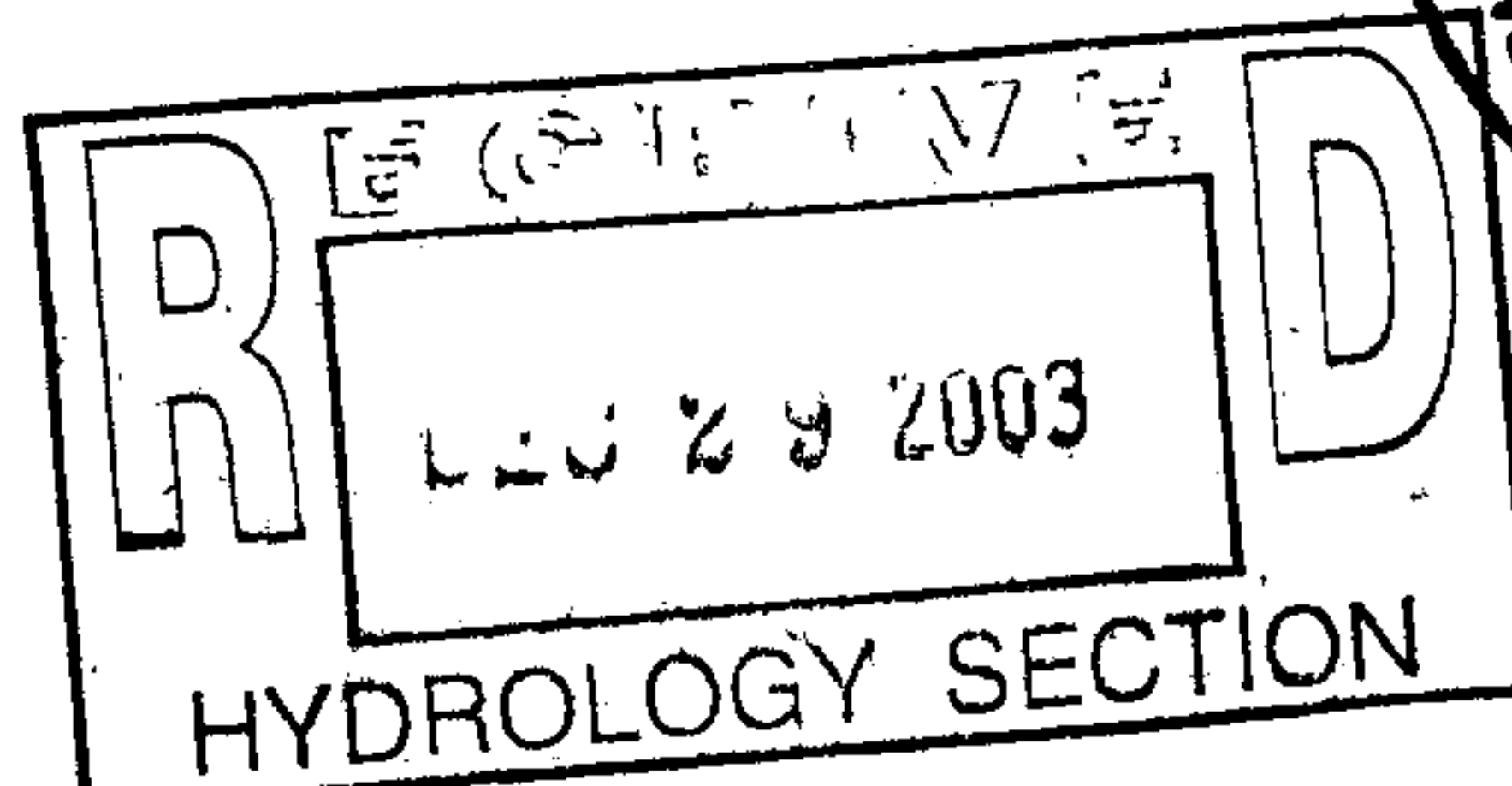
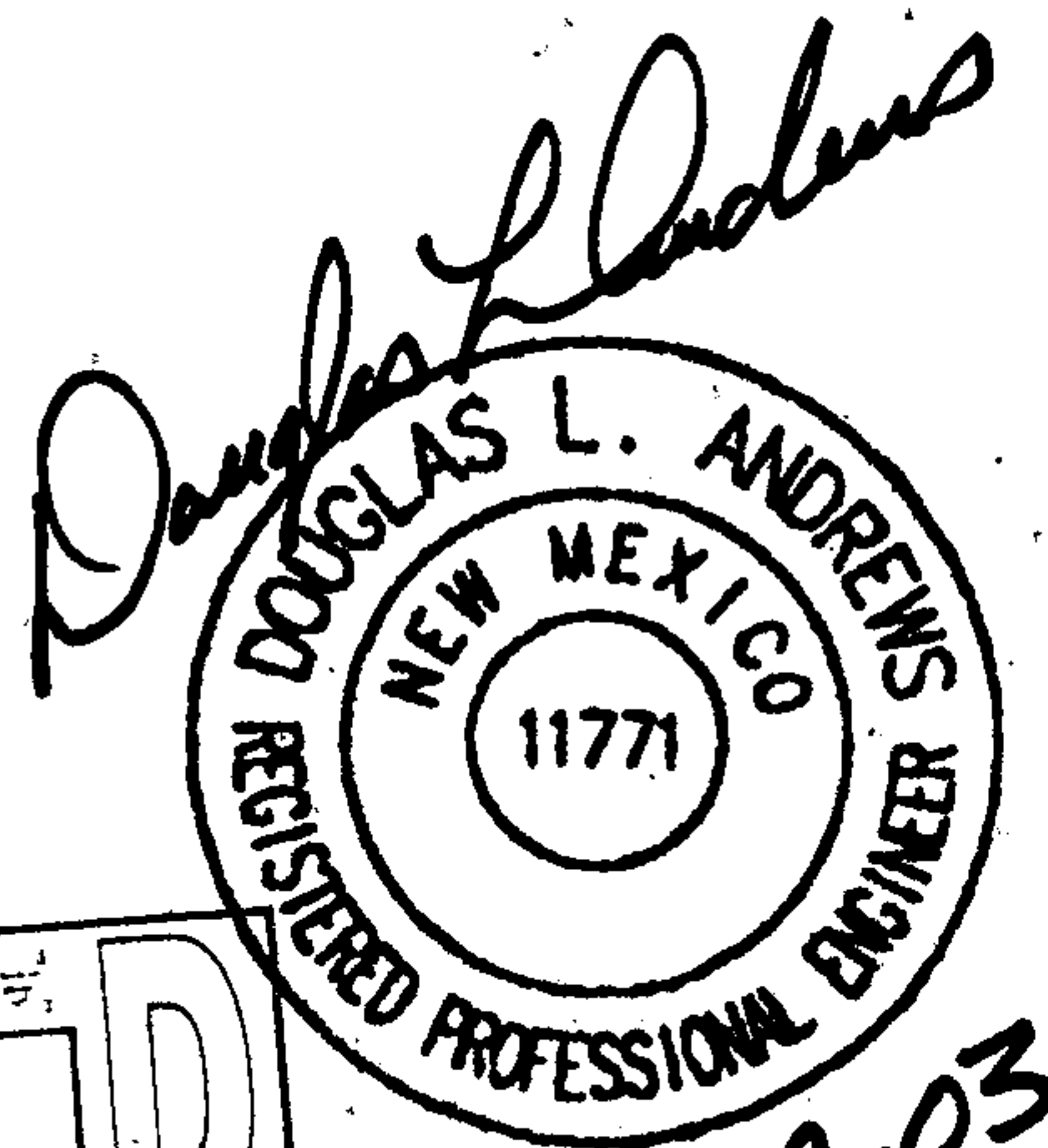
COMANCHE PARK – PHASE 1

CITY OF ALBUQUERQUE, NEW MEXICO

Prepared for:

CITY OF ALBUQUERQUE  
DEPARTMENT OF MUNICIPAL DEVELOPMENT  
PARK AND MEDIAN DESIGN DIVISION

December, 2003



Prepared by:



**Smith Engineering Company**

A Full-Service Engineering Company

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Appendix B AHYMO Basin Parameter Worksheets, Peak Basin Flows, and  
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**MAPS – in back pockets of Report**

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Sheet 6 of 13 Civil Site Plan  
Sheet 7 of 13 Grading Plan  
Sheet 8 of 13 Civil Details  
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## **I. INTRODUCTION**

Comanche Park is located just east of the North Diversion Channel. The park is actually two parks (north and south) separated by Comanche Road. The primary purpose of the park or parks is to serve as a detention pond facility for storm water runoff. The southern portion of the park currently drains to the northern portion via an existing 36" storm drain pipe under Comanche Road. The southern portion is also the home of Thunderbird Little League while the northern portion is strictly an earthen detention pond facility. A lift/pump station currently lifts the storm water from the northern park/ponding area to the North Diversion Channel.

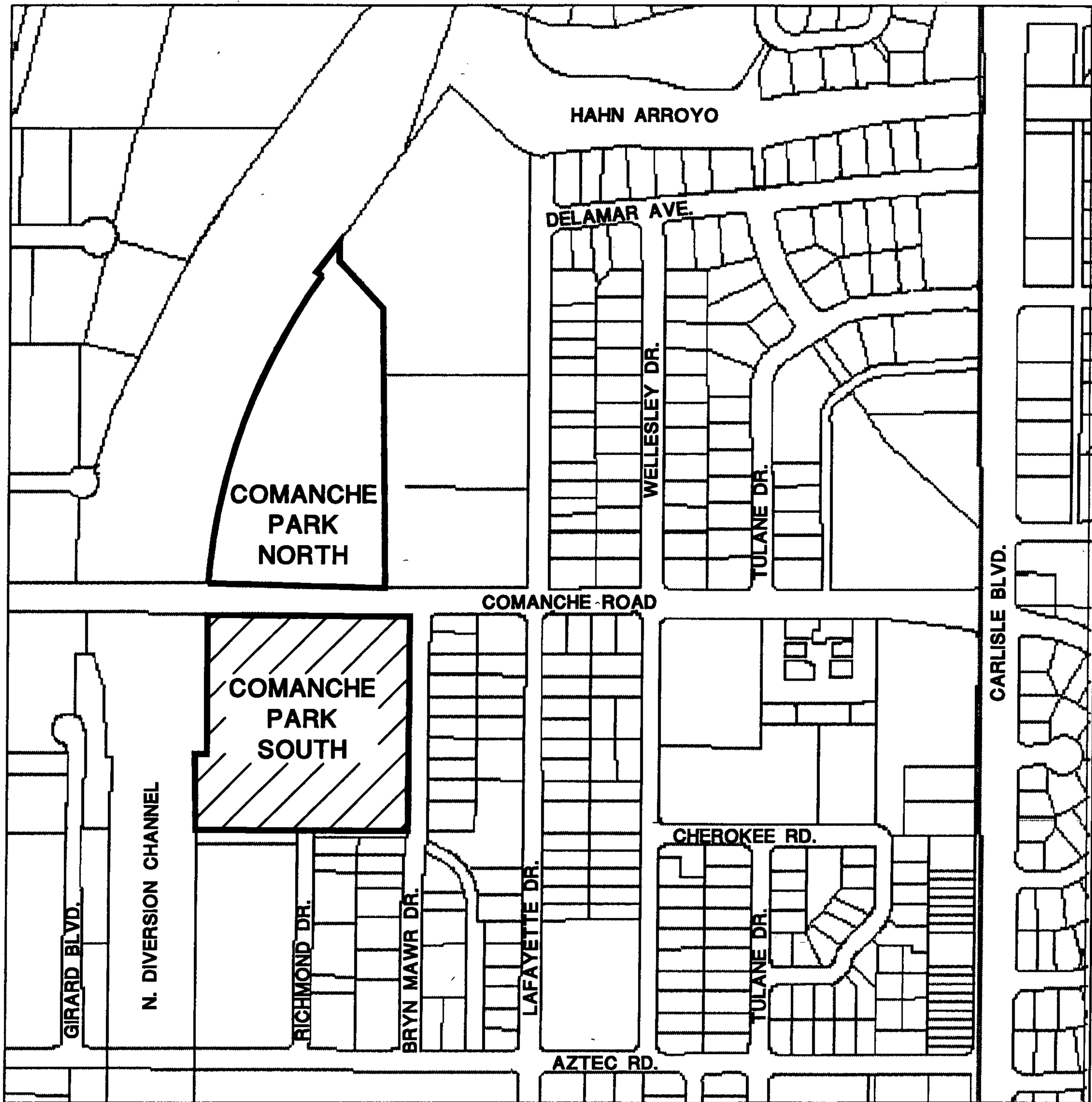
The City of Albuquerque Park and Median Design Division is planning to renovate the Thunderbird Little League baseball fields that lie within the southern portion of Comanche Park. The southern park consists of approximately 8.5 acres. Figure No. 1 shows the location of both parks.

Smith Engineering Company (SEC) has been retained by Consensus Planning Inc. to provide civil engineering services for the proposed park improvements. Included in the civil engineering scope of work is to provide drainage engineering services for the re-development of the site.

This drainage report will analyze both the existing hydraulic capacity of the south and north ponds as well as the impact the proposed improvements have on both the south and north detention pond facilities. The main purpose of this report is to show the proposed improvements to the south park will not negatively impact the pond volume of either pond.

## **II. DRAINAGE AREA BOUNDARIES**

The off-site drainage basin that contributes to the Comanche Park detention facilities is generally bounded on the east by Carlisle Blvd., the south by Candelaria Road, the west by the North Diversion Channel and the north by the Hahn Arroyo. A small portion of the contributing drainage basin is located north of the Hahn Arroyo with these storm water flows routed to the north park via a 36" storm drain pipe under the existing concrete lined Hahn Arroyo. The drainage area boundary described above can be seen on Map No. 1 located in the back pocket of this report.



**LEGEND:**



PROJECT LOCATION



NOT TO SCALE



**Smith Engineering Company**

A Full Service Engineering Company

6400 Uptown Boulevard, N.E. Suite 8008 Albuquerque, New Mexico 87110

**COMANCHE PARK**

CITY OF ALBUQUERQUE  
PUBLIC WORKS DEPARTMENT  
HYDROLOGY DEVELOPMENT GROUP

**VICINITY MAP**

PROJECT NUMBER:	DRAWN BY:	DESIGNED BY:	DATE:	FIGURE NO.
101103	-	-	9/03	1

### **III. DRAINAGE CHARACTERISTICS**

#### **A. Existing Topography**

The off-site contributing drainage basin generally slopes from the east to the west with a surface gradient varying from two to three percent with most of the storm water flows directed to public right of ways.

The southern park/pond is currently graded relatively flat (with fairly steep slopes at the parks outer boundaries) with the general grade from the south and southeast to the north to the existing 36-inch inlet structure connecting the south park/pond to the north park/pond. An existing small earthen channel currently exists within the south park transporting storm water through the park from the southeast corner of the park to the 36-inch concrete inlet structure mentioned above.

The northern park/pond is also currently graded relatively flat (with fairly steep slopes at the parks outer boundaries) from the east to the west and ultimately to the existing lift/pump station located in the north park/pond just east of the North Diversion Channel. The topography of both the off-site basins and the on-site basins are shown on Maps 1 through 3 located in the back pockets of this report

#### **B. Existing Vegetation**

The off-site drainage basin is approximately 95% developed. The analysis included in this report assumes the off-site drainage basin is 100% developed. The south park currently consists of five grass baseball fields and small sporadic dirt parking areas. The proposed south park improvements will consist of five dirt baseball fields, a concrete low flow channel and an unpaved (base course) parking area. The north pond is currently undeveloped and consists of native grass vegetation. No new proposed improvements to the north park will be analyzed as part of this report.

#### **C. Land Use**

Developed condition land uses were determined from City of Albuquerque Zone Atlas Maps as well as 1999 Aerial Photographs. Various land uses exist within the off-site basin including commercial, office and various types of residential. The north and south park sites are currently zoned residential which is typical for park zoning. Figure No. 2 shows current City of Albuquerque zoning. Map No. 1, located in the back pocket shows the 1999 Aerial Photograph used to verify the zoning and aid in the determining land use. Appendix A displays the various zoning designations and their associated land treatments used in the hydrologic analysis.

### **IV. EXISTING DRAINAGE FACILITIES**

The primary source of storm water entering the south park/pond is via an unlined/earthen arroyo/channel located southeast of the south park. The open channel crosses Bryn Mawr Dr. and enters the park from the southeast corner of the park. It should be noted that there is no drainage crossing structure in/under Bryn Mawr Dr. to

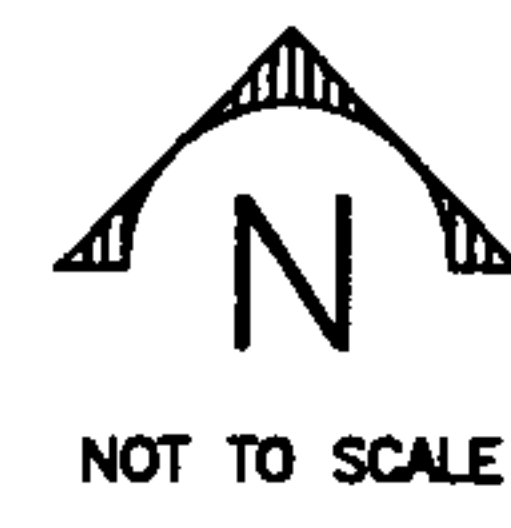
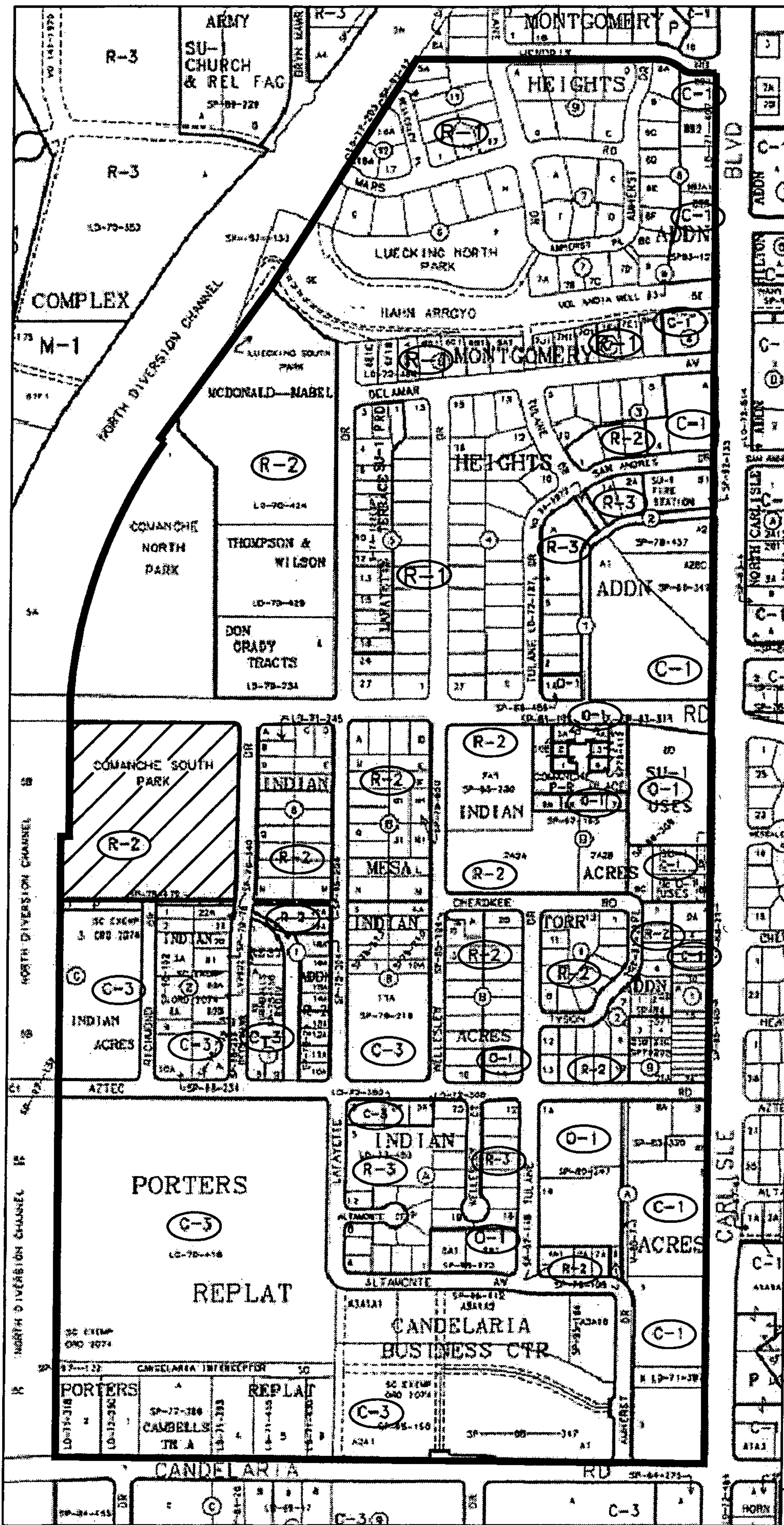


convey the off-site flow under Bryn Mawr Dr. The storm water currently drains over the paved roadway and into the south park/pond. As stated above, an existing 36-inch storm drain pipe connects the south park/pond to the north park/pond. The 36-inch pipe drains water from the south pond to the north pond.

A storm drain system also exists at the intersection of Comanche Road and Bryn Mawr Drive. The system consists of seven catch basins, 18-inch to 30-inch connector pipes and a 36-inch storm drain pipe that empties into the northeast corner of the north park/pond. This storm drain system collects storm water runoff at low point at the intersection. This existing storm drain system is limited by the capacity of the 36" pipe emptying into the north park/pond (approximately 94 cfs) thus; the remaining flow overtops the curb and enters the south park/pond (at the northeast corner of the south park/pond) as overland flow.

Another existing 36" storm drain line also exists north of the North Park/Pond that currently drains water into the north pond. This is the same pipe discussed in a previous section that drains water from the north under the Hahn Arroyo and south to the north park/pond. Eventually, an existing lift/pump station located in the north park/pond pumps the storm water from the north park/pond into the North Diversion Channel.

Map No. 1, 2 and 3 located in the back pockets of the report, show all of the existing storm drain facilities impacting the Comanche Park detention pond facilities.



**LEGEND:**

 PROJECT LOCATION



**Smith Engineering Company**  
A Full Service Engineering Company  
6400 Uptown Boulevard, N.E. Suite 8000 Albuquerque, New Mexico 87110

**COMANCHE PARK**

CITY OF ALBUQUERQUE  
PUBLIC WORKS DEPARTMENT  
HYDROLOGY DEVELOPMENT GROUP

**LAND TREATMENT MAP**

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101103	-	-	9/03	2



## **V. FLOOD PLAINS**

After reviewing the Flood Insurance Rate Maps for Bernalillo County and Incorporated Areas (Panel 138 of 825 Map No. 35001C0138 D and Panel 351 of 825 Map No. 35001C0351 D) both dated September 20, 1996, flood plains do exist within both the south park/pond and the north park/pond. Figure 3 shows the existing flood plains that lie within the two parks. Since the proposed improvements to the south park will maintain the site as a detention pond facility with no increase in the High Water Level (HWL), no CLOMR or LOMR will be required.

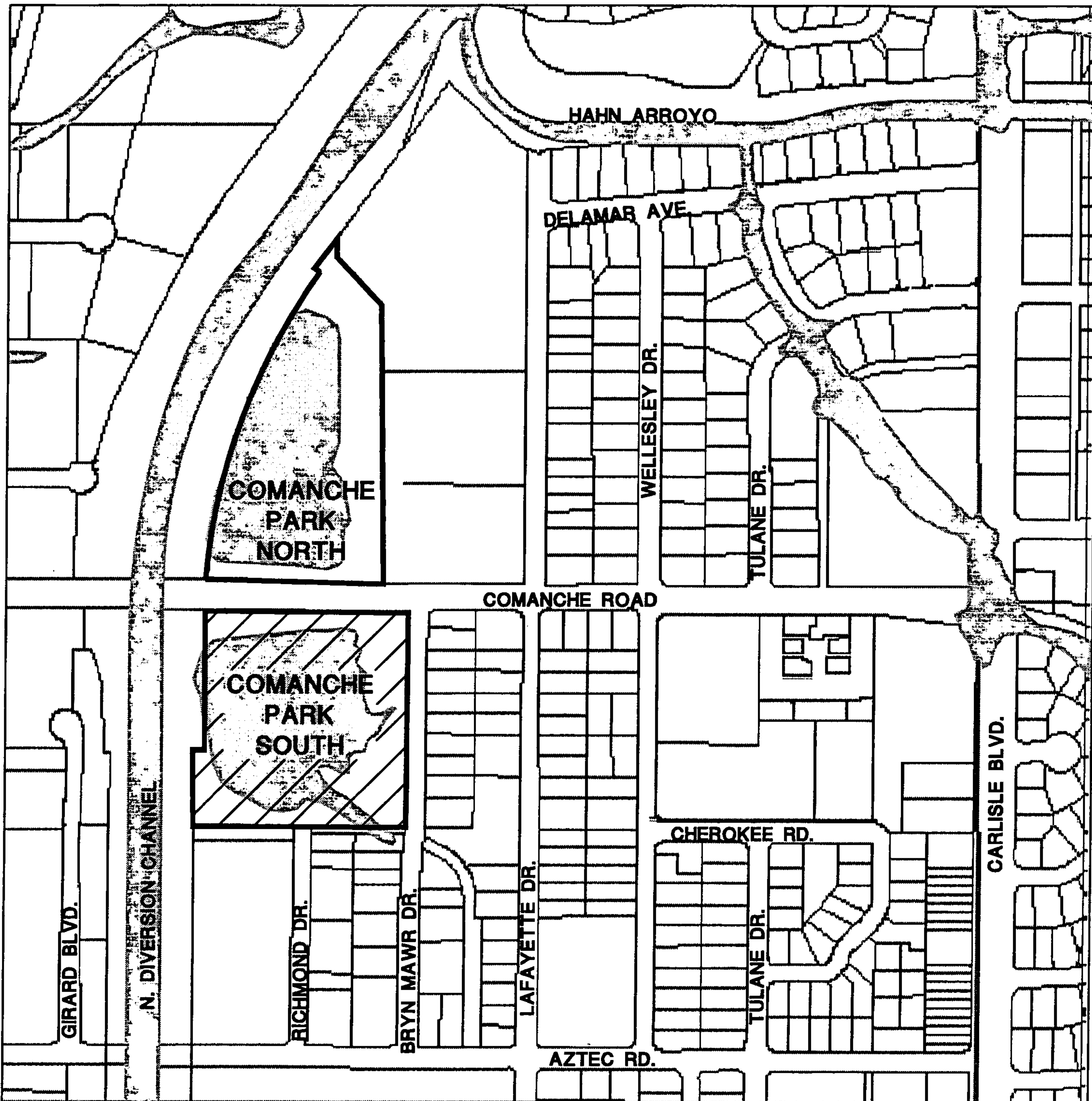
## **VI. HYDROLOGY**

Frequency flows were quantified using the AHYMO computer program according to "Section 22.2 Hydrology of the Development Process Manual, Design Criteria for the City of Albuquerque, New Mexico". Mapping for the off-site hydrologic analysis utilized the orthophotography and vector contour composite images (part of the Bernalillo County Digital Mapping) obtained from the Albuquerque Metropolitan Arroyo and Flood Control Authority (AMAFCA). The south park/pond utilized a topographic/boundary survey performed by Albuquerque Surveying Company, Inc. dated January, 1997. The north park/pond utilized a topographic survey performed by Community Sciences Corporation dated December 2000.

Rainfall amounts for the frequency events were derived from the NOAA Atlas show in "Section 22.2 Hydrology of the Development Process Manual", figures C-1, C-2 and C-3. Developed condition sub-basins were generally broken down into platted lands while topographic features were utilized to determine existing condition drainage sub-basins.

Existing condition land treatments were determined utilizing the Bernalillo County mapping mentioned above. Developed condition land treatments were determined by correlating the proposed zoning mentioned above to the appropriate land treatments as shown in "Section 22.2 Hydrology of the Development Process Manual", tables A-4 and A-5. Appendix "A" links the zoning used for developed conditions to the appropriate land treatments used in the AHYMO computer models. A summary of Land Treatments used in the hydrologic analysis are shown in Appendix "A".

Time of concentration calculations utilized the SCS Upland Method as described in "Section 22.2 Hydrology of the Development Process Manual". Appendix "B" contains AHYMO basin parameter worksheets together with peak flows and volumes for each sub-basin. AHYMO output summary tables are included in Appendix "C". Detailed AHYMO computer model input and output files are available for observation at the offices of Smith Engineering Company. 2-year, 5-year, 10-year and 100-year peak flows and volumes at designated analysis points are shown on Map No. 1 located in the back pockets of this report.



COPY OF:

FIRM: FLOOD INSURANCE RATE MAP

BERNALILLO COUNTY, NEW MEXICO AND INCORPORATED AREAS

PANEL: 138 & 351 OF 825

MAP NUMBERS: 35001C0138 D & 35001C0351 D

EFFECTIVE DATE: SEPTEMBER 20, 1996

FEDERAL EMERGENCY MANAGEMENT AGENCY



NOT TO SCALE



**Smith Engineering Company**

A Full Service Engineering Company

8408 Uptown Boulevard, N.E. Suite 8008 Albuquerque, New Mexico 87110

**COMANCHE PARK**

CITY OF ALBUQUERQUE  
PUBLIC WORKS DEPARTMENT  
HYDROLOGY DEVELOPMENT GROUP

**FLOOD PLAIN MAP**

PROJECT NUMBER:	DRAWN BY:	DESIGNED BY:	DATE:	FIGURE NO.
101103	-	-	9/03	3



## VII. PROPOSED IMPROVEMENTS

All of the improvements relative to the Comanche Park – Phase 1 Improvements project will take place within the south park/pond. The improvements include the construction of five new dirt baseball fields for the Thunderbird Little League, an aggregate base course parking lot along with a low flow concrete channel to direct flows through the site. Retaining walls will also be constructed at the southwest corner of the south park. Some concrete valley gutter will be constructed directing flow from the parking area to either the pond outlet structure or the concrete low flow channel. Civil Construction Drawings (Sheets 6 through 10 of 13) located in the back pockets of the report show the phase 1 improvements.

## VIII. ANALYSIS

The analysis of the park site is simple. The only hydraulic characteristic of importance in this analysis is pond volume. The first step in the analysis is to determine the existing capacity of each pond and the second is to determine if the existing ponds contain or hold the 100% developed conditions flow that currently impacts the ponds. In other words, determine the HWL in each pond and check it verses the allowable HWL. Steps three and four are similar to the first two steps except the proposed improvements to the south park will be incorporated into the analysis. It is important to remember that the two ponds are connected by a 36" reinforced concrete pipe. With this in mind, the two ponds work together as one, meaning the north pond utilizes some of the south pond volume. Any change to one of the ponds effect the HWL and volume of the other pond. Below is a summary of the results of the analysis.

### A. South Park – Existing Condition

The existing allowable volume of the south pond is 7.84 Ac.Ft. The existing allowable HWL in the south pond is 5082.00 feet. With the 100% developed condition 100-year, 24-hour storm event flow impacting the site, the existing HWL in the south pond is 5081.79 feet. Thus, the existing south pond contains the 100-year, 24-hour storm event.

The existing allowable volume of the north pond (including a portion of the south pond) is 61.44 Ac.Ft. The existing allowable HWL in the north pond is 5086.00 feet. With the 100% developed condition 100-year, 24-hour storm event flow impacting the site, the existing HWL in the north pond is 5079.06 feet. Thus, the existing north pond easily contains the 100-year, 24-hour storm event.

Table 1 shows the existing condition stage/storage discharge table for the south pond. Table 2 shows the existing condition stage/storage/discharge for the north detention pond. This information was utilized in the pond routing routines in the AHYMO computer model to determine high water levels in each pond. AHYMO summary tables can be found in Appendix C.

B. South Park – Proposed Condition

The proposed allowable volume of the south pond is 12.16 Ac.Ft. The proposed allowable HWL in the south park remains the same as the existing condition analysis at 5082.00 feet. The increase in allowable volume between the proposed condition and the existing condition is attributed to the regarding of the south park site. With the 100% developed condition 100-year, 24-hour storm event flow impacting the site, the proposed HWL in the south pond is 5081.11 feet. Thus, the proposed south park contains the storm water runoff from the 100-year, 24-hour storm event.

Due to the proposed improvements to the south park, the allowable volume of the north pond (including a portion of the south pond) increases from 61.44 Ac.Ft. to 65.77 Ac.Ft. The allowable HWL in the north pond remains the same as the existing condition at 5086.00 feet. With the 100% developed condition 100-year, 24-hour storm event flow impacting the site, the new HWL in the north pond is 5078.45 feet. Once again, the north park easily contains the runoff from the 100-year, 24-hour storm event.

Table 3 shows the proposed condition stage/storage discharge table for the south pond. Table 4 shows the proposed condition stage/storage/discharge for the north detention pond. This information was utilized in the pond routing routines in the AHYMO computer model to determine high water levels in each pond. AHYMO summary tables can be found in Appendix C.

**TABLE 1**  
**COMANCHE PARK**  
**SOUTH DETENTION POND**

**EXISTING CONDITION**

**STAGE/STORAGE/DISCHARGE TABLE**

ELEVATION (FT.)	AREA (SQ.FT.)	INCREMENTAL VOLUME (AC.FT.)	TOTAL VOLUME (AC.FT.)	DISCHARGE (CFS)
5076.37	0		0.00	0
		0.00		
5077.00	381		0.003	0
		0.02		
5078.00	1,190		0.02	0
		0.06		
5079.00	3,700		0.08	0
		0.75		
5080.00	61,863		0.83	28
		2.56		
5081.00	161,521		3.39	42
		4.45		
5082.00	225,820		7.84	53
		xx		
5083.00*	xx		xx	xx
		xx		
5084.00*	xx		xx	xx

\* Elev. 5083 and 5084 extend outside the Comanche Park South area and into Bryn Mawr Dr. and into the channel southeast of the South Pond.

Discharge values obtained from Culvert Master for 36" RCP  
L = 229 ft., S = 0.7074% and a tailwater elevation of 5079.25 ft. in the North Pond.

**TABLE 2**  
**COMANCHE PARK**  
**NORTH DETENTION POND**  
**EXISTING CONDITION**

**STAGE/STORAGE/DISCHARGE TABLE**

**(NORTH DETENTION POND VOLUME ONLY)**

ELEVATION (FT.)	AREA (SQ.FT.)	INCREMENTAL VOLUME (AC.FT.)	TOTAL VOLUME (AC.FT.)	DISCHARGE (CFS)
5070.00	0		0.00	0
		0.01		
5071.00	652		0.01	0.23
		0.02		
5072.00	826		0.02	0.23
		0.02		
5073.00	1,041		0.05	0.23
		0.06		
5074.00	4,284		0.11	8.03
		0.86		
5075.00	70,792		0.97	15.83
		2.70		
5076.00	164,326		3.67	15.83
		4.06		
5077.00	189,662		7.73	15.83
		4.46		
5078.00	199,122		12.19	15.83
		4.64		
5079.00	205,416		16.84	15.83
		4.79		
5080.00	211,668		21.62	15.83
		4.93		
5081.00	217,939		26.56	15.83
		5.08		
5082.00	224,683		31.64	15.83
		5.24		
5083.00	232,228		36.88	15.83
		5.41		
5084.00	239,218		42.29	15.83
		5.57		
5085.00	246,236		47.86	15.83
		5.74		
5086.00	253,697		53.60	15.83

**STAGE/STORAGE/DISCHARGE TABLE**

**(VOLUME COMBINED WITH SOUTH DETENTION POND)**

ELEVATION (FT.)	AREA (SQ.FT.)	INCREMENTAL VOLUME (AC.FT.)	TOTAL VOLUME (AC.FT.)	DISCHARGE (CFS)
5070.00	0		0.00	0
		0.01		
5071.00	652		0.01	0.23
		0.02		
5072.00	826		0.02	0.23
		0.02		
5073.00	1,041		0.05	0.23
		0.06		
5074.00	4,284		0.11	8.03
		0.86		
5075.00	70,792		0.97	15.83
		2.70		
5076.00	164,326		3.67	15.83
		4.06		
* 5077.00	189,662		7.73	15.83
		4.46		
* 5078.00	199,122		12.21	15.83
		4.64		
* 5079.00	205,416		16.91	15.83
		4.79		
* 5080.00	211,668		22.45	15.83
		4.93		
* 5081.00	217,939		29.95	15.83
		5.08		
* 5082.00	224,683		39.48	15.83
		5.24		
5083.00	232,228		44.72	15.83
		5.41		
5084.00	239,218		50.13	15.83
		5.57		
5085.00	246,236		55.70	15.83
		5.74		
5086.00	253,697		61.44	15.83

Discharge values based upon "Final Report - Volume Two for Albuquerque Storm Water Pumping Stations Rehabilitation Study - Phase I Stations 26, 27, 32, 34, 35, 36, 37, and Alcalde (Proposed)", A/E Services Agreement 81-26 for Municipal Development Department City of Albuquerque, BovayEngineers, Inc.

Pump No. 1 - Sump Pump, Pumps at 103 gpm = 0.23 cfs.

Pump No. 2 - Storm Drain Pump, Pumps at 3500 gpm = 7.8 cfs at Elev. = 5074.00.

Pump No. 3 - Storm Drain Pump, Pumps at 3500 gpm = 7.8 cfs at Elev. = 5075.00.

\* Storage from Elev. = 5077 to Elev. = 5082.00 uses the volume from the Comanche Park South Pond.



**TABLE 3**  
**COMANCHE PARK**  
**SOUTH DETENTION POND**

**PROPOSED CONDITION**

**STAGE/STORAGE/DISCHARGE TABLE**

ELEVATION (FT.)	AREA (SQ.FT.)	INCREMENTAL VOLUME (AC.FT.)	TOTAL VOLUME (AC.FT.)	DISCHARGE (CFS)
5076.37	0		0.00	0
		0.01		
5077.00	1,640		0.012	0
		0.34		
5078.00	28,105		0.35	0
		1.16		
5079.00	73,165		1.52	0
		2.31		
5080.00	128,151		3.83	28
		3.55		
5081.00	181,042		7.38	42
		4.79		
5082.00	236,000		12.16	53
		xx		
5083.00*	xx		xx	xx
		xx		
5084.00*	xx		xx	xx

\* Elev. 5083 and 5084 extend outside the Comanche Park South area and into Bryn Mawr Dr. and into the channel southeast of the South Pond.

Discharge values obtained from Culvert Master for 36" RCP  
L = 229 ft., S = 0.7074% and a tailwater elevation of 5079.25 ft. in the North Pond.

**TABLE 4**  
**COMANCHE PARK**  
**NORTH DETENTION POND**  
**PROPOSED CONDITION**

**STAGE/STORAGE/DISCHARGE TABLE**

**(NORTH DETENTION POND VOLUME ONLY)**

ELEVATION (FT.)	AREA (SQ.FT.)	INCREMENTAL VOLUME (AC.FT.)	TOTAL VOLUME (AC.FT.)	DISCHARGE (CFS)
5070.00	0		0.00	0
		0.01		
5071.00	652		0.01	0.23
		0.02		
5072.00	826		0.02	0.23
		0.02		
5073.00	1,041		0.05	0.23
		0.06		
5074.00	4,284		0.11	8.03
		0.86		
5075.00	70,792		0.97	15.83
		2.70		
5076.00	164,326		3.67	15.83
		4.06		
5077.00	189,662		7.73	15.83
		4.46		
5078.00	199,122		12.19	15.83
		4.64		
5079.00	205,416		16.84	15.83
		4.79		
5080.00	211,668		21.62	15.83
		4.93		
5081.00	217,939		26.56	15.83
		5.08		
5082.00	224,683		31.64	15.83
		5.24		
5083.00	232,228		36.88	15.83
		5.41		
5084.00	239,218		42.29	15.83
		5.57		
5085.00	246,236		47.86	15.83
		5.74		
5086.00	253,697		53.60	15.83

**STAGE/STORAGE/DISCHARGE TABLE**

**(VOLUME COMBINED WITH SOUTH DETENTION POND)**

ELEVATION (FT.)	AREA (SQ.FT.)	INCREMENTAL VOLUME (AC.FT.)	TOTAL VOLUME (AC.FT.)	DISCHARGE (CFS)
5070.00	0		0.00	0
		0.01		
5071.00	652		0.01	0.23
		0.02		
5072.00	826		0.02	0.23
		0.02		
5073.00	1,041		0.05	0.23
		0.06		
5074.00	4,284		0.11	8.03
		0.86		
5075.00	70,792		0.97	15.83
		2.70		
5076.00	164,326		3.67	15.83
		4.06		
* 5077.00	189,662		7.74	15.83
		4.46		
* 5078.00	199,122		12.55	15.83
		4.64		
* 5079.00	205,416		18.35	15.83
		4.79		
* 5080.00	211,668		25.45	15.83
		4.93		
* 5081.00	217,939		33.93	15.83
		5.08		
* 5082.00	224,683		43.80	15.83
		5.24		
5083.00	232,228		49.04	15.83
		5.41		
5084.00	239,218		54.45	15.83
		5.57		
5085.00	246,236		60.03	15.83
		5.74		
5086.00	253,697		65.77	15.83

Discharge values based upon "Final Report - Volume Two for Albuquerque Storm Water Pumping Stations Rehabilitation Study - Phase I Stations 26, 27, 32, 34, 35, 36, 37, and Alcalde (Proposed)", A/E Services Agreement 81-26 for Municipal Development Department City of Albuquerque, BovayEngineers, Inc.

Pump No. 1 - Sump Pump, Pumps at 103 gpm = 0.23 cfs.

Pump No. 2 - Storm Drain Pump, Pumps at 3500 gpm = 7.8 cfs at Elev. = 5074.00.

Pump No. 3 - Storm Drain Pump, Pumps at 3500 gpm = 7.8 cfs at Elev. = 5075.00.

\* Storage from Elev. = 5077 to Elev. = 5082.00 uses the volume from the Comanche Park South Pond.

TABLE 5

## COMANCHE PARK

## DETENTION POND RESULTS

SOUTH PARK EXISTING CONDITIONS

DETENTION POND	TOP OF POND ELEVATION WITHIN PROPERTY (FT.)	2-YEAR 24-HOUR HWL ELEVATION (FT.)	5-YEAR 24-HOUR HWL ELEVATION (FT.)	10-YEAR 24-HOUR HWL ELEVATION (FT.)	100-YEAR 24-HOUR HWL ELEVATION (FT.)
South Park Detention Pond	5,082.00	5,080.24	5,080.60	5,080.92	5,081.79
North Park Detention Pond	5,087.00	5,076.25	5076.91 *	5077.40 *	5079.06 *

\* HWL's in the North Park Detention Pond above Elevation 5076.37' will "Back Up" into the South Park Detention Pond

SOUTH PARK PROPOSED CONDITIONS

DETENTION POND	TOP OF POND ELEVATION WITHIN PROPERTY (FT.)	2-YEAR 24-HOUR HWL ELEVATION (FT.)	5-YEAR 24-HOUR HWL ELEVATION (FT.)	10-YEAR 24-HOUR HWL ELEVATION (FT.)	100-YEAR 24-HOUR HWL ELEVATION (FT.)
South Park Detention Pond	5,082.00	5,079.49	5,079.85	5,080.12	5,081.11
North Park Detention Pond	5,087.00	5,075.72	5076.45 *	5076.97 *	5078.45 *

\* HWL's in the North Park Detention Pond above Elevation 5076.37' will "Back Up" into the South Park Detention Pond

## **IX. CONCLUSIONS**

The existing condition analysis shows that both the south park/pond and the north park/pond contain the 100% developed condition 100-year, 24-hour storm event water volume. The proposed condition analysis shows that both the south park/pond and the north park/pond also contains the 100-year, 24-hour storm water volume. In fact, the proposed improvements to the south park/pond increase overall volume in both ponds thus, improving the hydraulic capacity of both ponds. Table 5 of this report displays the pond volume results for both the existing and proposed ponds.



## **X. REFERENCES**

Anderson-Hydro, August 1997, "AHYMO Computer Program User's Manual"

City of Albuquerque, July 1997, "Development Process Manual, Section 22.2, Hydrology".

Haestad Methods Inc., August 2000, "FlowMaster PE Version 6.0 Computer Software".

Haestad Methods Inc., November 2000, "CulvertMaster Computer Software".

Bovay Engineers, Inc., June 1983, "Final Report – Volume 2 for Albuquerque Storm Water Pumping Stations Rehabilitation Study – Phase 1 Stations: 26, 27, 32, 34, 35, 36, 37, and Alcalde (Proposed)".

APPENDIX A

LAND TREATMENT SUMMARY

# COMANCHE PARK

## LAND TREATMENT SUMMARY

ZONE DESIGNATION	LAND TREATMENTS			
	"A"	"B"	"C"	"D"
<u>RESIDENTIAL</u>				
R-1 *		22	21	57
R-2 *		15	15	70
R-3 *		10	10	80
<u>COMMERCIAL</u>				
C-1		5	5	90
C-3		5	5	90
<u>OFFICE</u>				
O-1		5	5	90
<u>COA RIGHT OF WAYS</u>				
CARLISE BLVD		5	5	90
COMANCHE RD.		5	5	90
<u>PARKS **</u>		84	9	7

Percent Land Treatment "D" show in table above taken from Table A-5, DPM Section 22.2.

\* Land Treatments for Residential Areas used in this study were determined from 1999 Aerial Photography.

\*\* Land Treatments for Parks used in this study were determined from 1999 Aerial Photography and proposed land uses.

APPENDIX B

AHYMO BASIN PARAMETER WORKSHEETS,  
PEAK BASIN FLOWS, AND  
VOLUMES



# COMANCHE PARK

## OFF-SITE ANALYSIS

### AHYMO BASIN PARAMETER WORKSHEET PEAK BASIN FLOWS AND VOLUMES

#### DEVELOPED CONDITIONS \*

													2 YEAR		5 YEAR		10 YEAR		100 YEAR	
BASIN	AREA (sq.mi.)	LENGTH (ft.)	ELEV. DIFF. (ft.)	SLOPE (%)	K	VEL (fps)	T(c) (hr.)	T(p) (hr.)	LAND TREATMENT (%)				PEAK FLOW (24hr.) (cfs)	RUNOFF VOLUME (24hr.) (ac.ft.)	PEAK FLOW (24hr.) (cfs)	RUNOFF VOLUME (24hr.) (ac.ft.)	PEAK FLOW (24hr.) (cfs)	RUNOFF VOLUME (24hr.) (ac.ft.)	PEAK FLOW (24hr.) (cfs)	RUNOFF VOLUME (24hr.) (ac.ft.)
									A	B	C	D								
PS-1	0.0777	250	3.0	1.20	1.0	1.10	0.06	0.04												
		150	2.0	1.33	1.0	1.15	0.04	0.02												
		160	6.0	3.75	2.0	3.87	0.01	0.01												
		200	4.0	2.00	2.0	2.83	0.02	0.01												
		100	5.0	5.00	2.0	4.47	0.01	0.00												
		850	25.0	2.94	3.0	5.14	<u>0.05</u>	<u>0.03</u>												
	TOTAL =						0.18	0.12	0	10	10	80	79	3.177	109	4.467	133	5.472	209	8.866
PS-2	0.0112	130	2.0	1.54	1.0	1.24	0.03	0.02												
		700	7.5	1.07	3.0	3.11	<u>0.06</u>	<u>0.04</u>												
TOTAL =							0.09	0.06	0	15	15	70	10	0.406	15	0.580	18	0.717	29	1.186
PS-3	0.0061	400	3.0	0.75	1.0	0.87	0.13	0.09												
		380	8.0	2.11	2.0	2.90	<u>0.04</u>	<u>0.02</u>												
TOTAL =							0.16	0.11	0	5	5	90	7	0.278	9	0.385	11	0.469	17	0.746
PS-4 *	0.0153	700	6.0	0.86	3.0	2.78	0.07	0.05												
		TOTAL =						0.07	0.05	0	60	40	0	2	0.051	7	0.171	12	0.279	25
PN-1	0.0323	200	2.0	1.00	1.0	1.00	0.06	0.04												
		800	21.0	2.63	3.0	4.86	0.05	0.03												
		630	1.5	0.24	3.0	1.46	<u>0.12</u>	<u>0.08</u>												
		TOTAL =						0.22	0.15	0	13	13	74	29	1.231	40	1.747	49	2.151	79
PN-2	0.0062	975	20.0	2.05	3.0	4.30	<u>0.06</u>	<u>0.04</u>												
		TOTAL =						0.06	0.04	0	13	13	74	6	0.236	8	0.335	10	0.413	16
PN-3	0.0074	130	4.0	3.08	1.0	1.75	0.02	0.01												
		100	0.5	0.50	1.0	0.71	0.04	0.03												
		170	5.0	2.94	1.0	1.71	0.03	0.02												
		650	9.0	1.38	3.0	3.53	<u>0.05</u>	<u>0.03</u>												
	TOTAL =						0.14	0.09	0	13	13	74	7	0.282	10	0.400	12	0.493	19	0.808
PN-4	0.0041	275	8.0	2.91	1.0	1.71	0.04	0.03												
		300	10.0	3.33	3.0	5.48	<u>0.02</u>	<u>0.01</u>												
TOTAL =							0.06	0.04	0	20	20	60	3	0.130	5	0.189	6	0.236	10	0.401
PN-5	0.0067	300	14.0	4.67	1.0	2.16	0.04	0.03												
		550	3.0	0.55	3.0	2.22	<u>0.07</u>	<u>0.05</u>												
TOTAL =							0.11	0.07	0	15	15	70	6	0.243	9	0.347	11	0.429	17	0.710
PN-6	0.0080	650	7.0	1.08	3.0	3.11	<u>0.06</u>	<u>0.04</u>												
		TOTAL =						0.06	0.04	0	15	15	70	7	0.290	10	0.415	13	0.512	21

# COMANCHE PARK

## OFF-SITE ANALYSIS

### AHYMO BASIN PARAMETER WORKSHEET PEAK BASIN FLOWS AND VOLUMES

#### DEVELOPED CONDITIONS \*

													2 YEAR		5 YEAR		10 YEAR		100 YEAR	
BASIN	AREA (sq.mi.)	LENGTH (ft.)	ELEV. DIFF. (ft.)	SLOPE (%)	K	VEL (fps)	T(c) (hr.)	T(p) (hr.)	LAND TREATMENT (%)				PEAK FLOW (24hr.) (cfs)	RUNOFF VOLUME (24hr.) (ac.ft.)	PEAK FLOW (24hr.) (cfs)	RUNOFF VOLUME (24hr.) (ac.ft.)	PEAK FLOW (24hr.) (cfs)	RUNOFF VOLUME (24hr.) (ac.ft.)	PEAK FLOW (24hr.) (cfs)	RUNOFF VOLUME (24hr.) (ac.ft.)
									A	B	C	D								
PN-7	0.0009	330	4.0	1.21	3.0	3.30	<u>0.03</u>	<u>0.02</u>												
	TOTAL =						0.03	0.02	0	5	5	90	1	0.041	1	0.057	2	0.069	3	0.110
PN-8	0.0024	750	23.0	3.07	3.0	5.25	<u>0.04</u>	<u>0.03</u>												
	TOTAL =						0.04	0.03	0	5	5	90	3	0.109	4	0.152	4	0.184	7	0.294
PN-9	0.0297	150	1.0	0.67	0.7	0.57	0.07	0.05												
		470	4.5	0.96	3.0	2.94	0.04	0.03												
		300	2.5	0.83	3.0	2.74	0.03	0.02												
		230	5.0	2.17	3.0	4.42	0.01	0.01												
		100	10.0	10.00	3.0	9.49	0.00	0.00												
		380	4.0	1.05	3.0	3.08	<u>0.03</u>	<u>0.02</u>												
	TOTAL =						0.20	0.13	0	30	30	40	18	0.666	29	1.034	37	1.333	65	2.413
PN-10	0.0024	330	5.0	1.52	0.7	0.86	<u>0.11</u>	<u>0.07</u>												
	TOTAL =						0.11	0.07	0	67	26	7	0.5	0.014	1	0.034	2	0.052	4	0.122
PN-11	0.0184	150	1.5	1.00	0.7	0.70	0.06	0.04												
		825	12.0	1.45	3.0	3.62	0.06	0.04												
		315	2.0	0.63	3.0	2.39	0.04	0.02												
		170	1.0	0.59	3.0	2.30	<u>0.02</u>	<u>0.01</u>												
	TOTAL =						0.18	0.12	0	19	19	62	15	0.599	22	0.870	28	1.084	45	1.828
PN-12	0.0142	200	3.0	1.50	1.0	1.22	0.05	0.03												
		400	1.0	0.25	2.0	1.00	0.11	0.07												
		400	8.0	2.00	2.0	2.83	<u>0.04</u>	<u>0.03</u>												
	TOTAL =						0.20	0.13	0	15	15	70	13	0.515	19	0.736	23	0.909	36	1.504
PN-13 *	0.0015	100	19.0	19.00	1.0	4.36	<u>0.01</u>	<u>0.00</u>												
		400	1.0	0.25	2.0	1.00	<u>0.11</u>	<u>0.07</u>												
	TOTAL =						0.12	0.08	50	0	50	0	1	0.021	5	0.113	8	0.210	21	0.589

\* LAND TREATMENTS FOR COMANCHE PARK SOUTH SHOWN IN THIS WORKSHEET INDICATE EXISTING CONDITIONS

PS-4 **	0.0153	1,100	5.4	0.49	4.0	2.80	0.11	0.07												
	TOTAL =						0.11	0.07	0	0	94	6	7	0.161	13	0.318	17	0.452	31	0.960

\*\* LAND TREATMENTS FOR COMANCHE PARK SOUTH SHOWN DIRECTLY ABOVE INDICATE DEVELOPED CONDITIONS

APPENDIX C

AHYMO SUMMARY TABLES

COMAN2.SUM  
AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994  
INPUT FILE = COMAN2.IN

RUN DATE (MON/DAY/YR) =12/18/2003  
USER NO.= C\_ANDRSN.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

\*S COMMANCHE PARK CONSISTS OF TWO AREAS. ONE IS SOUTH OF COMMANCHE RD.  
\*S EAST OF THE NORTH DIVERSION CHANNEL CONSISTING OF THE THUNDERBIRD  
\*S LITTLE LEAGUE BASEBALL FIELDS. THE SECOND AREA IS NORTH OF COMMANCHE  
\*S BLVD. BOTH AREAS ACT AS DETENTION POND FACILITIES.  
\*S THE TWO AREAS ARE CONNECTED BY AN EXISTING 36" CULVERT UNDER  
\*S COMMANCHE BLVD. THE RUNOFF FLOWS IN THE NORTH POND ARE PUMPED UP TO THE  
\*S NORTH DIVERSION CHANNEL. THE CONTRIBUTING DRAINAGE BASIN IS  
\*S APPROXIMATELY 95% DEVELOPED. THIS ANALYSIS ASSUMES 100% DEVELOPED  
\*S WITH THE EXCEPTION OF THE COMMANCHE PARKS. THE EXISTING LAND TREATMENTS  
\*S WERE UTILIZED FOR THE NORTH AND SOUTH PARK AREAS. ALL OTHER  
\*S LAND TREATMENTS WERE DETERMINED BY USING THE LATEST AERIAL PHOTO  
\*S OF THE AREA AND TABLE A-5 OF SECTION 22 OF THE CITY OF ALBUQUERQUE  
\*S DEVELOPMENT PROCESS MANUAL (DPM).

\*S DATE: September 15, 2003

\*S FILENAME - input : Coman2.IN  
\*S FILENAME - output : Coman2.OUT  
\*S FILENAME - summary table : Coman2.SUM

\*S PROJECT TITLE: DRAINAGE REPORT FOR COMMANCHE PARK

\*S SEC PROJECT NUMBER: 101103C

\*S CONSULTANT: SMITH ENGINEERING COMPANY

\*S CLIENT: CONSENSUS PLANNING INC.

\*S COMMANCHE PARK (North and South) DRAINAGE ANALYSIS:  
\*S 2-YR, 24 HOUR STORM EVENT

RAINFALL TYPE= 2

RAIN24= 1.160

\*S \*\*\*\*\*  
\*S THIS SECTION WILL ROUTE AND ADD THE BASINS  
\*S THAT FLOW INTO SOUTH POND, BASINS PS-1 TO PS-4.  
\*S BASIN PS-4 IS THE SOUTH POND/BASEBALL FIELDS  
\*S \*\*\*\*\*

COMPUTE NM HYD	PS-1&AP-1	-	3	.07770	79.09	3.177	.76664	1.500	1.590 PER IMP=	80.00
ROUTE	AP-1R	3	2	.07770	75.17	3.177	.76665	1.550	1.512	
COMPUTE NM HYD	PS-2	-	3	.01120	10.31	.406	.68008	1.500	1.438 PER IMP=	70.00
ADD HYD	AP-2	2& 3	10	.08890	84.08	3.583	.75573	1.550	1.478	
COMPUTE NM HYD	PS-3&AP-3	-	3	.00610	6.92	.278	.85320	1.500	1.772 PER IMP=	90.00
ADD HYD	PART AP-4 10& 3	10		.09500	90.98	3.861	.76199	1.500	1.496	
COMPUTE NM HYD	PS-4	-	3	.01530	2.27	.051	.06240	1.550	.232 PER IMP=	.00

\*S TOTAL FLOW FROM PS BASIN INTO SOUTH POND  
\*S A PORTION OF THE FLOW FROM AP-7 WILL ENTER THE SOUTH POND DUE  
\*S TO FLOW OVERTOPPING THE CURB AT COMMANCHE RD. AND BRYN MAWR DR.  
\*S SEE NOTES BELOW RELATIVE TO AP-7.

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2	NOTATION
---------	---------------------------	-------------	-----------	--------------	----------------------	-----------------------	-----------------	----------------------	--------------	----------	----------

ADD HYD PART AP-4 10& 3 30 .11030 93.17 3.912 .66494 1.500 1.320

\*S \*\*\*\*\*  
\*S THIS SECTION WILL DETERMINE FLOWS ENTERING COMMANCHE PARK NORTH.  
\*S BASINS PN-1 TO PN-13.  
\*S \*\*\*\*\*

COMPUTE NM HYD	PN-1	-	3	.03230	28.78	1.231	.71471	1.500	1.392 PER IMP=	74.00
COMPUTE NM HYD	PN-2	-	4	.00620	5.97	.236	.71471	1.500	1.505 PER IMP=	74.00
ADD HYD	AP-5	3& 4	10	.03850	34.75	1.467	.71469	1.500	1.410	
ROUTE	AP-5R	10	2	.03850	34.33	1.468	.71471	1.550	1.393	
COMPUTE NM HYD	PN-3	-	3	.00740	7.13	.282	.71471	1.500	1.505 PER IMP=	74.00
COMPUTE NM HYD	PN-4	-	4	.00410	3.34	.130	.59352	1.500	1.273 PER IMP=	60.00
ADD HYD	PART AP-6	3& 4	10	.01150	10.47	.412	.67145	1.500	1.422	
ADD HYD	AP-6	2&10	10	.05000	43.79	1.879	.70474	1.500	1.368	
ROUTE	AP-6R	10	2	.05000	44.66	1.879	.70476	1.550	1.396	
COMPUTE NM HYD	PN-5	-	3	.00670	6.17	.243	.68008	1.500	1.439 PER IMP=	70.00
COMPUTE NM HYD	PN-6	-	4	.00800	7.36	.290	.68008	1.500	1.438 PER IMP=	70.00
ADD HYD	PN-5&PN-6	3& 4	10	.01470	13.53	.533	.68004	1.500	1.439	
COMPUTE NM HYD	PN-7	-	3	.00090	1.02	.041	.85321	1.500	1.779 PER IMP=	90.00
COMPUTE NM HYD	PN-8	-	4	.00240	2.72	.109	.85320	1.500	1.773 PER IMP=	90.00
ADD HYD	PN-7&PN-8	3& 4	20	.00330	3.75	.150	.85305	1.500	1.775	
ADD HYD	PN-7&PN-8&PN	10&20	10	.01800	17.28	.683	.71176	1.500	1.500	
ADD HYD	AP-7	2&10	91	.06800	59.58	2.563	.70660	1.550	1.369	
DIVIDE HYD	AP-7NORTH	91	98	.06800	59.58	2.563	.70660	1.550	1.369	
	AP-7SOUTH	AND	99	.00000	.00	.000	.00000	-.050	.000	

\*S TOTAL FLOW FROM PS BASIN INTO SOUTH POND  
\*S A PORTION OF THE FLOW FROM AP-7 WILL ENTER THE SOUTH POND DUE

SOUTH PARK - EXISTING  
CONDITIONS

2-YEAR, 24-HOUR  
STORM EVENT

COMAN2.SUM

\*S TO FLOW OVERTOPPING THE CURB AT COMANCHE RD. AND BRYN MAWR DR.  
 \*S SEE NOTES BELOW RELATIVE TO AP-7.

ADD HYD	AP-4 30&99	10		.11030	93.17	3.912	.66494	1.500	1.320	
---------	------------	----	--	--------	-------	-------	--------	-------	-------	--

\*S -----WE WILL NOW ROUTE THE TOTAL FLOW INTO THE SOUTH POND THROUGH  
 \*S THE EXISTING 36" CULVERT PIPE CONNECTING THE SOUTH POND TO  
 \*S THE NORTH POND.-----

\*S  
 \*S THE OUTFLOW VALUES USED IN THIS RESERVOIR ROUTE ASSUME A TAI  
 \*S WATER ELEV OF 5079.25' IN THE COMANCHE NORTH PARK POND.

ROUTE RESERVOIR	AP-4_POND	10	90	.11030	31.34	3.883	.66010	1.850	.444 AC-FT=	1.442
COMPUTE NM HYD	PN-9&AP-8	-	3	.02970	17.83	.666	.42040	1.500	.938 PER IMP=	40.00
ROUTE RESERVOIR	AP-8_POND	3	15	.02970	7.62	.666	.42039	1.700	.401 AC-FT=	.221
COMPUTE NM HYD	PN-10	-	3	.00240	.46	.014	.11246	1.500	.301 PER IMP=	7.00
ADD HYD	AP-9 15& 3	10		.03210	7.81	.680	.39693	1.700	.380	
ROUTE	AP-9R	10	2	.03210	7.80	.680	.39695	1.700	.380	
COMPUTE NM HYD	PN-11&AP-10	-	3	.01840	15.37	.599	.61083	1.500	1.305 PER IMP=	62.00
ROUTE	AP-10R	3	12	.01840	12.59	.599	.61086	1.550	1.069	
COMPUTE NM HYD	PN-12	-	3	.01420	13.07	.515	.68008	1.500	1.438 PER IMP=	70.00
ADD HYD	AP-10R&PN-12 12& 3	10		.03260	23.89	1.114	.64098	1.550	1.145	
ADD HYD	AP-11 2&10	10		.06470	29.72	1.794	.51990	1.550	.718	
ROUTE RESERVOIR	AP-11_POND	10	92	.06470	17.67	1.794	.51991	1.850	.427 AC-FT=	.229

\*S \*\*\*\*\*

\*S THIS SECTION ADDS ALL THE FLOW GOING INTO THE NORTH COMANCHE POND

\*S \*\*\*\*\*

COMPUTE NM HYD	PN-13	-	3	.01470	.87	.021	.02620	1.550	.092 PER IMP=	.00
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COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3 NOTATION
ADD HYD	PN-13&AP-4R 3&90	10		.12500	31.47	3.904	.58555	1.850	.393	
ADD HYD	PN-13&AP-4R& 98&10	10		.19300	88.72	6.466	.62820	1.550	.718	
ADD HYD	AP-12 92&10	10		.25770	105.91	8.260	.60101	1.550	.642	

\*S \*\*\*\*\*

\*S THIS SECTION WILL ROUTE AP-12 THROUGH THE COMANCHE NORTH POND.  
 \*S TO THE NORTH DIVERSION CHANNEL VIA THE EXISTING PUMP/LIFT STATION.  
 \*S \*\*\*\*\*

ROUTE RESERVOIR	AP-12-POND	10	93	.25770	15.83	8.255	.60063	2.700	.096 AC-FT=	4.685
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FINISH



COMAN5.SUM  
AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994  
INPUT FILE = COMAN5.IN

RUN DATE (MON/DAY/YR) =12/18/2003  
USER NO.= C\_ANDRSN.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
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START

TIME= .00

\*S COMMANCHE PARK CONSISTS OF TWO AREAS. ONE IS SOUTH OF COMMANCHE RD.  
\*S EAST OF THE NORTH DIVERSION CHANNEL CONSISTING OF THE THUNDERBIRD  
\*S LITTLE LEAGUE BASEBALL FIELDS. THE SECOND AREA IS NORTH OF COMMANCHE  
\*S BLVD. BOTH AREAS ACT AS DETENTION POND FACILITIES.  
\*S THE TWO AREAS ARE CONNECTED BY AN EXISTING 36" CULVERT UNDER  
\*S COMMANCHE BLVD. THE RUNOFF FLOWS IN THE NORTH POND ARE PUMPED UP TO THE  
\*S NORTH DIVERSION CHANNEL. THE CONTRIBUTING DRAINAGE BASIN IS  
\*S APPROXIMATELY 95% DEVELOPED. THIS ANALYSIS ASSUMES 100% DEVELOPED  
\*S WITH THE EXCEPTION OF THE COMMANCHE PARKS. THE EXISTING LAND TREATMENTS  
\*S WERE UTILIZED FOR THE NORTH AND SOUTH PARK AREAS. ALL OTHER  
\*S LAND TREATMENTS WERE DETERMINED BY USING THE LATEST AERIAL PHOTO  
\*S OF THE AREA AND TABLE A-5 OF SECTION 22 OF THE CITY OF ALBUQUERQUE  
\*S DEVELOPMENT PROCESS MANUAL (DPM).

\*S DATE: September 15, 2003

\*S FILENAME - input : Coman5.IN  
\*S FILENAME - output : Coman5.OUT  
\*S FILENAME - summary table : Coman5.SUM

\*S PROJECT TITLE: DRAINAGE REPORT FOR COMMANCHE PARK

\*S SEC PROJECT NUMBER: 101103C  
\*S CONSULTANT: SMITH ENGINEERING COMPANY  
\*S CLIENT: CONSENSUS PLANNING INC.

\*S -----  
\*S COMMANCHE PARK (North and South) DRAINAGE ANALYSIS:  
\*S 5-YR, 24 HOUR STORM EVENT  
\*S -----

RAINFALL TYPE= 2

RAIN24= 1.520

\*S \*\*\*\*\*

\*S THIS SECTION WILL ROUTE AND ADD THE BASINS  
\*S THAT FLOW INTO SOUTH POND, BASINS PS-1 TO PS-4.  
\*S BASIN PS-4 IS THE SOUTH POND/BASEBALL FIELDS  
\*S \*\*\*\*\*

COMPUTE NM HYD	PS-1&AP-1	-	3	.07770	109.43	4.467	1.07797	1.500	2.201 PER IMP=	80.00
ROUTE	AP-1R	3	2	.07770	103.72	4.467	1.07798	1.500	2.086	
COMPUTE NM HYD	PS-2	-	3	.01120	14.62	.580	.97172	1.500	2.040 PER IMP=	70.00
ADD HYD	AP-2	2& 3	10	.08890	118.34	5.048	1.06458	1.500	2.080	
COMPUTE NM HYD	PS-3&AP-3	-	3	.00610	9.32	.385	1.18422	1.500	2.387 PER IMP=	90.00
ADD HYD	PART AP-4	10& 3	10	.09500	127.66	5.433	1.07226	1.500	2.100	
COMPUTE NM HYD	PS-4	-	3	.01530	7.34	.171	.20922	1.500	.750 PER IMP=	.00

\*S TOTAL FLOW FROM PS BASIN INTO SOUTH POND  
\*S A PORTION OF THE FLOW FROM AP-7 WILL ENTER THE SOUTH POND DUE  
\*S TO FLOW OVERTOPPING THE CURB AT COMMANCHE RD. AND BRYN MAWR DR.  
\*S SEE NOTES BELOW RELATIVE TO AP-7.

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2	NOTATION
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ADD HYD PART AP-4 10& 3 30 .11030 135.01 5.604 .95255 1.500 1.912

\*S \*\*\*\*\*

\*S THIS SECTION WILL DETERMINE FLOWS ENTERING COMMANCHE PARK NORTH.  
\*S BASINS PN-1 TO PN-13.  
\*S \*\*\*\*\*

COMPUTE NM HYD	PN-1	-	3	.03230	40.40	1.747	1.01422	1.500	1.954 PER IMP=	74.00
COMPUTE NM HYD	PN-2	-	4	.00620	8.37	.335	1.01422	1.500	2.110 PER IMP=	74.00
ADD HYD	AP-5	3& 4	10	.03850	48.77	2.083	1.01420	1.500	1.979	
ROUTE	AP-5R	10	2	.03850	47.99	2.083	1.01422	1.550	1.947	
COMPUTE NM HYD	PN-3	-	3	.00740	9.99	.400	1.01422	1.500	2.109 PER IMP=	74.00
COMPUTE NM HYD	PN-4	-	4	.00410	4.90	.189	.86547	1.500	1.868 PER IMP=	60.00
ADD HYD	PART AP-6	3& 4	10	.01150	14.89	.589	.96113	1.500	2.023	
ADD HYD	AP-6	2&10	10	.05000	62.01	2.672	1.00200	1.500	1.938	
ROUTE	AP-6R	10	2	.05000	62.80	2.672	1.00201	1.550	1.963	
COMPUTE NM HYD	PN-5	-	3	.00670	8.75	.347	.97172	1.500	2.040 PER IMP=	70.00
COMPUTE NM HYD	PN-6	-	4	.00800	10.44	.415	.97172	1.500	2.040 PER IMP=	70.00
ADD HYD	PN-5&PN-6	3& 4	10	.01470	19.19	.762	.97168	1.500	2.040	
COMPUTE NM HYD	PN-7	-	3	.00090	1.38	.057	1.18422	1.500	2.399 PER IMP=	90.00
COMPUTE NM HYD	PN-8	-	4	.00240	3.67	.152	1.18422	1.500	2.390 PER IMP=	90.00
ADD HYD	PN-7&PN-8	3& 4	20	.00330	5.05	.208	1.18407	1.500	2.392	
ADD HYD	PN-7&PN-8&PN	10&20	10	.01800	24.25	.970	1.01062	1.500	2.105	
ADD HYD	AP-7	2&10	91	.06800	83.75	3.642	1.00428	1.550	1.924	
DIVIDE HYD	AP-7NORTH	91	98	.06800	83.75	3.642	1.00428	1.550	1.924	
	AP-7SOUTH	AND	99	.00000	.00	.000	.00000	-.050	.000	

\*S TOTAL FLOW FROM PS BASIN INTO SOUTH POND  
\*S A PORTION OF THE FLOW FROM AP-7 WILL ENTER THE SOUTH POND DUE

SOUTH PARK-EXISTING  
CONDITIONS

5-YEAR, 24-HOUR  
STORM EVENT

COMAN5.SUM

\*S TO FLOW OVERTOPPING THE CURB AT COMANCHE RD. AND BRYN MAWR DR.  
 \*S SEE NOTES BELOW RELATIVE TO AP-7.

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3	NOTATION
ADD HYD	AP-4 30&99	10		.11030	135.01	5.604	.95255	1.500	1.912		
*S -----WE WILL NOW ROUTE THE TOTAL FLOW INTO THE SOUTH POND THROUGH THE EXISTING 36" CULVERT PIPE CONNECTING THE SOUTH POND TO THE NORTH POND.-----											
*S THE OUTFLOW VALUES USED IN THIS RESERVOIR ROUTE ASSUME A TAI WATER ELEV OF 5079.25' IN THE COMANCHE NORTH PARK POND.											
ROUTE RESERVOIR	AP-4_POND	10	90	.11030	36.42	5.574	.94755	1.950	.516 AC-FT=	2.369	
COMPUTE NM HYD	PN-9&AP-8	-	3	.02970	28.86	1.034	.65297	1.500	1.518 PER IMP=	40.00	
ROUTE RESERVOIR	AP-8_POND	3	15	.02970	11.99	1.034	.65296	1.700	.631 AC-FT=	.366	
COMPUTE NM HYD	PN-10	-	3	.00240	1.23	.034	.26520	1.500	.803 PER IMP=	7.00	
ADD HYD	AP-9 15& 3	10		.03210	12.46	1.068	.62376	1.650	.606		
ROUTE	AP-9R	10	2	.03210	12.46	1.068	.62378	1.700	.607		
COMPUTE NM HYD	PN-11&AP-10	-	3	.01840	22.38	.870	.88672	1.500	1.900 PER IMP=	62.00	
ROUTE	AP-10R	3	12	.01840	19.10	.870	.88674	1.550	1.622		
COMPUTE NM HYD	PN-12	-	3	.01420	18.53	.736	.97172	1.500	2.039 PER IMP=	70.00	
ADD HYD	AP-10R&PN-12 12& 3	10		.03260	35.14	1.606	.92373	1.550	1.684		
ADD HYD	AP-11 2&10	10		.06470	44.80	2.674	.77491	1.550	1.082		
ROUTE RESERVOIR	AP-11_POND	10	92	.06470	19.78	2.684	.77792	2.000	.478 AC-FT=	.640	
*S *****											
*S THIS SECTION ADDS ALL THE FLOW GOING INTO THE NORTH COMANCHE POND											
*S *****											
COMPUTE NM HYD	PN-13	-	3	.01470	4.62	.113	.14444	1.500	.491 PER IMP=	.00	
*S *****											
*S THIS SECTION WILL ROUTE AP-12 THROUGH THE COMANCHE NORTH POND.											
*S TO THE NORTH DIVERSION CHANNEL VIA THE EXISTING PUMP/LIFT STATION.											
*S *****											
ROUTE RESERVOIR	AP-12-POND	10	93	.25770	15.83	12.009	.87374	3.050	.096 AC-FT=	7.377	
FINISH											

COMAN10.SUM  
AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994  
INPUT FILE = COMAN10.IN

RUN DATE (MON/DAY/YR) =12/18/2003  
USER NO.= C\_ANDRSN.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
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START

TIME= .00

\*S COMMANCHE PARK CONSISTS OF TWO AREAS. ONE IS SOUTH OF COMMANCHE RD.  
\*S EAST OF THE NORTH DIVERSION CHANNEL CONSISTING OF THE THUNDERBIRD  
\*S LITTLE LEAGUE BASEBALL FIELDS. THE SECOND AREA IS NORTH OF COMMANCHE  
\*S BLVD. BOTH AREAS ACT AS DETENTION POND FACILITIES.  
\*S THE TWO AREAS ARE CONNECTED BY AN EXISTING 36" CULVERT UNDER  
\*S COMMANCHE BLVD. THE RUNOFF FLOWS IN THE NORTH POND ARE PUMPED UP TO THE  
\*S NORTH DIVERSION CHANNEL. THE CONTRIBUTING DRAINAGE BASIN IS  
\*S APPROXIMATELY 95% DEVELOPED. THIS ANALYSIS ASSUMES 100% DEVELOPED  
\*S WITH THE EXCEPTION OF THE COMMANCHE PARKS. THE EXISTING LAND TREATMENTS  
\*S WERE UTILIZED FOR THE NORTH AND SOUTH PARK AREAS. ALL OTHER  
\*S LAND TREATMENTS WERE DETERMINED BY USING THE LATEST AERIAL PHOTO  
\*S OF THE AREA AND TABLE A-5 OF SECTION 22 OF THE CITY OF ALBUQUERQUE  
\*S DEVELOPMENT PROCESS MANUAL (DPM).

\*S DATE: September 15, 2003

\*S FILENAME - input : Coman10.IN  
\*S FILENAME - output : Coman10.OUT  
\*S FILENAME - summary table : Coman10.SUM

\*S PROJECT TITLE: DRAINAGE REPORT FOR COMMANCHE PARK

\*S SEC PROJECT NUMBER: 101103C  
\*S CONSULTANT: SMITH ENGINEERING COMPANY  
\*S CLIENT: CONSENSUS PLANNING INC.

\*S COMMANCHE PARK (North and South) DRAINAGE ANALYSIS:  
\*S 10-YR, 24 HOUR STORM EVENT

RAINFALL TYPE= 2

RAIN24= 1.790

\*S \*\*\*\*\*  
\*S THIS SECTION WILL ROUTE AND ADD THE BASINS  
\*S THAT FLOW INTO SOUTH POND, BASINS PS-1 TO PS-4.  
\*S BASIN PS-4 IS THE SOUTH POND/BASEBALL FIELDS  
\*S \*\*\*\*\*

COMPUTE NM HYD	PS-1&AP-1	-	3	.07770	132.55	5.472	1.32036	1.500	2.666 PER IMP=	80.00
ROUTE	AP-1R	3	2	.07770	126.63	5.472	1.32036	1.500	2.546	
COMPUTE NM HYD	PS-2	-	3	.01120	17.91	.717	1.20068	1.500	2.498 PER IMP=	70.00
ADD HYD	AP-2	2& 3	10	.08890	144.54	6.189	1.30528	1.500	2.540	
COMPUTE NM HYD	PS-3&AP-3	-	3	.00610	11.15	.468	1.44003	1.500	2.855 PER IMP=	90.00
ADD HYD	PART_AP-4	10& 3	10	.09500	155.69	6.657	1.31392	1.500	2.561	
COMPUTE NM HYD	PS-4	-	3	.01530	11.56	.279	.34198	1.500	1.180 PER IMP=	.00

\*S TOTAL FLOW FROM PS BASIN INTO SOUTH POND  
\*S A PORTION OF THE FLOW FROM AP-7 WILL ENTER THE SOUTH POND DUE  
\*S TO FLOW OVERTOPPING THE CURB AT COMMANCHE RD. AND BRYN MAWR DR.  
\*S SEE NOTES BELOW RELATIVE TO AP-7.

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2	NOTATION
ADD HYD	PART_AP-4 10& 3	30		.11030	167.25	6.936	1.17910	1.500	2.369		
*S *****											
*S THIS SECTION WILL DETERMINE FLOWS ENTERING COMMANCHE PARK NORTH.											
*S BASINS PN-1 TO PN-13.											
*S *****											
COMPUTE NM HYD	PN-1	-	3	.03230	49.23	2.151	1.24855	1.500	2.382 PER IMP=	74.00	
COMPUTE NM HYD	PN-2	-	4	.00620	10.20	.413	1.24855	1.500	2.571 PER IMP=	74.00	
ADD HYD	AP-5	3& 4	10	.03850	59.43	2.564	1.24854	1.500	2.412		
ROUTE	AP-5R	10	2	.03850	58.41	2.564	1.24856	1.550	2.370		
COMPUTE NM HYD	PN-3	-	3	.00740	12.17	.493	1.24855	1.500	2.570 PER IMP=	74.00	
COMPUTE NM HYD	PN-4	-	4	.00410	6.10	.236	1.08101	1.500	2.323 PER IMP=	60.00	
ADD HYD	PART_AP-6	3& 4	10	.01150	18.27	.729	1.18876	1.500	2.482		
ADD HYD	AP-6	2&10	10	.05000	75.90	3.293	1.23479	1.500	2.372		
ROUTE	AP-6R	10	2	.05000	76.65	3.293	1.23481	1.550	2.395		
COMPUTE NM HYD	PN-5	-	3	.00670	10.72	.429	1.20068	1.500	2.499 PER IMP=	70.00	
COMPUTE NM HYD	PN-6	-	4	.00800	12.79	.512	1.20068	1.500	2.499 PER IMP=	70.00	
ADD HYD	PN-5&PN-6	3& 4	10	.01470	23.51	.941	1.20065	1.500	2.499		
COMPUTE NM HYD	PN-7	-	3	.00090	1.65	.069	1.44003	1.500	2.870 PER IMP=	90.00	
COMPUTE NM HYD	PN-8	-	4	.00240	4.39	.184	1.44003	1.500	2.858 PER IMP=	90.00	
ADD HYD	PN-7&PN-8	3& 4	20	.00330	6.04	.253	1.43985	1.500	2.862		
ADD HYD	PN-7&PN-8&PN	10&20	10	.01800	29.55	1.195	1.24450	1.500	2.566		
ADD HYD	AP-7	2&10	91	.06800	102.23	4.487	1.23736	1.550	2.349		
DIVIDE HYD	AP-7NORTH	91	98	.06699	94.00	4.421	1.23736	1.500	2.193		
	AP-7SOUTH	AND	99	.00101	8.23	.067	1.23736	1.550	12.690		

\*S TOTAL FLOW FROM PS BASIN INTO SOUTH POND  
\*S A PORTION OF THE FLOW FROM AP-7 WILL ENTER THE SOUTH POND DUE

SOUTH PARK-EXISTING  
CONDITIONS

10-YEAR, 24-HOUR  
STORM EVENT



COMAN10.SUM

\*S TO FLOW OVERTOPPING THE CURB AT COMANCHE RD. AND BRYN MAWR DR.  
 \*S SEE NOTES BELOW RELATIVE TO AP-7.

ADD HYD	AP-4 30&99	10	.11131	175.20	7.003	1.17963	1.500	2.459	
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\*S -----WE WILL NOW ROUTE THE TOTAL FLOW INTO THE SOUTH POND THROUGH  
 \*S THE EXISTING 36" CULVERT PIPE CONNECTING THE SOUTH POND TO  
 \*S THE NORTH POND.-----

\*S  
 \*S THE OUTFLOW VALUES USED IN THIS RESERVOIR ROUTE ASSUME A TAI  
 \*S WATER ELEV OF 5079.25' IN THE COMANCHE NORTH PARK POND.

ROUTE RESERVOIR	AP-4_POND	10	90	.11131	40.87	6.973	1.17459	2.000	.574 AC-FT= 3.183
COMPUTE NM HYD	PN-9&AP-8	-	3	.02970	37.34	1.333	.84166	1.500	1.964 PER IMP= 40.00
ROUTE RESERVOIR	AP-8_POND	3	15	.02970	15.53	1.333	.84165	1.700	.817 AC-FT= .484
COMPUTE NM HYD	PN-10	-	3	.00240	1.90	.052	.40419	1.500	1.238 PER IMP= 7.00
ADD HYD	AP-9 15& 3	10		.03210	16.28	1.385	.80892	1.650	.793
ROUTE	AP-9R	10	2	.03210	16.28	1.385	.80895	1.700	.792
COMPUTE NM HYD	PN-11&AP-10	-	3	.01840	27.74	1.084	1.10494	1.500	2.356 PER IMP= 62.00
ROUTE	AP-10R	3	12	.01840	24.38	1.084	1.10497	1.550	2.070
COMPUTE NM HYD	PN-12	-	3	.01420	22.70	.909	1.20068	1.500	2.498 PER IMP= 70.00
ADD HYD	AP-10R&PN-12 12& 3	10		.03260	44.06	1.994	1.14663	1.550	2.112
ADD HYD	AP-11 2&10	10		.06470	56.88	3.378	.97908	1.550	1.374
ROUTE RESERVOIR	AP-11_POND	10	92	.06470	23.72	3.384	.98054	2.000	.573 AC-FT= .944

\*S \*\*\*\*\*

\*S THIS SECTION ADDS ALL THE FLOW GOING INTO THE NORTH COMANCHE POND

\*S \*\*\*\*\*

COMPUTE NM HYD	PN-13	-	3	.01470	8.32	.207	.26340	1.500	.884 PER IMP= .00
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COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3 NOTATION
ADD HYD	PN-13&AP-4R	3&90	10	.12601	42.09	7.180	1.06830	1.650	.522	
ADD HYD	PN-13&AP-4R& 98&10	98&10	10	.19300	135.23	11.600	1.12697	1.550	1.095	
ADD HYD	AP-12 92&10	10		.25770	153.39	14.984	1.09021	1.550	.930	

\*S \*\*\*\*\*

\*S THIS SECTION WILL ROUTE AP-12 THROUGH THE COMANCHE NORTH POND.  
 \*S TO THE NORTH DIVERSION CHANNEL VIA THE EXISTING PUMP/LIFT STATION.

\*S \*\*\*\*\*

ROUTE RESERVOIR	AP-12-POND	10	93	.25770	15.83	14.979	1.08982	3.300	.096 AC-FT= 9.532
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FINISH

COMAN100.SUM  
AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994  
INPUT FILE = COMAN100.IN

RUN DATE (MON/DAY/YR) =12/18/2003  
USER NO.= C\_ANDRSN.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
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TIME= .00

START  
\*S COMMANCHE PARK CONSISTS OF TWO AREAS. ONE IS SOUTH OF COMMANCHE RD.  
\*S EAST OF THE NORTH DIVERSION CHANNEL CONSISTING OF THE THUNDERBIRD  
\*S LITTLE LEAGUE BASEBALL FIELDS. THE SECOND AREA IS NORTH OF COMMANCHE  
\*S BLVD. BOTH AREAS ACT AS DETENTION POND FACILITIES.  
\*S THE TWO AREAS ARE CONNECTED BY AN EXISTING 36" CULVERT UNDER  
\*S COMMANCHE BLVD. THE RUNOFF FLOWS IN THE NORTH POND ARE PUMPED UP TO THE  
\*S NORTH DIVERSION CHANNEL. THE CONTRIBUTING DRAINAGE BASIN IS  
\*S APPROXIMATELY 95% DEVELOPED. THIS ANALYSIS ASSUMES 100% DEVELOPED  
\*S WITH THE EXCEPTION OF THE COMMANCHE PARKS. THE EXISTING LAND TREATMENTS  
\*S WERE UTILIZED FOR THE NORTH AND SOUTH PARK AREAS. ALL OTHER  
\*S LAND TREATMENTS WERE DETERMINED BY USING THE LATEST AERIAL PHOTO  
\*S OF THE AREA AND TABLE A-5 OF SECTION 22 OF THE CITY OF ALBUQUERQUE  
\*S DEVELOPMENT PROCESS MANUAL (DPM).

\*S DATE: September 15, 2003

\*S FILENAME - input : Coman100.IN  
\*S FILENAME - output : Coman100.OUT  
\*S FILENAME - summary table : Coman100.SUM

\*S PROJECT TITLE: DRAINAGE REPORT FOR COMMANCHE PARK

\*S SEC PROJECT NUMBER: 101103C  
\*S CONSULTANT: SMITH ENGINEERING COMPANY  
\*S CLIENT: CONSENSUS PLANNING INC.

\*S -----  
\*S COMMANCHE PARK (North and South) DRAINAGE ANALYSIS:  
\*S 100-YR, 24 HOUR STORM EVENT  
\*S -----

RAINFALL TYPE= 2

RAIN24= 2.680

\*S \*\*\*\*\*  
\*S THIS SECTION WILL ROUTE AND ADD THE BASINS  
\*S THAT FLOW INTO SOUTH POND, BASINS PS-1 TO PS-4.  
\*S BASIN PS-4 IS THE SOUTH POND/BASEBALL FIELDS  
\*S \*\*\*\*\*

COMPUTE NM HYD	PS-1&AP-1	-	3	.07770	208.97	8.866	2.13945	1.500	4.202 PER IMP=	80.00
ROUTE	AP-1R	3	2	.07770	202.00	8.866	2.13945	1.500	4.062	
COMPUTE NM HYD	PS-2	-	3	.01120	28.78	1.186	1.98545	1.500	4.015 PER IMP=	70.00
ADD HYD	AP-2	2&	3 10	.08890	230.78	10.052	2.12004	1.500	4.056	
COMPUTE NM HYD	PS-3&AP-3	-	3	.00610	17.17	.746	2.29343	1.500	4.399 PER IMP=	90.00
ADD HYD	PART_AP-4	10&	3 10	.09500	247.95	10.798	2.13117	1.500	4.078	
COMPUTE NM HYD	PS-4	-	3	.01530	25.42	.713	.87418	1.500	2.596 PER IMP=	.00

\*S TOTAL FLOW FROM PS BASIN INTO SOUTH POND  
\*S A PORTION OF THE FLOW FROM AP-7 WILL ENTER THE SOUTH POND DUE  
\*S TO FLOW OVERTOPPING THE CURB AT COMMANCHE RD. AND BRYN MAWR DR.  
\*S SEE NOTES BELOW RELATIVE TO AP-7.

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2	NOTATION
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ADD HYD PART\_AP-4 10& 3 30 .11030 273.37 11.511 1.95681 1.500 3.873

\*S \*\*\*\*\*  
\*S THIS SECTION WILL DETERMINE FLOWS ENTERING COMMANCHE PARK NORTH.  
\*S BASINS PN-1 TO PN-13.  
\*S \*\*\*\*\*

COMPUTE NM HYD	PN-1	-	3	.03230	78.67	3.526	2.04705	1.500	3.806 PER IMP=	74.00
COMPUTE NM HYD	PN-2	-	4	.00620	16.24	.677	2.04705	1.500	4.093 PER IMP=	74.00
ADD HYD	AP-5	3&	4 10	.03850	94.91	4.203	2.04703	1.500	3.852	
ROUTE	AP-5R	10	2	.03850	92.82	4.203	2.04706	1.500	3.767	
COMPUTE NM HYD	PN-3	-	3	.00740	19.38	.808	2.04705	1.500	4.092 PER IMP=	74.00
COMPUTE NM HYD	PN-4	-	4	.00410	10.04	.400	1.83147	1.500	3.827 PER IMP=	60.00
ADD HYD	PART_AP-6	3&	4 10	.01150	29.42	1.208	1.97014	1.500	3.998	
ADD HYD	AP-6	2&	10 10	.05000	122.24	5.412	2.02935	1.500	3.820	
ROUTE	AP-6R	10	2	.05000	122.12	5.412	2.02937	1.550	3.816	
COMPUTE NM HYD	PN-5	-	3	.00670	17.22	.709	1.98546	1.500	4.016 PER IMP=	70.00
COMPUTE NM HYD	PN-6	-	4	.00800	20.56	.847	1.98546	1.500	4.015 PER IMP=	70.00
ADD HYD	PN-5&PN-6	3&	4 10	.01470	37.78	1.557	1.98541	1.500	4.016	
COMPUTE NM HYD	PN-7	-	3	.00090	2.55	.110	2.29344	1.500	4.424 PER IMP=	90.00
COMPUTE NM HYD	PN-8	-	4	.00240	6.77	.294	2.29344	1.500	4.405 PER IMP=	90.00
ADD HYD	PN-7&PN-8	3&	4 20	.00330	9.31	.404	2.29326	1.500	4.410	
ADD HYD	PN-7&PN-8&PN	10&	20 10	.01800	47.09	1.960	2.04185	1.500	4.088	
ADD HYD	AP-7	2&	10 91	.06800	165.20	7.372	2.03266	1.500	3.796	
DIVIDE HYD	AP-7NORTH	91	98	.05922	94.00	6.420	2.03266	1.450	2.480	
	AP-7SOUTH AND	99		.00878	71.20	.952	2.03266	1.500	12.669	

\*S TOTAL FLOW FROM PS BASIN INTO SOUTH POND  
\*S A PORTION OF THE FLOW FROM AP-7 WILL ENTER THE SOUTH POND DUE

SOUTH PARK-EXISTING  
CONDITIONS

100-YEAR, 24-HOUR  
STORM EVENT



COMAN100.SUM

\*S TO FLOW OVERTOPPING THE CURB AT COMANCHE RD. AND BRYN MAWR DR.  
 \*S SEE NOTES BELOW RELATIVE TO AP-7.

ADD HYD	AP-4 30&99	10		.11908	344.57	12.463	1.96240	1.500	4.521	
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\*S -----WE WILL NOW ROUTE THE TOTAL FLOW INTO THE SOUTH POND THROUGH  
 \*S THE EXISTING 36" CULVERT PIPE CONNECTING THE SOUTH POND TO  
 \*S THE NORTH POND.-----

\*S  
 \*S THE OUTFLOW VALUES USED IN THIS RESERVOIR ROUTE ASSUME A TAI  
 \*S WATER ELEV OF 5079.25' IN THE COMANCHE NORTH PARK POND.

ROUTE RESERVOIR	AP-4_POND	10	90	.11908	50.73	12.432	1.95749	2.100	.666 AC-FT=	6.922
COMPUTE NM HYD	PN-9&AP-8	-	3	.02970	65.37	2.413	1.52349	1.500	3.439 PER IMP=	40.00
ROUTE RESERVOIR	AP-8_POND	3	15	.02970	24.81	2.413	1.52348	1.750	1.305 AC-FT=	.941
COMPUTE NM HYD	PN-10	-	3	.00240	4.08	.122	.94922	1.500	2.657 PER IMP=	7.00
ADD HYD	AP-9 15& 3	10		.03210	26.47	2.535	1.48052	1.700	1.288	
ROUTE	AP-9R	10	2	.03210	26.44	2.535	1.48055	1.700	1.287	
COMPUTE NM HYD	PN-11&AP-10	-	3	.01840	45.46	1.828	1.86226	1.500	3.861 PER IMP=	62.00
ROUTE	AP-10R	3	12	.01840	42.33	1.828	1.86229	1.550	3.595	
COMPUTE NM HYD	PN-12	-	3	.01420	36.48	1.504	1.98546	1.500	4.014 PER IMP=	70.00
ADD HYD	AP-10R&PN-12 12& 3	10		.03260	75.40	3.331	1.91592	1.500	3.614	
ADD HYD	AP-11 2&10	10		.06470	96.69	5.866	1.69990	1.550	2.335	
ROUTE RESERVOIR	AP-11_POND	10	92	.06470	36.74	5.873	1.70199	2.050	.887 AC-FT=	1.947

\*S %%

\*S THIS SECTION ADDS ALL THE FLOW GOING INTO THE NORTH COMANCHE POND

\*S %%

COMPUTE NM HYD	PN-13	-	3	.01470	21.03	.589	.75080	1.500	2.235 PER IMP=	.00
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COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3 NOTATION
ADD HYD	PN-13&AP-4R 3&90	10		.13378	62.50	13.021	1.82490	1.550	.730	
ADD HYD	PN-13&AP-4R& 98&10	10		.19300	156.50	19.440	1.88865	1.550	1.267	
ADD HYD	AP-12 92&10	10		.25770	182.01	25.314	1.84179	1.650	1.104	

\*S %%

\*S THIS SECTION WILL ROUTE AP-12 THROUGH THE COMANCHE NORTH POND.  
 \*S TO THE NORTH DIVERSION CHANNEL VIA THE EXISTING PUMP/LIFT STATION.

\*S %%

ROUTE RESERVOIR	AP-12-POND	10	93	.25770	15.83	25.308	1.84139	4.400	.096 AC-FT=	17.243
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FINISH

PRO2.SUM  
AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994  
INPUT FILE = Pro2.IN

RUN DATE (MON/DAY/YR) =12/18/2003  
USER NO.= C\_ANDRSN.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
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START

TIME= .00

\*S COMMANCHE PARK CONSISTS OF TWO AREAS. ONE IS SOUTH OF COMMANCHE RD.  
\*S EAST OF THE NORTH DIVERSION CHANNEL CONSISTING OF THE THUNDERBIRD  
\*S LITTLE LEAGUE BASEBALL FIELDS. THE SECOND AREA IS NORTH OF COMANCHE  
\*S BLVD. BOTH AREAS ACT AS DETENTION POND FACILITIES.  
\*S THE TWO AREAS ARE CONNECTED BY AN EXISTING 36" CULVERT UNDER  
\*S COMANCHE BLVD. THE RUNOFF FLOWS IN THE NORTH POND ARE PUMPED UP TO THE  
\*S NORTH DIVERSION CHANNEL. THE CONTRIBUTING DRAINAGE BASIN IS  
\*S APPROXIMATELY 95% DEVELOPED. THIS ANALYSIS ASSUMES 100% DEVELOPMENT.  
\*S PROPOSED LAND TREATMENTS WERE UTILIZED FOR THE SOUTH PARK AREA WHILE  
\*S EXISTING LAND TREATMENTS WERE UTILIZED FOR THE NORTH PARK. ALL OTHER  
\*S LAND TREATMENTS WERE DETERMINED BY USING THE LATEST AERIAL PHOTO  
\*S OF THE AREA AND TABLE A-5 OF SECTION 22 OF THE CITY OF ALBUQUERQUE  
\*S DEVELOPMENT PROCESS MANUAL (DPM).

\*S DATE: December 2, 2003

\*S FILENAME - input : Pro2.IN  
\*S FILENAME - output : Pro2.OUT  
\*S FILENAME - summary table : Pro2.SUM

\*S PROJECT TITLE: DRAINAGE REPORT FOR COMANCHE PARK

\*S SEC PROJECT NUMBER: 101103C

\*S CONSULTANT: SMITH ENGINEERING COMPANY

\*S CLIENT: CONSENSUS PLANNING INC.

\*S -----  
\*S COMMANCHE PARK (North and South) DRAINAGE ANALYSIS:  
\*S 2-YR, 24 HOUR STORM EVENT  
\*S -----

RAINFALL TYPE= 2

RAIN24= 1.160

\*S \*\*\*\*\*

\*S THIS SECTION WILL ROUTE AND ADD THE BASINS  
\*S THAT FLOW INTO SOUTH POND, BASINS PS-1 TO PS-4.  
\*S BASIN PS-4 IS THE SOUTH POND/BASEBALL FIELDS  
\*S \*\*\*\*\*

COMPUTE NM HYD	PS-1&AP-1	-	3	.07770	79.09	3.177	.76664	1.500	1.590 PER IMP=	80.00
ROUTE	AP-1R	3	2	.07770	75.17	3.177	.76665	1.550	1.512	
COMPUTE NM HYD	PS-2	-	3	.01120	10.31	.406	.68008	1.500	1.438 PER IMP=	70.00
ADD HYD	AP-2	2& 3	10	.08890	84.08	3.583	.75573	1.550	1.478	
COMPUTE NM HYD	PS-3&AP-3	-	3	.00610	6.92	.278	.85320	1.500	1.772 PER IMP=	90.00
ADD HYD	PART AP-4	10& 3	10	.09500	90.98	3.861	.76199	1.500	1.496	
COMPUTE NM HYD	PS-4	-	3	.01530	6.61	.161	.19772	1.500	.675 PER IMP=	6.00

\*S TOTAL FLOW FROM PS BASIN INTO SOUTH POND  
\*S A PORTION OF THE FLOW FROM AP-7 WILL ENTER THE SOUTH POND DUE  
\*S TO FLOW OVERTOPPING THE CURB AT COMANCHE RD. AND BRYN MAWR DR.  
\*S SEE NOTES BELOW RELATIVE TO AP-7.

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2	NOTATION
ADD HYD	PART AP-4	10& 3	30	.11030	97.59	4.022	.68371	1.500	1.382		
*S	*****										
*S	THIS SECTION WILL DETERMINE FLOWS ENTERING COMANCHE PARK NORTH.										
*S	BASINS PN-1 TO PN-13.										
*S	*****										
COMPUTE NM HYD	PN-1	-	3	.03230	28.78	1.231	.71471	1.500	1.392 PER IMP=	74.00	
COMPUTE NM HYD	PN-2	-	4	.00620	5.97	.236	.71471	1.500	1.505 PER IMP=	74.00	
ADD HYD	AP-5	3& 4	10	.03850	34.75	1.467	.71469	1.500	1.410		
ROUTE	AP-5R	10	2	.03850	34.33	1.468	.71471	1.550	1.393		
COMPUTE NM HYD	PN-3	-	3	.00740	7.13	.282	.71471	1.500	1.505 PER IMP=	74.00	
COMPUTE NM HYD	PN-4	-	4	.00410	3.34	.130	.59352	1.500	1.273 PER IMP=	60.00	
ADD HYD	PART AP-6	3& 4	10	.01150	10.47	.412	.67145	1.500	1.422		
ADD HYD	AP-6	2&10	10	.05000	43.79	1.879	.70474	1.500	1.368		
ROUTE	AP-6R	10	2	.05000	44.66	1.879	.70476	1.550	1.396		
COMPUTE NM HYD	PN-5	-	3	.00670	6.17	.243	.68008	1.500	1.439 PER IMP=	70.00	
COMPUTE NM HYD	PN-6	-	4	.00800	7.36	.290	.68008	1.500	1.438 PER IMP=	70.00	
ADD HYD	PN-5&PN-6	3& 4	10	.01470	13.53	.533	.68004	1.500	1.439		
COMPUTE NM HYD	PN-7	-	3	.00090	1.02	.041	.85321	1.500	1.779 PER IMP=	90.00	
COMPUTE NM HYD	PN-8	-	4	.00240	2.72	.109	.85320	1.500	1.773 PER IMP=	90.00	
ADD HYD	PN-7&PN-8	3& 4	20	.00330	3.75	.150	.85305	1.500	1.775		
ADD HYD	PN-7&PN-8&PN	10&20	10	.01800	17.28	.683	.71176	1.500	1.500		
ADD HYD	AP-7	2&10	91	.06800	59.58	2.563	.70660	1.550	1.369		
DIVIDE HYD	AP-7NORTH	91	98	.06800	59.58	2.563	.70660	1.550	1.369		
	AP-7SOUTH	AND	99	.00000	.00	.000	.00000	-.050	.000		

\*S TOTAL FLOW FROM PS BASIN INTO SOUTH POND  
\*S A PORTION OF THE FLOW FROM AP-7 WILL ENTER THE SOUTH POND DUE

SOUTH PARK - PROPOSED  
CONDITIONS

2-YEAR, 24-HOUR  
STORM EVENT

PRO2.SUM

\*S TO FLOW OVERTOPPING THE CURB AT COMANCHE RD. AND BRYN MAWR DR.  
 \*S SEE NOTES BELOW RELATIVE TO AP-7.

ADD HYD	AP-4 30&99	10		.11030	97.59	4.022	.68371	1.500	1.382	
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\*S -----WE WILL NOW ROUTE THE TOTAL FLOW INTO THE SOUTH POND THROUGH  
 \*S THE EXISTING 36" CULVERT PIPE CONNECTING THE SOUTH POND TO  
 \*S THE NORTH POND.-----  
 \*S THE OUTFLOW VALUES USED IN THIS RESERVOIR ROUTE ASSUME A TAI  
 \*S WATER ELEV. OF 5079.25' IN THE COMANCHE NORTH PARK POND.

ROUTE RESERVOIR	AP-4_POND	10	90	.11030	13.68	2.549	.43335	2.150	.194 AC-FT=	2.643
COMPUTE NM HYD	PN-9&AP-8	-	3	.02970	17.83	.666	.42040	1.500	.938 PER IMP=	40.00
ROUTE RESERVOIR	AP-8_POND	3	15	.02970	7.62	.666	.42039	1.700	.401 AC-FT=	.221
COMPUTE NM HYD	PN-10	-	3	.00240	.46	.014	.11246	1.500	.301 PER IMP=	7.00
ADD HYD	AP-9 15& 3	10		.03210	7.81	.680	.39693	1.700	.380	
ROUTE	AP-9R	10	2	.03210	7.80	.680	.39695	1.700	.380	
COMPUTE NM HYD	PN-11&AP-10	-	3	.01840	15.37	.599	.61083	1.500	1.305 PER IMP=	62.00
ROUTE	AP-10R	3	12	.01840	12.59	.599	.61086	1.550	1.069	
COMPUTE NM HYD	PN-12	-	3	.01420	13.07	.515	.68008	1.500	1.438 PER IMP=	70.00
ADD HYD	AP-10R&PN-12 12& 3	10		.03260	23.89	1.114	.64098	1.550	1.145	
ADD HYD	AP-11 2&10	10		.06470	29.72	1.794	.51990	1.550	.718	
ROUTE RESERVOIR	AP-11_POND	10	92	.06470	17.67	1.794	.51991	1.850	.427 AC-FT=	.229

\*S \*\*\*\*\*  
 \*S THIS SECTION ADDS ALL THE FLOW GOING INTO THE NORTH COMANCHE POND  
 \*S \*\*\*\*\*

COMPUTE NM HYD	PN-13	-	3	.01470	.87	.021	.02620	1.550	.092 PER IMP=	.00
ADD HYD	PN-13&AP-4R 3&90	10		.12500	13.72	2.570	.38546	2.150	.172	

□

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3 NOTATION
ADD HYD	PN-13&AP-4R& 98&10	10		.19300	60.57	5.132	.49861	1.550	.490	
ADD HYD	AP-12 92&10	10		.25770	77.75	6.926	.50396	1.550	.471	

\*S \*\*\*\*\*  
 \*S THIS SECTION WILL ROUTE AP-12 THROUGH THE COMANCHE NORTH POND.  
 \*S TO THE NORTH DIVERSION CHANNEL VIA THE EXISTING PUMP/LIFT STATION.  
 \*S \*\*\*\*\*

ROUTE RESERVOIR	AP-12-POND	10	93	.25770	15.83	6.921	.50354	2.500	.096 AC-FT=	2.906
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FINISH



PRO5.SUM  
AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994  
INPUT FILE = Pro5.IN

RUN DATE (MON/DAY/YR) =12/18/2003  
USER NO.= C\_ANDRSN.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
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START

TIME= .00

\*S COMMANCHE PARK CONSISTS OF TWO AREAS. ONE IS SOUTH OF COMMANCHE RD.  
\*S EAST OF THE NORTH DIVERSION CHANNEL CONSISTING OF THE THUNDERBIRD  
\*S LITTLE LEAGUE BASEBALL FIELDS. THE SECOND AREA IS NORTH OF COMMANCHE  
\*S BLVD. BOTH AREAS ACT AS DETENTION POND FACILITIES.  
\*S THE TWO AREAS ARE CONNECTED BY AN EXISTING 36" CULVERT UNDER  
\*S COMMANCHE BLVD. THE RUNOFF FLOWS IN THE NORTH POND ARE PUMPED UP TO THE  
\*S NORTH DIVERSION CHANNEL. THE CONTRIBUTING DRAINAGE BASIN IS  
\*S APPROXIMATELY 95% DEVELOPED. THIS ANALYSIS ASSUMES 100% DEVELOPMENT.  
\*S PROPOSED LAND TREATMENTS WERE UTILIZED FOR THE SOUTH PARK AREA WHILE  
\*S EXISTING LAND TREATMENTS WERE UTILIZED FOR THE NORTH PARK. ALL OTHER  
\*S LAND TREATMENTS WERE DETERMINED BY USING THE LATEST AERIAL PHOTO  
\*S OF THE AREA AND TABLE A-5 OF SECTION 22 OF THE CITY OF ALBUQUERQUE  
\*S DEVELOPMENT PROCESS MANUAL (DPM).

\*S DATE: December 2, 2003

\*S FILENAME - input : Pro5.IN  
\*S FILENAME - output : Pro5.OUT  
\*S FILENAME - summary table : Pro5.SUM

\*S PROJECT TITLE: DRAINAGE REPORT FOR COMMANCHE PARK

\*S SEC PROJECT NUMBER: 101103C  
\*S CONSULTANT: SMITH ENGINEERING COMPANY  
\*S CLIENT: CONSENSUS PLANNING INC.

\*S COMMANCHE PARK (North and South) DRAINAGE ANALYSIS:  
\*S 5-YR, 24 HOUR STORM EVENT

RAINFALL TYPE= 2

RAIN24= 1.520

\*S \*\*\*\*\*  
\*S THIS SECTION WILL ROUTE AND ADD THE BASINS  
\*S THAT FLOW INTO SOUTH POND, BASINS PS-1 TO PS-4.  
\*S BASIN PS-4 IS THE SOUTH POND/BASEBALL FIELDS  
\*S \*\*\*\*\*

COMPUTE NM HYD	PS-1&AP-1	-	3	.07770	109.43	4.467	1.07797	1.500	2.201 PER IMP=	80.00
ROUTE	AP-1R	3	2	.07770	103.72	4.467	1.07798	1.500	2.086	
COMPUTE NM HYD	PS-2	-	3	.01120	14.62	.580	.97172	1.500	2.040 PER IMP=	70.00
ADD HYD	AP-2	2& 3	10	.08890	118.34	5.048	1.06458	1.500	2.080	
COMPUTE NM HYD	PS-3&AP-3	-	3	.00610	9.32	.385	1.18422	1.500	2.387 PER IMP=	90.00
ADD HYD	PART_AP-4	10& 3	10	.09500	127.66	5.433	1.07226	1.500	2.100	
COMPUTE NM HYD	PS-4	-	3	.01530	12.63	.318	.38973	1.500	1.290 PER IMP=	6.00

\*S TOTAL FLOW FROM PS BASIN INTO SOUTH POND  
\*S A PORTION OF THE FLOW FROM AP-7 WILL ENTER THE SOUTH POND DUE  
\*S TO FLOW OVERTOPPING THE CURB AT COMMANCHE RD. AND BRYN MAWR DR.  
\*S SEE NOTES BELOW RELATIVE TO AP-7.

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2	NOTATION
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ADD HYD PART\_AP-4 10& 3 30 .11030 140.29 5.751 .97758 1.500 1.987

\*S \*\*\*\*\*  
\*S THIS SECTION WILL DETERMINE FLOWS ENTERING COMMANCHE PARK NORTH.  
\*S BASINS PN-1 TO PN-13.  
\*S \*\*\*\*\*

COMPUTE NM HYD	PN-1	-	3	.03230	40.40	1.747	1.01422	1.500	1.954 PER IMP=	74.00
COMPUTE NM HYD	PN-2	-	4	.00620	8.37	.335	1.01422	1.500	2.110 PER IMP=	74.00
ADD HYD	AP-5	3& 4	10	.03850	48.77	2.083	1.01420	1.500	1.979	
ROUTE	AP-5R	10	2	.03850	47.99	2.083	1.01422	1.550	1.947	
COMPUTE NM HYD	PN-3	-	3	.00740	9.99	.400	1.01422	1.500	2.109 PER IMP=	74.00
COMPUTE NM HYD	PN-4	-	4	.00410	4.90	.189	.86547	1.500	1.868 PER IMP=	60.00
ADD HYD	PART_AP-6	3& 4	10	.01150	14.89	.589	.96113	1.500	2.023	
ADD HYD	AP-6	2&10	10	.05000	62.01	2.672	1.00200	1.500	1.938	
ROUTE	AP-6R	10	2	.05000	62.80	2.672	1.00201	1.550	1.963	
COMPUTE NM HYD	PN-5	-	3	.00670	8.75	.347	.97172	1.500	2.040 PER IMP=	70.00
COMPUTE NM HYD	PN-6	-	4	.00800	10.44	.415	.97172	1.500	2.040 PER IMP=	70.00
ADD HYD	PN-5&PN-6	3& 4	10	.01470	19.19	.762	.97168	1.500	2.040	
COMPUTE NM HYD	PN-7	-	3	.00090	1.38	.057	1.18422	1.500	2.399 PER IMP=	90.00
COMPUTE NM HYD	PN-8	-	4	.00240	3.67	.152	1.18422	1.500	2.390 PER IMP=	90.00
ADD HYD	PN-7&PN-8	3& 4	20	.00330	5.05	.208	1.18407	1.500	2.392	
ADD HYD	PN-7&PN-8&PN	10&20	10	.01800	24.25	.970	1.01062	1.500	2.105	
ADD HYD	AP-7	2&10	91	.06800	83.75	3.642	1.00428	1.550	1.924	
DIVIDE HYD	AP-7NORTH	91	98	.06800	83.75	3.642	1.00428	1.550	1.924	
	AP-7SOUTH AND	99	99	.00000	.00	.000	.00000	-.050	.000	

\*S TOTAL FLOW FROM PS BASIN INTO SOUTH POND  
\*S A PORTION OF THE FLOW FROM AP-7 WILL ENTER THE SOUTH POND DUE

SOUTH PARK - PROPOSED  
CONDITIONS

5-YEAR, 24-HOUR  
STORM EVENT



PRO5.SUM

\*S TO FLOW OVERTOPPING THE CURB AT COMANCHE RD. AND BRYN MAWR DR.  
 \*S SEE NOTES BELOW RELATIVE TO AP-7.

ADD HYD	AP-4 30&99	10	.11030	140.29	5.751	.97758	1.500	1.987	
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\*S -----WE WILL NOW ROUTE THE TOTAL FLOW INTO THE SOUTH POND THROUGH  
 \*S THE EXISTING 36" CULVERT PIPE CONNECTING THE SOUTH POND TO  
 \*S THE NORTH POND.-----  
 \*S THE OUTFLOW VALUES USED IN THIS RESERVOIR ROUTE ASSUME A TAI  
 \*S WATER ELEV. OF 5079.25' IN THE COMANCHE NORTH PARK POND.

ROUTE RESERVOIR	AP-4_POND	10	90	.11030	23.88	4.275	.72676	2.100	.338 AC-FT= 3.489
COMPUTE NM HYD	PN-9&AP-8	-	3	.02970	28.86	1.034	.65297	1.500	1.518 PER IMP= 40.00
ROUTE RESERVOIR	AP-8_POND	3	15	.02970	11.99	1.034	.65296	1.700	.631 AC-FT= .366
COMPUTE NM HYD	PN-10	-	3	.00240	1.23	.034	.26520	1.500	.803 PER IMP= 7.00
ADD HYD	AP-9 15& 3	10		.03210	12.46	1.068	.62376	1.650	.606
ROUTE	AP-9R	10	2	.03210	12.46	1.068	.62378	1.700	.607
COMPUTE NM HYD	PN-11&AP-10	-	3	.01840	22.38	.870	.88672	1.500	1.900 PER IMP= 62.00
ROUTE	AP-10R	3	12	.01840	19.10	.870	.88674	1.550	1.622
COMPUTE NM HYD	PN-12	-	3	.01420	18.53	.736	.97172	1.500	2.039 PER IMP= 70.00
ADD HYD	AP-10R&PN-12 12& 3	10		.03260	35.14	1.606	.92373	1.550	1.684
ADD HYD	AP-11 2&10	10		.06470	44.80	2.674	.77491	1.550	1.082
ROUTE RESERVOIR	AP-11_POND	10	92	.06470	19.78	2.684	.77792	2.000	.478 AC-FT= .640

\*S \*\*\*\*\*  
 \*S THIS SECTION ADDS ALL THE FLOW GOING INTO THE NORTH COMANCHE POND  
 \*S \*\*\*\*\*

COMPUTE NM HYD	PN-13	-	3	.01470	4.62	.113	.14444	1.500	.491 PER IMP= .00
ADD HYD	PN-13&AP-4R 3&90	10		.12500	24.16	4.389	.65828	2.100	.302

□

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3 NOTATION
ADD HYD	PN-13&AP-4R& 98&10	10		.19300	90.50	8.031	.78018	1.550	.733	
ADD HYD	AP-12 92&10	10		.25770	108.20	10.715	.77962	1.550	.656	

\*S \*\*\*\*\*  
 \*S THIS SECTION WILL ROUTE AP-12 THROUGH THE COMANCHE NORTH POND.  
 \*S TO THE NORTH DIVERSION CHANNEL VIA THE EXISTING PUMP/LIFT STATION.  
 \*S \*\*\*\*\*

ROUTE RESERVOIR	AP-12-POND	10	93	.25770	15.83	10.709	.77917	2.950	.096 AC-FT= 5.480
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FINISH

PRO10.SUM  
AHYMO SUMMARY TABLE (AHYMO194) - ANAFCA Hydrologic Model - January, 1994  
INPUT FILE = Pro10.IN

RUN DATE (MON/DAY/YR) = 12/18/2003  
USER NO. = C\_ANDRSN.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
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START

TIME= .00

\*S COMMANCHE PARK CONSISTS OF TWO AREAS. ONE IS SOUTH OF COMMANCHE RD.  
\*S EAST OF THE NORTH DIVERSION CHANNEL CONSISTING OF THE THUNDERBIRD  
\*S LITTLE LEAGUE BASEBALL FIELDS. THE SECOND AREA IS NORTH OF COMANCHE  
\*S BLVD. BOTH AREAS ACT AS DETENTION POND FACILITIES.  
\*S THE TWO AREAS ARE CONNECTED BY AN EXISTING 36" CULVERT UNDER  
\*S COMANCHE BLVD. THE RUNOFF FLOWS IN THE NORTH POND ARE PUMPED UP TO THE  
\*S NORTH DIVERSION CHANNEL. THE CONTRIBUTING DRAINAGE BASIN IS  
\*S APPROXIMATELY 95% DEVELOPED. THIS ANALYSIS ASSUMES 100% DEVELOPMENT.  
\*S PROPOSED LAND TREATMENTS WERE UTILIZED FOR THE SOUTH PARK AREA WHILE  
\*S EXISTING LAND TREATMENTS WERE UTILIZED FOR THE NORTH PARK. ALL OTHER  
\*S LAND TREATMENTS WERE DETERMINED BY USING THE LATEST AERIAL PHOTO  
\*S OF THE AREA AND TABLE A-5 OF SECTION 22 OF THE CITY OF ALBUQUERQUE  
\*S DEVELOPMENT PROCESS MANUAL (DPM).

\*S DATE: December 2, 2003

\*S FILENAME - input : Pro10.IN  
\*S FILENAME - output : Pro10.OUT  
\*S FILENAME - summary table : Pro10.SUM

\*S PROJECT TITLE: DRAINAGE REPORT FOR COMANCHE PARK

\*S SEC PROJECT NUMBER: 101103C

\*S CONSULTANT: SMITH ENGINEERING COMPANY

\*S CLIENT: CONSENSUS PLANNING INC.

\*S -----  
\*S COMMANCHE PARK (North and South) DRAINAGE ANALYSIS:  
\*S 10-YR, 24 HOUR STORM EVENT  
\*S -----

RAINFALL TYPE= 2

RAIN24= 1.790

\*S \*\*\*\*\*

\*S THIS SECTION WILL ROUTE AND ADD THE BASINS  
\*S THAT FLOW INTO SOUTH POND, BASINS PS-1 TO PS-4.  
\*S BASIN PS-4 IS THE SOUTH POND/BASEBALL FIELDS  
\*S \*\*\*\*\*

COMPUTE NM HYD	PS-1&AP-1	-	3	.07770	132.55	5.472	1.32036	1.500	2.666 PER IMP=	80.00
ROUTE	AP-1R	3	2	.07770	126.63	5.472	1.32036	1.500	2.546	
COMPUTE NM HYD	PS-2	-	3	.01120	17.91	.717	1.20068	1.500	2.498 PER IMP=	70.00
ADD HYD	AP-2	2& 3	10	.08890	144.54	6.189	1.30528	1.500	2.540	
COMPUTE NM HYD	PS-3&AP-3	-	3	.00610	11.15	.468	1.44003	1.500	2.855 PER IMP=	90.00
ADD HYD	PART AP-4	10& 3	10	.09500	155.69	6.657	1.31392	1.500	2.561	
COMPUTE NM HYD	PS-4	-	3	.01530	17.12	.452	.55387	1.500	1.749 PER IMP=	6.00

\*S TOTAL FLOW FROM PS BASIN INTO SOUTH POND  
\*S A PORTION OF THE FLOW FROM AP-7 WILL ENTER THE SOUTH POND DUE  
\*S TO FLOW OVERTOPPING THE CURB AT COMANCHE RD. AND BRYN MAWR DR.  
\*S SEE NOTES BELOW RELATIVE TO AP-7.

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2	NOTATION
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ADD HYD PART AP-4 10& 3 30 .11030 172.81 7.109 1.20849 1.500 2.448

\*S \*\*\*\*\*  
\*S THIS SECTION WILL DETERMINE FLOWS ENTERING COMANCHE PARK NORTH.  
\*S BASINS PN-1 TO PN-13.  
\*S \*\*\*\*\*

COMPUTE NM HYD	PN-1	-	3	.03230	49.23	2.151	1.24855	1.500	2.382 PER IMP=	74.00
COMPUTE NM HYD	PN-2	-	4	.00620	10.20	.413	1.24855	1.500	2.571 PER IMP=	74.00
ADD HYD	AP-5	3& 4	10	.03850	59.43	2.564	1.24854	1.500	2.412	
ROUTE	AP-5R	10	2	.03850	58.41	2.564	1.24856	1.550	2.370	
COMPUTE NM HYD	PN-3	-	3	.00740	12.17	.493	1.24855	1.500	2.570 PER IMP=	74.00
COMPUTE NM HYD	PN-4	-	4	.00410	6.10	.236	1.08101	1.500	2.323 PER IMP=	60.00
ADD HYD	PART AP-6	3& 4	10	.01150	18.27	.729	1.18876	1.500	2.482	
ADD HYD	AP-6R	2&10	10	.05000	75.90	3.293	1.23479	1.500	2.372	
ROUTE	AP-6R	10	2	.05000	76.65	3.293	1.23481	1.550	2.395	
COMPUTE NM HYD	PN-5	-	3	.00670	10.72	.429	1.20068	1.500	2.499 PER IMP=	70.00
COMPUTE NM HYD	PN-6	-	4	.00800	12.79	.512	1.20068	1.500	2.499 PER IMP=	70.00
ADD HYD	PN-5&PN-6	3& 4	10	.01470	23.51	.941	1.20065	1.500	2.499	
COMPUTE NM HYD	PN-7	-	3	.00090	1.65	.069	1.44003	1.500	2.870 PER IMP=	90.00
COMPUTE NM HYD	PN-8	-	4	.00240	4.39	.184	1.44003	1.500	2.858 PER IMP=	90.00
ADD HYD	PN-7&PN-8	3& 4	20	.00330	6.04	.253	1.43985	1.500	2.862	
ADD HYD	PN-7&PN-8&PN	10&20	10	.01800	29.55	1.195	1.24450	1.500	2.566	
ADD HYD	AP-7	2&10	91	.06800	102.23	4.487	1.23736	1.550	2.349	
DIVIDE HYD	AP-7NORTH	91	98	.06699	94.00	4.421	1.23736	1.500	2.193	
	AP-7SOUTH	AND	99	.00101	8.23	.067	1.23736	1.550	12.690	

\*S TOTAL FLOW FROM PS BASIN INTO SOUTH POND  
\*S A PORTION OF THE FLOW FROM AP-7 WILL ENTER THE SOUTH POND DUE

SOUTH PARK - PROPOSED  
CONDITION

10-YEAR, 24-HOUR  
STORM EVENT

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PRO10.SUM
*S      TO FLOW OVERTOPPING THE CURB AT COMANCHE RD. AND BRYN MAWR DR.
*S      SEE NOTES BELOW RELATIVE TO AP-7.
ADD HYD      AP-4 30&99  10      .11131      180.76      7.176      1.20876      1.500      2.537
*S -----WE WILL NOW ROUTE THE TOTAL FLOW INTO THE SOUTH POND THROUGH
*S      THE EXISTING 36" CULVERT PIPE CONNECTING THE SOUTH POND TO
*S      THE NORTH POND.-----
*S      THE OUTFLOW VALUES USED IN THIS RESERVOIR ROUTE ASSUME A TAI
*S      WATER ELEV. OF 5079.25' IN THE COMANCHE NORTH PARK POND.
ROUTE RESERVOIR  AP-4_POND  10  90      .11131      29.63      5.699      .95992      2.100      .416 AC-FT=  4.244
COMPUTE NM HYD   PN-9&AP-8  -   3      .02970      37.34      1.333      .84166      1.500      1.964 PER IMP= 40.00
ROUTE RESERVOIR  AP-8_POND  3  15      .02970      15.53      1.333      .84165      1.700      .817 AC-FT=   .484
COMPUTE NM HYD   PN-10     -   3      .00240      1.90      .052      .40419      1.500      1.238 PER IMP=  7.00
ADD HYD          AP-9 15& 3  10      .03210      16.28      1.385      .80892      1.650      .793
ROUTE           AP-9R  10   2      .03210      16.28      1.385      .80895      1.700      .792
COMPUTE NM HYD   PN-11&AP-10 -   3      .01840      27.74      1.084      1.10494      1.500      2.356 PER IMP= 62.00
ROUTE           AP-10R  3  12      .01840      24.38      1.084      1.10497      1.550      2.070
COMPUTE NM HYD   PN-12     -   3      .01420      22.70      .909      1.20068      1.500      2.498 PER IMP= 70.00
ADD HYD          AP-10R&PN-12 12& 3  10      .03260      44.06      1.994      1.14663      1.550      2.112
ADD HYD          AP-11  2&10  10      .06470      56.88      3.378      .97908      1.550      1.374
ROUTE RESERVOIR  AP-11_POND 10  92      .06470      23.72      3.384      .98054      2.000      .573 AC-FT=   .944
*S *****
*S      THIS SECTION ADDS ALL THE FLOW GOING INTO THE NORTH COMANCHE POND
*S *****
COMPUTE NM HYD   PN-13     -   3      .01470      8.32      .207      .26340      1.500      .884 PER IMP=   .00
ADD HYD          PN-13&AP-4R 3&90  10      .12601      30.15      5.905      .87867      2.050      .374
□
      FROM TO
      HYDROGRAPH ID ID
COMMAND IDENTIFICATION NO. NO.      AREA      PEAK      RUNOFF
      (SQ MI) DISCHARGE VOLUME
      (CFS) (AC-FT)
      RUNOFF TIME TO CFS PAGE = 3
      (INCHES) (HOURS) PER ACRE NOTATION
ADD HYD      PN-13&AP-4R& 98&10  10      .19300      110.22      10.326      1.00316      1.550      .892
ADD HYD      AP-12 92&10  10      .25770      128.37      13.709      .99748      1.550      .778
*S *****
*S      THIS SECTION WILL ROUTE AP-12 THROUGH THE COMANCHE NORTH POND.
*S      TO THE NORTH DIVERSION CHANNEL VIA THE EXISTING PUMP/LIFT STATION.
*S *****
ROUTE RESERVOIR  AP-12-POND 10  93      .25770      15.83      13.703      .99702      3.200      .096 AC-FT=  7.600
FINISH

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PRO100.SUM  
AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994  
INPUT FILE = Pro100.IN

RUN DATE (MON/DAY/YR) =12/18/2003  
USER NO.= C\_ANDRSN.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
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START  
\*S COMMANCHE PARK CONSISTS OF TWO AREAS. ONE IS SOUTH OF COMMANCHE RD.  
\*S EAST OF THE NORTH DIVERSION CHANNEL CONSISTING OF THE THUNDERBIRD  
\*S LITTLE LEAGUE BASEBALL FIELDS. THE SECOND AREA IS NORTH OF COMMANCHE  
\*S BLVD. BOTH AREAS ACT AS DETENTION POND FACILITIES.  
\*S THE TWO AREAS ARE CONNECTED BY AN EXISTING 36" CULVERT UNDER  
\*S COMMANCHE BLVD. THE RUNOFF FLOWS IN THE NORTH POND ARE PUMPED UP TO THE  
\*S NORTH DIVERSION CHANNEL. THE CONTRIBUTING DRAINAGE BASIN IS  
\*S APPROXIMATELY 95% DEVELOPED. THIS ANALYSIS ASSUMES 100% DEVELOPMENT.  
\*S PROPOSED LAND TREATMENTS WERE UTILIZED FOR THE SOUTH PARK AREA WHILE  
\*S EXISTING LAND TREATMENTS WERE UTILIZED FOR THE NORTH PARK. ALL OTHER  
\*S LAND TREATMENTS WERE DETERMINED BY USING THE LATEST AERIAL PHOTO  
\*S OF THE AREA AND TABLE A-5 OF SECTION 22 OF THE CITY OF ALBUQUERQUE  
\*S DEVELOPMENT PROCESS MANUAL (DPM).

\*S DATE: December 2, 2003

\*S FILENAME - input : Pro100.IN  
\*S FILENAME - output : Pro100.OUT  
\*S FILENAME - summary table : Pro100.SUM

\*S PROJECT TITLE: DRAINAGE REPORT FOR COMMANCHE PARK

\*S SEC PROJECT NUMBER: 101103C  
\*S CONSULTANT: SMITH ENGINEERING COMPANY  
\*S CLIENT: CONSENSUS PLANNING INC.

\*S -----  
\*S COMMANCHE PARK (North and South) DRAINAGE ANALYSIS:  
\*S 100-YR, 24 HOUR STORM EVENT  
\*S -----

RAINFALL TYPE= 2

RAIN24= 2.680

\*S \*\*\*\*\*  
\*S THIS SECTION WILL ROUTE AND ADD THE BASINS  
\*S THAT FLOW INTO SOUTH POND, BASINS PS-1 TO PS-4.  
\*S BASIN PS-4 IS THE SOUTH POND/BASEBALL FIELDS  
\*S \*\*\*\*\*

COMPUTE NM HYD	PS-1&AP-1	-	3	.07770	208.97	8.866	2.13945	1.500	4.202 PER IMP=	80.00
ROUTE	AP-1R	3	2	.07770	202.00	8.866	2.13945	1.500	4.062	
COMPUTE NM HYD	PS-2	-	3	.01120	28.78	1.186	1.98545	1.500	4.015 PER IMP=	70.00
ADD HYD	AP-2	2& 3	10	.08890	230.78	10.052	2.12004	1.500	4.056	
COMPUTE NM HYD	PS-3&AP-3	-	3	.00610	17.17	.746	2.29343	1.500	4.399 PER IMP=	90.00
ADD HYD	PART_AP-4	10& 3	10	.09500	247.95	10.798	2.13117	1.500	4.078	
COMPUTE NM HYD	PS-4	-	3	.01530	31.20	.960	1.17589	1.500	3.187 PER IMP=	6.00

\*S TOTAL FLOW FROM PS BASIN INTO SOUTH POND  
\*S A PORTION OF THE FLOW FROM AP-7 WILL ENTER THE SOUTH POND DUE  
\*S TO FLOW OVERTOPPING THE CURB AT COMMANCHE RD. AND BRYN MAWR DR.  
\*S SEE NOTES BELOW RELATIVE TO AP-7.

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2	NOTATION
ADD HYD	PART_AP-4	10& 3	30	.11030	279.15	11.757	1.99866	1.500	3.954		
*S *****											
*S THIS SECTION WILL DETERMINE FLOWS ENTERING COMMANCHE PARK NORTH.											
*S BASINS PN-1 TO PN-13.											
*S *****											
COMPUTE NM HYD	PN-1	-	3	.03230	78.67	3.526	2.04705	1.500	3.806 PER IMP=	74.00	
COMPUTE NM HYD	PN-2	-	4	.00620	16.24	.677	2.04705	1.500	4.093 PER IMP=	74.00	
ADD HYD	AP-5	3& 4	10	.03850	94.91	4.203	2.04703	1.500	3.852		
ROUTE	AP-5R	10	2	.03850	92.82	4.203	2.04706	1.500	3.767		
COMPUTE NM HYD	PN-3	-	3	.00740	19.38	.808	2.04705	1.500	4.092 PER IMP=	74.00	
COMPUTE NM HYD	PN-4	-	4	.00410	10.04	.400	1.83147	1.500	3.827 PER IMP=	60.00	
ADD HYD	PART_AP-6	3& 4	10	.01150	29.42	1.208	1.97014	1.500	3.998		
ADD HYD	AP-6	2&10	10	.05000	122.24	5.412	2.02935	1.500	3.820		
ROUTE	AP-6R	10	2	.05000	122.12	5.412	2.02937	1.550	3.816		
COMPUTE NM HYD	PN-5	-	3	.00670	17.22	.709	1.98546	1.500	4.016 PER IMP=	70.00	
COMPUTE NM HYD	PN-6	-	4	.00800	20.56	.847	1.98546	1.500	4.015 PER IMP=	70.00	
ADD HYD	PN-5&PN-6	3& 4	10	.01470	37.78	1.557	1.98541	1.500	4.016		
COMPUTE NM HYD	PN-7	-	3	.00090	2.55	.110	2.29344	1.500	4.424 PER IMP=	90.00	
COMPUTE NM HYD	PN-8	-	4	.00240	6.77	.294	2.29344	1.500	4.405 PER IMP=	90.00	
ADD HYD	PN-7&PN-8	3& 4	20	.00330	9.31	.404	2.29326	1.500	4.410		
ADD HYD	PN-7&PN-8&PN	10&20	10	.01800	47.09	1.960	2.04185	1.500	4.088		
ADD HYD	AP-7	2&10	91	.06800	165.20	7.372	2.03266	1.500	3.796		
DIVIDE HYD	AP-7NORTH	91	98	.05922	94.00	6.420	2.03266	1.450	2.480		
	AP-7SOUTH	AND	99	.00878	71.20	.952	2.03266	1.500	12.669		

\*S TOTAL FLOW FROM PS BASIN INTO SOUTH POND  
\*S A PORTION OF THE FLOW FROM AP-7 WILL ENTER THE SOUTH POND DUE

SOUTH PARK - PROPOSED  
CONDITION

100-YEAR, 24-Hour  
STORM EVENT



PRO100.SUM

\*S TO FLOW OVERTOPPING THE CURB AT COMANCHE RD. AND BRYN MAWR DR.  
 \*S SEE NOTES BELOW RELATIVE TO AP-7.

ADD HYD	AP-4 30&99	10		.11908	350.36	12.709	2.00116	1.500	4.597	
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\*S -----WE WILL NOW ROUTE THE TOTAL FLOW INTO THE SOUTH POND THROUGH  
 \*S THE EXISTING 36" CULVERT PIPE CONNECTING THE SOUTH POND TO  
 \*S THE NORTH POND.-----  
 \*S THE OUTFLOW VALUES USED IN THIS RESERVOIR ROUTE ASSUME A TAI  
 \*S WATER ELEV. OF 5079.25' IN THE COMANCHE NORTH PARK POND.

ROUTE RESERVOIR	AP-4_POND	10	90	.11908	43.22	11.228	1.76795	2.100	.567 AC-FT=	7.909
COMPUTE NM HYD	PN-9&AP-8	-	3	.02970	65.37	2.413	1.52349	1.500	3.439 PER IMP=	40.00
ROUTE RESERVOIR	AP-8_POND	3	15	.02970	24.81	2.413	1.52348	1.750	1.305 AC-FT=	.941
COMPUTE NM HYD	PN-10	-	3	.00240	4.08	.122	.94922	1.500	2.657 PER IMP=	7.00
ADD HYD	AP-9 15& 3	10		.03210	26.47	2.535	1.48052	1.700	1.288	
ROUTE	AP-9R	10	2	.03210	26.44	2.535	1.48055	1.700	1.287	
COMPUTE NM HYD	PN-11&AP-10	-	3	.01840	45.46	1.828	1.86226	1.500	3.861 PER IMP=	62.00
ROUTE	AP-10R	3	12	.01840	42.33	1.828	1.86229	1.550	3.595	
COMPUTE NM HYD	PN-12	-	3	.01420	36.48	1.504	1.98546	1.500	4.014 PER IMP=	70.00
ADD HYD	AP-10R&PN-12 12& 3	10		.03260	75.40	3.331	1.91592	1.500	3.614	
ADD HYD	AP-11 2&10	10		.06470	96.69	5.866	1.69990	1.550	2.335	
ROUTE RESERVOIR	AP-11_POND	10	92	.06470	36.74	5.873	1.70199	2.050	.887 AC-FT=	1.947

\*S \*\*\*\*\*  
 \*S THIS SECTION ADDS ALL THE FLOW GOING INTO THE NORTH COMANCHE POND  
 \*S \*\*\*\*\*

COMPUTE NM HYD	PN-13	-	3	.01470	21.03	.589	.75080	1.500	2.235 PER IMP=	.00
ADD HYD	PN-13&AP-4R 3&90	10		.13378	49.77	11.817	1.65619	1.600	.581	

□

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3 NOTATION
ADD HYD	PN-13&AP-4R& 98&10	10		.19300	143.77	18.237	1.77170	1.600	1.164	
ADD HYD	AP-12 92&10	10		.25770	171.63	24.110	1.75420	1.650	1.041	

\*S \*\*\*\*\*  
 \*S THIS SECTION WILL ROUTE AP-12 THROUGH THE COMANCHE NORTH POND.  
 \*S TO THE NORTH DIVERSION CHANNEL VIA THE EXISTING PUMP/LIFT STATION.  
 \*S \*\*\*\*\*

ROUTE RESERVOIR	AP-12-POND	10	93	.25770	15.83	24.102	1.75364	4.450	.096 AC-FT=	15.135
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FINISH