CITY OF ALBUQUERQUE



October 14, 2010

David Soule, P.E. **Rio Grande Engineering**P.O. Box 67305

Albuquerque, NM 87193

Re: Desert Creek Apartments,

4300 Pan American Frwy, Traffic Circulation Layout Engineer's Stamp dated 07-30-10 (G16-D110)

Dear Mr. Soule,

The TCL submittal received 10-14-10 is approved for Building Permit. The plan is stamped and signed as approved. A copy of this plan will be needed for each of the building permit plans. Please keep the original to be used for certification of the site for final C.O. for Transportation. Public infrastructure or work done within City Right-of-Way shown on these plans is for information only and is not part of approval. A separate DRC and/or other appropriate permits are required to construct these items.

PO Box 1293

If a temporary CO is needed, a copy of the original TCL that was stamped as approved by the City will be needed. This plan must include a statement that identifies the outstanding items that need to be constructed or the items that have not been built in "substantial compliance," as well as the signed and dated stamp of a NM registered architect or engineer. Submit this TCL with a completed <u>Drainage and Transportation Information Sheet</u> to Hydrology at the Development Services Center of Plaza Del Sol Building.

Albuquerque

NM 87103

When the site is completed and a final C.O. is requested, use the original City stamped approved TCL for certification. A NM registered architect or engineer must stamp, sign, and date the certification TCL along with indicating that the development was built in "substantial compliance" with the TCL. Submit this certification TCL with a completed <u>Drainage and Transportation Information Sheet</u> to Hydrology at the Development Services Center of Plaza Del Sol Building.

www.cabq.gov

Once verification of certification is completed and approved, notification will be made to Building Safety to issue Final C.O. To confirm that a final C.O. has been issued, call Building Safety at 924-3306.

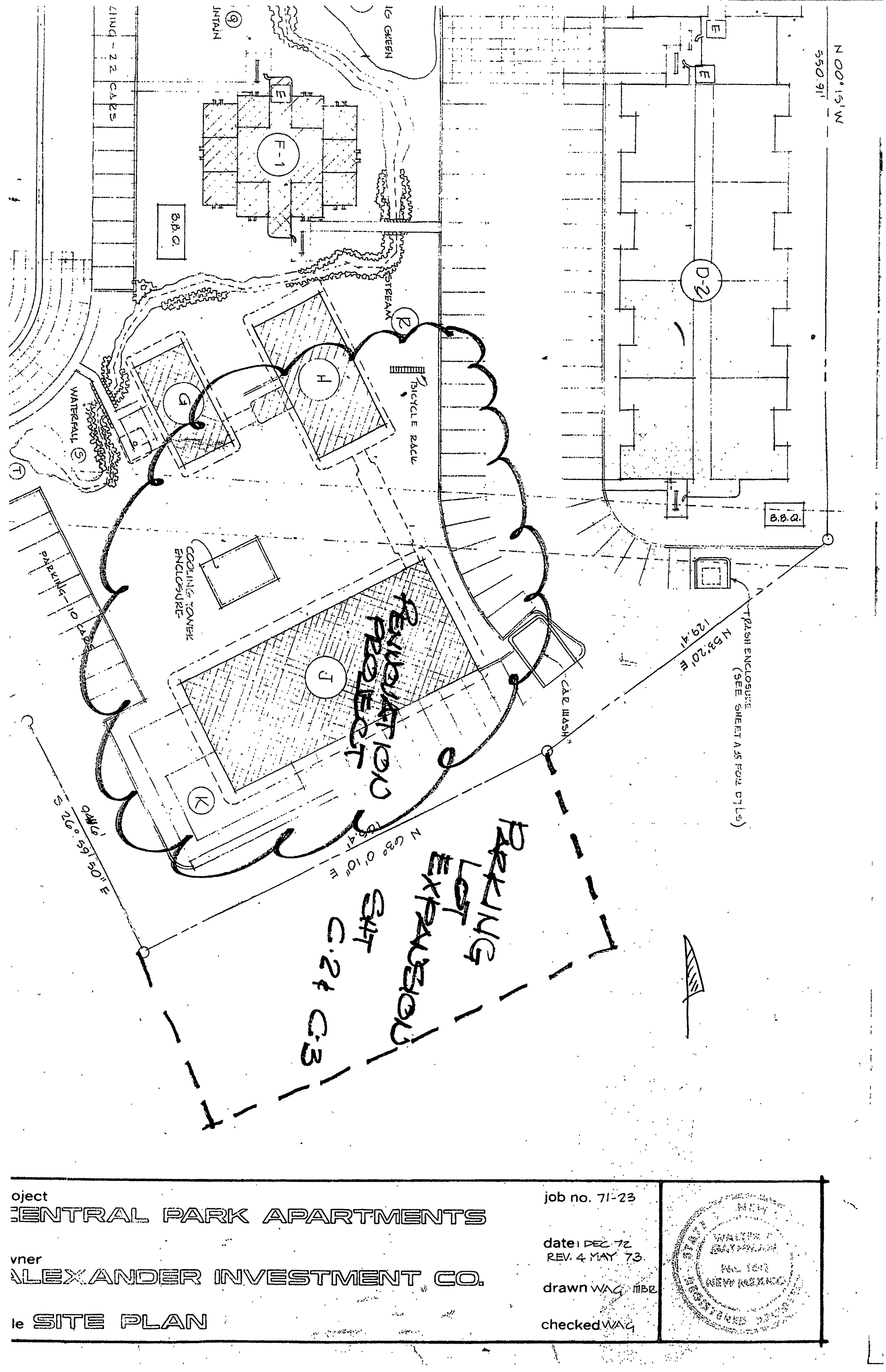
Sincerely,

Kristal D. Metro, P.E.

Traffic Engineer, Planning Dept.

Development and Building Services

C: File



CITY OF ALBUQUERQUE



August 03, 2010

David Soule, P.E. Rio Grande Engineering PO Box 67305 Albuquerque, NM 87199

Desert Creek Apartments, 4300 Pan American Frwy. Re:

Grading and Drainage Plan

Engineer's Stamp dated 07-30-10 (G16-D110)

Dear Mr. Soule,

Based upon the information provided in your submittal received 07-30-10, the above referenced plan is approved for Grading Permit and Paving Permit.

PO Box 1293 Upon completion of the project, provide an Engineer Certification for our files.

Albuquerque

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

NM 87103

www.cabq.gov

Sincerely,

Bradley L. Bingham, PE, CFM.

City Hydrologist Planning Department.

Bradley J. Bingham

Development and Building Services

File

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 01/28/2003rd)

PROJECT TITLE: DRB #:	desert creek apts EPC #:	ZONE MAP/E WORK ORDI	ORG. FILE #: G16 / FILE #:
LEGAL DESCRIPTION: CITY ADDRESS:	tract a1, Luecking Park Complex 4300 Pan American Freeway		
ENGINEERING FIRM: ADDRESS: CITY, STATE: OWNER: ADDRESS:	Rio Grande Engineering PO BOX 67305 Alb Sunscape G&G Partners 7255 Viewpoint road	CONTACT: PHONE: ZIP CODE: CONTACT: PHONE:	David Soule, PE (505)321-9099 87199
CITY, STATE: ARCHITECT: ADDRESS: CITY, STATE:	Mark Snap	ZIP CODE: CONTACT: PHONE: ZIP CODE:	95003
SURVEYOR: ADDRESS: CITY, STATE:	Geo surv CO	CONTACT: PHONE: ZIP CODE:	David Vigil
CONTRACTOR: ADDRESS: CITY, STATE:		CONTACT: PHONE: ZIP CODE:	
DRAINAGE PLA CONCEPTUAL O GRADING PLAN EROSION CON ENGINEER'S CI CLOMR/LOMR X TRAFFIC CIRCU ENGINEERS CE	PORT IN 1st SUBMITTAL, <i>REQUIRES TCL or equal</i> IN RESUBMITTAL GRADING & DRAINAGE PLAN	PRELIMINAL S. DEV. PLA S. DEV. PLA SECTOR PL FINAL PLAT FOUNDATIO BUILDING P CERTIFICAT CERTIFICAT X GRADING P X PAVING PE	ACIAL GUARANTEE RELEASE RY PLAT APPROVAL IN FOR SUB'D. APPROVAL IN FOR BLDG. PERMIT APPROVAL AN APPROVAL APPROVAL IN PERMIT APPROVAL ERMIT APPROVAL IE OF OCCUPANCY (PERM.) IE OF OCCUPANCY (TEMP.)
WAS A PRE-DESIGN CON YES NO COPY PROVIDE	(1) ()		HYDROLOGY SECTION
DATE SUBMITTED:	7/30/2010	BY:	David Soule

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a dranage submittal.

The particular nature, location and scope of the proposed development defines the degree of drainage detail.

One or more of the following levels of sumbittal may be required based on the following:

- 1. Conceptual Grading and Drainage Plans: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
- 2. Drainage Plans: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
- 3. Drainage Report: Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

For

TENNIS COURT CONVERSION DESERT CREEK APARTMENTS 4300 PAN AMERICAN FREEWAY NE Albuquerque, New Mexico

Prepared by

Rio Grande Engineering PO Box 67305 Albuquerque, New Mexico 87193

JULY 2010



David Soule P.E. No. 14522



JUL 3 0 2010

HYDROLOGY SECTION

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Summary	5
Appendix Site Hydrology	,A
Map Pocket Site Grading and Drainage Plan	

PURPOSE

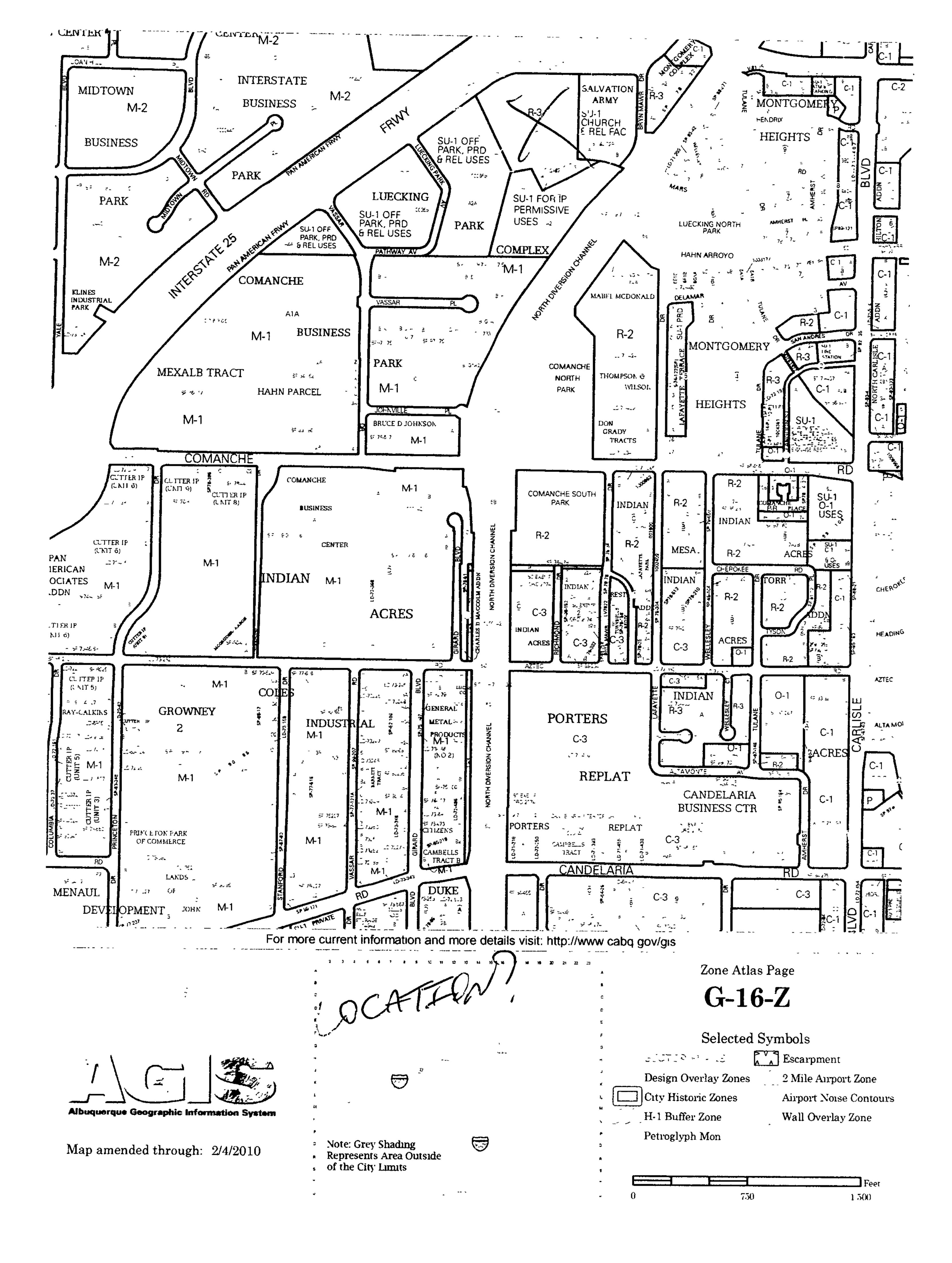
The purpose of this report is to provide the Drainage Management Plan for the conversion of a tennis court area to a parking field and car storage area. This site is on the south side of I-25 just south of the north diversion channel. This plan was prepared in accordance with the City of Albuquerque design regulations, utilizing the City of Albuquerque's Development Process Manual drainage guidelines. This report will demonstrate that the grading does not adversely affect the surrounding properties, nor the upstream or downstream facilities.

INTRODUCTION

The subject of this report, as shown on the Exhibit A, is a 12,600 square foot parcel of land located on the south side of the existing Desert Creek apartment complex.. The legal description of this site is a portion of lot A-1,Luecking Park Complex. As shown on FIRM map35013C0138E, the entire property is located within Flood Zone X. This site area is currently developed as a tennis court and hard packed storage area. The remaining site is a fully developed free discharging parcel. Based on the site location, type of modification and the adjacent drainage infrastructure this development should continue to the west and match existing drainage patterns as closely as possible.

EXISTING CONDITIONS

The site is currently developed. Based upon the original drainage plan, the site is a portion of a larger complex that was not completed. This site free discharges to the west where it is concentrated offsite into a minor arroyo a leading to Lueking Park Ave. Once the flow enters the Right of way it is conveyed to Vassar and a storm inlet. The project area currently discharges 1.17 cfs as sheet flow. The site is impacted by minor flows from a native area onsite between this tennis court and the AMAFCA Channel. The flow leaves the site, crosses the adjacent parcel and enters a city maintained storm drain within Vassar.



PROPOSED CONDITIONS

The proposed improvements consist of the removal of the tennis court and storage area and the construction of an overflow parking and vehicle storage area for the existing complex. The grades will remain the same with the exception of creating a sloped parking field where the level tennis court was. The west end of the area will match existing elevations. Based upon a conversation with Bradley Bingham, the City Hydrologist, the existing sheet flow should continue. There will be no ponding that will result in concentration of flows. The project area will now discharge 1.26 cfs is being proposed to re-establish the inverted crown and assure positive flow to the north.

SUMMARY AND RECOMMENDATIONS

This project is a reconfiguration of a 0.29 acre area from its existing use to another use. The drainage patterns will not change there will be an increase in peak discharge of .09cfs. The free discharge option was recommended by the City Hydrologist. The work area encompasses less than 1/2 acre, a NPDES permit / SWPPP should not be required prior to any construction activity.

APPENDIX A SITE HYDROLOGY

Weighted E Method

Proposed Developed Basins

Pagin	A	A									10	0-Year, 6-hr.		10-day
Basin	Area	Area	Trea	tment A	Trea	tment B	Trea	tment C	Treat	ment D	Weighted E	Volume	Flow	Volume
	(sf)	(acres)	%	(acres)	%	(acres)	%	(acres)	%	(acres)	(ac-ft)	(ac-ft)	cfs	(ac-ft)
existing	12600.00	, 0.289	5%	0.01446281	5%	0.014	25%	0.07231	65%	0.188	1.726		4 4 7	
proposed	12600.00	0.289 در	5%	0.01446281	5%							0.042	1.17	0.067
	72 1	···	0 /0		370	0.014	5%	0.01446	85%	0.246	1.924	0.046	1.26	0.079
Total	25200.00	0.58		0.000		0.000		-0.058		0.058		0.005	0.090	0.012

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted D * Total Area

Flow = Qa * Aa + Qb * Ab + Qc * Ac + Qd * Ad

Where for 100-year, 6-hour storm

Ea= 0.53	Qa= 1.56
Eb= 0.78	Qb= 2.28
Ec= 1.13	Qc= 3.14
Ed= 2.12	Qd= 4.7

Existing Condition

Discharge to west 1.17 cfs

Developed Conditions

Discharge to west 1.26 cfs

increas flow rate from historical to west 0.09 cfs



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 8, 1996

Joe 'Kelly Chavez-Grieves 5639 Jefferson NE Albuquerque, NM 87109

RE: CENTRAL PARK PHASE II (G16-D110) DRAINAGE REPORT FOR FOUNDATION PERMIT, BUILDING PERMIT, GRADING PERMIT, AND PAVING PERMIT APPROVALS. ENGINEER'S STAMP DATED MARCH 15, 1996.

Dear Mr. Kelly:

Based on the information provided on your March 19, 1996 submittal, please address the following comments:

- The amended floodplain request to FEMA needs to be added to an infrastructure list. This request must be submitted to FEMA prior to any permit release from Hydrology. This project will also require DRB approval.
- Prior to any approval, you will need permission (drainage easement) from the adjacent property owner to change the routing of flow and to construct the 400 square foot dissipator on his/her property.
- Please show how you came up with Q(design) on page B-1 of your drainage report.

Per our phone conversation on 4-8-96, you mentioned that you may consider leaving the floodplain as is. If you choose to resubmit this way, the floodplain administrator (Susan Calongne) may review your next submittal. Please let me know if you do submit it without floodplain revisions, so that I can discuss my initial review with her.

If I can be of further assistance, please feel free to contact me at 768-3622.

Lisa Ann Manwill Engineering Assoc./Hyd.

Susan Calongne Andrew Garcia File)

5639 JEFFERSON STREET NE · ALBUQUERQUE, NEW MEXICO 87109 PHONE (505) 344 4080 · FAX (505) 343 8759

GRADING AND DRAINAGE PLAN

FOR THE

CENTRAL PARK APARTMENTS

PHASE II IMPROVEMENTS

ALBUQUERQUE, NEW MEXICO

MARCH 1996

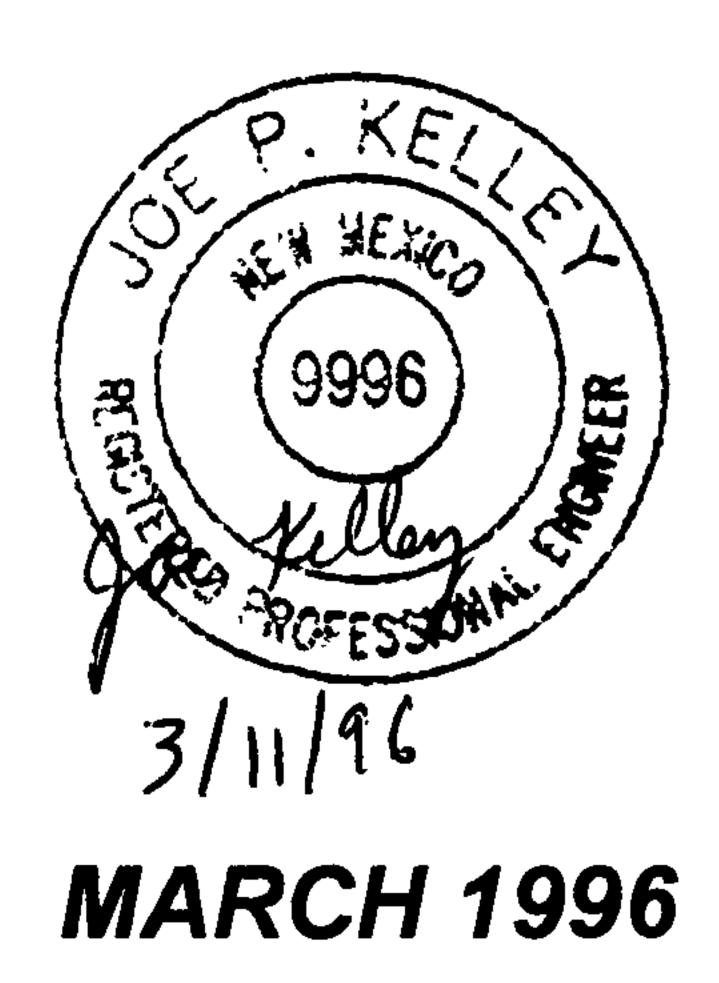
5639 JEFFERSON STREET NE · ALBUQUERQUE, NEW MEXICO 87109 · PHONE (505) 344·4080 · FAX (505) 343 8759

GRADING AND DRAINAGE PLAN

FOR THE

CENTRAL PARK APARTMENTS PHASE II IMPROVEMENTS

ALBUQUERQUE, NEW MEXICO



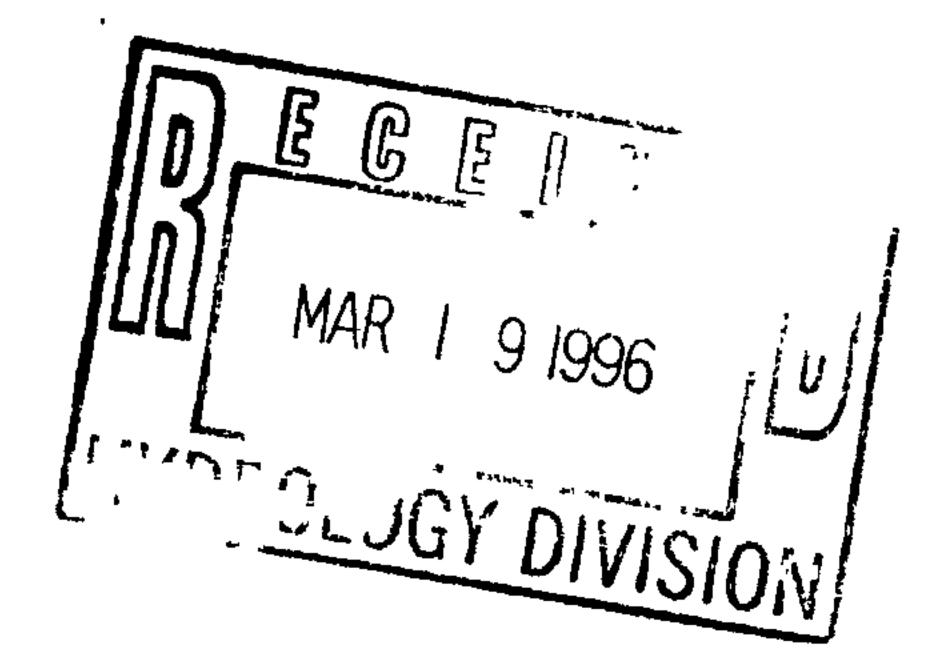


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CENTRAL PARK APARTMENTS -- PHASE II

LOCATION

This site is located in northeastern Albuquerque, New Mexico on the south side of Montgomery Avenue, between Interstate 25 and the AMAFCA North Diversion Channel.

LEGAL DESCRIPTION

A portion of Luecking Park Complex, Tract A.

ZONING AND SURROUNDING DEVELOPMENT

The site is zoned R-3 Residential Zone, which is the highest-density residential zone. The northern part of the tract has been developed as Phase I of the Central Park Apartments. Adjacent to the tract on the northeast is an existing Salvation Army site. The land south of the site is developing as an industrial complex, while the land to the west is zoned for an office complex, but is presently undeveloped. Adjacent to the site on the east is the North Diversion Channel that is the major conveyance of runoff through the City.

FLOOD HAZARD ZONES

As indicated by National Flood Insurance Rate Map number 3500020023C for the City of Albuquerque, dated October 14, 1983, a small portion of the site is in a designated Flood Hazard Zone AO (Depth 1). This flood zone has been plotted on the existing site plan/drainage basins map. Zone AO designates "areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined." The Owner desires to submit an application for map revision to the Federal Emergency Management Agency in order to restrict the flood plain to certain non-building areas of the site.

PREVIOUS RELATED PUBLICATIONS

No comprehensive drainage plan was found for the subject site.

EXISTING SITE CONDITIONS AND DRAINAGE PATTERN

The western part of the site is on a ridge adjacent to Luecking Park Ave., while the majority

CENTRAL PARK APARTMENTS -- PHASE II

of the site is in a depressed area that discharges to the west via a poorly-defined channel. Short desert grasses and shrubs are on-site, and it appears that some unlawful dumping has occurred. Developed runoff enters the site from off-site impervious and landscaped surfaces on the north. Runoff generated on the grassed slope of AMAFCA's adjacent diversion channel is retained on AMAFCA property by a berm located at the toe of the slope.

Per the calculations of existing runoff on page A-1 of Appendix A, 12.97 cfs discharges onsite from the north (Basins O-1 through O-4). The remainder of the runoff that passes through the site is generated by on-site Basin A (12.55 cfs). This totals 25.25 cfs that discharges downstream of the site under existing conditions. This downstream runoff meanders to the west and is intercepted by the paved surfaces of Vassar Dr. Vassar conveys the runoff south to an existing dirt channel that conveys the runoff to the west into an inlet adjacent to I-25. From this point, the runoff is discharged under I-25 via an 8' box culvert with an 8' x 4' grated storm inlet. Field investigation shows that this inlet is almost completely blocked by debris, and it appears that it does not experience significant runoff. Another 8' box culvert crosses I-25 300' north of the first. It has a similar entrance structure. The size of the culverts may have been necessary when they were first installed, but they are now clearly much larger than necessary for current conditions.

PROPOSED SITE CONDITIONS AND DRAINAGE PATTERN

The site will be developed as residential apartments, similar to the existing Central Park Apartments to the north. Portions of the site will be landscaped, but the majority will be covered by impervious surfaces. Off-site runoff from the north will continue to be received, and will be routed through the site along with the on-site developed runoff.

Runoff will be collected in storm inlets in the new parking lots. The inlets have been designed such that they create controlled discharges from each lot, resulting in detention ponding in the parking lots. The controlled discharges from the inlets were created by designing the slopes of the outlet pipes such that the pipes have the desired discharge capacity when flowing full. The rating curves for the pipes are in the AHYMO hydrologic output starting on page A-6. The attenuation of the runoff through the ponding system results in a developed discharge of 23.75 cfs, which is less than the existing discharge.

The grading has been designed such that no detention pond will ever be deeper than 1.5'. This was accomplished by designing tiers of ponds in the parking lots, each with a 1.5' tall emergency overflow into the next pond. The bottom pond will overflow at the location of the downstream discharge onto adjacent property. This discharge point also corresponds to the existing off-site floodplain.

Page 2

CENTRAL PARK APARTMENTS -- PHASE II

HYDROLOGY

The runoff calculations and design have been done in accordance with Section 22.2 of the Development Process Manual of the City of Albuquerque, January 1993. The computerized hydrologic model, AHYMO, was used to calculate storm volumes in accordance with Section 22.2. The 100-year, 6-hour storm was used to determine the design discharges.

CENTRAL PARK APARTMENTS -- PHASE II

RUNOFF COMPARISON

BASIN	EXISTING Q (CFS)	DEVELOPED Q (CFS)
0-1	0.56	0.55
0-2	9.43	4.31
0-3	2.06	1.8
0-4	0.92	0.48
0-5	3.57	2.22
0-6		0.18
0-7		2.02
0-8		0.9
A	12.55	4.98
В		6.45
C		4.81
D		3.04
E		6.88
F		6.57
Total Downstream Discharge	25.25	23.74

APPENDIXA

COMPUTER PRINTOUT OF AHYMO RUN

```
AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
         RUN DATE (MON/DAY/YR) = 11/06/1995
         START TIME (HR:MIN:SEC) = 12:16:35 USER NO. = CHVZ_GNM.IO1
         INPUT FILE = AHYMO100.IN
*S*******
                  CHAVEZ-GRIEVES CONSULTING ENGINEERS, INC.
                                                            *****
*S******* CENTRAL PARK APARTMENTS - PHASE II, ABQ, NM
     FILENAME: G:\D06\116\D0CUMENT\AHYM0100.IN/OUT
*S***** 100 YEAR STORM, 6 HOUR STORM
START
                    0.00
RAINFALL
                    TYPE=1 RAIN QUARTER=0.0 RAIN ONE=2.0
                    RAIN SIX=2.3 RAIN DAY=2.6 DT=0.03333
              COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                      .033330 HOURS
                                                       5.999400 HOURS
              DT =
                                         END TIME =
                         .0013
                 .0000
                                 .0026
                                        .0039
                                                        .0066
                                                               .0080
                                                .0052
                 .0095
                         .0109
                                 .0125
                                        .0140
                                                        .0173
                                                               .0190
                                                .0156
                 .0207
                         .0225
                                 .0243
                                        .0263
                                                .0282
                                                               .0324
                                                        .0303
                 .0346
                         .0369
                                 .0392
                                        .0417
                                                       .0470
                                                               .0498
                                                .0443
                 .0528
                         .0560
                                 .0593
                                        .0649
                                                               .0906
                                                .0708
                                                        .0771
                 .1210
                         .1677
                                 .2348
                                        .3263
                                                               .7911
                                                .4467
                                                       .6001
                        1.2408
                                1.3312
                                       1.4075
                 1.0243
                                               1.4753
                                                      1.5371
                                                              1.5939
                                1.7423
                 1.6467
                        1.6960
                                       1.7858
                                               1.8268
                                                      1.8656
                                                              1.9023
                       1.9700
                                       2.0310
                1.9370
                               2.0013
                                              2.0592
                                                      2.0654
                                                             2.0711
                2.0765
                       2.0816
                               2.0865
                                       2.0911
                                              2.0956
                                                      2.0999
                2.1081
                       2.1119
                               2.1156 2.1192
                                              2.1227
                                                      2.1261
                       2.1358
                               2.1388
                2.1327
                                      2.1418
                                              2.1447 2.1476 2.1503
                               2.1583
                                       2.1609
                2.1531
                       2.1557
                                              2.1634
                                                      2.1658
                2.1706
                       2.1729
                               2.1752 2.1775
                                              2.1797
                                                     2.1819
                       2.1882 2.1902 2.1922
                                              2.1942 2.1962 2.1981
                2.1861
                       2.2019 2.2037 2.2056
                                              2.2074
                2.2000
                                                     2.2092 2.2109
                2.2127 2.2144 2.2161 2.2178 2.2194 2.2211 2.2227
                2.2243 2.2259 2.2274 2.2290 2.2305 2.2321 2.2336
                2.2351 2.2365 2.2380 2.2395 2.2409 2.2423 2.2437
                2.2451 2.2465 2.2479 2.2493 2.2506 2.2519 2.2533
                2.2546 2.2559 2.2572 2.2585 2.2597 2.2610 2.2623
                2.2635 2.2647 2.2660 2.2672 2.2684 2.2696 2.2708
                2.2719 2.2731 2.2743 2.2754 2.2766 2.2777 2.2788
                2.2800 2.2811 2.2822 2.2833 2.2844 2.2855 2.2865
                2.2876 2.2887 2.2897 2.2908 2.2918 2.2929 2.2939
                2.2949 2.2960 2.2970 2.2980 2.2990 2.3000
*S COMPUTE THE RUNOFF FROM THE EXISTING BASINS.
*S BASIN A (THIS IS AN ON-SITE BASIN)
COMPUTE NM HYD ID=1 HYD=EXISTING DA=.01192 SQ MI
                   %A=90 %B=0 %C=10 %D=0
                   TP=0.1333 RAINFALL=-1
   K = .155099HR TP = .133300HR K/TP RATIO = 1.163535 SHAPE CONSTANT, N = 3.046962
   UNIT PEAK = 25.542 CFS UNIT VOLUME = .9992 B = 285.63
                                                                             P60 = 2.0000
   AREA = .011920 \text{ SQ MI} IA = .62000 \text{ INCHES} INF = 1.58600 \text{ INCHES PER HOUR}
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330
                   ID=1 CODE=1
PRINT HYD
                                       HYDROGRAPH FROM AREA EXISTING
```

RUNOFF VOLUME = .55652 INCHES = .3538 ACRE-FEET

PEAK DISCHARGE RATE = 12.55 CFS AT 1.533 HOURS BASIN AREA = .0119 SQ. MI.

*S BASIN O-1 (THIS IS CONSIDERED AN OFF-SITE BASIN)

COMPUTE NM HYD

ID=2 HYD=EXISTING DA=.00039 SQ MI

%A=50 %B=0 %C=50 %D=0

TP=0.1333 RAINFALL=-1

.133870HR TP = .133300HRK/TP RATIO = 1.004275SHAPE CONSTANT, N = 3.515132UNIT VOLUME = .94042 UNIT PEAK = CFS .9851 321.43 P60 = 2.0000AREA = .000390 SQ MI .50000 INCHES INF = IA =1.25000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA EXISTING

RUNOFF VOLUME = .75866 INCHES = .0158 ACRE-FEET

PEAK DISCHARGE RATE = .56 CFS AT 1.533 HOURS BASIN AREA = .0004 SQ. MI.

*S BASIN O-2 (THIS IS CONSIDERED AN OFF-SITE BASIN)

COMPUTE NM HYD

ID=3 HYD=EXISTING DA=.00352 SQ MI

%A=0 %B=20 %C=0 %D=80

TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420 UNIT PEAK = 11.118 CFS UNIT VOLUME = .9984 B = 526.28 P60 = 2.0000 AREA = .002816 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

K = .131967HR TP = .133300HR K/TP RATIO = .990000 SHAPE CONSTANT, N = 3.566429 UNIT PEAK = 1.7172 CFS UNIT VOLUME = .9923 B = 325.15 P60 = 2.0000 AREA = .000704 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA EXISTING

RUNOFF VOLUME = 1.80487 INCHES = .3388 ACRE-FEET
PEAK DISCHARGE RATE = 9.43 CFS AT 1.500 HOURS BASIN AREA = .0035 SQ. MI.

*S BASIN O-3 (THIS IS CONSIDERED AN OFF-SITE BASIN)

COMPUTE NM HYD

ID=4 HYD=EXISTING DA=.00098 SQ MI

%A=0 %B=0 %C=90 %D=10

TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420 UNIT PEAK = .38691 CFS UNIT VOLUME = .9711 B = 526.28 P60 = 2.0000 AREA = .000098 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

K = .107333HR TP = .133300HR K/TP RATIO = .805200 SHAPE CONSTANT, N = 4.445615 UNIT PEAK = 2.5399 CFS UNIT VOLUME = .9955 B = 383.86 P60 = 2.0000 AREA = .000882 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

PRINT HYD

ID=4 CODE=1

HYDROGRAPH FROM AREA EXISTING

RUNOFF VOLUME = 1.20208 INCHES = .0628 ACRE-FEET

PEAK DISCHARGE RATE = 2.06 CFS AT 1.500 HOURS BASIN AREA = .0010 SQ. MI.

*S BASIN 0-4 (THIS IS CONSIDERED AN OFF-SITE BASIN)
COMPUTE NM HYD ID=5 HYD=EXISTING DA=.00046 SQ MI

%A=0 %B=0 %C=100 %D=0

TP=0.1333 RAINFALL=-1

K = .107333HR TP = .133300HR K/TP RATIO = .805200 SHAPE CONSTANT, N = 4.445615 UNIT PEAK = 1.3247 CFS UNIT VOLUME = .9903 B = 383.86 P60 = 2.0000 AREA = .000460 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD

ID=5 CODE=1

HYDROGRAPH FROM AREA EXISTING

RUNOFF VOLUME = 1.10604 INCHES = .0271 ACRE-FEET

PEAK DISCHARGE RATE = .92 CFS AT 1.500 HOURS BASIN AREA = .0005 SQ. MI.

*S BASIN O-5 (THIS IS CONSIDERED AN OFF-SITE BASIN *S THAT DOES NOT ENTER ON-SITE BASIN DUE TO DOUBLE BERM) COMPUTE NM HYD ID=6 HYD=EXISTING DA=.00180 SQ MI

%A=0 %B=0 %C=100 %D=0 TP=0.1333 RAINFALL=-1

K = .107333HR TP = .133300HR K/TP RATIO = .805200 SHAPE CONSTANT, N = 4.445615 UNIT PEAK = 5.1834 CFS UNIT VOLUME = .9981 B = 383.86 P60 = 2.0000 AREA = .001800 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

PRINT HYD

ID=6 CODE=1

HYDROGRAPH FROM AREA EXISTING

RUNOFF VOLUME = 1.10604 INCHES = .1062 ACRE-FEET
PEAK DISCHARGE RATE = 3.57 CFS AT 1.500 HOURS BASIN AREA = .0018 SQ. MI.

*S ADD OFF-SITE BASINS TO ON-SITE BASIN

ADD HYD ID=7 HYD=ADD_1 ID I=1 ID II=2

PRINT HYD : ID=7 CODE=1

HYDROGRAPH FROM AREA ADD 1

RUNOFF VOLUME = .56291 INCHES = .3696 ACRE-FEET
PEAK DISCHARGE RATE = .0123 SQ. MI.

ADD HYD ID=8 HYD=ADD_2 ID I=7 ID II=3

PRINT HYD ID=8 CODE=1

HYDROGRAPH FROM AREA ADD_2

RUNOFF VOLUME = .83906 INCHES = .7084 ACRE-FEET
PEAK DISCHARGE RATE = .22.28 CFS AT 1.500 HOURS BASIN AREA = .0158 SQ. MI.

ADD HYD ID=9 HYD=ADD_3 ID I=8 ID II=4

PRINT HYD ID=9 CODE=1

HYDROGRAPH FROM AREA ADD_3

RUNOFF VOLUME = .86021 INCHES = .7712 ACRE-FEET
PEAK DISCHARGE RATE = .24.33 CFS AT 1.500 HOURS BASIN AREA = .0168 SQ'. MI.

*S TOTAL 100 YEAR RUN-OFF FOR EXISTING BASINS

ADD HYD ID=10 HYD=ADD_TOTAL ID I=9 ID II=5

PRINT HYD ID=10 CODE=1

HYDROGRAPH FROM AREA ADD_TOTAL

RUNOFF VOLUME = .86675 INCHES = .7983 ACRE-FEET

PEAK DISCHARGE RATE = 25.25 CFS AT 1.500 HOURS BASIN AREA = .0173 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 12:16:36

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994

RUN DATE (MON/DAY/YR) = 03/08/1996

ID=1 CODE=1

PRINT HYD

```
START TIME (HR:MIN:SEC) = 16:02:26
                                            USER NO. = CHVZ_GNM.IO1
         INPUT FILE = AHYMO101.IN
*S******* CHAVEZ-GRIEVES CONSULTING ENGINEERS, INC.
*S****** CENTRAL PARK APARTMENTS - PHASE II, ABQ, NM
*S* FILENAME: G:\D06\116\D0CUMENT\AHYM0101.IN/OUT
*S***** 100 YEAR STORM, 6 HOUR STORM
START
                    0.00
RAINFALL
                    TYPE=1 RAIN QUARTER=0.0 RAIN ONE=1.97
                    RAIN SIX=2.27 RAIN DAY=2.60 DT=0.03333
              COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                      .033330 HOURS
              DT =
                                        END TIME =
                                                      5.999400 HOURS
                 .0000
                        .0013
                                .0026
                                       .0039
                                               .0053
                                                       .0067
                                                              .0081
                 .0096
                                .0127
                        .0111
                                       .0142
                                               .0159
                                                       .0175
                                                              .0192
                        .0228
                 .0210
                                .0247
                                       .0266
                                                              .0328
                                               .0286
                                                      .0307
                 .0351
                        .0374
                                .0398
                                       .0423
                                               .0449
                                                              .0505
                                                       .0477
                 .0536
                                .0602
                        .0568
                                       .0656
                                               .0714
                                                              .0910
                                                      .0777
                 .1209
                        .1669
                                .2330
                                       .3232
                                               .4417
                                                       .5928
                                                              .7810
                1.0107
                       1.2239
                               1.3129
                                       1.3881
                                              1.4549
                                                     1.5157
                                                             1.5717
                       1.6723
                1.6237
                               1.7179
                                      1.7607
                                              1.8011
                                                     1.8393
                                                             1.8755
                       1.9422
                               1.9730
                1.9097
                                      2.0023
                                              2.0300
                                                     2.0361
                                                            2.0418
                2.0472 2.0523
                              2.0571
                                      2.0618
                                             2.0662
                                                     2.0705
                                                             2.0746
                2.0786
                       2.0824
                              2.0861
                                              2.0932
                                      2.0897
                                                     2.0965
                                                            2.0998
                2.1030
                       2.1061
                              2.1092 2.1121
                                             2.1150
                                                     2.1179
                              2.1286
                2.1233
                       2.1260
                                     2.1311
                                             2.1336
                                                     2.1361
                                                            2.1385
                2.1408
                                                     2.1520
                       2.1431
                              2.1454
                                      2.1477
                                             2.1499
                2.1563
                       2.1583
                              2.1604 2.1624 2.1644
                                                     2.1663
                              2.1738 2.1757 2.1775
                      2.1720
                2.1701
                                                     2.1793 2.1810
                2.1827 2.1845 2.1862 2.1878 2.1895 2.1911 2.1927
                2.1944
                       2.1959 2.1975 2.1991 2.2006
                                                     2.2021 2.2036
                      2.2066 2.2081 2.2095 2.2109
                2.2051
                                                    2.2124 2.2138
                2.2152 2.2166 2.2179 2.2193 2.2206
                                                     2.2220 2.2233
                2.2246 2.2259 2.2272 2.2285 2.2298
                                                    2.2310 2.2323
                       2.2347 2.2360 2.2372 2.2384
                2.2335
                                                     2.2396 2.2408
                2.2419 2.2431 2.2443 2.2454 2.2466 2.2477 2.2488
                       2.2511
                              2.2522 2.2533 2.2544
                                                    2.2555 2.2566
                2.2500
                2.2576 2.2587 2.2597 2.2608 2.2618
                                                    2.2629 2.2639
                2.2649 2.2660 2.2670 2.2680 2.2690 2.2700
*S COMPUTE THE RUNOFF FROM THE DEVELOPED BASINS.
*S BASIN A (THIS IS AN ON-SITE BASIN)
                 ID=1 HYD=FUTURE A DA=.00178 SQ MI
COMPUTE NM HYD
                  %A=0 %B=10 %C=0 %D=90
                   TP=0.1333 RAINFALL=-1
   K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
   UNIT PEAK = 6.3248 CFS UNIT VOLUME = .9976
                                                                526.28
                                                          B =
                                                                           P60 = 1.9700
               .001602 SQ MI IA =
                                     .10000 INCHES INF =
   AREA =
                                                              .04000 INCHES PER HOUR
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330
                                        K/TP RATIO = .987285
   K = .131605HR
                     TP = .133300HR
                                                                 SHAPE CONSTANT, N = 3.576399
   UNIT PEAK = .43514 CFS UNIT VOLUME = .9697
                                                           B = 325.86
   AREA = .000178 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330
```

HYDROGRAPH FROM AREA FUTURE_A

RUNOFF VOLUME = 1.90629 INCHES = .1810 ACRE-FEET
PEAK DISCHARGE RATE = 4.98 CFS AT 1.500 HOURS BASIN AREA = .0018 SQ. MI.

*S BASIN B (THIS IS AN ON-SITE BASIN)

COMPUTE NM HYD

ID=2 HYD=FUTURE_B DA=.00252 SQ MI

%A=0 %B=25 %C=0 %D=75

TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420 UNIT PEAK = 7.4618 CFS UNIT VOLUME = .9978 B = 526.28 P60 = 1.9700 AREA = .001890 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .131605HR TP = .133300HR K/TP RATIO = .987285 SHAPE CONSTANT, N = 3.576399 UNIT PEAK = 1.5401 CFS UNIT VOLUME = .9917 B = 325.86 P60 = 1.9700 AREA = .000630 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA FUTURE_B

RUNOFF VOLUME = 1.71110 INCHES = .2300 ACRE-FEET
PEAK DISCHARGE RATE = 6.45 CFS AT 1.500 HOURS BASIN AREA = .0025 SQ. MI.

*S BASIN C (THIS IS AN ON-SITE BASIN)

COMPUTE NM HYD

ID=3 HYD=FUTURE_C DA=.00172 SQ MI

%A=0 %B=10 %C=0 %D=90

TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420 UNIT PEAK = 6.1116 CFS UNIT VOLUME = .9976 B = 526.28 P60 = 1.9700 AREA = .001548 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .131605HR TP = .133300HR K/TP RATIO = .987285 SHAPE CONSTANT, N = 3.576399 UNIT PEAK = .42047 CFS UNIT VOLUME = .9670 B = 325.86 P60 = 1.9700 AREA = .000172 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA FUTURE C

RUNOFF VOLUME = 1.90629 INCHES = .1749 ACRE-FEET

PEAK DISCHARGE RATE = 4.81 CFS AT 1.500 HOURS BASIN AREA = .0017 SQ. MI.

*S BASIN D (THIS IS AN ON-SITE BASIN)

COMPUTE NM HYD

ID=4 HYD=FUTURE_D DA=.00115 SQ MI

%A=0 %B=20 %C=0 %D=80

TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420 UNIT PEAK = 3.6322 CFS UNIT VOLUME = .9961 B = 526.28 P60 = 1.9700 AREA = .000920 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

K = .131605HR TP = .133300HR K/TP RATIO = .987285 SHAPE CONSTANT, N = 3.576399 UNIT PEAK = .56226 CFS UNIT VOLUME = .9765 B = 325.86 P60 = 1.9700 AREA = .000230 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=4 CODE=1

HYDROGRAPH FROM AREA FUTURE D

RUNOFF VOLUME = 1.77616 INCHES = .1089 ACRE-FEET

PEAK DISCHARGE RATE = 3.04 CFS AT 1.500 HOURS BASIN AREA = .0012 SQ. MI.

*S BASIN E (THIS IS AN ON-SITE BASIN)

COMPUTE NM HYD

ID=5 HYD=FUTURE_E DA=.00246 SQ MI

%A=0 %B=10 %C=0 %D=90

TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420 UNIT PEAK = 8.7410 CFS UNIT VOLUME = .9981 B = 526.28 P60 = 1.9700 AREA = .002214 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

K = .131605HR TP = .133300HR K/TP RATIO = .987285 SHAPE CONSTANT, N = 3.576399 UNIT PEAK = .60137 CFS UNIT VOLUME = .9765 B = 325.86 P60 = 1.9700 AREA = .000246 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

PRINT HYD ID=5 CODE=1

HYDROGRAPH FROM AREA FUTURE E

RUNOFF VOLUME = 1.90629 INCHES = .2501 ACRE-FEET
PEAK DISCHARGE RATE = 6.88 CFS AT 1.500 HOURS BASIN AREA = .0025 SQ. MI.

*S BASIN F (THIS IS AN ON-SITE BASIN)

COMPUTE NM HYD

ID=6 HYD=FUTURE_F DA=.00235 SQ MI

%A=0 %B=10 %C=0 %D=90

TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420 • UNIT PEAK = 8.3501 CFS UNIT VOLUME = .9981 B = 526.28 P60 = 1.9700 AREA = .002115 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

K = .131605 HR TP = .133300HR K/TP RATIO = .987285 SHAPE CONSTANT, N = 3.576399 UNIT PEAK = .57448 CFS UNIT VOLUME = .9765 B = 325.86 P60 = 1.9700 AREA = .000235 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

PRINT HYD ID=6 CODE=1

HYDROGRAPH FROM AREA FUTURE F

RUNOFF VOLUME = 1.90629 INCHES = .2389 ACRE-FEET
PEAK DISCHARGE RATE = 6.57 CFS AT 1.500 HOURS BASIN AREA = .0024 SQ. MI.

*S BASIN 0-1 (THIS IS AN OFF-SITE BASIN)

COMPUTE NM HYD ID=7 HYD=FUTURE_0-1 DA=.00039 SQ MI

%A=50 %B=0 %C=50 %D=0 TP=0.1333 RAINFALL=-1

K = .134079HR TP = .133300HR K/TP RATIO = 1.005842 SHAPE CONSTANT, N = 3.509606 UNIT PEAK = .93925 CFS UNIT VOLUME = .9850 B = 321.03 P60 = 1.9700 AREA = .000390 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

PRINT HYD ID=7 CODE=1

HYDROGRAPH FROM AREA FUTURE 0-1

RUNOFF VOLUME = .73516 INCHES = .0153 ACRE-FEET
PEAK DISCHARGE RATE = .55 CFS AT 1.533 HOURS BASIN AREA = .0004 SQ. MI.

*S BASIN 0-2 (THIS IS AN OFF-SITE BASIN)

COMPUTE NM HYD ID=8 HYD=FUTURE_O-2 DA=.00163 SQ MI

%A=0 %B=20 %C=0 %D=80 TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420 UNIT PEAK = 5.1483 CFS UNIT VOLUME = .9973 B = 526.28 P60 = 1.9700 AREA = .001304 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

K = .131605HR TP = .133300HR K/TP RATIO = .987285 SHAPE CONSTANT, N = 3.576399 UNIT PEAK = .79694 CFS UNIT VOLUME = .9833 B = 325.86 P60 = 1.9700 AREA = .000326 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

PRINT HYD ID=8 CODE=1

HYDROGRAPH FROM AREA FUTURE_0-2

RUNOFF VOLUME = 1.77616 INCHES = .1544 ACRE-FEET
PEAK DISCHARGE RATE = 4.31 CFS AT 1.500 HOURS BASIN AREA = .0016 SQ. MI.

*S BASIN O-3 (THIS IS AN OFF-SITE BASIN)

COMPUTE NM HYD

ID=9 HYD=FUTURE_O-3 DA=.00070 SQ MI

%A=0 %B=25 %C=0 %D=75

TP=0.1333 RAINFALL=-1

K = .072649 HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420 UNIT PEAK = 2.0727 CFS UNIT VOLUME = .9941 B = 526.28 P60 = 1.9700 AREA = .000525 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

K = .131605HR TP = .133300HR K/TP RATIO = .987285 SHAPE CONSTANT, N = 3.576399 UNIT PEAK = .42780 CFS UNIT VOLUME = .9670 B = 325.86 P60 = 1.9700 AREA = .000175 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

PRINT HYD

ID=9 CODE=1

HYDROGRAPH FROM AREA FUTURE 0-3

RUNOFF VOLUME = 1.71110 INCHES = .0639 ACRE-FEET
PEAK DISCHARGE RATE = 1.80 CFS AT 1.500 HOURS BASIN AREA = .0007 SQ. MI.

*S BASIN O-4 (THIS IS AN OFF-SITE BASIN)

COMPUTE NM HYD

ID=10 HYD=FUTURE_O-4 DA=.00016 SQ MI

%A=0 %B=0 %C=0 %D=100

TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420 UNIT PEAK = .63169 CFS UNIT VOLUME = .9815 B = 526.28 P60 = 1.9700 AREA = .000160 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

PRINT HYD

ID=10 CODE=1

HYDROGRAPH FROM AREA FUTURE_0-4

RUNOFF VOLUME = 2.03641 INCHES = .0174 ACRE-FEET

PEAK DISCHARGE RATE = .48 CFS AT 1.500 HOURS BASIN AREA = .0002 SQ. MI.

*S BASIN O-5 (THIS IS AN OFF-SITE BASIN)

COMPUTE NM HYD

ID=11 HYD=FUTURE_O-5 DA=.00079 SQ MI

%A=0 %B=10 %C=0 %D=90

TP=0.1333 RAINFALL=-1

K = .072649 HR TP = .133300 HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420 UNIT PEAK = 2.8071 CFS UNIT VOLUME = .9955 B = 526.28 P60 = 1.9700 AREA = .000711 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

K = .131605HR TP = .133300HR K/TP RATIO = .987285 SHAPE CONSTANT, N = 3.576399 UNIT PEAK = .19312 CFS UNIT VOLUME = .9290 B = 325.86 P60 = 1.9700 AREA = .000079 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

PRINT HYD ID=11 CODE=1

HYDROGRAPH FROM AREA FUTURE_0-5

RUNOFF VOLUME = 1.90629 INCHES = .0803 ACRE-FEET
PEAK DISCHARGE RATE = 2.22 CFS AT 1.500 HOURS BASIN AREA = .0008 SQ. MI.

*S BASIN O-6 (THIS IS AN OFF-SITE BASIN)

COMPUTE NM HYD

ID=12 HYD=FUTURE_O-6 DA=.00009 SQ MI

%A=0 %B=0 %C=100 %D=0

TP=0.1333 RAINFALL=-1

K = .106995HR TP = .133300HR K/TP RATIO = .802661 SHAPE CONSTANT, N = 4.461616 UNIT PEAK = .25984 CFS UNIT VOLUME = .9527 B = 384.85 P60 = 1.9700 AREA = .000090 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

PRINT HYD

ID=12 CODE=1

HYDROGRAPH FROM AREA FUTURE_0-6

RUNOFF VOLUME = 1.07765 INCHES = .0052 ACRE-FEET
PEAK DISCHARGE RATE = .18 CFS AT 1.500 HOURS BASIN AREA = .0001 SQ. MI.

*S BASIN O-7 (THIS IS AN OFF-SITE BASIN)

COMPUTE NM HYD

ID=13 HYD=FUTURE_O-7 DA=.00098 SQ MI

%A=0 %B=0 %C=90 %D=10

TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420 UNIT PEAK = .38691 CFS UNIT VOLUME = .9711 B = 526.28 P60 = 1.9700 AREA = .000098 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

K = .106995HR TP = .133300HR K/TP RATIO = .802661 SHAPE CONSTANT, N = 4.461616 UNIT PEAK = 2.5464 CFS UNIT VOLUME = .9956 B = .384.85 P60 = 1.9700 AREA = .000882 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

PRINT HYD

ID=13 CODE=1

HYDROGRAPH FROM AREA FUTURE_0-7

RUNOFF VOLUME = 1.17353 INCHES = .0613 ACRE-FEET
PEAK DISCHARGE RATE = 2.02 CFS AT 1.500 HOURS BASIN AREA = .0010 SQ. MI.

*S BASIN O-8 (THIS IS AN OFF-SITE BASIN THAT WILL DISCHARGE
*S TO ON-SITE BASIN E VIA SHEET FLOW)

COMPUTE NM HYD

ID=14 HYD=FUTURE_O-8 DA=.00046 SQ MI

%A=0 %B=0 %C=100 %D=0

TP=0.1333 RAINFALL=-1

K = .106995HR TP = .133300HR K/TP RATIO = .802661 SHAPE CONSTANT, N = 4.461616 UNIT PEAK = 1.3281 CFS UNIT VOLUME = .9904 B = 384.85 P60 = 1.9700 AREA = .000460 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .0333330

PRINT HYD ID=14 CODE=1

HYDROGRAPH FROM AREA FUTURE 0-8

RUNOFF VOLUME = 1.07765 INCHES = .0264 ACRE-FEET
PEAK DISCHARGE RATE = .90 CFS AT 1.500 HOURS BASIN AREA = .0005 SQ. MI.

*S ADD BASINS C, 0-6 AND 0-7

PRINT HYD ID=22 CODE=1

HYDROGRAPH FROM AREA ADD_6

RUNOFF VOLUME = 1.86487 INCHES = .1800 ACRE-FEET

PEAK DISCHARGE RATE = 5.00 CFS AT 1.500 HOURS BASIN AREA = .0018 SQ. MI.

PRINT HYD ID=23 CODE=1

HYDROGRAPH FROM AREA ADD_7

RUNOFF VOLUME = 1.62198 INCHES = .2413 ACRE-FEET
PEAK DISCHARGE RATE = 7.02 CFS AT 1.500 HOURS BASIN AREA = .0028 SQ. MI.

*S ROUTE ADJUSTED BASIN C THROUGH DETENTION IN ASPHALT PARKING ROUTE RESERVOIR ID=24 HYD=POND_C_OUT INFLOW ID=23 CODE=20

OUTFLOW (CFS) STORAGE (AC-FT) ELEV 0 0 87.90 4.9 0.057 89.10

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

TIME	INFLOW	ELEV	VOLUME	OUTFLOW	
(HRS)	(CFS)	(FEET)	(AC-FT)	(CFS)	
.00	_00	87.90	.000	.00	
.67	.00	87.90	.000	.00	
1.33	1.61	88.01	.005	.45	
2.00	1.50	88.44	.026	2.21	
2.67	.11	87.95	.002	.21	
3.33	.03	87.91	.000	.04	
4.00	.02	87.91	.000	.02	
4.67	.02	87.91	.000	.02	
5.33	.03	87.91	.000	.02	
6.00	.03	87.91	.000	.03	
6.67	.00	87.90	.000	.00	

PEAK DISCHARGE = 4.863 CFS - PEAK OCCURS AT HOUR 1.60

MAXIMUM WATER SURFACE ELEVATION = 89.091

MAXIMUM STORAGE = .0566 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=24 CODE=1

HYDROGRAPH FROM AREA POND_C_OUT

RUNOFF VOLUME = 1.62198 INCHES = .2413 ACRE-FEET
PEAK DISCHARGE RATE = 4.86 CFS AT 1.600 HOURS BASIN AREA = .0028 SQ. MI.

*S ROUTE C DETENTION DISCHARGE THROUGH 12" PIPE TO BASIN B POND.

COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.019

DIA=1.0 FT N=.013

RATING CURVE PIPE SECTION 1.0

WATER	FLOW	FLOW	MAX
SURFACE	AREA	RATE	WIDTH
ELEV	SQ FT	CFS	FT
.00	.00	.00	.00
.05	.02	.03	.44
.10	.04	.11	.61
.16	.08	.26	.73
.21	.12	.47	.81
.26	.16	.73	.88
.31	.21	1.04	.93
.36	.26	1.40	.96
.42	.31	1.78	.99
.47	.36	2.20	1.00
.52	.41	2.63	1.00
.57	.47	3.07	1.00
.63	.52	3.51	1.00
.68	.57	3.94	1.00
.73	.61	4.33	1.00
.78	.66	4.69	1.00
.83	.70	4.98	1.00
.89	.74	5.20	1.00
.94	.77	5.28	1.00
1.00	.79	5.28	1.00

COMPUTE TRAVEL TIME ID=25 REACH=1 VS NO=1 L=295 SLP=.019

TRAVEL TIME TABLE

REACH= 1.0

WATER	AVERAGE	FLOW	TRAVEL
DEPTH	AREA	RATE	TIME
· FEET	SQ.FT.	CFS	HRS
.052	.016	.03	.0497
.104	.043	.11	.0318
.156	.078	.26	.0247
.208	.119	.47	.0208
.261	.163	.73	.0183
.313	.210	1.04	.0165
.365	.259	1.40	.0152
.417	.310	1.78	.0142
.469	.362	2.20	.0135
.521	.414	2.63	.0129
.573	.466	3.07	.0124
.625	.517	3.51	.0121
.677	.566	3.94	.0118
.730	.614	4.33	.0116
.782	.659	4.69	.0115
.834		4.98	.0115
.886	.736	5.20	.0116
.938	.765	5.28	.0119
1.000	.785	5.28	.0122
ID=25 HYD=TO_DI_2			

HYDROGRAPH FROM AREA TO_DI_2

RUNOFF VOLUME = 1.62209 INCHES = .2414 ACRE-FEET

PEAK DISCHARGE RATE = 4.83 CFS AT 1.633 HOURS BASIN AREA = .0028 SQ. MI.

*S ADD BASINS B, O-3, O-4 AND O-5 FOR SURFACE DISCHARGE INTO INLET.

ADD HYD ID=18 HYD=ADD_3 ID I=2 ID II=9

PRINT HYD ID=18 CODE=1

ID=25 CODE=1

ROUTE

PRINT HYD

HYDROGRAPH FROM AREA ADD_3

RUNOFF VOLUME = 1.71093 INCHES = .2938 ACRE-FEET PEAK DISCHARGE RATE = 8.26 CFS AT 1.500 HOURS BASIN AREA = .0032 SQ. MI.

ADD HYD ID=19 HYD=ADD_4 ID I=18 ID II=10

PRINT HYD ID=19 CODE=1

HYDROGRAPH FROM AREA ADD 4

RUNOFF VOLUME = 1.72628 INCHES = .3112 ACRE-FEET PEAK DISCHARGE RATE = 8.74 CFS AT 1.500 HOURS BASIN AREA = .0034 SQ. MI.

ID=20 HYD=ADD_5 ID I=19 ID II=11 ADD HYD

ID=20 CODE=1PRINT HYD

HYDROGRAPH FROM AREA ADD_5

RUNOFF VOLUME = 1.76032 INCHES = .3915 ACRE-FEET PEAK DISCHARGE RATE = 10.96 CFS AT 1.500 HOURS BASIN AREA = .0042 SQ. MI.

*S ADD ROUTED BASIN C RUNOFF TO BASIN B RUNOFF.

ADD HYD ID=20 HYD=POND_B_IN ID I=20 ID II=25

ID=20 CODE=1 PRINT HYD

HYDROGRAPH FROM AREA POND_B_IN

RUNOFF VOLUME = 1.70483 INCHES = .6328 ACRE-FEET PEAK DISCHARGE RATE = 14.58 CFS AT 1.533 HOURS BASIN AREA = .0070 SQ. MI.

*S ROUTE ADJUSTED BASIN B THROUGH DETENTION IN ASPHALT PARKING ID=21 HYD=POND_B_OUT INFLOW ID=20 CODE=20 ROUTE RESERVOIR

OUTFLOW (CFS) STORAGE (AC-FT) ELEV 81.50 11.5 82.86 0.12

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	81.50	.000	.00
.67	.00	81.50	.000	.00
1.33	3.27	81.62	.011	1.02
2.00	4.80	82.26	.067	6.42
2.67	.41	81.59	.008	.72
3.33	.10	81.52	.001	.13
4.00	.07	81.51	.001	.07
4.67	.07	81.51	.001	.07
5.33	.08	81.51	.001	.07
6.00	.09	81.51	.001	.09
6.67	.00	81.50	-000	.01

PEAK DISCHARGE = 11.172 CFS - PEAK OCCURS AT HOUR 1.63

MAXIMUM WATER SURFACE ELEVATION = 82.821

MAXIMUM STORAGE = .1166 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=21 CODE=1

HYDROGRAPH FROM AREA POND_B_OUT

RUNOFF VOLUME = 1.70483 INCHES = .6328 ACRE-FEET
PEAK DISCHARGE RATE = 11.17 CFS AT 1.633 HOURS BASIN AREA = .0070 SQ. MI.

*S ROUTE THIS RUNOFF THROUGH 18 INCH PIPE TO BASIN A. COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.012

DIA=1.5 FT N=.013

RATING CURVE	PIPE SECTION	1.0	
WATER	FLOW	FLOW	MAX
SURFACE	AREA	RATE	WIDTH
ELEV	SQ FT.	CFS	FT
.00	.00	.00	.00
.08	.04	.06	.67
. 16	.10	.26	.92
.23	.18	.61	1.09
.31	.27	1.10	1.22
.39	.37	1.71	1.32
.47	.47	2.44	1.39
.55	.58	3.27	1.44
.63	.70	4.18	1.48
.70	.81	5.15	1.50
.78	.93	6.17	1.50
.86	1.05	7.20	1.50
.94	1.16	8.23	1.50
1.02	1.27	9.22	1.50
1.09	1.38	10.15	1.50
1.17	1.48	10.99	1.50
1.25	1.57	11.68	1.50
1.33	1.66	12.17	1.50
1.41	1.72	12.38	1.50
1.50	1.77	12.38	1.50

COMPUTE TRAVEL TIME ID=27 REACH=1 VS NO=1 L=230 SLP=.012

TRAVEL TIME TABLE

REACH= 1.0

WATER	AVERAGE	FLOW	TRAVEL
DEPTH	AREA	RATE	TIME
FEET	SQ.FT.	CFS	HRS
.078	.035	.06	.0372
. 156	.098	.26	.0238
.235	.176	.61	.0185
.313	.267	1.10	.0156
.391	.366	1.71	.0137
.469	.472	2.44	.0124
.547	.583	3.27	.0114
.625	.697	4.18	.0107
.704	.814	5.15	.0101
.782	.931	6.17	.0096
.860	1.048	7.20	.0093
.938	1.163	8.23	.0090
1.016	1.274	9.22	.0088
1.094	1.381	10.15	.0087

1.173 1.482 10.99 .0086 1.251 1.574 11.68 .0086 1.329 1.656 12.17 .0087 1.407 1.722 12.38 .0089 1.500 1.767 12.38 .0091

ROUTE ID=27 HYD=TO_DI_1 INFLOW ID=21 DT=0.03333

PRINT HYD ID=27 CODE=1

HYDROGRAPH FROM AREA TO_DI_1

RUNOFF VOLUME = 1.70488 INCHES = .6328 ACRE-FEET
PEAK DISCHARGE RATE = 11.14 CFS AT 1.633 HOURS BASIN AREA = .0070 SQ. MI.

*S ADD BASINS A, O-1 AND O-2

ADD HYD ID=15 HYD=ADD_1 ID I=1 ID II=7

PRINT HYD ID=15 CODE=1

HYDROGRAPH FROM AREA ADD 1

RUNOFF VOLUME = 1.69562 INCHES = .1962 ACRE-FEET

PEAK DISCHARGE RATE = 5.52 CFS AT 1.500 HOURS BASIN AREA = .0022 SQ. MI.

PRINT HYD ID=16 CODE=1

HYDROGRAPH FROM AREA ADD_2

RUNOFF VOLUME = 1.73010 INCHES = .3506 ACRE-FEET

PEAK DISCHARGE RATE = 9.83 CFS AT 1.500 HOURS BASIN AREA = .0038 SQ. MI.

*S ADD ROUTED BASIN B TO BASIN A RUNOFF

ADD HYD ID=16 HYD=POND_A_IN ID I=16 ID II=27

PRINT HYD ID=16 CODE=1

HYDROGRAPH FROM AREA POND_A_IN

RUNOFF VOLUME = 1.71374 INCHES = .9835 ACRE-FEET

PEAK DISCHARGE RATE = 18.28 CFS AT 1.567 HOURS BASIN AREA = .0108 SQ. MI.

*S ROUTE ADJUSTED BASIN A THROUGH DETENTION IN ASPHALT PARKING

ROUTE RESERVOIR ID=17 HYD=POND_A_OUT INFLOW ID=16 CODE=20

OUTFLOW (CFS) STORAGE (AC-FT) ELEV 0 78.50 15.9 0.15 79.85

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INFLOW ELEV VOLUME **OUTFLOW** TIME (FEET) (AC-FT) (HRS) (CFS) (CFS) .00 .00 **78.**50 .00 .000 .67 .00 **78.**50 .000 .00

1.33	3.41	78.59	.010	1.09
2.00	8.77	79.43	.103	10.92
2.67	.93	78.63	.014	1.51
3.33 .	.19	78.52	.002	.24
4.00	.11	78.51	.001	.12
4.67	.11	78.51	.001	.11
5.33	.12	78.51	.001	.12
6.00	.14	78.51	.001	. 14
6.67	.01	78.50	.000	.02

PEAK DISCHARGE = 15.518 CFS - PEAK OCCURS AT HOUR 1.70

MAXIMUM WATER SURFACE ELEVATION = 79.818

MAXIMUM STORAGE = .1464 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD

ID=17 CODE=1

HYDROGRAPH FROM AREA POND_A_OUT

RUNOFF VOLUME = 1.71374 INCHES = .9835 ACRE-FEET
PEAK DISCHARGE RATE = 15.52 CFS AT 1.700 HOURS BASIN AREA = .0108 SQ. MI.

*S ROUTE BASIN A TOTAL THROUGH 18" PIPE TO BASIN D COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0206 DIA=1.5 FT N=.013

RATING CURVE	PIPE SECTION	1.0	
WATER	FLOW	FLOW	MAX
SURFACE	AREA	RATE	WIDTH
ELEV	SQ FT	CFS	FT
.00	.00	.00	.00
. 08 ·	-04	.08	.67
.16	.10	.34	.92
.23	.18	.80	1.09
.31	.27	1.44	1.22
.39	.37	2.24	1.32
.47	.47	3.20	1.39
.55	.58	4.28	1.44
.63	.70	5.48	1.48
.70	.81	6.75	1.50
.78	.93	8.08	1.50
.86	1.05	9.43	1.50
.94	1.16	10.78	1.50
1.02	1.27	12.08	1.50
1.09	1.38	13.30	1.50
1.17	1.48	14.39	1.50
1.25	1.57	15.30	1.50
1.33	1.66	15.95	1.50
1.41	1.72	16.22	1.50
1.50	1.77	16.22	1.50

COMPUTE TRAVEL TIME ID=29 REACH=1 VS NO=1 L=150 SLP=.0206

TRAVEL TIME TABLE

REACH= 1.0

WATER	AVERAGE	FLOW	TRAVEL
DEPTH	AREA	RATE	TIME
FEET	SQ.FT.	CFS	HRS
.078	.035	.08	.0185
. 156	.098	.34	.0119
. 235	.176	.80	.0092
.313	.267	1.44	.0077
.391	.366	2.24	.0068

.469	.472	3.20	.0062
.547	.583	4.28	.0057
.625	.697	5.48	.0053
.704	.814	6.75	.0050
.782	.931	8.08	.0048
.860	1.048	9.43	.0046
.938	1.163	10.78	.0045
1.016	1.274	12.08	.0044
1.094	1.381	13.30	.0043
1.173	1.482	14.39	.0043
1.251	1.574	15.30	.0043
1.329	1.656	15.95	.0043
1.407	1.722	16.22	.0044
1.500	1.767	16.22	.0045

ROUTE ID=29 HYD=TO_BASIN_D INFLOW ID=17 DT=0.03333

PRINT HYD ID=29 CODE=1

HYDROGRAPH FROM AREA TO_BASIN_D

RUNOFF VOLUME = 1.71377 INCHES = .9835 ACRE-FEET
PEAK DISCHARGE RATE = 15.52 CFS AT 1.700 HOURS BASIN AREA = .0108 SQ. MI.

*S ADD BASINS E AND 0-8

PRINT HYD ID=33 CODE=1

HYDROGRAPH FROM AREA ADD_8

RUNOFF VOLUME = 1.77561 INCHES = .2765 ACRE-FEET
PEAK DISCHARGE RATE = 7.78 CFS AT 1.500 HOURS BASIN AREA = .0029 SQ. MI.

*S ROUTE ADJUSTED BASIN E THROUGH DETENTION IN ASPHALT PARKING ROUTE RESERVOIR ID=34 HYD=POND_E_OUT INFLOW ID=33 CODE=20

OUTFLOW (CFS) STORAGE (AC-FT) ELEV 0 0 81.70 4.6 0.08 83.09

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TIME	INFLOW	ELEV	VOLUME	OUTFLOW	
(HRS)	(CFS)	(FEET)	(AC-FT)	(CFS)	
00	00	04 70	000	00	
.00	.00	81.70	.000	.00	
.67	.00	81.70	.000	.00	
1.33	2.03	81.83	.008	.43	
2.00	1.78	82.55	.049	2.81	
2.67	.13	81.82	.007	.40	
3.33	.04	81.72	.001	.07	
4.00	.03	81.71	.001	.03	
4.67	.03	81.71	.001	.03	
5.33	.03	81.71	.001	.03	
6.00	.04	81.71	.001	.04	
6.67	.00	81.70	.000	.01	

PEAK DISCHARGE = 4.589 CFS - PEAK OCCURS AT HOUR 1.63
MAXIMUM WATER SURFACE ELEVATION = 83.087

MAXIMUM STORAGE = .0798 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=34 CODE=1

HYDROGRAPH FROM AREA POND_E_OUT

RUNOFF VOLUME = 1.77561 INCHES = .2765 ACRE-FEET
PEAK DISCHARGE RATE = 4.59 CFS AT 1.633 HOURS BASIN AREA = .0029 SQ. MI.

*S ROUTE BASIN E THROUGH 12" PIPE TO BASIN D
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.015
DIA=1.0 FT N=.013

RATING CURVE	PIPE SECTION	1.0	
WATER	FLOW	FLOW	MAX
SURFACE	AREA	RATE	WIDTH
ELEV	SQ FT	CFS	FT
.00	.00	.00	.00
.05	.02	.02	.44
.10	-04	.10	.61
.16	.08	.23	.73
.21	.12	-42	.81
.26	.16	.65	.88
.31	.21	.93	.93
.36	.26	1.24	.96
.42	.31	1.59	.99
.47	.36	1.95	1.00
.52	.41	2.34	1.00
.57	.47	2.73	1.00
.63	.52	3.12	1.00
.68	.57	3.50	1.00
.73	.61	3.85	1.00
.78	.66	4.17	1.00
.83	.70	4.43	1.00
.89	.74	4.62	1.00
.94	.77	4.69	1.00
1.00	.79	4.69	1.00

COMPUTE TRAVEL TIME ID=35 REACH=1 VS NO=1 L=465 SLP=.015

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET .052 .104 .156 .208 .261 .313 .365 .417 .469 .521 .573 .625 .677 .730 .782	.043 .078 .119 .163 .210 .259 .310 .362 .414 .466 .517 .566 .614 .659	FLOW RATE CFS .02 .10 .23 .42 .65 .93 1.24 1.59 1.95 2.34 2.73 3.12 3.50 3.85 4.17 4.43	TRAVEL TIME HRS .0881 .0565 .0439 .0369 .0324 .0293 .0270 .0253 .0239 .0229 .0220 .0214 .0209 .0204 .0204
.782 .834 .886 .938 1.000	.659 .700 .736 .765 .785	4.17 4.43 4.62 4.69 4.69	.0204
ID=35 HYD=TO_DI_6	INFLOW ID=34	DI=0.03333	

ROUTE

PRINT HYD

ID=35 CODE=1

HYDROGRAPH FROM AREA TO_DI_6

RUNOFF VOLUME = 1.77567 INCHES = .2765 ACRE-FEET
PEAK DISCHARGE RATE = 4.55 CFS AT 1.667 HOURS BASIN AREA = .0029 SQ. MI.

*S ADD BASIN E AT BASIN D

ADD HYD ID=35 HYD=D_IN_SUBTOTAL ID I=35 ID II=29

PRINT HYD ID=35 CODE=1

HYDROGRAPH FROM AREA D_IN_SUBTOTAL

RUNOFF VOLUME = 1.72692 INCHES = 1.2600 ACRE-FEET

PEAK DISCHARGE RATE = 20.01 CFS AT 1.700 HOURS BASIN AREA = .0137 SQ. MI.

*S ROUTE BASIN F THROUGH DETENTION IN ASPHALT PARKING

ROUTE RESERVOIR . ID=36 HYD=POND_F_OUT INFLOW ID=6 CODE=20

OUTFLOW (CFS) STORAGE (AC-FT) ELEV 0 77.20 4.6 78.40

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TIME	INFLOW	ELEV	VOLUME	OUTFLOW	
(HRS)	(CFS)	(FEET)	(AC-FT)	(CFS)	
00	00	77 20	000	00	
-00	.00	77.20	.000	.00	
.67	.00	77.20	.000	.00	
1.33	1.88	77.34	.007	.55	
2.00	1.58	77.77	.026	2.20	
2.67	.12	77.26	.003	.23	
3.33	.04	77.21	.001	.05	
4.00	.03	77.21	.000	.03	
4.67	.03	77.21	.000	.03	
5.33	.03	77.21	.000	.03	
6.00	-04	77.21	.000	.04	
6.67	.00	77.20	.000	.00	
		4 5 4 5 5 5			

PEAK DISCHARGE = 4.569 CFS - PEAK OCCURS AT HOUR 1.60

MAXIMUM WATER SURFACE ELEVATION = 78.392

MAXIMUM STORAGE = .0536 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=36 CODE=1

HYDROGRAPH FROM AREA POND_F_OUT

RUNOFF VOLUME = 1.90617 INCHES = .2389 ACRE-FEET

PEAK DISCHARGE RATE = 4.57 CFS AT 1.600 HOURS BASIN AREA = .0024 SQ. MI.

*S ROUTE RUNOFF TO BASIN D VIA 15" PIPE COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.0055 DIA=1.25 FT N=.013

RATING CURVE PIPE SECTION 1.0

WATER FLOW FLOW MAX

SURFACE	AREA	RATE	WIDTH
ELEV	SQ FT	CFS	FT
.00	.00	.00	.00
.07	.02	.03	.56
.13	.07	.11	.76
.20	.12	.25	.91
.26	. 19	.46	1.02
.33	. 25	.71	1.10
.39	.33	1.02	1.16
.46	.40	1.36	1.20
.52	.48	1.74	1.23
.59	.57	2.15	1.25
.65	.65	2.57	1.25
.72	.73	3.00	1.25
.78	.81	3.43	1.25
.85	.88	3.84	1.25
.91	.96	4.23	1.25
.98	1.03	4.57	1.25
1.04	1.09	4.86	1.25
1.11	1.15	5.07	1.25
1.17	1.20	5.15	1.25
1.25	1.23	5.15	1.25

COMPUTE TRAVEL TIME ID=38 REACH=1 VS NO=1 L=210 SLP=.0055

TRAVEL TIME TABLE

REACH= 1.0

WATER	AVERAGE	FLOW	TRAVEL
DEPTH	AREA	RATE	TIME
FEET	SQ.FT.	CFS	HRS
.065	.024	.03	.0566
.130	.068	.11	.0363
. 195	.123	.25	.0282
.261	. 185	.46	.0237
· .326	.254	.71	.0208
.391	.328	1.02	.0188
.456	.405	1.36	.0174
.521	.484	1.74	.0162
.586	.565	2.15	.0154
.651	.647	2.57	.0147
.717	.728	3.00	.0142
.782	.807	3.43	.0137
.847	.885	3.84	.0134
.912	.959	4.23	.0132
.977	1.029	4.57	.0131
1.042	1.093	4.86	.0131
1.107	1.150	5.07	.0132
1.173	1.196	5.15	.0135
1.250	1.227	5.15	.0139
TO BASIN	D INFLOW ID=36	ロエニロ ロスススス	

ROUTE ID=38 HYD=TO_BASIN_D INFLOW ID=36 DT=0.03333
PRINT HYD ID=38 CODE=1

HYDROGRAPH FROM AREA TO_BASIN_D

RUNOFF VOLUME = 1.90629 INCHES = .2389 ACRE-FEET
PEAK DISCHARGE RATE = 4.54 CFS AT 1.600 HOURS BASIN AREA = .0024 SQ. MI.

*S ADD BASIN F TO BASIN D SUBTOTAL
ADD HYD ID=39 HYD=BASIN_D ID I=35 ID II=38
PRINT HYD ID=39 CODE=1

HYDROGRAPH FROM AREA BASIN_D

RUNOFF VOLUME = 1.75318 INCHES = 1.4988 ACRE-FEET PEAK DISCHARGE RATE = 24.32 CFS AT 1.667 HOURS BASIN AREA = .0160 SQ. MI.

*S ADD THIS PIPE DISCHARGE TO BASIN D SURFACE DISCHARGE FOR

*S TOTAL INTO BASIN D POND.

ADD HYD

ID=39 HYD=BASIN_D_TOTAL ID I=39 ID II=4

PRINT HYD

ID=39 CODE=1

HYDROGRAPH FROM AREA BASIN D TOTAL

RUNOFF VOLUME = 1.75470 INCHES = 1.6078 ACRE-FEET PEAK DISCHARGE RATE = 25.88 CFS AT 1.667 HOURS BASIN AREA = .0172 SQ. MI.

*S ROUTE THIS RUNOFF THROUGH DETENTION IN BASIN D ASPHALT PARKING

ROUTE RESERVOIR ID=30 HYD=POND_D_OUT INFLOW ID=39 CODE=20 OUTFLOW (CFS) STORAGE (AC-FT) ELEV

78.50

24.0 0.20

79.25

TIME	INFLOW	ELEV	VOLUME	OUTFLOW
(HRS)	(CFS)	(FEET)	(AC-FT)	(CFS)
.00	.00	78.50	.000	.00
.67	.00	78.50	.000	.00
1.33	2.44	78.52	.006	.75
2.00	16.84	79.11	. 164	19.64
2.67	2.27	78.61	.028	3.40
3.33	.38	78.52	.004	.49
4.00	.20	78.51	.002	.21
4.67	.18	78.51	.001	.18
5.33	.19	78.51	.002	.19
6.00	.23	78.51	.002	.22
6.67	.04	78.50	.001	.06
7.33	.00	78.50	.000	.00

23.748 CFS - PEAK OCCURS AT HOUR PEAK DISCHARGE =

MAXIMUM WATER SURFACE ELEVATION = 79.242

MAXIMUM STORAGE = .1979 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD

ID=30 CODE=1

HYDROGRAPH FROM AREA POND_D_OUT

RUNOFF VOLUME = 1.75471 INCHES = 1.6078 ACRE-FEET PEAK DISCHARGE RATE = 23.75 CFS AT 1.766 HOURS BASIN AREA = .0172 SQ. MI.

*S ROUTE TOTAL PROJECT RUNOFF THROUGH PIPE TO OFF-SITE. COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=.012 DIA=2.0 FT N=.013

> RATING CURVE PIPE SECTION WATER FLOW FLOW MAX

SURFACE	AREA	RATE	WIDTH
ELEV	SQ FT	CFS	FT
.00	.00	.00	.00
.10	.06	.13	.89
.21	.17	.56 .	1.22
.31	.31	1.31	1.45
.42	.47	2.36	1.62
.52	.65	3.68	1.76
.63	.84	5.26	1.85
.73	1.04	7.04	1.93
.83	1.24	9.00	1.97
. 94	1.45	11.10	2.00
1.04	1.66	13.28	2.00
1.15	1.86	15.51	2.00
1.25	2.07	17.72	2.00
1.35	2.27	19.86	2.00
1.46	2.46	21.86	2.00
1.56	2.63	23.66	2.00
1.67	2.80	25.15	2.00
1.77	2.94	26.22	2.00
1.88	3.06	26.66	2.00
2.00	3.14	26.66	2.00

COMPUTE TRAVEL TIME ID=32 REACH=1 VS NO=1 L=40 SLP=.012

TRAVEL TIME TABLE

REACH= 1.0

WATER	AVERAGE	FLOW	TRAVEL
DEPTH	AREA	RATE	TIME
FEET	SQ.FT.	CFS	HRS
.104	.062	.13	.0053
.208	.174	.56	.0034
.313	.314	1.31	.0027
.417	.475	2.36	.0022
.521	.651	3.68	.0020
.625	.839	5.26	.0018
.730	1.037	7.04	.0016
.834	1.240	9.00	.0015
.938	1.447	11.10	.0014
1.042	1.655	13.28	.0014
1.146	1.863	15.51	.0013
1.251	2.067	17.72	.0013
1.355	2.265	19.86	.0013
1.459	2.456	21.86	.0012
1.563	2.635	23.66	.0012
1.668	2.799	25.15	.0012
1.772	2.943	26.22	.0012
1.876	3.061	26.66	.0013
2.000	3.142	26.66	.0013

ROUTE PRINT HYD ID=32 HYD=TO_OFFSITE INFLOW ID=30 DT=0.03333 ID=32 CODE=1

HYDROGRAPH FROM AREA TO_OFFSITE

RUNOFF VOLUME = 1.75473 INCHES = 1.6078 ACRE-FEET
PEAK DISCHARGE RATE = 23.74 CFS AT 1.766 HOURS BASIN AREA = .0172 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 16:02:39

APPENDIX B

HYDRAULIC COMPUTATIONS AND PRE-DESIGN CONFERENCE MINUTES

ANALYSIS OF ENTRANCE CAPACITIES OF DROP INLETS

Use the orifice equation to analyze:

$$Q = 0.6 A (2 g H)^{1/2}$$

Where:

Q = Discharge in cfs.

A = Orifice area (i.e., area of pipe) in s.f.

g = gravitational acceleration (32.2 ft/sec²)

H = Height of water over centerline of orifice (ft.)

Location	Pipe Size (in.)	A (s.f.)	H (ft.)	Q (capacity)	Q (design)
Basin A	18	1.7671	3.34	15.55034	15.52
Basin B	18	1.7671	3.3	15.45694	11.17
Basin C	12	0.7854	4.26	7.805287	4.86
Basin D	24	3.1416	5.76	36.30407	25.88
Basin E	12	0.7854	2.82	6.35051	4.59
Basin F	15	1.2272	2.56	9.454185	4.57

As can be seen from the above table, the capacity of each of the new inlets will not be limited by the entrance capacity of the outlet pipes.

CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT UTILITY DEVELOPMENT DIVISION/HYDROLOGY SECTION

PRE-DESIGN CONFERENCE

DRAINAGE FILE/ZONE ATLAS PAGE NO.: (DATE: 11/0/C/5
EPC NO.: DRB NO.:	ZONE: 616
SUBJECT: CENTER PART	TMEMS
STREET ADDRESS: MONTGONTCI 4T-25 F	FIZONTAGE TOOK
LEGAL DESCRIPTION: TELET "A" LUECKING	PARX Complex
APPROVAL REQUESTED: PRELIMINARY PLAT	FINAL PLAT
SITE DEVELOPMENT PLAN	BUILDING PERMIT
GRADING/PAVING PERMIT	OTHER
WHO	
4	REPRESENTING
ATTENDANCE: DRAP FOLDEY LIGA MAANWIII	
THE THICH	· · · · · · · · · · · · · · · · · · ·
FINDINGS:	
MEED MORE IMPO ON ADTACE	
TO WEST OWER DRAW	NAGE EASEMENT.
Does it retain inctar?	
DANTS TO DETAIN WATER	
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Joseph Domina	1 out jack jack
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he undersigned agrees that the above findings are sunsubject to change if further investigation reveals that	mmarized accurately and are only at they are not reasonable or that
hey are based on inaccurate information.	
IGNED: MA CONED: SIGNED:	Sas Frace
TITLE: TITLE:	Ester MANAGE
ATE: 11694 DATE:	
ATE: DATE:	11/6/95