City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Public Works Department
Transportation Development Services Section

August 8, 2002

Sandra Fairchild for Claudio Vigil, Registered Architect
Claudio Vigil Architects
1801 Tijeras Ave. N.W.
Albuquerque, NM 87104

Re: Certification Submittal for Final Building Certificate of Occupancy for
Valencia Retirement Apartments; [K-18 / D080]
200 Valencia Dr. S.E.
Architect's Stamp Dated 08/08/02

Dear Mr. Ms. Fairchild:

The TCL / Letter of Certification submitted on August 8, 2002 is sufficient for acceptance by this office for final Certificate of Occupancy (C.O.). Notification has been made to Building and Safety and final C.O. has been logged in by Vicki Chavez in the Building Safety Section downstairs. For a final C.O. to be issued the site (parking lot and all access points) must be 100% complete and clear of all obstructions including dirt, landscape material, construction materials and trash containment facilities.
Your superintendent, Joe Caldarera, is known by this office to be dependable and consciencious and will ensure that, in the course of the construction, as necessary, all traffic routes will be safe and clear. For this reason, I am able to justify issuance of the Final C.O. In the future, please make sure the site is *complete* as previously described.
For future reference submit package with *fully* completed Drainage and Transportation Information Sheet, including "engineer" ("contractor" and "surveyor" are not as critical). This enables us to contact all pertinent parties of this project. Complete the Information Sheet for *every* TCL, Temp C.O. or Final C.O. submittal.

Sincerely,

Mike Zamora, Commercial Plan Checker
Development and Building Services
Planning Department

c: Engineer
Hydrology file
Mike Zamora

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/11/2002)

K-18/D80

PROJECT TITLE: Valencia Retirement Apts ZONE MAP/DRG. FILE #: K-18-Z
DRB #: _____ EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: Tract B-1 Tijeras Place Improvement Co. Inc
CITY ADDRESS: 200 Valencia Drive SE

ENGINEERING FIRM: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

OWNER: GSL Properties CONTACT: Joe Calderara
ADDRESS: 8901 Jefferson Street ~~SE~~ NE PHONE: 459-6740
CITY, STATE: Albq. NM ZIP CODE: _____

ARCHITECT: Claudio Vigil Architects CONTACT: Sandra Fairchild
ADDRESS: 1801 ~~Rio Grande~~ Ave. NW PHONE: 842-1113
CITY, STATE: Albq. NM (Rio Grande Blvd.) ZIP CODE: 87104

SURVEYOR: _____ CONTACT: _____
ADDRESS _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: GSL Properties CONTACT: Joe Calderara
ADDRESS: 8901 Jefferson St. NE PHONE: 459-6740
CITY, STATE: Albq. NM ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- X ENGINEERS CERTIFICATION (TCL)
- ____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ____ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ____ SIA / FINANCIAL GUARANTEE RELEASE
- ____ 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
- X CERTIFICATE OF OCCUPANCY (PERM.)
- ____ CERTIFICATE OF OCCUPANCY (TEMP.)
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ OTHER (SPECIFY)

RECEIVED
AUG 05 2002
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ____ YES
- ____ NO
- ____ COPY PROVIDED

DATE SUBMITTED: 8-8-02 BY: Jack M Danchuld

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature , location and scope ot the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

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

8/8/02 - C'd in GT. to Vicki ; 8/23/02 - Sent Letter (dated 8/8) ; N - Log
Remind that Site- clear, Clear.

CLAUDIO VIGIL ARCHITECTS

August 8, 2002

Mr. Mike Zamora/Richard Dourte, P.E.
600 2nd. St. N.W.
Transportation Department
Building and Inspection
Albuquerque, New Mxico

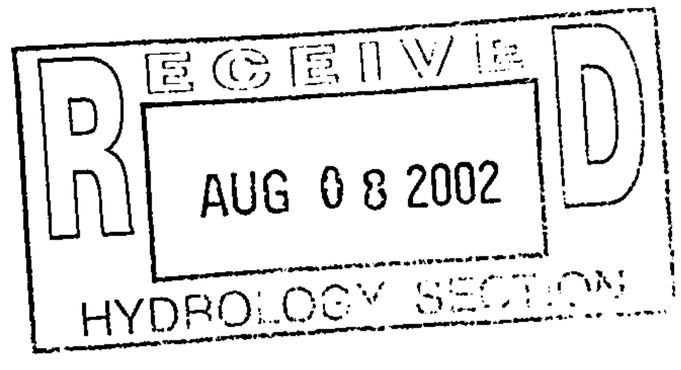
RE: Valencia Retirement Apartments
200 Valencia S.E.

Dear Mike Zamora/Richard Dourte,:

On August 8, 2002 this office made an inspection of the completed improvements to the Valencia Retirement Apartments site located at 200 Valencia S.E. All work has been completed and is in compliance with the approved plan check set. The work is complete and ready for occupancy, except for the landscape work which is in progress.

Sincerely,

Claudio Vigil
President



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

September 6, 2002

Ronald R. Bohannan, P.E.
Tierra West, LLC
8509 Jefferson NE
Albuquerque, New Mexico 87113

RE: VALENCIA APARTMENTS (K-18/D70)
(300 Valencia SE)
ENGINEERS CERTIFICATION FOR CERTIFICATE OF OCCUPANCY
ENGINEERS STAMP DATED 8/10/2000
ENGINEERS CERTIFICATION DATED 9/5/2002

Dear Mr. Bohannan:

Based upon the information provided in your Engineers Certification submittal dated 9/5/ 2002, the above referenced site is approved for a Permanent Certificate of Occupancy.

If I can be of further assistance, please contact me at 924-3981.

Sincerely,

Teresa A. Martin
Hydrology Plan Checker
Development & Bldg. Ser. Division
BOB

C: Certificate of Occupancy Clerk, COA
approval file
drainage file

DRAINAGE AND TRANSPORTATION SHEET

(REV. 1/11/2002)

K-18/D80

PROJECT TITLE: Valencia Apartments
ZONE MAP/DRG. FILE #: K-18/D080
DRB #: _____ EPC #: _____
WORK ORDER #: 652081

LEGAL DESCRIPTION: Tracts 2-A2 and 2-B Tijeras Place Improvement Co.
CITY ADDRESS: 300 Valencia Street, SE

ENGINEERING FIRM:	Tierra West, LLC	CONTACT:	Ronald R. Bohannan
ADDRESS:	8509 Jefferson NE	PHONE:	(505) 858-3100
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87113
OWNER:	GSL Properties	CONTACT:	Skip Grodell
ADDRESS:	2164 South Park Place	PHONE:	
CITY, STATE:	Portland OR 97205-1125	ZIP CODE:	87109
ARCHITECT:	Claudio Vigil Architects	CONTACT:	Cladio Vigil
ADDRESS:	1801 Rio Grande Blvd.	PHONE:	
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87104-2566
SURVEYOR:	Precision Surveys	CONTACT:	Larry Medrano
ADDRESS:	8414-D Jefferson Street, NE	PHONE:	(505) 856-5700
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87113
CONTRACTOR:	GSL Prc	CONTACT:	Skip Grodell
ADDRESS:	2164 South Park Place	PHONE:	
CITY, STATE:	Portland OR 97205-1125	ZIP CODE:	87109

CHECK TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- x ENGINEER'S CERTIFICATION (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ ENGINEERS CERTIFICATION (TCL)
- ____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ____ OTHER(master utility plan)

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SIA / FINANACIAL GUARANTEE RELEASE
- ___ 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
- x CERTIFICATE OF OCCUPANCY (PERM.)
- ___ CERTIFICATE OF OCCUPANCY (TEMP.)
- ___ GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ WORK ORDER APPROVAL
- ___ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ____ YES
- X NO
- ____ COPY PROVIDED

RECEIVED
SEP 05 2002
HYDROLOGY SECTION

DATE SUBMITTED: 9/5/2002 BY: Ronald Wright

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
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.

TIERRA WEST, LLC

8509 Jefferson NE
Albuquerque, NM 87113

(505) 858-3100
fax (505) 858-1118

twllc@tierrawestllc.com
1-800-245-3102

September 5, 2002

Ms. Terri Martin, PE
Hydrology Section
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

RE: Final Certification of Drainage for Certificate of Occupancy
Tracts 2-A2 and 2-B, Tijeras Place Improvement Co. (K-18/D080)
300 Valencia Street, SE

Dear Ms. Martin:

Enclosed please find the as-built Grading and Drainage Plan and information sheet for the Valencia Street Apartments located at 300 Valencia Street, SE. Paving, curb and gutter and underground utilities are complete. Landscaping for the site is complete. The outfall for the site is in place and is functional. As-built information was provided by Walker Land Surveying. Per your request, additional as-built grades have been provided for ponds 1 and 2. The finished floor level is 4.99' above the flow line elevation of Valencia Street. All grading is in substantial compliance with the approved Grading and Drainage Plan. We are, therefore, requesting Final Certification of Drainage for Certificate of Occupancy.

If you have any questions regarding this matter, please do not hesitate to call me.

Sincerely,

RONALD RAY BOHANNAN NEW MEXICO 9368 REGISTERED PROFESSIONAL ENGINEER

Ronald R. Bohannan, PE

Enclosure/s

cc: Skip Grodahl, III

JN: 200003
RRB/rw

2000037FinalH2o

RECEIVED
SEP 05 2002
HYDROLOGY SECTION

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 21, 2000

David Soule, P.E.
Tierra West, LLC
8509 Jefferson, NE
Albuquerque, NM 87113

RE: GRADING & DRAINAGE PLAN FOR VALENCIA APARTMENTS (K-18/D080)
ENGINEERS STAMP DATED JUNE 8, 2000 SUBMITTED FOR BUILDING PERMIT & GRADING PERMIT APPROVAL

Dear Mr. Soule,

I have reviewed your submittal, referred to above, and have the following comments.

While it is true that the site lies in a Zone X flood plain, the run-off from this site contributes to a Zone AO (Depth 1) flood zone immediately downstream. Increasing the run-off from this site by 8 cfs is not acceptable under these conditions. It is possible that the San Mateo Project mitigated the flooding conditions in this area but that must be established.

Discharging 49 cfs (22,000 gal/min) across a city street is not an acceptable approach to drainage. Is the channel across the street a city structure in a dedicated easement? If the easement exists, one approach would be to extend a line from the inlet at Alvarado east to your site, leaving inlets in Valencia; another approach is to extend the storm drain north from Acoma and Valencia.

Finally, please address the offsite flows from the east in more detail to establish that they can be channeled through the proposed opening on your site.

If you have any questions, please call me at 924-3988.

Sincerely,

Stuart Reeder, P.E.

Stuart Reeder, P.E.
Hydrology Division

xc: Whitney Reierson
File

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 8, 2002

Ronald R. Bohannan, P.E.
Tierra West, LLC
8509 Jefferson NE
Albuquerque, New Mexico 87113

RE: VALENCIA APARTMENTS (K-18/D80)
(300 Valencia St SE)
CERTIFICATE OF OCCUPANCY APPROVAL-*Temporary*
ENGINEERS CERTIFICATION DATED 8/8/2002

Dear Mr. Bohannan:

Based on the information provided in your submittal dated August 8, 2002, the above referenced project is approved for a **TEMPORARY** Certificate of Occupancy.

A Temporary Certificate of Occupancy has been issued for 30 days, allowing the remaining outstanding drainage issues to be completed within this time scope.

Please Note: Since this site is partially located within a flood hazard area, please provide additional spot elevations at street level to indicate that the finished floor elevation is at least two foot above street flowline. Also, provide asbuilt elevations for pond #2 and pond #3.

Upon completion of all of the above outstanding drainage issues, final certification will be required for issuance of a Permanent Certificate of Occupancy.

If I can be of further assistance, please feel free to contact me at 924-3981.

Sincerely,

Teresa A. Martin
Hydrology Plan Checker
Development and Building Services Division

c: Vickie Chavez, COA
Drainage file
Approval file

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 25, 2000

Ronald R. Bohannan, P.E.
David Soule, P.E.
Tierra West, LLC
8509 Jefferson, NE
Albuquerque, NM 87113

RE: GRADING & DRAINAGE PLAN FOR VALENCIA APARTMENTS (K-18/D080)
ENGINEER'S STAMP DATED AUGUST 10, 2000, SUBMITTED FOR
BUILDING PERMIT & GRADING PERMIT APPROVALS

Gentlemen,

Based upon the information provided in your August 10, 2000, submittal, the project referred to above is approved for Building Permit and Grading Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

Infrastructure proposed to be built in the public right-of-way must be approved under the Work Order process with sign-off of plans by the Design Review Committee.

Prior to release of the Certificate of Occupancy, an Engineer Certification, per the DPM checklist, will be required.

If you have any questions, please call me at 924-3988.

Sincerely,

Stuart Reeder, P.E.

Stuart Reeder, P.E.
Hydrology Division

xc: Whitney Reierson
File

DRAINAGE INFORMATION SHEET

PROJECT TITLE: *Valencia Appartments* ZONE ATLAS/DRNG. FILE #: *Z-K-18* D 080

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: *TRACT 2-A-1 and Tract 2-B-1 Tijeras Place Improvements company*

CITY ADDRESS: *Valecia drive*

ENGINEERING FIRM: *TIERRA WEST, LLC* CONTACT: *DAVID SOULE*

ADDRESS: *8509 Jeffersoon Blvd* PHONE: *(505) 858-3100*

OWNER: *GSL Properties* CONTACT: *Skip Ghroedal*

ADDRESS: *2164 SW Park Place, Portland OR 97205-1125* PHONE: *503-224-2544*

ARCHITECT: *Cladio Vigil* CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: *Precision Surveys* CONTACT: *Larry Medrano*

ADDRESS: *2929 Coors Blvd NW Suite 309* PHONE: *(505)839-0569*

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

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

PRE-DESIGN MEETING:

- _____ YES
- X NO
- _____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- _____ SKETCH PLAN 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
- X BUILDING PERMIT APPROVAL
- _____ CERTIFICATE OF OCCUPANCY APPROVAL
- X GRADING PERMIT APPROVAL
- _____ PAVING PERMIT APPROVAL
- _____ S. A. D. DRAINAGE REPORT
- _____ DRAINAGE REQUIREMENTS
- _____ *OTHER*

DATE SUBMITTED: *08/10/00*

BY: *DAVID SOULE*

RECEIVED
AUG 10 2000
HYDROLOGY SECTION

TIERRA WEST, LLC

8509 Jefferson NE
Albuquerque, NM 87113

(505) 858-3100
fax (505) 858-1118

e-mail: twdms@aol.com
1-800-245-3102

August 16, 2000

Mr. Stuart Reeder, PE
Hydrology Section
City of Albuquerque
600 2nd Street NW
Albuquerque, New Mexico 87103

RE: Valencia Apartments (K18-D080) - Drainage Supplemental

Dear Stuart:

This letter is in response to verbal comments received August 15,200 during a meeting with Brad Bingham. During this meeting we reviewed the new drainage solution. Brad appeared to agree with this solution though he had two additional comments. We revised the grading plan to address these comments as follows:

1. The nuisance flows must be contained within either a curb or valley gutter, and not be allowed to sheet flow across Valencia Street.

We modified the attached grading plan to include the standard 10' valley gutter with and ¾" invert. Due to the location of an existing Sanitary Sewer Manhole, the lid must be replaced with a sealed lid to eliminate infiltration of the flows within the new valley gutter.

2. The minimum size of main line storm drain conduit is 24"

The grading plan was modified by changing the storm drain from an 18" RCP to a 24" RCP.

Should you have any questions regarding this submittal, please do not hesitate to call me.

Sincerely,

David Soule, P.E.

cc: Mr. Joe Calderara, GSL

JN 200003
ds

20003sr081500

RECEIVED
AUG 17 2000
PWD/DESIGN REVIEW

TIERRA WEST, LLC

8509 Jefferson NE
Albuquerque, NM 87113

(505) 858-3100
fax (505) 858-1118

e-mail: twdms@aol.com
1-800-245-3102

K-18/D080 ✓

August 8, 2000

Mr. Stuart Reeder, PE
Hydrology Section
City of Albuquerque
600 2nd Street NW
Albuquerque, New Mexico 87103

RE: Valencia Apartments (K18-D080) - Drainage Resubmittal

Dear Stuart:

This letter is in response to your written comments dated June 21,200o, regarding the above referenced project. We revised the grading plan and drainage report to address your comments as follows:

1. While it is true that the site lies in a Zone X flood plain, the run off from this site contributes to a zone AO (depth 1) flood zone immediately downstream. Increasing the run-off from this site by 8 CFS is not acceptable under these conditions. It is possible that the San Mateo Project mitigated the flooding in this area but that must be established.

This is an infill site surrounded on all sides by fully developed property. All the adjacent properties were granted free discharge. The AMDS considered the site fully developed. The site is located within the upper 1/3 of the San Mateo storm drainage basin. In order to calculate the capacity left within the San Mateo system a detailed analysis of over several hundred basins and conduits would be required. This study should not be required of the consultant for a project of this size. The grading plan and drainage report were modified to limit the developed flow to less than the existing peak flow rate.

You verbally mentioned localized flooding downstream within the project area. A study of the surrounding properties drainage reports reveals flooding occurred after the construction of the US Post Office on Alvarado. The Post Office was allowed to fill in the flood plain because no building permit was required of this federal agency. An additional inlet was constructed within Alvarado and it appears no flooding has occurred since.

2. Discharging 49 CFS across a city street is not an acceptable approach to drainage. Is the channel across the street a city structure in a dedicated easement? If the Easement exists, one approach would be to extend a line from the inlet at Alvarado east to your site, leaving inlets in Valencia, another approach is to extend the storm drain north from Acoma and Valencia.

The grading plan was modified by constructing an 18" storm drain from the intersection of Acoma and Valencia. The flow rate leaving the site via surface flow was reduced to 29.70 CFS. This flow will exit the site through a driveway opening. This opening is 40' wide at the right of way line. The depth and velocity of this flow was determined, using Mannings equation, to be .156 feet deep and 4.76 feet per second. The channel across the street is concrete lined and within a public drainage easement.

3. Finally, please address the offsite flow from the east in more detail to establish that they can be channeled through the proposed opening on your site.

The offsite drainage basin map, which is located in appendix B, clearly shows the flow path leading to the location of our rundown. A header curb located along the property line directs the entire flow to the proposed rundown.

This is a difficult infill site, which has to contend with major offsite flows. The site is bound on all sides by free discharge sites. We have not been able to locate any acceptable design information on the San Mateo Storm drain either from the City or the archive files of Engineer of Record. Recent localized flooding in the area was the result of non-permitted structures located downstream which are located within the FEMA floodplain. We feel discharge from our site at the historical rate is justified.

Should you have any questions regarding this submittal, please do not hesitate to call me.

Sincerely,

David Soule, P.E.

cc: Mr. Joe Calderara, GSL

JN 200003
DS/djb

20003sr080300

REVISED
DRAINAGE REPORT

for

Valencia Retirement Apartments

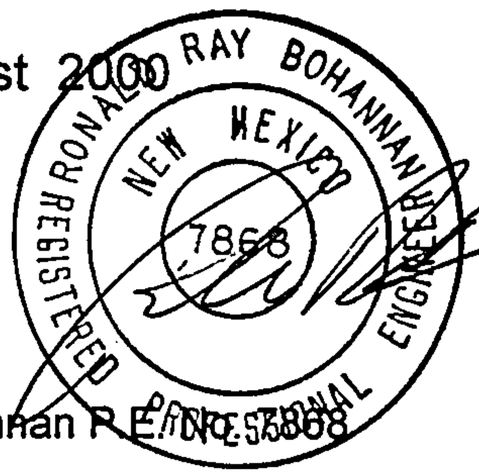
Albuquerque, New Mexico

Prepared by

Tierra West, LLC
8509 Jefferson Blvd.
Albuquerque, New Mexico 87113

Prepared for
GSL Properties
2164 South Park Place
Portland OR 97205-1125

August 2000



Ronald R. Bohannan P.E. No. 7868

TABLE OF CONTENTS

Appendix

Map Pocket

Site Grading and Drainage Plan

PURPOSE

The purpose of this report is to prove the development of the subject 4.21-acre property, for the use as a residential retirement apartment building, is in accordance with the DPM, Chapter 22. This report will demonstrate that the proposed improvements do not adversely affect the surrounding properties, the upstream or downstream facilities.

INTRODUCTION

The subject of this report, as shown on the Exhibit A vicinity map, is a 4.21 acre parcel of land located on the east side of Valencia Drive between Central Avenue and Zuni Road. The site, located on the Zone Atlas page K-18, currently exists as a vacant lot. From the presence and configuration of overhead and underground utilities, it appears the parcel was partially developed in the past. The legal description of the property is Tracts 2-A-1 and 2-B of Tijeras Place Improvements Company. As shown on FIRM map 35001C0354D, the site lies within flood zone X.

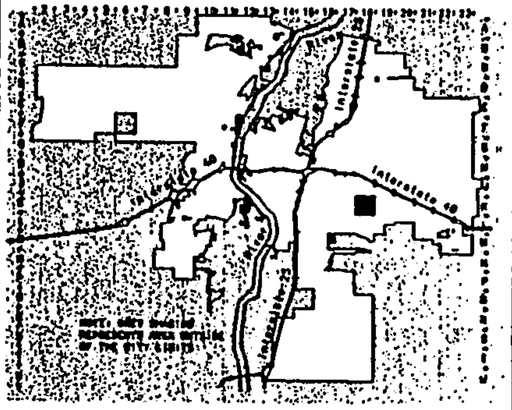
This site was analyzed within the Albuquerque Master Drainage Study and further analyzed within the drainage study prepared by Gordon Herkenhoff for the San Mateo Storm Drain Improvements -Phase 3. The site was considered fully developed within both analyses. There are significant offsite flows that enter the site from the shopping center to the east. These flows pass through the site where they are captured by a concrete lined rundown and conveyed to a catch basin at Alvarado Road. Once the flows enter the catch basin they are routed through the San Mateo storm drain system. Since our improvements are consistent with developed condition assumptions within the AMDS and the San Mateo Storm Drain Improvements - Phase 3, the site should be allowed to discharge the existing historical discharge.

Exhibit A- Vicinity Map

CITY OF
Albuquerque
AGIS
PLANNING DEPARTMENT

GRAPHIC SCALE IN FEET

250 0 500 1000



Zone Atlas Page

K-18-Z

Map Amended through
September 16, 1999

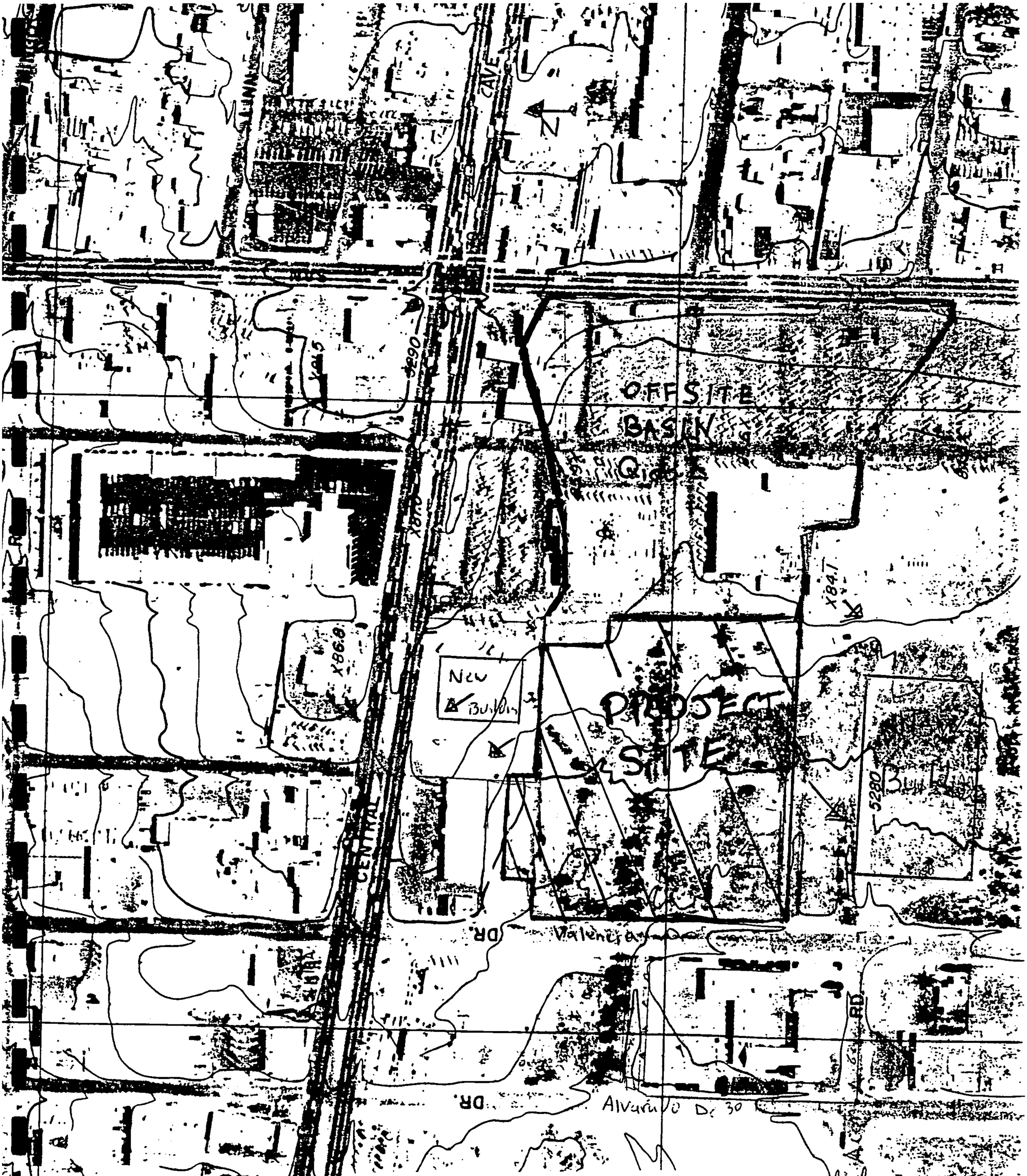


Exhibit B- Offsite Basin Map

EXISTING CONDITIONS

The site slopes from east to west, with general grades between 3-4%. The site exists as vacant lot, though it appears to have been developed in the past. No offsite flows enter the site from the north, south or west. Offsite flows enter the site from the east at approximately the mid point of the east property line. As shown on Exhibit B, a large portion of the existing shopping center to the east currently drains across the site. As shown in Appendix A, the 100-year peak discharge rate for the offsite basin was calculated to be 29.70 CFS, with the existing onsite peak flow being 11.26 CFS. These flows pass through the site where they enter a concrete lined rundown located on the west side of Valencia Drive directly across from this site. They are then conveyed to an inlet located behind the curb on the east side of Alvarado Road. The cross section of both the concrete channel and inlet are shown in Appendix B map pocket. As shown in Appendix A, the channel has a capacity of 389.49 CFS and the Inlet has a capacity of 56.29 CFS. The storm drain within Alvarado Drive, immediately downstream from the inlet, has a non-pressurized flow capacity of 49.18 CFS. Recently, temporary earthen berms were added around the west end of the site to prevent sediment from entering the Valencia roadway.

PROPOSED CONDITIONS

The proposed improvements consist of the construction of a multi-story residential retirement building, and the associated parking lot. The site was graded to accept the offsite flows from the east. A 20' rundown will convey the offsite flow from the existing low point at the east property line onto our site. Once the flow enters the site it will split and be conveyed around both sides of the building within the parking lot. Half of the offsite flow and the flow generated from the northern portion of the building and interior courtyard will discharge 29.74 CFS through the new driveway. As shown in appendix A, the flow leaving the site will have a depth of .156' and a velocity of 4.76 ft/s. The remaining half of the offsite flow which enters the site will be

carried within the south parking lot. The peak discharge rate including offsite and onsite flows from the southern portion of the building and site will be 21.54 CFS. A detention pond located at the southwest corner of the site will capture these flows. This pond will be connected to a new 18" RCP located within Valencia. A 15-inch orifice plate, connected to the face of the inlet, controls the pond's discharge rate. As shown in Appendix A the pond discharge rate is controlled by the water surface elevation in the pond. This relationship was used in developing the pond routing function within the AHYMO program located in Appendix B. The predicted peak discharge rate leaving the pond is 14.70 CFS. The site was graded so that in the event of a storm greater than the 100-year, 6-hour storm, the pond will overflow onto the parking lot and discharge to Valencia through the south driveway. The proposed combined peak discharge rate for the entire site will be 40.81 CFS. This is less than the existing rate of 40.90 CFS.

The flows generated by the roof are collected by roof drains and discharged at the base of the building. Construction of sidewalk culverts will allow the roof drains to pass the flow under the sidewalk and onto the parking lot. The central courtyard is drained by a series of small landscape depressions connected to a 6-inch drainage system, controlled by a single sump pump. As shown in Appendix A, the landscape ponds have the capacity to hold the 100-year, 6-hour storm volume. An emergency overflow is provided for the courtyard by having two turned blocks adjacent to the trash dumpster which serves as an emergency overflow.

The developed flows will continue to leave the site at a rate less than the historical rate and down the historical paths. As shown in Appendix A, the adjacent channel has a capacity of 389.49 CFS, the storm inlet at the end of the channel has a capacity of 56.29 CFS and the downstream storm drain system (within Alvarado) has a capacity of 49.18 CFS. Therefore, the downstream drainage facilities have the maximum conveyance constraint of 49.18 CFS at the 30-inch storm drain system conduit within Alvarado, which is greater than the developed peak discharge rate leaving the site. The flows diverted directly to Valencia enter the same storm

drainage system as historical yet slightly upstream. This storm drainage system is a portion of the Lead branch of the San Mateo storm drainage system. The capacity of the San Mateo system was not determined since it is comprised of several hundred basins and conduits and this analysis is not within the scope of this project due to the matching of historical flows.

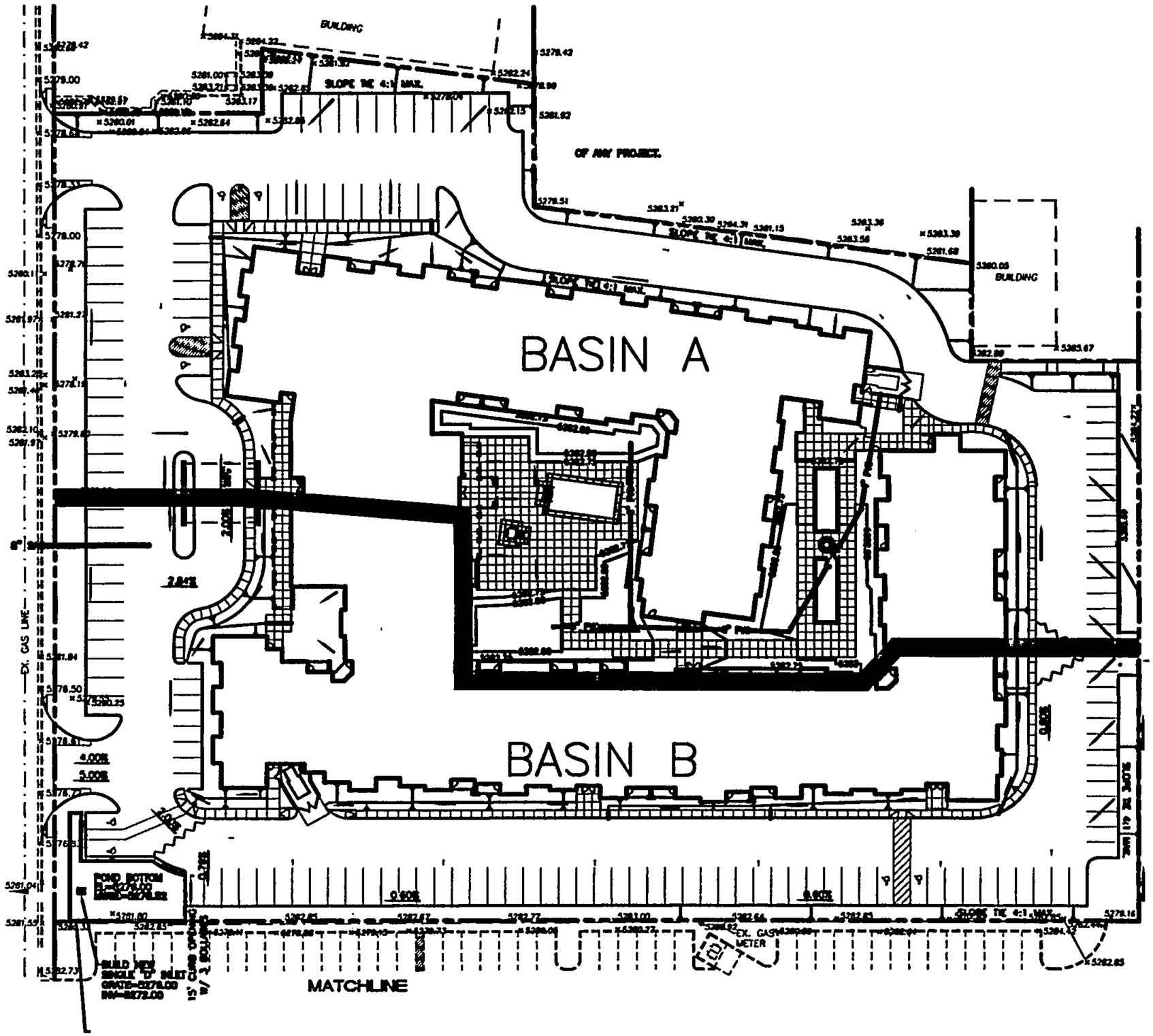
With the proposed grading of the site, no emergency overflow is required for the flows leaving the site. In a storm event greater than the predicted 100-year storm, the offsite flows entering the site will overtop the curb running along the east property line and continue to drain through the site within the parking lot. The onsite drainage will function the same as during the 100-year storm event. During an event larger than the 100-year storm the downstream inlet will be overtopped and the flows will enter the Alvarado roadway where it will flow down the existing flood plain.

SUMMARY AND RECOMMENDATIONS

This site is an in-fill site located in an established urban area of Albuquerque. The site was included in its fully developed condition in both the Albuquerque Master Drainage Study and the Design Analysis for the San Mateo Storm Drain Improvements - Phase 3. All the adjoining sites were granted free discharge. The site will continue to accept the offsite flows, which currently drain through the site. The calculated developed condition 100-year peak discharge rate of 40.81 CFS is less than the historical rate of 40.90 CFS. The development of this site is consistent with the DPM, Chapter 22, Hydrology section. Since this site is less than 5 acres, an NPDES permit is not required prior to any construction activity. Storm drainage improvements are to occur within City right of way, therefore a work order is required for this work. It is recommended this development be approved for rough grading, and for Building Permit.

APPENDIX A

HYDRAULIC CALCULATIONS



GRAPHIC SCALE

30 15 0 15 30

SCALE: 1"=30'

VALENCIA APARTMENTS	DRAWN BY JCH
BASIN EXHIBIT	DATE 08-08-08
	20030GR.DWG
TIERRA WEST, LLC 8509 JEFFERSON NE ALBUQUERQUE, NEW MEXICO 87113 (505)858-3100	SHEET #
	JOB # 20003

TIERRA WEST LLC
4421 McLeod Road NE, Suite D, Albuquerque, NM 87109 Phone (505) 883-7592 - Fax (505) 883-7034

RUNOFF CALCULATIONS

Date: May 11 2000 Project: VALENCIA APPT Zone Atlas: K18

This procedure is in accordance with the City of Albuquerque Development Process Manual, Volume 2, Section 22.2, "Hydrology", peak discharge rate for small watersheds less than forty acres in size.

Precipitation Zone from Figure A-1: 3
Land treatment descriptions are in Table A-4.

1. RUNOFF RATE COMPUTATION

Use Equation A-10: $Q_P = Q_{PA} A_A + Q_{PB} A_B + Q_{PC} A_C + Q_{PD} A_D$
Values of Q_{pi} are from Table A-9, and are in CFS/acre. Area values are in acres.

EXISTING RATE OF RUNOFF (CFS)

BASIN	Q_{PA}	A_A	Q_{PB}	A_B	Q_{PC}	A_C	Q_{PD}	A_D	
OFFSITE	1.87	0.00	2.60	0.00	3.45	0.30	5.02	5.71	29.70
ONSITE	1.87	2.00	2.60	1.10	3.45	0.58	5.02	0.53	11.26
Total									40.96

DEVELOPED RATE OF RUNOFF (CFS)

BASIN	Q_{PA}	A_A	Q_{PB}	A_B	Q_{PC}	A_C	Q_{PD}	A_D	Q
OFFSITE	1.87	0.00	2.60	0.00	3.45	0.30	5.02	5.71	29.70
BASIN A	1.87	0.00	2.60	0.27	3.45	0.42	5.02	2.08	12.59
BASIN B	1.87	0.00	2.60	0.07	3.45	0.21	5.02	1.14	6.65
COURT YARD*	1.87	0.00	2.60	0.17	3.45	0.10	5.02	0.15	1.54
Total									48.94

*COURTYARD AREA ALREADY INCLUDED IN TOTAL ONSITE RUNOFF

2. RUNOFF VOLUME COMPUTATION

Use Equation A-5 to compute weighted excess precipitation:

Weighted E = "E" = $(E_A A_A + E_B A_B + E_C A_C + E_D A_D)/(A_A + A_B + A_C + A_D)$

$(A_A + A_B + A_C + A_D) = \sum A_I$

Use Equation A-6 to compute the volume:

V_{360} = "E" x $(A_A + A_B + A_C + A_D)$ x 3630 feet^3/acre·inch

Values of E_I are from Table A-8, and are in inches. Area values are in acres.

DEVELOPED VOLUME OF RUNOFF (CUBIC FEET)											
BASIN	E_A	A_A	E_B	A_B	E_C	A_C	E_D	A_D	$\sum A_I$	"E"	V_{360}
Court yard	0.53	0.00	0.78	0.17	1.13	0.10	2.12	0.15	0.42	1.34	2043

Rundown opening to site

Weir Equation:

$$Q = CLH^{3/2}$$

Q= flow (cfs)
C = 2.75
H = Curb Height (ft)
L = width of opening

OPENING ON EAST END OF SITE ACCEPTING OFFSITE FLOW

$$Q_{max} = 2.75(20)(.67)^{3/2} = 29.7 \text{ CFS}$$

$$Q_{req} = 29.7 \text{ CFS}$$

OPENING TO POND

$$Q_{max} = 2.75(15(.67)^{3/2} = 22.62 \text{ CFS}$$

$$Q_{req} = 21.53 \text{ CFS}$$

VOLUME CALCULATION

POND A

Ab - Bottom Of The Pond Surface Area
At - Top Of The Pond Surface Area
D - Water Depth
Dt - Total Pond Depth
C - Change In Surface Area / Water Depth

Volume = Ab * D + 0.5 * C * D^2
C = (At - Ab) / Dt

Ab =	1,538.00
At =	1,538.00
Dt =	3.50
C =	0.00

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
76	4	0	0.0000
76.50	4.5	0.0177	11.6316
77.00	5	0.0353	12.3593
77.50	5.5	0.0530	13.0464
78.00	6	0.0706	13.6991
78.50	6.5	0.0883	14.3221
79.00	7	0.1059	14.9192
79.50	7.5	0.1236	15.4932

<u>Orifice Equation</u>
Q = CA SQRT(2gH)

C =	0.6
Diameter (in	15
Area (ft^2)=	1.227185
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

Channel Capacity

	Top Width	Bottom Width	Depth	Area	WP	R	Slope	Q Provided	Q Required	Velocity
	(ft)	(ft)	(ft)	(ft^2)	(ft)		(%)	(cfs)	(cfs)	(ft/s)
Channel entering site at east	20	20	0.667	13.34	21.33	0.625293	1.4	132.29	29.70	2.23
North Driveway	40	40	0.156	6.24	40.31	0.154793	2.08	29.74	29.70	4.76
Channel on west side of Valencia	14.5	7.83	1.5	16.75	15.14	1.105912	3.6	389.49	48.77	2.91

Manning's Equation:

$Q = 1.49/n * A * R^{(2/3)} * S^{(1/2)}$

A = Area
R = A/WP
S = Slope
n = 0.013

INLET CALCULATIONS

Orifice Equation
Q = CA SQRT(2gH)

C =	0.636*
Width(in)	105
Height (in	17
Area (ft^	12.3958
g =	32.2

H (Ft) = Depth of water above center of orifice
Q (CFS)= Flow

Q=56.29 CFS

*Boveys coefficient for Rectangular orifices per Brater and King Handbook of Hydrualics

Turned block at dumpster

Weir Equation:

$$Q = CLH^{3/2}$$

Q= flow (cfs)
C = 2.75
H = Curb Height (ft)
L = width of opening

$$Q_{max} = 2.75(.5)(.5)^{3/2} = .49 \text{ CFS per opening}$$

Each block has two openings, two blocks will be turned therfore
$Q_{max} = 1.96$

$Q_{req} = 1.54$ CFS

Pipe Capacity

Manning's Equation:

Q = 1.49/n * A * R^(2/3) * S^(1/2)

A = Area
R = D/4
S = Slope
n = 0.013

STORM SEWER IN ALVARADO

Pipe	D	Slope	Area	R	Q Provided	Q Required	Velocity
	(in)	(%)	(ft^2)		(cfs)	(cfs)	(ft/s)
Alvarado	30	1.43	4.91	0.625	49.18	48.77	9.94

APPENDIX B

AHYMO ANALYSIS

1:623

```
*****************************************************************
*                        VALENCIA APARTMENTS
*
*****************************************************************
*       100-YEAR, 6-HR STORM
*
*****************************************************************
*
START                   TIME=0.0
*
*
RAINFALL                TYPE=1 RAIN QUARTER=0.0 IN
                        RAIN ONE=2.14 IN RAIN SIX=2.60 IN
                        RAIN DAY=3.10 IN DT=0.03333 HR
*
* EXISTING ONSITE
COMPUTE NM HYD          ID=1 HYD NO=100.1 AREA=0.006578 SQ MI
                        PER A=47.00 PER B=26.00 PER C=14.00 PER D=13.0
0
                        TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=1 CODE=1

*EXISTING OFFSITE BASIN
COMPUTE NM HYD          ID=2 HYD NO=100.2 AREA=0.00939 SQ MI
                        PER A=0.00 PER B=0.00 PER C=05.00 PER D=95.00
                        TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=2 CODE=1

*ADD OFFSITE AND ONSITE TO DETERMINE EXISTING HISTORICAL FLOW RATE
ADD HYD                 ID=3 HYD NO=102.1 ID=1 ID=2
PRINT HYD               ID=3 CODE=1

* PROPOSED ONSITE BASIN A
COMPUTE NM HYD          ID=4 HYD NO=100.4 AREA=0.004328 SQ MI
                        PER A=0.00 PER B=10.00 PER C=15.00 PER D=75.00
                        TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=4 CODE=1

* PROPOSED ONSITE BASIN B
*
COMPUTE NM HYD          ID=5 HYD NO=100.5 AREA=0.002234 SQ MI
                        PER A=0.00 PER B=05.00 PER C=15.00 PER D=80.00
                        TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=5 CODE=1
*
*PORTION OF OFFSITE BASINS CONTRIBUTING TO BASIN A
COMPUTE NM HYD          ID=6 HYD NO=100.6 AREA=0.004695 SQ MI
                        PER A=0.00 PER B=0.00 PER C=05.00 PER D=95.00
```

```
                        TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=6 CODE=1
*
*PORTION OF OFFSITE BASINS CONTRIBUTING TO BASIN B
COMPUTE NM HYD          ID=7 HYD NO=100.7 AREA=0.004695 SQ MI
                        PER A=0.00 PER B=0.00 PER C=05.00 PER D=95.00
                        TP=-0.1333 HR MASS RAINFALL=-1
PRINT HYD               ID=7 CODE=1

*ADD PORTION OF OFFSITE BASIN TO BASINS A
ADD HYD                 ID=8 HYD NO=102.2 ID=4 ID=6
PRINT HYD               ID=8  CODE=1

*ADD PORTION OF OFFSITE BASIN TO BASINS B
ADD HYD                 ID=9 HYD NO=102.3 ID=5 ID=7
PRINT HYD               ID=9  CODE=1

*ROUTE BASIN B THROUGH PONDB
ROUTE RESERVOIR         ID=10 HYD NO=200.1 INFLOW ID=9 CODE=3
                        OUTFLOW (CFS)  STORAGE(AC-FT)  ELEVATION(FT)
                        0              .0000                76.00
                        11.6316        .0177                76.50
                        12.3593        .0357                77.00
                        13.0464        .0530                77.50
                        13.6991        .0706                78.00
                        14.3221        .0883                78.50
                        14.9192        .1059                79.00
                        15.4932        .1236                79.50


PRINT HYD               ID=10  CODE=1

*

* ADD FLOWS FROM BASIN A AND B TO DETERMIN PROPOSED DISCHARGE
ADD HYD                 ID=11 HYD NO=102.4 ID=10 ID=8
PRINT HYD               ID=11  CODE=1

FINISH
```

```
    AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
         RUN DATE (MON/DAY/YR) = 08/08/2000
         START TIME (HR:MIN:SEC) = 10:02:49     USER NO.= R_BOHANN.I01
         INPUT FILE = C:\AHYMO\VALENCIA.DAT

**********************************************************************
*                          VALENCIA APARTMENTS                       *
**********************************************************************
*       100-YEAR, 6-HR STORM                                         *
**********************************************************************
*
START                TIME=0.0
*
*
RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.14 IN RAIN SIX=2.60 IN
                     RAIN DAY=3.10 IN DT=0.03333 HR

                COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
DT =     .033330 HOURS          END TIME =     5.999400 HOURS
   .0000   .0027   .0055   .0084   .0113   .0143   .0173
   .0204   .0236   .0269   .0302   .0337   .0372   .0408
   .0445   .0484   .0523   .0564   .0606   .0649   .0694
   .0741   .0789   .0839   .0892   .0946   .1003   .1063
   .1126   .1192   .1262   .1322   .1385   .1452   .1597
   .1922   .2422   .3139   .4119   .5407   .7049   .9093
  1.1588  1.3904  1.4871  1.5687  1.6414  1.7074  1.7683
  1.8247  1.8775  1.9270  1.9735  2.0174  2.0589  2.0982
  2.1354  2.1707  2.2041  2.2359  2.2661  2.2737  2.2807
  2.2875  2.2939  2.3001  2.3060  2.3117  2.3172  2.3226
  2.3277  2.3328  2.3376  2.3423  2.3470  2.3514  2.3558
  2.3601  2.3643  2.3683  2.3723  2.3762  2.3801  2.3838
  2.3875  2.3911  2.3947  2.3982  2.4016  2.4050  2.4083
  2.4115  2.4147  2.4179  2.4210  2.4241  2.4271  2.4301
  2.4330  2.4359  2.4388  2.4416  2.4444  2.4472  2.4499
  2.4526  2.4553  2.4579  2.4605  2.4631  2.4656  2.4681
  2.4706  2.4731  2.4755  2.4779  2.4803  2.4827  2.4850
  2.4873  2.4896  2.4919  2.4942  2.4964  2.4986  2.5008
  2.5030  2.5052  2.5073  2.5094  2.5115  2.5136  2.5157
  2.5177  2.5198  2.5218  2.5238  2.5258  2.5277  2.5297
  2.5317  2.5336  2.5355  2.5374  2.5393  2.5412  2.5430
  2.5449  2.5467  2.5486  2.5504  2.5522  2.5540  2.5557
  2.5575  2.5593  2.5610  2.5627  2.5645  2.5662  2.5679
  2.5696  2.5713  2.5729  2.5746  2.5762  2.5779  2.5795
  2.5811  2.5828  2.5844  2.5860  2.5876  2.5891  2.5907
  2.5923  2.5938  2.5954  2.5969  2.5984  2.6000
*
* EXISTING ONSITE
COMPUTE NM HYD       ID=1 HYD NO=100.1 AREA=0.006578 SQ MI
                     PER A=47.00 PER B=26.00 PER C=14.00 PER D=13.00
                     TP=-0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   3.3761    CFS   UNIT VOLUME =    .9961       B =   526.28      P60 = 2.1400
    AREA =      .000855 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .143041HR    TP =   .133300HR    K/TP RATIO =  1.073079     SHAPE CONSTANT, N =  3.291551
    UNIT PEAK =   13.085    CFS   UNIT VOLUME =    .9990       B =   304.79      P60 = 2.1400
    AREA =      .005723 SQ MI    IA =    .55690 INCHES    INF =   1.40931 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD            ID=1 CODE=1

                                  PARTIAL HYDROGRAPH   100.10


    RUNOFF VOLUME =     1.01182 INCHES     =        .3550 ACRE-FEET
    PEAK DISCHARGE RATE =      11.20 CFS  AT   1.500 HOURS   BASIN AREA =    .0066 SQ. MI.
```

```
*EXISTING OFFSITE BASIN
COMPUTE NM HYD       ID=2 HYD NO=100.2 AREA=0.00939 SQ MI
                     PER A=0.00 PER B=0.00 PER C=05.00 PER D=95.00
                     TP=-0.1333 HR MASS RAINFALL=-1

    K =    .072649HR     TP =    .133300HR     K/TP RATIO =    .545000      SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   35.219     CFS   UNIT VOLUME =     .9990        B =   526.28       P60 = 2.1400
    AREA =       .008921 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330


    K =    .108912HR     TP =    .133300HR     K/TP RATIO =    .817047      SHAPE CONSTANT, N =  4.373949
    UNIT PEAK =   1.3362     CFS   UNIT VOLUME =     .9907        B =   379.38       P60 = 2.1400
    AREA =       .000470 SQ MI     IA =     .35000 INCHES     INF =     .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330

PRINT HYD            ID=2 CODE=1

                                    PARTIAL HYDROGRAPH   100.20

    RUNOFF VOLUME =      2.30201 INCHES      =        1.1528 ACRE-FEET
    PEAK DISCHARGE RATE =       29.70 CFS  AT    1.500 HOURS    BASIN AREA =    .0094 SQ. MI.


*ADD OFFSITE AND ONSITE TO DETERMINE EXISTING HISTORICAL FLOW RATE
ADD HYD              ID=3 HYD NO=102.1 ID=1 ID=2
PRINT HYD          ID=3 CODE=1

                                    PARTIAL HYDROGRAPH   102.10

    RUNOFF VOLUME =      1.77049 INCHES      =        1.5078 ACRE-FEET
    PEAK DISCHARGE RATE =       40.90 CFS  AT    1.500 HOURS    BASIN AREA =    .0160 SQ. MI.


* PROPOSED ONSITE BASIN A
COMPUTE NM HYD       ID=4 HYD NO=100.4 AREA=0.004328 SQ MI
                     PER A=0.00 PER B=10.00 PER C=15.00 PER D=75.00
                     TP=-0.1333 HR MASS RAINFALL=-1

    K =    .072649HR     TP =    .133300HR     K/TP RATIO =    .545000      SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   12.815     CFS   UNIT VOLUME =     .9985        B =   526.28       P60 = 2.1400
    AREA =       .003246 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330


    K =    .118810HR     TP =    .133300HR     K/TP RATIO =    .891296      SHAPE CONSTANT, N =  3.978822
    UNIT PEAK =   2.8714     CFS   UNIT VOLUME =     .9957        B =   353.76       P60 = 2.1400
    AREA =       .001082 SQ MI     IA =     .41000 INCHES     INF =     .99800 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330

PRINT HYD            ID=4 CODE=1

                                    PARTIAL HYDROGRAPH   100.40

    RUNOFF VOLUME =      2.04850 INCHES      =         .4728 ACRE-FEET
    PEAK DISCHARGE RATE =       12.59 CFS  AT    1.500 HOURS    BASIN AREA =    .0043 SQ. MI.


* PROPOSED ONSITE BASIN B
*
COMPUTE NM HYD       ID=5 HYD NO=100.5 AREA=0.002234 SQ MI
                     PER A=0.00 PER B=05.00 PER C=15.00 PER D=80.00
                     TP=-0.1333 HR MASS RAINFALL=-1

    K =    .072649HR     TP =    .133300HR     K/TP RATIO =    .545000      SHAPE CONSTANT, N =  7.106420
```

```
    UNIT PEAK =   7.0560    CFS   UNIT VOLUME =    .9978       B =   526.28      P60 = 2.1400
    AREA =      .001787 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .115098HR    TP =   .133300HR    K/TP RATIO =   .863453     SHAPE CONSTANT, N =  4.116954
    UNIT PEAK =   1.2164    CFS   UNIT VOLUME =    .9896       B =   362.89      P60 = 2.1400
    AREA =      .000447 SQ MI    IA =    .38750 INCHES    INF =    .93500 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=5 CODE=1

                                  PARTIAL HYDROGRAPH   100.50


    RUNOFF VOLUME =     2.12146 INCHES     =        .2528 ACRE-FEET
    PEAK DISCHARGE RATE =       6.68 CFS  AT   1.500 HOURS   BASIN AREA =   .0022 SQ. MI.

*
*PORTION OF OFFSITE BASINS CONTRIBUTING TO BASIN A
COMPUTE NM HYD      ID=6 HYD NO=100.6 AREA=0.004695 SQ MI
                    PER A=0.00 PER B=0.00 PER C=05.00 PER D=95.00
                    TP=-0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   17.609    CFS   UNIT VOLUME =    .9988       B =   526.28      P60 = 2.1400
    AREA =      .004460 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .108912HR    TP =   .133300HR    K/TP RATIO =   .817047     SHAPE CONSTANT, N =  4.373949
    UNIT PEAK =   .66811    CFS   UNIT VOLUME =    .9806       B =   379.38      P60 = 2.1400
    AREA =      .000235 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=6 CODE=1

                                  PARTIAL HYDROGRAPH   100.60


    RUNOFF VOLUME =     2.30201 INCHES     =        .5764 ACRE-FEET
    PEAK DISCHARGE RATE =      14.86 CFS  AT   1.500 HOURS   BASIN AREA =   .0047 SQ. MI.


*
*PORTION OF OFFSITE BASINS CONTRIBUTING TO BASIN B
COMPUTE NM HYD      ID=7 HYD NO=100.7 AREA=0.004695 SQ MI
                    PER A=0.00 PER B=0.00 PER C=05.00 PER D=95.00
                    TP=-0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   17.609    CFS   UNIT VOLUME =    .9988       B =   526.28      P60 = 2.1400
    AREA =      .004460 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .108912HR    TP =   .133300HR    K/TP RATIO =   .817047     SHAPE CONSTANT, N =  4.373949
    UNIT PEAK =   .66811    CFS   UNIT VOLUME =    .9806       B =   379.38      P60 = 2.1400
    AREA =      .000235 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=7 CODE=1

                                  PARTIAL HYDROGRAPH   100.70


    RUNOFF VOLUME =     2.30201 INCHES     =        .5764 ACRE-FEET
    PEAK DISCHARGE RATE =      14.86 CFS  AT   1.500 HOURS   BASIN AREA =   .0047 SQ. MI.
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```
*ADD PORTION OF OFFSITE BASIN TO BASINS A
ADD HYD                  ID=8 HYD NO=102.2 ID=4 ID=6
PRINT HYD           ID=8  CODE=1

                                  PARTIAL HYDROGRAPH   102.20


    RUNOFF VOLUME =     2.18035 INCHES     =       1.0492 ACRE-FEET
    PEAK DISCHARGE RATE =      27.45 CFS  AT   1.500 HOURS   BASIN AREA =    .0090 SQ. MI.



*ADD PORTION OF OFFSITE BASIN TO BASINS B
ADD HYD                      ID=9 HYD NO=102.3 ID=5 ID=7
PRINT HYD           ID=9  CODE=1

                                  PARTIAL HYDROGRAPH   102.30


    RUNOFF VOLUME =     2.24372 INCHES     =        .8292 ACRE-FEET
    PEAK DISCHARGE RATE =      21.54 CFS  AT   1.500 HOURS   BASIN AREA =    .0069 SQ. MI.



*ROUTE BASIN B THROUGH PONDB
ROUTE RESERVOIR     ID=10 HYD NO=200.1 INFLOW ID=9 CODE=3
                    OUTFLOW (CFS) STORAGE(AC-FT) ELEVATION(FT)
                            0            .0000              76.00
                            11.6316      .0177              76.50
                            12.3593      .0357              77.00
                            13.0464      .0530              77.50
                            13.6991      .0706              78.00
                            14.3221      .0883              78.50
                            14.9192      .1059              79.00
                               15.4932      .1236              79.50



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

    TIME        INFLOW      ELEV        VOLUME     OUTFLOW
    (HRS)       (CFS)       (FEET)      (AC-FT)    (CFS)

      .00         .00       76.00         .000        .00
      .10         .00       76.00         .000        .00
      .20         .00       76.00         .000        .00
      .30         .00       76.00         .000        .00
      .40         .00       76.00         .000        .00
      .50         .00       76.00         .000        .00
      .60         .00       76.00         .000        .00
      .70         .00       76.00         .000        .00
      .80         .00       76.00         .000        .00
      .90         .00       76.00         .000        .00
     1.00         .26       76.01         .000        .19
     1.10         .49       76.02         .001        .47
     1.20         .93       76.03         .001        .76
     1.30        4.40       76.15         .005       3.52
     1.40       12.42       76.46         .016      10.66
     1.50       21.54       77.74         .061      13.36
     1.60       14.86       78.82         .099      14.70
     1.70        9.73       78.23         .079      13.99
     1.80        7.65       77.12         .040      12.53
     1.90        6.28       76.29         .010       6.67
     2.00        5.21       76.23         .008       5.40
     2.10        3.78       76.18         .006       4.14
     2.20        1.97       76.10         .003       2.22
     2.30        1.29       76.06         .002       1.38
     2.40         .97       76.04         .002       1.02
     2.50         .75       76.03         .001        .79
     2.60         .60       76.03         .001        .62
     2.70         .48       76.02         .001        .50
     2.80         .40       76.02         .001        .41
```

2.90	.34	76.02	.001	.35
3.00	.30	76.01	.000	.31
3.10	.27	76.01	.000	.27
3.20	.25	76.01	.000	.25
3.30	.23	76.01	.000	.23
3.40	.22	76.01	.000	.22
3.50	.21	76.01	.000	.21
3.60	.20	76.01	.000	.20
3.70	.19	76.01	.000	.19
3.80	.19	76.01	.000	.19
3.90	.18	76.01	.000	.18
4.00	.18	76.01	.000	.18
4.10	.17	76.01	.000	.17
4.20	.17	76.01	.000	.17
4.30	.17	76.01	.000	.17
4.40	.17	76.01	.000	.17
4.50	.17	76.01	.000	.17
4.60	.16	76.01	.000	.17
4.70	.16	76.01	.000	.16
4.80	.16	76.01	.000	.16
4.90	.16	76.01	.000	.16
5.00	.16	76.01	.000	.16
5.10	.17	76.01	.000	.17
5.20	.17	76.01	.000	.17
5.30	.17	76.01	.000	.17
5.40	.17	76.01	.000	.17
5.50	.17	76.01	.000	.17

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
5.60	.17	76.01	.000	.17
5.70	.17	76.01	.000	.17
5.80	.18	76.01	.000	.18
5.90	.18	76.01	.000	.18
6.00	.18	76.01	.000	.18
6.10	.14	76.01	.000	.16
6.20	.05	76.00	.000	.06
6.30	.02	76.00	.000	.03
6.40	.01	76.00	.000	.02
6.50	.01	76.00	.000	.01
6.60	.01	76.00	.000	.01
6.70	.00	76.00	.000	.00

PEAK DISCHARGE = 14.701 CFS - PEAK OCCURS AT HOUR 1.60
MAXIMUM WATER SURFACE ELEVATION = 78.817
MAXIMUM STORAGE = .0995 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=10 CODE=1

PARTIAL HYDROGRAPH 200.10

RUNOFF VOLUME = 2.24373 INCHES = .8292 ACRE-FEET
PEAK DISCHARGE RATE = 14.70 CFS AT 1.600 HOURS BASIN AREA = .0069 SQ. MI.

*

* ADD FLOWS FROM BASIN A AND B TO DETERMIN PROPOSED DISCHARGE
ADD HYD ID=11 HYD NO=102.4 ID=10 ID=8
PRINT HYD ID=11 CODE=1

PARTIAL HYDROGRAPH 102.40

RUNOFF VOLUME = 2.20787 INCHES = 1.8784 ACRE-FEET
PEAK DISCHARGE RATE = 40.81 CFS AT 1.500 HOURS BASIN AREA = .0160 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 10:02:50