HYDROLOGY M10/D5 TWO PLANS

M 10/D5

2 PLANS

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

Ken Schultz
Mayor

UTILITY DEVELOPMENT DIVISION
HYDROLOGY SECTION
(505) 768-2650

July 23, 1987

Fred Arfman, P.E.
Isaacson & Arfman, P.A.
128 Monroe, NE
Albuquerque, New Mexico 87108

RE: CONCEPTUAL DRAINAGE PLAN FOR ALBUQUERQUE SOUTH, UNIT 1
RECEIVED JULY 10, 1987 (M-10/D5)

Dear Fred:

The above referenced plan, dated May 27, 1987, is approved for Bulk Land Platting.

Prior to Preliminary Plat approval, we will need a detailed drainage plan.

If you should have any questions, please call me at 768-2650.

Cordially,

Carlos A. Montoya, P.E.
City/County Floodplain Administrator

CAM/bsj

Isaacson & Arfman, P.A.

Consulting Engineering Associates

RECEIVED JUL 10 1987 HYDROLOGY SECTION

July 9, 1987

Carlos Montoya, P.E.
Hydrology Section
City of Albuquerque
P.O. Box 1293
Albuquerque, N.M. 87103

Re: Conceptual Drainage Plan for Albuquerque South, Unit 1 (M-10/D5)

Dear Carlos:

After reviewing your comments expressed in a June 30, 1987 letter, we are addressing your concerns as follows:

1. A copy of the bulk land plat (currently under review by the DRB), is attached to show the requested dedication of existing floodplain and additional easements provided for future development.

2. A revised ditch/dike section is included which is in conformance with the requirements in Section 22.3 of the DPM.

3. It is my understanding after our conversation on this date, that drainage covenants will be required prior to final subdivision platting, but not for this bulk land platting process.

4. The discrepancy you noted is due to the fact that two different runoff calculation methods were used per DPM criteria. The drainage areas discharging at analysis point 1 and analysis point 2 were both evaluated using the Rational Method, while the SCS Method was used for the entire combined area of approximately 485 acres. The total runoff figure then does not correspond to a direct summing of the two sub-areas.

In response to another concern not listed in your letter, but expressed in our conversation, we are enclosing a copy of the filed offsite drainage easement for the adjacent downstream tract.

If you should have any additional questions, please call me at 268-8828.

Cordially,

Scott M. McGee

Scott M. McGee
SMM/acq
Attachments

128 Monroe, NE • Albuquerque, NM 87108 • (505) 268-8828

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Ken Schultz
Mayor

UTILITY DEVELOPMENT DIVISION
HYDROLOGY SECTION
(505) 768-2650

June 30, 1987

Fred Arfman, P.E.
Isaacson & Arfman, P.A.
128 Monroe, NE
Albuquerque, New Mexico 87108

RE: CONCEPTUAL DRAINAGE PLAN FOR ALBUQUERQUE SOUTH, UNIT 1
RECEIVED MAY 27, 1987 (M-10/D5)

Dear Fred:

I have reviewed the referenced plan and forward the following comments:

1. Need to dedicate the existing floodplain.

2. Please refer to Section 22.3 (Berms and Levees) in the DPM for criteria concerning the east berm.

3. Drainage covenants will be required at final platting.

4. AP #1 equals 175 cfs and AP #2 equals 174 cfs. However, the ditch/dike section on sheet 23 is a design for only 200 cfs.

If you should have any questions regarding these comments, please call me at 768-2650.

Cordially,

Carlos A. Montoya

Carlos A. Montoya, P.E.
City/County Floodplain Administrator

CAM/bsj

08772571

RECEIVED JUL 10 1987 HYDROLOGY SECTION

TEMPORARY EASEMENT

This grant of Temporary Easement, between [state the name of the present real property owner exactly as shown on the real estate document coveying title to the present owner and state the legal status of the owner, for example, "single person," "husband and wife," "corporation of the State of X," "partnership":] Great Western Land Company, a general partnership ("Grantor"), whose address is 7301 Indian School NE, Albuquerque, N.M. 87110, and the City of Albuquerque, a New Mexico municipal corporation ("City"), whose address is P. O. Box 1293, Albuquerque, New Mexico 87103, is made in Albuquerque, Bernalillo County, New Mexico and is entered into as of the date Grantor signs this Temporary Easement.

1. Recital. Grantor is the owner of certain real property located at [give general description, for instance, subdivision, lot and block or street address:] the intersection of Unser Blvd. & Arenal Road SW in Bernalillo County, New Mexico (the "Property").

2. Grant of Easement. The Grantor grants to the City a temporary easement ("Temporary Easement") in, over, upon and across the Property for [state the kind of easement, for example, "public street and highway purposes (including all utilities)," "water line," "sewer line," etc.:] Drainage of Public Stormwaters. The Temporary Easement is more particularly described in the attached Exhibit A. [State on the exhibit either the metes and bounds description of the Temporary Easement or state the exact dimensions and location in a manner which would enable a surveyor to locate the Temporary Easement on the ground.]

The grant of the Temporary Easement includes the right of the City to enter upon the Temporary Easement at any time for inspection, installation, maintenance, repair or modification and the right to remove trees, bushes, undergrowth and any other obstacles if the City determines they interfere with the appropriate use of the Temporary Easement. This grant includes the right of access to the easement across the Grantor's adjoining property.

Grantor agrees for itself and its successors in interest that it has been paid in valuable consideration and that the grant of this Temporary Easement is not a gift or donation.

This Temporary Easement is worded pursuant to the provisions of §§47-1-27 to 47-1-44, NMSA 1978 or successor statutes.

3. Ownership Offer. Grantor states that it is the owner in fee simple of the Property and that it has a good lawful right to convey the Property or any part thereof.

(Approved by Legal Dept.
as to form only-6/15/86)

4. Binding on Grantor's Property. The grant and other provisions of this Temporary Easement constitute covenants running with the land for the benefit of the City and its successors and assigns until terminated.

5. Termination of Temporary Easement. This Temporary Eastment shall remain in effect until [state date of termination or event which will cause Temporary Easement to end:] substitution by an approved permanent easement ("Termination"). Upon Termination and demand by the Grantor the City will execute and deliver to Grantor a release of this Temporary Easement.

6. Indemnification. As a part of the consideration for this grant, subject to the provisions of the New Mexico Tort Claims Act and all other applicable New Mexico laws, the City agrees to save Grantor harmless from any and all liability arising from the City's negligent use of the Temporary Easement for the purposes set forth herein. The City does not agree to save Grantor harmless from any liability which may arise from Grantor's use of the Temporary Easement and the Property.

7. Form Not Changed. Grantor agrees that changes to this form are not binding upon the City unless initialed by the Grantor and approved and signed by the City Legal Deparment in writing on this form.

CITY OF ALBUQUERQUE

Approved:

By: [signature]
Title: CITY ENGINEER
Dated: 7/9/87 CAM

GRANTOR: Great Western Land Co.

By: [signature]
Its: General Partner
Dated: July 8, 1987

STATE OF _____)
) ss
COUNTY OF _____)

The foregoing instrument was acknowledged before me this 8th day of July, 1987, by [name of person signing:] R.J. Schaefer, [title or capacity, for instance, "President" or "Owner":] General Partner of [name of the entity which owns the Property if other than the individual signing, for instance, the name of the corporation, partnership, or joint venture:] Great Western Land Company.

[signature]
Notary Public

OFFICIAL SEAL
KATHERINE M. SCHNIDT
NOTARY PUBLIC - NEW MEXICO
My Commission Expires: 3/30/88

(Approved by Legal Dept. as to form only-6/15/86)

(EXHIBIT "A" ATTACHED)

LEGAL DESCRIPTION

Two certain parcels of land situate within projected Section 34, T.10N., R.2E., N.M.P.M., Town of Atrisco Grant, within the City of Albuquerque, Bernalillo County, New Mexico and being contained within the U.S. Home Tract as the same is shown and designated on the plat entitled Valley West, filed in the office of the County Clerk of Bernalillo County, New Mexico, on April 17, 1980 in Book C 16, Page 144 and being more particularly described as follows.

Parcel A: A 50 foot wide easement within the southerly 50 feet of the said Valley West tract between the tract's southwest property corner and the westerly right-of-way of the A.M.A.F.C.A. Parcel A-1-4, said easement having a course of S 81°01'42" E, 1155.53 feet along said common southerly line and containing 57,776 square feet of land (1.3264 acre) more or less.

Parcel B: A 50 foot easement, the centerline of which begins on the westerly property line of the said Valley West tract from whence the northwest corner of said tract bears N 08°49'13" E, 75.00 feet distant; thence S 23°25'35" E, 627.91 feet; thence S 57°30'00" E, 350.00 feet; thence S 51°15'00" E, 430.00 feet to a point on the northwesterly line of A.M.A.F.C.A. Parcel A-1-15 and end of this parcel of land and containing 70,395 square feet of land (1.6161 acres) more or less. The side lines of said easement to be extended or shortened to meet at angle points and terminate at property lines.

Said temporary easements contain a total of 128,171 square feet of land (2.9424 acres) more or less and shall remain in place until said tract is replatted or easement is terminated by a recorded termination agreement.

Bearing Base: The same as shown on the recorded plat of the said Valley West tract.

Thomas O. Isaacson

7/8/87

Thomas O. Isaacson, P.E. & L.S. # 3895
128 Monroe St. NE
Albuquerque, N.M. 87108

Date

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
FILED FOR RECORD

87 JUL 10 PM 3:10

BK M5509A 241-244

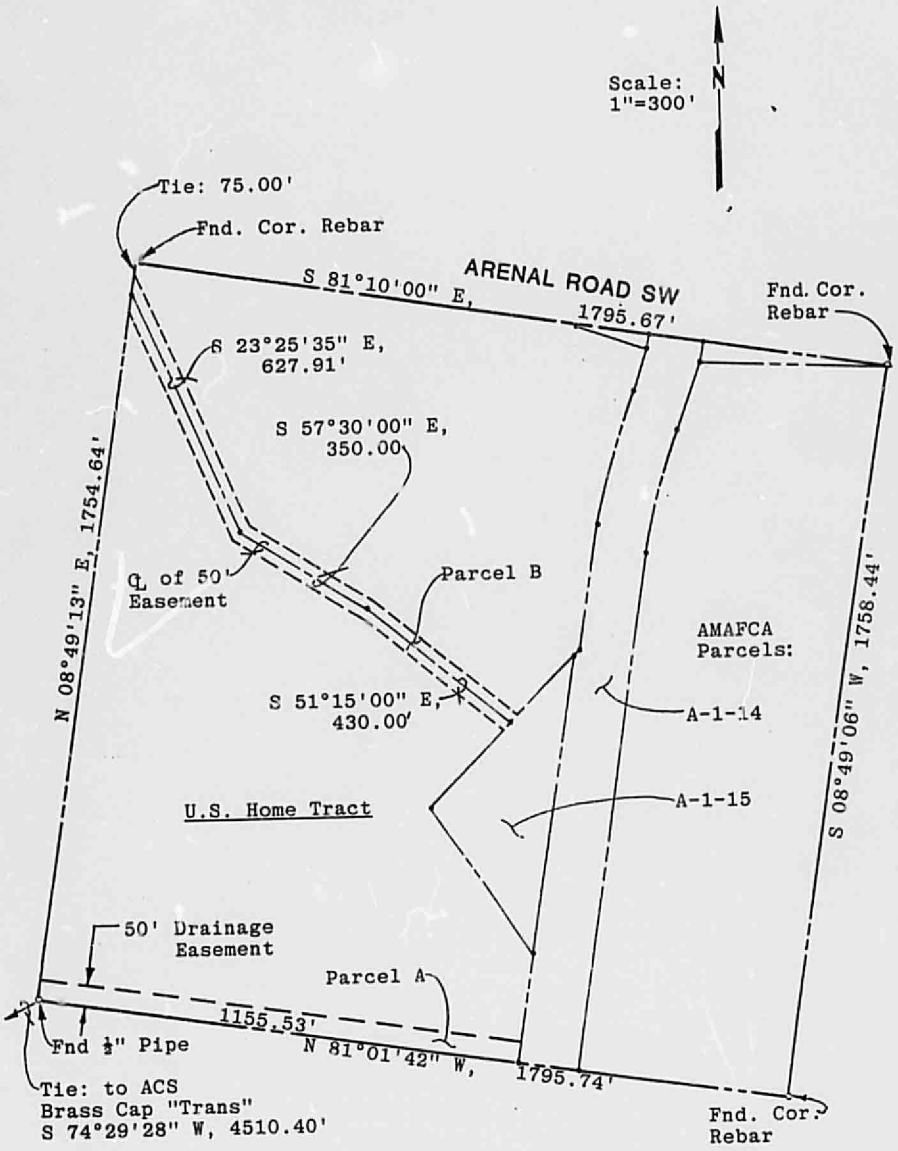
GLADYS M. DAVIS
CO. CLERK - RECORDER

DEPUTY

EXHIBIT 'A'

VALLEY WEST

TEMPORARY DRAINAGE EASEMENT



DRAINAGE INFORMATION SHEET

PROJECT TITLE: ALBUQUERQUE SOUTH ZONE ATLAS/DRAINAGE FILE # M-10/D5

LEGAL DESCRIPTION: REMAINDER UNIT 1 OF TRACT KK, SECTION 34, T10N, R2E, TOWN OF ATRISCO GRANT

CITY ADDRESS: SW CORNER OF UNSER BLVD & ARENAL ROAD SW

ENGINEERING FIRM: ISAACSON & ARFMAN, P.A. CONTACT: FRED ARFMAN

ADDRESS: 128 MONROE NE PHONE: 268-8828

OWNER: ALBUQUERQUE SOUTH GENERAL PARTNERSHIP CONTACT: RJ SCHAEFER

ADDRESS: 7301 INDIAN SCHOOL · SUITE B PHONE: 883-7666

ARCHITECT: NONE CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: HALL SURVEYING CO. CONTACT: VERLON HALL

ADDRESS: 337 EUBANK NE PHONE: 292-1115

CONTRACTOR: NONE CONTACT: _____

ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

X YES

___ NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

HYDROLOGY SECTION
RECEIVED
JUL 10 1987

DRB NO. _____

EPC NO. _____

PROJECT NO. _____

TYPE OF SUBMITTAL:
RESUBMITTAL

___ DRAINAGE REPORT

___ DRAINAGE PLAN

X CONCEPTUAL GRADING & DRAIN PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SECTOR PLAN APPROVAL

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

___ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

X OTHER BULK LAND PLAT (SPECIFY)

DATE SUBMITTED: July 10, 1987

BY: Scott M. McGee

REV. 10/85

Isaacson &
Arfman, P.A.
Consulting Engineering
Associates

128 Monroe Street, N.E.
Albuquerque, NM 87108
(505) 268 - 8828

CONCEPTUAL
DRAINAGE REPORT

FOR

ALBUQUERQUE SOUTH
UNIT 1

SOUTHWEST CORNER OF UNSER BLVD SW
AND ARENAL ROAD SW

ALBUQUERQUE NEW MEXICO
MAY 1987

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Ken Schultz
Mayor

UTILITY DEVELOPMENT DIVISION
HYDROLOGY SECTION
(505) 768-2650

July 23, 1987

Fred Arfman, P.E.
Isaacson & Arfman, P.A.
128 Monroe, NE
Albuquerque, New Mexico 87108

RE: CONCEPTUAL DRAINAGE PLAN FOR ALBUQUERQUE SOUTH, UNIT 1
RECEIVED JULY 10, 1987 (M-10/D5)

Dear Fred:

The above referenced plan, dated May 27, 1987, is approved for Bulk Land Platting.

Prior to Preliminary Plat approval, we will need a detailed drainage plan.

If you should have any questions, please call me at 768-2650.

Cordially,

Carlos A. Montoya, P.E.
City/County Floodplain Administrator

CAM/bsj

CONCEPTUAL

DRAINAGE REPORT

FOR

ALBUQUERQUE SOUTH

UNIT 1

SOUTHWEST CORNER OF UNSER BLVD. SW
AND ARENAL ROAD SW

ALBUQUERQUE NEW MEXICO

MAY 1987

RECEIVED
MAY 27 1987
HYDROLOGY SECTION

FRED C. ARFMAN
NEW MEXICO
7322
REGISTERED PROFESSIONAL ENGINEER

Prepared by:

Isaacson & Arfman, P.A.
Consulting Engineering Associates
128 Monroe NE
Albuquerque, N.M. 87108

Fred C. Arfman 5-27-87
Fred C. Arfman Date

I. INTRODUCTION

This Conceptual Drainage Report satisfies one of the requirements for the Bulk Land Plat being prepared for this tract of land containing 174.54 acres. This tract is within the municipal limits of the City of Albuquerque, and is currently zoned Residential (R-1). See Vicinity Map in Appendix.

A pre-design meeting was held May 4, 1987, with Fred Aguirre, Roger Green, and Stuart Reeder all of whom are with the Hydrology Review Section of the Utility Development Division of the City of Albuquerque. The following findings were established as criteria for this project.

1. The Conceptual Grading and Drainage Plan shall identify required drainage easements and infrastructure improvements (major facilities), which are to be waived as part of the Bulk Land Plat.

2. All 100-year flood plains must be dedicated as public drainage easements.

3. All required offsite drainage easements must be obtained prior to Bulk Land Plat sign-off by the City Engineer.

4. All temporary drainage facilities must be maintained by the developer and a Covenant/Agreement must be executed for maintenance responsibilities.

5. Unneeded easements should be vacated with the Bulk Land Plat which requires application for public hearing at the Development Review Board.

6. Include information from the Amole Drainage Report showing allowed rates of discharge to the Amole Channel, etc.

II. EXISTING SITE CONDITIONS

A. Flood Hazard - A small portion of this site is inundated by the 100-year storm as shown on Panel 33 of the FEMA flood maps (a copy of which is included in the Appendix). This flood hazard area is located along the future right-of-way of Arenal Road west of Unser Blvd. SW.

B. Temporary Drainage Easements - Three temporary drainage easements cross the site (as shown on the Conceptual Drainage Plan), running in an east-west direction. One of these easements was intended to cover the flood hazard area described above, but the two do not coincide.

C. Soils - From the SCS Soil Survey of Bernalillo County, these Bluepoint loamy fine sand and Madurez-Wink association soils are classified as Hydrologic Soil Groups 'A' and 'B'.

D. Topography - Present conditions are such that stormwaters flow from the west to the east. Offsite flows are carried through the site in two identifiable drainage courses, while onsite runoff is typically overland sheet flow until intercepted by one of these existing gullies. Site slopes are typically 2 percent with a small area in the northern portion having a slope of 6 to 7 percent.

E. Stage of Development - With the exception of a sanitary sewer line which crosses in the southern portion, this site is undeveloped. Vegetation is primarily native grasses and ground cover typical of the west mesa.

III. OFFSITE CONDITIONS

A large offsite area discharges its stormwaters across this site. This area is bounded by the Snow Vista Channel on the west, by Sage Road SW on the north, by the Vista del Sol Mobile Home Park development on the south, and Unser Blvd. (South of Sage Road) and the site itself on the east. A large part of this offsite area is already developed and is composed of the Westgate Heights Addition, Unit 2. As shown on the attached Offsite Drainage Exhibit, there are four discharge points where these offsite flows are released into the subject site.

As mentioned previously, there are three existing temporary drainage easements that allow offsite flows to cross the site. Drainage easements will be required for the property immediately to the east of the site to allow these flows to continue downstream to the existing right-of-way for the Amole del Norte Channel. This channel presently is concrete lined up to a point approximately 850 feet east of the site's southeast corner. The upstream continuation of this channel is scheduled to be included in a 1988-1989 bond issue.

The combined onsite and offsite areas are approximately 500 acres, therefore runoff computational methods suggested by the Soil Conservation Service will be used. Runoff quantity calculations for the offsite area are

included in the Appendix along with an offsite drainage exhibit.

IV. ONSITE CONDITIONS

As part of this bulk land plat, no changes are proposed to the existing site conditions. Runoff quantities are computed for the undeveloped site and also for a future scenario assuming 100% residential development (see Appendix). This developed condition scenario will help to establish limits on runoff based upon design capacities of the Amole del Norte Diversion Channel.

Temporary Drainage Easements onsite will also be redefined and re-dedicated to more accurately follow existing drainage courses and cover flood plains as outlined on the FEMA flood maps.

The 174 acres of undeveloped lands covered by this conceptual drainage study and bulk land plat are intended to be subdivided into eight tracts (Trs. A - H). These tracts all contain residential (R-1) zoned land and subsequent platting actions will therefore be required. All of the tracts are of considerable size in acreage, with the exception of Tracts B and H.

Tract B is created by the future realignment of Arenal and Unser. It shall be incorporated into the land to the northeast once those lands are platted. Those lands to the northeast are also part of the land holding of Albuquerque South General Partnership. Tract H is only 0.46 acres in area and is nested between the Mary Ann Binford Elementary School and Corriz Street. The planning section of the Albuquerque Public Schools has scheduled to take ownership of the parcel for incorporation into the

adjacent school site. The drainage characteristics of these two small tracts are not investigated to the same degree as the remaining tracts due to their planned incorporation into other tracts owned by either Albuquerque South General Partnership or the Albuquerque Public School system.

Of the remaining tracts, only Tract A is suitable for development primarily due to the availability of City water. Drainage from the this tract shall be collected at a point(s) on the westerly right of way of Unser, carried in a storm drain facility across Unser, then released to an open vee-ditch which would be located in the proposed 60' temporary drainage easement between tracts F and G.

How?

Tract C drainage will split with a portion being carried in the above mentioned vee-ditch eastward to the Amole Channel. The northern half of Tract C will drain to a future facility in the Arenal Road right of way. Temporary drainage easements shown will provide the means for undeveloped flows to reach the Amole Channel.

Tract D will also drain to the temporary drainage easement shown in the future right of way of Arenal Road west of Unser Blvd. This tract will continue to accept offsite flow as shown until Unser Blvd. is improved and can then carry public stormwaters.

Drainage from Tract E will also be collected west of Unser, carried through the public right of way, then released within a realigned temporary drainage easement running through Tract F.

Tract F will discharge part of its runoff to this same drainage easement. These combined flows will then be

routed north to circumvent the Unplatted Land, across which there currently are no easements. These waters, and runoff from the north half of Tract F, will be collected by the previously mentioned vee-ditch, along the south line of Valley West, and carried eastward to the Amole Channel.

The remaining tract, Tract G, will shed waters north and south to the temporary drainage easements shown. Existing drainage easements are to be vacated as they are not necessary.

V. DOWNSTREAM ANALYSIS

Runoff from this site historically flows eastward and contributes to the Arenal Retention pond, approximately one-half mile downstream. The Amole del Norte Diversion Channel is designed to intercept this runoff at various points south of Arenal.

Downstream capacity therefore exists once flows enter this facility. Until this channel can be extended upstream however, an interim solution will be required to handle both the onsite and offsite flows. The proposed drainage solution is a ditch/dike system located along the westerly right-of-way line of the existing channel. This temporary earthen ditch would carry flows south to a desiltation pond at the upstream end of the concrete lined Amole Channel.

There are several benefits associated with this type of interim drainage solution:

1. Aligning the ditch/dike system adjacent to the existing channel right-of-way will provide adequate

flood-proofing during the time of construction, but will not interfere with the actual construction within the right-of-way.

2. By stockpiling excavated material from the ditch and placing it in a dike adjacent to the ditch, earthwork balances will remain unaffected for the Amole del Norte Diversion Channel.

3. The desiltation pond at the downstream end of the ditch/dike system will provide an area for reduced flow velocities and the precipitation of suspended solids, thereby releasing cleaner runoff into the concrete channel.

VI. EROSION CONTROL

The temporary ditch/dike system will act as a water barrier and will therefore prohibit any downstream erosion. The proposed desiltation pond will collect any material being carried downstream. Since the ditch/dike system is planned to be replaced by the lined Amole Channel within 2-3 years, no re-seeding requirements will be imposed for the dike itself.

VII. SUMMARY & RECOMMENDATIONS

There will be no increase in storm runoff quantities associated with this bulk land plat. The flooding occurring downstream is a historic condition and planned improvements should help to alleviate the problem.

Drainage easements do not exist on the property immediately east of this site, although public storm waters cross this property. Easements shall be sought

across the property as well as redefining the location of existing easements across the site to encompass the historic drainage courses.

The interim ditch/dike drainage solution is very desireable at this time since it allows for the better utilization of the existing drainage infrastructure immediately downstream. As stated, the second phase of the Amole Del Norte Diversion Channel is scheduled with funding out of the 1988-89 bond elections, therefore the interim solution may be replaced within a one or two year time frame.

APPENDIX

No.	Description	Page No.
1.	Drainage Information Sheet	11
2.	Hydrology Pre-Design Conference Recap	12
3.	Vicinity Map	13
4.	Flood Hazard Map	14
5.	Soils Map	15
6.-10.	Offsite Runoff Table and Calculations	16-20
11. & 12.	Total Combined Runoff Calculations	21-22
13.	Ditch/Dike Section	23
14.	Offsite Drainage Exhibit	24
15.	Conceptual Drainage Plan	In Pocket

DRAINAGE INFORMATION SHEET

PROJECT TITLE: ALBUQUERQUE SOUTH ZONE ATLAS/DRAINAGE FILE # M-10/D5

LEGAL DESCRIPTION: REMAINDER UNIT 1 OF TRACT KK, SECTION 34, T10N, R2E, TOWN OF ATRISCO GRANT

CITY ADDRESS: SW CORNER OF UNSER BLVD & ARENAL ROAD SW

ENGINEERING FIRM: ISAACSON & ARFMAN, P.A. CONTACT: FRED ARFMAN

ADDRESS: 128 MONROE NE PHONE: 268-8828

OWNER: ALBUQUERQUE SOUTH GENERAL PARTNERSHIP CONTACT: RJ SCHAEFER

ADDRESS: 7301 INDIAN SCHOOL · SUITE B PHONE: 883-7666

ARCHITECT: NONE CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: HALL SURVEYING CO. CONTACT: VERLON HALL

ADDRESS: 337 EUBANK NE PHONE: 292-1115

CONTRACTOR: NONE CONTACT: _____

ADDRESS: _____ PHONE: _____

PRE-DESIGN MEETING:

X YES

___ NO

X COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. _____

EPC NO. _____

PROJECT NO. _____

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

___ DRAINAGE PLAN

X CONCEPTUAL GRADING & DRAIN PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SECTOR PLAN APPROVAL

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

___ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

X OTHER BULK LAND PLAT (SPECIFY)

DATE SUBMITTED: May 27, 1987

BY: Scott M. McGee

REV. 10/85

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION/DESIGN HYDROLOGY SECTION

CONFERENCE RECAP

DRAINAGE FILE/ZONE ATLAS PAGE NO.: M-10 DATE: 5-4-87

PLANNING DIVISION NOS: EPC: _____ DRB: _____

SUBJECT: BULK LAND PLAT - ALBUQUERQUE SOUTH UNIT 1

STREET ADDRESS (IF KNOWN): S.W Corner of Unser BLVD & Arnoldt RD.

SUBDIVISION NAME: TRACT KK Sec 24, T10N, R2E

APPROVAL REQUESTED:

____ PRELIMINARY PLAT	____ FINAL PLAT
____ SITE DEVELOPMENT PLAN	____ BUILDING PERMIT
X OTHER Bulk Land Plat	____ ROUGH GRADING

ATTENDANCE:	WHO	REPRESENTING
FRED ARFMAN	FRED Aguirre	City Hydrology
SCOTT McKEE		ISSACSON & ARFMAN
ROGER GREEN		"
STUART REEDER		CITY HYDROLOGY
		"

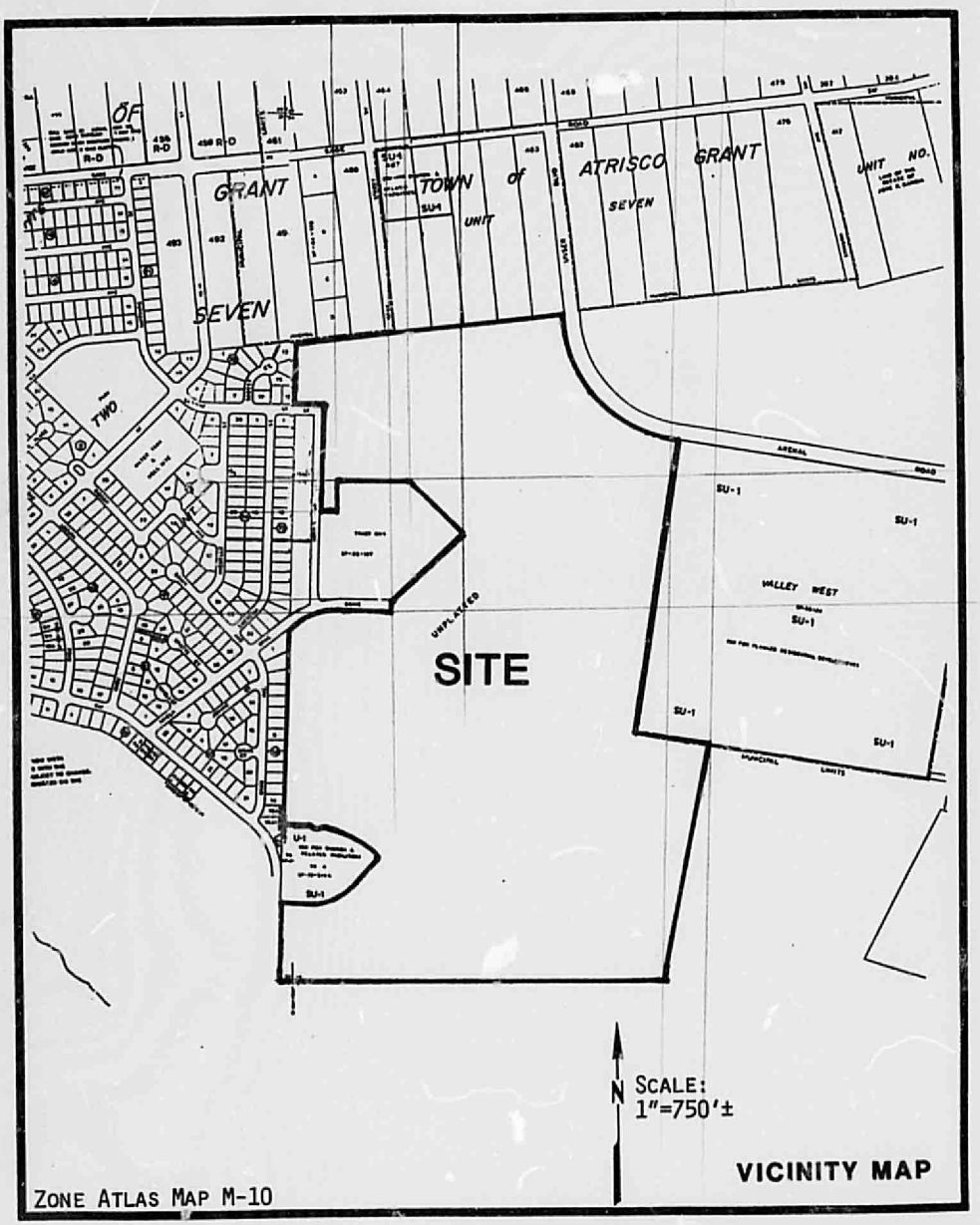
FINDINGS:

1. Conceptual Grading & Drainage Plan is required to identify required drainage easements and infrastructures to be waived with the Bulk land plat. (Major Facilities)
2. All 100yr Flood plains must be dedicated as public drainage easement.
3. All required offsite drainage easements must be obtained prior to Bulk Land Plat signoff by the City Engineer.
4. All temporary drainage facilities must be maintained by the developer and a Covenant/Agreement must be executed for maintenance responsibilities.
5. Unneeded easements should be vacated with the Bulk land plat, This requires application for public hearing at the DRB.
6. Include information from the Amole Drainage Report showing allowed rates of discharge to the Amole channel etc.

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED: Roger A. Green	SIGNED: [illegible]
TITLE: Civil Engineer	TITLE: V.P. - ENGR
DATE: 5-4-87	DATE: 5/4/87

NOTE PLEASE PROVIDE A COPY OF THIS RECAP WITH THE DRAINAGE SUBMITTAL

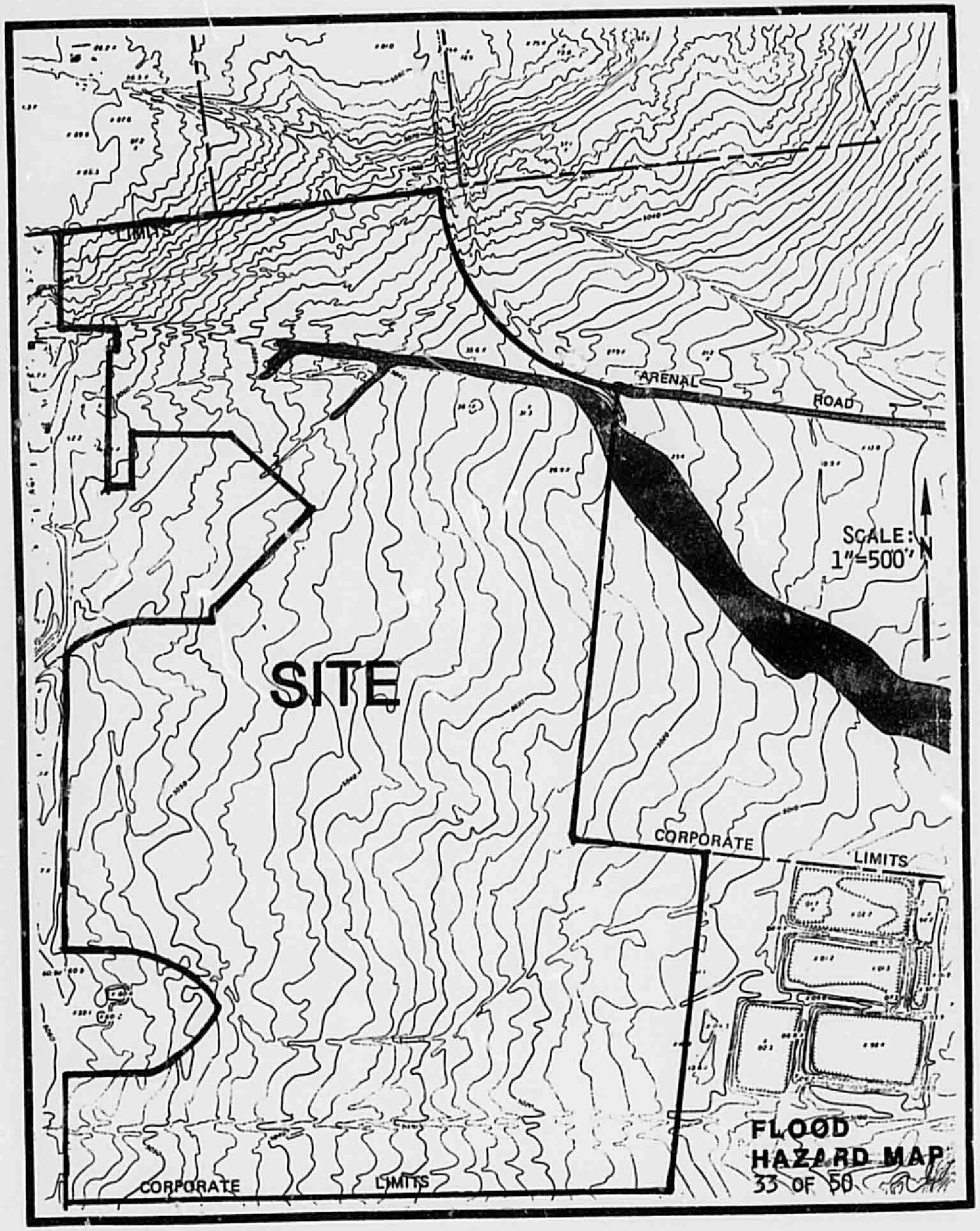


VICINITY MAP

ZONE ATLAS MAP M-10

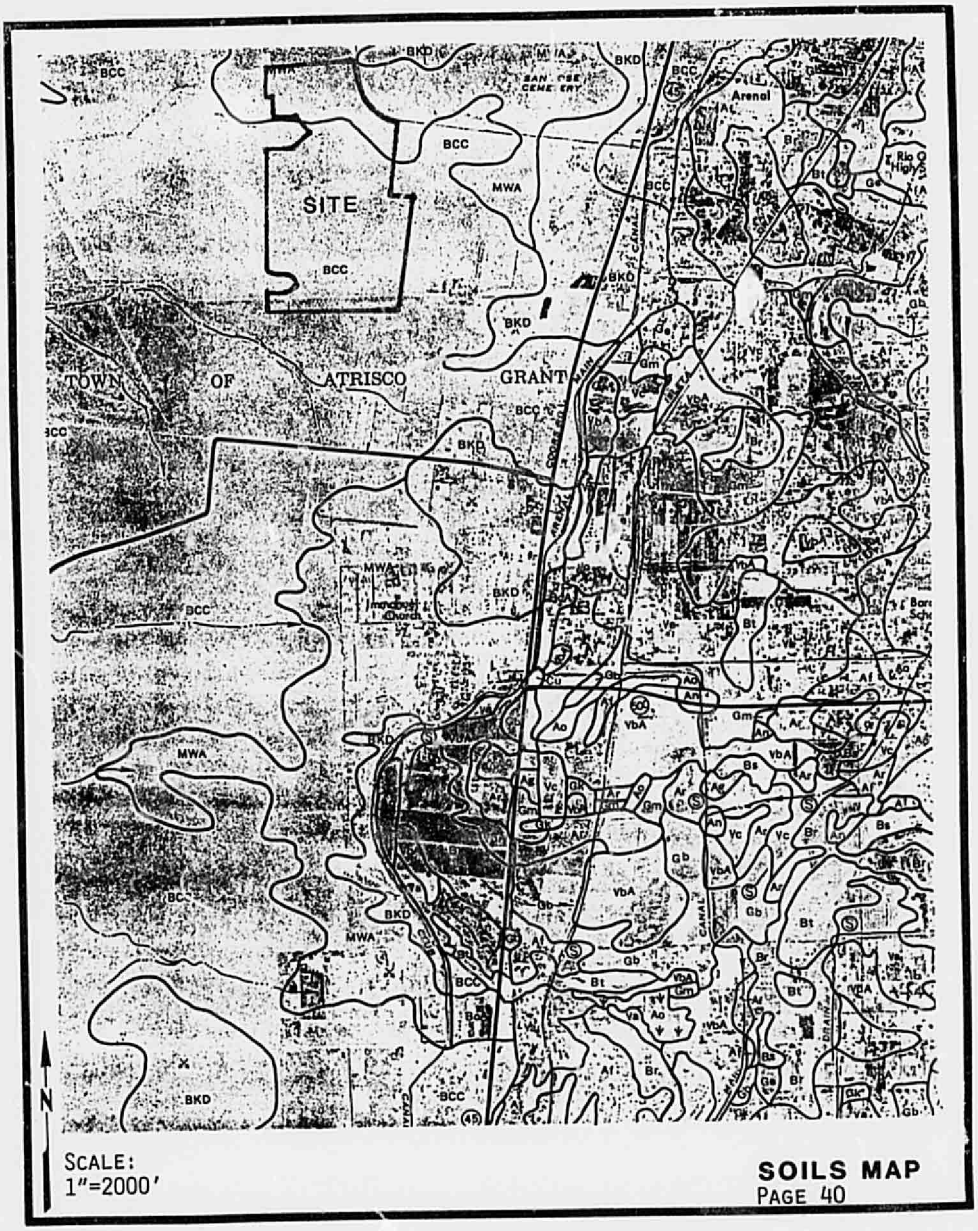
Isaacson & Arfman, P.A.

SUBJECT ALBUQUERQUE SOUTH JOB NO.
BY SMM DATE 5-11-87 SHEET NO. 13 OF



Isaacson &
Arfman, P.A.

SUBJECT ALBUQUERQUE SOUTH JOB NO.
BY SMM DATE 5·12·87 SHEET NO. 14 OF



SOILS MAP

PAGE 40

Isaacson & Arfman, P.A.

SUBJECT _____ JOB NO. ____

BY _____ DATE _____ SHEET NO. 15 OF ____

OFFSITE RUNOFF

Stormwater flows discharging to this site are divided into four (4) drainage areas as shown on the Offsite Drainage Exhibit. For the most part Area 1 is undeveloped while Areas 2, 3, & 4 are existing residential developments. None of these areas individually exceeds 320 acres, but combining the offsite and onsite areas yields approximately 500 acres. Runoff computation methods suggested by the SCS will therefore be used when considering total onsite and offsite runoff areas together.

The following table however, shows offsite runoff values based on the Rational Method, for each individual Offsite area:

Offsite Flow Area	Q (cfs) 100 Yr	Q (cfs) 10 Yr	V (ac. ft.) 100 Yr	V (ac. ft.) 10 Yr
1	63	41	4.3	2.8
2	176	116	11.3	7.4
3	140	92	5.7	3.7
4	80	53	6.3	4.1

RUNOFF CALCULATIONS

(Rational Formula)

PROJECT: Albuquerque South **Analysis Point#** O.F. #1

DRAINAGE AREA:
Planimeter Rdg. 676 x .015
x Map Scale (1"=500') 2 ÷ 43,560 A = 58 acres

TIME OF CONCENTRATION:
Drainage Basin Data:

L = 2,370 ft., fall = 38 ft., slope = 0.016 ft/ft

☒ Overland Flow: L=870 H=10'
v = 0.7 ft/sec (Pl 22.2 B-1)
Tc = 1,243 sec. = 20 min. Tc = 20 min.

☐ Street Flow:
v = _____ ft/sec. (Pl 22.2 B-2)
Tc = _____ sec. = _____ min. Tc = — min.

☒ Arroyo Flow:
Tc = 0.0078 (1500) L0.77 / S0.385 = 10 min. Tc = 10 min.
0.019
Σ Tc = 30 min.

RUNOFF COEFFICIENT:

Development	C	x	A*	÷ 100	Cc**
Streets, Drives & Walks	.95				
Roofs	.90				
Lawns & Landscaping	.25				
Undeveloped	.40		1.00		
				=	

C = 0.40

RAINFALL INTENSITY:
100 year depth = 2.2 " (Pl. 22.2-D-1)
Intensity Factor = 1.23 (Pl.22.2 D-2)
Intensity = depth x factor I = 2.7 "/hr.

PEAK RUNOFF RATE:
Q = CIA = 0.4 (developed runoff) x 2.7 x 58 Q_{100} = 63 cfs
x 0.657 = Q_{10} = 41 cfs

VOLUME OF RUNOFF:
V = C x Rainfall Depth x Area
= 0.4 x 2.2/12 x 58 x ~~43,560~~ V_{100} = 4.3 ac. cu. ft.
x 0.657 = V_{10} = 2.8 ac. cu. ft.

* Percent of Total Area
** C Value Component

Prepared By: SMcGee
Date : May 8, 1987

(5/86)

RUNOFF CALCULATIONS

(Rational Formula)

PROJECT: Albuquerque South **Analysis Point#** O.F. #2

DRAINAGE AREA:

Planimeter Rdg. 1430 x .015

x Map Scale (1" = 500') 2 ÷ 43,560 A = 123 acres

TIME OF CONCENTRATION:

Drainage Basin Data:

L = 4900 ft., fall = 79 ft., slope = 0.016 ft/ft

☐ Overland Flow:

v = _____ ft/sec (Pl 22.2 B-1)

Tc = _____ sec. = _____ min. Tc = — min.

☒ Street Flow:

v = 3.4 ft/sec. (Pl 22.2 B-2)

Tc = 823 sec. = 14 min. Tc = 14 min.

☒ Arroyo Flow:

$Tc = 0.0078 \frac{L^{0.77}}{S^{0.385}}$ = 13 min. Tc = 13 min.

1.9

Σ Tc = 27 min.

RUNOFF COEFFICIENT:

Development	C	x	A*	÷ 100	Cc**
Streets, Drives & Walks	.95		___		___
Roofs	.90		___		___
Lawns & Landscaping	.25		___		___
Undeveloped	.40		___		___

Assumed for existing residential development → C = 0.50

RAINFALL INTENSITY:

100 year depth = 2.2 " (Pl. 22.2-D-1)

Intensity Factor = 1.3 (Pl.22.2 D-2)

Intensity = depth x factor I = 2.86 "/hr.

PEAK RUNOFF RATE:

Q = CIA = 0.5 x 2.86 x 123 Q_{100} = 176 cfs

x 0.657 = Q_{10} = 116 cfs

VOLUME OF RUNOFF:

V = C x Rainfall Depth x Area

= 0.5 x $\frac{2.2}{12}$ x 123 ~~x 43,560~~ V_{100} = 11.3 ac. cu. ft.

x 0.657 = V_{10} = 7.4 ac. cu. ft.

* Percent of Total Area

** C Value Component

Prepared By: MSL

Date : 5-8-87

(5/86)

RUNOFF CALCULATIONS

(Rational Formula)

PROJECT: Albuquerque South **Analysis Point#** O.F. #3

DRAINAGE AREA:
Planimeter Rdg. 725 x .015
x Map Scale (1" = 500') 2 ÷ 43,560 A = 62 acres

TIME OF CONCENTRATION:
Drainage Basin Data:
L = 2250 ft., fall = 39 ft., slope = 0.017 ft/ft

☐ Overland Flow:
v = _____ ft/sec (Pl 22.2 B-1)
Tc = _____ sec. = _____ min. Tc = — min.

☒ Street Flow:
v = 3.5 ft/sec. (Pl 22.2 B-2)
Tc = 643 sec. = 11 min. Tc = 11 min.

☐ Arroyo Flow:
Tc = 0.0078 $\frac{L^{0.77}}{S^{0.385}}$ = _____ min. Tc = — min.

Σ Tc = 11 min.

NOFF COEFFICIENT:

Development	C	x	A*	÷ 100	Cc**
Streets, Drives & Walks	.95		___		___
Roofs	.90		___		___
Lawns & Landscaping	.25		___		___
Undeveloped	.40		___		___

Assumed for existing residential development → C = 0.50

RAINFALL INTENSITY:
100 year depth = 2.2 " (Pl. 22.2-D-1)
Intensity Factor = 2.05 (Pl.22.2 D-2)
Intensity = depth x factor I = 4.51 "/hr.

PEAK RUNOFF RATE:
Q = CIA = 0.5 x 4.51 x 62 Q_{100} = 140 cfs
x 0.657 = Q_{10} = 92 cfs

VOLUME OF RUNOFF:
V = C x Rainfall Depth x Area
= 0.5 x $\frac{2.2}{12}$ x 62 x 43,560 V_{100} = 5.7 ac. cu. ft.
x 0.657 = V_{10} = 3.7 ac. cu. ft.

* Percent of Total Area
** C Value Component

Prepared By: SMSHee
Date : 5-8-87

(5/86)

RUNOFF CALCULATIONS

(Rational Formula)

PROJECT: Albuquerque South **Analysis Point#** O.F. #4

DRAINAGE AREA:
Planimeter Rdg. 800 x .015
x Map Scale (1" = 500') 2 ÷ 43,560 A = 69 acres

TIME OF CONCENTRATION:
Drainage Basin Data:

L = 5000 ft., fall = 80 ft., slope = 0.016 ft/ft

☒ Overland Flow: L=1400, H=23
v = 1.0 ft/sec (Pl 22.2 B-1)
Tc = 1400 sec. = 23 min. Tc = 23 min.

☒ Street Flow: L=3600, H=58
v = 3.3 ft/sec. (Pl 22.2 B-2)
Tc = 1090 sec. = 18 min. Tc = 18 min.

☐ Arroyo Flow:
Tc = 0.0078 $\frac{L^{0.77}}{S^{0.385}}$ = _____ min. Tc = — min.

Σ Tc = 41 min.

RUNOFF COEFFICIENT:

Development	C	x	A*	÷ 100	Cc**
Streets, Drives & Walks	.95				
Roofs	.90				
Lawns & Landscaping	.25				
Undeveloped	.40				

Assumed for ext. residential development = C = 0.50

RAINFALL INTENSITY:
100 year depth = 2.2 " (Pl. 22.2-D-1)

Intensity Factor = 1.05 (Pl.22.2 D-2)

Intensity = depth x factor I = 2.31 "/hr.

PEAK RUNOFF RATE:
Q = CIA = 0.5 x 2.31 x 69 Q_{100} = 80 cfs
x 0.657 = Q_{10} = 53 cfs

VOLUME OF RUNOFF:
V = C x Rainfall Depth x Area

= 0.5 x $\frac{2.2}{12}$ x 69 x 43,560 V_{100} = 6.3 ac. cu.ft.
x 0.657 = V_{10} = 4.1 ac. cu.ft.

* Percent of Total Area
** C Value Component

Prepared By: [illegible]
Date : 5-8-87

(5/86)

RUNOFF CALCULATIONS

(Rational Formula)

PROJECT: Albuquerque South Analysis Point# 1

DRAINAGE AREA:

Planimeter Rdg. _____ x .015

x Map Scale _____ 2 ÷ 43,560 A = 231 acres

TIME OF CONCENTRATION:

Drainage Basin Data:

L = 9,500 ft., fall = 137 ft., slope = 0.014 ft/ft

☒ Overland Flow:

v = 0.8 ft/sec (Pl 22.2 B-1)

Tc = 3,375 sec. = 56 min. Tc = 56 min.

☒ Street Flow:

v = 3.4 ft/sec. (Pl 22.2 B-2)

Tc = 823 sec. = 14 min. Tc = 14 min.

☒ Arroyo Flow:

$$Tc = 0.0078 \frac{L^{0.77}}{S^{0.385}} = 22 \text{ min.}$$

(4000) (1.8)

Tc = 22 min.

Σ Tc = 92 min.

RUNOFF COEFFICIENT:

Development	C	x A	÷ 100	Cc
Streets, Drives & Walks	.95			
Roofs	.90			
Lawns & Landscaping	.25			
Undeveloped	.40			

ASSUMED FUTURE RESIDENTIAL DEVELOPMENT: C = 0.5

RAINFALL INTENSITY:

100 year depth = 2.2 " (Pl. 22.2 D-1)

Intensity Factor = 0.69 (Pl.22.2 D-2)

Intensity = depth x factor I = 1.52"/hr.

PEAK RUNOFF RATE:

Q = CIA = 0.5 x 1.52 x 231 Q_{100} = 175 cfs

x 0.657 = Q_{10} = 115 cfs

VOLUME OF RUNOFF:

V = C x Rainfall Depth x Area

$$= 0.5 \times \frac{2.2}{12} \times 231 \longrightarrow V_{100} = 21.2 \text{ ac.ft.}$$

x 0.657 = V_{10} = 13.9 ac.ft.

Prepared By: SMM

Date : 5·26·87

(5/86)

HYDROGRAPH COMPUTATION WORKSHEET

DATE 5·26·87
COMPUTED BY SMM
CHECK BY

PROJECT Albuquerque South

LOCATION 1000' North of Improved Amole Channel

ANALYSIS POINT # 2

(DR. AREA) A = 485 ACRES

T_c 95 MIN

POINT RAINFALL 2.2 IN. FROM PLATE 22.2 D-1

CN = 81 FROM PLATES 22.2 C-2, 22.2 C-3

RUNOFF VOLUME R = 0.75 IN. FROM PLATE 22.2 C-4

COMPUTED T_p = 95 MIN. $T_p = T_c$
(Rounded to even minute)

$q_p = \frac{45.4A}{T_p}$ = 232 CFS./INCH OF RUNOFF

$(R \times q_p) = Q_{peak}$ = 174 CFS

t(COLUMN)=(t/T_p) $t=T_p(t/T_p)$

$y = \frac{Q}{Q_{peak}}$ $Q = y(Q_{peak})$

	(t/T_p)	t (min.)	y	Q (cfs)
1	0	0	0	0
2	.1	10	.03	5
3	.2	19	.10	17
4	.3	29	.190	33
5	.4	38	.310	54
6	.5	48	.470	82
7	.6	57	.660	115
8	.7	67	.820	143
9	.8	76	.930	162
10	.9	86	.990	172
11	1.0	95	1.00	174
12	1.1	105	.990	172
13	1.2	114	.930	162
14	1.3	124	.860	150
15	1.4	133	.780	136
16	1.5	143	.680	118
17	1.6	152	.560	97
18	1.7	162	.460	80
19	1.8	171	.390	68
20	1.9	181	.330	57
21	2.0	190	.280	49
22	2.2		.207	
23	2.4		.147	
24	2.6		.107	
25	2.8		.077	
26	3.0	285	.055	10
27	3.2		.040	
28	3.4		.029	
29	3.6		.021	
30	3.8		.015	
31	4.0	380	.011	2
32	4.5		.005	
33	5.0	475	.000	0

PLATE 22.2 F-1

Isaacson & Arfman, P.A.

SUBJECT Ditch/Dike Section JOB NO. 323
BY SMM DATE 5.8.87 SHEET NO. ___ OF ___
REVISED 7.9.87 SMM

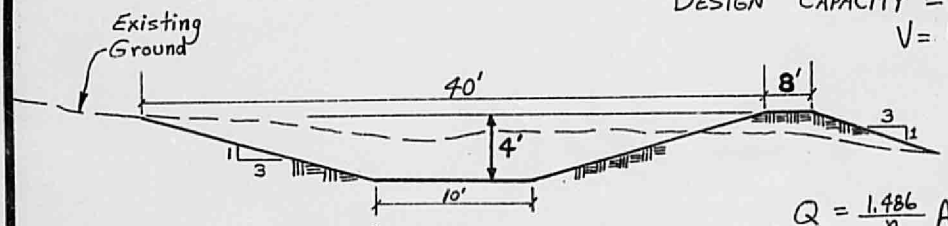
DESIGN CAPACITY = 200 CFS

$V = \frac{1.486}{n} R^{2/3} S^{1/2}$

$n = 0.025$

$S = 0.006$ ft/ft

$R = \frac{\text{Area}}{\text{Wetted Perimeter}}$



$Q = \frac{1.486}{n} A R^{2/3} S^{1/2}$

TEMPORARY DITCH / DIKE
No Scale

ASSUME bottom width (b) = 10', slope (s) = 0.006 ft/ft, & side slope (z) = 3:1

y (ft)	A (ft²)	R	$R^{2/3}$	V (fps)	Comments
2.0	32.00	1.41	1.26	5.80	Q = V·A = (5.8)(32) = 185 cfs
2.1	34.23	1.47	1.29	5.95	Q = (5.95)(34.23) = 203 cfs (OK) > 200 cfs

If ditch depth equals 4.0', then freeboard provided will be 4.0 − 2.1 = 1.9 ft. (2' OK)

CHECK → Velocity = 6 fps < 8 fps ∴ Bank protection not required.

RECEIVED JUL 10 1987 HYDROLOGY SECTION

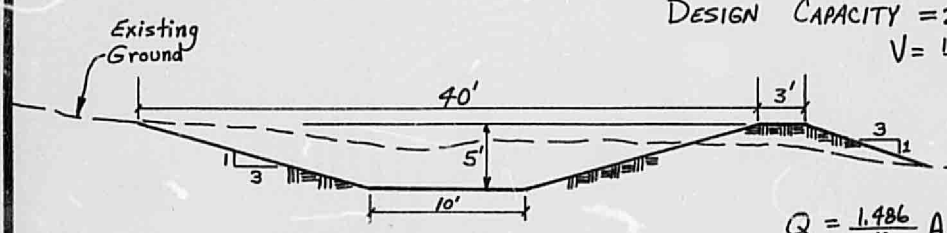
DESIGN CAPACITY = 200 CFS

$V = \frac{1.486}{n} R^{2/3} S^{1/2}$

$n = 0.025$

$S = 0.006$ ft/ft

$R = \frac{\text{Area}}{\text{Wetted Perimeter}}$



$Q = \frac{1.486}{n} A R^{2/3} S^{1/2}$

TEMPORARY DITCH / DIKE
No Scale

ASSUME bottom width (b) = 10', slope (s) = 0.006 ft/ft, & side slope (z) = 3:1

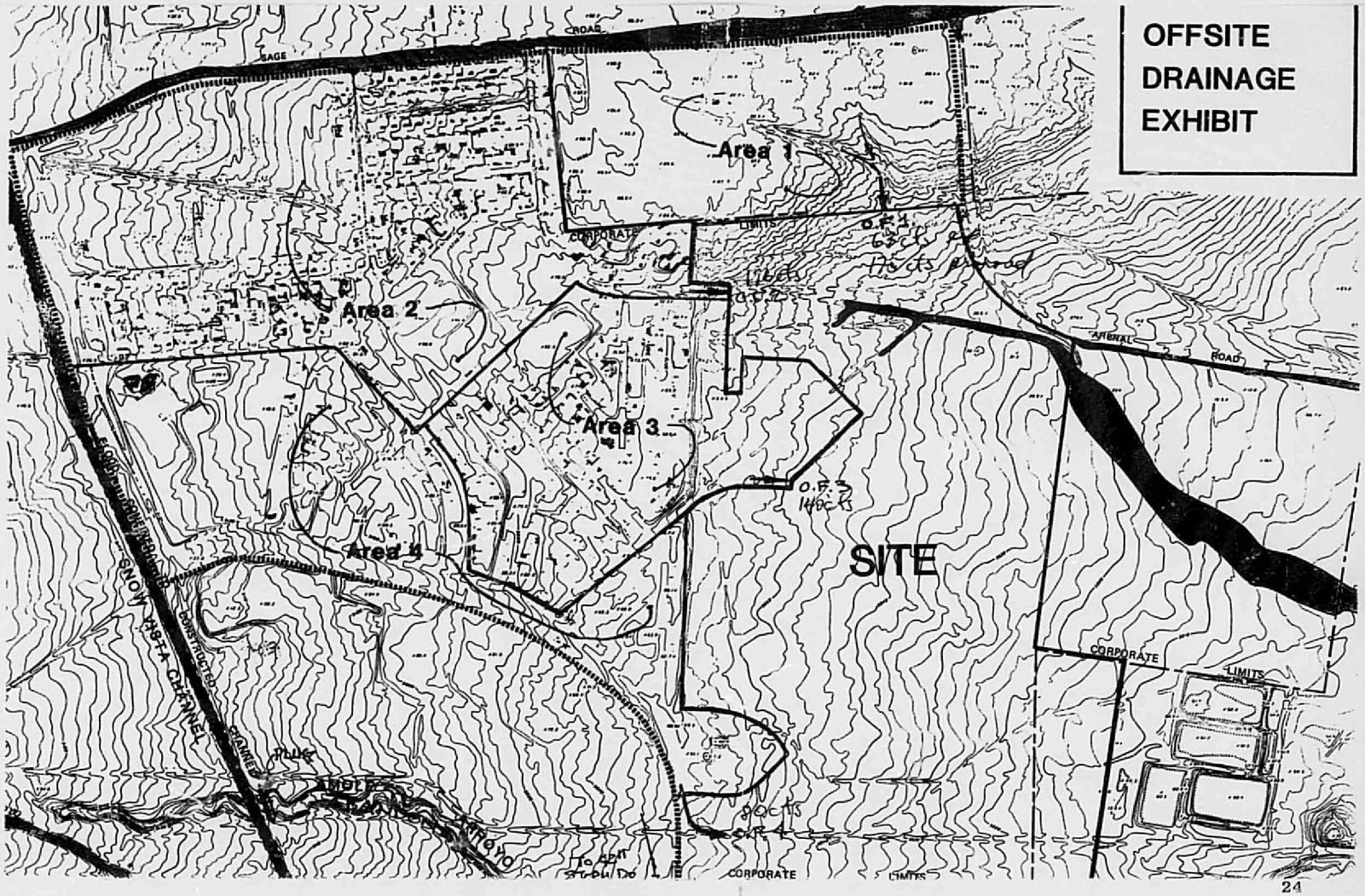
y (ft)	A (ft²)	R	$R^{2/3}$	V (fps)	Comments
2.0	32.00	1.41	1.26	5.80	Q = V·A = (5.8)(32) = 185 cfs
2.1	34.23	1.47	1.29	5.95	Q = (5.95)(34.23) = 203 cfs (OK) >200 cfs

If ditch depth equals 5.0', then freeboard provided will be 5.0 − 2.1 = 2.9 ft. (OK)

void

Isaacson & Arman, P.A.

SUBJECT Ditch / Dike Section JOB NO.
BY SMM DATE 5-8-87 SHEET NO. 23 OF


OFFSITE
DRAINAGE
EXHIBIT
Area 1
Area 2
Area 3
Area 4
SITE
SAGE
ROAD
CORPORATE
LIMITS
ARENAL
ROAD
SNOW HATA CHANNEL
CONSTRUCTED
CHANNEL
CORPORATE
LIMITS
CORPORATE
LIMITS