HYDROLOGY E21/D16 1 of 2 FIFTEEN PLANS

E21/D16

15 Plans

Community Sciences Corporation
P. O. Box 1328
CORRALES, NEW MEXICO 87048

(505) 897-0000

LETTER OF TRANSMITTAL

DATE 11/1/79 JOB NO.
ATTENTION
RE:

TO Bruno Coneglisano
City Engineering

RECEIVED
NOV 1 1979
CITY ENGINEER

GENTLEMEN:

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☒ Reports

COPIES	DATE	NO.	DESCRIPTION
2			Drainage Management Plan for the Masters @ Tanoan

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

☐ For review and comment ☐ _____

☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS

COPY TO Jim Smith

SIGNED: Kent M. Whitmer

If enclosures are not as noted, kindly notify us at once.

NEBS Townsend, Mass. 01469

Community Sciences Corporation
P. O. Box 1328
CORRALES, NEW MEXICO 87048

(505) 897-0000

LETTER OF TRANSMITTAL

DATE 11/1/79 JOB NO.

ATTENTION

RE:

TO Bruno Conegliano
City Engineering

RECEIVED
NOV 1 1979
CITY ENGINEER

GENTLEMEN:

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☒ Reports

COPIES	DATE	NO.	DESCRIPTION
2			Drainage Management Plan for the Masters @ Tarcan

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

☐ For review and comment ☐ _____

☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS

COPY TO Jim Smith

SIGNED: Kent M. Whitman

FORM 240-3 Available from NEBS Townsend, Mass. 01469

If enclosures are not as noted, kindly notify us at once.

COMMUNITY
SCIENCES CORPORATION
P. O. Box 1328
CORRALES, NM 87048

(505) 897-0000

LETTER OF TRANSMITTAL

DATE	JOB NO.
June 16, 1980	49-8-022

ATTENTION: Mr. Bruno Conegliano

RE: The Masters at Tanoan

Submitted for your review on 4-1-80

TO: AMAFCA
P.O. Box 25851
Albuquerque, NM 87125

RECEIVED
JUN 18 1980
CITY ENGINEER

GENTLEMEN:

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☒ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1			Copy of Plat Print

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

☒ For review and comment ☐ _____

☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Please be advised that comments received have been added to plat. I will be contacting you in a few days to obtain your signatures. Please contact me if you see any discrepancy(s) that you need to bring to our attention.

COPY TO Allan Whitesel, AMDeC

SIGNED: Richard Quintana/ldt

If enclosures are not as noted, kindly notify us at once.

FORM 240-3 Available from NEBS Groton, Mass. 01450

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

December 30, 1980

Mr. Kent Whitman
Community Sciences Corp.
P.O. Box 1328
Corrales, New Mexico 87048

RE: THE MASTERS AT TANOAN

Dear Mr. Whitman:

1. How will the flows from the private drainage easements be turned the 90° to proceed downstream to the easement between lots 5 and 6?

2. There are no details for the easements. How are they to be built? How will the flows get through the curbs? Are there to be rundowns installed into the arroyo or how is this to be handled? Will there be any problems with erosion?

3. How will the offsite flow from area B be handled when/if Eubank Blvd. is improved? It is stated in the report that the runoff from this area is overland and not channelized and that no ponding is required. However, a channel is being designed to concentrate the flow and carry it south, does this statement still hold?

4. Is the detention pond on the north in agreement with PNM? How is the pond to be built? There are no side slopes or elevations shown. Will there be any overflow or release involved? If so, how will it be handled and where will it go? What will be the flow anticipated? Will fencing be required since depth is to be greater than 18"? How will flow get in?

5. The plan indicates flow leaving the property to the west. How much and how will it be handled?

6. For the composite "C" value for onsite flow, a value of 0.65 was used for southwest landscaping. This is incorrect because under the gravel is plastic sheeting therefore it is considered impervious, the same as for paving and sidewalks. Because of this difference the onsite flows will be somewhat higher.

7. Assuming there will be fences constructed between individual lots, how will the runoff get through them along the drainage easements?

8. Who is going to have the responsibility of maintaining the easements, swales, and detention pond?

Very truly yours,

Bruno Conegliano
Asst. Hydrology Engineer

BC/tsl

community sciences corporation

P.O. Box 1328
Corrales, New Mexico 87048
(505) 897-0000

December 31, 1980

Mr. Bruno Conegliano
City Hydrologist
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

RE: Revisions and Clarifications to Drainage Plan for the Masters at Tanoan

Dear Bruno:

In response to your recent comments and questions regarding our drainage plan for the Masters at Tanoan we are hereby replying with the following items:

1) Due to Amafca's previous decision that cross basin discharge into the North Pino Basin will be allowed only for Fairway Estates North, and due to the now indefinite future of the extension of San Antonio Blvd., we no longer plan to direct offsite flows into the PNM easement.

2) Suitable diversion of offsite flows from the east and northeast will be provided as part of the development of the project.

Items 1 & 2 are clear from the grading plan submitted for review to the City in May of 1980.

3) The plat has been modified to include 17 lots rather than 27. The onsite drainage pattern remains unchanged for all practical purposes.

4) Access to Eubank has been deleted.

5) We will stipulate minimum pad elevations for the southern boundary as follows:

   a) SE corner lot 9 - 88.00

-continued-

SURVEYING
ENGINEERING
LAND PLANNING

b)	boundary lots 8 & 9 -	84.00
c)	boundary lots 7 & 8 -	78.00
d)	boundary lots 6 & 7 -	74.00
e)	boundary lots 5 & 6 -	72.00
f)	boundary lots 4 & 5 -	69.00
g)	SW corner lot 4 -	62.00

I hope this information will satisfy your needs. Your cooperation in getting this project signed off before the new year will be appreciated.

Sincerely yours,

Kent M. Whitman

Kent M. Whitman, P.E.

KMW/nh

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

January 27, 1981

Mr. Kent Whitman
Community Sciences
P. O. Box 1328
Corrales, New Mexico 87048

Ref: The Masters at Tanoan

Dear Mr. Whitman:

I want to express to you my frustration for the manner in which information is supplied by your firm regarding the development of Tanoan. I understand the developer's need to minimize engineering costs, but in order to obtain expeditious approval of the individual submissions, sufficient information should be supplied, even at the risk of being repetitious. If City staff has to pass judgment and express its concurrence with the development proposals, this personnel should be able to find all the pertinent information with each submittal, rather than having to spend time researching all the past comments, committments, EPC actions and the like. With specific reference of the Masters and Tanoan, I have a drainage report prepared in October of 1979 and received in this office 11/5/79, regarding a land of division which is quite different from what is shown on the plat submitted to the City in July of 1980. I also have a grading plan submitted to the City around the same time, which is inconsistent with the indications of the drainage report. Your letter dated December 31, 1980 is not a sufficient document revising the original drainage report because of the following:

1. The lack of plan, profile and cross section information for the improvements to the Pino Arroyo and to its northern branch (Exhibits A & B are not sufficient).

2. No information is supplied with the drainage report of October 1979 nor in your letter, dated December 31, 1980, on how this diversion is going to be performed under ultimate development conditions. You will understand that the City has some interest in knowing how the flow will be diverted to the high flow and pedway crossing, (See Attachment B) in view of the fact that the City will have to construct and maintain Eubank Blvd.

3. Sheet 4 of 8 dated July, 1980 shows the construction of the proposed embankment to be built both to protect Lots 9 and 10 from the offsite flows from drainage areas A and B and Lot 9 from the north branch of the Pino Arroyo. This sheet is not consistent with what is shown on the plans

for Fairway Estates (Sheet 8 of 27) or with the sketch dated September, 1980 (See Attachment C). The flow is not quantified nor is there any discussion on the protection necessary for both the interim solution, when some 50cfs will flow along the toe of the embankment within the proposed City right-of-way, and after the construction of Eubank Blvd.

According to your plan, ultimately the City will have to shoulder the cost of collecting the runoff from offsite areas A and B, within the future thoroughfare section of Eubank Blvd., and discharge it in a non-erosive manner onto the golf course. With your proposal, the developer would not have to be concerned with the handling of the flow across the subdivision, except to the extent of performing today some minor grading work. Somehow I fail to see the fairness or reasonableness of this proposition.

4. One of the items that could stand some discussion is how Tract 136 which is shown on the plat for Fairway Estates, becomes The Masters at Tanoan Drive. I do not believe that I have ever reviewed for drainage, the plat of Tracts 152 and 153, Fairway Estates at Tanoan which, among other things, shows a major encroachment of the PNM easement. Since presently an acceptable paved access is not available to the referenced subdivision, I do not believe that the City can concur with the signing of this plat.

5. Regarding the internal drainage, I find that Lots 12,13,14 (new development plan) are shown by the topography to be subjected to offsite flows; from the PNM easement a swale is in fact shown crossing Lots 13 through 16. Yet this offsite flow is not quantified, nor is information supplied on the reservation of easements for the conveyance of said flow to the roadway. This information is necessary to evaluate the adequacy of the channel conveying the flow from the northernmost portion of the subdivision to the golf course, without affecting Lots 3 or 4.

6. The line separating Lot 17 from Lots 15 and 16 appears intended to collect the flow from the north and discharge it onto the private drive. Since this approach appears to be true in general, are there going to be any private drainage easements over the swales to be built at the lot lines?

Please submit for review and approval, a document addressing specifically the concerns above so that both myself and the City Engineer can concur with the development of this subdivision. Be also advised that the temporary drainage easement within the proposed future alignment of Eubank Blvd. cannot be accepted as proposed, because the City cannot assume its maintenance.

Very truly yours,

Bruno Coneglinao
Assistant Hydrology Engineer

BC/fs

cc - Richard S. Heller
R. E. Leonard
Alan Whitesel
Drainage File

INFORMATION SHEET

PROJECT TITLE THE MASTERS AT TANOAN TYPE OF SUBMITTAL CONCEPTUAL GRADING & DRAINAGE PLAN

ZONE ATLAS PAGE NO. E-21 CITY ADDRESS MASTERS DRIVE

LEGAL DESCRIPTION TRACT F, TANOAN PROPERTIES, AND ADJACENT EASEMENTS

ENGINEERING FIRM COMMUNITY SCIENCES CONTACT KENT WHITMAN

ADDRESS P.O. BOX 1328 CORRALES, NEW MEXICO 87048 PHONE 897-0000

OWNER AMDEC CONTACT CLEVE MATTHEWS

ADDRESS P.O. BOX 25000 ALBUQUERQUE, NEW MEXICO 87125 PHONE 883-3378

ARCHITECT _____ CONTACT _____

ADDRESS _____ PHONE _____

SURVEYOR COMMUNITY SCIENCES CONTACT SKIP CARLETON

ADDRESS SAME AS ABOVE PHONE 897-0000

CONTRACTOR _____ CONTACT _____

ADDRESS _____ PHONE _____

DATE SUBMITTED 10/26/83 WITH DRB-83-654; 11/9/83 SEPARATELY

BY LARRY W. COLLINS Larry W. Collins

RECEIVED
NOV 10 1983
ENGINEERING

community sciences corporation
P.O. Box 1328
Corrales, New Mexico 87048
(505) 897-0000

October 25, 1983

Mr. Robert A. Fosnaugh
Traffic Engineering, Municipal Development Department
P. O. Box 1293
Albuquerque, New Mexico 87103

Dear Bob:

I have enclosed a copy of the Sketch Plat for the Masters at Tanoan. Application has been made for a DRB meeting on November 8. So that you will understand the ideas behind my design, I would like to explain them here, then meet jointly with you and AMDEC next week to discuss any potential problems or concerns.

Here are the issues as I see them.

Private Streets.

Consistent with the Tanoan Master Plan, Masters Drive will be privately owned and maintained. The property is noted on the plat as a separate tract.

Dedication of Eubank Boulevard.

With this plat, AMDEC proposes to dedicate one-half (78') of the Eubank right-of-way (156') adjacent to the newly platted area. This is consistent with the Long Range Major Street Plan and the Academy/Tramway/Eubank Sector Development Plan.

Access to Eubank Boulevard.

Such access should not be required - or even allowed. The current 27-lot proposal is far less intense than development contemplated by the SDP (up to 231 units). The Masters is planned as an enclave of the most exclusive residences in Tanoan. Access is planned via the existing Masters Drive, which intersects Tanoan Drive less than one-third mile from the main entrance to Tanoan.

Construction of Eubank Boulevard in Tanoan area will require the creation of a huge embankment adjacent to The Masters. Because of the visual impact of this construction, the lots have been skewed so as to orient houses away from it. AMDEC proposes to provide a letter of credit for the future construction of Eubank. After grades are established, AMDEC will build a white slump block wall on the east property line of The Masters - the Eubank right-of-way.

SURVEYING
LAND PLANNING
CIVIL ENGINEERING
DEVELOPMENT CONSULTANTS

I believe that the proposed access arrangement is consistent with good planning practice in general, and consistent with the Tanoan Master Plan, including prior approved platting for Fairway Estates.

Street Alignment.

In keeping with good residential planning, and particularly the private nature of this subdivision, the street has been designed to discourage traffic speeds greater than 20 miles per hour.

The trip to the top of the hill through Tract 136A is controlled by the narrow curvilinear street. Then, the golf course and the initial radius of Tract 153 continues to moderate speed. Just as the existing pavement widens, speed is again controlled by use of a heavily landscaped entrance (with project sign), followed by another bend in the road.

As the street heads downhill into the subdivision, we have purposely created another "speed break" - a median-divided intersection with a reasonably tight radius on the entrance side. By the time the driver passes this intersection, he should have gotten the idea that speeding is not productive. The remainder of the subdivision consists of a loop street with three speed-reducing radii.

The street layout, combined with the cul-de-sac nature of the subdivision, addresses safety considerations. In addition, AMDEC will establish covenants prohibiting on-street parking except for special occasions. Also, on these large lots, many driveways will be sufficient in length to accommodate large numbers of cars.

Street Widths.
The proposed street widths are consistent with good residential planning. From the eastern end of Tract 153 to the median divide, we have maintained a 30' back-to-back dimension. Near the median divide the street widens, then splits into two 16' one-way sections. From the intersection, the street gradually contracts to a section proposed to consist of 24' asphalt paving, plus curb and gutter - 28' back to back. The bulb at the southeastern corner has a 43' asphalt paving radius (45' to back of rolled curb) for a 16' asphalt paving section. Since the radius is 5 feet greater than established by the Refuse Division for Tanoan, the 16' one-way paving section should be adequate.

Rights-of-Way.

The right-of-way for Masters Drive is actually a privately-maintained tract. Although the width varies with conditions, it is measured from back-of-curb to back-of-curb. Then, throughout the subivision, a five-foot access and utility easement is provided on each side of the street. A four-foot sidewalk will be built within this easement.

Lots 3 and 4.

Special restrictions will be placed upon the driveway locations on these lots so as to avoid conflicts on the one-way sections of Master Drive. It may become necessary to reduce the lengths of the islands, but that decision is more properly reserved for construction drawings and final platting. Lot geometry may change slightly as design becomes more specific.

Recreational Vehicle Storage.

AMDEC has prepared a plan for storing large RV's, boats, etc., within the PNM easement as shown. I have enclosed a print of the proposed layout. Access via Masters Drive for such sporadic use provides no traffic problem - merely an aesthetic problem which I must address.

Thank you for your consideration of these issues. At The Masters, AMDEC hopes to set new standards for luxury single-family development. Strict controls on architecture and site arrangements will afford each property owner the opportunity to capture views of the golf course, Sandia Crest, and the city lights. The street system and lot configuration are specifically designed for that purpose. Your assistance in helping us achieve the intended results will be greatly appreciated.

Sincerely,

Larry W. Collins

LWC/bjc

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

December 5, 1983

Mr. Kent Whitman
Community Sciences
P.O. Box 1328
Corrales, NM 87048

REF: CONCEPTUAL GRADING AND DRAINAGE PLAN FOR THE MASTERS AT TANOAN (E21-D16)
RECEIVED NOVEMBER 14, 1983

Dear Mr. Whitman:

The above referenced plan has been reviewed. The plan is lacking sufficient information to give it a thorough review at this time. Since drainage has not been addressed, this plan can only be reviewed as conceptual for grading.

Since the scheme of the layout is substantially different from previous plans for this area, any further submittal will be reviewed as a new report and all requirements, as per the DPM, will apply.

Should you have any questions or comments, please contact me at 766-7644.

Yours truly,

Billy J. Goolsby

Billy J. Goolsby, PE
Civil Engineer/Hydrology

BJG:mrk

MSM/SP Group

2601 Wyoming Boulevard, NE
Albuquerque, NM 87112
(505) 292-1936

A Member of the
SP Group of Professional
Services Companies

- Engineering
- Surveying
- Energy Services

December 23, 1983

Mr. Bill Goolsby, P.E.
Civil Engineer/Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

Re: The Masters at Tanoan

Dear Billy:

In order to expedite obtaining an approved Drainage Plan for subject site we submit the attached addendum to the Plan dated October 25, 1983 submitted previously by Community Sciences Corporation. As we have discussed, the major items to be addressed are:

1. The detention pond in the PNM easement,
2. Erosion control in the temporary Eubank Boulevard diversion,
3. Private drainage easements onsite and their maintenance and
4. The discharge of flow to the Golf Course (Pino Arroyo)

The Masters at Tanoan Drainage Management Plan dated October, 1979 prepared by Community Sciences Corporation is also referred to in this addendum.

If you have any questions, please do not hesitate to call.

Very Truly Yours,

MSM/SP Group

Dan Grochowski

Dan Grochowski, P.E. & L.S.

DG:jb

Attachements

RECEIVED
DEC 27 1983
ENGINEERING

E21
C16

community sciences corporation

P.O. Box 1328
Corrales, New Mexico 87048
(505) 897-0000

RECEIVED
NOV 14 1983
ENGINEERING

October 26, 1983

Development Review Board
Albuquerque, New Mexico

Dear Board Members:

Attached is a Sketch Plat for The Masters at Tanoan, along with supporting information as required by the Development Process Manual. This letter will provide the remaining information required by the DPM, as well as a brief overview of the project concept.

Subdivider.

Affiliated Mortgage and Development Company (AMDEC)
6400 Uptown Blvd. NE
Albuquerque, NM 87110
Mailing Address:

P. O. Box 25000

Albuquerque, New Mexico 87125

883-3100

Agent.

Community Sciences Corporation
Larry Collins, Planner
P. O. Box 1328
Corrales, New Mexico 87048

897-0000

Total Area of Plat & Uses.

Total Area = 21.9 AC.±
Lots 1-27 = 13.28 AC.±
Private Street Tract = 1.28 AC.±
Other Tracts (Easements) = 5.79 AC.±
Eubank Dedication = 1.55 AC.±

Solar Access.

Each lot will exceed the solar requirements of the zoning ordinance. The self-imposed minimum lot size is 0.4 acre, and the covenanted minimum side yard setback is 10 feet on each side. By staggering lot lines to preserve views, we have also enhanced solar access.

SURVEYING
LAND PLANNING
CIVIL ENGINEERING
DEVELOPMENT CONSULTANTS

Zoning and SDP.

The land is zoned R-D. The adopted Academy/Tramway/ Eubank Sector Development Plan identifies this parcel as part of SF-7, allowing up to 7 units/acre.

Open Space and Parks.

No off-site open space requirement is created by these large lots. Each individual lot will provide at least 6000 square feet of usable open space.

AMDEC will comply with applicable City policies and agreements regarding park dedication and/or cash-in-lieu fees.

General Description.

This property offers magnificent opportunities as well as special problems. In addition to the typical views to the Sandias, the gradual slope from the golf course provides opportunities for views across the course toward the city lights and west mesa. Views to the north and south are non-existent, and views directly to the east will be seriously impacted by the construction of Eubank Boulevard. Consequently, we have focused our attention on capturing the best views of the golf course, as well as Sandia Peak. This explains the skewed non-radial arrangement of the lots. Additionally, by staggering the alignment of the lots, and through strict enforcement of private design controls, we intend to offer each property owner the opportunity to share these views. In other words, the golf course frontage lots will not monopolize the view to the fairways.

I have attempted to address transportation and traffic considerations in a letter to Bob Fosnaugh (attached). This subdivision will continue the Tanoan theme of unique private streets, with some modifications.

The site can easily be sewered by gravity to an existing line indicated on the Sketch Plat. Water service is available via Masters Drive to Tanoan Drive.

We have proposed to grade the lots for compaction and to reduce side-to-side slopes. AMDEC does not intend to mass-grade the site in order to establish fixed pad sizes and elevations. Instead, each lot owner will inherit a lot with fairly uniform front-to-rear slopes (or vice versa), as well as a specified area which is

available for construction. This area will be large enough to accommodate many variations of custom design, but located so as not to block certain views from adjacent or uphill lots. A Conceptual Grading and Drainage Plan is attached to the Sketch Plat.

As the name implies, The Masters is to be the most exclusive section of Tanoan to date. We anticipate that the unique site design, unusual streetscape, and homes of superior design will create the prestigious ambience important to the market we are addressing.

We appreciate your assistance in helping us achieve our goals.

Sincerely,

Larry W. Collins
Planner

LWC/bjc

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

FILE COPY

January 10, 1984

Mr. Dan Grochowski, PE
MSM/SP Group
2601 Wyoming Boulevard NE
Albuquerque, NM 87112

REF: ADDENDUM TO THE MASTERS AT TANOAN DRAINAGE PLAN (E21-D16)
RECEIVED DECEMBER 27, 1983

Dear Mr. Grochowski:

I have reviewed the above referenced submittal and forward the following comments as per our phone conversation this date:

1. The velocities associated with the proposed discharges and channel linings need further analysis with respect to erosion potential.

2. The channel from the pond (to be deleted) should be analyzed because of the slope and because of turning the flow 90 degrees. These may be a potential of the momentum to carry the water straight across the street into the lot on the South.

3. The last item will be to address the proposed diversion channel along Eubank with respect to the hydraulics and the potential for erosion.

Should you have any questions, please feel free to call me at 766-7644.

Yours truly,

Billy J. Goolsby

Billy J. Goolsby, PE
City/County Flood Plain Administrator

BJG:mrk

INFORMATION SHEET

PROJECT TITLE The Masters at Tanoan TYPE OF SUBMITTAL Rough Grading Permit

ZONE ATLAS PAGE NO. E-21 CITY ADDRESS —

LEGAL DESCRIPTION Tract F of Tanoan Properties

ENGINEERING FIRM MSM/SP Group CONTACT Dan Grochowski

ADDRESS 2601 Wyoming NE PHONE 292-1936

OWNER AMDEC CONTACT Cleve Mathews

ADDRESS P.O. Box 25000 6400 Uptown Blvd NE PHONE 883-3580

ARCHITECT — CONTACT

ADDRESS — PHONE

SURVEYOR — CONTACT

ADDRESS — PHONE

CONTRACTOR — CONTACT

ADDRESS — PHONE

PRE-DESIGN MEETING:

X YES THIS IS A RESUBMITTAL TO REFLECT MINOR CHANGES
__ NO
__ COPY OF CONFERENCE RECAP SHEET PROVIDED

PLEASE CHECK TYPE OF APPROVAL EXPECTED WITH THIS SUBMITTAL:

__ SKETCH PLAT APPROVAL
__ PRELIMINARY PLAT APPROVAL
__ SITE DEVELOPMENT PLAN APPROVAL
__ FINAL PLAT APPROVAL
__ BUILDING PERMIT APPROVAL
__ CERTIFICATE OF OCCUPANCY APPROVAL
X ROUGH GRADING PERMIT APPROVAL
__ GRADING/PAVING PERMIT APPROVAL
__ OTHER _____ (SPECIFY)

DATE SUBMITTED: 1/11/84

BY: MSM/SP Group

RECEIVED
JAN 12 1984
ENGINEERING

CITY OF ALBUQUERQUE

ALBUQUERQUE, NEW MEXICO

INTER-OFFICE CORRESPONDENCE January 30, 1981 REF. NO._____

TO: Richard S. Heller, City Engineer

FROM: Bruno Conegliano, Assistant Hydrology Engineer

SUBJECT: MEETING WITH ALAN WHITESEL AND KENT WHITMAN OF 1-29-81 ON THE MASTERS AT TANOAN

I want to reiterate the substance of my letter to Kent Whitman of 1-28-81 as follows:

1. A developer is responsible for the proper handling of the off-site flows affecting his property (State of New Mexico Statutes, AMAFCA Resolution 72-2, 80-15, City of Albuquerque Drainage Policy 59-1976).

2. Diversions may be acceptable if:

a. Do not affect others' properties or interests;
b. Do not require later, expenditures of public funds.

3. The first drainage report submitted by the engineer did recommend diversion onto lands of others, which was not acceptable to the City. The recommendation made by R. S. Heller that the flows be collected and conveyed to the Pino Arroyo is consistent with 2.a. above; the mode of implementation though must also satisfy 2.b.; namely, the City will not be burdoned with:

a. Maintenance of a temporary diversion;
b. Cost of collecting the runoff in storm sewer to provide for the non-erosive discharge of some 50 cfs onto the golf course owned by the developer;
c. or relieve the developer of his obligations to fulfill his responsibilities (point 1 above).

At the same time the City must demand the definition of a drainage easement, to define the right of the diversion so to protect the interests of the properties to the north and the east of San Antonio Drive (which lie outside this development).

4. The AMAFCA resolution requires:

a. "The amount of design runoff should be based on a 100-year storm and should be computed by a registered professional engineer".
b. "A drainage report and plan.....including such reference to and drawings of existing storm drainage facilities and drainage areas as may be appropriate to adequately illustrate such report and plan. Such report and plan must clearly identify and locate each watercourse, as herein defined, situated within such lots, tract or parcel, and peaked and compute the acreage of the area draining into such lot, tract or parcel."

Specifically, the information contained in the report must be consistent and comprehensive. The information supplied on 1-23-81 allowed me to recognize the potential impact on the future embankment of Eubank Blvd., of the north branch of the Pino Arroyo. The information supplied with the drainage report did not allow the reviewer to recognize that condition and it is the obligation of the engineer to discuss all the pertinent facts of the case ("Must clearly identify and locate each watercourse..."). Again, the diversion must be performed at no public cost i.e. protection of the embankment from erosion and undercutting cannot be done at public expense.

5. After the many failures experience during the storm of August 14, 1980, the City is particularly concerned that even minor offsite flows be properly recognized and handled (I make reference here to the law suit against the City from the owner of Lot 1, Blk. 1, Ciudad Vista Subd.).

6. The issue raised by point 4 of my letter was to stress the necessity for all developments and subdivisions to follow the spirit and the letter of the subdivision ordinance. The piecemeal approach of summary plat procedure (with no drainage report even if of minor significance but with an encroachment on a long established easement without specific concurrence by the Grantor!) is inconsistent in my opinion with orderly development and with the fundamental purpose of governmental review and acceptance.

In conclusion, I was on December 31, 1980, I was yesterday, and I am now in agreement with the overall concept that should be followed in the provision of drainage facilities but this developer, as all the others, and his engineer must comply with the requirements established by the existing political bodies and not transfer his obligations onto the public as discussed above.

BC/tsl

1) Submittal of necessary back up for construction plans, including offsite flows
2) Provide temporary diversion & maintain it
3) Provide easement for offsite flows approx in the location Eubank
4) Provide an easement for an agreement to provide the easement after the embankment & diversion of the arroyo 800' s/o San Antonio

* along future Eubank

affiliated mortgage & development company amdec

a wholly owned subsidiary of Albuquerque Federal Savings and Loan Association

6400 uptown blvd., n.e.
albuquerque, new mexico

mailing address
p. o. box 25000
albuquerque, new mexico 87125

Bruno — Is this OK now? RSH

It appears to be!

AM - 727

February 2, 1981

RECEIVED
FEB 03 1981
CITY ENGINEER

Mr. Richard S. Heller, P.E.
City Engineer
City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87106

Subject: The Masters Subdivision - Meeting of Friday, January 26, 1980

Dear Dick:

Thank you for meeting with Kent Whitman, Bruno Conegliano and me last Friday to discuss this project. Your presence at this meeting was the primary reason a solution was found for this situation.

I apologize for leaving before I could agree to the four (4) conditions you proposed for plat signatures but I was already one half hour late for another meeting.

Per our discussion and the attached memorandum you signed, I do agree to the following four (4) conditions you requested before construction plans will be approved by your office. These four items are:

(1) My Engineer shall submit backup information and calculations for construction plans for off-site flow from the west and north and off-site flow in the north thalwag of the Pino Arroyo.

(2) AMDeC shall provide a temporary diversion (already shown on plans per previous City request) along the eastern boundary of The Masters Subdivision.

(3) AMDeC shall also provide a temporary drainage easement and an agreement to maintain this easement (copy attached) along the eastern boundary of The Masters Subdivision.

(4) AMDeC agrees to provide the City with an easement for the embankment and diversion (800' ± of San Antonio Road N.E.) of the north thalwag of the Pino to the south thalwag of the Pino at the time a permanent diversion is constructed.

Again thank you for your assistance in this matter.

Sincerely,

AFFILIATED MORTGAGE & DEVELOPMENT COMPANY

Allan L. Whitesel

Allan L. Whitesel, P.E.
Chief Engineer

sd

Masters e Tanoan

February 5, 1981

Bruno Conegliano
City Hydrologist
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

RE: Masters at Tanoan

Dear Bruno:

In response to your recent request enclosed please find one copy of our conceptual sketch showing a bridge crossing for Eubank Blvd. at the Pino Arroyo. I believe this same sketch was submitted to the City several months ago along with a letter recommending that the City adopt this alternate for the Eubank crossing.

On the enclosed sketch I have marked in red my concensus that embankment protection will ultimately be required at critical locations at the embankment and around the diversion. Specifically concrete or rip rap armoring will undoubtedly be needed along the outside banks of any diversion channel curves. Since payment for such improvements is a matter of City Policy, I prefer not to address that issue at this time.

I hope this communique will provide what you feel is required for your records.

Sincerely yours,

Kent M. Whitman

Kent M. Whitman, P.E.

KMW/nh

enclosure

cc: Allan Whitesel

community sciences corporation
P.O. Box 1328
Corrales, New Mexico 87048
(505) 897-0000

SURVEYING
ENGINEERING
LAND PLANNING

MSM/SP Group

2601 Wyoming Boulevard, NE
Albuquerque, NM 87112
(505) 292-1936

A Member of the
SP Group of Professional
Services Companies

- Engineering
- Surveying
- Energy Services

February 10, 1984

FEB 16 1984
HYDROLOGY SECTION

Mr. Billy J. Goolsby, P.E.
City/County Flood Plain Coordinator
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

E21-D14

RE: The Masters at Tanoan Drainage Plan

Dear Mr. Goolsby:

In response to your review comments on subject drainage plan (your letter dated January 10, 1984) we submit the following:

1. All onsite swales shall have linings other than the grass that was originally proposed. The swale from the PNM easement shall have cobbles lining its bottom and the two other swales shall be concrete lined (see exhibits and calculations attached.)

2. See the attached calculations.

3. The existing berm on Eubank, which is to be built up, shall be lined with wire-enclosed rip-rap as per the attached exhibits.

Please note that the attached exhibits are modified versions of sheets 3 and 11 of the construction drawings that are currently in for review. The modified versions will be included in the final plan set for sign-off.

If you have any questions, please call.

Very truly yours,

MSM/SP Group

Dan Grochowski

Dan Grochowski, P.E. & L.S.
Senior Civil Engineer

READING FILE

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

April 3, 1984

E21-D16

Rick Beltramo
MSM/SP Group
2601 Wyoming Boulevard NE
Suite F
Albuquerque, NM 87112

REF: MASTERS AT TANDAN DRAINAGE REPORT DATED MARCH, 1984

Dear Mr. Beltramo:

The revised report is in accordance with my comments; therefore, this report is approved.

Regarding the temporary flood plain drainage easement on Lots 8, 9 and 10, I understand that your client, AMDEC, will be seeking a map amendment to remove these lots from the flood-plain thus allowing development within those lots.

If you have any questions, please feel free to contact me at 766-7644.

Sincerely,

Fred J. Aguirre
Design Hydrologist

FJA:mrk

GRANT OF TEMPORARY EASEMENT FOR DRAINAGE

Affiliated Mortgage and Development Company (Grantor) does herewithin grants to the City of Albuquerque (Grantee) a temporary easement for drainage which includes the right to enter upon the real estate hereinafter described and maintain and repair drainage facilities for passage, containment or diversion of surface water over, across, through and under the lands hereinafter described and the further right to remove trees, bushes, undergrowth and obstructions interfering with the location, construction and maintenance of said drainage facilities. Affiliated Mortgage and Development Company shall maintain this drainage easement for the City until said easement shall be abandoned for use with aforesaid temporary drainage facilities or future construction eliminates the need for the aforesaid drainage easement.

The land affected by the grant of this easement is located in the County of Bernalillo and State of New Mexico and is more particularly described as follows: 60 FOOT DRAINAGE EASEMENT, East of, parallel with and adjacent to the easterly boundary line of "THE MASTERS AT TANOAN" Subdivision as shown on sheet 4 of 4 of the plat filed for record in the office of the County Clerk of Bernalillo County on _____, 1981, in Volume _____, Folio _____.

TO HAVE AND TO HOLD the said drainage easement for the uses and purposes aforesaid, unto Grantee its successors and assigns for so long as said easement shall not be abandoned for use with aforesaid temporary drainage facilities or future construction eliminates the need for the aforesaid drainage easement.

As a part of the consideration for this grant, the Grantor do hereby release any and all claims for damages for whatsoever cause incidental to the exercise of the rights herein granted provided, however, that the Grantee agrees to save Grantors harmless from any and all liability that may arise as a result of the construction and use of the easement for the purposes set forth.

IN WITNESS WHEREOF, AFFILIATED MORTGAGE AND DEVELOPMENT COMPANY has set their hand and seal this 3rd day of February, 1981.

AFFILIATED MORTGAGE & DEVELOPMENT COMPANY

James D. Smith, Vice President

The foregoing instrument was acknowledged before me this 3 day of Feb, 1981, by

JAMES D. SMITH.

My Commission Expires:
9/29/83

NOTARY PUBLIC

MASTERS AT TANOAN

CHANNEL CAPACITY CALCULATIONS

$Q = 28.2$ cfs.

1) Entrance Depth

$$H = \left(\frac{Q}{CL}\right)^{2/3} \quad \text{where } C = 3.0 \quad \text{(broad crested weir)}$$

$$H = \left(\frac{28.2}{3\ (30)}\right)^{2/3} = 0.46' < 8'' \quad \text{OK}$$

2) Channel Capacity

slope = 4.5%

bottom width = 10'

sideslopes = 5:1

n = .033 (grass)

Q = 28.2

depth = 0.46' < 8" OK

velocity = 5.03 fps.

ADDENDUM TO THE

MASTERS AT TANOAN

DRAINAGE PLAN

DECEMBER, 1983

REVISED MARCH, 1984

RECEIVED

DEC 27 1983

ENGINEERING

RECEIVED

MAR 26 1984

HYDROLOGY SECTION

MSM/SP GROUP

2801 WYOMING BLVD. N.E.

ALBUQUERQUE, NM 87112

(505) 292-1936

ENGINEERING

PLANNING SURVEYING

ENERGY SERVICES

MSM

MSM/SP Group

2601 Wyoming Boulevard, NE
Albuquerque, NM 87112
(505) 292-1936

A Member of the
SP Group of Professional
Services Companies

- Engineering
- Surveying
- Energy Services

March 22, 1984

Mr. Fred Aguirre, P.E.
Civil Engineer/City Hydrologist
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

Re: The Masters at Tanoan

Dear Fred:

Submitted within is the revised drainage report dated March 22, 1984. The revisions address the storm outflow across The Masters at Tanoan Golf Course, and the 100 Year Federal Emergency Management Agency (F.E.M.A.) floodway boundary.

In order to protect existing properties downstream of The Masters at Tanoan Subdivision, a swale across the golf course was designed. This swale carries the storm run-off south of the Fairways at Tanoan Subdivision to an existing swale. Contained in this report are the design calculations and the grading plan for the proposed swale.

Also included in this report is the information concerning the F.E.M.A. 100 Year Floodway Boundary, its impact on the design of this subdivision, and what steps were taken to address this situation.

Very truly yours,

MSM/SP Group

Rick Beltramo

Rick Beltramo
Design Engineer

RB:jb

RECEIVED
MAR 26 1984
HYDROLOGY SECTION

MSM/SP Group

2601 Wyoming Boulevard, NE
Albuquerque, NM 87112
(505) 292-1936

A Member of the
SP Group of Professional
Services Companies

- Engineering
- Surveying
- Energy Services

December 23, 1983

Mr. Bill Goolsby, P.E.
Civil Engineer/Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

Re: The Masters at Tanoan

Dear Billy:

In order to expedite obtaining an approved Drainage Plan for subject site we submit the attached addendum to the Plan dated October 25, 1983 submitted previously by Community Sciences Corporation. As we have discussed, the major items to be addressed are:

1. The detention pond in the PNM easement,
2. Erosion control in the temporary Eubank Boulevard diversion,
3. Private drainage easements onsite and their maintenance and
4. The discharge of flow to the Golf Course (Pino Arroyo)

The Masters at Tanoan Drainage Management Plan dated October, 1979 prepared by Community Sciences Corporation is also referred to in this addendum.

If you have any questions, please do not hesitate to call.

Very Truly Yours,

MSM/SP Group

Dan Grochowski

Dan Grochowski, P.E. & L.S.

DG:jb

Attachements

Addendum to The Masters at Tanoan Drainage Plan

A Drainage Management Plan dated October, 1979 and a Conceptual Grading and Drainage Plan dated 10/25/83 with a new lot layout, have been approved and submitted to the City Engineer/Hydrology for approval by Community Sciences Corporation. As of this writing approval has not yet been obtained and this addendum seeks to provide the information necessary to obtain an approved Drainage Plan.

Offsite Flows

All offsite soils (as well as onsite soils) are "B" type. See the SCS soils map attached. From DPM Plate 22.2 C-1 for a "B" soil with 0% impervious the C factor is 0.34. The six-hour rainfall is 2.5 in.

As shown on the Conceptual Grading and Drainage Plan a temporary berm and swale is to be constructed in Eubank Boulevard from San Antonio Road south to the south boundary of the subdivision. The southern portion of this berm has already been constructed and extends south of the limits of the property line. The berm directs runoff from the east to the Pino Arroyo. The south end of the berm has vegetation and golf course fairway grass to control erosion. Extending the berm north to San Antonio will divert all offsite runoff from the east.

Also shown on the Conceptual Grading and Drainage Plan is a swale and detention pond in the PNM easement along the northern boundary. AMDeC has received permission from PNM to construct these improvements in the easement. Note that the land containing the PNM easement is owned by AMDeC. A controlled outlet and emergency spillway will allow water to exit the pond to a private drainage easement onsite. 5.87 acres drains to the pond at a maximum 100-year rate of 5.8 cfs. The 100-year maximum volume of runoff is 18100 cu.ft.

Onsite Flows

Onsite drainage areas will be divided into two general basins as can be derived from the Conceptual Grading and Drainage Plan. The southern tier of lots will slope to the south and drain to Tract D and sheet flow to the Golf Course which is in the Pino Flood Basin. The limits of the Flood Basin are shown in the Pino Basin Flood Hazard Map dated March 29, 1979 prepared by Community Sciences Corporation. A total of 5.30 acres will sheet flow to the Golf Course with a Q_{100} of 13.4 cfs.

The remaining area of the subdivision will drain to the private streets and a grass swale in Tract D between lots 3 and 4. All street flows will be directed to this swale which will carry the runoff to the Golf Course. A wire-enclosed rock rip-rap energy dissipator shall be placed at the southern end of the swale to

spread and slow the runoff from the site before it enters the Golf Course. AMDeC has an agreement with the owner of the Golf Course to allow for free discharge from The Masters to the Golf Course. The maximum flow to the grass swale from 10.29 acres onsite and the detention pond outlet is 27.7 cfs.

All onsite drainage is contained within private easements or within the private streets. All drainage facilities onsite, including the pond and swale in the PNM easement, shall be maintained by the owner. A 6-inch drain pipe shall extend through the retaining wall in the private drainage easement between lots 22 and 27 to allow runoff to continue south in the private easement to the private street.

Drainage Facilities

Offsite and onsite drainage facilities shall consist of:

1. The offsite swale and pond in the PNM easement sized for a Q = 5.8 cfs and 18100 cu.ft respectively. An 8-inch outlet pipe shall provide positive drainage of the pond and an emergency spillway shall be sized to carry the 100-year flow.

2. Extension of the existing berm in Eubank Boulevard north to San Antonio to prevent runoff from the east from entering the site. Erosion is prevented at the junction of the diversion berm and the Pino Arroyo by existing vegetation including golf course fairway grass.

3. A swale between lots 16 and 17 to carry runoff from the detention pond described in item 1.

4. A swale at the rear of lots 25, 26 and 17 and between lots 21 and 33 to drain the block surrounded by Masters Drive.

5. Private streets to carry all onsite runoff, and offsite runoff from the detention pond, except for lots 1 through 10 and Tract A & D.

6. A swale between lots 3 and 4 to carry all runoff from the streets to the golf course. A wire enclosed rip-rap energy dissipator shall be placed at the end of the swale to decrease velocities and flow concentration.

F.E.M.A. 100 Year Floodway Boundary

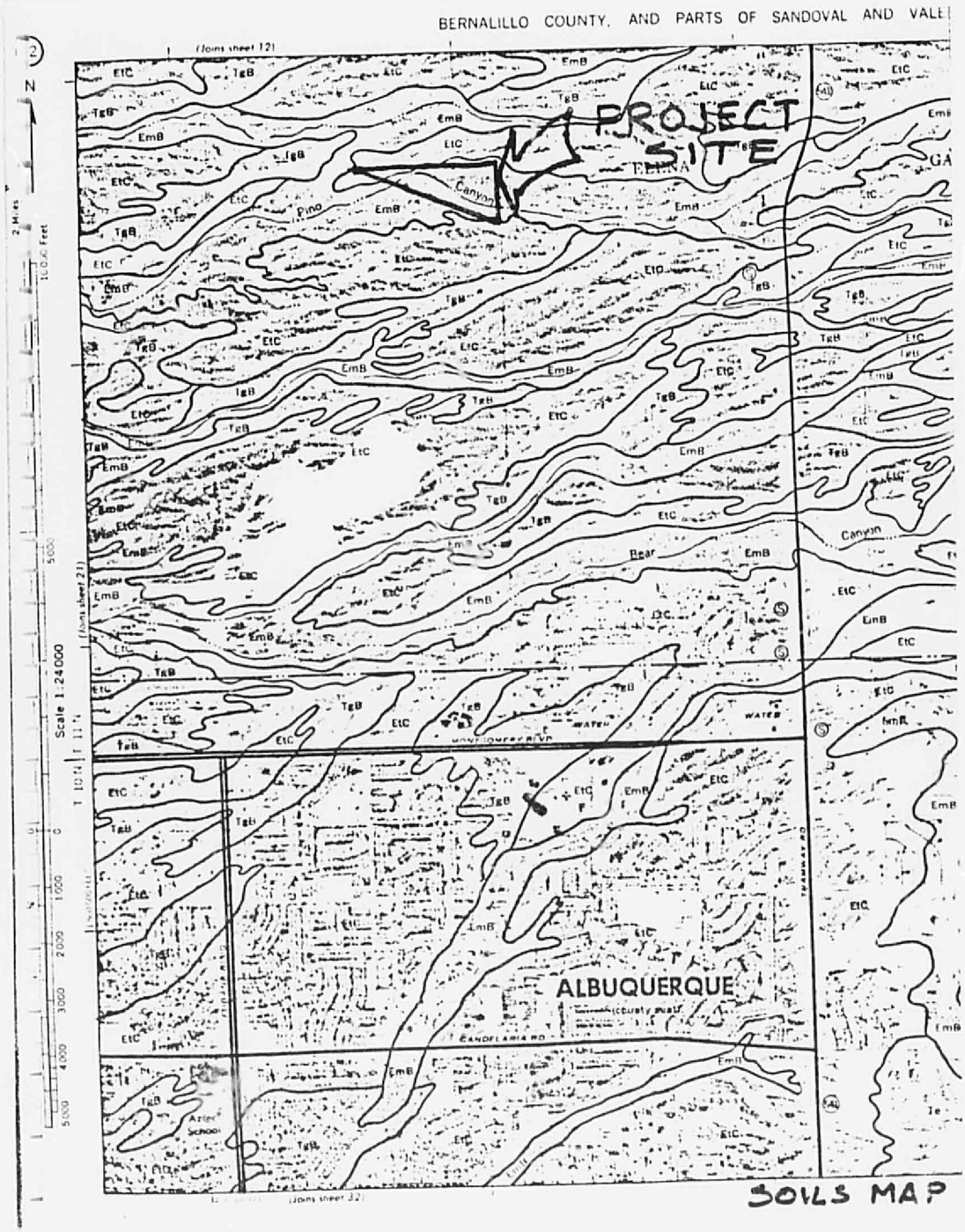
The proposed Master at Tanoan Subdivision is situated within the F.E.M.A. 100 year flood plain of the Arroyo del Pino. A study entitled "Hydraulic and Erosion Analysis of Arroyo del Pino Through the Tanoan Development", dated September, 1979, was prepared for Community Sciences Corporation. Although this study was approved by the City, it was never submitted to F.E.M.A. As a

result the grading plan based on this study is not acceptable until the proper steps are taken with F.E.M.A. to change the floodway limits based on the report.

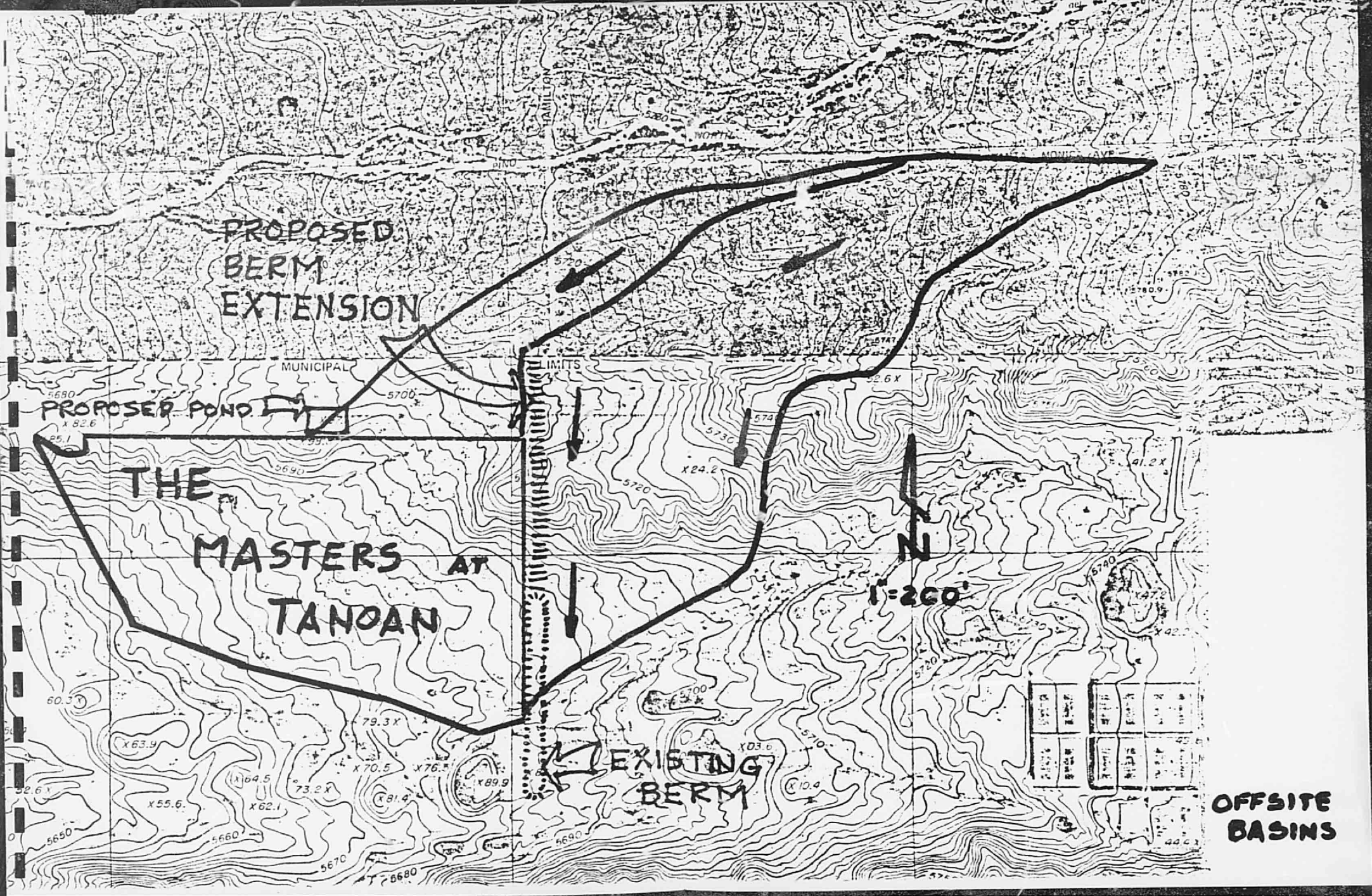
In order to keep the subdivision on schedule, a temporary flood plain easement will be dedicated through lots 8, 9 and 10 (see Exhibit "B"). Once approval from F.E.M.A. is granted, the temporary easement will be removed.

Attachements

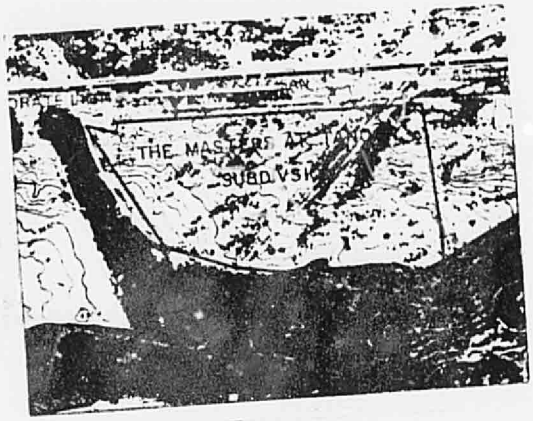
1. SCS Soils Map
2. Offsite Drainage Basin Map
3. The Masters at Tanoan F.E.M.A. Floodway Plain Relation
4. F.E.M.A. 100 Year Floodway Boundary (Exhibit "B")
5. Agreement between the owner and the golf course owners to allow runoff from the site to enter the golf course.
6. The preliminary plat and preliminary grading plan as submitted to the DRB.
7. Grading plan for Golf Course swale
8. Calculations


BERNALILLO COUNTY, AND PARTS OF SANDOVAL AND VALE
PROJECT SITE
ALBUQUERQUE
Scale 1:24000
N
Pino
Canyon
Bear
Canyon
WATER
WATER
CANDELARIA RD
EtC
TgB
EmB

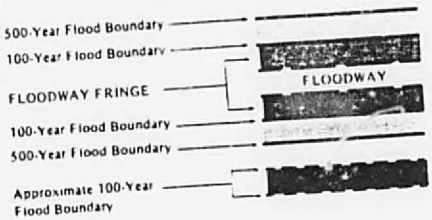
SOILS MAP


PROPOSED
BERM
EXTENSION
MUNICIPAL
LIMITS
PROPOSED POND
THE
MASTERS
AT
TANOAN
N
1"=200'
EXISTING
BERM
OFFSITE
BASINS

MASTERS AT TANOAN
FLOODWAY PLAIN RELATION



KEY TO MAP



FEMA
FLOODWAY, FLOOD BOUNDRY AND
FLOODWAY BOUNDRY MAP
CITY OF ALBUQUERQUE,
NEW MEXICO, BERNALILLO COUNTY
PANEL 18 of 50
COMMUNITY-PANEL NUMBER
350002 0018 OCT. 14, 1983

MSM/SP GROUP

ALBUQUERQUE N.M.

By DG Date 12/22/83 PROJECT THE MASTERS

Sheet No. 1 of 7

Job No. 0690228

Checked By ____ Date ____

OFFSITE FLOWS

TO DETENTION POND IN THE PNM EASEMENT

AREA - 5.87 AC. (BY PLANIMETER)

LENGTH - 2200'

ELEV. DIFF - 82'

SLOPE - 3.73%

VELOCITY = 1.12 fps (per DPM plate 22.2 B-1)

$T_c = \frac{2200}{1.12 \times 60} = 32.7$ min

RAINFALL - 2.5" (per DPM Plate 22.2 D-1)

I - 2.5 (1.16) = 2.90 in./hr.

C - 0.34 (type "B" soil; 0% impervious) (per DPM plate 22.2 C-1)

$Q_{100} = 0.34 (2.90) 5.87 = 5.8$ cfs

VOLUME $(2.5/12) 0.34 (5.87) 43560 = 18112$ cu. ft.

MSM/SP GROUP

ALBUQUERQUE N.M.

By DG Date 12/27/93 PROJECT THE MASTERS sheet No. 2 of 7

Checked By ____ Date ____ Job No. 0690328

OFFSITE FLOWS

TO BERM ON EUBANK

AREA - 17.26 AC. (BY PLANIMETER)

LENGTH - 2370'

ELEV. DIFF - 89'

SLOPE - 3.76%

VELOCITY = 1.12 fps (per DPM plate 22.2 D-1)

$T_c = \frac{2370}{1.12 \times 60} = 35.3$ min.

RAINFALL - 2.5" (per DPM plate 22.2 D-1)

I - 2.5 (1.11) = 2.78 in./hr.

C = 0.34 (type "B" soil, 0% impervious)

(per DPM plate 22.2 C-1)

$Q_{100} = 0.34(2.78)\,17.26 = 16.3$ cfs

MSM/SP GROUP ALBUQUERQUE N.M.

By DG Date 12/23/03 PROJECT THE MASTERS sheet No. 3 of 7

Checked By ____ Date ____ Job No. 0640328

ONSITE FLOWS

LOTS 1 - 10 & TRACTS A & D

AREA - 5.30 Ac. (computed)

T_c - USE 10 min (MINIMUM)

RAINFALL - 2.5" (per DPM plate 22.2 B-1)

I - 2.5 (2.11) = 5.28 in/hr.

c = 0.48 (type "B" soil; 30% impervious as per DPM plate 22.2 C-2 for 1/3 acre lots) (per DPM plate 22.2 C-1)

Q_{100} = 0.48 (5.28) 5.30 = 13.4 cfs (in sheetflow)

MSM/SP GROUP

ALBUQUERQUE N.M.

By DG Date 12/23/83 PROJECT THE MASTERS

sheet No. 4 of 7

Checked By ____ Date ____

Job No. 6690228

ONSITE FLOWS

ENTIRE SITE LESS LOTS 1-10 & TRACTS A & D

AREA - 10.29 Ac (computed)

T_c - USE 10 min. (MINIMUM)

RAINFALL - 2.5" (per DPM plate 22.2 B-1)

I - 2.5 (2.11) = 5.28 in/hr

C = 0.48 (type "B" soil; 30% impervious as per DPM plate 22.2 C-2 for 1/3 acre lots)

(per DPM plate 22.2 C-1)

$Q_{100} = 0.48(5.28)10.29 = 26.1$ cfs

ADD FLOW OF 1.7 cfs FROM PNM EASEMENT DETENTION POND OUTLET (SEE SHEET 6)

TOTAL $Q_{100\,MAX}$ IN STREETS AND GRASS SWALE IN TRACT D = 26.1 + 1.7 = 27.8 cfs

MSM/SP GROUP

ALBUQUERQUE N.M.

By DG Date 12/23/82 PROJECT THE MASTERS sheet No. 5 of 7

Checked By ____ Date ____ Job No. C6P0238

POND & SWALE SIZE IN THE FNM EASEMENT

POND VOLUME REQUIRED - 18112 cu.ft. (SEE SHT. 1)

USE 10:1 SIDE SLOPES, 4 ft. DEEP

BOTTOM AREA - 10' x 50' = 500 sq. ft.

TOP AREA - 90' x 130 = 11,700 sq. ft.

AVE AREA (500 + 11700)/2 = 6100 sq. ft.

POND VOLUME 6100 x 4 = 24,400 cu. ft. O.K.

SWALE FLOW CAPACITY REQUIRED - 5.8 cfs

USE GRASS LINED W/ 20:1 SIDE SLOPES

V-DITCH W/ MIN. SLOPE OF 2.5%

ASSUME 0.5' DEPTH n = 0.025

A = 5 sq. ft. WP = 20.025 HR = 0.25

$Q = 5 \frac{1.486}{0.025} (0.25)^{2/3} (0.025)^{1/2} = 18.6$ cfs. O.K.

MSM/SP GROUP

ALBUQUERQUE N.M.

By DG Date 12/23/83 PROJECT THE MATRIX

Sheet No. 6 of 7

Checked By ____ Date ____

Job No. 06703[illegible]

POND OUTLET PIPE FLOW

TRY 6" PIPE W/ PROJECTING INLET & UNSUBMERGED OUTLET.

PIPE INVERT @ POND BOTTOM

MAX. POND DEPTH 3.5 ft.

USE ORIFICE EQUATION $Q = CA\sqrt{2gH}$

$A = 0.196$

$C = 0.62$

$H = 3.5 - \left(\frac{6}{12 \times 2}\right) = 3.167'$

$Q = 1.7$ cfs

MSM/SP GROUP

ALBUQUERQUE N.M.

By D G Date 12/22/93 PROJECT THE ASTERS

sheet No. 7 of 7

Job No. 0600328

Checked By ____ Date ____

GRASS SWALE IN TRACT D

Q REQUIRED = 27.8 cfs

TRY 10' BOTTOM W/ 5:1 SIDE SLOPES

n = 0.025 MIN. SLOPE - 3.5%

D = 0.5'

A = 6.25 sq. ft. WP = 15.01

HR = 0.4139

$$Q = 6.25 \frac{1.486}{0.025} (0.41)^{2/3} (0.035)^{1/2} = 38.4 \text{ cfs}$$

O.K.

MSM/SP GROUP

ALBUQUERQUE N.M.

By EB Date 3/10/81 PROJECT The Mesas at Tanoan sheet No 7A of 7

Checked by ____ Date ____ Job No. 2060389

Golf Course Swale

$Q = 27.8$ cfs

$S = 3.125\%$ $N = .040$

$$Q = 27.8 = \frac{1.486}{.04}\sqrt{.03125}\, A R_H^{2/3}$$

$4.23 = A R_H^{2/3}$

$A = 5d^2$

$$R_H^{2/3} = \left(\frac{5d^2}{2d\sqrt{26}}\right)^{2/3}$$

$$A R_H^{2/3} = 5d^2\left(\frac{5d^2}{2d\sqrt{26}}\right)^{2/3}$$

$$A R_H^{2/3} = 3.11\, d^2 (d^{2/3}) = 3.11\, d^{8/3}$$

$4.23 = 3.11 d^{8/3}$

$1.36 = d^{8/3}$

$d = 1.12$ ft

$V = Q/A = 27.8/1.12^2 \cdot 5 = 4.41$ fps

$Q = 27.8$ cfs, $S = 3.125\%$ $N = .040$

$d = 1.12$ ft $V = 4.41$ fps

community sciences corporation

P.O. Box 1328
Corrales, New Mexico 87048
(505) 897-0000

THE MASTERS AT TANOAN

DRAINAGE MANAGEMENT PLAN

Prepared For:

AFFILIATED MORTGAGE and DEVELOPMENT COMPANY
(AMDeC)

By:

COMMUNITY SCIENCES CORPORATION

October 1979

KENT M. WHITMAN
STATE OF NEW MEXICO
NO. 6170
REGISTERED PROFESSIONAL ENGINEER

Kent M. Whitman, P.E.

SURVEYING
ENGINEERING
LAND PLANNING

TABLE OF CONTENTS

	Page
A) Purpose and Scope	1
B) Site Location and Topography	1
C) Design Criteria	
1) Engineering Parameters	1
2) Flood Control Regulations	1 & 2
D) Computational Procedures	2
E) Offsite Drainage	2 & 3
F) Onsite Drainage	3 & 4
Appendix A - Calculations	5,6,7 & 8
Plate 1 - Location Map	Packet 1
Plate 2 - Offsite Drainage Area	Packet 2
Plate 3 - Drainage Master Plan	Packet 3

RECEIVED
NOV 0 5 1979
CITY ENGINEER

A) PURPOSE AND SCOPE

The purpose of this report is to present to the City of Albuquerque and the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA), for their approval, a drainage management plan for the proposed subdivision The Masters At Tanoan. The report analyzes storm runoff directed toward the subdivision, rainfall onto the subdivision area, and storm runoff within the Arroyo Del Pino.

For an analysis of the Pino Basin refer to the report entitled Arroyo Del Pino Flood Plain Analysis by Leonard Rice and Associates and Community Sciences Corporation.

The Masters At Tanoan is proposed for development by Affiliated Mortgage and Development Company (AMDeC).

B) SITE LOCATION AND TOPOGPAPHY

The proposed subdivision The Masters At Tanoan is located in northeast Albuquerque. Geographically, the site is situated within the southwest quadrant of the extensions of Eubank Blvd. NE and San Antonio Road NE (see Plate 1).

The general slope of the land is from northeast to southwest and varies from 3 percent to 10 percent. Runoff is southwesterly to the Arroyo del Pino.

The soils are mostly alluvial sands and silts with decomposed granite the major soil constituent.

C) DESIGN CRITERIA

1) Engineering Parameters

In accordance with AMAFCA and City of Albuquerque requirements all hydrological analysis is based on 100 year frequency accumulated rainfall figures as presented in NOAA Atlas #2.

Runoff coefficients were estimated by calculation of composite values based on anticipated land uses. These calculations have resulted in C factors of 0.61 for The Masters At Tanoan subdivision. (see Appendix A, Calculation No. 1) Rate of runoff calculations have been based on the frequency - intensity duration relationship for a 100 year storm as presented by Gordon Herkenhoff and Associates in their 1963 Master Plan of Drainage for the City of Albuquerque. This relationship is expressed by the following equation: $I = 189(Tc + 25)$.

2) Flood Control Regulations

The drainage plan presented in the report has been designed to comply with the 1972 AMAFCA Resolution and City of Albuquerque Drainage Policy. These regulations require that subdivisions be designed such that no flooding of private prop-

2) Flood Control Regulations (continued)

erties will occur during any storm up to the 100 year frequency event. In addition, the 1972 AMAFCA Resolution has been interpreted to say that the rate of runoff allowed to leave the site after development shall be no greater than the rate running prior to development.

A hydrological and hydraulic analysis of the entire Pino Basin through AMDeC property has been conducted by this firm in conjunction with Leonard Rice and Associates of Denver and submitted to the City of Albuquerque and to AMAFCA. This study showed that no significant increase in runoff rates will occur on this basin if free discharge is allowed, thereby indicating compliance with the Resolution. Volume considerations on major arroyo systems east of the AMAFCA North Diversion Channel are not considered critical.

D) COMPUTATIONAL PROCEDURES

Appendix A contains samples of the various types of hydraulic calculations performed. Proposed conveyance swales were sized based on the Manning Equation of Uniform Flow. Times of concentration were estimated based upon the Kirpich Nomograph for Overland Flow and full flow velocities in the various streets at approximated gradients. Hydrological flow rate calculations are based in the rational runoff method.

E) OFFSITE DRAINAGE

Development of The Masters At Tanoan subdivision requires consideration of offsite runoff toward the subdivision from the northeast and from the Arroyo del Pino.

Offsite drainage areas to the northeast of the subdivision are shown in Plate 2, Offsite Drainage Area.

10 min intensity

Runoff from offsite Area A has been calculated at 40.5 cubic feet per second. This runoff which presently drains to the Arroyo del Pino is proposed to be intercepted near the northeast corner of the subdivision and conveyed westerly along the northerly boundary of the subdivision via an improved earthen channel. Approximately 600 feet west of the northeast corner of the subdivision the runoff will be detained in a detention pond constructed within the P.N.M. easement. The detention pond volume of 49,000 cubic feet is the calculated volume to detain the runoff from a 10 year storm. Overflow from the pond will be overland to the North Pino basin.

Construction of an earthen channel to intercept runoff from offsite Area A diverts the runoff from the Arroyo del Pino into the North Pino basin. This diversion should be considered as a temporary diversion pending future improvements of Eubank Blvd. and San Antonio Road. Most of the runoff from Area A may be diverted to the Arroyo del Pino when Eubank Blvd. is extended to San Antonio Road.

E) OFFSITE DRAINAGE (continued)

The runoff from offsite Area B (12 cubic feet per second) is proposed to be intercepted by an improved earthen channel running parallel to the easterly boundary of the Masters subdivision. This earthen channel will be temporary pending the future improvement of Eubank Blvd. Runoff from Area B is mostly overland and is not concentrated in the channel prior to draining into the Arroyo del Pino. Therefore, a detention pond is considered unnecessary.

Community Sciences Corporation and Leonard Rice and Associates have previously submitted to the City of Albuquerque and AMDeC a report entitled Arroyo del Pino Flood Plain Analysis. Based on this report the southeasterly area of The Masters At Tanoan subdivision is presently subject to flooding at 100 year frequency storm flow in the Arroyo del Pino.

Shown on Plate III, Drainage Master Plan, are analysis sections 28, 25 and 24.2 from the aforementioned report. For each of the analysis sections are shown minimum site grading elevations which are either energy grade line elevations or water surface elevations plus one foot as determined from the flood plain analysis. The existing topography for Lots 9-13 inclusive is partially below the elevations required to prevent flooding. To prevent flooding, Lots 9-13 inclusive will be regraded to the elevations shown on Plate III.

The Arroyo del Pino flood plain analysis assumes a "Worst Condition" for flows in the arroyo at Eubank Blvd., NE. The minimum elevations shown immediately downstream from Eubank Blvd. are the result of an analysis based upon ponding the runoff easterly of Eubank Blvd., NE and subsequent conveyance across Eubank Blvd. via a 12 foot wide box culvert. This "Worst Condition" assumption provides very high (16 feet per second) velocity flows at the outlet of the culvert. Should a hydraulic jump occur downstream from the culvert outlet the water surface profile theoretically would approach the energy grade line elevation.

The developer (AMDeC) is presently considering alternative designs to improve upon the "Worst Condition" assumption. Should an alternative design prove economically acceptable an amended Drainage Management Plan shall be presented for approval.

F) ONSITE DRAINAGE

All onsite runoff is drained to the Arroyo del Pino. For the forty percent of the subdivision area which borders the Arroyo del Pino the runoff is overland to the Arroyo over an approximately 1,550 foot frontage. The remainder of the area (8.6 acres) drains via Masters Drive to a low point opposite Lot Number 25. Runoff from this low point is directly to the Arroyo del Pino via a graded swale between Lots Number 5 and 6. Drainage of all onsite runoff to the Arroyo del Pino is in compliance with the Arroyo del Pino Flood Plain Analysis.

The capacity for the 20 foot wide streets at a minimum slope of 0.60% is 13.0 cfs. (see Appendix A, Number 5a). The 100 year runoff is computed

F) ONSITE DRAINAGE ontinued)

at 12.1 cfs. and 5.4 cfs. for Areas 1 and 2, respectively. Therefore, a minimum slope of 0.60% is acceptable for the 20 foot wide streets.

The maximum street flow on the 24 foot wide street is estimated at 22.8 cfs. opposite Lots Number 6 and 7. The minimum slope for this section of street is 1.75% (see Appendix A, Number 5b).

The flow capacity of the 24 foot wide street at a minimum slope of .5% and flow depth at top of curb is 12.3 cfs. Therefore, a minimum slope of .5% for the 24 foot wide street, except for the section opposite Lots Number 6 and 7 is acceptable.

APPENDIX A

CALCULATIONS

1. Composite C

Average lot size = 0.49 Acres = 21,345 S.F.

Item	Area (S.F.)	C
Building (average)	3,000	0.95
Patio	700	0.95
Driveway	900	0.95
Lawn	6,535	0.25
Street & Sidewalk	2,880	0.95
Swimming Pool	800	0.00
Southwestern Landscaping	6,530	0.65 0.95

C comp. = 7,480 X 0.95 + 6,535 X 0.25 + 6,530 X 0.65 + 800 X 0.0/21,345 = 0.61

2. Offsite Drainage

A) Area "A"

$H/_L = 74'/_{1,750'}$

From Kirpich nomograph Tc = 8.1 min.

$I = 5.4\ ^{in.}/_{hr.}$ @ Tc ≤ 10 min.

Q = C I A

= 0.40 X 5.4 X 18.75

= 40.5 cfs.

B) Area "B"

$H/_L = 37/_{900}$

From Kirpick nomograph Tc = 5 min.

Q = C I A

= 0.40 X 5.4 X 5.59

= 12.1 cfs.

3. Detention Pond Volume (for offsite Area "A")

$I = 1.8$ in. (10 yr. - 6 hr. rainfall) (NOAA Atlas)

$Q = C\ I\ A$

$= 0.4 \times 1.8/_{12} \times 18.75 \times 43{,}560$

$= 49{,}000$ cubic feet

4. Onsite Drainage

C comp. = 0.61

$I = 5.4$ inches/$_{hour}$ @ Tc $\leq$ 10 min.

A) Area "1"

$Q = C\ I\ A$

$= 0.61 \times 5.4 \times 3.67$

$= 12.1$ cfs.

B) Area "2"

$Q = C\ I\ A$

$= 0.61 \times 5.4 \times 1.64$

$= 5.4$ cfs.

C) Area "3"

$Q = C\ I\ A$

$= 0.61 \times 5.4 \times 3.25$

$= 10.7$ cfs.

D) Area "1-3", inclusive

$Q_{1-3} = Q_1 + Q_2 + Q_3$

$= 12.1 + 5.4 + 10.7$

$+ 28.2$ cfs.

5. Minimum Street Slope

A) Area "1"

Given:

Width = 20'

Crown = 0.2'

Depth = 0.33'

5. Minimum Street Slope (continued)

$n = 0.015$

Slope = (.006 ft/ft)

$\therefore$ $Q = 13.0$ cfs. O.K. O.K.> 12.1 cfs.

B) Area "3"

Required $Q = Q_1 + Q_2 + Q_{3/2}$

$= 12.1 + 5.4 + 5.3/2$

$= 22.8$ cfs.

Given:

Width = 24'

Crown = 0.24'

Depth = 0.33'

$n = 0.15$

Slope = 1.75% (.0175 ft/ft)

$\therefore$ $Q = 23.0$ cfs. O.K. O.K.> 22.8 cfs.

6. Swale Section "A" (Offsite Area "A")

40.5 cfs. capacity required

Given:

Sideslopes = 8:1

Bottom Width = 0

Slope = 1%

$n = 0.025$

Depth = 1.12'

$Q = 40.5$ cfs. O.K. = 40.5 cfs.

Conclusion: Swale Section "A" shall be constructed with 8:1 sideslopes, bottom width equal to 0.0', and minimum depth equal to 1.5'.

7. Swale Section "B"

Given:

Sideslopes = 5:1

Bottom Width = 0

7. Swale Section "B" (continued)

$Slope_1$ = 2% $Slope_2$ = 1%

n = 0.025

$Depth_1$ = 1.0' $Depth_2$ = 0.5'

Q_1 = 26.20 cfs.

Q_2 = 2.92 cfs.

Conclusion: Swale Section "B" shall be constructed with 5:1 side-slopes, bottom width equal to 0.0', and minimum depth equal to 1.0'.

HYDROLOGY E21/D16 2 of 2 FIFTEEN PLANS

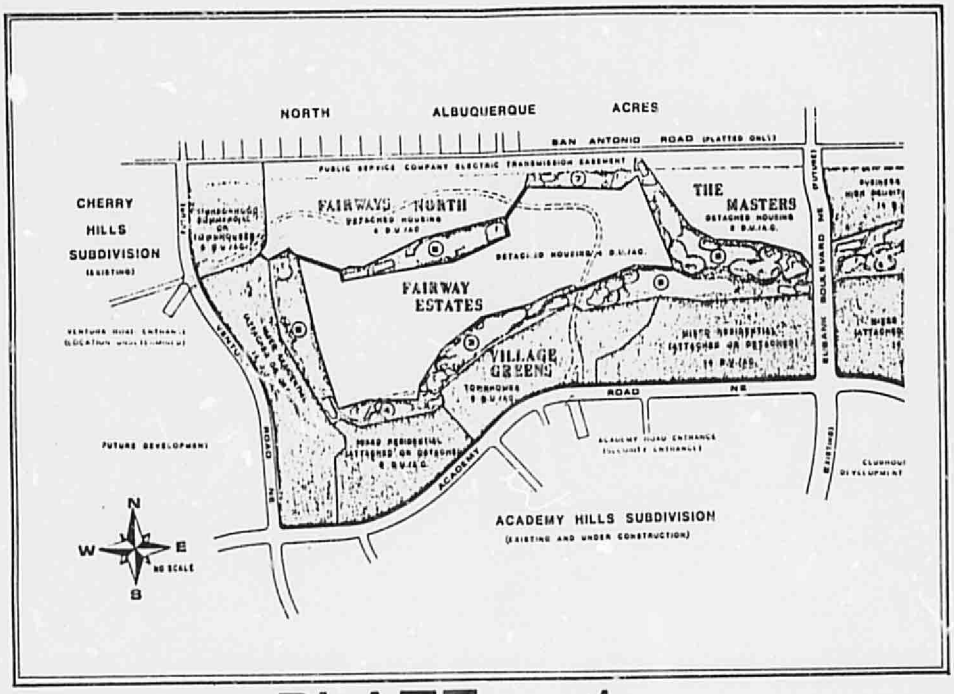
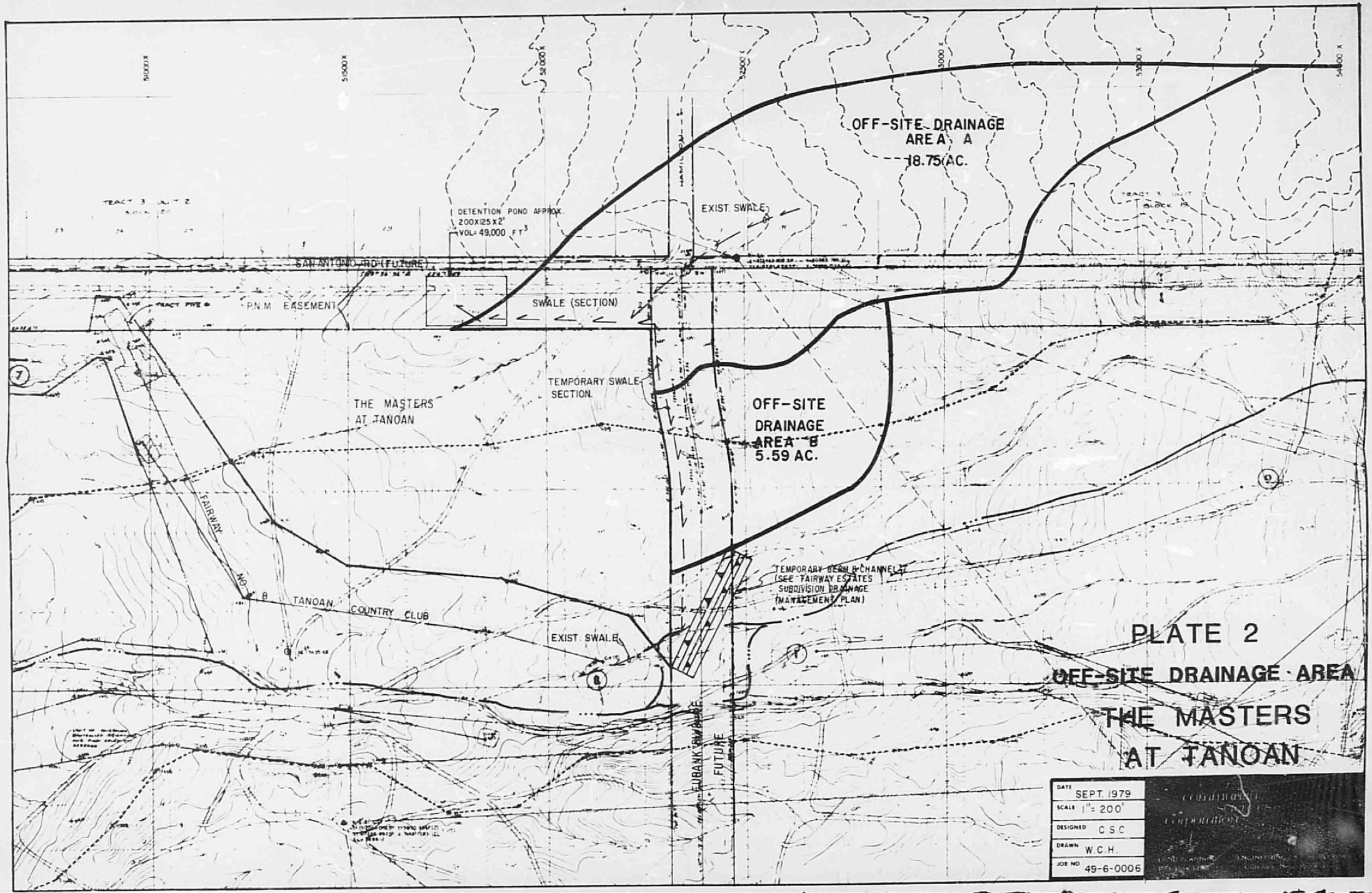


PLATE 1

LOCATION MAP

THE MASTERS AT TANOAN


OFF-SITE DRAINAGE
AREA A
18.75 AC.
DETENTION POND APPROX.
200X125 X 2'
VOL= 49,000 FT3
EXIST. SWALE
SAN ANTONIO RD (FUTURE)
P.N.M. EASEMENT
SWALE (SECTION)
TEMPORARY SWALE
SECTION
THE MASTERS
AT TANOAN
OFF-SITE
DRAINAGE
AREA B
5.59 AC.
FAIRWAY
NO. 8
TANOAN COUNTRY CLUB
EXIST. SWALE
TEMPORARY BERM & CHANNEL
(SEE FAIRWAY ESTATES
SUBDIVISION DRAINAGE
MANAGEMENT PLAN)
FUTURE
PLATE 2
OFF-SITE DRAINAGE AREA
THE MASTERS
AT TANOAN
DATE SEPT. 1979
SCALE 1" = 200'
DESIGNED C.S.C.
DRAWN W.C.H.
JOB NO. 49-6-0006

82 33715

GRANT OF EASEMENT
(Multiple Uses)

THIS GRANT OF EASEMENT made this 25 day of June, 1982, by and between TANOAN ENTERPRISES, INC., a New Mexico corporation (hereinafter called the "Grantor"), and TANOAN LAND COMPANY, INC., a New Mexico corporation, and AFFILIATED MORTGAGE AND DEVELOPMENT COMPANY, a New Mexico corporation (hereinafter collectively called the "Grantee"),

W I T N E S S E T H:

That for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Grantor has this day bargained and sold and by these presents does sell, convey, and deliver unto Grantee, its assigns and successors in interest, a permanent easement over and across the property described in Exhibit "A" ("Easement Property") attached hereto and incorporated herein, for the purposes specified hereinbelow, all in accordance with the terms and conditions hereof.

This easement shall be appurtenant to, benefit, burden, and run with the properties of Grantee situate in Albuquerque, Bernalillo County, New Mexico, and situate north of Academy Road, N.E., east of Ventura Street, N.E., west of Tramway Boulevard, N.E., and south of the southern boundary of North Albuquerque Acres.

To have and hold the said right and easement for the uses and purposes as specified herein, unto Grantee, its successors and assigns, in perpetuity, unless sooner abandoned or the uses and purposes as specified herein are no longer served hereby.

1. Drainage Easement: Grantee shall, from time to time and during the existence of the term of this easement, have the right to discharge surface drainage water over, upon, and onto the Easement Property, which surface waters are generated or originate on Grantee's properties, or waters which Grantee must accept onto its property from adjoining properties pursuant to approved drainage plans or by operation of law. Grantee shall use reasonable efforts to assure that the volume and manner of discharge of such waters onto the Easement Property is done in such a manner and in such volumes and at such velocities as will not cause permanent damage to the Easement Property and to improvements located within the Easement Property. However, it is recognized that all or a portion of the Easement Property is designated by the Albuquerque Metropolitan Arroyo Flood Control Authority as an area which must accept and convey surface drainage waters from a wide area, in excess of the properties owned by Grantee, and Grantee's only liability or responsibility with regard to damage of the Easement Property shall be to comply in good faith with the provisions of this paragraph. In no event shall Grantee be liable for any damages of any kind or nature covered by flood or other insurance under any policy of insurance carried by Grantor or any other party maintaining insurance on the Easement Property.

2. Open Space: Grantee shall have the exclusive right, from time to time, to grant and place restrictive covenants on the Easement Property, in accordance with that Agreement with the City of Albuquerque dated the 2nd day of July, 1979, a copy of which is attached hereto as Exhibit "B" and incorporated herein by reference. Grantee shall have the exclusive right to any credits for open space acquired as a result of the filing of such covenants, and Grantor shall have no right or interest therein.

3. Underground Utilities: Grantee shall have the right at any time and from time to time to construct and locate underground utilities across the Easement Property as may be reasonably necessary for development and improvement of Grantee's property adjacent to or located in the vicinity of the Easement Property. Grantee shall have the right to grant or dedicate easements to public utilities or other such entities which may require easements for the servicing and maintenance of such utility lines. In the exercise of Grantee's rights hereunder, it is agreed as follows:

a. Any construction within the easement will be done in such manner and at such times as will cause no unreasonable interference with the play of golf on the surface area or with Grantor's operations and use of the Easement Property.

b. All cost of installation of the utilities and the restoring of the surface area to the condition in which it was found prior to the installation thereof shall be at the sole cost and expense of Grantee.

c. Grantee shall cooperate with Grantor prior to the location, installation, and/or construction of any utilities so as not to unreasonably interfere with Grantor's operations or with its use of the Easement Property, and in all cases shall give Grantor not less than ten (10) days prior written notice of its intent to commence construction so as to allow Grantor to post proper notices or advise its members as to the project.

d. Grantee shall hold harmless and indemnify Grantor from any cost for repairing the surface area of and improvements on the Easement Property as to any damage caused by the maintenance of the utility lines or other structures placed within the easement area.

e. The scope of this easement for utilities shall be interpreted so as to give Grantee, or its assigns, the normal and customary rights generally granted to public utility companies or the City of Albuquerque for the installation of underground utilities within the City of Albuquerque.

Notwithstanding anything herein to the contrary, Grantor expressly retains the right to use the Easement Property for purposes of a golf course and related activities of its country club operations. As part of the consideration for this grant, the Grantee does hereby agree to release, defend, protect, indemnify, and hold Grantor harmless from any and all claims for damages, including reasonable attorney's fees, to third persons for whatever cause incidental to the exercise of Grantee's rights granted herein.

IN WITNESS WHEREOF, the parties have set their hands and seals the day and year first written above.

TANOAN ENTERPRISES, INC.,
a New Mexico corporation

By Charles A Hagelin
Its Exec VP

TANOAN LAND COMPANY, INC.,
a New Mexico corporation

By Charles A Hagelin
Its Exec VP

AFFILIATED MORTGAGE AND
DEVELOPMENT COMPANY, a
New Mexico corporation

By Charles A. Haegelin
Its Exec VP

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

The foregoing instrument was duly acknowledged before me this 25 day of June, 1982, by CHARLES A. HAEGELIN, Executive Vice President of TANOAN ENTERPRISES, INC., a New Mexico corporation, on behalf of said corporation.

Judith T. Burke
NOTARY PUBLIC

My commission expires:

May 6, 1984

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

The foregoing instrument was duly acknowledged before me this 25 day of June, 1982, by CHARLES A. HAEGELIN, Executive Vice President of TANOAN LAND COMPANY, INC., a New Mexico corporation, on behalf of said corporation.

Judith T. Burke
NOTARY PUBLIC

My commission expires:

May 6, 1984

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

The foregoing instrument was duly acknowledged before me this 25 day of June, 1982, by CHARLES A. HAEGELIN, Executive Vice President of AFFILIATED MORTGAGE AND DEVELOPMENT COMPANY, a New Mexico corporation, on behalf of said corporation.

Judith T. Burke
NOTARY PUBLIC

My commission expires:

May 6, 1984

EXHIBIT "A"

Those certain five (5) parcels of land designated as "Open Space-1" through "Open Space-5" inclusive, as the same are shown and designated on Sheets 2, 3, 4, and 5, of the Amended Summary Plat of TANOAN PROPERTIES, Albuquerque, New Mexico, containing Sheets 1 through 5, inclusive, filed in the office of the County Clerk of Bernalillo County, New Mexico, on June 25, 1982, as Document No. 82-33172.

OPEN-SPACE AGREEMENT

THIS AGREEMENT ENTERED into this 2nd day of July, 1979, by and between AFFILIATED MORTGAGE & DEVELOPMENT COMPANY ("AMDEC") and TANOAN LAND COMPANY ("TANOAN") (hereinafter called "Owners") and the CITY OF ALBUQUERQUE, a municipal corporation formed pursuant to the laws of the State of New Mexico (hereinafter called "City").

WHEREAS, the Owners are owners of certain property located in Bernalillo County, New Mexico, the legal description of which is attached hereto as Exhibit "A" and incorporated herein by reference, and which property lies within the platting and planning jurisdiction of City, and

WHEREAS, Owners and City are desirous of completing the over-all planning for such area under the sector development plan officially labeled the Eubank/Tramway/Academy Sector Development Plan and hereinafter referred to as the "Sector Development Plan", and

WHEREAS, City and Owners are desirous of entering into an agreement whereby the open-space requirements of Owner can be established in advance of the final approval and filing of plats for different areas within the sector plan and further to establish the text of the legal documents required to be filed to preserve open space in accordance with Section 40(h)(1) of the Comprehensive Zoning Code of the City of Albuquerque,

NOW, THEREFORE, IN CONSIDERATION OF THE MUTUAL COVENANTS AND AGREEMENTS OF THE PARTIES HEREIN CONTAINED, IT IS HEREBY AGREED AS FOLLOWS:

1. That the property upon annexation to the City will be appropriately zoned so as to permit residential and related uses with open-space requirements of not more than 6,000 square feet of open space per dwelling unit, which requirement may be met by the following alternatives, the choice to be by Owners.

a. Of the total 6,000 square feet, the following minimum amount of usable open space shall be on the lot with the dwelling; 200 square feet for each efficiency or one-bedroom dwelling, 250 square feet for each two-bedroom dwelling, and 300 square feet for each dwelling containing three or more bedrooms.

b. Owners may elect to meet the requirement for open space in excess of that met on the lot upon which the dwelling unit is constructed by executing and delivering to the City an instrument in form and substance identical to the document entitled "Open Space Restrictive Covenants" attached hereto as Exhibit "B" which is incorporated herein by reference. Such detached open space need not be accessible to the residents of the related dwelling units or to the general public.

2. It is agreed that City will not change or amend, with regard to Owners' property, the requirements for open space as set out herein [or the uses thereof as allowed by the present zoning ordinance] as to any and all lands owned by Owners and located within the Sector Development Plan.

3. Upon application to the City for final plat approval as to any property within the Sector Plan, Owners or their respective assignees, shall present to the City a calculation of the open-space requirements for that particular plat. Such calculation shall specify the open space which will be located on the residential lot and the amount of open space which will be detached open space pursuant to Section 40(h) of the Zoning Ordinance. Owner shall further provide to City at the time of the application for final plat approval an executed copy of the restrictive covenants as attached hereto, describing the property

EXHIBIT "B"

which in size and location meet the present requirements of Section 40(h) of the Zoning Code.

4. Upon verification of the City of the mathematical correctness of the calculations and regarding the location of the attached open space, the restrictive covenants shall be filed together with the final plat and upon such filing, Owners obligation with regard to open space pursuant to Section 18(f) and Section 40(h) of the Zoning Code shall be deemed fulfilled and completed.

5. It is understood and agreed that development of all property of Owners within the Sector Development Plan will not be accomplished immediately and will take place over several years after the date of execution of this Agreement. However, because of the substantial expenditure of monies in the planning and development, and improvement of the open-space area, Owners have acquired a "vested interest" in the plan for open space and provisions of Sections 18(f) and 40(h) of the Zoning Code, City agrees that such conditions, terms or requirements will not be changed or modified so as to adversely affect the interest of Owners as to any property within the Sector Development Plan.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first written above.

AFFILIATED MORTGAGE & DEVELOPMENT COMPANY

By Charles A. Traeglin
Its Exec. V.P.

TANOAN LAND COMPANY

By [illegible]
Its Vice President

CITY OF ALBUQUERQUE

By [illegible]
Its Chief Administrative Officer

ATTEST:

Erika Jones
City Clerk/Recorder

REVIEWED BY LEGAL DEPARTMENT:

Susan Gellen

743.262 ACRE PARCEL
SITUATE WITHIN
THE ELENA GALLEGOS GRANT
AND WITHIN
PROJECTED SECTIONS 26, 27, 28, AND 29
TOWNSHIP 11 NORTH, RANGE 4 EAST
NEW MEXICO PRINCIPAL MERIDIAN
BERNALILLO COUNTY, NEW MEXICO
7/10/78

That certain parcel of land situate within the Elena Gallegos Grant and situate within projected Sections 26, 27, 28, and 29, Township 11 North, Range 4 East, New Mexico Principal Meridian, Bernalillo County, New Mexico, which is more particularly described by metes and bounds as follows:

Beginning at the Northeast Corner of the parcel herein described at the point of intersection of the West Right-of-Way Line of Tramway Boulevard, N.E., and the Section Line common to Sections 23 and 26, T11N, R4E, NMPM whence, the City of Albuquerque Monument designated "TUNDLE" (having New Mexico State Plane Coordinates, Central Zone of x=425,465.550 feet and y=1,513,470.010 feet) bears N 05° 08' 17" W, 830.59 feet; thence,

ALONG THE WEST RIGHT-OF-WAY LINE OF TRAMWAY BOULEVARD N.E.:

S 19° 31' 04" W, 728.11 feet to a Point of Curvature; thence,

Southwesterly 745.97 feet along the arc of a curve bearing to the left (said arc having a radius of 2,191.85 feet and a long chord which bears S 09° 46' 04" W, 742.38 feet) to a Point of Tangency; thence,

S 00° 01' 04" W, 1,219.00 feet to the Southeast Corner of the parcel herein described at the point of intersection of the West Right-of-Way Line of Tramway Boulevard N.E. and the Centerline of Academy Road, N.E., whence the City of Albuquerque Monument designated "2-E22" (having New Mexico State Plane Coordinates, Central Zone of x=425,462.462 feet and y=1,511,537.434 feet) bears N 30° 47' 02" W, 900.94 feet; thence leaving the West Right-of-Way Line of Tramway Boulevard, N.E.;

ALONG THE CENTERLINE OF ACADEMY ROAD, N.E.:

N 89° 36' 56" W, 2,709.12 feet to a Point of Curvature; thence,

Southwesterly 1,000.00 feet along the arc of a curve bearing to the left (said arc having a radius of 1,412.40 feet and a long chord which bears S 70° 23' 04" W, 979.82 feet) to a Point of Reverse Curvature; thence,

Southwesterly 715.12 feet along the arc of a curve bearing to the right (said arc having a radius of 1,006.16 feet and a long chord which bears S 70° 44' 45" W, 700.16 feet) to a Point of Tangency; thence,

N 88° 53' 35" W, 877.80 feet to a Point of Curvature; thence,

Northwesterly 976.58 feet along the arc of a curve bearing to the right (said arc having a radius of 1,432.40 feet and a long chord which bears N 69° 21' 42" W, 957.70 feet) to a Point of Tangency; thence,

Exhibit "A"

N 45° 49' 48" W, 910.70 feet to a Point of Curvature; thence,

Northwesterly 1,000.00 feet along the arc of a curve bearing to the left (said arc having a radius of 1,432.40 feet and a long chord which bears N 69° 49' 40" W, 979.82 feet) to a Point of Tangency; thence,

N 89° 49' 40" W, 2,257.44 feet to a Point of Curvature; thence,

Southwesterly 572.40 feet along the arc of a curve bearing to the left (said arc having a radius of 790.70 feet and a long chord which bears S 69° 38' 21" W, 560.23 feet) to a Point of Tangency; thence,

S 49° 06' 30" W, 838.23 feet to a Point of Curvature; thence,

Southwesterly 893.15 feet along the arc of a curve bearing to the right (said arc having a radius of 1,295.97 feet and a long chord which bears S 68° 51' 06" W, 875.56 feet) to a Point of Tangency; thence,

S 88° 35' 42" W, 498.50 feet to the Southwest Corner of the parcel herein described at the point of intersection of the Centerline of Academy Road, N.E. and the Centerline of Layton Avenue, N.E. (also known as Ventura Street, N.E.); thence leaving the Centerline of Academy Road, N.E.,

ALONG THE CENTERLINE OF LAYTON AVENUE, N.E. (ALSO KNOWN AS THE CENTERLINE OF VENTURA STREET, N.E.:

N 01° 24' 52" W, 1,145.08 feet to a Point of Curvature; thence,

Northwesterly 395.74 feet along the arc of a curve bearing to the left (said arc having a radius of 500.00 feet and a long chord which bears N 24° 05' 19" W, 385.49 feet) to a Point of Tangency; thence,

N 46° 45' 46" W, 410.43 feet to a Point of Curvature; thence,

Northwesterly 211.85 feet along the arc of a curve bearing to the right (said arc having a radius of 400.00 feet and a long chord which bears N 31° 35' 23" W, 209.39 feet) to a Point of Tangency; thence,

N 16° 25' 01" W, 91.59 feet to the most Westerly Corner of the parcel herein described at the point of intersection of the Centerline of Layton Avenue, N.E. (Ventura Street, N.E.) and a projection of the South Right-of-Way Line of Harper Road, N.E.; thence leaving the Centerline of Layton Avenue, N.E. (Ventura Street, N.E.):

N 73° 34' 59" E, 44.00 feet along the projected South Right-of-Way Line of Harper Road, N.E. to the point of intersection with the East Right-of-Way Line of Layton Avenue N.E. (Ventura Street, N.E.); thence,

N 16° 25' 01" W, 43.00 feet along the East Right-of-Way Line of Layton Avenue, N.E. (Ventura Street, N.E.) to the point of intersection of the East Right-of-Way Line of Layton Road, N.E. and the projected Centerline of Harper Road, N.E.; thence,

N 73° 34' 59" E, 279.54 feet to a Point of Curvature; thence,

Northeasterly 32[illegible].61 feet along the arc of a curve bearing to the right (said arc having a radius of 2,325.00 feet and a long chord which bears N 77° 29' 04" E, 316.37 feet) to a Point of Normalcy; thence,

N 00° 36' 52" W, 336.73 feet to a Point of Curvature; thence,

Northwesterly 175.00 feet along the arc of a curve bearing to the right (said arc having a radius of 1,115.00 feet and a long chord which bears N 04° 06' 58" W, 174.90 feet) to a Point of Tangency; thence,

N 00° 22' 57" E, 292.58 feet to a point on the Section Line common to Sections 20 and 29, T11N, R4E, NMPM; thence,

S 89° 37' 54" E, 2,029.12 feet along the Section Line common to Sections 20 and 29, T11N, R4E, NMPM to the Section Corner common to Sections 20, 21, 28, and 29, T11N, R4E, NMPM (City of Albuquerque Monument designated "1-D21" with New Mexico State Plane Coordinates, Central Zone of x=415,462.45 feet and y=1,513,473.51 feet); thence,

S 89° 36' 36" E, 5,267.46 feet along the Section Line common to Sections 21 and 28, T11N, R4E, NMPM to the Section Corner common to Sections 21, 22, 27, and 28, T11N, R4E, NMPM (City of Albuquerque Monument designated "1-D22" with New Mexico State Plane Coordinates, Central Zone of x=420,727.66 feet and y=1,513,437.66 feet); thence,

S 89° 36' 42" E, 2,643.98 feet along the Section Line common to Sections 22 and 27, T11N, R4E, NMPM to the Quarter Corner common to Sections 22 and 27, T11N, R4E, NMPM (2 1/2" pipe designated "C"); thence,

S 89° 36' 20" E, 2,653.40 feet continuing along the Section Line common to Sections 22 and 27, T11N, R4E, NMPM to the Section Corner common to Sections 22, 23, 26, and 27, T11N, R4E, NMPM (projected); thence,

S 89° 36' 23" E, 269.78 feet along the Section Line common to Sections 23 and 26, T11N, R4E, NMPM to the Northeast Corner and place of beginning of the parcel herein described at the intersection of the West Right-of-Way Line of Tramway Boulevard, N.E. and the Section Line common to Sections 23 and 26, T11N, R4E, NMPM.

Said parcel contains 748.262 acres, more or less.

NOTE: All bearings of the preceding description are based on the New Mexico State Plane Grid, Central Zone (Mean Delta Alpha = -00° 09' 21") and all distances are ground distances.

I, Cliff A. Spirock, New Mexico Registered Land Surveyor No. 4972 hereby certify that the above description was prepared by me and is true and correct to the best of my knowledge and belief.

Cliff A. Spirock
N.M.L.S. #4972
COMMUNITY SCIENCES CORPORATION
Corrales, New Mexico

RESTRICTIVE COVENANTS
FOR OPEN SPACE

WHEREAS, _____ is the owner of all real estate situate in Bernalillo County, New Mexico (hereinafter called "the Property"):

WHEREAS, Owner has established the general plan for the improvement and development of surrounding properties owned by it which require "detached open space" pursuant to the ordinances of the City of Albuquerque, and

WHEREAS, such ordinances require that the owner "forfeit permanently to the City of Albuquerque by deed or other suitable leg instrument the right to use or develop such land other than as speci fied in said ordinance,

NOW, THEREFORE, the Property is hereby made subject to the following restrictive covenants, conditions and reservations which shall run with the land in perpetuity and shall be binding upon the owners, their successors and assigns. Such restrictions shall be for the benefit of the City of Albuquerque in that they further and carry out the intent, purpose and requirements of the Comprehensive Zoning Code of the City of Albuquerque and of the Albuquerque/ Bernalillo County Comprehensive Plan and the owners of all the surrounding properties within the Sector Development Plan officially labeled the _____ Sector Development Plan and they shall run in favor of the City of Albuquerque and any or all of the aforementioned land owners. The City and any or all of the aforementioned land owners shall be entitled to prosecute any proceedings at law or in equity against the person or persons violating any of these covenants and either to prevent him from doing so or to recover damages for such violation or both. It is the intent of this paragraph to make the City of Albuquerque, together with a group composed of all of the aforementioned property owners the only parties entitled to release any property described herein from the effects of such covenants, and change of the character or other similar defenses to the enforcement of Restrictive Covenants shall not apply as to these covenants. Any action in derogation of these covenants by any of the aforementioned land owners shall not constitute a waiver by the City of said covenants or estop the City from enforcing the covenants. The restrictive covenants, condition and reservations placed upon the above-described real property are in consideration for the restrictive covenants, conditions and reservations placed upon the property of the aforementioned land owners lying within the _____ Sector Development Plan.

Land Use: All property described above is hereby declared to be reserved and restricted and preserved for the following purposes:

a. Active and passive outdoor recreation.

b. Agricultural (outdoor) and pasturing animals.

c. Botanical Parks open to the general public.

d. Lakes, waterways, flood water storage areas and other public facilities for handling flood water.

e. Land maintained in its natural state or being returned to a natural state.

f. Structures and facilities incidental to the above uses.

IN WITNESS WHEREOF, the parties hereto have executed this instrument on the _____ day of _____, 1979.

By_____

Its_____

OWNER

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
FILED FOR RECORD

'82 JUN 29 P3:12

BK. _____ PG. _____
COUNTY CLERK AND RECORDER

972-1936
E21-D16

84 19084

GRANT OF TEMPORARY EASEMENT

FLOODPLAIN

AMERI-WEST CORPORATION, a New Mexico corporation, formerly known as Affiliated Mortgage & Development Company ("Grantor"), for good and valuable consideration, the receipt of which is hereby acknowledged, does hereby grant, bargain, sell and convey unto the CITY OF ALBUQUERQUE, a municipal corporation, ("Grantee"), and its successors and assigns, a temporary easement for the passage of surface drainage waters over and across that portion of the property described in Exhibit "A" attached hereto, which property is described and shown more particularly in Exhibit "B" (the "Easement Property").

TO HAVE AND TO HOLD the said Easement Property for the uses and purposes aforesaid, unto the Grantee, its successors and assigns, until such time as the Federal Emergency Management Agency ("FEMA") flood plain map has been amended to show that the Easement Property is not located within the 100 year flood plain. Upon such modification of the floodplain, Grantor shall have the right to record an affidavit in the Bernalillo County real estate records stating that the floodplain has been modified, with a copy of the modified floodplain map attached thereto.

WITNESS its hand and seal this 15th day of March, 1984.

AMERI-WEST CORPORATION,
a New Mexico corporation

By Allan L. Whiteself 3/15/84
Its Vice President

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me this 15 day of MARCH, 1984, by Allan Whiteself, Vice President of AMERI-WEST CORPORATION, formerly known as AFFILIATED MORTGAGE & DEVELOPMENT COMPANY, a New Mexico corporation, on behalf of said corporation

My commission expires:

March 7, 1987

Edna Pacheco
Notary Public

OFFICIAL SEAL
EDNA PACHECO
NOTARY PUBLIC - STATE OF NEW MEXICO
Notary Bond Filed with Secretary of State
My Commission Expires 3-7-87

APPROVED AS TO FORM:

Stephen K. Baum
Assistant City Attorney

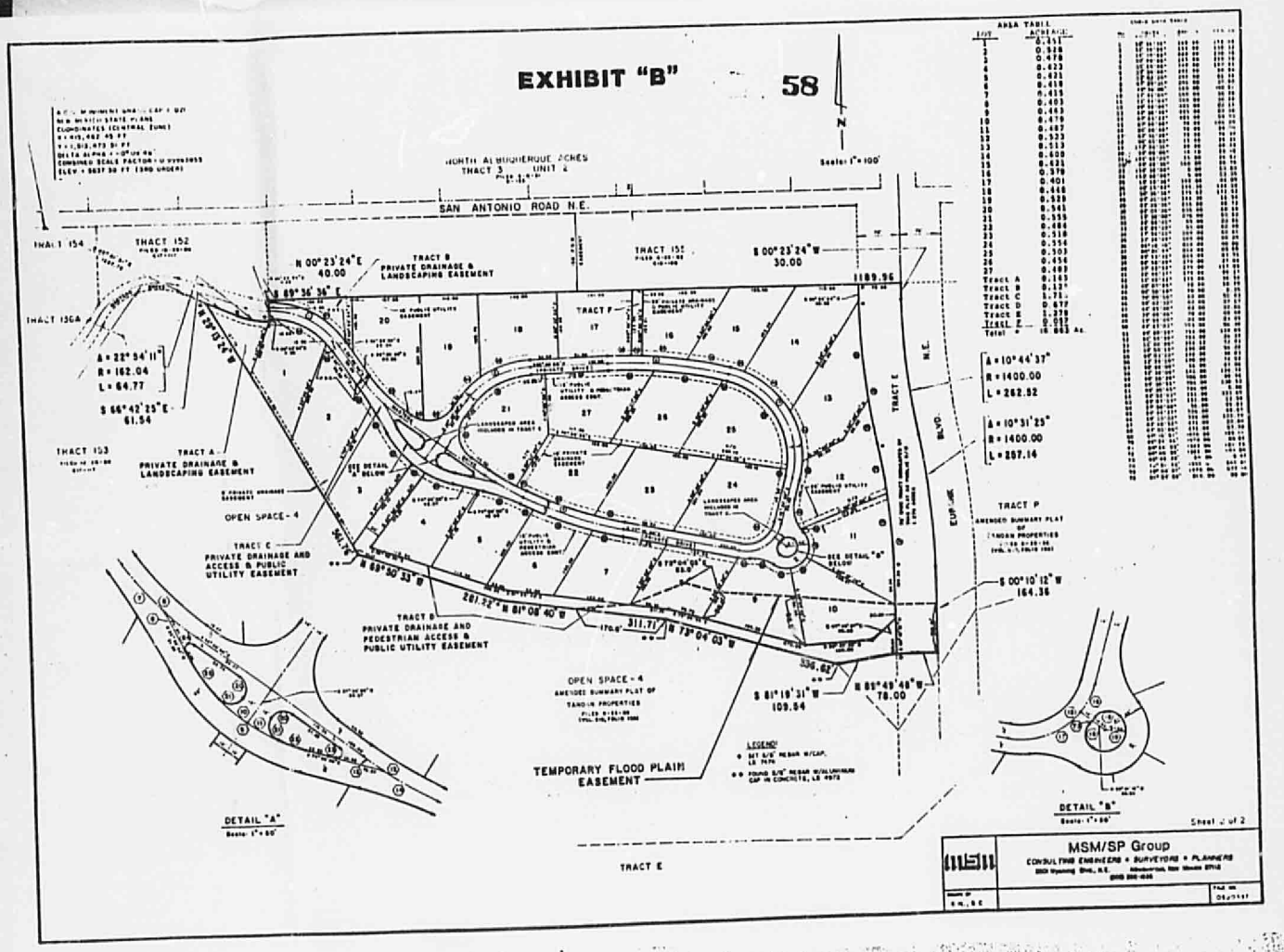
STATE OF NEW MEXICO
COUNTY OF BERNALILLO
FILED FOR RECORD
1984 MAR 19 AM 8:06
BK. 99-A PG. 56-58
DOLORES C. WALLER
CO. CLERK & RECORDER
DEPUTY

EXHIBIT "A"

Lots 8, 9, and 10, and Tracts D and E, THE MASTERS AT TANOAN, a Subdivision of the City of Albuquerque, as the same is shown on the plat thereof recorded in the Bernalillo County real estate records of the 19th of March, 1984 as document No. 84-19078.

EXHIBIT "B"

58


N
Scale: 1" = 100'
NORTH ALBUQUERQUE ACRES
TRACT 3 UNIT 2
SAN ANTONIO ROAD N.E.
TRACT 154
TRACT 152
TRACT 153A
TRACT 153
TRACT 151
TRACT B
PRIVATE DRAINAGE & LANDSCAPING EASEMENT
N 00°23'24"E
40.00
S 00°23'24"W
30.00
1189.96
TRACT F
TRACT E
N.E. BLVD.
EUP-INE
Δ = 22°54'11"
R = 162.04
L = 64.77
S 66°42'25"E
61.54
TRACT A
PRIVATE DRAINAGE & LANDSCAPING EASEMENT
OPEN SPACE - 4
TRACT C
PRIVATE DRAINAGE AND ACCESS & PUBLIC UTILITY EASEMENT
TRACT B
PRIVATE DRAINAGE AND PEDESTRIAN ACCESS & PUBLIC UTILITY EASEMENT
S 89°50'33"W
281.22'
N 81°08'40"W
311.71'
N 73°04'03"W
336.62'
S 81°19'31"W
109.54
N 89°49'48"W
78.00
S 00°10'12"W
164.36
Δ = 10°44'37"
R = 1400.00
L = 262.52
Δ = 10°31'25"
R = 1400.00
L = 257.14
TRACT P
AMENDED SUMMARY PLAT OF TANDON PROPERTIES
OPEN SPACE - 4
AMENDED SUMMARY PLAT OF TANDON PROPERTIES
TEMPORARY FLOOD PLAIN EASEMENT
LEGEND
TRACT E
DETAIL "A"
Scale: 1" = 50'
DETAIL "B"
Scale: 1" = 50'
AREA TABLE
Tract A 0.152
Tract B 0.152
Tract C 1.71
Tract D 0.677
Tract E 1.278
Tract F 0.017
Total 18.863 Ac.
Sheet 2 of 2
MSM/SP Group
CONSULTING ENGINEERS • SURVEYORS • PLANNERS