B-1

CITY OF
Albuquerque

Martin J. Chávez, Mayor

July 10,1997

Ray Macy
Protec Consulting
P.O. Box 27007
Albuquerque, New Mexico 87125

RE: REVISED DRAINAGE PLAN FOR TRACT A-2 ALBUQUERQUE RANCH ESTATES (E22-D19) REVISION DATED 6/26/97

Dear Mr. Macy:

Based on the information provided on your June 26,1997 resubmittal, the above referenced site is approved for Preliminary & Final plat.

Please be advised that prior to Work Order and Building Permit approval, the following must be addressed:

1. The proposed 20' drainage easement will be accepting public runoff from Tramway. Therefore the proposed easement must be designed to COA specs. It will need to be made part of the Work order and included in the infrastructure list.

2. AMAFCA approval must be obtained during the Work order process.

If I can be of further assistance, please feel free to contact me 924-3986.

C: Andrew Garcia
File

Sincerely

Bernie J. Montoya

Bernie J. Montoya CE
Associate Engineer

DEVELOPMENT & BUILDING SERVICE CENTER
ONE STOP
600 SECOND ST. N.W./2ND FLOOR
ATTENTION: _____
505-924-3900

Records Withdrawal Form

Project No. E-22/D19 Date: 11/28/00

Project Title: Albuquerque Ranch Estates Tr A-2

(a. File) b. Mylars c. Redlines/Comments
d. Other _____

Requested By: Jamie @ Tierra West Phone No.: 858-3100
Company

Comments: Grading & Drainage Plan, Infrastructure list
Drainage Report

Anticipated Return Date: 11/28/00 - 11/29/00

Receipt Acknowledged

I here by accept full responsibility for the security of the above noted records/plans until return receipt acknowledgement is completed. Records/plans will be returned to the Development & Building Services Center on or before the indicated anticipated return date.

Delivery Picked Up By:

Name: Ray Vasquez Organization: Reliable Reproductions
Print

Signed: _____ Date: 11-28-00
Phone No. 247-1578

Office Use Only

Return Acknowledged

Received by: _____ Date: 11-29-00
Print

DRAINAGE REPORT

FOR

ALBUQUERQUE RANCH ESTATES TRACT A-2

A 5 LOT SINGLE FAMILY RESIDENTIAL SUBDIVISION

PREPARED FOR:

HORACE F. McKAY, Jr.
6012 ROYAL OAK STREET, NE
ALBUQUERQUE, NM 87111

PREPARED BY:

PROTEC CONSULTING
PO BOX 27007
ALBUQUERQUE, NM 87125
(505) 833-0177

RAYMOND W. MACY
NEW MEXICO
6414
REGISTERED PROFESSIONAL ENGINEER

R.W. Macy
6/26/97

MARCH 20, 1997

Revision No. 1 dated June 26, 1997

RECEIVED
JUN 26 1997
HYDROLOGY SECTION

I. GENERAL

I.1 Legal Description

Parcels C-1, D-1, F-1, and G-1, Portions of Tramway Boulevard (vacated), Elena Gallegos Grant (Projected Sections 26 and 27, Township 11 North, Range 4 East, New Mexico Principal Meridian).

I.2 Engineer

PROTEC Consulting
PO Box 27007
Albuquerque, NM 87125
(505) 833-0177

I.3 Surveyor

Aldrich Land Surveying
P.O. Box 30701
Albuquerque, NM 87190

I.4 Benchmark

ACS Station 3-E22. Square chiseled on the NW corner of concrete electric transformer pad in Lowell Street, NE; north side of intersection with San Victorio Avenue. Elevation 5891.21.

I.5 TBM

North rim of manhole in McKay Way, NE approximately 25' west of the proposed development. Elevation 5988.86

I.6 Zoning

With the abandonment by Bernalillo County of use of this property for the previous alignment of Tramway Boulevard, the subject property has reverted to R-D zoning (maximum of 15 du/acre).

I.7 Proposed

Five (5) Single Family Residential Lots

I.8 Area

1.64 acres, more or less (approximately 71,438 square feet) are contained within Parcels C-1, D-1, E-1, and G-1, which comprise the subject property. An additional 0.063 acres (approximately 2,744 sf) will be acquired from portions of Lots 1, 3 and 4, Tract A-1,

Albuquerque Ranch Estates for construction of the proposed Oak Ridge Lane. Consequently, approximately 1.703 acres are directly affected by construction of this project.

I.9 Flood Hazard

The proposed project site is located within Flood Hazard Zone X, determined to be outside the 500-year floodplain, as designated on the Federal Emergency Management Agency's (FEMA's) Flood Insurance Rate Map (FIRM), City of Albuquerque, Bernalillo County, New Mexico, Panel No. 163 of 825, Map No. 35001C0163 D, effective date September 20, 1996.

I.10 Location and Description

The land for this project is undeveloped, although most of it has been disturbed as a result of adjacent improvements. Existing ground cover consists of sparse amounts of native grasses and weeds. The property slopes from east to west at approximately 4.8 percent, and from north to south at approximately 1.1 percent. The proposed site is bounded on the north by the recently constructed La Ventana Apartment Complex, on the west by single family homes and on the east and south by Tramway Boulevard. A strip of vacant land between the east edge of the site and Tramway Boulevard serves as an easement for overhead power lines. There is an AMAFCA drainage easement and earthen channel that parallels the extreme south end of the site at the west side.

Access to the site is from the east end of McKay Way, which is a paved roadway within a private access easement. A six inch water line and eight inch sanitary sewer, both maintained by the City, terminate at the east end of McKay Way. Services will be extended from these lines into the proposed subdivision. Buried power, telephone and cable TV utilities are currently in place at the west edge of the site. A buried gas line exists along the west side of Tramway Boulevard.

II. HYDROLOGIC ANALYSIS

II.1 Existing Conditions

Tramway Boulevard and the La Ventana Apartments prevent most off site runoff from entering the property. Only the adjacent overhead power easement at the east edge of the site contributes runoff into the project area. Under present conditions, runoff from the overhead power easement combines with runoff from the project site as overland flow that converges at a rock lined rundown at the extreme south end of the project site adjacent to the AMAFCA channel. The combined runoff enters the AMAFCA channel at the rock rundown.

II.2 Site Hydrology (Existing Conditions)

The site hydrology determined in this report is based on the methods and criteria presented in the City of Albuquerque Development Process Manual (DPM) - Volume 2, Section 22.2 Hydrology, dated January 1993. The proposed site is in Precipitation Zone 4 (north of Interstate 40 and east of Eubank Blvd.). The P360 (100-year, 6-hour storm event) has a depth of 2.90 inches as shown in

Table A-2. Since the proposed site is undeveloped but has been compacted by human activity and has a sparse vegetative cover, Land Treatment C is the most applicable. See Table A-4. Excess Precipitation E for the 100 year, 6 hour storm on a surface with Land Treatment C in Zone 4 is 1.46 inches as shown in Table A-8. The Peak Discharge, Qp, from the same storm is 3.73 cfs/acre. See Table A-9.

Undeveloped drainage basin DB-1 is comprised of basins DB-2, DB-3 and DB-4 as shown on the included Grading Plan. The total area of DB-1 is 3.0351 acres which results in a total undeveloped runoff of 11.32 cfs from the combined project site and adjacent overhead power line easement to the east. The 11.32 cfs is carried overland to the existing rock lined rundown where it is discharged into the AMAFCA channel. The Table at the end of this report titled " DRAINAGE BASIN ANALYSIS - PEAK FLOW RATES and RUNOFF VOLUMES" summarizes the hydrologic characteristics of basin DB-1.

II.3 Proposed Improvements

The intent of this project is to subdivide the site into five lots suitable for single family homes. A new north-south private street (Oak Ridge Lane) will be developed with a paved surface and mountable curbs to provide access to the five new lots. North of McKay Way the street will be 24' wide from face-of-curb to face-of-curb with a 4' sidewalk adjacent to lots 1 through 3, and will terminate in a cul-de-sac with a 35' radius at the curb face. South of McKay Way the street will be 22' from face-of-curb to face-of-curb. This segment of the street provides access to lots 4 and 5. A six inch water line and eight inch sanitary sewer will be constructed within Oak Ridge Lane inside of a public utility easement. Buried power, telephone, cable TV and gas line utilities will be provided along the east side of the new street.

All of lots 1 through 4 and the north end of lot 5 will drain onto Oak Ridge Lane. Oak Ridge Lane will be designed with the east curb line approximately 0.3' lower than the west curb line so that the interior lot and street runoff will drain southward along the east curb line. At the south end of Oak Ridge Lane on the east side, runoff will exit the street over an estate curb section and drain into a depressed D-type inlet with a concrete apron around it. The inlet will be constructed inside of a 20' wide drainage easement that runs between the new street and the overhead power easement to the east. The 20' wide drainage easement will be lined with rip rap to intercept the 3.94 cfs that drains from basin DB-3. A retaining wall will be constructed along the east edge of lots 1 through 4 to direct DB-3 runoff southward to the 20' wide rip rap lined drainage easement. The D-type single inlet located in the drainage easement will collect runoff from basins DB-2 and DB-3.

An 18-inch diameter storm drain will be constructed from the D-type inlet to the south and west where it will discharge into the AMAFCA channel. A 20' wide drainage easement will be provided across the north end of lot 5 for this purpose. The storm drain will carry a total of 9.27 cfs from basins DB-2 and DB-3. The outlet end of the storm drain will be surrounded with rip rap to minimize erosion at the north embankment of the AMAFCA channel.

A retaining wall will be constructed from the northeast corner of lot 5 along the east property line of lot 5 for a distance of approximately 215'. Runoff originating in the overhead power line easement in DB-4 will be directed southward along the east side of the wall toward the existing rock lined rundown at the south end of lot 5. Runoff from lot 5 that does not drain onto Oak Ridge Lane will also be taken southward to the rock lined rundown. The total runoff from DB-4 at the rundown is 3.02 cfs.

The total developed runoff from basins DB-2, DB-3 and DB-4 is 12.29 cfs compared with 11.32 cfs of undeveloped runoff. Developed runoff volume is 19,109 cf compared with 16,085 cf of undeveloped runoff volume.

II.4 General Site Hydrology for Developed Conditions

The Table at the end of this report titled "DRAINAGE BASIN ANALYSIS - PEAK FLOW RATES and RUNOFF VOLUMES" summarizes the hydrologic characteristics of developed drainage basins DB-2, DB-3 and DB-4.

III. SITE HYDRAULICS

III.1 Site Hydraulics - Street Flow Capacity

During the 100 year, 6 hour storm event 5.33 cfs can be expected on Oak Ridge Lane near its south end. In this section of roadway the longitudinal street gradient is 0.50 percent and the pavement slopes from the west curb line to the east curb line at approximately 1.5 percent. Flow depth at the curb face is a maximum of 0.33'. Assuming a flow depth at the curb of 0.33', the area of street flow is approximately 3.3 sf. With a Manning's n = 0.017, the flow velocity from Manning's formula is 1.84 fps as shown in the following:

$$V = (1.486/n) \times R^{2/3} \times S^{1/2}$$

where: V = flow velocity, fps
n = Manning's roughness coefficient
R = hydraulic radius, ft (Flow Area/Wetted Perimeter)
S = gradient of the flow path, ft/ft

solving:

$$V = 1.486/0.017 \times (3.33/20.5)^{2/3} \times 0.005^{1/2}$$
$$V = 1.84 \text{ fps}$$

$$Q = VA = 1.84(3.33) = 6.13 \text{ cfs} > 5.33 \text{ cfs} \quad \text{(OK)}$$

III.2 Site Hydraulics - Curb Weir Flow

The estate curb section at the extreme southeast end of Oak Ridge Lane will allow runoff to exit from the street and flow into the D-type inlet. This curb section is 15' long and functions essentially as a broad crested weir. It must be capable of passing the 5.33 cfs street flow. The maximum available head on the weir is 0.33 feet. The flow that can pass through the curb section with this head is determined from the following:

$$Q = 3.367 \times L \times H^{3/2}$$

where: Q = weir flow rate, cfs
L = length of the weir crest, ft
H = head on the weir, 0.33 ft (assumed)

solving :

$$Q = 3.367 \times 15 \times 0.33^{3/2}$$
$$Q = 9.57 \text{ cfs} > 5.33 \quad \text{(OK)}$$

III.3 Site Hydraulics - Grate Capacity at the Single D-type Inlet

A single D-type inlet will be placed just east of the south end of Oak Ridge Lane to receive runoff from basins DB-2 and DB-3, with a total flow rate of 9.27 cfs. The opening of the inlet will be recessed and surrounded by a concrete apron so that water at the entrance to the inlet creates a head of 10 inches above the inlet grate. From Plate 22.3 D-5 of the DPM, Volume 2, this inlet has a capacity of just over 10 cfs when the street gradient is 0.002 ft/ft and the flow depth is 10 inches. As in the case presented here, when positioned as a submerged inlet at a depression, the capacity will be greater than indicated by Plate 22.3 D-5. Orifice flow may approximate the hydraulic condition. The Orifice Equation indicates the potential flow capacity of the submerged inlet.

$$Q = C \times A \times (2gH)^{1/2}$$

where: Q = orifice flow rate, cfs
C = orifice coefficient
A = area of the inlet opening, sf
g = acceleration due to gravity, ft/sec/sec
H = head on the orifice, 0.83 ft (assumed)

solving :

$$Q = 0.60 \times 6.795 \times (2x32.2x0.83)^{3/2}$$
$$Q = 29.86 \text{ cfs} > 9.27 \quad \text{(OK)}$$

Even with a clogging factor of 0.6 for the grate, the inlet would be capable of passing more than 11.9 cfs when H = 10 inches, which still exceeds the required 9.27 cfs.

III.4 Site Hydraulics - Capacity of the Rip Rap Lined Drainage Easement

The rip rap lined easement in DB-3 must be capable of carrying 3.94 cfs. The minimum proposed channel section is 10' wide with a 1'-6" deep vee at the center. The minimum channel slope is 3 percent. From Manning's Equation, with n = 0.045, a flow area of 7.5 sf and a wetted perimeter of 10.4 ft, the capacity of the channel section can be determined from the following:

$$V = (1.486/n) \times R^{2/3} \times S^{1/2}$$

where: V = flow velocity, fps
n = Manning's roughness coefficient
R = hydraulic radius, ft (Flow Area/Wetted Perimeter)
S = gradient of the flow path, ft/ft

solving:

$$V = 1.486/0.045 \times (7.5/10.4)^{2/3} \times 0.03^{1/2}$$
$$V = 4.6 \text{ fps}$$

$$Q = VA = 4.6(7.5) = 34.5 \text{ cfs} > 3.94 \text{ cfs} \quad \text{(OK)}$$

The excess capacity will leave a freeboard depth of approximately one foot.

III.5 Site Hydraulics - Capacity of the Storm Drain

The proposed storm drain must have a capacity sufficient to carry the 9.27 cfs from DB-2 and DB-3. It is proposed to use 18-inch diameter RCP at a grade of 1 percent. From Manning's Equation the capacity can be determined as follows:

$$V = (1.486/n) \times R^{2/3} \times S^{1/2}$$

where: V = flow velocity, fps
n = Manning's roughness coefficient
R = hydraulic radius, ft (Flow Area/Wetted Perimeter)
S = gradient of the flow path, ft/ft

solving:

$$V = 1.486/0.013 \times (1.767/4.712)^{2/3} \times 0.01^{1/2}$$

$V = 5.94$ fps

$Q = VA = 5.94(1.767) = 10.5$ cfs $>$ 9.27 cfs (OK)

DRAINAGE BASIN ANALYSIS - PEAK FLOW RATES and RUNOFF VOLUMES

BASIN ID	* CLASS	EXCESS (inches)	PEAK (cfs/acre)	AREA (acres)	TOT AREA (acres)	WT E (inches)	VOLUME 6 hour (cubic ft)	RUNOFF 100yr, 6hr (cfs)
DB-1	A	0.8	2.2	0				
DB-1	B	1.08	2.92	0				
DB-1	C	1.46	3.73	3.03509				
DB-1	D	2.64	5.25	0				
DB-1					3.03509	1.460	16085.370	11.321
DB-2	A	0.8	2.2	0				
DB-2	B	1.08	2.92	0.31509				
DB-2	C	1.46	3.73	0.16503				
DB-2	D	2.64	5.25	0.72295				
DB-2					1.20307	2.070	9038.079	5.331
DB-3	A	0.8	2.2	0				
DB-3	B	1.08	2.92	0				
DB-3	C	1.46	3.73	1.04656				
DB-3	D	2.64	5.25	0.00642				
DB-3					1.05298	1.467	5608.083	3.937
DB-4	A	0.8	2.2	0				
DB-4	B	1.08	2.92	0				
DB-4	C	1.46	3.73	0.70115				
DB-4	D	2.64	5.25	0.07789				
DB-4					0.77904	1.578	4462.390	3.024

*** Refers to Land Treatment Classification per DPM Chapter 22**

DRAINAGE INFORMATION SHEET

PROJECT TITLE: TRACT A-2 ALBUQUERQUE RANCH ESTATES ZONE ATLAS/DRNG. FILE #: E-22/D19

DRB #: 96-364 EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: TRACTS C-1, D-1, F-1 and G-1 Portions of Tramway Blvd, Elena Gallegos Grant

CITY ADDRESS: N/A

ENGINEERING FIRM: PROTEC Consulting CONTACT: Ray Macy

ADDRESS: P.O. Box 27007, Albng., 87125 PHONE: (505) 833-0177

OWNER: Horace F. McKay, Jr. CONTACT: Horace F. McKay, Jr.

ADDRESS: 6012 Royal Oak St, NE 87111 PHONE: (505) 296-5508

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: Aldrich Land Surveying CONTACT: Tim Aldrich

ADDRESS: P.O. Box 30701, Albng., 87190 PHONE: (505) 884-1990

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

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

PRE-DESIGN MEETING:

___ YES
___ NO
___ COPY PROVIDED

RECEIVED
APR 02 1997
HYDROLOGY SECTION

CHECK TYPE OF APPROVAL SOUGHT:

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

DATE SUBMITTED: April 2, 1997

BY: R.W. Macy

PROTEC
Consulting

Professional Technologies and
Design Development Services

April 2, 1997

Mr. Bernie J. Montoya
Engineering Associate
City of Albuquerque
Public Works Department
Hydrology Division
P.O. Box 1293
Albuquerque, NM 87103

Re: Lots 1 - 6, Tract A-2, Albuquerque Ranch Estates
Parcels C-1, D-1, F-1 & G-1, Tramway Boulevard
PROTEC Consulting Project No. 96005

Dear Mr. Montoya:

Please find enclosed for your review and comment, the above referenced drainage report and grading and drainage plan. Since a storm drain line will outfall from the proposed subdivision into an adjacent AMAFCA drainage easement, a copy of the enclosed drainage report and grading plan are also being submitted with a copy of this letter to AMAFCA for review and approval.

We respectfully request your expedient review and approval of theses documents. If you have any questions regarding the information provided here, please contact me at (505) 833-0177.

Sincerely,
PROTEC Consulting

R.W. Macy

Raymond W. Macy, P.E.
Owner

Enclosure

xc: Mr. Horace F. McKay, Jr.
Mr. John Kelly, AMAFCA

RECEIVED
APR 02 1997
HYDROLOGY SECTION

DRAINAGE REPORT

FOR

ALBUQUERQUE RANCH ESTATES TRACT A-2

A 6 LOT SINGLE FAMILY RESIDENTIAL SUBDIVISION

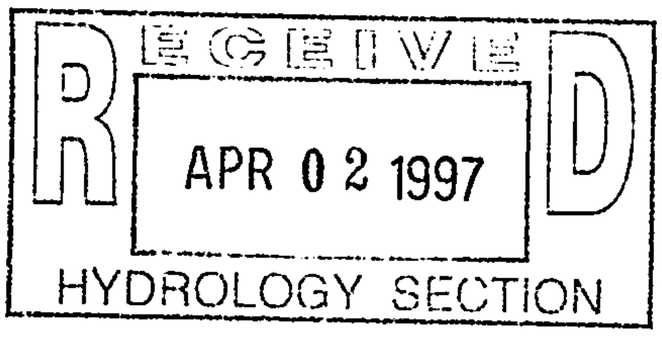
PREPARED FOR:

HORACE F. McKAY, Jr.
6012 ROYAL OAK STREET, NE
ALBUQUERQUE, NM 87111

PREPARED BY:

PROTEC CONSULTING
PO BOX 27007
ALBUQUERQUE, NM 87125
(505) 833-0177

MARCH 20, 1997



I. GENERAL

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PO Box 27007
Albuquerque, NM 87125
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I.3 Surveyor

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P.O. Box 30701
Albuquerque, NM 87190

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I.5 TBM

North rim of manhole in McKay Way, NE approximately 25' west of the proposed development. Elevation 5988.86

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With the abandonment by Bernalillo County of use of this property for the previous alignment of Tramway Boulevard, the subject property has reverted to R-D zoning (maximum of 15 du/acre).

I.7 Proposed

Six (6) Single Family Residential Lots

I.8 Area

1.64 acres, more or less (approximately 71,438 square feet) are contained within Parcels C-1, D-1, E-1, and G-1, which comprise the subject property. An additional 0.0898 acres (approximately 3,912 sf) will be acquired from portions of Lots 1, 3 and 4, Tract A-1,

Albuquerque Ranch Estates for construction of the proposed Oak Ridge Place. Consequently, approximately 1.7298 acres are directly affected by construction of this project.

I.9 Flood Hazard

The proposed project site is located within Flood Hazard Zone X, determined to be outside the 500-year floodplain, as designated on the Federal Emergency Management Agency's (FEMA's) Flood Insurance Rate Map (FIRM), City of Albuquerque, Bernalillo County, New Mexico, Panel No. 163 of 825, Map No. 35001C0163 D, effective date September 20, 1996.

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Access to the site is from the east end of McKay Way, which is a paved private roadway within a 25' wide access easement. A six inch water line and eight inch sanitary sewer, both maintained by the City, terminate at the east end of McKay Way. Services will be extended from these lines into the proposed subdivision. Buried power, telephone and cable TV utilities are also currently in place along the west edge of the site.

II. HYDROLOGIC ANALYSIS

II.1 Existing Conditions

Tramway Boulevard and the La Ventana Apartments prevent most off site runoff from entering the property. Only the adjacent overhead power easement at the east edge of the site contributes runoff into the project area. Under present conditions runoff from the overhead power easement combines with runoff from the project site as overland flow that converges at a rock lined rundown at the extreme south end of the project site adjacent to the AMAFCA channel. The combined runoff enters the AMAFCA channel at the rock rundown.

II.2 Site Hydrology (Existing Conditions)

The site hydrology determined in this report is based on the methods and criteria presented in the City of Albuquerque Development Process Manual (DPM) - Volume 2, Section 22.2 Hydrology, dated January 1993. The proposed site is in Precipitation Zone 4 (north of Interstate 40 and east of Eubank Blvd.). The P360 (100-year, 6-hour storm event) has a depth of 2.90 inches as shown in

Table A-2. Since the proposed site is undeveloped but has been compacted by human activity and has a sparse vegetative cover, Land Treatment C is the most applicable. See Table A-4. Excess Precipitation E for the 100 year, 6 hour storm on a surface with Land Treatment C in Zone 4 is 1.46 inches as shown in Table A-8. The Peak Discharge, Qp, from the same storm is 3.73 cfs/acre. See Table A-9.

Undeveloped drainage basin DB-1 is comprised of basins DB-2, DB-3 and DB-4 as shown on the included Grading Plan. The total area of DB-1 is 3.09309 acres which results in a total undeveloped runoff of 11.54 cfs from the combined project site and adjacent overhead power line easement to the east. The 11.54 cfs is carried overland to the existing rock lined rundown where it is discharged into the AMAFCA channel. The Table at the end of this report titled " DRAINAGE BASIN ANALYSIS - PEAK FLOW RATES and RUNOFF VOLUMES" summarizes the hydrologic characteristics of basin DB-1.

II.3 Proposed Improvements

The intent of this project is to subdivide the site into six lots suitable for single family homes. A new north-south private street (Oak Ridge Place) will be developed with a paved surface and mountable curbs to provide access to the lots. North of McKay Way the street will be 28' wide from face-of-curb to face-of-curb and will terminate in a cul-de-sac with a 35' radius at the curb face. South of McKay Way the street will be 21' from face-of-curb to face-of-curb. This segment of the street provides access to two lots. A six inch water line and eight inch sanitary sewer will be constructed within Oak Ridge Place inside of a public utility easement. Buried power, telephone and cable TV utilities will be provided along the east side of the street.

All of lots 1 through 5 and the north end of lot 6 will drain onto Oak Ridge Place. Oak Ridge Place will be designed with the east curb line approximately 0.3' lower than the west curb line so that the interior lot and street runoff will drain southward along the east curb line. At the south end of Oak Ridge Place on the east side, runoff will exit the street over an estate curb section and drain into a depressed D-type inlet with a concrete apron around it. The inlet will be constructed inside of a 20' wide drainage easement that runs between the new street and the overhead power easement to the east. The 20' wide drainage easement will be lined with rip rap to intercept the 3.94 cfs that drains from basin DA-3. A retaining wall will be constructed along the east edge of lots 1 through 5 to direct DA-3 runoff southward to the 20' wide rip rap lined drainage easement. The D-type single inlet located in the drainage easement will collect runoff from basins DA-2 and DA-3.

An 18-inch diameter storm drain will be constructed from the D-type inlet to the south and west where it will discharge into the AMAFCA channel. A 20' wide drainage easement will be provided across the north end of lot 6 for this purpose. The storm drain will carry a total of 9.57 cfs from basins DA-2 and DA-3. The outlet end of the storm drain will be surrounded with rip rap to minimize erosion at the north embankment of the AMAFCA channel.

A retaining wall will be constructed from the northeast corner of lot 6 along the east property line for a distance of approximately 215'. Runoff originating in the overhead power line easement in

DA-4 will be directed southward along the east side of the wall toward the existing rock lined rundown at the south end of lot 6. Runoff from lot 6 that does not drain onto Oak Ridge Place will also be taken southward to the rock lined rundown. The total runoff from DA-4 at the rundown is 3.02 cfs.

The total developed runoff from basins DA-2, DA-3 and DA-4 is 12.59 cfs compared with 11.54 cfs of undeveloped runoff. Developed runoff volume is 19,652 cf compared with 16,393 cf of undeveloped runoff volume.

II.4 General Site Hydrology for Developed Conditions

The Table at the end of this report titled "DRAINAGE BASIN ANALYSIS - PEAK FLOW RATES and RUNOFF VOLUMES" summarizes the hydrologic characteristics of developed drainage basins DB-2, DB-3 and DB-4.

III. SITE HYDRAULICS

III.1 Site Hydraulics - Street Flow Capacity

During the 100 year, 6 hour storm event 5.63 cfs can be expected on Oak Ridge Place near its south end. In this section of roadway the longitudinal street gradient is 0.50 percent and the pavement slopes from the west curb line to the east curb line at approximately 1.5 percent. Flow depth at the curb face is a maximum of 0.33'. Assuming a flow depth at the curb of 0.33', the area of street flow is approximately 3.3 sf. With a Manning's n = 0.017, the flow velocity from Manning's formula is 1.84 fps as shown in the following:

$$V = (1.486/n) \times R^{2/3} \times S^{1/2}$$

where: V = flow velocity, fps
n = Manning's roughness coefficient
R = hydraulic radius, ft (Flow Area/Wetted Perimeter)
S = gradient of the flow path, ft/ft

solving:

$$V = 1.486/0.017 \times (3.33/20.5)^{2/3} \times 0.005^{1/2}$$
$$V = 1.84 \text{ fps}$$

$$Q = VA = 1.84(3.33) = 6.13 \text{ cfs} > 5.63 \text{ cfs} \quad \text{(OK)}$$

III.2 Site Hydraulics - Curb Weir Flow

The estate curb section at the extreme southeast end of Oak Ridge Place will allow runoff to exit from the street and flow into the D-type inlet. This curb section is 15' long and functions

essentially as a broad crested weir. It must be capable of passing the 5.63 cfs street flow. The maximum available head on the weir is 0.33 feet. The flow that can pass through the curb section with this head is determined from the following:

$$Q = 3.367 \times L \times H^{3/2}$$

where: Q = weir flow rate, cfs
L = length of the weir crest, ft
H = head on the weir, 0.33 ft (assumed)

solving :

$$Q = 3.367 \times 15 \times 0.33^{3/2}$$
$$Q = 9.57 \text{ cfs} > 5.63 \quad \text{(OK)}$$

III.3 Site Hydraulics - Grate Capacity at the Single D-type Inlet

A single D-type inlet will be placed just east of the south end of Oak Ridge Place to receive runoff from basins DA-2 and DA-3, with a total flow rate of 9.57 cfs. The opening of the inlet will be recessed and surrounded by a concrete apron so that water at the entrance to the inlet creates a head of 10 inches above the inlet grate. From Plate 22.3 D-5 of the DPM, Volume 2, this inlet has a capacity of just over 10 cfs when the street gradient is 0.002 ft/ft and the flow depth is 10 inches. As in the case presented here, when positioned as a submerged inlet at a depression, the capacity will be even greater. Orifice flow may approximate the hydraulic condition, and the Orifice Equation will indicate the potential flow capacity of the submerged inlet.

$$Q = C \times A \times (2gH)^{1/2}$$

where: Q = orifice flow rate, cfs
C = orifice coefficient
A = area of the inlet opening, sf
g = acceleration due to gravity, ft/sec/sec
H = head on the orifice, 0.83 ft (assumed)

solving :

$$Q = 0.60 \times 6.795 \times (2 \times 32.2 \times 0.83)^{3/2}$$
$$Q = 29.86 \text{ cfs} > 9.57 \quad \text{(OK)}$$

Even with a clogging factor of 0.6 for the grate, the inlet would be capable of passing more than 11.9 cfs when H = 10 inches, which still exceeds the required 9.57 cfs.

III.4 Site Hydraulics - Capacity of the Rip Rap Lined Drainage Easement

The rip rap lined easement in DA-3 must be capable of carrying 3.94 cfs. The minimum proposed channel section is 10' wide with a 1'-6" deep vee at the center. The minimum channel slope is 3 percent. From Manning's Equation, with n = 0.045, a flow area of 7.5 sf and a wetted perimeter of 10.4 ft, the capacity of the channel section can be determined from the following:

$$V = (1.486/n) \times R^{2/3} \times S^{1/2}$$

where: V = flow velocity, fps
n = Manning's roughness coefficient
R = hydraulic radius, ft (Flow Area/Wetted Perimeter)
S = gradient of the flow path, ft/ft

solving:

$$V = 1.486/0.045 \times (7.5/10.4)^{2/3} \times 0.03^{1/2}$$
$$V = 4.6 \text{ fps}$$

$$Q = VA = 4.6(7.5) = 34.5 \text{ cfs} > 3.94 \text{ cfs} \quad \text{(OK)}$$

The excess capacity will leave a freeboard depth of approximately one foot.

III.5 Site Hydraulics - Capacity of the Storm Drain

The proposed storm drain must have a capacity sufficient to carry the 9.57 cfs from DA-2 and DA-3. It is proposed to use 18-inch diameter RCP at a grade of 1 percent. From Manning's Equation the capacity can be determined as follows:

$$V = (1.486/n) \times R^{2/3} \times S^{1/2}$$

where: V = flow velocity, fps
n = Manning's roughness coefficient
R = hydraulic radius, ft (Flow Area/Wetted Perimeter)
S = gradient of the flow path, ft/ft

solving:

$$V = 1.486/0.013 \times (1.767/4.712)^{2/3} \times 0.01^{1/2}$$
$$V = 5.94 \text{ fps}$$

$$Q = VA = 5.94(1.767) = 10.5 \text{ cfs} > 9.57 \text{ cfs} \quad \text{(OK)}$$

DRAINAGE BASIN ANALYSIS - PEAK FLOW RATES and RUNOFF VOLUMES

BASIN ID	* CLASS	EXCESS (inches)	PEAK (cfs/acre)	AREA (acres)	TOT AREA (acres)	WT E (inches)	VOLUME 6 hour (cubic ft)	RUNOFF 100yr, 6hr (cfs)
DB-1	A	0.8	2.2	0				
DB-1	B	1.08	2.92	0				
DB-1	C	1.46	3.73	3.09309				
DB-1	D	2.64	5.25	0				
DB-1					3.09309	1.460	16392.758	11.537
DB-2	A	0.8	2.2	0				
DB-2	B	1.08	2.92	0.31509				
DB-2	C	1.46	3.73	0.16793				
DB-2	D	2.64	5.25	0.77805				
DB-2					1.26107	2.093	9581.483	5.631
DB-3	A	0.8	2.2	0				
DB-3	B	1.08	2.92	0				
DB-3	C	1.46	3.73	1.04656				
DB-3	D	2.64	5.25	0.00642				
DB-3					1.05298	1.467	5608.083	3.937
DB-4	A	0.8	2.2	0				
DB-4	B	1.08	2.92	0				
DB-4	C	1.46	3.73	0.70115				
DB-4	D	2.64	5.25	0.07789				
DB-4					0.77904	1.578	4462.390	3.024

*** Refers to Land Treatment Classification per DPM Chapter 22**

Albuquerque Ranch Estates Tract A-2
DRB Case No. 96-364
DRC Project No.
Date Submitted: ~~7/17/97~~ 7/22/97
Prelim. Plat Approved:
Prelim Plat Expires:

FIGURE 12
EXHIBIT "A"
TO SUBDIVISION IMPROVEMENT AGREEMENT
DEVELOPMENT REVIEW BOARD
REQUIRED INFRASTRUCTURE LISTING
DRB 96-364
TRACTS C-1, D-1, F-1 AND G-1, PORTIONS OF TRAMWAY BLVD.
ELENA GALLEGOS GRANT
BEING REPLATED AS

ALBUQUERQUE RANCH ESTATES TRACT A-2

Following is a summary of Public/Private Infrastructure required to be constructed or financially guaranteed to be constructed for the above development. This summary is not necessarily a complete listing. During the design process, if the City determines that appurtenant items have not been included in the summary, those items will be included in the listing and related financial guarantee, if the items normally are Subdivider responsibility. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility are the responsibility of the Subdivider and will be included in the financial guarantee provided by the City.

PRIVATE INFRASTRUCTURE

SIZE	IMPROVEMENT	LOCATION	FROM	TO
22' F/F	Residential Paving	Oak Ridge Lane	McKay Way	South end of street
Standard	C & G, West Side	"	"	"
Mountable	C & G, East Side	"	"	"
24' F/F	Residential Paving	Oak Ridge Lane	McKay Way	North Cul de Sac
Mountable	C & G, (E & W)	"	"	"
4'	*PCC S/W, E Side	"	"	Lot 1

PUBLIC INFRASTRUCTURE

6"	Waterline	"	North Cul de Sac	South end of street
8"	Sanitary Sewer	"	"	"
6"	Waterline Extension	McKay Way	East End Existing Waterline	Oak Ridge Lane
8"	Sanitary Sewer Extension	"	East End Existing Sewerline	"
18"	**RCP Storm Drain	20' Drain Esmnt	So. end of McKay Way	AMAFCA Esmnt

SIZE	IMPROVEMENT	LOCATION	FROM	TO
20' Wide	**PCC Drain Esmnt	Between Lots 4 & 5	West Side PNM Esmnt	East Side Oak Ridge Lane

MISCELLANEOUS

~~Street Lighting per DPM~~

Grading & Drainage: Certification per DPM (prior to release of financial guarantees). To include private perimeter and retaining walls as required on the approved Grading Plan.

Type D storm inlet at the south end of McKay Way (East Side) within the 20' wide drainage easement

Water improvements to include fire hydrant, valves and appurtenances per DPM. Sanitary sewer improvements to include manholes and appurtenances per DPM.

* Sidewalk construction to be deferred, ~~except at the southwest corner of McKay Way and Oak Ridge Lane~~ PWM

** Design subject to DRC approval

Prepared by: R.W. Macy Date: 7/17/97

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

Development Review Board Member Approval

Transportation Development	7.22-97 Date
Utility Development	7-22-97 Date
Parks & General Services	7-22-97 Date
City Engineer/AMAFCA	7-22-97 Date
DRB Chairman	7/22/97 Date

RECEIVED
AUG 19 1997
HYDROLOGY SECTION

DRAINAGE INFORMATION SHEET

PROJECT TITLE: TRACT A-2 ALBUQUERQUE RANCH ESTATES ZONE ATLAS/DRNG. FILE #: E-22 19

DRB #: 96-364 EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: TRACTS C-1, D-1, F-1, and G-1, PORTIONS OF TRAMWAY BLVD, ELENA GALLEGOS GRANT

CITY ADDRESS: N/A

ENGINEERING FIRM: PROTEC Consulting CONTACT: RAY MACY

ADDRESS: P.O. Box 27007 PHONE: 833-0177

OWNER: HORACE F. McKAY, JR. CONTACT: HORACE F. McKAY, JR.

ADDRESS: 6012 ROYAL OAK ST., NE PHONE: 296-5508

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: ALDRICH LAND SURVEYING CONTACT: TIM ALDRICH

ADDRESS: P.O. Box 30701 PHONE: 884-1990

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT
✓ DRAINAGE PLAN (RESUBMITTAL #3)
___ CONCEPTUAL GRADING & DRAINAGE PLAN
✓ GRADING PLAN (RESUBMITTAL #3)
___ EROSION CONTROL PLAN
___ ENGINEER'S CERTIFICATION
___ OTHER _____

PRE-DESIGN MEETING:

___ YES
___ NO
___ COPY PROVIDED

RECEIVED
SEP 22 1997
HYDROLOGY SECTION

CHECK TYPE OF APPROVAL SOUGHT:

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

DATE SUBMITTED: September 22, 1997

BY: R.W. Macy

PROTEC
Consulting

Professional Technologies and
Design Development Services

September 22, 1997

Mr. Bernie J. Montoya
Engineering Associate
City of Albuquerque
Public Works Department
Hydrology Division
P.O. Box 1293
Albuquerque, NM 87103

Re: Revised Submittal No. 3 - Grading and Drainage Plan with Engineer's Stamp dated 9/22/97
Lots 1 - 5 (Previously Lots 1 - 6), Tract A-2, Albuquerque Ranch Estates
Parcels C-1, D-1, F-1 & G-1, Tramway Boulevard
City Project No. 431091, DRB No. 96-364

Dear Mr. Montoya:

Please find enclosed Revision No. 3 to the above referenced Grading and Drainage Plan. The revision is to address comments received on 9/19/97 from Mr. John Kelley, AMAFCA engineer. He has requested that the 18-inch storm pipe be extended to the bottom of the AMAFCA Drainage Easement, and that the pipe be fitted with a standard reinforced concrete end section. In all other respects, the Grading and Drainage Plan is as previously submitted.

We are respectfully requesting your expedient review and approval of this revision to the Grading and Drainage Plan prior to the DRC signature meeting scheduled for 3:00 PM, tomorrow (9/23/97). Also, we will once again be requesting your signed approval on the plans for Rough Grading.

If you have any questions regarding the information provided here, please contact me at (505) 833-0177.

Sincerely,
PROTEC Consulting

R. W. Macy

Raymond W. Macy, P.E.
Owner

Enclosure

xc: Mr. Horace F. McKay, Jr.
Mr. John Kelley, AMAFCA

RECEIVED
SEP 22 1997
HYDROLOGY SECTION

CITY OF
Albuquerque

Martin J. Chávez, Mayor

September 25,1997

Raymond Macy
PROTEC Consulting
P.O. Box 27007
Albuquerque, New Mexico 87125

RE: REVISED DRAINAGE PLAN FOR TRACT A-2 ALBUQUERQUE RANCH ESTATES
(E22-D19) REVISION DATED 9/22/97

Dear Mr. Macy:

Based on the information provided on your September 22,1997 resubmittal, the above referenced site is approved for Preliminary Plat, Final Plat, Work Order, and Rough Grading.

Please be advised that prior to Financial Guarantee Release, Engineer Certification per the DPM checklist will be required.

If I can be of further assistance, please feel free to contact me 924-3986.

C: Andrew Garcia
File

Sincerely

Bernie J. Montoya CE
Associate Engineer

CITY OF
Albuquerque

Martin J. Chávez, Mayor

August 27,1997

Raymond Macy
PROTEC Consulting
P.O. Box 27007
Albuquerque, New Mexico 87125

RE: REVISED DRAINAGE PLAN FOR TRACT A-2 ALBUQUERQUE RANCH ESTATES (E22-D19) REVISION DATED 8/10/97

Dear Mr. Macy:

Based on the information provided on your August 19,1997 resubmittal, the above referenced site is approved for Preliminary and Final Plat.

Please be advised that Work Order and Building Permit will not be released until I receive a submittal with AMAFCA's signature block signed.

If I can be of further assistance, please feel free to contact me at 924-3986.

C: Andrew Garcia
File

Sincerely

Bernie J. Montoya CE
Associate Engineer

DRAINAGE INFORMATION SHEET

PROJECT TITLE: TRACT A-2 ALBUQUERQUE RANCH ESTATES ZONE ATLAS/DRNG. FILE #: E-22 /9

DRB #: 96-364 EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: TRACTS G1, D-1, F-1 and G-1 PORTIONS OF TRAMWAY BLVD., ELENA GALLEGOS GRANT

CITY ADDRESS: N/A

ENGINEERING FIRM: PROTEC Consulting CONTACT: RAY MACY

ADDRESS: P.O. BOX 27007 PHONE: 833-0177

OWNER: HORACE F. McKAY, JR. CONTACT: HORACE F. McKAY, JR.

ADDRESS: 6012 ROYAL OAK ST., NE PHONE: (296-5508)

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: ALDRICH LAND SURVEYING CONTACT: TIM ALDRICH

ADDRESS: P.O. BOX 30701 PHONE: 884-1990

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT
✓ DRAINAGE PLAN (RESUBMITTAL #2)
___ CONCEPTUAL GRADING & DRAINAGE PLAN
✓ GRADING PLAN (RESUBMITTAL #2)
___ EROSION CONTROL PLAN
___ ENGINEER'S CERTIFICATION
___ OTHER _____

PRE-DESIGN MEETING:

___ YES
___ NO
___ COPY PROVIDED

RECEIVED
AUG 19 1997
SECTION

CHECK TYPE OF APPROVAL SOUGHT:

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

DATE SUBMITTED: AUGUST 19, 1997

BY: R.W. Macy

PROTEC
Consulting

Professional Technologies and
Design Development Services

August 19, 1997

Mr. Bernie J. Montoya
Engineering Associate
City of Albuquerque
Public Works Department
Hydrology Division
P.O. Box 1293
Albuquerque, NM 87103

Re: Revised Submittal No. 2 - Grading and Drainage Plan with Engineer's Stamp dated 8/10/97
Lots 1 - 5 (Previously Lots 1 - 6), Tract A-2, Albuquerque Ranch Estates
Parcels C-1, D-1, F-1 & G-1, Tramway Boulevard
PROTEC Consulting Project No. 96005

Dear Mr. Montoya:

Please find enclosed Revision No. 2 to the above referenced Grading and Drainage Plan. The revision is to address comments in your letter of July 10, 1997 which required the 20' wide drainage easement between Lots 4 and 5 be constructed in accordance with COA Standard Specifications. To meet this requirement, the previously proposed riprap lined easement has been replaced with a portland cement concrete lined easement. Also, there are minor changes resulting from AMAFCA comments which required designation of limits of disturbance within the AMAFCA easement, and specifications for revegetation of the disturbed area. In all other respects, the Grading and Drainage Plan is as previously submitted.

On August 6, 1997 a submittal was made for DRC review and comment of the construction plans for Albuquerque Ranch Estates Tract A-2. The Grading and Drainage Plan included in the submitted drawings is the same as the one provided here. We expect the DRC meeting to take place on August 27, 1997.

If you have any questions regarding the information provided here, please contact me at (505) 833-0177.

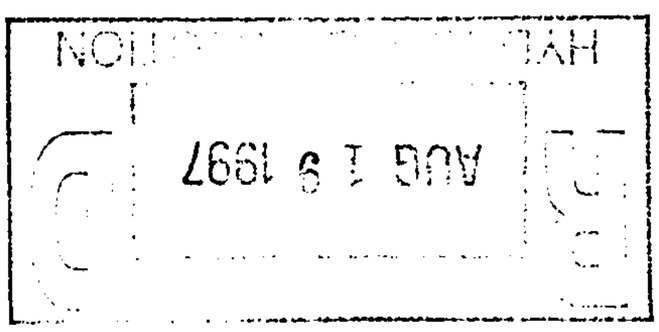
Sincerely,
PROTEC Consulting

R.W. Macy

Raymond W. Macy, P.E.
Owner

Enclosure

xc: Mr. Horace F. McKay, Jr.



DRAINAGE INFORMATION SHEET

PROJECT TITLE: TRACT A-2 ALBUQUERQUE RANCH ESTATES ZONE ATLAS/DRNG. FILE #: E-22/D19

DRB #: 96-364 EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: TRACTS C-1, D-1, F-1 and G-1 PORTIONS OF TRAMWAY BLDV., ELENA GALLEGOS GRANT

CITY ADDRESS: N/A

ENGINEERING FIRM: PROTEC Consulting CONTACT: Ray Macy

ADDRESS: P.O. Box 27007, Albuq., 87125 PHONE: (505) 833-0177

OWNER: Horace F. McKay, Jr. CONTACT: Horace F. McKay, Jr.

ADDRESS: 6012 Royal Oak St., NE PHONE: (505) 296-5508

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: Aldrich Land Surveying CONTACT: Tim Aldrich

ADDRESS: P.O. Box 30701, Albuq., 87190 PHONE: (505) 884-1990

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

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

PRE-DESIGN MEETING:

- ___ YES
- ___ NO
- ___ COPY PROVIDED

RECEIVED
JUN 26 1997
HYDROLOGY SECTION

CHECK TYPE OF APPROVAL SOUGHT:

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

DATE SUBMITTED: June 26, 1997

BY: R.W. Macy

PROTEC
Consulting

Professional Technologies and
Design Development Services

June 26, 1997

Mr. Bernie J. Montoya
Engineering Associate
City of Albuquerque
Public Works Department
Hydrology Division
P.O. Box 1293
Albuquerque, NM 87103

Re: Revised Submittal No. 1: Lots 1 - 5 (Previously Lots 1 - 6), Tract A-2, Albuquerque Ranch Estates
Parcels C-1, D-1, F-1 & G-1, Tramway Boulevard
PROTEC Consulting Project No. 96005

Dear Mr. Montoya:

Please find enclosed for your review and comment, Revision No. 1 to the above referenced drainage report and grading and drainage plan.

The Owner requested that the cul-de-sac at the north end of Oak Ridge Lane be reoriented to the east side of the property rather than the west side. This has resulted in a decrease of the project area, and elimination of one new lot. Also, there have been minor revisions to the paved width of Oak Ridge Lane, and a sidewalk has been added along the east side of the street as requested by City Transportation.

Since the drainage outfall is to an AMAFCA facility, copies of the revised drainage report and grading plan are also being submitted with a copy of this letter to AMAFCA for review and approval.

We respectfully request your expedient review and approval of theses documents. If you have any questions regarding the information provided here, please contact me at (505) 833-0177.

Sincerely,
PROTEC Consulting

R.W. Macy

Raymond W. Macy, P.E.
Owner

Enclosure

RECEIVED
JUN 26 1997
HYDROLOGY SECTION

xc: Mr. Horace F. McKay, Jr.
Mr. John Kelly, AMAFCA

CITY OF
Albuquerque
Public Works Department

Martin J. Chávez, Mayor

Robert E. Gurulé, Director

April 22,1997

Ray Macy
Protec Consulting
P.O. Box 27007
Albuquerque, New Mexico 87125

RE: DRAINAGE PLAN FOR TRACT A-2 ALBUQUERQUE RANCH ESTATES (E22-D19)
ENGINEER'S STAMP DATED 4/2/97

Dear Mr. Macy:

Based on the information provided on your April 2,1997 submittal, the above referenced site is approved for Preliminary Plat.

Please be advised that prior to Final Plat, Work Order, and Building Permit approval, the following must be addressed:

1. Copy of the infrastructure list.

2. Signature from AMAFCA.

3. Finish floor elevations to full mean sea level designation.

If I can be of further assistance, please feel free to contact me at 924-3986.

C: Andrew Garcia
File

Sincerely
Bernie J Montoya
Bernie J. Montoya CE
Engineering Associate

Bernie Montoya

Albuquerque Ranch Estates Tract A-2
DRB Case No. 96-364
DRC Project No.
Date Submitted:
Prelim. Plat Approved:
Prelim Plat Expires:

FIGURE 12
EXHIBIT "A"
TO SUBDIVISION IMPROVEMENT AGREEMENT
DEVELOPMENT REVIEW BOARD
REQUIRED INFRASTRUCTURE LISTING
DRB 96-364
TRACTS C-1, D-1, F-1 AND G-1, PORTIONS OF TRAMWAY BLVD.
ELENA GALLEGOS GRANT
BEING REPLATED AS

ALBUQUERQUE RANCH ESTATES TRACT A-2

Following is a summary of Public/Private Infrastructure required to be constructed or financially guaranteed to be constructed for the above development. This summary is not necessarily a complete listing. During the design process, if the City determines that appurtenant items have not been included in the summary, those items will be included in the listing and related financial guarantee, if the items normally are Subdivider responsibility. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility are the responsibility of the Subdivider and will be included in the financial guarantee provided by the City.

SIZE	IMPROVEMENT	LOCATION	FROM	TO
22' F/F	Private Residential Paving	Oak Ridge Lane	McKay Way	South end of street
Standard	Private C & G, West Side	"	"	"
Mountable	Private C & G, East Side	"	"	"
24' F/F	Private Residential Paving	Oak Ridge Lane	McKay Way	North Cul de Sac
Mountable	Private C & G, (E & W)	"	"	"
4'	Private PCC S/W, E Side	"	"	Lot 1
6"	Waterline	"	North Cul de Sac	South end of street
8"	Sanitary Sewer	"	"	"
18"	RCP Storm Drain	20' Drainage Esmnt	So. end of McKay Way	AMAFCA Esmnt

MISCELLANEOUS

Street Lighting per DPM

Grading & Drainage: Certification per DPM (prior to release of financial guarantees). To include private perimeter and retaining walls as required on the approved Grading Plan.

20' wide riprap lined drainage easement between Lots 4 & 5

Type D storm inlet at the south end of McKay Way within the 20' wide drainage easement

Water improvements to include tie to existing water line in McKay Way, fire hydrant, valves and appurtenances per DPM. Sanitary sewer improvements to include tie to existing sanitary line in McKay Way, manholes and appurtenances per DPM.

* Sidewalk construction to be deferred, except at the southwest corner of McKay Way and Oak Ridge Lane

Prepared by: R.W. Macy Date: July 8, 1997

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Development Review Board Member Approval

Transportation Development	Date
Utility Development	Date
Parks & General Services	Date
City Engineer/AMAFCA	Date
DRB Chairman	Date