PUBLIC WORKS/HYDROLOGY

G14/D27

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614/D27

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

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

February 24, 1986

Marvin R. Kortum, P.E.
1605 Speakman Drive, SE
Albuquerque, New Mexico 87123

RE: GRADING & DRAINAGE PLAN SUBMITTAL OF CUERVO ADDITION (ED RAEL ADDITION) RECEIVED JANUARY 24, 1986 FOR PLATTING APPROVAL (G-14/D27)

Dear Marvin:

The above referenced submittal, dated January 19, 1986, is approved for platting purposes.

Prior to Final Plat sign-off, a ratification agreement is needed to the original agreement to Construct Subdivision Improvements.

If you have any questions, call me at 766-7644.

Cordially,

Roger A. Green, PE

Roger A. Green, P.E.
C.E./Design Hydrology

cc: Hap Crawford
3128 Don Quixote Road, NW

RAG/bsj

25×10

0000 0000 0531

Marvin R. Kortum
1605 Speakman Drive S. E.
Albuquerque, New Mexico 87123
Phone: 299-0774
N.M.P.E. 6519

RECEIVED
JAN 24 1986
HYDROLOGY SECTION

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

Municipal Development Department
ATTENTION: Engineer Division
Water Resources Department
Transportation Department

RE: Project 2353, ED RAEL ADDITION, DRB 84-857, Drainage G14-D27

Gentlemen:

A new owner requests certain changes to the approved Project 2353, Ed Rael Addition. These changes are summarized below and shown in detail on the attached drawings.

A. Change from a 9 lot to a 13 lot subdivision. The additional lots are made available by removing an existing single residential structure located close to Candelaria Rd. N.W.

B. Reconfigure the lots to provide for rectangular lots for all except the two end lots. The rectangular lot lines will provide for larger dwelling units and for ease of construction within the established set back requirements. Lot size constraints are met by the new configuration (2200 feet^2 ~~square~~ net, 22 feet minimum width).

C. Provide a straight access from Candelaria Rd. to Veranda Rd. The water line and utilities will follow this straight through access and easement.

D. Lengthen the sewer main to serve 12 rather than 8 townhouses from Veranda Rd. The dwelling closest to Candelaria will reuse the existing service line from Candelaria Rd. The proposed design for the sewer main shows a line which is not as deep and at less slope than the City standards. The proposed design closely parallels the existing line serving the Sol Rio Townhouses, adjacent to the east, now under construction. An alternative design using the sewer main in Candelaria Rd. does not appear attractive due to its shallow depth, and probable conflict with the 10" water main in Candelaria Rd.

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E. External runoff for the site will remain essentially the same, with approximately the same runoff by subsurface drain to Veranda Rd., and the same to Candelaria Rd.

F. Interior drainage is revised to permit cross lot drainage within an easement along the back lot lines. This will decrease the amount of additional fill required, and will eliminate the need for a continuous retaining wall along the west side. The actual runoff is not significant, being only that due to direct precipitation on the back yards.

G. Change the name of the subdivision from ED RAEL Subdivision to CUERVO ADDITION.

Also attached are the Infrastructure Requirements listing and changes to the drainage report calculations which reflect the proposed changes.

I recommend approval of the requested changes and believe they comply with the intent of the original project proposal.

Sincerely,

Marvin R. Kortum

CC: Southwest Survey Company
Adobe Masters

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Jan. 23, 1986

SUPPLEMENTAL INFORMATION FOR THE DRAINAGE REPORT AND DRAINAGE PLAN (G14-D27)

PROJECT TITLE: ED RAEL ADDITION
(Presently proposed to be renamed CUERVO ADDITION) (A replat of E 100' Lot 4, Block 18, MONKBRIDGE ADDITION)

ZONE ATLAS: G-14

RECEIVED
JAN 24 1986
HYDROLOGY SECTION

GENERAL:

A new owner proposes that 13 lots be developed of the tract. A drainage and grading report was prepared for this tract for 9 lots. The 9 lot report was approved by the City of Albuquerque Engineer, Design Hydrology Section May 14, 1985.

SPECIFIC CHANGES:

A. IMPERVIOUS SURFACES:

The total area of impervious surfaces is essentially unchanged by the 13 lot subdivision when compared to the earlier 9 lot subdivision. The increase in roof area is offset by the decrease in street pavement.

Previous configuration:

8 townhouses @1000 ft.^{2}	8000 ft.^{2}
8 drivepads @ 360 "	2880 "
8 patios @ 100 "	800 "
1 house and drive	4700 "
Street and sidewalk	13300 "
Total	29680 "

For the total area of 39645 ft.^{2}, this is 74.9%

New configuration:

13 townhouses @ 1000 ft.^{2}	13000 ft.^{2}
13 drivepads @ 360 "	4680 "
13 patios @ 100 "	1300 "
Street and sidewalk	10452 "
Total	29432 "

For the total area of 39645 ft.^{2}, this is 74.2%

Thus the site runoff will remain essentially unchanged from the previous report.

B. DIVISION OF OUTFLOW:

The previous report estimated one-third to one-half of the outflow would go to Candelaria Rd. by surface flow, with the remainder going to the sub-surface drain along Veranda Rd. The revised grading plan directs 62% (8/13) of the runoff from the impervious surfaces into the Veranda Rd. drains.

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C. ADDITIONAL DRAINAGE EASEMENT:

The revised grading plan (Jan 19, 1986) proposes a drainage easement along the west of the properties, draining toward Candelaria Rd. The runoff along this easement will be only that which results from precipitation falling directlt on the back yards, inasmuch as all impervious roof flow is to be directed toward the street drains.

Actual runoff from the pervious back yards is calculated as follows:

Total area 15'x402' = 6030 ft^2

Patios 1300 "

Percent impervious is 21.6%, for which C is .42 and CN is 69. (Plates 22.2 C-1 and C-2). Direct runoff is 0.35 inches (Plate 22.2 C-4).

Direct runoff volume is 176 ft^3

Peak runoff volume rate is 0.28 ft^3 per second.

The estimated quantities are minor. A sidewalk culvert is designated to permit outflow into the Candelaria Rd. gutter.

Marvin R Kortum
1605 Speakman Dr. SE
Albuquerque, NM 87123
NMPE 6519

MARVIN R. KORTUM NEW MEXICO 6519 REGISTERED PROFESSIONAL ENGINEER

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0000 0000 0535

DRAINAGE INFORMATION SHEET

PROJECT TITLE: CUERVO ADDITION / ED RAEL ADDITION ZONE ATLAS/DRNG. FILE #: G-14-D27

LEGAL DESCRIPTION: E 190', Lot 4, Block 18, MONKBRIDGE ADDITION Mar 24,1917

CITY ADDRESS: Candelaria Rd NW

ENGINEERING FIRM: Marvin R Kortum CONTACT: Marvin Kortum

ADDRESS: 1605 Speakman Dr SE 87123 PHONE: 299-0774

OWNER: Hap Crawford CONTACT:

ADDRESS: 3128 Don Quixote Rd. NW PHONE: 243-1555

ARCHITECT: CONTACT:

ADDRESS: PHONE:

SURVEYOR: S W Survey CONTACT: Dan Graney

ADDRESS: Lomas NE PHONE: 247-4444

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

RECEIVED JAN 24 1986 HYDROLOGY SECTION

PRE-DESIGN MEETING:

X YES

___ NO

X COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. ___

EPC NO. ___

PROJ. NO. 2353

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

X DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

X GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

X Revision to subdivision

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

X FINAL PLAT APPROVAL

___ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER ___ (SPECIFY)

DATE SUBMITTED: JAN 24 1986

BY: Marvin R Kortum

25×10

0000 0000 0536

DRAINAGE INFORMATION SHEET

PROJECT TITLE: ED RAEL ADDITION ZONE ATLAS/DRNG. FILE #: G-14/D27

LEGAL DESCRIPTION: E 100', Lot 4, Block 18, MONKBRIDGE ADDITION Mar 24,1917

CITY ADDRESS: Candelaria Rd NW

ENGINEERING FIRM: Marvin R Kortum CONTACT: Marvin Kortum

ADDRESS: 1605 Speakman Dr SE 87123 PHONE: 299-0774

OWNER: J. Edward Rael CONTACT: Ed Rael

ADDRESS: 4909 College Dr NW 87120 PHONE: 298-5555

ARCHITECT: CONTACT:

ADDRESS: PHONE:

SURVEYOR: S W Survey CONTACT: Dan Graney

ADDRESS: Lomas NE PHONE: 247-4444

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

RECEIVED JUN 11 1985 HYDROLOGY SECTION

PRE-DESIGN MEETING:

X YES

__ NO

X COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO.

EPC NO.

PROJ. NO. 2353

TYPE OF SUBMITTAL:

__ DRAINAGE REPORT

X DRAINAGE PLAN

__ CONCEPTUAL GRADING & DRAINAGE PLAN

X GRADING PLAN

__ EROSION CONTROL PLAN

__ ENGINEER'S CERTIFICATION

FINAL REVISION OF APPROVED DRAWINGS (AS OF JUN 6 1985)

CHECK TYPE OF APPROVAL SOUGHT:

__ SKETCH PLAT APPROVAL

__ PRELIMINARY PLAT APPROVAL

__ SITE DEVELOPMENT PLAN APPROVAL

X FINAL PLAT APPROVAL

__ BUILDING PERMIT APPROVAL

__ FOUNDATION PERMIT APPROVAL

__ CERTIFICATE OF OCCUPANCY APPROVAL

__ ROUGH GRADING PERMIT APPROVAL

__ GRADING/PAVING PERMIT APPROVAL

__ OTHER _____ (SPECIFY)

DATE SUBMITTED: June 11 1985

BY: M. Kortum

25×10

0000 0000 0537

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

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

May 14, 1985

Mr. Marvin Kortum
1605 Speakman Drive SE
Albuquerque, NM 87123

REF: DRAINAGE PLAN FOR ED RAEL ADDITION (G14-D27) RECEIVED MAY 6, 1985

Dear Mr. Kortum:

The above referenced plan dated May 6, 1985 is approved for preliminary plat sign-off; however, prior to work-order sign-off the following item must be corrected.

The roof drains must be shown for the buildings.

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

Sincerely,

Carlos A. Montoya

Carlos A. Montoya
City/County Flood Plain Admin.

CAM:mrk

25×10

0000 0000 0538

DRAINAGE INFORMATION SHEET

PROJECT TITLE: ED RAEL ADDITION ZONE ATLAS/DRNG. FILE #: G-14-/D 27

LEGAL DESCRIPTION: E 100', Lot 4, Block 18, MONKBRIDGE ADDITION Mar 24,1917

CITY ADDRESS: Candelaria Rd NW

ENGINEERING FIRM: Marvin R Kortum CONTACT: Marvin Kortum

ADDRESS: 1605 Speakman Dr SE 87123 PHONE: 299-0774

OWNER: J. Edward Rael CONTACT: Ed Rael

ADDRESS: 4909 College Dr NW 87120 PHONE: 298-5555

ARCHITECT: CONTACT:

ADDRESS: PHONE:

SURVEYOR: S W Survey CONTACT: Dan Graney

ADDRESS: Lomas NE PHONE: 247-4444

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

RECEIVED MAY 06 1985 HYDROLOGY SECTION

PRE-DESIGN MEETING:

X YES

___ NO

X COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. ___

EPC NO. ___

PROJ. NO. 2353

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

X DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

X GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

2ND SUBMITTAL

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

X PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

X FINAL PLAT APPROVAL

___ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER ___ (SPECIFY)

DATE SUBMITTED: May 6 1985

BY: Mark Rl

25×10

0000 0000 0539

MARVIN R. KORTUM
1605 Speakman Drive, S.E.
Albuquerque, New Mexico 87123
(505) 299-0774

May 7, 1985

City of Albuquerque
Design Hydrology Section
123 Central N.W.
Albuquerque, NM 87102

Re: A. Drainage plan for Ed Rael Addition (G-14/D-27)
B. Your letter dated April 2, 1985 on the same subject

Dear Mr. Carlos Montoya:

The following comments and the attached drainage plan for the ED RAEL ADDITION, revised May 6, 1985, are in response to questions you asked by reference B.

1. The retaining walls are located along the west property line of lots 1 through 8 (back lot line). Symbols and a note have been added to the drawing.

2. More detail and a location for the non-structural lot line drainage treatment section have been added to the drawing.

3. The curb is shown by two parallel lines along the west edge of the asphalt pavement, and by the property line and a separate line along the east side adjacent to the SOL RIO TOWNHOUSES. There is no curb along lot 9.

4. There are minimal off-site flows onto the property. Flow from Altamonte Pl., N.W., will not flow over the drive pad entrance to ED RAEL ADDITION. Private property north of lot 1 is walled, and there will be no significant flow through the wall. The Sol Rio Townhouses to the east are designed to drain into a City of Albuquerque approved sump and seepage system. Until the Sol Rio Townhouses are completed, the minor surface run-off will flow over the top of the east curb of Ed Rael Drive, and from there onto the subsurface drain along Veranda Road N.W..

Please contact me if you have any questions.

Sincerely,

Marvin R. Kortum

RECEIVED
MAY 06 1985
HYDROLOGY SECTION

25×10

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

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

April 2, 1985

Marvin Kortum
1605 Speakman Drive, SE
Albuquerque, New Mexico 87123

RE: DRAINAGE PLAN FOR ED RAEL ADDITION
(G-14/D27) RECEIVED MARCH 6, 1985

Dear Mr. Kortum:

I have reviewed the referenced plan dated February 22, 1985, and forward these comments:

1. Please indicate where the retaining walls are to be used.

2. Use more detail to explain the non-structural lot line drainage treatment detail.

3. The typical drive section shows concrete curbs on either side. The plan view does not show the curb sections.

4. How will the offsite flows be accepted into the site?

If you have any questions or comments regarding this project, please call me at 766-7644.

Cordially,

Carlos A. Montoya

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

CAM/bsj

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DRAINAGE INFORMATION SHEET

PROJECT TITLE: ED RAEL ADDITION ZONE ATLAS/DRNG. FILE #: G-14- /D27

LEGAL DESCRIPTION: E 100', Lot 4, Block 18, MONKBRIDGE ADDITION Mar 24,1917

CITY ADDRESS: Candelaria Rd NW

ENGINEERING FIRM: Marvin R Kortum CONTACT: Marvin Kortum

ADDRESS: 1605 Speakman Dr SE 87123 PHONE: 299-0774

OWNER: J. Edward Rael CONTACT: Ed Rael

ADDRESS: 4909 College Dr NW 87120 PHONE: 298-5555

ARCHITECT: CONTACT:

ADDRESS: PHONE:

SURVEYOR: S W Survey CONTACT: Dan Graney

ADDRESS: Lomas NE PHONE: 247-4444

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

PRE-DESIGN MEETING:

X YES

___ NO

X COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. 84-857

EPC NO. X

PROJ. NO. 2353

RECEIVED MAR 06 1985 HYDROLOGY SECTION

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

X DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

X GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

1ST RESUBMITTAL

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

X FINAL PLAT APPROVAL

___ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER _____ (SPECIFY)

DATE SUBMITTED: MARCH 6 1985

BY: MARVIN R KORTUM

25 x 10

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Marvin R. Kortum
1605 Speakman Dr. S.E.
Albuquerque, N.M. 87123

March 6, 1985

RECEIVED
MAR 06 1985
HYDROLOGY SECTION

City of Albuquerque
Design Hydrology Section
123 Central N.W.
Albuquerque, N.M. 87102

Attn: Billy J. Goolsby

Re: A. Drainage plan for ED RAEL ADDITION (G-14/D27) January 11, 1985
B. City Hydrology letter January 31, 1985

Dear Mr. Goolsby,

The following comments are in response to your comments in reference B.

1. Off-site flows from the East:

Off-site flows from the East are from the Sol Rio Townhouse Development, for which a drainage and grading plan has been submitted, reviewed and approved by the City of Albuquerque. In essence, the flows from the Sol Rio Townhouse Development are to be routed to a subterrain sump and seepage field. Presently, much of the Sol Rio Subdivision is developed as far as infrastructure, but does not include townhouses. On the plans submitted, (attached hereto) is shown the present grading of this vacant land. As it is apparent, and as was stated in the drainage report (Section 11, Paragraph C), most of the area will drain toward existing sumps. There are some portions between the property line and the mid lot ridge line that may be trapped. The curb line along the East of ED RAEL Drive will prevent this minor local water from inflowing to the ED RAEL ADDITION and causing property damage.

2. A. Downstream capacity of Candelaria Road:

The downstream capacity of Candelaria Road, considering an idealized street section for a 48' wide street, at a slope of .003, at the maximum depth of .87 feet, is about 16 CFS per half street, or 32 CFS total. This is representation of Candelaria Road from Ed Rael Drive West to 10th Street. The proposed drainage scheme for ED RAEL ADDITION actually reduces run-off to Candelaria Road, from a peak of 1.7 CFS for the undeveloped (uncontrolled) state, to 1.3 CFS for the developed (controlled) state.

2. B. Downstream capacity of 12" drain in Alta Monte Place:

The downstream capacity of the Alta Monte Place 12" storm drain is essentially the same as that for the Veranda Road drain system to which it connects. According to the Albuquerque Master Drainage Study, the Veranda Road system, at the time of the study, was limited by hydraulic gradients considerations in the down-stream systems.

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2. B. Downstream capacity of 12" drain in Alta Monte Place: (Cont'd)

These limitations create a minor surface flooding on Veranda Road between Los Tomases and 5th Street. Project 111-08C, a 30" drain at 4th Street and Alameda Drain, was, therefore, recommended by Albuquerque Master Drainage Study as the means to relieve this minor flooding. The increase in flow from the ED RAEL ADDITION would have minor effect on the overall system. In the event no improvements were made to the down-stream system, the increase in flow from the ED RAEL ADDITION would raise the surface of the Veranda Road and 5th Street flood plain by $\left(\frac{2450\ ft.^3}{33{,}500\ ft.^2}\right)$ about 7/8 of an inch.

3. Hydraulic calculations of the proposed storm drain system:

Total run-off is about 4150 ft.^{3}
Peak run-off is about 3.2 ft.^{3}/sec.

The break in slope (ridge) on Ed Rael Drive, between Lot 8 and Lot 9, essentially provides for a 1/3, 2/3 split in run-off, the 1/3 going toward Candelaria by surface flow, and the 2/3 going to the Veranda Road system via the underground drain. The catch basin, or storage area on Ed Rael Drive, from the break point to the Veranda Road entrance, is about 2250 ft.^{3}, considering storage to the 67.0 elevation level. The total storm run-off toward Veranda Road is 2450 ft.^{3}. (The system would permit storage of 90% of the design storm, then out-flow, if valving were installed. This is not recommended). If the Veranda Road storm drain system is clogged or otherwise degraded, the overflow from the North 2/3 of ED RAEL ADDITION would flow out the Ed Rael Drive to Candelaria Road.

4. Northernmost catch basin:

The northernmost catch basin was originally shown solely for the purpose of establishing a clean out at the horizontal bend in the storm drain line. The current drawing shows a manhole, which provides the equivalent function.

5. Ed Rael Drive is a private street. There are easements in the street and elsewhere on the property. See proposed plat, attached.

6. All easements and rights-of-way on or adjacent to the property are shown on the proposed plat, attached.

7. Retaining walls and grade separation details are shown on the drawing.

8. The roof drainage and drain locations are specified to be within driveway swales.

9. Drainage across lot lines would be minimal using the proposed lot line blocking and grading. Due to natural turbulence, there will be intermixing of run-off in the common lot line swales.

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10. The plan shows the quantity of flow, and the peak flow for run-off from the design storm through the proposed storm drain. Theoretical velocity within the 8 inches diameter PVC storm drain would be approximately 5.5 feet per second, for the peak flow of 1.9 ft.^{3} per second. ($V = \frac{Q}{A} = \frac{1.9 \text{ ft.}^3/\text{sec}}{.342 \text{ ft.}^2} = 5.5$ feet per second).

The peak flow at this velocity would not occur, since there is insufficient head. For gravity flow, the theoretical capacity of the 8 inches diameter PVC line is about 1 ft.^{3} per second, at a velocity of about 3 feet per second. If the design storm occurred as idealized, the velocity in the storm drain would be between the 3 feet per second and 5.5 feet per second, and the quantity between 1 ft.^{3} per second and 1.9 ft.^{3} per second. In other words, there would be some back-up of the run-off in the above discussed storage area, and the hydraulic gradient would vary with this back-up. The slope and type of materials are shown on the drawing.

Sincerely,

Marvin R. Kortum

MRK:tjs

Enclosures

25×

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

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

January 31, 1985

Marvin Kortum
1605 Speakman Drive, SE
Albuquerque, New Mexico 87123

RE: DRAINAGE PLAN FOR ED RAEL ADDITION (G-14/D27)
RECEIVED JANUARY 11, 1985

Dear Mr. Kortum:

I have reviewed the referenced submittal and forward these comments:

1. Based on the spot elevations provided, it appears the off-site flow can enter the property from the east. This has not been addressed or quantified.

2. Downstream capacity has not been quantified. What is the capacity of Candelaria Road? What is the capacity of the 12" storm drain in Altamonte Place? Will these facilities be able to accept the proposed runoff?

3. Please provide the hydraulic calculations associated with the proposed storm drain system.

4. The most northern catch basin proposed is useless. No flows will ever get into it.

5. Is Ed Rael Drive a public or private street? Are there any easements in the street or elsewhere on the property?

6. All easements and right-of-ways on or adjacent to the property should be shown and their purpose identified.

7. Grade separations greater than 18 inches require retaining walls. The property to the west is lower than the proposed grades on-site, whereby, a retaining wall is appropriate.

8. The roof drainage and drain locations need to be shown.

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9. Drainage across lot lines will not be allowed. Therefore, grading of each lot shall insure that each lot drains independently.

10. The plans will need to show the Q, V, HGL, slope and type for the storm drain on the profile for the purposes of the DRC sign-off.

Should you have any questions or comments, please call this office at 766-7644.

Cordially,

Billy J. Goolsby

Billy J. Goolsby, C.E.
Design Hydrology Section

BJG/bsj

25×10

0000 0000 0547

DRAINAGE INFORMATION SHEET

PROJECT TITLE: ED RAEL ADDITION ZONE ATLAS/DRNG. FILE #: G-14- D27

LEGAL DESCRIPTION: E 100', Lot 4, Block 18, MONKBRIDGE ADDITION Mar 24,1917

CITY ADDRESS: Candelaria Rd NW

ENGINEERING FIRM: Marvin R Kortum CONTACT: Marvin Kortum

ADDRESS: 1605 Speakman Dr SE 87123 PHONE: 299-0774

OWNER: J. Edward Rael CONTACT: Ed Rael

ADDRESS: 4909 College Dr NW 87120 PHONE: 298-5555

ARCHITECT: CONTACT:

ADDRESS: PHONE:

SURVEYOR: S W Survey CONTACT: Dan Graney

ADDRESS: Lomas NE PHONE: 247-4444

CONTRACTOR: CONTACT:

ADDRESS: PHONE:

PRE-DESIGN MEETING:

X YES

___ NO

X COPY OF CONFERENCE RECORD SHEET PROVIDED

RECEIVED JAN 11 1985 HYDROLOGY SECTION

DRB NO. 84-857 12/27/84

EPC NO.

PROJ. NO. 2353

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

X DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

X GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

X FINAL PLAT APPROVAL

___ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER _____ (SPECIFY)

DATE SUBMITTED: JAN 11 1985

BY: MARVIN R KORTUM

25X

0000 0000 0548

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

PRE-DESIGN CONFERENCE RECAP

HYDROLOGY SECTION PROJECT NO.: G 14 DATE: 12-10-84

PLANNING DIVISION NOS. EPC: _____ DRB: _____

SUBJECT: East half of Lot 4 Mont Bridge

LEGAL DESCRIP.: Add'n @ Candelaria, Veranda, Altamile

APPROVAL REQUESTED

X PRELIMINARY PLAT _____ FINAL PLAT

_____ SITE DEVELOPMENT PLAN _____ BUILDING PERMIT

_____ ROUGH GRADING

	WHO:	REPRESENTING:
ATTENDANCE:	Marvin Kertum	
	Carlos Montoya	

X APPROVED ~~Conceptual~~ Drainage Plan/Report required for Preliminary Plat and/or ~~Site Development Plan sign-off.~~

_____ Approved Drainage Plan/Report required for Final Plat and/or Building Permit sign-off.

X Subdivision Improvements Agreement or ~~Financial Security~~ required.

FINDINGS: ① Drainage plan per DPM ② Drainage to S.D. in Veranda appears to be feasible. ③

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

SIGNED:	Carlos A Montoya	SIGNED:	Marvin R Kertum
TITLE:	Civil Engr	TITLE:	CIVIL ENGINEER
DATE:	12-10-84	DATE:	Dec 10 1984

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

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PROJECT TITLE:	ED RAEL ADDITION (REPLAT OF E. 100' LOT 4, BLOCK 18) MONKBRIDGE ADDITION CANDELARIA ROAD N.W.
ZONE ATLAS:	G-14-
TYPE OF SUBMITTAL:	DRAINAGE REPORT AND GRADING PLAN
LEGAL DESCRIPTION:	SAME AS TITLE - SEE ATTACHED PROPOSED REPLAT
ENGINEERING FIRM:	MARVIN R. KORTUM 1605 Speakman Dr. S.E. Albuquerque, N.M. 87123 (505) 299-0774 Contact: Marvin R. Kortum
OWNER:	ED RAEL (298-5555)
SURVEYOR:	SOUTHWEST SURVEYING CO., INC.
DATE SUBMITTED:	JANUARY 1985
BY:	MARVIN R. KORTUM

MARVIN R. KORTUM
NEW MEXICO
6519
JAN 10 1985
REGISTERED PROFESSIONAL ENGINEER

RECEIVED
JAN 11 1985
HYDROLOGY SECTION

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DRAINAGE REPORT

ED RAEL ADDITION
(Replat of E. 100' Lot 4, Block 18)
MONKBRIDGE ADDIITON
CANDELARIA ROAD N.W.

I. ON-SITE CONDITIONS:

A. Site Characteristics:

The Ed Rael Addition consists of a generally rectangular tract, 402 feet North to South, and 100 feet East to West. It is proposed to divide the tract into nine (9) lots, eight (8) of which will be for townhouse residences, and one (1) lot for an existing residential building. The tract is presently vacant except for the existing residential building on the Southern end of the tract. It is proposed that the garage and some outbuildings on the lot will be removed prior to future development. The South boundary of the tract is the Candelaria Road N.W. right-of-way. The East boundary is common with a townhouse development, SOL RIO, which is in various stages of construction. The Northwest corner is adjacent to the right-of-way at the intersection of Veranda Road and Altamonte Place N.W. The rest of the North boundary is common with developed single family residences. The East boundary is adjacent to a vacant lot. (West 100', Lot 4, Block 18 MONKBRIDGE ADDITION).

B. Soils:

The soils, as identified on the Bernalillo County Soils Survey by the SCS, USDA (Map 20) are gila loam, slopes of 0 to 1% (Gb). The gila series consists of deep, well drained soils that formed in recent alluvium on the flood plains along the Rio Grande. Run-off is slow, and the hazard of water erosion is slight. The engineering characteristics of the soil do not present undue constraints on the proposed use of the area for single or two-story residences with paved or surfaced streets and parking areas. The soils as observed on the surface are a fine, sandy loam, with little plasticity, and appear to be properly classified. The surface has been graded or worked, and in the past was probably used as irrigated agricultural land. Presently the area is partially covered with perennial grasses and weeds. There are several locations which appear to have been used for trash pits or other abandon excavations. Structural foundations should be designed and constructed based on additional sub-surface investigations.

C. Undeveloped Run-off:

The soils are identified as hydrologic soil group B, those soils which absorb more water than is typical. There are no defined drainage channels evident on the tract. The North end of the tract is about one foot (1') higher than the remainder of the tract, the rest of the tract being practically level. The property to the East, SOL RIO, has been elevated by fill to about one foot higher than the Ed Rael tract. Out-flow from the Ed Rael tract would flow generally to the West, either across the property line, or along the North side of Candelaria Road.

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D. Direct Run-off Volume, Undeveloped Land:

The 6 hour 100 year frequency rainfall for the Ed Rael Addition is 2.2 inches per NOAA Atlas 2, Volume IV (plate 22.2 D-1). The present surface is typical of cultivated land, for which a curve number of 81 (CN = 81) is appropriate (plate 22.2 C-2). From plate 22.2, C-4, read direct run-off volume as 0.7 in., for a total volume of $(0.7 \text{ in.} \times 39{,}800 \text{ ft}^2. \times \frac{1 \text{ ft.}}{12 \text{ in.}}) = 2300 \text{ ft}^3.$

This direct run-off would presently flow across the Southwest property line, then flow West along the inside of the North Candelaria Road curb until it reached a developed property about 500 ft. West, at which point it would overflow onto Candelaria Road N.W.

E. Peak run-off Undeveloped Land:

Using an idealized slope of .0025, and a drainage path of 400 feet, a time of concentration is obtained by the Kirpich Formula, $TC = .0078 \frac{L^{0.77}}{S^{0.385}} = 7.9$ minutes, use the rainfall intensity factor for 10 minutes, of 2.15 (plate 22.2, D-2), and the rainfall of 2.2 (plate 22.2, D-1). Obtain a C factor from plate 22.2, C-1, C = .38 for type B soils, 20 percent impervious. The peak flow estimate by the rational formula, therefore, is $Q = CIA = (.38)(2.15)(2.2)(.92) = 1.7 \text{ ft}^3./\text{sec}.$

F. Run-off For Developed Land:

The site is to be developed as eight (8) individual townhouse lots and one (1) separate residential building. There will be a paved access road running from Candelaria Road N.W., to the intersection of Veranda Road and Altamonte Place. For purposes of computing run-off, the following uses will be considered:

TOTAL AREA	39,300 ft².
8 townhouses, with garage or covered carport, patio, and drivepad	
Roof 8 x 25 x 40 = 8000	
Drivepads 8 x 20 x 18 = 2880	
Patio 8 x 10 x 10 = 800	11,680
1 house 50 x 70 =	3,500
driveway 10 x 120 =	1,200
street and sidewalk 26 x 450 =	11,700
parking 80 x 20 =	1,600
TOTAL IMPERVIOUS	29,680
PERCENT IMPERVIOUS	75%

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G. Direct Run-off For Developed Property:

The above description indicates an area that is similar in run-off characteristics to commercial and business areas, 85% impervious (CN = 92) and industrial areas, 72% impervious (CN = 88), extrapolating to a 75% impervious area provides a CN = 89 for purposes of estimating total run-off for the Ed Rael Addition. From plate 22.2, C-4, read direct run-off as 1.25 inches, for a total volume of $(1.25 \times 39{,}800 \times \frac{1}{12}) = 4150\ ft^3$. This is an increase of $(4150 - 2300) = 1850\ ft^3$. over the undeveloped state.

H. Peak Run-off For the Developed Property:

The proposed site improvements will result in the construction of drainage paths for run-off. Generally run-off will be concentrated into the paved access which will run from Candelaria Road N.W. to Veranda Road N.W. It is proposed that most of the run-off will be toward sub-surface drains under Veranda Road N.W. (flow South to North along the access) although some run-off will continue to run onto Candelaria. Using the time of concentration of 10 minutes, and a C-factor of .73 (from plate 22.2, C-1 for 75% impervious type B soil), the peak run-off is $Q = CIA = (.73)(2.15)(2.2)(.92) = 3.2\ ft^3/sec.$, an increase of $1.5\ ft^3./sec.$ over the $1.7\ ft^3./sec.$ expected from the undeveloped state.

II. OFF-SITE FLOWS:

A. Major Surface Terrain Features:

The Ed Rael Addition is not in the channel or natural flow path of any significant storm run-off. The natural terrain is flat. The Ed Rael Addition is on a slight rise, or ridge, above the surrounding terrain. There is a slight slope toward the West Southwest of about one-half foot per thousand (.5'/1000'). Surface run-off would generally flow West along Candelaria Road N.W. about 700 feet, then South along 10th St. for 500 feet, then West along Major Ave. for 900 feet to 12th St. then South 1200 feet along 12th St. to where it would enter the Alameda Drain. The Alameda Drain is the major drainage feature in the surrounding area. The Alameda Drain is about 2500 feet East of the site, and turns toward the West about 1500 feet South of the site. The Alameda Drain would provide protection from some up-slope major run-off from the East. Another terrain feature with some effect on the site is the Harwood Lateral, a small irrigation ditch which ends near the intersection of Altamonte Place and Altamonte Avenue, about 300 feet North of the Ed Rael site. This lateral is abandoned South of that point, and appears to be used sparingly North of that point. The lateral could be a source of run-off if the berms were breached. It is a small lateral with 24 inches diameter culvert crossings under cross streets, and would provide in-flow of about $2\ ft^3$. per second as the maximum. The existing flow pattern as defined by the street, curb and gutter would direct such flow South along Altamonte Place, then East along Veranda Road. The berms along the Harwood Lateral and its abandon right-of-way also define a ridge or divide for storm run-off generally North of the Ed Rael site, directing these run-offs to the East and West along the cross streets.

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B. Sub-surface Drainage:

There is a sub-surface drain system which starts along Altamonte Place and Altamonte Avenue, just to the North and West of the Ed Rael Addition. The line is a 12" line along Altamonte Place and Veranda Avenue to its intersection at Los Tomases, where the 12" line enters the 15" line from Altamonte Avenue and Los Tomases. The line extends East to 5th St., then South as an 18" line to Candelaria Road, then East to 4th St., where it connects to the 30" line along 4th St. South of the Ed Rael site, along Candelaria Road are two sub-surface drain systems which provide for drainage away from Candelaria Road 300 feet East along Candelaria, a system drains South along 7th St. 900 feet to the West, at the intersection of 11th St., a 24" line and inlets provide drainage for the run-off down Candelaria Road. The divide, or high point along Candelaria Road is about 100 feet East of the Ed Rael site, so major run-off along Candelaria is not a threat to the site.

C. Local and Nuisance Flows:

There is little in the way of nuisance flow to be expected for the Ed Rael Addition. The property immediately North of the site is surrounded by a solid CMU wall. The surface run-off along Atlamonte Place and Veranda Avenue would not be sufficient to jump the existing curb, gutter and driveway berm at the Northwest corner of the site. As developed, the access drive must be graded to provide the same protection to prevent re-directing the surface flows through the site access road. To the East, the property is currently being developed as the SOL RIO townhouses. The grading and drainage plan for the SOL RIO site requires exterior walls or berms to direct all on-site flows into a series of sumps and sub-surface seepage fields. The grading on the parts of this development on which buildings have not been built is sloped toward the existing collecting sumps, so no significant nuisance flow is expected from the East. It is noted that some of the sumps are full of Earth materials, and the possibility exists that these sumps and seepage fields could become saturated in time of heavy precipitation, or other surface water. Over-flow from the SOL RIO development will flow South, out the drive access, onto Candelaria Road, then both East and West to drains as discussed above. The properties West of the Ed Rael Addition are lower in elevation, and would not be a source of nuisance flow in their present undeveloped state.

III. RUN-OFF DISPOSAL OPTIONS:

A. Surface Run-off To Candelaria Road:

With some fill, and grading of the site and access drive, it would be possible to achieve surface drainage of the developed site toward and onto Candelaria Road. The top of the curb elevation at Candelaria is 66.35. At a slope of .3%, the 450 feet of access would have an elevation of 67.7 at the Northwest end, approximately equal to the present surface elevation. House pads and lots would require fill to raise them for drainage into the access drive.

B. Surface Run-off To Veranda Road:

The site could be filled sufficiently to provide for surface flow onto Veranda Road, but the amount of fill required would be greatly in excess of

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B. Surface Run-off To Veranda Road (Cont'd)

the amount required as discussed in #A above. The top of the curb at Veranda Road is 67.48, and the access elevation at or near Candelaria would be about 68.85, or 2.5 feet higher than the present top of the curb, requiring up to 3 feet of fill over all.

C. Sub-surface Drainage To The 12" Veranda Road Drain:

The sub-surface drain along Veranda Road has an invert elevation of 63.09 near the Northwest corner of the Ed Rael Addition. At a slope of .5%, it would he possible to establish a gravity drainage system for the entire site into the Veranda Road Drain. The Veranda Road Drain is limited by hydraulic gradient considerations in the down stream system. These limitations create minor surface flooding on Veranda Road between Los Tomases and 5th St. Project 111-08C, a 30" drain at 4th St. and Alameda Drain has been recommended by the Albuquerque Master Drainage Study to relieve this minor flooding. The increase in flow from the Ed Rael Addition would have minor effect on the overall system.

IV. CONCLUSIONS AND RECOMMENDATIONS:

A. The Ed Rael Addition is not within the 100 year or 10 year flood hazard, as identified by the Albuquerque Master Drainage Study.

B. The Ed Rael Addition is not effected by any significant off-site flows.

C. The Ed Rael Addition can be effectively drained of storm run-off by a surface or sub-surface drain system, or a combination of surface and sub-surface drainage. A reasonable solution is to drain the South one-third to one-half by surface onto Candelaria Road, similar to the present undeveloped (underdeveloped) state. The added run-off due to the developed state would be diverted into the Veranda St. subsurface drain system.

D. Finished floor elevations on the new townhouses should be placed at or above the Veranda Road top of curb elevation.

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PLANS/PLATS ON FILE

FILE DESC: 614/D27

PLANS/PLATS 3

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