PUBLIC WORKS/HYDROLOGY

D23/D15

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D23/D15

25×10

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BOARD OF COUNTY COMMISSIONERS
LENTON MALRY, CHAIRMAN DISTRICT 3
ORLANDO VIGIL, VICE CHAIRMAN DISTRICT 2
HENRY GABALDON, MEMBER DISTRICT 1
PATRICIA H. CASSIDY, MEMBER DISTRICT 4
JACQUELYN SCHAEFER, MEMBER DISTRICT 5
RON OLGUIN, COUNTY MANAGER

County of Bernalillo

State of New Mexico

ONE CIVIC PLAZA, N.W.
ALBUQUERQUE, NEW MEXICO 87102

ALVIN J. CAMPBELL, SHERIFF
ROBBIN BISHOP, TREASURER
GLADYS M. DAVIS, COUNTY CLERK
JOSEPH F. THOMSON, ASSESSOR
ROBERT H. SCOTT, PROBATE JUDGE

May 6, 1988

E.W. Kiess
11724 Fox Point Avenue, NE
Albuquerque, New Mexico 87112

RE: DRAINAGE PLAN FOR LOT 1514 OF SANDIA HEIGHTS SOUTH, UNIT 15 (D-23/D15) ENGINEER'S STAMP DATED APRIL 21, 1988

Dear Mr. Kiess:

Based on the information provided on your submittal of April 26, 1988, the above referenced plan is approved for Building Permit.

Please be advised that certification will be required upon completion of the project. Also, on all future submittals, please include the information pertaining to the Bench Mark used to set the T.B.M. (location and description).

If I can be of further assistance, please feel free to call me at 768-2650.

Cordially,

Bernie J. Montoya

Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj

25×10

0000 0000 1150

FILE COPY

BOARD OF COUNTY COMMISSIONERS
LENTON MALRY, CHAIRMAN
DISTRICT 3
ORLANDO VIGIL, VICE CHAIRMAN
DISTRICT 2
HENRY GABALDON, MEMBER
DISTRICT 1
PATRICIA H. CASSIDY, MEMBER
DISTRICT 4
JACQUELYN SCHAEFER, MEMBER
DISTRICT 5
RON OLGUIN, COUNTY MANAGER

County of Bernalillo

State of New Mexico

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ROBBIN BISHOP, TREASURER
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JOSEPH F. THOMSON, ASSESSOR
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May 6, 1988

E.W. Kiess
11724 Fox Point Avenue, NE
Albuquerque, New Mexico 87112

RE: DRAINAGE PLAN FOR LOT 1514 OF SANDIA HEIGHTS SOUTH, UNIT 15
(D-23/D15) ENGINEER'S STAMP DATED APRIL 21, 1988

Dear Mr. Kiess:

Based on the information provided on your submittal of April 26, 1988, the above referenced plan is approved for Building Permit.

Please be advised that certification will be required upon completion of the project. Also, on all future submittals, please include the information pertaining to the Bench Mark used to set the T.B.M. (location and description).

If I can be of further assistance, please feel free to call me at 768-2650.

Cordially,

Bernie J. Montoya

Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj

25 x 10

0000 0000 1151

DRAINAGE INFORMATION SHEET

D23/D15

PROJECT TITLE: _____ ZONE ATLAS/DRNG. FILE #: BP88-92

LEGAL DESCRIPTION: LOT 1514

CITY ADDRESS: 1514 Eagle Ridge Rd. NE

ENGINEERING FIRM: Hall Engineering CONTACT: Richard Hall

ADDRESS: _____ PHONE: _____

OWNER: Sundown Homes CONTACT: Paul Joseph

ADDRESS: P.O. Box 11646 ABQ N.M. PHONE: 294-8098

ARCHITECT: Richard Hall CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CONTRACTOR: Sundown Homes CONTACT: _____

ADDRESS: Same as above PHONE: _____

RECEIVED
APR 26 1988
HYDROLOGY SECTION

PRE-DESIGN MEETING:

___ YES

___ NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. _____

EPC NO. _____

PROJ. NO. _____

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

X DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

___ GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

X BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER _____ (SPECIFY)

DATE SUBMITTED: 4-25-88

BY: Paul Joseph Sundown Homes

25×

0000 0000 1152

PLANS/PLATS ON FILE

FILE DESC: D23 / D15

PLANS/PLATS 1

25 × 10

0000 0000 1153

25×10

PUBLIC WORKS/HYDROLOGY

C23/D15

C23/D15

25×10

0000 0000 0355

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Lot 198 Big Horn Ridge ZONE ATLAS/DRNG. FILE #: c-23 / D 15

LEGAL DESCRIPTION: Lot 198 Big Horn Ridge , Sandia Heights South, Unit 2

CITY ADDRESS: 198 Big Horn Ridge

ENGINEERING FIRM: Marvin R Kortum CONTACT: Marvin R Kortum

ADDRESS: 1605 Speakman Drive, SE Albuquerque, New Mexico 87123 PHONE: (505) 299-0774

OWNER: CONTACT:

ADDRESS: PHONE:

ARCHITECT: Max Capper CONTACT:

ADDRESS: 13 El Arco Albuquerque, New Mexico 87123 PHONE: 292-0216

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: Jim Green Construction Co CONTACT:

ADDRESS: 4815 Hawkins Street NE Albuquerque, New Mexico 87109 PHONE: 293-2880

RECEIVED SEP 14 1989 HYDROLOGY SECTION

PRE-DESIGN MEETING:

___ YES

x NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. ___

EPC NO. ___

PROJ. NO. ___

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT

x DRAINAGE PLAN

___ CONCEPTUAL GRADING & DRAINAGE PLAN

x GRADING PLAN

___ EROSION CONTROL PLAN

___ ENGINEER'S CERTIFICATION

X RESUBMITTAL

CHECK TYPE OF APPROVAL SOUGHT:

___ SKETCH PLAT APPROVAL

___ PRELIMINARY PLAT APPROVAL.

___ SITE DEVELOPMENT PLAN APPROVAL

___ FINAL PLAT APPROVAL

x BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER ___ (SPECIFY)

DATE SUBMITTED: ~~August~~ Sep 14 1989 16, 1989

BY: Marvin R Kortum

25 x 10

0000 0000 0356

Marvin R Kortum
1605 Speakman Drive SE
Albuquerque, New Mexico 87123
NMPE 6519
(505) 299-0774

RECEIVED
SEP 14 1989
HYDROLOGY SECTION

September 14, 1989

Count of Bernalillo
State of New Mexico
One Civic Plaza NW
Albuquerque, New Mexico 87102

ATTN: Hydrology

ATTN: Public Works

Albuquerque Metropolitan Arroyo
Flood Control Authority
2600 Prospect Ave, N.E.
Albuquerque, New Mexico 87107

REFERENCE: Grading and Drainage Plan for Lot 198, Unit 2, Sandia Heights South (C-23/D15)

Gentlemen:

These comments are in reply to the City of Albuquerque letter dated September 13, 1989, and Public Works comments dated August 29, 1989.

1. The drawing now shows contour lines of both the north and south banks. Cross Sections were also taken as shown on sheet 2. The estimated 100 year flood level is shown for the south bank of the arroyo on the plan view, and on each of several cross sections. The drawings do not show any encroachment into the flood plan, nor any diversion of the flood plan to the north.

2. The dimensions for the proposed diversion dike are shown.

3. A cross section of the diversion dike is shown.

4. The east and west sides of the dike are shown.

Answers to Mr. Foglesongs comments:

1. The drawing now uses the CN numbers for desert shrub, fair condition. I have personally inspected the drainage basin and believe that the 30% to 70% grass cover condition is met, even at this time at the end of a rather dry summer. The area is designated as wilderness area, so currently there is no grazing or other excessive use of the land.

25x

2. The diversion channel has been widened to provide for a slowing of the stream velocity. A close examination of the SCS Soil Survey indicates that the area in question is probably Tesajo (Te), which is further identified as Uniform Soil Classification of GM, GP-GM, or SM. Field inspection of the soil show that it is a coarse granular material at the depth of the proposed ditch bottom. There is also considerable large rocks and cobbles immediately below that level. At any rate additional steps are shown to alleviate the concern you have expressed, specifically:

a. A rock rip rap with a filter blanket will extend from the diversion turn out 35 feet.

b. A rock crib is to be placed at the end of the channel to prevent end sluffing of the channel. This crib will perform similar to a check dam in a channel. Also, the surface is to be seeded with native grasses. The proposed treatment places the channel into a reasonably safe category with a stream velocity of 3 to 4 fps compared to the actual estimate of 3.8 to 3.85 fps.

3. Peak flow in the channel at section A-A is for the major arroyo channel in its present condition. There is no intent or design to place any construction in the chanel. The channel wide on the cross section was obtained by me so it is correct. The new contours for the north bank of the arroyo also reflect the correct width. There is no question that the velocities are erosive. The velocities in the forest service wilderness areas are also erosive. The comments in my earlier letter still hold, that there will continue to be erosion upstream, and that there will be some sedimentation due to the existance of the road crossing and culvert. The sketch of the cross section of the culvert taken perpendicular to the stream flow shows the current cofiguration. The owner has been advised by letter to watch for signs of excessive build-up in the future. Build-up will not endanger property on lot 198, and will occur even if lot 198 is left undisturbed. Eventually sediment build-up could result in water running over the road, unless some steps are taken to clear the channel.

Answers to AMAFCA

1. Diversion channel dimensions are shown. See comments above.

2. Maps and drawings in my possession do not indicate that lot 198 is near the Pino Arroyo. lot 198 is adjacent to a branch of the Domingo DE Baca Arroyo. The drainage easement is now located on the plan according to the blow-up of the Plat which you provided. The grading for the diversion channel does not now show any encroachment on the 100 year flood plan or the existing easement... but note that incomplete construction to date may have pushed some loose material into the arroyo. As soon as the builder can get a permit, he has assured me that the offending material will be removed... Information on the recorded plat which I obtained from the County

25×10

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Clerk do not indicate the basis for the easement. The cross sections do show that the 100 year flood is presently within the estimated easement. Sediment build-up in the future may change such conditions, see comments above.

3. Certification is included on the plan.

Sincerely

Marvin R Kortum

25×10

0000 0000 0359

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

KEN SCHULTZ
MAYOR

September 13, 1989

RECEIVED
SEP 14 1989
HYDROLOGY SECTION

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

RE: REVISED DRAINAGE PLAN FOR LOT 198, UNIT 2 OF SANDIA HEIGHTS SOUTH (C-23/D15) RECEIVED AUGUST 23, 1989

Dear Mr. Kortum:

Based on the information provided on your resubmittal of August 23, 1989, listed are some concerns that will need to be addressed prior to final approval.

1. Your proposed contours along with the existing contours indicate that you are pushing the floodplain further north. Please address.

2. You will need to identify the starting dimension and end dimension of your proposed diversion dike.

3. Please provide cross section of dike and swale along with the thickness of your proposed 6" - 12" cobble bed.

4. On your dike wall detail, please identify which side is east and which side is west.

5. Comments provided by Mr. Foglesong on August 29, 1989 must be incorporated into your revised plan.

Please address the following comments from AMAFCA.

1. The typical section for the diversion channel should be dimensioned to show the bottom width. The flow computations for the channel should use a consistent bottom width.

2. The grading appears to encroach on the existing 100 year flood zone of the Pino Arroyo. The location of the drainage easement needs to be revised to reflect existing conditions from the plat. It appears that the grading for the diversion channel will need to be revised so that grading does not impact on the 100 year flood zone or the existing easement. Information hand written on the plat indicates that easements were sized to accommodate the 10-year storm.

25x10

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3. The plan should be certified in accordance with AMAFCA's Drainage Policy (Resolution No. 1980-15). This includes statements on the existing topography shown on the plan and the site inspection by the engineer.

If I can be of further assistance, please feel free to call me at 768-2650.

Cordially,

Bernie J. Montoya

Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj
(WP+1185)

25×10

RECEIVED
SEP 14 1989
HYDROLOGY SECTION

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

SANDIA MOUNTAIN WILDERNESS

Cibola National Forest

NEW MEXICO

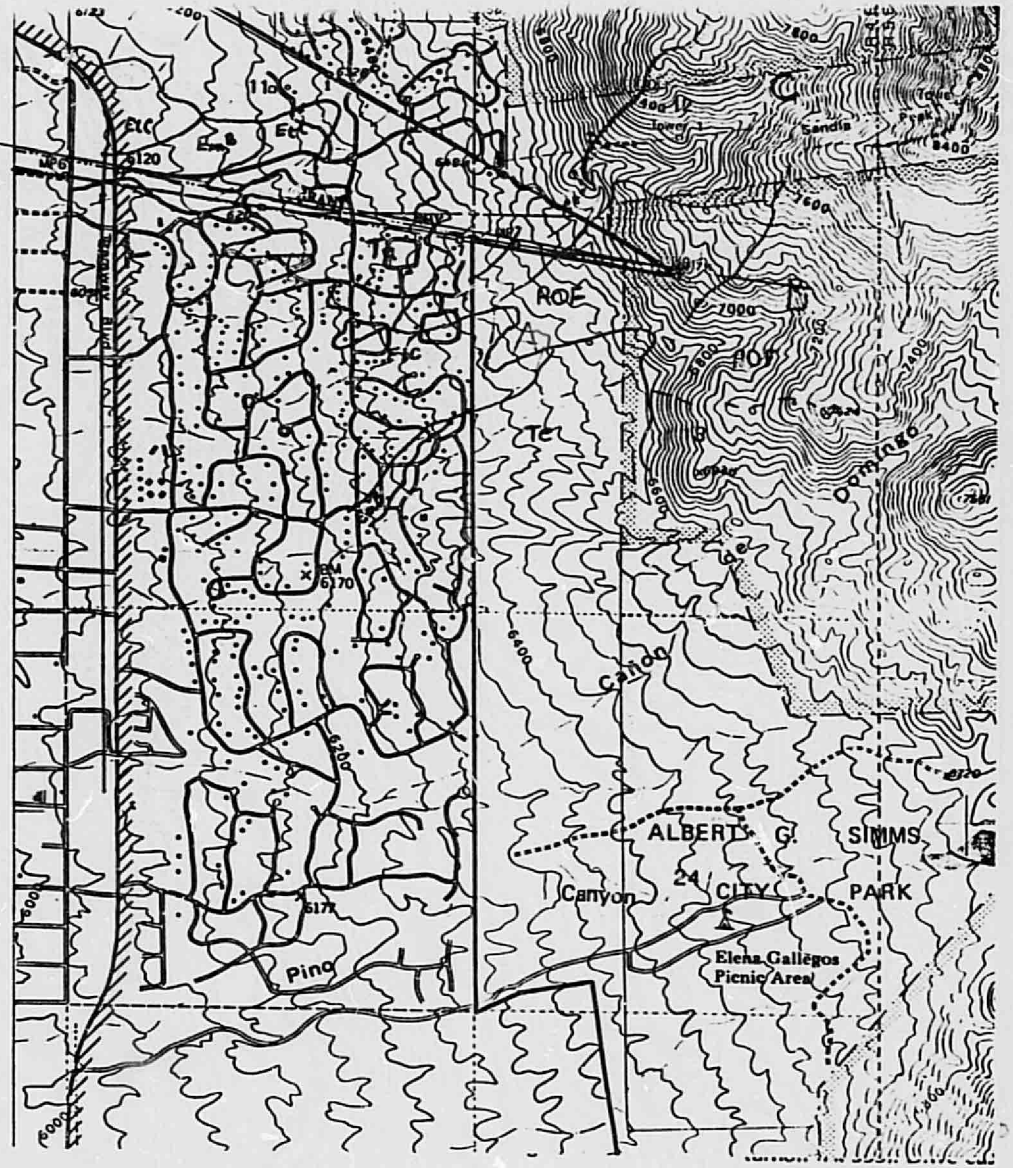
1985

Scale

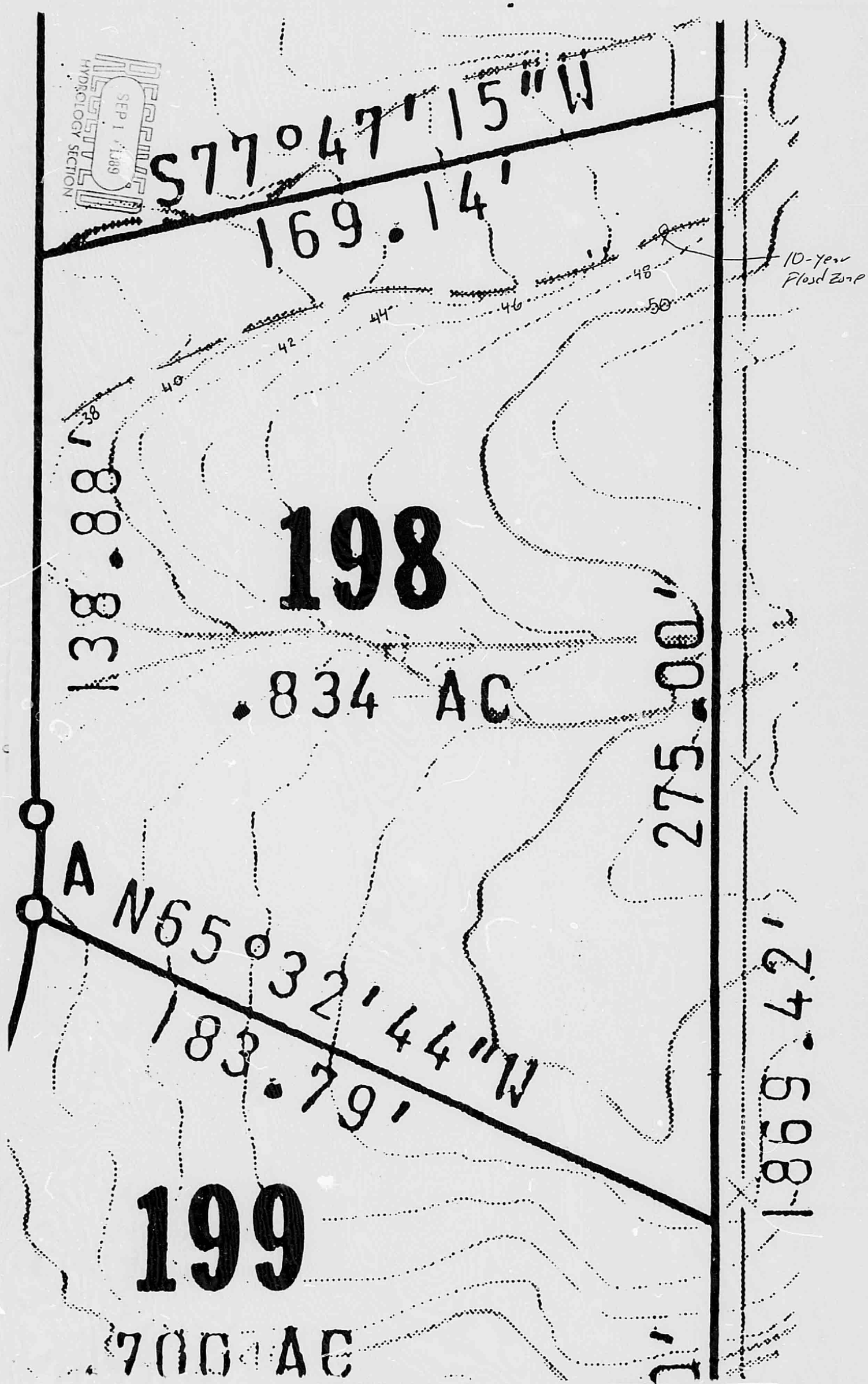
0 0 1000 2000 3000 4000 5000 6000 Feet

Contour Interval = 40 Feet

MAP LEGEND



25X



HYDROLOGY SECTION
SEP 1 1989

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THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.

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MANNING'S "n" AND MAXIMUM PERMISSIBLE VELOCITY OF FLOW IN OPEN CHANNELS

Ditch Lining	Manning's "n"	V fps Max
1. Natural Earth		
a. Without Vegetation		
(1) Rock		
(a) Smooth and Uniform	0.035 - 0.040	20
(b) Jagged & Irregular	0.040 - 0.045	15-18
(2) Soils		

Ditch Lining					Manning's "n"	V fps Max
Coarse Grained	Gravel and Gravelly Soils		GW		0.022 - 0.024	6-7
			GP		0.023 - 0.026	7-8
			GM	d	0.023 - 0.025	3-5
				u	0.022 - 0.024	2-4
			GC		0.024 - 0.026	5-7
	Sand and Sandy Soils		SW		0.020 - 0.024	1-2
			SP		0.022 - 0.024	1-2
			SM	d	0.020 - 0.023	2-3
				u	0.021 - 0.023	2-3
			SC		0.023 - 0.025	3-4
Fine Grained	Silts and Clays	LL < 50	CL		0.022 - 0.024	2-3
			ML		0.023 - 0.025	3-4
			OL		0.022 - 0.024	2-3
		LL > 50	CH		0.022 - 0.023	2-3
			MH		0.023 - 0.024	3-5
			OH		0.022 - 0.024	2-3
Highly Organic			PT		0.022 - 0.025	2-3

TABLE 10

RECEIVED SEP 1 4 1989 HYDROLOGY SECTION

25×10

0000 0000 0364

THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.

	Manning's "n"	V fps Max
b. With Vegetation		
(1) Average Turf		
(a) Erosion resistant soil	0.050-0.070	4-5
(b) Easily eroded soil	0.030-0.050	3-4
(2) Dense Turf		
(a) Erosion resistant soil	0.070-0.090	6-8
(b) Easily eroded soil	0.040-0.050	5-6
(3) Clean Bottom with Brushes on Sides	0.050-0.080	4-5
(4) Channel with Tree Stumps		
(a) No sprouts	0.040-0.050	5-7
(b) With sprouts	0.060-0.080	6-8
(5) Dense Weeds	0.080-0.120	5-6
(6) Dense Brush	0.100-0.140	4-5
(7) Dense Willows	0.150-0.200	8-9

2. Paved	Manning's "n" (Construction) Good Poor	V Max
a. Concrete, w/all surfaces:		
(1) Trowel finish	0.012-0.014	20
(2) Float finish	0.013-0.015	20
(3) Formed, no finish	0.014-0.016	20
b. Concrete bottom, float finished, w/sides of:		
(1) Dressed stone in morter	0.015-0.017	18-20
(2) Random stone in mortar	0.017-0.020	17-19
(3) Dressed stone or smooth concrete rubble (Rip Rap)	0.020-0.025	15
(4) Rubble or random stone (Rip Rap)	0.025-0.030	15
c. Gravel bottom, sides of:		
(1) Formed concrete	0.017-0.020	10
(2) Random stone in mortar	0.020-0.023	8-10
(3) Random Stone or Rubble (Rip Rap)	0.023-0.033	8-10
d. Brick	0.014-0.017	10
e. Asphalt	0.013-0.016	18-20

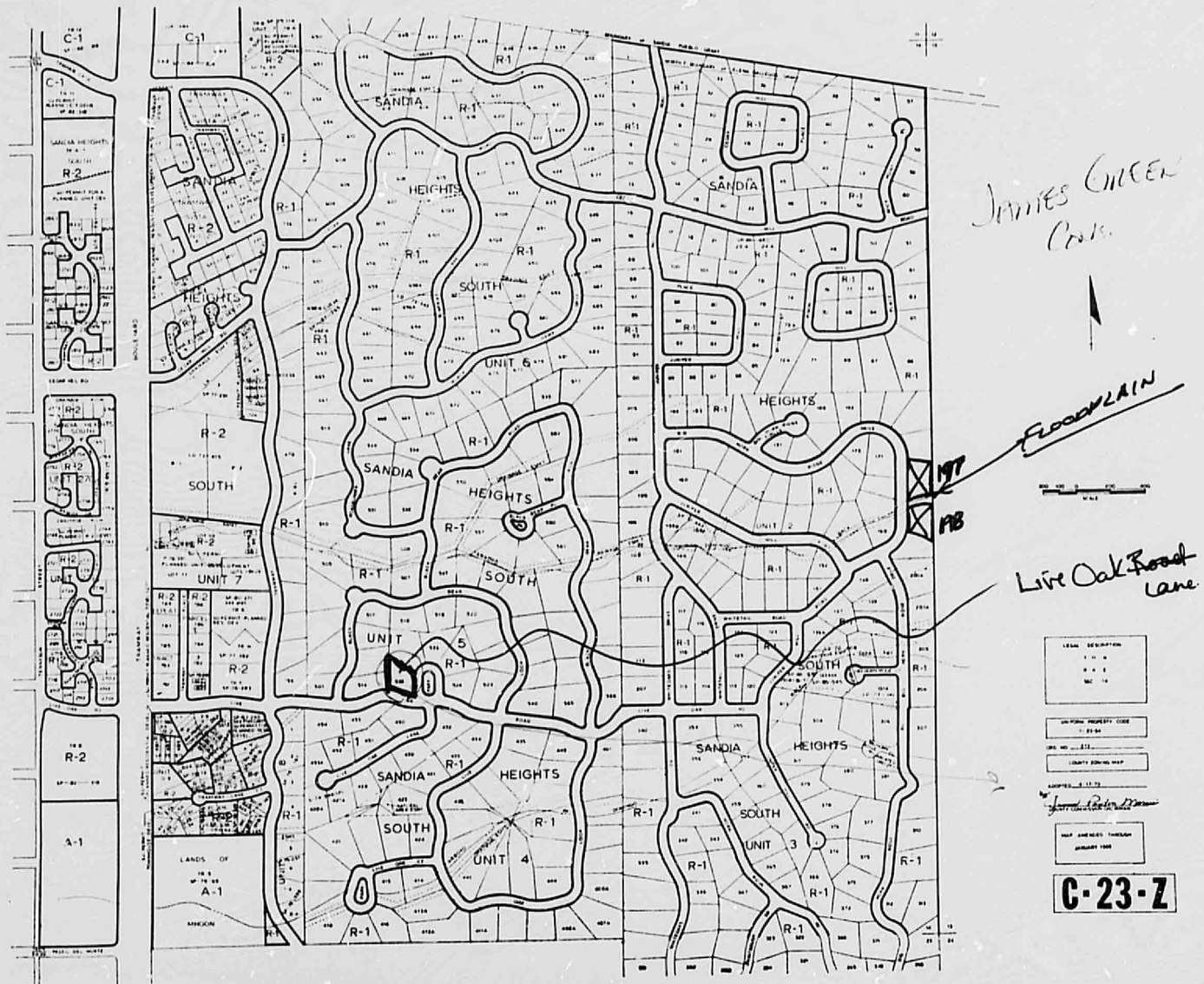
TABLE 10 (CONT'D)

RECEIVED SEP 14 1989 HYDROLOGY SECTION

25×10

0000 0000 0365

THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.



25×10 32×10 25×10

0000 0000 0366

THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.

ZONE AO
(DEPTH 1)
ZONE C
TRAMWAY
BLVD
ROAD
OAK
CEDAR
JUNIPER
BIRCH
ZONE AO
(DEPTH 2)
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0000 0000 0367

BOARD OF COUNTY COMMISSIONERS
HENRY GABALDON, CHAIRMAN
DISTRICT 1
EUGENE M. GILBERT, VICE CHAIRMAN
DISTRICT 3
AL VALDEZ, MEMBER
DISTRICT 2
PATRICIA "PAT" CASSIDY, MEMBER
DISTRICT 4
JACQUELYN SCHAEFER, MEMBER
DISTRICT 5
ALEX ABEYTA, COUNTY MANAGER

County of Bernalillo

State of New Mexico

ONE CIVIC PLAZA N.W.
ALBUQUERQUE, NEW MEXICO 87102

ALVIN J. CAMPBELL, SHERIFF
PATRICK J. PADILLA, TREASURER
GLADYS M. DAVIS, CLERK
SAM L. PEREA, ASSESSOR
THOMAS J. MESCALL, PROBATE JUDGE

September 18, 1989

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

RE: REVISED DRAINAGE PLAN FOR LOT 198, UNIT 2 OF SANDIA HEIGHTS SOUTH (C-23/D15) REVISION DATED SEPTEMBER 11, 1989

Dear Mr. Kortum:

Based on the information provided on your resubmittal of September 14, 1989, the referenced drainage plan is approved for Building Permit (Hydrology Only).

Please be advised that upon completion of the construction, Engineer's Certification per the D.P.M. Certification Checklist will be required. It is important that the checklist be followed so as not to create a conflict when the site is finaled.

If I can be of further assistance, please feel free to call me at 768-2650.

Cordially,

Bernie J. Montoya

Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj
(WP+1185)

25×10

0000 0000 0368

BOARD OF COUNTY COMMISSIONERS
HENRY GABALDON, CHAIRMAN
DISTRICT 1
EUGENE M. GILBERT, VICE CHAIRMAN
DISTRICT 3
AL VALDEZ, MEMBER
DISTRICT 2
PATRICIA "PAT" CASSIDY, MEMBER
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JACQUELYN SCHAEFER, MEMBER
DISTRICT 5
ALEX ABEYTA, COUNTY MANAGER

County of Bernalillo

State of New Mexico

ONE CIVIC PLAZA N.W.
ALBUQUERQUE, NEW MEXICO 87102

ALVIN J. CAMPBELL, SHERIFF
PATRICK J. PADILLA, TREASURER
GLADYS M. DAVIS, CLERK
SAM L. PEREA, ASSESSOR
THOMAS J. MESCALL, PROBATE JUDGE

August 18, 1989

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

RE: DRAINAGE PLAN FOR LOT 198, UNIT 2 OF SANDIA HEIGHTS SOUTH
(C-23/D15) RECEIVED AUGUST 11, 1989 BP89-509

Dear Mr. Kortum:

Based on the information provided on your submittal of August 11, 1989, listed are some concerns that will need to be addressed prior to final approval.

1. All elevations must be to mean sea level

   a. AC.S. Bench mark used - description, location and elevation.
   b. T.B.M. - description, location and elevation.

2. Foot print must show exact location of proposed residence.

3. You must indicate method to be used for the diversion. It must be engineered, showing all calculations and it must be certified by the engineer.

4. Need to show the 100 year flood plain location along with the drainage easement on the plan drawing.

5. Where did the contours come from? Were the contours derived from a field topo?

6. You need to show all the computations how you derived the "Q" also show how you computed the composite "C". Also, use the rational Method.

7. Please identify where the driveways and any proposed walls will be located.

8. How do you propose to turn the minor flows at a 0 - 90° angle?

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

Cordially,

Bernie J. Montoya

Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj
(WP+1185)

25X

0000 0000 0369

BP 89-509

RECEIVED
AUG 1 1989
HYDROLOGY SECTION

The northerly portion of this property is within a 100 year floodplain as shown on the National Flood Insurance Program's, Flood Insurance Rate Maps (Community Panel Number 350002 0011c). The northerly portion of this property is also encumbered by a drainage easement as shown on the plat of record of Sandia Heights South, Unit 2. Placement of fill within the 100 year floodplain must comply with the Bernalillo County Fill Material Ordinance 85-29. Placement of fill within the drainage easement will not be allowed without substantial improvements, both onsite and offsite, to the drainage easement. The cost of defining these improvements (drainage study) and the cost of the improvements are the responsibility of the developer.

This property is within AMAFCA's jurisdiction. This property drains more than 20 acres. In accordance with AMAFCA's Resolution No 1980-15,

25x10

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Drainage Policy, Section 8, no application for building permit may be approved by any local government agency unless the documents described in and prepared in accordance with Section 7 of the Drainage Policy are incorporated.

25×10

0000 0000 0371

Sept. 12, 1989
Sheet 1 of 2

To: Bernie Montoya, Engineer
City of Albuq., Public Works Dept.

From: Clifford Anderson, Drainage Engineer
AMAFCA

Re: Lot 198, Unit 2, Sandia Heights South

AMAFCA has reviewed the Grading and Drainage Plan for Lot 198, Unit 2, Sandia Heights South, dated Feb 28, 1989 and Revised Aug 23, 1989 and has the following comments:

1. We agree with the comments prepared by Bernalillo County Public Works per the memo by Bob Foylesing dated August 29, 1989.

2. The typical section for the diversion channel should be dimensioned to show the bottom width. The flow computations for the channel should use a consistant bottom width.

3. The grading appears to encroach on the existing 100-year flood zone of the Pino Arroyo. The location of the drainage

25×10

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easement needs to be revised to reflect existing conditions from the plat. Mr. Kortum has shown me a revised contour map of the arroyo and cross sections which indicate that grading for the structure is outside the 100-year flood zone. This revised data should be included as an attachment to the drainage report and the plan revised to reference the revised data. It appears that the grading for the diversion channel will need to be revised so that grading does not impact on the 100-year flood zone or the existing easement. Information hand written on my copy of the plat indicates that easements were sized to accomodate the 10-year storm.

4. The plan should be certified in accordance with AMAFCA's Drainage Policy (Resolution No 1980-15). This includes statements on the existing topography shown on the plan and the site inspection by the engineer.

Copy to:
Bob Foglesong, Engineer, Bernalillo Co. Public Works.

25X

0000 0000 0373

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Lot 198 Big Horn Ridge ZONE ATLAS/DRNG. FILE #: c-23/D15

LEGAL DESCRIPTION: Lot 198 Big Horn Ridge , Sandia Heights South, Unit 2

CITY ADDRESS: 198 Big Horn Ridge

ENGINEERING FIRM: Marvin R Kortum CONTACT: Marvin R Kortum

ADDRESS: 1605 Speakman Drive, SE Albuquerque, New Mexico 87123 PHONE: (505) 299-0774

OWNER: CONTACT:

ADDRESS: PHONE:

ARCHITECT: Max Capper CONTACT:

ADDRESS: 13 El Arco Albuquerque, New Mexico 87123 PHONE: 292-0216

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: Jim Green Construction Co CONTACT:

ADDRESS: 4815 Hawkins Street NE Albuquerque, New Mexico 87109 PHONE: 293-2880

RECEIVED AUG 15 1989 HYDROLOGY SECTION

PRE-DESIGN MEETING:

___ YES

_x_ NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. ___

EPC NO. ___

PROJ. NO. ___

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

___ FINAL PLAT APPROVAL

_x_ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER ___ (SPECIFY)

DATE SUBMITTED: August 16, 1989

BY: Marvin R Kortum

25x10

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BERNALILLO COUNTY NEW MEXICO BUILDING PERMIT APPLICATION

OWNER JAMES GREEN INC. PHONE 344-6767 NO. 89-509 MR

ADDRESS 4815 HAWKINS NE ZIP 87109 MAP NO. C-23/R-1

CONTRACTOR JAMES GREEN INC. PHONE 344-6967 VALUATION

ADDRESS 4815 HAWKINS NE. ZIP PERMIT FEE 415.20

STATE LICENSE NO. 28779 #GB-98 100,000+

ARCHITECT/ENGINEER LICENSE NO. PHONE

BUILDING ADDRESS/DIRECTIONS TO SITE 198 BIGHORN RIDGE

LEGAL DESCRIPTION LOT 98 UNIT 2 SANDIA HTS SOUTH
1-023-064-514 24 10238

EXISTING BUILDINGS AND USE VACANT LAND

STATE SPECIFIC USE OF BUILDING S.F.D.

RECEIVED AUG 1 1989 HYDROLOGY SECTION

BERNALILLO COUNTY USE ONLY: Type of Construction I, II, III, IV (V) — 1 hr., HT (N) FR.
Occupancy Group A, E, I, H, B, M R
Division 1, 2, 2.1, (3), 4, 5

1 story 4344 sq. ft. Max. Ht. of Structure 22'
2 story 846 sq. ft. Total Floor Area Under Roof 5190#
3 story sq. ft.
Basement sq. ft.

PROPOSED YARD: (From property line to primary structure) Front 46 ft. Rear 254 ft.
Right Side 46 ft. Left Side 46 ft.

Comments See Attached DSF 8/4/89

Comments Area Drainage 8/4/89

I hereby acknowledge that I have read this application and stated that the above is correct. I agree to comply with the requirements of the BERNALILLO COUNTY UNIFORM BUILDING CODE. I waive my right to require the inspector to possess a search warrant before he enters the premises to inspect the building covered by this permit, however, I waive this right only on the following conditions: The inspector must be approved by the General Construction Board, the inspection must be made at reasonable times for the purpose of determining whether the work or building or structure or premises complies with the BERNALILLO COUNTY UNIFORM BUILDING CODE. I understand that the issuance of this permit shall not prevent BERNALILLO COUNTY from requiring compliance with the provisions of the BERNALILLO COUNTY BUILDING CODE.

I propose property improvement or use as noted above and agree to comply with the requirements of the County Zoning Ordinance. I understand the granting of a permit does not abrogate or annul any private restrictions. I certify that the attached plan is complete and correct.

We hereby waive any requirement that BERNALILLO COUNTY must check construction plans in connection herewith in its office. We realize that the designated agent (building inspector) for BERNALILLO COUNTY may check any construction, or plans during construction at the job site to determine compliance with the provisions of the BERNALILLO COUNTY UNIFORM BUILDING CODE.

IF APPROVED, CONSTRUCTION MUST BE STARTED WITHIN SIX MONTHS FROM DATE OF APPROVAL, AND NOT CEASE FOR A PERIOD OF OVER 180 DAYS OR THIS BUILDING PERMIT WILL BE CANCELLED.

19 JUL 89 (R)

OWNER/AGENT Carole Yaman Jr CONTRACTOR/AGENT

Building Inspector, Planning Department

25 X

0000 0000 0375

8/31/89

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

RE: Revised Drainage Plan For Lot 198 Unit 2 of Sandia Heights South (C23-015) Received 8/23/89

Dear Mr. Kortum:

Based on the information provided on your August 23, 1989 resubmittal, listed are some concerns that will need to be addressed prior to final approval:

1. Your proposed contours along with the existing contours indicate that you are pushing the flood plain further North.
2. Floodplain Ordinance does not allow any fill within the floodplain.
3. Contours on your 1"-50' do not correspond to your 1"-20' contours.
4. House will need to be moved further south a safe distance.
5. You will need to identify the starting dimension and ending dimension of your proposed diversion dike.
6. Please provide cross section of dike and swale with Thickness of your proposed 6"-12" cobble bed.
7. On your dike wall detail please identify which ~~side~~ side is east and which side is west.
8. ~~Our 1"=200' contour maps indicate a area larger than 138 acres for the flood plain of the North Domingo De Baca Arroyo,~~ please address.

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DRAINAGE INFORMATION SHEET

PROJECT TITLE: Lot 198 Big Horn Ridge ZONE ATLAS/DRNG. FILE #: c-23 /D15

LEGAL DESCRIPTION: Lot 198 Big Horn Ridge , Sandia Heights South, Unit 2

CITY ADDRESS: 198 Big Horn Ridge

ENGINEERING FIRM: Marvin R Kortum CONTACT: Marvin R Kortum

ADDRESS: 1605 Speakman Drive, SE Albuquerque, New Mexico 87123 PHONE: (505) 299-0774

OWNER: CONTACT:

ADDRESS: PHONE:

ARCHITECT: Max Capper CONTACT:

ADDRESS: 13 El Arco Albuquerque, New Mexico 87123 PHONE: 292-0216

SURVEYOR: CONTACT:

ADDRESS: PHONE:

CONTRACTOR: Jim Green Construction Co CONTACT:

ADDRESS: 4815 Hawkins Street NE Albuquerque, New Mexico 87109 PHONE: 293-2880

RECEIVED AUG 23 1989 HYDROLOGY SECTION

PRE-DESIGN MEETING:

___ YES

_x_ NO

___ COPY OF CONFERENCE RECAP SHEET PROVIDED

DRB NO. ___

EPC NO. ___

PROJ. NO. ___

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

___ FINAL PLAT APPROVAL

_x_ BUILDING PERMIT APPROVAL

___ FOUNDATION PERMIT APPROVAL

___ CERTIFICATE OF OCCUPANCY APPROVAL

___ ROUGH GRADING PERMIT APPROVAL

___ GRADING/PAVING PERMIT APPROVAL

___ OTHER ___ (SPECIFY)

DATE SUBMITTED: August 23, 1989

BY: Marvin R Kortum

25×10

0000 0000 0377

Marvin R Kortum
1605 Speakman Drive SE
Albuquerque, New Mexico 87123
NMPE 6519
(505) 299-0774

August 23, 1989

County of Bernalillo
State of New Mexico
One Civic Plaza NW ATTN: Hydrology
Albuquerque, New Mexico 87102

RECEIVED
AUG 2 7 1989
HYDROLOGY SECTION

Albuquerque Metropolitan Arroyo Flood Control Authority
2600 Prospect Ave NE
Albuquerque, New Mexico 87107

REFERENCE: Grading and Drainage Plan for Lot 198, Unit 2, Sandia Heights South (C-23/D15) (BP 89-509)

Gentlemen:

Attached for your review and approval is a copy of the grading and drainage plan for a residential building on the referenced lot.

Please note that the proposed grading does not encroach on the drainage easement as shown on the plat nor on the flood plain for the 100 year design storm as estimated in this report. All proposed construction is also out of the floodway as shown on panel 11 of 50 of the Floodway Flood Boundary and Floodway Map , City of Albuquerque.

The drainage basin for the fork of the Domingo Baca Arroyo which crosses lot 198 is outlined on the attached map extract. The present boundaries for the basin were determined by field inspection, and are marked "A" on the map. The area marked "B" presently flows to the next arroyo south, but the toe of the steep slope the sediment build-up is at a height such that the channel is ill defined, and redirection of the channel may occur in the future. A recent redirection has occurred for the area marked "C", the flow now being directed to the north arroyo by a sharply cut four feet deep stream bed. The proposed grading plan is designed to minimize damage to the property should a major rediversion occur in the drainage basin.

The 30" RCP culvert adjacent to the property is not adequate to pass the design storm runoff under the road. There is sufficient dip in the road to direct overflow along the arroyo channel. Presently the culvert is scoured clean by runoff, since the outlet is about four feet above the downstream channel, and loose sediment coming from upstream is not accumulating. The condition of this culvert and the height of the stream bed should be monitored in the future by the owner and appropriate authority to check that the culvert

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does not become clogged, leading to a possible raising of the stream bed and overflow onto the homesite.

The diversion of the minor arroyo (4.3 acre drainage area) immediatly east of the property is shown on the grading plan. This diversion will have no impact down stream since the small arroyo originally drained into the major arroyo along the north. The drainage basin for the small arroyo is well protected at its head water by a six feet high by fifty feet wide natural berm, effectively safeguarding against a sediment build-up and channel change into the small basin

The comments in the County of Bernalillo letter, dated August 18, 1989, concerning this lot are addressed below:

A. A benchmark, temporary benchmark, and all elevations relative to mean sea level are now shown.

B. The house foot print is now shown.

C. The diversion and calculations and certifications on design are now shown.

D. The drainage easement and 100 year flood plain are now shown on the drawing.

E. The contours of existing conditions on the site were based on an on-site survey. The contours for the 4.3 acre drainage basin are extracted from the City of Albuquerque Topographic Orthophoto Map C-24.

F. Computations by the rational method are now shown.

G. The driveway and proposed walls are shown

H. The minor flows are to be dispersed by the large cobbles at the diversion dike, then redirected by the dike and the CMU wall as shown on the drawings. Two feet of freeboard above the estimated water level of 9 inches are provided to prevent splash over.

If you have any questions, please feel free to call me at 299-0774.

Sincerely,

Marvin R Kortum

Enclosures:
1. Extract of Sandia Heights South, Unit 2 plat
2. Extract of Floodway Map, Panel 11 of 50
3. Extract of 1:24,000 Forest Service Map, Sandia Crest
4. Retaining wall design from contract documents.
5. Extract of culvert design data.

cc. James Green,INC. (Please retain for transfer to owner)

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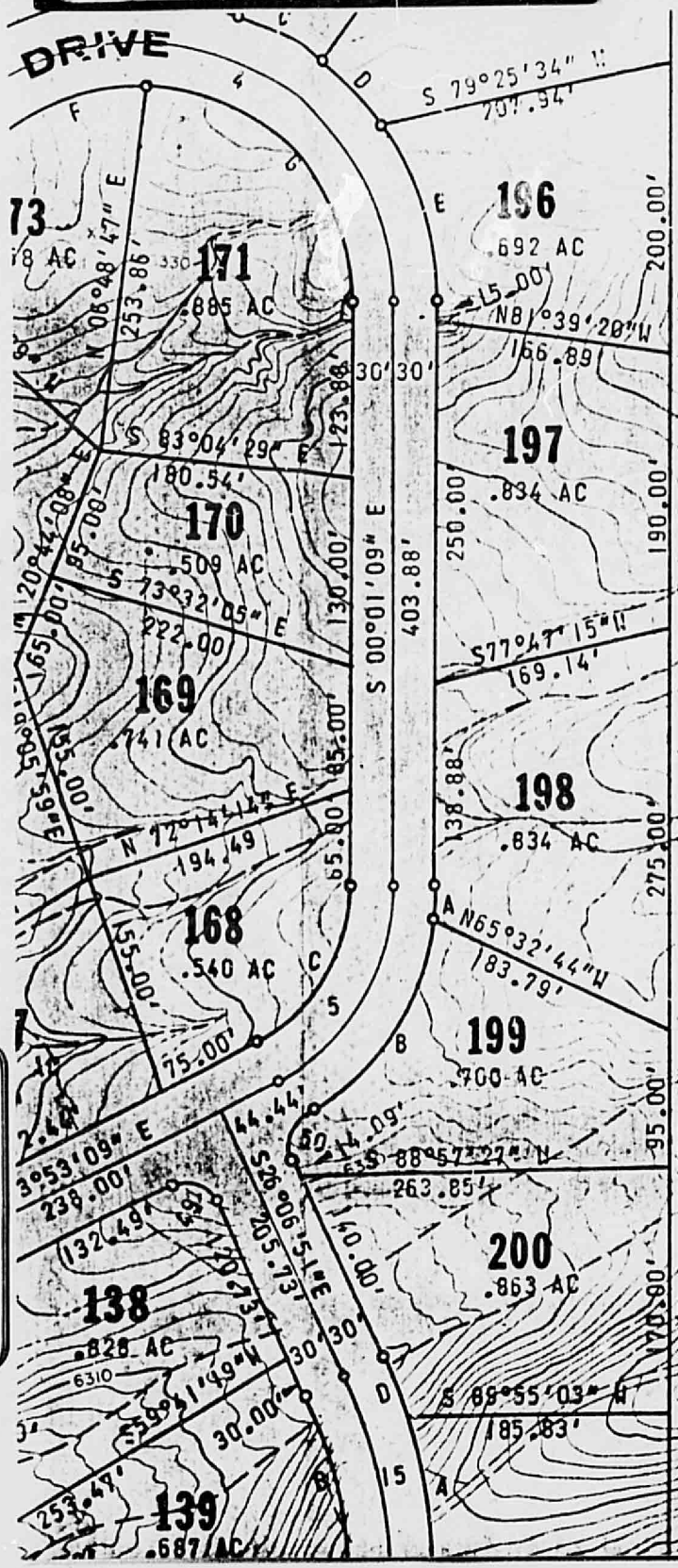
THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.



Thence S 89°58'51" W, for a distan

Thence S 00°01'09" E, for a distan

Thence N 79°37'54" W, for a distan curvature; said curve having a rad distance of 85.96 feet to the left

Thence S 00°01'09" E, for a distan centerline of a road;

Thence continuing on the centerlin for a distance of 866.69 feet to the of Sandia Heights South - Unit 2 s

Thence N 00°01'09" W, for a distan for the northwest corner of Sandia Subdivision;

Thence N 89°58'51" E, for a distan southern boundary of Sandia Height northeast corner of Sandia Heights

Thence S 00°04'57" E, for a distan point of beginning, containing 78. lots numbered 103 through 125, and of lot numbers 104, 107, 134, 135, Heights South - Unit 2 Addition of the several thoroughfares hereon s and also easements as shown on th buried service wires and including and the right to trim or remove in subdivided as shown hereon with th with the desires of the undersigne

SANDIA PEAK

By

Vice President

State of New Mexico)
County of Bernalillo) ss

On this 15th day of October, in and for said county, personall personally known, who being by me Vice President of Sandia Peak Tra under the laws of the State of Ne the foregoing instrument is the c and that said instrument was sign authority of its Board of Directo ledged said instrument to be the

In witness whereof, I have set my year first above written.

25×10

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THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT.

KEY TO MAP

500-Year Flood Boundary

100-Year Flood Boundary

FLOODWAY FRINGE — FLOODWAY

100-Year Flood Boundary

500-Year Flood Boundary

Approximate 100-Year Flood Boundary

Cross Section Line — A — A

Elevation Reference Mark — RM7 ×

River Mile — • M1.5

NOTES TO USER

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydaulic considerations with regard to requirements of the Federal Insurance Administration.

This map was prepared to facilitate floodplain management activities only; it may not show all special flood hazard areas in the community or all planimetric features outside of the floodplain. Refer to the latest official Flood Insurance Rate Map for any additional areas of special flood hazard.

For adjoining map panels, see separately printed Index To Map Panels.

LEGEND

INDEX CONTOUR — -4350-

INTERMEDIATE CONTOUR

DEPRESSION CONTOUR

SPOT ELEVATION — • 43.5

HORIZONTAL CONTROL POINT

VERTICAL CONTROL POINT

HORIZONTAL – VERTICAL CONTROL POINT

PHOTOCENTER

25 × 10

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Photograph(s) Follow Which Do Not Always Reproduce Well

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ALBERT G. SIMMS
PARK
Canyon
CITY
Elena Gallegos
Picnic Area
Cañon de
Domingo Baca
Sandia Peak Tower 2
Tower 1
Aerial Tram
Restaurant
Etc.
24
13
18
12
9
8000
7400
7000
6800
6400
6200
6954
7561
6170
6177
6342
6458
6407
6435
6424
6906
6920
9000
9200
9400
9600
9800
10000

25X

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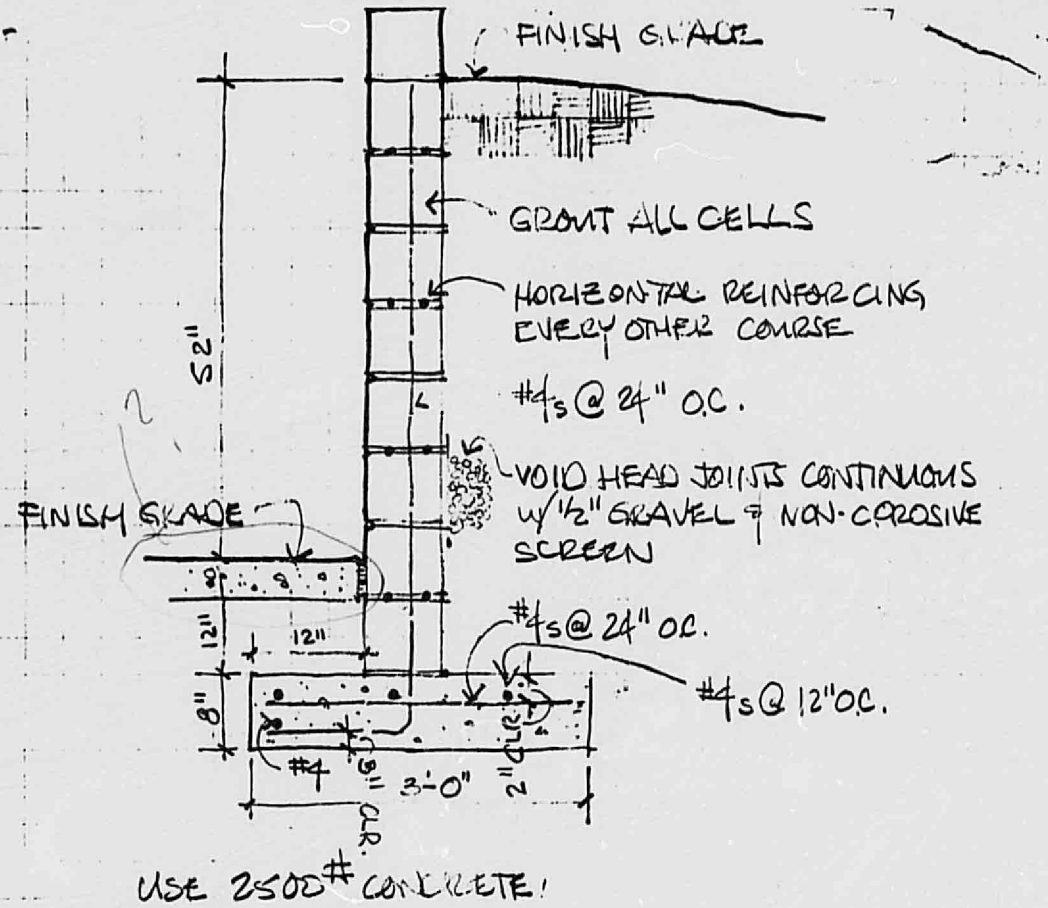

RETAING WALL FOR MORROW CONST.

MARK GRASSO · ARCHITECT

28 JUL 89

STATE OF NEW MEXICO
MARK A. GRASSO
NO. 1768
REGISTERED ARCHITECT

Mark A. Grasso

25×

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1501 wilson boulevard arlington virginia 22209
© january 1968

design data 9

american concrete pipe association

HYDRAULICS OF CULVERTS: 24-Inch Through 48-Inch Diameter Pipe

The hydraulic design of culverts establishes the minimum pipe size which has sufficient capacity to discharge a required flow within an allowable headwater depth. For circular culverts, one of the principal factors influencing hydraulic capacity is pipe diameter. Other hydraulic factors such as pipe length, slope, surface roughness and inlet geometry also influence capacity depending on whether the culvert is operating under inlet control or outlet control.

For any given headwater depth and pipe diameter, the capacity of a culvert operating under inlet control is limited by the degree of contraction of the flow at the entrance. Therefore, if a culvert pipe is to function as an efficient hydraulic structure under inlet control conditions, an inlet geometry which results in minimum contraction of the flow at the entrance is of utmost importance. In outlet control, all of the hydraulic factors affect culvert capacity. The primary factor limiting culvert capacity when operating under outlet control is surface roughness. A culvert pipe with an interior surface which results in a minimum of frictional resistance to flow is necessary for hydraulic efficiency.

The geometric shape of the socket end of a concrete culvert pipe provides a more efficient entrance than the sharp edge of a corrugated metal pipe with or without a headwall. In addition, the relative smoothness of concrete pipe enables it to maintain equivalent discharge capacity at lower headwater depths than can be maintained by corrugated metal pipe.

The significance of these hydraulic advantages of concrete pipe is illustrated by the performance curves presented in *Figures 1 through 14*. The curves correlate discharge-headwater depth and are based on nomographs included in *Hydraulic Engineering Circular Number 5*, Hydraulics Branch, Bridge Division, Office of Engineering and Operations, Bureau of Public Roads.

The headwater depths for inlet-controlled flow are read directly from the performance curves. For outlet-controlled flow it is necessary to subtract the product of the culvert length and slope from the headwater depth. *The following examples illustrate the proper use of the curves. A complete discussion of the hydraulics of culverts is presented in* Design Data 8.

EXAMPLE 1

Given: A 100-foot-long highway culvert is to be installed on a 1 percent slope. The culvert will be required to carry a discharge of 40 cubic feet per second within an allowable headwater depth of 7 feet.

Find: Size of concrete pipe and corrugated metal pipe required and type of control.

Solution: Enter *Figure 1: 24-Inch Diameter Concrete Pipe*, and project a vertical line from $Q = 40$ to the inlet control curve and outlet control curve representing $L = 100$ feet. Read headwater depth of 6.90 feet for inlet control and 7.85 feet for outlet control. To obtain outlet control headwater depth, subtract $S_o \times L$ from the outlet control figure: $7.85 - (0.01 \times 100) = 6.85$ feet.

Repeat the same procedure for corrugated metal pipe until a pipe size is found which will handle the design discharge within the allowable headwater depth. From *Figure 2: 24-inch Diameter Corrugated Metal Pipe*, it is apparent the pipe is too small. Therefore, try the next larger size.

From *Figure 4: 27-Inch Diameter Corrugated Metal Pipe*. HW for Inlet Control = 7.00 feet. HW for Outlet Control = $11.45 - (0.01 \times 100) = 10.45$ feet.

The Outlet Control headwater depth of 10.45 feet governs and is larger than the allowable. Therefore, try the next larger size.

From *Figure 6: 30-Inch Diameter Corrugated Metal Pipe*. HW for Inlet Control = 5.05 feet. HW for Outlet Control = $7.80 - (0.01 \times 100) = 6.80$ feet.

Answer: A 24-inch diameter concrete pipe or a 30-inch diameter corrugated metal pipe will carry the design discharge within the allowable headwater depth of 7 feet. The concrete pipe is in inlet control and the corrugated metal pipe is in outlet control.

EXAMPLE 2

Given: A 300-foot-long highway culvert is to be installed on a 0.4 percent slope and carry a design discharge of 100 cubic feet per second.

Find: The required headwater depths for 36-inch, 42-inch and 48-inch diameter concrete pipe and corrugated metal pipe.

Solution: The following table gives inlet control and outlet control headwater depths and the corresponding control headwater.

Dia.	Type of Pipe	HW Inlet Control	HW Outlet Control	Control Condition	Control Headwater
36"	Concrete	8.85	11.40	Outlet	11.40
36"	CMP	13.50	32.60*	Outlet	32.60
42"	Concrete	5.90	6.50	Outlet	6.50
42"	CMP	8.20	15.80	Outlet	15.80
48"	Concrete	4.80	4.75	Inlet	4.80
48"	CMP	5.85	9.30	Outlet	9.30

*Headwater depths for 36" CMP were obtained by extrapolation from Figure 10.

Answer: The required headwater depths for concrete pipe vary from 4.80 feet to 11.40 feet. For corrugated metal pipe required headwater depths vary from 9.30 feet to 32.60 feet.

From the above examples it is seen that the hydraulic characteristics of concrete pipe enable use of smaller pipe sizes than corrugated metal pipe. For equivalent discharges and pipe diameter, concrete pipe also results in considerably lower headwater depths than corrugated metal pipe.

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FIGURE 5: 30-Inch Diameter Concrete Pipe

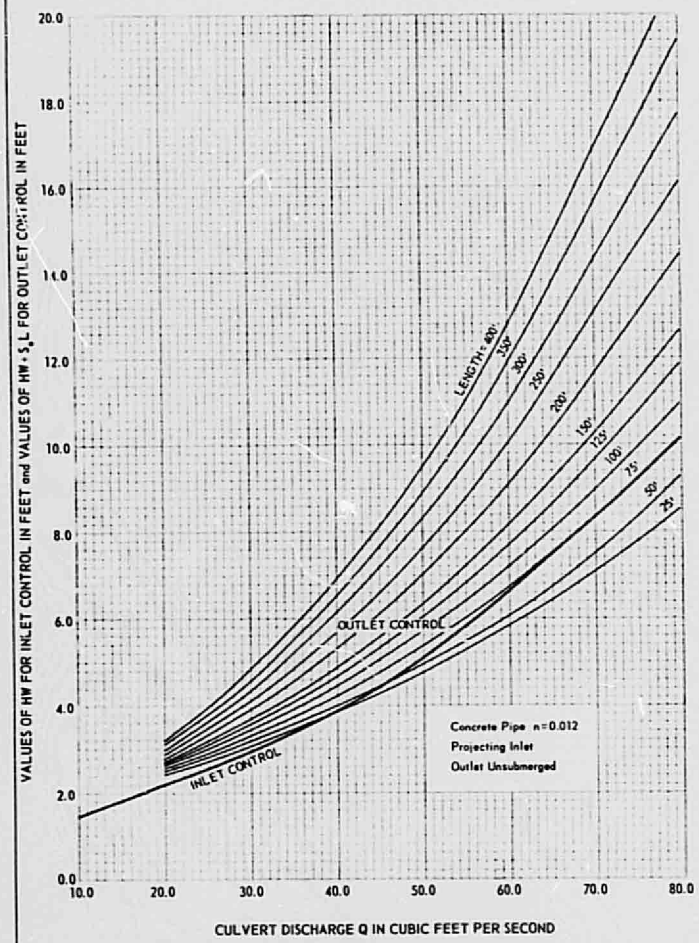
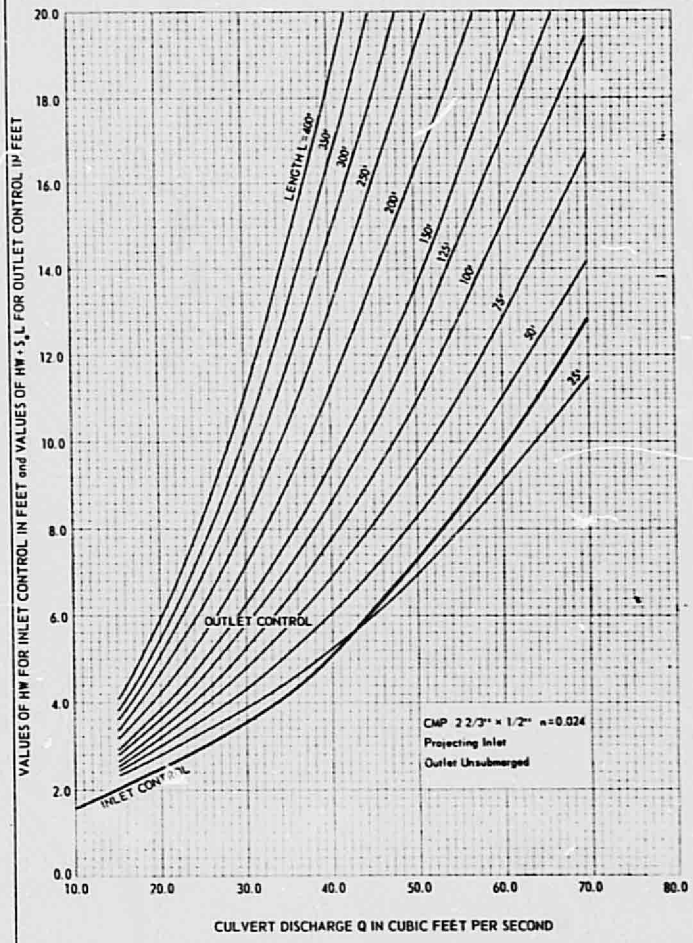


FIGURE 6: 30-Inch Diameter Corrugated Metal Pipe



Interpolate for intermediate culvert lengths

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BOARD OF COUNTY COMMISSIONERS
HENRY GABALDON, CHAIRMAN
DISTRICT 1
EUGENE M. GILBERT, VICE CHAIRMAN
DISTRICT 3
AL VALDEZ, MEMBER
DISTRICT 2
PATRICIA "PAT" CASSIDY, MEMBER
DISTRICT 4
JACQUELYN SCHAEFER, MEMBER
DISTRICT 5
ALEX ABEYTA, COUNTY MANAGER

County of Bernalillo

State of New Mexico

ONE CIVIC PLAZA N.W.
ALBUQUERQUE, NEW MEXICO 87102

ALVIN J. CAMPBELL, SHERIFF
PATRICIA J. PADILLA, TREASURER
GLADYS M. DAVIS, CLERK
SAM L. PEREA, ASSESSOR
THOMAS J. MESCALL, PROBATE JUDGE

August 18, 1989

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

RE: DRAINAGE PLAN FOR LOT 198, UNIT 2 OF SANDIA HEIGHTS SOUTH (C-23/D15) RECEIVED AUGUST 11, 1989 BP89-509

Dear Mr. Kortum:

Based on the information provided on your submittal of August 11, 1989, listed are some concerns that will need to be addressed prior to final approval.

1. All elevations must be to mean sea level

   a. AC.S. Bench mark used - description, location and elevation.
   b. T.B.M. - description, location and elevation.

2. Foot print must show exact location of proposed residence.

3. You must indicate method to be used for the diversion. It must be engineered, showing all calculations and it must be certified by the engineer.

4. Need to show the 100 year flood plain location along with the drainage easement on the plan drawing.

5. Where did the contours come from? Were the contours derived from a field topo?

6. You need to show all the computations how you derived the "Q" also show how you computed the composite "C". Also, use the rational Method.

7. Please identify where the driveways and any proposed walls will be located.

8. How do you propose to turn the minor flows at a 0 - 90° angle?

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

Cordially,

Bernie J. Montoya

Bernie J. Montoya, C.E.
Engineering Assistant

BJM/bsj
(WP+1185)

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BP 89-509

RECEIVED
AUG 1 . 1989
HYDROLOGY SECTION

The northerly portion of property is within a 100 year floodplain as shown on the National Flood Insurance Program's, Flood Insurance Rate Maps (Community Panel Number 350002 0011c). The northerly portion of this property is also encumbered by a drainage easement as shown on the plat of record of Sandia Heights South, Unit 2. Placement of fill within the 100 year floodplain must comply with the Bernalillo County Fill Material Ordinance 85-29. Placement of fill within the drainage easement will not be allowed without substantial improvements, both onsite and offsite, to the drainage easement. The cost of defining these improvements (drainage study) and the cost of the improvements are the responsibility of the developer.

This property is within AMAFCA's jurisdiction. This property drains more than 20 acres. In accordance with AMAFCA's Resolution No 1980-15,

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Drainage Policy, Section 8, no application for building permit may be approved by any local government agency unless the documents described in and prepared in accordance with Section 7 of the Drainage Policy are incorporated.

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PLANS/PLATS ON FILE

FILE DESC: C23/D15

PLANS/PLATS 5

25×10

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