

September 25, 1992

Mr. Gilbert Aldaz, P.E.
Hydrology Section
City of Albuquerque
P.O. Box 1293
Albuquerque, N.M. 87103

RE: HOLD HARMLESS AGREEMENT, LOT 1433, SANDIA HEIGHTS SOUTH

Dear Mr. Aldaz:

The purpose of this letter is to provide the requested Hold Harmless Agreement and request a variance from the Flood Hazard Ordinance No. 88-46 and County Drainage Ordinance No. 90-6 for the approval of the Building Permit for the subject lot. The undersigned lot owner agrees to save the City of Albuquerque, County of Bernalillo and AMAFCA (the authorities) harmless from any and all liability arising from the Authorities approval of this drainage plan. It is understood that the Authorities do not agree to save the undersigned owner harmless from any liability which may arise from the owner's negligent use of the property and drainage facilities constructed with the approved plan.

The undersigned lot owner fully understands that a portion of this property is within a 100-year floodplain as shown on the National Flood Insurance Program "Flood Insurance Rate Map" and may be subject to flooding. Any development of this property must conform to the Bernalillo County Flood Damage Prevention Ordinance. For financing purposes, the property may be subject to the flood insurance requirements of the Federal Emergency Management Agency (FEMA) and until such time that a map revision is approved by FEMA for existing drainage improvements, flood insurance is likely to be required.

The agreements and obligation of this letter of the owner as set forth herein shall be binding on the owner, his heirs, assigns and successors and on the owner's property and constitute covenants running the owner's property until released by the Authorities.

WITNESS its hand and seal this 28th day of September, 1992.

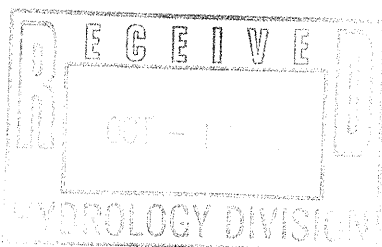
James L. Tompkins
Lot Owner

Lot Owner

ACKNOWLEDGEMENT FOR NATURAL PERSONS

STATE OF NEW MEXICO)
)SS
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me this 28th day of September, 1992 by



Anna Martinez
Notary Public

My Commission Expires Nov. 6, 1993

0004781

EXHIBIT TO HOLD HARMLESS AGREEMENT

LEGAL DESCRIPTION:

LOT 1433, SANDIA HEIGHTS SOUTH, UNIT 14
BERNALILLO COUNTY, NEW MEXICO

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
FILED FOR RECORD

92 NOV 30 PM 12: 10

OK REC 92-28 PG 4780-4781

GLADYS M. DAVIS
CLERK & RECORDER

Lou Burns DEPUTY

PROJECT TITLE: TOMKINS RESIDENCE ZONE ATLAS/DRNG. FILE #: D-23/D25
 LEGAL DESCRIPTION: LOT 1433 SANDIA HEIGHTS SOUTH SUB., UNIT 14
 CITY ADDRESS: _____
 ENGINEERING FIRM: KEMPER-VAUGHAN CONTACT: KIM R. KEMPER
 ADDRESS: 3700 COORS RD NW, 87120 PHONE: 831-4520
 OWNER: JIM TOMKINS. CONTACT: JIM TOMKINS.
 ADDRESS: 5531 AMISTAD RD. 87111 PHONE: 821-3543
 ARCHITECT: SANDIA DESIGNERS CONTACT: _____
 ADDRESS: _____ PHONE: 298-2842
 SURVEYOR: RIO GRANDE ENGR. & SURV. CONTACT: REX VOGLER
 ADDRESS: P.O. BOX 1425, BELEN 87002 PHONE: 864-7411
 CONTRACTOR: CROMBIE CONST. CO. CONTACT: RICHARD CROMBIE
 ADDRESS: 47 EAST RIDGE RD. SANDIA PR. PHONE: 281-2915

PRE-DESIGN MEETING:

☐ YES
☒ NO
☐ COPY OF CONFERENCE RECAP
 SHEET PROVIDED

DRB NO. _____
 EPC NO. _____
 PROJ. NO. _____

(RE-SUBMITTAL)

TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT
☒ 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
☒ BUILDING PERMIT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY APPROVAL
☐ ROUGH GRADING PERMIT APPROVAL
☐ GRADING/PAVING PERMIT APPROVAL
☐ OTHER _____ (SPECIFY)

DATE SUBMITTED:

BY:

92-153

11/5/90
[Signature]

FURTHER EXPLANATION OF CALCULATIONS PROVIDED

TOTAL LOT AREA = 0.633 ACRE

ADDITIONAL AREA AFFECTED BY DRIVEWAY = 0.008 ACRE

TOTAL PROPERTY CONSIDERED IN CALCULATIONS = 0.641 ACRE.

EXISTING CONDITIONS:

FRONT TOTAL LOT AREA = 0.296 ACRE + 0.008 ACRE CHANGED FROM
TREATMENT A TO TREATMENT C DUE TO DRIVEWAY. = .304 TOTAL

REAR LOT AREA = 0.337 ACRE

PROPOSED CONDITIONS:

EXISTING AREA DIVERTED FROM FRONT TO REAR OF LOT:

NATURAL GROUND DUE TO REQUIRED GRADING (EAST) = 0.008 ACRE

AREA UNDER ROOF = 0.049 ACRE

(0.042 ACRE OF ROOF AREA ALREADY DRAINS TO REAR)

RESULTING FRONT DRAINAGE AREA = 0.304 - 0.008 - 0.049 = 0.247 ACRE

0.056 TREATMENT C

0.191 TREATMENT A

$$V_{100-6hr} = (0.66)(0.191) + (1.13)(0.056) / 12 = 0.016 \text{ ac-ft} = 687 \text{ cf}$$

$$Q_{100} = (2.26)(0.191) + (3.94)(0.056) = 0.65 \text{ cfs}$$

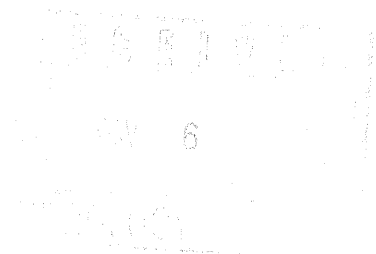
RESULTING REAR DRAINAGE AREA = 0.337 + 0.008 + 0.049 = 0.394 ACRE

0.091 TREATMENT D

0.303 TREATMENT A

$$V_{100-6hr} = (0.66)(0.303) + (2.57)(0.091) / 12 = 0.036 \text{ ac-ft} = 1,575 \text{ cf}$$

$$Q_{100} = (2.26)(0.303) + (5.74)(0.091) = 1.21 \text{ cfs}$$



DRAINAGE INFORMATION SHEET

PROJECT TITLE: TOMKINS RESIDENCE ZONE ATLAS/DRNG. FILE #: D-23/025

LEGAL DESCRIPTION: LOT 1433 SANDIA HEIGHTS SOUTH SUB., UNIT 14

CITY ADDRESS: _____

ENGINEERING FIRM: KEMPER-VAUGHAN CONTACT: KIM R. KEMPER

ADDRESS: 3700 COORS RD NW, 87120 PHONE: 831-4520

OWNER: JIM TOMKINS. CONTACT: JIM TOMKINS.

ADDRESS: 5531 AMISTAO RD. 87111 PHONE: 821-3543.

ARCHITECT: SANDIA DESIGNERS CONTACT: _____

ADDRESS: _____ PHONE: 298-2842.

SURVEYOR: RIO GRANDE ENGR. & SURV. CONTACT: REX VOGLER

ADDRESS: P.O. Box 1425, BELEN 87002 PHONE: 864-7411

CONTRACTOR: CROMBIE CONST. CO. CONTACT: RICHARD CROMBIE

ADDRESS: 47 EAST RIDGE RD. SANDIA PR. PHONE: 281-2915

PRE-DESIGN MEETING:

☐ YES

☒ NO

☐ COPY OF CONFERENCE RECAP SHEET PROVIDED



DRB NO. _____

EPC NO. _____

PROJ. NO. _____

wpt3711

TYPE OF SUBMITTAL:

☐ DRAINAGE REPORT

☒ 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

☒ BUILDING PERMIT APPROVAL

☐ FOUNDATION PERMIT APPROVAL

☐ CERTIFICATE OF OCCUPANCY APPROVAL

☐ ROUGH GRADING PERMIT APPROVAL

☐ GRADING/PAVING PERMIT APPROVAL

☐ OTHER _____ (SPECIFY)

DATE SUBMITTED: 9/30/92

BY: [Signature]



Sickert

BOARD OF COUNTY COMMISSIONERS

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JUAN R. VIGIL, COUNTY MANAGER

County of Bernalillo

State of New Mexico

2400 BROADWAY S.E.
ALBUQUERQUE, NEW MEXICO 87102

ADMINISTRATION (505) 768-4000

COMMISSION (505) 768-4217

FAX (505) 768-4329

RAY GALLAGHER, SHERIFF

PATRICK J. PADILLA, TREASURER

GLADYS M. DAVIS, CLERK

MARK J. CARRILLO, ASSESSOR

THOMAS J. MESCALL, PROBATE JUDGE

Date: 19-JAN-93

Subject: Submittal

Case No.: BP-92-755

Zone Map No.: D-23

Street Address: 1433 HONEYSUCKLE DR NE

Legal Description: LOT 1433 SANDIA HEIGHTS UNIT 14

Name of Applicant: Richard Crombie

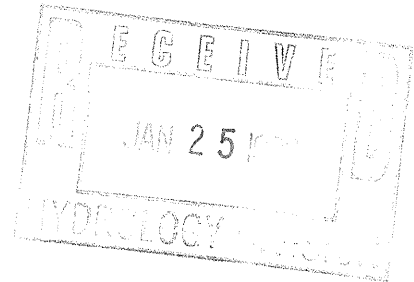
Dear Applicant:

Bernalillo County Public Works Department will require **TWO WEEKS** for review and comment of submittal and resubmittals, and **ONE WEEK** for final review and plat sign-off. Major submittals may require more than two weeks for review and comment.

The issuance of a permit or a review or approval of plan specifications, computations, and shop drawings shall not be interpreted to be a permit for or an approval of any variance or violation of any of the provisions of any County or State codes, ordinances, standards, or policies. Nor shall such issuance of a permit or approval of plans, specifications, computations, and shop drawings prevent any authorized County representative or County inspector from thereafter requiring the correction of errors in said plans, specifications, computations, or shop drawings or from stopping construction operations which are being carried on thereunder when in violation of any County or State codes, ordinances, standards, or policies.

Review of construction plans, specifications, computations, and shop drawings is only for general conformance with the design concept of the project and general compliance with the plans and specifications and shall not be construed as relieving the Contractor, Land Divider, Subdivider, Engineer/Surveyor, or applicant of the full responsibility for: providing materials, equipment, and work required by the contract; the proper fitting and construction for the work; the accuracy and completeness of the submittal; selecting fabrication processes and techniques of construction; and performing the work in a safe manner.

REV 4-22-91 BR



COUNTY OF BERNALILLO

APPLICATION FOR CASE REVIEW

Please complete pages one and two of this application for review of your case. Submit **THREE** blueines of plat, drawings, or information with case submittals and **THREE** blueines of plat, drawings, or information along with the original mylar for final sign-off applications. Submit a County Zone Atlas Map with subject property marked on the map. If a Grading and Drainage plan is not included with a land division, replat, or conceptual plan, please submit one 8.5"x11" photocopy of a USGS quad map with the subject property superimposed.

NOTE: INCOMPLETE APPLICATIONS WILL BE RETURNED WITHOUT REVIEW.

1. APPLICANT INFORMATION:

a. Applicant is(check one):

☐ OWNER ☐ SURVEYOR ☒ AGENT
☐ ENGINEER ☐ DRAINAGE ENGINEER

b. Date of this application: 14-JAN-93

c. Signature of applicant:

(print) _____ (sign) _____

d. OWNER: Jim Tomkins

PHONE: 505-

Albuquerque, NM 871

e. AGENT: Richard Crombie

PHONE: 505-881-1223

47 Eastridge Road

Albuquerque, NM 87047

f. OTHER(specify): Kemper-Vaughan

PHONE: 505-831-4520

3700 Coors Rd NW

Albuquerque, NM 87120

2. TYPE OF SUBMITTAL (check one):

☐ REPLAT
☐ LAND DIVISION (MINOR SUBDIVISION)
☐ MAJOR SUBDIVISION
☐ CONSTRUCTION DRAWINGS
☐ GRADING/DRAINAGE PLAN
☐ AS-CONSTRUCTED GRADING/DRAINAGE PLAN
☐ VARIANCE REQUEST
☐ TRAFFIC IMPACT ANALYSIS/TRAFFIC STUDY
☐ INFRASTRUCTURE LIST/DESIGN REVIEW FEE
☒ OTHER (specify): _____

**TO BE FILLED OUT BY
COUNTY PUBLIC WORKS DEPARTMENT ONLY**

Your: ☒ submittal of drainage information
☐ resubmittal of _____

is: ☐ approved.
☒ approved with comments/conditions.
☐ disapproved.

Case review comments are:

☒ attached.
☐ not attached.
☐ not attached. See remarks below.

Resubmittal is:

☒ not required for drainage
☐ required. When resubmitting, please use Resubmittal Form.

Please submit:

☐ three blueines of corrected plat incorporating case review comments.
☐ original mylar and three blueines for final sign-off.
☐ grading/drainage plan.
☐ as-constructed grading/drainage plan.
☐ infrastructure list and/or improvements agreement.
☐ design review fee. (payments accepted at county finance dept.)
☐ schedule a CRC meeting with Public Works. Tel. 843-6120.
☒ other: See comments.

It is required that:

☐ Bernalillo County Public Works Department inspect improvements prior to final sign-off of plat.
☐ Bernalillo County Public Works Department signature line be placed on plat.

Remarks: _____

Concur:

Robert Foglesong 1/14/93
 Robert Foglesong
 County Surface Water Hydrologist
 Bernalillo County Public Works Department

Clifford E. Anderson 1/15/93
 Clifford E. Anderson
 Drainage Engineer
 AMAFCA

cc:

☐ Jack Cloud, DRB
☐ County Planning
☐ Raymond Quintana, County Building and Zoning
☐ Owner: _____
☐ Agent: _____
☒ Case File: BP 92-755
☒ Clifford E. Anderson, AMAFCA
☒ Gilbert Aldaz, County Floodplain Administrator, COA
☒ Fred Torrez, NMSHTD District Three
☒ Other: _____

BERNALILLO COUNTY PUBLIC WORKS DEPARTMENT
CASE FILE COMMENTS

CASE NO: BP-92-755

ZONE MAP NO.: D-23

REFERENCE CASES:

STREET ADDRESS: 1433 HONEYSUCKLE DR NE

LEGAL DESCRIPTION: LOT 1433 SANDIA HEIGHTS UNIT 14

COMMENTS OF:

27-AUG-92 DRAN: This property is subject to the Bernalillo County Storm Drainage Ordinance, No. 90-6. A grading and drainage plan meeting the requirements of the Ordinance and the "Interim Drainage Design Criteria for Bernalillo County" is required prior to issuing a building permit. Application for building permit DISAPPROVED.

DRE: Access permit required from Bernalillo County Public Works Department prior to issuance of Occupancy Permit.

INSP: Inspection required, applicant required to obtain permits from G. J. Foster at Bernalillo County Public Works Department. Phone (505) 843-6120.

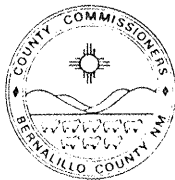
14-JAN-93 DRAN: 1. Based on the information provided on the Grading & Drainage Plan, with engineers seal last dated 11/5/92, the plan appears to meet the requirements established for this area and is therefore acceptable.

2. As shown on this plan, offsite areas drain through this property and will continue to drain through this property after development. Also, as shown on this plan, no external or property line walls or fences, which includes chain link fencing, will be constructed which may impede offsite drainage areas from continuing to drain through this property.

3. Development of this property must conform to this plan. Any proposed changes will require a revision to the plan prior to initiating the proposed change.

4. Prior to the County Building Department performing a final inspection, certification to the Floodplain Administrator that the site is in substantial compliance with this plan will be required.

11/14/93



BOARD OF COUNTY COMMISSIONERS

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ONE CIVIC PLAZA, N.W.
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GLADYS M. DAVIS, CLERK

MARK J. CARRILLO, ASSESSOR

THOMAS J. MESCALL, PROBATE JUDGE

December 1, 1992

Kim R. Kemper, P.E.
3700 Coors Road NW
Albuquerque, NM 87120

RE: DRAINAGE PLAN FOR LOT 1433, SANDIA HEIGHTS SOUTH, UNIT 14,
(D-23/D25), ENGINEER'S STAMP DATED NOVEMBER 5, 1992, (BP92-755)

Dear Mr. Kemper:

Based on the information provided on the referenced plan received November 6, 1992, the plan is acceptable for Building Permit release with the condition that the County is released from liability arising from possible flooding onto lot 1434 because of limited capacity and due to development of this site (per Hold Harmless Agreement dated September 25, 1992).

The House Plans need to show the gutter as required per this plan.

Please be advised that prior to the County Building Department performing final inspection on the site, an Engineer's Certification must be submitted to this office for approval.

If you should have any questions, please do not hesitate to contact me.

Cordially,

Gilbert Aldaz, P.E. & P.S.
County Floodplain Administrator

xc: Clifford E. Anderson, AMAFCA
Bob Foglesong, County PWD
Tom Burlison, County Building Dept.
Jim Tomkins, Owner
file

wp+3711

DRAINAGE PLAN

THE SUBJECT PROPERTY IS LOCATED ON HONEYSUCKLE DRIVE IN THE SANDIA HEIGHTS SOUTH SUBDIVISION. THE PLANNED IMPROVEMENTS TO THE PARCEL INCLUDE THE CONSTRUCTION OF A NEW RESIDENTIAL HOME, AS SHOWN ON PANEL 11 OF THE FEDERAL EMERGENCY AGENCY FLOOD BOUNDARY AND FLOODWAY MAP, DATED OCTOBER 14, 1983. A PORTION OF THIS SITE LIES WITHIN THE DESIGNATED 100 YEAR FLOOD HAZARD AREA. THE LOT TO THE WEST IS DEVELOPED AND A HOME IS CURRENTLY UNDER CONSTRUCTION ON THE LOT TO THE EAST.

IN ADDITION TO THE FLOOD HAZARD AREA WHICH PASSES THROUGH THE SOUTHERN END OF THE LOT, THERE IS ALSO A SMALL WATER COURSE WHICH PASSES THROUGH THE FRONT OF THE PROPERTY. FOR CONSISTENCY, WE OBTAINED DRAINAGE DATA FROM THE PLAN FOR THE HOME CURRENTLY UNDER CONSTRUCTION TO THE EAST (OWEN RESIDENCE, FEBRUARY, 1992). THE CALCULATION PROVIDED (CONTRIBUTING OFFSITE FLOWS) UTILIZE THE FLOWS AND DISCHARGES CALCULATED FROM THIS PLAN AS ENTERING THE SUBJECT PARCEL. TO THE WEST, THE EXISTING HOME (MR. RAY GEORGE) HAS TWO (2) DRIVEWAY CULVERTS THAT ARE UNDERSIZED. WE HAVE SPOKEN TO THE HOME OWNER ABOUT THE NEED TO INCREASE THEIR CAPACITY.

THERE EXISTS A SMALL BERM AT THE NORTHERN PROPERTY LINE THAT PROHIBITS DRAINAGE FROM THE ROAD SURFACE FROM ENTERING THE PROPERTY AS SHEET FLOW. THE ROADWAY RUNOFF FLOWS WEST WHERE IT HAS BEEN DIVERTED TO DRAIN INTO THE SUBJECT PROPERTY AND THEN THROUGH THE EXISTING DRIVEWAY CULVERTS TO THE WEST (SEE PLAN). IN OUR DISCUSSIONS WITH THE AREA RESIDENTS, WE LEARNED THAT LARGER FLOW IN THIS "BAR-DITCH" TEND TO BYPASS THE DIVERSION AND ENTER AT OR NEAR THE DRIVEWAY TO THE WEST.

EXCEPTION TO THE BUILDING SETBACK REQUIREMENT FOR THE 100-YEAR FLOOD HAZARD AREA IS REQUESTED. THE SETBACK REQUIREMENT CANNOT BE MET GIVEN THE AVAILABLE DEPTH OF THE LOT. A PRUDENT LINE APPROACH TO THE FLOOD LIMITS IS REQUESTED. THE ARROYO BANK AT THE REAR OF THIS PROPERTY HAS STABILIZED AT A SLOPE OF VARYING FROM 2:1 TO 3:1. THE BANK IS MADE UP OF BOULDERS 2-5 FEET IN DIAMETER, AND A SIGNIFICANT GROWTH OF OAK TREES AND OTHER FOLIAGE. REVIEW OF OLDER AERIAL PHOTOS SHOWS THAT THE SLOPE HAS REMAINED STABLE. A HOLD HARMLESS AGREEMENT HAS BEEN SUBMITTED WITH THIS PLAN.

THE EXISTING TOPOGRAPHY ON THE PLAN WAS DEVELOPED FROM A SURVEY PERFORMED IN SEPTEMBER, 1992, BY RIO GRANDE ENGINEERING AND SURVEYING, INC. A SUBSEQUENT FIELD REVIEW OF THE SITE, PERFORMED BY THIS OFFICE ON SEPTEMBER 24, 1992, REVEALED THAT ALL THE INFORMATION SHOWN ON THIS PLAN IS CONSISTENT WITH THE ACTUAL CONDITIONS THAT EXIST IN THE FIELD AND THAT NO GRADING, FILLING, OR EXCAVATING HAS OCCURRED SINCE THE PREPARATION OF THIS TOPOGRAPHY.

PIPE CULVERT ANALYSIS COMPUTATION OF CULVERT PERFORMANCE CURVE

September 30, 1992
TOMKINS RESIDENCE
18" CCP CULVERT
BELL END UPSTREAM

DESCRIPTION	VALUE
Culvert Diameter (feet)	1.50
FWMA Chart Number (1, 2 or 3)	1
Scale Number on Chart (Type of Culvert Entrance)	3
Manning's Roughness Coefficient (n-value)	0.0150
Entrance Loss Coefficient of Culvert Opening	0.40
Culvert Length (feet)	50.0
Culvert Slope (feet per foot)	0.0400

Flow Tailwater	Headwater (ft)	Normal Critical Depth at	Outlet
Rate (cfs)	Depth Inlet (ft)	Depth (ft)	Depth (ft)
7.0	0.00	1.55	-0.10
8.0	0.00	1.74	0.13
9.0	0.00	1.86	0.38
10.0	0.00	2.05	0.68

PIPE CULVERT ANALYSIS COMPUTER PROGRAM Version 1.7 Copyright (c) 1986
Dodson & Associates, Inc., 7015 W. Tidwell, #107, Houston, TX 77092
(713) 895-8322. All Rights Reserved.

GENERAL NOTES

- PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AS SOON AS POSSIBLE TO RESOLVE THE CONFLICT WITH A MINIMUM AMOUNT OF DELAY.
- ALL WORK ON THIS PLAN SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
- IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY ARE SHOWN IN AN APPROXIMATE LOCATION ONLY, AND LINES MAY EXIST WHERE NONE ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE UTILITY OWNER OR FROM EXISTING PLANS, AND THIS INFORMATION MAY BE INCOMPLETE, OR OBSOLETE AT THE TIME OF CONSTRUCTION. THE ENGINEER HAS NOT UNDERTAKEN ANY FIELD VERIFICATION OF THESE LOCATIONS, LINE SIZES OR MATERIAL TYPE, MAKES NO REPRESENTATION THERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE OR UNDERGROUND INSTALLATION IN OR NEAR THE AREA IN ADVANCE OF AND DURING ANY EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES AND UNDERGROUND FACILITIES. IN PLANNING AND CONDUCTING EXCAVATIONS, THE CONTRACTOR SHALL COMPLY WITH ALL STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE LINES AND FACILITIES.
- THE CONTRACTOR SHALL INSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHTS-OF-WAY OR ONTO PRIVATE PROPERTY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AND BY WETTING THE SOIL TO KEEP IT FROM BLOWING.
- THE CONTRACTOR SHALL OBTAIN ANY AND ALL PERMITS REQUIRED BY BERNALILLO COUNTY FOR THE COMPLETION OF THE WORK PRIOR TO BEGINNING CONSTRUCTION.

CALCULATIONS

THE FOLLOWING CALCULATIONS WERE DEVELOPED USING THE BERNALILLO COUNTY DRAINAGE DESIGN CRITERIA, APRIL 1990.

SITE CHARACTERISTICS:

SITE LOCATION:	ZONE 4 (TABLE 1)
PRECIPITATION:	P ₃₆₀ = 2.90 inches (TABLE 2)
LAND TREATMENT:	EXISTING - TREATMENT A (TABLE 4) LANDSCAPE - TREATMENT B (TABLE 4) DRIVEWAY - TREATMENT C (TABLE 4) BUILDINGS - TREATMENT D (TABLE 4)
EXCESS PRECIPITATION:	TREATMENT A E = 0.66 inches (TABLE 8) TREATMENT B E = 0.85 inches (TABLE 8) TREATMENT C E = 1.13 inches (TABLE 8) TREATMENT D E = 2.57 inches (TABLE 8)
PEAK DISCHARGE:	TREATMENT A = 2.26 cfs/acre (TABLE 9) TREATMENT B = 3.05 cfs/acre (TABLE 9) TREATMENT C = 3.94 cfs/acre (TABLE 9) TREATMENT D = 5.74 cfs/acre (TABLE 9)

	EXISTING	PROPOSED
TOTAL AREA	= 0.641 AC.	0.494 AC. = 78.0%
NATURAL VEG.	= 0.641 AC. = 100.0%	0.056 AC. = 7.6%
DRIVEWAY	= 0.00 AC. = 0.0%	0.091 AC. = 14.4%
BUILDINGS	= 0.00 AC. = 0.0%	

NOTE: EXISTING CONDITIONS ARE SUCH THAT APPROX. 52.5% OF THE PROPERTY DRAINS TO THE REAR WATERCOURSE AND APPROX. 47.5% TO THE FRONT WATERCOURSE. PROPOSED CONDITIONS: ONLY THE DRIVEWAY (0.056 acre) WILL DRAIN TO THE FRONT WATERCOURSE. ALL OTHER RUNOFF CREATED BY THE PROPOSED IMPROVEMENTS WILL DRAIN TO THE REAR OF THE LOT.

ONSITE - EXCESS PRECIPITATION & VOLUMETRIC RUNOFF:

EXISTING RUNOFF:	V _{100-6hr} = (0.66)(0.641)/12 = 0.035 acre-ft = 1,536 cf (728 cf front, 808 cf rear)
DEVELOPED RUNOFF:	WEIGHTED E = $\frac{(0.66)(0.494) + (1.13)(0.056) + (2.57)(0.091)}{0.641}$ = 0.97 inches V _{100-6hr} = (0.97)(0.641)/12 = 0.052 acre-ft = 2,262 cf (687 cf front, 1,575 cf rear)

ONSITE - PEAK DISCHARGE:

EXISTING DISCHARGE:	Q ₁₀₀ = (2.26)(0.641) = 1.45 cfs (0.69 front, 0.76 rear)
DEVELOPED DISCHARGE:	Q ₁₀₀ = (2.26)(0.494) + (1.94)(0.056) + (5.74)(0.091) = 1.86 cfs (0.65 cfs front, 1.21 cfs rear)

ONSITE - TEMPORARY AND FUTURE CONSIDERATIONS:

NOTE: TO AVOID EXCEEDING A MAXIMUM OF 0.069 cfs TOTAL RUNOFF TO THE FRONT WATERCOURSE, THE ESTIMATED DISTURBED GROUND AREA IN FRONT SHALL BE LIMITED TO 450 SQUARE FEET IN ADDITION TO THE AREA DISTURBED BY THE DRIVEWAY. ALSO IT IS RECOMMENDED THAT ANY FUTURE LANDSCAPING ACTIVITIES IN THE FRONT OF THE HOME BE LIMITED TO NATURAL GRASSES.

ESTIMATED DISTURBED GROUND = 3,000 sf, 0.069 AC.
ALLOWANCE FOR LANDSCAPING = (10%) 0.063 AC.

INITIAL INCREASE IN VOLUMETRIC RUNOFF AND PEAK DISCHARGE DUE TO DISTURBED GROUND:

$$V_{100-6hr} = (0.069)(1.13-0.66)/12 = 0.0027 \text{ acre-ft} = 117 \text{ cf}$$
$$Q_{100} = (0.069)(3.94-2.26) = 0.12 \text{ cfs}$$

INCREASE IN VOLUMETRIC RUNOFF AND PEAK DISCHARGE DUE TO LANDSCAPING:

$$V_{100-6hr} = (0.063)(0.85-0.66)/12 = 0.0010 \text{ acre-ft} = 44 \text{ cf}$$
$$Q_{100} = (0.063)(3.05-2.26) = 0.05 \text{ cfs}$$

RESULTS:

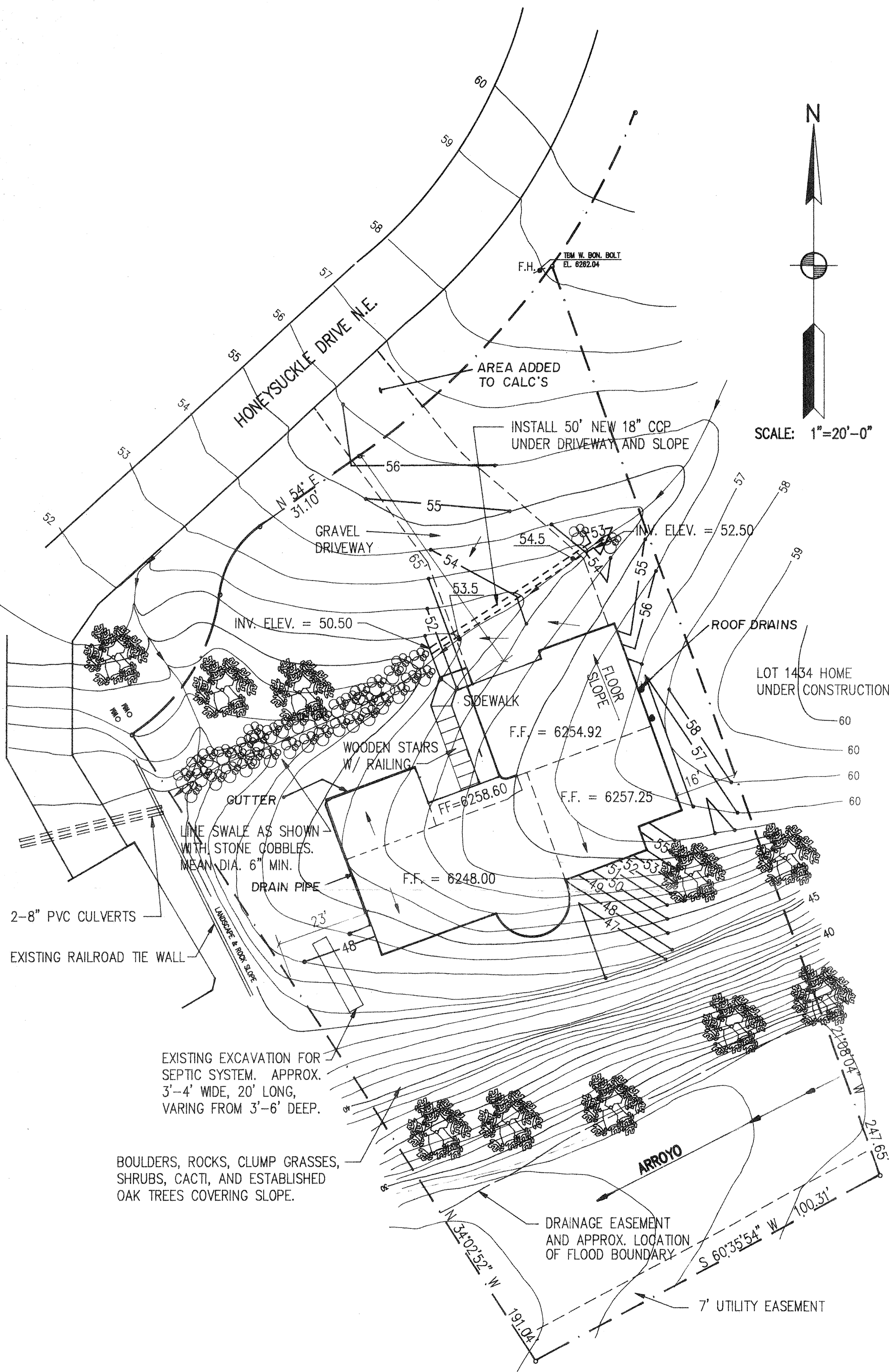
DEVELOPED VOLUMETRIC RUNOFF:
2,262 + 117 + 44 = 2,423 cf
2,423 - 1,525 = 887 cf INCREASE IN RUNOFF VOLUME

DEVELOPED PEAK DISCHARGE:
1.86 + 0.12 + 0.05 = 2.03 cfs
(0.69 cfs front, 1.34 cfs rear)
2.03 - 1.45 = 0.58 cfs INCREASE IN PEAK DISCHARGE

OFFSITE - PEAK DISCHARGE CALCULATIONS:

USING DATA DEVELOPED FOR LOT 1434, CURRENTLY UNDER CONSTRUCTION (OWEN RESIDENCE, PLAN PREPARED BY WEISS-HINES ENGINEERING, FEBRUARY, 1992) THE OFFSITE FLOWS ENTERING THE SITE = 9.6 cfs.

PEAK FLOW IN WATERCOURSE EXITING SITE = 9.6 + 0.69 = 10.29 cfs.



LEGEND

EXISTING CONTOUR	61
PROPOSED CONTOUR	61
PROPOSED SPOT ELEVATION	56.4
FLOWLINE	
FLOW DIRECTION ARROW	
PROPOSED CONCRETE	

BENCH MARK

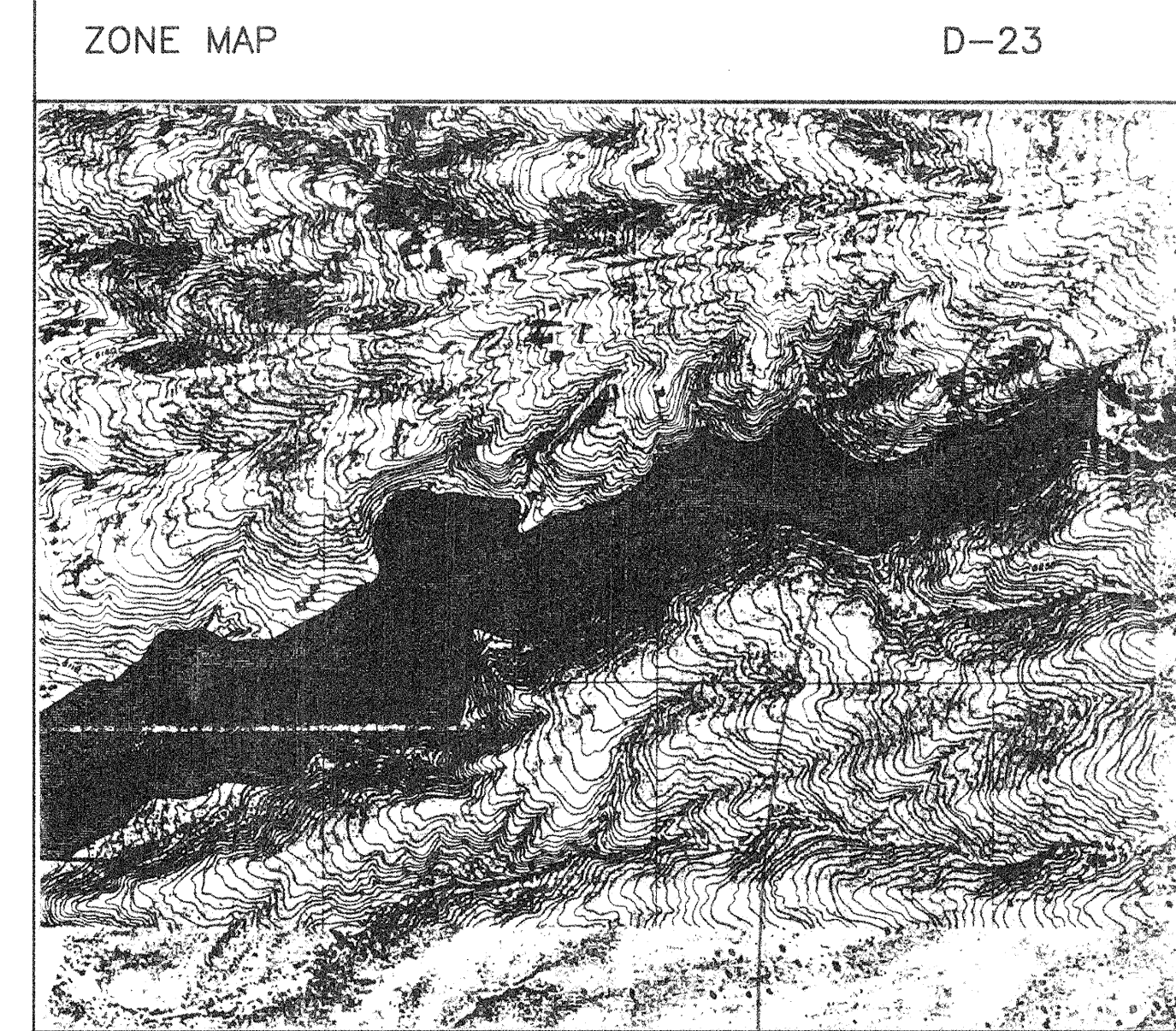
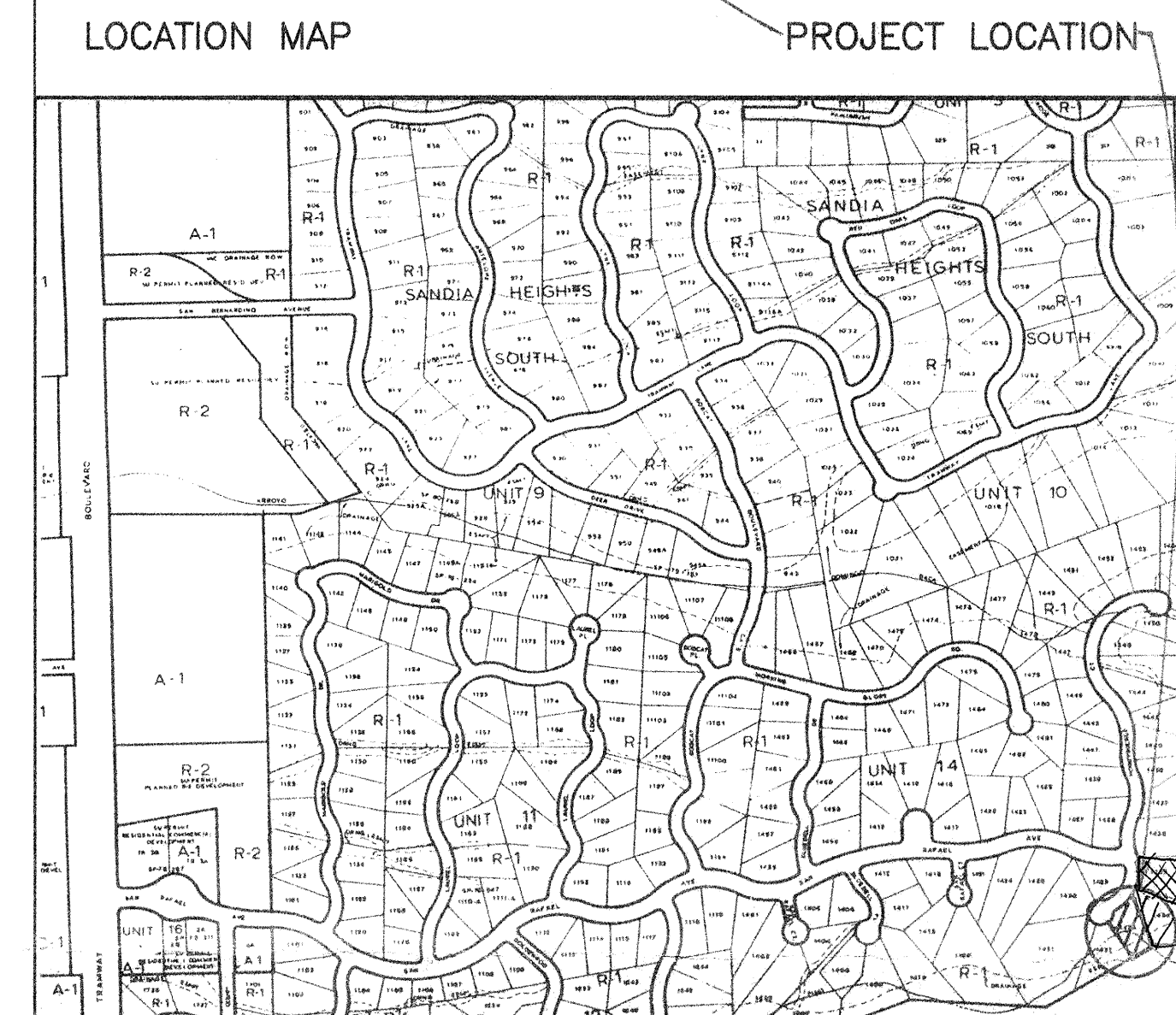
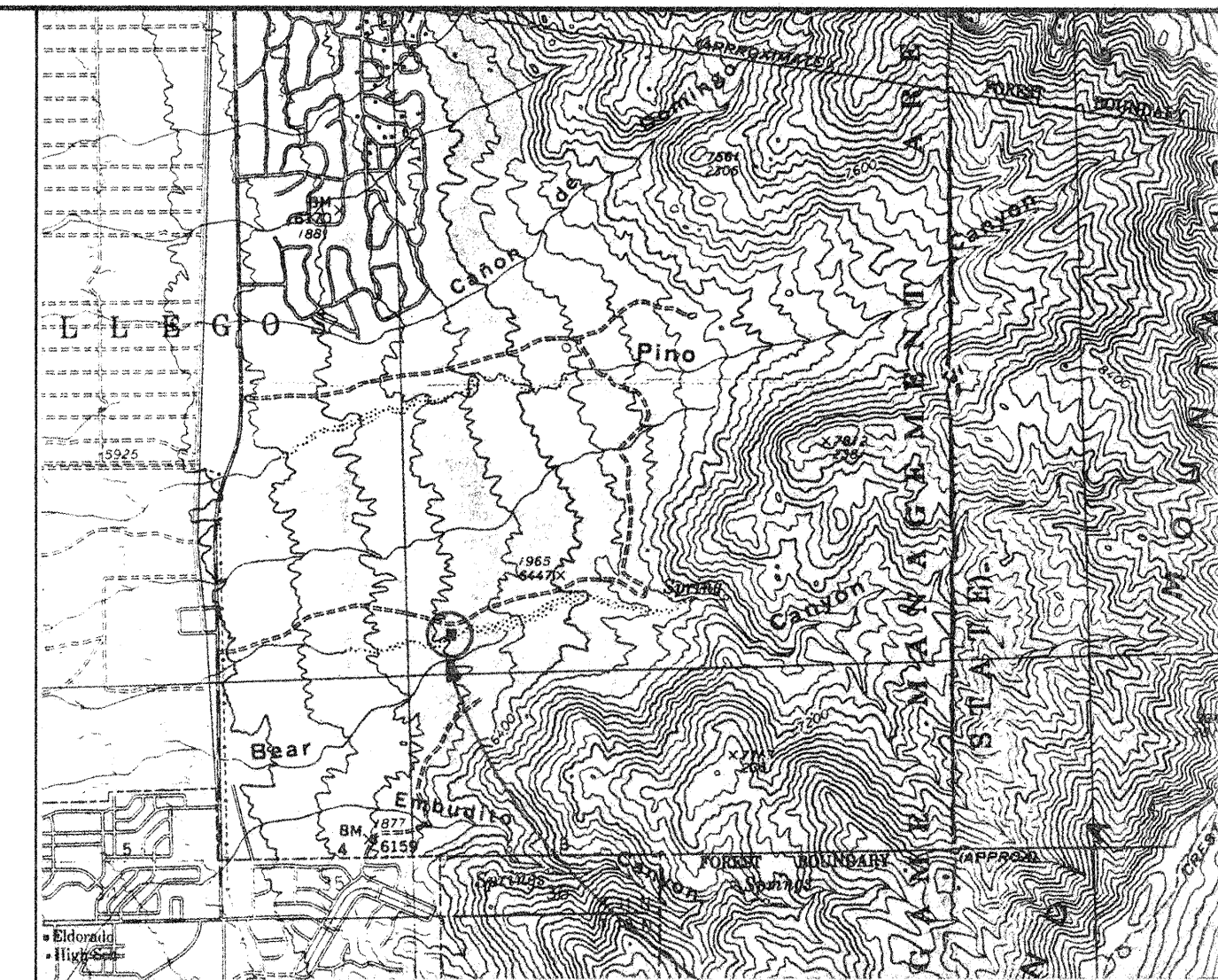
ACS CONTROL STATION ALBUQUERQUE CITY SURVEY MONUMENT
"2-C21"
ELEVATION = 5834.1

LEGAL DESCRIPTION

LOT NUMBERED FOURTEEN HUNDRED THIRTY-THREE (1433), SANDIA HEIGHTS SOUTH, UNIT 14, BERNALILLO CT., NM

APPROVALS

AMAFCA *[Signature]* Nov. 23, 1992
BERNALILLO COUNTY
CITY OF ALBUQUERQUE



FLOOD BOUNDARY MAP PROJECT LOCATION

TOMKINS RESIDENCE GRADING AND DRAINAGE PLAN			
KEMPER-VAUGHAN CONSULTING ENGINEERS			
3700 COORS RD. N.W. • ALBUQUERQUE, NEW MEXICO 87120 • (505) 831-4520			
Designed KRK	Drawn SE	Checked KRK	Sheet 1 of 1
File TOMKINS	Date SEPTEMBER 1992		