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No A14/D+B  
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No

October 2, 1998

Shahab Biazar  
Advanced Engineering and Consulting  
10209 Snowflake Ct. NW  
Albuquerque, New Mexico 87114

RE: DRAINAGE PLAN FOR COVERED PARKING AT CAMINO REAL APARTMENTS  
(~~A14-D48~~) ENGINEER'S STAMP DATED 9/30/98

A14/D4B

Dear Mr. Biazar:

Based on the information provided on your October 1, 1998 submittal, the above referenced site is approved Building Permit .

Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

Also, Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

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

C: Andrew Garcia  
File

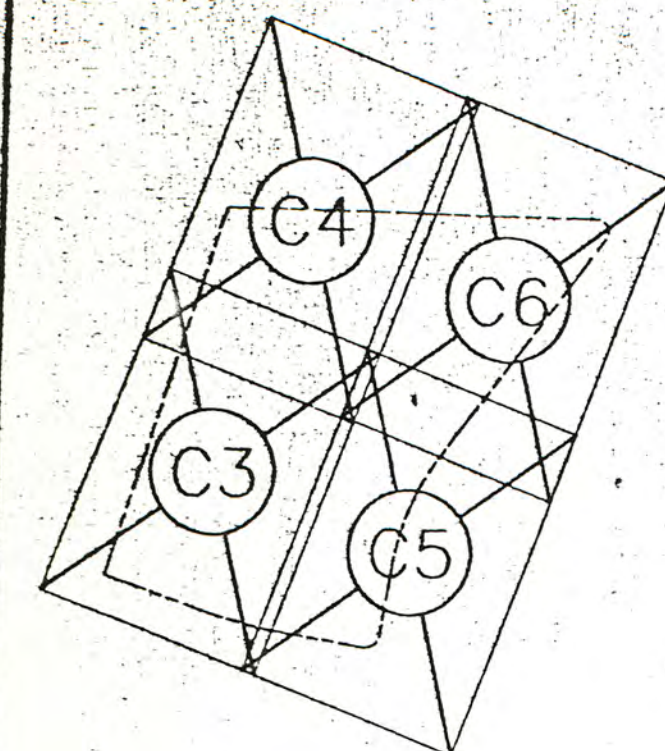
Sincerely

Bernie J. Montoya CE  
Associate Engineer

Good for You, Albuquerque!







# GRADING PLAN KEY

WSE AT 36" RCP ENTRANCE  
 $Q_{100} = 42.8 \text{ cfs}$   
 $D = 36"$   
 $\rightarrow HW/D = 1.14$   
 PER FHWA HEC NO.13, CHART 11  
 $WSE = 5004.65 + 1.14(3.0) = 5008.07$   
 $FREEBOARD = 1.0 + 0.025 V_d^{1/2} = 1.0 + 0.025(1.4)(3.4)^{1/2} = 1.05'$   
 TOP OF BANK ELEV = 5009.1 (E. SIDE)

## CABEZON ROAD

PHASE II SIDE CHANNEL  
 $Q_{100} = 42.8 \text{ cfs (DEV)}$   
 PER CABEZON CHANNEL CAPACITY ANALYSIS (EAI, JUNE 1993)

STA 48+56 @ CABEZON CHANNEL  
 AVG. DEPTH @  $Q_{100} = 3.4 \text{ Ft}$   
 WSE  $100 = 5006.8$

DRIVEWAY TO REMAIN CLOSED

EXISTING CONCRETE DRAINAGE CHANNEL OUTFLOW TO CABEZON CHANNEL

$Q_{100} = 39.71 \text{ cfs (DEV)}$   
 PER CABEZON CHANNEL CAPACITY ANALYSIS (EAI, JUNE 1993)

EXIST. IRRIGATION RCP TO BE SEALED AT BOTH ENDS AND ABANDONED IN PLACE

## BENCHMARK

NMSHTD BRASS CAP "N.M. 448-N12" ELEV. 5023.41  
 LOCATED 60' WEST OF C OF COORS ROAD N.W.  
 APPROX. 550' SOUTH OF INTERSECTION WITH CORRALES ROAD N.W. (S.R. 528)

## LEGAL DESCRIPTION

TRACT D-3, SEVEN BAR RANCH

## CABEZON CHANNEL

## ROAD

100 YR. FID. @ 4999.8  
 PER CABEZON CHANNEL CAPACITY ANALYSIS (EAI, JUNE 1993)

EXISTING INLET DISCHARGING TO CABEZON CBC

EXIST. INLET TO 30" RCP DISCHARGING TO CABEZON CBC UNDER CORRALES RD. TO 5007.76

CONNECTION TO EXISTING 30" RCP  
 $Q_{100} = 29.0 \text{ cfs, GRAVITY FLOW}$   
 $INV. (30" RCP) = 4996.1$   
 INSTALL ECCENTRIC INCREASER

$Q_{100} = 22 \text{ cfs (DEV)}$   
 ALLOWABLE  $Q_{100} = 37.2 \text{ cfs (DEV)}$

OVERFLOW SPILLWAY  
 PER SHEET C6, CREST ELEV = 5002.6

## Drainage Plan

### Existing Conditions

The site is currently undeveloped and consists of a net drainage area of approximately 9.86 acres. Existing topography is flat, with an overall drainage pattern of south to north.

Flows in Calle Cuervo NW, along the south property line, are contained in the curb and gutter. Two water-blocked driveway entrances to the site exist on westbound Calle Cuervo NW. An existing concrete-lined drainage channel runs in a 30" drainage easement on the west property line, intersecting flows from the west. Earthen berms currently separate the site from flows in this channel, as well as flows in the Cabezon Channel to the north, and Corrales Road NW to the East. An abandoned concrete-lined irrigation channel is situated near the southeast corner of the site, with an RCP connection to south side of Calle Cuervo NW.

According to FEMA Map No. 2, dated October 14, 1983, the northern portion of the site currently lies in the 100-Year Flood Plain, Zone AO, with 1' of depth.

### Developed Conditions

It is proposed to develop the site for multifamily residential use. Approximately 40% of the site's area is to consist of landscaping, with ground cover predominantly comprising turf and native vegetation.

The construction of the Cabezon Channel System provided an outfall for developed discharges from the site. An existing 30" RCP storm drain at t. Road NW. The Cabezon Channel Capacity Analysis (Easterling & Associates, Inc. (EAI) June 1993) demonstrates adequate capacity in the Cabezon Channel treatment distribution of "B" = 30X/10" = 70% for the subject site was assumed in the analysis. The attached hydrologic and hydraulic calculation demonstrate that the proposed drainage scheme is compatible with downstream facilities.

Protection from effluents flows will be maintained on the west property line by raising the top of the channel's east bank to an elevation of approximately 5009'. The waterblocks on Calle Cuervo will be retained so that flow will continue to be confined to the street. The existing berm south of the Cabezon Channel will continue to provide protection along the northern perimeter of the site. The proposed entrance on Corrales Road NW is to have a waterblock. The design of the proposed driveway is not expected to adversely impact the hydraulic capacity of the roadside ditch. The existing berm along the west property line will be partially regraded, but the hydraulic characteristics of the roadside ditch will remain effectively unaltered. The existing RCP culvert under Calle Cuervo feeding the irrigation channel is to be sealed and abandoned in place; the channel will be removed.

A proposed revision to the appropriate floodplain map is currently in progress at EAI and the City of Albuquerque. The apparent source of flooding on this site is a Rio Grande Levee breach at the far north end of Corrales. Recent construction of the Harvey Jones Channel (USDA-SGS) has remedied the problem. In any event, the placing of fill within the 40-1 ft zone will not increase flood depths on any other property by a measurable amount.

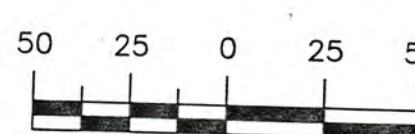
In view of the flat topography of the site, and its enclosure by berms on three sides, significant erosion of soil from the site during construction is not anticipated. It is recommended that reconstruction of the berm along the east property line take place at the beginning of site grading operations, in order to minimize potential erosion of soil from the site.

PROPOSED EDGE OF PAVEMENT (DESIGN PER NMSHTD PLANS, TO BE PREPARED)

ROOF DRAINAGE (TYP. FOR ALL BLDGS.)

COMBINED FLOW  
 $Q_{100} = 47.5 \text{ cfs (DEV)}$   
 PER CABEZON CHANNEL CAPACITY ANALYSIS (EAI, JUNE 1993)

## GRAPHIC SCALE



SCALE: 1"=50'

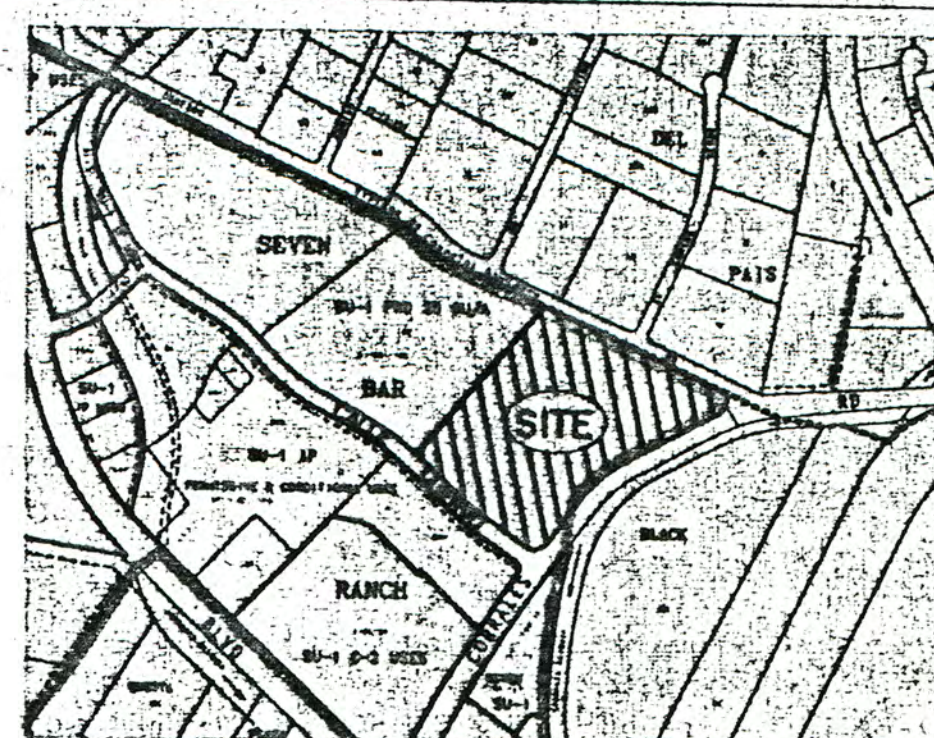
EXISTING DRAINAGE PATTERNS WILL NOT BE CHANGED. WE ARE PROPOSING TO PLACE COVERED PARKING OVER THE EXISTING PAVING. THIS WILL NOT INCREASE THE AMOUNT OF RUNOFF.

## HYDROLOGY SUMMARY, ONSITE FLOWS

BASIN DESCRIPTION	CONDITION	AREA (ACRES)	LAND TREATMENT CLASSIFICATION (% OF TOTAL)				100 YEAR STORM PEAK DISCHARGE 6 HOUR VOLUME (CFS)	
TRACT D-3	EXISTING		A	B	C	D	13.4	16.5-0
A	DEVELOPED	9.84	90	10	0	0	13.7	21,240
B	DEVELOPED	3.75	0	28	10	62	56	22,940
C	DEVELOPED	4.42	0	26	10	64	6.1	9,410

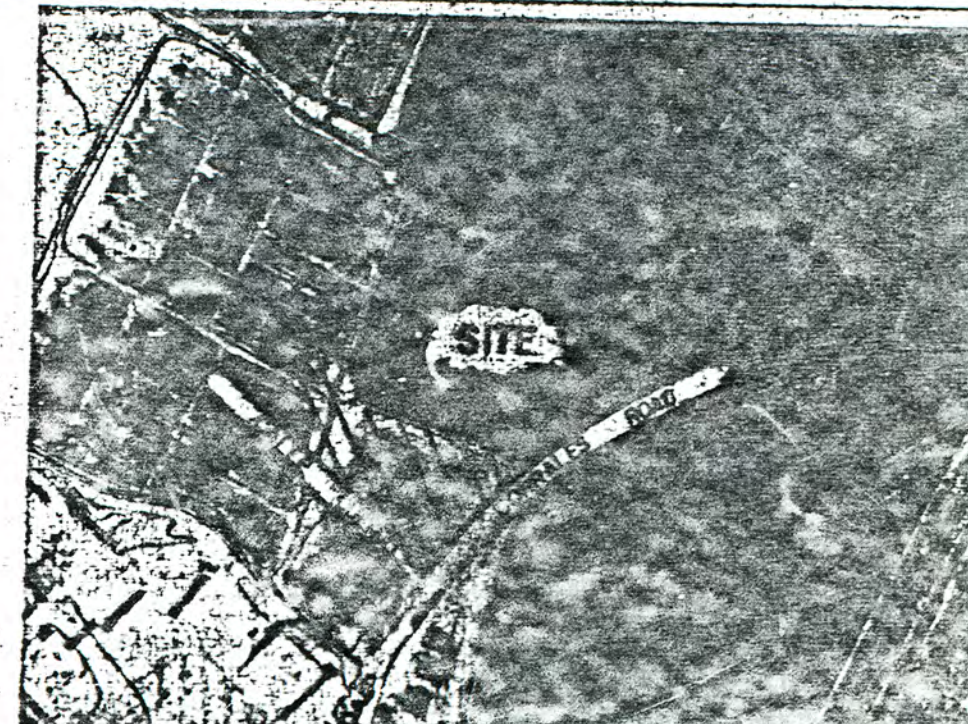
NOTE: REFER TO ATTACHED SHEETS FOR POND ROUTING CALCULATIONS

## VICINITY MAP C.O.A. ZONE ATLAS NO. A-14



SCALE: 1"=500'

## FLOOD HAZARD MAP FEMA MAP NO. 02



SCALE: 1"=500'

## LEGEND

DESCRIPTION	NEW	EXISTING
CONTOURS (1 FT)	5001	5001
CONTOURS (5 FT)	5005	5005
SPOT ELEVATIONS	+04.80	01.7
APPROXIMATE DRAINAGE BASIN BOUNDARY		
DRAINAGE DITCH / WATER BLOCK		
DIRECTION OF RUNOFF		
FLOWLINE		
PROPERTY LINE		
STORM DRAIN M.H. & LINE	36" SD	
TOP OF CONCRETE		07.60c
TOP OF DITCH		07.74
EDGE OF ASPHALT		11.52c
TOP OF CURB ELEVATION	TC=XX.XX	07.64SE
TOP OF ASPHALT ELEVATION	TA=XX.XX	07.67TH
TOP OF SIDEWALK ELEVATION	TSW=XX.XX	11.30c
FLOWLINE ELEVATION	FL=XX.XX	
SLOPE SYMBOL	3:1	
STORM INLET		
TURF-BLOCK		
EXISTING TREE TO REMAIN		

RECEIVED  
 OCT 01 1998  
 HYDROLOGY SECTION

## COMINO REAL APARTMENTS COVERED PARKING GRADING PLAN

ENGINEER'S SEAL  
 SHAHAB BIAZAR  
 P.E. #13479

ADVANCED ENGINEERING and CO.  
 102 ALBUQUERQUE

DRAWN BY SH.B  
 DATE 9-18-98  
 SHEET # 1  
 JOB #