

## DRAINAGE CALCULATIONS

### EXISTING CONDITIONS

The site is located at the NE corner of the intersection of Candelaria Rd. and San Mateo Blvd., N.E. The site is presently developed as an auto service station. The site is presently completely impervious except for planters on the site. The flow in Candelaria Road is from east to west. The flow in San Mateo Blvd. adjacent to the site is from north to south. There is a 42" storm drain line in Candelaria Road. There is an inlet near the ENE curb return of the intersection. The site will drain as it presently does.

### PROPOSED CONDITIONS

It is proposed to construct a new car wash on the site as shown. No other changes to the site are proposed except that landscaping will be added. Any removal and replacement of existing asphalt will be done to match existing grades. There will be a decrease in runoff as a result of the proposed development.

### DRAINAGE CRITERIA

The calculations shown on this plan were prepared in accordance with Section 22.2, Hydrology, of the Development Process Manual, Volume 2, Design Criteria, for the City of Albuquerque, in cooperation with Bernalillo County, New Mexico and the Albuquerque Metropolitan Arroyo Flood Control Authority, January, 1993.

### PRECIPITATION ZONE

The site is between San Mateo Blvd. and Eubank Blvd. and is, therefore, in Precipitation Zone 3.

### LAND TREATMENT AREAS, EXCESS PRECIPITATION AND UNIT PEAK DISCHARGE

The peak discharge per acre and excess precipitation are shown for the four land treatments in Zone 2 in the table below, and the values shown are from the City of Albuquerque D.P.M. Also shown are the existing and proposed land treatment areas.

LAND TREATMENT	(cfs/acre)	E (in)	Existing Site Areas	Developed Site Areas
	100-yr	10-yr	%	%
A	1.87	0.58	0.0	0.0
B	2.60	1.19	3.2	12.2
C	3.45	2.00	0.0	0.0
D	5.02	3.39	96.8	87.8
Totals			100.0	100.0

### PEAK DISCHARGE

#### EXISTING CONDITIONS

Q100 = 0.0275 \* 2.60 + 0.8287 \* 5.02 = 4.23 cfs  
Q10 = 0.0275 \* 1.19 + 0.8287 \* 3.39 = 2.84 cfs

#### DEVELOPED CONDITIONS

Q100 = 0.1042 \* 2.60 + 0.7520 \* 5.02 = 4.05 cfs  
Q10 = 0.1042 \* 1.19 + 0.7520 \* 3.39 = 2.67 cfs

### VOLUME, 100-YEAR, 6-HOUR

#### EXISTING CONDITIONS

V100 = (1,200 \* 0.92 + 36,098 \* 2.36) / 12 = 7,191 cf  
V10 = (1,200 \* 0.36 + 36,098 \* 1.50) / 12 = 4,548 cf

#### DEVELOPED CONDITIONS

V100 = (4,537 \* 0.92 + 32,761 \* 2.36) / 12 = 6,791 cf  
V10 = (4,537 \* 0.36 + 32,761 \* 1.50) / 12 = 4,231 cf

### SUMMARY OF ON-SITE VOLUMES AND PEAK DISCHARGE RATES

	V100(CF)	V10(CF)	Q100(CFS)	Q10(CFS)
EXISTING	7,191	4,548	4.23	2.84
DEVELOPED	6,791	4,231	4.05	2.67
DECREASE	400	287	0.18	0.17

### ANALYSIS OF DOWNSTREAM CAPACITY

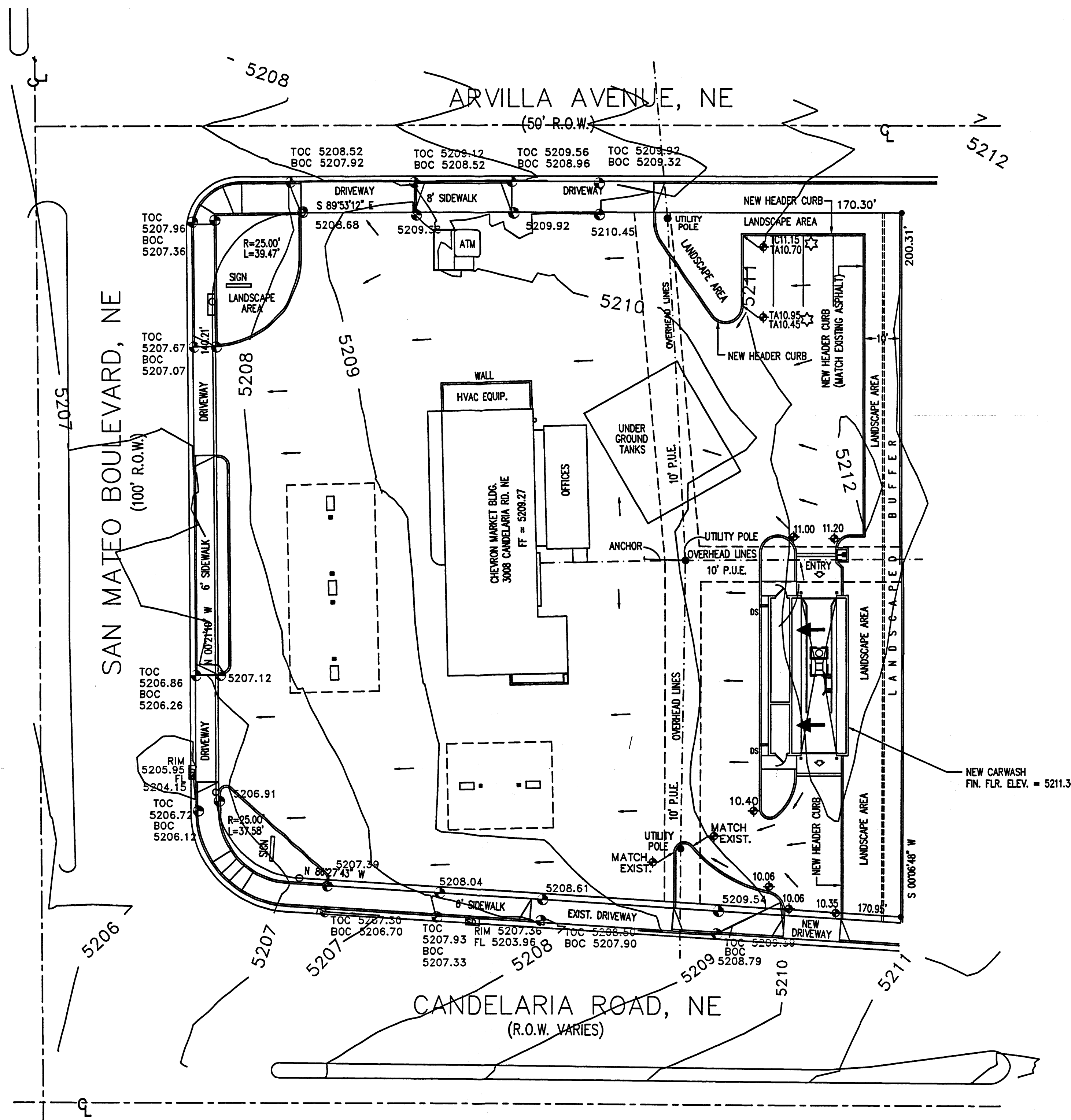
SINCE THERE IS A DECREASE IN RUNOFF AS A RESULT OF THE PROPOSED DEVELOPMENT, THERE IS NO REQUIREMENT TO ANALYZE DOWNSTREAM CAPACITY.

### ANALYSIS OF OFF-SITE FLOW

THIS SITE HAS NO OFF-SITE FLOW ASSOCIATED WITH IT.

### ANALYSIS OF FLOOD ZONE

THERE IS AN AO-1 (1' DEPTH) FLOOD ZONE IN CANDELARIA ROAD. THE PROPOSED DEVELOPMENT WILL RESULT IN A DECREASE IN RUNOFF FROM THE SITE SO NO ADDITIONAL CONTRIBUTION IS BEING MADE TO THE FLOOD ZONE. WITH REGARD TO THE REQUIREMENT THAT THE FINISH FLOOR BE 2' ABOVE THE FLOWLINE ON CANDELARIA, THE PROPOSED BUILDING IS NOT INHABITABLE AND IS, THEREFORE, NOT SUBJECT TO THIS REQUIREMENT.



## AS-CONSTRUCTED DRAINAGE PLAN

SCALE: 1"=20'

### GENERAL NOTES:

- No boundary survey was performed.
- Basis of elevations: NM 367-6, located on the median of San Mateo Boulevard, NE, at the intersection of San Mateo and Arvilla Street, NE. Elevation: 5207.26' MSL NGVD 1929.

### FLOOD NOTE

The above described property is located within Zone X (no hazard) Community Panel No. 350002 0352 D, dated September 20, 1996 and is not located within a Special Flood Hazard Boundary indicated by FEMA Flood Insurance Rate Maps. Determination of Flood Hazard is by graphic plotting only.

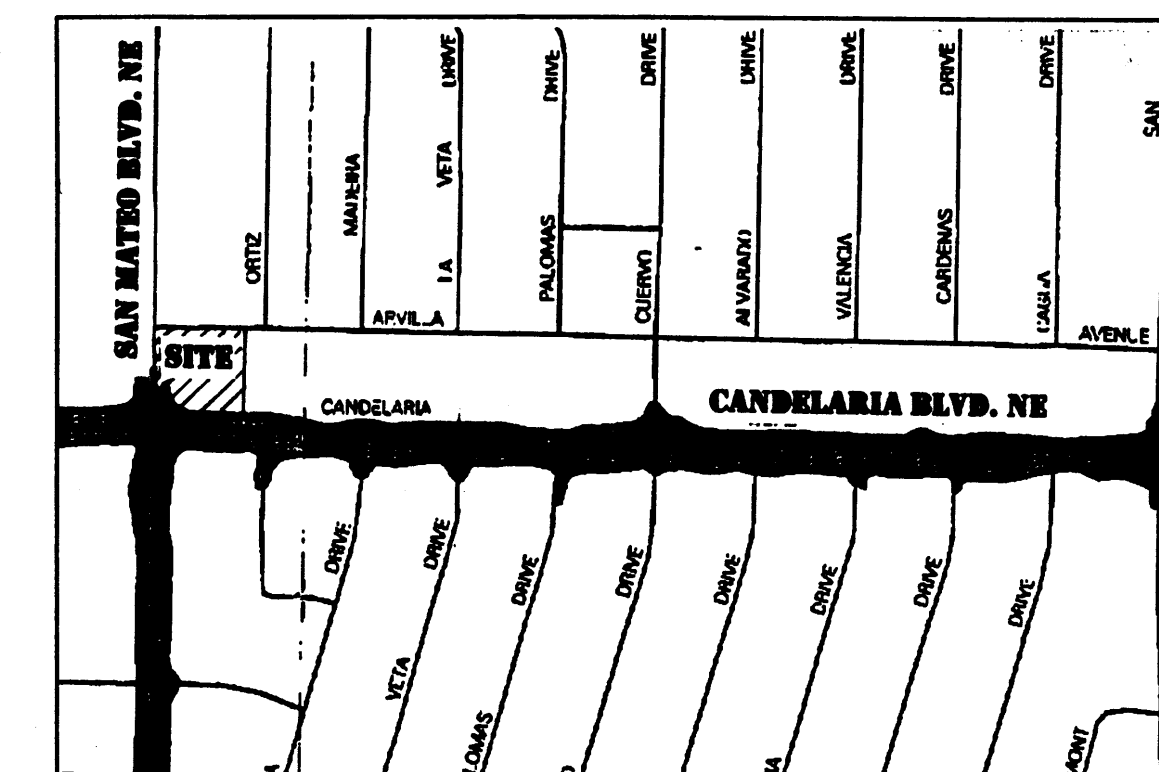
### LEGAL DESCRIPTION

Lot numbered One-A (1-A), Block numbered Two (2), a Replat of the KIVA ADDITION, Albuquerque, Bernalillo County, New Mexico, as the same is shown and designated on the replat thereof, filed in the office of the County Clerk of Bernalillo County, New Mexico, on March 14, 1996, in Volume 96C, folio 119.

### ENGINEER'S CERTIFICATION:

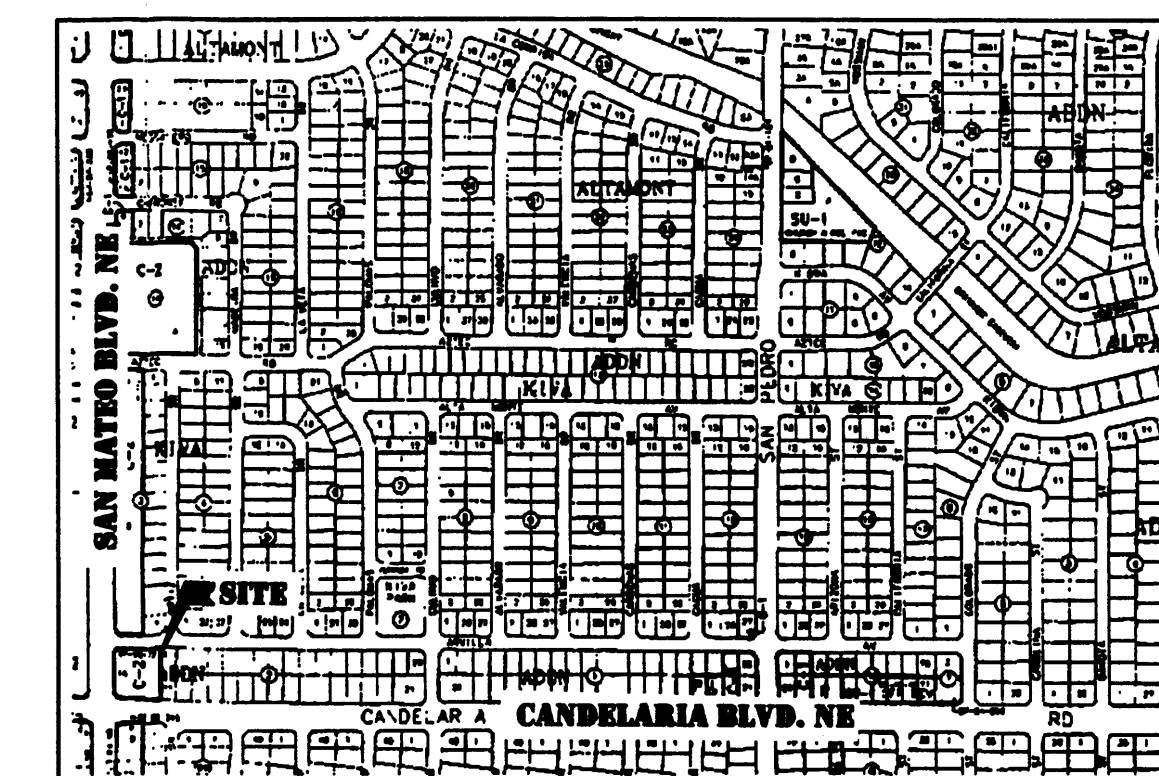
HAVING FIELD-INSPECTED THE SITE AND HAVING TAKEN SPOT ELEVATIONS AT CRITICAL LOCATIONS, I HEREBY CERTIFY THAT THE AS CONSTRUCTED FACILITY IS IN SUBSTANTIAL CONFORMANCE WITH THE APPROVED GRADING AND DRAINAGE PLAN WITH ENGINEER'S STAMP DATED NOVEMBER 20, 1998.

Frank D. Lovelady  
FRANK D. LOVELADY N.M.P.E. 6512  
DATE 10-22-99



FIRM MAP

MAP NO. 35001C0352 D

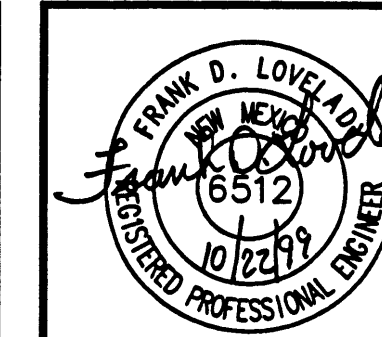
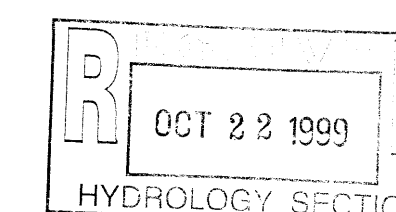


VICINITY MAP

ZONE ATLAS NO. G - 18 - Z

### LEGEND:

- Storm Drain Catch Basin
- Spot elevation  
TOC=Top of curb  
BOC=Bottom of curb
- FLOW DIRECTION
- NEW SPOT ELEV.
- DOWNSPOUT EXTENDING THRU CURB
- ROOF SLOPE
- AS-CONSTRUCTED ELEVATIONS MARKED THUS.



Chevron Automatic Car Wash

3008 CANDELARIA ROAD NE, ALBUQUERQUE, NEW MEXICO

KEN HOVEY, ARCHITECT

(505) 254-0883 • Fax (505) 254-1808 • 3808 SUMMIT AVE. SE • Albuquerque, NM • 87108

JOB NO: 9818

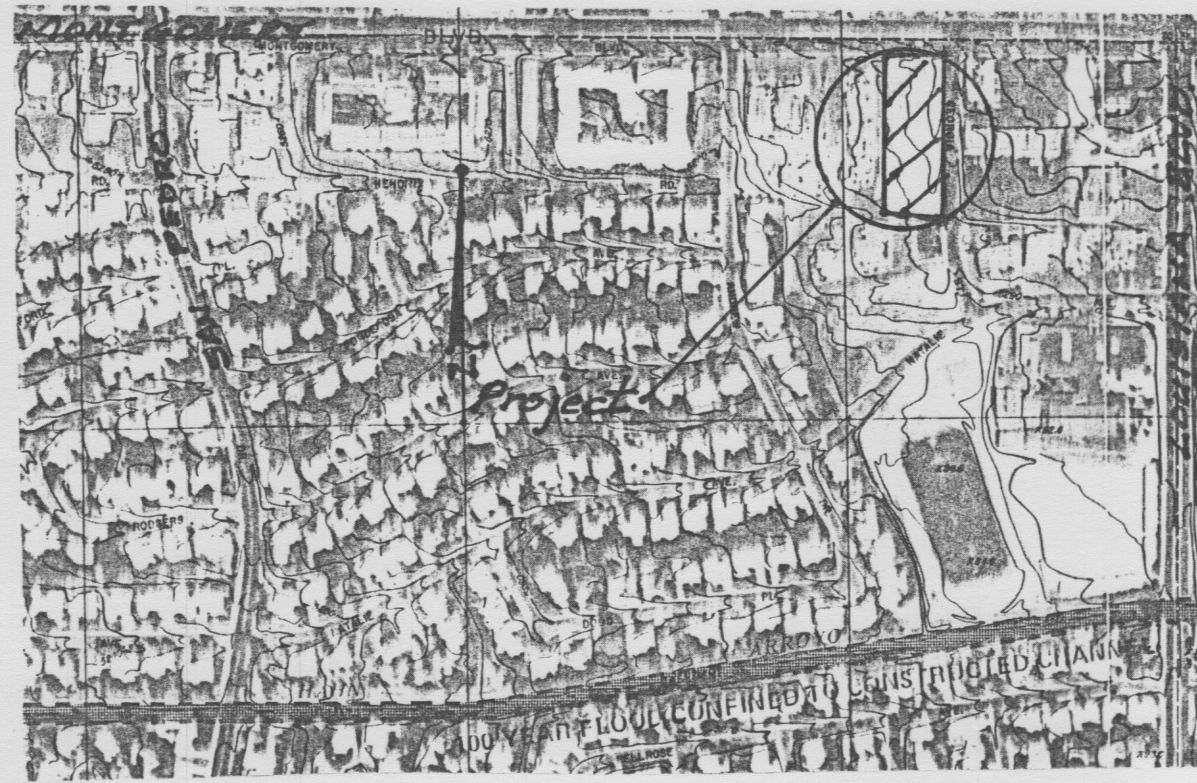
DATE: 6 NOVEMBER 1998

REVISIONS

SHEET NO.

C-2





## FEMA MAP

SCALE: 1"=500'  
REF. PANEL 352, 1996  
REF. PANEL 24, 1983

## GRADING & DRAINAGE PLAN

**SITE DATA:** THE EXISTING SITE IS CURRENTLY A "HARD PAN" DIRT PARKING LOT, AND ZONED, O-1, FOR OFFICES. THE PROJECT IS LOCATED IN AN IN-FILL AREA AND ALL ADJACENT PROPERTY IS DEVELOPED. MONTGOMERY BOULEVARD IS LOCATED ON THE NORTH AND IS CLASSIFIED AS AN ARTERIAL WITH CURB/GUTTER AND SIDEWALK. GEORGIA STREET LOCATED ON THE EAST IS A LOCAL STREET WITH CURB AND GUTTER WITHOUT SIDEWALK SITUATED WITHIN A 60' R.O.W. AN EXISTING 20 FEET WIDE PAVED ALLEY IS THE SOUTH ADJOINER.

**EXISTING DRAINAGE CONDITIONS:** HISTORIC RUN-OFF HAS ESSENTIALLY SHEET FLOWED ACROSS THE SITE WITH A PORTION EXITING TO THE WEST AND THE MAJORITY DRAINING TO THE SOUTH ALLEY. DOWNSTREAM CAPACITY EXISTS VIA THE 20' ALLEY TO THE WEST IN HENDRIX ROAD TO A DROP INLET SYSTEM LOCATED IN MADEIRA DRIVE. (3000' West of Site)

**PROPOSED IMPROVEMENTS:** CONSIST OF A 123,000 S.F., SINGLE STORY TWO STORY OFFICE BUILDING, ASPHALT PAVING, CURB AND GUTTER, CONCRETE SIDEWALKS, AND THREE (3) ACCESS DRIVEWAY ENTRANCES.

**PROPOSED DRAINAGE CONDITIONS:** FREE DISCHARGE OF RUN-OFF THROUGH THE TWO PROPOSED WESTERLY ACCESS DRIVEWAYS, THEN SOUTH VIA AN EXISTING ASPHALT DRIVEWAY TO THE 20' ALLEY.

## CALCULATIONS

City Hydrology, Ref. File #G-18/D

### I. DESIGN CRITERIA

HYDROLOGIC METHODS PER SECTION 22.2, HYDROLOGY, OF THE DEVELOPMENT PROCESS MANUAL (DPM), REVISED JANUARY 1993 FOR THE CITY OF ALBUQUERQUE AND ADOPTED BY THE COUNTY OF BERNALILLO. DISCHARGE RATE:  $Q = Q_{peak} \times AREA$ . "PEAK DISCHARGE RATES FOR SMALL WATERSHEDS" VOLUMETRIC DISCHARGE:  $VOLUME = E_{weighted} \times AREA$  SOIL TYPE: "B", ETC. EMBUDO SERIES, A GRAVELLY FINE SANDY LOAM AS CLASSIFIED BY THE SCS SOIL SURVEY  $T_{100} = 2.60$  INCHES, ZONE 3 TIME OF CONCENTRATION,  $T_C = 10$  MINUTES DESIGN STORM: 100-year/6-hour, 10-year/6-hour WHERE  $[ ] = 10$  YEAR VALUES

### II. EXISTING CONDITIONS (LOT G-2)

PROJECT AREA = 1.28 ACRES, WHERE EXCESS PRECIPITATION 'C' = 1.29 IN. [0.62] PEAK DISCHARGE,  $Q_{100} = 4.4$  CFS [2.6], WHERE UNIT PEAK DISCHARGE 'C' = 3.45 CFS/ACRE [2.00] THEREFORE:  $VOLUME_{100} = 5994$  C.F. [2881 C.F.]

### III. DEVELOPED CONDITIONS

DETERMINE LAND TREATMENTS, PEAK DISCHARGE & WEIGHTED EXCESS PRECIPITATION

AREA	LAND TREATMENT	UNIT PEAK DISCHARGE	'C'
UNDEVELOPED, AC.	A	1.87[0.58]	0.66[0.19]
LANDSCAPING, 0.09 AC.	B	2.80[1.19]	0.92[0.36]
GRAVEL & COMPACTED SOIL, 0.09 AC.	C	3.45[2.00]	1.29[0.62]
ROOF/PAVEMENT, 1.10 AC.	D	5.02[3.39]	2.36[1.50]
1.28 ACRES			

$E_{weighted} = 2.18$  IN. [1.36]  
 $Q_{100} = 6.07$  CUBIC FEET PER SECOND (CFS)  $Q_{10} = 4.02$  CFS;  $VOL_{100} = 10129$  CUBIC FEET (CF),  $VOL_{10} = 6319$  C.F.

APPROXIMATELY 2 CFS OF DEVELOPED RUN-OFF EXISTS TO NW ENTRANCE AND... THEN 3 CFS EXISTS THE SW ENTRANCE WITH THE REMAINING 1 CFS DISCHARGING TO THE SOUTH

### IV. QUANTIFY UP-STREAM RUNOFF IMPACTING THE PROPERTY

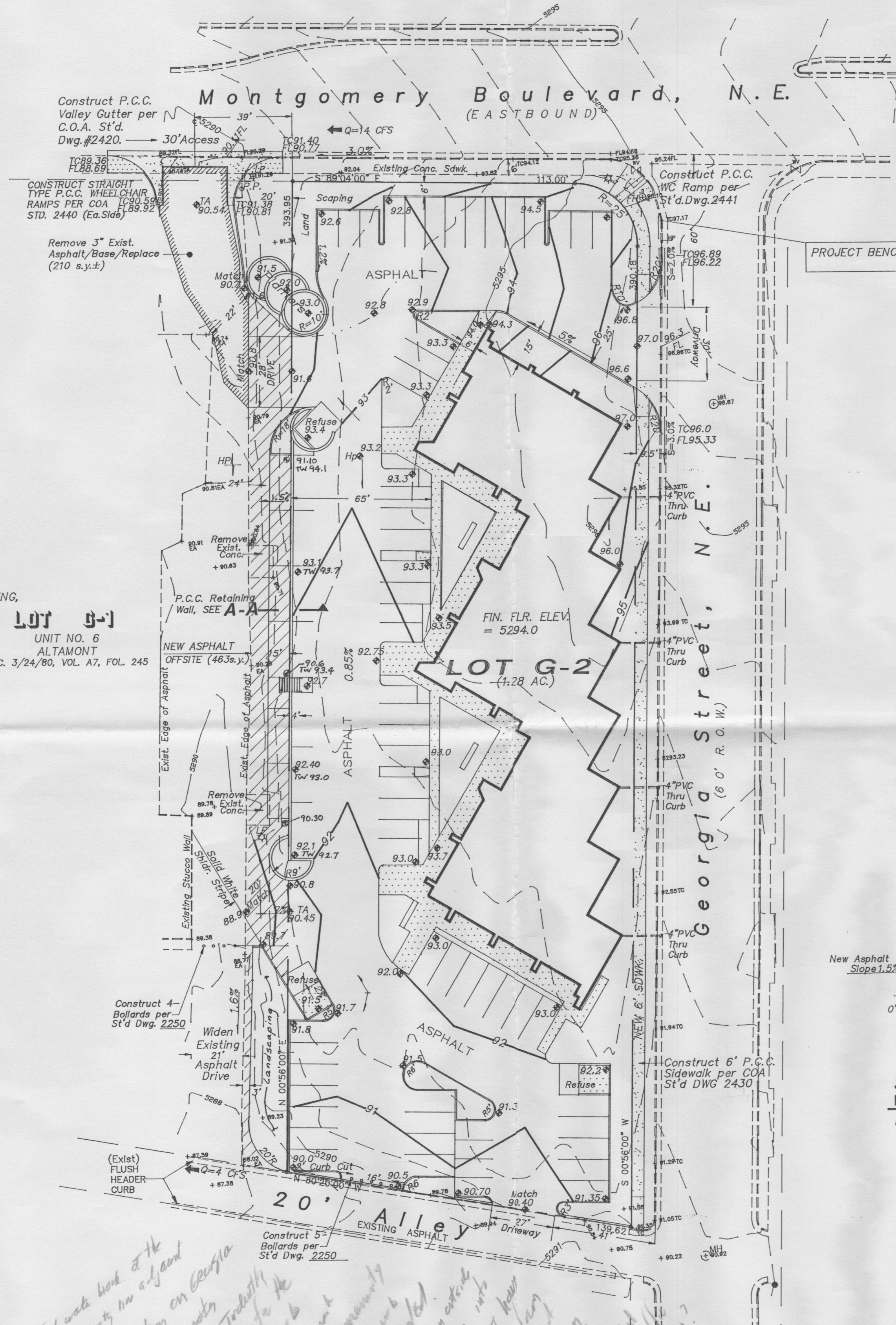
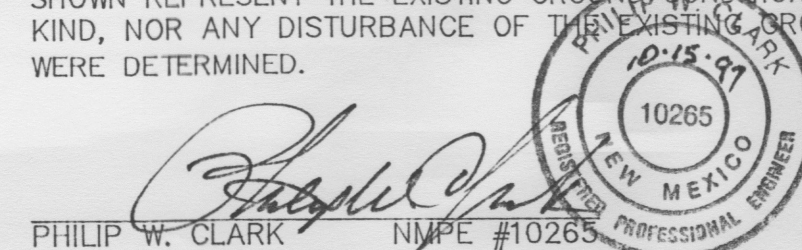
THE NORTHEAST PROPERTY CORNER (STREET FLOW) AND REFERENCE FEMA MAP, 1" = 500' SINCE MONTGOMERY AND GEORGIA ARE BOTH IMPROVED WITH CURB/GUTTER, NO DRAINAGE IMPACTS THE PROPERTY

FOR THE DEVELOPED CONDITION, BASED ON A UNIT DISCHARGE DETERMINED IN III. WHERE:  $Q_{100} = 3$  AC.  $\times$  4.5 CFS/AC. = 14 CFS (Total Southside in Street) per DPM PLATE 22.3 D-1, DEPTH = 0.35 FEET @ S = 3%

GEORGIA AND ALLEY: AN EXISTING HIGH POINT OR "WATER BLOCK" EXISTS, THEREFORE NO ADDITIONAL RUN-OFF ENTERS FROM THIS INTERSECTION.

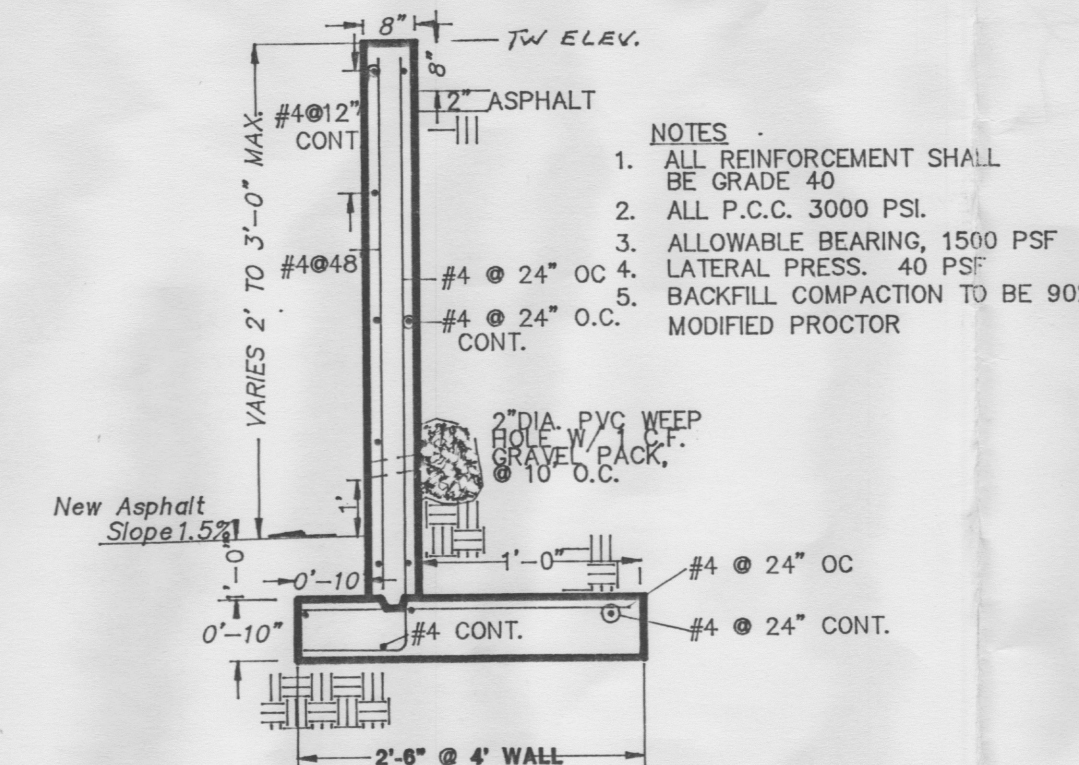
1. Foot with back of the curb primary in a yard to Georgia  
2. Flow in direction on Georgia from the back of curb & into the city of Santa Fe  
3. Sanitary sewer line to the city of Santa Fe  
4. Sanitary sewer line to the city of Santa Fe  
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6. Sanitary sewer line to the city of Santa Fe  
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8. Sanitary sewer line to the city of Santa Fe  
9. Sanitary sewer line to the city of Santa Fe  
10. Sanitary sewer line to the city of Santa Fe

PHILIP W. CLARK, A PROFESSIONAL ENGINEER LICENSED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW MEXICO, DO HEREBY CERTIFY THAT I HAVE VISITED THE SITE SHOWN HEREON, AND THAT THE CONTOURS SHOWN REPRESENT THE EXISTING GROUND CONDITIONS, AND DO FURTHER CERTIFY THAT NO EARTHWORK OF ANY KIND, NOR ANY DISTURBANCE OF THE EXISTING GROUND HAS OCCURRED ON THIS SITE SINCE THE CONTOURS WERE DETERMINED.



## LEGEND

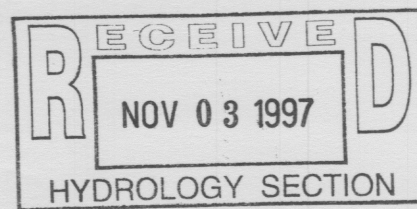
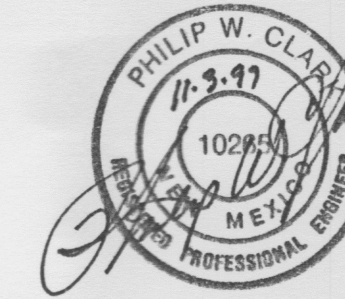
EXIST. SPOT ELEV.	+92.5
EXIST. CONTOUR	08
NEW SPOT ELEV.	10.10
NEW CONTOUR	10
NEW CONCRETE	
HEADER CURB (P.C.C. 0.5' CURB HEIGHT)	
TOP OF CURB	TC, tc
FLOW LINE	FL, fl
TOP OF WALL	TW
EXIST. POWER POLE	P.P. o
SWALE	
DRAINAGE FLOW	



SECTION A - A  
REINFORCED CONCRETE RETAINING WALL  
NTS (SEPARATING PARALLEL PARKING)

## PROJECT INFORMATION

LEGAL DESCRIPTION: LOT G-2, UNIT NO. 6, ALTAMONT ADDITION IN CITY OF ALBUQUERQUE, NEW MEXICO BERNALILLO COUNTY  
PROPERTY ADDRESS: MONTGOMERY BLVD., NE ALBUQUERQUE, NM 87110  
PROJECT SURVEY: TOPOGRAPHIC INFORMATION COMPILED FROM FIELD SURVEY PERFORMED BY PRECISION SURVEYS, INC., PLS #11983, MAY 1997.  
PROJECT BENCHMARK: TOP OF CURB OF THE SOUTH-SOUTHWEST CURB RETURN LOCATED AT THE INTERSECTION OF GEORGIA STREET AND MONTGOMERY BLVD., AS TIED FROM ACS BRASS CAP MARKED M-3A SET IN CONCRETE POST LOCATED AT LOUISIANA AND MONTGOMERY BLVD'S.



Clark Consulting Engineers	
19 Ryan Road Edgewood, New Mexico 87015 (505) 281-2444 FAX (505) 281-2444	
DATE	REVISION
LOT G-2, ALTAMONT ADDITION MOSSMAN ENT. - GEORGIA STREET OFF.	
Grading & Drainage Plan	
DESIGNED BY: PVC	DRAWN BY: CCE
CHECKED BY: PVC	DATE: 10/15/97
JOB No: SCHALK, OFF	FILE No: G/D
SHEET No. 1 of 1	





## FEMA MAP

SCALE: 1"=500'  
REF. PANEL 352, 1996  
REF. PANEL 24, 1983

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ROOF/PAVEMENT,	1.10 AC.	D	5.02[3.39]	2.36[1.50]
	1.28 ACRES			

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 $Q_{100} = 6.07 \text{ CUBIC FEET PER SECOND (CFS)}$   $Q_{10} = 4.02 \text{ CFS}$   $VOL_{100} = 10129 \text{ CUBIC FEET (CF)}$   
 $VOL_{10} = 6319 \text{ C.F.}$

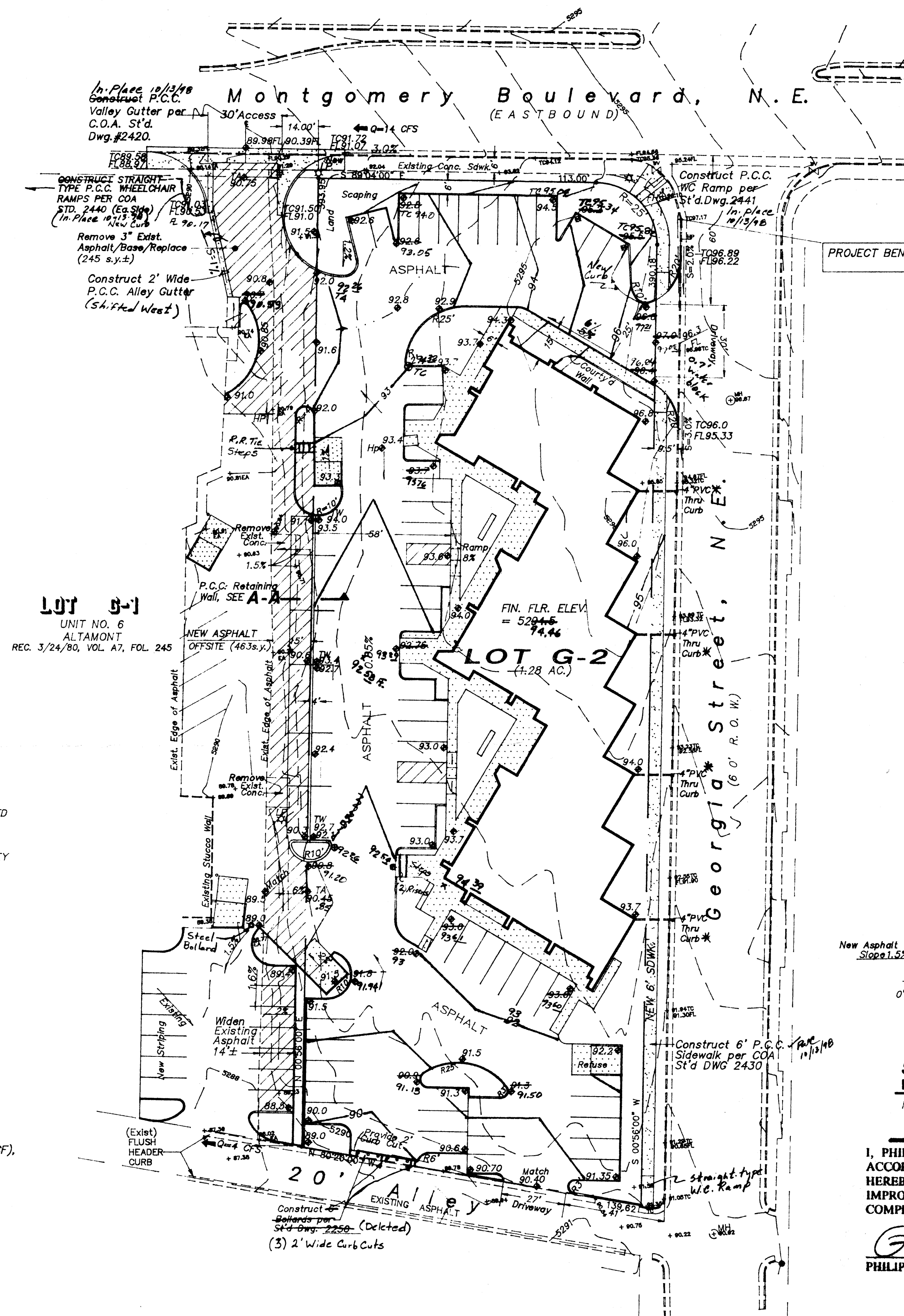
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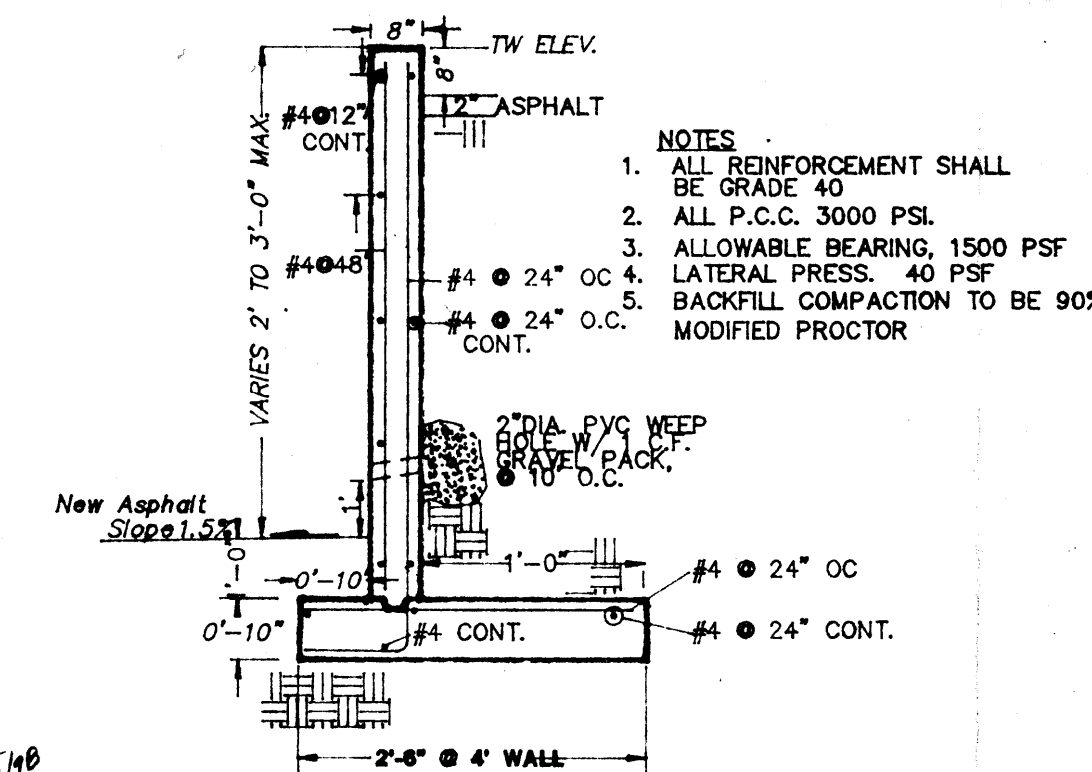
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PROJECT BENCHMARK: TOP OF CURB ELEVATION = 5297.17

## LEGEND

EXIST. SPOT ELEV.	+92.5
EXIST. CONTOUR	08
NEW SPOT ELEV.	10.10
NEW CONTOUR	10
NEW CONCRETE	
Median-Type Header Curb & Gutter (P.C.C. 0.5' CURB HEIGHT)	
TOP OF CURB	TC, to
FLOW LINE	FL, fl
TOP OF WALL	TW
EXIST. POWER POLE	P.P. o
SWALE	
DRAINAGE FLOW	



## SECTION A - A REINFORCED CONCRETE RETAINING WALL

NTS (SEPARATING PARALLEL PARKING)

As Constructed

I, PHILIP W. CLARK, PROFESSIONAL ENGINEER, REGISTERED IN CITY OF ALBUQUERQUE, NEW MEXICO, DO HEREBY CERTIFY THAT THE GRADING AND DRAINAGE IMPROVEMENTS SHOWN ON THIS PLAN ARE IN SUBSTANTIAL COMPLIANCE WITH THE APPROVED PLAN.

PHILIP W. CLARK, P.E. #10265

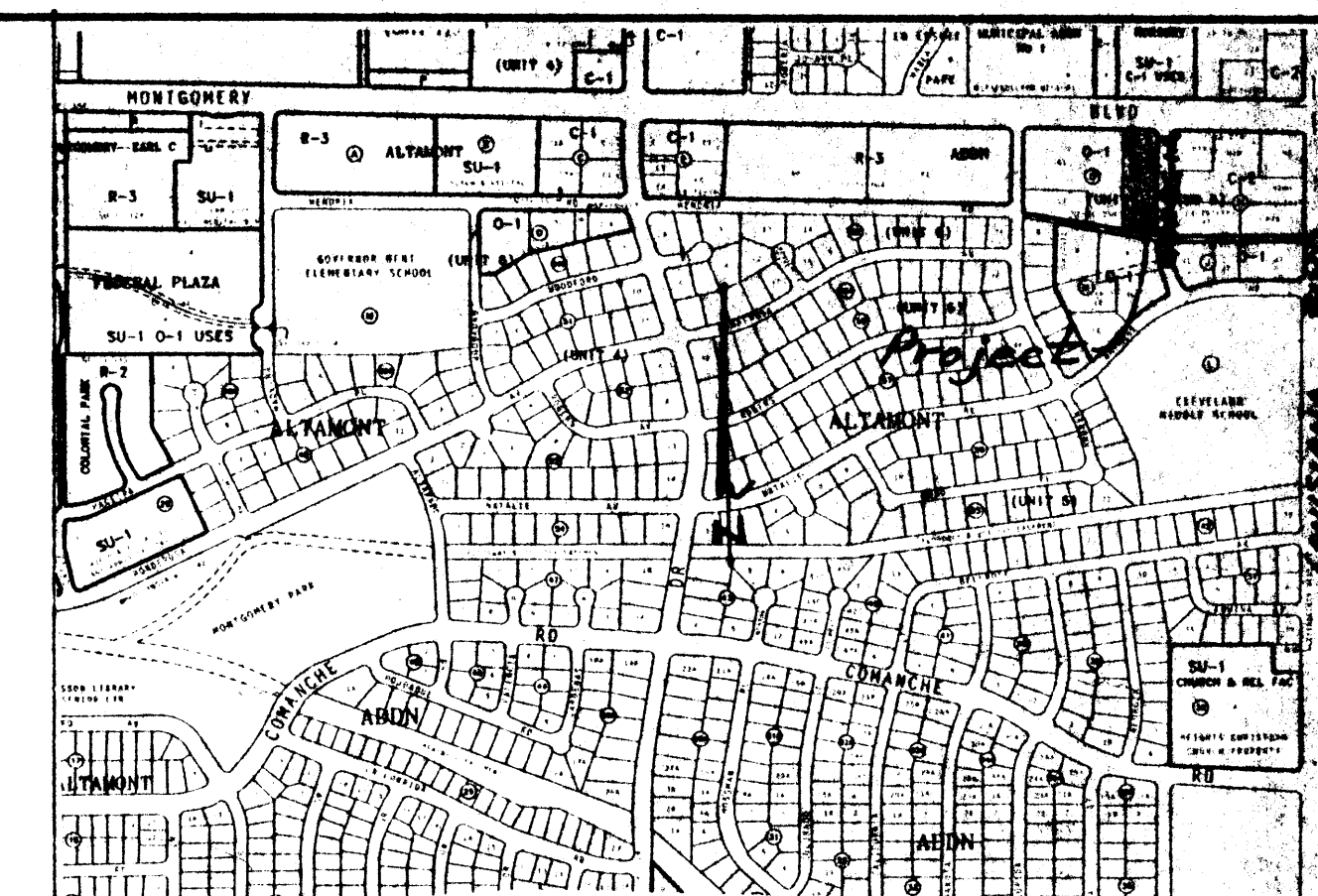
## PROJECT INFORMATION

LEGAL DESCRIPTION: LOT G-2, UNIT NO. 6, ALTAMONT ADDITION IN CITY OF ALBUQUERQUE, NEW MEXICO BERNALILLO COUNTY

PROPERTY ADDRESS: MONTGOMERY BLVD., NE ALBUQUERQUE, NM 87110

PROJECT SURVEY: TOPOGRAPHIC INFORMATION COMPILED FROM FIELD SURVEY PERFORMED BY PRECISION SURVEYS, INC., PLS #1983, MAY 1997.

PROJECT BENCHMARK: TOP OF CURB OF THE SOUTH-SOUTHWEST CURB RETURN LOCATED AT THE INTERSECTION OF GEORGIA STREET AND MONTGOMERY BLVD., AS TIED FROM ACS BRASS CAP MARKED M-3A SET IN CONCRETE POST LOCATED AT LOUISIANA AND MONTGOMERY BLVD.



## VICINITY MAP ZONE G-18

SCALE: 1"=750'

## NOTES

All Work Within the Right-of-Way (R.O.W.) shall be in accordance with the City of Albuquerque Standard Specs. For Public Works Construction, Latest Edition.

- AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY R.O.W. AN APPROVED COPY OF THIS PLAN MUST BE SUBMITTED AT THE TIME APPLICATION.
- ALL WORK PERFORMED ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
- CONTRACTOR SHALL NOTIFY AND COORDINATE ALL CONSTRUCTION TWO WEEKS PRIOR TO START WITH THE FOLLOWING UTILITIES: US WEST COMMUNICATIONS, PUBLIC SERVICE CO. OF NEW MEXICO, AND THE GAS & ELECTRIC SERVICES OF PNM.
- CONTRACTOR SHALL MAINTAIN ACCESS TO ADJACENT PROPERTIES DURING CONSTRUCTION.
- TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 280-1990, FOR LOCATION OF EXISTING UTILITIES.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OR SURVEYOR SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
- ALL UTILITIES AND UTILITY SERVICE LINES SHALL BE INSTALLED PRIOR TO THE CONSTRUCTION OF PAVING.
- BACKFILL COMPACTION SHALL BE ACCORDING TO SPECIFIED STREET USE.
- TACK COAT REQUIREMENTS SHALL BE DETERMINED BY THE CITY ENGINEER.
- THREE (3) WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO THE COORDINATION DIVISION, A DETAILED CONSTRUCTION SCHEDULE REGARDING TRAFFIC CONTROL. TWO (2) WORKING DAYS PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN A BARRICADE PERMIT FROM SAME DIVISION. CONTRACTOR SHALL NOTIFY THE BARRICADE ENGINEER (788-2551) PRIOR TO OCCUPANCY AN INTERSECTION, AS PER SECT. 19 OF THE SPECIFICATIONS.
- ALL STREET STRIPING ALTERED OR DESTROYED SHALL BE REPLACED BY CONTRACTOR TO EXISTING LOCATION.
- MAINTENANCE OF THE 4" DRAINAGE PVC PIPE WITHIN THE CITY R.O.W. SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER.

NOTE: ALL DIMENSIONS TO FACE OF CURB UNLESS NOTED OTHERWISE

CONSTR. APPROVAL OF 4" PVC THRU CURB W/IN R.O.W.

CITY HYDROLOGY  
INSPECTOR  
ACE

NOTE: CURB PENETRATION PER CITY OF ALBUQ. SPECIFICATIONS. (In place 11/13/98) [Signature]

Clark Consulting Engineers  
19 Ryan Road Edgewood, New Mexico 87015  
(505) 281-2444 FAX (505) 281-2444

DATE	REVISION	LOT G-2, ALTAMONT ADDITION MOSSMAN ENT. - GEORGIA STREET OFF.
1-7-98	ADD. PWD	
3-16-98	Rev. 02/10/98 Rev. 02/10/98 Rev. 02/10/98	
DESIGNED BY: PVC	DRAWN BY: CCE	JOB NO: SCHALK, OFF
CHECKED BY: PVC	DATE: 10/15/97	FILE NO: G/2

## Grading & Drainage Plan

SHEET NO. 1 of 1





## FEMA MAP

SCALE: 1"=500'  
REF. PANEL 352, 1996  
REF. PANEL 24, 1983

## GRADING & DRAINAGE PLAN

**SITE DATA:** THE EXISTING SITE IS CURRENTLY A "HARD PAN" DIRT PARKING LOT, AND ZONED, 0-1, FOR OFFICES. THE PROJECT IS LOCATED IN AN IN-FILL AREA AND ALL ADJACENT PROPERTY IS DEVELOPED. MONTGOMERY BOULEVARD IS LOCATED ON THE NORTH AND IS CLASSIFIED AS AN ARTERIAL WITH CURB/GUTTER AND SIDEWALK. GEORGIA STREET LOCATED ON THE EAST IS A LOCAL STREET WITH CURB AND GUTTER WITHOUT SIDEWALK SITUATED WITHIN A 60' R.O.W. AN EXISTING 20 FEET WIDE PAVED ALLEY IS THE SOUTH ADJOINER.

**EXISTING DRAINAGE CONDITIONS:** HISTORIC RUN-OFF HAS ESSENTIALLY SHEET FLOWED ACROSS THE SITE WITH A PORTION EXITING TO THE WEST AND THE MAJORITY DRAINING TO THE SOUTH ALLEY. DOWNSTREAM CAPACITY EXISTS VIA THE 20' ALLEY TO THE WEST IN HENDRIX ROAD TO A DROP INLET SYSTEM LOCATED IN MADEIRA DRIVE, (3000' West of Site)

**PROPOSED IMPROVEMENTS:** CONSIST OF A 123,000 S.F., SINGLE STORY OFFICE BUILDING, ASPHALT PAVING, CURB AND GUTTER, CONCRETE SIDEWALKS, AND THREE (3) ACCESS DRIVEWAY ENTRANCES.

**PROPOSED DRAINAGE CONDITIONS:** FREE DISCHARGE OF RUN-OFF THROUGH THE TWO PROPOSED WESTERLY ACCESS DRIVEWAYS, THEN SOUTH VIA AN EXISTING ASPHALT DRIVEWAY TO THE 20' ALLEY.

## CALCULATIONS

City Hydrology, Ref. File #G-18/D

### I. DESIGN CRITERIA

HYDROLOGIC METHODS PER SECTION 22.2, HYDROLOGY, OF THE DEVELOPMENT PROCESS MANUAL (DPM), REVISED JANUARY 1993 FOR THE CITY OF ALBUQUERQUE AND ADOPTED BY THE COUNTY OF BERNALILLO. DISCHARGE RATE:  $Q = Q_{peak} \times AREA$ . "PEAK DISCHARGE RATES FOR SMALL WATERSHEDS". VOLUMETRIC DISCHARGE:  $VOLUME = E_{weighted} \times AREA$ . SOIL TYPE: "B", ETC, EMBUDO SERIES, A GRAVELLY FINE SANDY LOAM AS CLASSIFIED BY THE SCS SOIL SURVEY P100 = 2.60 INCHES, ZONE 3. TIME OF CONCENTRATION, TC = 10 MINUTES. DESIGN STORM: 100-year/6-hour, 10-year/6-hour WHERE [ ] = 10 year VALUES

### II. EXISTING CONDITIONS (LOT G-2)

PROJECT AREA = 1.28 ACRES, WHERE EXCESS PRECIPITATION "C" = 1.29 IN. [0.62]  
PEAK DISCHARGE,  $Q_{100} = 4.4$  CFS [2.6], WHERE UNIT PEAK DISCHARGE "C" = 3.45 CFS/ACRE [2.00]  
THEREFORE:  $VOLUME_{100} = 5994$  C.F. [2881 C.F.]

### III. DEVELOPED CONDITIONS

DETERMINE LAND TREATMENTS, PEAK DISCHARGE & WEIGHTED EXCESS PRECIPITATION

	AREA	LAND TREATMENT	UNIT PEAK DISCHARGE	"C"
UNDEVELOPED,	— AC.	A	1.87[0.58]	0.66[0.19]
LANDSCAPING,	0.09 AC.	B	2.60[1.19]	0.92[0.36]
GRAVEL & COMPACTED SOIL,	0.09 AC.	C	3.45[2.00]	1.29[0.82]
ROOF/PAVEMENT,	1.10 AC.	D	5.02[3.39]	2.36[1.50]
	1.28 ACRES			

$E_{weighted} = 2.18$  IN. [1.36]

$Q_{100} = 6.07$  CUBIC FEET PER SECOND (CFS)  $Q_{10} = 4.02$  CFS;  $VOL_{100} = 10129$  CUBIC FEET (CF),  $VOL_{10} = 6319$  C.F.

APPROXIMATELY 2 CFS OF DEVELOPED RUN-OFF EXITS TO NW ENTRANCE AND... THEN 3 CFS EXITS THE SW ENTRANCE WITH THE REMAINING 1 CFS DISCHARGING TO THE SOUTH

### IV. QUANTIFY UP-STREAM RUNOFF IMPACTING THE PROPERTY

THE NORTHEAST PROPERTY CORNER (STREET FLOW) AND REFERENCE FEMA M/P, 1" = 500' SINCE MONTGOMERY AND GEORGIA ARE BOTH IMPROVED WITH CURB/GUTTER, NO DRAINAGE IMPACTS THE PROJECT

FOR THE DEVELOPED CONDITION, BASED ON A UNIT DISCHARGE DETERMINED IN III.  
WHERE:  $Q_{100} = 3$  AC. x 4.5 CFS/AC. = 14 CFS (Total Southside in Street)  
per DPM PLATE 22.3 D-1, DEPTH = 0.35 FEET @  $S = 3\%$

GEORGIA AND ALLEY: AN EXISTING HIGH POINT OR "WATER BLOCK" EXISTS, THEREFORE NO ADDITIONAL RUN-OFF ENTERS FROM THIS INTERSECTION.

Construct P.C.C. Valley Gutter per C.O.A. Std. Dwg. #2420.

CONSTRUCT STRAIGHT TYPE P.C.C. WHEELCHAIR RAMPS PER COA STD. 2440 (Ea. Side)

Remove 3" Exist. Asphalt/Gravel/Replace (245 s.y.±)

Construct 2' Wide P.C.C. Alley Gutter

LOT G-1  
UNIT NO. 6  
ALTIMONT  
REC. 3/24/80, VOL. A7, FOL. 245

LOT G-2  
(4.28 AC.)

NEW ASPHALT OFFSITE (463s.y.)

Remove 3" Exist. Asphalt/Gravel/Replace (245 s.y.±)

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## DRAINAGE CALCULATIONS

### EXISTING CONDITIONS:

The site is located at the NE corner of the intersection of Candelaria Rd. and San Mateo Blvd., N.E. The site is presently developed as an auto service station. The site is presently completely impervious except for planters on the site. The flow in Candelaria Road is from east to west. The flow in San Mateo Blvd. adjacent to the site is from north to south. There is a 42" storm drain line in Candelaria Road. There is an inlet near the ENE curb return of the intersection. The site will drain as it presently does.

### PROPOSED CONDITIONS:

It is proposed to construct a new car wash on the site as shown. No other changes to the site are proposed except that landscaping will be added. Any removal and replacement of existing asphalt will be done to match existing grades. There will be a decrease in runoff as a result of the proposed development.

### DRAINAGE CRITERIA:

The calculations shown on this plan were prepared in accordance with Section 22.2, Hydrology, of the Development Process Manual, Volume 2, Design Criteria, for the City of Albuquerque, in cooperation with Bernalillo County, New Mexico and the Albuquerque Metropolitan Arroyo Flood Control Authority, January, 1993.

### PRECIPITATION ZONE:

The site is between San Mateo Blvd. and Eubank Blvd. and is, therefore, in Precipitation Zone 3.

### LAND TREATMENT AREAS, EXCESS PRECIPITATION AND UNIT PEAK DISCHARGE:

The peak discharge per acre and excess precipitation are shown for the four land treatments in Zone 2 in the table below, and the values shown are from the City of Albuquerque D.P.M. Also shown are the existing and proposed land treatment areas.

LAND TREATMENT	q (cfs/ac)		E (in)		Existing Site Areas %	Existing Site Areas Sq. Ft.	Acres	Developed Site Areas %	Developed Site Areas Sq. Ft.	Acres
	100-yr.	10-yr.	100-yr.	10-yr.						
A	1.87	0.58	0.66	0.19	0.0	0	0.0000	0.0	0	0.0000
B	2.60	1.19	0.92	0.36	3.2	1,200	0.0275	12.2	4,537	0.1042
C	3.45	2.00	1.29	0.62	0.0	0	0.0000	0.0	0	0.0000
D	5.02	3.39	2.36	1.50	96.8	36,098	0.8287	97.8	32,761	0.7520
Totals					100.0	37,298	0.8562	100.0	37,298	0.8562

### PEAK DISCHARGE:

#### EXISTING CONDITIONS:

$$Q_{100} = 0.0275 \times 2.60 + 0.8287 \times 5.02 = 4.23 \text{ cfs}$$

$$Q_{10} = 0.0275 \times 1.19 + 0.8287 \times 3.39 = 2.84 \text{ cfs}$$

#### DEVELOPED CONDITIONS:

$$Q_{100} = 0.1042 \times 2.60 + 0.7520 \times 5.02 = 4.05 \text{ cfs}$$

$$Q_{10} = 0.1042 \times 1.19 + 0.7520 \times 3.39 = 2.67 \text{ cfs}$$

### VOLUME, 100-YEAR, 6-HOUR:

#### EXISTING CONDITIONS:

$$V_{100} = (1,200 \times 0.92 + 36,098 \times 2.36) / 12 = 7,191 \text{ cf}$$

$$V_{10} = (1,200 \times 0.36 + 36,098 \times 1.50) / 12 = 4,548 \text{ cf}$$

#### DEVELOPED CONDITIONS:

$$V_{100} = (4,537 \times 0.92 + 32,761 \times 2.36) / 12 = 6,791 \text{ cf}$$

$$V_{10} = (4,537 \times 0.36 + 32,761 \times 1.50) / 12 = 4,231 \text{ cf}$$

### SUMMARY OF ON-SITE VOLUMES AND PEAK DISCHARGE RATES:

	V100(CF)	V10(CF)	Q100(CFS)	Q10(CFS)
EXISTING	7,191	4,548	4.23	2.84
DEVELOPED	6,791	4,231	4.05	2.67
DECREASE	400	287	0.18	0.17

### ANALYSIS OF DOWNSTREAM CAPACITY:

SINCE THERE IS A DECREASE IN RUNOFF AS A RESULT OF THE PROPOSED DEVELOPMENT, THERE IS NO REQUIREMENT TO ANALYZE DOWNSTREAM CAPACITY.

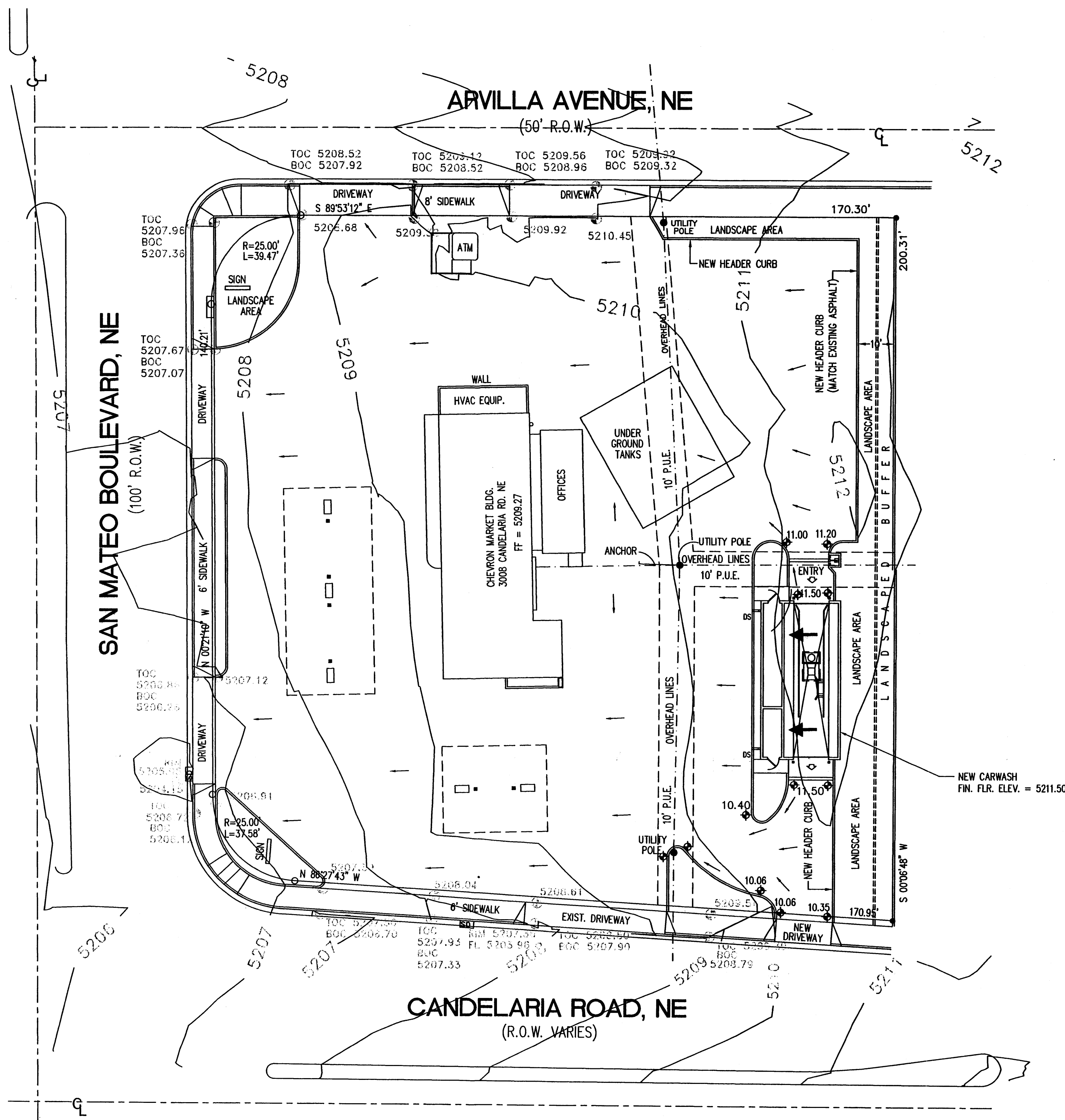
### ANALYSIS OF OFF-SITE FLOW:

THIS SITE HAS NO OFF-SITE FLOW ASSOCIATED WITH IT.

### ANALYSIS OF FLOOD ZONE:

THERE IS AN AO-1 (1' DEPTH) FLOOD ZONE IN CANDELARIA ROAD. THE PROPOSED DEVELOPMENT WILL RESULT IN A DECREASE IN RUNOFF FROM THE SITE SO NO ADDITIONAL CONTRIBUTION IS BEING MADE TO

THE FLOOD ZONE. WITH REGARD TO THE REQUIREMENT THAT THE FINISH FLOOR BE 2' ABOVE THE FLOODLINE ON CANDELARIA, THE PROPOSED BUILDING IS NOT INHABITABLE AND IS, THEREFORE, NOT SUBJECT TO THIS REQUIREMENT.



## DRAINAGE PLAN

SCALE: 1"=20'

## GENERAL NOTES:

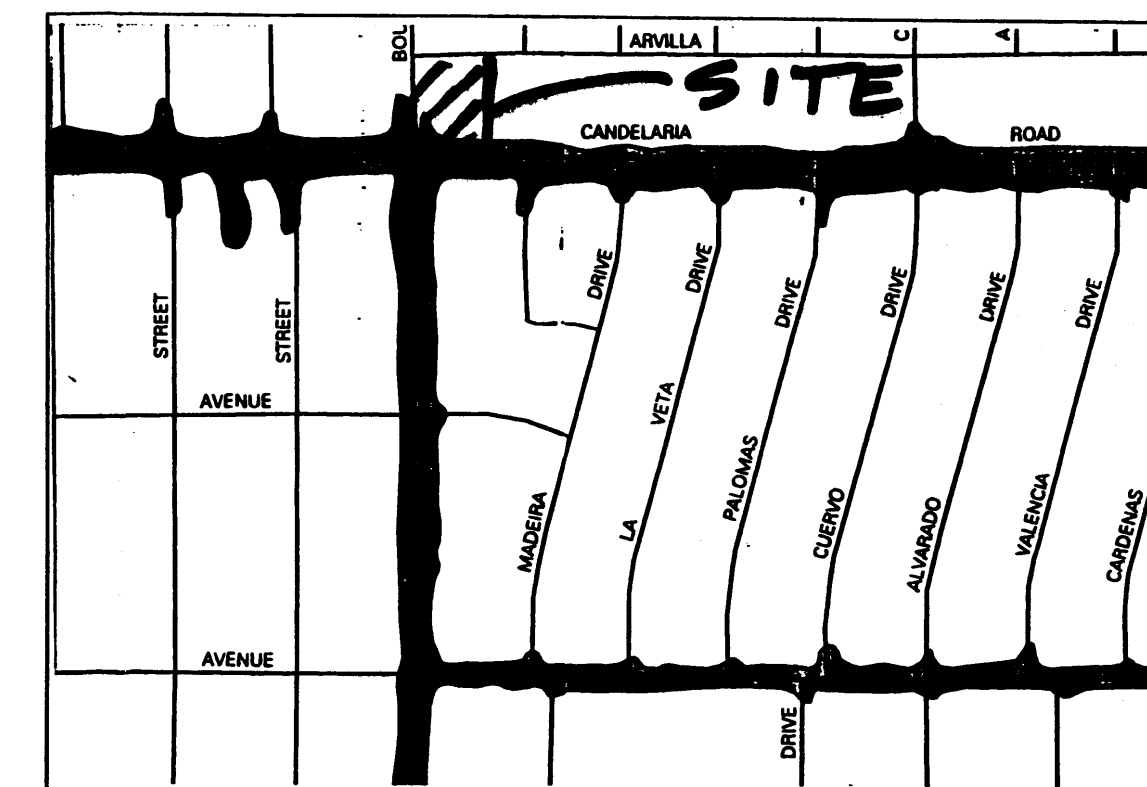
- No boundary survey was performed.
- Basis of elevations: NM 367-6, located on the median of San Mateo Boulevard, NE, at the intersection of San Mateo and Arvilla Street, NE. Elevation: 5207.26' MSL NGVD 1929.

## FLOOD NOTE

The above described property is located within Zone X (no hazard) Community Panel No. 350002 0352 D, dated September 20, 1996 and is not located within a Special Flood Hazard Boundary Indicated by FEMA Flood Insurance Rate Maps. Determination of Flood Hazard is by graphic plotting only.

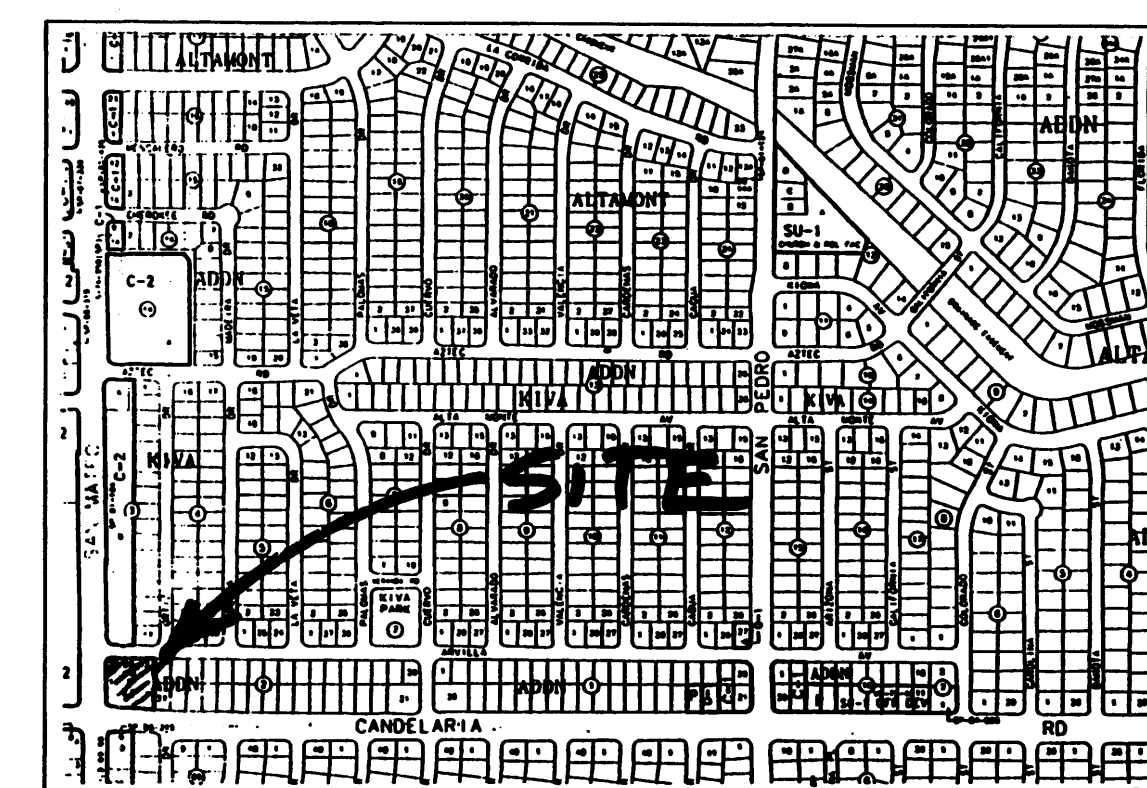
## LEGAL DESCRIPTION

Lot numbered One-A (1-A), Block numbered Two (2), a Replat of the KIVA ADDITION, Albuquerque, Bernalillo County, New Mexico, as the same is shown and designated on the replat thereof, filed in the office of the County Clerk of Bernalillo County, New Mexico, on March 14, 1996, in Volume 96C, folio 119.



FRM MAP

MAP NO. 35001C0352 D

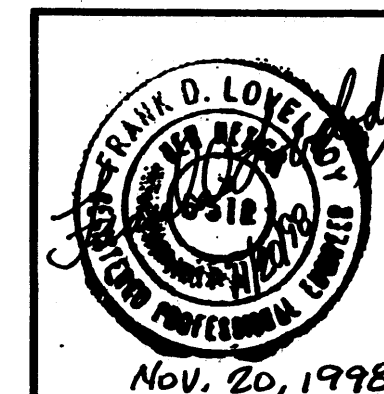
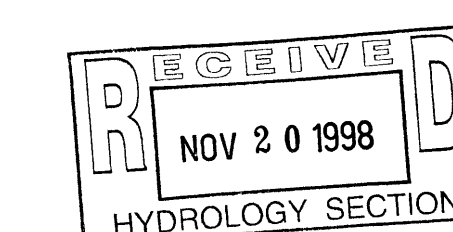


VICINITY MAP

ZONE ATLAS NO. G-18-Z

## LEGEND:

- SD Storm Drain Catch Basin
- Spot elevation  
TOC=Top of curb  
BOC=Bottom of curb
- FLOW DIRECTION
- NEW SPOT ELEV.
- DOWNSPOUT EXTENDING THRU CURB
- ROOF SLOPE



Chevron Automatic Car Wash

3008 CANDELARIA ROAD NE, ALBUQUERQUE, NEW MEXICO

KEN HOVEY, ARCHITECT

1501 24-003 • FAX 505 254-8091 • 3008 5th Ave. SE • ALBUQUERQUE, NM • 87105

JOB NO:	9618
DATE:	6 NOVEMBER 1998
REVISIONS	

SHEET NO.  
C-2