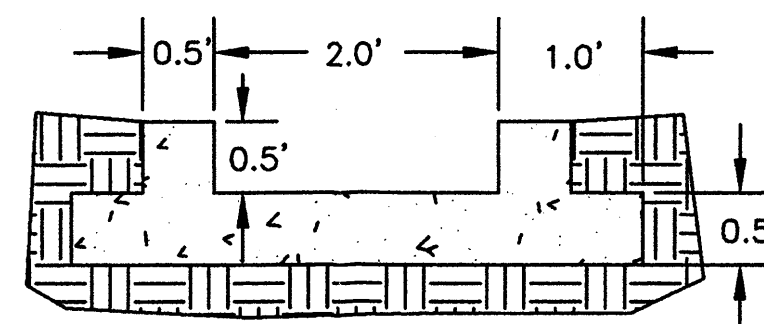


KEYED NOTES:

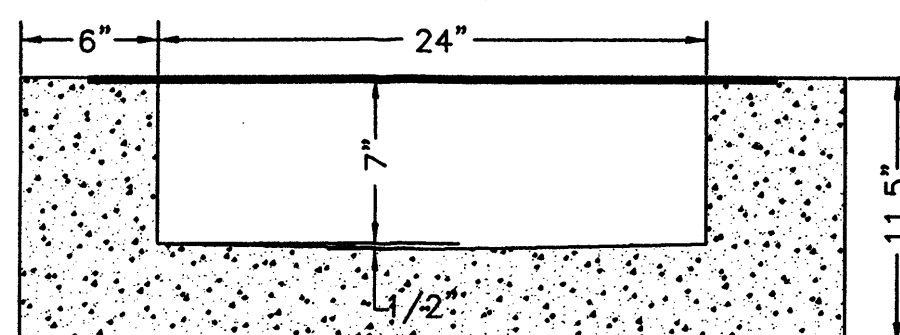
- ① DEMOLISH EXISTING BUILDING.
- ② DEMOLISH EXISTING PAVEMENT.
- ③ DEMOLISH EXISTING CURB.
- ④ DEMOLISH EXISTING CHAIN LINK FENCE.
- ⑤ DEMOLISH EXISTING WALL.
- ⑥ DEMOLISH REFUSE BIN ENCLOSURE.
- ⑦ DEMOLISH EXISTING SIDEWALK AND DRIVEPAD.
- ⑧ CONSTRUCT NEW "CURB TYPE" SIDEWALK AND STANDARD CURB & GUTTER PER COA STD DWGS 2415 & 2430.
- ⑨ CONSTRUCT NEW DRIVEPAD PER COA STD DWG 2425.
- ⑩ CONSTRUCT 6' CMU WALL.
- ⑪ CONSTRUCT 3' ROLLING GATE.
- ⑫ CONSTRUCT 3' CMU/WROUGHT IRON WALL.
- ⑬ INSTALL NEW LANDSCAPE.
- ⑭ INSTALL MONUMENT SIGN.
- ⑮ INSTALL NEW TRANSFORMER.
- ⑯ CONSTRUCT NEW REFUSE BIN ENCLOSURE.
- ⑰ CONSTRUCT NEW SIDEWALK.
- ⑱ REMOVE AND REPLACE W/ HEAVYWEIGHT COVER AND LID PER COA STD DWG 2369.
- ⑲ CONSTRUCT DAYLIGHT DRAIN THROUGH CMU WALL.
- ⑳ CONSTRUCT SEGMENTAL RETAINING WALL.
- ㉑ INSTALL 6' CONCRETE PARKING BUMPER.
- ㉒ CONSTRUCT MEDIAN CURB PER COA STD DWG 2415.
- ㉓ CONSTRUCT 1' WIDE RIBBON CURB.
- ㉔ CONSTRUCT 2' WIDE CONCRETE RUNDOWN, PER DETAIL ON THIS SHEET.
- ㉕ EXISTING SIDEWALK CULVERT TO REMAIN IN PLACE.

LEGEND

- 5200 — EXISTING ELEV. CONTOUR
- 5201 — EXISTING ELEV. CONTOUR
- 5206 — PROPOSED ELEV. CONTOUR
- 08.98 (EXTG) EXISTING SPOT ELEVATION
- 07.50 PROPOSED SPOT ELEVATION
- TC 85.17
FL 84.67 PROPOSED TOP OF CURB AND FLOWLINE ELEVATIONS
- △ TEMPORARY BENCHMARK
- FF FINISHED FLOOR
- DIRECTION OF FLOW
- PC CONCRETE PAVEMENT PER COA STD DWG 2405A
- CONCRETE SIDEWALK



CONCRETE RUNDOWN DETAIL
NTS



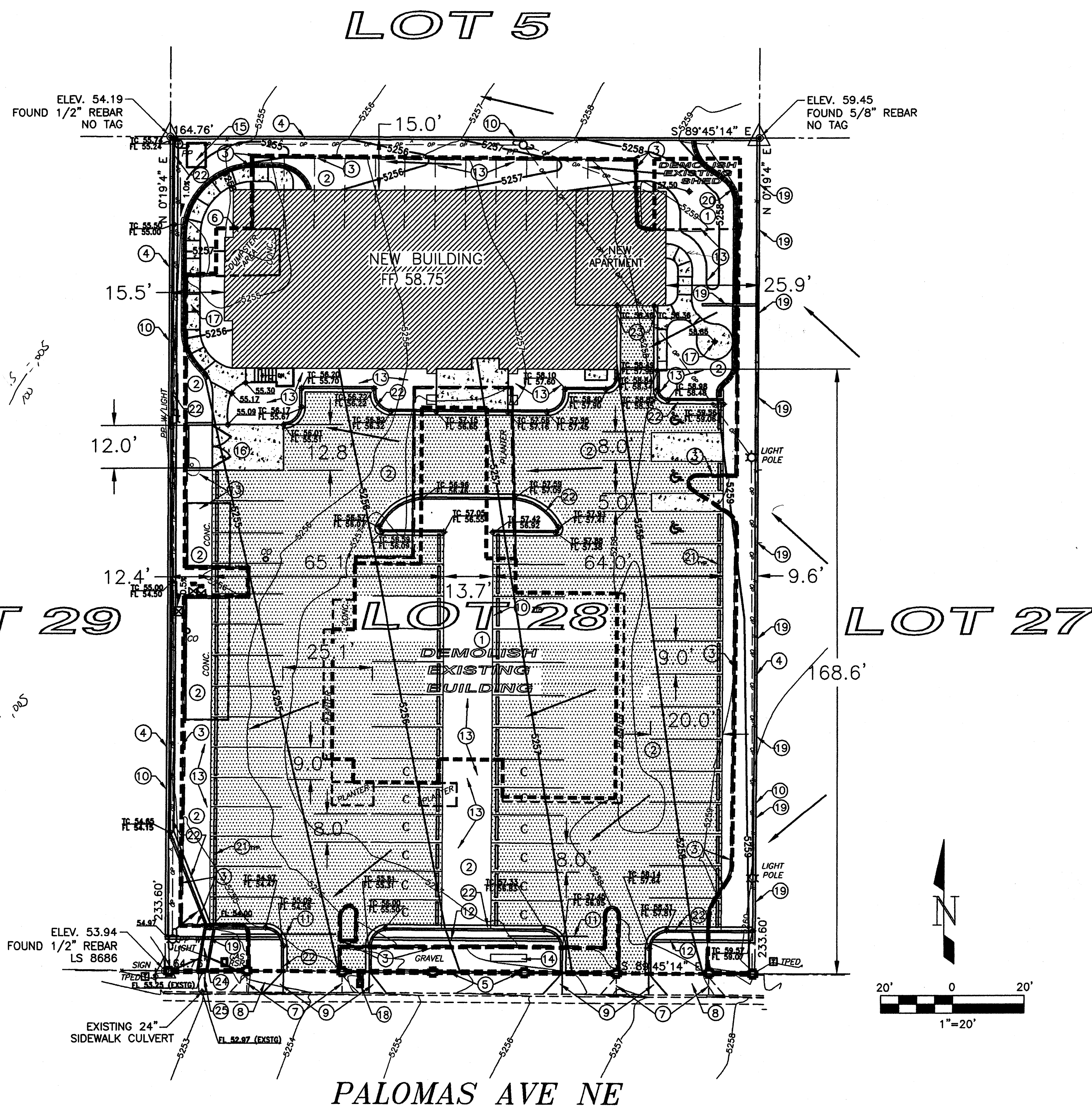
EXISTING SIDEWALK CULVERT DIMENSIONS
NTS

EXISTING SIDEWALK CULVERT DISCHARGE CAPACITY

$$Q = (1.486 \times A \times R^{0.67} \times S^{0.5}) / n$$

$$= 15.1 \text{ ft}^3/\text{sec} > 9.67 \text{ ft}^3/\text{sec} \text{ OKAY}$$

where Q = Discharge Capacity, ft^3/sec
A = Area, 1.21 ft^2
R = Hydraulic Radius, 0.38
S = Slope, 0.0432 ft/ft
n = Mannings Roughness, 0.013



GRADING AND DRAINAGE PLAN

LEGAL DESCRIPTION

Lot 28, Block 11, Tract A, Unit A, North Albuquerque Acres (City of Albuquerque, New Mexico).

FLOOD HAZARD ZONE

Lot 28 is located in Flood Hazard Zone X (i.e., areas of 100-year flood with average depths of less than 1 foot) designated on the Federal Emergency Management Agency's (FEMA's) Flood Insurance Rate Map Panel No. 35001C0137F (November 19, 2003).

DRAINAGE ANALYSIS

REFERENCE: City of Albuquerque, Development Process Manual -Vol. 2, Section 22.2 - Hydrology, January, 1993.

Principal Design Storm: 100-year 6-hour event

Precipitation Zone 3 (Table A-1)

Excess Precipitation (Table A-8):

$E_1 = 0.66$ in (Land Treatment 'A'), $E_2 = 0.92$ in (Land Treatment 'B')
 $E_3 = 1.29$ in (Land Treatment 'C'), & $E_4 = 2.36$ in (Land Treatment 'D')

Peak Discharge (Table A-9):

$Q_{P1} = 1.87 \text{ ft}^3/\text{sec-acre}$ (Land Treatment 'A')
 $Q_{P2} = 2.60 \text{ ft}^3/\text{sec-acre}$ (Land Treatment 'B')
 $Q_{P3} = 3.45 \text{ ft}^3/\text{sec-acre}$ (Land Treatment 'C')
 $Q_{P4} = 5.02 \text{ ft}^3/\text{sec-acre}$ (Land Treatment 'D')

On-Site 'Existing' Condition (Lot 28):

Lot 28 Area = $38,487 \text{ ft}^2 \times 1 \text{ acre}/43,560 \text{ ft}^2 = 0.88 \text{ acres}$
13.16% Land Treatment 'C', 86.84% Land Treatment 'D' (Table A-4)

Weighted E = $((E_3 \times 0.11 \text{ acres}) + (E_4 \times 0.77 \text{ acres}))/0.88 \text{ acres}$
= 2.22 in

$V_{360} = (2.22 \text{ in} \times 0.88 \text{ acres}) \times 1 \text{ ft}/12 \text{ in}$
= 0.163 $\text{acre-ft} \times 43,560 \text{ ft}^2/\text{acre}$
= 7,117 ft^3

Total $Q_P = (Q_{P3} \times 0.11 \text{ acres}) + (Q_{P4} \times 0.77 \text{ acres})$
= 4.25 ft^3/sec

On-Site 'Post Development' Condition (Lot 28):

29.90% Land Treatment 'C', 70.10% Land Treatment 'D'

Weighted E = $((E_3 \times 0.26 \text{ acres}) + (E_4 \times 0.62 \text{ acres}))/0.88 \text{ acres}$
= 2.04 in

$V_{360} = (2.04 \text{ in} \times 0.88 \text{ acres}) \times 1 \text{ ft}/12 \text{ in}$
= 0.150 $\text{acre-ft} \times 43,560 \text{ ft}^2/\text{acre}$
= 6,543 ft^3

Total $Q_P = (Q_{P3} \times 0.26 \text{ acres}) + (Q_{P4} \times 0.62 \text{ acres})$
= 4.02 ft^3/sec

Off-Site 'Existing' Condition:

Offsite Basin = $60,700 \text{ ft}^2 \times 1 \text{ acre}/43,560 \text{ ft}^2 = 1.39 \text{ acres}$
61.45% Land Treatment 'C', & 38.55% Land Treatment 'D'

Weighted E = $((E_3 \times 0.85 \text{ acres}) + (E_4 \times 0.54 \text{ acres}))/1.39 \text{ acres}$
= 1.7 in

$V_{360} = (1.7 \text{ in} \times 1.39 \text{ acres}) \times 1 \text{ ft}/12 \text{ in}$
= 0.198 $\text{acre-ft} \times 43,560 \text{ ft}^2/\text{acre}$
= 8,612 ft^3

Total $Q_P = (Q_{P3} \times 0.85 \text{ acres}) + (Q_{P4} \times 0.54 \text{ acres})$
= 5.65 ft^3/sec

As demonstrated by these calculations, the peak 'Post Development' discharge will be 0.23 CFS less than the 'Existing Condition' peak discharge from Lot 28. The impact of the peak discharge from Lot 28 on the San Pedro Drive storm drain is negligible. Free discharge from Lot 28 is recommended for the following reasons:

1. The 'Post Development' runoff from Lot 28 is a small percentage of the total runoff from the Palomas Ave. drainage basin.
2. The San Pedro Drive storm drain has sufficient capacity to convey the 'Post Development' runoff from Lot 28.
3. There are no storm water ponds on parcels adjacent to Lot 28.

NOTICE TO CONTRACTOR

1. AN EXCAVATION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
2. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, RULES, AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
3. THREE WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CONTACT THE LINE LOCATING SERVICE, NEW MEXICO ONE CALL @ 260-1990, FOR THE LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
6. MAINTENANCE OF THE FACILITY SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY BEING SERVED.
7. WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.

NOTE: THIS IS NOT A BOUNDARY SURVEY. PROPERTY CORNERS, BEARINGS AND DISTANCES SHOWN HEREON ARE FOR ORIENTATION PURPOSES ONLY.

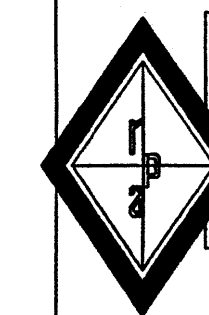
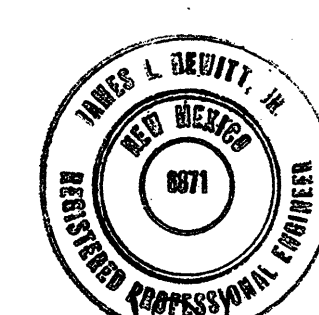
NOTE: ADD 5200 FEET TO PROPOSED SPOT ELEVATIONS TO GET MEAN SEA LEVEL DATUM ELEVATIONS.

BENCHMARK:
ACS 9-C18

ELEVATION 5232.47
ACS ALUMINUM CAP STAMPED "9-C18 1985", RIVITED TO A 2-1/2" ALUMINUM TUBE, SW CORNER INTERSECTION OF WILSHIRE AVE. AND SAN PEDRO AVE.

ENGINEERS CERTIFICATION

I HEREBY CERTIFY THAT I HAVE PERSONALLY INSPECTED THE SITE AND THAT NO GRADING, FILLING OR EXCAVATION HAS OCCURRED SINCE THE DATE OF THE TOPOGRAPHIC SURVEY (MARCH 22, 2006).



RHOMBUS P.A., INC.
FACILITIES ENGINEERS/ENVIRONMENTAL CONSULTANTS
e-mail: rhombus@nmia.com
web site: www.RHOMBUSPA.COM
2620 San Mateo NE Suite B Albuquerque, NM 87110
TEL (505) 881-6890 FAX (505) 881-6896

PROJECT TITLE:

DESERT HILLS KINGDOM HALL

6501 PALOMAS AVENUE, N.E.

SHEET TITLE:

GRADING AND DRAINAGE PLAN

MAP NO:

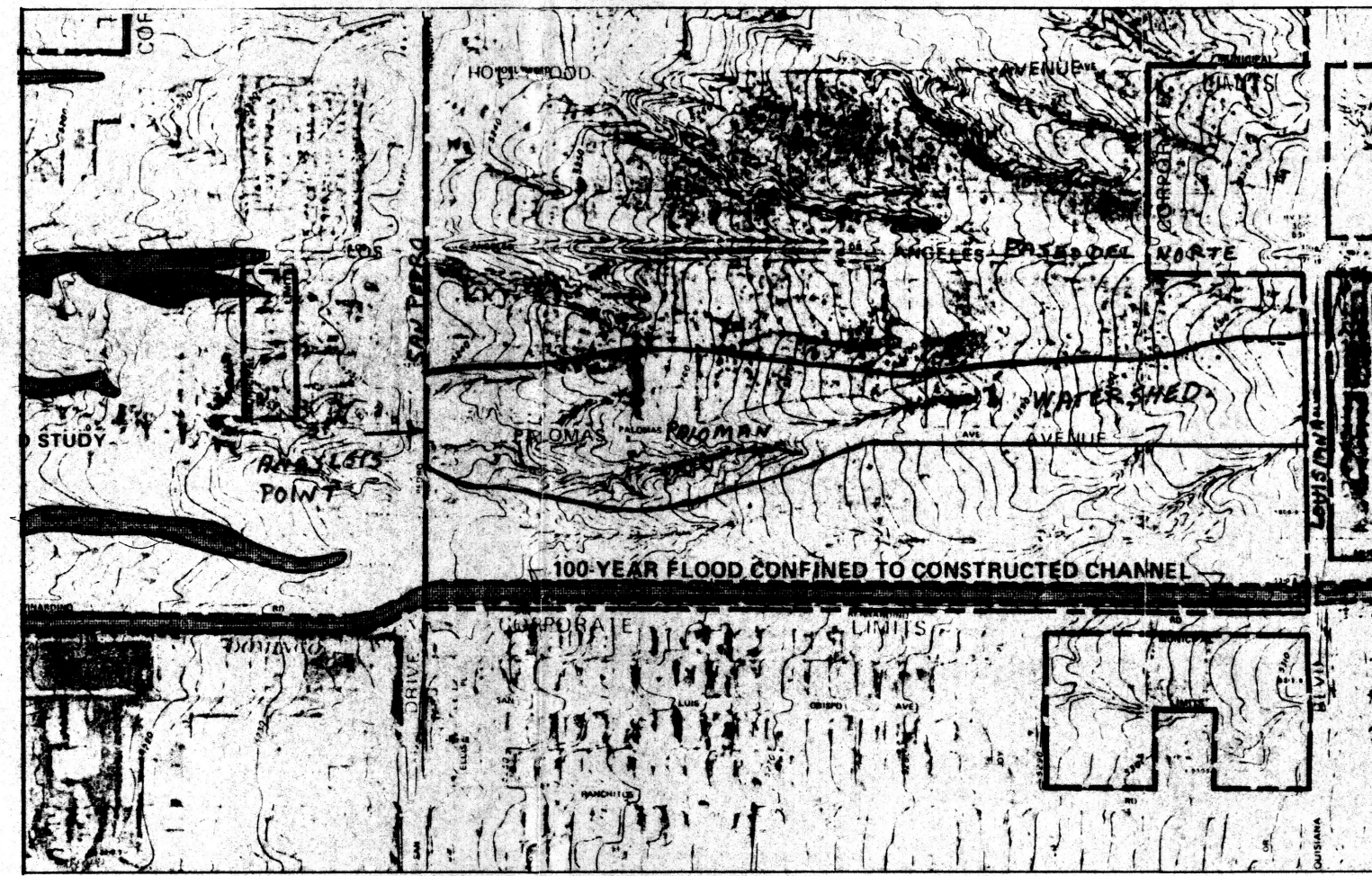
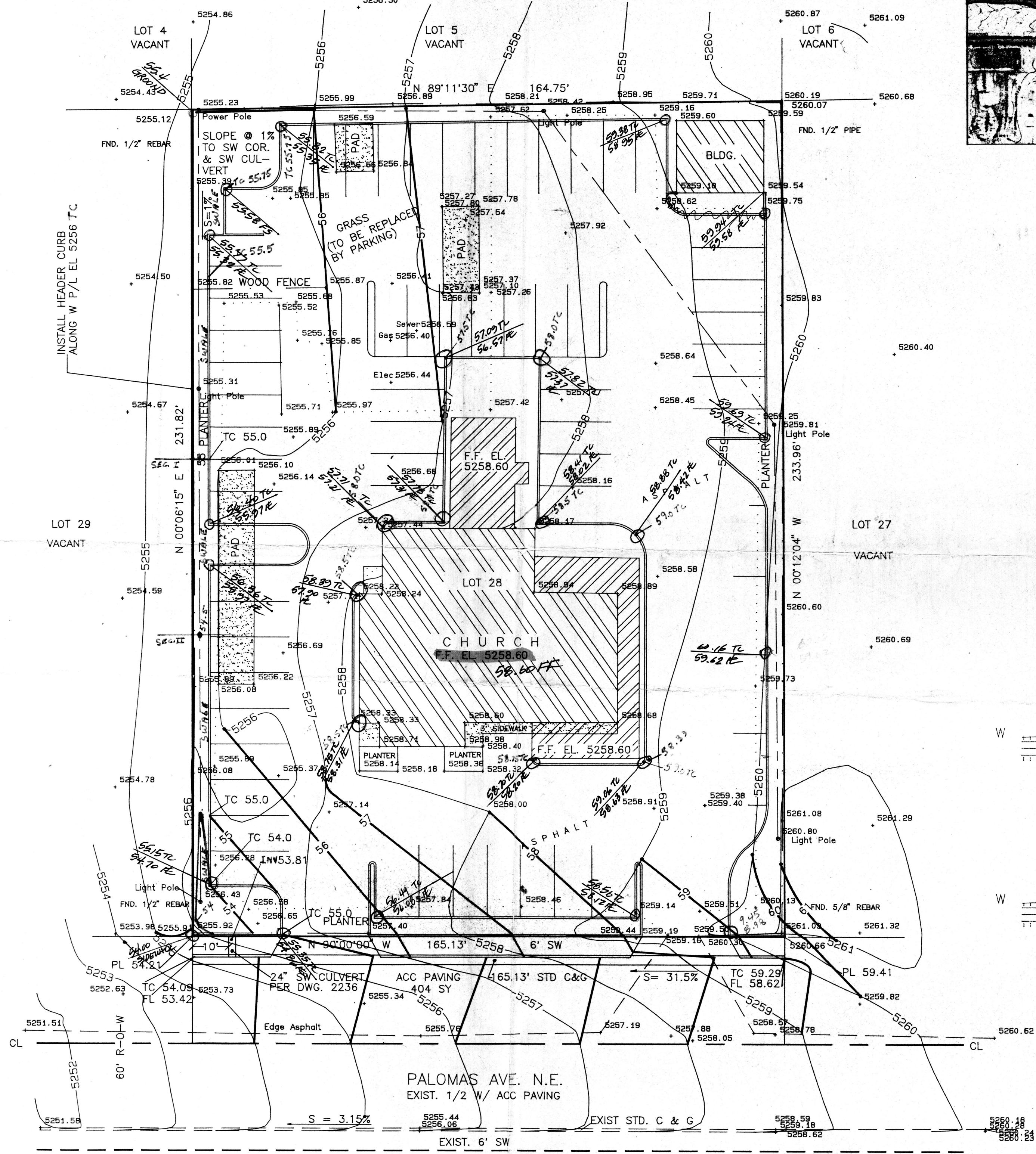
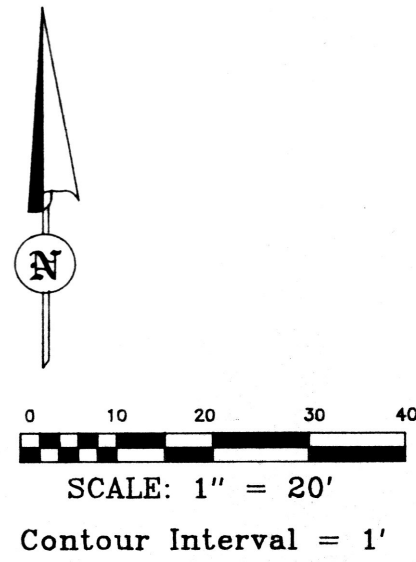
D-18-Z

RHOMBUS JOB NO:

06-C2-06

SHEET

C-1

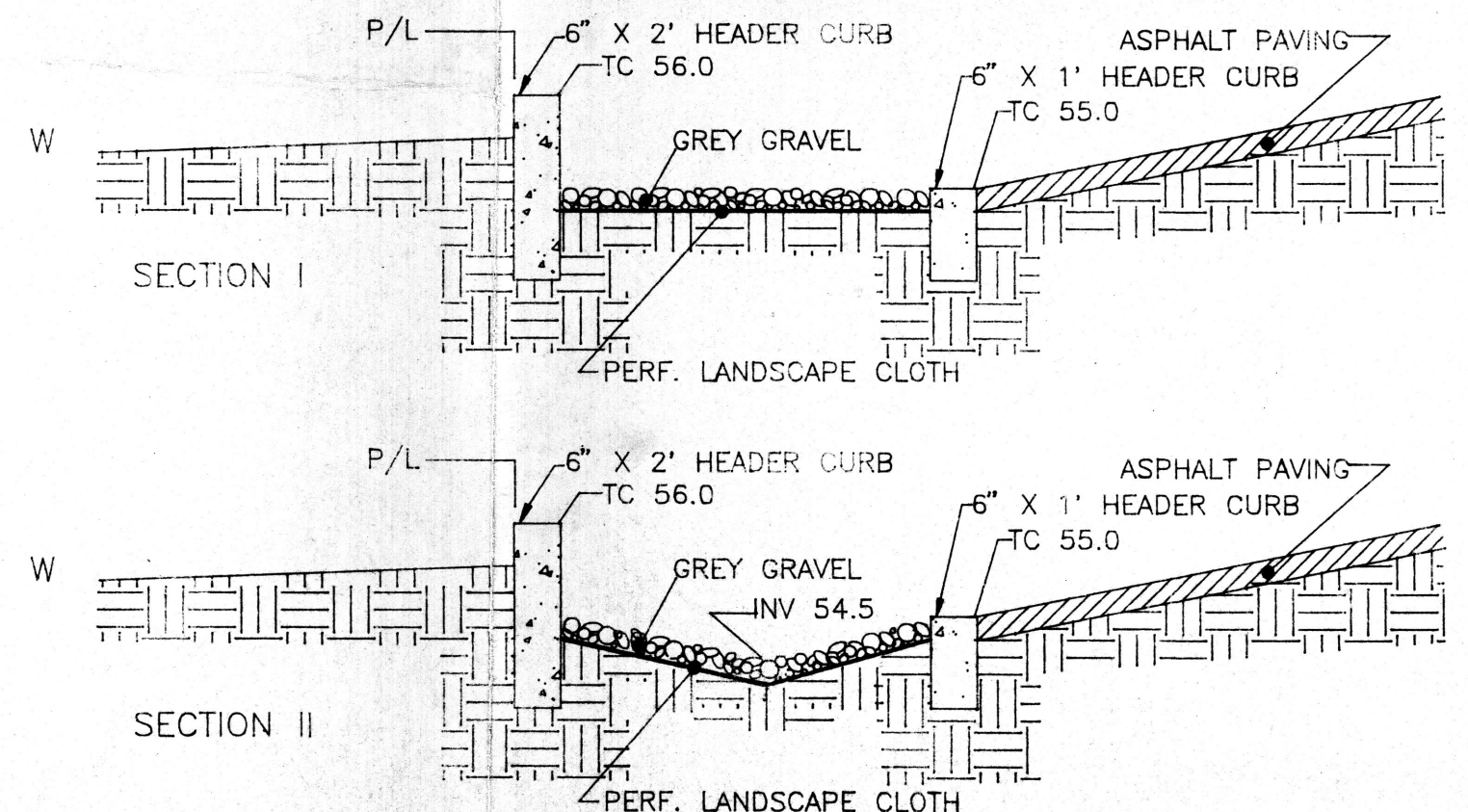


WATERSHED MAP FOR DOWNSTREAM CAPACITY ANALYSIS
FLOOD BOUNDARY AND FLOODWAY MAP
PANEL NO. 350002 0010

DOWNSTREAM CAPACITY ANALYSIS

PALOMAS AVE. IS A 48' F TO F STANDARD 8" C & G WITH A 2% CROWN WHERE IT HAS BEEN COMPLETED. IT HAS A SLOPE OF 3.15%. USING THE GRAPH OF 22.3 D-3, THIS STREET CAN CARRY 39 CFS FOR THE 1/2 Q CAPACITY, OR 78 CFS FULL CAPACITY DURING THE 100 YEAR STORM. THE EXISTING Q EXCEEDS THE PRO-RATA SHARE OF ONE HALF OF PALOMAS, EXCEPT FOR THE FACT THAT 90% OF THE SOUTH SIDE OF PALOMAS SLOPES SOUTHWARD TO THE LINED DOMINGO BACA ARROYO, AND IS DRAINED INTO THAT ARROYO. THE HOPE SCHOOL ON THE MOST EASTERLY SIX LOTS (990') HAS A RUNDOWN INTO THE LINED CHANNEL. THE APS SCHOOL (THE ADJACENT APPROX. 1150') HAS A RUNDOWN INTO THE DOMINGO BACA ARROYO. THE NEXT WESTERLY DEVELOPED TRACT, WHICH IS THE NEW MEXICO ACTIVITIES ASSN. (APPROX. 290') HAS A 24" STORM DRAIN FROM AN ON-SITE DROP INLET INTO THE DOMINGO BACA ARROYO. THE ESTIMATED CONTRIBUTIONS TO PALOMAS FROM THE SOUTH SIDE ARE AS FOLLOWS: HOPE SCHOOL, NONE (IT IS ALL LOWER); APS, APPROXIMATELY 30' X 400' OF GRASS, OR 0.72 CFS; THE NEW MEXICO ACTIVITIES BUILDING, APPROXIMATELY 40% OF THE NORTHERN PORTION DRAINS INTO PALOMAS AVE. 60% OF THIS PORTION BEING IMPERVIOUS AND 40% PERVIOUS AREA. THIS TRANSLATES INTO 0.6 AC. AND 0.4 AC. OR 3.0 CFS +1.0 CFS, FOR A TOTAL OF 4.0 CFS TO PALOMAS. THE REMAINING UNDEVELOPED LOTS ON THE WEST END OF THIS BLOCK WILL MOST LIKELY BE GRADED TO DRAIN 70% TO SAN PEDRO AND THE ARROYO, AND 30% TO PALOMAS. THIS WOULD RESULT IN CONTRIBUTION OF ANOTHER 0.543 ACRES, OR 2.1 CFS, USING THE SAME PROPORTION OF PERVIOUS TO IMPERVIOUS AS THE NEW MEXICO ACTIVITIES ASSN. SITE. THE ESTIMATED DRAINAGE FROM THE SOUTH SIDE OF PALOMAS IS 6.8 CFS FOR THE PEAK Q, 12 MIN. 100 YEAR STORM. THE SOUTH SIDE OF PALOMAS IS NOW 87.5% DEVELOPED. USING THE 100 YEAR STORM CAPACITY OF PALOMAS OF 78 CFS, THE STREET CAN CONVEY 71.2 CFS FROM THE NORTH SIDE, OR 4.45 CFS FROM EACH OF THE SIXTEEN ORIGINAL NORTH ALBUQUERQUE ACRES LOTS.

THE EXISTING RUNOFF FROM PALOMAS AVE. GOES INTO AN EXISTING DRAINAGE SYSTEM TO A FLOOD PLAIN FINGER EASTWARD FROM THE I-25 FRONTAGE ROAD. WHEN THAT AREA BETWEEN SAN PEDRO AND THE INTERSTATE, WHICH IS ZONED M-1, IS READY FOR DEVELOPMENT, THE AREA BETWEEN LOUISIANA, I-24, PASEO DEL NORTE, AND THE DOMINGO BACA ARROYO WILL BE DRAINED INTO THE DOMINGO BACA ARROYO.



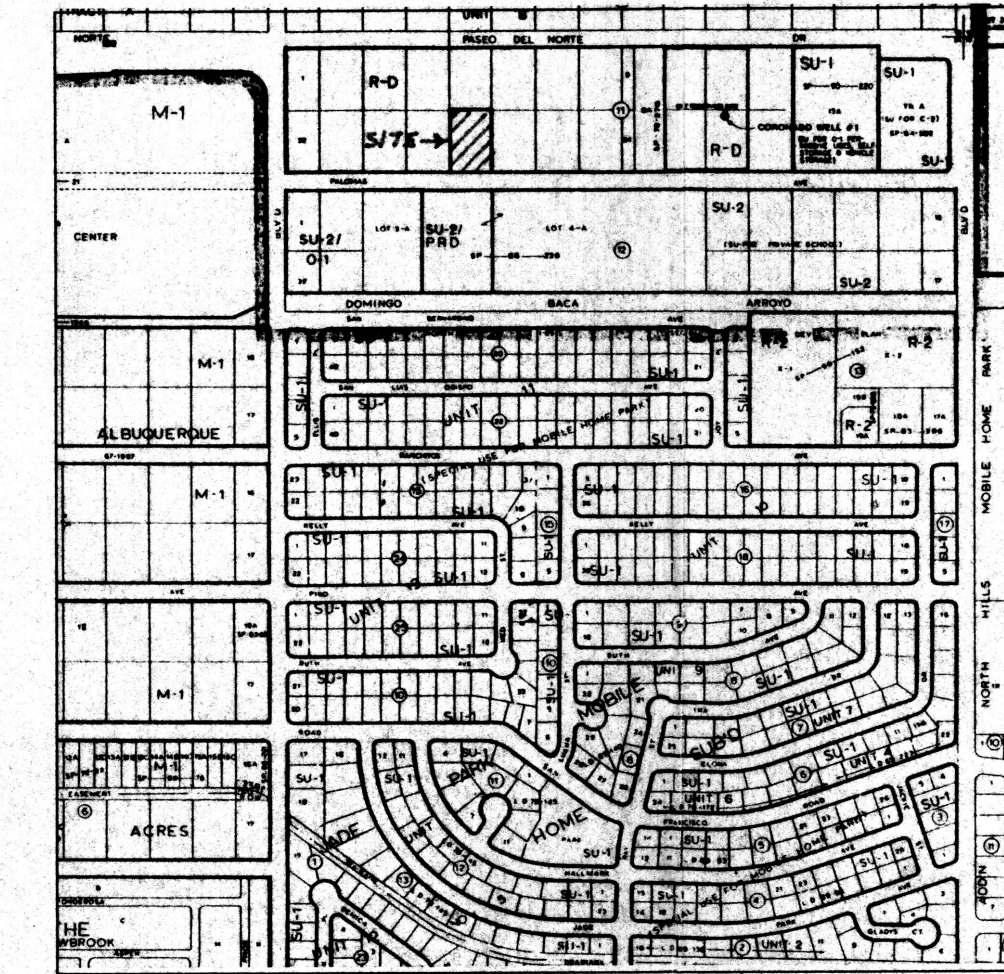
DRAINAGE SWALES

SCALE 1" = 2'

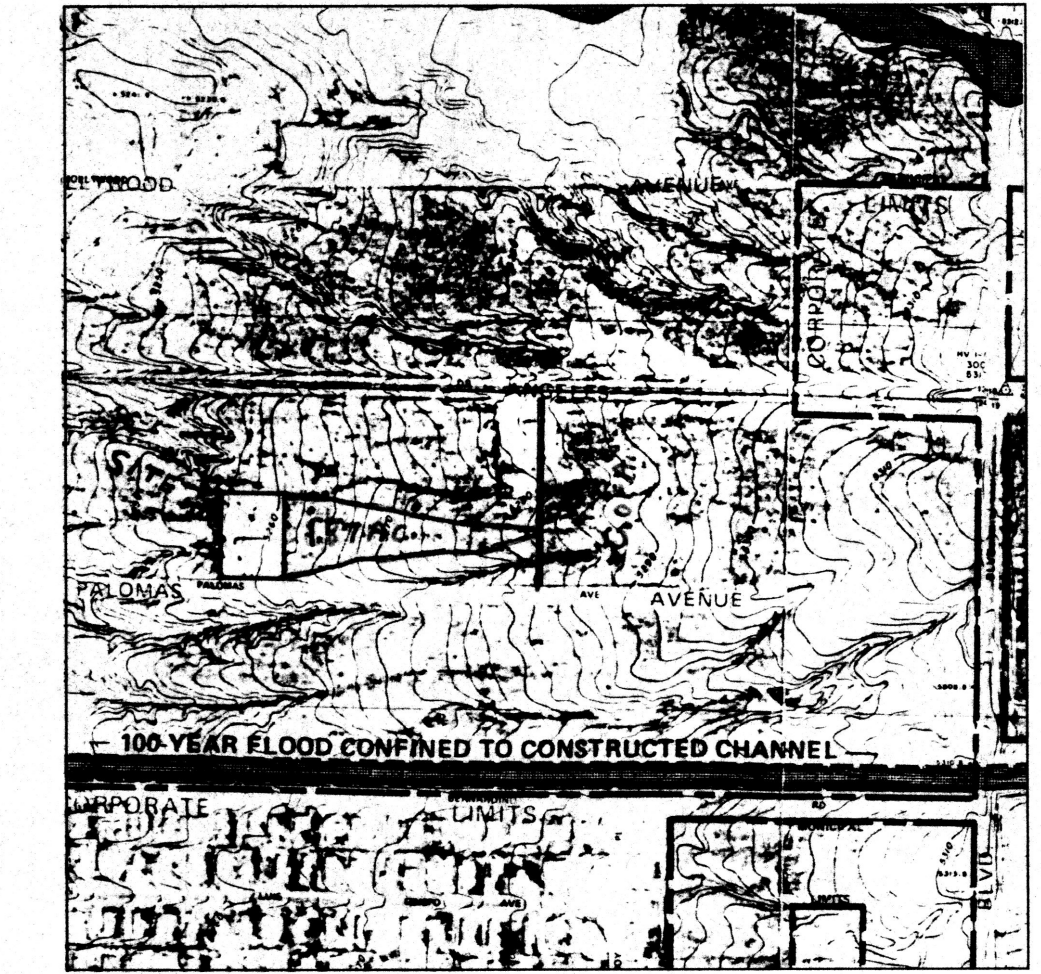
- LEGEND
- + EXISTING SPOT ELEVATIONS
 - - - EXISTING CONTOURS
 - - - PROPOSED CONTOURS
 - - - BOUNDARY
 - - - PROPOSED INFRASTRUCTURE
 - - - EXIST. INFRASTRUCTURE
 - - - EXIST. EDGE PAVING
 - - - POWER LINE
 - - - EXIST. FENCE
 - [Pattern] EXIST. CONCRETE
 - [Pattern] EXIST. BUILDING
 - [Pattern] PROPOSED BUILDING

- NOTICE TO CONTRACTOR
- 1 An excavation/construction permit will be required before beginning any work within the city right-of-way. An approved copy of these plans must be submitted at the time of application for this permit.
 - 2 All work detailed on these plans to be performed, except as otherwise stated or provided hereon, shall be constructed in accordance with City of Albuquerque Interim Standard Specifications for Public Works Construction, 1985.
 - 3 Two working days prior to any excavation, contractor must contact Line Locator Service, 260-1990, for location of existing utilities.
 - 4 Prior to construction, the contractor shall excavate and verify the horizontal and vertical locations of all constructions. Should a conflict exist, the contractor shall notify the engineer so that the conflict can be resolved with a minimum amount of delay.
 - 5 Backfill compaction shall be according to _____ street use.
 - 6 Maintenance of these facilities shall be the responsibility of the Owner of the property served.

APPROVALS	NAME	DATE	Title:
HYDROLOGY			
INSPECTOR			permit no.
A.C.E./FIELD			sheet of



LOCATION MAP D-18-Z
LEGAL DESCRIPTION: LOT 28, BLOCK 11, TRACT A, UNIT A
NORTH ALBUQUERQUE ACRES
ADDRESS: 6501 PALOMAS AVENUE, N.E.



FLOOD BOUNDARY AND FLOODWAY MAP
PANEL NO. 350002 0010

DISCUSSION

EXISTING CONDITIONS:

THIS SITE IS AN EXISTING CHURCH SITE WHICH HAS BEEN DEVELOPED AND IN USE FOR A NUMBER OF YEARS. IT IS LOCATED IN ZONE 3, AND THE PERVIOUS AREA CURRENTLY CONSISTS OF 5670 SF OF GRASS (TREATMENT B) AND 4305 SF OF BARE SOIL (TREATMENT C) AND THE REMAINING 0.653 ACRES IS IMPERVIOUS (TREATMENT D). THE EXISTING RUNOFF IS AS FOLLOWS:

TREATMENT	AREA (ACRES)	RUNOFF (CFS/AC)	RUNOFF (CFS)
B	0.130	2.6	0.34
C	0.099	3.45	0.34
D	0.653	5.02	3.28
AREA =	0.882 ACRES		Q 100 = 3.96 CFS

PROPOSED CONDITIONS:

THE CHURCH IS PROPOSING AN 821 SF AUDITORIUM ADDITION AND A 504 SF CARETAKER'S APARTMENT, BOTH OF WHICH ARE TO BE CONSTRUCTED ON EXISTING ACC PAVED PARKING. IN ADDITION, A COMPLETE MASTER PLAN HAS BEEN PREPARED IN WHICH CURBED PLANTING AREAS ARE PLANNED AROUND THE PERIMETER AND AROUND THE CARETAKER'S APARTMENT. THESE ARE TO BE PLANTED IN TREES AND LOW-MAINTENANCE SHRUBS WITH THE GROUND COVERED WITH 1 1/2" GREY GRAVEL OVER PERFORATED LANDSCAPING CLOTH. THIS GROUND COVER WILL APPROXIMATE TREATMENT A. THE PROPOSED CONDITIONS ARE AS FOLLOWS:

TREATMENT	AREA (ACRES)	RUNOFF (CFS/AC)	RUNOFF (CFS)
A	0.143	1.87	0.27
D	0.739	5.02	3.71
AREA =	0.882 ACRES		Q 100 = 3.98 CFS

THE RUNOFF AFTER THE MASTER PLAN DEVELOPMENT IS ESSENTIALLY THE SAME AS THE CURRENT RUNOFF. A REQUIREMENT FOR THIS PROPOSED DEVELOPMENT IS A SITE DEVELOPMENT PLAN WHICH INCLUDES CURB, GUTTER, SIDEWALK AND THE PAVING OF THE UNPAVED HALF OF PALOMAS AVENUE IN FRONT OF THIS PROPERTY.

SINCE THIS IS INTENDED AS A PERMANENT SOLUTION TO THE LOT DRAINAGE PROBLEM, A HEADER CURB IS TO BE ERECTED ALONG THE WEST PROPERTY LINE AND THE PLANTERS GRADED TO TAKE ALL OF THE RUNOFF TO THE FRONT OF THE LOT AND INTO PALOMAS AVENUE VIA A STANDARD CITY OF ALBUQUERQUE SIDEWALK CULVERT. THIS IS MOST FEASIBLE, SINCE A SIDEWALK MUST BE BUILT.

OFFSITE FLOWS (UPSTREAM):

THE CITY OF ALBUQUERQUE, AT ITS WELL SITE UPSTREAM, HAS CUT OFF ALL OVERLAND DOWNSTREAM FLOWS AND DELIVERS ITS STORM WATERS TO PALOMAS AVENUE. BECAUSE OF THIS, THE UPSTREAM WATERSHED AREA TO THE EAST PROPERTY LINE IS 1.87 ACRES. ALL OF THIS AREA IS UNDEVELOPED AT THIS TIME, AND HAS A TREATMENT A CONDITION. THE EXISTING OFFSITE FLOW IS (1.87)(1.87), OR 3.50 CFS. THIS OFFSITE FLOW WILL CONTINUE UNCHANGED, AS NO GRADING IS PROPOSED AT THE EAST PROPERTY LINE.

BASED UPON THE ABOVE ANALYSIS, THE PEAK 100 YEAR Q TO THE SIDEWALK CULVERT AND PALOMAS AVENUE IS 7.48 CFS.

RECORD DRAWING

These record drawings have been prepared, in part, on the basis of information compiled and furnished by others. The Engineer will not be responsible for any errors or omissions which have been incorporated into this document as a result.

C.A. COONCE & ASSOC.

ENVIRONMENTAL, WATER RESOURCES, & SANITARY CONSULTING ENGINEERS
12324 PINEHEDGE N.E. ALBUQUERQUE, N.M. 87112 PH (505) 298-1088

TITLE MASTER DRAINAGE & GRADING PLAN

PROJECT 6501 PALOMAS AVENUE, N. E.

DATE	BY	REVISION
09/21/93	LSC	1/12/93
11/14/94	CAC	11/14/94

SHEET 1 of 1

- NOTES:
- 1 BASIS OF BEARINGS: SOUTH LINE LOT 28
 - 2 BASIS OF ELEVATION: ACS STA. 11 D-18, ELEV. = 5235.67
 - 3 Survey control and mapping by ConServe Surveying Co., P.O. BOX 9, SAN FIDEL, New Mexico, 87049, (505) 552-9898
 - 4 Unless otherwise indicated, all lot corners are #5 rebar/cap.
 - 5 Date of Field Survey: July 31, 1993

ON FEBRUARY 4, 1995 THIS SITE WAS INSPECTED AND FOUND TO BE IN COMPLIANCE WITH THIS APPROVED DRAINAGE AND GRADING PLAN.

C.A. COONCE
N.M.P.E. # 2934
DATE 2/1/95