HYDROLOGY

C18/D13
4 PLANS

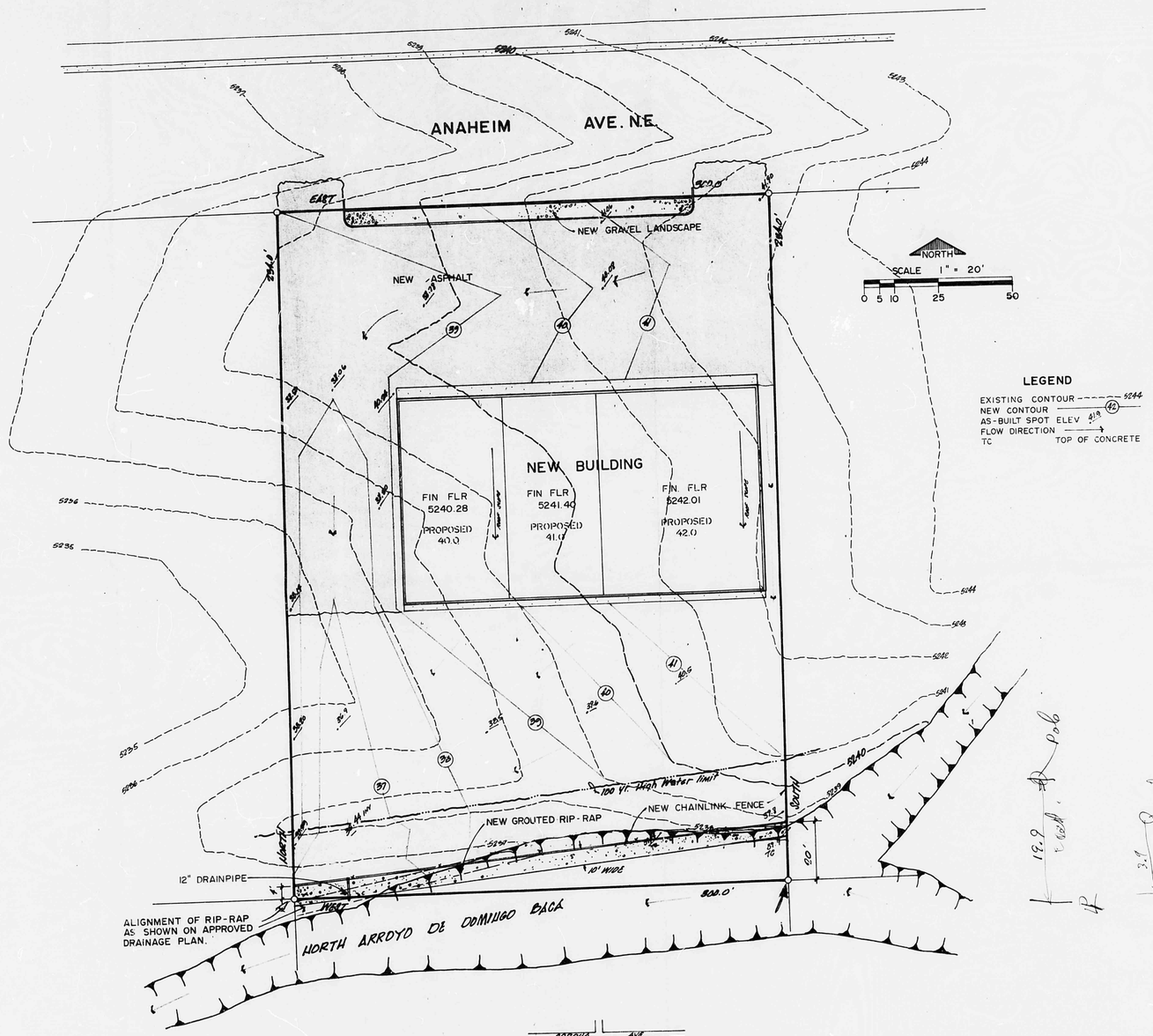
C18/D14

4 Plans

AS-BUILT CERTIFICATION

SHOWING

LOT 2, BLOCK 33, NORTH ALBQ. AC.
ALBUQUERQUE, N. M.



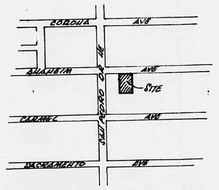
NOTES:

1. All informations pertinent to this As-Built Certification were traced from the approved Grading and Drainage Plan dated October 15, 1986. The orginal drawing was misplaced and is believe to have been destroyed.
2. There were two noticeable changes made as shown hereon.
   a. A landscape planter was added to the frontage of the property.
   b. The grouted Rip-Rap was religned as shown.

CERTIFICATION:

I, R. G. Lee, Jr., Registered Professional Engineer, No. 1872 do hereby certify that I have checked the elevations shown hereon and found it to be in substantial compliance with the approved Grading and Drainage Plan.

R.G. LEE, Jr. N.M.R.P.E. 1872

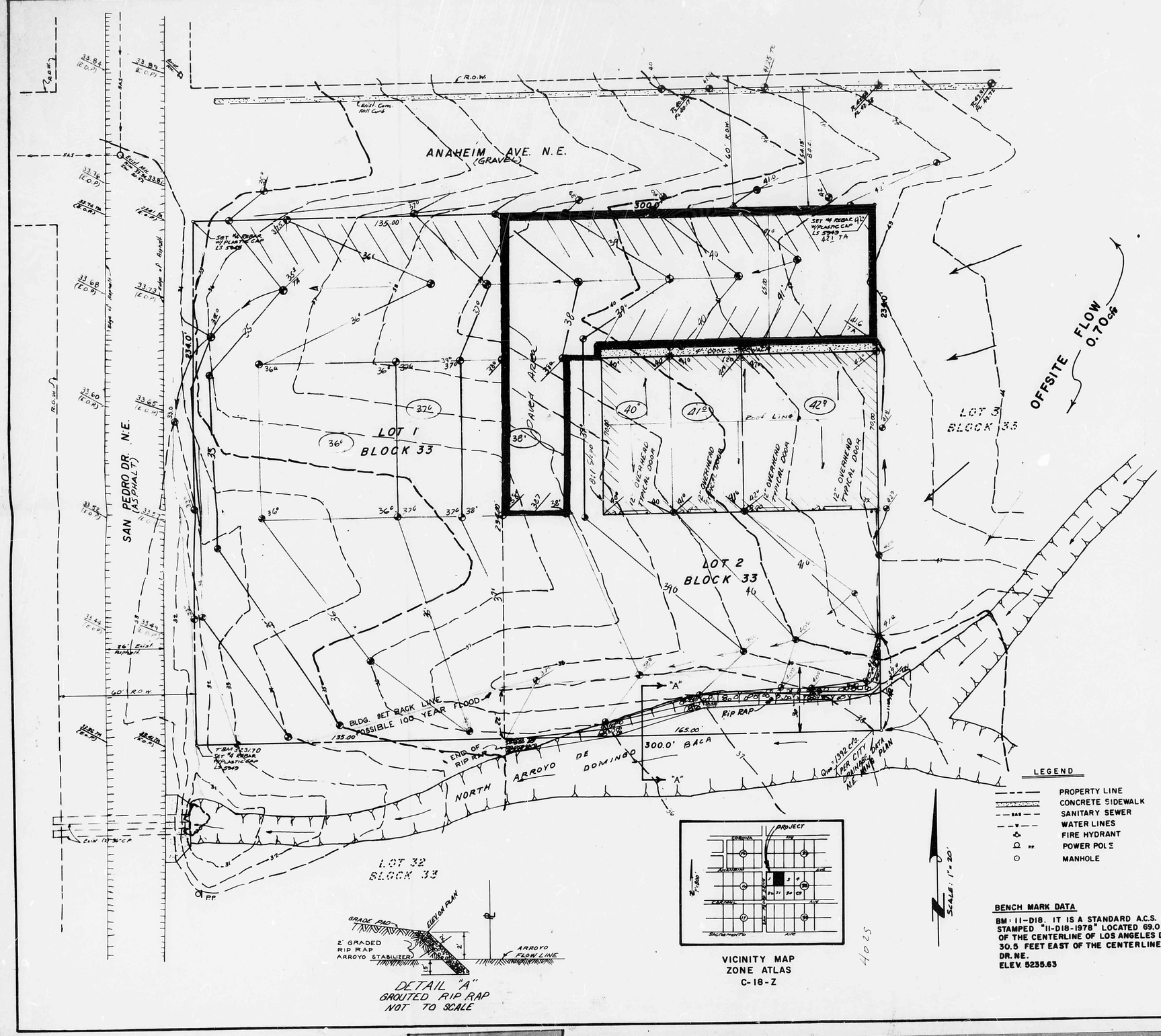


VICINITY MAP

ZONE ATLAS C-18

GRADING AND DRAINAGE PLAN
FOR
G.M.C. CONSTRUCTION CO.

RECEIVED
OCT 02 1984
HYDROLOGY SECTION



SITE DRAINAGE CRITERIA

THE FOLLOWING ITEMS REQUIRED BY THE CITY OF ALBUQUERQUE DRAINAGE SECTION CONCERNING THE DRAINAGE PLAN FOR LOT 2 BLOCK 33 OF NORTH ALBUQUERQUE ACRES AND CONTAINED HEREON.

A. VICINITY MAP
B. GRADING AND DRAINAGE PLAN
C. SITE DRAINAGE CRITERIA

THE SITE IS LOCATED ON THE SOUTHEAST CORNER OF SAN PEDRO NE AND ANAHEIM NE. THE SITE IS UNDEVELOPED AREA, AND ITS TERRAIN SLOPES EAST TO WEST AT ABOUT 7%. THERE IS A SMALL AMOUNT OF OFF-SITE RUNOFF APPORTING THIS PART OF LAND FROM LOT 3 TO THE EAST. THE SITE WILL ALLOW FOR ANY POSSIBLE OFFSITE TO DRAIN ACROSS THE PARKING LOT. THE OFFSITE RUNOFF GENERATED FROM THIS SITE DRAIN INTO THE TWO 36" CMP CULVERTS LOCATED ON THE N. W. CORNER OF LOT 1 BLOCK 33. THE EXISTING CULVERTS CROSS UNDER SAN PEDRO DRIVE DESIGNED BY THE T.A.D.N.D. ALSO CARRY THE DRAINAGE FOR THE NORTH ARROYO DE DOMINGO BACA. SAID CULVERTS HAVE A CONCRETE SLOPED FACE AND WILL ALLOW EXCESSIVE FLOWS TO FLOW OVER SAN PEDRO. THERE AREN'T ANY DOWNSTREAM FLOODING CONDITIONS THAT WOULD REQUIRE FOR DETENTION OF RUNOFF ON THE SITE.

THE SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE AS IS SHOWN ON FLOOD HAZARD MAP , EXCEPT FOR THE SOUTHEAST CORNER AS IS SHOWN HEREIN AND ON F.I.R.M. PANEL 10 100 YEAR FLOOD LINE IS 2' ABOVE EXISTING FLOW LINE.

DRAINAGE CALCULATIONS:

Soil Type - As per the USDA Soil Conservation Report on Soils of Bernalillo County this is defined as a sandy loam of the Hydrologic Group B. Hence the C value as per the DPM for use in the rational formula equations - 0.34.

UNDEVELOPED CONDITIONS: The site is 100% undeveloped and slopes to the southwest and its runoff is in sheet flow mode. There are offsite flows pertaining to the site. The North Arroyo de Domingo Baca that traverses through the southeast corner of Lot 2, about 15 feet north of the southwest corner and 140 feet to the west along the south property line. The runoff flow is 1392.0 cfs according the Northeast Heights Management Plan. There also is a triangle shaped area of about 0.44 acres, northeast of the east property line of Lot 2 which is considered offsite flow, and will be allowed to flow across this project. There are two existing 36" CMP culverts which were constructed by the N.M.S.H. Department under San Pedro Drive NE.

There are no set street grades for Anaheim Avenue NE which bounds this property on the north.

Therefore, the total flow amount using P = 2.2 in./hr. (DPM Value) and $I = P\,(6.84)\,t_c^{-0.51} = 4.65$ in./hr t_c = 10 min. (For small drainage areas); C = 0.34

Total area contributing runoff is equal to onsite area and offsite area.

Lot 2 = 0.88 ac onsite, 0.44 offsite area, therefore A=0.89+0.44=1.3 ac.

Q_{100} = CIA = (0.34)(4.65)(1.33) = 2.10 cfs undeveloped

Q_5 = 0.541 Q_{100} = 0.541 (2.10) = 1.14 cfs undeveloped

Offsite area runoff: A = 0.44 C = 0.34 undeveloped I = 4.65

Q_{100} = CIA = 0.34 (4.65)(0.44) = 0.70 cfs

Onsite developed area runoff, Determine Peak Flow

ROOF AND PAVEMENT AREA	= 21,225.0 S.F.
DIRT & LANDSCAPE AREA	= 17,385.0 S.F.
TOTAL DRAINAGE AREA	= 38,610.0 S.F.
CONTRIBUTING TO RUNOFF	= 38,610.0 S.F.

COMPOSITE "C" FACTOR = $\frac{0.9(21,225.0) + 0.6(17,385.0)}{38,610} = 0.76$

$Q\,PEAK_{100}$ = CIA; A= 0.89 ac, I = 4.65 in./hr.

$Q\,PEAK_{100}$ = (0.76)(4.65)(0.89) = 3.15 cfs

Lot 1, runoff calculations A = 0.72, C = 0.60 (graded lot)

$Q\,PEAK_{100}$ = CIA = (0.60)(4.65)(0.72) = 2.0 cfs

Total Q_{100} = $Q_{offsite}$ + $Q_{developed}$ + $Q_{lot\ graded}$ = 0.70 + 3.15 + 2.0 = 5.85 cfs

Q_{10} = 0.657 (5.85) = 3.84 cfs

DEVELOPED DRAINAGE PLAN:

According to the meeting held with AMAFCA (Mr. Dan Sabo) the developed flows could discharge across lot 1 and also directly into the North Arroyo de Domingo Baca. Since the owner of lot 2 also owns lot 1 a private drainage easement for the purpose of draining across lot line (lot 1) will be granted by the owner.

Grouted rip rap will be provided by the owner along the south property line for the purpose of protecting the subject property from further erosion. According to the F.I.R.M. Maps, Panel No. 10, the height of the 100 year flood plan shall be 2 feet above the existing natural arroyo flow line.

The developed flow calculations are computed herein and the areas contributing runoff are lot 1 graded only, Lot 2 developed, and 0.44 ac. offsite flows. The offsite flows in the North Arroyo de Domingo Baca is contained within the existing arroyo.

LEGEND

- PROPERTY LINE
- CONCRETE SIDEWALK
- SANITARY SEWER
- WATER LINES
- FIRE HYDRANT
- POWER POLE
- MANHOLE

BENCH MARK DATA

BM 11-D18. IT IS A STANDARD A.C.S. BRASS CAP STAMPED "11-D18-1978" LOCATED 69.0 FEET SOUTH OF THE CENTERLINE OF LOS ANGELES DR. NE, AND 30.5 FEET EAST OF THE CENTERLINE OF SAN PEDRO DR. NE.
ELEV. 5235.63

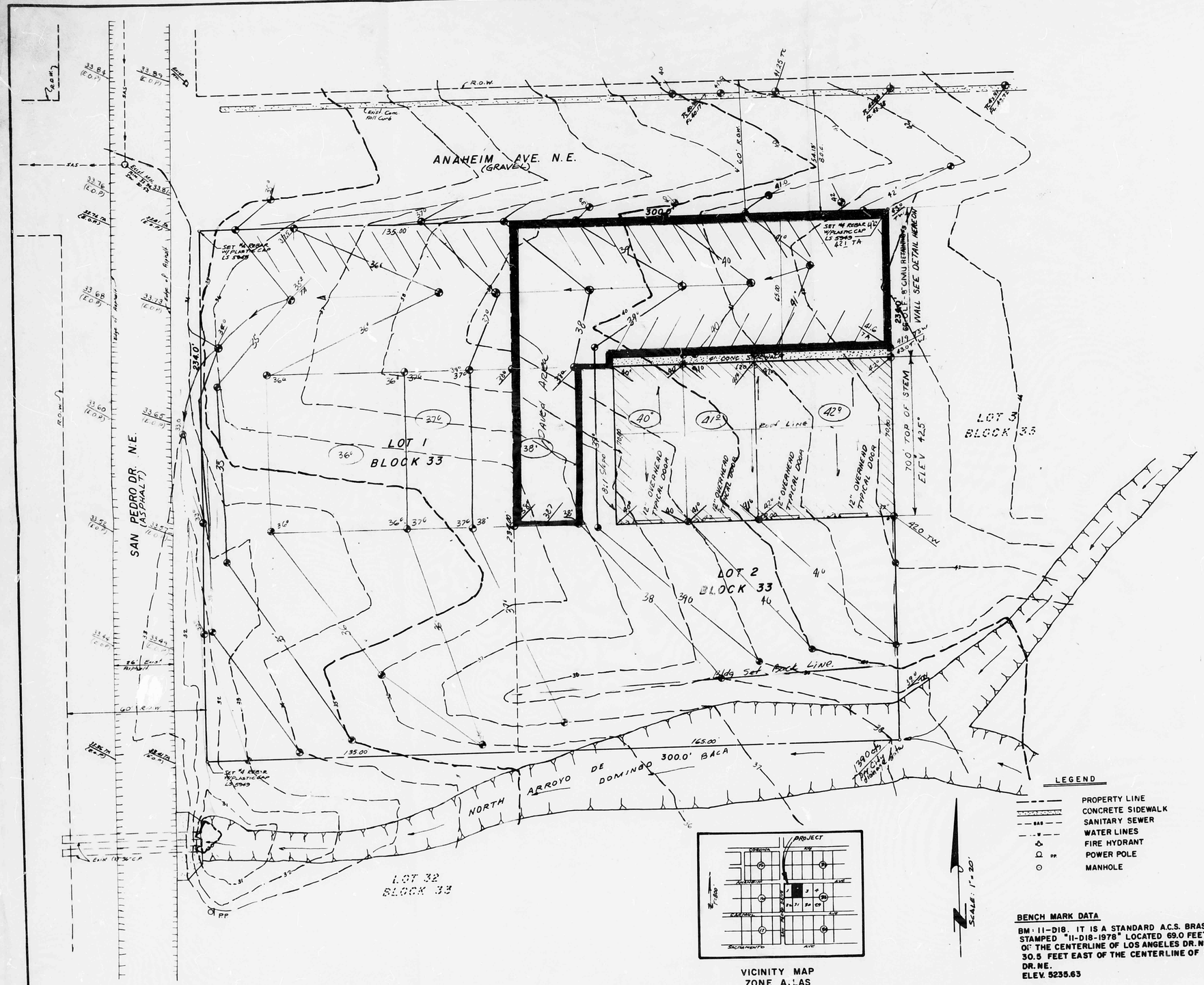
RECEIVED
OCT 02 1984
HYDROLOGY SECTION

D. E. LEE, JR.
NEW MEXICO
1972
REGISTERED PROFESSIONAL ENGINEER
Oct. 1, 1984

"I, JOHN F. ESQUIBEL, UNDER THE LAWS OF NEW MEXICO, CERTIFY THAT I AM A REGISTERED LAND SURVEYOR AND THAT THIS PLAT WAS PREPARED BY ME OR UNDER MY SUPERVISION, SHOWS ALL EASEMENTS OF RECORD, MEETS MINIMUM REQUIREMENTS FOR MONUMENTATION AND SURVEYS OF THE ALBUQUERQUE SUBDIVISION ORDINANCE, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

JOHN F. ESQUIBEL, N.M.L.S. NO. 5949

A & E ENGINEERING, INC.
CIVIL ENGINEERING · SURVEYING · LAND PLANNING
1330 SAN PEDRO N.E. · SUITE 101 · (505) 266-87
ALBUQUERQUE, NEW MEXICO 87110



VICINITY MAP
ZONE A.LAS
C-18-Z

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ELEV. 5235.63

GRADING AND DRAINAGE PLAN FOR G.M.C. CONSTRUCTION CO.

SITE DRAINAGE CRITERIA

THE FOLLOWING ITEMS REQUIRED BY THE CITY OF ALBUQUERQUE DRAINAGE SECTION CONCERNING THE DRAINAGE PLAN FOR LOT 2 BLOCK 33 OF NORTH ALBUQUERQUE ACRES AND CONTAINED HEREON:

A. VICINITY MAP
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THE SITE IS LOCATED ON THE SOUTHEAST CORNER OF SAN PEDRO NE AND ANAHEIM NE. THE SITE IS UNDEVELOPED AREA, AND ITS TERRAIN SLOPES EAST TO WEST AT ABOUT 2%. THERE IS A SMALL AMOUNT OF OFFSITE RUNOFF AFFECTING THIS TRACT OF LAND, FROM LOT 1 TO THE EAST. THE SITE WILL ALLOW FOR ANY POSSIBLE OFFSITE TO DRAIN ACROSS THE PARKING LOT. THE OFFSITE RUNOFF GENERATED FROM THIS SITE DRAIN INTO THE TWO 36" CMP CULVERTS LOCATED S.W. OF THE SW CORNER OF LOT 1 BLOCK 33. THE EXISTING CULVERTS CROSS UNDER SAN PEDRO WHICH DESIGNED BY THE N.M.S.H.T.D. ALSO CARRY THE DRAINAGE FROM THE NORTH ARROYO DE DOMINGO BACA. SAID CULVERTS HAVE A CONCRETE SLOPED FACE AND WILL ALLOW EXCESSIVE FLOW TO FLOW OVER SAN PEDRO. THERE DOES NOT ARE DOWNSTREAM FLOODING CONDITIONS THAT WOULD REQUIRE FOR DETENTION OF RUNOFF ON THE SITE.

THE SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE AS IS SHOWN ON FLOOD HAZARD MAP

THE PLAN SHOWS:

A. EXISTING CONTOURS AT ONE FOOT INTERVALS.
B. PROPOSED GRADES INDICATED BY CONTOURS AND SPOT ELEVATIONS.
C. SWALES INDICATED BY LEGEND SHOWN.
D. GRADING AND DRAINAGE PLAN.

OFFSITE RUNOFF CALCULATIONS

Q_{100} = CIA
C = 0.60 I = 4.65 A = 0.44
Q_{100} = 0.60(4.65)(0.44) = 1.22 cfs

DETERMINE PEAK FLOW RATE

ROOF AND PAVEMENT AREA = 21225.0 S.F.
DIRT AREA (NATURAL GR.) = 17385.0 S.F.
TOTAL DRAINAGE AREA
CONTRIBUTING TO RUNOFF = 38610.0 S.F.

$$\text{COMPOSITE "C" FACTOR} = 0.9\,\frac{(21275.0 + 0.6(17385.0))}{38610.0} = 0.76$$

"C" = 0.76 $Q\ PEAK_{100}$ = CIA: A = 0.89 ACR. I = 4.65
$Q\ PEAK_{100}$ = 0.76(2.20)(0.89)(2.2) = 3.27 cfs

DEVELOPED PEAK Q_{100} = 3.27 cfs

TOTAL Q = DEVELOPED Q_{100} + Q_{100} OFFSITE

Q_{100} = 3.27 + 1.22 = 4.49 cfs

Q_{10} = 0.657(4.49) = 2.95 cfs

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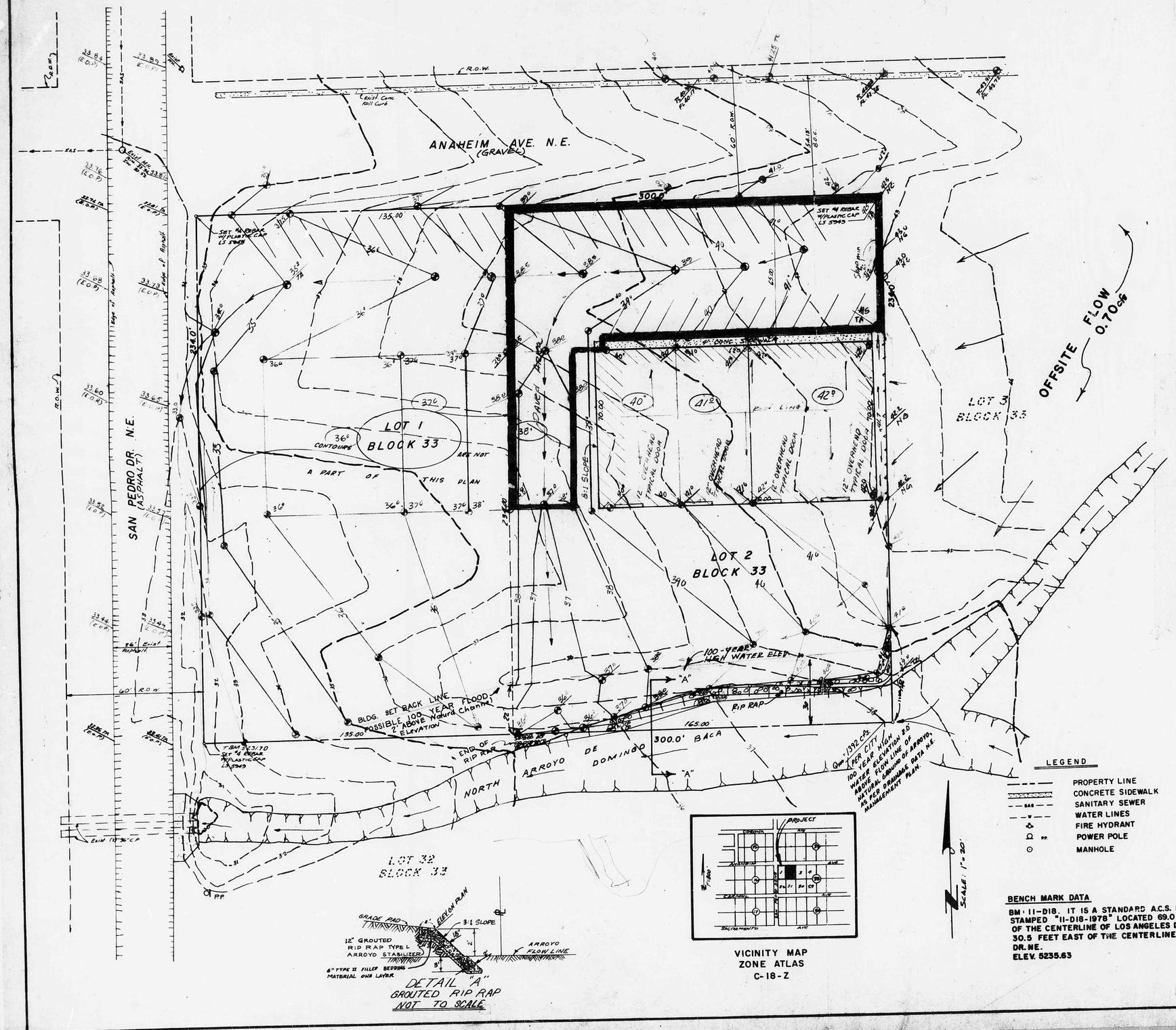
JOHN F. ESQUIBEL, N.M.L.S. NO. 5949

A.S. LEE III
NEW MEXICO
1974
REGISTERED PROFESSIONAL ENGINEER
Sept 7, 1984

A & E ENGINEERING, INC.
CIVIL ENGINEERING · SURVEYING · LAND PLANNING
1330 SAN PEDRO N.E. · SUITE 101 · (505) 266-875
ALBUQUERQUE, NEW MEXICO 87110

8/2/84

GRADING AND DRAINAGE PLAN
FOR
G.M.C. CONSTRUCTION CO.



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There are no set street grades for Anaheim Avenue NE which bounds this property on the north.

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$Q_{10} = 0.657\ (5.85) = \underline{3.84\ cfs}$

NOTE: CERTIFICATION BY ENGINEER WILL BE REQUIRED UPON COMPLETION OF THIS PROJECT. SUBMIT AS-BUILT PLANS TO THE CITY.

A. E. LEE, III
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER
10172
Oct. 15, 1984

BENCH MARK DATA

BM 11-D18. IT IS A STANDARD A.C.S. BRASS CAP STAMPED "11-D18-1978" LOCATED 69.0 FEET SOUTH OF THE CENTERLINE OF LOS ANGELES DR. NE, AND 30.5 FEET EAST OF THE CENTERLINE OF SAN PEDRO DR. NE.
ELEV. 5235.63

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ALBUQUERQUE, NEW MEXICO 87110