

- NOTES:**
1. BEARINGS ARE BASED ON THE PLAT TITLED "OXSHOE HEIGHTS" FILED OCT. 5, 1953, IN MAP BOOK C2 FOLIO 172.
  2. BEARINGS AND DISTANCES WITHIN PARENTHESES ARE RECORD BEARINGS AND DISTANCES.
  3. EASEMENTS ACCORDING TO TITLE COMMITMENT #94705.PAY(JB)VP DATED MAY 20, 1984, FIRST AMERICAN TITLE COMPANY.
  4. TOTAL GROSS ACREAGE: 0.4241 ACRES (18,475 SQ. FT.). MORE OR LESS.
  5. CONTOUR INTERVAL = 0.5'.

- LEGEND**
- = SET CORNER PS #5953.
  - ⊙ = POWER POLE (PP)
  - ⊙ = SANITARY SEWER MANHOLE
  - = POWER LINE
  - ⊙ = WATER METER
  - ⊙ = LIGHT POLE
  - ⊙ = ELECTRIC BOX
  - ⊙ = TELEPHONE MANHOLE
  - ⊙ = NEW SPOT ELEV.
  - 58 = NEW CONTOUR
  - LS = NEW LANDSCAPING
  - = SHEET FLOW

**ENGINEER'S CERTIFICATION:**

Having inspected the constructed facility and having taken spot elevations at all critical points on the site, I hereby certify that the as-constructed facility is in substantial conformance with the approved grading and drainage plan, Engineer's stamp dated 8-2-94 with the following noted exceptions:

1. The sidewalk culvert was not constructed and the east border of the parking lot is not curb but portable concrete parking barriers. Essentially, runoff from the parking lot runs under the barriers and into the gravel landscaping area between the asphalt parking lot and the sidewalk.
2. The roofs of the two adjacent buildings to the north and south drain to the front and rear of the buildings. The plan for accepting runoff from the roof drains and piping it through the building to the rear parking lot was not followed. The roof drainage on these buildings appears to work adequately.

Frank D. Lovelady, N.M.P.E. 6512 12/29/94 Date

**CITY OF ALBUQUERQUE**  
DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY (S.O. 19)  
NOTICE TO CONTRACTOR

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN 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 THIS PLAN TO BE PERFORMED UNDER CONTRACT, EXCEPT AS STATED OR PROVIDED FOR HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1986, AS REVISED.
3. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL 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 ARTERIAL STREET USE.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED. 1635 EUBANK N.E.
7. THE ADDRESS OF THE PROPERTY SERVED IS

**APPROVALS:**

HYDROLOGY	NAME	DATE
INSPECTOR	NAME	DATE
CONSTRUCTION	NAME	DATE

**DRAINAGE CALCULATIONS**

**EXISTING CONDITIONS:**

The site is located on the west side of Eubank Boulevard approximately 800' south of Indian School Road. Eubank Boulevard is paved with curb and gutter and a 4' sidewalk. The site is an infill site, being the only space yet to be developed in the strip shopping center in which it is located. The front portion of the site is presently paved with asphalt pavement which will probably have to be either resurfaced or removed and replaced because its condition is poor. The rear of the site is all unpaved dirt which slopes fairly steeply (slightly in excess of 6%) toward the west. At the rear of the site is a paved alley which appears to have been constructed to City of Albuquerque standards because it has a concrete curb on both sides. The alley directly behind the site is covered with a several-inch-thick accumulation of dirt washed on to it from the site. At the northwest corner of the site is a depressed loading dock which is equipped with a sump and sump pump to pump the water into the alley. The loading dock has an 18' X 15' access easement. The building to the north is constructed at the property line and extends all the way to the alley. The building on the south is also constructed on property line and does not extend all the way to the alley. There is asphalt parking in the rear of the southerly building.

**DEVELOPED CONDITIONS:**

It is proposed to construct a building on the site as shown. The building roof will slope from east to west and the building will be equipped with two downspouts on the west end. The parking lot will continue to drain as it presently does, out through the driveway and into Eubank Boulevard. The new building will be higher than the two adjacent buildings. Therefore, to accept off-site roof runoff from the buildings, interior piping systems will be installed that will convey the roof runoff through the new building to the nearest point of discharge, from which point it will drain to the alley. Nothing will be done to the alley except to remove all the dirt in the section which is adjacent to the site.

**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 west of Eubank Boulevard and is, therefore, in Precipitation Zone 3.

**LAND TREATMENTS:**

**RUNOFF COEFFICIENTS - PEAK DISCHARGE PER ACRE & EXCESS PRECIPITATION**

Land Treatment	q(cfs/acre)		R(inches)	
	100-yr.	10-yr.	100-yr.	10-yr.
A	1.87	0.58	0.66	0.19
B	2.60	1.19	0.92	0.36
C	3.45	2.00	1.29	0.62
D	5.02	3.39	2.36	1.50

**EXISTING AND DEVELOPED SITE IMPERVIOUSNESS:**

Land Treatment	Existing Impervious Areas		Developed Impervious Areas	
	Percent	Area(ac)	Percent	Area(ac)
A	0.0	0.0	0.0	0.0
B	0.0	0.0	9.7	1.790
C	54.5	10.075	0.0	0.0
D	45.5	8.400	90.3	16.685
Totals	100.0	18.475	100.0	18.475

**VOLUME, 100-YEAR AND 10-YEAR, 6-HOUR:**

Existing Conditions:

$V_{100} = (10.075 \times 1.29 + 8.400 \times 2.36) / 12 = 2.375 \text{ cf}$

$V_{10} = (10.075 \times 0.62 + 8.400 \times 1.50) / 12 = 1.050 \text{ cf}$

Developed Conditions:

$V_{100} = (0.92 \times 1.790 + 2.36 \times 16.685) / 12 = 3.419 \text{ cf}$

$V_{10} = (0.36 \times 1.790 + 1.50 \times 16.685) / 12 = 2.139 \text{ cf}$

**PEAK DISCHARGE, 100-YEAR AND 10-YEAR:**

Existing Conditions:

$Q_{100} = 0.2313 \times 3.45 + 0.1928 \times 5.02 = 1.77 \text{ cfs}$

$Q_{10} = 0.2313 \times 2.00 + 0.1928 \times 3.39 = 1.12 \text{ cfs}$

Developed Conditions:

$Q_{100} = 2.60 \times 0.0411 + 5.02 \times 0.3830 = 2.03 \text{ cfs}$

$Q_{10} = 1.19 \times 0.0411 + 3.39 \times 0.3830 = 1.35 \text{ cfs}$

**OFF-SITE FLOW:**

The site has off-site flow coming from existing roof drains. These drains will have to be intercepted with a positive connection that will not block flow from the adjacent roofs. The flow will then be piped through the new building and discharged at the west end. The north building has three canals. The area drained by these canals is estimated to be 40' X 60' = 2,400 sf, or 0.06 ac.  $Q_{100} = 0.06 \times 5.02 = 0.30 \text{ cfs}$ . The roof slope is approximately 1.33'/65' = 0.0205'/ft. Assuming that the pipe would flow full, and assuming a 4" PVC pipe,  $N = 0.013$ , the solution of Manning's Equation is as follows:  $A = 0.0873 \text{ sf}$ ,  $P = 1.05'$ ,  $R = 0.0831$ .  $Q = 0.0873(1.486 / 0.013)(0.0831)^{2/3}(0.0205)^{1/2} = 0.27 \text{ cfs}$  which is approximately equal to 0.30 cfs. Use 4" PVC pipe.

The south building has one canal that needs to be intercepted by interior building piping. The area drained by this canal is estimated to be approximately 30' X 40' = 1,200 sf, or 0.03 ac.  $Q_{100} = 0.03 \times 5.02 = 0.15 \text{ cfs}$ . Use 4" PVC for this roof drain, also.

**ANALYSIS OF DOWNSTREAM CAPACITY:**

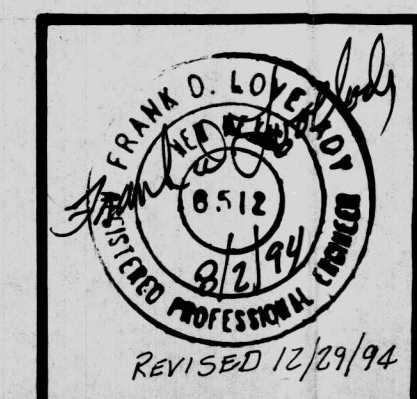
The site is an infill site. The site is already approximately 50% paved so that the increase in runoff resulting from development is only 0.26 cfs which is not a significant increase in runoff. The front portion of the site flows into Eubank Blvd. and then north to McKnight Ave. and west to the Embudo Arroyo. The rear portion of the site flows into the alley and then south into Hannett Ave. and west to the Embudo Arroyo. Both of these streets are shown to be flood hazard zones, obviously as a result of overflow from Eubank Blvd. The drainage basin that causes flooding in Eubank Blvd. extends nearly to Juan Tabo Boulevard. Therefore, the runoff from this site will be safely in the Embudo Arroyo before flooding occurs.

**BENCH MARK:**

City of Albuquerque survey monument "10-J21, 1979" ACS brass tablet (found in place) Elevation = 5466.322 Feet.

**TEMPORARY BENCH MARK:**

PK nail set in asphalt at the west edge of sidewalk approximately 35 feet north of the southeast property corner. Elevation = 5483.14



**GRADING & DRAINAGE PLAN**

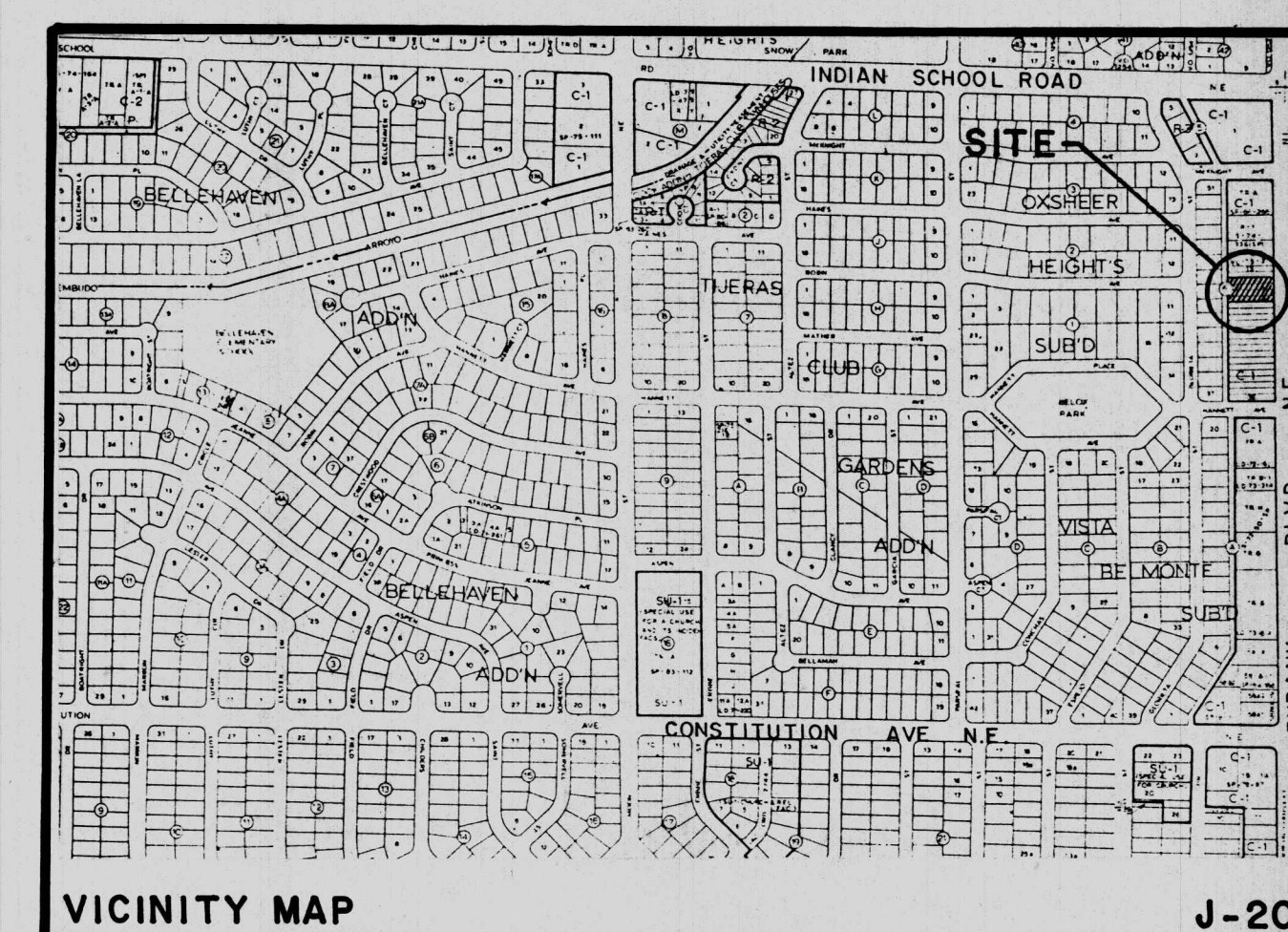
**A BUILDING FOR CLARK SANCHEZ**

**ALBUQUERQUE, NEW MEXICO**



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ALBUQUERQUE, NEW MEXICO



