City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

7 April 1999

Bruce Stidworthy
Bohannan-Huston, Inc.
7500 Jefferson NE
Albuquerque, NM 87109

RE: ONE PRESIDENTIAL PLAZA (E-17/D-55) ENGINEER'S CERTIFICATION SUBMITTAL FOR FINANCIAL GUARANTEE RELEASE. CERTIFICATION DATED 3-10-99

Dear Mr. Stidworthy:

Based upon the information provided in your 3/10/99 Engineer's Certification Submittal, the referenced project is approved by the City Hydrology Division for release of financial guarantees.

Please keep in mind that each individual lot will be required to turn in a grading and drainage plan for Building Permit approval.

If I can be of further assistance, feel free to contact me at 768-3986.

Sincerely,

Scott Davis
PWD, Hydrology Div.

c: Andrew Garcia
Terri Martin
file

CITY OF
Albuquerque

May 13, 1998

James R. Topmiller, P.E.
Bohannan-Huston, Inc.
7500 Jefferson NE
Albuquerque, NM 87109

RE: ONE PRESIDENTIAL PLAZA (E17-D55). REVISED MASTER DRAINAGE PLAN FOR BUILDING PERMIT APPROVAL. ENGINEER'S STAMP DATED MAY 1 , 1998.

Dear Mr. Topmiller:

Based on the information provided on your May 1, 1998 submittal, the above referenced project is approved for Building Permit.

Each lot will be required to turn in a grading and drainage plan for Building Permit approval.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

John P. Murray, P.E.
Hydrology

c: Andrew Garcia
File

CITY OF
Albuquerque

February 13, 1998

Bruce Stidworthy
Bohannan-Huston, Inc.
7500 Jefferson NE
Albuquerque, NM 87109

RE: ONE PRESIDENTIAL PLAZA (E17-D55). GRADING AND DRAINAGE PLAN FOR FINAL PLAT APPROVAL. ENGINEER'S STAMP DATED JANUARY 22, 1998.

Dear Mr. Stidworthy:

Based on the information provided on your January 23, 1998 submittal, the above referenced project is approved for Final Plat.

Each lot will be required to turn in a grading and drainage plan for Building Permit approval.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

Lisa Ann Manwill, P.E.
Hydrology

c: Andrew Garcia
File

FILE 9785 B 01

CC LISA MANWILL (E17/D55)
Jeff Hagen

NEW MEXICO STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
AN EQUAL OPPORTUNITY EMPLOYER

February 6, 1998

Mr. Bruce Stidworthy
Community Development and Planning Group
Bohannan-Huston
Courtyard I
7500 Jefferson NE
Albuquerque, New Mexico 87109

Subject: One Presidential Plaza Master Drainage Plan

Dear Mr. Stidworthy:

I have reviewed the drainage plan for the One Presidential Plaza development and concur with the drainage plan.

It is my understanding that the only construction at this time is the Presidential Drive and the other two private roads. The drainage on Lot E historically conveys flows from the drainage structures crossing the State highways. This should not be impeded to cause drainage problems within the area during the development of Lot E.

There is no need for a covenant or easement, provided any future development will not impact the State highways and adjacent properties.

Sincerely,

Raymunda A. Van Hoven

Raymunda A. Van Hoven
Drainage Engineer

XC: Kathy Trujillo, DO#3
James Topmiller, BHI

Project: ABQ VENTURE EAST BLDG. Project No.: ~~BAR~~ 91936

DRAINAGE BASIN TO OSUNA/JEFFERSON @ AP 2

05-Oct-93

Calculations: Total Basin

Calculations are based on "Section 22.2 Hydrology of the Development Process Manual, Volume 2, Design Criteria for the City of Albuquerque, New Mexico, January 1993 - basins < 40 acres".

Precipitation Zone = 2

Depth at 100-year, 6-hour storm: (Table A-2) P = 2.35 inches

Land Treatments:

From Table 5 - Percent Treatment D

Single Family Residential =

7*SQR((N*N) +(5*N))

where N = units/acre

N = ---------- = ------, ok < 6 N = 0.00

Therefore Percent Treatment D = 0.00%

(includes local streets)

ABQ VENTURE II BASIN CALCS

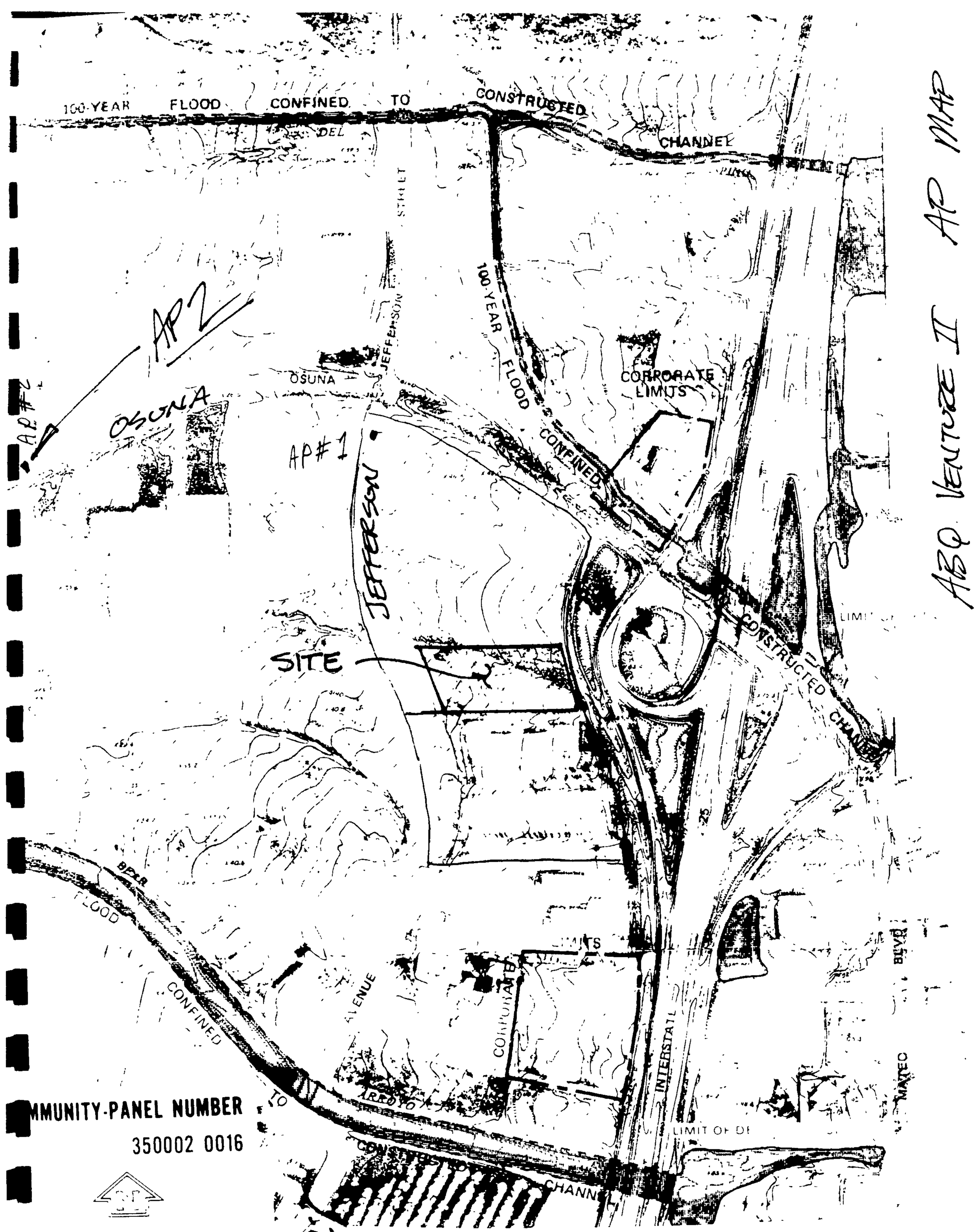
DRAINAGE BASIN TO OSUNA/JEFFERSON

Areas: (acres)	Existing	Proposed	
Treatment A	50.00	0.00	
Treatment B	0.00	10.00	20%
Treatment C	0.00	5.00	10%
Treatment D	0.00	35.00	70%
Total (acres) =	50.00	50.00	

Volume	100 year Existing	100 year Proposed	10 year Existing	10 year Proposed	2 year Existing	2 year Proposed
Volume (acre-feet) =	2.21	7.30	0.54	4.36	0.00	2.38
Volume (cubic feet) =	96,195	318,170	23,595	189,849	0	103,818

Total Q(p), cfs:	100 year Existing Q(p)*A	100 year Proposed Q(p)*A	10 year Existing Q(p)*A	10 year Proposed Q(p)*A	2 year Existing Q(p)*A	2 year Proposed Q(p)*A
Treatment A	78.00	0.00	19.00	0.00	0.00	0.00
Treatment B	0.00	22.80	0.00	9.50	0.00	0.80
Treatment C	0.00	15.70	0.00	8.55	0.00	3.00
Treatment D	0.00	164.50	0.00	109.90	0.00	65.10
Total Q (cfs) =	78.00	203.00	19.00	127.95	0.00	68.90

Recalculated by Diamond Shamrock to Be 152.2 cfs using Tc = 21 MIN



COMMUNITY-PANEL NUMBER
350002 0016

EXHIBIT C - FLOOD HAZARD BOUNDARY MAP

native grasses and weeds. The discharge calculations treat this basin as if its land coverage was treatment A. The basins 10 and 100 year peak discharge of 0.25 and 1.03 cfs flows northwesterly and discharges onto the adjacent site.

IV. DEVELOPED DRAINAGE

General Concept A pre-design conference, the site's drainage was to flow towards Osuna Road. This was accomplished by raising the site's northerly property line and shifting the ridge to that location. As part of the Diamond Shamrock development, this area is being regraded and paved per a separate easement agreement.

Specific Details The site is divided into 2 developed basins, A through B. Basin A is a 0.484 acre basin that consists of roof, paved and landscaped areas. The 10 and 100 year runoff of 1.37 and 2.11 cfs, respectively, flows southwesterly and is discharged into Osuna Road through the proposed curb cut.

Basin B is a 0.371 acre basin that consists of roof, paved and landscaped areas. The 10 and 100 year runoff of 1.01 and 1.57 cfs, respectively, flows to low point in the landscape area at the southwesterly corner of the site. A sidewalk culvert, modified to provide a headwall with trashrack, conveys the runoff to Osuna Road. Should this outlet structure fail or plug, water will pond to a depth of 1.5 feet before overflowing the curb cut return's high point. The overflow elevation is 2.8 feet below the convenience store's finished floor.

Osuna Road Capacity: the capability of Osuna Road to convey the 100 year storm was previously analyzed in a report titled "Drainage Report for ABQ Venture II Office & Warehouse Facility" by McDowell Engineering, Inc., in November 1993. That report, for a site on Jefferson Street approximately 1100 feet south of the Jefferson/Osuna intersection, analyzed flows at the intersection and in Osuna as it meets the AMAFCA diversion channel approximately 3600 feet west of the intersection. At the AMAFCA channel, design point AP2, the report calculated a 100 year flow of 203 cfs. The roadway sections of the report indicated 100 year capacity of 174.73 cfs for the existing street section and 188 cfs for the ultimate road section, thus implying that Osuna Road is over capacitated. The 203 cfs value was examined and found to have been calculated utilizing the peak discharge values from Table A-9 of the "Criteria Manual." Those values, associated with a time of concentration of 0.2 hours or 12 minutes, were used throughout the basin analysis. This report re-analyzed the 100 year runoff using the following methodology.

A. Using equations b-4, b-5, b-6 and the values from Table B-1 and B-2, a time of concentration for the basin was calculated. It was found to be 22.1 minutes.
B. Using equation a-12 of the "Criteria Manual," an intensity was calculated.
C. Using this intensity, Table A-11's rational method coefficients and the ABQ reports land areas a 100 year flow of 152.2 cfs was calculated. This indicates that Osuna has capacity to handle runoff from the Diamond Shamrock site.

1/2

DIAMOND SHAMROCK NM REFINERY EXPANSION PROJECT

The same methodology was used to calculate a 10 year runoff of 142. cfs.

Per the City's drainage policy, Osuna Road was to provide a 12 foot wide dry driving land during the 10 year storm. The previously mentioned drainage report has identified the existing conditions to exceed this requirement and as such a variance to this requirement is being requested. A copy of the City's previous grant of variance and copies of those portions of the ABQ Venture II Drainage Report is included in the Appendix of this report.

V. CONCLUSIONS

This report has been prepared using the methodology and information contained within Section 22.2 of the Development Process Manual for the City of Albuquerque in cooperation with Bernalillo County, New Mexico, dated January, 1993. Runoff from the minor/major storms is safely routed through the site and is discharged without causing potential harm to the public. The capacity calculations for Osuna Road indicate the ability to convey the flows from this site.

OSUNA ROAD CAPACITY ANALYSIS

BASIN REACHES

ABQ VENTURE II SITE

$L_1 = 605'$ $\quad S_1 = \frac{62-48}{605} = 0.0231$ FT/FT

JEFFERSON STREET

$L_2 = 1100$ $\quad S_2 = \frac{48-39}{1100} = 0.0082$ FT/FT

OSUNA ROAD

$L_3 = 3600$ $\quad S_3 = \frac{5139-5090}{3600} = 0.0136$ FT/FT

$L = 605 + 1100 + 3600 = 5305$

$S = [(0.0231 * 605) + (0.0082 * 1100) + (0.0136 * 3600)] / 5305$

$S = 72/5305 = 0.0136$ FT/FT

$L_1/(K_1 * S_1^{1/2}) = 605/(2(0.0231)^{1/2} = 1,990.3$

$L_2/(K_2 * S_2^{1/2}) = 1100/(3(0.0082)^{1/2}) = 4,045.1$

$L_3/(K_3 * S_3^{1/2}) = 3600/(3(0.0136)^{1/2} = 10,289.9$

$\Sigma \quad 16329.3$

$L/S^{1/2} = 5305/0.0136^{1/2} = 45490.0$

$K = 45490/16329.3 = 2.79$

$$T_c = \left(\frac{(12000-5305)}{(72000(2.79)(0.0136)^{1/2})}\right) + \frac{((5305-4000) * 0.021 * \left(\frac{2900}{5305}\right)^{0.33}}{(552.2 * (0.0136)^{0.165}}$$

$T_c = (6695/23426) + (22.45/271.7) = 0.3684$ HRS

$T_c = 22.1$ MIN.

DIAMOND SHAMROCK RECALCULATION OF PEAK FLOW FOR THE BASIN

INTENSITY @ T_c = 0.3684 HRS ✓

$P_{.60}$ ZONE 2 = 2.01 INCHES ✓

$I = 0.726 (\text{LOG}_{10} (24.6 (0.3684)) (\frac{1}{0.3684}) 2.01$ ✓

$I = 3.79$ INCHES

FROM THE APPROVED REPORT $A_{TREATMENT\ B} = 10.00$ ACRES
$A_{TREATMENT\ C} = 5.00$ ACRES, $A_{TREATMENT\ D} = 35.00$ ACRES

$Q_{100} = 3.79 ((10.00 \cdot 0.45) + (5.00 \cdot 0.62) + (35.00 \cdot 0.93))$ ✓

$Q_{100} = 3.79 (40.15) =$ 152.2 CFS ←

PER REPORT Q_{100} ON EXISTING STREET SECTION = 174.73 CFS

Q_{100} AT FUTURE WIDENING = 188 CFS

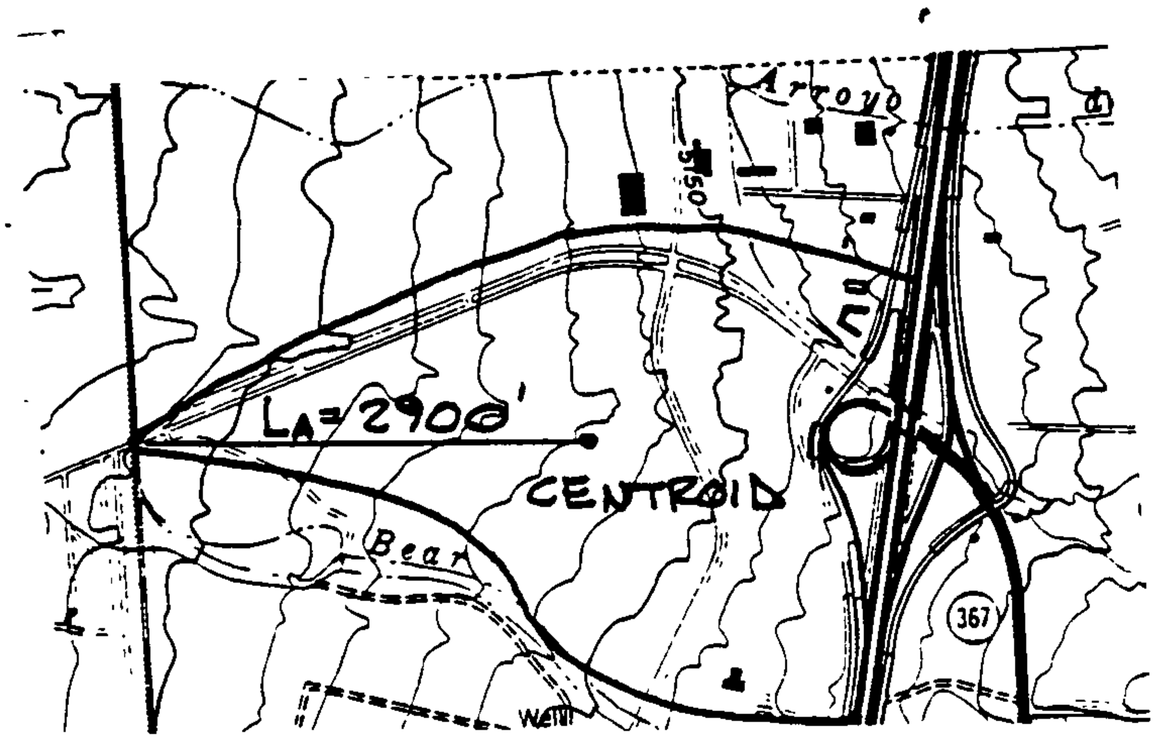
OSUNA HAS CAPACITY FOR THE ADDITIONAL 3.68 CFS

10 YEAR RUNOFF

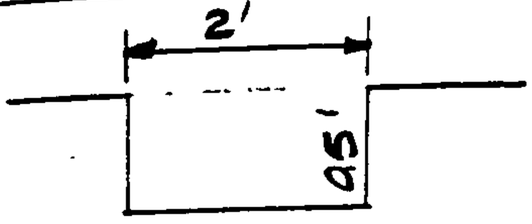
$Q = 3.79 ((10.00 \cdot 0.28) + (5.00 \cdot 0.50) + (35.00 \cdot 0.92))$

$Q = 3.79 (37.5) = 142.1$ CFS

BASIN CENTROID DERIVED FROM THIS DRAWING



CURB OPENING CAPACITY



$$Q = 3.4\ L\ h^{3/2}$$

$$Q = 3.4\ (2.00)\ (0.5)^{3/2}$$

$$Q = 2.4\ CFS > 2.11\ CFS \quad OK$$

SIDEWALK CULVERT CAPACITY

12" WIDE CHASE @ 1/4" / FT $n = 0.017$

$$AREA = \left(7\ (12) + 2\left(\tfrac{1}{2}\ (6)\ \tfrac{1}{2}\right)\right) - 12\left(\tfrac{3}{8}\right) = 82.5\ IN^2$$

$$AREA = 0.573\ FT^2$$

$$W_P = 2\ (7) + 2\left((6)^2 + (\tfrac{1}{2})^2\right)^{1/2} - 2\left(\tfrac{3}{8}\right) = 25.292\ IN \text{ OR } 2.108\ FT$$

$$Q = \frac{1.486}{0.017}\ (0.573)\left(\frac{0.573}{2.108}\right)^{2/3} 0.0208^{1/2}$$

$$Q = 3.03\ CFS > 2.11\ CFS \quad OK$$