

BOHANNAN WESTMAN HUSTON & ASSOCIATES INC.



4125 CARLISLE BLVD., N.E.
ALBUQUERQUE, NEW MEXICO 87107
PHONE 505 345-2681

November 26, 1976

Received 29 Nov 1976

Mr. Kleston Laws
Assistant City Engineer - Hydrology
City of Albuquerque
P. O. Box 1293
Albuquerque, New Mexico 87102

RE: Albuquerque Public Schools Federal Credit Union, 1401 San Pedro,
N.E. - New Parking Lot Construction

Dear Kleston:

Enclosed are the drainage computations, grading plan for the proposed new parking lot to the north of the existing building, and the proposed grades on the alley to be constructed from the building north of Summer Street. If these computations and plans meet with your approval, I have provided an approval line for your signature below to reduce the required paper work. If you feel you will not have time to review the submittals, please advise and I will discuss them with Mr. Jim Smith.

Sincerely,

Michial M. Emery
Michial M. Emery
Chief Design Engineer

APPROVED:

Kleston H. Laws 1 Dec 76
FOR Albuquerque Metropolitan Area
Flood Control Authority

Enclosures

cc: Mr. Jim Smith, AMAFCA
Mr. Coey, APS
Mr. Donald Ramberg

MME/dlj
Job No. 76-013



ANDERSEN CORPORATION

SALES REPRESENTATIVE
ROY A. BROWN
1380 CHESTER STREET
AURORA, COLORADO 80010
AREA CODE 303 366-0382

DATE Nov. 12, 1976 JOB 76-013 APS. Fed. Credit Union

DRAINAGE COMPUTATIONS
APS FEDERAL CREDIT UNION
1401 SAMPEDRO NE.
ALBUQUERQUE, NEW MEXICO

ASSUMED CONDITIONS:

- 1.) THE BDR AND SOUTHERLY PARKING LOT HAVE BEEN IN PLACE FOR A LONG PERIOD OF TIME AND THE CONSIDERATION OF THEIR DRAINAGE PATTERNS ARE NOT OF CONCERN
- 2.) THE PARKING LOT TO THE NORTH OF THE BUILDING IS PROPOSED NEW CONSTRUCTION, AND AN ATTEMPT WILL BE MADE TO STORE AND RELEASE FLOWS FROM THE 100 YEAR STORM AT NO GREATER RATE THAN THAT WHICH OCCURS AT THE PRESENT TIME.
- 3.) FLOWS FROM THE PARKING LOT WILL EXIT AT ITS NORTH WEST CORNER ON AN IMPROVED ALLEY SECTION AND TRAVEL NORTH TO SUMMER STREET.

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AREA OF NEW CONSTRUCTION

$$A = 140' \times 103' = 15,120 \text{ FEET}^2 = .35 \text{ ACRES}$$

$$D = 2.6" \text{ (100 YR. - 6 hr. PRECIPITATION) FROM RES. 72-2}$$

$$I = 5.4" / \text{HR. FOR } T_c < 10 \text{ MIN, 1963 MASTER PLAN}$$

$$C = .35 \text{ UNDEVELOPED}$$

$$C = .95 \text{ DEVELOPED}$$

$$Q = CIA = (.35)(5.4)(.35) = .66 \text{ CFS UNDEVELOPED}$$

$$V = (15,120 \text{ FT}^2) 2.6 / 12 = 3276 \text{ FT}^3 \text{ DEV, 100 YR.}$$

$$Q = CIA = (.95)(5.4)(.35) = 1.79 \text{ CFS DEVELOPED}$$

$$Q_{\text{DEVELOPED}} > Q_{\text{UNDEVELOPED}}$$

∴ A METHOD OF CONTROLLING RUNOFF RATES FROM THE PARCEL MUST BE DEVELOPED.

THE METHOD CHOSEN CONSISTS OF PROVIDING A CONTROLLED OUTLET AND ADEQUATE PONDING VOLUME IN THE NORTH WEST CORNER OF THE PARKING LOT. COMPUTATIONAL METHODS ARE AS DESCRIBED IN SPECIAL REPORT NO. 43, PRACTICES IN DESIGN OF URBAN STORMWATER RUNOFF, 1974, PAGES 54-57, AMERICAN PUBLIC WORKS ASSOCIATION. AS PREVIOUSLY STATED, INTENSITY/DURATION CURVES FOR THE 100 YR. STORM FOR THE ALBUQUERQUE AREA WERE TAKEN FROM THE CITY 1963 MASTER PLAN.

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POND VOLUME REQUIREMENTS

TIME INTERVAL (MIN)	INTENSITY (IN/H)	+ Run-off (CFS)	Run-off VOLUME (FT ³)	* REQUIRED VOLUME (FT ³)	REQUIRED STORAGE VOLUME (FT ³)
10	5.40	1.80	1077.	376	681.
15	4.73	1.57	1415.	594	821.
20	4.20	1.40	1676.	792	884.
25 **	3.78	1.26	1835.	990	895.**
30	3.44	1.14	2059.	1180	879.
35	3.15	1.05	2199.	1386	813.
40	2.91			1584	
45	2.70			1782	
50	2.59			1980	

+ $Q = CIA = (.95)(I)(.35)$

* ASSUMED CONTINUOUS DISCHARGE RATE ROUNDED = .66 CFS

** REQUIRED MAX POND VOLUME AT CRITICAL DURATION OF 25 MIN.



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(4)

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OUTLET DESIGN

ASSUME OUTLET APPROXIMATES A BROAD
CRESTED WEIR. (ASSUMPTION IS APPROXIMATE)

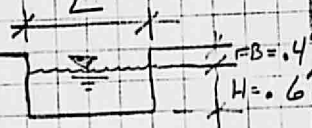
$$Q = CLH^{3/2}$$

$$Q = .66 \text{ CFS}$$

$$C = 3.03$$

$$L = Q / C H^{3/2}$$

$$L = .5'$$



$$\therefore L = (.66) / (3.03) (.6)^{1.5}$$

$$= (.66) / (3.03) (.4643)$$

$$= .4611$$

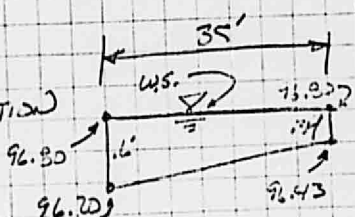
$$\text{USE } L = .5' = 6"$$

POND VOLUME

REFER TO ATTACHED GRADING PLAN
LOOKING EAST @ THE NORTH WEST CORNER
OF THE PARKING LOT.

AT STA 0+04 AS GRADED (SECTION)

$$A = \left(\frac{.60 + .37}{2} \right) (35) = 16.93 \text{ FT}^2$$



AT STA 1+11 AS GRADED

$$A = 0 \text{ FT}^2 \text{ i.e. WS} = 96.80 = 96.73$$

$$\therefore V = \left(\frac{16.93 + 0}{2} \right) (107) = 903 \text{ FT}^3 > 395 \text{ FT}^3$$

REQUIRED
SEE PAGE 3.