HYDROLOGY H16/D2 NO PLANS

H 16/ D2

NO PLANS

BOHANNAN-HUSTON INC.
4125 CARLISLE BLVD., N.E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2000

March 13, 1978

RECEIVED
MAR 15 1978
CITY ENGINEERS

Mr. Bruno Conegliano
Assistant City Engineer, Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Drainage Report for Office Building for Chisel Smith Enterprises

Dear Mr. Conegliano:

In accordance with your discussion with Mr. Michael J. Irwin on March 8, 1978, we have amended the referenced report.

The ponding volume has been increased to 10 percent of the runoff area in cubic feet. A sketch showing the revised pond volumes and spot elevations is enclosed with this letter. The sketch is for Alternate A of the original report. Alternate B would use the same outside dimensions but with a depth of 3.65 feet yielding a bottom elevation of 88.35 feet.

If you should have any questions regarding this matter, please feel free to contact me or Mr. Irwin at this office.

Sincerely yours,

Michial M. Emery

Michial M. Emery, P.E.
Vice President

Enclosure

cc: Mr. Chisel Smith, Universal Industries
Mr. V. M. Kimmick, City Engineer
Mr. Lou Weller, Architect

MJI/sh
Job No. 78-048

Cremans Inc

BOHANNAN-HUSTON INC.
4125 CARLISLE BLVD., N.E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2000

March 7, 1978

Mr. Bruno Conegliano
Assistant City Engineer, Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Drainage Report for Office Building for Chisel Smith Enterprises

Dear Mr. Conegliano:

In accordance with the requirements of the City of Albuquerque, we have prepared a drainage analysis of the proposed development located just east of the intersection of Menaul Boulevard and Princeton Drive.

Development proposals include the construction of an office building, with the remainder of the property to be used for parking, sidewalks, and landscaping at the front of the building. It is assumed that the entire area will consist of hardened surfaces and that 3 inches of rain will fall on the site. In accordance with the summary procedures, 10 percent of the total rainfall will be stored in a retention pond on the property. To prevent upland runoff from the east, a header curb is required along the east boundary. Our calculations indicate that a total volume of 333 cubic feet of runoff will have to be retained. It is proposed to bring the runoff of the area to the pond by constructing a 4-inch inverted crown in the paved areas with grades constructed toward the pond. To facilitate this, two alternatives have been proposed, hereinafter referred to as Alternative A and Alternative B.

Alternative A presents the possibility of using a 3-foot-deep, rock-lined pond with 2:1 side slopes. Although the construction of a pond of this depth would require a 16x16-foot surface area, it is possible to increase the depth and thereby decrease the surface area. Construction of the pond would require the use of a standard header curb around the perimeter of the pond. The east and south curbs would have an 18-inch curb cut to accommodate the runoff into the pond. The west side of the pond would also have a 2-foot curb cut to act as a spillway for overflow. Drainage calculations and details are enclosed.

Alternative B would provide for the construction of a smaller, deeper pond; however, it would require the construction of retaining walls to contain both the runoff and the rocks used to fill the pond. The rock filler would be of such a size as to allow for a minimum void

Cremans Inc.

ratio of 0.5. Possible filler would include fist-sized or larger river washed cobbles. The retaining walls would be built from the pond bottom up and would have top elevation details identical to the proposals of Alternative A. A possible alternative to building the retaining walls above the pond surface would be to place prefab bumper curbs around the perimeter of the pond so that runoff would enter from the north, east, and south and spill over on the west side of the pond.

Although the dimensions of the pond may vary from what is shown in the calculations, it will be necessary to maintain a minimum effective volume of 333 cubic feet. It is recommended that the pond be built at least 2 feet inside the north and east property lines to eliminate the possibility of encroachment on adjacent properties.

If there are any questions regarding this matter, please feel free to contact me or Mr. Ike Pino at this office.

Sincerely yours,

Michial M. Emery

Michial M. Emery, P.E.
Vice President

Enclosures

cc: Mr. Chisel Smith, Universal Industries
Mr. V. M. Kimmick, City Engineer
Mr. Lou Weller, Architect

IP/sh
Job No. 78-048

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Although the dimensions of the pond may vary from what is shown in the calculations, it will be necessary to maintain a minimum effective volume of 333 cubic feet. It is recommended that the pond be built at least 2 feet inside the north and east property lines to eliminate the possibility of encroachment on adjacent properties.

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Sincerely yours,

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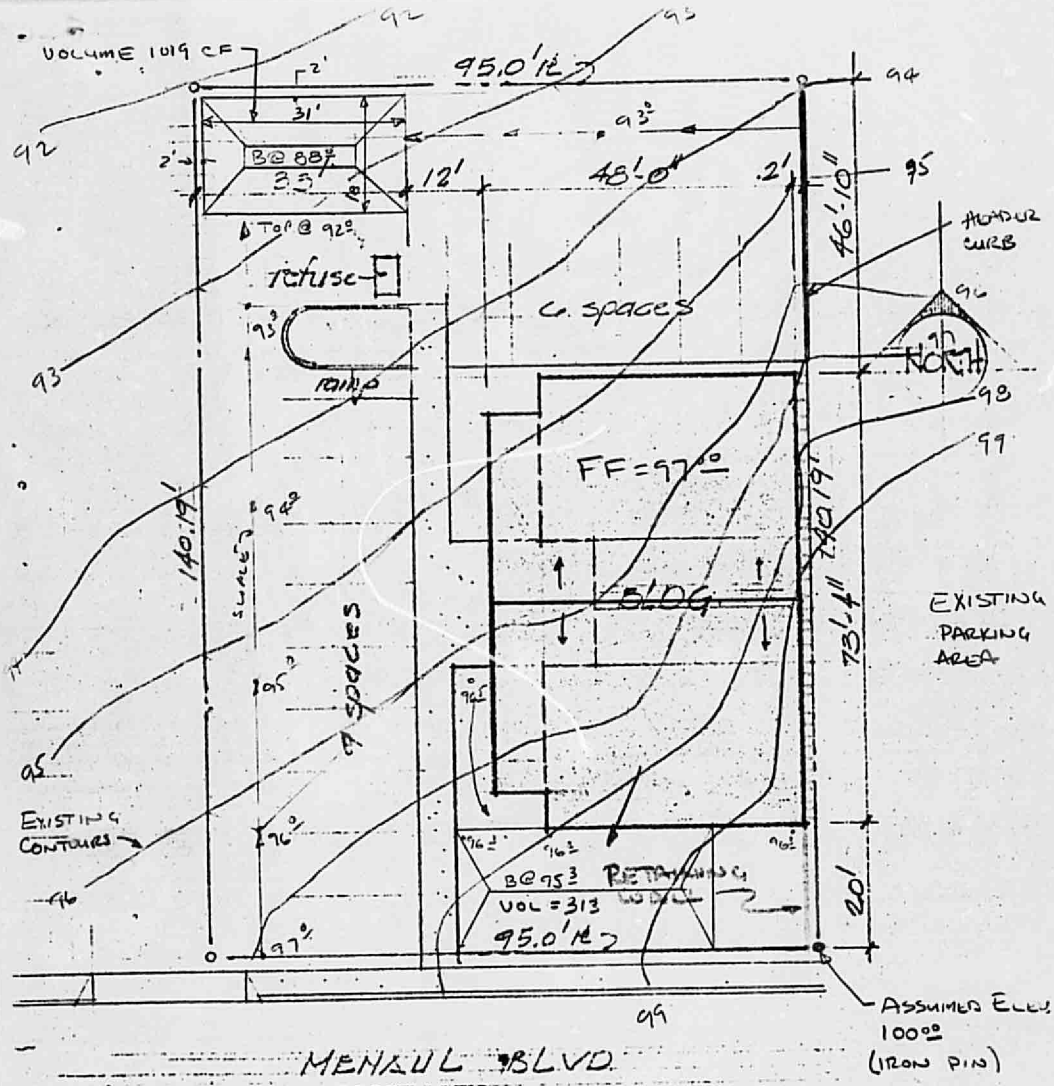
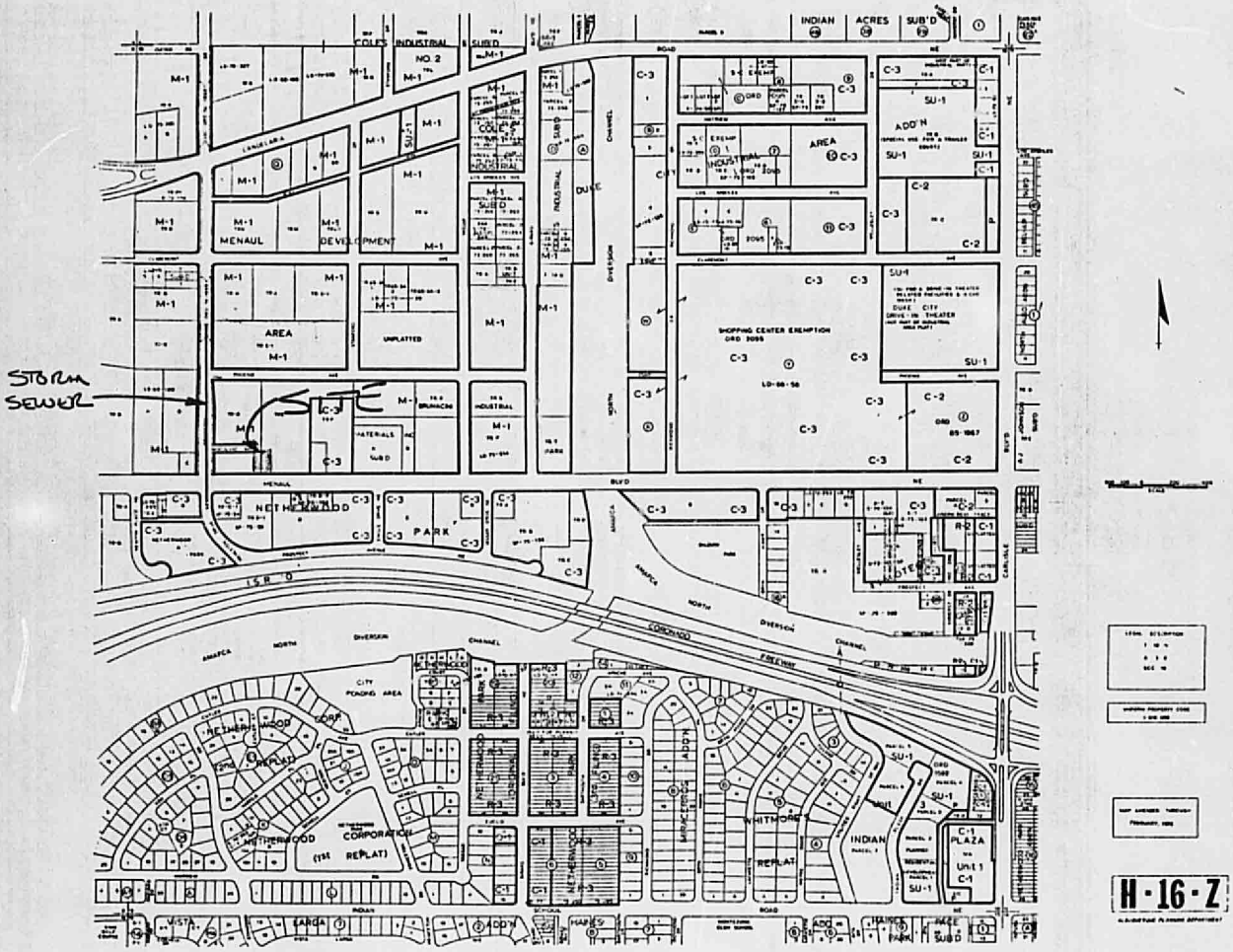
Job No. 78-048



SITE PLAN 1"=20'

SHELTON & WELLER ARCHITECTS A.I.A.


STORM SEWER
SITE
INDIAN ACRES SUB'D
COLE'S INDUSTRIAL NO. 2
MENAUL DEVELOPMENT
AREA
UNPLATTED
SHOPPING CENTER EXEMPTION ORD 3095
DUKE CITY DRIVE-IN THEATER
NETHERWOOD PARK
I.S.R.D.
CORONADO FREEWAY
AMERICA NORTH DIVERSION CHANNEL
CITY PONDING AREA
NETHERWOOD CORPORATION (1st REPLAT)
WHITMORE REPLAT
INDIAN PLAZA
H-16-Z

INTERIM DRAINAGE PERMIT
FOR
SINGLE PARCELS UNDER

20,000 SQUARE FEET

Date received 3-13-78

Applicant's Name: Bohannan Huston Inc. (M. Irwin)

Address: 4125 Carlisle Blvd NE
Albuquerque, N.M.

Telephone No.: 881-2000

Signature of Applicant: Michael J. Irwin

LOCATION OF PARCEL TO BE DEVELOPED

Lot Portions of Block Tracts D & E

Subdivision Menaul Development Area

Street address 2129 Menaul Blvd. NE

Current zoning classification M-1

CALCULATIONS FOR SIZING OF RETENTION POND

Area of parcel 13318 square feet

Volume of retention pond storage = 0.1 x Area = 0.1 x 13318 = 1332 cub.ft.

ATTACHMENTS

1. Copy of page H-16 of zoning atlas (color in parcel).

2. Print of drainage plan (show bench marks referenced to mean sea level, existing contours and proposed contours, spot elevations and dimensions to verify adequacy of ponds and swales, and to insure site storm drainage is properly conveyed to the retention area, proposed improvements, and nearest storm drainage facilities.) ✓

3. Does any storm water from adjacent properties now or in the future enter this parcel

✓ yes _____ no If answer is "yes" attach an explanation of how off site flows will be handled.

Requirements for the preparation of drainage plans for commerical or multidwelling residental development.

A drainage plan must convey in adequate manner the following:

1. Elevations and a grading plan of the site must be furnished (no arrows to indicate the flow of the water but elevations).

2. Dimensions of the property and of the ponding area and depth to allow ponding volume verification. Where appropriate, ponds cross sections need to be furnished.

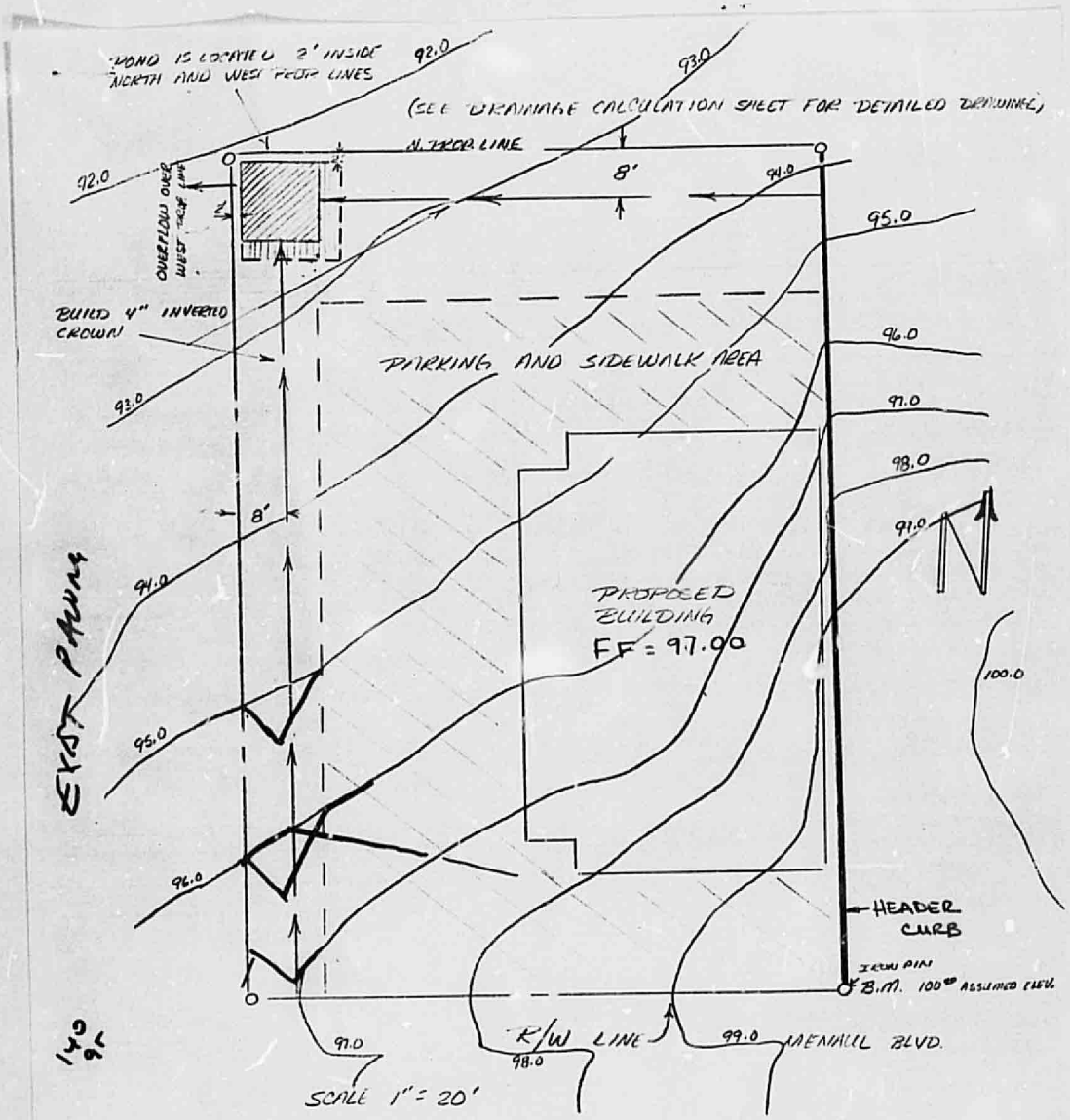
3. The runoff needs to be routed through the ponds before flowing in public facilities (streets or drainage channels).

4. The drawings must include a scale and a vicinity map for ease of identification of the site.

5. From the topography of the land adjacent to the property, an assessment must be made of the offsite flows. If these offsite flows cross the property before development, they cannot be blocked or re-routed around the property but must be allowed to pass through the property.

6. The volume of ponding needed is to be determined on the basis of the impervious area after development.

7. If more than one pond is provided, the grading plan must show which area goes to which pond and it must be demonstrated that volume of pond and volume of runoff are compatible.



NOTES: 1) BUILD A 4" INVERTED CROWN (AS ILLUSTRATED) TO CARRY RUNOFF AWAY FROM BUILDING AND AWAY FROM PROPERTY LINES, THEN INTO POND.

2) TOPOGRAPHY INDICATES DIRECTION OF FLOW IS NORTH AND WEST.

3) INDICATES 12'X13' POND AREA

INDICATES 16'X16' POND AREA

EXHIBIT A

OFFICE BUILDING FOR UNIVERSAL INDUSTRIES

DRAINAGE CALCULATIONS FOR ALTERNATIVE A1

TOTAL AREA OF LOT = 13,318 ft² = 0.306 ACRES

ASSUME 100% IMPERVIOUS SURFACES

C FACTOR = 1 3" PRECIP IN 6 HR.

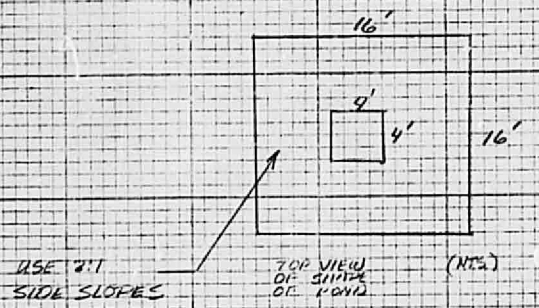
T = 10 MIN VOLUME OF RUNOFF = 13,318 Ft² X 0.2[illegible]' = 3329.5

USING 10% RETENTION ON SITE ≅ 333 Ft³

USING 2:1 SIDE SLOPES, 3' DEPTH

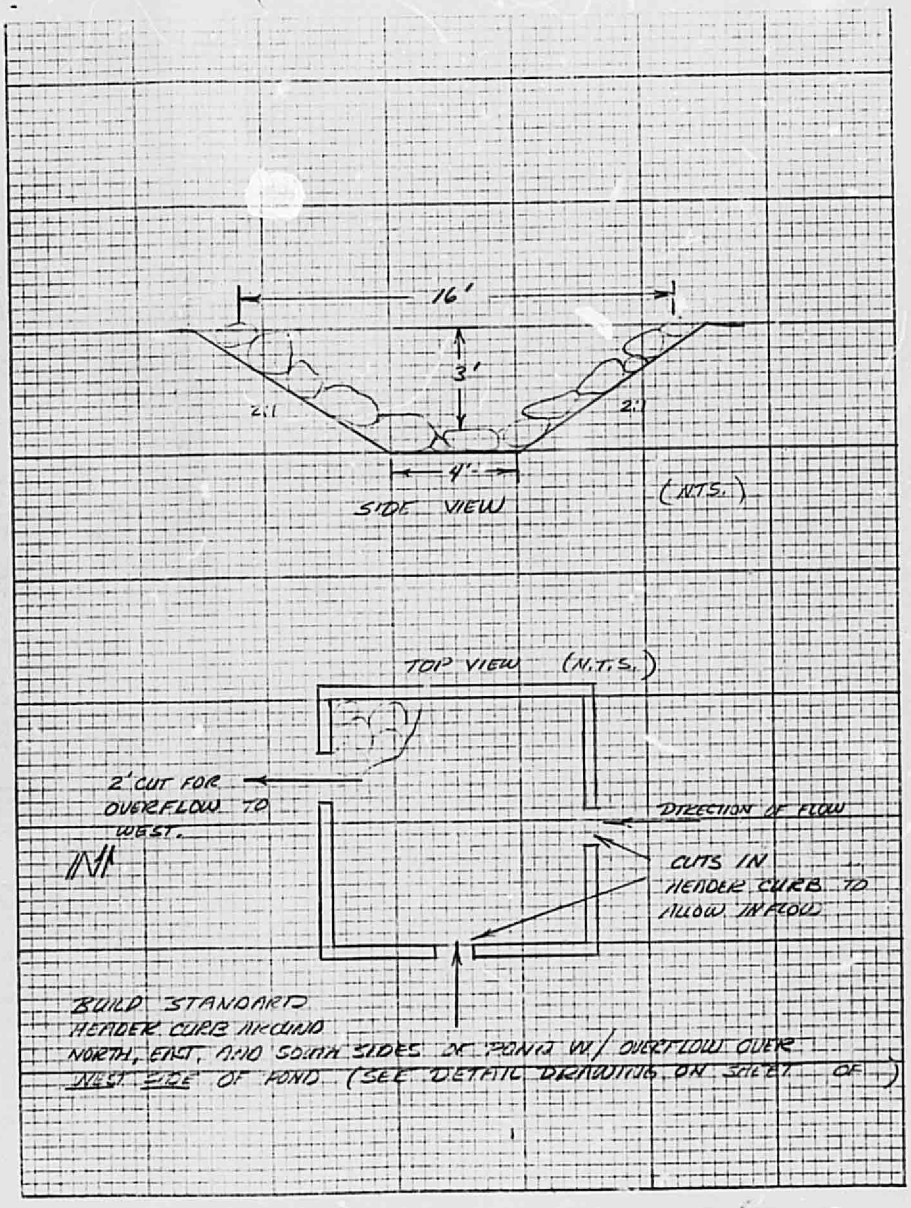
$V = 1/3\,(A_{B_1} + A_{B_2} + \sqrt{A_{B_1} A_{B_2}}) = 3/3\,(256\,ft^2 + 16\,ft^2 + \sqrt{(256)(16)}) = 336$ cu ft.

ALLOWANCE FOR THICKNESS OF ROCK USED AS LINING SHOULD BE MADE. ROCK WILL DETRACT FIFTY PERCENT FROM VOLUME; DIMENSIONS SHOULD BE MEASURED FROM ROCK SURFACE.



USE OF ROCK LINING ON POND CAN HELP RETAIN POND SHAPE AND DEPTH.

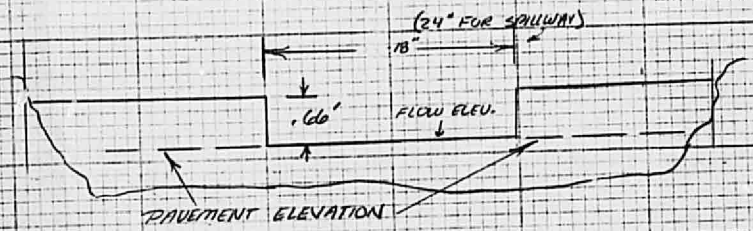
PROJECT NAME	OFFICE BLDG. UNIVERSAL IND.	SHEET 1	OF 5
PROJECT NO.	78-018	BY AGP	DATE 3-1-78
SUBJECT	DRAINAGE CALCULATIONS AND POND DETAILS	CH'D NAL	DATE 3-1-78



PROJECT NAME	OFFICE BLDG. UNIVERSITY AVE.	SHEET 2	OF 5
PROJECT NO.	78-048	BY	DATE 3-1-78
SUBJECT	DRAINAGE CALCULATION AND POND DETAILS	CH'D	DATE 3-6-78

* SEE FOOT NOTE BELOW

TYPICAL INLET-SPILLWAY CUT SECTION



NOTES: 1) INLET CUTS TO BE MADE ON EAST WALL AND SOUTH WALL

2) OVERFLOW RUNOFF TO FLOW OVER WEST SIDE.

3) BUILD NORTH WALL WITH NO CUTS. **

4) ALTERATIONS TO POND SHAPE OR SIZE MAY REQUIRE ADJUSTMENTS TO DEPTH.

SEE ATTACHED DRAWINGS FOR PARKING LOT DRAINAGE.

* THESE DETAILS CAN BE USED AS REFERENCE FOR EITHER THE HEADER CURB OF ALTERNATIVE A, OR FOR THE RETAINING WALL OF ALTERNATIVE B

** DIRECT FLOWS DOWN THE DEDICATED ALLEY

PROJECT NAME	[illegible]	SHEET 3	OF 5
PROJECT NO.	78-[illegible]	BY [illegible]	DATE 3-1-78
SUBJECT	DRAINAGE IMPROVEMENTS AND POND DETAILS	CH'D [illegible]	DATE 3-6-78

OFFICE BUILDING FOR UNIVERSAL INDUSTRIES
DRAINAGE CALCULATIONS FOR ALTERNATIVE 2

TOTAL AREA OF LOT = 13,318 ft^2 = 0.306 ACRES
ALL BUT ONE SMALL AREA IS HARDENED SURFACE SO C FACTOR OF 1 OVER ENTIRE AREA WILL BE USED.

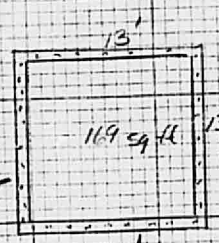
ASSUME: TIME OF CONCENTRATION 10 MIN.
3" OF PRECIPITATION (100 YEAR STORM)

TOTAL AREA COVERED IS 13,318 ft^2
VOLUME OF RUNOFF = 13,318 ft^2 X 0.25 ft = 3329.5 ≈ 3,330 ft^3

USE 10% RETENTION ON SITE = 333 CUBIC FEET

USE OF STONES IN POND WILL YIELD A VOID RATIO OF 0.5
AREA OF POND REQUIRED 166.5 ft^2
EFFECTIVE DEPTH = 2 FT. (ASSUMED)
WITH VOID RATIO FOR POND 0.5 2 FT. 4 FOOT DEPTH REQUIRED
2 FOOT EFFECTIVE DEPTH FOR RETENTION

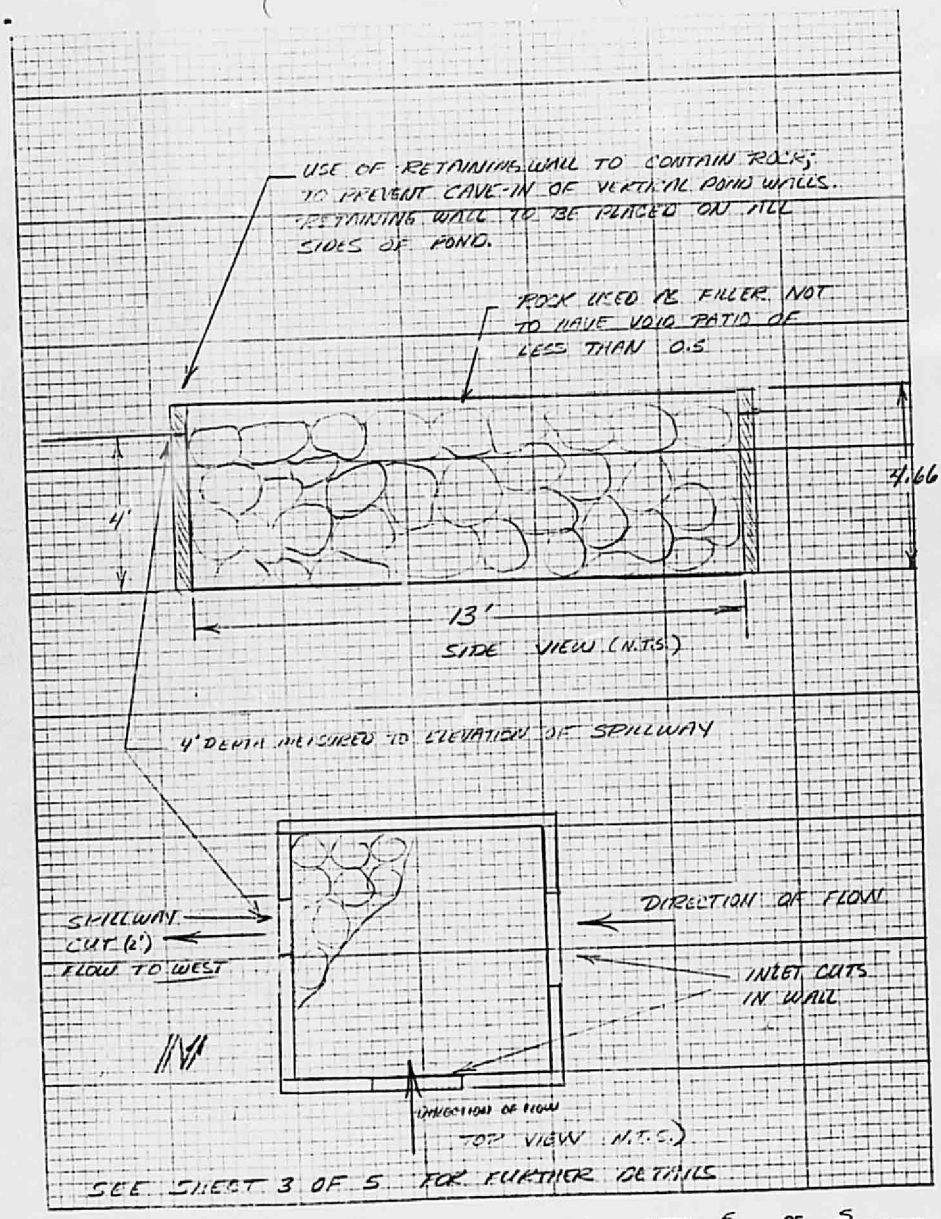
RECTANGULAR POND DIMENSIONS; (FOR COMPUTATION)
$\sqrt{166.5}$ = 12.9 ft USE 13.0' SQUARE



(N.T.S.)

RETAINING WALL TO BE BUILT ROUND POND 0.66' HIGHER THAN PAVEMENT, OR USE BUMPER BLOCKS AROUND PERIMETER OF POND.

PROJECT NAME [illegible] SHEET 4 OF 5
PROJECT NO. 78-048 BY [illegible] DATE 3-1-78
SUBJECT DRAINAGE [illegible] POND OFFICE CH'D [illegible] DATE 3-6-78



PROJECT NAME [illegible] MINERAL IND.
PROJECT NO. 23-013
SUBJECT [illegible] POND DETAILS

SHEET 5 OF 5
BY [illegible] DATE 3-1-78
CH'D [illegible] DATE 3-6-78

T