HYDROLOGY

D17/D28
1 PLAN

D17/D28

1 Plan

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DRAINAGE CALCULATIONS

DISCUSSION

This site (Tract 1-C, Academy Park, Unit 4) contains 0.74 acres undeveloped land which now drains to the west along the south boundary of the Albuquerque Publishing Co. property. Soils at the site are classified EmB and are Hydrologic Soil Group "B".

A drainage report was done for this area by Gordon Herkenhoff & Ass. and approved in 1975 which shows that water from this site is to drain south to Hawkins Street, but the grades on Hawkins make this impossible. After meeting with City of Albuquerque Engineer Jim Fink it was decided that since there were no easements provided for storm water along its natural course, the only alternative was to pond the developed 100-year run-off and pump it to Jefferson Street. The pond is sized for the 100-year run-off from the entire site with the exception of the north half of the building which will drain into the pump discharge line to Jefferson Street. This flow will be kept from flowing back to the pond by a check valve installed at the pump.

This property is zoned M-1.

CALCULATIONS

Pond Volume: (Required)

Total Area = 32046 ft^2
North ½ building = -4546
Area draining to pond = 27500 ft^2

Landscaped and unpaved areas = 2870 ft^2

Developed site is 90% impervious

Coefficient of run-off C=0.84

100-year, 6 hour precipitation = 2.2 inches

Pond Volume $V=(0.84)(2.2/12)(27500) = 4235\ ft^3$ = 31682 gallons

Sump pump will pump about 100 gpm, therefore the pond will hold water about 5.3 hours after the 100-year event.

Pond Volume: (As shown this sheet)

Calculated by average end areas using horizontal areas

Location	Elevation	Area, ft^2	Delta h, ft	Delta V, ft^3
Overflow	31.00	2680	0.0	0
	30.00	1770	1.0	2225
	29.00	1230	1.0	1500
Pond Bottom	28.50	945	0.5	544
Total Pond Volume as shown				$4269\ ft^3$ > 4235 ft ok

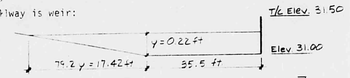
Emergency Spillway:

Time of concentration t_c is less than 10 minutes.

Intensity $i = (2.2)(6.84)(10)^{-0.51} = 4.65$

$Q_{100} = ciA = (0.84)(4.65)(27500/43560) = 2.47$ cfs

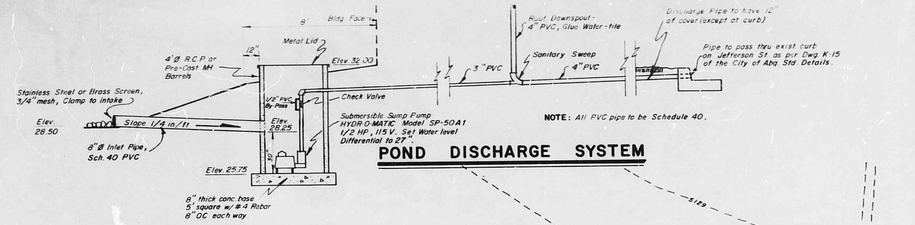
Spillway is weir:



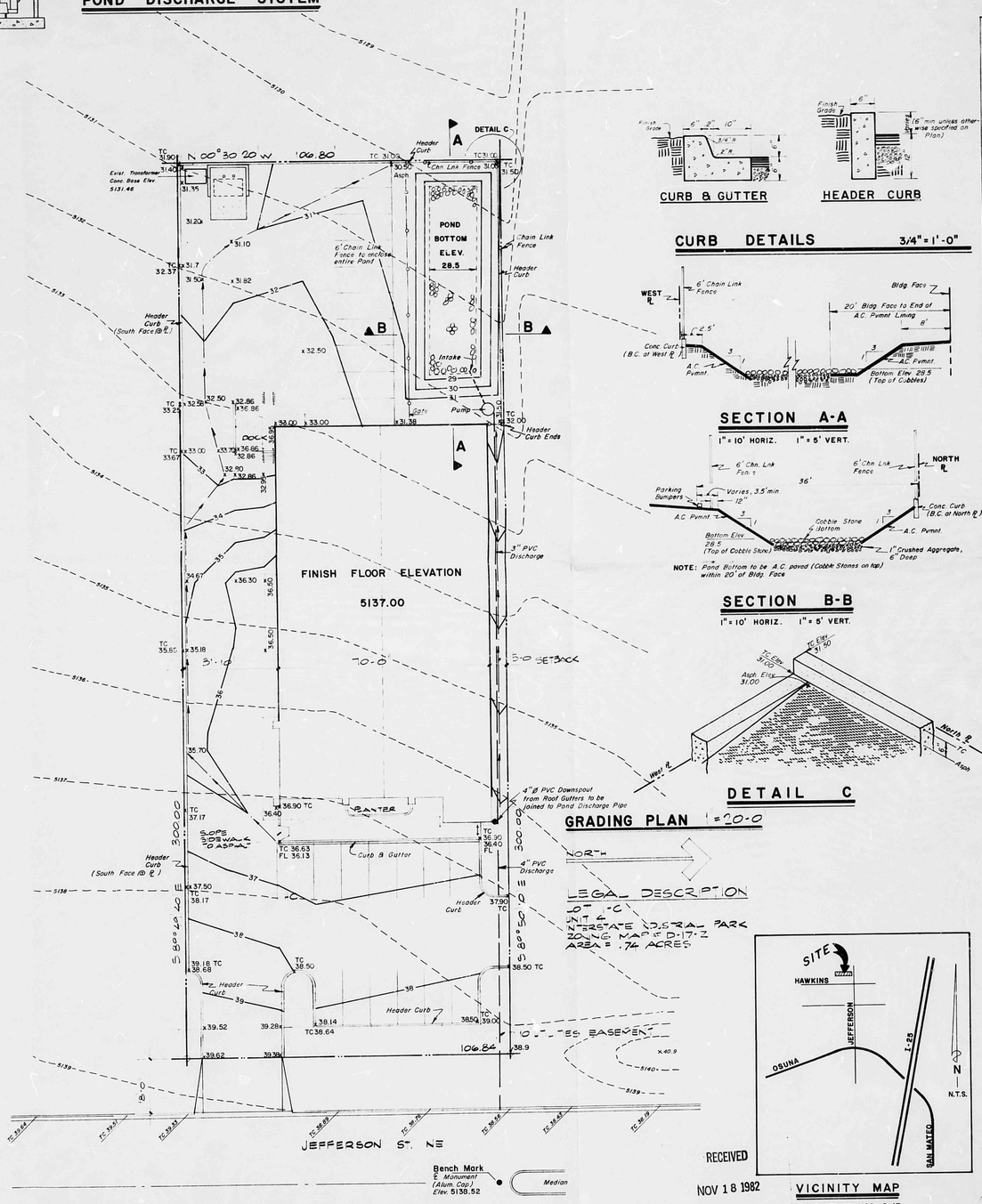
$Q = (0.577)(1)^{1.5} = (0.577)\left[(35.5)(y)^{1.5} + (79.2y)(y/2)^{1.5}\right]$

by trial y = 0.22 ft

Therefore the maximum water elevation = 5131.22 feet if pump is down and pond was full when 100-year storm hit.



POND DISCHARGE SYSTEM



GRADING PLAN LEGEND

Exist. Top of Curb Elev.
Exist. Contours, City Datum
Proposed Grade; Top of Curb, Spot on Pvmnt.
Proposed Contour
Underground PVC Discharge Pipe

CURB & GUTTER HEADER CURB

CURB DETAILS 3/4" = 1'-0"

SECTION A-A

1" = 10' HORIZ. 1" = 5' VERT.

NOTE: Pond Bottom to be A.C. paved (Cobble Stones on top) within 20' of Bldg. Face

SECTION B-B

1" = 10' HORIZ. 1" = 5' VERT.

DETAIL C

GRADING PLAN 1" = 20'-0"

NORTH

LEGAL DESCRIPTION
LOT 1-C
UNIT 4
INTERSTATE INDUSTRIAL PARK
ZONING MAP # D-17-Z
AREA = .74 ACRES

VICINITY MAP
ZONE ATLAS MAP D-17

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VOSS ELECTRIC COMPANY
JEFFERSON STREET N.E.

R.L. MILLARD COMPANY, INC. 822-8888

OCTOBER 1982

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