HYDROLOGY H17/D3 NO PLANS

H17/D3

No Plans

DRAINAGE REPORT
FOR
G.E.P.T. ASSOCIATES

Prepared by
ANDREWS, ASBURY & ROBERT, INC.
Consulting Engineers

DRAINAGE REPORT
FOR
G.E.P.T. ASSCCIATES
IN
ALBUQUERQUE, NEW MEXICO

A. General

This drainage report was prepared by Andrews, Asbury & Robert, Inc., Consulting Engineers for Nelson Buck, Architect, acting on behalf of G.E.P.T. Associates who propose to construct a furniture showroom and sales building.

The property discussed in this report is generally located at the corner of Solano Drive and Menaul Boulevard, N.E. (See H-17-Z map enclosed). More particularly, the property described herein is: TRACT C MIRAMONTES SUBDIVISION #2

~~The East 200 feet of Lot "C" of the Miramontes Subdivision, the South 10 feet of the West 200 feet of Lot "C" Miramontes Subdivision and the South 30 feet of Tract "A" of the Timoteo Chavez Addition~~

A one-hundred year frequency occurrence interval storm was used in the computations which are included in this report to determine the volume of storm water runoff from applicable drainage areas.

B. Existing Site Conditions

The existing site is presently undeveloped with the exception of City utilities and some drivepads at adjacent streets. The present site is a parcel containing slightly more than 2 acres, all of which are proposed to be improved in the immediate future. The improvements consist of the construction

of a 29,500 Sq. Ft. furniture showroom and sales building, asphaltic parking areas and landscaping.

At present the unimproved area to the west of the subject site will remain unchanged.

The topography of the proposed building site consists of mild terrain varying from 1% to 3% slope from the north to the south.

The off-site drainage is presently intercepted by a curbed and guttered street (Menaul Boulevard) on the north as well as to the south (Solano Dr.). Neither of these is considered as contributory in storm water runoff.

The topography permits the storm water to flow from northeast to southwest.

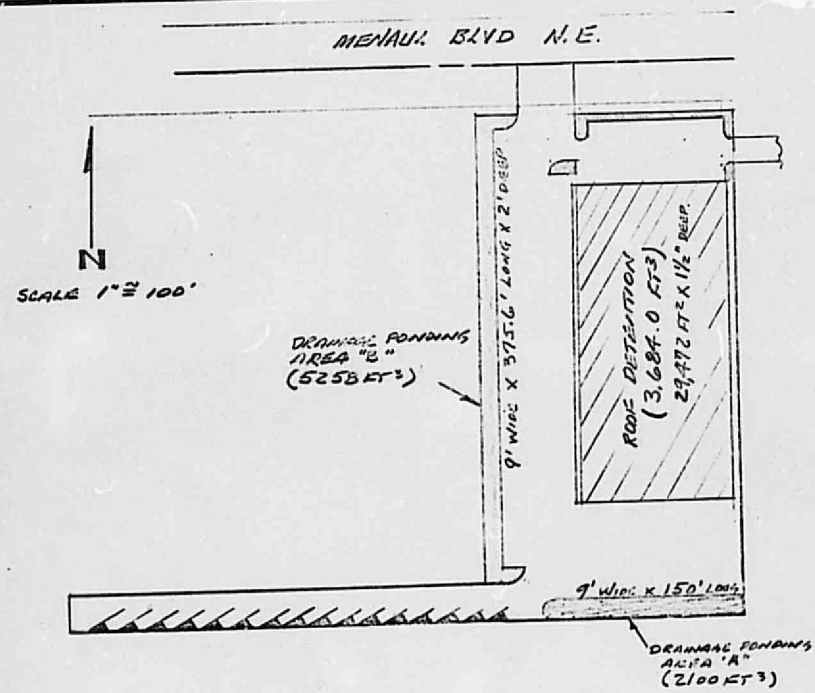
A 30 ft. by 325 ft. parking strip to the south and east has been proposed. The ponding areas proposed are sized for the entire area including this parking. However, due to the ponding and detention facilities used, no separate ponding provision has been provided for this small strip.

C. Solution

It is proposed to construct two ponding areas with a total ponding capacity of 7358 cu. ft. In addition, it is proposed to detain 1.5 inches of water on the building roof thereby creating an additional 3,684 cu. ft.

This ponding capacity will provide sufficient detention to exceed the requirements regarding increased water runoff resulting from site improvements.

ANDREWS, ASBURY & ROBERT, INC. CONSULTING ENGINEERS 401 San Pedro, NE., Albuquerque, N.M. 87108 Telephone (505) 265-6631	Project DRAINAGE REPORT Sheet 1 of 4 G.E.P.T. ASSOCIATES INC. Job No. 78-136 By CTA Chk'd ____ Date APR. 1978



CRITERIA

RUNOFF VOLUME SHALL NOT INCREASE DUE DEVELOPED CONDITIONS

BASIS FOR COMPUTATIONS IS 100 YEAR FREQUENCY STORM

RAIN FALL 2.8" = 100 YEAR FREQUENCY STORM.

C = COEFFICIENT OF RUNOFF

C = 0.90 ASPHALTIC CONCRETE AND SIDEWALKS.
C = 0.85 WATERTIGHT ROOF & SIDEWALK
C = 0.35 FOR UNIMPROVED SURFACES.
C = 0.85 LANDSCAPED SURFACES.

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EXISTING CONDITIONS.

AREA = 200' X 405.6' = 81120 FT^2
= 30' X 325' = 9,750 FT^2
TOTAL 90,870 FT^2

USING A "C" FACTOR = 0.35 FOR UNIMPROVED SURFACES THE VOLUME OF RUNOFF IS:

$$VOL = (0.35)\left(\frac{2.8\,IN}{12\,IN/FT}\right)(90{,}870\,FT^2)$$

$$= 7421.05\,FT^3$$

DEVELOPED CONDITIONS.

USING A C = 0.9 FOR ASPHALTIC CONCRETE & SIDEWALKS

PARKING = 53,808 FT^2 $V = (0.9)\left(\frac{2.8\,IN}{12\,IN/FT}\right)(53{,}808\,FT^2)$

$$= 11{,}300\,FT^3$$

SIDEWALK = 1090 FT^2 $V = (0.9)\left(\frac{2.8\,IN}{12\,IN/FT}\right)(1090\,FT^2)$

$$= 229\,FT^3$$

USING A C = 0.85 FOR WATERTIGHT ROOFS.

ROOF = 29,472 FT^2 $V = (0.85)\left(\frac{2.8\,IN}{12\,IN/FT}\right)(29472\,FT^2)$

$$= 5845\,FT^3.$$

USING A C = 0.35 FOR LANDSCAPED AREAS.

LANDSCAPING = 6500 FT^2 $V = (0.35)\left(\frac{2.8\,IN}{12\,IN/FT}\right)(6500\,FT^2)$

$$= 531\,FT^3.$$

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PARKING = 11,300 FT^3
SIDEWALK = 229 FT^3
ROOF = 5845 FT^3
LANDSCAPED = 531 FT^3
17,905 FT^3

TOTAL RUNOFF AFTER IMPROVEMENTS = 17,905 FT^3
ORIGINAL RUNOFF = 7421 FT^3
ACTUAL RUNOFF INCREASE. = 10,484 FT^3

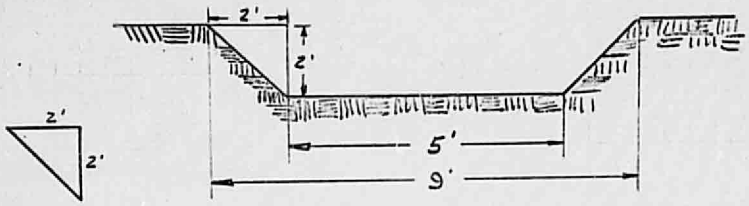
SOLUTION

I ROOF RETENTION: THE ROOF LOADING DESIGN (OTHERS) INCLUDES 1.5 INCHES OF GRATING TO PROVIDE SURFACE STORAGE TO EVAPORATION.

VOLUME OF WATER RETAINED:

$$29{,}472\ FT^2 \times \frac{1.5\ IN}{12\ IN/FT} = \underline{\underline{3{,}684\ FT^3}}.$$

II PONDING AREA "A"



$$\begin{aligned} VOL &= [WD + 2(\tfrac{1}{2}bh)]L. \\ &= [(5)(2) + 2(.5 \times 2 \times 2)]\,150 \\ &= (10 + 4)\,150 \\ &= 14 \times 150 \\ &= 2100\ FT^3 \end{aligned}$$

VOLUME OF WATER IN PONDING AREA "A"

$\underline{\underline{2100\ FT^3}}$

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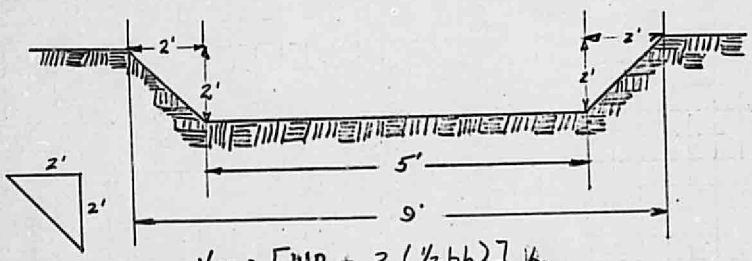
III PONDING AREA "B"



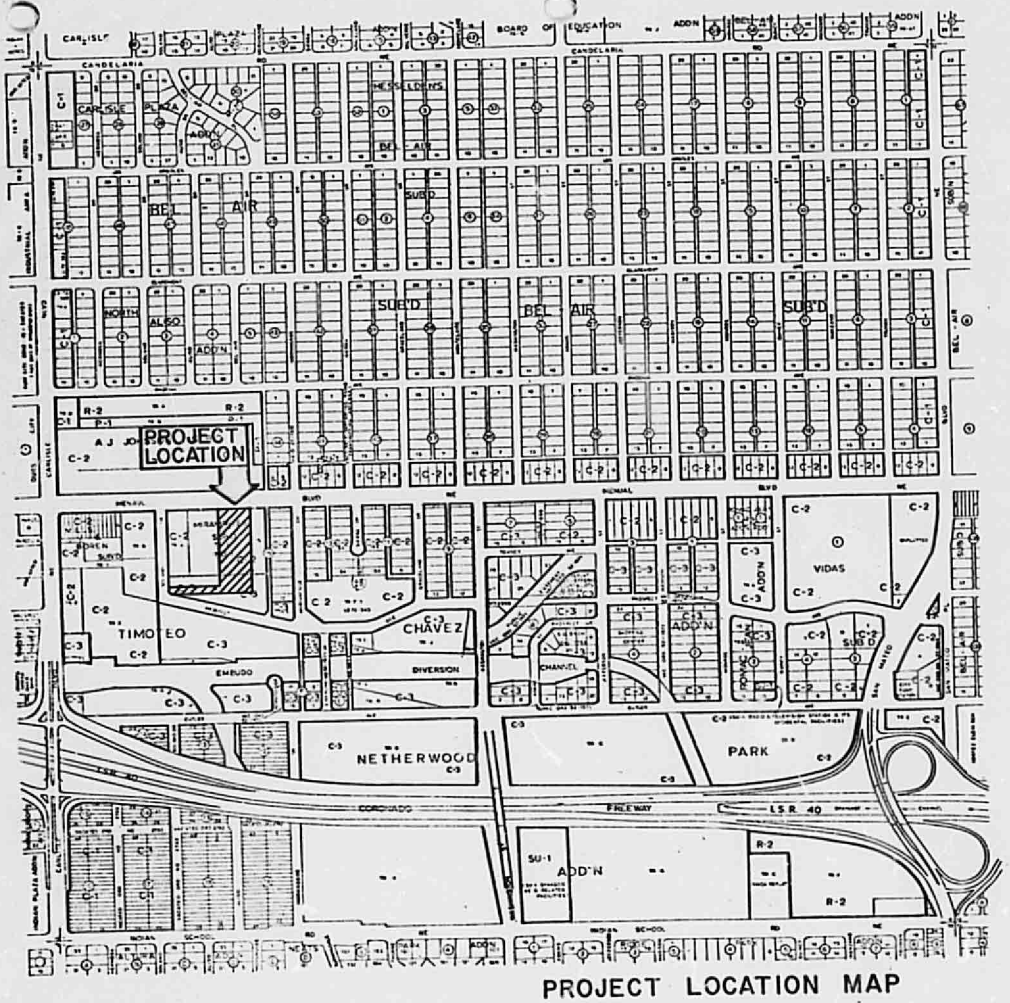
VOL = [WD + 2 (½bh)] L.
[5x2 + 2 (0.5x2x2)] 375.6
(10 + 4) 375.6
5258 FT³

VOLUME OF WATER IN PONDING AREA "B" 5,258 FT³

RECAP

TOTAL RUNOFF AFTER IMPROVEMENTS	17,905 FT³
ORIGINAL RUNOFF	7,421 FT³
	10,484 FT³
BUILDING ROOF RETENTION	3,684 FT³
	6,800 FT³
PONDING AREA "A"	2100 FT³
	4,700 FT³
PONDING AREA "B"	5258 FT³

OK



PROJECT LOCATION MAP

H-17-Z

SMEAD—HASTINGS, MN.
NO. T118GN