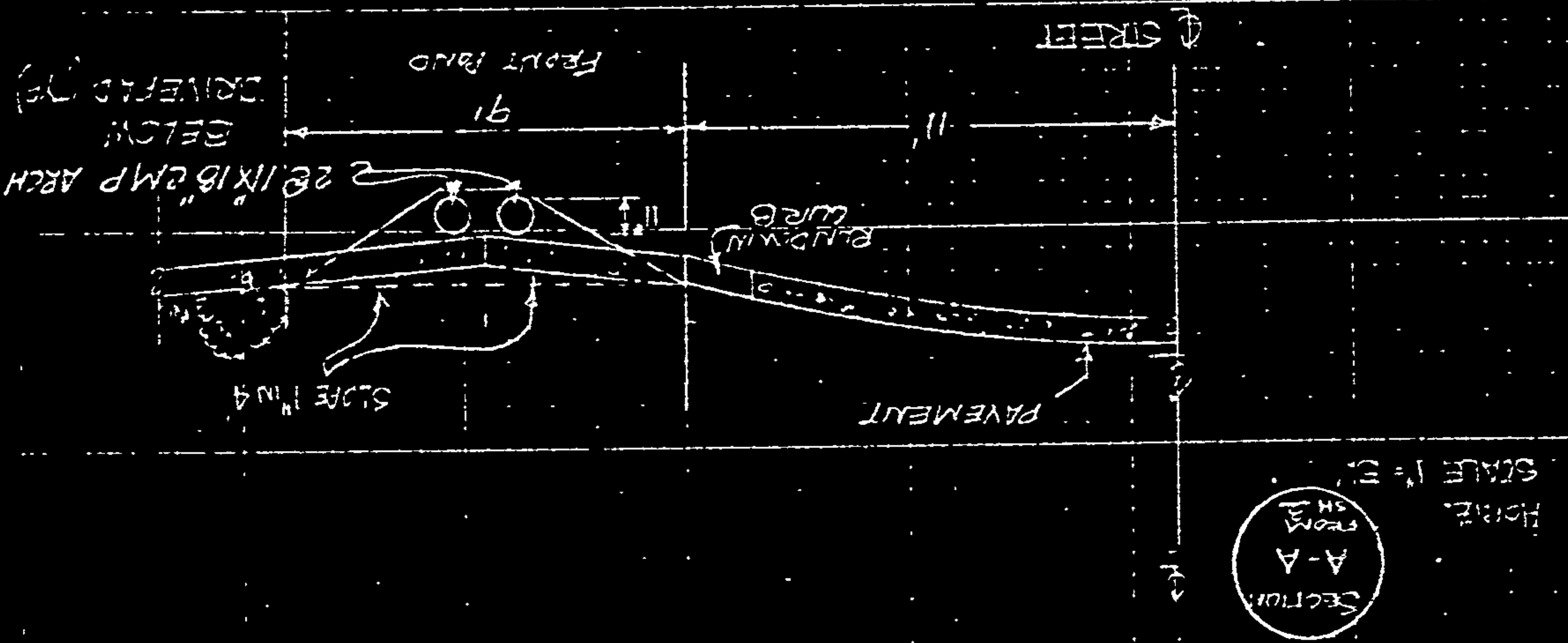
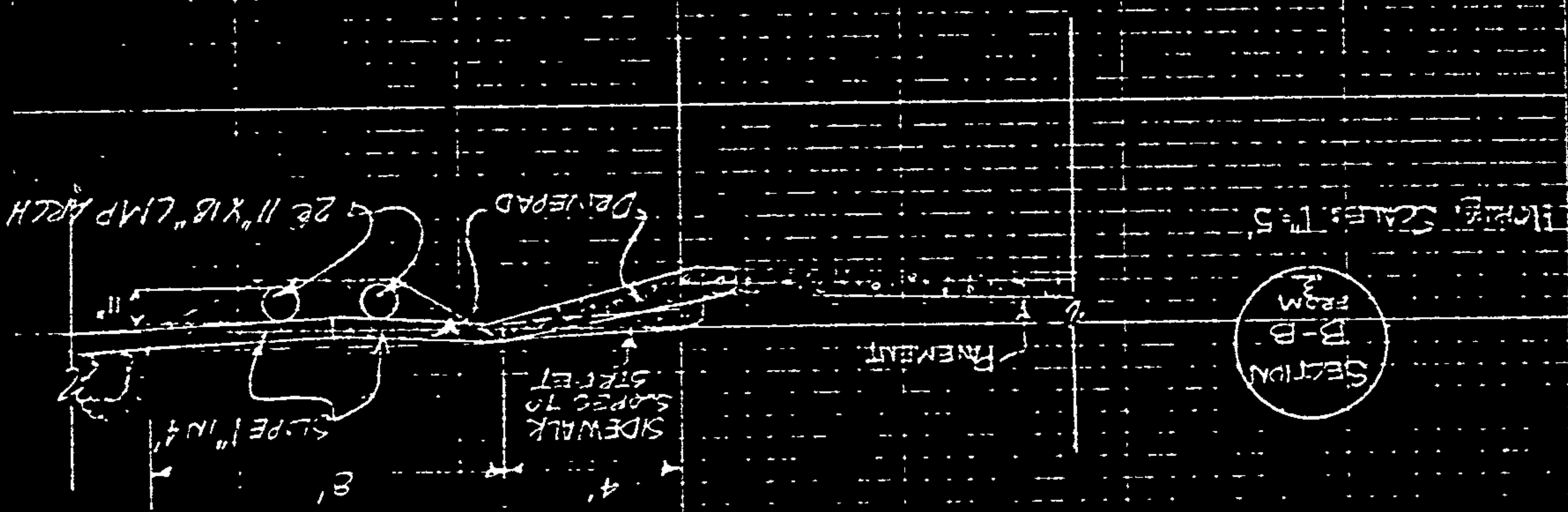
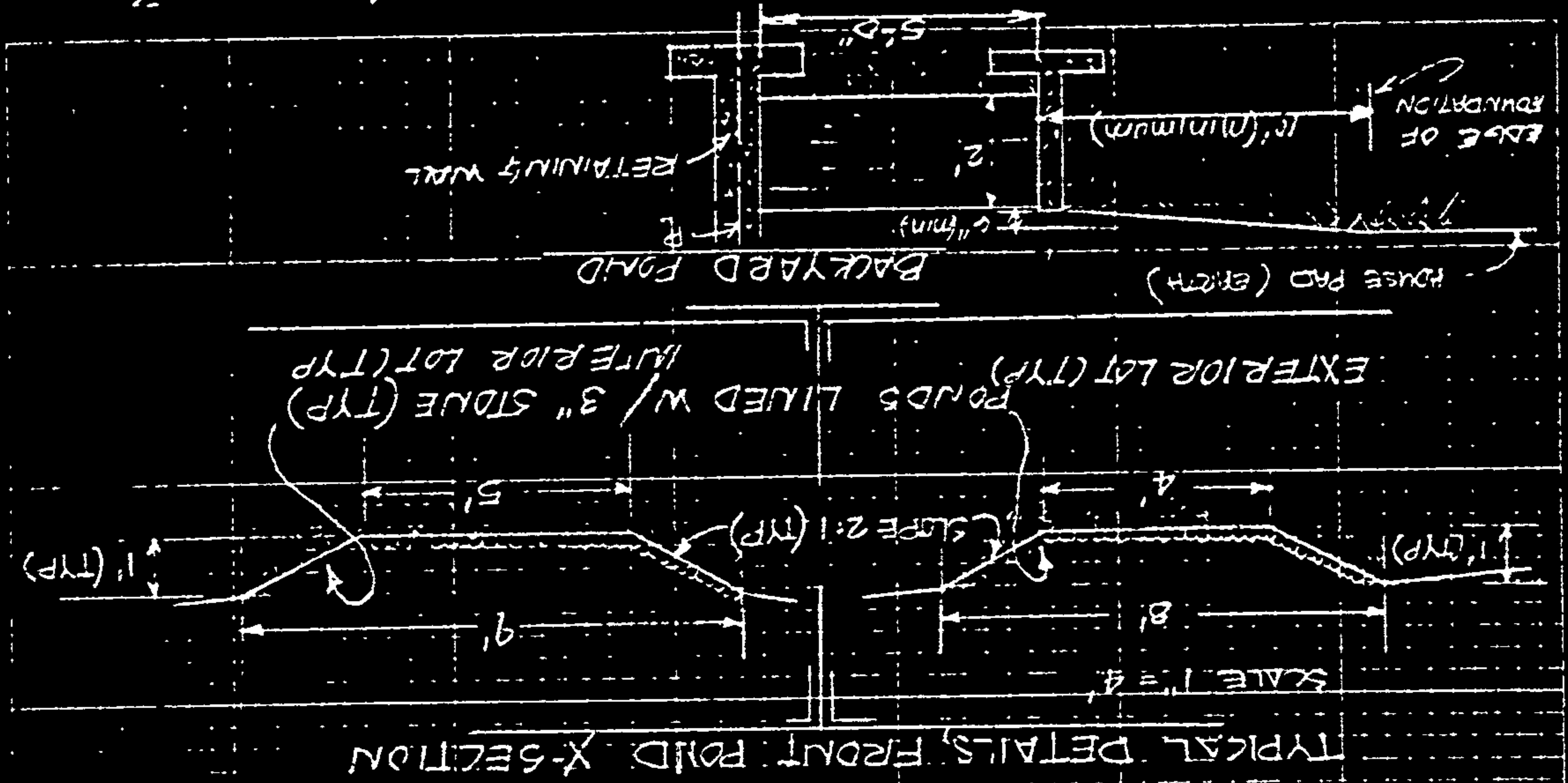
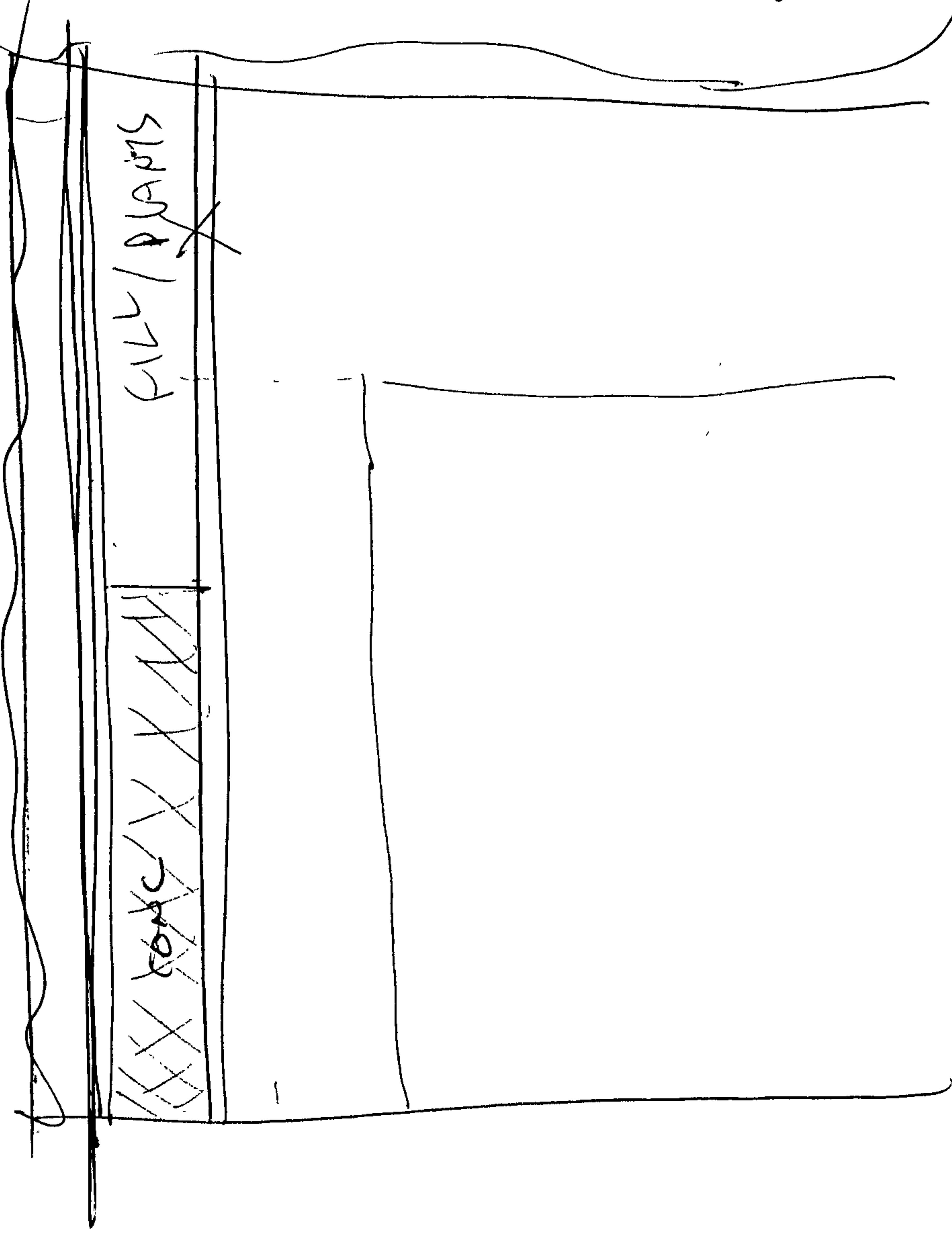




PROJECT NAME Park Place  
PROJECT NO. 17-0211  
BY ...  
DATE ...  
SHEET 4 OF 7  
SUBJECT DRAINAGE REPORT  
CH'D ...  
DATE ...



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office@niquescapes.com



DRAINAGE REPORT  
FOR  
PARK PLACE

PURPOSE

The purpose of this report is to determine the runoff resulting from a 100 year frequency storm falling within Park Place under existing and developed conditions. Guidelines are established for development so drainage controls can be established.

PROJECT LOCATION AND DESCRIPTION

Park Place is bordered on the north by Silver Avenue and on the south by San Carlos Drive. It lies between Reynolds Avenue and 14th Street in the east-west direction. This is shown in Plate I.

Natural topography in the area is nearly flat. Vegetation is sparse. The ground slopes from the center toward both bordering streets at approximately one half percent.

The proposed type of development is residential with a density between six and seven dwelling units per acre.

HYDROLOGY

Peak runoff rates were determined using the rational formula for a 100 year frequency storm. Rainfall intensities were selected from curves presented in the Master Plan of Drainage, 1963, for the Albuquerque area. Detention basin volume requirements were based on the modified rational method of analysis as presented in Practices in Detention of Urban Storm Water Runoff, produced by the American Public Works Association. Calculations are provided in the Appendix.

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#### DRAINAGE BEFORE DEVELOPMENT

Park Place is not affected by runoff from upland areas since it is bordered on the east and west by masonry walls and on the north and south by existing streets.

Runoff originating in the parcel is divided into two basins of approximately the same size. Area 1 runoff discharges onto Silver Avenue at the northern boundary of the property. Area 2 runoff is discharged onto San Carlos Drive at the south edge. Drainage areas and flow rates are shown on Plate II.

#### DRAINAGE AFTER DEVELOPMENT

As stated in the AMAFCA Drainage Resolution 1972-2, the development of the property should not increase runoff. Further, the City Engineer has required that new developments in the Valley area retain all of their own storm runoff. In accordance with this, all lots will retain rain falling within them.

Runoff from the roof and back yard of each lot will be retained in a back yard pond of adequate capacity. Runoff from the front portion of each lot shall be retained in front yard ponds. Interior lots (facing San Carlos Court) will retain runoff from the street (typical flow lines and pond dimensions are given in the calculations). There is essentially no net runoff from the subdivision.

#### RECOMMENDATIONS

1. All runoff from roofs shall be discharged to the back yards.
2. Back yard ponding shall be accomplished by construction



of a pond at least 2' deep x 5' wide, located at a minimum of 10' from the foundation pad of the house. The ponds may be formed with reinforced masonry walls and shall extend across the entire width of the back yards.

3. All runoff from the front portion of each lot shall be discharged to front yard ponds constructed within the street rights-of-way. Dimensions are given in the Appendix.

4. Runoff from San Carlos Court shall be discharged to front yard ponds of bordering lots.

5. Front yard ponds shall be connected by two 11"x18" CMP Arches under each drivepad.

# PARK PLACE

## UNDEVELOPED RUNOFF

C RUNOFF FACTOR = 0.35 (GROUND)

B GROUND FACTOR = 1.8 (POOR VEGETATION)

### AREA #1

L LENGTH OF WATERCOURSE = 237 FT

S SLOPE OF BASIN = 0.51%

A AREA OF BASIN = 1.0 ACRE

$$T_c = \log^{-1} [0.3641(B) + 0.3354(\log L) - 0.197(\log S) - 0.3613]$$

$$T_c = \log^{-1} [0.3641(1.8) + 0.3354(\log(237.0)) - 0.197(\log(0.51)) - 0.3613]$$

$$T_c = 18.50 \text{ MINUTES}$$

FROM "CITY OF ALBUQUERQUE MASTER PLAN FOR DRAINAGE" 1952

$$I = \frac{189}{25 + T_c} = \frac{189}{25 + 18.5} = 4.34 \text{ inches per hour}$$

$$Q_1 \text{ RUNOFF FLOW} = CIA = (0.35)(4.34)(1.0) = 1.52 \text{ cfs}$$

### AREA #2

L = 156 FT

S = 0.64%

A = 1.3 ACRES

$$T_c = \log^{-1} [0.3641(1.8) + 0.3354(\log(156)) - 0.197(\log(0.64)) - 0.3613]$$

$$T_c = 15.05 \text{ MINUTES}$$

$$I = \frac{189}{15.05 + T_c} = 4.72 \text{ inches per hour}$$

$$Q_2 = CIA = (0.35)(4.72)(1.3) = 2.15 \text{ cfs}$$

$$Q_u \text{ TOTAL UNDEVELOPED RUNOFF} = 2.15 + 1.52 = 3.67 \text{ cfs}$$

NOTE: THIS ASSUMES NO CONTRIBUTION FROM UPLAND RUNOFF.



PROJECT NAME PARK PLACE

PROJECT NO. 77-021.1

SUBJECT DRAINAGE REPORT

SHEET 1

OF 7

BY WJP

DATE

CH'D

DATE

PARK PLACE

# DEVELOPED RUNOFF

## AREA CALCULATIONS

(SEE SKETCHES, SHEET 3)

BACKYARD (INCLUDES YARD & ROOF)

$$YARD (TYP) = 10' \times 40' = 400 \text{ FT}^2$$

$$ROOF = 55 \times 40 = 2200$$

$$TOTAL = 2600 \text{ FT}^2$$

$$1 \text{ ACRE} = 43560 \text{ FT}^2$$

$$AREA = 2600 \div 43560 = 0.0596 \text{ ACRES}$$

FRONT YARD - INTERIOR LOT

$$DRIVEPAD = 17 \times 29 = 493 \text{ FT}^2$$

$$LANDSCAPING = 20 \times 23 = 460 \text{ FT}^2$$

$$PONDING = 9 \times 23 = 207 \text{ FT}^2$$

$$STREET (1/2 \text{ OF S. CARLOS CT.}) = 18 \times 40 = 720 \text{ FT}^2$$

$$TOTAL = 1680 \text{ FT}^2$$

$$AREA (ACRES) = 1680 \div 43560 = 0.0387 \text{ ACRES}$$

FRONT YARD - EXTERIOR LOT

$$DRIVEPAD = 17 \times 32 = 544$$

$$LANDSCAPING = 24 \times 23 = 552$$

$$PONDING = 8 \times 23 = 184$$

$$TOTAL = 1280 \text{ FT}^2$$

$$AREA (ACRES) = 1280 \div 43560 = 0.0294 \text{ ACRES}$$

## RUNOFF FACTORS

LANDSCAPING } C=0.35

POND AREA }

ROOF } C=0.95

STREET }

SIDEWALK }

$$BACKYARD = (0.35) \left( \frac{400}{2600} \right) + (0.95) \left( \frac{2200}{2600} \right)$$

LANDSCAP

ROOF

$$C = 0.87$$

FRONT YARD - INTERIOR LOT

$$(0.35) \left( \frac{460 + 207}{1680} \right) + (0.95) \left( \frac{493 + 720}{1680} \right) = C = 0.69$$

LANDSCAP, POND

STREET, DRIVEPAD

FRONT YARD - EXTERIOR LOT

$$(0.35) \left( \frac{552 + 184}{1280} \right) + (0.95) \left( \frac{544}{1280} \right) = C = 0.60$$

A PERCOLATION RATE OF 1" IN 20 MIN. WAS SELECTED FOR THIS SOIL

\*NOTE\*

ALL RUNOFF IS RETAINED WITHIN LOTS, IN PONDS, (AS SHOWN) SIZED TO CONTAIN 100% OF PEAK STORAGE VOLUME



PROJECT NAME PARK PLACE

PROJECT NO. 77-0211

SUBJECT DRAINAGE REPORT

SHEET 2

OF 7

BY WJP

DATE 3/1/77

CH'D

DATE



It is bordered on the east and west by masonry walls and on the north and south by existing streets.

Runoff originating in the parcel is divided into two basins of approximately the same size. Area 1 runoff discharges onto Silver Avenue at the northern boundary of the property. Area 2 runoff is discharged onto San Carlos Drive at the south edge. Drainage areas and flow rates are shown on Plate II.

#### DRAINAGE AFTER DEVELOPMENT

As stated in the AMAFCA Drainage Resolution 1972-2, the development of the property should not increase runoff. In accordance with this, backyards will retain rain falling within them in all the lots. The backyards will be set a minimum of six inches below the house pad.

The runoff from the roof will be discharged to the streets and will be controlled with the use of two canales. Each canale will have a maximum discharge of 18 gpm, yielding a maximum discharge of 36 gpm. The canale is described in the Appendix. The remaining runoff from the lots will be discharged onto the bordering streets. This is shown on Plate III.

#### RECOMMENDATIONS

The following recommendations are made for the development of Park Place.

1. Backyard ponding on all lots accomplished by setting the backyard a minimum of six inches below the house pad.
2. All runoff from roofs will be discharged to the streets.