

BOHANNAN-HUSTON INC.



4125 CARLISLE BLVD, N.E. ALBUQUERQUE, NEW MEXICO 87107 505 981-2000

May 18, 1978

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

Re: Lot 126 Drainage Report

Dear Mr. Conegliano:

Enclosed for your review and approval are two copies of
the Lot 126 Drainage Report.

If you have any questions concerning this, please feel
free to contact me or Mr. Ray Macy at this office.

Sincerely yours,

Michael M. Emery
Michael M. Emery, P.E.
Vice President

Enclosures

cc: Mr. Ron Brown

RM/js
Job No. 78-085





City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

July 17, 1978

Ray Macy
Bohannon-Huston, Inc.
4125 Carlisle Blvd., NE
Albuquerque, New Mexico 87107

RE: Kachina Hills, Unit 1, Lot 126, Z-H-23

Dear Mr. Macy:

I have reviewed the drainage report for the above referenced lot and have no objections to the drainage scheme proposed. The drainage report is therefore hereby approved.

Very truly yours,

Bruno Conegliano
Asst. City Engineer-Hydrology

BC/gm

cc; V.M. Kimmick
Richard Leonard
Drainage file

BOHANNAN - HUSTON INC.



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

November 13, 1980

Mr. Fred Aguirre
Drainage Engineer
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: 12900 Kachina Place, N.E., Lot 236

Dear Mr. Aguirre:

Submitted herewith is the Splash Pad and Orifice Detail along with the Orifice Computations for the above-referenced lot.

Mr. Dick Pyatt, from Sproul Investment Corporation, is in the process of recording the surface drainage easement for Lots 231, 234 and 235 at the County Court House. As soon as I receive a filed copy of the Recorded Surface Drainage Easement, I will forward a copy to you for your files.

If you have any questions, please feel free to contact either Robert Molina or me.

Sincerely yours,

Michial M. Emery, P.E.
Vice President

cc: Mr. Dick Pyatt

RM/mnb
Job No. 0 054 0



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

November 17, 1978

H 2 3 - D 12

Mr. Ronald Brown
Executive Vice President
Spyrok Corporation
5115 Menaul N.E.
Albuquerque, New Mexico 87109

Subject: Test Turnkey Project Work Authorization #T-24
KACHINA HILLS, UNIT 1, LOT 126A-WEST

Dear Mr. Brown:

Under the provisions of the Test Turnkey Project procedures,
this letter is the Work Authorization to begin field work on the
project.

Sincerely,

Richard S. Heller
City Engineer

RSH/fs

cc - H. R. Orr
Kent Nowlin Construction Co.
Ray Dawson
Water Resources
Dwayne Sheppard
Bob Kielich
LaMonte Urban
Bruno Conegliano
Bill Mueller
Jim Wilson, Traffic Engineering



October 14, 1980

Mr. Richard Heller
City Engineer
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Kachina Hills, Lot 128

Dear Mr. Heller:

In accordance with our meeting on October 13, 1980, with Mr. Ron Brown, the Soils Report requirement for Kachina Hills, Lot 128 was waived. Also discussed in the meeting was the drainage criteria for lots 233, 234, 235 and 236 specifically and in general for the remainder of the unapproved lots. A revised grading plan will be submitted to the city for your files. It was suggested that the runoff within the four lots be discharged at a 5-year storm rate. The calculations will be based on the undeveloped condition. The drainage ponds within lots 234 and 236 will discharge drainage through concrete blocks set on their sides, causing the block openings to act as an orifice control to allow drainage from lot 235 through lot 234 and into lot 231. A type "D" inlet is located in the southwest corner of lot 231 where the drainage will be conveyed. This drainage will then be drained into the Embudo Arroyo through an existing storm sewer system. The drainage from lot 236 will be allowed to drain onto Rover Avenue through concrete blocks set on their sides, again acting as an orifice control. Curb drainage inlets are being constructed 150 feet east of the intersection of Tramway Boulevard and Rover Avenue which will easily handle the added drainage runoff from lot 236. The ponding area in lot 233 will be allowed to drain onto Kachina Place at the 5-year storm rate.

By discharging the drainage at the 5-year storm rate, we have decreased the residence time for the water to stand in the designated ponding areas, this creates a more livable condition for the homeowner.

If you have any questions about the above interpretation, please do not hesitate to call Robert Molina or me.

Sincerely yours,

Michael M. Emery
Michael M. Emery, P.E.
Vice President

cc: Mr. Dick Pyatt *W GELDSUM*
Mr. Fred Aguirre *W ENCLOSURE*

RM/js
Job No. 78-085

*NOT ACCEPTABLE to
City Engineer
10-15-80*

BOHANNAN-HUSTON INC.



4125 CARLSLE BLVD., N. E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2000

ENGINEERS PLANNERS PHOTOGRAMMETRISTS

October 22, 1980

Mr. Dick Heller
City Engineer
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RECEIVED

OCT 27 1980

CITY ENGINEER

Re: Kachina Hills, Unit 1 - Lot 126 A *file*

Dear Mr. Heller:

In accordance with our meeting today, you allowed us to permit overland drainage flows through Lots 231, 234 and 235. We will submit to your Surveying Department for their approval a Grant of Easement for drainage after filing the document with the County Clerk's office.

Also discussed was the release of the remaining Building Permits. Our office will proceed with a lot by lot grading and drainage plan. Robert Molina, from our office, has prepared in detail a Grading Plan on Lots 231, 232, 233, 234, 235 and 236 which will be submitted to Fred Aguirre's office. At the time of completion of the above-referenced subdivision, an "As-Built" Grading Plan will be submitted for your files.

If you should have any comments or clarifications concerning these procedures, please advise.

Sincerely yours,

Michial M. Emery, P.E.
Vice President

Enclosure

cc: Mr. Dick Pyatt
Mr. Fred Aguirre
Mr. Dwain Shepperd
Mr. Bruno Conziliano

RM/js
Job No. 0 054 0

BOHANNAN-HUSTON INC.



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

December 23, 1980

Mr. Bernie Montoya
Building Codes Department
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

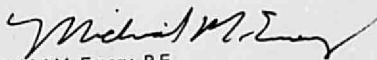
Re: Kachina Hills, Unit 1 - Lot 231

Dear Mr. Montoya:

In reference to the inlet and pipe design located at 1801 Father Sky Street, Lot 231, the storm sewer design submitted on August 1, 1980, called for a 12" RCP and not an 8" PVC pipe. After a field inspection and orifice control computations, the installed 8" PVC pipe can handle the runoff from Lots 231, 234 and 235. A copy of the record drawing has been submitted to Mr. Fred Aguirre for his files.

If you have any questions, please feel free to contact either Robert Molina or me.

Sincerely yours,


Michial M. Emery, P.E.
Vice President

cc: Mr. Dick Pyatt

RW/js
Job No. 0 054 0



BOHANNAN-HUSTON INC.



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

December 23, 1980

Mr. Fred Aguirre
Building Codes Department
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Kachina Hills, Unit 1

Dear Mr. Aguirre:

Submitted herewith is the Grading Plan for Kachina Hills, Lots 232 through 236, with the additional information that you required. Included with this information is a copy of the Overland Drainage Easement by Lots 231, 234 and 235.

Also submitted herewith is the additional information that you required on our Individual Site Grading Plan for Lot 236, so that the "Conditional Release" can be removed.

If you have any questions, please feel free to contact either Robert Molina or me.

Sincerely yours,

Michial M. Emery, P.E.
Vice President

Enclosure

cc: Mr. Dick Pyatt

RM/js
Job No. 0 054 0

SPROUL ENTERPRISES

SPROUL ENTERPRISES, INC.
PEARL MORTGAGE AND INVESTMENT CORP.
DIAMOND APARTMENTS, INC.
SPROUL INVESTMENT CORP.
SECURITY SUPPLY CO.
SPROUL HOMES, INC.
PEARL PROPERTIES

PLEASE ADDRESS CORRESPONDENCE
TO THE UNDERSIGNED AT:
P.O. Box 3158
Albuquerque, New Mexico
87190

April 23, 1981

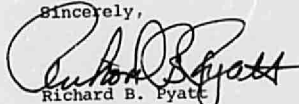
City of Albuquerque
Hydrology Department
Attn: Fred Aguirre
P.O. Box 1293
Albuquerque, New Mexico 87103

Re: As-Built Drainage Plan, Lots 223 thru 238 inclusive, Kachina Hills Unit
1, Lot 126-A

Dear Sir:

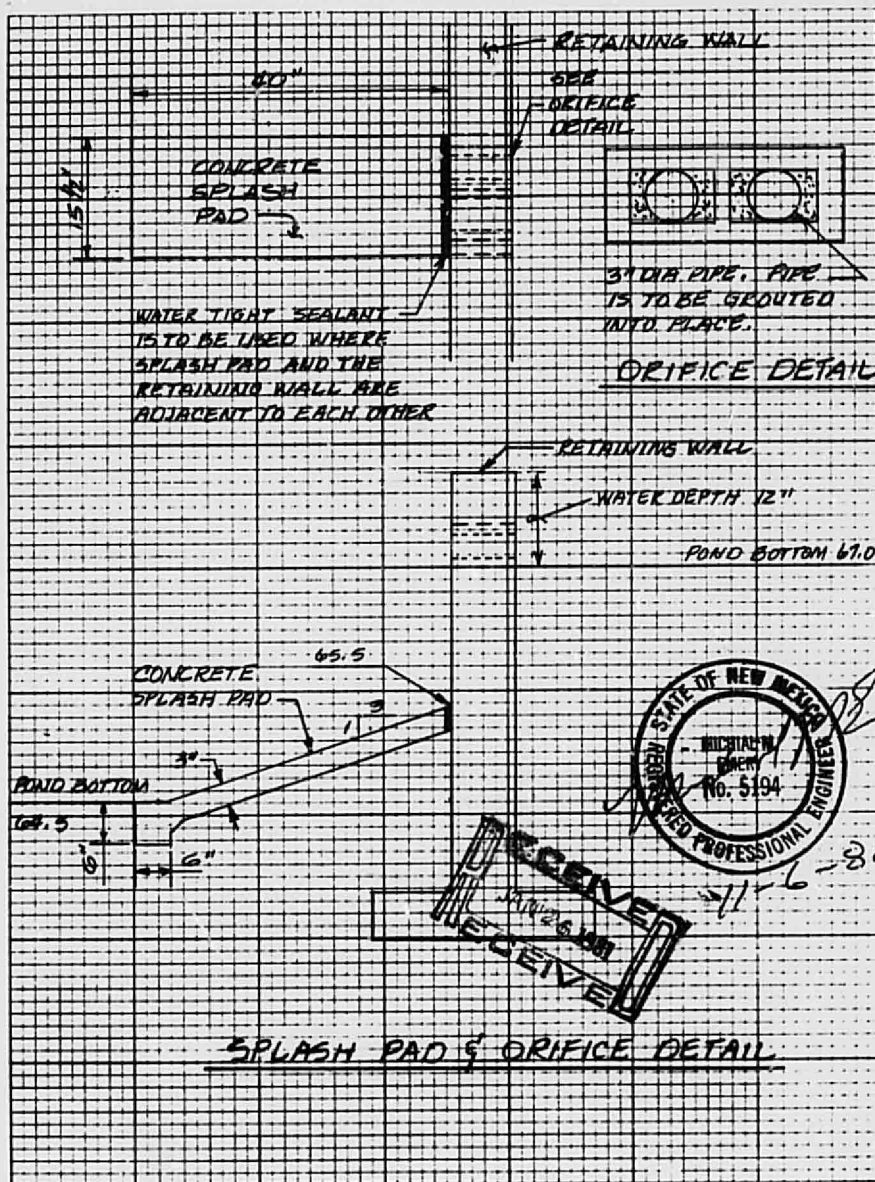
Please accept this letter as our assurance that upon completion of the above referenced subdivision we will direct Bohannon-Huston, Inc. to prepare an as-built drainage plan for submission to you. For your information we have four more lots to be built on, Lot 229, 234, 235 and 237.

Sincerely,


Richard B. Pyatt
Vice President

RBP/dm

cc: Bohannon-Huston
Robert Molina



PROJECT NAME 12900 Kachina Pl. N.E. SHEET 1 OF 2
PROJECT NO. 00340 BY RM DATE 11/4/80
SUBJECT Orifice Opening CWD RM DATE 11/4/80

Undeveloped Flow

$$Q = C I A$$

$$C = .35$$

$$A = .25 \text{ Ac (10735 Sq Ft.)}$$

$$I = 2.0$$

$$Q = .35 \times .25 \times 2 = .18 \text{ CFS}$$

Developed Flows Released Through 2, 3" ϕ Pipes

$$Q = C a \sqrt{2gh}$$

$$C = .6$$

$$q = 32.2$$

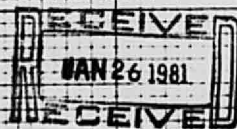
$$h = 1$$

$$a = .098 \text{ Sq Ft.}$$

$$Q = .6 \times .098 \sqrt{2 \times 32.2 \times 1}$$

$$Q = .059 \sqrt{64.4}$$

$$Q = .47 \text{ CFS}$$



PROJECT NAME 12900 Kachina Pl. N.E.

PROJECT NO. 00540

SUBJECT Orifice Computations

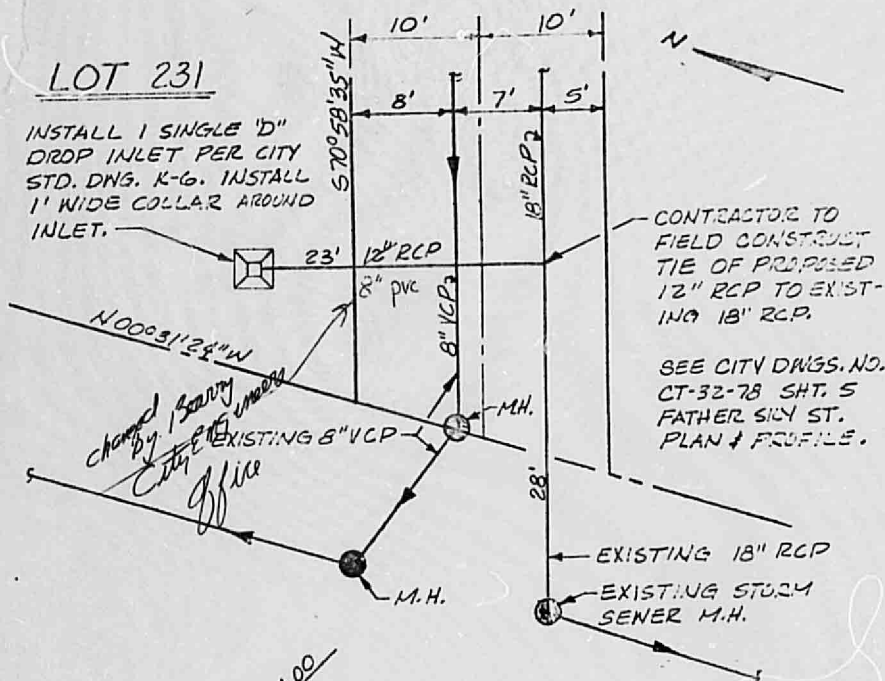
SHEET 2 OF 2

BY RM DATE 11/4/80

CHKD RM DATE 11/4/80

LOT 231

INSTALL 1 SINGLE "D"
DROP INLET PER CITY
STD. DNG. K-6. INSTALL
1' WIDE COLLAR AROUND
INLET.



CONTRACTOR TO
FIELD CONSTRUCT
TIE OF PROPOSED
12" RCP TO EXIST-
ING 18" RCP.

SEE CITY DNGS. NO.
CT-32-78 SHT. 5
FATHER SKY ST.
PLAN & PROFILE.

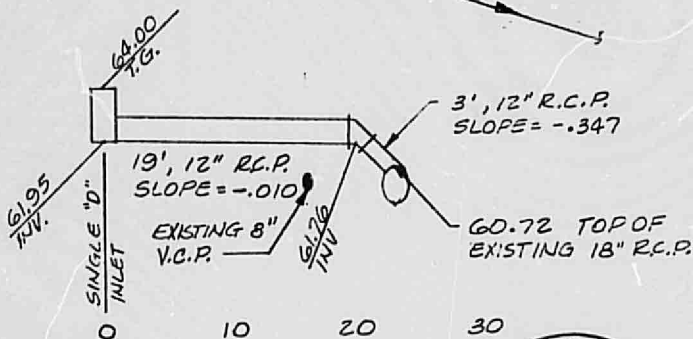
EXISTING 18" RCP

EXISTING STORM
SEWER M.H.

5865

5860

5855



SCALE:
HORZ. 1" = 10'
VERT. 1" = 5'



PROJECT NAME Kachina Hills Unit 1
PROJECT NO. 78-085
SUBJECT Lot 231, Drop Inlet

SHEET 1 OF 1
BY RM DATE 8-1-80
CH'D DATE



DRAINAGE REPORT

FOR

LOT 126

ZONE ATLAS SHEET H-25

MAY 1978

DRAINAGE REPORT

FOR

LOT 126

ZONE ATLAS SHEET H-23

MAY 1978

PREPARED FOR

SPROUL INVESTMENT CORPORATION
5115 Menaul Boulevard, N.E.
Albuquerque, New Mexico 87110

PREPARED BY

BOHANNAN-HUSTON, INC.
4125 Carlisle Boulevard, N.E.
Albuquerque, New Mexico 87107



Raymond W. Macy
RAYMOND W. MACY, P.E.
N.M.P.E. NO. 6414

TABLE OF CONTENTS

	<u>PAGE</u>
PURPOSE	1
EAST SECTION	
LOCATION & DESCRIPTION	1
DRAINAGE BEFORE DEVELOPMENT	2
DRAINAGE AFTER DEVELOPMENT	2
WEST SECTION	
LOCATION & DESCRIPTION	2
DRAINAGE BEFORE DEVELOPMENT	3
DRAINAGE AFTER DEVELOPMENT	3
RECOMMENDATIONS	
EAST	4
WEST	4

APPENDIX CALCULATIONS

PLATES

- PLATE I PROJECT LOCATION
PLATE II UNDEVELOPED & DEVELOPED RUNOFF

LOT 126
DRAINAGE REPORT

PURPOSE

The purpose of this report is to determine the storm water runoff from Lot 126 resulting from a 100-year frequency storm. Recommendations for development of the parcel are made with respect to controlling runoff.

Lot 126 is broken into two (2) sections, east and west, for purposes of this report as shown on Plate I. Drainage from each section is discussed separately.

EAST SECTION

LOCATION & DESCRIPTION

The east section of Lot 126 consists of about 3.0 acres bordered on the east by Monte Largo Drive, on the north by Rover Avenue, on the south by the Embudo Arroyo, and on the west by the west section of Lot 126, as shown on Plate II.

The natural ground slopes from east to west at about 6%. Natural soils are of decomposed granite. Vegetation consists of sparse amounts of native grasses and brush.

The proposed development is 10 single family units on the three (3) acre parcel.

DRAINAGE BEFORE DEVELOPMENT

By using the Rational Method, natural runoff from the land, during the 100-year storm, is calculated to be 5.58 CFS, as shown in the Appendix. This water travels to the west over Lot 126 and eventually into the Embudo.

DRAINAGE AFTER DEVELOPMENT

To maintain developed runoff at or below undeveloped runoff flows, lot ponding will be used to contain water from approximately half of the yard and roof area in each lot. The remainder of the water will flow onto Rover Avenue.

By the use of ponding, developed runoff is decreased to 3.74 CFS, about 1.8 CFS below pre-development runoffs.

WEST SECTION

LOCATION AND DESCRIPTION

The western section of Lot 126 is bordered on the north by Rover Avenue, on the east by the eastern section of Lot 126, on the south by the Embudo Arroyo and on the west by Tramway Boulevard, as shown on Plate II.

The natural ground slopes from east to west at about 5% and is made up mostly of decomposed granite. Vegetation consists of sparse amounts of native grasses and brush.

DRAINAGE BEFORE DEVELOPMENT

Again using the Rational Method, runoff for the west section was computed by dividing the area into three (3) smaller basins, (I, II & III on Plate II) and figuring the sum total runoff from all three. The total undeveloped 100-year storm expected runoff is about 11.1 CFS, which normally travels to the west and eventually into the Embudo.

DRAINAGE AFTER DEVELOPMENT

Runoff from the six (6) lots in the northwestern corner of Lot 126, Basin IV on Plate II, will be controlled by ponding water from half the roof area and the rear yard, with one 4-plex ponding water from the entire roof. The remaining runoff will flow to the adjacent street then on to Rover Avenue. In this manner, flows from this section are maintained at their pre-development rate of 4.23 CFS. Flows from the remaining 10 lots, Basin V on Plate II, will flow onto the street and be carried to the southwestern edge of the development where they will be removed by a double "C" inlet, enter an 18" RCP and be carried to the Embudo Arroyo. This runoff is increased from its undeveloped rate of 6.9 CFS to 9.8 CFS, which can be handled by the Embudo Arroyo due to downstream improvements, and also because of a decrease in runoff from the eastern section.

RECOMMENDATIONS (EAST)

1. Water from half the roof and lot area should be ponded on-site.
2. Grade lots to drain remaining runoff to flow onto Rover Avenue and Monte Largo Drive.

RECOMMENDATIONS (WEST)

1. Use on-lot ponding to contain water from half of the roof area of five (5) of the six (6) lots in the northwestern section, Basin IV and all of the water from one (1) 4-plex in this section. See Plate II.
2. Allow all runoff from the remaining ten (10) lots, Basin V, to flow onto the streets, and then to the southwestern corner of the area.
3. Install a double "C" inlet at the southwestern cul-de-sac to pick up street flows.
4. Convey flow from double "C" inlet to the Embudo Arroyo by an 18" RCP.
5. Construct water block at the east side entrance.

LOT 126 EAST

DEVELOPED RUNOFF

HALF OF EACH LOT AND EACH ROOFS
RUNOFF WILL BE PONDED ON THE LOT.

HARDENED SURFACES WILL BE ASSUMED
TO CONTRIBUTE TO THE PEAK RUNOFF,
WHILE VEGETATED AREAS WILL BE
ASSUMED NOT TO CONTRIBUTE TO

THE PEAK RUNOFF DUE TO A DIFFERENT
TIME OF CONCENTRATION.

TYPICAL LOT

ROOF AREA AVE. = 2485

DRIVEWAY AVE. 485

PROPORTION OF STREET 1450 FT²

ESPAVIA, (ACCOUNTS FOR
ALL PAVING) 4420 FT²

FOR 10 LOTS, TOTAL IMPERVIOUS

AREA = 10(4420) = 44,200 FT²

HALF OF ROOF AREA

IS BEING PONDED

ADJUSTED IMPERVIOUS

AREA

$44,200 - 10 \left(\frac{2485}{2} \right) = 36,775$

= .729 ACRES



PROJECT NAME LOT 126 (EAST)

PROJECT NO. 78-085

SUBJECT RUNOFF CONTROL

SHEET 2 OF 10

BY DWJ DATE 5-10-78

CH'D DATE

FOR DEVELOPED CONDITIONS THE
TIME OF CONCENTRATION IS EMPLOYED
AS LESS THAN 10 MINUTES. SO USE
A MINIMUM VALUE OF 10 MINUTES.

$$I = \frac{189}{10^{.25}} = 5.4$$

$$Q = CIA = .95(5.4)(.729) = 3.74 \text{ CFS}$$



PROJECT NAME LOT 126 (EAST)

PROJECT NO. 78-085

SUBJECT PONDING CONTROL

SHEET 3 OF 10

BY D Wood DATE 5-10-78

CH'D _____ DATE _____

LOT 126 (WEST)

UPPER BASIN I

AREA = 1.41 ACRES

B = 1.7

LENGTH = 530

Δ ELEV. = 5891 - 5864 = 30

SLOPE = $\frac{30}{530} = 5.6\%$

$$T_c = 2.06^{-1} [0.361(0) + 0.385 \log(4) + 0.197 \log(5) + 0.3612]$$

$T_c = 14.46$

$I = 139$

$T_c + 2.5 = 4.77$

$$Q = CIA = (0.4)(4.77)(1.41) = 2.70 \text{ CFS}$$

MIDDLE BASIN II

AREA = 3.08 ACRES

LENGTH = 611 FT

Δ ELEV. = 5945 - 5935 = 31.5

SLOPE = $\frac{31.5}{611} = 5.17\%$

$T_c = 15.56$

$I = 4.66$

$$Q = CIA = .4(4.66)(3.08) = 5.74 \text{ CFS}$$

LOWER BASIN III

AREA = 1.33 ACRES

LENGTH = 390 FT

Δ ELEV. = 5887 - 5860 = 27

SLOPE = $\frac{27}{390} = 6.9\%$

$T_c = 13.33$

$I = 5.06$

$$Q = CIA = .4(5.06)(1.33) = 2.69$$



PROJECT NAME LOT 126 (WEST) SHEET 4 OF 10
 PROJECT NO. TR-085 BY DW000 DATE 5-11-78
 SUBJECT RUNOFF CONTROL CH'D _____ DATE _____

TOTAL RUNOFF FOR ENTIRE AREA
 $2.70 + 5.74 + 2.69 = 11.13$ CFS



PROJECT NAME LOT 126 (WEST) SHEET 5 OF 10
PROJECT NO. 78-085 BY D. W. H. DATE 5-11-78
SUBJECT RUNOFF CONTROL CH'D _____ DATE _____

TYPICAL LOT INCLUDING HALF OF STREET

HARDENED SURFACES:

4-PLEX

LIVING AREAS & GARAGE

3875 FT²

PARKING

1590 FT²

DRIVEWAY

357 FT²

SIDEWALK $\frac{1}{2}$ STREET

2353 FT²

PATIO SIDEWALK

200 FT²

TOTAL

8355 FT²

TOTAL LOT SIZE

13860 FT²

HARDENED SURFACES

(TRI-PLEX)

LIVING AREAS

3186 FT²

PARKING

1496

DRIVEWAY

450

ENTRANCE SIDEWALK

240

SIDEWALK $\frac{1}{2}$ STREET

2426

7798

TOTAL LOT SIZE

INCLUDING $\frac{1}{2}$ STREET

13700 FT²



PROJECT NAME LOT 126 (WEST) SHEET 6 OF 10
PROJECT NO. 72-035 BY DWID DATE 5-11-78
SUBJECT RUNOFF CONTROL CH'D _____ DATE _____

SIX LOTS IN NORTHWEST CORNER (SEE PLATE II
BASIN II)

AREA = 2.12 ACRES

LENGTH = 428 FT.

ELEVATION = 5894 - 5863.5 = 30.5 FT.

SLOPE = $\frac{30.5}{428} = 6.97\%$

$T_c = 12.86$ MIN.

$W/E = 1.7$

$I = 4.99$ IN/H.

$Q_u = C_1 A = (.4)(4.99)(2.12) = 4.23$ CFS

FOR UNDEVELOPED CONDITIONS

FOR DEVELOPED CONDITIONS:

TYPICAL IMPERVIOUS AREA FOR

4-PLEX LOT 8355 FT²

ROOF AREA 3875 FT²

THE NORTHWEST CORNER OF THE

LOT HAS 3 4-PLEX LOTS, DRAIN

HALF OF THE ROOF AREA OF 2

4-PLEXES AND THE ENTIRE ROOF

AREA OF THE THIRD 4-PLEX TO

A REAR POND AREA.

IMPERVIOUS 4-PLEX AREA

$3(8355) - 2\left(\frac{1}{2}\right)(3875) - 1(3875)$

$= 17,315$ FT² = .397 ACRES



PROJECT NAME LOT 126 (WEST)

SHEET 7 OF 10

PROJECT NO. 72-025

BY D WOOD DATE 5-11-78

SUBJECT RUNOFF CONTROL

CH'D DATE

FOR THE THREE TRI-PIECES, THE
TYPICAL IMPERVIOUS AREA IS 7798 FT²
WITH THE ROOF AREA BEING 3186 FT²

EACH OF THESE LOTS WILL
DRAIN HALF OF THE ROOF
AREA TO A REAR YARD:

TOTAL NON POROUS AREA:

$$3(7798) - 3\left(\frac{3186}{2}\right) = 18615 \text{ FT}^2 \\ = .427 \text{ ACRES}$$

$$T_c = \log^{-1} \left[(.3671(.77) + .3854 \log(427) - .197 \log(6.77) \right. \\ \left. - .3613 \right]$$

$T_c = 5.9 \text{ min.}$, SO USE 10 MINUTES MINIMUM:

$$I = \frac{1.48}{.25 + 10} = 5.4 \text{ IN/HR}$$

TOTAL AREA (IMPERVIOUS)

$$.397 + .427 = .824$$

$$Q = CIA = (.95)(5.4)(.824) = 4.23 \text{ CFS}$$



PROJECT NAME LOT 126 (WEST) SHEET 8 OF 10
PROJECT NO. 78-025 BY D. Wood DATE 5-11-78
SUBJECT RUNOFF CONTROL CH'D _____ DATE _____

RUNOFF FROM ALL OTHER LOTS
EXCLUDING 6 NORTHWESTERN LOTS
(SEE PLATE II BASIN I)

UNDEVELOPED CONDITIONS

$$11.13 - 4.23 = \underline{6.90 \text{ CFS}}$$

FOR DEVELOPED CONDITIONS

$$\text{AREA} = 10 \text{ LOTS} (8355) = 83550 \text{ FT}^2 = 1.92 \text{ AC}$$

$$\text{LENGTH} = 765 \text{ FT}$$

$$\Delta \text{ ELEVATION} = 5894 - 5860 = 34 \text{ FT.}$$

$$\text{SLOPE} = \frac{34}{765} = 4.44$$

$$\text{GROUND FACTOR } B = .77$$

$$T_c = 8.00$$

USE 10 MINUTES MINIMUM

$$I = \frac{180}{T_c} = 5.4 \text{ IN/HR}$$

$$Q = CIA = .95 (5.4) (1.92) = \underline{9.85 \text{ CFS}}$$

INCREASE OF 2.95 CFS



PROJECT NAME LOT 136 (WEST)

SHEET 9 OF 10

PROJECT NO. 78-035

BY D. Wood DATE 5-11-78

SUBJECT RUNOFF CONTROL

CH'D _____ DATE _____

USE A DOUBLE 'C' INLET TO CARRY
9.85 CFS FLOW FROM STREET.

FOR $n = .015$, AN 18" RCP CAN CARRY
THE FLOW AT A 1% SLOPE

A 15" RCP CAN CARRY THE FLOW AT A
SLOPE OF 2.4%.

FOR THE 15" PIPE AN INLET HEAD
OF $2.4 \left(\frac{15}{12} \right) = 3.5$ FT.

FOR THE 18" PIPE NEED AN INLET HEAD
OF $\left(\frac{18}{12} \right) (1.5) = 2.25$ FT. ← USE

ASSUMING A STREET GRATE ELEVATION
OF 1.5' BELOW PRESENT ELEVATION.

GRATE ELEVATION $5864 - 1.5 = 5862.5'$

ASSUMING PIPE 10' WEST OF PROPERTY
LINE CHANNEL INLET AT THIS POINT

IS 5856.4

PIPE LENGTH IS ABOUT 260'

DESIGN PIPE INVERT IN CHANNEL
AT ABOUT 1.75' ABOVE BOTTOM

IN AT ABOUT $5856.4 + 1.75 = 5857.9$

Δ ELEVATION $5862.5 - 5857.9 = 4.6'$

HEAD REQUIRED IS 2.8 FEET SO THIS IS OK



PROJECT NAME LOT 126 (WEST)

PROJECT NO. 78-025

SUBJECT RAILROAD CONTROL

SHEET 10 OF 10

BY DWG DATE 5-11-72

CH'D DATE

