DRAINAGE REPORT

FOR

LAND OF PETE DASKALOS

AND

LAND OF ELMER SPROUL

ZONE ATLAS SHEET K-23

FEBRUARY, 1978

PREPARED FOR

PETE DASKALOS
5321 Menaul Blvd., N.E.
Albuquerque, New Mexico 87110

AND

ELMER SPROUL
5115 Menaul Blvd., N.E.
Albuquerque, New Mexico 87110

PREPARED BY

BOHANNAN-HUSTON, INC.
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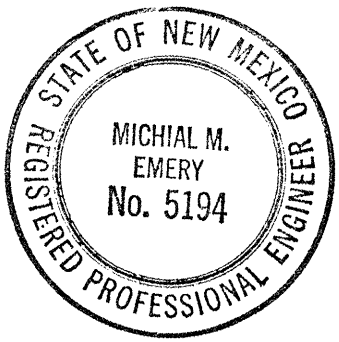

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DRAINAGE REPORT
FOR
LAND OF PETE DASKALOS
AND
LAND OF ELMER SPROUL

PURPOSE

The purpose of this report is to examine the existing drainage conditions affecting the study parcels and to make recommendations for the development of the parcels so that the provisions of the 1972 AMAFCA Drainage Resolution shall be met for 100-year-frequency storm conditions.

PROJECT LOCATION AND DESCRIPTION

The Daskalos property consists of approximately 25 acres in Northeast Albuquerque, bounded by Ciudad Vista Subdivision on the west, City View Estates on the south, the Sproul property on the north, and the proposed Scenic Drive on the east. The proposed development consists of 78 R-1 lots. Typical lot size is 75'x110', and single-family dwellings averaging 2,400 sf are expected.

The Sproul property is approximately 12 acres bordered by the Daskalos property on the south, by the proposed Upper Lomas Channel on the north, and by Ciudad Vista Subdivision on the west. A development consisting of 9 custom lots is proposed for the parcel.

UNDEVELOPED HYDROLOGY

The soil is primarily decomposed granite with several large outcroppings of rock. The Sproul property is largely such outcroppings. Rocky areas are shaded on Plate 2. A runoff

factor of C=0.90 was used for rocky areas in undeveloped condition. Calculations are provided in the Appendix.

Construction of the Upper Lomas Channel will be under way before commencement of construction on the study parcels. This will eliminate all but the immediate upland runoff contributions for the parcels.

Drainage for the Daskalos property is defined in four basins as shown on Plate 1. Basin 3C is actually on Sproul property but contributes 10.7 cfs as upland runoff to the Daskalos property. A 100-year storm releases approximately 65.5 cfs from the Daskalos property and its upland basins in undeveloped condition. The existing outlets are at Oro Real Drive and the south property line, proposed Marquette Drive at the west property line, and a 40-foot drainage and utility easement connecting the parcel to Ciudad Vista Subdivision. These three points will be retained as release points for developed drainage.

The Sproul property, in addition to its contribution to Daskalos runoff, contains two basins, Basin 5 and Basin 6, shown on Plate 1. Due to the rocky and steep nature of the property, the 9.5 acres release approximately 41 cfs to the north and west.

DEVELOPED RUNOFF

Development on the study parcels will be single-family residential. Lots that occur on rock outcroppings will not be ponded since "C" development on already hardened surfaces does not increase the runoff. These lots are shaded on Plate 2.

All other lots will pond runoff from the center of the roof to the back yard. Runoff for ponded lots was computed using an

accepted method of assuming that landscaped areas do not contribute to the storm peak and assigning a runoff factor C=1.0 to all hardened surfaces. This applies to 71 of 78 lots on the Daskalos property.

Upland runoff will be intercepted by a temporary swale and desilting basin in the Scenic Drive right-of-way. The desilting basin will be constructed with an outflow weir located to release desilted upland flows into a 10-foot drainage easement and onto Daskalos Drive. Details regarding the swale and basin are provided in the Appendix and on Plate 2. As Scenic Drive is completed, a dip section will be constructed to release flows into the 10-foot drainage easement.

Construction of the swale along Scenic Drive and development of the Daskalos property will redefine the natural basins 1, 2, and 3. The majority of the development will drain as Basin 3, whose release point is a 40-foot drainage and utility easement at the west property line. This easement coincides with a 40-foot easement between Lots 5 and 6 of Block 2 in the Ciudad Vista Subdivision. The easement will release flows onto Turner Drive with turning vanes to direct the flow. This basin definition and release point serve the advantage of reducing the amount of runoff released at the Turner Drive-Marquette Drive intersection and at Oro Real and the south property line where street capacities are less. To insure this flow pattern, waterblocks will be constructed on Marquette Drive and Oro Real Drive as shown on Plate 2.

Drainage on the Sproul property will remain natural with the exception of a bar-ditch type swale along the proposed private drive to direct half of Basin 3C flows onto Daskalos Drive.

The remaining 5.4 cfs from Basin 3C will travel west along a 2-foot high retaining wall at the Daskalos north property line to a 10-foot drainage easement at the Daskalos west property line, which will conduct it to the release point for Basin 3.

Ten-foot drainage easements along the Daskalos west property line will conduct flows from Basin 4 to Basin 2 and Basin 3 release points as shown on Plate 2.

Total developed runoff for the Daskalos property is approximately 62.1 cfs for a 100-year storm as compared to 65.5 cfs in the undeveloped condition.

Developed runoff for the Sproul property, Basins 5 and 6, remains at approximately 41 cfs, its undeveloped rate for a 100-year storm.

CONCLUSION

The development proposed for the Sproul property will not increase runoff for the 100-year-frequency storm. No ponding is required for this development.

Development of the Daskalos property with the recommended drainage improvements will not increase the 100-year storm runoff. Due to the computed decrease in runoff, eight additional lots may be developed without ponding. Developed runoff would then equal undeveloped runoff for the 100-year storm.

RECOMMENDATIONS

1. Construct a temporary swale and desilting basin with weir in the Scenic Drive right-of-way as shown on Plate 2 and described in the Appendix.

2. When Scenic Drive is completed, a dip section should replace the desilting basin and weir.

3. Construct 10-foot drainage easements on the Daskalos property in the locations shown on Plate 2.

4. Construct waterblocks on Marquette Drive and Oro Real Drive as shown on Plate 2.

5. Provide back yard ponding from the centerline of roofs on at least 63 lots of the Daskalos development.

6. Construct a curb opening in the Oro Real Drive cul-de-sac and a drainage easement in the 40-foot drainage and utility easement as shown on Plate 2.

7. Construct a bar-ditch type swale along the south edge of the private drive on the Sproul property to release flows into the Daskalos Drive cul-de-sac.

8. Construct 2-foot high retaining wall along the Sproul-Daskalos property line from Daskalos Drive to the Daskalos west property line as shown on Plate 2.

BASIN		UPLAND	INTERIOR	
1	AREA	2.02 acre	4.53	
	L= LENGTH	400 ft	1300'	
	ΔH	36 ft	86'	
	S= SLOPE	9.0%	6.62	
	B= GROUND FACTOR	1.8		
	$T_c = \text{Log}^{-1}[.3641 B + .3854 \text{Log}(L) - .191 \text{Log}(S) - .3613]$	12.85 min	21.5 min	
	$I = \frac{189}{25+T_c}$	4.99	4.06	
	C factor	0.35	0.35	
	Q=CIA	3.5 cfs	5.8 cfs	
2			(2)	(4)
	AREA	1.89 ac	6.6 ac	1.9
	L	300'	1060'	200'
	ΔH	34'	78'	55'
	S	11.3%	7.36%	27.5%
	B	1.3	1.8	1.8
	T_c	11.0 min	19.47 min	10 min
	I	5.25 in/hr	4.25	5.40
	C	0.35	0.35	0.90 (rock)
	Q	3.5 cfs	12.5 cfs	6.8 cfs

BOHANNAN HUSTON INC.

PROJECT NAME DACK ALOS SHEET ____ OF ____

PROJECT NO. 78-017 BY JLP DATE 2/6/78

SUBJECT UNDEVELOPED RUNOFF CH'D ____ DATE ____

BASIN		UPLAND		INTERIOR	
		b	c		
3	Area	4.60	2.48	11.77	
	L	400	650'	920'	
	ΔH	28'	82	70'	
	S	7%	13%	8%	
	B	1.8	1.8	1.8	
	Tc	13.5	14.41	18.13	
	I	4.91	4.80	4.38	
	C	.35	.90 (rock)	.35	
	Q	7.90	10.7	18.2	← TOTAL 65.3 cfs
5	A			4.92	
	L			650	
	ΔH			107'	
	S			16.5%	
	B			1.8	
	Tc			13.75	
	I			4.88	
	C			0.90 (rock)	
	Q			21.6 cfs	
6	A			4.47 ac	
	L			650'	
	ΔH			87	
	S			13%	
	B			1.8	
	Tc			14.41 min	
	I			4.80	
	C			0.90 (rock)	
	Q			19.4 cfs	

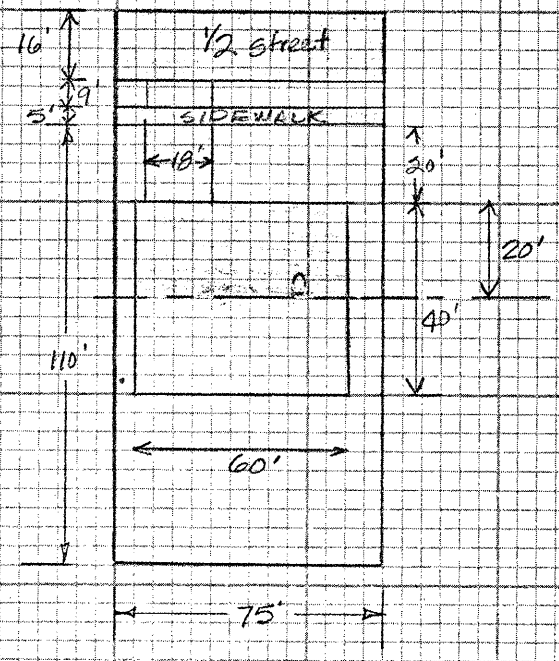
BOHANNAN HUSTON INC.

PROJECT NAME DRY CREEK SHEET 2 OF

PROJECT NO. 78-017 BY RJP DATE 2/6/78

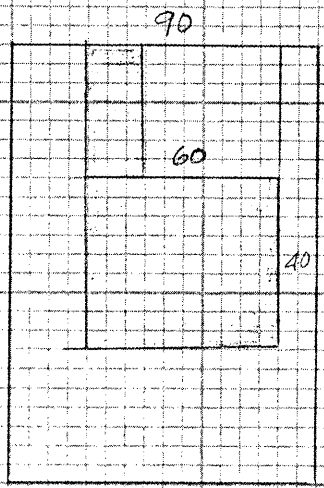
SUBJECT UNDEVELOPED RUNOFF CH'D DATE

TYPICAL LOT



10 x 75 = 1200
18 x 9 = 162
5 x 75 = 375
18 x 20 = 360
20 x 60 = 1200
3297. ft²
@ C=1.0

TYP. LOT IN BASIN 2a (see Plate 2)



Primarily Rock

C=0.90 undeveloped
4800 @ C=.9
2400 sf house = 0.24
20x30 driveway 0.06
40x30 landscaped .05
no pending
C developed = 0.83

PROJECT NAME _____ SHEET _____ OF _____
PROJECT NO. _____ BY _____ DATE _____
SUBJECT _____ CH'D _____ DATE _____

BASIN 1. 3297 ft²

$T_C = 10$ (minimum)

$I = 5.4$

$C = 1.0$

$Q = 0.41$ cfs

1 lot

BASIN 2. 7 lots x 3297 = 0.53 ac

$T_C = 10$

$I = 5.4$

$C = 1.0$

$Q = 2.9$ cfs

(A) $A = 1.4$ ac

$T_C = 10$ min

$I = 5.40$

$C = 0.83$

$Q = 6.3$ cfs

BASIN 3. $A = (68 \times 3297\ SF) = 5.15$ acres

$L = 1300'$

$\Delta = 30$

$S = 4.4\%$

$B = 0.77$

$T_C = 11.14$

$I = 5.23$

68 lots

$C = 1.0$

$Q = 26.92$ cfs

$Q_{Developed} = 27.7 + 10.0 + 0.41 +$

$3.5 + 3.5 + 7.9 + 10.7 = 62.1$

(3.5 + 3.5 + 7.9 + 10.7 = upland)

PROJECT NAME DASKALOS PROPERTY

PROJECT NO. 78-017

SUBJECT DEVELOPED RUNOFF

SHEET ____ OF ____

BY JR. DATE 2/6/78

CH'D ____ DATE ____

BOHANNAN HUSTON INC.

SWALE ALONG SCENIC DRIVE

To carry 15 cfs

Min. 8' bottom

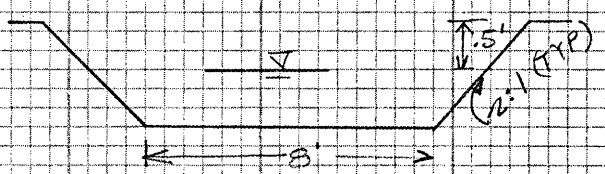
2:1 Sideslopes

Solve for depth by Mannings Formula

channel slope 4.5% d=.38' V=4.5 fps FR=1.34

½% d=.73' V=2.2 FR=.48

depth 1.25'
to allow .5'
freeboard



DESILTING BASIN - SCENIC DR.

70' wide weir discharging 15 cfs → H = 0.7'

silt settling velocity 4"/min

Q_a = 10 cfs

settling time $\frac{0.70'}{4''/\text{min}} \times \frac{12''}{1'} = 2.1$ min

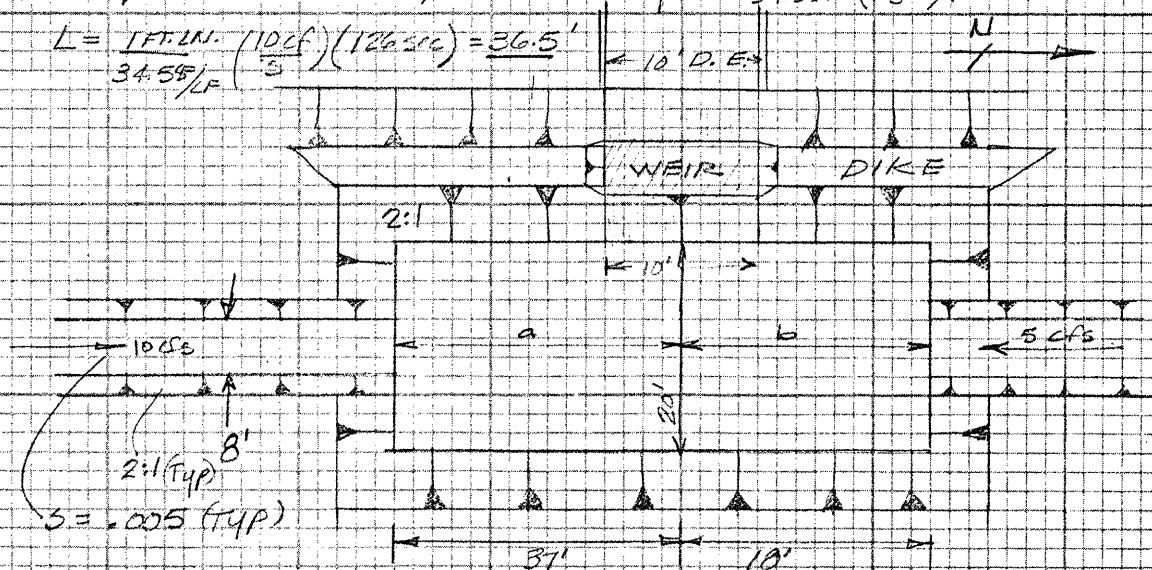
flow depth 1.5' Area SF/LF 34.5

$L = \frac{1 \text{ FT. LN.}}{34.5 \text{ SF/LF}} \left(\frac{10 \text{ cf}}{\text{s}}\right)(126 \text{ sec}) = 36.5'$

Q_b = 5 cfs

settling time $\frac{0.70'}{.33'/\text{m}} = 2.1$ min

$L = \frac{1 \text{ LF}}{34.5 \text{ SF}} \left(\frac{5 \text{ cf}}{\text{s}}\right)(126 \text{ sec}) = 18.2'$



PROJECT NAME DACKALOS PROPERTY SHEET ____ OF ____

PROJECT NO. 78-017 BY ____ DATE ____

From Sta. 18+50 to North Boundary of tract (approx. 100') Transition from standard channel section to existing ground.

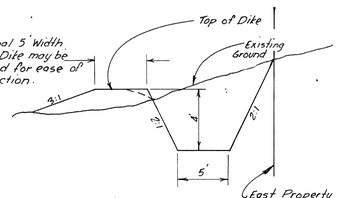
From Sta. 21+50 to north boundary of tract. Channel constr. will occur within the dedicated Lomas Upper Channel Drainage Right-of Way.

DESIGN OF CHANNEL AS PER LOMAS BASIN DESIGN

All bladed earth from channel shall be piled along west edge of channel from Sta. 21+30.00 to Sta. 28+82 the east edge of the channel top lies along the East Boundary line of the tract.

Sta. 28+82 to Sta. 29+14, 32' transition to tie standard channel to existing channel @ 28+82 channel 4 deep, bottom 5' wide inv. 5884.57 to Sta. 29+14 channel 5 deep, bottom 10' wide, inv. 5884.00

Nominal 5' Width Top of Dike may be rounded for ease of construction.



SECTION C-C
NO SCALE (TYP)

Transition Section
PI 18+94.57
Δ 34° 51' 04"
D 09° 01' 02"
R 635.40
T 140.00
L 275.60

PC Sta 17+54.54
PT Sta 20+30.14

PETE DASKALOS HEIGHTS ADDITION

UPPER DIVERSION CHANNEL

ALBUQUERQUE, NEW MEXICO

Project No.		Date	Revision
Seal			
Job No. 78-017	Sheet Of		
Drawn By: JRJ	Date: MAR. 1978		
Checked By: MJI	Scale: 1"=50'		

N44104

DEVELOPMENT PLAN
LAND OF PETE DASKALOS
ALBUQUERQUE, NEW MEXICO

SCALE: 1" = 100' JULY 1977

LAND OF ELMER SPROUL

BASIN 5

BASIN 6

BASIN 3

BASIN 4

BASIN 2

BASIN 1

4.92 acres
21.6 CFS

4.47 acres
19.4 CFS

C 2.48 acres
10.7 CFS

A 11.7 acres
18.2 CFS

B 4.60 acres
7.9 CFS

A 8.03 acres
12.5 CFS

B 1.89 acres
3.5 CFS

A 4.53 acres
5.8 CFS

B 2.02 acres
3.5 CFS

Q = 40.1 CFS UNDEVELOPED

Q = 19.4 CFS UNDEVELOPED

Q = 6.8 CFS UNDEVELOPED

3.4 CFS

3.4 CFS

Q = 9.3 CFS UNDEVELOPED

MONTE LARGO DRIVE

UPPER LOMAS DRIVE

SCENIC CHANNEL DRIVE

DASKALOS DRIVE

REAL ORO DRIVE

MARQUETTE DR.

TURNER CT.

TURNER DR.

MATIA COURT

SOULA DRIVE

MARQUETTE DR.

NAMBE AVE.

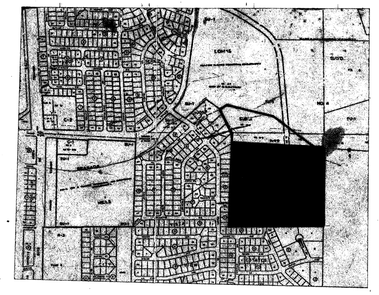
ZONE 9E

ZONE 8E

CIUDAD VISTA
(FILED AUGUST 8, 1973)

CITY VIEW ESTATES UNIT D
(FILED APRIL 30, 1976) 6

PLATE 1
UNDEVELOPED RUNOFF



VICINITY MAP
NO SCALE
ZONE ATLAS SHEET NO.

Owner:
Pete Daskalos
5321 Menaul N.E.
Albuquerque, New Mexico

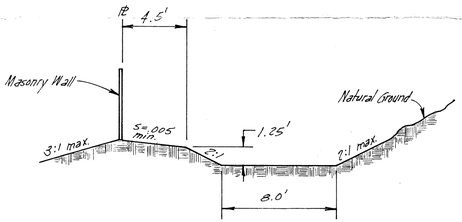
Agent:
Bohannan-Huston Inc.
4125 Carlisle Blvd. N.E.
Albuquerque, New Mexico
87107

78-017

BOHANNAN WESTMAN HUSTON

—LEGEND—

- Retaining Wall
- Masonry Wall
- Flow Path
- (2) Block Number
- P=56.8 House Pad Elevation
- (14) Lot Number
- 51% Slope Break W/Elevation
- .44% Spot Elevation
- 3:1 Slope Area
- BO 43.4 Pond Bottom Elevation



SECTION A-A

No Scale

Project No.	GRADING PLAN
Seal	ALBUQUERQUE, NEW MEXICO
Job No. 78-017	Sheet Of
Drawn By: JRJ	Date: MAR.1978
Checked By: MJI	Scale: 1"=50'

Date Revision By