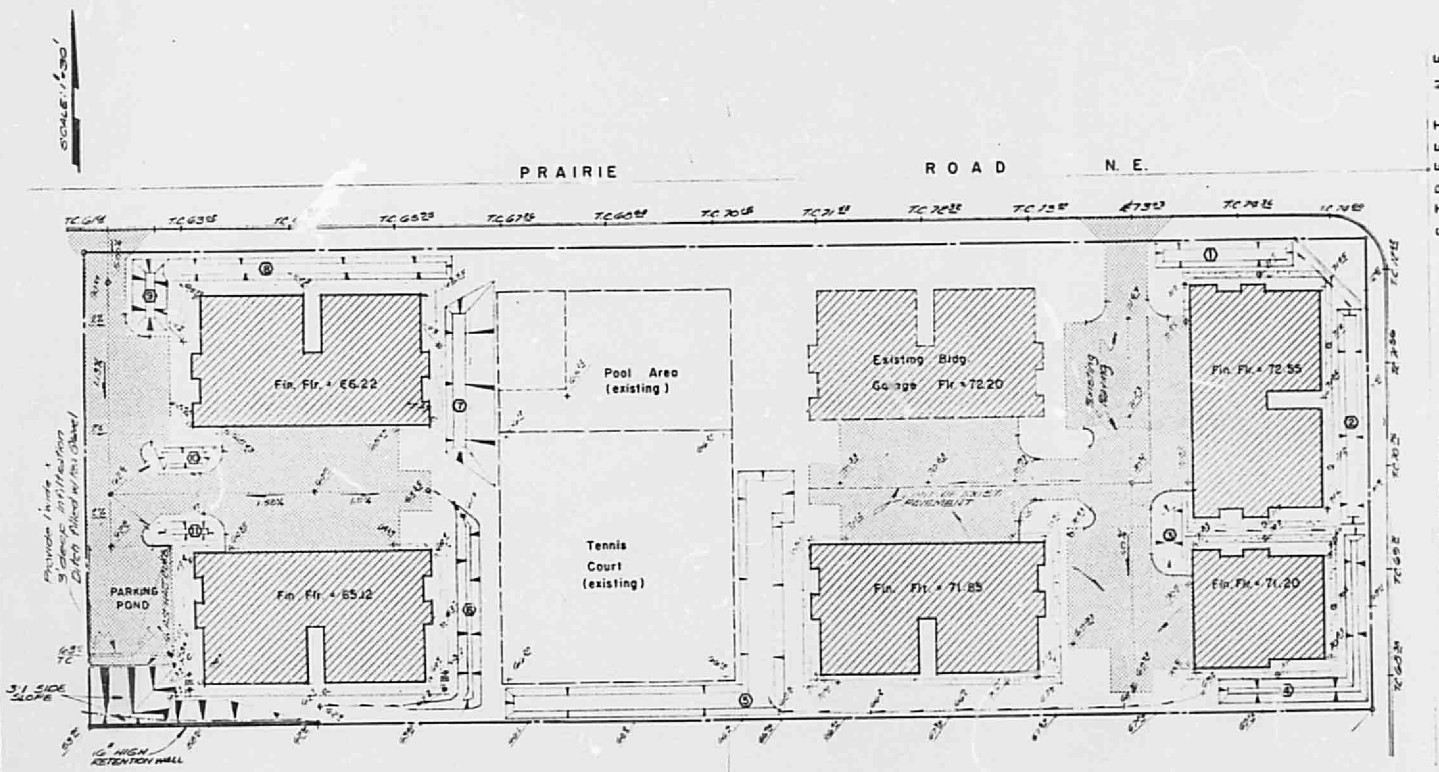
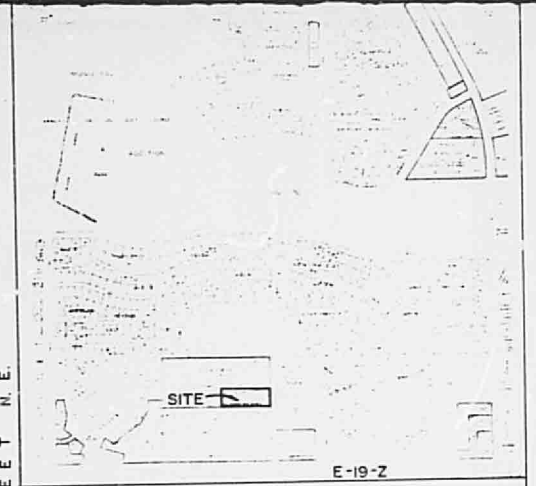
HYDROLOGY F19/D6b ONE PLAN

F19/D6b

1 Plan





VICINITY MAP

POND DATA			
POND Nº ○	BERM ELEV	BOTTOM ELEV	VOLUME
①	71.0	70.0	517 ft³
②	70.0	69.0	873 ft³
③	70.4	69.7	167 ft³
④	69.0	68.0	873 ft³
⑤	66.0	64.5	4786 ft³
⑥	62.5	61.0	853 ft³
⑦	64.3	63.3	639 ft³
⑧	64.0	63.0	1026 ft³
⑨	64.0	62.0	621 ft³
⑩	62.5	61.5	150 ft³
⑪	62.5	61.5	160 ft³
Parking Pond	63.0	61.0	2760 ft³

LEGEND

- Proposed Building
- Proposed Asphalt Paving
- Proposed Concrete Walkways
- Grass & Landscape
- Pond
  - Top of Berm
  - 3:1 Side Slopes
- Existing Elevation
- Proposed Elevation

Approval _____ Hydrology Engineer

Date _____

LITTLE TURTLE TOWN HOMES

GRADING PLAN

478-4
MAY 1978
1 2

Area	Roof	Paving	Grass	Total
1	810	0	1869	2,679 s.f.
2	1321	0	3140	4,461 s.f.
3	1216	0	1533	2,749 s.f.
4	1542		2600	4,142 s.f.
5	1542	37,734	1716	41,992 s.f.
6	5,400	5,319	1,318	12,037 s.f.
7	1,104	9,240	1,440	11,784 s.f.
8 & 9	1,179	0	1,473	2,652 s.f.
10	936	5,721	678	7,335 s.f.
11	1,542	5,367	1,350	8,259 s.f.
12	0	1,706	0	
13			1,465	

2. Determine Runoff Coefficient

Runoff Coefficient for Grass = 0.20

for Concrete = 0.90

for roof = 0.90

Calculation Composite C:

Area 1: 810 + 2619 (.9) = 0.28
2619 + 2619 (.2) = 0.14
C_1 = 0.42

Area 2: 1321 + 6421 (.9) = 0.46
3150 + 6421 (.2) = 0.10
C_2 = 0.56

Area 3: 616 + 1719 (.9) = 0.45
1215 + 1719 (.2) = 0.14
C_3 = 0.60

Area 4: 1542 + 1117 (.9) = 0.31
1542 + 1117 (.2) = 0.13
C_4 = 0.44

Area 5: 9240 + 43416 (.9) = 0.19
22140 + 43416 (.9) = 0.46
12196 + 43416 (.2) = 0.70

Area 6: 1068 + 12737 (.9) = 0.09
2709 + 12737 (.9) = 0.19
5949 + 12737 (.2) = 0.23
C_6 = 0.57

Area 7: 816 + 11406 (0.9) = 0.08
6600 + 11406 (0.9) = 0.52
3960 + 11406 (0.2) = 0.07
C_7 = 0.66

Area 8 & 9: 1179 + 7791 (.9) = 0.15
1473 + 7791 (.2) = 0.38
C_8 = 0.53

Area 10: 936 + 6675 (.9) = 0.13
5004 + 6675 (.9) = 0.67
675 + 6675 (.2) = 0.02
C_{10} = 0.82

Area 11: 1076 + 6609 (.9) = 0.41
2367 + 6609 (.9) = 0.31
1350 + 6609 (.2) = 0.04
C_{11} = .76

Pond C = 0.90

3:1 Slope C = 0.

3. Calculate volumes

Area 1 Volume = (0.42) (7.5 in) ÷ 12 in/ft = 229 c.f.

Area 2 Volume = 755 c.f.

Area 3 Volume = 143 c.f.

Area 4 Volume = 506 c.f.

Area 5 Volume = 6332 c.f.
Area 5 Volume = 7345 c.f.

Area 6 Volume = 1510 c.f.

Area 7 Volume = 1166 c.f.

Area 8 & 9 Volume = 849 c.f.

Area 10 Volume = 1144 c.f.

Area 11 Volume = 1077 c.f.
Area 10 & 11 Volume
= 2221 c.f.
X = 6477 c.f.

4. Determine flow rate of undeveloped site for 100 year - 6 hour storm

A. Area 1, 2, 3, 4, 5

Determine C:

1600 s.f. of tennis court X C= 0.9
6534 s.f. of pavement X C=0.9
3890 s.f. of roof X C = 0.9
35,475 s.f. of grass & landscaping X C = 0.20
Total Area = 47,738 s.f.

1600 / 47738 (.90) = 0.03
6534 / 47738 (.90) = 0.12
3890 / 47738 (.90) = 0.05
35475 / 47738 (.20) = 0.14

Composite C = 0.40

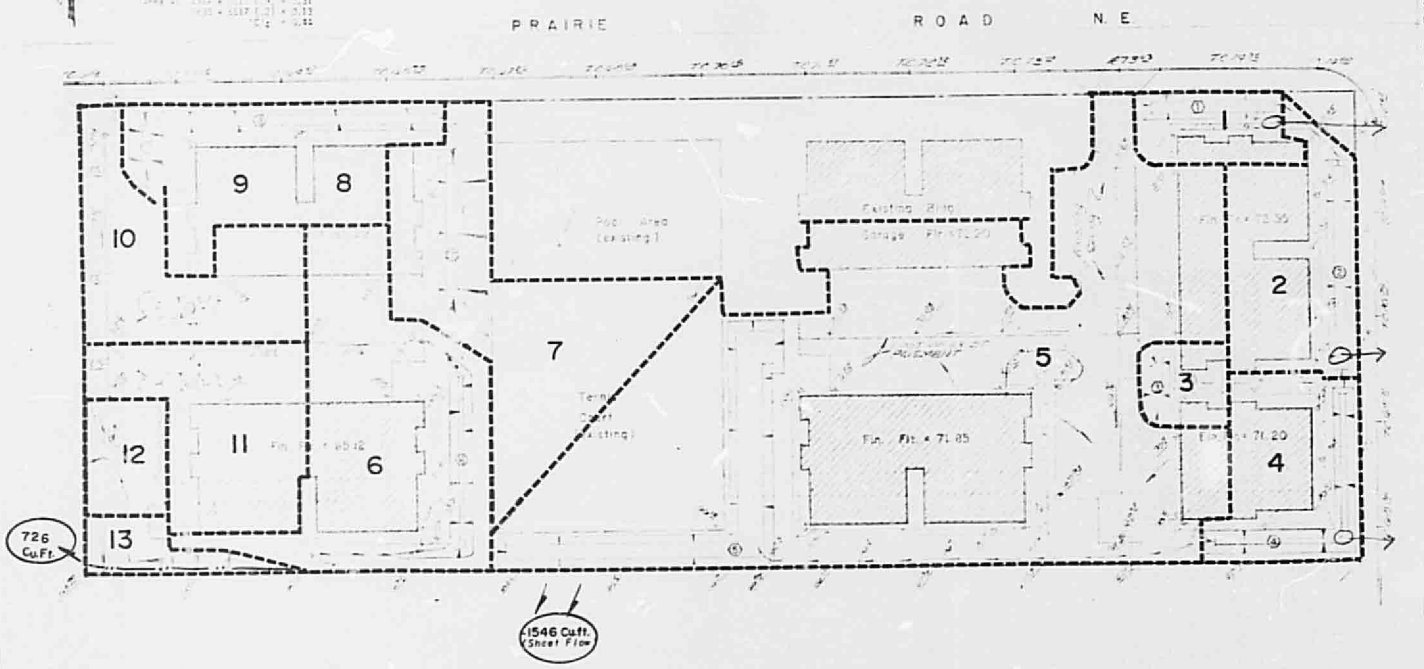
Undeveloped value for Areas 1, 2, 3, 4, 5 =
(0.40) (7.5 in) (47,738 s.f.) ÷ 12 in/ft = 3975 c.f.

B. Areas 6, 7, 8, 9, 10, 11, 12, and 13.
Determine C:
1600 s.f. of tennis courts X C=0.90
37470 s.f. of grass and landscaping X C = 0.2
Total Area = 44,070 s.f.

1600 / 44070 (.90) = 0.13
37470 / 44070 (.20) = 0.17
Composite = 0.30

Undeveloped value of Areas 6, 7, 8, 9, 10, 11, 12 and 13 =
(0.30 (7.5 in) (44070 c.f.) ÷ 12 in/ft

Volume = 2756 c.f.



LITTLE TURTLE TOWN HOMES

DRAINAGE STUDY

JOB NO. 478-4
DATE MAY 1978
SHEET 2 OF 2

See also
Tierra Encantada
Tonar Lane

A DRAINAGE ANALYSIS

FOR

A PORTION OF

LITTLE TURTLE TOWNHOUSES

INTRODUCTION

The purpose of this study is to analyze the 100-year storm drainage characteristics of a portion of a proposed townhouse development called Little Turtle Townhomes. The overall Little Turtle site is located north of Montgomery Boulevard, N.E., off of Pennsylvania Street, N.E. (Zone Atlas #F-19-Z). This report is concerned only with the Southeast Quarter of the Little Turtle tract, and will hereafter be referred to as the "Site".

General information concerning the site is as follows: The general direction of land slope is to the southwest; the site is isolated from offsite flows because of bordering streets - Prairie Road on the North, and Pennsylvania Street on the east; natural runoff from the site empties onto open undeveloped land to the south and west; the site is undeveloped with the exception of an existing building, a small portion of paved parking, a tennis court, and a pool area.

DRAINAGE RESULTS

If the reader will refer to the Grading Plan and the Drainage Plat, the flow patterns for the area will become apparent.

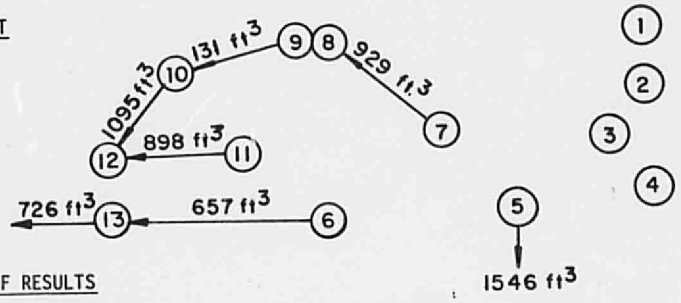
First, consider the existing improvements. The north portion of the existing building and the pool area are excluded from this report because this area presently is self-contained, drainage-wise, and will not interact with the remainder of the site. The remainder of building, the parking area, and the tennis court, are all accounted for in the report.

The general concept for handling internal flows is as follows: each sub-area will have its own ponding area, with interaction between some sub-areas which will allow flows from one pond to cascade into another pond of greater capacity.

Specifically, the following flow patterns occur:

AREA	POND CAPACITY	ESTIMATED RUNOFF VOLUME	COMMENTS
1	517 Ft.^{3}	229 Ft.^{3}	Area 1 self-contained
2	878 Ft.^{3}	755 Ft.^{3}	Area 2 self-contained
3	167 Ft.^{3}	143 Ft.^{3}	Area 3 self-contained
4	873 Ft.^{3}	506 Ft.^{3}	Area 4 self-contained
5	4786 Ft.^{3}	6332 Ft.^{3}	Area 5 will overflow 1546 Ft.^{3} to the South
6	853 Ft.^{3}	1510 Ft.^{3}	Area 6 will overflow 657 Ft.^{3} to the West through Area 13
7	639 Ft.^{3}	1568 Ft.^{3}	Area 7 will overflow 929 Ft.^{3} into Area 8 and 9 pond
8 & 9	1647 Ft.^{3}	849 Ft.^{3}	Area 8 & 9 will receive 929 Ft.^{3} from Area 7 and overflow 131 Ft.^{3} to Area 10
10	180 Ft.^{3}	1144 Ft.^{3}	Area 10 will overflow 1095 Ft.^{3} to Area 12
11	180 Ft.^{3}	1078 Ft.^{3}	Area 11 will overflow 898 Ft.^{3} to Area 12
12	2760 Ft.^{3}	259 Ft.^{3}	Area 12 will be self-contained, with total overflow from Areas 8, 9, 10, and 11, plus Area 12 = 2252 Ft.^{3}
13	No Pond	69 Ft.^{3}	Area 13 will receive 657 Ft.^{3} from Area 6 for a total of 726 Ft.^{3} which will exit the site to the west.

FLOW CHART



SUMMARY OF RESULTS

Area	Pre-developed Flow Volume	Post-developed Flow Volume	Net Decrease
1 thru 5	3975 Ft.^{3}	1546 Ft.^{3}	2429 Ft.^{3}
6 thru 13	2799 Ft.^{3}	726 Ft.^{3}	2073 Ft.^{3}

RECOMMENDATIONS

1. To facilitate the infiltration of runoff into the ground, all pond areas should be grassed, with a low area in each pond gravelled to absorb the everyday nuisance flows.

2. The overflow points of ponds 5, 6, 7, 8, and 9 should be grassed to minimize erosion and should be graded to provide sheet flow leaving the pond.

3. Area 12 is a paved camper parking area which will receive the overflow from Areas 9, 10, and 11. To facilitate the infiltration of ponded runoff into the subsoil, construct a 1'-0" wide x 3'-0" deep gravel infiltration trench full length across the south side of the area.

F-19 D/12

August 3, 1979

City of Albuquerque
Engineering Division
P.O. Box 1293
Albuquerque, NM 87103

Attention: Mr. Fred Aguirre

Reference: Little Turtle Townhomes

Dear Fred:

We are submitting this letter to the City as a guarantee that all the drainage improvements for the above referenced project shall be constructed as per the revised drainage plan. We also understand that these improvements are to be built within 30 days of the date of this letter. As-built drawings shall be provided at that time.

We feel confident that all these items can be properly installed and will satisfy all drainage requirements that we have previously discussed.

Hopefully, you will find everything in order so that this development may proceed into its sales phase.

Very truly yours,

Fred C. Arfman

Fred C. Arfman, for
CHAMBERS, CAMPBELL,
ISSACSON & CHAPLIN, INC.

FCA/ph

Chambers, Campbell, Isaacson, Chaplin, Inc.
architects, engineers, planners 3500 indian school road ne albuquerque new mexico 87106 505 266-5521

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