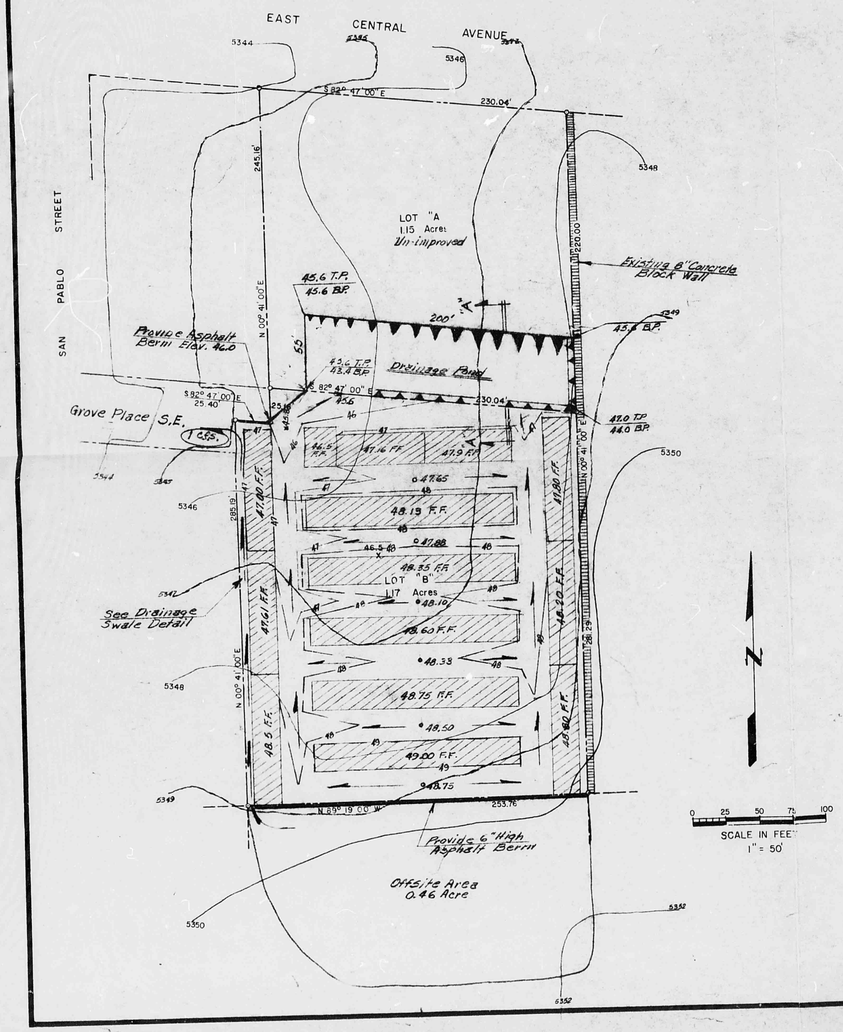
HYDROLOGY

K19/D56
ONE PLAN

K-19/D56 (1)

AMENDED REPLAT OF BEVENS ADDITION



1. Run off before development
Onsite
Q = CIA
= 0.4 × 5.4 × 2.86
= 6.2 C.F.S.

Where
C = Of Undeveloped State
I = 183/(t+25) = 183/(10+25) = 5.4 t = 10 Min.
A = 2.86 Ac.

2. Run off after development
Onsite
Only Lot "B" Will be improved
Lot "A" Will Not have Improvements

Q = CIA
= 0.76 × 5.4 × 2.86
= 11.7# C.F.S.

C = 1.00 Impervious Surface
C = 0.40 pervious Surface
Composite "C"
C = (Area 'A' × Co + Area 'B' × C imp.)/Area 'A' + Area 'B'
= (1.15 × 0.40 + 1.71 × 1.0)/2.86
C = 0.76
I = 183/(t+25)
I = 5.4
A = 2.86 Ac.
t = 10 Min.

Comparing 1 and 2
Run off before development = 6.2 C.F.S.
Run off after development = 11.7 C.F.S.
Increase in Runoff = 5.5 C.F.S.

RETENTION BASIN DESIGN

Set allowable Outflow = 3.0 C.F.S.

(a) Calculate Qo = Allowable Outflow / (Acreage × Runoff Coeff.) = 3.0/(2.86 × 0.76) = 1.38 C.F.S./Ac. Imperviousness

(b) Calculate the time in minutes for max. Volume of Storage:
T = 25 √(1000 A / Qo) = 25 + 21.66 = 46.66 Min.

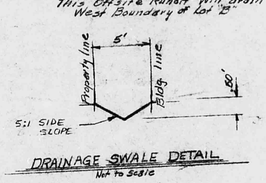
(c) Calculate the Max. Volume of Storage per Ac. Imperviousness
Vs = (11340 T)/(T + 25) − 40 QoT = 7384.61 − 2575.63 = 4809 ft³/Ac. Imperviousness

(d) Calculate the total Volume of Storage Required for the entire Site.
Vt = Vs × No. of Acreage × Runoff Coeff.
= 4809 × 2.86 × 0.76
= 10459 ft.³

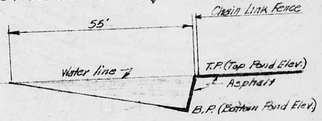
Provide Ponding as Shown.

3. Offsite Runoff
Q = CIA
= 0.4 × 5.4 × 0.46 = 1.0 CFS.
This Offsite Runoff Will drain into Grove Place S.E. Via drainage Swale located Along West Boundary of Lot "B"

Where
C = 0.4 Undeveloped land
I = 5.4 In/Hr. T = 10 Min.
A = 0.46 Ac.



DRAINAGE SWALE DETAIL
Not to Scale



SECTION "A-A"
Not to Scale

PREPARED FOR
WALKER-HINKLE COMPANY

DRAINAGE STUDY

NO.	DATE	REVISIONS DESCRIPTION	BY
1	8/16/77	Grading Plan Lot B	D.R. S.B.
2			
3			
4			

DATE 6-6-77
SCALE 1" = 50'
DESIGNED Shah
DRAWN Buck
JOB NO.

ROUDAL & ASSOCIATES
PLANNING DESIGN MANAGEMENT CONSULTANTS
ALBUQUERQUE, NEW MEXICO 87111