DRAINAGE REPORT

FOR

BROWNSTONE SQUARE SUBDIVISION

The required detention for Brownstone Square Subdivision was determined from the triangular method (see attached sheet) for a 100 year storm. Surface runoff conditions of 20% perv. and 80% imperv. were assumed. Total acreage for Brownstone Square = 1.97 acres.

\[ \frac{A}{B} = \frac{0.000}{0.121} \]

Detention Reqd = 3322 ft³

A parking lot on Lots (2) and (3) will serve as detention pond. Due to the size of the subdivision (very small) and the legal requirements for location of proposed buildings on the 4 lots, the max. possible size of the proposed parking lot is as shown on the construction drawings. The max. capacity of the parking lot - detention pond is 7533 ft³, which is greater than the 3322 ft³ required and therefore acceptable.

A 6" outlet pipe is located in the northwest corner of the parking lot and empties onto a 3' wide grass drainage swale which runs north and south along the west 1/2 of Brownstone Square at a rate of 0.6 cubic feet per second. The drainage swale terminates at the northwest property corner of Brownstone Square Subdivision.
THE FLOW THEN FOLLOWS THE NATURAL
GROUND SLOPE IN A NORTHWESTERLY DIRECTION.

IT IS MY UNDERSTANDING THAT A LARGE
DETENTION POND IS PROPOSED IN THIS GENERAL
VICINITY FOR EXISTING AND PROPOSED DEVELOP-
MENT IN THIS AREA WEST OF OVERLAND TRAIL.
Detention Required Brownstone Square - Triangular Method

\[ T_c = 10 \text{ min.} \quad 100 \text{ yr.} \quad I = 7.2 \]

\[ Q_d = \left[0.8 \times 1.25\right] \times 7.2 \times 1.97 \quad = 14.18 \text{ c.f.s.} \]

\[ Q_n = \left[0.3 \times 1.25\right] \times 7.2 \times 1.97 \quad = 5.32 \text{ c.f.s.} \]

\[
V = \frac{T_c \left(Q_d - Q_n\right)^2}{Q_d} \times \frac{40}{43560}
\]

\[
= 10 \left(14.18 - 5.32\right)^2 \times \frac{40}{43560} = 0.076 \text{ A.F.F.} = 3322 \text{ ft}^3
\]