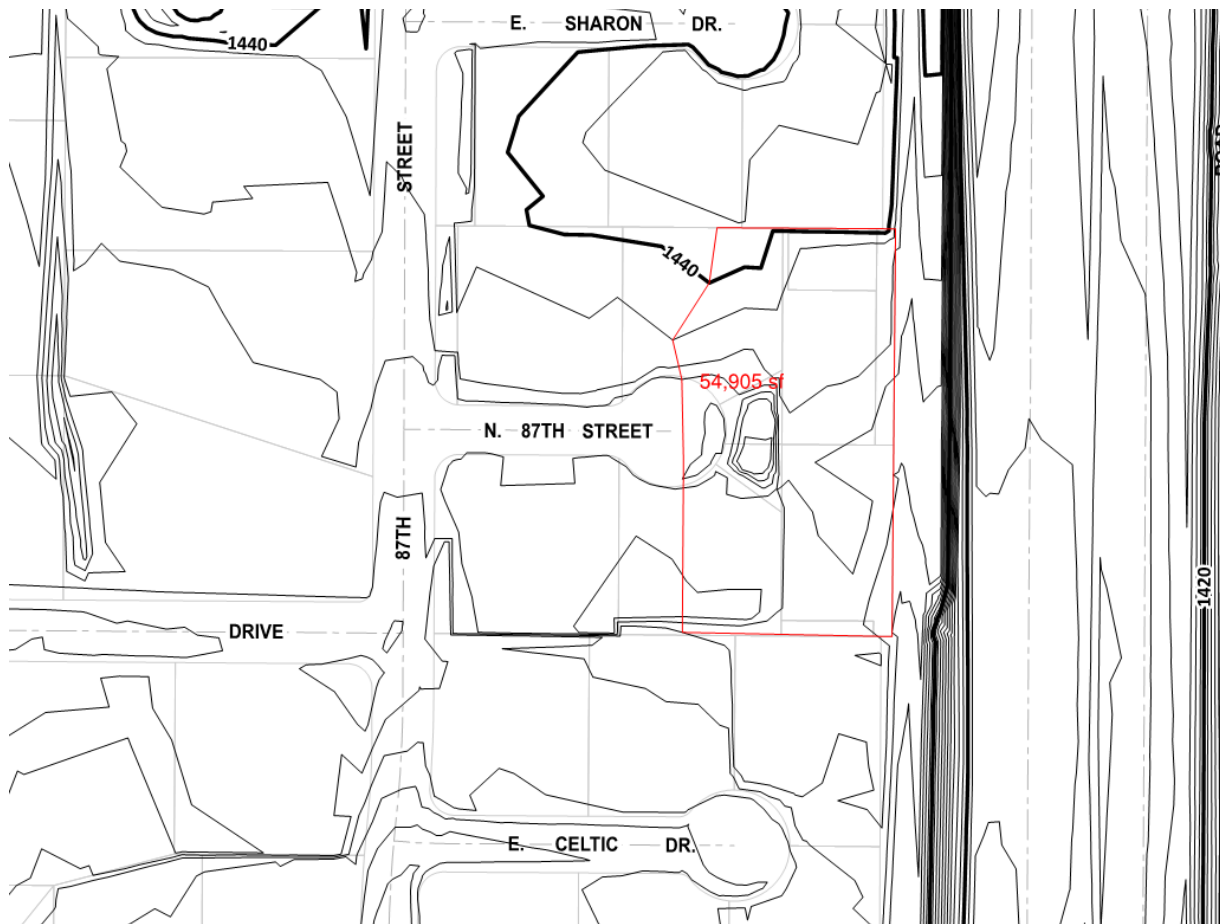


**Site: APN 175-01-172A and APN 175-01-174A**

**Drainage:**

According to the topography from City of Scottsdale's Quarter Section 17, a retention basin was constructed in a Tract (APN 175-01-160A) at the east end of 87<sup>th</sup> Street cul-de-sac. 87<sup>th</sup> Street drains west away from the retention basin except half of the cul-de-sac. The subject site and a portion of the neighboring properties drain into this basin. The drainage area is estimated based on the topography as show below:

Please submit Preliminary Drainage report developed in accordance with the City DS&PM guidelines, engineers seal is required.



Total drainage area is approximately 54,905 square feet. The 100-year 2-hour rainfall depth is 2.24" based on the NOAA-14 precipitation table.

Therefore, the 100-year 2-hour rainfall volume is estimated below:

$$V_{\text{required}} = CPA = 0.615 \times (2.24/12) \times 54,905 = 6,304 \text{ ft}^3$$

where

$$P_{100\text{-yr } 2\text{-hr}} = 2.24'' \text{ (NOAA-14)}$$

$$C = 0.615 \text{ (average from FCMCD Hydrology Manual)}$$

$$V_{\text{required}} = \text{CPA} = 0.615 \times (2.24/12) \times 54,905 = 6,304 \text{ ft}^3$$

The existing basin volume is estimated based on the same topography as illustrated below:

Existing Basin Volume = 6,077 ft<sup>3</sup>

	Elevation	Area (ft <sup>2</sup> )	Volume (ft <sup>3</sup> )	Cumulative	
				Volume (ft <sup>3</sup> )	Volume (ac-ft)
Bottom	1393	642	0	0	0
	1394	1651	1108	1108	0.03
	1395	2290	1962	3069	0.07
HW	1396	3787	3007	<b>6077</b>	<b>0.14</b>

Therefore, when the project site is developed, additional 227 ft<sup>3</sup> of volume needs to be provided to meet the drainage requirement. This can be achieved by either maximizing the volume in the existing tract or expanding the basin into the site.

### **Water and Sewer:**

According to City of Scottsdale's Quarter Section Map 32-48, public water and sewer lines have been installed in 87<sup>th</sup> Street. A 6" ACP waterline is on the north side of the street and terminates at the east end of the cul-de-sac with a blow-off. An 8" VCP sewer-line is on the south side of the street and terminates with a sewer manhole.

Water and sewer services can be provided to the Site by tapping into these existing utilities. A 1" water service can be tapped into the existing 6" water line and be brought to the Site. A 4" sewer service can be provided by directly tapping into the existing manhole. Below is an illustration of the water and sewer conditions at 87<sup>th</sup> Street.

