June 30, 2022

Castle Mountain Home
Site Improvements

Drainage Assumptions and calculations

Existing Conditions

The site is currently undeveloped with a southerly slope of approximately 2% within the project area.

Type	Area SqFt	Runoff Coefficient C
Landscape/Undeveloped	60,502	0.25

Using the Rational Method, assuming 1" of rainfall, the runoff currently generated by the site is

Q = CIA = 0.25x1x60,502/43560 = 0.35 cfs

Drainage Area 1:

Drainage area 1 is comprised of parking, driving isles, and building for a total of 31,494 SqFt. Drainage from this area will be completely retained onsite through the design and construction of a permeable driving surface. We selected to use TruGrid permeable paver system during the design, but retain the ability to modify the design with an equal product if necessary due to supply constraints.

Drainage Area 2:

Drainage area 2 is comprised of parking, driving isles, landscaping and buildings for a total of 29,008 SqFt. Areas are broken down as follows:

Type	Area SqFt	Runoff Coefficient C
Building	7,150	0.95
Compacted Gravel	13,623	0.70
Landscape/Undeveloped	8,235	0.25
Composite Runoff Coefficient		0.56

Using the Rational Method, assuming 1" of rainfall, the runoff generated by the site after the development is

Q = CIA = 0.56x1x29,008/43560 = 0.37 cfs

The increase in runoff for the development of the site is 0.02 cfs.

To mitigate the concerns of the neighbors and to divert some of the runoff away form the new residence being built on the parcel to the south, we have constructed a shallow retention basin with a top elevation of 3093.50, bottom elevation of 3092.00, side slope 5:1 for a total retention volume of 2,162 CuFt with 0.5' freeboard.

Respectfully submitted

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