



November 8, 2012

Mr. Benny Moorman, R.L.S.  
Benchmark Associates  
10308 Hardin Valley Road  
Knoxville, TN 37932

**Re: Proposed Improvements – 1013 Bridgestone Place, Knoxville**

Dear Mr. Moorman:

This letter is to offer my opinion on the effects that the proposed improvements will have on storm water within Westmoreland Hills Subdivision.

The subject property is approximately 1-acre in area and is occupied by a single family residence. Storm water runoff travels generally from south to north to a wet weather conveyance that is located near the subject lot's north property line.

Per our discussion on site, the proposed improvements consist of a detached garage (approximately 1,500 square feet) and a concrete driveway that leads from the terminus of the existing driveway to the proposed garage.

Based on our meeting and my subsequent hydrologic evaluation, I am of the opinion that the proposed improvements will have no effect on the peak flow rate or high water elevation during storm events. My opinion is based on the following:

- The construction of the proposed improvements will cause no change in existing drainage patterns (there will be minimal grading required to construct the improvements thus post-construction runoff will generally travel in the same direction that it currently travels).
- At the location of the site, the wet weather conveyance drains approximately 95-acres (See the attached drainage map). The 95-acre drainage area is predominately single family residential homes. Based on my hydrologic evaluation (using SCS TR-55 and USGS quadrangle contours), peak flow rates in the wet weather conveyance behind the subject site will occur approximately 1-hour after the highest intensity of a given rain event, which is the time it takes for the entire drainage area to contribute runoff. The peak runoff rate discharged from the subject site will occur within several minutes of the highest intensity rainfall and subside well in advance of the peak flow rates experienced within the wet weather conveyance, which will occur approximately one hour after the onset of the storm.



# URBAN ENGINEERING, INC.

CIVIL ENGINEERS • LAND PLANNERS • LAND SURVEYORS

Please do not hesitate to contact me if you have questions related to the contents of this letter or the basis of my opinion.

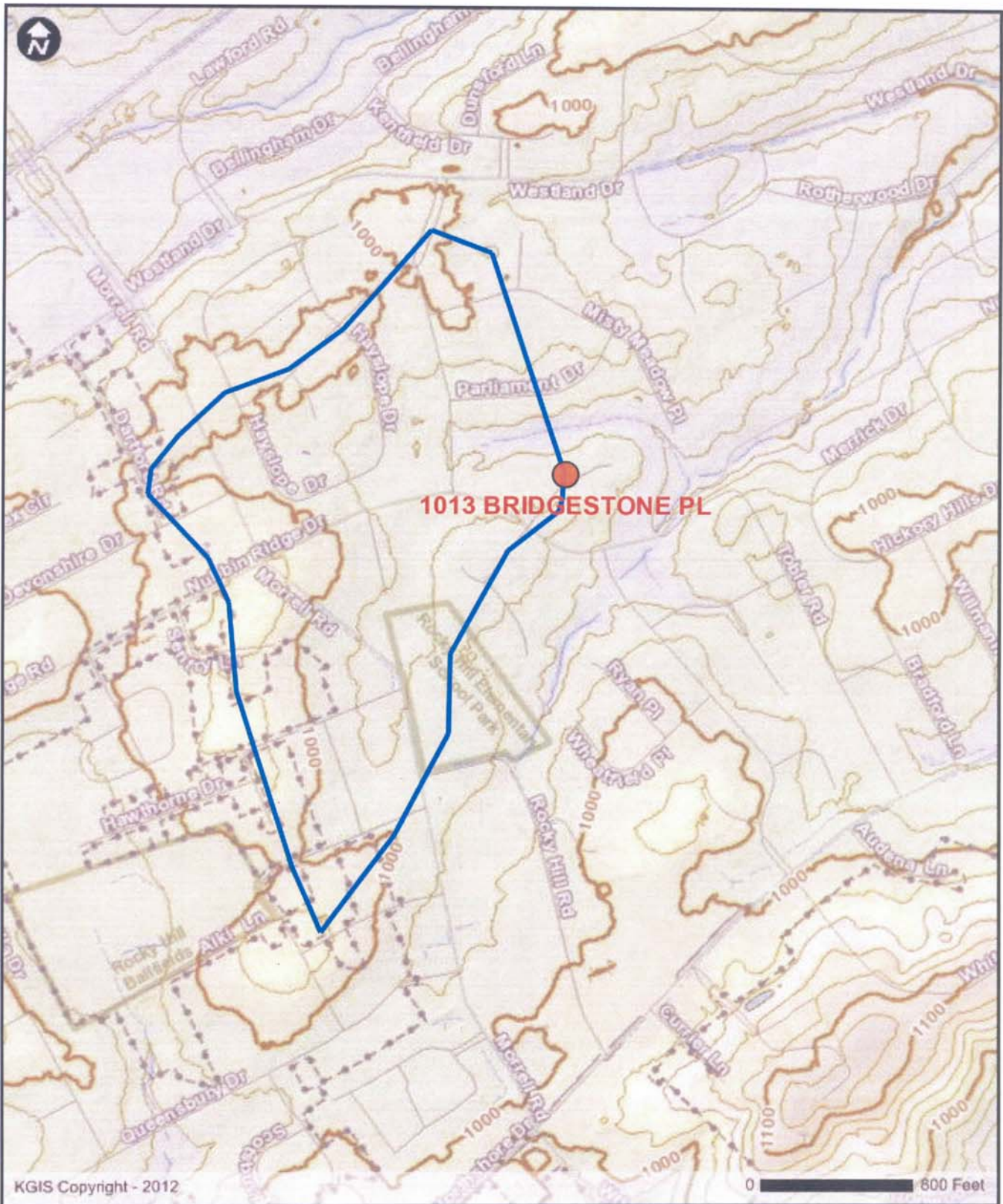
Sincerely,

Urban Engineering, Inc.



Chris Sharp, P.E., President





## Contributing Area to Swale

KGIS - 606 Main St - Suite 150 - Knoxville, TN 37772 - [www.kgis.org](http://www.kgis.org)

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