

October 24, 2019

SHOREPLAN

Mr. Mike Hensel
C.F. Crozier & Associates Consulting Engineers
40 Huron Street, Suite 301
Collingwood, ON L9Y 4R3

Re: Aquavillas Development, Town of The Blue Mountains
Our File: 08-1222

Dear Mr. Hensel:

The purpose of this letter is to confirm our earlier assessment completed for the above noted property. We prepared an assessment on May 12, 2009 for what was then called the Terrasan Development in the Town of The Blue Mountains. That assessment concluded that there was no dynamic beach hazard and no measureable long-term erosion at this site. The governing hazard for site development was the flooding hazard, and we completed a detailed wave uprush analysis to determine the flood hazard limit.

We noted that there were two ridges or berms that ran parallel to the shore. The two ridges coincided at the southwest end of the site but were separated at the northeast end of the site. The lakeward ridge appeared to be a natural formation and the landward ridge was judged to be a combination of a natural ridge with added fill material.

We concluded that there was no need for erosion protection of the natural shoreline but that the fill in the landward berm might need protection, depending upon the quantity of natural cobble on the face of that berm and the amount of fill exposed to wave action. If protection is required, we recommended the use of a rip rap revetment placed within the existing berm, with the existing site grades in front of the structure restored upon completion.

We recommended that the development envelope be not less than 15 metres behind the outermost contour corresponding to the design high water level of 177.9m. That distance would accommodate the minimum recommended 5 metre requirement for maintenance access and also accommodate other potential hazards, such as ice. For clarification, we note that our reference to development envelope was intended for the location of dwellings, not lots of record. We also recommended that development envelopes should have a minimum ground elevation of 178.3 metres and a lowest opening of 178.4 metres. The latter elevation corresponds to the flood proofing elevation as defined by the Technical Guidelines. It is the sum of the 1:100 Instantaneous

water level and 1:100 year setup on the south part of Georgian Bay. Some minor filling is required to accommodate the minimum ground elevations within parts of the proposed development envelope. This includes the low lying area in the northeast section of the site next to a small creek on the adjacent property. Filling this area will have no impact on shoreline processes as waves do not directly enter this part of the site.

We re-visited the site on August 28, 2019 to note if conditions had changed over the period since our 2009 assessment. We also compared the updated topographic plan you provided this year with the survey plan used in our previous work. The surveys are similar enough that no changes to our wave uprush analysis are required. Site topography has not changed over the last ten years, but the site is now much more vegetated than it was previously.

The attached Figure 1 is a site plan prepared from the survey plan you provided (Draft Plan of Subdivision of Lots 59, 110, 111 and 112, Part of Lots 86, 87, 88, 89, 113 and 114, Part of Block D (Closed by By-Law) Registered Plan 529 (Formerly Township of Collingwood) Town of the Blue Mountains, County of Grey, prepared by Lloyd & Purcell Ontario Land Surveyors, plotted October 9, 2019). It also shows the 177.9m contour line, the wave uprush limit, and the 15m offset to 177.9m contour as presented in our 2009 assessment. We removed the second set (inland) of wave uprush lines in the northeast part of the site as no waves can directly enter this part of the site.

With respect to shoreline processes, it is acceptable to grade anywhere landward of the wave uprush limit shown on Figure 1. That area is outside the flood hazard limit, which is the governing natural hazard at this site. Provincial guidelines also allow for the possibility of development within the least hazardous portion of flood hazard limit if the hazard is addressed. Within that context it is our opinion that it would be appropriate to continue the second ridge described in our previous report across the front of the low area in the northeast part of the site, eliminating the small “dip” in the flood hazard limit at that location (see Figure 1). This will produce a more uniform berm across the site and will not have any adverse impacts on shoreline processes. It does change the locations of the proposed dwellings.

Photo 1 shows existing conditions at the northeast end of the site. It is a lakeward facing photograph taken from the vicinity of the northeastern most proposed dwelling shown on Figure 1.

It can be seen from Figure 1 that the proposed dwellings are all landward of the 15m setback from the 177.9m contour. This new plan conforms to the recommendations made in our 2009 assessment. We were copied on an email from Andy Sorensen to Randy Scherzer dated July 21, 2009 indicating that GSCA is in general agreement with our assessment of the shoreline hazards. This would imply that the approach described in our 2009 letter was acceptable to the GSCA. His comments also noted that wetland setbacks need to be revisited, but our report did not deal with wetland issues in any

way. Those issues were being addressed by others. Our project notes from 2017 show that all wetland issues had been resolved with the GSCA.

We trust that this update to our previous assessment meets your current needs. Please contact the undersigned if you have any questions or comments.

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Yours truly,

Shoreplan Engineering Limited

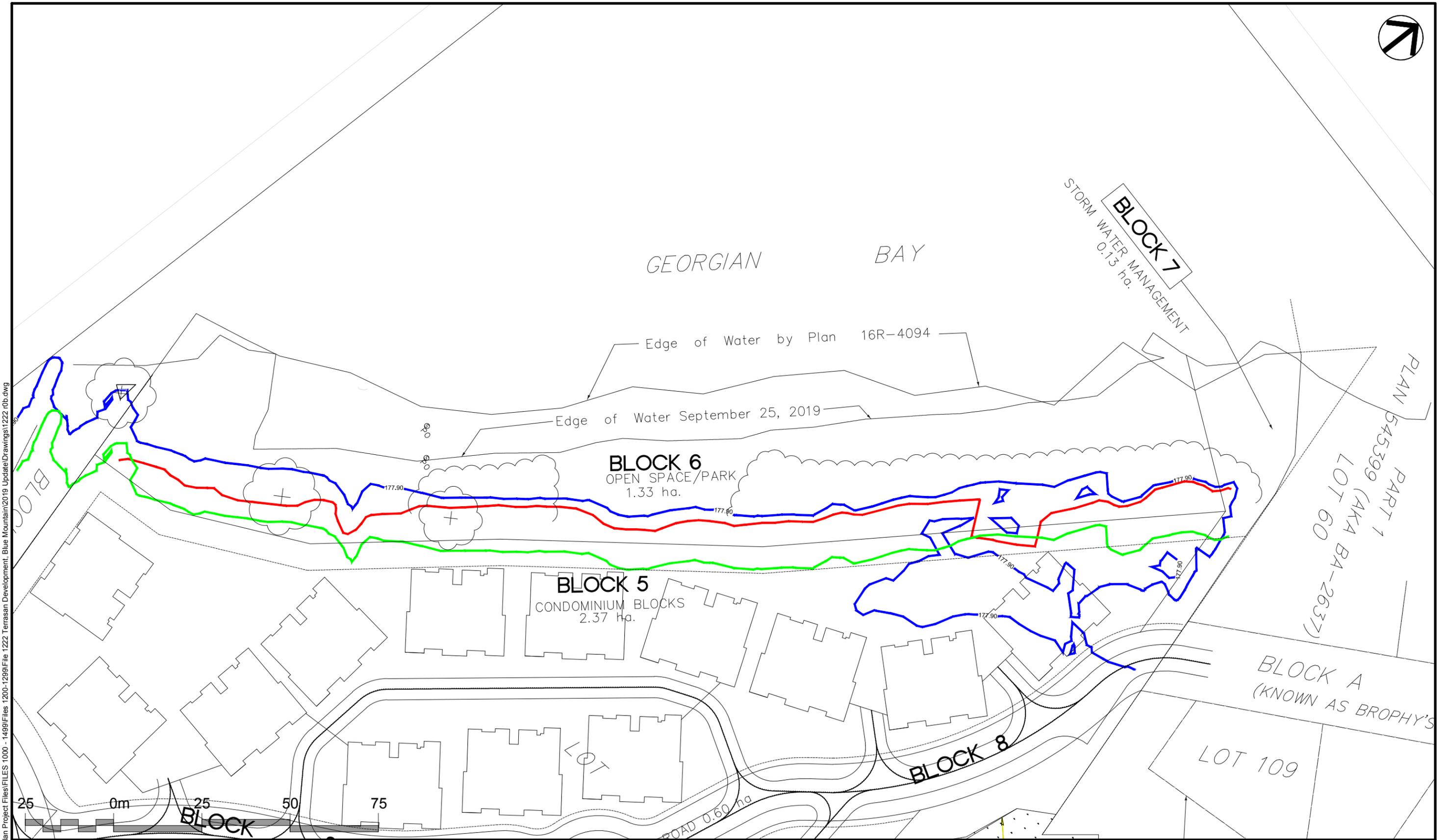


M. Sturm, P. Eng.



Photo 1 Existing Conditions, August 2019





Drawing Location: S:\Shoreplan Project Files\FILES 1000 - 1499\Files 1200-1299\1222 Terrasan Development - Blue Mountain\2019 Update\Drawings\1222 r0b.dwg

Project: 08-1222
 Scale 1:1000
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- Wave Uprush Limit
- 177.9m Contour
- 177.9m Contour 15m Offset

Figure 1
 Aquavillas Development, Blue Mountain
 Wave Uprush