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15 July, 2020

File Ref: C16-5365/C

Fraser Valley Regional District
45950 Cheam Avenue
Chilliwack, BC V2P 1N6

Attention: David Bennett MCIP, RPP, Planner II

**Reference: Aquadel Phase III – 1859 Columbia Valley Road
Civil Grading Rationale**

Further to our site meeting on July 13, 2020 we herewith provide you with the engineering rationale and principles on which the Lotgrading Plan as submitted to the Regional District is based.

The site and lot grading component of the civil design for Aquadel Phase 3 needs to be approached in a different manner than the design for Phase 1 and 2. Phase 3 is unique due to the proximity to the steep mountain slope and associated rockfall hazard. As indicated in the July 29, 2015 Geotechnical Hazard Assessment Report by Golder Associates the hazard mitigation prescribed for this parcel consists of a rock fall catchment berm or ditch along the clearly defined toe of the existing mountain. This mitigation work runs along the full length of the south property line of the development.

Further geotechnical design recommendations provided by Geopacific Engineering call for a rock fall barrier with a minimum height of 1.5m and a cross-sectional catchment capacity of 3.5 cubic meter of debris per running meter. Excavating a new ditch along the bottom of the slope would require a fairly wide strip of land and would have a negative impact on the available buildable area. For this reason, Wedler considered two alternative options. Option 1 would be to build a 1.5m high catchment wall above the existing ground surface, consisting of precast concrete lock-blocks. Option 2 would be to build a 1.5m high berm along the rear of the lots at a sufficient distance away from the toe of slope to create the required catchment volume behind the berm. While option 1 would by far take up less space, the visual impact of a concrete wall was not desirable. Therefore option 2 was selected for the design. However, since a fully above ground berm, complete with back slope, will occupy a considerable part of the backyards, it was decided to raise the backyards to the top of berm level. Combined with the natural grade sloping down from the rear of the lot, this creates an ideal situation for basement entry homes (garage at basement level) and main level rear walkout at the second floor. This brings the garage entries down to the natural existing ground levels and results in the grading of the remainder of the subdivision to be closer to the natural topography, without the need for retaining walls.

A second consideration with respect to the lot grading is that while the original Development Permit doesn't preclude basements, in Phases 1 and 2 basements were not an option due to the flood level restrictions in these phases. As phase 3 is not within the Watt Creek and Frost Creek flood path, different flood levels apply. As a result, basements are possible in this phase. Per the above referred to

Golder Report, the Flood Construction Level (FCL) for Phase 3 is 0.6m above the adjacent crest of Columbia Valley Road. All MBE's within the current design meet that criterion.

A visual presentation of the above is shown on the attached sketch.

Yours truly,
Wedler Engineering LLP

Per:



Jim Devisser,
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cc: Aquadel Crossing Joint Venture

