

## Ali Shirazi

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**From:** Ali Shirazi  
**Sent:** Tuesday, June 23, 2020 4:17 PM  
**To:** Sharon Lingertat  
**Subject:** GTA West - Revised Segments 7 and 8 (CFN 62018)

Hi Sharon,

I had a chance to review the submitted materials, and the following presents my review summary:

1. A number of watercourses and valley zones run through the proposed corridors. The proposed work requires crossing with a wide span through some significant valleys. Additionally, in many locations, the watercourse has been meandering towards the toe of the valleys, where the risk of toe erosion and undercutting the valley with the future further slope hazards exist. Provided those above the crossings are needed to be considered so that the abutments and piers are not vulnerable to the erosion hazards and slope instability. Additionally, it is needed that the crossing location to be selected within the corridor, so that at that location the risk of watercourse meandering is reduced;
2. At the crossings (particularly the main one for Humber River), please conduct a slope stability review (at least at desktop level along with a visual assessment) by a geotechnical engineer to select a crossing point with least chance of future slope hazards. The ideal location for the crossing is where the slope is 2H:1V to 3H:1V (based on the general area geology as well as the watercourse is located 15 m away from the toe of slope. It is required that such review to be conducted to inform the selection of the crossing location within the corridor at preliminary stage. Once the approximate crossing location is determined, the stability assessment will need to be refined by further field investigation and detailed assessments at the later stages of the design;
3. The proposed crossings for various options are very wide. Therefore piers in the valley is needed in addition to the abutments. Such piers will need to be built in the valley, and the access to the construction area can be challenging or results in altering the entire valley to facilitate the temporary construction access, pads and other provisions for the construction. The restoration of the valley will be also problematic in this case after the construction. It is required that such challenge to be considered within the constructability criteria to evaluate various options. It is unknown if such constraints have been considered for the location of the crossings as well as the selection of the preferred option. Please clarify on this and demonstrate on site plan, longitudinal profile and cross-sections how such constraints have been taken into account to select the preferred option. An input for geotechnical engineer as well as construction engineer is also needed to inform the decision. At the later stages, further geotechnical studies will be also needed to provide more information and directions;
4. Depending on the condition of the crossing area, some channel works may be needed. This should be identified at this stage, as the need for the channel works to provide toe erosion protection for the future crossing may need significant alterations to the slope, which will be a constraint to select the preferred option. It is unknown based on the submitted materials if this criterion has been also considered for the selection of the preferred option and/or corridor;
5. At the crossings, a slope stability study is needed to ensure that the crossing structures including the abutments and piers are located so that they are not vulnerable to the risk of being undermined by slope hazard and instability in the long-term. The interaction of the watercourse to toe of slope and the fluvial risk are also needed to be incorporated into the risk assessment and mitigations for the slope hazards;

6. The feasibility of the proposed grading and earthworks shown along with the longitudinal profile for the alignments need to be shown on the site plan and cross-sections (at critical locations). The feasibility of such earthwork needs to be assessed at concept by a geotechnical engineer at this stage, which will need further detailed review and assessments at the later stages of the studies and design.

Should you have any questions, please let me know.

Thanks,

Ali

**Ali Shirazi, Ph.D., P.Eng.**

Senior Manager, Geotechnical Engineering

Engineering Services | Development and Engineering Services

T: [\(416\) 388-3987](tel:(416)388-3987)

E: [ali.shirazi@trca.ca](mailto:ali.shirazi@trca.ca)

A: [101 Exchange Avenue, Vaughan, ON, L4K 5R6](https://www.trca.ca/101-Exchange-Avenue-Vaughan-ON-L4K-5R6) | [trca.ca](https://www.trca.ca)

