



TO: Planning & Development Committee
FROM: B. Newell, Chief Administrative Officer
DATE: October 21, 2021
RE: Greater West Bench Geotechnical Review – Electoral Area “F”

Administrative Recommendation:

THAT the *Greater West Bench Geotechnical Review*, dated July 27, 2021, and prepared by Ecora and Clarke Geoscience Limited be received as a guiding document.

Purpose:

The purpose of this report is to present the *Greater West Bench Geotechnical Review*, including an overview of the recommendations contained within the report.

Background:

At its meeting of September 20, 2018, the Regional District Board adopted the Electoral Area “F” Official Community Plan (OCP) Bylaw No. 2790, 2018. The OCP Bylaw included a policy to “support an updated technical assessment of geotechnical hazards in the West Bench / Sage Mesa area using new technologies (e.g., LiDAR) that were not available when the area was last assessed.”

At its meeting of October 17, 2019, the Regional District Board awarded a contract to Ecora Engineering & Resource Group Ltd. in association with Clarke Geoscience Ltd., to complete a geotechnical review of the Greater West Bench Area.

Amongst other things, the geotechnical review report was to provide “the Regional District better comprehension to develop land use policies specific to GWB to better inform and guide residents of the geotechnical conditions and uses of the lands.”

The report was also to “identify mitigation methods in the management of existing land uses, such as provision of domestic water, storm water control or construction of community sanitary and storm sewer systems ... [and] identify potential locations for further development or change in density in existing land uses in the Greater West Bench (GWB) study area.”

On July 28, 2021, the Regional District received a final report of the *Greater West Bench Geotechnical Review* from Ecora and Clarke Geoscience Limited.

At its meeting of October 7th, the Planning and Development (P&D) Committee the 2021 Greater West Bench Geotechnical Review was referred back to Administration for further review.”

Analysis:

At a broad level, the *Greater West Bench Geotechnical Review* has determined that “the thick deposits of silt soils, derived from Glacial Lake Penticton, have unique Engineering Material Properties that control the geotechnical character of the area.”

That “research and experience indicate that, in a dry state, the undisturbed silt soils are very stable and can maintain near-vertical slopes. When wetted or disturbed, however these silt soils are prone to rapid erosion, collapse/compression, and slumping. The combination of unique soils, combined with historical land use, influences the nature and frequency of geotechnical hazards in the subject area, such as landslides and the development of sinkholes.”

The Review further concludes that:

- *landslides persist within the vicinity of the steep silt bluff slopes that occur along the eastern boundary of the study area;*
- *landslide hazards are greatest within approximately 50 metres of the slope or gully crest and extend beyond the toe of the slope towards Highway 97 and Okanagan Lake;*
- *sinkhole hazard levels within the GWB Study Area are greatest within 50 metres of the silt bluff slope crest and are observed exclusively within the Glaciolacustrine Silts ...;*
- *sinkhole hazard levels are greatest within the eastern portion of the study area and predominantly over the northern half of the GWB area; and*
- *collapsible / compressible soils hazard occurs in conjunction with the silt bluffs and associated gullies ...*

Based on these determinations a Geotechnical Constraints Zone map was created in order to indicate the “likelihood of a damaging geohazard event affecting a parcel”; being low, moderate or high.

The Report concludes with a number of recommendations intended to reduce geotechnical risk within the GWB study area, including:

- *Incorporate results of this study into current RDOS bylaws;*
- *Develop Geotechnical Reporting requirements;*
- *Introduce a Soil Removal and Deposition Bylaw;*
- *Develop specific land use activity Best Management Practices; and*
- *Implement a public education and outreach program specific to geohazards.*

The report further addresses a number of “Data Gaps” that *could* be addressed by the Regional District, as required in future. These are seen to encompass projects whose scope and costs could be significant, including:

- *Conduct incidence tracking and data management;*
- *Conduct additional subsurface soils investigation in conjunction with future geotechnical studies;*
- *Conduct additional groundwater investigation and monitoring if resources are made available;*
- *Update the 1994 Wastewater Management Plan when time is appropriate and when funding is available;*
- *Improve stormwater management practices; and*
- *Conduct periodic review of geohazard conditions.*

Administrative Response:

In response to the recommendations contained within the Report, a series of amendments to the Electoral Area “F” OCP Bylaw will be proposed, including the incorporation of the Geotechnical Constraints Zone map from the Report and the “Hazard Lands” (Section 17.0) of the OCP Bylaw.

With regard to the Zoning Bylaw, amendments will be explored to revise minimum parcel size requirements for subdivision throughout the Greater West Bench Area. It is understood that there have been few, if any, subdivisions approved within the West Bench area since the 1992 Geotechnical Hazard Report was completed.

The 1992 Geotechnical Hazard Report identified swimming pools as a trigger for subsurface erosion and sinkhole development and recommended that these be prohibited within the study area. The 2021 Review has confirmed that pools continue to represent a “high risk land use activity” and should be regulated.

With regard to the identified “Data Gaps”, Administration is recommending that no action be taken at this time, but that future consideration could be given to these (particularly the incidence tracking and data management web portal).

Public Consultation:

The convening of a public information meeting at which the consultant team will present and discuss the project and technical information (including recommendations) is a required part of this project.

Consideration of draft amendment bylaws should be processed through the Electoral Area “F” Advisory Planning Commission and the Planning & Development Committee prior to being released to the public.

Alternatives:

- .1 THAT the *Greater West Bench Geotechnical Review*, dated July 27, 2021, and prepared by Ecora and Clarke Geoscience Limited not be accepted.

Respectfully submitted:

Attachments:

No. 1 – Greater West Bench Geotechnical Review (2021)



C. Garrish, Planning Manager