December 2, 1996 EBA Project No: 0808-96-90172.

Coleman Properties Ltd.
%Ward Engineering and Land Surveying Ltd.
#201 - 625 Front Street
Nelson, BC
V1L 4B6

Attention: Mr. Greg Coleman, RPF

Subject: Preliminary Geotechnical Assessment
Coleman Property
Highway 3A - Balfour, BC

Dear Sir:

EBA Engineering Consultants Ltd. (EBA) has carried out a preliminary geotechnical assessment of the site of a proposed subdivision located on the north side of Highway 3A near Balfour, BC (District Lot 6498). The purpose of the assessment was to review the general ground conditions at the site and provide preliminary geotechnical discussions relating to the proposed development. Specifically, the assessment was to determine if there were existing geotechnical constraints on the property that would preclude the development of the entire subdivision or specific lots within the subdivision.

The preliminary assessment was carried out in relation to the following definitions of land classification for subdivision developments provided to EBA by the Regional Approving Officer of the BC Ministry of Transportation & Highways. Areas may be classified as one of the following:

Class A: Land suitable for development, with less than 10% in 50 years probability of natural hazard occurrence.

Class B: Land that may contain areas suitable for development, but which requires further investigation and/or remedial works to render them suitable for development.

Class C: Land which is subject to natural hazard with greater probability than 10% in 50 years, and is not suitable for development.

EBA visited the site on November 25, 1996, accompanied by Mr. Peter Ward, P.Eng. of Ward Engineering and Land Surveying Ltd. (WELS). A site plan showing the proposed layout of the subdivision was provided the EBA by WELS prior to the site visit (drawing reference: File No. 6013, Dwg. No. 6013-PLA1).

Based on the observations made during the November 25, 1996 site visit, it is the opinion of EBA that, in general, there are no geotechnical constraints on the property that would preclude development of the proposed subdivision - ie. no Class C land was observed within the property. Each of the 21 proposed lots would have an area suitable for development as a building site, based on the definitions given above. However, some of the areas observed would be considered to be Class B land and should undergo lot specific assessment prior to their development. The areas for specific assessments would include proposed Lots 5 to 8 and 19 to 21.

Detailed geotechnical assessment of these areas could be carried out as soon as the snow clears the property in the Spring of 1997.

We trust that the information presented above meets your current requirements. If you have any questions, or require further information, please do not hesitate to contact the undersigned.

Yours truly,
EBA ENGINEERING CONSULTANTS LTD.

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA
2 DEC 96
T. W. OXLAND

Tom W. Oxland, P.Eng.
Senior Geotechnical Engineer

July 15, 1997 EBA Project No: 0808-97-90172

Coleman Properties ltd.
% Ward Engineering and Land Surveying Ltd.
Suite - 609 Baker Street
Nelson, BC
V1L 4J3

Attention: Mr. Greg Coleman

Subject: Geotechnical Assessment
Proposed Residential Subdivision
Highway 3A - Balfour, BC

1.0 INTRODUCTION

EBA Engineering Consultants Ltd. (EBA) has carried out a slope stability assessment for a proposed subdivision development located on the north side of Highway 3A near Balfour, BC. (District Lot 6498, K.D.). The purpose of the work was to review the general ground conditions over specific areas of the site and establish suitable building areas (Class A land) on some of the proposed lots. The definition of the land classification used for this assessment is presented in the attached Appendix A.

EBA carried out a preliminary geotechnical assessment of the property in November, 1996. The purpose of the preliminary assessment was to determine if there were existing geotechnical constraints on the property that would preclude the development of the entire subdivision or specific lots within the subdivision. The results of this assessment - presented in a letter dated December 2, 1996 - were that although there were no geotechnical constraints that would preclude development of the property, there were areas that should undergo lot specific assessments prior to their development. These lots would include proposed Lots 5 to 8 and 19 to 21.

A letter - dated June 6, 1997 and prepared by Mr. Peter Muirhead of the BC Ministry of Transportation and Highways, Central Kootenay District - requested that a geotechnical assessment of proposed Lots 5 to 8 and 19 to 21 be carried out. The purpose of the assessment was to identify suitable building sites on each lot and identify any remedial works required to protect those building sites.

2.0 PROJECT DESCRIPTION

The subject property is located on the north shore of Kootenay Lake near the Fraser Narrows area of North Nelson, BC (Figure 1). The property is situated on the north side of Highway 3A and is accessed by a private driveway from the Highway.

The subdivision development under consideration consists of twenty-one lots intended for single family residences. The lots are situated along the southern edge of the property and are accessed from the private driveway described above (Figure 2).

Subdivision plans - 1:4000 and 1:1000 scale - showing the proposed lot layout for the entire subdivision were provided to EBA by Ward Engineering and Land Surveying Ltd. (WELS) prior to the field reconnaissance.

3.0 GENERAL GEOLOGY

Based on a Soil Survey Report (No. 28) prepared by the BC Ministry of Environment, the area of the proposed subdivision is underlain by moderately coarse and very coarse grained glaciofluvial deposits.

A geology map of the Nelson area produced by the Geological Survey of Canada (Map 109A) indicates that the area is underlain by porphyritic granite of the Nelson Pluton and/or paragneiss of the Ymir Group.

4.0 SITE RECONNAISSANCE

The following is a summary of the observations made by EBA during the July 2, 1997 site reconnaissance:

- the property is situated on a sideslope with a generally southern aspect. The general slope angles over the majority of the property range from 15° to 25°.

- at the time of the site reconnaissance, the area of the proposed subdivision had been cleared of trees. In addition, the main access road from Highway 3A had been "roughed in".

- the two specific groups of lots assessed are located at opposite (east and west) ends of the property (Figure 2). The following are descriptions of the general topography and ground conditions in each area:

  Lots 5 to 8

  - the slopes extended down to the south to intercept the cut slope for Highway 3A. The materials exposed in the cut slopes typically consisted of well-graded sand and gravel (similar to the soils exposed within the subdivision - see below) and primarily granitic bedrock.

  - a prominent bedrock outcrop was exposed on proposed Lots 5 and 6. The bedrock was primarily granitic.

- in general, the sideslopes through this section ranged from 5° or 10° along the north and northwest boundaries of the proposed lots, to about 20° near the middle of the lots, and then to about 30° to 35° along the south and east sides of the proposed lots.

  The steeper sections of the sideslopes were directly above the highway and along a natural gully that runs north-south along the eastern subdivision boundary.

- vegetation in this area consisted of a thick forest cover with relatively dense undergrowth. Some select removal of trees had taken place on the steeper sections of slope on proposed Lots 5, 6 and 7. Access trails were excavated across the sideslope to facilitate removal of the trees. Soils exposed on these trails consisted of well-graded sand and gravel that contained trace/some silt with some cobbles and boulders.

- no seepage or saturated ground was observed on the slopes in this area.

Lots 19 to 21

- the ground surface throughout these lots ranged from about 15° to 25° down to the south - toward Highway 3A and Kootenay Lake.

- at the time of the site reconnaissance, this area had been cleared of trees. There was an access trail that extended from the main subdivision road to the west toward proposed Lot 21.

- soils exposed at ground surface and along the existing access road cut slopes consisted of well-graded sand and gravel that contained trace/some silt and some rounded cobbles and boulders.

- a natural draw or swale was situated to the north of the proposed lots. The swale was shallow and dish-shaped and contained a well defined flow channel along its (approximate) centreline. The swale trended from the northeast to the southwest and intercepted the northern property line of proposed Lot 20.

  Near this area the swale ended and graded into a continuous ground surface. At this point, the flow in the channel went underground. The flow was traced to a discharge (seepage) point near the southwest corner of proposed Lot 21.

4.0 DISCUSSIONS AND RECOMMENDATIONS

Based on the review of available information, and the results of the site reconnaissance carried out by EBA, the following geotechnical discussions and recommendations are provided regarding the development of proposed Lots 5 to 8 and 19 to 21.

Lots 5 to 8

1. Development in this area should be restricted to the mid- and upper sections of sideslope within the proposed lots - ie. construction should not take place on slopes over 25°. This development limit is approximately described on Figure 2.

   During the site reconnaissance by EBA, this development limit was marked in the field. The line was marked with orange flagging tape and labelled with "EBA". The intent was to have WELS tie in the development line by survey, and have EBA review the final plan.

2. The access trails on the sideslope above the highway should be re-contoured and re-vegetated. Re-contouring should restore the natural sideslope in the area as much as possible. Re-vegetation should consist of grass or similar evergreen cover to protect the surface from erosion through exposure to precipitation or surface runoff from up slope.

3. Further removal of trees from the sideslopes in this area should not take place.

4. The building area - foundation line - for the proposed single family residences can extend to the development line described above. Features such as sundecks can extend beyond the development line, providing that they have separate footings and do not form an integral part of the structure of the house structure.

5. Drainage from surfaced areas, roofs, and foundations should be controlled in solid pipes and discharged away from the sideslopes. Drainage should not be discharged onto, or near, the sideslopes in this area.

Lots 19 to 21

1. The drainage channel through the natural swale located to the north/northeast of the proposed lots should be intercepted and the drainage directed - in a controlled manner - to a permanent storm water disposal system. A "controlled manner" in this case could be an open ditch or pipe.

2. Once this drainage is controlled, the lots may be developed without geotechnical constraint.

5.0 CLOSURE

Based on the assessment carried out by EBA, and under the conditions outlined above, the areas inside the recommended building limits indicated above are not subject to slope stability constraints and may be considered as Class A land. The approximate areas are outlined on Figure 2. Note that these areas - which were flagged in the field during the site reconnaissance - were tied in by field survey by WELS.

The discussions and recommendations presented above are based on a visual site. No subsurface investigation was carried out a part of this assessment.

This report has been prepared for use by the property owner - Mr. Greg Coleman - which includes distribution as required for purposes for which it was commissioned. The assessment has been carried out in accordance with generally accepted engineering practice. Engineering judgement has been applied in developing the recommendations in this report. No other warranty is made, either expressed or implied.

We trust that the information presented above meets your current requirements. If you have any questions, or require further information, please do not hesitate to contact the undersigned.

Yours truly,
EBA ENGINEERING CONSULTANTS LTD.

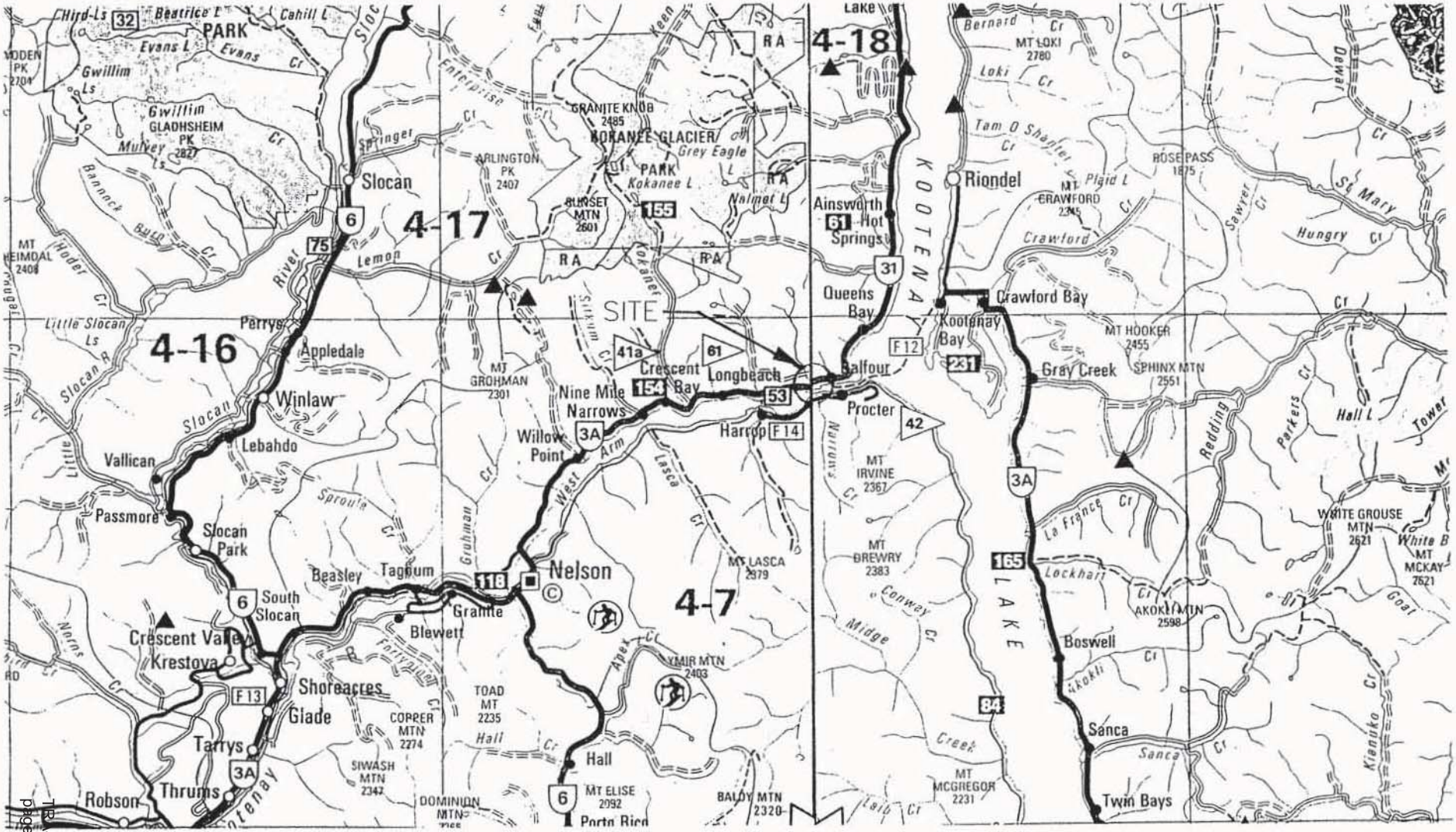
Prepared by:

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
15 July 97
T. W. OXLAND

Tom W. Oxland, P.Eng.
Project Geotechnical Engineer

Reviewed by:

Albert Losch, P.Eng.
Geotechnical Engineer



LEGEND:

EBA ENGINEERING CONSULTANTS LTD.			
TITLE: SITE LOCATION PLAN			
PROJECT: COLEMAN PROPERTY – NORTH NELSON			
DATE: 15 JULY 97	PROJECT NO.: 0808-96-90172		FIG NO.: 1
SCALE: NTS	DRN: TWO	REV: TWO	

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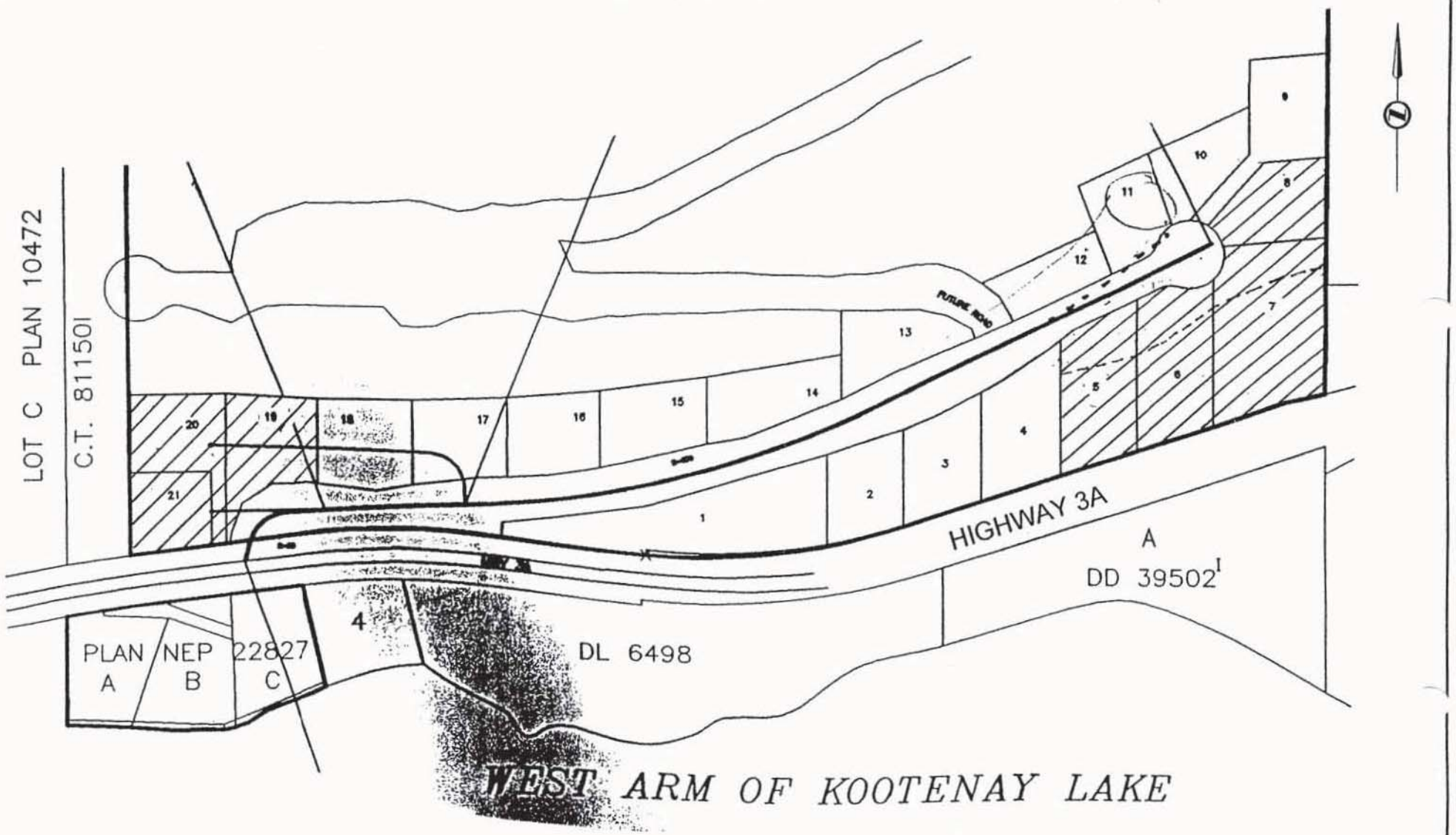

LEGEND:

ASSESSED LOTS

BUILDING SETBACK LINE (APPROXIMATE)

EBA ENGINEERING CONSULTANTS LTD.

TITLE: SITE PLAN			
PROJECT: COLEMAN PROPERTY – NORTH NELSON			
DATE: 15 JULY 97	PROJECT NO.: 0808-96-90172		FIG. NO.: 2
SCALE: NTS	DRN: TWO	REV: TWO	

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APPENDIX A

Land Classification
Residential Subdivisions

APPENDIX A

LAND CLASSIFICATION
RESIDENTIAL SUBDIVISIONS

The following are definitions of land classification for subdivision developments provided to EBA by the BC Ministry of Transportation & Highways - Provincial Approving Officer.

Areas may be classified as one of the following:

Class A: Land suitable for development, with less than 10% in 50 years probability of natural hazard occurrence.

Class B: Land that my contain areas suitable for development, but which requires further investigation and/or remedial works to render them suitable for development.

Class C: Land which is subject to natural hazard with greater probability than 10% in 50 years, and is not suitable for development.