

**WHEN RECORDED RETURN TO:**

262 MILLER RD.  
WASHOUCAL, WA  
98671

**DOCUMENT TITLE(S)**

GEOLOGICAL ASSESSMENT REPORT

**REFERENCE NUMBER(S)** of Documents assigned or released:

☐ Additional numbers on page \_\_\_\_\_ of document.

**GRANTOR(S):**

BRIAN BEA

☐ Additional names on page \_\_\_\_\_ of document.

**GRANTEE(S):**

PUBLIC

☐ Additional names on page \_\_\_\_\_ of document.

**LEGAL DESCRIPTION** (Abbreviated: i.e. Lot, Block, Plat or Section, Township, Range, Quarter):

25-3/7

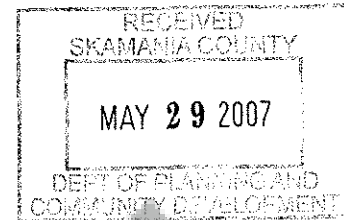
☒ Complete legal on page 4 & 5 of document.

**TAX PARCEL NUMBER(S):**

03-07-25-30070000

☐ Additional parcel numbers on page \_\_\_\_\_ of document.

The Auditor/Recorder will rely on the information provided on this form. The staff will not read the document to verify the accuracy or completeness of the indexing information.



## Geological Assessment Report

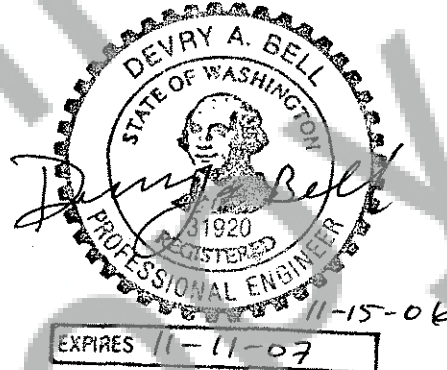
SUBMITTED TO: Mark Mazeski  
Skamania County Planning & Community Development  
P.O. Box 790  
P.O. Box 790, C.H.-Annex  
Stevenson, WA 98648  
(509) 427-3900

FROM: Devry A. Bell, PE  
Bell Design Company  
P.O. Box 308  
Bingen, WA 98605

PREPARED BY: Devry A. Bell, PE  
Bell Design Company

DATE: November 15, 2006

SUBJECT: Geological Assessment for the Proposed SP-06-22 Bea Short Plat in Skamania County, Washington. The property is owned by Brian Bea.



### Introduction

On Tuesday, September 28, 2006, at the request of Mr. Brian Bea, Bell Design Company performed a visual site inspection of an approximate 11.42 acre land parcel located in the NW  $\frac{1}{4}$  of the SW  $\frac{1}{4}$  of Section 25 and the NE  $\frac{1}{4}$  of the SE  $\frac{1}{4}$  of Section 26 in T. 3 N., R. 7 E., in the W.M., in Skamania County, Washington. Mr. Bea has proposed the land be divided into four new legal residential lots as the proposed Bea Short Plat. Access to the undivided property is from Skamania County's Loop Road just south of the Rancho Del Oro Road (Prvt). Portions of the proposed Short Plat lie within areas subject to landslide

danger. The purpose of the site inspection was to observe potential geological and/or landslide problems that any of the four proposed lots may have due to proximity to any land slide areas. Preliminary findings and observations made by the your office indicate that Lot 4 of the proposed Bea Short Plat is determined as a Class II Landslide Hazard Area as deemed by the SCC, Chapter 21A0.6.

The parcel is within very close proximity to the recent massive landslide area known as the Maple Hill Landslide near the Maple Hill Tracts Subdivision. The report prepared by Squire Associates and entitled Maple Hill Landslide Geotechnical Report, dated February 25, 1999, does not specifically study the area within this proposed short plat, but does indicated that this parcel is adjacent to dormant *"old to ancient debris flow source zone and slide headscarp"*, as indicated on Figure 4 of the Squire report.

Observation made on the date specified above do agree that portions of this proposed short plat do, indeed, fall under the Class II Landslide Area determinations as made by your office. However, upon observation of the lands and field measurements made by our office, this report, will attempt to provide recommendations, in the form of required "setbacks" from sensitive lands, or potentially sensitive lands, in order to eliminate the need for additional field testing as required by the guidelines set forth by your agency for reporting. Specifically, it is the opinion of Bell Design Company that by delineation upon the proposed Short Plat Survey map, future owners of the property shall be adequately protected against dangers associated with Class II Landslide Areas and that areas outside the delineated areas would be potentially safe to build on according to guidelines set forth below in this report.

In addition, due to the local steep topography of portions of the proposed short plat, certain sloped areas exhibit the potential for steep slope instability, but do not, at this time, have any visible indications of instability. These areas will be determined by this report and should be noted on the plat. Determination of these areas do not, necessarily, make these regions, "no build zones"; they only indicate the "potential" of instability, and will therefore, be required by this report to have additional evaluations conducted prior to the construction of permanent dwellings, wells, drain fields, or other building for the habitation of livestock of valuable personal property. These areas could, and probably will, seat access roadways which should be built with adequate base stabilization and drainage.

It is our belief that with the delineation proposed by this report, the Bea Short Plat should be allowed and that four new residential lots can be safely created.

#### **Parcel and Lot Descriptions**

The overall property is approximately 11.43 acres in size. A preliminary short plat, by Klein and Associates, Inc. show the property to roughly 1500 ft long by 330 ft wide, running in length east and west. Access to the properties is from the east off of Loop Road.

Lot 1 will be accessed directly from Loop Road, while a joint private road or driveway will access lots 2, 3 and 4. A steep private roadway is constructed along the northern line of the overall property and easements are provided through out individual lots and adjacent properties as needed. Please See Figure 1 (Klein Survey). In general the property's topography is along an uprising ridge running west from Loop Road. The north drops away towards the north and is considered to be the dormant headscarps of the ancient zone area as defined in Figure 4 of the Squire Report. The south drops away, but does not appear to be headscarp, but exhibits the more general slope of the more regional landscape. A streambed cuts across the western end of the parcel and drains to the southwest. The combination of these topographical elements makes portions of Lots 2 and 3, without doubt, elevated with spectacular views.

#### ***Lot 1***

Lot 1 is accessed from Loop Road. Its slopes range from 3% to over 30%. A home situated within this lot should have no problems associated with landslides provided stormwaters are not allowed to concentrate above any dwelling. This lot does not appear to have any landslide activities or eminent geotechnical instability at this time.

#### ***Lot 2***

Lot 2 is accessed from Loop Road via a private driveway or roadway located along the northern edge of the lot. Lot 2 overlooks Lot 1 and any building site will be predominantly located on a "knob" which slopes away in three of four directions. Lower lands located within the area may be prone to saturation and care should be used in construction of dwellings or drainfields within these areas due to ground saturation, potential ponding or overland stormwater flow. This lot does not appear to have any landslide activities or eminent geotechnical instability at this time. However, it is strongly recommended that no dwelling be located north of the proposed driveway. If so, additional geotechnical evaluation should be made.

#### ***Lot 3***

Lot 3 is accessed from Loop Road via a private driveway or roadway located along the northern edge of the lot and traversing Lot 2. Lot 3 overlooks Lot 2 and building sites should be located outside of low-water collection areas. Lower lands located within the area may be prone to saturation and care should be used in construction of dwelling or drainfields within these areas due to ground saturation, potential ponding or overland stormwater flow. There may some potential for landslide debris to flow onto Lot 3's NW corner, although the lot does not appear to have landslide activities or eminent geotechnical instability at this time. A 75' radial set back from the NW Corner should be considered. Applications for dwellings drain fields or livestock shelters would require additional geotechnical evaluation within this setback.

***Lot 4***

Lot 4 is accessed from Loop Road via a private driveway or roadway located along the northern edge of the lot and traversing Lots 2 and 3. Lot 4 is sheltered from view to the east by a thin ridge of land running north and south. A small but active landslide sits immediately adjacent to the lot's northern boundary. Debris flows from the landslide follow the drainage shown on Figure 1 by Klein and Associates. A singular pre-approved building site sits midway along the lot's eastern boundary accessed from the NE corner of the property. It is strongly recommended that no dwelling be constructed north of the natural drainage and should be set back no less than 50 ft from the top of the southern slope of natural drainage. Lands located to the west of the natural drainage do not appear to indicate landslide activity but are not recommended for placement of improvements. Construction of permanent dwellings, drain fields and animal shelters should be limited to the south and eastern portions of the lot. Applications for dwellings, drain fields, wells or livestock shelters to the west or north of the natural drainage or within any setbacks would require additional geotechnical evaluation.

**Conclusions**

Based on review of the surface of the portions of the parcel reviewed, there is no reason to believe that it is in any more danger from abnormal or untimely geological and geotechnical failure than any other buildable site located within the area. In the opinion of Bell Design Company, if precautionary measures are taken as outlined below, the site is suitable for the construction of a dwelling and accessory buildings with little risk to the safeguard of life, limb, health, property, or public welfare.

**Recommendations*****General Recommendation for all Lots***

It is recommended that normal stick-built home construction procedures be followed. We recommend that conventional concrete spread footing be utilized for any proposed homes designed for soil bearing strengths of 1500 psf. We recommend that new foundations be placed no closer than 25 feet from the ordinary high-water mark of any minor drainage courses. It should be noted that no building or foundation should be placed on any non-engineered non-compacted fill. It is also recommended that all drainage of surface water be directed away from any structures by the use of surface ditches, or underground drainpipes, directed away from the building site. Drainage pipes for gutters should be installed and directed away from the structures in a likewise manner. Proper drainage ditches along roadways should be considered to prevent erosion. It is recommended that 12-inch (min) drainage culverts be placed across the driveways or roadways to alleviate any damming of



water at any natural drainage swale crossings. The roadway should be graveled with sufficient depth to provide stability for vehicular traffic.

*Setback Restrictions:*

**Lot 3.** Do not build or place any permanent dwelling, drain field, well, or animal shelter within a 75' radius setback area with its center point located at the NW property corner of Lot 3. This setback should be indicated on the final plat with a note that indicates the following or something similar as approved by your office:

"Lands within this setback are subject to instability due to landslides or steep terrain. Do not build within this area without additional evaluation by a Qualified Engineer."

**Lot 4.** Do not build or place any permanent dwelling, drain field, well, or animal shelter north or west of the setback line. The setback line should be located along a 50-ft offset line from the top of slope along the south side of the natural drainage and 75 ft offset from the northern property line. This line should be surveyed in the field by a Licensed Land Surveyor and marked on the plat. This setback area should be indicated on the final plat with a note that indicates the following or something similar as approved by your office:

"Lands within this setback are subject to instability due to landslides or steep terrain. Do not build within this area without additional evaluation by a Qualified Engineer."

It may be required that the common proposed property line between Lot 3 and Lot 4 be adjusted in order to provide adequate building area for Lot 4. This should be determined prior to completion of the plat process.

**Limitations**

Bell Design Company makes these recommendations based solely on evidence as seen in the visual inspection of the premises on the date stated above. No other information, data, soil borings, slope indicator reports, slippage monitors, density tests or any other test was performed by Bell Design Company in order to produce this memorandum. Bell Design Company cannot and does not guarantee that this parcel will never experience slope instability caused by natural catastrophes.

**References**

Preliminary Bea Short Plat, Klein & Associates, Anthony Klein signing, plotted 8/29/06, Hood River Oregon. (Attached with markups by Bell Design Company)

Squire Associates. Geotechnical Report – Maple Hill Landslide, Dated February 25, 1999 by L. Radley Squire



INGRESS, EGRESS AND PUBLIC UTILITY EASEMENT



LOCATED IN THE SE 1/4 OF SECTION 26 AND THE SW 1/4 OF SECTION 25, T. 3N., R. 7E., W.M.  
SKAMANIA COUNTY, WASHINGTON

**Klein & Associates, Inc.**  
LAND SURVEYING  
1111 1st Avenue, Suite 100  
Astoria, Oregon 97103  
503.325.1111

PROJECT: 05-04-28  
FILE NO: 0000000-001-3000  
LAYOUT: LAYOUT  
SURVEYED: SURVEYED  
DESIGN: DESIGN BY  
DRAFT: CMI  
APPROVED: APPROVED  
DATE: 04-24-08  
SHEET: 2 OF 2 SHEETS

LINE	LENGTH	BEARING
L1	29.62	S14°21'15"E
L2	92.04	N84°10'04"W
L3	186.18	N84°10'04"W
L4	142.65	N78°47'51"W
L5	54.78	S48°48'32"W
L6	59.24	N89°28'45"W
L7	73.52	N82°28'09"W
L8	81.22	S80°03'33"W
L9	140.84	N89°28'45"W
L10	62.87	S82°33'57"W
L11	54.46	N72°31'17"W

CURVE	LENGTH	RADIUS	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD DISTANCE
C1	78.47	894.00	431°23'	38.45	S10°38'27"E	78.45
C2	89.87	75.00	53°22'37"	37.70	S10°30'50"W	87.37
C3	79.23	75.00	60°31'42"	43.76	S80°03'23"W	79.60
C4	68.99	100.00	35°28'21"	35.48	N80°01'17"W	67.54

### BASIS OF BEARINGS

TRANLOW SURVEYING, INC. BOOK 3, PAGE 142

INGRESS, EGRESS AND PUBLIC UTILITY EASEMENT  
LOCATED IN THE SE 1/4 OF SECTION 26 AND THE SW 1/4 OF SECTION 25, T. 3N., R. 7E., W.M.  
SKAMANIA COUNTY, WASHINGTON

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