



WASHINGTON STATE DEPT OF
**NATURAL
RESOURCES**

June 29, 2019

MEMORANDUM

TO: Cindy Neff, DNR Conservation, Recreation, & Transactions Division

FROM: Ana Shafer, Geologist, Forest Resources and Product Sales & Leasing Divisions

**SUBJECT: Proposed “River Road Transfer” property transaction – geologic review summary
DNR Olympic Region, Clallam County, Washington**

This memorandum is regarding a property proposed for transfer from Common School Trust. The property is referred to as “River Road Transfer”. The approximately 320-acre parcel is located in DNR’s Olympic Region, Clallam County, along the Dungeness River, in portions of Section 36, Township 30 North, Range 04 West, Willamette Meridian (W.M.)

You requested a review of the potential for surface and subsurface minerals. I have completed an office-based review of the mineral potential, and I have also screened for potentially unstable slopes and landforms.

The information I reviewed includes the following, some of which is available on DNR’s GIS database.

- 1:24,000-scale geologic mapping by Schasse and Logan (1998) and Schasse and Wegmann (2000);
- Inventory of Washington Minerals, Parts I (nonmetallic minerals) and II (metallic minerals), Bulletin 37 (Valentine and Huntting, 1960; Huntting, 1956, respectively);
- LiDAR digital elevation models (DEMs) – years flown 2002 (“Clallam 2002”), 2008 (“Dungeness River 2008”), and 2016 (“Dungeness Topobathy 2016”);
- Digital orthophotos, including 2000 (3-foot, black and white), 2006 (18-inch, color), 2009, 2011, 2013 (latter three: 3-foot, color), 2015 and 2017 (latter two: 1-foot, color);
- Washington Geological Survey’s “Landslide Hazards – All Layers” GIS layers;
- Forest Practices Landslide Inventory and Landslide Hazard Zones GIS layers; and
- Additional layers on the DNR GIS database: “Coal – All Layers” and “Oil and Gas Wells”.

Based on a review of available information, the River Road Transfer property appears to have low potential for subsurface minerals (metals, coal, oil, gas, and other nonmetallic) and relatively low potential for surface minerals (sand, gravel, and rock). Although some potential exists that there may be

sand and gravel of moderate to high quality in the older alluvium unit ("Qoa") described below and potentially basalt of some quality in the volcanic unit ("Ev(c)") also described below, several factors suggest a low potential for this site to be developed commercially. The volcanic unit tends to be highly variable in quality, and it is capped by a mantle of non-commercial glacial till of unknown thickness. Depending on the nature of the water storage project proposed for this property, there may be potential for the sale of sand and gravel from the Qoa unit, depending on the quality of the deposit, the quantity of fines (silt and clay), and other factors.

According to geologic mapping by Schasse and Logan (1998) and Schasse and Wegmann (2000), the western margin of the property along the Dungeness River is underlain by alluvial deposits (unit "Qa"), river-deposited sand, gravel, pebbles, and cobbles with fines (silt and clay), as well as peat (Figure 1). Through the middle, relatively flat portion of the property, published mapping indicates the presence of older alluvial deposits (unit "Qoa"), described as "crudely stratified cobbly, pebbly, bouldery gravel in a matrix of sand, silt, and clay". The upland areas are likely underlain by rocks of the Eocene Crescent Formation (unit "Ev(c)", capped by a mantle of Vashon glacial till (unit "Qgt" of Schasse and Wegmann (2000) and "Qgt(v)" of Schasse and Logan (1998)).

Unit Ev(c), basalt, basalt breccia, and diabase, is described by Schasse and Wegmann (2000) as "mostly porphyritic to aphyric, sparsely jointed, and pillow basalt and lesser basaltic breccia. Glacial till is described by Schasse and Wegmann (2000) as a poorly sorted mix of "pebbly, clayey, sandy silt with scattered cobbles and sparse boulders".

Schasse and Wegmann (2000) map one landslide in the property. This mapping was published prior to LiDAR becoming available. My review of the LiDAR DEMs suggests the mapped landslide, unit Qls on Figure 1, is nonexistent, as there does not appear to be visible landslide morphology, such as a headscarp, body, and toe. However, there does appear to be a likely deep-seated landslide within the southern portion of the property above River Road, along a roughly east-west-trending fault. This would need to be confirmed on the ground.

This geologic review is based on a remote, office-based evaluation. No field evaluation or lab testing has been conducted. A field evaluation would be needed to validate or refine these interpretations. If you have any questions, or if additional information is required, please contact me.



Ana Pierson Shafer

A handwritten signature in cursive script that reads "Ana Pierson Shafer".

Ana Shafer, L.E.G. #1123
State Lands Minerals & Aggregate Program Manager
Forest Resources and Product Sales & Leasing Divisions
WA Department of Natural Resources

References

Hunting, Marshall T., 1956, Inventory of Washington minerals; Part II--Metallic minerals: Washington Division of Mines and Geology Bulletin 37, Part II, 2 v.

Schasse, Henry W.; Logan, Robert L., 1998, Geologic map of the Sequim 7.5-minute quadrangle, Clallam County, Washington: Washington Division of Geology and Earth Resources Open File Report 98-7, 22 p., 2 plates.

Schasse, Henry W.; Wegmann, Karl W., 2000, Geologic map of the Carlsborg 7.5-minute quadrangle, Clallam County, Washington: Washington Division of Geology and Earth Resources Open File Report 2000-7, 27 p., 2 plates, scale 1:24,000.

Valentine, Grant M.; Hunting, Marshall T., reviser, 1960, Inventory of Washington minerals; Part I--Nonmetallic minerals; 2nd edition: Washington Division of Mines and Geology Bulletin 37, Part I, 2nd ed., 2 v.

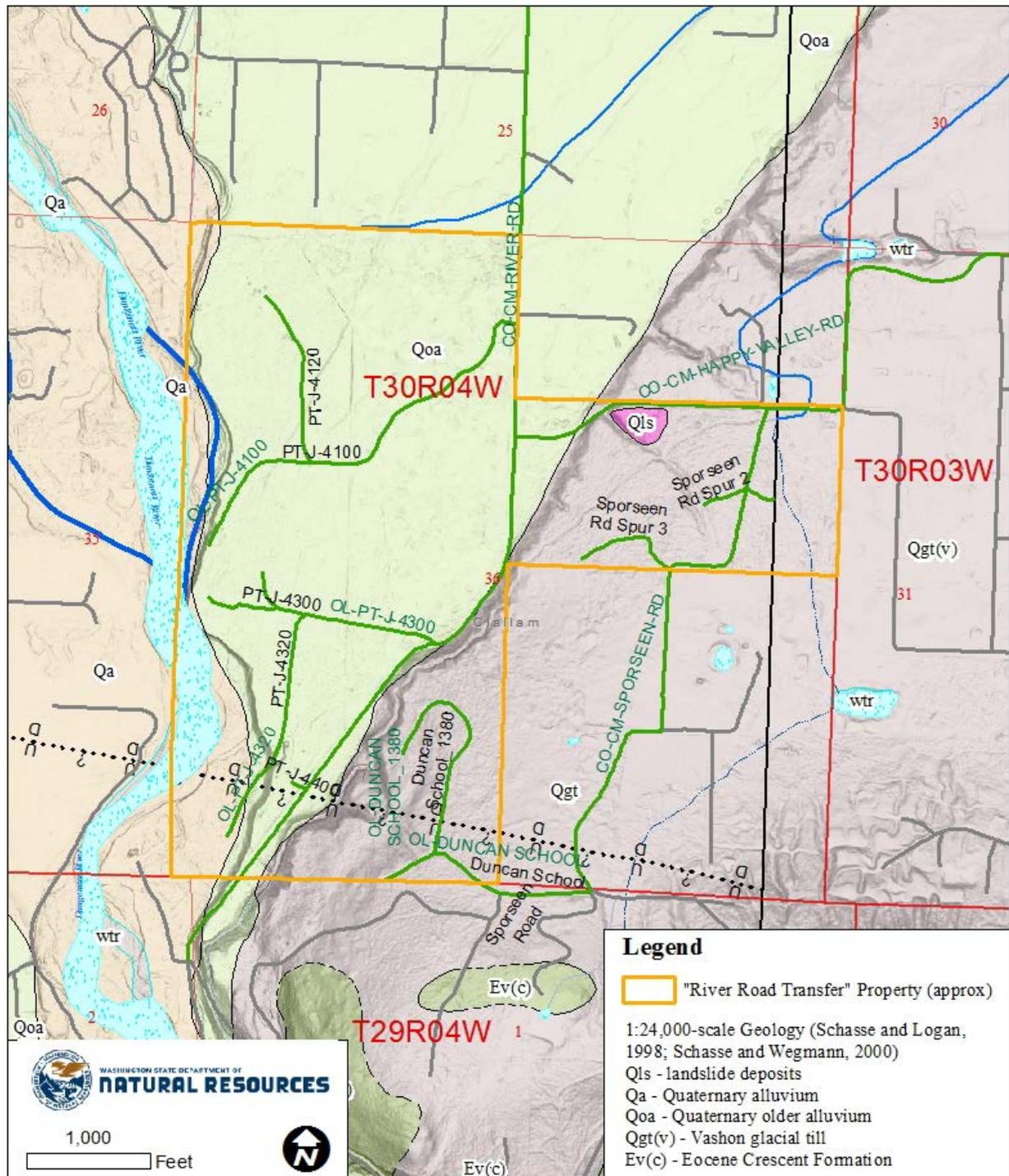


Figure 1 – 1:24,000-scale geologic mapping by Schasse and Logan (1998) and Schasse and Wegmann (2000), projected over the following LiDAR DEMs: 2002 (“Clallam 2002”), 2008 (“Dungeness River 2008”), and 2016 (“Dungeness Topobathy 2016”).