



NOTICE OF LAND USE DECISION BY THE COOS COUNTY PLANNING DIRECTOR

Coos County Planning
225 N. Adams St.
Coquille, OR 97423
<http://www.co.coos.or.us/>
Phone: 541-396-7770
Fax: 541-396-1022

Date of this Decision: January 10, 2020
File No: ACU-19-024

RE: Request for approval to site a single family dwelling within the very high landslide susceptibility natural hazard.

Applicant(s): Mark Kirn

This decision notice serves as public notice to all participants, adjacent property owners, special districts, agency with interests, or person with interests. If you are an adjacent property owner, this notice is being mailed to you because the applicant has applied for a use or activity on their property that requires that you receive notice pursuant to ORS 197.763. Please read all information carefully as this decision may affect you. (See attached vicinity map for the location of the subject property).

Mailed notices to owners of real property required by ORS 215 shall be deemed given to those owners named in an affidavit of mailing executed by the person designated by the governing body of a county to mail the notices. The failure of a person named in the affidavit to receive the notice shall not invalidate an ordinance. The failure of the governing body of a county to cause a notice to be mailed to an owner of a lot or parcel of property created or that has changed ownership since the last complete tax assessment roll was prepared shall not invalidate an ordinance.

NOTICE TO MORTGAGEE, LIEN HOLDER, VENDOR OR SELLER: ORS CHAPTER 215 (ORS 215.513) REQUIRES THAT IF YOU RECEIVE THIS NOTICE, IT MUST PROMPTLY BE FORWARDED TO THE PURCHASER.”

The requested proposal has been Approved Denied subject to the findings to the criteria found in Exhibit A. The decision is based on findings and facts represented in the staff report.

SUBJECT PROPERTY INFORMATION

Account Number: 1173600
Map Number: 29S123300-02100
Property Owner: KIRN, MARK E & REAVES-KIRN, NICOLE W
PO BOX 399
MYRTLE POINT, OR 97458-0399
Situs Address: 94788 PARSONAGE LN BROADBENT, OR 97414
Acreage: 0.57 Acres

Zoning: RURAL CENTER (RC)

Special Considerations: NATURAL HAZARD - LANDSLIDE (NHLND)

Proposal: Request for Planning Director Approval to site a single family dwelling within the Landslide Natural Hazard pursuant to Coos County Zoning and Land Development (CCZLDO) § 4.11.125(7)(b) Special Development Considerations – Natural Hazards – Landslide and Article 5.11 Geologic Assessment Reports.

Decision: This request meets the criteria subject to conditions of approval found at Exhibit A. Approval is based on findings and facts represented in the staff report.

This notice is to serve as public notice and decision notice and if you have received this notice by mail it is because you are a participant, adjacent property owner, special district, agency with interest, or person with interest in regard to the following land use application. Please read all information carefully as this decision may affect you. (See attached vicinity map for the location of the subject property).

The purpose of this notice is to inform you about the proposal and decision, where you may receive more information, and the requirements if you wish to appeal the decision by the Director to the Coos County Hearings Body. Any person who is adversely affected or aggrieved or who is entitled to written notice may appeal the decision by filing a written appeal in the manner and within the time period as provided by the Coos County Zoning and Land Development Ordinance (CCZLDO) Article 5.8. If you are mailing any documents to the Coos County Planning Department the address is 250 N. Baxter, Coquille OR 97423, but if an appeal is not received in the office by the time and date noted in this decision it will not be accepted. An appeal shall not be directly filed with the Land Use Board of Appeals until all local appeals have been exhausted. If appealed, failure of an issue to be raised in a hearing, in person or in writing, or failure to provide statements of evidence sufficient to afford the Approval Authority an opportunity to respond to the issue precludes raising the issue in an appeal to the Land Use Board of Appeals.

The application and all documents and evidence contained in the record, including the staff report and the applicable criteria, are available for inspection, at no cost, in the Planning Department located at 225 North Adams Street, Coquille, Oregon. Copies may be purchased at a cost of 50 cents per page or if available may be viewed at <http://www.co.coos.or.us/Departments/Planning/PlanningDepartment--Applications2019.aspx> Staff makes every effort to place all noticeable decisions on the webpage but it is not a legal requirement. The decision is based on the application submittal and information on record. The name of the Coos County Planning Department representative to contact is the person that prepared the report and the telephone number where more information can be obtained is **(541) 396-7770**.

This decision will become final at 12 P.M. on January 27, 2020 unless before this time a completed **APPLICATION FOR AN APPEAL OF A DECISION BY THE PLANNING DIRECTOR** form is submitted to and received by the Coos County Planning Department.

Prepared by: Amy Dibble Date: January 10, 2020
Amy Dibble, Planner II

Authorized by: Jill Rolfe Date: January 10, 2020
Jill Rolfe, Planning Director

EXHIBITS

Exhibit A: Conditions of Approval

Exhibit B: Vicinity Map

The Exhibits below are mailed to the Applicant and Planning Commission only. Copies are available upon request or may be found at the following

website:<http://www.co.coos.or.us/Departments/Planning/PlanningDepartment--Applications2019.aspx> **or by visiting the Planning Department at 225 N. Baxter, Coquille OR 97423. If you have any questions please contact staff at (541) 396-7770.**

Exhibit C: Staff Report

EXHIBIT "A"
CONDITIONS OF APPROVAL

The applicant shall comply with the following conditions of approval with the understanding that all costs associated with complying with the conditions are the responsibility of the applicants and that the applicants are not acting as an agent of the county. If the applicant fails to comply or maintain compliance with the conditions of approval the permit may be revoked as allowed by the Coos County Zoning and Land Development Ordinance. Please read the following conditions of approval and if you have any questions contact planning staff.

CONDITIONS OF APPROVAL

The applicant has met the criteria to site a alter an existing Single Family Dwelling located within the Landslide Natural Hazard, with the following conditions:

- a. All applicable federal, state, and local permits shall be obtained prior to the commencement of any development activity.
- b. The property owner is responsible for ensuring compliance, and land use authorization shall remain recorded in the chain of title. The statement needs to include language that the purchaser of the property has been provided a copy of the land use approval containing all conditions or restrictions understands the obligation and agrees to fulfill the conditions, unless a modification is approved as provided in this ordinance. The property owner is responsible for ensuring compliance, and land use authorization.
- c. All suggested requirements made by the geotechnical report shall be complied with through the development. A follow up report after development has finished must be submitted to assure that the construction was performed according to the Geologists recommendations.
- d. Pursuant to CCZLDO § 5.9.100, a Zoning Compliance Letter shall be required prior to the commencement of construction.

EXHIBIT "B" VICINITY MAP



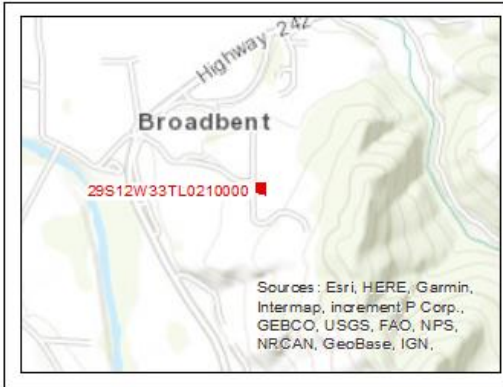
COOS COUNTY PLANNING DEPARTMENT

Mailing Address: 250 N. Baxter, Coos County Courthouse, Coquille, Oregon 97423

Physical Address: 225 N. Adams, Coquille Oregon

Phone: (541) 396-7770

Fax: (541) 396-1022/TDD (800) 735-2900



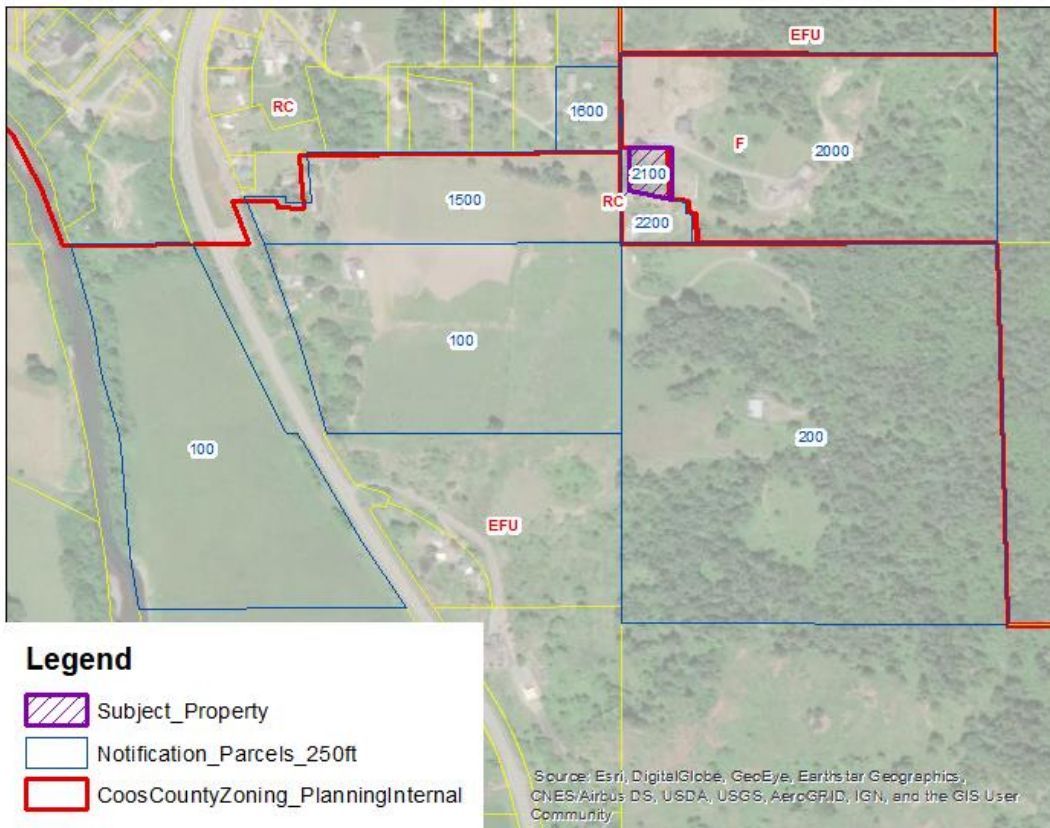
File: ACU-19-024

Applicant/ Owner: Mark Kim/
Mark Kim & Nicole Reaves-Kim

Date: December 17, 2019

Location: Township 29S Range 12W
Section 33 TL 2100

Proposal: Administrative Conditional Use



Legend

- Subject_Property
- Notification_Parcels_250ft
- CoosCountyZoning_PlanningInternal

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

EXHIBIT "C"
Staff Report

File Number: ACU-19-024
Applicant: Mark Kirn
Account Number: 1173600
Map Number: 29S123300-02100

Property Owner: KIRN, MARK E & REAVES-KIRN, NICOLE W
PO BOX 399
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Situs Address: 94788 PARSONAGE LN BROADBENT, OR 97414

Acreage: 0.57 Acres

Zoning: RURAL CENTER (RC)

Special Considerations: NATURAL HAZARD - LANDSLIDE (NHLND)

Reviewing Staff: Amy Dibble, Planner II
Date of Report: January 10, 2020

I. PROPOSAL

Request for Planning Director Approval to site a single family dwelling within the Landslide Natural Hazard pursuant to Coos County Zoning and Land Development (CCZLDO) § 4.11.125(7)(b) Special Development Considerations – Natural Hazards – Landslide and Article 5.11 Geologic Assessment Reports.

III. PROPERTY DESCRIPTION AND PROPOSAL

LAWFULLY CREATED: This property was acknowledged as a lawfully created parcel pursuant to CCZLDO § 6.1.125.1.e as it was created by a deed prior to applicable planning, zoning or subdivision ordinances (deed document Number 72-67299).

LOCATION: The subject property is located south of the City of Myrtle Point at 94788 Parsonage Lane.

SITE DESCRIPTION AND SURROUNDING USES:

- a. **SITE DESCRIPTION AND SURROUNDING USES:** This property is located south of the City of Myrtle Point with an address of 94788 Parsonage Lane. The property is zoned Rural Center (RC) is undeveloped and consists mainly of grass coverage with trees along the western, eastern, and southern boundaries. The adjacent property that is located to the north and east is zoned Forest Mixed Use (FMU) and contains residential and agricultural development with pasture land and some tree coverage. The property located to the south is zoned RC and contains residential development. The properties to the west are zoned RC and Exclusive Farm Use (EFU). The property zoned RC contains residential development and consists of grass with minimal tree

coverage. The property zoned EFU contains an AG structure and consists of grassy pasture land with a few trees. To the east and south is zoned Exclusive Farm Use (EFU) and contains a single family dwelling and an agricultural structure and consists of pasture land. The properties to the west are zoned RR-5 and EFU, they contain residential development and agricultural structures and consist of pasture land and tree coverage.

PROPOSAL: Request for Planning Director Approval to site a single family dwelling within the identified very high Landslide Susceptibility Natural Hazard pursuant to Coos County Zoning and Land Development (CCZLDO) § 4.11.125(7)(b) Special Development Considerations – Natural Hazards – Landslide and Article 5.11 Geologic Assessment Reports.

IV. APPROVAL CRITERIA & FINDINGS OF FACT

- **RURAL CENTER (RC)**

The intent of the Rural Center Designation "committed" rural nodes is to provide residential, commercial, and public/semi-public uses.

The purpose of the "RC" is to provide for the development of rural commercial, tourist commercial, residential and services facilities, necessities, convenience and supplies ancillary to nearby agricultural, forestry, recreational and rural residential uses and activities and to conserve energy by providing for needed commercial outlets in rural areas already "committed" as residential/commercial nodes.

New commercial uses that are consistent with the objectives of the "RC" district are those uses which are needed for the convenient shopping needs of the nearby rural population.

Only one Primary Use can exist, and any other use must be subordinate in size and nature. Pursuant to OAR-660-022-003 Commercial building or buildings in a rural unincorporated community shall not exceed 4,000 square feet of floor space.

- **SECTION 4.11.125 Special Development Considerations:**

The considerations are map overlays that show areas of concern such as hazards or protected sites. Each development consideration may further restrict a use. Development considerations play a very important role in determining where development should be allowed In the Balance of County zoning. The adopted plan maps and overlay maps have to be examined in order to determine how the inventory applies to the specific site.

7. NATURAL HAZARDS (BALANCE OF COUNTY POLICY 5.11)

Purpose Statements:

Coos County shall regulate development in known areas potentially subject to natural disasters and hazards, so as to minimize possible risks to life and property. Coos County considers natural disasters and hazards to include river and coastal flooding, landslides, liquefaction potential due to earthquakes, fault lines, tsunamis, river bank erosion, coastal erosion along shorelines and headlands, coastal erosion due to wind, and wildfires, including those areas affected by gorse.

This strategy shall be implemented by enacting special protective measures through zoning and other implementing devices, designed to minimize risks to life and property associated with new development. The determination of whether a property is located in one of the above referenced potentially hazardous areas shall be made by the reviewing body (Planning Director, Planning Commission, Board of

Commissioners, or any designee based upon adopted inventory mapping). A specific site may not include the characteristics for which it is mapped. In these circumstances staff shall apply § 5.11.100.2.c.

Hazard review shall not be considered applicable to any application that has received approval and requesting an extension to that approval or any application that was deemed completed as of the date this ordinance effective (July 31, 2017). If a land use authorization has expired the applicant will be required to address any applicable hazards.

- b. Landslides: Areas subject to landslides (mass movement) include active landslides, inactive landslides, earth flow and slump topography, and rockfall and debris flow terrain as identified on the 2015 Coos County Comprehensive Plan Hazards Map (mapped as the very high-existing landslides).*

Coos County shall permit the construction of new structures in an inventoried Landslide hazard area(earth flow/slump topography/rock fall/debris flow) through a conditional use process subject to a geological assessment review as set out in Article 5.11.

Finding: The proposal is to site a single family dwelling. The subject property is located within the very high landslide susceptibility hazard, this includes the proposal area. Coos County regulates the mapped very high landslide susceptibility areas and when development occurs in this hazard area an Administrative Conditional Use Application is required accompanied by a Geologic Assessment. The applicant submitted a completed Conditional Use Application and a Geological Study and Report prepared by Eric Oberbeck, Certified Engineering Geologist and Frederick Thrall, Registered Professional Engineer, both for Cascadia Geoservices; Therefore, this criterion has been satisfied.

ARTICLE 5.11 Geologic Assessment Reports

- ***Section 5.11.100 Geologic Assessment Requirements***
 1. *Applications for a geologic hazard review may be made concurrently with any other type of application required for the proposed use or activity. A review of the property must be conducted prior to any ground disturbance. All geologic hazard assessment reports shall include a description of the qualification of the licensed professional or professionals that prepared the assessment.*

Finding: The applicant's proposal was to site a single family dwelling within in the Rural Center zone which is permitted with a compliance determination review; however, due to the fact it is in an existing landslide area a conditional use review is required to address the Geological Assessment. Therefore, this criterion has been addressed.

2. *The applicant shall present a geologic hazard assessment report (geologic assessment) prepared by a qualified licensed professional competent in the practice of geosciences, at the applicant's expense, that identifies site specific geologic hazards, associated levels of risk, and the suitability of the site for the use and/or activity in view of such hazards. The geologic assessment shall include an analysis of the risk of geologic hazards on the subject property including the upslope and downslope properties that may be at risk from, or pose a risk to, the use and/or activity. The geologic hazard assessment shall also address the erosion impacts, any increase in storm water runoff, and any diversion or alteration of natural storm water runoff patterns resulting from the use and/or activity. The geologic hazard assessment shall include one of the following:*
 - a. *A statement that the use and/or activity can be accomplished without measures to mitigate or control the risk of geologic hazard to the subject property resulting from the proposed use and/or activity;*
 - b. *A statement that there is an elevated risk posed to the subject property by geologic hazards that requires mitigation measures in order for the use and/or activity to be undertaken safely sited on the property; or*
 - c. *A certification that there are no geological hazards present on site. If such is certified by a licensed profession then an application is not required. Coos County is not liable for any type of certification that a geological hazard is not present on site.*

Finding: The applicant submitted a Geotechnical Study and Report prepared by Eric Oberbeck, Certified Engineering Geologist and Frederick Thrall, Registered Professional Engineer, both for Cascadia Geoservices, which included a summary of their understanding of the project, a site investigation which includes subsurface explorations and provides their conclusions and recommendations for development of the site. Therefore, the addressed the criteria listed above.

3. *If the assessment identifies any past or present risk then an administrative conditional use is required to evaluate such risk and if mitigation measures are necessary to ensure that proposed development can be safely sited. The assessment shall describe and recommend how the proposed use and/or activity will be adequately protected from geologic hazards, including land sliding and sloughing, soil erosion or deposition, and earthquakes.*

If structural requirements are part of the recommendation, then as a condition of approval, an engineering geologic report consistent with standard geologic practices and generally accepted scientific and engineering principles is required and shall, at a minimum, be consistent with the Oregon State Board of Geologist Examiners "Guidelines for Preparing Engineering Geologic Reports in Oregon". This shall be supplied to the planning department to be attached to a zoning compliance before a building permit may be obtained.

Finding: Eric Oberbeck, Certified Engineering Geologist and Frederick Thrall, Registered Professional Engineer, both for Cascadia Geoservices, stated in the Geotechnical Study and Report that the property is located within an area that is highly influenced by regional seismicity due to its proximity to the Cascadia Subduction Zone (CZM). Mr. Oberbeck and Mr. Thrall provided site and design preparation recommendations; therefore, requiring an administrative conditional use. The recommendations shall be addressed later in this staff report.

- ***Section 5.11.200 Geotechnical application Reviews***

An application for a geotechnical review shall be reviewed under an administrative conditional use procedure unless Section 5.11.100.2 applies.

1. A geologic hazard assessment shall be deemed complete if the geologic report meets the content standards listed in Section 5.11.300.
2. Specific recommendations contained in the geologic report shall be incorporated into the approval as conditions. Based on content, recommendations and conclusions of the geotechnical report, the decision maker may apply other reasonable conditions.
3. The specific recommendations contained in the geotechnical report, and conditions applied to the geologic hazard permit shall be incorporated into the plans and specifications of the development which is the subject of the development permit.
4. The review requires an administrative application and all components shall be submitted with the Coos County Zoning and Land Development Ordinance (CCZLDO) §5.0.150 and Section 5.11.300. This review will be processed in accordance with Article 5.2.
5. At the discretion of the decision maker and at the applicant's expense, it may be required to have an evaluation of a geologic assessment by another expert as part of the review of a land use application located in an area subject to this section. The results of that evaluation shall be used in making the final decision on the effected land use application.
6. If § 5.11.100.2.b applies then prior to approval of the use and/or activity, the applicant shall provide a mitigation plan specific to the use and/or activity, including land divisions, and the approved geologic hazard mitigation report shall address the following:
 - a. The mitigation plan must adequately address all issues identified in the geologic hazard mitigation report and must identify any potential appropriate protection methods for the subject property;
 - b. The mitigation plan shall specify which, if any, measures and improvements must be installed or constructed under the direction of a supervising engineer;
 - c. The applicant shall, prior to the issuance of any development permits, record on the title to the subject property a notification that includes a description of the measures or improvements and that also specifies the obligation of the property owners to refrain from interfering with such measures or improvements and to maintain them; and
 - d. A schedule of inspections to be completed by the geologist or engineer to assure compliance with recommendations.

Finding: The geological hazard assessment contained recommendations that staff will incorporate into the conditions of approval. Staff does not find that an evaluation of the geological assessment provided is necessary. There was no recommendation for mitigation; therefore, these criteria have been addressed.

- **Section 5.11.300 application and development Standards for geotechnical applications:**

The review and approval of a conditional use in a Geologic Hazard Special Development Consideration area shall be based on the conformance of the proposed development plans with the following standards. Conditions of approval may be imposed on the development permit to assure that the development plan meets the standards of this section and to prevent the creation of a hazard to public or private property.

1. All Geologic Assessments are valid as prima facie evidence of the information therein contained for a period of five (5) years. Coos County assumes no responsibility for the quality or accuracy of such reports.
2. The geologic assessment shall include the following:
 - a. A topographic plot plan that shall include to scale:
 - i. All adjacent, contiguous and related property identified in the geologic hazard assessment as being at risk from, or posing a risk to, the use and/or activity;

- ii. *The degree of slope on the subject and adjacent properties;*
- iii. *All features on the subject and adjacent properties that may cause or contribute to mass movement. Such features shall specifically include any landslide, bluff failure or shoreline erosion that could migrate upslope into the subject or adjacent properties;*
- iv. *The location of all identified geomorphic features and micro-topographic features related to the identified geologic hazards;*
- v. *All on site or adjacent features or conditions, which contribute to the hazard or risk from the hazard(s); and*
- vi. *A map that depicts features and conditions associated with any building site or construction site associated with the development activity.*

Finding: The Geotechnical Study was performed on April 4, 2018; therefore, is a valid report until April 4, 2023. The report did not include a topographic plot plan; however, it did include surface geologic mapping of the site. The study provides a detailed explanation of the site and adjacent features as described in subsection i. through vi above. Therefore, the report has been accepted.

- b. *A technical analysis and narrative describing the following:*
 - i. *The geologic features or conditions of the property as well as those features or conditions which gave rise to the hazard from the use and/or activity;*
 - ii. *All features related to earth movement or geologic instability on adjacent touching parcels or lots to the site;*
 - iii. *The results of all geologic and/or engineering tests performed on soils, material, and rock type subsurface data from drill holes, or other data obtained from the site investigation with data points clearly identified on a map;*
 - iv. *Whether the proposed development activity can be sited in a manner to mitigate the substantial risk to the subject property in view of the geological hazards and risks that have been identified in the geologic assessment;*
 - v. *All features related to earth movement or geologic instability on, adjacent to, upslope or downslope from the subject property;*
 - vi. *A clear statement of all requirements or conditions on the use and/or activity that the geologist has determined are necessary to mitigate the geologic hazards that require mitigation; and*
 - vii. *A schedule of inspections to be completed by the geologist or engineer to assure compliance with recommendations.*

Finding: The analysis and narrative explain the properties surface and subsurface conditions, that the property was located within an area that is highly influenced by regional seismicity due to its proximity to the (CZM), provided results of testing performed on the soils, and provided recommendations for site preparation and design.

The assessment provided the geology of the property as follows:

- **Samples collected from the excavated cut were packaged and sent to their laboratory in Woodland, Washington where they were classified in general accordance with the Unified Soil Classification System, Visual Manual Procedure.**
- **The water content and Atterberg Limits were determined for a select sample.**

TABLE 1 - Laboratory Analysis

Sample Number	Test Pit	Depth Feet (bgs)	Soil Description	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index	USCS Symbol ^[2]
SS-1	HA-1	1.0	Clay	30.0	42	30	12	CL

- Based on the Plasticity index and on the Liquid Limit, the soil exposed in the bottom of the cut are classified as low plasticity clays.
- They infer that the liquid limit indicates the clays' intrinsic water-holding capacity and that the clay can absorb significant additional amounts of water if the existing moisture conditions change during construction.
- Through their experience with these soil types they have found that these soils are derived from weathering of sedimentary rocks and that they typically exhibit low to moderate volume change in response to changing moisture content.
- **Groundwater**
 - Based on the well logs in the area, a well which was drilled on the subject property in 1995, encountered groundwater at 32 feet bgs¹.
 - Please note that groundwater levels rise during periods of heavy rainfall and associated slope runoff.
 - It is anticipated that limited perched groundwater may be present at or near the contact of native soils and underlying bedrock deposits.
 - Groundwater follows topography and the hydraulic gradient is west.
 - It is further noted that evidence of near groundwater such as hydric soils or plants on the site were not observed.
 - During the site visit it was observed that several inches of groundwater had collected on the leveled site (indicated in images provided).
 - They infer that this is surface water which has drained off of the slope to the east and had collected on the site due to poor drainage of the clay soils.
- **Seismic Design Criteria**
 - The subject property is located in an area that is highly influenced by regional seismicity due to its proximity to the Cascadia Subduction Zone (CSZ).
 - Recent studies² indicate that the CSZ has generated maximum credible earthquakes with a Moment Magnitude (Mm) of 8.7 or greater every 200 to 300 years.
 - The current southern segment rupture range of time dependent probabilities are up to 40 percent in 50 years.
 - The basis if the seismic design criteria for this project is derived from the 2015 National Earthquake Hazard Reduction Program (NEHRP) and is taken from the USGS Design Maps Summary Report³.

¹ Below Ground Surface

² Goldfinger, C., et al. (2012). Turbidite Event History – Methods and implications for Holocene Paleoseismicity of the Cascadia Subduction Zone. U.S. Geological Survey (USGS), Professional Paper: 1661-F

³ USGS Design Maps Summary Report accessed from their website at <http://ehp2earthquake.wr.usgs.gov/desinmaps> in May 2016.

Table 2: 2015 NEHRP Seismic Design Parameters

Seismic Design Parameters	Short Period	1 Second
Maximum Credible Earthquake Spectral Acceleration	$S_s = 1.488 \text{ g}$	$S_1 = 0.767 \text{ g}$
Site Class	D = Stiff Soil (Determined)	
Site Coefficient	$F_a = 1.0$	$F_v = 1.7$
Adjusted Spectral Acceleration	$S_{MS} = 1.488 \text{ g}$	$S_{M1} = 1.303 \text{ g}$
Design Spectral Response Acceleration Parameters	$S_{Ds} = .992 \text{ g}$	$S_{D1} = 0.869 \text{ g}$
Peak Ground Acceleration	PGA = 1.1 g	

- **Geologic Hazards**
 - **Based on the review of the Statewide Landslide Information Layer for Oregon (SLIDO2)⁴ the site is within a previously identified landslide complex which covers an area of approximately 230 acres.**
 - **Upon further review, it is Cascadia Geoservices’ (CGS) opinion that the gently sloping area where the site is located is not part of an active landslide area.**
 - **This is based on the observed topography of the site and on the soils and decomposed bedrock exposed in the excavated building pad.**
 - **A review of LIDAR⁵ for the area, a surveying technology that reveals topography by illuminating the ground with laser light, indicates that the site is generally level to gently sloping and that the site is sparsely developed with residential development.**
 - **The LIDAR indicated that there are no breaks in topography, re-routed drainages and no anomalous landforms indicative of recent slope movement on the subject property.**
 - **Based on a review of US Geological Survey Maps⁶, there are no geologically young faults in the area which will impact the site.**
 - **There is now a consensus among earth scientists that much of the western US coastline, including the entire southern Oregon coast, is in an area which has been seismically active in the recent geologic past.**
 - **Our understanding of these forces is evolving and has been heightened by witnessing recent earthquakes and tsunamis in similar tectonic settings in Northern Indonesia (2005) and in Northern Japan (2011).**
 - **In order to protect people living in seismically active areas within the state, the state recently updated and released the 2017 Oregon Residential Specialty Code⁷.**
 - **It is Mr. Oberbeck and Mr. Thrall’s opinion that new homes such as the one proposed to be built should adopt these updated standards.**

⁴ (SLIDO). Oregon Department of Geology and Mineral Industries (DOGAMI) Statewide Landslide Information Database for Oregon, from <http://www.oregongeology.org/slido/index.htm>

⁵ (LIDAR) Oregon Department of Geology and Mineral Industries (DOGAMI) LIDAR from <http://earthquake.usgs.gov/hazard/qfaults/imsintro.php>

⁶ U.S. Geologic Survey (USGS) Quaternary Faults Web Mapping Application, retrieved May 15, 2017 from <http://earthquake.usgs.gov/hazards/qfaults/imsintro.php>

⁷ Oregon Residential Specialty Code, 2014, State of Oregon, viewed on December 26, 2015 at http://ecodes_support/free_resources/oregon/11_residential/11_orresidential_main.html

- **Liquefaction**
 - Liquefaction potential was assessed based on the information that was obtained from site observations and using the parameters suggested in the 2015 ODOT Geotechnical Design Manual.
 - According to their seismic analysis, the site will experience Peak Ground Acceleration (PGA) during a design seismic event of 1.1 g.
 - Based on the nature of the soils encountered during the hand augered borings performed and the indicated depth to groundwater, it is their opinion that the soils at the site have a low liquefaction potential.
 - Based on recent mapping and modeling done by the State of Oregon⁸, the site is not within the Tsunami Inundation Zone,
 - It is uncertain whether regionally, access roads will be impacted during a tsunami.
 - As a matter of safety procedure, CGS recommends that the applicant confer with the Local Resources and the State of Oregon's Department of Mineral Industries (DOGAMI) Tsunami Resource Center for current information regarding Tsunamis and preparedness and emergency procedures.
- **Setback**
 - The 2017 Oregon Residential Specialty Code, Section R. 403.1.9.1 (code) requires that buildings adjacent to descending slope surfaces be found in firm material with an embedment and setback from slope surface sufficient to provide vertical and lateral support for the footings without detrimental settlement.
 - When determining setbacks, the code recommends a minimum setback of at least the smaller of H/2 and 15 feet from ascending slopes⁹.
 - Based on the surface and subsurface observations and on current building codes, it is recommended that the perimeter house foundation be setback from the pad cut a minimum of five (5) feet.
 - This distance should be measured from the base of the slope.
 - These setbacks have been illustrated on Figure 2, site map.
 - As an alternative the perimeter footings can be moved to within a minimum 18 inches of the cut slope and the area between the perimeter foundation and the cut be backfilled with compacted free drain granular fill.
- **Discussion and Recommendations**
 - **Feasibility**
 - It is CGS's opinion that the proposed structure can be supported on conventional spread footings, provided the site is prepared in accordance with their recommendations.
 - These recommendations are based on their work experience involving similar sites in similar settings.
 - The use of conventional shallow foundations is feasible provided that the footings are set on the stiff light tan clay encountered at 28.0 inches bgs in the cut and exposed in the floor of the excavated building pad.
 - CGS further recommended that the eastern perimeter foundation be set back five (5) feet from the ascending cut slope.

⁸ Local Source (Cascadia Subduction Zone) Tsunami Inundation Map Port Orford, Oregon. 2021 STATE OF OREGON DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES view at <http://www.oregongeology.org>

⁹ H=the height of the slope

- These setbacks have been illustrated on Figure 2, Site Map.
 - CGS further recommends that the pad be graded to provide positive drainage away from the structure and back of the pad and that either a diversion terrace or subsurface drain be installed above the cut bank east of the pad to divert slope runoff away from the site.
 - CGS recommend that they be contacted for additional assistance with designing these.
 - If construction occurs during wet weather, CGS recommends that a thin layer of compacted, crushed rock be placed over the footings subgrades to help protect them from disturbance due to foot traffic and the elements.
- Design
 - Spread Footing Design Recommendations
 - All surfaces with building foundations or pavement areas should be prepared in accordance with the SITE Preparation section of the report provided.
 - The building foundations may be installed on either stiff tan clay or on engineered fill, which is set on these soils.
 - Continuous wall and isolated spread footings should be at least two (2) and three (3) feet wide, respectively.
 - The bottom of exterior footings should be at least eighteen (18) inches below the lowest adjacent exterior grade.
 - The bottom of the interior footings should be established at least twelve (12) inches below the base of the floor slab.
 - Footings bearing on stiff tan clay should be sized for an allowable bearing capacity of 1,500 pounds per square foot (psf).
 - This is a net bearing pressure.
 - The weight of the footings and overlying backfill can be disregarded in calculating footing sizes.
 - The recommended allowable bearing pressure applies to the total dead plus long-term live loads, and this bearing pressure may be doubled for short-term loads, such as those resulting from wind or seismic forces.
 - Based on CGS's estimates, and assuming the subgrade is properly prepared, total post-construction settlement was calculated to be less than one (1) inch, with post-construction differential settlement of less than 0.5 inches over a 50-foot span for maximum column and perimeter footing loads of less than 75 kips and 3 kips per linear foot.
 - Lateral loads on footings can be resisted by passive earth pressure on the sides of the structures and by friction at the base of the footings.
 - An allowable passive earth pressure of 200 pounds per cubic foot (PCF) maybe used for footings confined native soils and new structural fills.
 - Adjacent floor slabs, pavements, or the upper 12-inch depth of adjacent, unpaved areas should not be considered when calculating passive resistance.
 - For footings in contact with native soils, use a coefficient of friction equal to 0.35 when calculating resistance to sliding.
 - A CGS geotechnical engineer (or their representative) should confirm suitable bearing conditions and evaluate all footing subgrades.
 - Observations should also confirm that loose or soft material, organics, unsuitable fills, and old topsoil zones are removed.
 - Localized deepening of footings excavations may be required to penetrate

- any deleterious materials.
 - As previously discussed, if construction occurs during wet weather, CGS recommends that a thin layer of compacted, crushed rock be placed over the footing subgrades to help protect them from disturbance due to foot traffic and the elements.
 - The footings should be founded below an imaginary line projecting at a 1 horizontal to 1 vertical (1H:1V) slope from the base of any adjacent, parallel utility trenches.
 - The footings must be embedded so that a minimum of 40 feet of horizontal distance is between the face of the footings and the moderate to steep slopes to the north and west.
- Floor Slabs
 - Satisfactory subgrade support for building floor slabs can be obtained from the stiff tan clay subgrade prepared in accordance with our site preparation recommendations.
 - Once prepared, an 8-inch-thick layer of imported granular material should be placed and compacted over the prepared subgrade.
 - Imported granular material should be crushed rock or crushed gravel that is fairly well graded between coarse and fine, contains no deleterious materials, has a maximum particle size of one (1) inch, and has less than 5 percent by weight passing the U.S. Standard No. 200 Sieve.
 - Material recommendations are provided below.
- Retaining Structures
 - CGS's retaining wall design recommendations are based on the following assumptions:
 - The walls are conventional, cantilevered, retaining walls;
 - The walls are less than 8 feet in height;
 - The backfill is drained; and
 - The backfill has a slope flatter than 4H:1
 - Evaluation of our recommendations will be required if the retaining wall design criteria for the project vary from these assumptions.
 - Unrestrained site walls that retain native soils or structural fill should be designed to resist equivalent fluid pressures of 34 pcf where back slopes are flatter than 4H:1V.
 - If retaining walls are restrained from rotation prior to being backfilled, the equivalent fluid pressure should be increased 50 pcf.
 - For embedded building walls, a superimposed seismic lateral force should be calculated based on a dynamic force of $6H^2$ pounds per lineal foot of wall (where H is the height of the wall in feet) and applied at 0.6H from the base of the wall.
 - If other surcharges (e.g., slopes steeper than 4H:1V, foundations, vehicles, etc.) are located within a horizontal distance from the back wall equal to twice the height of the wall, then additional pressures will need to be accounted for in the wall design.
 - CGS should be contacted for appropriate wall surcharges based upon actual magnitude and configuration of the applied loads.
 - The wall footings should be designed in accordance with the guidelines provided in the Spread Footings Design Recommendations section of CGS's report.

- These design parameters have been provided assuming that back-of-wall drains will be installed to prevent buildup of hydrostatic pressures behind all walls.
 - If a drainage system is not installed, then CGS should be contacted for revised design forces.
 - The backfill material placed behind the walls and extending a horizontal distance equal to at least half of the height of the retaining wall should consist of granular retaining wall backfill as specified in the Structural Fill section of the report prepared by CGS.
 - A minimum 12-inch-wide zone of drain rock extending from the base of the wall to within 6 inches of finished grade should be placed against the back of all retaining walls.
 - Perforated collector pipes should be embedded at the base of the drain rock.
 - The drain rock should meet the requirements provided in the Structural Fill section of CGS's report.
 - The perforated collector pipes should discharge at an appropriate location away from the base of the wall.
 - The discharge pipe(s) should not be tied directly into storm water drain systems unless measures are taken to prevent backflow into the wall's drainage system.
 - Settlements of up to one (1) percent of the wall height commonly occur immediately adjacent to the wall, as the wall rotates and develops active lateral earth pressures.
 - Consequently, we recommend that construction of flat work adjacent to retaining walls be postponed at least four weeks after backfilling of the wall, unless survey data indicates that settlement is complete prior to that time.
- **Construction**
 - **Site Preparation**
 - If detected, near-surface root zones should be stripped and removed from the project site in all proposed building, fill, and pavement areas, and for a 5-foot margin around such areas.
 - The stripping depths will be variable and will likely vary based on proximity to existing trees and shrubs and on the thickness of the overlying fill.
 - The actual stripping depth should be based on field observations at the time of construction.
 - Stripped material should be disposed of or stockpiled for use in landscaped areas.
 - Trees and shrubs should be removed from all improvement areas.
 - Additionally, root balls should be grubbed out to the depth of the roots, which may exceed 3 feet bgs.
 - Depending on the methods used to remove the root balls, considerable disturbance and loosening of the subgrade could occur during site grubbing.
 - CGS recommends soil disturbed during grubbing operations be removed to expose firm, undisturbed subgrade.
 - The resulting excavations should be backfilled with structural fill.
 - Building and wall foundations, floor slabs, and pavements can be installed on either firm bedrock subgrade or engineered fill.
 - The existing surficial fill at the site has a variable consistency and is not suitable for construction.

- The old fill and any soft areas should be removed to a firm layer and replaced with structural fill.
 - **Probing**
 - Following stripping, excavation, and site preparation and prior to placing structural fills, the exposed excavated surface and the footings or slab subgrade should be evaluated by probing.
 - A member of CGS's geotechnical staff should carry out the probing. Soft or loose zones identified during the field evaluation should be compacted to an unyielding condition or be excavated and replaced with structural fill.
 - **Wet-Weather/Wet-Soil Conditions**
 - Trafficability on the exposed soils may be difficult during or after extended wet periods or when the moisture content of the surface soil is more than a few percentage points above optimum.
 - Soils disturbed during site-preparation activities, or soft or loose zones identified during probing should be removed and replaced with compacted structural fill.
 - **Excavation**
 - Subsurface conditions at the project site show predominately still tan clay to the depths explored.
 - Excavations in these soils may be readily accomplished with conventional earthwork equipment.
 - Trench cuts in native materials should stand vertical to a depth of approximately 4 feet, provided no groundwater seepage is present in the trench walls.
 - Open excavation may be used to excavate trenches with depths between 2 and 8 feet with the walls of the excavation cut at a slope of 1H:1V, provided groundwater seepage is not present and with the understanding that some sloughing may occur.
 - The trenches should be flattened to 1.5H:1V if excessive sloughing occurs or seepage is present.
 - Groundwater was not encountered during site exploration.
 - However, during the wet months of the year, some shallow perched groundwater may be expected.
 - If shallow groundwater is observed during construction, use of a trench shield (or other approved temporary shoring) is recommended for cuts that extend below groundwater seepage or if vertical walls are desired for cuts deeper than 4 feet.
 - If shoring or dewatering is used, CGS recommends that the type and design of the shoring and dewatering system be the responsibility of the contractor, who is in the best position to choose systems that fit the overall plan of operation.
 - These excavations should be made in accordance with applicable Occupational Safety and Health Administration and State regulations.
 - **Final Grade**
 - As indicated, the footing backfill should be graded to drain away from the structure and away from the slopes north of the house.
 - **Building Codes**
 - CGS recommends that the home design be reviewed for adherence to the local building codes as set forth in the 2017 Oregon Residential Specialty

Code.

- **Materials**
 - **Fills should be placed over subgrade that has been prepared in conformance with the Site Preparation section.**
 - **A wide range of material may be used as structural fill; however, all material used should be free of organic matter or other unsuitable materials and should meet the specifications provided in the 2015 Oregon Standard Specifications for Construction, Oregon Department of Transportation (ODOT, SS 2015), depending on the application.**
 - **A brief characterization of some of the acceptable materials and our recommendations for their use as structural fill is provided below.**
 - **Native Soils**
 - **The native soils are suitable for use as general fill, provided they are properly moisture conditioned and meet the requirements of ODOT SS 00330.12 – Borrow Material.**
 - **Fills derived from native soils should not be placed beneath footings or building slabs.**
 - **In order to adequately compact the soil, it may be necessary to moisture condition the soils to within 2 to 3 percentage points of the optimum moisture content.**
 - **When used as structural fill, native soils should be placed in lifts with maximum uncompacted thickness of 6 to 8 inches and compacted to at least 92 percent of the maximum dry density, as determined by ASTM D 1557.**
 - **Imported Granular Material**
 - **Imported granular material used during periods of wet weather or for access roads, building pad or footing subgrades, staging areas, etc., should be pit or quarry run rock, crushed rock, or crushed gravel and sand, and should meet the specifications provided in ODOT SS 00330.12 – Borrow Material, and ODOT SS 00330.13 – Selected General Backfill.**
 - **The imported granular material should also be fairly well graded between coarse and fine material and have less than 5 percent weight passing the U.S. Standard No. 200 Sieve.**
 - **Imported granular material should be placed in lifts with a maximum uncompacted thickness of 8 to 12 inches and be compacted to not less than 92 percent of the maximum dry density, as determined by ASTM D 1557.**
 - **During the wet season or when wet subgrade conditions exist, the initial lift should be approximately 18 inches in uncompacted thickness and should be compacted by rolling with a smooth-drum roller without using vibratory action.**
 - **Where imported granular material is placed over soft-soil subgrades, we recommended a geotextile be placed as a barrier between the subgrade and imported granular material.**
 - **Depending in site conditions, the geotextile should be installed in conformance with ODOT SS 00350.40 – Geosynthetic Construction, General Requirements.**
 - **Trench Backfill**
 - **Trench backfill placed beneath, adjacent to, and for at least 2 feet above utility lines (i.e., the pipe zone) should consist of well-graded granular material with a maximum particle size of 1.5 inches and less than 10 percent**

- by weight passing the U.S. Standard No. 200 Sieve and should meet the standards prescribed by ODOT SS 00405.12 – Pipe Zone Bedding.
 - The pipe zone backfill should be compacted to at least 90 percent of the maximum dry density, as determined by ASTM D 1557, or as required by the pipe manufacturer or local building department.
 - Within roadway alignments or beneath building pads, the remainder of the trench backfill should consist of well-graded granular material with a maximum particle size of 2.5 inches, less than 10 percent by weight passing the U.S. Standard No. 200 Sieve, and should meet standards prescribed by ODOT SS 00405.14 – Trench Backfill, Class A or B.
 - This material should be compacted to at least 92 percent of the maximum dry density, as determined by ASTM D 1557, or as required by the pipe manufacturer or local building department.
 - The upper two (2) feet of the trench backfill should be compacted to at least 92 percent of the maximum dry density, as determined by ASTM D 1557.
 - Outside of structural improvement areas (e.g., roadway alignments or building pads), trench backfill placed above the pipe zone may consist of general fill materials that is free of organics and materials over six (6) inches in diameter, and meet the standards prescribed by ODOT SS 00330.12 – Borrow Material, and ODOT SS 00405.14 – Trench Backfill, Class C, D, or E.
 - This general trench backfill should be compacted to at least 90 percent of the maximum dry density, as determined by ASTM D 1557, or as required by the pipe manufacturer or local building department.
- Stabilization Material
 - Stabilization rock should consist of imported granular material that is well graded, angular crushed rock consisting of 4 or 6-inch-minus material with less than 2 percent passing the U.S. Standard No. 4 Sieve.
 - The material should be free of organic matter and other deleterious material.
- Retaining Wall Backfill
 - Backfill material placed behind retaining walls and extending a horizontal distance of 0.5H, where H is the height of the retaining wall, should consist of select granular material meeting the requirements of ODOT SS 00510.12 – Granular Wall Backfill.
 - CGS recommends the select granular wall backfill be separated from general fill, native soil, and/or top soil using a geotextile fabric which meets the requirements provided in ODOT SS 02320.10 – Geosynthetic Construction, General Requirements.
 - The wall backfill should be compacted to a minimum of 95 percent of the maximum dry density, as determined by ASTM D 1557.
 - However, backfill located within a horizontal distance of three (3) feet from the retaining wall should only be compacted to approximately 90 percent of the maximum dry density, as determined by ASTM D 1557.
 - Backfill placed within three (3) feet of the wall should be compacted in lifts less than six (6) inches thick using hand-operated tamping equipment (such as jumping jack or vibratory plate compactors).
 - If flat work (sidewalks or pavements) will be placed atop the wall backfill, we recommend that the upper 2 feet of material be compacted to 92 percent

- of the maximum dry density as determined by ASTM D 1557.
 - **Trench and Retaining Wall Drain Backfill**
 - Backfill in a 2-foot zone against the back of retaining walls and for subsurface trench drains should consist of drain rock meeting the specifications provided in ODOT SS 00430.11 – Granular Drain Backfill Material.
 - The drain rock should be wrapped in a geotextile fabric that meets the specifications provided in ODOT SS 02320.10 – Geosynthetics, Acceptance, for soil separation and/or stabilization.
 - The geotextile should be installed in conformance with ODOT SS 00350.40 – Geosynthetic Construction, General Requirements
 - **Footing Base**
 - Imported granular material placed at the base of retaining wall footings should be clean crushed rock or crushed gravel, and sand that is fairly well graded between coarse and fine.
 - The granular materials should contain no deleterious materials, have a maximum particle size of 1.5 inches, and meet the requirements of ODOT SS 00330.14 – Selected Granular Backfill.
 - The imported granular material should be placed on one lift and compacted to not less than 92 percent of the maximum dry density, as determined by ASTM D 1557.
 - **Floor Slab Base Aggregate**
 - Base aggregate for floor slabs should be clean crushed rock or crushed gravel.
 - The base aggregate should contain no deleterious materials, meet specifications provided in ODOT SS 00330.14 – Selected Granular Backfill, and have less than five (5) percent by weight passing the U.S. Standard No. 200 Sieve.
 - The imported granular material should be placed in one lift and compacted to at least 95 percent of the maximum dry density, as determined by ASTM D 1557.
 - **Construction Observations**
 - Satisfactory pavement and earthwork performance depends on the quality of construction.
 - Sufficient monitoring of the contractor’s activities is a key part of determining that the work is completed in accordance with the construction drawings and specifications.
 - CGS recommends that a representative from CGS be retained to observe general excavation, stripping, fill placement, footing subgrades, and subgrades and base rock for floor slabs and pavements.
 - Subsurface conditions observed during construction should be compared with those encountered during the subsurface explorations.
 - Recognition of changed conditions requires experience; therefore, qualified personnel should visit the site with sufficient frequency to detect whether subsurface conditions change significantly from those anticipated.

VI. DECISION:

There is evidence to support the construction of a single family dwelling with the Landslide natural hazard area. There are conditions that apply to this use that can be found at Exhibit "A".

VII. EXPIRATION AND EXTENSION OF CONDITIONAL USES

- **Section 5.2.600 Expiration and Extension of Conditional Uses**

1. Permit Expiration Dates for all Conditional Use Approvals and Extensions :
 - b. On lands not zoned Exclusive Farm, Forest and Forest Mixed Use:
 - (1) All conditional uses for residential development including overlays shall not expire once they have received approval.

Please note that while the Conditional Use approval does not expire the geotechnical study and report is only valid for five (5) years; therefore, if the proposal is not completed prior to this a new report will be required.