



**Coos County Land Use Permit Application**  
 SUBMIT TO COOS COUNTY PLANNING DEPT. AT 60 E. SECOND STREET OR MAIL  
 TO: COOS COUNTY PLANNING 250 N. BAXTER, COQUILLE OR 97423. EMAIL  
[PLANNING@CO.COOS.OR.US](mailto:PLANNING@CO.COOS.OR.US) PHONE: 541-396-7770

FILE NUMBER: ACU-21-037

Date Received: 5/17/21 Receipt #: 94107216 Received by: MB

This application shall be filled out electronically. If you need assistance please contact staff.  
 If the fee is not included the application will not be processed.  
 (If payment is received on line a file number is required prior to submittal)

**LAND INFORMATION**

**A. Land Owner(s)** David and Holly von Damm

Mailing address: 1322 Shattuck Ave, APT 302 Berkeley, CA 94709

Phone: 510-345-7055 Email: vondamm.vesta@gmail.com

Township:	Range:	Section:	¼ Section:	1/16 Section:	Tax lots:
<u>29S</u>	<u>15W</u>	<u>1</u>	<u>C</u>	<u>B</u>	<u>1801</u>
Select	Select	Select	Select	Select	

Tax Account Number(s): 2900601 Zone: Select Zone Controlled Development (CD) 10  
 Tax Account Number(s): \_\_\_\_\_ Please Select \_\_\_\_\_

**B. Applicant(s)** David and Holly von Damm

Mailing address: 1322 Shattuck Ave, APT 302 Berkeley, CA 94709

Phone: 510-345-7055 Email: vondamm.vesta@gmail.com

**C. Consultant or Agent:** Not applicable

Mailing Address \_\_\_\_\_

Phone #: \_\_\_\_\_ Email: \_\_\_\_\_

**Type of Application Requested**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Comp Plan Amendment | <input checked="" type="checkbox"/> Administrative Conditional Use Review - ACU | <input type="checkbox"/> Land Division - P, SUB or PUD    |
| <input type="checkbox"/> Text Amendment      | <input type="checkbox"/> Hearings Body Conditional Use Review - HBCU            | <input type="checkbox"/> Family/Medical Hardship Dwelling |
| <input type="checkbox"/> Map - Rezone        | <input type="checkbox"/> Variance - V   | <input type="checkbox"/> Home Occupation/Cottage Industry |

**Special Districts and Services**

Water Service Type: City Water Sewage Disposal Type: On-Site Septic  
 School District: Bandon Fire District: Bandon RFPD

Please include the supplement application with request. If you need assistance with the application or supplemental application please contact staff. Staff is not able to provide legal advice. If you need help with findings please contact a land use attorney or consultant.

Any property information may be obtained from a tax statement or can be found on the County Assessor's webpage at the following links: [Map Information](#) Or [Account Information](#)

ARC, Airport, Wetland

D. **ATTACHED WRITTEN STATEMENT.** With all land use applications, the “burden of proof” is on the applicant. It is important that you provide information that clearly describes the nature of the request and indicates how the proposal complies with all of the applicable criteria within the Coos County Zoning and Land Development Ordinance (CCZLDO). You must address each of the Ordinance criteria on a point-by-point basis in order for this application to be deemed complete. A planner will explain which sections of the Ordinance pertain to your specific request. The information described below is required at the time you submit your application. The processing of your application does not begin until the application is determined to be complete. An incomplete application will postpone the decision, or may result in denial of the request. Please mark the items below to ensure your submittal is complete.

Application Check List: Please make off all steps as you complete them.

- I.  A written statement of intent, attached to this application, with necessary supporting evidence which fully and factually describes the following:
1.  A complete explanation of how the request complies with the applicable provisions and criteria in the Zoning Ordinance. A planner will explain which sections of the Ordinance pertain to your specific request. You must address each of the Ordinance criteria on a point-by-point basis in order for this application to be deemed complete.
  2.  A description of the property in question, including, but not limited to the following: size, vegetation, crops grown, access, existing buildings, topography, etc.
  3.  A complete description of the request, including any new structures proposed.
  4.  If applicable, documentation from sewer and water district showing availability for connection.
- II.  A plot plan (map) of the property. Please indicate the following on your plot plan:
1.  Location of all existing and proposed buildings and structures
  2.  Existing County Road, public right-of-way or other means of legal access
  3.  Location of any existing septic systems and designated repair areas
  4.  Limits of 100-year floodplain elevation (if applicable)
  5.  Vegetation on the property
  6.  Location of any outstanding physical features
  7.  Location and description (paved, gravel, etc.) of vehicular access to the dwelling location
- III.  A copy of the current deed, including the legal description, of the subject property. Copies may be obtained at the Coos County Clerk's Office.

I certify that this application and its related documents are accurate to the best of my knowledge. I am aware that there is an appeal period following the date of the Planning Director's decision on this land use action. I understand that the signature on this application authorizes representatives of the Coos County Planning Department to enter upon the subject property to gather information pertinent to this request. If the application is signed by an agent, the owner's written authorization must be attached.

If this application is refereed directly to a hearings officer or hearings body I understand that I am obligated to pay the additional fees incurred as part of the conditions of approval. I understand that I/we are not acting on the county's behalf and any fee that is a result of complying with any conditions of approval is the applicants/property owner responsibility. I understand that conditions of approval are required to be complied with at all time and an violation of such conditions may result in a revocation of this permit.

**David von Damm**

Digitally signed by David von Damm  
Date: 2021.05.13 21:52:15 -07'00'

**ACCESS INFORMATION**

The Coos County Road Department will be reviewing your proposal for safe access, driveway, road, and parking standards. There is a fee for this service. If you have questions about these services please contact the Road Department at 541-396-7660.

Property Address: Rohrer Avenue in Sunset City, Coos County, Tax Lot 1801

Type of Access: County Road Name of Access: Rohrer Ave.

Is this property in the Urban Growth Boundary? Yes

Is a new road created as part of this request? No

Required parking spaces are based on the use of the property. If this is for a residential use two spaces are required. Any other use will require a separate parking plan submitted that is required to have the following items:

- Current utilities and proposed utilities;
- Roadmaster may require drawings and specs from the Oregon Standards Specification Manual (OSSC) (current edition).
- The location and design of bicycle and pedestrian facilities shall be indicated on the site plan if this is a parking plan;
- Location of existing and proposed access point(s) on both sides of the road where applicable;
- Pedestrian access and circulation will be required if applicable. Internal pedestrian circulation shall be provided in new commercial, office, and multi-family residential developments through the clustering of buildings, construction of walkways, landscaping, accessways, or similar techniques;
- All plans (industrial and commercial) shall clearly show how the internal pedestrian and bicycle facilities of the site connect with external existing or planned facilities or systems;
- Distances to neighboring constructed access points, median openings (where applicable), traffic signals (where applicable), intersections, and other transportation features on both sides of the property;
- Number and direction of lanes to be constructed on the road plus striping plans;
- All planned transportation features (such as sidewalks, bikeways, auxiliary lanes, signals, etc.); and
- Parking and internal circulation plans including walkways and bikeways, in UGB's and UUC's.

Additional requirements that may apply depending on size of proposed development.

- a. Traffic Study completed by a registered traffic engineer.
- b. Access Analysis completed by a registered traffic engineer
- c. Sight Distance Certification from a registered traffic engineer.

Regulations regarding roads, driveways, access and parking standards can be found in Coos County Zoning and Land Development Ordinance (CCZLDO) Article 7.

By signing the application I am authorizing Coos County Roadmaster or designee to enter the property to determine compliance with Access, Parking, driveway and Road Standards. Inspections should be made by calling the Road Department at 541-396-7660

**Coos County Road Department Use Only**

Roadmaster or designee: \_\_\_\_\_

Driveway     Parking     Access     Bonded    Date:    Receipt # \_\_\_\_\_

File Number: DR-21-

ADDRESS OF DRIVEWAY #1 CLOSEST TO YOUR  
NEW DRIVEWAY: 54286 Rohrer Rd, Bandon, OR 97411

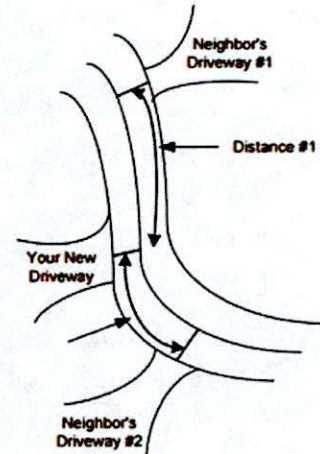
DISTANCE FROM DRIVEWAY #1 TO YOUR NEW  
DRIVEWAY: Approx. 300-feet

Is this driveway on the same side of the road as your  
Driveway: No

ADDRESS OF DRIVEWAY #2 CLOSEST TO YOUR  
NEW DRIVEWAY: 87052 Vesta Street, Bandon, OR 97411

DISTANCE FROM DRIVEWAY #2 TO YOUR NEW  
DRIVEWAY: Approx. 200-feet

Is this driveway on the same side of the road as your  
Driveway: No



The distance information is important from your new driveway to the closest driveways on either side of you (doesn't matter which side of the road) and what the addresses are to those two driveways. This information is important to include in the formula used to calculate the correct address.

Staff from the County Road Department will place the stake and once the driveway stake has been placed, it must not be moved. If your stake is removed or damaged you may purchase replacements.

Additional Notes or directions:

Please see details in the attached land use permit narrative.

This application is not required.

## SANITATION INFORMATION

If this is a request for a recreational, commercial, industrial, vacation rental, manufactured home park, mass or small gathering Coos Health and Wellness, Environmental Health Staff will be reviewing the proposal to ensure the use meets environmental health standards for sanitation and water requirements to serve the facility. If the proposal indicates that you are using a community water system a review may be required. A fee is charged for this service and shall be submitted with the application \$83.00. If you have questions about regulations regarding environmental health services please call 541-266-6720. This form is required to be signed off for any type of subdivision, recreational, commercial, industrial, vacation rental, manufactured home park, mass or small gathering.

Water Service Type: On-site Well

Sewage Disposal Type: On-site septic

Please check  if this request is for industrial, commercial, recreational or home base business use and complete the following questions:

- How many employees/vendors/patrons, total, will be on site?
- Will food be offered as part of the an on-site business?
- Will overnight accommodations be offered as part of an on-site business?
- What will be the hours of operation of the business?

Please check  if the request is for a land division.

### Coos County Environmental Health Use Only:

Staff Reviewing Application: \_\_\_\_\_

Staff Signature: \_\_\_\_\_

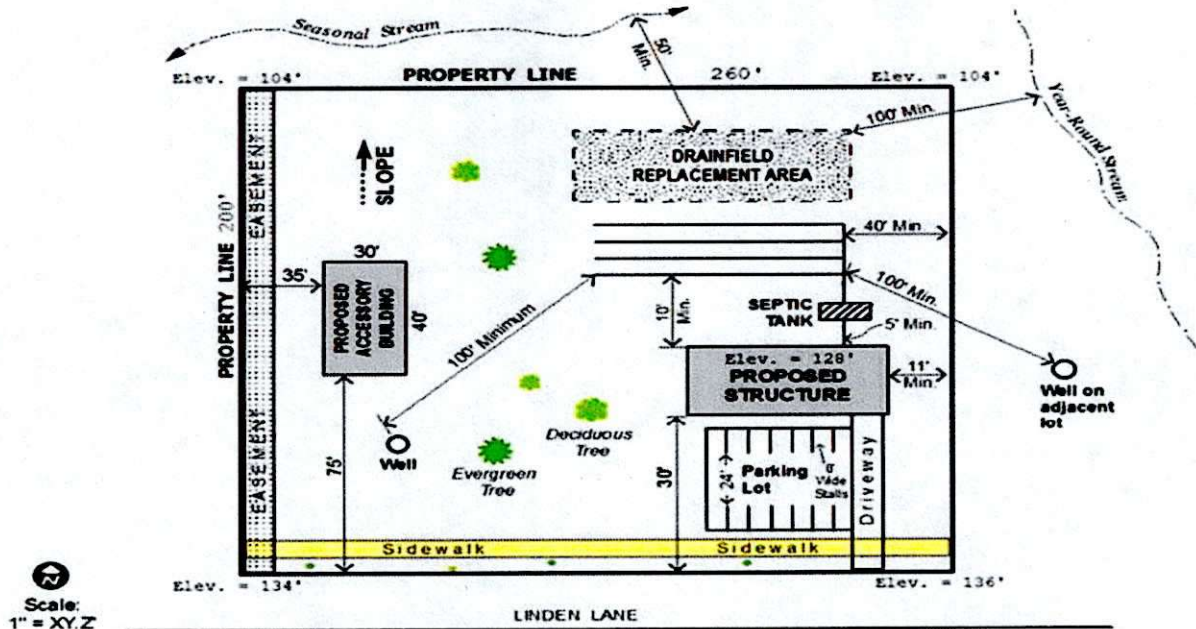
- This application is found to be in compliance and will require no additional inspections
- This application is found to be in compliance but will require future inspections
- This application will require inspection prior to determining initial compliance. The applicant shall contact Coos Health and Wellness, Environmental Health Division to make an appointment.

Additional Comments:

Our preference is to pull water from the existing city/community water line in Rohrer Avenue, however there is presently a moratorium on expanding water access beyond Bandon City Limits. Should this moratorium be lifted we will pull water from the shared / community system versus an on site well.

Plot Plan  
The grid for the plot plan is found on the next page

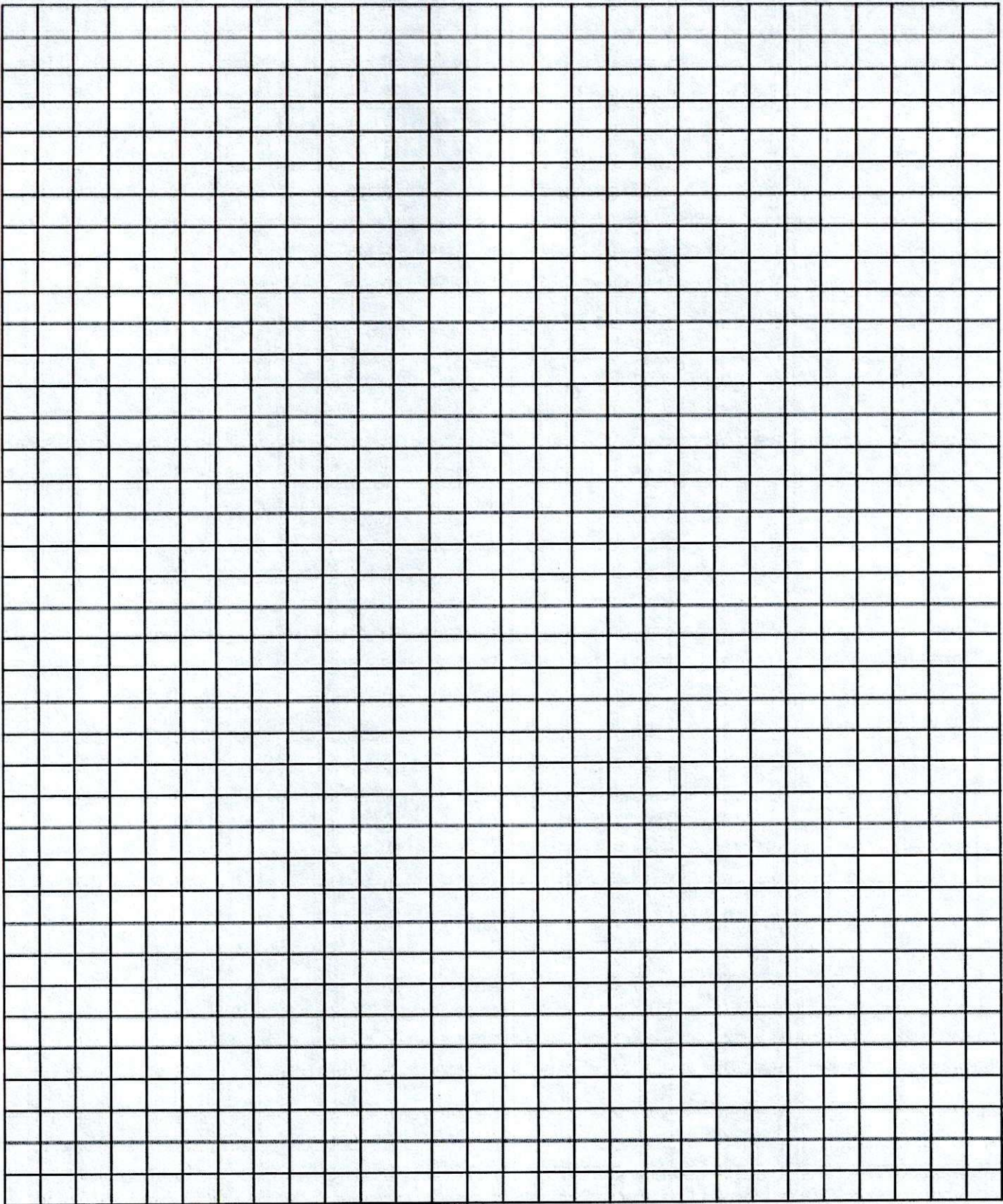
**SAMPLE PLOT PLAN**



**ITEMS THAT MUST BE ON THE PLOT PLAN:**

At a minimum, the site plan should provide information on the following items:

- Existing and proposed lot lines, lot or parcel numbers, and acreage/square footage of lots.
- Dimensions of all illustrated features (i.e. all structures, septic systems, driveways, roads, etc.)
- Significant natural features (slopes greater than 20%, geologic hazards, wetlands, drainage ways, rivers, streams, and the general location of existing trees, etc.).
- Existing easements (access, storm drainage, utility, etc.).
- Existing and proposed (structures, outbuildings, septic, etc.) on site and on adjoining properties.
- Existing and proposed road locations including widths, curbs, and sidewalks.
- Existing and proposed driveway approach locations on site, existing driveway approaches on adjoining properties on the same side of the street, and existing driveway approaches across the street from the site.
- Contiguous properties under the same ownership.
- General predevelopment topographical information (minimum 10' contour intervals).
- Location of utilities.
- If redevelopment is viable in the future, a redevelopment plan should be included.
- Preliminary site utility plan.
- Please add any additional Road or parking items from the parking form.



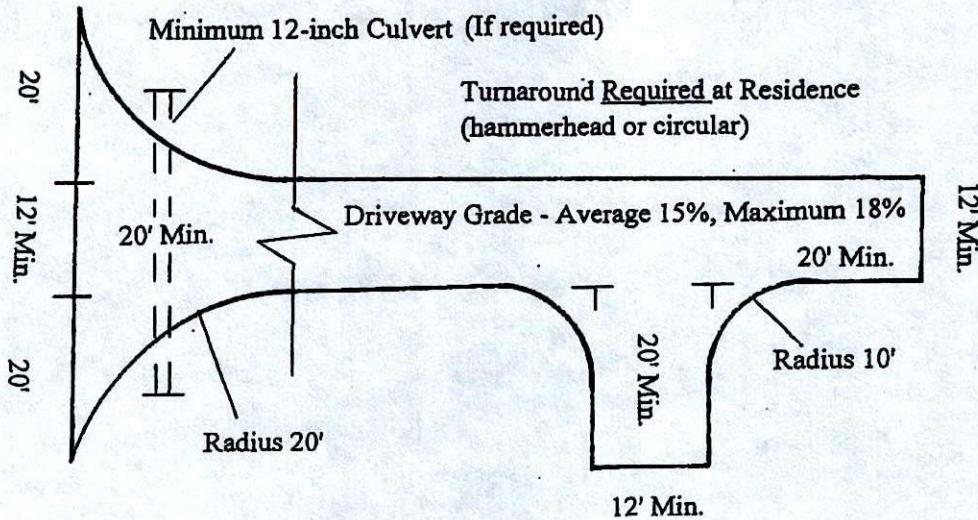
**ADDITIONAL DRIVEWAY, ROAD, PARKING STANDARDS  
DRIVEWAY STANDARDS DRAWING – SINGLE RESIDENCE**

Sight Distance Requirements (at the approach entrance)

- Speed less than 35 mph – 100' both directions
- Speed greater than 35mph – 150' both directions

All Weather Surface – minimum 4 – inches aggregate base or as required by Roadmaster.

Figure 7.1.425



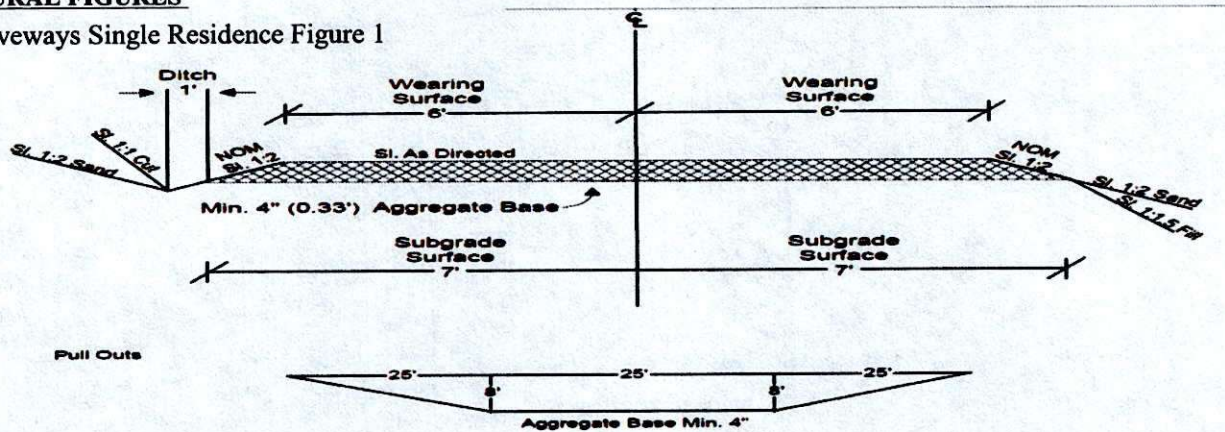
Construct appropriate ditches to prevent water runoff from discharging from the land onto a public road under county jurisdiction. Pursuant to ORS 368.256 the creation of a road hazard prohibited.

If driveway is over 1,000 ft., a pullout is required every 600 ft.

If a driveway cannot meet the maximum 18% grade then a legal agreement may be signed and recorded at the County Clerk's office releasing the County from any liability from such driveway development. This document must be referenced on the property deed to allow future purchasers know that the driveway does meet standard. A sign shall be placed at the bottom of the driveway to warn any users of the driveway that it is not built to standard. Proof must be filed with the Planning and Road Department that the documents have been filed and a sign has been placed. The form located on the following page must be completed, signed and recorded prior to any land use authorizations.

**RURAL FIGURES**

Driveways Single Residence Figure 1



FORESTRY, MINING OR AGRICULTURAL ACCESS:



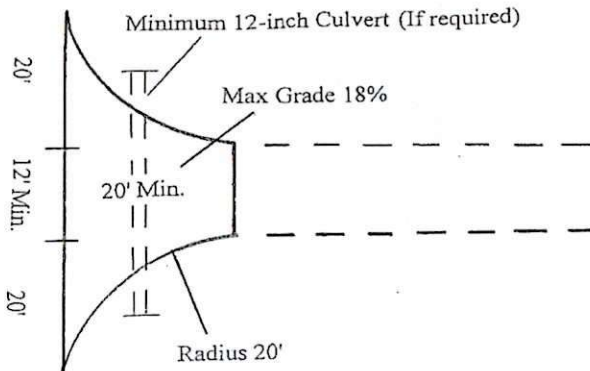
A private road which is created to provide ingress or egress in conjunction with the use of land for forestry, mining or agricultural purposes shall not be required to meet minimum road, bridge or driveway standards set forth in this ordinance, nor are such resource-related roads, bridges or driveways reviewable by the County. However, all new and re-opened forestry, mining or agricultural roads shall meet the access standards listed in this section.

**Forestry, Mining or Agricultural Access Standard drawing**  
Sight Distance Requirements (at the approach entrance)

- Speed less than 35 mph – 100’ both directions
- Speed greater than 35 mph – 150’ both directions

All Weather Surfaces – minimum aggregate base as required by the Roadmaster  
The access will be developed from the edge of the developed road.

Figure 7.1.450

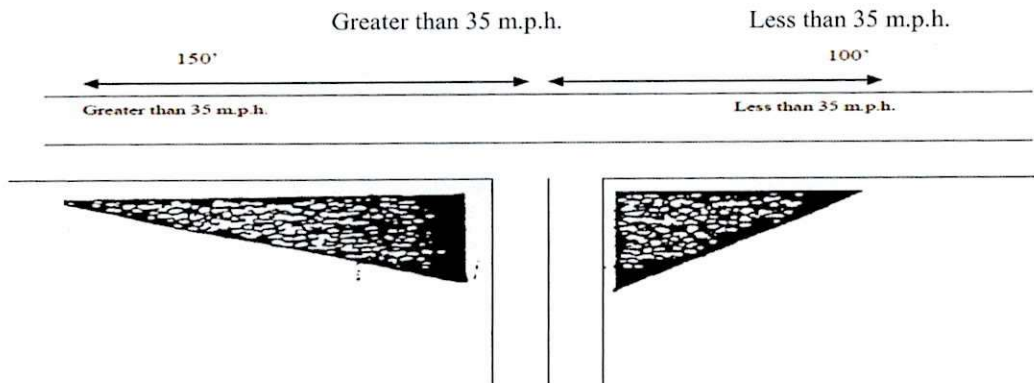


Construct appropriate ditches to prevent water runoff from discharging from the land onto a road under county jurisdiction. Pursuant to ORS 368.256 creation of a road hazard is prohibited.

**VISION CLEARANCE TRIANGLE:**

The following regulations shall apply to all intersections of streets and roads within all districts in order to provide adequate visibility for vehicular traffic. There shall be no visual obstructions over thirty-six (36) inches in height within the clear vision area established herein. In addition to street or road intersections, the provisions of this section shall also apply to mobile home park, recreational vehicle park, and campground accesses (entrances or exists).

The clear vision area shall extend along the right-of-way of the street for a minimum of 100 feet where the speed limit is less than 35 M.P.H.; and not less than 150 feet where the speed limit is greater than 35 m.p.h. The clear vision area shall be effective from a point in the center of the access not less than 25 feet back from the street right-of-way line.



**PARKING STANDARDS**

USE	STANDARD
Retail store and general commercial except as provided in subsection b. of this section.	1 space per 200 square feet of floor area, plus 1 space per employee. 1 Bicycle space
Retail store handling bulky merchandise (furniture, appliances, automobiles, machinery, etc.)	1 space per 600 square feet of floor area, plus 1 space per employee. 1 Bicycle space
Bank, general office, (except medical and dental).	1 space per 600 square feet of floor area, plus 1 space per employee. 1 Bicycle space
Medical or dental clinic or office.	1 ½ space per examination room plus 1 space per employee. 1 Bicycle space
Eating or drinking establishment.	1 space per 200 square feet of floor area, plus 1 space for every 4 seats. 1 Bicycle space
Bowling Alley	5 spaces per alley plus 1 space per 2 employees. 1 Bicycle space
Dance hall, skating rink, lodge hall.	1 space per 100 square feet of floor area plus 1 space per 2 employees. 1 Bicycle space
Stadium, arena, theater, race track	1 space per 4 seats or every 8 feet of bench length or equivalent capacity if no seating is provided. 1 Bicycle space
Storage warehouse, manufacturing establishment, or trucking freight terminal	1 space per employee. 1 Bicycle space
Wholesale establishment.	1 space per employee plus 1 space per 700 square feet of patron serving area. 1 Bicycle space
Welfare or correctional institution	1 space per 5 beds for patients or inmates, plus 1 space per employee. 1 Bicycle space
Convalescent hospital, nursing home, sanitarium, rest home, home for the aged.	1 space per 5 beds for patients or residents, plus 1 space per employee. 1 Bicycle space
Church, mortuary, sports arena, theater.	1 space for 4 seats or every 8 feet of bench length in the main auditorium. 1 Bicycle space
Library, reading room.	1 space per 400 square feet of floor area plus 1 space per employee. 1 Bicycle space
Preschool nursery, kindergarten.	2 spaces per teacher; plus off-street loading and unloading facility. 1 Bicycle space per 20 students
Elementary or junior high school.	1 space per classroom plus 1 space per administrative employee or 1 space per 4 seats or every 8 feet of bench length in the auditorium or assembly room whichever is greater. 1 Bicycle space per 10 students
High school	1 space per classroom plus 1 space per administrative employee plus 1 space for each 6 students or 1 space per 4 seats or 8 feet of bench length in the main Auditorium, whichever is greater. 1 Bicycle space per 20 students

Other auditorium, meeting room.	1 space per 4 seats or every 8 feet of bench length. 1 Bicycle space
Single-family dwelling.	2 spaces per dwelling unit.
Two-family or multi-family dwellings.	1 ½ spaces per dwelling unit. 1 bicycle space per unit for buildings with 4 or more units.
Motel, hotel, rooming or boarding house.	1 space per guest accommodation plus 1 space per employee.
Mobile home or RV park.	1 ½ spaces per mobile home or RV site.

Parking lot standards – Use the table above along with the area available to calculate the number of spaces required and determine the type of parking lot that needs to be created. The table below explains the spacing and dimensions to be used.

Minimum Horizontal Parking Widths for Standard Automobiles					
	One-way Parallel	30 deg	45 deg	60 deg	90 deg
<b>Figures</b>	A	B	C	D	E
<b>Single row of Parking</b>					
Parking Aisle	9'	20'	22'	23'	20'
Driving Aisle	12'	16'	17'	20'	24'
Minimum width of module (row and aisle)	21'	36'	39'	43'	44'
<b>Figures #'s</b>					
	F	G	H	I	J
<b>Two Rows of Parking</b>					
Parking Aisle	18'	40'	44'	46'	40'
Driving Aisle	12'	16'	17'	20'	24'
Minimum width of module (row and aisle)	30'	56'	61'	66'	64'

For figures please see Coos County Zoning and Land Development Ordinance (CCZLDO) § 7.5.175.

**Please note: If you are developing in any wetlands or floodplain please contact Department of State Lands to ensure you are not required to obtain a state permit.**

**Land Use Permit Application – Statement of Intent**  
**David and Holly von Damm**  
**Map#29S15W01CB Tax lot 1801**  
**Coos County, Oregon – May 14, 2021**

**Purpose:** The purpose of this narrative is to clearly describe the nature of our request and to indicate how this proposal complies with all of the applicable criteria within the Coos County Zoning and Land Development Ordinance.

**Image Index:**

- Image 1: Coos County Map 29S15W01CB
- Image 2: Lot topography
- Image 3: Distance to nearest developed dwelling
- Image 4: Bandon zone map
- Image 5: Tsunami Zone Map

**Project description:** This is a proposed new single-family residence of three stories. The proposed dwelling will have a living area of approximately 4,700 square feet. The foundational area will be approximately 60 X 60 feet. This project will conform to all applicable county ordinances.

**Lot description:** Tax lot 1801 is a 100 X 100 square foot lot located in the Bandon urban growth boundary known as Sunset City (see Image 1 and 4). This is a corner lot residing within: 1) Vesta Street (to the South); 2) Rohrer Avenue (to the West); 3) Tax lot 1902 (to the East), and; Tax lot 1801 (to the North). Adjacent Tax lots are undeveloped. City water and electricity are available from Rohrer Ave. With the exception of gorse which grows readily in the area, there are no crops, trees, or other significant vegetation on the site (see Image 2). This vacant lot has no public right of way and no existing structures.

**Applicable Ordinance Criteria:**

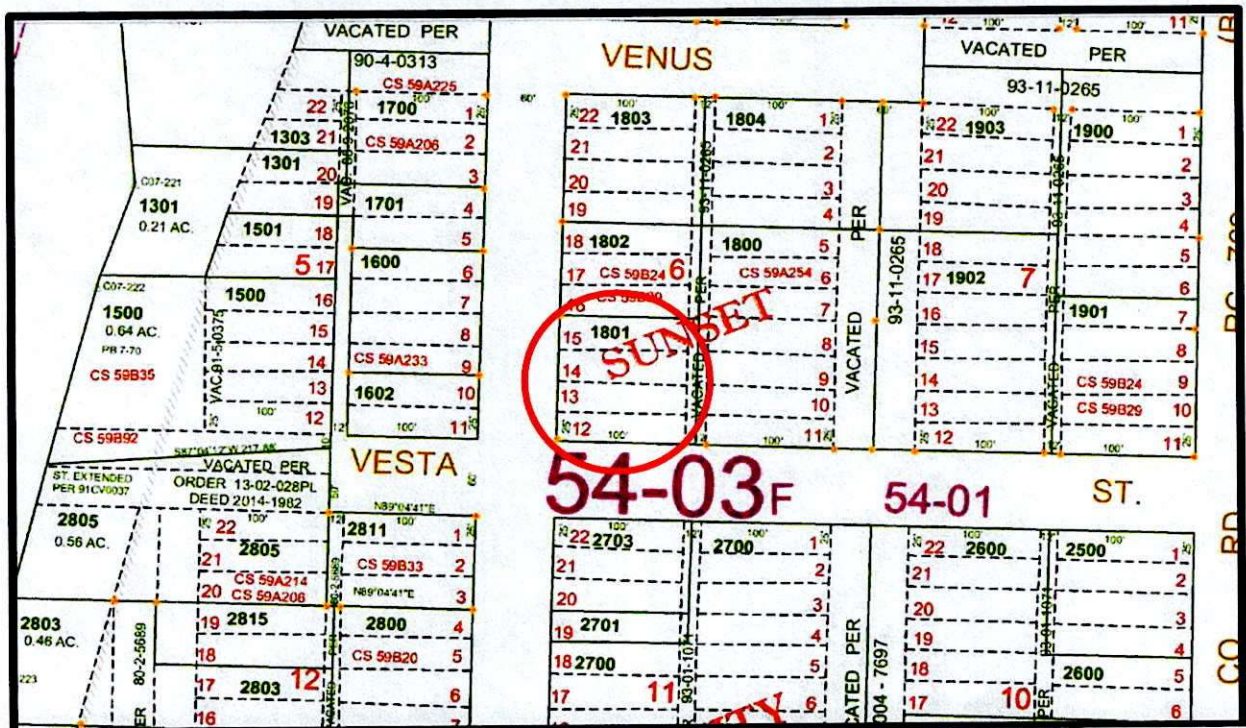
- 1) **Setbacks:** This property is located within the Controlled Development – 10 (CD-10) zoning district. The setbacks within this zoning district are 20 feet from the front and 5 feet from the sides and rear unless the property abuts a second road then the setback from that road is 15 feet. The proposed front of the building is Rohrer Ave, therefore, there will be a 20-foot setback to Rohrer Ave to the West and 15-foot setback to Vesta Street to the South. The project will be well inside of the required 5-foot setback for all other sides.
- 2) **Height Restriction:** A height restriction of 35-feet applies. The proposed structure has a planned maximum height of 34-feet and 3-inches (34'3").
- 3) **Driveway and Access Rules:** The proposed structure includes garage space for 3-cars with driveway access from Vesta Street (Image 3).
- 4) **Fire / Tsunami Safety:** A fire safety setback of a 30-foot is already achieved given the existing topography and proposed plot plan which places the main structure well beyond 30-feet from the nearest set of trees. The property lies within the local tsunami evacuation zone (see Image 2 and 5).

Land Use Permit Application – Statement of Intent  
 David and Holly von Damm  
 Map#29S15W01CB Tax lot 1801  
 Coos County, Oregon – May 14, 2021

**Conclusion:** Thank you for the opportunity to apply for this Land Use Permit. Please note that we are working with the below named individuals on this project:

*Anthony Moore – Builder (anth44@gmail.com)*  
*Rick McAlexander – Drafter (rick@associateddesigns.com)*

**Image 1: Coos County Map 29S15W01CB**



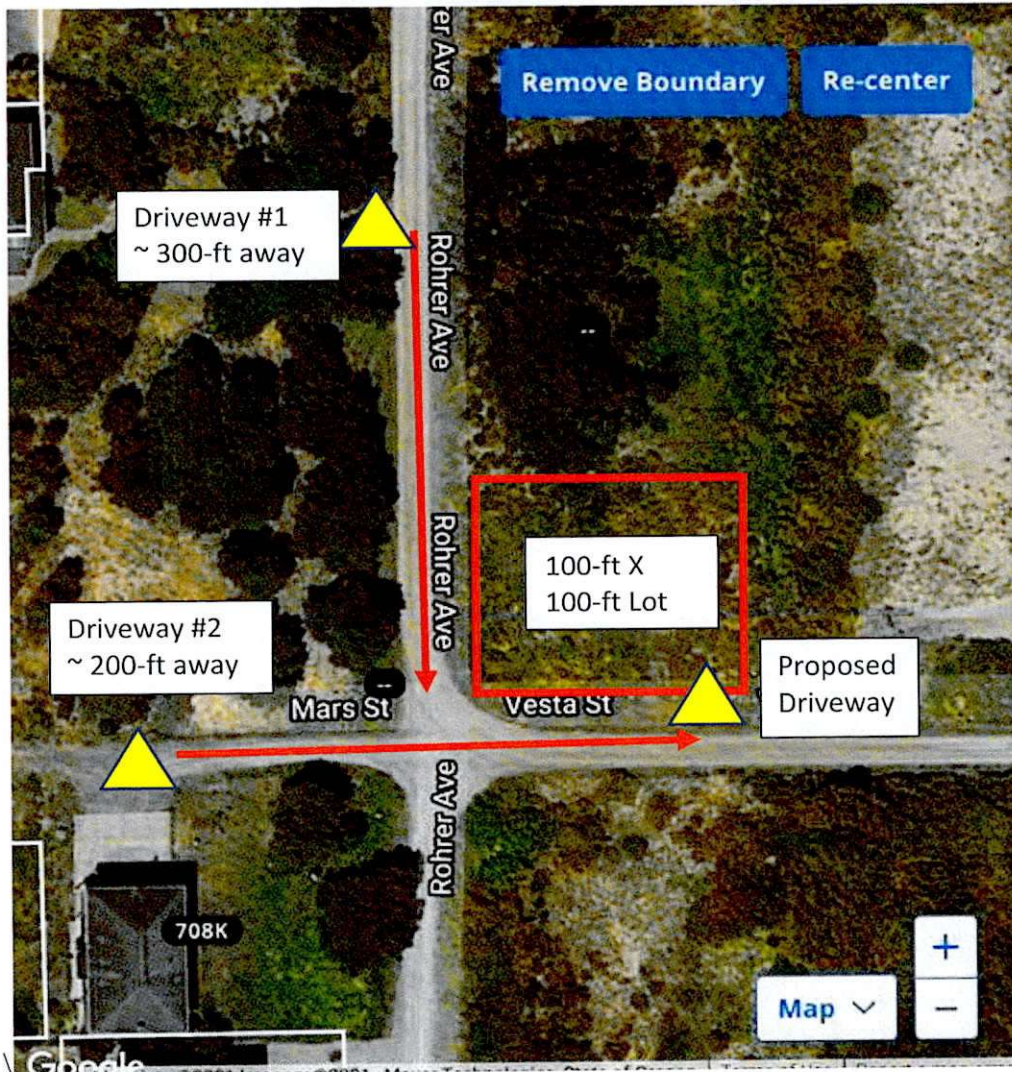
Land Use Permit Application – Statement of Intent  
David and Holly von Damm  
Map#29S15W01CB Tax lot 1801  
Coos County, Oregon – May 14, 2021

**Image 2: Lot topography**



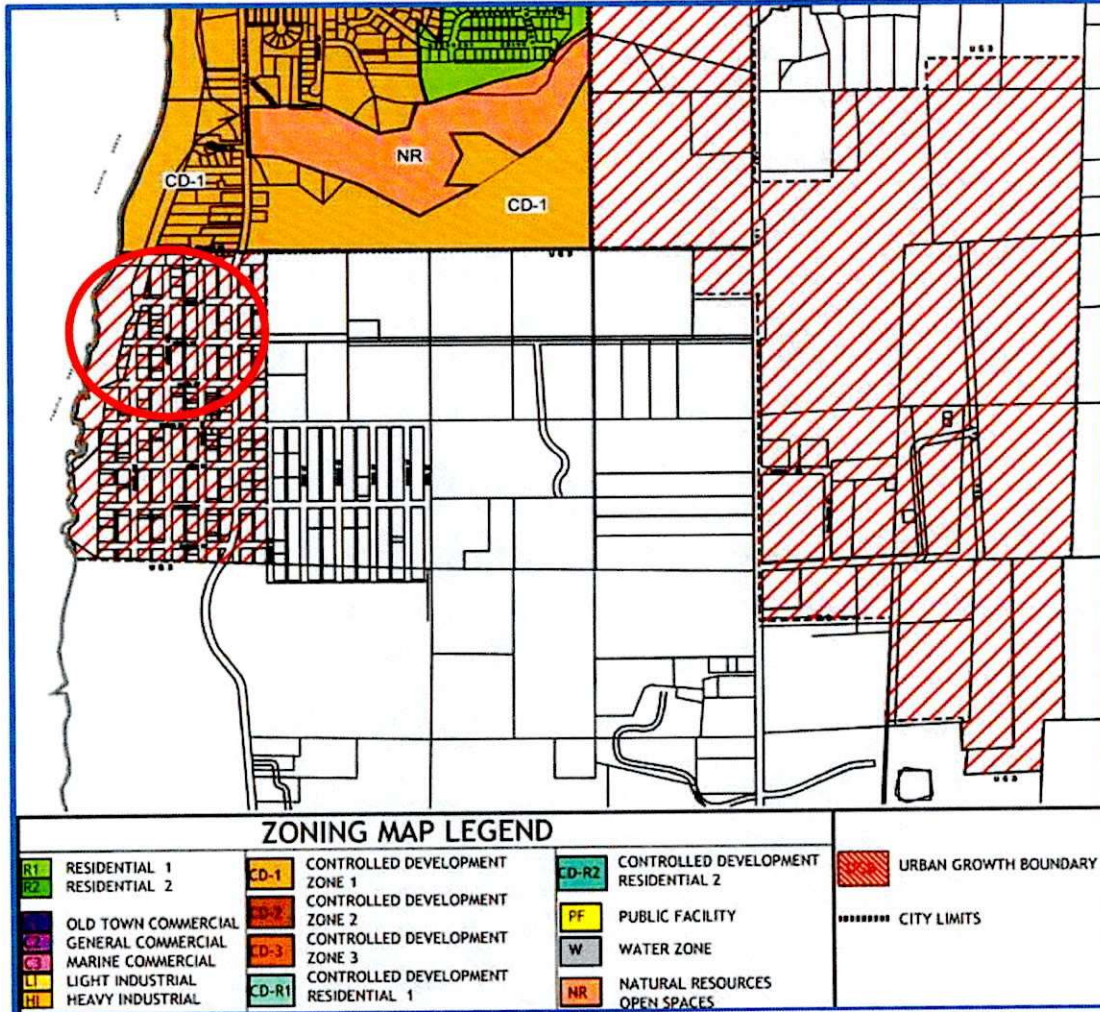
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Coos County, Oregon – May 14, 2021

**Image 3: Distance to nearest developed dwelling driveways**



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 David and Holly von Damm  
 Map#29S15W01CB Tax lot 1801  
 Coos County, Oregon – May 14, 2021

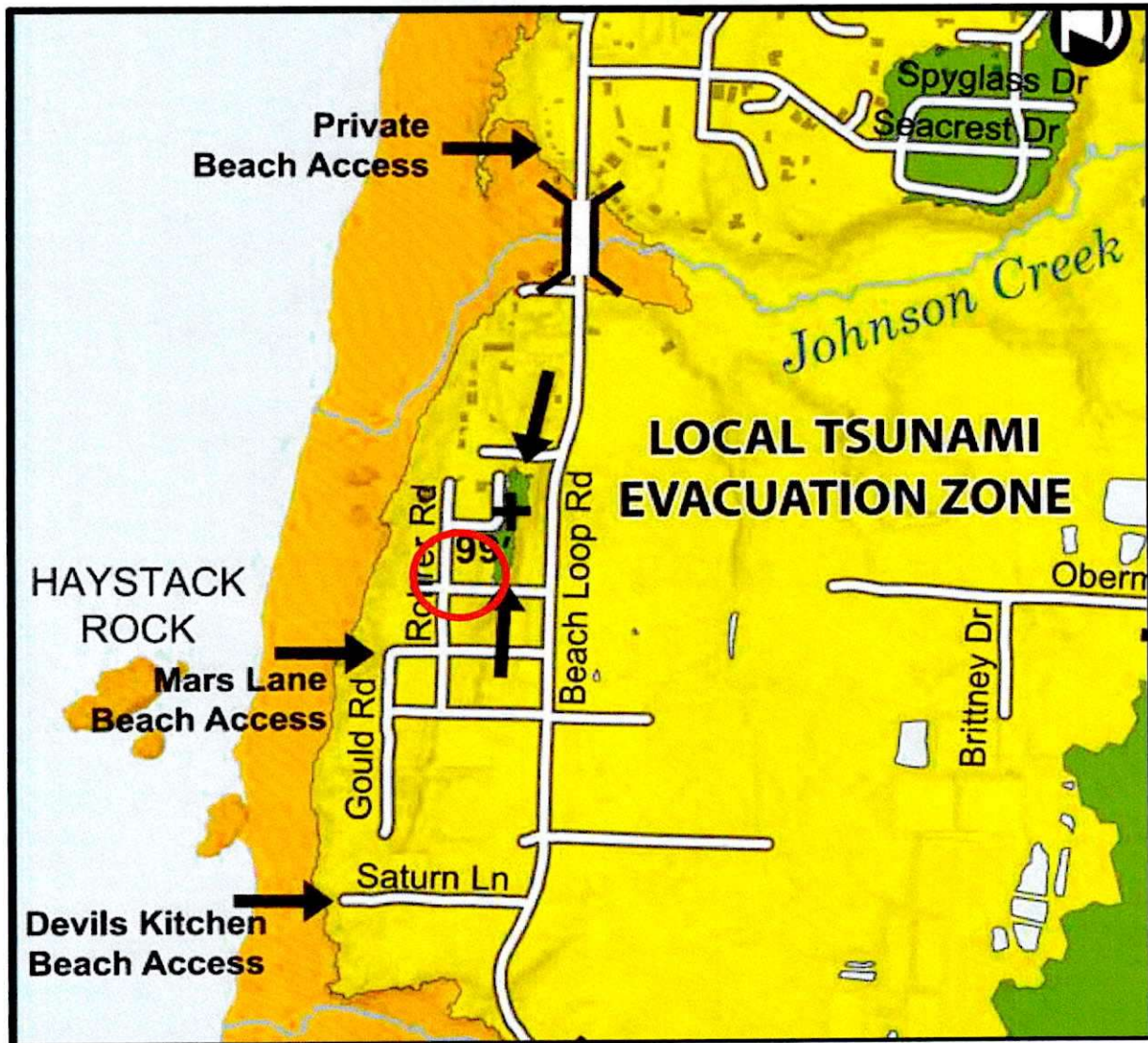
**Image 4: Bandon zone map**





Land Use Permit Application – Statement of Intent  
David and Holly von Damm  
Map#29S15W01CB Tax lot 1801  
Coos County, Oregon – May 14, 2021

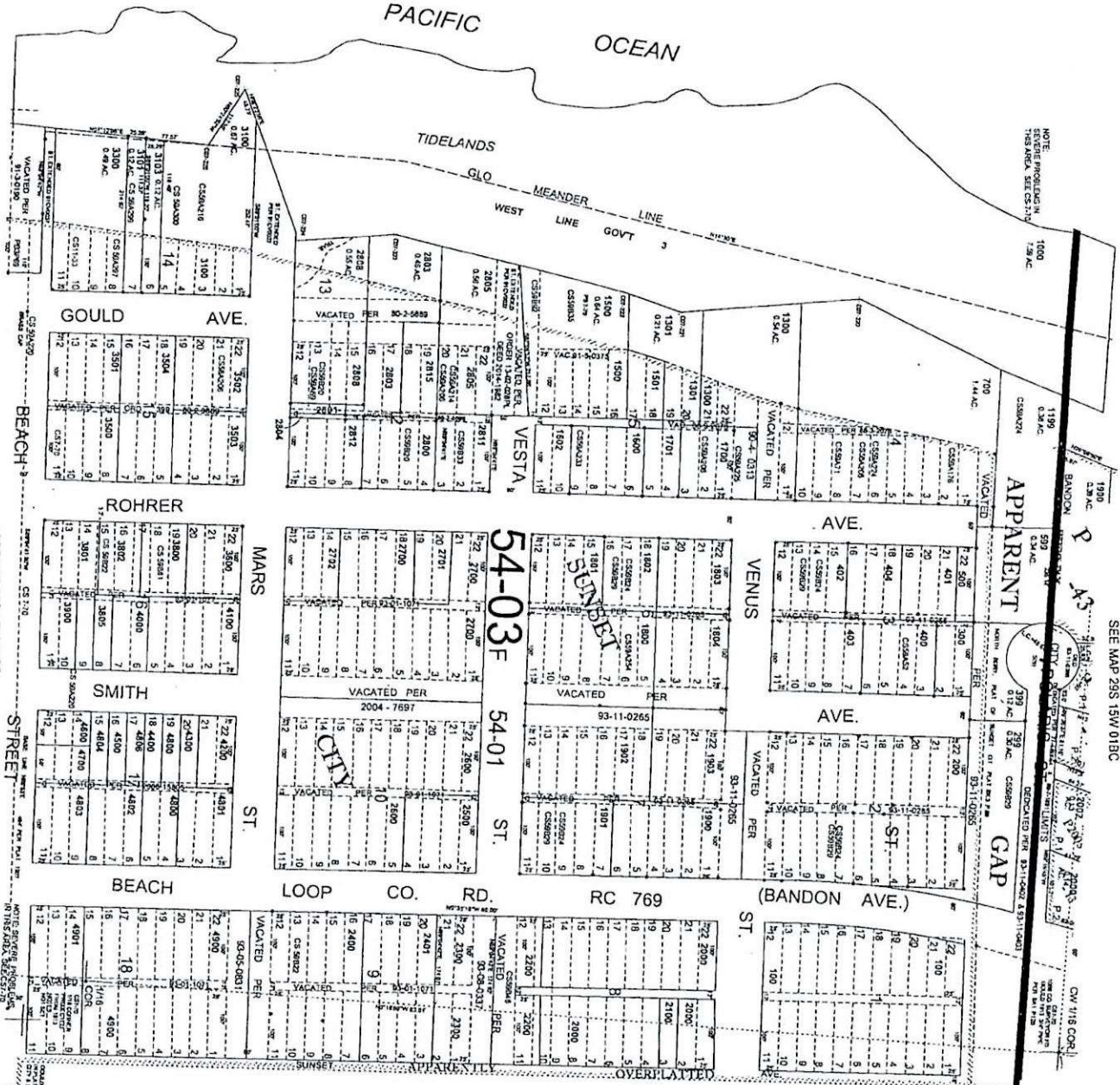
Image 5: Tsunami Zone Map



1" = 100'

SEE MAP 29S 15W 01BC

CANCELLED NO.



SEE MAP 29S 15W 01

- 1300
- 1400
- 3000
- 2802
- 1101
- 2805
- 2807
- 1102
- 1103
- 1105
- 1106
- 1107
- 1104
- 1108
- 1100
- 298
- 598
- 600
- 800
- 1302
- 1502
- 501
- 3903
- 1601
- 3201
- 3805
- 2814
- 3700
- 3804
- 3805
- 4805
- 2810
- 3200
- 3400
- 3701
- 3102
- 3104
- 2813
- 801
- 1503
- 3807

29S 15W 01CB

08-10-2016

SEE MAP 29S 15W 01CC

NOTED TO BE  
RECORDED IN  
1/16 COE



# Oregon

John A. Kitzhaber, M.D., Governor

## Department of Environmental Quality

Western Region Coos Bay Office

340 N Front Street

Coos Bay, OR 97420

(541) 269-2721

FAX (541) 269-7984

Jim & June Thornton  
6405 155th Ave. SE  
Bellevue, WA 98006

July 13, 2001

RE: WQ/SS-Coos County  
*M-28-15-01CB-1800/29006.00*  
Site Evaluation, Blk 6, Lots 7-11, 1/2 of 6

Enclosed is a Report of Evaluation for one lot, together with a field drawing showing the area approved for the following type of on-site sewage disposal system:

Initial and repair to be Bottomless Sand Filter systems in approved area only. Keep approved area free of all development and compaction (do not cut or fill).

This approval runs with the land and will benefit subsequent owners as long as the lots or parcels described thereon will not be further partitioned or subdivided, and that conditions on the subject or adjacent properties have not been altered in any manner which would prohibit issuance of a permit in accordance with Oregon Administrative Rules of the Environmental Commission. Any such subdivision, partitioning, or alteration may void this report.

Please note this document is a technical report only, not a permit to install the system. Such permit will be issued upon receipt of an application, site plan, and the appropriate fee. A new zoning compliance letter may also be required. Installation permits are issued to individuals and are not transferable.

The Report of Evaluation for this lot is valid until an on-site sewage disposal system is installed pursuant to an installation permit obtained from the Coos Bay Branch office of this Department, or until earlier cancellation pursuant to Commission rules, with written notice thereof by the Department to the owners according to Department records or County tax records.

If you disagree with this Site Suitability Report you have the option of applying for a Site Evaluation Review by submitting an application and appropriate fee within 30 days of the date of this approval letter. You also have the option of applying for a Variance from the rules by submitting an application, fee, and required exhibits.

If you have questions please give us a call.

Sincerely,

*Del Cline*

Del Cline, R.S. *gls*  
On-Site Specialist

DC:gls

Enclosures

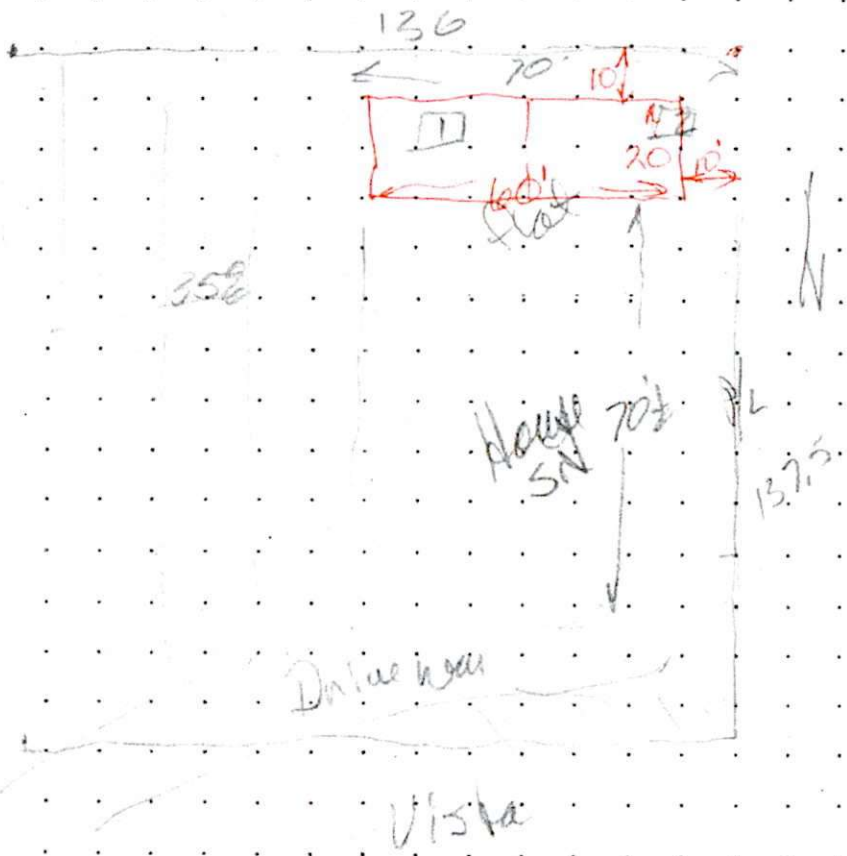


APPLICANT: London

Tax Reference: Township 28 Range 15 Section 01CB Tax Lot/Tax Acct. # 1800/2900.00

29

Blk 6, Lots 7-11, 1/2 of 6



DATE: 7-13-01  
6-14-01

Signature of Evaluator: [Signature]

**SITE EVALUATION FIELD WORKSHEET**

Tax Reference 29 28-14-01 CB 1800/29006.00 Evaluator Del Cline DS  
 Applicant Hickson Lot Size 18,700 sq ft Date 6-14-01  
lot 7 1/2 - 11 B1.6 1:15

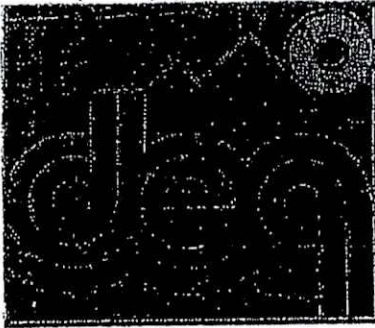
Soil Matrix Color and Mottling (Notation), % Coarse Fragments, Roots, Structure, Layer Limiting Effective Soil Depth, etc.

	Depth	Texture	Comments
Pit 1	0-60	Sand	
Pit 2	0-60	Structure	
Pit 3			
Pit 4			

Landscape Noted herded Back June  
 Slope 0-1% Aspect West Groundwater (Temp or Perm) None Apparent  
 Other Site Notes \_\_\_\_\_

**SYSTEM SPECIFICATION**

Type System: \_\_\_\_\_ Design Flow 450 gpd  
 Initial Bottom SF Sizing 360 # /150 g. Max. Depth Absorption Facility(inches) 45  
 Replacement " " Sizing 360 /150 g. Max. Depth Absorption Facility(inches) 45  
 Special Conditions may be able to use slope to West for Replacement if upper area not available and trench can be hand dug and installed



DEPARTMENT OF ENVIRONMENTAL QUALITY 340 N FRONT ST. COOS BAY, OR 97420 (541) 269-2721

FOR OFFICE USE ONLY Date Received: 6/12/01 Required Fee: 490.00 Receipt No.: 98900 Control No.: 016-030

APPLICATION FOR:

- Site Evaluation, New Construction, Repair Permit, Alteration Permit, Permit Renewal, Authorization Notice, Hardship Dwelling, Other-Please Specify

SUBMITTED:

Table with 3 columns: Item, Yes/No, Yes/No. Items include Plot Plan, Vicinity and Tax Lot Map, Test Pits, Zoning Compliance Letter.

ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER...

There is a flag or sign at entrance to property and leading to test holes

PLEASE PRINT

Property Owner's Name: Jim & June Thornton; Applicant's Name: Brian M. Vick; Township: 39/38; Range: 15; Section: 01 CB; Tax Lot/Tax Acct.#: TL 1800 29006.00; County: Coos; Subdivision Name: Sunset City; Lot #: 11-7 1/2 lot 6; Block #: 6; Acreage: 18,700 sq. ft.

Existing Facility: Single Family Residence; Proposed Facility: Single Family Residence; Water Supply: Public (BAWOG)

Directions to Property: Hwy. 101 south to Seabird. West on Seabird to Beach Loop Beach Loop south to Vesta west on Vesta to site

By my signature, I certify that the information I have furnished is correct and hereby grant the Department of Environmental Quality and its authorized agent permission to enter into the above described property for the purpose of this application.

Signature: Brian M. Vick; Date: 6/12/01

- Owner, Authorized Representative, Licensed Installer - License No.

Owner's Mailing Address: Jim & June Thornton, 6405 155th AV. SE, Bellevue, WA. 98006, Phone: 206 310 8889

Applicant's Mailing Address (if different): Brian M. Vick C/O Oregon Property, P.O. Box 1758, Bandon, OR. 97411, Phone: 347-9813



COO COUNTY

1"=100'

SEE MAP 29 15 IBC.



N

KEY TITLE COMPANY

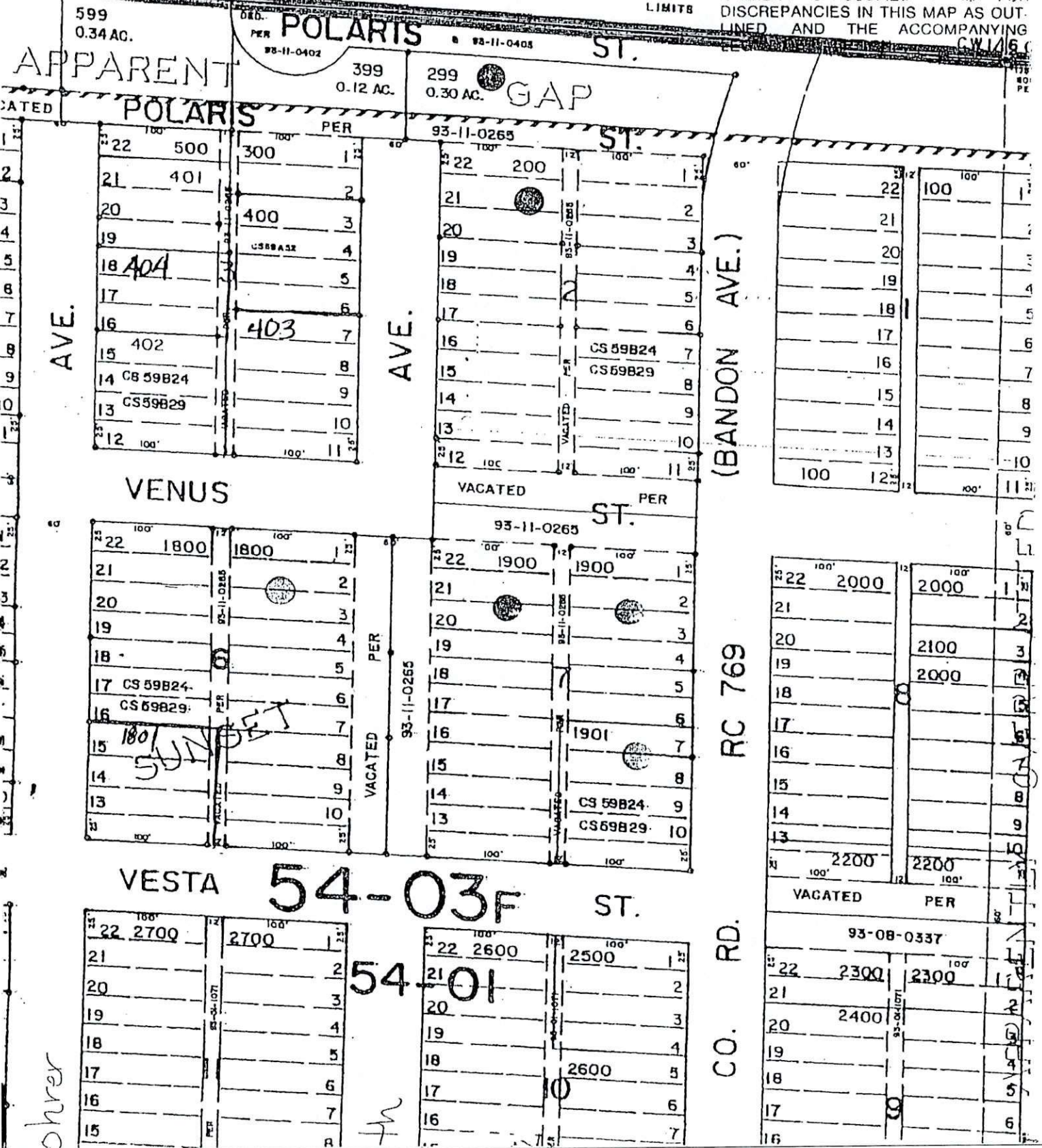
THIS COPY OF ASSESSOR'S MAP IS PROVIDED SOLELY TO ASSIST IN LOCATING SUBJECT PROPERTY. NO LIABILITY IS ASSUMED BY KEY FOR DISCREPANCIES IN THIS MAP AS OUTLINED AND THE ACCOMPANYING

IDON

CITY

LIMITS

CW146





FLOOD HAZARD AREA  
COASTAL SHORELANDS  
BEACHES AND DUNES  
NATURAL HAZARDS  
WATERSHED  
OTHER:

FIRM FLOOD MAP NUMBER  
MINERALS  
WETLANDS  
ARCHAEOLOGICAL  
AIRPORT

BOTANICAL  
HISTORICAL  
GEOLOGICAL

ATTENTION OWNER/CHARLESTON SANITARY DISTRICT:

ADDITIONAL CLEARANCE BY THE CHARLESTON SANITARY DISTRICT IS REQUIRED FOR ALL  
ONSITE SEPTIC DISPOSAL SYSTEM REPAIR OR INSTALLATION, OR CONNECTION TO THE  
DISTRICTS SANITARY SYSTEM.

COOS COUNTY AUTORIZES CLEARANCE FOR THE FOLLOWING STATE PERMITS

DEPARTMENT OF ENVIRONMENTAL QUALITY

SITE EVALUATION X RECONNECT EXISTING SYSTEM  
INSTALL NEW SEPTIC SYSTEM REPAIR/REPLACE EXISTING SYSTEM

OTHER:

BUILDING CODES AGENCY

CONSTRUCT SINGLE FAMILY DWELLING CONSTRUCT ACCESSORY STRUCTURE  
REPAIR OR ALTER EXISTING DWELLING CONSTRUCT FARM BUILDING  
SITE MANUFACTURED DWELLING OTHER

EXPLANATORY NOTES AND/OR CONDITIONS:

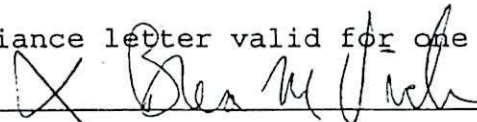
CLEARANCE TO HAVE SITE EVALUATION ON LOTS 1-5 AND 11-7 ONLY.

APPLICANTS STATEMENT:

Pertaining to the subject property described above, I hereby declare that I am the legal owner of record or an agent having consent of the legal owner of record and I am authorized to obtain this zoning compliance letter so as to obtain necessary permits for development from the Department of Environmental Quality and/or the Building Codes Agency. The statements within this form are true and correct to the best of my knowledge and belief. I verify that this is a legally created tract, parcel or lot. I understand that any permits and/or authorization for development issued by the Planning Department may be revoked if it is determined that it was issued based on false statements, misrepresentations or in error. As a condition for the issuing this zoning compliance letter the undersigned hereby agrees to hold Coos County harmless from and indemnify the County for any liability for damage which may occur as a result of the failure to build, improve or maintain roads which serve as access to the subject property.

(Zoning compliance letter valid for one year from date of issue)

APPLICANTS SIGNATURE

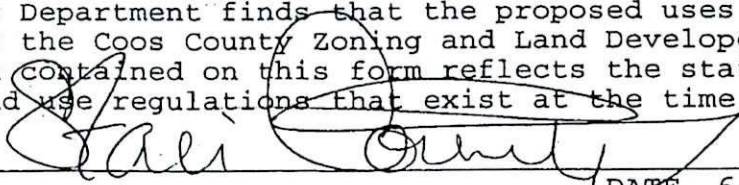


COOS COUNTY COMPLIANCE

The Coos County Planning Department finds that the proposed uses comply with applicable provisions of the Coos County Zoning and Land Development Ordinance. The information contained on this form reflects the status of the subject property and land use regulations that exist at the time of issue.

AUTHORIZED SIGNATURE:

TITLE: PLANNER



DATE 6/12/2001

FOR OFFICE USE ONLY

FEE RECEIVED: 50.00

RECEIPT: 21511 CHECK#: 5325

NO CHARGE BASED ON APPLICATION#:

STAFF : SC

COOS COUNTY ZONING COMPLIANCE LETTER  
(VALID FOR ONE YEAR FROM DATE OF ISSUE)

Coos County Planning Department Courthouse Annex Coquille, OR 97423  
Phone (541) 396-3121 Fax (541) 396-2690

DATE 6/12/2001 ZCL NO. 01-233  
APPLICANT BRIAN VICK PHONE  
OWNER : JIM & JUNE THORNTON PHONE  
ADDRESS 1 6405155TH AVENUE SE  
ADDRESS 2  
CITY/ST/ZIP BELLEVUE WA 98006

LEGAL DESCRIPTION

TWNSHP	RANGE	SECTION	TAX LOT	ACCOUNT#	SIZE	ZONING
29	15	01CB	1800	29006.00	.86	CD-10

COMMENTS:

EXISTING STRUCTURES/IMPROVEMENTS

DWELLING	FARM	WELL	PUBLIC WATER
MOBILE HOME	OTHER	SPRING	PUBLIC SEWER
COMMERCIAL	NONE	LAKE	SEPTIC
INDUSTRIAL			

COMMENTS:

ZONING DISTRICTS REQUIREMENTS

SETBACKS FRONT 320 SIDE/CORNER 5 REAR 5  
— ALL BUILDINGS OR STRUCTURES WITH THE EXCEPTION OF FENCES SHALL BE SETBACK A MINIMUM OF 35 FT. FROM ANY ROAD RIGHT-OF-WAY CENTERLINE OR A MINIMUM OF 5FT. FROM ANY ROAD RIGHT-OF-WAY LINE, WHICHEVER IS GREATER.  
STRUCTURE HEIGHT: AIRPORT OVERLAY ZONE: — UGB: —

RIPARIAN VEGETATION

— ALL BUILDINGS SHALL MAINTAIN A 50FT. MINIMUM FROM ALL STREAMS, LAKES, WETLANDS AND RIVERS IDENTIFIED ON THE DEPARTMENT OF REVENUE MAPS.

FIREBREAK

— CONSTRUCT AND MAINTAIN A PRIMARY FIREBREAK OF AT LEAST 30FT. RADIUS AROUND ALL PROPOSED STRUCTURES (INCLUDING DECKS).  
— A SECONDARY FIREBREAK OF AT LEAST 100FT. AROUND THE PRIMARY FIREBREAK.

DRIVEWAYS

— DRIVEWAY CONFIRMATION FORM SIGNED-OFF BY ROAD DEPARTMENT. (ATTACHED)

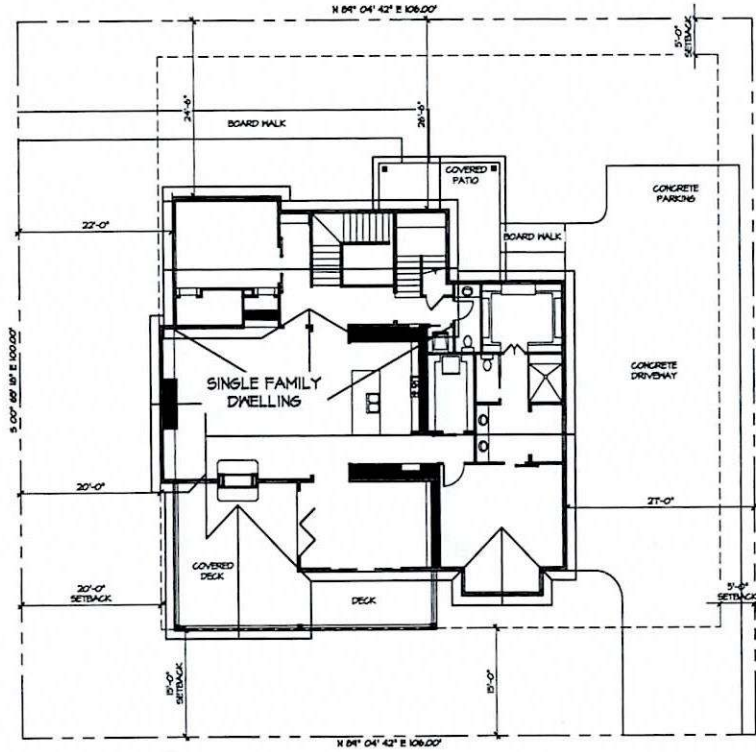
RURAL RESIDENTIAL COMPATIBILITY WITH FARM/FOREST MANAGEMENT PRACTICES

— I HEREBY ACKNOWLEDGE THAT THE NORMAL INTENSIVE MANAGEMENT PRACTICES OCCURRING ON ADJACENT RESOURCE LAND WILL NOT CONFLICT WITH THE RURAL RESIDENTIAL USE OR ENJOYMENT OF THE ABOVE DESCRIBED PROPERTY.

APPLICANTS SIGNATURE \_\_\_\_\_

ROHRER AVENUE

CENTERLINE (60' ROW)



VESTA STREET

CENTERLINE (60' ROW)

**ZONING:**

ZONE: CD10  
 SETBACKS:  
 FRONT = 20'  
 SIDE & REAR = 5'  
 CORNER LOT = 15' SIDE  
 BUILDING HEIGHT: 35' MAXIMUM

**NOTES:**

- 1) USE PRESCRIPTIVE ENVELOPE REQUIREMENTS (TABLE 1101.1(1)).
- 2) STORM DRAIN BY OTHERS



**SITE PLAN**

SCALE: 1"=8'-0"

A SINGLE FAMILY RESIDENCE FOR:  
**DAVID & HOLLY**

VESTA ST. & ROHRER AVE.  
 TAX LOT #1801  
 MAP #295 15W 01CB  
 BANDON, COOS COUNTY, OREGON

PREPARED FOR:  
**DAVID & HOLLY Von DAMM**  
 1322 SHATTUCK AVE.  
 BERKELEY, CA 94704  
 PHONE: (510) 345-1055

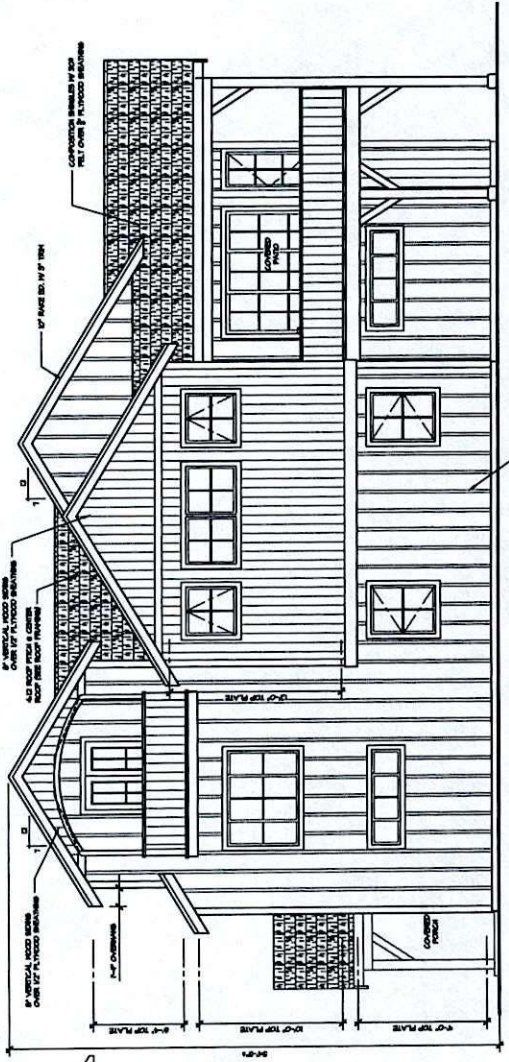
TITLE: **SITE PLAN**  
 DATE: 01/15/21  
 SCALE: 1"=8'-0"  
 DRAWN BY: [blank]  
 CHECKED BY: [blank]



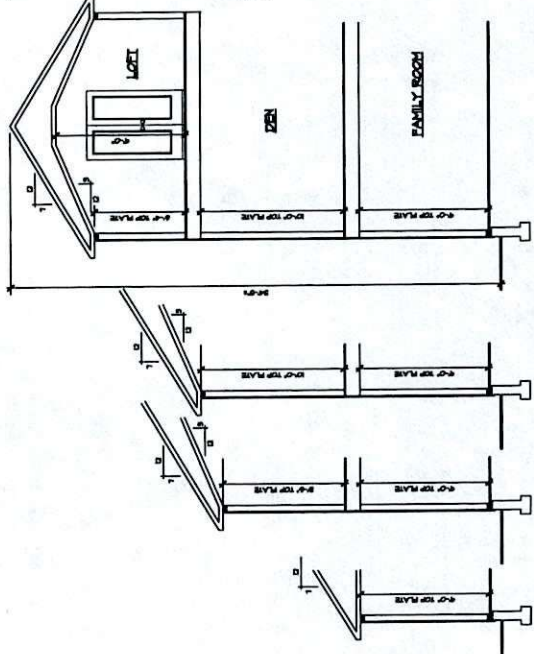
**ASSOCIATED  
 DESIGNS, INC.**  
 100 JACOBS DRIVE  
 EUGENE, OREGON  
 97402-1828  
 (541) 461-2083  
 FAX: (541) 461-1714

REVISIONS:  
 02/02/21  
 02/21/21  
 03/04/21  
 03/21/21

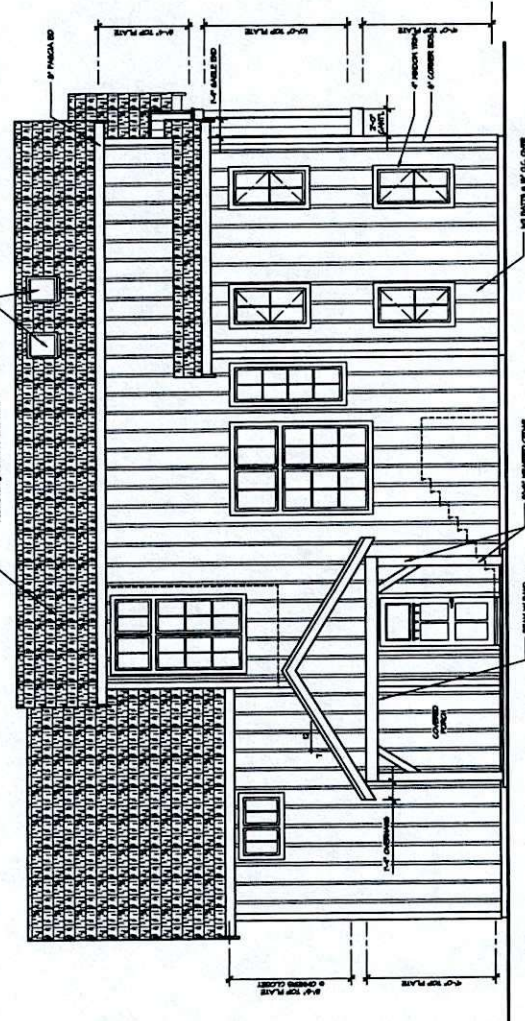
PROJECT:  
**1013-001**  
 SHEET 1 OF 7



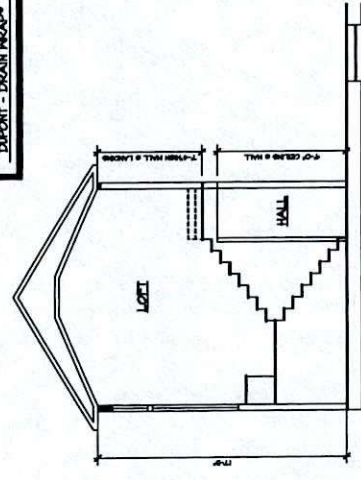
**WEST ELEVATION**  
SCALE: 1/4" = 1'-0"



**EAVE REFERENCE OUTLINE**  
SCALE: 1/4" = 1'-0"



**NORTH ELEVATION**  
SCALE: 1/4" = 1'-0"



**STAIR REFERENCE OUTLINE**  
SCALE: 1/4" = 1'-0"

REVISIONS TO EXTERIOR MULL ENVELOPE SPECIFICATION  
 WATER PENETRATIVE DAMAGED PAINT TO BE USED AT  
 ALL CORNERS AND JOINTS  
 REPORT - DRAIN MEMBRANE

**NOTES:**  
 OWNER, BUILDER/CONTRACTORS TO REVIEW PLAN FOR COMPLETENESS AND  
 ACCURACY PRIOR TO CONSTRUCTION. NOTIFY ASSOCIATED DESIGN INC.  
 OF ANY CHANGES OR CONDITIONS PRIOR TO THE START OF CONSTRUCTION.  
 CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS.  
 ALL WORK TO BE DONE IN ACCORDANCE WITH THE CITY OF BERKELEY, CALIFORNIA, AND THE CALIFORNIA BUILDING CODE.

**ASSIGNED DESIGN LOADS:**  
 LIVE LOAD & FLOOR : 40 PSF  
 DEAD LOAD & FLOOR : 10 PSF  
 LIVE LOAD & ROOF : 20 PSF  
 DEAD LOAD & ROOF : 10 PSF  
 SOIL BEARING CAPACITY : 1500 PSF

PREPARED FOR:  
**DAVID & HOLLY VON DAMM**  
 1922 SHATTUCK AVE.  
 BERKELEY, CA 94710  
 PHONE: (510) 345-1055

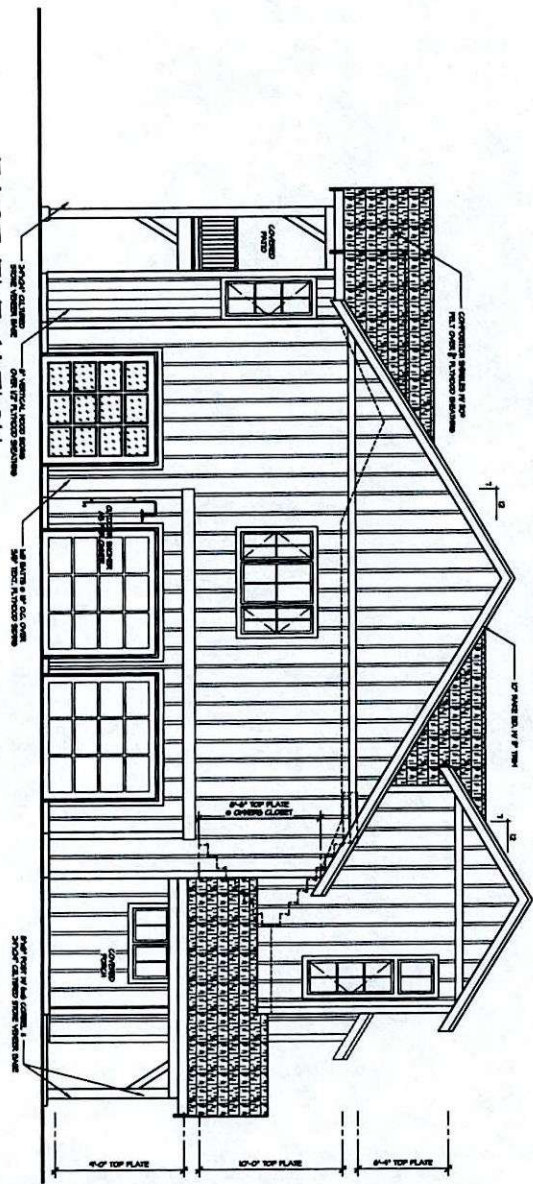
TITLE	ELEVATIONS
DATE	01/21/21
NOTED	BY RM
DRAWN	BY RM
CHECK	BY RM

**DESIGNS**  
 ASSOCIATED DESIGN INC.  
 500 ALVARADO DRIVE  
 BERKELEY, CALIFORNIA 94710  
 (415) 494-2000  
 FAX: (415) 494-1174

PROJECT	1013-00
DATE	01/21/21
SCALE	1/4" = 1'-0"
NO. OF SHEETS	2

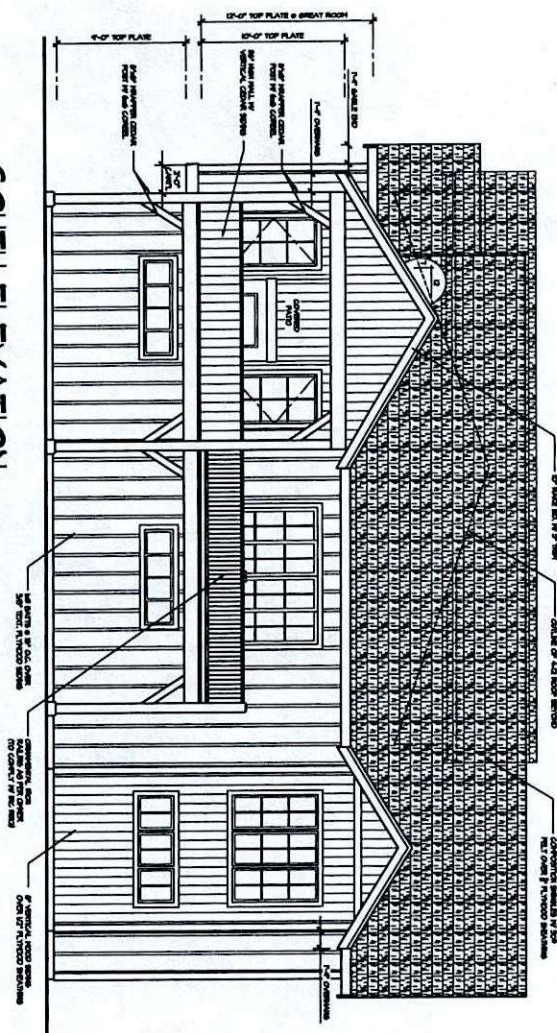
# EAST ELEVATION

SCALE: 1/4"=1'-0"



# SOUTH ELEVATION

SCALE: 1/4"=1'-0"



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PROJECT:	10B-001
DATE:	01/15/21
SCALE:	NOTED
DRAWN BY:	Rm
CHECK BY:	

**Associated DESIGNS**

300 JACOB DRIVE  
BERKELEY, CALIFORNIA 94704  
PH: 510-345-1055  
FAX: 510-484-0744

**ELEVATIONS**

DATE: 01/15/21

SCALE: NOTED

DRAWN BY: Rm

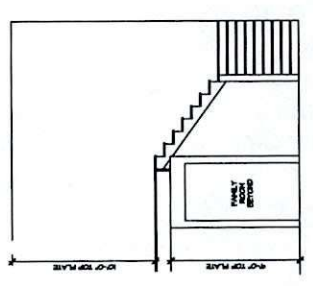
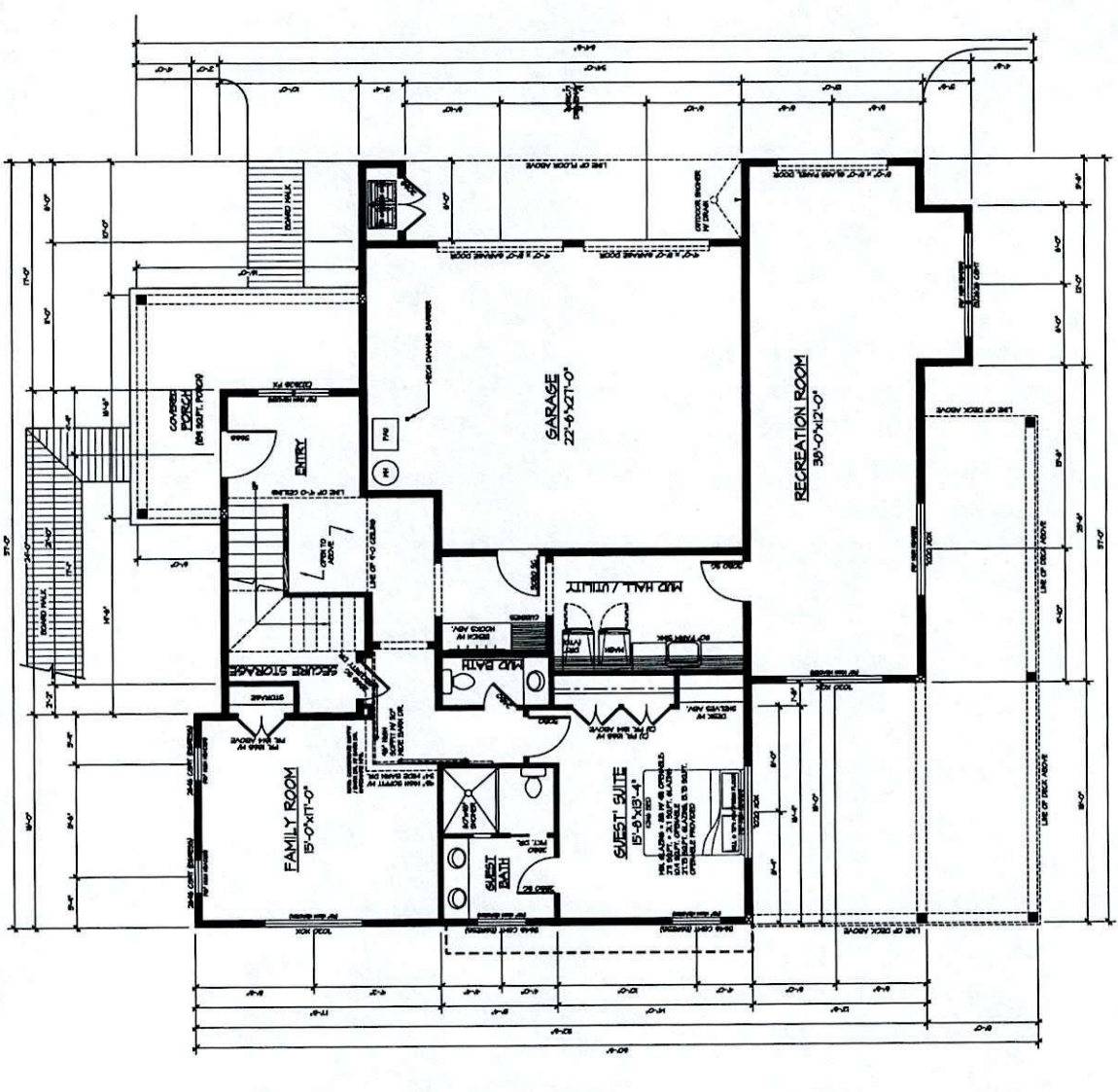
CHECK BY: --

PREPARED FOR:

**DAVID & HOLLY Von DAMM**  
1322 SHATTUCK AVE.  
BERKELEY, CA 94704  
PHONE: (510) 345-1055

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**STAIR PROFILE**  
SCALE: 1/4" = 1'-0"

**LOWER FLOOR PLAN**  
SCALE: 1/4" = 1'-0"

PREPARED FOR:  
DAVID & HOLLY VON DAMM  
1322 SHATUCK AVE.  
BERKELEY, CA 94704  
PHONE: (510) 345-1055

LOWER FLOOR PLAN  
DATE: 01/15/21  
SCALE: NOTED  
DRAWN CHECK: [Signature]  
BY: [Signature]

**DESIGNS**  
ASSOCIATED  
DESIGNS INC.  
100 UNIVERSITY AVENUE  
SUITE 200  
SAN FRANCISCO, CALIFORNIA 94102  
PHONE: (415) 440-1274

PROJECT: 100-6101  
SHEET 5 OF 5

THIS DOCUMENT IS THE PROPERTY OF ASSOCIATED DESIGNERS, INC. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON. IT IS NOT TO BE REPRODUCED, COPIED, EITHER WHOLLY OR IN PART, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF ASSOCIATED DESIGNERS, INC. ANY UNAUTHORIZED USE OF THIS DOCUMENT IS PROHIBITED. ASSOCIATED DESIGNERS, INC. SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION CONTAINED HEREIN AND SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES. THE USER OF THIS DOCUMENT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES. THE USER OF THIS DOCUMENT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES.

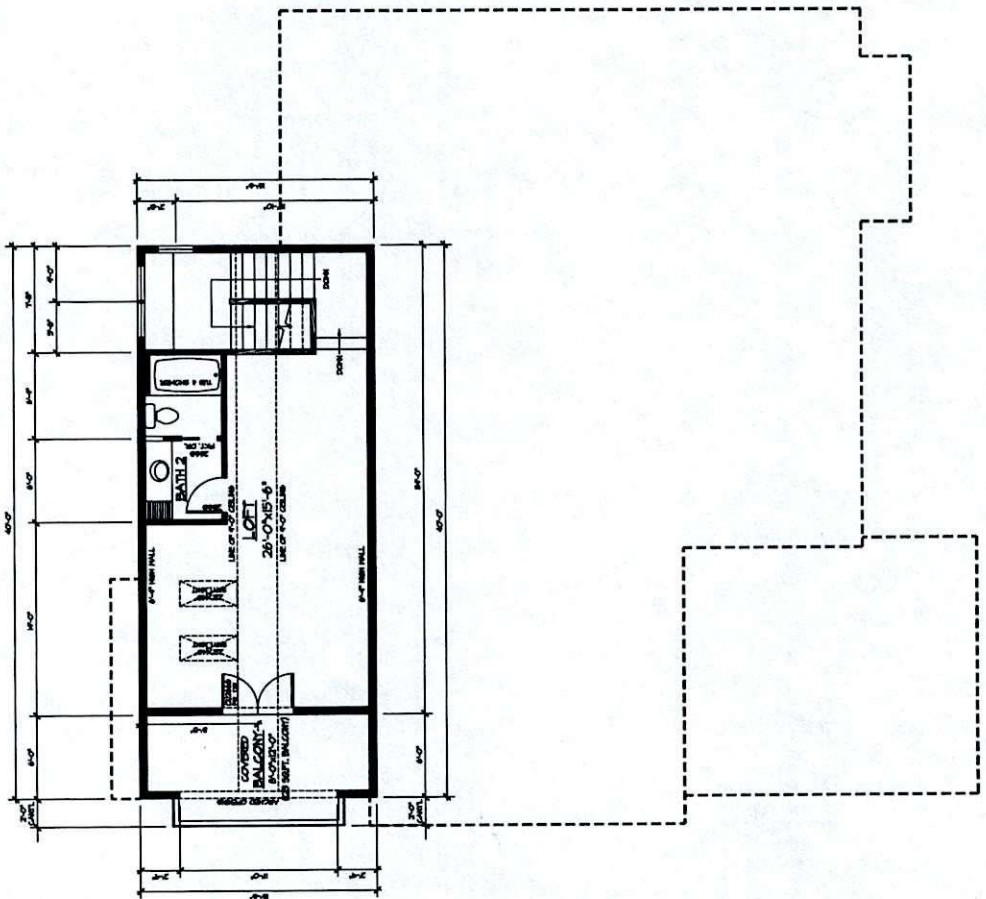
PREPARED FOR:  
**DAVID & HOLLY VON DAMM**  
 1322 SHATTUCK AVE.  
 BERKELEY, CA 94704  
 PHONE: (510) 345-1055

DATE: 01/15/21  
 SCALE: NOTED  
 DRAWN: GREGG  
 CHECKED: GREGG  
 TITLE: ATTIC FLOOR PLAN

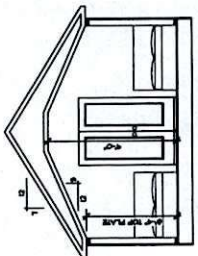
**DESIGNS**  
 ASSOCIATED DESIGNERS, INC.  
 1000 UNIVERSITY AVENUE  
 SUITE 1000  
 BERKELEY, CA 94702  
 TEL: (510) 841-1000  
 FAX: (510) 841-1001

PROJECT: 100-6101  
 SHEET: 6 OF 6

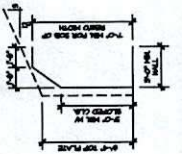
REVISIONS:  
 01/15/21  
 01/15/21  
 01/15/21



**ATTIC FLOOR PLAN**  
 SCALE: 1/4" = 1'-0"



**ATTIC PROFILE**  
 SCALE: 1/4" = 1'-0"



**MIN. HEAD ROOM**  
 SCALE: 1/4" = 1'-0"





RECORDING REQUESTED BY:



300 W Anderson Avenue, PO Box 1075  
Coos Bay, OR 97420

Coos County, Oregon **2020-09827**  
\$91.00 Pgs=2 10/02/2020 01:15 PM  
eRecorded by: TICOR TITLE COOS BAY  
Debbie Heller, CCC, Coos County Clerk

**GRANTOR'S NAME:**

James R. Cartwright and Terri Mundt, as tenants by the entirety, as to Parcel 1 AND James R. Cartwright and Terri J. Mundt, as tenants by the entirety, as to an undivided one-half interest as to Parcel 2

**GRANTEE'S NAME:**

David C. von Damm and Holly E. von Damm

**AFTER RECORDING RETURN TO:**

Order No.: 360620032650-LS  
David C. von Damm and Holly E. von Damm  
1322 Shattuck Ave #302  
Berkeley, CA 94709

**SEND TAX STATEMENTS TO:**

David C. von Damm and Holly E. von Damm  
1322 Shattuck Ave #302  
Berkeley, CA 94709

APN: 2900601  
2900602  
Map: 29S1501CB01801  
29S1501CB01802  
Vacant Land, Bandon, OR 97411

SPACE ABOVE THIS LINE FOR RECORDER'S USE

**STATUTORY WARRANTY DEED**

James R. Cartwright and Terri Mundt, as tenants by the entirety, as to Parcel 1 AND James R. Cartwright and Terri J. Mundt, as tenants by the entirety, as to an undivided one-half interest as to Parcel 2, Grantor, conveys and warrants to David C. von Damm and Holly E. von Damm, Grantee, the following described real property, free and clear of encumbrances except as specifically set forth below, situated in the County of Coos, State of Oregon:

**PARCEL 1:**

Lots 12 through 15, inclusive, Block 6, ORIGINAL PLAT OF SUNSET CITY, Coos County, Oregon. Together with that portion of the vacated alley, vacated by Ordinance #508, Recorded November 4, 1993, as Microfilm No. 93-11-0265, Records of Coos County, Oregon, abutting said lots that would inure by operation of law.

**PARCEL 2:**

Lots 16 through 18, inclusive, Block 6, ORIGINAL PLAT OF SUNSET CITY, Coos County, Oregon. Together with that portion of the vacated alley, vacated by Ordinance #508, Recorded November 4, 1993, as Microfilm No. 93-11-0265, Records of Coos County, Oregon, abutting said lots that would inure by operation of law.

THE TRUE AND ACTUAL CONSIDERATION FOR THIS CONVEYANCE IS ONE HUNDRED TWENTY-FIVE THOUSAND AND NO/100 DOLLARS (\$125,000.00). (See ORS 93.030).

**Subject to:**

- Property taxes in an undetermined amount, which are a lien but not yet payable, including any assessments collected with taxes to be levied for the fiscal year 2020-2021.
- Property taxes in an undetermined amount, which are a lien but not yet payable, including any assessments collected with taxes to be levied for the fiscal year 2020-2021.
- Any irregularities, reservations or other matters in the proceedings occasioning the abandonment or vacation of the streets, roads, alleys and highways.
- Easement(s) for the purpose(s) shown below and rights incidental thereto as reserved in a document;

Reserved by: Edward H. Jacobs and Judith A. Jacobs, husband and wife  
Recording Date: January 27, 1995  
Recording No: 95-01-0853

- Easement(s) for the purpose(s) shown below and rights incidental thereto as reserved in a document;

Reserved by: Royal W. Delany, M.D. a Professional Corporation, Money Purchase Pension Plan  
Recording Date: January 27, 1995  
Recording No: 95-01-0854

**STATUTORY WARRANTY DEED**

(continued)

6. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: State of Oregon, through its Department of Environmental Quality  
Recording Date: August 29, 1995  
Recording No: 95-08-1129

7. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to: Richard L. Cole and Edythe P. Cole, Trustees of the Cole Family Trust  
Recording Date: October 3, 2001  
Recording No: 2001-11896

**BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010.**

IN WITNESS WHEREOF, the undersigned have executed this document on the date(s) set forth below.

Dated: 10-01-20

[Signature]  
James R. Cartwright

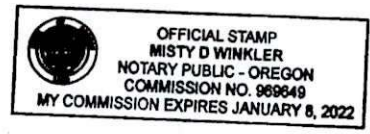
[Signature]  
Terri J. Mundt (aka Terri Mundt)

State of Oregon  
County of Washington

This instrument was acknowledged before me on Oct 1 2020 by James R. Cartwright and Terri Mundt, as tenants by the entirety, as to Parcel 1 AND James R. Cartwright and Terri J. Mundt, as tenants by the entirety, as to an undivided one-half interest as to Parcel 2.

[Signature]  
Notary Public, State of Oregon

My Commission Expires: 1/8/2022





10 May 2021

David von Damm  
1322 Shattuck Ave, Apt. 302  
Berkeley, California 94709-1440

Re: Residential Geotechnical Study Report  
Vesta Lane – Bandon, OR  
Project # 30296.03

Dear Mr. von Damm,

**A. Scope**

At your request, representatives of Pinnacle Engineering, Inc. (PEI) and Western Testing, LLC (WTL) conducted a record search, and then visited the above referenced lot owned by you on April 30, 2021. The purpose of our site visit was to sample the soil beneath the foundation of the proposed structure to a depth of 16 feet. Laboratory testing was performed to develop recommendations for bearing pressures. Site exploration and laboratory testing were conducted to provide a basis for geotechnical recommendations for site development.

**B. Prior Geotechnical Report**

No prior geotechnical reports have been prepared for the subject site. PEI has completed several geotechnical reports in the area.

**C. Site Geology and Geotechnical Characterization**

**C.1. Project Area Geology**

The project site is located within the Oregon Coast Range Geological province. Surface soils consist of a thin layer of topsoil overlaying a thick layer of poorly graded silty SAND. The silty SAND grades to clayey SAND. Below the surface and residual soils are quaternary marine terrace deposits of sand, silt, clay, and gravel locally from the Pleistocene era.

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**Quaternary marine terrace deposits (Pleistocene)** - *Unconsolidated to semi-consolidated flat lying and elevated marine deposits of sand, silt, clay and gravel locally; thicknesses vary from 10 to 50 feet, but locally as little as 2 to 3 feet; elevations range from a few feet to several hundred feet near Coos Bay to almost 2,000 feet farther inland; groundwater production low to moderate; hazards may include headland erosion, stream-bank erosion, poor drainage, failure in deep cuts, and others, but generally are negligible; coastal Qmt mantled by stable dune sand.*

Bulletin 87 – Environmental Geology of Western Coos and Douglas Counties, Oregon Geologic Map of the Bandon & part of Langlois Quadrangles Oregon, 1975, R.E. Corcoran, State Geologist, Oregon department of Geology and Mineral Industries.

## C.2. Seismicity and Seismotectonic Considerations

### C.2.a. Area and Site Seismicity

Extensive seismotectonic studies continuing since 1990 have concluded that western Oregon is subject to a much greater probability of both random and plate-subduction seismic events of far greater magnitude and far more frequently than was historically believed.

- Regionally, the Cascadia Subduction Zone is considered as a feasible source of Magnitude 7.75, or greater, earthquakes.
- Intraplate earthquakes, focused at a relatively great depth within the Juan de Fuca plate subduction beneath western Oregon and Washington, are capable of producing magnitude 7.0 earthquakes. Deep focus intraplate earthquakes are theoretically possible, but considered rare in Oregon.
- Relatively shallow crustal earthquakes are more likely, with an upper bound considered to be on the order of Magnitude 5.75.
- The design spectral response acceleration for the project area are as follows:

$S_s = 2.022 \text{ g}$	$S_{MS} = 2.427 \text{ g}$	$S_{DS} = 1.618 \text{ g}$
$S_1 = 0.969 \text{ g}$	$S_{M1} = 1.356 \text{ g}$	$S_{D1} = 0.904 \text{ g}$

### C.2.b. Site Stability

Beneath a thin sod mantle, the site is generally underlain by a surficial layer of loose SAND.

The soils underlying the project site are likely to be stable during seismic events having a reasonable probability of occurrence. Liquefaction is not likely, due to the particle size distribution of the materials at the site.

The project area is considered susceptible to *tsunami* but not *seiche*.

### C.2.c. Site Classification

Soils underlying the site are consistent with Site Class C, as defined by the current edition of the Oregon Residential Specialty Code (ORSC).

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#### C.2.d. Seismic Refraction Survey

A seismic refraction survey was neither requested by our client nor conducted for this investigation. Qualitatively;

- Underlying the root zone, the poorly graded SAND can be expected to transmit lateral accelerations typical of a lower velocity range of 600 to 1,200 ft/sec.

### D. FIELD STUDIES

#### D.1. Surface Reconnaissance

Contemporaneous with the geotechnical site characterization, a surface reconnaissance was conducted. The surface reconnaissance concluded that there were no observable site defects that would compromise viability of the site for the planned use.

#### D.2. Surface Hydrology

The surface layer of SAND is relatively free draining. Retention and seepage near the surface is not an issue.

#### D.3. Field Observations

Field observations included soil description, classification, qualitative density measurement, measurements of thicknesses of the various soil horizons and depth to or presence of groundwater.

#### D.4. Site Exploration and Field Testing

Field investigations conducted on April 30, 2021 included geologic reconnaissance of the site and immediate surrounding area, and observation, sampling, and testing in conformance to ASTM D-2488 of the underlying soils encountered in one test boring.

The test boring was advanced using a Little Beaver drill mounted on a utility terrain vehicle, which advanced a 6 inch diameter continuous flight hollow stem auger at the locations and depths depicted on Figure 2. The boring was observed, logged and samples retrieved by a certified technician. The summary logs of the test boring are contained in Appendix A.

Samples were retrieved in the test boring at approximate 4 foot intervals and at visible soil horizon changes. Soil samples were obtained using a split spoon sampler advanced by Standard Penetration Test (SPT) Method, which provides an accurate measure of soil density. The SPT measures the resistance to penetration of a 2 inch diameter sampler driven by a 30 inch drop of a 140 pound hammer and provides a disturbed, but representative sample suitable for classification and other testing.

In addition to basic field soil classification tests, *in situ* field density tests were conducted on natural site soils.

The test boring was left unfilled for a brief time to allow groundwater levels to stabilize if present. Groundwater was encountered at a depth of 12 feet below ground surface (BGS).

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**Please note that shear strengths and estimated bearing capacities, if noted on the field logs are field estimates of ultimate values, recorded for correlation of laboratory results and are only provided for comparative purposes. They should not be used for design. We should be contacted before utilization of values other than those recommended in Section G to confirm applicability and that the designer's interpretation is consistent with our understanding of design properties.**

#### **D.5. Geotechnical Characterization**

Soil descriptions and layer interfaces are interpreted from observations on site. While the layers are shown as having distinct boundaries in field logs, in reality, the change is gradual.

Surface soils consist of a thin layer of topsoil overlaying a thick layer of dark brown to tan, medium dense, poorly graded, silty SAND. The silty SAND grades to a dense, orange to dark brown, poorly graded SAND at 4 feet BGS. The dark brown SAND grades to a layer of loose, gray, clayey SAND at 11 feet BGS.

The shallow soils are compactible after removal of the vegetative component and may be used as non-structural or site fills if construction occurs during dry weather. The vegetative component is suitable for use as landscaping material.

The site soils can be excavated with light effort by low energy excavation equipment. These materials are prone to sloughing, provisions should be made for trenches exceeding shallow depths

#### **D.6. Groundwater**

Groundwater (the phreatic surface) was encountered during the field investigation at 12 feet BGS. It is likely that the phreatic surface will fluctuate both seasonally and during the typical five year hydrologic cycle. Considering annual precipitation records during the past several years, the absence of measurable changes in the ground water surface should not be regarded as evidence that higher groundwater conditions will not occur in the future. Experience indicates that the phreatic surface will vary seasonally by approximately five feet and will vary by approximately ten feet between hydrologic extremes, an average ten year period. We project that the average high groundwater elevation will be greater than 10 feet below the finished surface. Seepage, occasionally in considerable amounts, should be expected at the transitional zone between the residual soils and the underlying transitional bedrock.

#### **D.7. Soil Permeability**

Permeability tests were not performed for this study. Qualitatively, flow velocities within the proposed structural fill soil can be expected to range between  $10^{-4}$  and  $10^{-5}$  cm/sec and as high as  $10^{-2}$  cm/sec at the bedrock interface where fine grained soils transition to weathered formational material. Where sandy or fractured layers exist, their permeability will be on the order of  $10^{-3}$  cm/sec.

### **E. LABORATORY TESTING**

All of the samples recovered during the site exploration were visually reexamined at our Roseburg laboratory to verify the field descriptions. To assist in soil classification and assessing long term

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stability of the site soils, physical characteristics, including bearing capacity, natural moisture/density relationship and plasticity indices. Samples were then classified in conformance with the Unified Soil Classification System (USCS) per ASTM D-2487.

### E.1. Soil Classification

The USCS identifies soil type by single letter prefix and subgroup by single letter suffix as follows;

Table E 1 USCS Classification			
Soil Type	Prefix	Subgroup	Suffix
Gravel	G	Well Graded	W
Sand	S	Poorly Graded	P
Silt	M	Silty	M
Clay	C	Clayey	C
Organic	O	w <sub>L</sub> < 50 per cent	L
Peat	Pt	w <sub>H</sub> > 50 per cent	H

### E.2. Electro-Chemical Parameters

Electro-Chemical analysis was neither requested nor conducted during this investigative effort.

### E.3. Strength Parameters

For strength calculations, we recommend the following values for angles of internal friction and residual cohesion at 4% strain;

Table E 2 Strength Parameters			
Normal Load	Soil Type	Phi	Cohesion
500 #/ft <sup>2</sup>	Silty SAND	32 degrees	0 #/ft <sup>2</sup>
	Clayey SAND	30 degrees	0 #/ft <sup>2</sup>
	Imported ABC FILL @ 95% density per D 698	36 degrees	0#/ft <sup>2</sup>
3,000 #/ft <sup>2</sup>	Silty SAND	34 degrees	0 #/ft <sup>2</sup>
	Clayey SAND	32 degrees	0 #/ft <sup>2</sup>
	Imported ABC FILL @ 95% density per D 698	40 degrees	0#/ft <sup>2</sup>



Note that the above values are based on historic, typically minimum values determined in other tests of similar soils. For imported fill, we should be contacted to verify values after an actual fill source has been selected.

## **F. ENGINEERING STUDIES AND RECOMMENDATIONS**

### **F.1. General**

The engineering studies and recommendations summarized in this section provide design parameters for foundations for the proposed residential structure and for other appurtenant construction. Unless specifically noted otherwise herein, all density tests and recommended densities refer to the Standard Proctor (ASTM D 698) at plus or minus 1% of optimum moisture.

For the purposes of this analysis, maximum column loads were assumed to be on the order of five kips. Wall loads were assumed to be on the order of one kip/lf. Construction methodology was assumed to consist of conventional light wood framing.

### **F.2. Site Preparation and Grading**

#### **F.2.a. Clearing, Grubbing and Stripping**

All areas proposed for roadways, structures, driveways, parking, walkways or structural fill should be cleared and grubbed of all trees, stumps, brush and other debris and/or deleterious materials. The site should then be stripped and cleared of all vegetation, sod and organic topsoil. The depth for stripping is likely to vary between 6 and 8 inches of existing vegetation over the entire site.

PEI should be contacted to verify suitable subgrade.

#### **F.2.b. Density Testing and Subgrade Re-compaction**

After stripping, the exposed subgrade should be tested per Oregon Department of Transportation Test Method 158 (ODOT TM 158) and observed by the geotechnical engineer's representative. Such testing should not be attempted in wet weather and should be discontinued if the subgrade pumps, deflects under load or otherwise deforms.

Where soils are disturbed or if they pump when tested, they should be excavated, moisture conditioned and re-compacted or be replaced with imported structural fill. Effective recompaction of the fine grained soil will require moisture conditioning and will require less effort if compacted with a pneumatic or static sheepsfoot roller. Moisture conditioning and recompaction beneath pavement or slabs should extend to a depth of between 10 and 12 inches. The recompaction should achieve 90% of maximum density, as determined by ASTM D-698.

In locations where the subgrade consists of soils that are firm and generally unyielding, moisture conditioning and recompaction is not required. We should be contacted to perform *in situ* strength tests of subgrade soils and to advise regarding moisture conditioning and compaction.

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### **F.3. Structural Fill Placement and Compaction**

Structural fill is defined as any fill placed and compacted to specified densities and located under roadways, structures, driveways, sidewalks and other load-bearing areas.

#### **F.3.a. Structural Fill Materials**

Structural fill should consist of a free-draining granular material with a maximum particle size of 8 inches or 2/3 of the un-compacted lift thickness, whichever is lesser. The material should be well graded with less than 5% non-plastic fines. During dry weather, any organic-free, non-expansive, compactable granular material meeting the maximum size criteria is typically acceptable for this use. Locally available crushed rock and jaw run crushed shale have performed adequately for most applications of structural fill. The site fill described herein is considered suitable.

##### **F.3.a.1. SILT Fill Soil**

Where natural or imported SILT soil will be used to construct the building pad, driveway embankment or yard, they should be placed and compacted at 2% above optimum moisture and thoroughly worked in order to create a homogeneous fill. Some shrinkage cracks and long-term creep will likely occur on the surface of these SILT fill slopes during the life of the project.

#### **F.3.b. Structural Fill Placement**

Structural fill should be placed in horizontal lifts not exceeding 12 inches loose thickness, or thinner if necessary to obtain specified density. Each lift should be compacted to 90% of the maximum density. The lift thickness may be increased if specified density is consistently being exceeded and approved by the Engineer.

Structural fill placed beneath footings or other structural elements should be centered on the footing. Thickness of the structural fill will vary depending on the depth of suitable bearing conditions. The width of structural fill should be equal to the width of footing plus twice the depth of the structural fill beneath the footing.

#### **F.3.c. Compaction**

To facilitate the earthwork and compaction process, the earthwork contractor should place and compact fill materials at 1% to 2% above their optimum moisture content. If fill source soils are too wet to compact, they may be dried by continuous windrowing and aeration to achieve optimum moisture. If soils become dry, moisture should be added to maintain the moisture content at or near optimum during compaction operations.

If soil having swell potential is used for fills beneath structures, it should be moisture conditioned to 2% to 4% over optimum and compacted to 88% of maximum density. Swell properties should be determined by laboratory testing prior to use as structural fill.

##### **F.3.c.1. Fill Observation and Testing Methods**

Field density testing by nuclear methods is appropriate for compaction of 2 1/2 inch to 3/4 inch minus crushed base rock, fine grained soils,

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decomposed granite, weathered SANDSTONE and other materials 2 ½ inches or smaller in size. Due to the effect of particle size on test methods, other methods of compaction testing may be favored. Testing of only the upper lifts is not adequate to verify compaction.

**F.3.d. Non-Structural Fill**

All waste soil, organic stripping or other deleterious soil is considered suitable only for non-structural fills. These materials may provide excellent landscape soils and lawn topsoil material if placed in landscape areas and waste soil areas, but should not be placed under permanent structures or within structural fill. It is recommended that these soils be compacted to 88% relative compaction to help seal them from surface water. They should be utilized in berms less than 10 feet in height having slopes no steeper than 3 1/2 H to 1 V.

**F.4. Slopes**

Both temporary and permanent cut and permanent fill slopes will be required for construction of the site fill and structure building pad.

**F.4.a. Cut Slopes**

Permanent cut slopes will result from site excavation, overlot grading and placement of fills. Temporary cut slopes will be required for construction of retaining structures and other portions of the project. For brief periods, these may be excavated at steeper angles than listed above. We recommend cut slope angles no steeper than;

Table F 1 - Cut Slopes		
Soil Classification	Type of Cut	Inclination
SAND	All	1 1/2 H to 1 V

**F.4.b. Fill Slopes**

If continuous CoMET services are provided, we recommend the following maximum permanent fill slope inclinations.

Table F 2 - Fill Slopes		
Soil Classification	Type of Fill	Inclination
SAND	All	1 1/2 H to 1 V
Compacted, crushed base course	All	1 1/2 H to 1V

All materials should be considered and constructed as Structural Fill, compacted as described above. In order to accomplish effective compaction for the full fill

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footprint, we recommend that fills deeper than 6 feet be over built by 5 feet width, then the face cut back to achieve the design fill face.

The underlying subgrade must be prepared and compacted prior to fill placement. Keys and benches are critical and must be excavated prior to placement of fill on sloping subgrade. Effective compaction is necessary. Use of sheepsfoot rollers is recommended to integrate each lift with the one below. Rubber-tired rollers can also achieve this result, but smooth-drum rollers should not be used. Care should be exercised when placing dried hard clay to avoid leaving voids within the fill mass, which voids may allow the soil to lose strength when wetted.

#### **F.4.c. Recommended Clearances**

Recognizing the difficulty achieving specified density for unconfined soils, i.e., the edge of slopes, the minimum recommended separation between the crest or face of descending slopes and edge of footing should be 10 feet.

The minimum recommended separation between the ascending slopes and edge of footing should be 10 feet. Note that this is not a stability concern, but to provide access for future maintenance activities.

Note that, these slope setbacks apply to slopes constructed in conformance with this report. Slopes that have not been constructed in conformance with this report may require a greater set-back distance from toe or crest of slopes. A site configuration report is required at each lot location to verify site conditions conform to the recommendations herein.

Note that, where minimum clearances recommended in this report from crests of slopes are not achievable, the footing bearing elevation may be deepened or it may bear on a deep foundation (drilled shafts or helical piers) to achieve the recommended clearance. Drilled shafts are favored over helical piers due to the greater bending strength. PEI can provide a required depth for deepened footings upon request.

### **F.5. Pavement Analysis and Design**

#### **F.5.a. Asphaltic Concrete Pavements**

Site specific paving design was beyond the scope of this investigation, however, it should generally consist of compacted bituminous surface mix placed over a layer of 1 1/2 inch minus aggregate base and compacted sub-base. Geotextile should be used as a separation medium to isolate localized sub grade failures For design purposes, CBR's can be expected to vary between one for soaked subgrade in fill areas to in excess of twenty in areas of competent weathered rock. If assistance is desired with site specific pavement design, please contact us.

Material quality and placement of the surface assembly should conform to the 2021 edition of the ODOT Standard Specifications for Highway Construction.

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### **F.5.b. Non-Structural Slabs on Grade**

Exterior concrete slabs on grade will be subjected to moisture induced movement which is likely to result in cracking and vertical offsets at joints and connections with other structures. More uniform support can be achieved by placing a minimum thickness of 8 inches of crushed rock, crushed shale or decomposed granite fill beneath the slabs in these areas and conforming to the concrete pavement recommendations per the Portland Cement Association. Slabs and walkways reinforced with #3 or #4 deformed steel reinforcing bars both ways will also withstand moisture induced movement better than unreinforced flatwork. The reinforcing should extend across joints (or use dowels, Diamond Dowels, etc.) to decrease differential vertical movement. Jointing patterns to provide predetermined crack locations will also generally improve the appearance of the finished flatwork. Concrete work should conform to American Concrete Institute (ACI) Specification 306 and 318.

## **F.6. Site Drainage and Erosion Control**

### **F.6.a. Buildings**

Final grading should accomplish rapid positive drainage away from the structure for a horizontal distance of at least 10 feet at a minimum grade of 10%. This water should be channeled to surface drains or swales for proper disposal. The landscaping around the structure should be graded such that drainage discharges clear of the foundation influence area. Downspouts should be connected to a sealed system which discharges to a location clear of the foundation influence area.

### **F.6.b. Crawlspace Drainage**

Crawl spaces should be sloped to drain to one or more low point drains. There should be no low areas that allow ponding. These low point drains should discharge through or under the foundations to the surface water disposal system.

### **F.6.c. Upslope of Structures**

The area immediately upslope of most structures and components is likely to pond surface moisture. We recommend that the upslope area be graded to collect and dispose of surface moisture.

### **F.6.d. Surface Areas**

Surface and subsurface water flows should be intercepted by swales and/or catch basins and conveyed through tight lines to acceptable discharge locations. We recommend that hard surfaces be provided, sloped and shaped to channel water away from the structure.

### **F.6.e. Erosion Control**

Site soils are susceptible to erosion if unprotected. The site grades are such that erosion and sediment transport during construction are expected to be significant. The site cuts and fills, building pad, etc. should be graded such that surface water

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is collected and disposed without causing erosion or siltation. Sediment laden water should not be allowed to flow directly into streams or off-site drainage systems.

Typical project landscaping should be adequate for long-term erosion control. ***In no case should concentrated surface water runoff be allowed to flow from swales and over the top edge and/or down the face of any slopes.***

## **F.7. Building Foundations**

### **F.7.a. General**

A combination of spread and continuous footings is recommended for residential structures. To compensate for swell pressures, footings should bear on non-swelling imported structural fill.

### **F.7.b. Spread Footings**

#### **F.7.b.1. Fill**

See Section F.3 and F.4 of this report.

#### **F.7.b.2. Footing Embedment**

Spread footings should be embedded a minimum of 18 inches below natural or finish grade to provide lateral support and frost protection. Footing excavations should be backfilled with structural fill.

#### **F.7.b.3. Allowable Bearing Pressure**

Building footings placed as recommended above may be designed for the following bearing pressures;

<b>Table F 3 – Allowable Bearing Pressure</b>	
<b>Classification</b>	<b>Allowable Bearing Pressure</b>
Properly Prepared Natural Site Soils	1,800 #/ft <sup>2</sup>

#### **F.7.b.3.a. Load Duration and Shape Increases**

Allowable bearing pressure may be increased by 1/3 for short term loads. Allowable bearing pressures on square spread footings may be increased by 20%.

#### **F.7.b.4. Minimum Dimensions**

The minimum recommended width for continuous footings is 1'- 6" and the minimum recommended dimension for spread footings is 2'-0", except as required to accommodate swell pressure.

#### **F.7.b.5. Footings located at toe of cut or fill slopes**

It is recommended that footings at these locations be built with a stem wall that extends a minimum of 3'-6" above finished grade. The purpose of this

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stem wall is to resist soil pressures occurring from loose soil material that may build up at the base of these slopes.

Stem walls constructed at a height of 4'-0" or taller will require design by a professional engineer registered in the state of Oregon.

#### **F.7.c. Footing Drains**

We recommend that exterior footing drains be provided for below grade components, located at an elevation low enough to intercept groundwater, and limit it from rising above the surface of crawlspaces and the bearing area of interior slabs on grade. Footing drains should discharge clear of the foundation influence area. See Section F.7.f.

#### **F.7.d. Settlement**

Building settlement will vary with thickness and swell/consolidation potential of fill, type and thickness of underlying soils and methodology of foundation construction. In addition to settlement, vertical movement due to swelling of the foundation soil is possible for lightly or differentially loaded structural components placed on over-compacted non-natural imported soil having swell potential.

Relying on the loads estimated herein and assuming that the dead load portion will be approximately 1/3 of the total, we project total vertical movement to be less than 1 inch. Differential movement could be as much as 0.5 inches.

#### **F.7.e. Interior Floor Slabs**

Interior floor slabs should not be rigidly connected to the perimeter footing, i.e., should float within the structure. The following recommendations are provided for slabs constructed on structural fill over properly prepared subgrade soils;

##### **F.7.e.1. Aggregate Base Course (ABC)**

A 6 inch thick layer of clean (less than 2% passing the No. 200 sieve) 3/4" minus crushed rock should be placed over the structural fill to provide a positive capillary moisture break and uniform slab support. The capillary break is essential in areas to receive tile and linoleum and other areas with relatively impermeable floor finishes. To decrease drying stress, a 1/4 inch thickness of clean sand should be placed on top of the ABC.

##### **F.7.e.2. Underslab Membrane**

A moisture retarder or barrier should be used to decrease seepage or upward migration of moisture through the concrete, but is likely to increase soil moisture and exacerbate expansion if soils having expansion potential are imported. To protect the membrane, a 1/4 inch thickness of clean sand should be placed on top of the membrane.

##### **F.7.e.3. Minimum Slab Thickness**

Minimum recommended slab thickness is 5 inches to allow sufficient cover over the reinforcing steel. **Note that all slabs should be designed for the actual use and equipment anticipated.**

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**F.7.e.4. Isolation**

Floor slabs and walls, both bearing and non-bearing, resting on floor slabs should be isolated from other structural components. We would be pleased to provide typical isolation details or to review structural plans prepared by others.

**F.7.e.5. Reinforcement**

The slabs should be reinforced with deformed reinforcing steel instead of welded wire fabric.

**F.7.e.6. Reinforcement Location**

Locate reinforcing a dimension of 1/3 slab thickness below the surface. Use "dobies" or bolsters to establish accurate position of reinforcement.

**F.7.e.7. Fiber**

Polypropylene fiber may be added to the concrete mix to help decrease plastic shrinkage cracking; however it is not a replacement for structural reinforcing.

**F.7.e.8. Joints**

Contraction and control joints conforming to ACI recommendations should be incorporated in the construction. Saw cut joints or wet scored joints should be accomplished within 12 hours after concrete placement. Construction joints and joints across dissimilar pours should be joined by square dowels to decrease the potential for differential vertical movement or curling.

**F.7.f. Footing and Floor Drains**

**F.7.f.1. Footing Drains**

Drains should consist of a rigid, smooth interior perforated drain pipe placed adjacent to the base of the footing. The perforated pipe should be encapsulated in a minimum of 8 inches of clean drain rock or pea gravel wrapped in ODOT drainage geotextile Type 1.

**F.7.f.2. Wall Drains**

Drains are recommended for below grade walls. These walls should be provided a minimum 12-inch wide zone of drain rock isolated with non-woven drainage geotextile, continuous from the top of footing to one foot below the surface. A preformed, fabric-wrapped, polymer sheet drain, such as Linq Drain, Enkamat, or Amerdrain may be used instead of the vertical drainage zone, provided the excavation is backfilled with clean, free-draining material. Design of such walls should disregard friction between the wall and fill for stability computations, however. Walls demising habitable areas should be provided durable wall sealant coating or other water proofing membrane before installing the sheet drain.

**F.7.f.3. Floor Subdrains**

Where the drain rock layer below slabs will be lower than the adjacent exterior grades, water will tend to accumulate. In these locations, positive drainage of the under slab layer should be provided.

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#### F.7.f.4. Discharge

Foundation drains and subdrains should be routed to discharge clear of the foundation influence area or slopes. Interconnection of roof downspouts or surface area drains with foundation, wall, or floor subdrain systems is not allowed.

### F.8. Lateral Earth Pressures and Drainage

#### F.8.a. Lateral Load Resistance

Lateral loads exerted upon these structures can be resisted by passive pressure acting on buried portions of the foundation and other buried structures and by friction between the bottom of concrete elements of the foundations and slabs and the underlying soil.

Lateral load resistance should be calculated using the values presented in Section E.3 for the recommended depth of embedment as;

$$P_a \text{ or } P_p = \frac{1}{2} k_{(a \text{ or } p)} \gamma H^2 \text{ where;}$$

$P_a$  is active earth pressure

$P_p$  is passive earth pressure

$$k_a = \tan^2 (45^\circ - \phi/2)$$

$$k_p = 1/ k_a$$

$\gamma$  = soil unit weight

The first one foot below the ground surface should be ignored when computing passive resistance.

- A coefficient of friction of 0.45 is recommended for elements poured neat against structural rock fill or bedrock.
- A coefficient of friction of 0.30 is recommended for elements poured against natural soils.
- The above values should be reduced to 0.2 for areas where bearing is over a non-soil vapor barrier or low permeability membrane.

#### F.8.b. Lateral Earth Pressures

It is possible that both unrestrained and restrained retaining walls may be constructed for the project. Lateral earth pressures will be imposed on below-ground and backfilled structures or walls, including daylight basements and foundations which do not have uniform heights of fill on both sides. The following recommendations are provided for design and construction of retaining walls:

- Walls which are free to rotate at the top when backfilled should be designed for an equivalent fluid pressure of 45 #/ft<sup>3</sup>. This value should be increased to 52 #/ft<sup>3</sup> for a 2 H to 1 V back slope.

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- Walls that are fixed at the top should be designed for an equivalent fluid pressure of 60 #/ft<sup>3</sup>. This should be increased to 67 #/ft<sup>3</sup> for a 2 H to 1 V back slope.
- A wet soil unit weight of 135 #/ft<sup>3</sup> should be used for design.
- Backfill should consist of non-expansive, free draining, material. The backfill should be placed in lifts at near the optimum moisture content and compacted to between 88 and 90 % of the maximum density. Care should be employed to avoid over compacting the backfill. Loosely placed backfill and over-compacted backfill will exert greater pressures on the wall than the pressures considered above.
- To prevent damage, backfill and compaction against walls or embedded structures should be accomplished with hand-operated equipment within a lateral distance of 1/2 to 1/3 the unsupported height of wall. Beyond this zone, normal compaction equipment may be used.
- While proper compaction of wall backfill is critical to long-term performance, care should be taken to avoid over compaction of the backfill materials, which can result in lateral loads greater than the design pressures recommended above.
- For design of retaining walls supporting or bracing structures, a peak horizontal acceleration coefficient of 0.2g is recommended for seismic loads.
- To prevent development of hydrostatic pressures exceeding the lateral earth pressures, a perimeter drainage system is recommended for underground structures, including basements.
- Hydrostatic pressures behind retaining walls should be relieved by installation of free draining backfill behind the walls, with weep holes spaced as necessary (typically 10 feet on center) to achieve effective drainage. The free draining backfill should be protected from plugging by encapsulating with drainage geotextile as recommended above.
- Allowable bearing capacities should be as recommended for Building Structures.

### **F.9. Trenching and Piping**

Additional underground piping will be constructed. Excavation can be accomplished by normal means throughout the site. Depending on when construction occurs, dewatering of the trench may be necessary to facilitate construction.

- Pipe should be cradled in coarse aggregate compacted to 90% density, having a minimum thickness equal to 1/4 pipe diameter below bottom of pipe and extending upward to the pipe spring line.
- The trench backfill should consist of clean excavated material, compacted to 90% density.
- Beneath paved areas, full depth granular backfill is recommended as a minimum, and use of lean cement slurry should be considered.

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- The top 12 inches of the trench backfill should be compacted to a density of 92%. Loads on pipe will vary with depth and width of trench.
- For pipe design, an effective pressure of 130 #/ft<sup>3</sup> per foot of depth is recommended.
- Underground pipes located beneath paved areas and having shallow cover should be designed to withstand vehicular loads.

**G. ADDITIONAL SERVICES AND LIMITATIONS OF REPORT**

**G.1. Additional Services**

Additional services by the geotechnical engineer are recommended to help insure that design recommendations are correctly interpreted during final project design and to help verify compliance with project specifications during construction. Additional services could include, but not be limited to:

- Review of final construction plans and specifications for compliance with geotechnical recommendations.
- Attend project team meetings to clarify issues raised during the construction process.
- Review and/or design of swale, fill and basement subdrain systems.
- Review of proposed cuts and fills, fills on slopes, surface and subdrains, swale drains, foundation support, and basement or rock fill subdrains.
- Site observation and/or CoMET services, i.e., observation of over excavated areas below keys, benches and footings and slabs, subgrade proof rolling, placement and compaction testing of structural fill, fill subdrains, swale subdrains, foundation drains, wall drains, subgrade proof rolling, pavement subgrade and aggregate base placement, site grading, surface drainage, etc.
- Special Inspection as defined by the OSSC may be required for certain of the components.
- Periodic construction field reports, as requested by the client and required by the building department.

**G.2. Limitations**

Where used herein, the terms "Special Inspector, Inspector and Special Inspection" are understood to be for services contemplated, prescribed and as defined by the International Building Code and the Oregon Structural Specialty Code.

The analyses, conclusions and recommendations contained in this report are based on site conditions and development plans as they existed at the time of the study, and assume that soils and groundwater conditions encountered, observed or inferred during our exploration are representative of soils and groundwater conditions throughout the site. If, during construction, subsurface conditions are found to be different or design parameters change, we should be advised at once so that we can review this report and reconsider our recommendations, as appropriate. If there is a significant lapse of time between submission of this report and the start of work at the site, if the project is changed, or if

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site conditions have changed, we recommend that this report be reviewed to verify continued applicability.

This report was prepared for the use of the owner and design team for the subject project. It is only for this site and construction project. No third party beneficiaries are intended. Potential users of the report should be so notified.

It should be made available to other contractors for information and factual data only, such as test boring or test pit logs, measured water levels, samples, sample classifications and laboratory test results. The report is interpretive in nature and shall not be used for contractual purposes, such as warranting that subsurface conditions will be consistent with, or as indicated by the formal boring or test pit logs and subsurface profiles contained or inferred herein and/or discussions of subsurface conditions. It is not to be used for extensions of this project or for other projects without our express written consent. We should be contacted to review both plans and specifications for compatibility with this report before finalization. **CoMET services, compaction testing and periodic observation during construction are recommended.**

We have performed these services in conformance with generally accepted engineering and geotechnical engineering practices in southern Oregon at the time the study was accomplished. No other warranty is either expressed or implied.

Since test pits and borings represent only the conditions at those discrete locations, unanticipated soil conditions may be and, in fact, are commonly encountered on projects of similar size. Unanticipated conditions cannot be precluded by practical field studies. Since such unexpected conditions frequently result in budget increases to attain a properly constructed project, we recommend that a reasonable contingency account be established sufficient to fund possible extra costs.

We appreciate the opportunity to assist you on your project. If you have any questions, or if we may be of further assistance, please do not hesitate to contact us.

Sincerely,

**Pinnacle Engineering, Inc.**



Matt Keller, P.E., CSI  
Registered Geotechnical Engineer  
President



EXPIRES: 06/30/2021

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## FIGURES

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**SUBSURFACE SOILS INVESTIGATION  
SITE MAP**

**PROJECT: 30296.03 VESTA LANE - BANDON  
CLIENT: DAVID VON DAMM**

**FIG. 2**

## SOIL TYPES (Ref. 1)

Boulders:	Particles of rock that will not pass a 12 inch screen.
Cobbles:	Particles of rock that will pass a 12 inch screen, but not a 3 inch sieve.
Gravel:	Particles of rock that will pass a 3 inch sieve, but a #4 sieve.
Sand:	Particles of rock that will pass a #4 sieve, but not a #200 sieve.
Silt:	Soil that will pass a #200 sieve, that is non-plastic or very slightly plastic, and exhibits little or no strength when dry.
Clay:	Soil that will pass a #200 sieve, that can be made to exhibit plasticity within a range of water contents, and that exhibits considerable strength when dry.

## MOISTURE AND DENSITY

Moisture condition:	An observational term; moist, wet.
Moisture content:	The weight of water in a sample divided by the weight of dry soil in the sample, expressed as a percentage.
Dry Density:	The pounds of dry soil in a cubic foot of soil

## DESCRIPTORS OF CONSISTENCY (Ref. 3)

Liquid Limit:	The water content at which a - #200 soil is on the boundary between exhibiting liquid and plastic characteristics. The consistency feels like soft butter.
Plastic Limits:	The water content at which a - #200 soil is on the boundary between exhibiting plastic and semi-solid characteristics. The consistency feels like stiff putty.
Plasticity Index:	The difference between the liquid limit and the plastic limit, i.e. the range in water contents over which the soil is in a plastic state.

## MEASURES OF CONSISTENCY OF COHESIVE SOILS (CLAYS) (Ref's 2&3)

Very soft	N=0-1*	C=0-250 psf	Squeezes between fingers
Soft	N=2-4	C=250-500 psf	Easily molded by finger pressure
Medium stiff	N=5-8	C=500-1000 psf	Molded by strong finger pressure
Stiff	N=9-15	C=1000-2000 psf	Dented by strong finger pressure
Very stiff	N=16-30	C=2000-4000 psf	Dented slightly by finger pressure
Hard	N>30	C>4000 psf	Dented slightly by pencil point

\*N= Blows per foot in the Standard Penetration Test. In cohesive soils, with the 3 inch diameter sampler, 140-pound weight, divide the blow count by 1.2 to get N (Ref. 4).

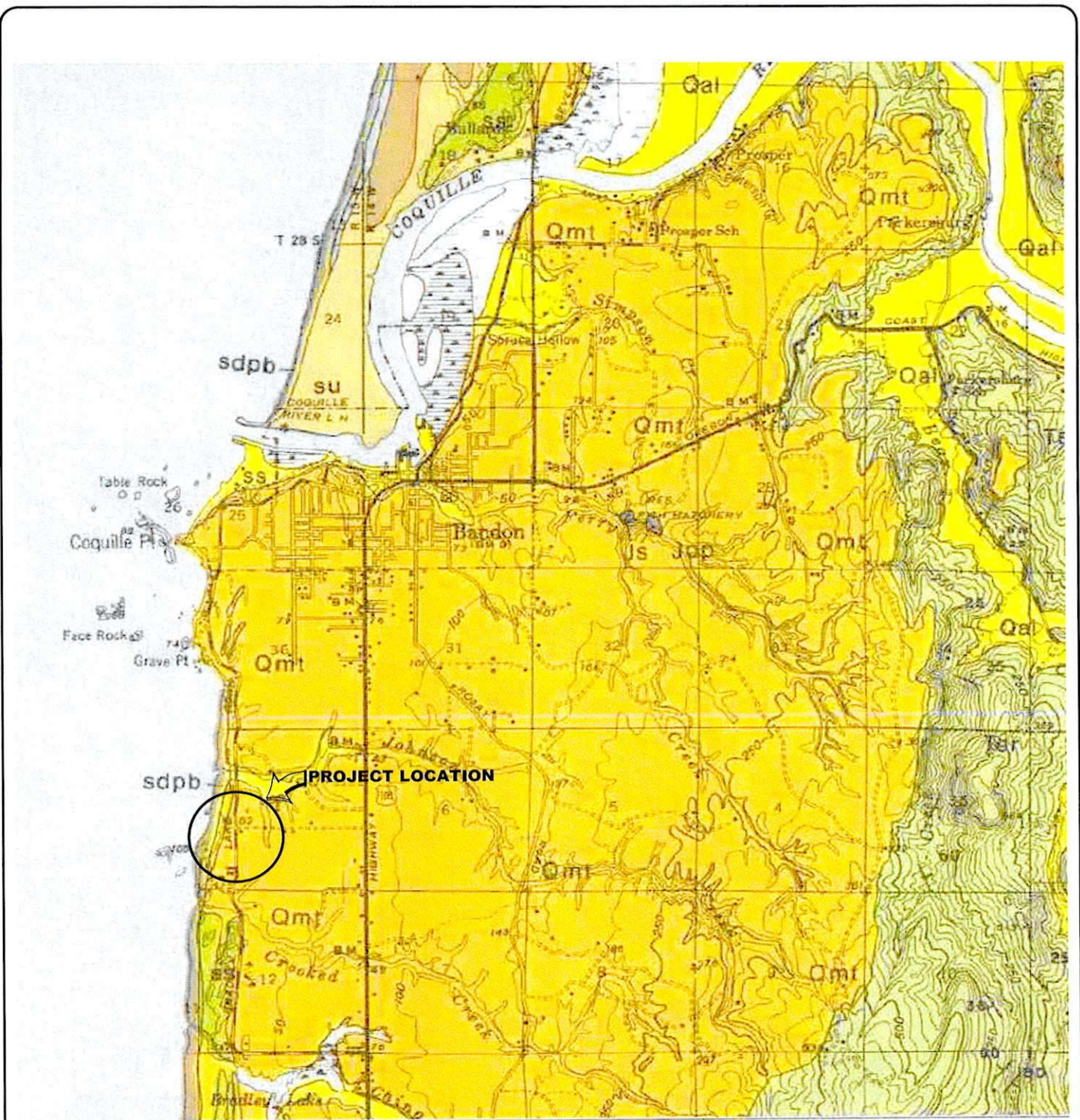
## MEASURES OF RELATIVE DENSITY OF GRANULAR SOILS (GRAVELS, SANDS, SILTS) (Ref's 2 & 3)

Very Loose	N=0-4**	RD=0-30	Easily push a ½ inch reinforcing rod by hand
Loose	N=5-10	RD=30-50	Push a ½ inch reinforcing rod by hand
Medium Dense	N=11-30	RD=50-70	Easily drive a ½ inch reinforcing rod
Dense	N=31-50	RD=70-90	Drive a ½ inch reinforcing rod 1 foot
Very Dense	N>50	RD=90-100	Drive a ½ inch reinforcing rod a few inches

\*\*N= Blows per foot in the Standard Penetration Test. In granular soils, with the 3 inch diameter sampler, 140 pound weight, divide the blow count by 2 to get N (Ref 4). RD = Relative Density.

- Ref. 1: ASTM Designation: D 2487-93, Standard Classification of Soils for Engineering Purposes(Unified Soil Classification system).  
Ref.2: Terzaghi, Karl, and Peck, Ralph B., Soil Mechanics in Engineering Practice, John Wiley & Sons, New York, 2nd Ed., 1967, pp. 30, 341, 347.  
Ref.3: Sowers, George F., Introductory Soil Mechanics and Foundations: Geotechnical Engineering, Macmillan Publishing Company, New York, 4th Ed., 1979, pp. 80,81, and 312.  
Ref.4: Lowe, John III, and Zaccheo, Phillip F., Subsurface Explorations and Sampling Chapter 1 in Foundation Engineering Handbook, Hsai-Yang Fang, Editor , Van Nostrand Reinhold Company, New, 2nd Ed, 1991, p.39/





**Geosynthetics and Slope Protection**  
**Section 02320 - Geosynthetics**

**Description**

**02320.00 Scope** - This section includes the requirements for geosynthetics used in various applications.

**02320.01 Definitions** - Geosynthetic terms are defined in 00350.01

**Materials**

**02320.10 Acceptance:**

(a) **General Requirements** - Furnish all geosynthetics meeting the following requirements:

- Free of defects, cuts or tears.
- Resistant to ambient temperatures, acid and alkaline conditions, micro-organisms and insects.
- For the intended purpose and have dimensional stability.

(1) **Geotextiles** - Furnish woven or nonwoven geotextiles meeting the following requirements:

- Fibers used in manufacture of geotextiles, and threads used in joining geotextiles by sewing, shall consist of long-chain synthetic polymers, composed of at least 95 percent by weight of polyolefins or polyester. They shall be formed into a stable network such that the filaments or yarns retain their dimensional stability to each other, including selvages.
- Meet or exceed the properties specified in 02320.20.
- Be free of any chemical treatment or coating which might significantly reduce permeability.

(2) **Geogrids** - Furnish geogrids meeting the following requirements:

- Geogrid reinforcements approved as Type 1 MSEW Geogrid on the QPL.
- Geogrid for Subgrade reinforcement approved as Subgrade Reinforcement Geogrid on the QPL.

(b) **Acceptance Requirements** - The actual minimum average roll values furnished by the manufacturer shall be based on representative test results from the manufacturing plant which produced the geosynthetic, and shall meet or exceed each of the specified minimum values. All geosynthetics shall be clearly labeled as being part of the same production run certified as meeting all applicable requirements.

(c) **Manufacturer's Test Certification** - Furnish test result certificates according to 00165.35 from the geosynthetic manufacturer, and the following:

(1) **Geotextiles** - For geotextiles, include the following:

- Manufacturer's name, lot number, roll number, production facility address, and full product information (style, brand, name, etc.)
- Chemical composition of filaments and yarns, including polymer(s) used.
- Minimum average roll values for each of the specified properties from the same lot of geotextiles as the delivered material.

(2) **Geogrids** - For mechanically stabilized earth retaining wall geogrid, include the following:

- Average roll values for each of the specified properties from the same production run as the delivered material.
- Production run number, production plant name, and location.
- Manufacturer's name and address.
- Full product name and information.
- QPL Product Category and the Standard Specification Subsection number.
- Retaining wall location referencing the drawing name, detail, and structure number.
- Polymer types for geogrid and coating, if present.
- Primary resin type, class, grade, and category for HDPE (ASTM D1248) and PP (ASTM D4101)

For subgrade reinforcement geogrid, include the following:

- Minimum average roll values and average roll values for each of the specified properties from the same production run as the delivered material.
- Production run number, production plant name and location.

(d) **Manufacturer's Sampling/Testing** - The manufacturer's reported property values shall be based on the following sampling and testing requirements:

(1) **Sampling** - Sample all geosynthetics according to the ASTM D4354. The production unit used for sampling shall be a roll or sheet.

(2) **Geotextile Testing** - Perform the specified tests to determine geotextile properties for the intended applications. The tensile strength requirements shall be tested in both machine and cross-machine directions.

(3) **Geogrid Testing** - For mechanically stabilized earth retaining wall geogrid, provide laboratory test results that demonstrate the average roll value for each geogrid product is greater than or equal to the geogrid ultimate wide width tensile strength reported for the initial geogrid product evaluation and approval on the QPL. Determine the ultimate wide width tensile strength ( $T_{ult}$ ) according to ASTM D6637. If the average roll value for each geogrid reinforcement product is less than the geogrid ultimate wide width tensile strength identified on the QPL, the entire production run will be rejected.

(e) **Agency Check Tests** - The Agency reserves the right to sample and test products for compliance with pertinent requirements, according to 00165.02.

When the Agency performs check tests, the entire production run will be accepted or rejected according to 00150.25, if any of the average roll values of tested rolls are less than the specified minimum values.

**02320.11 Seam Testing and Acceptance:**

(a) **Factory Seams** - Where factory seams are made, the sheets of geotextile shall:

- Be sewn together using a lock type stitch Type 301 or 401 as shown.
- Be sewn with polymeric thread that is at least 95 percent, by weight, polyolefin or polyester, and as resistant to deterioration as the geotextile being sewn.
- Have test results showing that the seams meet or exceed 90 percent of the specified tensile strength minimum values for intended application.
- Nylon thread will not be allowed.

(b) **Field Seams** - Where field sewn seams will be used, furnish:

- The manufacturer's test result certificate, according to 00165.35, that includes wide strip, tensile strength test results and verifies that seams tensile strength and seam grab tensile strength meet or exceed 90 percent of the minimum specified tensile strength values for the geotextile.
- A field-stitched seam test sample.

Table 02320-1 Geotextile Property Values for Drainage Geotextile <sup>1,2</sup>  
(Oregon Standard Specifications for Construction 2021)

Geotextile Property	ASTM Test Method	Unit	Geotextile Property Requirement			
			Type 1		Type 2	
			Woven	Nonwoven	Woven	Nonwoven
Grab Tensile Strength (minimum) Machine and Cross Machine Directions	D 4632	lb	180	115	250	160
Grab Failure Strain (minimum) Machine and Cross Machine Directions	D 4632	%	< 50	≥ 50	< 50	≥ 50
Tear Strength (minimum)	D 4533	lb	67	40	90	56
Puncture Strength (minimum)	D 6241	lb	370	220	495	310
Apparent Opening Size (AOS) (maximum) U.S. Standard Sieve	D 4751	--	40	40	40	40
Permittivity (minimum)	D 4491	sec <sup>-1</sup>	0.5	0.5	0.5	0.5
Ultraviolet Stability Retained Strength (minimum)	D 4355 (at 500 hours)	%	50	50	50	50

<sup>1</sup> All geotextile properties are Minimum Average Roll Values (MARV). The test results for any sampled roll in a lot shall meet or exceed the values shown in the table.

<sup>2</sup> Woven silt film geotextiles (geotextiles that are made from yarns or a flat, tape-like character) are not acceptable.

Table 02320-2 Geotextile Property Values for Riprap Geotextile <sup>1,2</sup>  
(Oregon Standard Specifications for Construction 2021)

Geotextile Property	ASTM Test Method	Unit	Geotextile Property Requirement			
			Type 1		Type 2	
			Woven	Nonwoven	Woven	Nonwoven
Grab Tensile Strength (minimum) Machine and Cross Machine Directions	D 4632	lb	250	160	315	200
Grab Failure Strain (minimum) Machine and Cross Machine Directions	D 4632	%	< 50	≥ 50	< 50	≥ 50
Tear Strength (minimum)	D 4533	lb	90	56	110	80
Puncture Strength (minimum)	D 6241	lb	495	310	620	430
Apparent Opening Size (AOS) (maximum) U.S. Standard Sieve	D 4751	--	40	40	40	40
Permittivity (minimum)	D 4491	sec <sup>-1</sup>	0.5	0.5	0.5	0.5
Ultraviolet Stability Retained Strength (minimum)	D 4355 (at 500 hours)	%	70	70	70	70

<sup>1</sup> All geotextile properties are Minimum Average Roll Values (MARV). The test results for any sampled roll in a lot shall meet or exceed the values shown in the table.

<sup>2</sup> Woven silt film geotextiles (geotextiles that are made from yarns or a flat, tape-like character) are not acceptable.

Table 02320-3 Geotextile Property Values for Sediment Fence<sup>1</sup>  
(Oregon Standard Specifications for Construction 2021)

Geotextile Property	ASTM Test Method	Unit	Geotextile Property Requirement		
			Supported	Unsupported	
			--	Elongation <sup>2</sup> ≥ 50%	Elongation <sup>2</sup> ≤ 50%
Grab Tensile Strength (minimum) Machine and Cross Machine Directions	D 4632	lb	90 90	120 100	120 100
Apparent Opening Size (AOS) (maximum) U.S. Standard Sieve	D 4751	--	30	30	30
Permittivity (minimum)	D 4491	sec <sup>-1</sup>	0.05	0.05	0.05
Ultraviolet Stability Retained Strength (minimum)	D 4355 (at 500 hours)	%	70	70	70

<sup>1</sup> All geotextile properties are Minimum Average Roll Values (MARV). The test results for any sampled roll in a lot shall meet or exceed the values shown in the table.

<sup>2</sup> Measured to ASTM D4632.

Table 02320-4 Geotextile Property Values for Subgrade Geotextile (Separation)<sup>1</sup>  
(Oregon Standard Specifications for Construction 2021)

Geotextile Property	ASTM Test Method	Unit	Geotextile Property Requirement	
			Woven	Nonwoven
Grab Tensile Strength (minimum) Machine and Cross Machine Directions	D 4632	lb	180	113
Grab Failure Strain (minimum) Machine and Cross Machine Directions	D 4632	%	< 50	≥ 50
Tear Strength (minimum)	D 4533	lb	68	41
Puncture Strength (minimum)	D 6241	lb	371	223
Apparent Opening Size (AOS) (maximum) U.S. Standard Sieve	D 4751	--	30	30
Permittivity (minimum)	D 4491	sec <sup>-1</sup>	0.05	0.05
Ultraviolet Stability Retained Strength (minimum)	D 4355 (at 500 hours)	%	50	50

<sup>1</sup> All geotextile properties are Minimum Average Roll Values (MARV). The test results for any sampled roll in a lot shall meet or exceed the values shown in the table.

Table 02320-5 Geotextile Property Values for Embankment Geotextile<sup>1</sup>  
(Oregon Standard Specifications for Construction 2021)

Geotextile Property	ASTM Test Method	Unit	Geotextile Property Requirement	
			Woven	Nonwoven
Grab Tensile Strength (minimum) Machine and Cross Machine Directions	D 4632	lb	315	200
Grab Failure Strain (minimum) Machine and Cross Machine Directions	D 4632	%	< 50	≥ 50
Tear Strength (minimum)	D 4533	lb	110	80
Puncture Strength (minimum)	D 6241	lb	620	430
Apparent Opening Size (AOS) (maximum) U.S. Standard Sieve	D 4751	--	30	30
Permittivity (minimum)	D 4491	sec <sup>-1</sup>	0.02	0.02
Ultraviolet Stability Retained Strength (minimum)	D 4355 (at 500 hours)	%	50	50

<sup>1</sup> All geotextile properties are Minimum Average Roll Values (MARV). The test results for any sampled roll in a lot shall meet or exceed the values shown in the table.

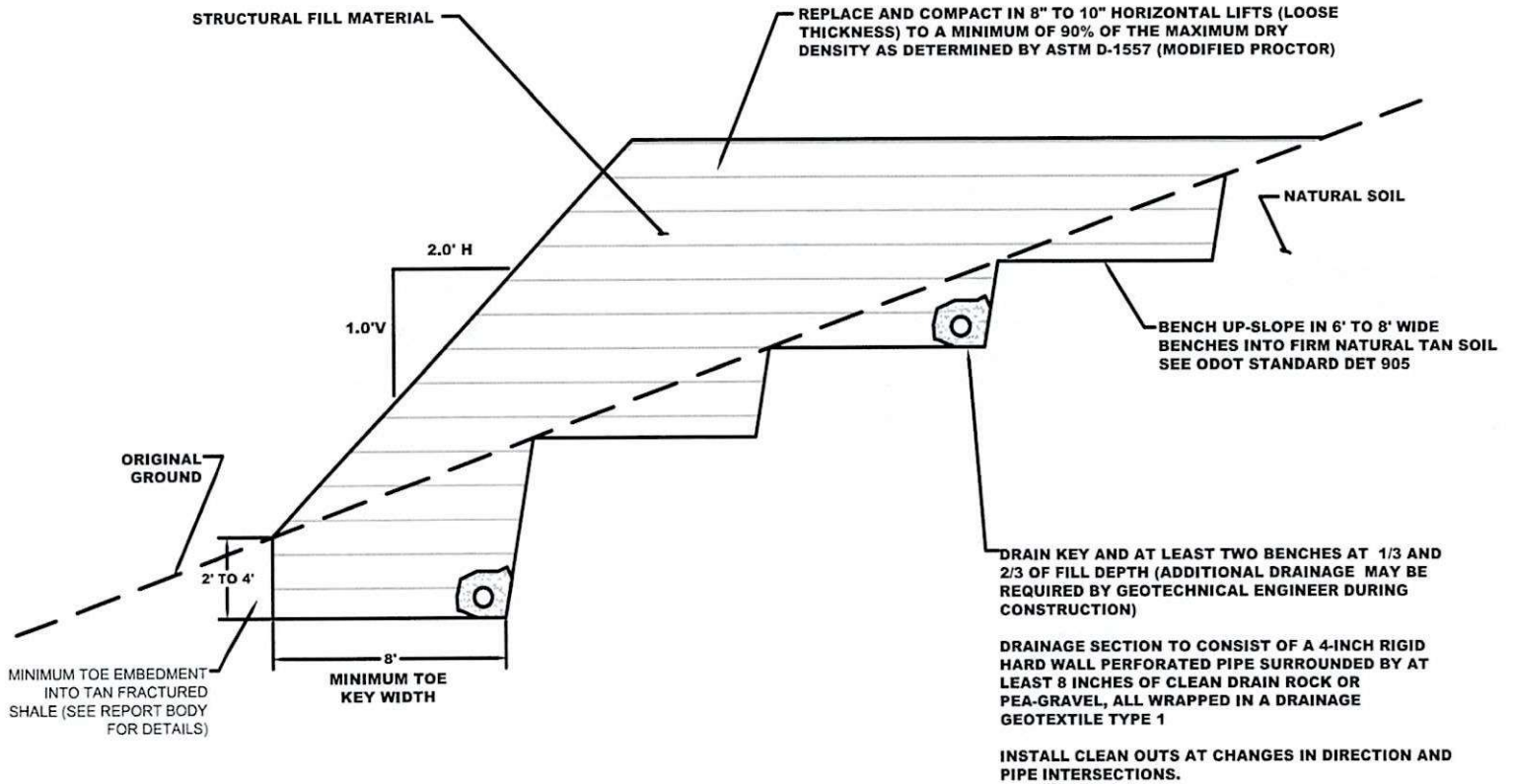
Table 02320-6 Geotextile Property Values for Pavement Overlay Geotextile<sup>1</sup>  
(Oregon Standard Specifications for Construction 2021)

Geotextile Property	ASTM Test Method	Unit	Geotextile Property Requirement
			Nonwoven
Grab Tensile Strength (minimum) Machine and Cross Machine Directions	D 4632	lb	100
Grab Failure Strain (minimum) Machine and Cross Machine Directions	D 4632	%	≥ 50
Asphalt Retention (minimum)	D 6140	oz./sq.ft.	2.8
Melting Point (minimum)	D 276	°F	300

<sup>1</sup> All geotextile properties are Minimum Average Roll Values (MARV). The test results for any sampled roll in a lot shall meet or exceed the values shown in the table.

**SUBSURFACE SOILS INVESTIGATION**  
**FILL ON STEEP SLOPE (X-SECTION)**  
 PROJECT: 30296.03 VESTA LANE - BANDON  
 CLIENT: DAVID VON DAMM

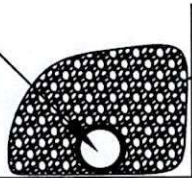
FIG. 7



**NOTES:**

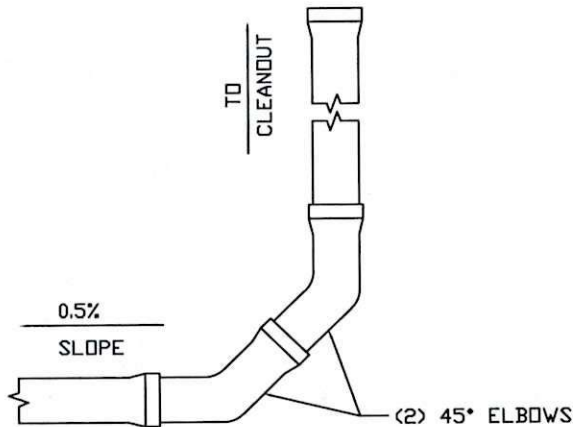
1. THIS IS A GENERAL CROSS-SECTION FOR FILL PLACED ON SLOPES. IT IS NOT INTENDED AS A SPECIFIC DESIGN FOR ALL SLOPES ON THIS PROJECT.
2. MINIMUM BENCH DIMENSIONS 36"WX24"H
3. COMPACT EMBANKMENT IN HORIZONTAL LAYERS
4. SEE ATTACHED SPECIFICATION

DRAINAGE SECTION TO CONSIST OF A 4-INCH RIGID HARD WALL PERFORATED PVC PIPE, PERF HOLES FACING UP, SURROUNDED BY AT LEAST 8 INCHES OF DRAIN WASHED ROCK OR PEA-GRAVEL, ALL WRAPPED IN A TYPE 1 DRAINAGE GEOTEXTILE. INSTALL CLEANOUTS AT TOP AND ALL 90° BENDS



CLEAN 1" - 1 1/2" WASHED DRAIN ROCK AT LEAST 8" AROUND THE PIPE ON ALL SIDES (NOT BELOW PIPES)  
TYPE 1 DRAINAGE GEOTEXTILE OVERLAP AND SECURE.

1 PERIMETER DRAIN DETAIL  
8 SCALE: N.T.S.



2 CLEANOUT DETAIL  
8 SCALE: N.T.S.



**STATE OF OREGON**  
**DEPARTMENT OF GEOLOGY AND MINERAL INDUSTRIES**  
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**Introduction**

The Oregon Department of Geology and Mineral Industries (ODGI) has been assigned and assigned the project to prepare the Cascadia Subduction Zone (CSZ) Tsunami Inundation Map (TSM) for the Vesta Lane - Bandon Project. The TSM is a map showing the potential inundation areas resulting from a magnitude 9.0 earthquake on the CSZ. The TSM is based on the results of the Cascadia Subduction Zone (CSZ) Tsunami Inundation Study (TIS) conducted by the Oregon Department of Geology and Mineral Industries (ODGI) and the Oregon State University (OSU) in 2007. The TIS was a multi-disciplinary study that included geologists, geographers, and engineers. The TIS was the first study of its kind to provide a comprehensive assessment of the potential impacts of a magnitude 9.0 earthquake on the CSZ. The TIS was the first study of its kind to provide a comprehensive assessment of the potential impacts of a magnitude 9.0 earthquake on the CSZ.

The CSZ is the western plate boundary between the North American Plate and the Juan de Fuca Plate (Figure 1). These plates are converging at a rate of about 1.5 inches per year. The Juan de Fuca Plate is being subducted beneath the North American Plate. This subduction is causing the Juan de Fuca Plate to move westward at a rate of about 1.5 inches per year. This movement is causing the Juan de Fuca Plate to pull the North American Plate along with it. This is causing the North American Plate to move westward at a rate of about 1.5 inches per year. This movement is causing the North American Plate to pull the Juan de Fuca Plate along with it. This is causing the Juan de Fuca Plate to move westward at a rate of about 1.5 inches per year.

The TIS was the first study of its kind to provide a comprehensive assessment of the potential impacts of a magnitude 9.0 earthquake on the CSZ. The TIS was the first study of its kind to provide a comprehensive assessment of the potential impacts of a magnitude 9.0 earthquake on the CSZ. The TIS was the first study of its kind to provide a comprehensive assessment of the potential impacts of a magnitude 9.0 earthquake on the CSZ. The TIS was the first study of its kind to provide a comprehensive assessment of the potential impacts of a magnitude 9.0 earthquake on the CSZ. The TIS was the first study of its kind to provide a comprehensive assessment of the potential impacts of a magnitude 9.0 earthquake on the CSZ.

The TIS was the first study of its kind to provide a comprehensive assessment of the potential impacts of a magnitude 9.0 earthquake on the CSZ. The TIS was the first study of its kind to provide a comprehensive assessment of the potential impacts of a magnitude 9.0 earthquake on the CSZ. The TIS was the first study of its kind to provide a comprehensive assessment of the potential impacts of a magnitude 9.0 earthquake on the CSZ. The TIS was the first study of its kind to provide a comprehensive assessment of the potential impacts of a magnitude 9.0 earthquake on the CSZ. The TIS was the first study of its kind to provide a comprehensive assessment of the potential impacts of a magnitude 9.0 earthquake on the CSZ.

**Cascadia Subduction Zone Setting**

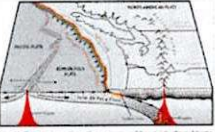


Figure 1. This map shows the location of the Cascadia Subduction Zone. The Juan de Fuca Plate is subducting under the North American Plate. The Cascadia Subduction Zone is the area where the Juan de Fuca Plate is subducting under the North American Plate. The Vesta Lane - Bandon Project is located in the area where the Juan de Fuca Plate is subducting under the North American Plate.

**How Tsunami Occur**

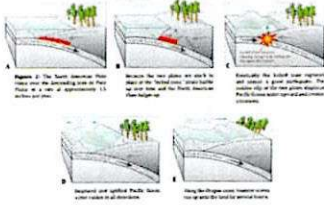
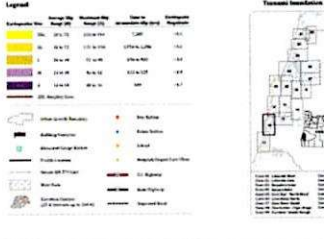


Figure 2. This diagram illustrates how a tsunami occurs. A large earthquake on the ocean floor causes a massive displacement of water, creating a tsunami wave. The diagram shows the wave moving across the ocean surface.



**Dominance and Relative Size of Cascadia Subduction Zone Megathrust Earthquakes**

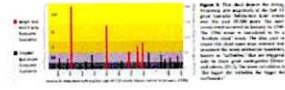


Figure 3. This bar chart shows the dominance and relative size of Cascadia Subduction Zone megathrust earthquakes. The majority of earthquakes are in the 8.5 to 9.0 magnitude range.

**Buildings within Tsunami Inundation Zones**

Building Type	0-10 ft	10-20 ft	20-30 ft	30-40 ft	40-50 ft	50-60 ft	60-70 ft	70-80 ft	80-90 ft	90-100 ft
Single-Family Residential	100	200	300	400	500	600	700	800	900	1000
Multi-Family Residential	50	100	150	200	250	300	350	400	450	500
Commercial	20	40	60	80	100	120	140	160	180	200
Industrial	10	20	30	40	50	60	70	80	90	100
Government	5	10	15	20	25	30	35	40	45	50
Religious	2	4	6	8	10	12	14	16	18	20
Education	1	2	3	4	5	6	7	8	9	10
Healthcare	1	2	3	4	5	6	7	8	9	10
Other	1	2	3	4	5	6	7	8	9	10

Figure 4. This table shows the number of buildings within tsunami inundation zones. The majority of buildings are single-family residential.

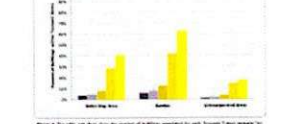


Figure 5. This bar chart shows the estimated tsunami wave height through time for simulated gauge stations. The wave height peaks at approximately 100 feet around 20 minutes.

**Estimated Tsunami Wave Height Through Time for Simulated Gauge Stations**

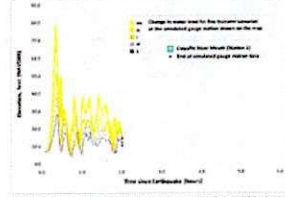


Figure 6. This line graph shows the estimated tsunami wave height through time for simulated gauge stations. The wave height peaks at approximately 100 feet around 20 minutes.

**Maximum Wave Elevation Profiles**

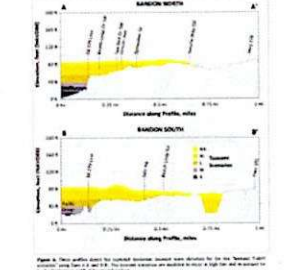
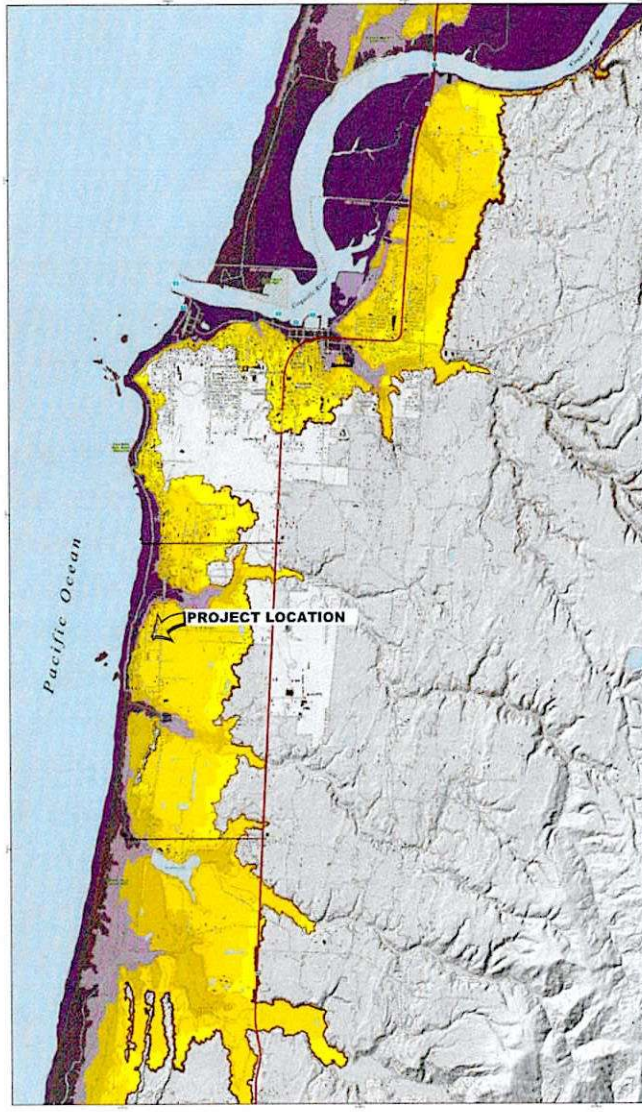


Figure 7. These line graphs show the maximum wave elevation profiles for Bandon North and Bandon South. The wave elevation peaks at approximately 100 feet around 200 feet.

**Data References**

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**TSUNAMI INUNDATION MAP**  
**CASCADIA SUBDUCTION ZONE**  
 PROJECT: 30296.03 VESTA LANE - BANDON  
 CLIENT: DAVID VON DAMM

**FIG. 9**



# APPENDIX A

## TEST BORING LOG AND TESTS

<b>Pinnacle Engineering, Inc.</b> www.pinnacleengineeringinc.com Email:matt@pinnacleengineeringinc.com	3329 NE Stephens St. Roseburg, OR 97470	Phone (541) 440-4871 Fax (541) 672-0677	Page A1 Project # 30296.03
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# TEST LOG

TB1

PROJECT: VESTA STREET - GEO EX. PROJECT NO.: 60589.22  
 CLIENT: PINNACLE ENGINEERING, INC. DATE: 4/30/21  
 LOCATION: 43°05'17"N, 124°25'56"W ELEVATION: 60  
 DRILLER: TWS/TSK LOGGED BY: TSK  
 DRILLING METHOD: KUBOTA RTV MOUNTED MICRO DRILL - HOLLOW STEM AUGER  
 DEPTH TO - WATER> INITIAL: 12 AFTER DRILLING: 12 SEEPAGE: 0

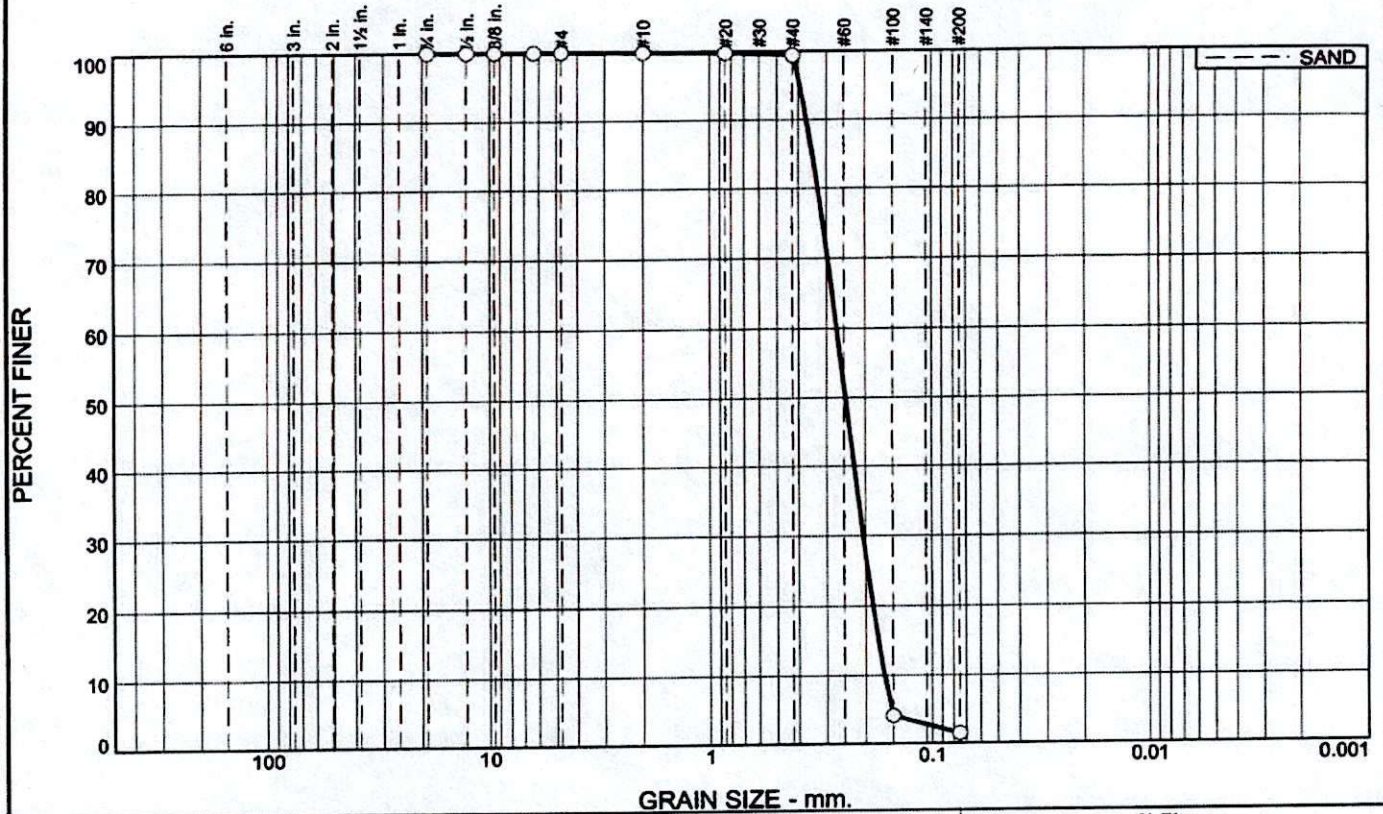
Fig: 60589

Date Printed: 5/10/2021

This information pertains only to this boring and should not be interpreted as being indicative of the site.

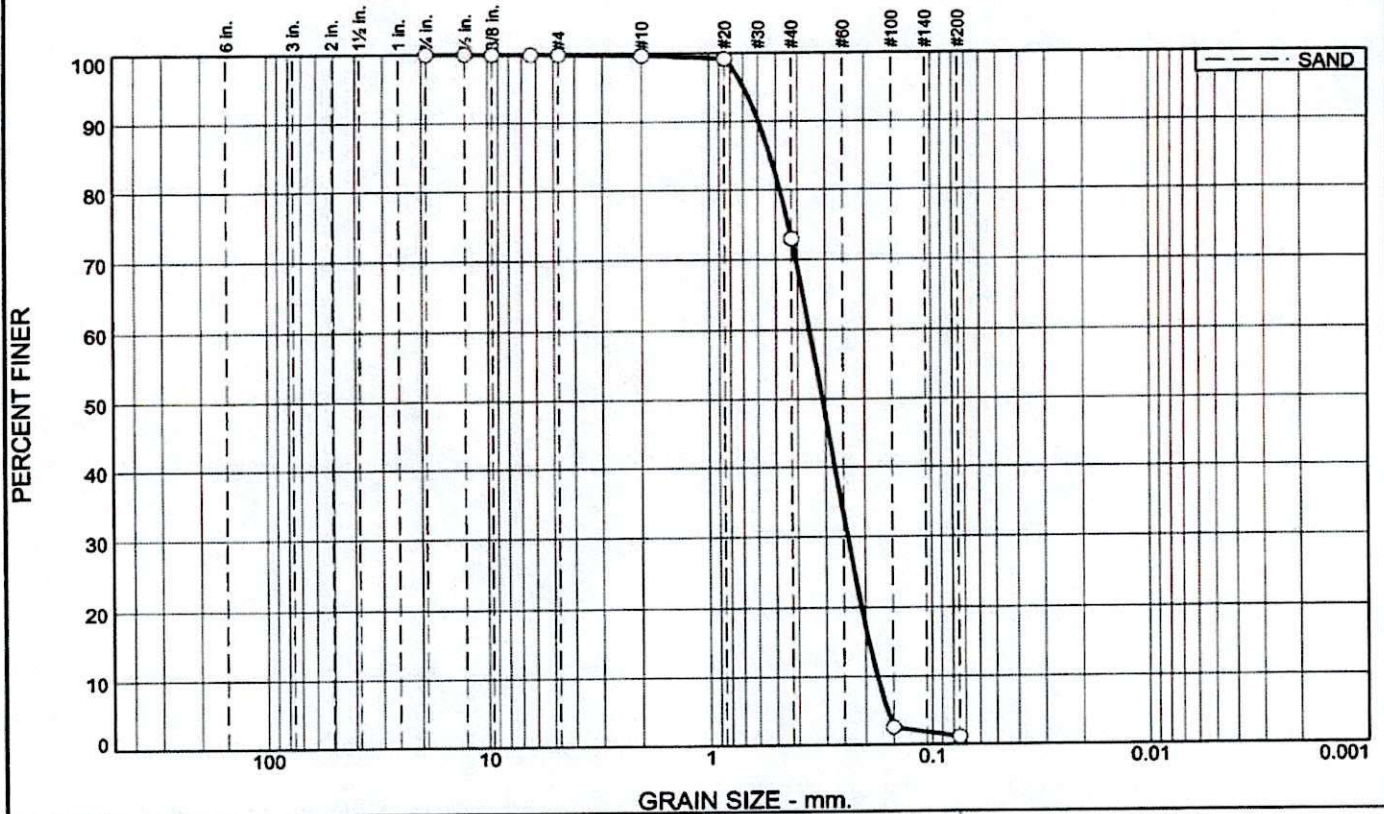
DEPTH (feet)	Description	Recov (in)	Driven (in)	PID ppm	Sample#	Soil Type	Sampler	Symbol	TEST RESULTS					
									Plastic Limit	Liquid Limit				
									Water Content -					
									10	20	30	40	50	
0	SAND - ROOTS													
	SP-SM-SAND, dark brown to tan, moist, medium dense													
2.5					35616		BAG	●						
	Qc=22	13	18		35617		SPT	▲		2-6-22	(N=28)			
5	SP-SAND, coarse grained w/ rounded sandstone fragments, orange to dark brown, moist to wet, dense				35618		BAG	●						
7.5					35619		SPT	▲		5-5-6	(N=11)			
	Qc=32	13	18											
10														
	SC-clayey SAND, gray, wet, loose				35620		SPT	▲		5-11-6	(N=17)			
12.5		18	18											
15														
	END TEST BORE AT 16 FEET.													
17.5														

# Particle Size Distribution Report





# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.1	0.2	26.7	71.9		1.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
1/2	100.0		
3/8	99.9		
1/4	99.9		
#4	99.9	0.0	
#10	99.7	0.0	
#20	99.2	0.0	
#40	73.0	0.0	
#100	2.5	0.0	
#200	1.1	0.0	

**Material Description**

SP-SAND, coarse grained w/ rounded sandstone fragments, orange to dark brown, moist to wet, dense

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 0.5970      D<sub>85</sub>= 0.5298      D<sub>60</sub>= 0.3528  
 D<sub>50</sub>= 0.3099      D<sub>30</sub>= 0.2399      D<sub>15</sub>= 0.1934  
 D<sub>10</sub>= 0.1775      C<sub>u</sub>= 1.99              C<sub>c</sub>= 0.92

**Classification**

USCS= SP                      AASHTO=

**Remarks**

TEST RAN BY TSK ON 5/4/21 PER ASTM C136.

\* SAND

Source of Sample: TB1      Depth: 5      Date: 5/4/21  
 Sample Number: 35618

<b>Western Testing, LLC</b>  <b>Roseburg, Oregon</b>	Client: PINNACLE ENGINEERING, INC. Project: VESTA STREET - GEO EX.  Project No: 60589.22      Figure
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Tested By: TSK

# FIELD WORKSHEET FOR AGGREGATE

**E** English (E) or Metric (M)

PROJECT NAME (SECTION) <b>VESTA STREET GEO. EX.</b>				CONTRACT NUMBER <b>60589.2</b>	
CONTRACTOR OR SUPPLIER			PROJECT MANAGER		BID ITEM NUMBER
SOURCE NAME <b>TEST BORE 1</b>			SOURCE NUMBER		MATERIAL SIZE <b>SAND</b>
TEST NO. <b>35618</b>	DATE <b>5/4/2021</b>	TIME <b>900</b>	SAMPLED AT <b>TB1 @ 5 FEET</b>		TO BE USED IN

SIEVE SIZE	SPECS. LIMITS	SIEVE ANALYSIS AASHTO T27/11							FM
		MASS 1	MASS 2	MASS 3	MASS 4	TOTAL MASS	% RET	% PASS	CUMULATIVE % RETAINED
						0.0	0.0	100	
						0.0	0.0	100	
						0.0	0.0	100	
						0.0	0.0	100	
3/4"		0.0				0.0	0.0	100	
1/2"		0.0				0.0	0.0	100	
3/8"		1.0				1.0	0.1	100	
1/4"		0.5				0.5	0.0	100	
#4		0.9				0.9	0.1	100	
#10		2.8				2.8	0.2	100	
#20		8.4				8.4	0.5	99	
#40		426.0				426.0	26.2	73	
#100		1145.5				1145.5	70.4	3	
#200		23.1				23.1	1.4	1.1	
PAN	---	16.0				16.0	1.0		
<b>B = INITIAL DRY MASS:</b>		<b>1626</b>		<b>D = MASS AFTER SIEVING:</b>		<b>1624.2</b>			

SIEVE SIZE	SPECS. LIMITS	FRACTURE % METHOD 2 AASHTO T 335				ELONGATED PIECES	
		FRAC MASS (F)	QUESTIONABLE MASS (Q)	NON FRAC MASS (N)	INDIVIDUAL FRAC %	TEST MASS	ELONG MASS

SET 176			
1	2	3	Sample
			Clay
			Sand
			S.E.
AVG.		SPEC	
PAN TARE			1240.7
WET MASS & PAN			3032.8
DRY MASS & PAN			2866.7
AFTER WASH DRY MASS & PAN			2866.7

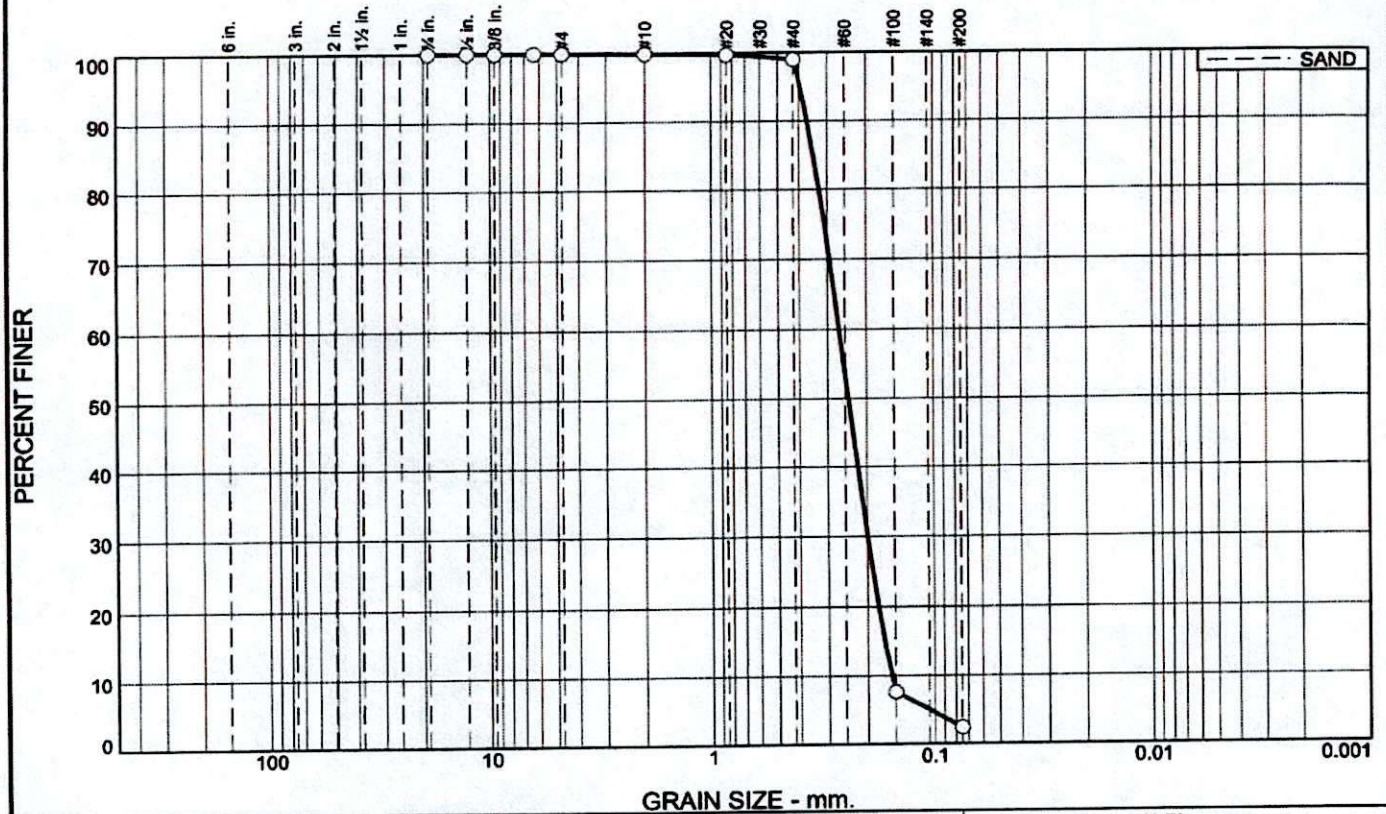
C = AFTER WASH DRY MASS & PAN - PAN      B = DRY MASS & PAN - PAN       DRY       WET      WAQTC AASHTO T-27/T11  
 A = WET MASS & PAN - PAN      RESULT SPEC       Round       Square       Rectangle       Size

Fracture % Method 1	T 335	
Wood Waste TM225		0.00 %
Cleanness Value	TM 227	
Flat & Elongated	TM 229	
Fineness Modulus	T 27/T11	
MOISTURE % = ((A-B) / B) X 100		10.2%
SIEVE LOSS % = ((C-D) / C) X 100		0.1%
(No. 10 / 1/4") x 100		

REMARKS

<input checked="" type="checkbox"/> QUALITY CONTROL	VERIFICATION	INDEPENDENT ASSURANCE	
CERTIFIED TECHNICIAN (PLEASE PRINT) AND CARD NUMBER		COMPANY NAME	SIGNATURE      DATE
Trevor Kelley, #41167		WESTERN TESTING, LLC	5/4/2021

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.9	96.6	2.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
1/2	100.0		
3/8	100.0		
1/4	100.0		
#4	100.0	0.0	
#10	99.9	0.0	
#20	99.7	0.0	
#40	99.0	0.0	
#100	7.6	0.0	
#200	2.4	0.0	

**Material Description**  
SC-clayey SAND, gray, wet, loose

**Atterberg Limits**  
 PL=                      LL=                      PI=

**Coefficients**  
 D<sub>90</sub>= 0.3670      D<sub>85</sub>= 0.3446      D<sub>60</sub>= 0.2662  
 D<sub>50</sub>= 0.2422      D<sub>30</sub>= 0.1994      D<sub>15</sub>= 0.1678  
 D<sub>10</sub>= 0.1561      C<sub>u</sub>= 1.70              C<sub>c</sub>= 0.96

**Classification**  
 USCS= SP                      AASHTO=

**Remarks**  
 TEST RAN BY TSK ON 5/4/21 PER ASTM C136.

SAND

Source of Sample: TB1      Depth: 12  
 Sample Number: 35620

Date: 5/4/21

<b>Western Testing, LLC</b>  <b>Roseburg, Oregon</b>	Client: PINNACLE ENGINEERING, INC. Project: VESTA STREET - GEO EX.  Project No: 60589.22      Figure
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Tested By: TSK

