

**CITY OF CASCADE LOCKS
PLANNING COMMISSION
AGENDA**

Thursday, December 13, 2018 at 7:00 PM
City Hall

1. Call Meeting to Order.
2. Approval of November 8, 2018 Minutes.
3. New/Old Business:
 - a. Public Hearing: LU 18-012 Heuker Fish Processing Plant Site Plan Review
 - b. Public Hearing: LU 18-013 Norway Construction Appeal
 - c. Public Hearing: LU 18-014 Thunder Island Brewing Conditional Use Permit
4. Public Comment.
5. Adjournment.

The meeting location is accessible to persons with disabilities. A request for an interpreter for the hearing impaired, or for other accommodations for person with disabilities, should be made at least 48 hours in advance of the meeting by contacting the City of Cascade Locks office at 541-374-8484.

1. Call Meeting to Order. Chair Larry Cramblett called the meeting to order at 7:00 PM. Planning Commission members present were Catherine Adler, Virginia Fitzpatrick, Gary Munkhoff, Todd Bouchard, and Larry Cramblett. Also present were Planning Consultant Stan Foster, City Recorder Kathy Woosley, Elizabeth Betts, and Butch Miller. City Administrator Zimmerman joined the meeting at 7:24 PM.
2. Approval of July 12, 2018 Minutes. PCM Munkhoff moved, seconded by PCM Adler, to approve the minutes. The motion was approved unanimously.
3. New/Old Business:
 - a. Public Hearing: Terry Ryan - Variance LU 18-010. Chair Cramblett opened the hearing at 7:03 PM. He and PC Foster briefed the audience on the hearing procedures. PC Foster gave the staff report and recommended approval of the variance subject to Planning Commission deliberation and consideration of the findings presented in the staff report. PC Foster reminded the Planning Commission that this is not a hearing for a Planned Unit Development. He suggested they voice their concerns with a PUD in case that does come before the Planning Commission at a later date.

Applicant's Testimony: Elizabeth stated that the southern portion of the lot is steep and forested and cutting trees and into the slope would be expensive and, environmentally, the wrong thing to do and would create a geological hazard. She suggested Mr. Ryan apply for a variance in order to develop the parcel without getting into the sloped area and the natural drainage area. Elizabeth said keeping the development on the lower portion of the lot will provide more than the required amount of open space. She said she submitted a proposed plan for a PUD showing what the development might look like with the size of the private road and fire truck turn around. She said this is a responsible economic development and makes sense to seek the variance.

PCM Munkhoff asked the size of the lots. Elizabeth said in the concept presented they are roughly 30 x 75 square foot lots. PCM Fitzpatrick asked if the development was for townhouses. Elizabeth said one proposal would be a development for townhouses.

Chair Cramblett asked if there were any proponents or opponents. Hearing none he closed the hearing at 7:17 PM.

Planning Commission Deliberation: PCM Munkhoff said he did not see an actual need for a variance as the same lot sizes are permissible in the Medium Density Residential zone under the zero-side yard provision. PC Foster and PCM Munkhoff discussed the code requirements for lot sizes in the MDR zone. PCM Adler asked about the noticing. PC Foster explained that notices were sent to everyone within 250' of the property.

Chair Cramblett said this property is in an area where people bought several acres to build one home. He said he wanted this area to be an area with a single home and space. He brought up Harmony Heaven PUD and it being changed from tiny 30' lots to larger lots with single family homes built on at least two of the lots. He said the proposed development is not a good fit for this area. Chair Cramblett said the property would be best suited for one or two nice homes.

PC Foster explained that conditions of approval can be added to Planned Unit Developments that would be different from previous PUD's. He explained the Planning Commission has the ability to put conditions and restrictions on PUD's. PC Foster said he didn't think Mr. Ryan wanted to build one or two homes but wants to get a reasonable return for his investment. He reminded the Planning Commission that this hearing is for a variance and a PUD would be another application and public hearing.

PCM Munkhoff said he still did not see the need for the variance when zero-side yard is permissible in the MDR zone with the same size lots as would be proposed with townhouses. He said this would create

a similar situation to the Katani development that has access problems due to narrow roads and cars parked everywhere. PCM Munkhoff said he didn't see giving up the subdivision rules for a variance that is not needed. He said the same result can be achieved by applying for a subdivision.

CA Zimmerman explained the variance is for acreage, not lot size, or anything else. He said a development under the subdivision rules would force the development into the hill side. PCM Munkhoff explained that if the applicant comes in with narrow roads on a PUD proposal and the Planning Commission rejects it, they will be wasting their time and money. He said the rules are clear for a subdivision but not clear for a PUD. He said it isn't necessary in this case. PCM Munkhoff explained that if the Planning Commission denies the variance the applicant will present a subdivision development knowing what the rules are. CA Zimmerman said staff steered the applicant toward a PUD to meet their desires for development of the land.

PCM Munkhoff asked why the applicant was seeking a PUD instead of subdivision. Elizabeth said a lot of it was the 50' right of way that is required with a subdivision and minimum lot depth. She said there were several issues that made this property easier to develop with a PUD versus the subdivision. She said a concept was included at the Planning Consultant's suggestion. She said there have been many concepts for this piece of property. PCM Munkhoff said there is room for a 50' road. Elizabeth said there is room but if pushing the development south you would be in the drainage ditch. She said she didn't want to touch the steep slope or the natural drainage. PCM Munkhoff said he thought he could get 10 lots with a 50' road in that space. Elizabeth said the road has to come in where it is on the submitted concept and if you put in a 50' road you would be into the natural drainage channel and further south would push into the slope. CA Zimmerman explained that a 30' private road is 30' of pavement and a 50' right of way is 28' of pavement. He said sidewalks can be put on the lot. He said this is more doable than a 50' right of way. PC Foster said a private development results in the Home Owners Association taking care of the road and sidewalks. PCM Munkhoff said it will be a problem if plowing and maintaining a private road and sidewalks is left up to the home owners. Elizabeth said the only way to control that is with Codes, Covenants and Restrictions. She said she wanted to clarify that 30' pavement would be at whatever the private road standard is and not sure that is 30'. PCM Munkhoff said it isn't in the best interest of the City to forego a 50' right of way and a hammerhead.

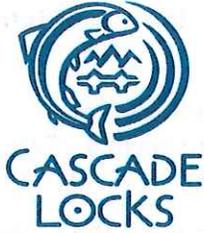
PCM Bouchard said Cascade Locks needs affordable housing. He said the townhouses that Osprey built were the first to sell. He said he is supportive of the variance request. He said a proposal for a PUD would have to come before the Planning Commission for review. He said a variance to allow a PUD will give the developer options for a good development. PCM Bouchard moved, seconded by PCM Munkhoff, to approve the variance. The motion passed unanimously. PC Foster asked if that motion included the conditions of approval as listed in the staff report. PCM Bouchard amended his motion to include the conditions of approval. PCM Munkhoff agreed. The motion passed unanimously.

- 4. Public Comment. None.
- 5. Adjournment. Chair Cramblett adjourned the meeting at 8:05 PM.

Prepared by
Kathy Woosley, City Recorder

APPROVED:

Larry Cramblett, Chair



CASCADE LOCKS PLANNING COMMISSION PROCEDURES

CHAIR: Good evening, my name is **Larry Cramblett**. I am the Chair for the Planning Commission, and I will be presiding over this hearing. This is the time and place set for the public hearing in the matter of **Site Plan Review** Case No. **LU 18-012**; an application by **CIDA Architects for Heuker Brothers Fish Processing Plant**.

This hearing is now open. Oregon land use law requires several items to be read into the record at the beginning of each and every public hearing. Stan Foster, the City's Planning Consultant will review this material; your patience is appreciated as he goes through these statements.

STAN FOSTER: An issue which may be the basis for an appeal to LUBA shall be raised not later than the close of the record at or following the final evidentiary hearing on this case. Such issues shall be raised with and accompanied by statements or evidence sufficient to afford the Commission and those in attendance an adequate opportunity to respond to the issue. Failure of an applicant to raise constitutional or other issues with sufficient specificity for the City to respond to the issues shall prohibit the applicant from seeking damages in circuit court.

The applicable substantive criteria upon which this case will be decided are found in the Cascade Locks Development Ordinance, Section **8-6.148**, and **8-6.88**. The specific criteria are summarized in the staff report and will be reviewed at this hearing. All testimony and evidence received during this public hearing must be directed toward this approval criteria, or to such other rule, law, regulation or policy which you believe applies.

This case will proceed with the staff report, followed by the applicant's presentation. The applicant may have additional people participate in making this presentation. This is followed by testimony of those who are in support of the application. All of those opposed to the application will then be allowed to speak. This is followed by those with general comments who are neither for nor against this application. The Commission, staff and participants may ask questions of those who testified. All questions are directed through the Commission Chair, meaning you must ask the Commission Chair for permission to ask the question. Finally, the applicant and only the applicant will be entitled to a rebuttal.

The applicant is entitled to 20 minutes to make their presentation. All other speakers should try to limit comments to 5 minutes. Please try to avoid repetition if someone else has already expressed the same thoughts. It is perfectly acceptable to instead state that you agree with the comments of another speaker. Please be assured everyone will have an opportunity to speak.

If you have documents, maps or letters that you wish to have considered by this body, they must formally be placed in the record of this proceeding. To do that, either before or after you speak, please leave the material with staff who will make sure the evidence is entered into the planning record.

You must come to the podium if you are going to testify or to ask a question. This is so you can be recorded. You must give your name and address before you speak so the record of the hearing can be complete and so you can receive a copy of the final decision.

In order to move the hearing along more efficiently, there are sign-up slips near the podium. Please fill this out and give it to the City Recorder at any time.

Prior to the conclusion of the first hearing on any land use application, any participant may request an opportunity to present additional evidence or testimony regarding the application. If such a request is made, it will be up to this body to determine if the hearing will be continued to a time and date certain, or if the record will be kept open for submission of additional evidence or testimony. If the record is kept open, it will be for a minimum of seven days, with a short rebuttal period thereafter afforded to the applicant.

CHAIR: Before we begin with the hearing, I need to ask the audience if there are any objections to the notice that was sent in this case. Are there any objections to the jurisdiction of this body to hear and consider this case? Are there any declarations of conflict or bias by any members of this body?

We are now ready for the staff report.

HOW TO CONDUCT A PUBLIC HEARING

Order of the Hearing

- 1. Open Hearing**
- 2. Hearing Disclosure Statement**
- 3. Declare Conflicts of Interest or Ex Parte Contact**
- 4. Staff Report**
 - a. Approval Criteria**
 - b. Findings of Fact**
 - c. Conclusion and Recommendation**
- 5. Applicant's Testimony**
- 6. Proponent's Testimony**
- 7. Opponent's Testimony**
- 8. Staff Response to Testimony and Commission Questions**
- 9. Rebuttal**
- 10. Close Hearing**
- 11. Commission Deliberation**
- 12. Decision Notice or Final Order**
- 13. Appeal**

CITY OF CASCADE LOCKS
STAFF REPORT
November 27, 2018

Application File Number: LU 18-012

Type of Action Requested: Site Review Approval

Code Authority: Planning Commission (8-6.20.040)

Application certified as complete: November 1, 2018

Action Deadline: March 3, 2019

Approval Criteria: 8-6.88.050 (Heavy Industrial)

Applicant(s): Heuker Brothers Processing Facility

Location: 1475 NE Columbia Gorge Way, Cascade Locks, Or 97014

Township: T 02N **Range: R 08E** **Section: 5** **Tax lot: #4**

Zoning: (HI) Heavy Industrial

Minimum Lot Size: No minimum lot size.

Specific Action Requested: To build a 20,000 square foot food processing plant and business headquarters

Staff Summary: Staff has reviewed the application and the applicant has met criteria for permitting a new Heavy Industrial Food Processing and Manufacturing Plant on a vacant lot in the Port of Cascade Locks Industrial park.

FINDINGS:

PERMITTED USES: CDC Section 8-6.88.020 establishes the permitted uses under the code. The applicant is requesting approval for constructing a 20,000 square foot manufacturing and production facility with the business headquarters as part of this development and a single caretaker/security residence. CDC Section 8-6.88.020 (A) allows for one dwelling unit per lot for a caretaker as an outright permitted use. CDC Section 8-6.88.020 (B) allows for a manufacturing and production facility as an outright permitted use in this zone.

- 1. Applicant has submitted a proposal for two permitted uses in the Heavy Industrial zone. As permitted uses the applicant is entitled to construct both a multi-story manufacturing plant and a caretaker's residence upon the single tax lot subject to building code compliance and conformance to the City Public Works and City Fire Chief requirements.*
- 2. Building permits approval shall be required to proceed with construction. Applicant shall obtain a building permit by applying at the Hood River County Building Officials and by securing the City of Cascade Locks sign-off as a requirement of this request*

MINIMUM LOT SIZE: No minimum lot size is required in this zone.

DIMENSIONAL REQUIREMENTS: The following dimensional requirements as set forth in CDC 8-6.88.040 shall be required in this development.

- *Front Setback not less than 10'*
- *Side Setback not required unless abutting a residential zone*
- *Rear Setback not required unless abutting a residential zone*
- *Height of building shall not exceed 45'*
- *Caretaker residence shall comply with the setback and height restrictions of the HI zone.*

Applicant has proposed the following dimensional setbacks and heights in conformance with the underlying zone requirements; Front setback 10', side setback 5-20' and rear setback of 75'+. Actual proposed height of the building is 38'11" above grade. In addition, the manufacturing building will have smokestacks to accommodate the smoking of fish, but will not exceed the 45' height restriction even though these types of projections are not calculated in the height restrictions.

SIGNAGE: The applicant has indicated that he intends to locate a monument sign at the entrance to the manufacturing plant. At such time as the applicant is ready to locate signs on the subject parcel, he will comply with the submittal requirements of CDC 8-9.144.040, by submitting his design to the City for approval. No signs may be placed in the public right-of-way. Applicant is only allowed one free standing sign not over 20' in height, nor larger than 50 square feet per face of the sign. The applicant may have additional signs located on wall, projecting from the building and/or on the roof of the building provided that it does not exceed the 45' height limitation or maximum signage allowed.

LANDSCAPING: The applicant has provided a preliminary landscaping plan in compliance with the code requirements.

ENVIRONMENTAL: The applicant has addressed surrounding environmental conditions. No construction shall take place in the riparian area of the Columbia River. No steep slopes shall be constructed upon and no areas of soil instability shall be built upon. Applicant shall capture surface water run-off in a suitable ground swale or holding pond upon the property.

FIRE EQUIPMENT ACCESS: The applicant has proposed a driveway access which is 24 feet in width with a 24' internal radius for fire truck turning.

PARKING REQUIREMENTS: CDC 8-6.108.030 (C)1. Manufacturing and production in industrial zones require 1 parking space per 2000 square feet, which in this case would require ten spaces. The applicant has proposed parking stall widths of 9', aisle width of 24' and stall length of 18' demarked by a 4" permanent paint stripe. The applicant has proposed a parking plan of 12 spaces with one of those spaces being designated as a handicap parking space and two bicycle parking spaces shall be provided. In addition, the Applicant has indicated that 4 loading spaces shall be provided from the plant.

The applicant has met the requirements for approval of the site plan. Sign plans and caretaker residence location shall be approved by the City prior to construction of these items.

RECOMMENDATION:

It is recommended the Planning Commission APPROVE the proposed site design review subject to the following conditions:

CONDITIONS OF APPROVAL:

1. Applicant is granted Site Plan Review approval for the construction of a fish smoking and manufacturing plant subject to final building permit applications being reviewed by the City of Cascade Locks.
2. Applicant has requested fire equipment emergency access to the road adjacent to the northwest side of the property which is approved as part of this site plan review.
3. All fees are paid to the City of Cascade Locks prior to any activity commences upon the property.
4. Applicant will work with the City of Cascade Locks Electric Utility to ensure that all electrical vaults are acceptable to the City as to capacity and service location.
5. Due to the nature of the "flag-lot", applicant will only be required to provide sidewalks at the access point to the subject property.
6. The site plan submitted with the building permit applications shall substantially conform to that submitted with this application.
7. Applicant shall conform to the requirements of the Heavy Industrial Zone and shall not construct any feature not allowed by this Site Plan Review permit.
8. The reconstructed building will have a knox box with the installation to be approved by the Fire Chief. Each of the buildings will have address numbers that are contrasting in color and can be seen from the road.
9. All required parking spaces shall be clearly marked and reflected on the final site plan.

Notice of Public Hearing

Notice is hereby given that the Cascade Locks Planning Commission, at its meeting at 7 PM on December 13, 2018 in the City Council Chambers of the City Hall, 140 SW WaNaPa Street, Cascade Locks, Oregon, will consider the following application:

File Title: LU 18-012 Heuker Bros. Inc.

Applicant: CIDA Architects
15895 SW 72nd Ave., Suite 200
Portland, OR 97224

Request: Build a 20,000 square foot fish processing facility and business headquarters.

Location: 2N 08E 05 Tax Lot 306

Criteria: Cascade Locks Community Development Code Sections, 8-6.148 Site Plan Review, 8-6.88 Heavy Industrial Zone and the City's Comprehensive Plan.

PROPERTY OWNERS WITHIN 250 FEET OF THE SUBJECT PROPERTY ARE RECEIVING THIS NOTICE. SPECIAL NOTICE TO MORTGAGEE, LEINHOLDER, VENDOR, OR SELLER: ORS CHAPTER 215 REQUIRES THAT IF YOU RECEIVE THIS NOTICE, IT MUST PROMPTLY BE FORWARDED TO THE PURCHASER.

The Public Hearing on this matter will be conducted in accordance with the rules contained in the zoning ordinance adopted by the Cascade Locks City Council, which is available at City Hall.

All interested persons may appear and provide testimony and only those who submit written comments or testify at the hearing shall be entitled to appeal.

Failure of an issue to be raised in the hearing, in person or by letter, or failure to provide sufficient specificity to afford the approval authority an opportunity to respond to the issue precludes appeal to the Land Use Board of Appeals based on that issue.

At least seven days prior to the Hearing, a copy of the staff report will be available for inspection at no cost, or a copy can be obtained for fifteen cents per page.

For further information, please contact Kathy Woosley at Cascade Locks City Hall, at 374-8484, 140 WaNaPa, Cascade Locks, OR 97014.

City Hall
P.O. Box 308
Cascade Locks, Oregon 97014
Phone: 541-374-8484
Fax: 541-374-8752



SITE PLAN REVIEW APPLICATION

I. BACKGROUND INFORMATION

Applicant

Applicant Name: CIDA Architects Phone: 503.226.1285

Address: 15895 SW 72nd Ave suite 200 Portland OR 97224

Applicant Standing (Fee Owner, Contract Purchaser, etc.): Architectural team/owner rep

Property Owner (if different)

Name: Heuker Family Lands LLC Phone: 541.374.8255

Address: PO BOX 98 Cascade Locks OR 97014

Property Information

Property Address: 1475 NE COLUMBIA GORGE WAY CASCADE LOCKS OR 97014

Township; Range; Section; Tax Lot: T2NR8E SECTION 5 LOT 4

Current Zoning: HI: HEAVY INDUSTRIAL Property Size: 3.39 ACRES

Existing Use/Structures: VACANT LOT

Application Proposal: _____

20,000 FOOD PROCESSING FACILITY AND BUSINESS HEADQUARTERS

FOR OFFICE USE ONLY

File Number: 4418-012
Submittal Date: 10/25/18 Fee: 625.00 + deposit 625.00 Received by: KW
Application Type: SPP Completeness: _____ 120th Day: _____

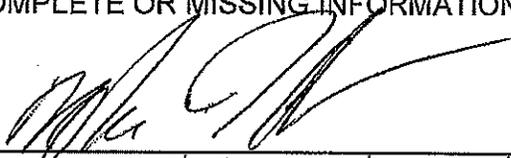
II. APPLICATION REQUIREMENTS



- (A) _____ Completed and signed application form.
- (B) _____ Written response to the approval criteria. It is the applications responsibility to show how the application meets the approval criteria.
- (C) _____ TEN copies of the site plan drawn to scale. The site plan must include the material required under Sections 8-6.148.040 of the Community Development Code. City staff will assist the applicant in determining what information is required on the site plan.
- (E) _____ Names and addresses of all the property owners within 250 feet of the boundaries of the property. This list must be provided by a Title Company or the Hood River County Assessor.
- (F) _____ Copy of the latest deed, sales contract, or title report indicating property ownership.
- (G) _____ A current Hood River County tax map(s) showing the subject property(ies) and all properties within 250 feet of the subject property
- (G) _____ A signed fee agreement and payment for filing fee.

III. SIGNATURES

NOTE: ALL OWNERS MUST SIGN THIS APPLICATION OR SUBMIT A LETTER OF CONSENT AUTHORIZING ANOTHER INDIVIDUAL TO MAKE APPLICATION. INCOMPLETE OR MISSING INFORMATION WILL DELAY THE REVIEW PROCESS.



 Applicant/Owner Hecker Family Lands LLC
 Mike Hecker, member

10/22/18

 Date

 Applicant/Owner

 Date



15895 SW 72ND AVE
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 PORTLAND, OR 97224
 PHONE: 503.226.1285
 FAX: 503.226.1670
 INFO@CIDAINC.COM
 WWW.CIDAINC.COM

Heuker Bros. Processing Facility

Site Plan Review

Project Number: 170218.01
 October 22nd, 2018

DEVELOPMENT REVIEW CHAPTER 8-6.148

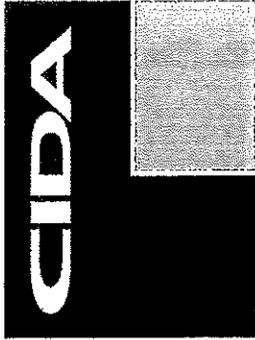
Section

8-6.148.040

Submittal requirements

REQUIREMENT	PROPOSED RESPONSE
A. In addition to the application form and information required in Section 8-6.24.030 the Applicant shall submit the following:	
1. Site plan number of copies a. Sheet size not exceeding 18x24 b. Site plan drawn in engineering scale c. Floor plans and elevations architectural scale	See Drawing package
2. Site plan, data and narrative include; a. Existing site conditions b. Site plan detailed see section 8-6.148.060 c. Grading plan detailed see section 8-6.148.070	See Drawing package
3. Architectural elevations see section 8-6.148.080	See Drawing package
4. Landscape plan see section 8-6.148.080	See Drawing package
5. Sign plan see section 8-6.148.100 (optional)	Not submitted at this time
B. The Administrator may require information in addition to that required by this chapter when it is found certain information is necessary to evaluate the application	
C. The administrator may waive a specific requirement for information when it is found that such information is not necessary to properly evaluate the application	

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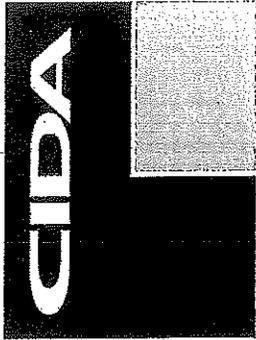


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Section
 8-6.148.050
 Site Conditions

REQUIREMENT	PROPOSED RESPONSE
A. Vicinity Map, include streets, access points, pedestrian and bicycle pathways and utility locations	The port of Cascade Locks business park is accessed from the south, Cramblett Way crosses over the Union Pacific Railroad and T's into NE Columbia Gorge Way. Lot 4, the proposed project site is just west of this intersection. Lot 4 is a flag lot accessed from the southwest corner of the lot. Once past Lot 3 the property opens to a kite shaped lot of approximately 3.39 Acres. There are currently no sidewalks, pedestrian ways, bicycle paths or access to the site.
B. Site size and dimensions	Lot 4 is 3.39 Acres. West side dimension (not including the access road) is approximately: 522' to the Columbia River. North Dimension along the Columbia River is approximately: 270'. East side dimension from the river to the south property line is approximately: 365'. The south side dimension to the access road is approximately: 339'. The access road is approximately 30' wide and 390' in length to the NE Columbia Gorge Way.
C. Topography	The site access begins at an elevation of approximately 125' above sea level and rolls down to the Columbia River, the bank approximately at 85' above sea level. Trees line a ridge approximately 100'-105' above sea level, along the south property line between Lot 3 and 4. There is also a ridge approximately 125' above sea level, along the west side of the property between Lot 4 and Parcel 3 Hood River County Partition Plat No. 200825P. at the end of the access road and once on the majority of the site, the lot slopes only slightly, beginning at approximately 97' above sea level to 94' above sea level over approximately 360' to the edge of anticipated development.
D. Location of drainage patterns and drainage courses	The site naturally slopes toward the Columbia River, but there is not a creek or waterway cutting through the site anywhere. The site has a low point where water will naturally pond about mid-point on the property along the west side and it is assumed it seeps into the ground, because

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	there is no above ground flow to the river. Off-site to the west of the property line, there is a manmade water retention pond within the public easement.
E. Location of natural hazard areas including: 1. 100-year flood plain (chapter 8-6.120) 2. Areas of potential geologic hazard (chapter 8-6.124) 3. Areas having severe soil erosion potential. 4. Areas having severe weak foundation soils. 5. Airport protection areas (chapter 8-6.132)	This site is not located in a potential geologic hazard, area of severe soil erosion or airport protection area, however it is located within an area of having weak foundation soils. The geotechnical engineer has identified the areas of concern and we have placed the building outside of those areas.
F. Location of wetland and riparian areas (chapter 8-6.128) including those shown on the National Wetland Inventory Maps (available at City Hall) 1. Wildlife habitats; 2. Wetlands; and 3. Riparian Areas	The site's north property line fronts the Columbia River, requiring a 75' set back from the shore area, this along with the soil issues we have pushed the location of the building back to the south property line as much as possible. We are well out of the way of the river its habitat.
G. The location of other significant natural features including, but not limited to: 1. Rock outcroppings 2. Steep slopes over 25% (4:1) 3. Trees or groupings of trees with 6-inch diameter or greater measured 4 feet from ground level; or 4. Streams, springs, or drainage ways.	1. No Notable outcroppings per survey 2. The proposed buildings are not located or incorporating the steep slope areas of the site 3. There are approximately 12 trees located on the property that are over 6-inches in diameter or greater measured 4 feet from the ground level. The proposed project plans on removing 4 of those trees along with some smaller deciduous trees and brush. 4. The Columbia River runs along the north property line and the property has direct access to the water and riverbank.
H. Location of existing structures on the site and proposed use of those structures	For the most part the site is clear, there is a small abandoned shed with a pipe going into the ground and a 6' concrete retaining wall. Both are planned to be removed during initial site excavation activities

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Section
 8-6.148.060
 Site Plan

REQUIREMENT	PROPOSED RESPONSE
<p>A. Proposed site and surrounding properties</p>	<p>North: Columbia River, property aligns with the river bank. East: Parcel 3 Hood River County Partition Plat No. 200825P; this property is currently utilized as a public recreation area, filled with trails for hiking and a graveled parking area and out house at the trailhead. South: Site access road, NE Columbia Gorge Way, public street and Lot 3. Lot 3 is an abandoned Mill site, the buildings have been removed, foundations may be left crumbling and in remnants. The lot slopes steeply to lot 4 (the proposed project site) and is lined with trees all along the ridge and bank. Lot 3 is open and undeveloped currently. West: Public Easement and Lot 5 beyond (further to the west). There is a 50' wide public access and utility easement. Within this easement a storm water retention pond sits, located between Lot 4 and the gravel road which provide public access to the Columbia River. Lot 5 is currently open and undeveloped.</p>
<p>B. Location, dimension and names of all:</p> <ol style="list-style-type: none"> 1. Existing and platted streets and other public ways and easements on the site and adjoining properties 2. Proposed streets or other public ways and easements on the site. 	<p>North: Waterway: Columbia River East: Easement: 30' wide Private Road Easement (along site access road) South: Public Roads: NE Columbia Gorge Way & Cramblett Way West: Easement: 50' wide Utility easement and public access.</p> <p>Connection on the west side of property via the utility easement</p> <p>Applicant is proposing a connection to the access road for fire truck access along the northwest side of the property</p>
<p>C. Location and dimension of:</p> <ol style="list-style-type: none"> 1. Entrances and exits on the site; 	<ol style="list-style-type: none"> 1. The south entrance is existing, would like to maintain the existing location of the access. The mouth of the drive is approximately 23'-0" wide, which is under the 24'-0" requirement. The proposed northwest access has not

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<ol style="list-style-type: none"> 2. Parking and circulation areas; 3. Loading and service areas; 4. Pedestrian and bicycle circulation; 5. Outdoor common areas; 6. Above ground utilities 	<p>been fully designed. Applicant would like to wait until the street improvements have been made and provide design that connects appropriately. The access drive we propose would be 24'-0" wide and have appropriate 24'-0" internal radii for fire truck turning.</p> <ol style="list-style-type: none"> 2. 12 standard parking spaces, 1 ADA space. 3. 4 loading spaces are noted on the drawings. 4. A side walk is shown to encompass the entire building foot print and a bicycle rack for two bikes is shown on the west side of the building. 5. Outdoor common areas have been left in a natural state and located along the shore of the Columbia River to the north of the property. 6. Electrical vault is noted on the drawings however further information about the transformer requirement will come once more information is understood about the final electrical components for the equipment for the food processing.
<p>D. Location, dimension, setback distances and orientation of all:</p> <ol style="list-style-type: none"> 1. Existing structures, improvements on the site or which are located on adjacent property within 25 feet of the site; and 2. Proposed structures, improvements and utilities on the site 	<p>Site setbacks and infrastructure are noted on the Civil Drawings or also see sheet A0.1</p>
<p>E. Location of areas to be landscaped</p>	<p>See Landscape drawings</p>
<p>F. Location and type of outdoor lighting</p>	<p>See sheet A0.2 site lighting plan; include pole lighting, wall mounted lighting, canopy and bollard lighting.</p>

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Section
 8-6.148.070
 Grading Plan

REQUIREMENT	PROPOSED RESPONSE
A. Location and extent to which grading will take place indication general contour lines, slope ratios, and slope stabilization proposals	See Grading plan C2.0 sheet
B. Statement from a registered engineer supported by factual data substantiating: <ol style="list-style-type: none"> <li data-bbox="430 453 959 485">1. Validity of slope stabilization proposals <li data-bbox="430 520 959 842">2. That increase the intensity of the runoff caused by development will be facilitated on the site and the intensity of runoff leaving the site in its developed state shall not exceed that in its undeveloped state. That statement shall include as a minimum a storm frequency of occurrence of ten years or greater, depending upon evaluation of potential for damage when a storm of higher frequency occurs; <li data-bbox="430 842 959 1037">3. When onsite detention of increased volume of water caused by development is not feasible or acceptable, a plan which identifies, and which mitigates and off-site adverse effects resulting from increased runoff shall be prepared by a registered civil engineer; and <li data-bbox="430 1066 959 1129">4. Proper erosion control techniques to be used during construction 	See attachment
C. Oregon Dept of Transportation requires a permit for drainage connections to state facilities and review of potential impacts of a 25-year storm event	Not applicable

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Section
 8-6.148.080
 Architectural Drawings

REQUIREMENT	PROPOSED RESPONSE
A. Floor plans indicating square footage of all structures proposed for use on the site; and	Foot print 100'x200'= 20,000 SF First floor 4,750 SF office area First floor 10,640 SF production area First floor 4,610 SF maintenance area Second floor 2,999 SF office area Second floor 1,751 SF storage area
B. Typical elevation and section drawings of each structure with at least one of the drawings in color showing all of the proposed colors for the structure or structures	See drawings A2.0 & A2.1
C. Color palette of all colors to be used on the exterior of all structures	See drawings A2.0 & A2.1

Section
 8-6.148.090
 Landscape/Streetscape plans

REQUIREMENT	PROPOSED RESPONSE
A. The landscape and streetscape plan shall be drawn at the same scale as the site analysis plan, or larger scale if necessary, and shall indicate: 1. Proposed irrigation method; 2. Location and height of fences, buffers and screening; 3. Location of terraces, decks, shelters, play areas and common open spaces; and 4. Location, type, size and species of existing and proposed plant materials 5. Within the D zone, and the C and RC zones in the downtown area, plans will also be submitted for all furniture, fixtures and structures not attached to the main building indicating location and design	A. See Landscape drawings included in the L series of sheets 1. See L2.0A irrigation system will be design build. 2. The fence 6'-0" above grade 3. N/A 4. See L1.0A & L2.0A 5. N/A
B. The landscape plan shall include a narrative which addresses: 1. Soil conditions; and 2. Erosion control measures that will be used.	B. See Landscape drawing L2.0A

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Section

8-6.148.100

Sign Plan

TO BE DETERMINED. A monument sign is shown at the entrance, but final design and location has not been finalized.

Section

8-6.164

Accessory Structures

TO BE DETERMINED. Final location and design of the accessory structure to be used as a care taker facility/housing.

Section

8-6.44

Land Use Districts

8-6.44.020

Zoning classification

Heavy Industrial (HI)

8-6.44.060

Exceptions to Building Height Requirements

- A. Projections attached to the building, such as chimneys, spires, domes, elevator shaft housings, towers, silos, aerials, flag poles, utility poles, and other similar structures not used for human occupancy, are not included in the height limitations of the applicable zone district.

This project will have smoke stack intake and exhaust that are necessary to produce smoked fish. However, it is unlikely that the heights of these stacks would exceed 45'-0" above grade.

Heavy Industrial Zone (HI)

8-6.88.020

Permitted Uses

Manufacturing & Production

8-6.88.040

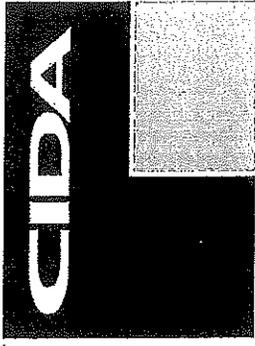
Dimensional Requirements

- A. No minimum lot size
- B. No minimum lot width or depth requirement
- C. Setbacks:

REQUIREMENT	PROPOSED RESPONSE
Front Yard: 10'	10'
Side Yard: 0	5'-20'
Rear Yard: 0	75'-0'+

- D. Height: 45'-0" max Actual 38'-11" above grade
- E. Accessory Structure: there is an area designated to accommodate a caretaker lodge, the final design has not been explored at this time.
- F. The maximum coverage of buildings and impervious areas shall not exceed 90% of the total lot area
 Actual lot coverage 13.5%
 Lot Size: 3.39 Acres
 Width: 366'-4"
 Depth: 386'-10"

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Section

8-6.104

Landscaping & Beautification

8-6.104.030 Submittal Requirements for Landscape Plans

1. Irrigation system sprinkler heads where applicable
2. Height of fences, buffers, screening
3. Location of terraces, decks, shelters, play areas, common open spaces
4. Location of type, size and species of existing and proposed plant materials with delineation of which trees and plant materials will be retained
5. Narrative/notes on plan addressing: soil conditions, erosion control, methods to provide protection for existing trees and plant material to remain, and approval standards contained in this chapter.

Response: See drawings provided in the submittal package

8-6.104.050 Street Trees

- A. All development projects fronting on public or private street, shall be required to plant street trees in accordance with standards of this chapter

Response: this is a flag lot and the entrance that abuts the public way is minimal no street trees have been added to the entrance due to the vision clearance requirements.

8-6.104.060 Location of Street Trees

- A. Landscaping in the front and exterior side yard shall include trees with a minimum of 2 inches at 6-inches above ground
- B. Specific spacing of street trees
- C. Trees shall be pruned to at least 8 feet of clearance above sidewalks and 13 feet above local street, 15 feet above collector street, and 18 feet above arterial street roadway surfaces.

Response: Not Applicable

8-6.104.070 Cut & Fill Around Existing trees

- A. Existing trees may be used as street trees if no cutting or filling takes place within the dripline unless otherwise approved.
- B. Exception will be approved if: ground within dripline is altered for drainage purposes and a plan is submitted by a qualified arborist showing that the cut or fill will not damage the tree or cause it to die.

Response: tree protection has been noted and provided. See landscape drawings L1.0A-L2.0B

8-6.104.080 Replacement of Street Trees

Response: Not Applicable

8-6.104.090 Exemptions

Response: Not Applicable

8-6.104.100 Buffering & Screening General Provisions

Response: Not Applicable

8-6.104.110 Buffering & Screening Requirements

Response: Not Applicable

8-6.104.120 Fences & Walls

Response: Not Applicable

8-6.104.130 Parking and Loading Areas

Response: Not Applicable

8-6.104.140 Re-Vegetation



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Response: Not Applicable
8-6.104.090 Exemptions
Response: Not Applicable

Section
8-6.108
Parking & Loading

8-6.108.030 Minimum Off-Street Parking Requirements

- B. Commercial Categories, Office:
1 per 400 SF of floor area
- C. Industrial Categories, Manufacturing & Production:
1 per 2000 SF of floor area or 4 minimum

8-6.108.040 Parking Dimension Standards

A. Table standards:
90°:

Stall width = 9'-0"

Aisle width = 24'-0"

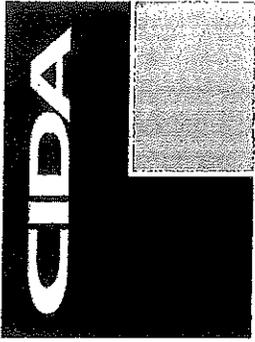
Stall length = 18'-0"

4" wide permanent paint stripe

Response: All standard spaces have been designed with this standard

8-6.108.50 Parking Design Standards

- A. Parking for Handicapped, 1 per first 50 spaces or fraction there of
Response: 1 space has been provided, 12 standard spaces required.
- B. Lighting, all lights illuminating public or private parking shall be arranged to reflect the light away from any neighboring residential area
Response: Private parking is not neighboring any residential, however all parking is located centrally on the site away from property lines and neighboring properties.
- C. Pavement, all spaces and access drives shall be paved
Response: all vehicular areas are paved.
- D. Drainage, off street parking and loading shall be drained in accordance to specifications approved by City administrator to ensure ponding does not occur.
Response: storm water detention has been addressed on site with a retention pond area. See Civil drawings.
- E. Wheel stops
 - 1. required along boundaries of parking lot or adjacent in landscaped areas or sidewalks shall provide a wheel stop 4-inches high, 3 feet from front of space
 - 2. the front 3 feet of parking stall maybe concrete, asphalt or low-lying landscape material, this area cannot be counted towards landscaping or sidewalk requirements**Response: A curb has been provided, wheel stops are located where parking is adjacent to the buildings.**
- F. Maintenance of Parking areas all parking lots shall be kept clean and in good repair at all times.
Response: Maintenance will be performed regularly.



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8-6.108.060 Minimum Bicycle Parking Requirements

Manufacturing and production 1 space per 10 vehicle parking spaces or 2 minimum.

Response: 2 spaces have been provided.

Section

8-6.112

Circulation & Access

8-6.112.040 Access standards- Non-residential

0-99 spaces 1 drive 30 ft easement 24ft: curbs both sides walkway on one side.

Response: because this is a flag lot we are looking for an exception to offering a walking path to the public way because this facility needs to control access to the public for the public's protection. This a food processing facility and the need to control who and what accesses the property is crucial to keeping the product safe.

8-6.112.50 Access Drives

Response: To accommodate fire access we would like to connect to the lower public road for emergency access and allow the fire truck ability to exit.

8-6.116 Vision clearance

Response: The existing entrance and clearance meets the current standard and will not be modified. 15'x15' from each side of the entrance to be maintained.

Section

8-6.120

Flood Plain (overlay)

Building foot print is not located within the flood plain overlay

Section

8-6.124

Geological Hazard (overlay)

Building foot print is not located within a Geological Hazard overlay

Section

8-6.132

Airport Protection (overlay)

Building foot print is not located within an Airport Protection overlay

Section

8-6.144

Signs

TBD

Section

8-6.116

Vision Clearance

The flag lot drive entrance does not have proposed vision clearance encroachments

Section

8-6.128

Wetland & Riparian Areas

All areas around the shore of the Columbia River will be left undistributed and exceed the 75'-0" setback as shown in the existing conditions.

Section

8-6.148.090

Landscape/Streetscape plans

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The property does not have a streetscape because it is a flag lot and only the drive entrance abuts the public way directly.

The natural grade, physical landscape, including grade, existing trees and views have been incorporated in the design and layout of the building and site. As many trees as possible have been protected and saved. The onsite storm retention and filtration is in the natural low point of the property. Much of the property has been left in its natural state and addition landscaping was selected to enhance and blend the existing landscape.

The lighting design utilizes wall mounted flood lights, pole mounted flood lighting, canopy down lights and bollard lighting. It is important for safety and crime prevention to keep all areas around the building and parking well lit as well as keep a dark sky, so lighting has been selected with those two requirements in mind.

The final location of the mailbox has not been determined at this time.

Landscaping

1. All landscaping shall be designed in accordance with the requirements set forth in this title.
4. HI Zone. A minimum of 10 percent of the site area shall be landscaped
Response: More than 10% of the property is left natural and or is landscaped.
7. Parking, Loading or Service Areas.
 - a. A parking, loading or service area which abuts a street shall be set back from the right-of-way line by a landscaped strip at least 10 feet in width and the landscaped area shall: comply with the provisions of chapter 8-6.104 Landscaping
 - b. A parking, loading or service area which abuts a property line shall be separated from the property line by a landscaped area that complies with the provisions of

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MEMORANDUM

DATE: October 16, 2018
BY: Craig Harris, PE *CHH*
SUBJECT: Preliminary Utility Memo
PROJECT: Heuker Brothers - Cascade Locks, OR
PROJECT NO.: A18037.10

This memorandum is to outline the utility requirements and existing conditions for the proposed Heuker Brothers project in Cascade Locks, OR. The total site area is ~3.39 acres with steep slopes surrounding the property on the east, west and south and the Columbia River to the north. The center of the site is fairly flat with a gentle slope from southeast to the northwest. We will be disturbing ~2.0 acres during construction. The project consists of a building with a 20,000SF footprint and associated pedestrian walks and vehicle parking and maneuvering areas. As a result of these improvements we will create ~55,780 SF of impervious area.

STORM

We will collect runoff from all of the impervious area created in downspouts (Building) or catchbasins (AC, Concrete). Once collected, it will be hard piped to an infiltration basin located to the northeast of the proposed building. This basin will be sized based on the design storm water volume and the infiltration rates measured by the Geotech after the proper safety factors have been applied.

SANITARY

We will construct a STEP tank with a duplex pump system and a force main. We will connect to the existing sanitary lateral that has been previously constructed about half way down the existing access drive.

Water

We will utilize existing water service line that has been previously constructed about half way down the existing access drive. We will add a new water meter and add a domestic backflow device as well as a fire backflow in a vault. A new fire hydrant will be installed onsite.

cc: File



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December 18, 2017

Heuker Family Lands, LLC
P.O. Box 98
Cascade Locks, Oregon 97014
Attention: Mr. Tim Heuker

Phone: 541-374-8255
Email: heukerbros@gorge.net

**Subject: Geotechnical Investigation Report
Proposed Commercial Development - Heuker
Lot 4 – The Port of Cascade Locks Business Park
Off of Northeast Columbia Gorge Way
Cascade Locks, Hood River County, Oregon
EEI Report No. 17-225-1**

Dear Mr. Heuker:

Earth Engineers, Inc. (EEI) is pleased to transmit our Geotechnical Investigation Report for the above referenced project. This report includes the results of field and laboratory testing, an evaluation of geotechnical factors that may influence the proposed development, recommendations for foundation design, and discussions pertaining to general site development and drainage.

We appreciate the opportunity to perform this geotechnical study and look forward to continued participation during the design and construction phases of this project. If you have any questions pertaining to this report, or if we may be of further service, please contact our office.

Respectfully submitted,
Earth Engineers, Inc.

Daniel Watkins, P.E., G.E.
Geotechnical Engineer

Travis Willis, P.E.
Principal Geotechnical Engineer

Attachment: Geotechnical Investigation Report

Distribution: Addressee (electronic copy only)

GEOTECHNICAL INVESTIGATION REPORT

for the

**Proposed Commercial Development - Heuker
Lot 4 – The Port of Cascade Locks Business Park
Off of Northeast Columbia Gorge Way
Cascade Locks, Hood River County, Oregon**

Prepared for

**Heuker Family Lands, LLC
P.O. Box 98
Cascade Locks, Oregon 97014
Attention: Mr. Tim Heuker**

Prepared by

**Earth Engineers, Inc.
2411 Southeast 8th Avenue
Camas, Washington 98607
Telephone (360) 567-1806
Fax (360) 253-8624**

EEl Report No. 17-225-1

December 18, 2017



**Earth
Engineers,
Inc.**

Travis Willis

**Travis Willis, P.E.
Principal Geotechnical
Engineer**



Expires: 6/30/18

**Daniel Watkins, P.E., G.E.
Geotechnical Engineer**

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1.0 PROJECT INFORMATION

1.1 Project Authorization

Earth Engineers, Inc. (EEI) has completed a Geotechnical Investigation Report for the proposed 7,350 square foot commercial building to be located on Lot 4 of the Port of Cascade Locks Business Park in Cascade Locks, Hood River County, Oregon. Our services were authorized by Mr. Tim Heuker on November 29, 2017 by signing EEI Proposal No. 17-P373, which was dated November 14, 2017.

1.2 Project Description

Our current understanding of the project is based on the information provided to EEI Principal Geotechnical Engineers Troy Hull and Travis Willis by Mr. Tim Heuker of Heuker Family Lands, LLC by telephone and email. Included in the provided information were the following documents:

- A "Topographic and Boundary Survey for The Port of Cascade Locks Business Park – Lot 4" prepared by Terra Surveying dated November 7, 2017.
- Undated "Site Plan – Sheet A0.1" by CIDA showing the proposed location of the building.

Briefly, we understand you plan to construct a rectangular shaped, concrete tilt-up wall panel commercial building with dimensions of 105 feet by 70 feet on the 3.39-acre Lot 4. Asphalt paving is also planned to be constructed at the time of building construction. Additionally, as shown in Figure 1 below another building is planned for in the future. No foundation loads have yet been provided to us. For the purposes of this report, we have assumed maximum wall, column, and floor loads to be about 5 kips per linear foot, 60 kips, and 250 pounds per square foot, respectively. Other than underground utilities, no below ground construction is planned to our knowledge.

Based on the site plan provided and our site visit, the site is relatively level. As such we anticipate very little fill (on the order of 1 foot) but some deeper cuts (on the order of 4 to 6 feet) due to the presence of undocumented fill material.

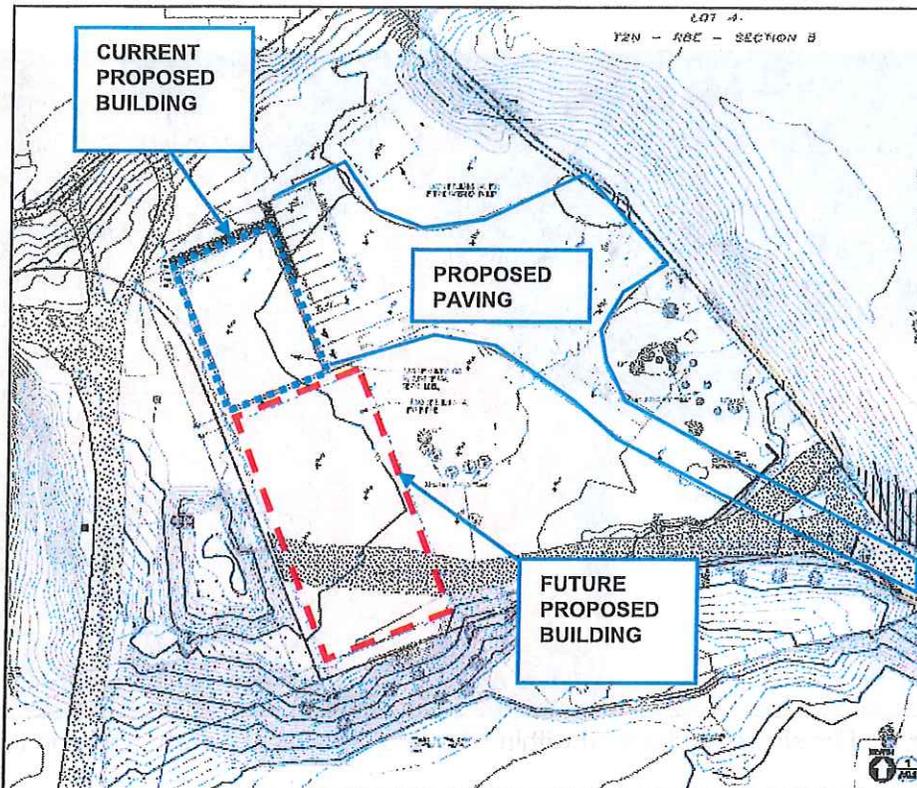


Figure 1: Proposed commercial building outlined in blue – base drawing Sheet A0.1 by CIDA

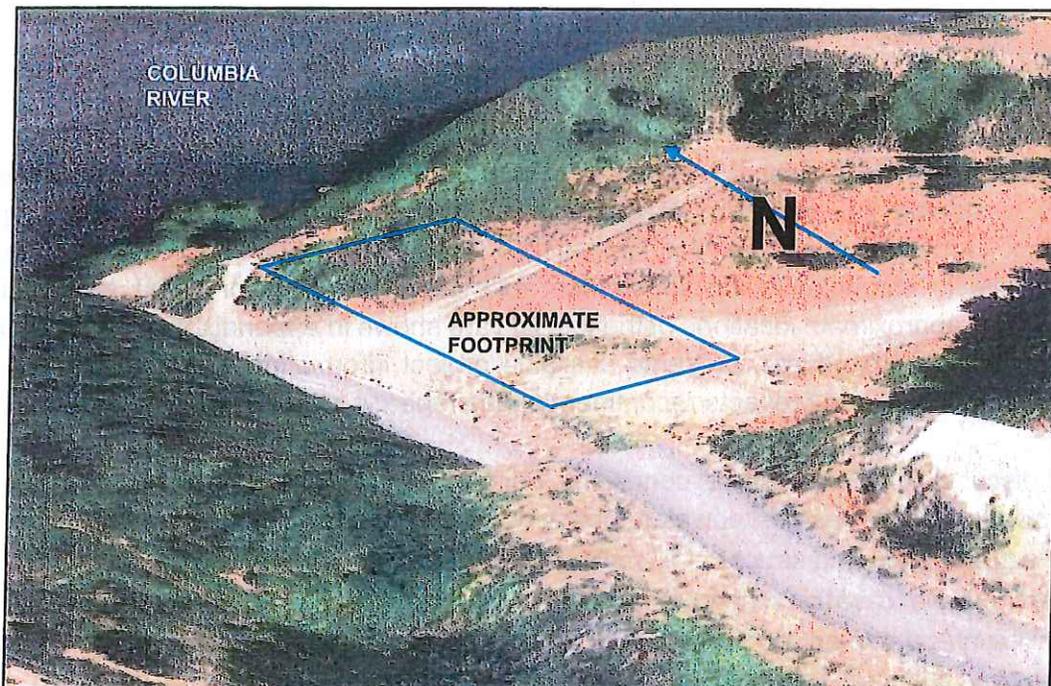


Figure 2: Oblique view of site. (Google Earth)

As part of our due diligence, we reviewed the State of Oregon's Geo-Hazard Viewer – Oregon HazVu - to determine what geologic hazards exist on the property. The property was found to be located within a strong ground shaking hazard, with a few localized areas around the perimeter of the site classified as a moderate hazard for land sliding. Surprisingly (given the site is located next to the Columbia River), the site is not located within a liquefaction hazard area, see Figure 3 below.



Figure 3: The site is not located within a liquefaction hazard area. (Oregon HazVu)

Finally, we have assumed that the proposed construction will be in accordance with the 2014 Oregon Structural Specialty Code (OSSC).

1.3 Purpose and Scope of Services

The purpose of this geotechnical report was to perform an exploration of the site subsurface conditions to enable an evaluation of geotechnical factors that will influence the proposed construction. Our scope of services (and actual field exploration) included excavating 10 test pits across the site to characterize the subsurface soils utilizing a client provided rubber-tracked excavator. The approximate locations of the test pits are shown in Appendix B. This report briefly outlines the testing procedures, presents available project information, describes the site and subsurface conditions, and presents recommendations regarding the following:

- A discussion of subsurface conditions encountered including pertinent soil and rock properties as well as groundwater conditions, if encountered.
- Site preparation and structural fill recommendations.
- Temporary excavation recommendations.
- Geotechnical related recommendations for foundation design including allowable bearing capacity, minimum footing dimensions, and estimated settlements.
- Retaining wall design parameters, including static and seismic earth pressures, and sliding coefficient.
- Slab on grade design recommendations.
- Discussion of geotechnical issues that may impact the project.

In addition to the subsurface explorations, our scope of services included select laboratory testing, analysis of the collected data, and issuance of this report. It should be noted that our scope of services did not include deep soil borings or a quantitative slope stability or liquefaction analyses.

2.0 SITE AND SUBSURFACE CONDITIONS

2.1 Site Location and Description

The irregularly shaped property is located on the east side of Herman Creek off of Industrial Park Way in Cascade Locks, Oregon. The property is bordered to the north by the Columbia River and to the south, east, and west by vacant lands which are also a part of the Business Park. The property is currently vacant and is covered with grass, small trees, bushes, bare dirt, blackberries, and old asphalt.

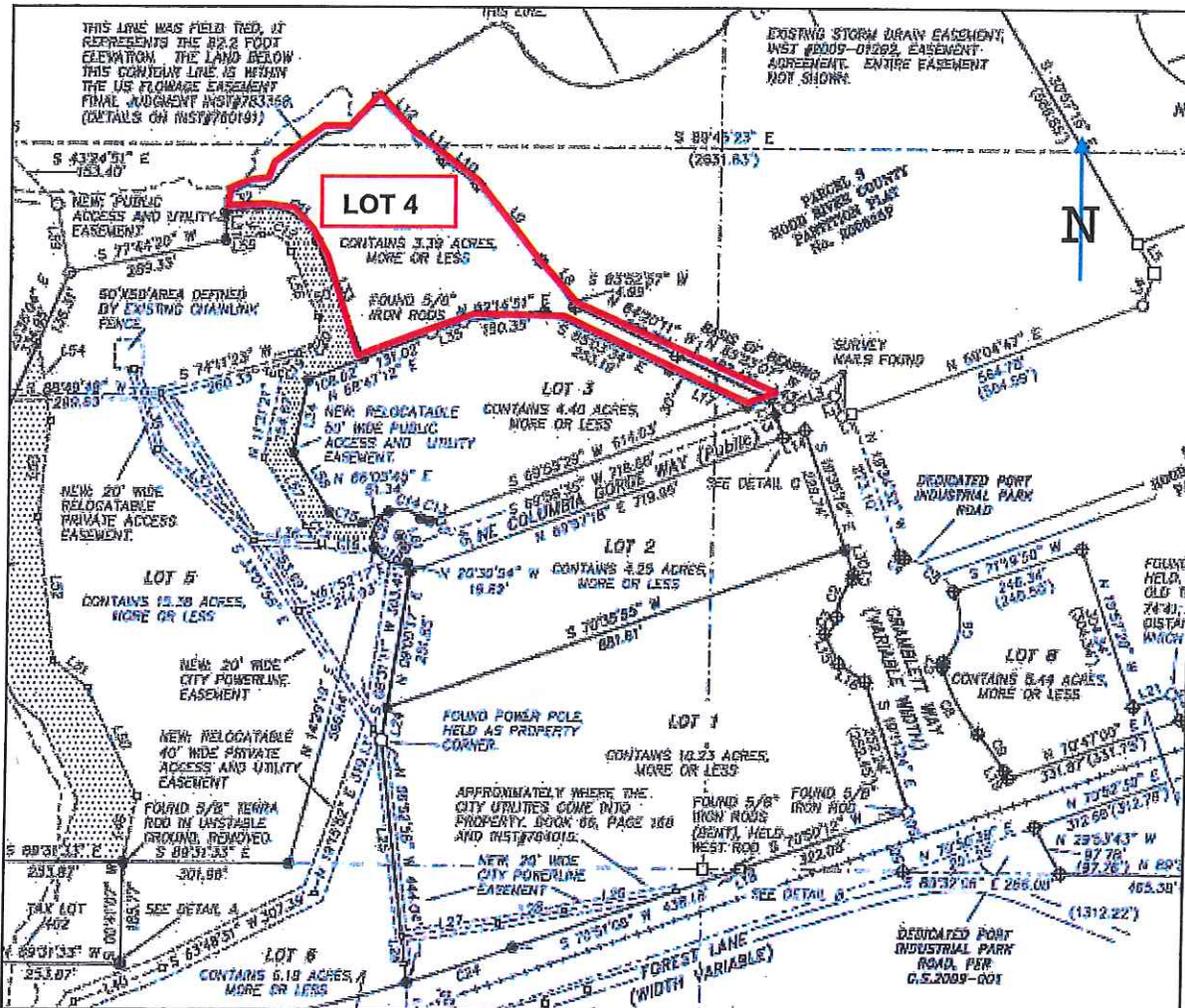


Figure 4: Port of Cascade Locks Business Park Plat Map – by Terra Surveying.

As stated above, within the proposed building footprint(s) the property is relatively level. However, there are upslopes on the west, east, and south sides of the property that form a “bowl”. The slopes that form the south and east sides of the bowl generally slope upward at about 1.75H:1V (Horizontal Vertical). The slope on the west side is part of a quartz diorite outcrop (i.e. bedrock) which has essentially a vertical face.

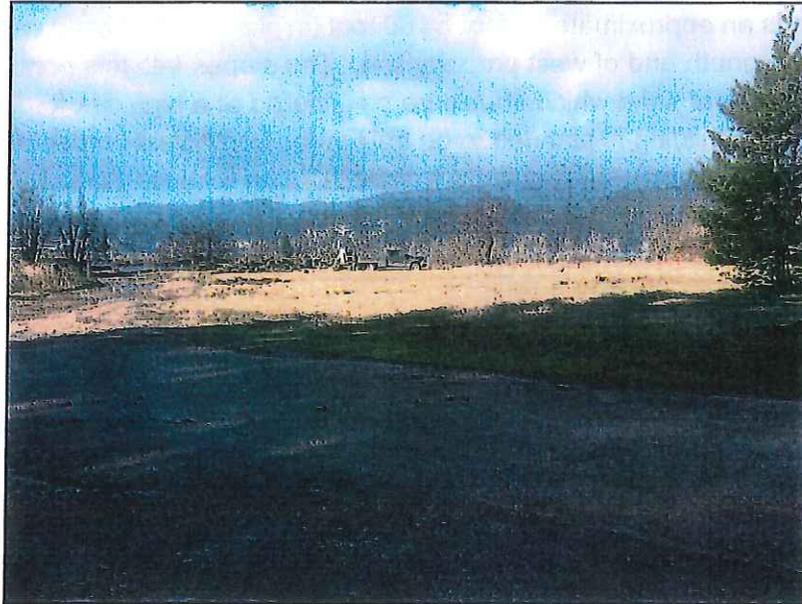


Photo 1: looking north at property from southwest corner of property.

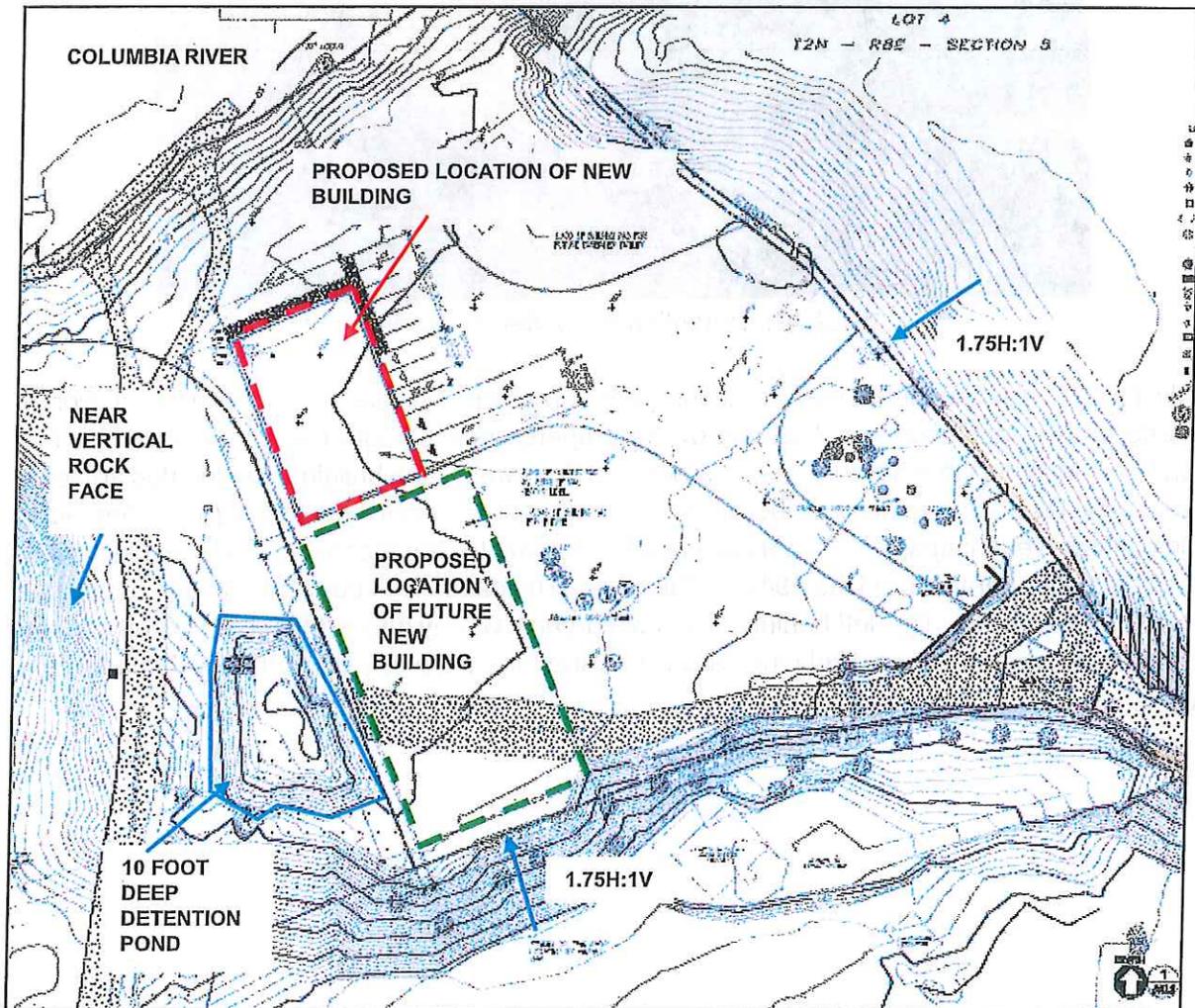


Figure 5: Lot 4 existing and proposed conditions.

Furthermore, there is an approximate 30 foot by 60 foot (in plan) 10 foot deep detention/infiltration pond adjacent to the south end of west property line. The slopes into this pond are about 2H:1V and composed primarily of sand which should be considered at a high risk for future erosion. As shown above, a future building is planned to be built in the southwest corner of the property. As such, (as outlined in this report), sufficient offset of the building footings (so as to protect them from future erosion of the pond slope) will need to be taken into consideration.



Photo 2: Detention pond viewing north.

Finally, based on our subsurface explorations, comments from Tim Hueker and Don Mann (Port of Cascade Locks), and past aerial photos of the property from Google Earth, this area has had several buildings on it that have been torn down over the years. One building was located adjacent to the vertical face and another was located in the southeast corner of the property (as evidenced by an old concrete retaining wall). Of particular note, according to Don Mann, there was an old sawmill located on the property back in the 1940's. This sawmill unloaded logs from the river and processed them at the mill on site. This left behind a lot of old organic woody debris (observed in some of our test pits) in the area that was likely the yard where the logs were stored on the north side of the property.

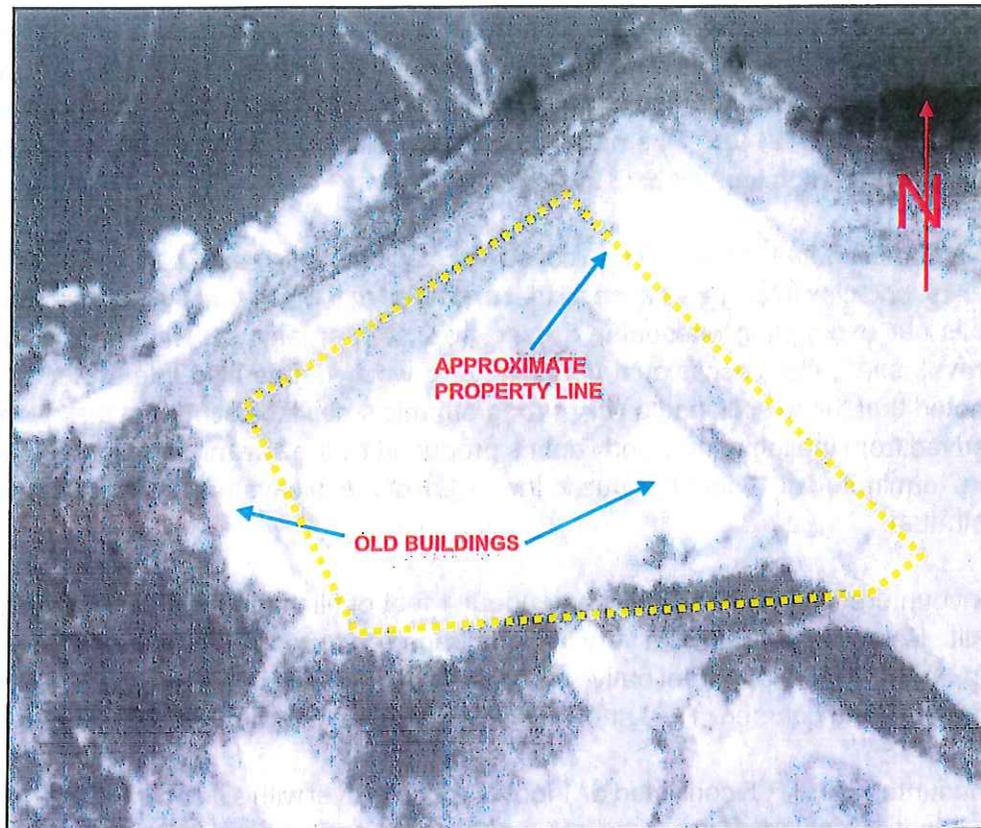


Figure 6: Aerial photo from 1993.

2.2 Regional and Site Geology

The subject property is located on an alluvial terrace on the south side of the Columbia River, in the Columbia River Gorge. The Columbia River Gorge is a deeply incised river valley that cuts through the Cascade Mountain Range between Mt. Hood to the south and Mt. Adams and Mt. Saint Helens to the north. The Columbia River has been repeatedly blocked by lava flows, landslides, ice dams and flood deposits. The mapped geologic unit in the area of the subject property is Tertiary Quartz Diorite (Tiqd)¹ which is also exposed (near vertical rock face) in close proximity to the site.

2.3 Subsurface Materials

As stated above, the site subsurface conditions were explored with 10 test pits (TP-1 through TP-10) excavated to depths between 6 and 13 feet below the existing ground surface (bgs). The test pit locations were selected by the client and were excavated within or near the proposed current and future building locations. See Appendix B for the approximate exploration locations.

The test pits were advanced utilizing a rubber tracked Bobcat excavator equipped with a 2-foot wide bucket with teeth provided by the client. Soil samples were periodically obtained from the major soil strata encountered during the excavation process.

¹ Korosec, M.A., 1987, Geologic map of the Hood River quadrangle, Washington and Oregon: Washington Division of Geology and Earth Resources, Open File Report 87-6, scale 1:100,000.

Select soil samples were tested in the laboratory to determine materials properties for our evaluation. Laboratory testing was accomplished generally in accordance with ASTM procedures. The testing performed included moisture content tests (ASTM D 2216) and fines content determinations (ASTM D 1140). The moisture content and fines content test results have been included on the exploration logs located in Appendix C.

The soils encountered in TP-1 and TP-2 consisted of loose, silty sand with varying amounts of gravel, cobbles, and clay interpreted to be fill that extended to 6 and 5 feet bgs, respectively. Below these fill soils our exploration encountered dark gray, soft, organic silt with varying amounts of cobbles, gravel, sand, clay, occasional boulders, and wood debris also interpreted to be fill. It should be noted that these soils had a very strong organic smell indicating that they were (at least partially) derived from the logs and woody debris produced by the sawmill mentioned above. Both test pits were terminated at 13 feet bgs due to the extent of the excavators reach when we were still within this stratum.

The soils encountered in TP-3 and TP-4 had about 4 feet of fill that consisted of gravel, cobbles, sand, and silt. Below these fill soils a very obvious transition to reddish brown and gray silty sand (SM) was apparent. These apparent native sandy soils extended to between 8 and 9 feet where the sand became gray and coarser. TP-3 and TP-4 were terminated at 12.5 and 10 feet, respectively.

The soils encountered in TP-5 consisted of 1 foot of round gravel with silt and sand interpreted to be fill overlying 3 feet of medium dense, gray, presumed native coarse sand (SP). Between 4 feet and the terminal depth of 8 feet the soils became medium dense, gray and brown, gravel and cobbles with varying amounts of sand and silt (GP).

The soils encountered in TP-6 consisted of 2.5 feet of gravel and cobbles with varying amounts of sand and silt interpreted to be fill. Between 2.5 feet and 5.5 feet the soils consisted of medium dense, presumed native, coarse gray silty sand (SM). The soils between 5.5 feet and the terminal depth of 6 feet bgs the soils became medium dense, gravel and cobbles with sand and occasional boulders (GP).

The soils encountered in TP-7 consisted of 2 feet of gravel and cobbles with sand and silt interpreted to be fill. Between 2 feet and the terminal depth of 9 feet bgs the soils became medium dense, gray and reddish brown, silty sand (SM) - these soils were presumed to be native. Again there was a very apparent transition between the fill soils and the native soils.

The soils encountered in TP-8 consisted of 1 foot of topsoil overlying 5 feet of medium dense, gray and brown, silty gravel and cobbles interpreted to be fill. Between 6 feet and the maximum explored depth of 10.5 feet bgs the presumed native soils became medium dense, reddish brown, silty sand (SM).

Based on the 8 explorations noted above there seems to be a rapid transition between the gray organic material (unsuitable for building atop of without mitigation) and the areas where this organic material was encountered. We therefore excavated 2 additional test pits to attempt to define this transition.

The soils encountered in TP-9 and TP-10 consisted of between 5 and 6 feet of soft, gray, sandy silt with wood chunks and fibers interpreted to be fill. A concrete footing was found between 4 and 5

feet bgs in TP-9. Below these fill soils our test pits encountered soft, dark gray, organic silt with wood debris. This soil had a very strong organic smell. TP-9 and TP-10 were terminated at 9 and 8 feet bgs, respectively – still within the organic fill layer.

The strength characteristics of the soil were based on the stability of the excavation side walls, digging effort, and pocket penetrometer readings where applicable. Moisture contents from the samples obtained within the test pits ranged from 13 to 28 percent, indicating the soils were moist in terms of moisture condition. Fines content (material passing the #200 sieve) of the samples tested ranged between 8 and 50 percent as reflected in the Unified Soil Classification System (USCS) classifications described above and shown on the exploration logs.

The above subsurface description is of a generalized nature to highlight the major subsurface stratification features and material characteristics. The exploration logs included in the Appendix should be reviewed for specific information at specific locations. These records include soil and rock descriptions, stratifications, and locations of the samples. The stratifications shown on the logs represent the conditions only at the actual exploration locations. Variations may occur and should be expected between locations. The stratifications represent the approximate boundary between subsurface materials and the actual transition may be gradual. The fill extent at each location was estimated based on an examination of the soil samples, the presence of foreign materials, and the subsurface data. However, we note that test pits alone are not adequate to accurately identify the full extent of existing fill. Consequently, the actual fill extent (if any) may vary from that shown on the boring logs and discussed herein. Water level information obtained during field operations is also shown on these logs. The samples that were not altered by laboratory testing will be retained for 60 days from the date of this report and then will be discarded.

2.4 Groundwater Information

Static groundwater was not encountered in our test pits. However, groundwater seepage was encountered in TP-1 and TP-2 at 12 and 10 feet bgs, respectively. As such, it is possible that perched groundwater may be present in footing excavations, depending on depth.

According to a well log (attached in Appendix F) for a water well drilled for the Cascade Locks Lumber Co. (just to the south of the Business Park), static groundwater is at 27 feet bgs. Groundwater levels can fluctuate depending on time of year and changes in land use. While the elevation difference between the Lumber Company property and the lower subject lot is 37 feet the fact that water seepage was encountered in only 2 of the 10 test pits implies the water table “dives” down in relation to the topography.

2.5 Seismicity

In accordance with Section 1613.3.2 of the 2015 IBC and Table 20.3-1 of ASCE 7-10, we recommend a Site Class D (stiff soil) with an average standard penetration resistance of between 15 and 50 blows per foot when considering the average of the upper 100 feet of bearing material beneath the foundations. This recommendation is based on digging effort, stability of the excavation sidewalls, as well as our local knowledge of the area soils.

Inputting our recommended site class as well as the site latitude and longitude into the United States Geological Survey (USGS) website (<http://earthquake.usgs.gov/designmaps/us/application.php>), we obtained the seismic design parameters shown in Table 1 below.

Table 1: Seismic Design Parameter Recommendations (ASCE 7-10)

PARAMETER	RECOMMENDATION
S_s	0.644g
S_1	0.287g
F_a	1.285
F_v	1.825
$S_{MS} (=S_s \times F_a)$	0.827g
$S_{M1} (=S_1 \times F_v)$	0.524g
$S_{DS} (=2/3 \times S_s \times F_a)$	0.551g
Design PGA ($=S_{DS} / 2.5$)	0.221g
MCE_G PGA	0.268g
F_{PGA}	1.265
$PGA_M (=MCE_G \text{ PGA} \times F_{PGA})$	0.338g

Note: Site latitude = 45.6833, longitude = -121.8583

The return interval for the ground motions reported in the table above is 2 percent probability of exceedance in 50 years.

2.6 Liquefaction

Liquefaction occurs when a saturated sand or silt soil starts to behave like a liquid. Liquefaction occurs because of the increased pore pressure and reduced effective stress between solid particles generated by the presence of liquid. It is often caused by severe ground shaking, especially that associated with earthquakes.

Based on the well log attached (Appendix F), the static groundwater table is at about 27 feet bgs which is within the industry standard depth of 50 feet required for a liquefaction analysis. Our test pits encountered sand soils which are prone to liquefaction below the water table. However, as stated above, based on the Oregon HazVu Liquefaction Hazard Map (Figure 3 above) this site is not within a mapped liquefaction hazard zone. It is our professional opinion that this is due to the fact that a rock stratum was encountered at a depth of 14 feet **which is not susceptible to liquefaction**. The presence of the rock outcrop to the west of the site is also evidence of the presence of bedrock.

3.0 EVALUATION AND FOUNDATION RECOMMENDATIONS

3.1 Geotechnical Discussion

Based on the subsurface investigation data, it is our professional opinion that the primary factors impacting the proposed development are the following:

- 1) **Presence of Highly Organic Soils** – As stated above, we encountered deep highly organic unsuitable soils in TP-1, TP-2, TP-9, and TP-10 that extended to the terminal depths of these explorations ranging in depth from between 8 and 13 feet bgs. As such, we were unable to determine the actual thickness of this organic layer. The presence of these organic soils is likely due to the fact it may have been part of the log storage yard for the sawmill that existed in the 1940's. Back then, it was common practice to bury and left over organic material.

Also as stated above, there appears to be a rapid transition between where these organic soils are present and where they are absent. We recommend that no structures be constructed within the area containing the buried organic debris due to the fact the depth of these organic soils are unknown. Alternately future buildings and structures within this area could be supported via an expensive deep foundation system that would mitigate these problematic soils. Based on our explorations, the approximate area to avoid building structures is shown below in Figure 7.

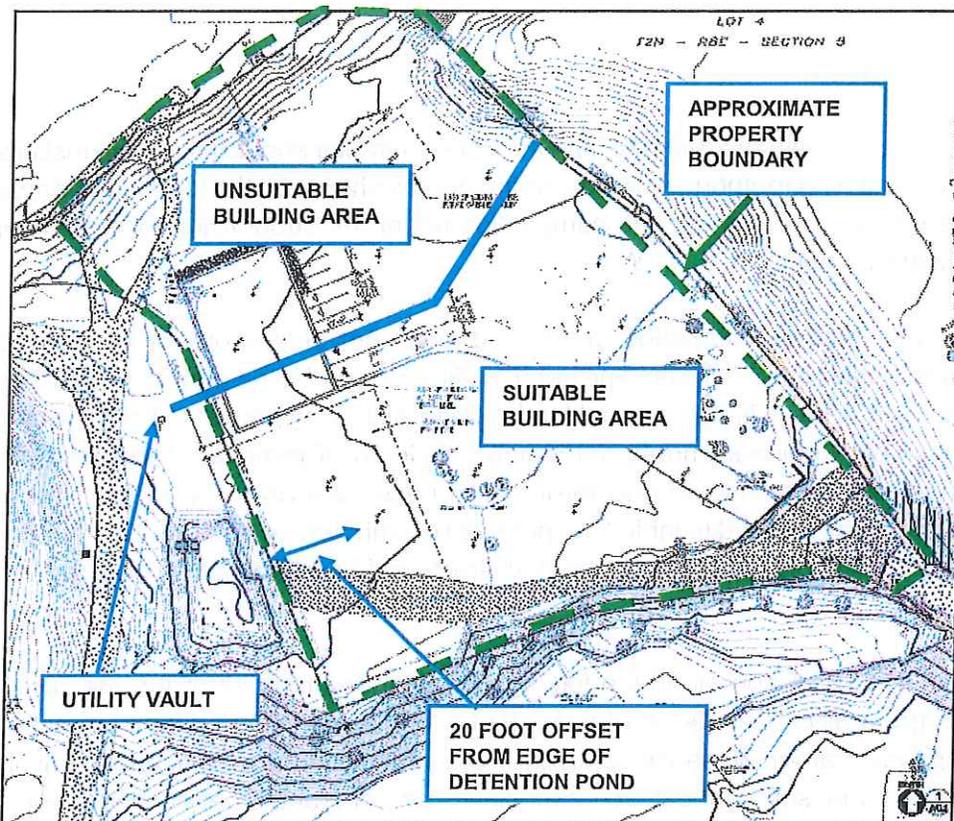


Figure 7: Suitable and unsuitable building areas – base drawing by CIDA.

- 2) **Presence of Fill Soils of Varying Depth Across the Site** – As noted above, this property has been developed with multiple buildings and associated infrastructure at various times in the past. As such, there are varying types and thicknesses of previously placed fill soils. In general, within the suitable building area, the depth of these fill soils is about 4 feet with localized areas more or less deep. We recommend these fill soils be removed to expose firm and unyielding native silty sand soils. Because of the sandy nature of these soils we recommend they be recompacted (due to the fact excavation will disturb the soils) and that the footings bear directly on these soils or on compacted structural fill placed atop these soils. We recommend a representative of the Geotechnical Engineer be present during footing excavation to determine the extent of the fill soils to be removed.

- 3) **Presence of a Detention Pond Adjacent to the Property.** – As stated above, there is a detention pond located adjacent to the south portion of the west property line. Based on the survey provided and referenced above, this pond is about 10 or 11 feet deep. As such, given the depth of this pond and the fact that the side slopes are comprised of sandy soils vulnerable to rapid erosion, we recommend that any building footings be setback from the top edge of this pond a minimum of 20 feet.

In summary, provided the recommendations in this report are adhered to, we do not foresee any major issues that would preclude site development or the proposed construction. It appears the owner will need to relocate the proposed building based on our recommendations above. The above mentioned factors are listed to draw the attention of the reader to the issues to address during design and construction of the proposed commercial building.

3.2 Site Preparation

Prior to commencement of footing excavation, the contractor should locate the test pits that lie within the relocated building footprint, excavate to the depths shown on the logs, and compact the backfill with a hoe-pac to ensure adequate compaction under the supervision of a representative of the Geotechnical Engineer.

More generally, topsoil, vegetation, roots, and any other deleterious or fill soils will need to be stripped from development areas. The depth of fill was found to be generally about 4 feet within the suitable building area. It is not unusual for the depth fill to vary across the site. A representative of the Geotechnical Engineer should determine the depth of removal at the time of construction. Utilities will need to be located and rerouted as necessary and any abandoned pipes or utility conduits should be removed to inhibit the potential for subsurface erosion. Utility trench excavations should be backfilled with properly compacted structural fill constructed as outlined in Section 3.3 of this report.

As stated above, we recommend the footings be extended to bear on the medium dense, native sandy soils generally encountered at a depth of 4 feet bgs or founded on compacted structural fill placed atop that stratum. Because sandy soils are often disturbed during earthwork operations, any exposed silty sand soils should be redensified, or compacted, after disturbance prior to the placement of structural fill or concrete forms. After the native sand soils have been recompacted, the subgrade should be proof-rolled with a heavily loaded tandem axle dump truck or similar rubber

tired vehicle under the observation of the Geotechnical Engineer. The excavated footing subgrades, after recompaction with a hoe-pac or plate compactor, should be also approved by the Geotechnical Engineer. Soils that are observed to rut or deflect excessively under the moving load, or are otherwise judged to be unsuitable, should be undercut and replaced with properly compacted structural fill.

3.3 Structural Fill

Any structural fill to be placed should be free of organics or other deleterious materials, have a maximum particle size less than 3 inches, be relatively well graded, and have a liquid limit less than 45 and plasticity index less than 25. In our professional opinion, the on-site soils free of organics and meeting the above criteria, are appropriate for use as structural fill. We recommend fill be moisture conditioned to within 3 percentage points below and 2 percentage points above optimum moisture as determined by ASTM D1557 (modified proctor). Given the silty nature of the site soils and their current moisture content, it may be difficult to achieve proper compaction depending on the time of year of construction. The contractor should consider importing granular structural fill to avoid this issue if construction takes place during the wetter, winter months.

Fill should be placed in relatively uniform horizontal lifts on the prepared subgrade which has been stripped of deleterious materials (i.e. topsoil and fill), re-compacted, and approved by the Geotechnical Engineer or his representative. Each loose lift should be about 1-foot thick. The type of compaction equipment used will ultimately determine the maximum lift thickness. Structural fill should be compacted to at least 95 percent of modified proctor maximum dry density as determined by ASTM Designation D 1557.

Each lift of compacted engineered fill should be tested by a representative of the Geotechnical Engineer prior to placement of subsequent lifts. Structural fill beneath foundation elements should extend horizontally outward beyond the footings on all sides a distance equal to half of the depth of the fill. For example 2 feet of fill should extend 1 foot beyond the footing on all sides.

3.4 Foundation Recommendations

Once the site has been properly prepared as discussed above, the building can be supported on conventional spread footing foundations bearing directly on the medium dense, native silty sand soils (first encountered at an average depth of 4 feet) or on properly compacted structural fill bearing on that stratum. Spread footings for building columns and continuous footings for bearing walls can be designed for an allowable soil bearing pressure of 2,100 psf. The allowable soil bearing pressure above can be increased by one-third for short term wind or seismic loads. Minimum footing dimensions should be in accordance with the 2014 OSSC.

Exterior footings and foundations in unheated areas should be located at a depth of at least 18 inches below the final exterior grade to provide adequate frost protection. If the buildings are to be constructed during the winter months or if the foundation soils will likely be subjected to freezing temperatures after foundation construction, then the foundation soils should be adequately protected from freezing. Otherwise, interior foundations can be located at nominal depths compatible with architectural and structural considerations.

Lateral frictional resistance between the base of footings and the subgrade can be expressed as the applied vertical load multiplied by a coefficient of friction of 0.33 for concrete foundations bearing directly on the native, medium dense silty sand stratum or on compacted structural fill placed atop that stratum. In addition, lateral loads may be resisted by passive earth pressures based on an equivalent fluid pressure of 250 pounds per cubic foot (pcf) for footings poured "neat" against the native soils, or properly backfilled structural fill. These are ultimate values—we recommend a factor of safety of 1.5 be applied to the equivalent fluid pressure, which is appropriate due to the amount of movement required to develop full passive resistance. To be clear, no safety factor has been included within the friction factor specified above either.

The foundation excavations should be observed by a representative of the Geotechnical Engineer prior to steel or concrete placement to assess that the foundation materials are capable of supporting the design loads and are consistent with the materials discussed in this report. Unsuitable soil zones encountered at the bottom of the foundation excavations should be removed to the level of suitable soils or properly compacted structural fill as directed by the Geotechnical Engineer. Cavities formed as a result of excavation of unsuitable soil zones should be backfilled with lean concrete or compacted structural fill in accordance with Section 3.3 above.

Again, because sandy soils are often disturbed during foundation excavation operations, any exposed sandy soils should be redensified after excavation operations are completed. Compaction equipment to be used would include a roller, hoe-pack, heavy steel diesel plate, or a jumping jack. The Geotechnical Engineer or his representative may visually inspect the footing recompaction process to meet this requirement.

After opening, foundation excavations should be observed and concrete placed as quickly as possible to avoid exposure of the excavation bottoms to wetting and drying. Surface run-off water should be drained away from the excavations and not be allowed to pond.

Based on the known subsurface conditions, site geology, laboratory testing and past experience, we anticipate that properly designed and constructed foundations supported on the recommended materials should experience maximum total and differential static settlements between adjacent columns on the order of 1 inch and 1/2 inch, respectively.

3.5 Floor Slab Recommendations

Given that the floor slabs are relatively lightly loaded in comparison to the building, it is our professional opinion that the floor slabs can be grade supported on the medium dense, gravel and cobble fill. The subgrade for the slab should be recompacted after the initial striping and grubbing operations have taken place. Subsequently, the slab area should proof-rolled with a heavily loaded tandem axle dump truck or similar rubber tired vehicle to identify any "soft" spots. Soils that are observed to rut or deflect excessively under the moving load, or are otherwise judged to be unsuitable should be undercut and replaced with properly compacted structural fill.

Based on the existing soil conditions, the design of slabs-on-grade can be based on a subgrade modulus (k) of 150 pci; however, this value may be increased to 175 pci if a minimum 4-inch thick granular mat is placed below the floor slab as recommended below. This subgrade modulus value

represents an anticipated value which would be obtained in a standard in-situ plate test with a 1-foot square plate. Use of this subgrade modulus for design or other on-grade structural elements should include appropriate modification based on dimensions as necessary.

We recommend that a minimum 4-inch thick free-draining granular mat be placed beneath the floor slab to enhance drainage and provide increased subgrade strength. The floor slabs should have an adequate number of joints to reduce cracking resulting from any differential movement and shrinkage.

The 4-inch thick free draining mat should provide a capillary break to limit migration of moisture through the slab. If additional protection against moisture vapor is desired, a vapor retarding membrane may also be incorporated into the design. Factors such as cost, special considerations for construction, and the floor coverings suggest that decisions on the use of vapor retarding membranes be made by the owner.

3.6 Retaining Wall Recommendations

At this time, we are not aware of specific retaining wall plans for the project. As such, we have provided these general recommendations to assist the structural engineer in designing retaining walls if required. Once more detailed plans are known about retaining walls (if any), we should be provided that information so that we can update our recommendations if determined to be necessary.

Lateral earth pressures on walls, which are not restrained at the top, may be calculated on the basis of an "active" equivalent fluid pressure of 35 pcf for level backfill, and 60 pcf for sloping backfill with a maximum 2H:1V slope. Lateral earth pressures on walls that are restrained from yielding at the top (i.e. stem walls) may be calculated on the basis of an "at-rest" equivalent fluid pressure of 55 pcf for level backfill, and 90 pcf for sloping backfill with a maximum 2H:1V slope. The stated equivalent fluid pressures do not include surcharge loads, such as foundation, vehicle, equipment, etc., adjacent to walls, hydrostatic pressure buildup, or earthquake loading. Surcharge loads on walls should be calculated based on the attached calculations/formulas shown in Appendix E.

For seismic loading on retaining walls with level backfill, new research indicates that the seismic load is to be applied at $1/3 H$ of the wall instead of $2/3 H$, where H is the height of the wall. For walls with level backfill, we recommend that a Mononobe-Okabe earthquake thrust per linear foot of $4.1 \text{ psf} \cdot H^2$ be applied at $1/3 H$, where H is the height of the wall measured in feet. For a maximum 2H:1V slope we recommend $16.5 \text{ psf} \cdot H^2$. This assumes a combination of native soil and granular backfill retained by the walls.

All backfill for retaining walls should be select granular material, such as sand or crushed rock with a maximum particle size between $3/4$ and $1 \frac{1}{2}$ inches, having less than 5 percent material passing the No. 200 sieve. Because of their silt content, the native soils do not meet this requirement, and it will be necessary to import material to the project for wall backfill. Silty soils can be used for the last 18 to 24 inches of backfill, thus acting as a seal to the granular backfill. All backfill behind retaining walls should be moisture conditioned to within ± 2 percent of optimum moisture content, and compacted to a minimum of 90 percent of the material's maximum dry density as determined in accordance with ASTM D1557 (modified Proctor). Fill materials should be placed in layers that, when compacted, do

not exceed about 8 inches. Care in the placement and compaction of fill behind retaining walls must be taken in order to insure that undue lateral loads are not placed on the walls.

An adequate subsurface drain system will need to be designed and installed behind retaining walls to prevent hydrostatic buildup.

4.0 CONSTRUCTION CONSIDERATIONS

EEl should be retained to provide observation and testing of construction activities involved in the foundation, earthwork, and related activities of this project. EEl cannot accept any responsibility for any conditions that deviate from those described in this report, nor for the performance of the foundations if not engaged to also provide construction observation for this project.

4.1 Moisture Sensitive Soils/Weather Related Concerns

The silty sand soils encountered at this site are expected to be moderately sensitive to disturbances caused by construction traffic and to changes in moisture content. During wet weather periods, increases in the moisture content of the soil can cause significant reduction in the soil strength and support capabilities. In addition, soils that become wet may be slow to dry and thus significantly retard the progress of grading and compaction activities. It will, therefore, be advantageous to perform earthwork and foundation construction activities during dry weather.

4.2 Drainage and Groundwater Considerations

Water should not be allowed to collect in the foundation excavations or on prepared subgrades for the floor slab during construction. Positive site drainage should be maintained throughout construction activities. Undercut or excavated areas should be sloped toward one corner to facilitate removal of any collected rainwater, groundwater, or surface runoff.

The site grading plan should be developed to provide rapid drainage of surface water away from the building areas and to inhibit infiltration of surface water around the perimeter of the building. The grades should be sloped away from the building and paved areas. Given the flat nature of this site, roof runoff and foundation drains (if any) should be piped (tightlined) to either the off-site detention pond (if feasible), out to the Columbia River (if feasible), or discharged upon a paved surface to allow water to return to a sheet flow condition. Alternatively, given the presence of sandy soils at depth, infiltration of stormwater may be feasible. If infiltration of stormwater is preferred EEl is available to perform infiltration testing at the site for an additional fee.

4.3 Excavations

In Federal Register, Volume 54, No. 209 (October 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its "Construction Standards for Excavations, 29 CFR, part 1926, Subpart P". This document and subsequent updates were issued to better insure the safety of workmen entering trenches or excavations. It is mandated by this federal regulation that excavations, whether they be utility trenches, basement excavations or footing excavations, be constructed in accordance with the new OSHA guidelines. It is our understanding that these regulations are being strictly enforced and if they are not closely followed, the owner and the contractor could be liable for substantial penalties.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's "responsible person", as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.

We are providing this information solely as a service to our client. EEI does not assume responsibility for construction site safety or the contractor's compliance with local, state, and federal safety or other regulations.

5.0 REPORT LIMITATIONS

As is standard practice in the geotechnical industry, the conclusions contained in our report are considered preliminary because they are based on assumptions made about the soil, rock, and groundwater conditions exposed at the site during our subsurface investigation. A more complete extent of the actual subsurface conditions can only be identified when they are exposed during construction. Therefore, EEI should be retained as your consultant during construction to observe the actual conditions and to provide our final conclusions. If a different geotechnical consultant is retained to perform geotechnical inspection during construction then they should be relied upon to provide final design conclusions and recommendations, and should assume the role of geotechnical engineer of record, as is the typical procedure required by the governing jurisdiction.

The geotechnical recommendations presented in this report are based on the available project information, the proposed tank location, and the subsurface materials described in this report. If any of the noted information is incorrect, please inform EEI in writing so that we may amend the recommendations presented in this report if appropriate and if desired by the client. EEI will not be responsible for the implementation of its recommendations when it is not notified of changes in the project.

Once construction plans are finalized and a grading plan has been prepared, EEI should be retained to review those plans, and modify our existing recommendations related to the proposed construction, if determined to be necessary.

The Geotechnical Engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

This report has been prepared for the exclusive use of the Heuker Family Lands, LLC for the specific application to the proposed new commercial building to be located on Lot 4 of the City of Cascade Locks Business Park in Cascade Locks, Hood River County, Oregon. EEI does not authorize the use of the advice herein nor the reliance upon the report by third parties without prior written authorization by EEI.

APPENDICES

APPENDIX A – SITE LOCATION PLAN

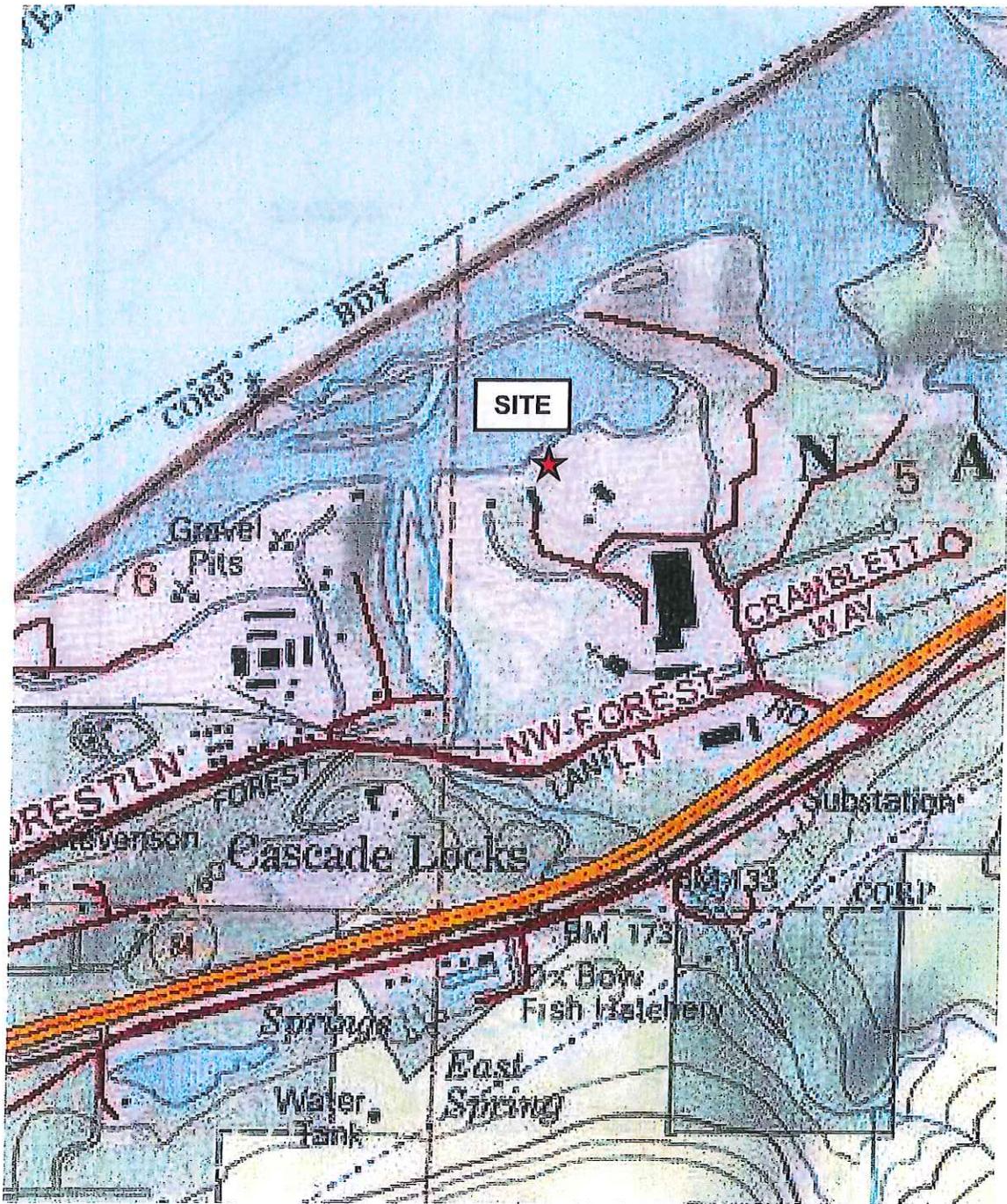


Image Source: National Geographic Topo! Software



**Earth
Engineers,
Inc.**

**Proposed Commercial Development - Heuker
Lot 4 – The Port of Cascade Locks Business Park
Cascade Locks, Hood River County, Oregon**

**Report No.
17-225-1**

December 18, 2017

APPENDIX B – EXPLORATION LOCATION PLAN

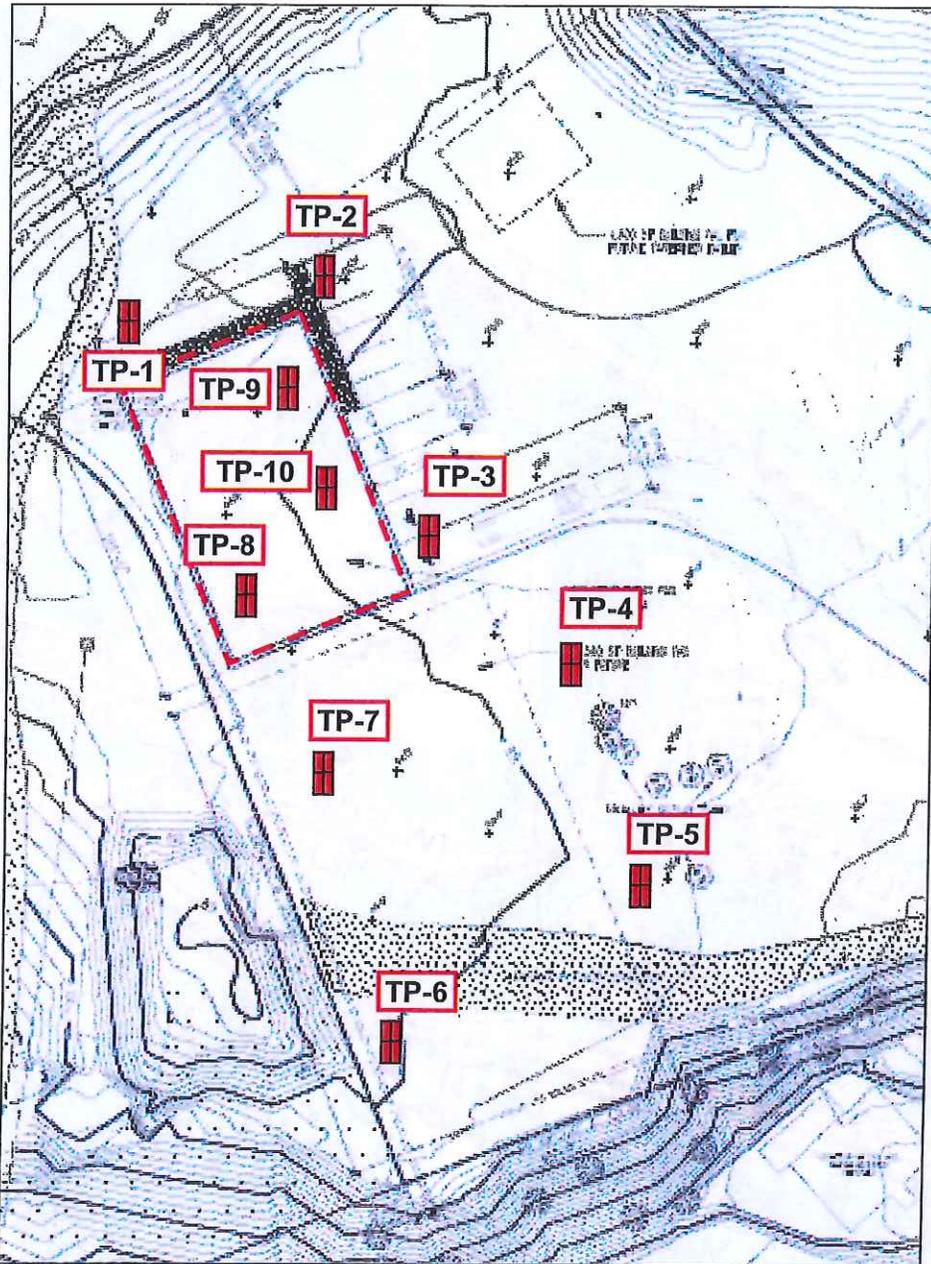


Image Source: "Heuker Brothers – Sheet A0.1" by CIDA dated November 7, 2017

 = Approximate Test Pit Location



**Earth
Engineers,
Inc.**

**Proposed Commercial Development - Heuker
Lot 4 – The Port of Cascade Locks Business Park
Cascade Locks, Hood River County, Oregon**

**Report No.
17-225-1**

December 18, 2017

APPENDIX C: TEST PIT TP-1

CLIENT: Heuker Family Lands, LLC	EARTH ENGINEERS, INC. REPORT NO.: 17-225-1
PROJECT: Proposed Commercial Development - Lot 4 POCLBP	EQUIPMENT: Rubber Tracked Bobcat with 2' Toothed Bucket
LOCATION: See Appendix B	APPROXIMATE ELEVATION: -
DATE EXCAVATED: December 7, 2017	LOGGED BY: Daniel Watkins, P.E., G.E.

DEPTH (ft)	SAMPLE NO.	SAMPLE	SOIL DESCRIPTION	Digging Effort	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT (%)	POCKET PEN. (tsf)	REMARKS
1			SP - Loose, brown and gray, silty SAND, GRAVEL, COBBLES, intermittent clayey silt chunks, moist (FILL)	Easy						
2			fewer cobbles							
3				Easy						
4	GRAB 1	X			16			18		
5										
6			ML - Medium stiff, clayey SILT, moist (FILL)	Easy						
7			OL - Soft, dark gray, organic SILT, wood debris, strong organic smell, moist to wet (FILL)	Easy						
8										
9										
10										
11										
12			becomes saturated							Water seep @12
13			GP - Dense, dark gray, COBBLES and GRAVEL, with silt sand infill, saturated (likely FILL)	Difficult						

Test pit terminated at 13 feet bgs due to digging refusal. Water seep 12 feet bgs. Test pit was backfilled with the excavated soil and tamped to grade.

EARTH ENGINEERS, Inc.

APPENDIX C: TEST PIT TP-2

CLIENT: Heuker Family Lands, LLC	EARTH ENGINEERS, INC. REPORT NO.: 17-225-1
PROJECT: Proposed Commercial Development - Lot 4 POCLBP	EQUIPMENT: Rubber Tracked Bobcat with 2' Toothed Bucket
LOCATION: See Appendix B	APPROXIMATE ELEVATION: -
DATE EXCAVATED: December 7, 2017	LOGGED BY: Daniel Watkins, P.E., G.E.

DEPTH (ft)	SAMPLE NO.	SAMPLE	SOIL DESCRIPTION	Digging Effort	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT (%)	POCKET PEN. (tsf)	REMARKS
1			SM - Loose, gray and brown, silty SAND, moist (FILL)	Easy						
2										
3				Easy						
4										
5										
6			OL - Soft, dark gray, organic SILT, wood debris, strong organic smell, moist to wet (FILL)	Easy						
7										
8										
9			SAME, cobbles, gravel, boulders	Easy						
10	GRAB 1	X	becomes saturated		17			25		Seep @10'
11			SP - Loose, gray, fine SAND, saturated, organic smell	Easy						
12										
13										

Test pit terminated at 13 feet bgs . Water seep 10 feet bgs. Test pit was backfilled with the excavated soil and tamped to grade.

EARTH ENGINEERS, Inc.

APPENDIX C: TEST PIT TP-3

CLIENT: Heuker Family Lands, LLC	EARTH ENGINEERS, INC. REPORT NO.: 17-225-1
PROJECT: Proposed Commercial Development - Lot 4 POCLBP	EQUIPMENT: Rubber Tracked Bobcat with 2' Toothed Bucket
LOCATION: See Appendix B	APPROXIMATE ELEVATION: -
DATE EXCAVATED: December 7, 2017	LOGGED BY: Daniel Watkins, P.E., G.E.

DEPTH (ft)	SAMPLE NO.	SAMPLE	SOIL DESCRIPTION	Digging Effort	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT (%)	POCKET PEN. (tsf)	REMARKS
1			TOPSOIL - Soft, brown, silty SAND, roots, moist	Easy						
2			GP - Medium dense, gray and brown, silty COBBLES and GRAVEL, some sand, moist (FILL)	Moderate						
3			ML - Medium stiff, gray and brown, SILT, some cobbles, gravel, and sand, moist (FILL)	Moderate						
4										
5			SM - Medium dense, reddish brown, silty SAND, moist	Moderate						
6										
7	GRAB 1	X			50			28		
8										
9										
10	GRAB 2	X	SP - Medium dense, grayish brown, SAND and GRAVEL, trace cobbles, moist	Moderate	23			18		
11										
12	GRAB 3	X			8			15		
13			Test pit terminated at 12.5 feet bgs. No water encountered at time of exploration. Test pit was backfilled with the excavated soil and tamped to grade.							

EARTH ENGINEERS, Inc.

APPENDIX C: TEST PIT TP-4

CLIENT: Heuker Family Lands, LLC	EARTH ENGINEERS, INC. REPORT NO.: 17-225-1
PROJECT: Proposed Commercial Development - Lot 4 POCLBP	EQUIPMENT: Rubber Tracked Bobcat with 2' Toothed Bucket
LOCATION: See Appendix B	APPROXIMATE ELEVATION: -
DATE EXCAVATED: December 7, 2017	LOGGED BY: Daniel Watkins, P.E., G.E.

DEPTH (ft)	SAMPLE NO.	SAMPLE	SOIL DESCRIPTION	Digging Effort	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT (%)	POCKET PEN. (tsf)	REMARKS
1			GP - Medium dense, gray and brown, silty GRAVEL and COBBLES , some sand, moist (FILL)	Moderate						
2										
3			SM - Medium dense, reddish brown and brown, silty SAND , moist (likely FILL)	Moderate						
4										
5	GRAB 1	<input checked="" type="checkbox"/>	SM - Medium dense, reddish brown and gray, silty SAND , moist	Moderate	15			20		
6										
7										
8										
9			SP - Loose to medium dense, gray, coarse SAND , moist	Easy						
10	GRAB 2	<input checked="" type="checkbox"/>			4			14		
11			Test pit terminated at 10 feet bgs. No groundwater encountered at time of exploration. Test pit was backfilled with the excavated soil and tamped to grade.							
12										
13										

EARTH ENGINEERS, Inc.

APPENDIX C: TEST PIT TP-5

CLIENT: Heuker Family Lands, LLC	EARTH ENGINEERS, INC. REPORT NO.: 17-225-1
PROJECT: Proposed Commercial Development - Lot 4 POCLBP	EQUIPMENT: Rubber Tracked Bobcat with 2' Toothed Bucket
LOCATION: See Appendix B	APPROXIMATE ELEVATION: -
DATE EXCAVATED: December 7, 2017	LOGGED BY: Daniel Watkins, P.E., G.E.

DEPTH (ft)	SAMPLE NO.	SAMPLE	SOIL DESCRIPTION	Digging Effort	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT (%)	POCKET PEN. (tsf)	REMARKS
1			GP - Medium dense, silty rounded GRAVEL , some sand, moist (FILL)	Moderate						
2			SP - Medium dense, gray, coarse SAND , some silt, moist	Moderate						
3										
4										
5			GP - Medium dense, gray and brown, GRAVEL and COBBLES , intermittent boulder (1 foot dia), moist	Moderate						
6										
7										
8										
9			Test pit terminated at 8 feet bgs. No groundwater encountered at time of exploration. Test pit was backfilled with the excavated soil and tamped to grade.							
10										
11										
12										
13										

EARTH ENGINEERS, Inc.

APPENDIX C: TEST PIT TP-6

CLIENT: Heuker Family Lands, LLC	EARTH ENGINEERS, INC. REPORT NO.: 17-225-1
PROJECT: Proposed Commercial Development - Lot 4 POCLBP	EQUIPMENT: Rubber Tracked Bobcat with 2' Toothed Bucket
LOCATION: See Appendix B	APPROXIMATE ELEVATION: -
DATE EXCAVATED: December 7, 2017	LOGGED BY: Daniel Watkins, P.E., G.E.

DEPTH (ft)	SAMPLE NO.	SAMPLE	SOIL DESCRIPTION	Digging Effort	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT (%)	POCKET PEN. (tsf)	REMARKS
1			GP - Medium dense, gray and brown, GRAVEL and COBBLES , some sand and silt, moist (FILL)	Moderate						
2										
3			SP - Medium dense, gray, coarse SAND , trace silt, moist	Moderate						
4										PVC pipe and trench @4'
5										
6			GP - Medium dense, gray and brown, GRAVEL , COBBLES , some sand, trace boulders, moist	Difficult						
7			Test pit terminated at 6 feet bgs due to digging refusal. No groundwater encountered at time of exploration. Test pit was backfilled with the excavated soil and tamped to grade.							
8										
9										
10										
11										
12										
13										

EARTH ENGINEERS, Inc.

APPENDIX C: TEST PIT TP-7

CLIENT: Heuker Family Lands, LLC	EARTH ENGINEERS, INC. REPORT NO.: 17-225-1
PROJECT: Proposed Commercial Development - Lot 4 POCLBP	EQUIPMENT: Rubber Tracked Bobcat with 2' Toothed Bucket
LOCATION: See Appendix B	APPROXIMATE ELEVATION: -
DATE EXCAVATED: December 7, 2017	LOGGED BY: Daniel Watkins, P.E., G.E.

DEPTH (ft)	SAMPLE NO.	SAMPLE	SOIL DESCRIPTION	Digging Effort	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT (%)	POCKET PEN. (tsf)	REMARKS
1			GP - Medium dense, gray and brown, GRAVEL and COBBLES , some sand and silt, moist (FILL)	Moderate						
2										
3			SM - Medium dense, gray and reddish brown, silty SAND , moist	Moderate						
4										
5										
6	GRAB 1	X								
7										
8			Test pit terminated at 9 feet bgs. No groundwater encountered at time of exploration. Test pit was backfilled with the excavated soil and tamped to grade.							
9										
10										
11										
12										
13										

EARTH ENGINEERS, Inc.

APPENDIX C: TEST PIT TP-8

CLIENT: Heuker Family Lands, LLC	EARTH ENGINEERS, INC. REPORT NO.: 17-225-1
PROJECT: Proposed Commercial Development - Lot 4 POCLBP	EQUIPMENT: Rubber Tracked Bobcat with 2' Toothed Bucket
LOCATION: See Appendix B	APPROXIMATE ELEVATION: -
DATE EXCAVATED: December 7, 2017	LOGGED BY: Daniel Watkins, P.E., G.E.

DEPTH (ft)	SAMPLE NO.	SAMPLE	SOIL DESCRIPTION	Digging Effort	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT (%)	POCKET PEN. (tsf)	REMARKS
1			TOPSOIL - Soft, brown, silty SAND, roots, moist	Easy						
2			GP - Medium dense, gray and brown, silty GRAVEL and COBBLES, moist (FILL)	Moderate						
3										
4										
5										
6	GRAB 1	X	SM - Medium dense, gray and reddish brown, silty SAND, moist	Moderate	32			21		
7										
8										
9										
10	GRAB 2	X			19			17		
11			Test pit terminated at 10.5 feet bgs. No groundwater encountered at time of exploration. Test pit was backfilled with the excavated soil and tamped to grade.							
12										
13										

EARTH ENGINEERS, Inc.

APPENDIX C: TEST PIT TP-9

CLIENT: Heuker Family Lands, LLC	EARTH ENGINEERS, INC. REPORT NO.: 17-225-1
PROJECT: Proposed Commercial Development - Lot 4 POCLBP	EQUIPMENT: Rubber Tracked Bobcat with 2' Toothed Bucket
LOCATION: See Appendix B	APPROXIMATE ELEVATION: -
DATE EXCAVATED: December 7, 2017	LOGGED BY: Daniel Watkins, P.E., G.E.

DEPTH (ft)	SAMPLE NO.	SAMPLE	SOIL DESCRIPTION	Digging Effort	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT (%)	POCKET PEN. (tsf)	REMARKS
1			FILL - Soft, gray, sandy silt with wood chunks and fibers, damp	Easy						
2										
3										
4										
5			Concrete footing	Difficult						
6			OL - Soft, dark gray, organic SILT, wood debris, strong organic smell, moist to wet (FILL)							
7										
8										
9										
10			Test pit terminated at 9 feet bgs. No groundwater encountered at time of exploration. Test pit was backfilled with the excavated soil and tamped to grade.							
11										
12										
13										

EARTH ENGINEERS, Inc.

APPENDIX C: TEST PIT TP-10

CLIENT: Heuker Family Lands, LLC	EARTH ENGINEERS, INC. REPORT NO.: 17-225-1
PROJECT: Proposed Commercial Development - Lot 4 POCLBP	EQUIPMENT: Rubber Tracked Bobcat with 2' Toothed Bucket
LOCATION: See Appendix B	APPROXIMATE ELEVATION: -
DATE EXCAVATED: December 7, 2017	LOGGED BY: Daniel Watkins, P.E., G.E.

DEPTH (ft)	SAMPLE NO.	SAMPLE	SOIL DESCRIPTION	Digging Effort	% PASSING #200 SIEVE	LIQUID LIMIT	PLASTIC LIMIT	MOISTURE CONTENT (%)	POCKET PEN. (tsf)	REMARKS
1			TOPSOIL - Soft, brown, silty SAND, roots, moist	Easy						
2			FILL - Soft, gray, sandy SILT, organics (wood), trash,	Easy						
3										
4										
5										
6										
7			OL - Soft, dark gray, organic SILT, wood debris, strong organic smell, moist to wet (FILL)	Easy						
8										
9			Test pit terminated at 8 feet bgs. No groundwater encountered at time of exploration. Test pit was backfilled with the excavated soil and tamped to grade.							
10										
11										
12										
13										

EARTH ENGINEERS, Inc.

APPENDIX D: SOIL CLASSIFICATION LEGEND

APPARENT CONSISTENCY OF COHESIVE SOILS (PECK, HANSON & THORNBURN 1974, AASHTO 1988)

Descriptor	SPT N ₆₀ (blows/foot)*	Pocket Penetrometer, Qp (tsf)	Torvane (tsf)	Field Approximation
Very Soft	< 2	< 0.25	< 0.12	Easily penetrated several inches by fist
Soft	2 – 4	0.25 – 0.50	0.12 – 0.25	Easily penetrated several inches by thumb
Medium Stiff	5 – 8	0.50 – 1.0	0.25 – 0.50	Penetrated several inches by thumb w/moderate effort
Stiff	9 – 15	1.0 – 2.0	0.50 – 1.0	Readily indented by thumbnail
Very Stiff	16 – 30	2.0 – 4.0	1.0 – 2.0	Indented by thumb but penetrated only with great effort
Hard	> 30	> 4.0	> 2.0	Indented by thumbnail with difficulty

* Using SPT N₆₀ is considered a crude approximation for cohesive soils.

APPARENT DENSITY OF COHESIONLESS SOILS (AASHTO 1988)

Descriptor	SPT N ₆₀ Value (blows/foot)
Very Loose	0 – 4
Loose	5 – 10
Medium Dense	11 – 30
Dense	31 – 50
Very Dense	> 50

MOISTURE (ASTM D2488-06)

Descriptor	Criteria
Dry	Absence of moisture, dusty, dry to the touch, well below optimum moisture content (per ASTM D698 or D1557)
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table, well above optimum moisture content (per ASTM D698 or D1557)

PERCENT OR PROPORTION OF SOILS (ASTM D2488-06)

Descriptor	Criteria
Trace	Particles are present but estimated < 5%
Few	5 – 10%
Little	15 – 25%
Some	30 – 45%
Mostly	50 – 100%

Percentages are estimated to nearest 5% in the field. Use "about" unless percentages are based on laboratory testing.

SOIL PARTICLE SIZE (ASTM D2488-06)

Descriptor	Size
Boulder	> 12 inches
Cobble	3 to 12 inches
Gravel - Coarse Fine	¾ inch to 3 inches No. 4 sieve to ¾ inch
Sand - Coarse Medium Fine	No. 10 to No. 4 sieve (4.75mm) No. 40 to No. 10 sieve (2mm) No. 200 to No. 40 sieve (.425mm)
Silt and Clay ("fines")	Passing No. 200 sieve (0.075mm)

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D2488)

Major Division		Group Symbol	Description	
Coarse Grained Soils (more than 50% retained on #200 sieve)	Gravel (50% or more retained on No. 4 sieve)	Clean Gravel	GW Well-graded gravels and gravel-sand mixtures, little or no fines	
			GP Poorly graded gravels and gravel-sand mixtures, little or no fines	
		Gravel with fines	GM Silty gravels and gravel-sand-silt mixtures	
			GC Clayey gravels and gravel-sand-clay mixtures	
	Sand (> 50% passing No. 4 sieve)	Clean sand	SW Well-graded sands and gravelly sands, little or no fines	
			SP Poorly-graded sands and gravelly sands, little or no fines	
		Sand with fines	SM Silty sands and sand-silt mixtures	
			SC Clayey sands and sand-clay mixtures	
		Fine Grained Soils (50% or more passing #200 sieve)	Silt and Clay (liquid limit < 50)	ML Inorganic silts, rock flour and clayey silts
				CL Inorganic clays of low-medium plasticity, gravelly, sandy & lean clays
OL Organic silts and organic silty clays of low plasticity				
MH Inorganic silts and clayey silts				
CH Inorganic clays or high plasticity, fat clays				
Silt and Clay (liquid limit > 50)	OH Organic clays of medium to high plasticity			
	PT Peat, muck and other highly organic soils			
Highly Organic Soils				



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GRAPHIC SYMBOL LEGEND

GRAB		Grab sample
SPT		Standard Penetration Test (2" OD), ASTM D1586
ST.		Shelby Tube, ASTM D1587 (pushed)
DM		Dames and Moore ring sampler (3.25" OD and 140-pound hammer)
CORE		Rock coring

APPENDIX E

SURCHARGE-INDUCED LATERAL EARTH PRESSURES FOR WALL DESIGN

APPENDIX E: SURCHARGE-INDUCED LATERAL EARTH PRESSURES FOR WALL DESIGN

LINE LOAD (applicable for retaining walls not exceeding 20 feet in height):

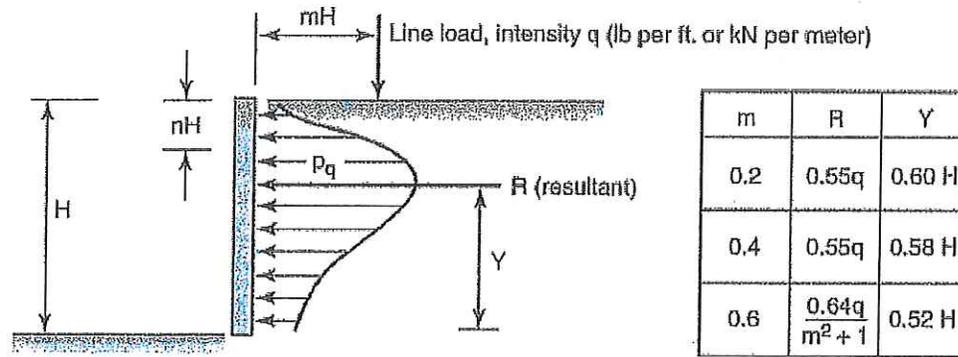


Figure 16-28 Pressure distribution against vertical wall resulting from line load of intensity q.

CONCENTRATED POINT LOAD (applicable for retaining walls not exceeding 20 feet in height):

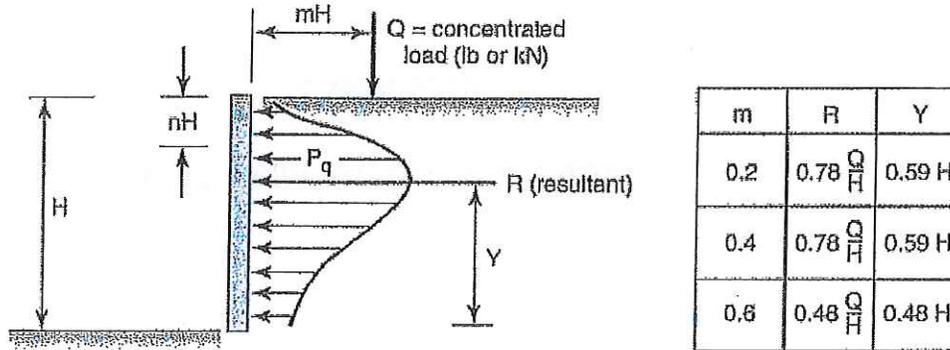


Figure 16-27 Pressure distribution against vertical wall resulting from point load, Q.

AREAL LOAD:

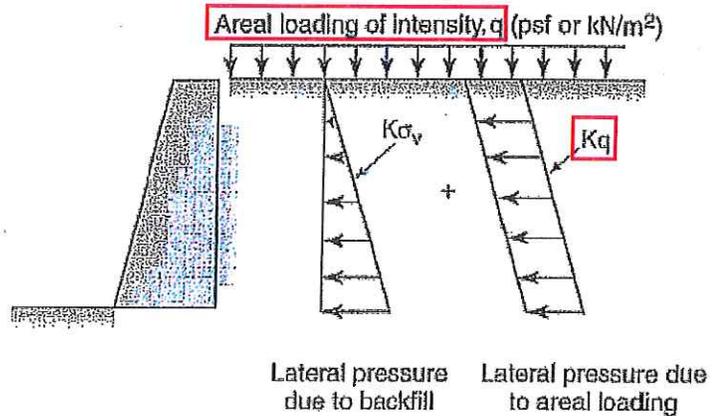
Figure 16-26 Influence of areal loading on wall pressures.

use K=0.4 for active condition
(i.e. top of wall allowed to
deflect laterally)

use K=0.9 for at-rest condition
(i.e. top of wall not allowed to
deflect laterally)

Resultant, $R = K * q * H$

Where H = wall height (feet)



Source of Figures: McCarthy, D.F., 1998, "Essentials of Soil Mechanics and foundations, Basic Geotechnics, Fifth Edition."



**Proposed Commercial Development - Heuker
Lot 4 – The Port of Cascade Locks Business Park
Cascade Locks, Hood River County, Oregon**

**EEl Project No.
17-225-1**

December 18, 2017

APPENDIX F
HISTORICAL WATER WELL LOG

HOOD

NOTICE TO WATER WELL CONTRACTOR

The original and first copy of this report are to be filed with the

RECEIVED

WATER WELL REPORT 348

STATE ENGINEER, SALEM, OREGON 20 1965 STATE OF OREGON (Please type or print)

State Well No. 2N/8-5M1

State Permit No.

(1) OWNER: SALEM, OREGON Name Cascade Locks Lumber Co. Address Cascade Lock, Oregon

(2) LOCATION OF WELL: County Hood River Driller's well number 1/4 Section 5 T. 2 N. 8 E. W.M. Bearing and distance from section or subdivision corner

(3) TYPE OF WORK (check): Well [X] Deepening [] Reconditioning [] Abandon [] Abandonment, describe material and procedure in Item 12.

(4) PROPOSED USE (check): Domestic [] Industrial [X] Municipal [] Irrigation [] Test Well [] Other [] (5) TYPE OF WELL: Rotary [] Driven [] Cable [X] Jetted [] Dug [] Bored []

(6) CASING INSTALLED: Threaded [] Welded [X] 8" Diam. from 0 ft. to 15 ft. Gage 1.250

(7) PERFORATIONS: Perforated? [] Yes [X] No Type of perforator used Size of perforations in, by in. perforations from ft. to ft.

(8) SCREENS: Well screen installed? [] Yes [X] No Manufacturer's Name Model No. Slot size Set from ft. to ft. Diam. Slot size Set from ft. to ft.

(9) CONSTRUCTION: Well seal—Material used in seal Cement and sand Depth of seal 15 ft. Was a packer used? no Diameter of well bore to bottom of seal 10 in. Were any loose strata cemented off? [] Yes [X] No Depth Was a drive shoe used? [X] Yes [] No Was well gravel packed? [] Yes [X] No Size of gravel: Gravel placed from ft. to ft. Did any strata contain unusable water? [] Yes [X] No Type of water? depth of strata Method of sealing strata off

(10) WATER LEVELS: Static level 27 ft. below land surface Date Artesian pressure lbs. per square inch Date

(11) WELL TESTS: Drawdown is amount water level is lowered below static level Was a pump test made? [] Yes [X] No If yes, by whom? Yield: gal./min. with ft. drawdown after hrs. Baller test 20 gal./min. with 39 ft. drawdown after 3 hrs. Artesian flow g.p.m. Date Temperature of water Was a chemical analysis made? [] Yes [X] No

(12) WELL LOG: Diameter of well below casing 8 Depth drilled 78 ft. Depth of completed well 78 ft. Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

Table with columns MATERIAL, FROM, TO. Rows include Top Soil (1-10), Boulders (10-14), Rock, grey (14-34), Gravel, cemented (34-36), Rock, hard (36-76), Rock, black, water bearing (76-78).

Work started 19 Completed Sept. 14 1962 Date well drilling machine moved off of well 18

(13) PUMP: Manufacturer's Name Type: H.P.

Water Well Contractor's Certification: This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME HAAKON BOTTNER DRILLING COMPANY 1964 (Person, firm or corporation) Address 3424 S.E. 174th. AVE. Portland Ore.

Drilling Machine Operator's License No. [Signed] H. Bottner (Water Well Contractor) Contractor's License No. 109 Date April 28, 1965

