APPENDIX E

GEOTECHNICAL AND GEOHAZARD NARRATIVE

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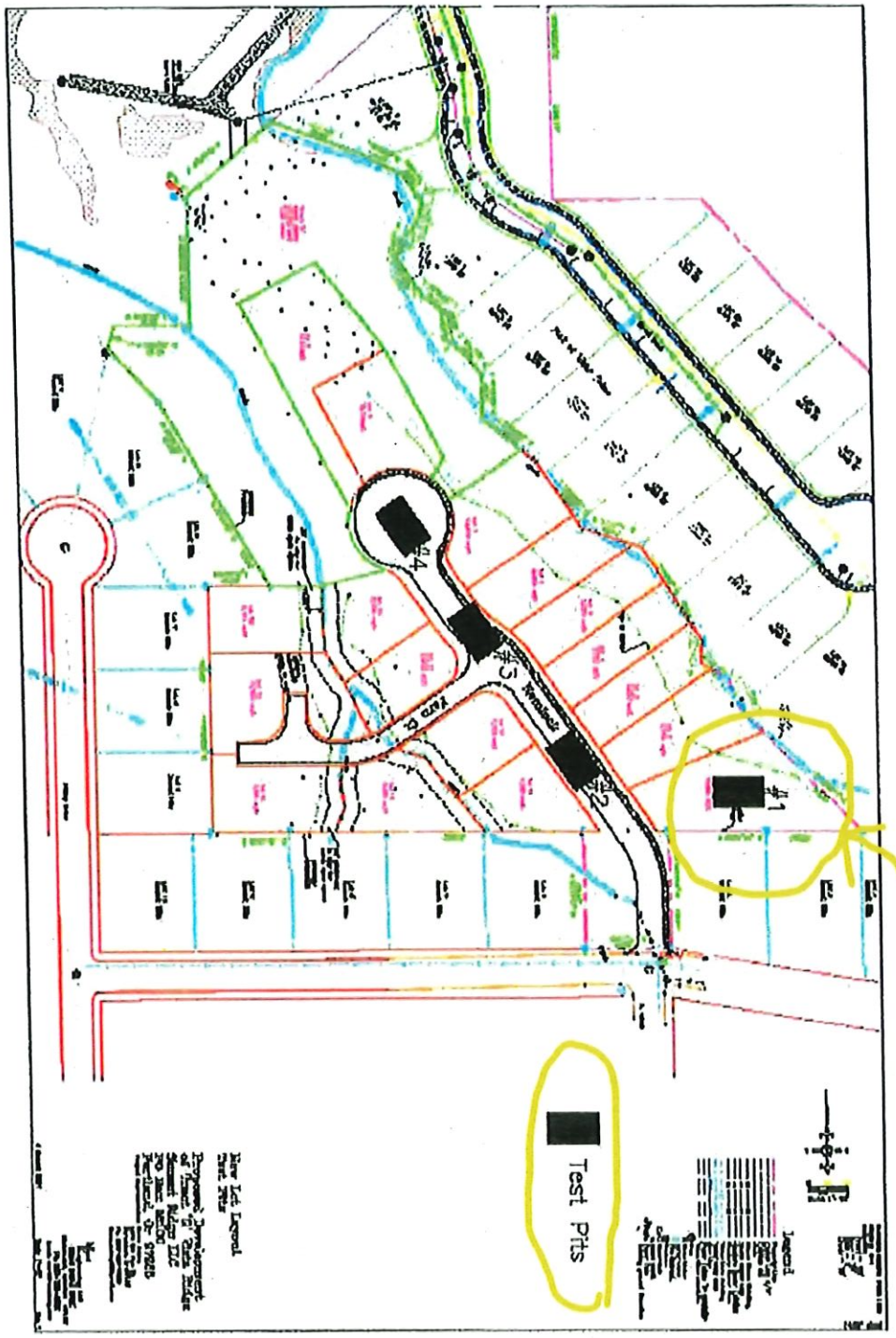


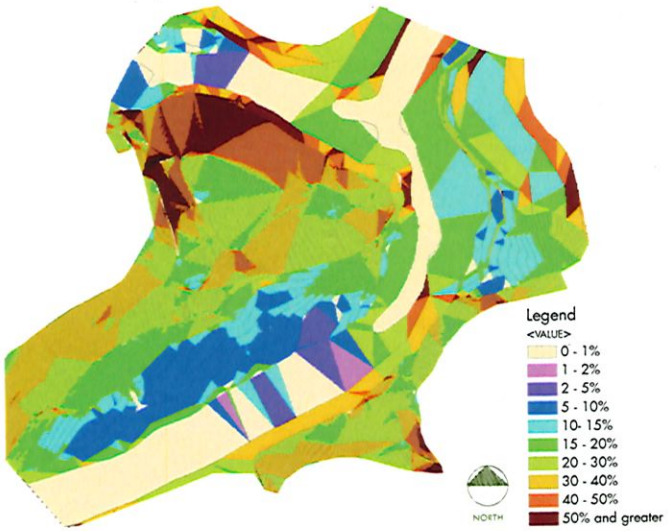
Mark M. Mead
Professional Engineer Oregon 12181, Hawaii 7492, Washington 49698
Geotechnical Engineer Oregon 12181
Professional Land Surveyor Oregon 2259
Oregon Structural Inspector #2555SIA
Oregon Structural Plans Examiner #2554PEA
OIC-OR Inspector Certification #OIC2587

	Client:	BORING LOG
	Project:	Well No. SB-TEST
	Address:	Page: 1 of 1

Drilling Start Date:		Boring Depth (ft):	20.0
Drilling End Date:		Boring Diameter (in):	8
Drilling Company:		Sampling Method(s):	CO, SS
Drilling Method:		DTW During Drilling (ft):	10.0
Drilling Equipment:		DTW After Drilling (ft):	8.0
Driller:		Ground Surface Elev.(ft):	102.15
Logged By:		Location (X,Y):	112,121800, 36,055300

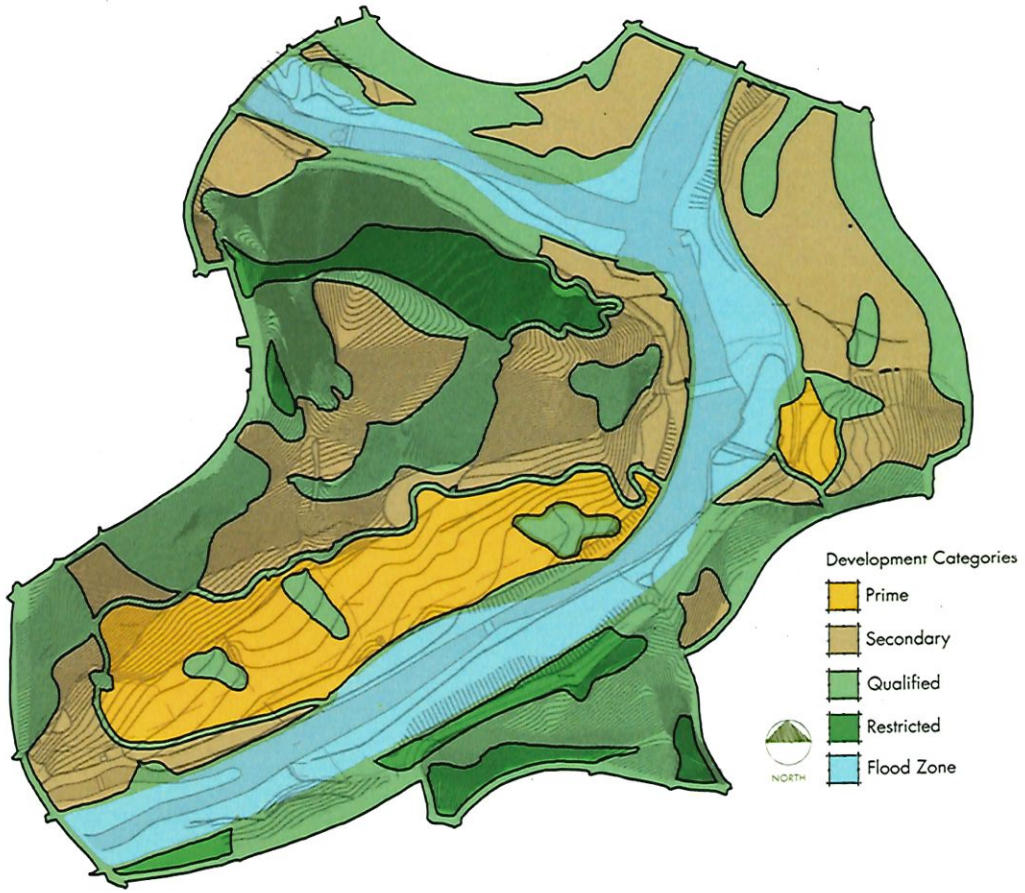
DEPTH (ft.)	LITHOLOGY	WATER LEVEL	BORING COMPETION	COLLECT: Sample Type	Time	Blow Counts	Recovery (ft)	N value RQD%	SOIL/ROCK VISUAL DESCRIPTION	REMARKS	DEPTH (ft.)
0									(0.0') CONCRETE		0
				SS	08:15	2 2 3	1.5	5	(1.0') Silty SAND (SM); mostly fine grained sand, trace fine gravel, some silt, loose, dry, light brown (1.0') SILT (ML); trace fine sand, mostly silt, trace clay, low plasticity, hard, wet, very dark gray	(1.0') PID = 0.0 ppm	
5				SS	08:30	5 6 7	0.5	13	(5.0') Lean CLAY (CL); few fine-medium sand, trace silt, mostly clay, medium plasticity, stiff, moist, very dark greenish-gray, slight odor	(5.0') S-5' Soil (5.0') PID = 10.0 ppm	5
10				SS	08:45	10 15 20	1.0	35	(10.0') SILT (ML); trace fine sand, mostly silt, trace clay, low plasticity, hard, wet, very dark gray, slight odor	(10.0') S-10' Soil (10.0') Pocket Pen = 5.0 TSF	10
15				SS	09:00	20 25 30	1.5	55	(15.0') ORGANIC SOIL (OL); trace silt, medium plasticity, hard, saturated, black, sheen, strong odor		15
				CO	09:15		1.5	80	(16.5') IGN ROCK (DIORITE); fine grained, massive, fresh, very hard, slightly fractured, dark gray	(16.5') rough drilling - top of rock? (16.6') Joint: 0.5 in Spacing (True); Surface (Planar); Filling (Iron Oxide); (group of joints) (18.0') R-18' Rock	
20											20

NOTES: Hole precleared to 5' on 10/13/2015 08:00 by Borehole Clear Co. using Hand Auger.



SLOPE ANALYSIS

VEGETATION SUITABILITY



FINAL COMPOSITE ANALYSIS

Studies were conducted of the Riparian Corridors of the Sumaoping and Ganken River, slope aspects related to feng shui, vegetation growth to determine quantity and quality, and slopes to identify construction suitability. Individual composite drawings were overlaid resulting in a final diagram showing areas of prime, secondary, qualified and restricted site potential.

KEY

Cut	Fill
Cut Depth 0.0m to 0.5m	Fill Depth 0.0m to 0.5m
Cut Depth 0.5 to 1.0m	Fill Depth 0.5 to 1.0m
Cut Depth 1.0m to 1.5m	Fill Depth 1.0m to 1.5m
Cut Depth 1.5m to 2.0m	Fill Depth 1.5m to 2.0m
Cut Depth 2.0m to 2.5m	Fill Depth Over 2.0m
Cut Depth 2.5m to 3.0m	
Cut Depth Over 3.0m	

NOTE: Contour interval is 0.5 metre.
Levels in terms of OIT XIVa SO 24437, RL 408.31

REV.	DATE:	REVISION DETAILS:	BY:
C	25/7/17	Title altered	SML
B	20/7/17	Design updated	SML
A	27/6/17	Initial release	SML

TITLE: EARTHWORKS - STAGE 1
ORIGINAL GROUND TO CONSTRUCTION SURFACE
ALRV - SH160141

DATE: 27 June 2017
BY: Sam Lynds

Scale 1:750
Original Plan A3

DRAWING & ISSUE No.
4190.13E.3C

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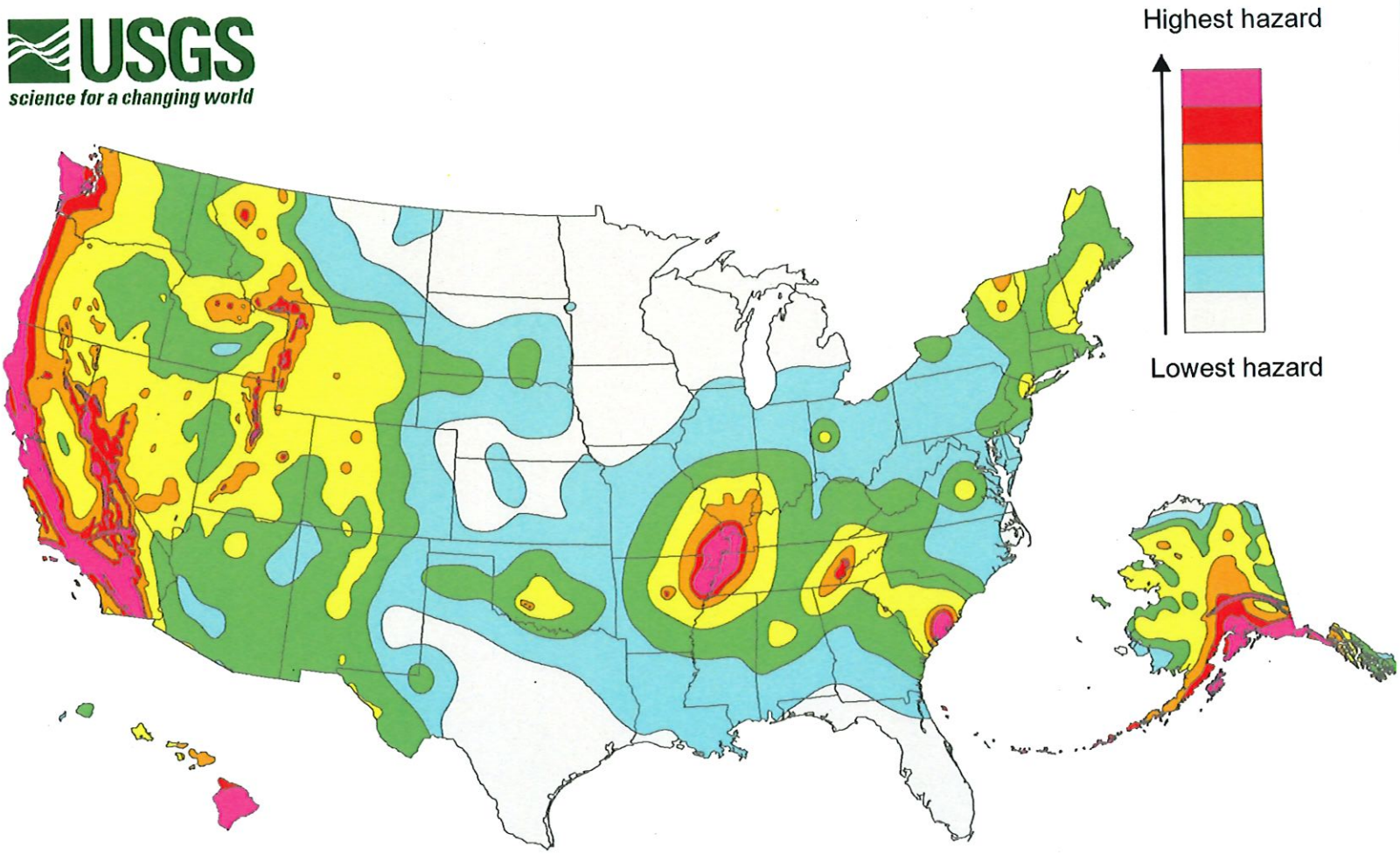
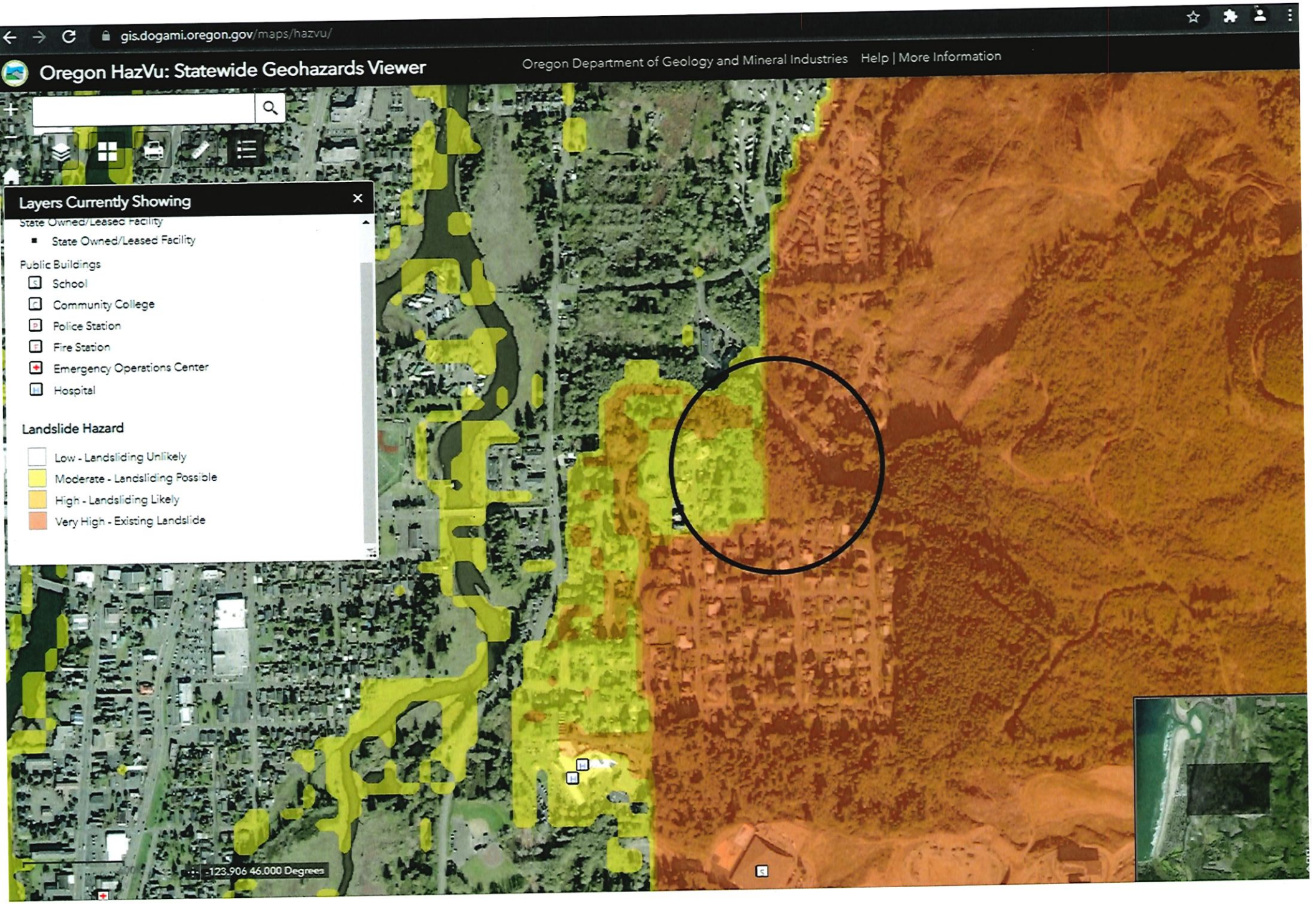
USGS
science for a changing world




gis.dogami.oregon.gov/maps/hazvu/
Oregon HazVu: Statewide Geohazards Viewer
Oregon Department of Geology and Mineral Industries
Help | More Information
Layers Currently Showing
State Owned/Leased Facility
State Owned/Leased Facility
Public Buildings
School
Community College
Police Station
Fire Station
Emergency Operations Center
Hospital
Landslide Hazard
Low - Landsliding Unlikely
Moderate - Landsliding Possible
High - Landsliding Likely
Very High - Existing Landslide
-123.906 46.000 Degrees

OSHPD

35 Hilltop Dr, Seaside, OR 97138, USA

Latitude, Longitude: 45.9936044, -123.9090361

Date	10/13/2021, 9:28:24 AM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	D - Default (See Section 11.4.3)

Type	Value	Description
S_S	1.289	MCE_R ground motion. (for 0.2 second period)
S_1	0.677	MCE_R ground motion. (for 1.0s period)
S_{MS}	1.546	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	1.031	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1.2	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.647	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.777	Site modified peak ground acceleration
T_L	16	Long-period transition period in seconds
SsRT	1.289	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	1.495	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.859	Factored deterministic acceleration value. (0.2 second)
S1RT	0.677	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.793	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.967	Factored deterministic acceleration value. (1.0 second)
PGAd	0.874	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.862	Mapped value of the risk coefficient at short periods
C_{R1}	0.854	Mapped value of the risk coefficient at a period of 1 s