



Whipple Consulting Engineers, Inc.

September 22, 2025
W.O. No. 2024-3776

Liberty Lake Planning, Engineering & Building Services
22710 E. Country Vista Drive
Liberty Lake, WA 99019
Attn: Lisa Key, Director/Planner

**Re: Legacy Ridge West – A Residential Subdivision (2014.PL0003)
Reasonable Use Exception – Response to Comments from July 7, 2025**

Dear Ms. Key:

Greetings, thank you for your comments from early July, 2025 and additional clarification comments in early September, WCE in conjunction with Budinger have worked toward answering these comments noted below, which are copied from an email chain dated July 7, 2025. *WCE responses are in bold underlined italics.*

That said, we (*City of Liberty Lake*) offer the following comments:

- The current plans show the roadway profile grades steeper than the City's design standards (8.0%) in many locations. The plans should be modified to our current standards to show accurately what grading will be required in the geohazard areas. If grades or any other design standards cannot be met, it should be discussed and justified in the RUE request.

Upon receipt of this comment, we revised all new roadway profiles to no more than 8.0-percent slope, see grading plans attached. Since this comment post dated the response letter we received from Budinger, attached, we sent the revised grading plans to Budinger to see if it would materially change their report, the response is attached, but Budinger states no change to the updated report. It should be noted that Valley Vista Drive was approved and installed in a previous time in order to install water and sewer. The slope on this roadway will not be changed and since it was a previously approved plan, no design deviation is included.

- After the grading plan is revised, Budinger needs to review the most recent grading plan and modify their Geohazard Evaluation and Engineering Report accordingly (all of their reports are currently based on old plans). They can make the judgement call whether they have enough data with the previous explorations or whether additional exploration is needed. This is not only for the western part of the site, but also for the NE and SE portions of the site that were changed after Budinger's original report/exploration.

See the attached Budinger report and email commentary, their report and commentary are up to date with the current proposed grading plan.

- In order for me to make the required finding detailed in City Development Code 10-6B-2(B)(1)(c), the revised Geotech Engineer needs to make a finding in their report that the proposed construction “will not result in any damage to other property and will not threaten the public health, safety, or welfare on or off the property”, This statement can be conditioned on specific geo-hazard mitigations as may be identified by the engineer stamping the Geohazard Evaluation and Engineering Report.

The following statement is from the Budinger Letter of July 24, 2025, attached to this response.

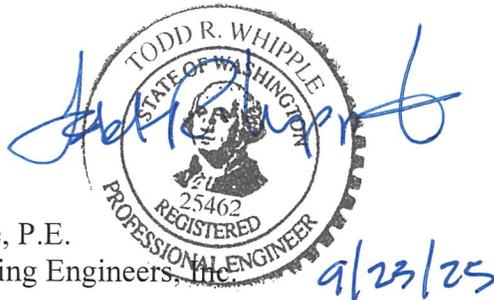
Closing

Provided the GEOR is retained to confirm that conditions anticipated are actually encountered during construction, and the recommendations in the previous geotechnical reports are implemented, we conclude that the proposed improvements are not expected to result in damages to existing properties outside of the site and will not threaten the public health, safety, or welfare on or off the property.

Based on the responses above and the attachments, we respectfully urge and request that the City of Liberty Lake approve this Reasonable Use Exception, confident that it aligns with the City’s goals and broader regional needs. We are committed to addressing any additional conditions or requirements to ensure this development succeeds as a safe, sustainable, and community-enhancing project.

If you have any questions or comments regarding this letter, please feel free to contact us at (509) 893-2617.

Respectfully,



Todd R. Whipple, P.E.
Whipple Consulting Engineers, Inc
TRW/trw

CC: File
Sponsor

TECHNICAL MEMORANDUM

To: Whipple Consulting Engineers (WCE), Inc.
Todd R. Whipple, PE, President

From: Budinger & Associates, Inc.
Jason Pritzl, LG
John Finnegan, PE

Date: July 24, 2025

Project: Legacy Phase F
Liberty Lake, WA
BAI# S241121

Subject: Review of Updated Grading Plans



7/24/2025

This memorandum addresses our opinions and limited recommendations pertaining to feasibility of the site to support the proposed improvements.

Project Considerations

We previously completed geotechnical evaluations of the 93-acre site including the following:

- *Geotechnical Engineering Report, Legacy Ridge F*, dated April 9, 2022;
- *Geohazard Evaluation Report, Legacy Phase F*, dated December 23, 2024; and,
- *Geotechnical Engineering Report, Legacy Ridge Phase F*, dated February 28, 2025.

In the time since the previous geotechnical evaluations were completed, adjustments have been made to the proposed road alignments and lot configurations as shown in plans provided by WCE, dated May 15, 2025, and the attached *Figures R2-1 to R2-3*. We understand City of Liberty Lake (COLL) requires review of updated plans by the geotechnical engineer of record (GEOR) prior to granting a *Reasonable Use Exception* as defined in *COLL Development Code Title 10-6B-2(B)*.

Discussion

Current plans show Road A as a singular alignment generally in a southwest/northeast orientation with one switchback instead of the two north/south oriented alignments previously proposed. The alignment for Road B has been straightened and extended approximately 500 feet to the east. The length of Road C will be nearly half of that previously proposed, and the alignment has been shifted slightly to the east in the southeast corner of the site. The alignment of Valley Vista Drive appears to be unchanged. Proposed maximum cut and fill thicknesses will be slightly greater at approximately 44 and 22 feet, respectively. The number of lots has been reduced, and lot sizes increased from an average of 0.2 acres originally proposed to 0.5 acres or greater.

In our opinion, the current plans appear to offer greater benefit to the project than previous drawings, at least from a geotechnical perspective. The total length of proposed roadway within the site has been decreased by approximately 100 feet, and the alignments are configured in a manner that complements the natural contours of the site. Reconfiguration of the design has resulted in a decrease of total cut and fill quantities required for construction – approximately 83,700 and 17,100 cubic yards, respectively.

Although the maximum cut/fill thicknesses increased, the maximum permanent slope inclination is still proposed as 2H:1V. The increase to lots sizes may result in lesser square footage of impermeable surfaces constructed, therefore likely decreasing the volume of stormwater runoff that will need to be treated and disposed of.

Closing

Provided the GEOR is retained to confirm that conditions anticipated are actually encountered during construction, and the recommendations in the previous geotechnical reports are implemented, we conclude that the proposed improvements are not expected to result in damages to existing properties outside of the site and will not threaten the public health, safety, or welfare on or off the property.

Attached is a document titled “*Important Information About Your Geotechnical Engineering Report,*” which we recommend you review carefully to better understand the context within which these services were completed.

Thank you for the opportunity to provide these services.

Attachments:

Figure R1: Vicinity Map

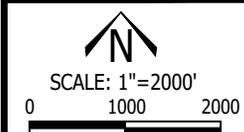
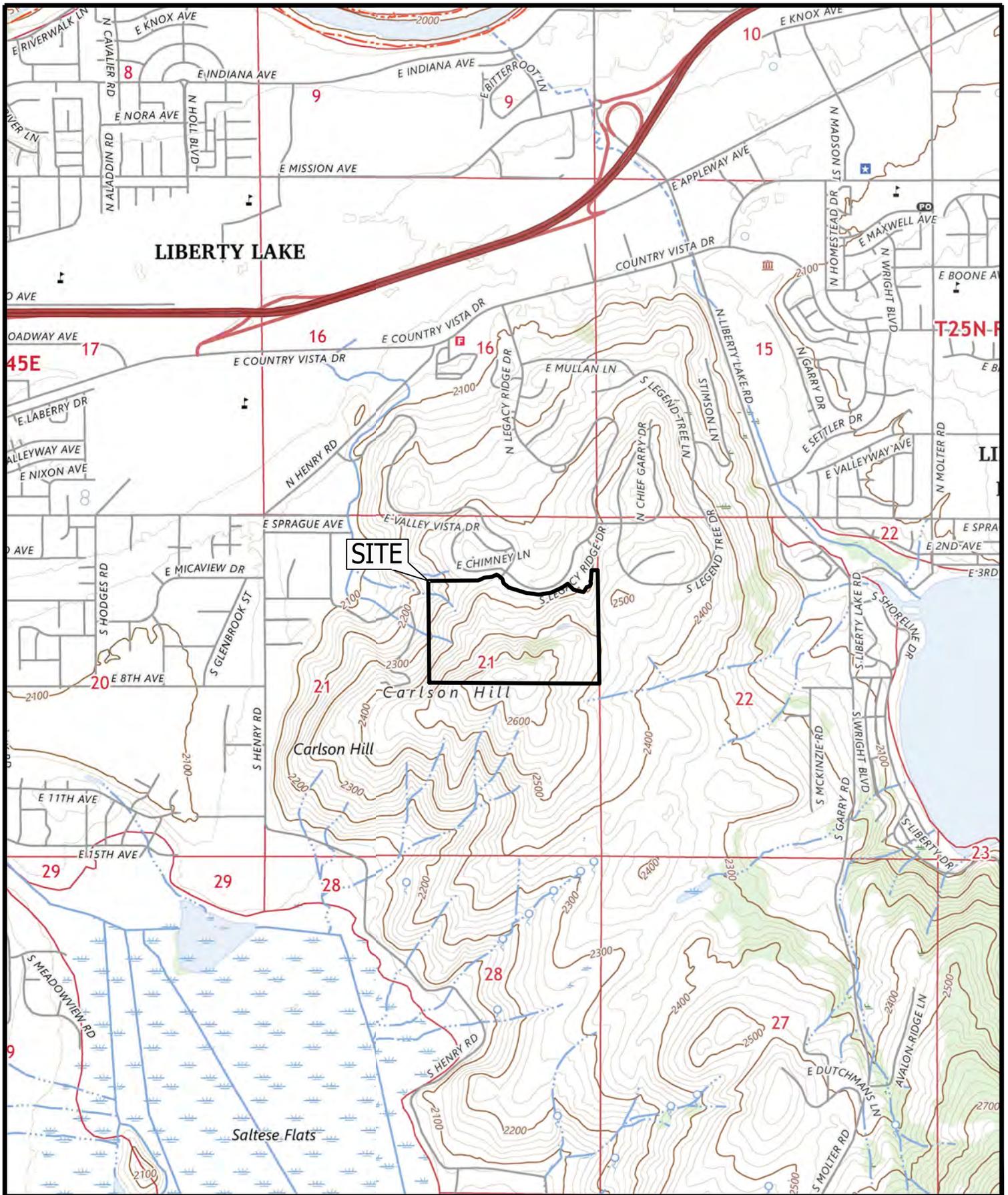
Figures R2-1 to R2-3: Site Plans

Figures R3-1 to R3-6: Profiles

Appendix A: S211189 Legacy Ridge Phase F – Subsurface Exploration Logs

Appendix B: S241121 Legacy Phase F – Subsurface Exploration Logs

Appendix C: GBC - *Important Information about This Geotechnical-Engineering Report*



SECTION 21
T 25 N R 45 E
USGS 2023



Budinger
& Associates

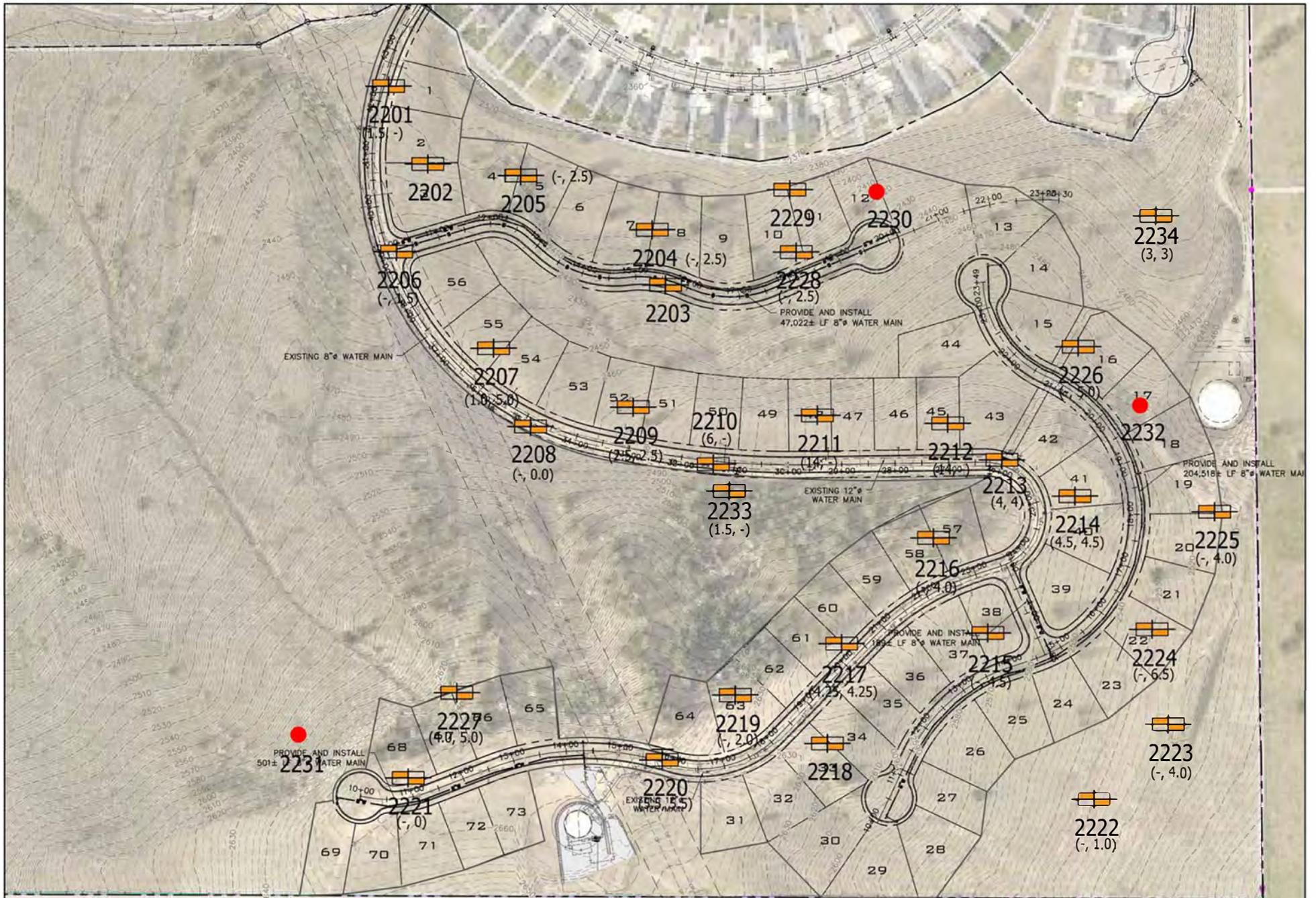
VICINITY MAP

LEGACY PHASE F
LIBERTY LAKE, WASHINGTON

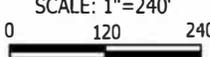
FIGURE R1

PROJECT NUMBER S241121

DATE: 7/2025



 TEST PIT LOCATION
 DCP LOCATION
 (2.5, 8.5) DEPTH OF FILL, DEPTH TO ROCK (FEET)

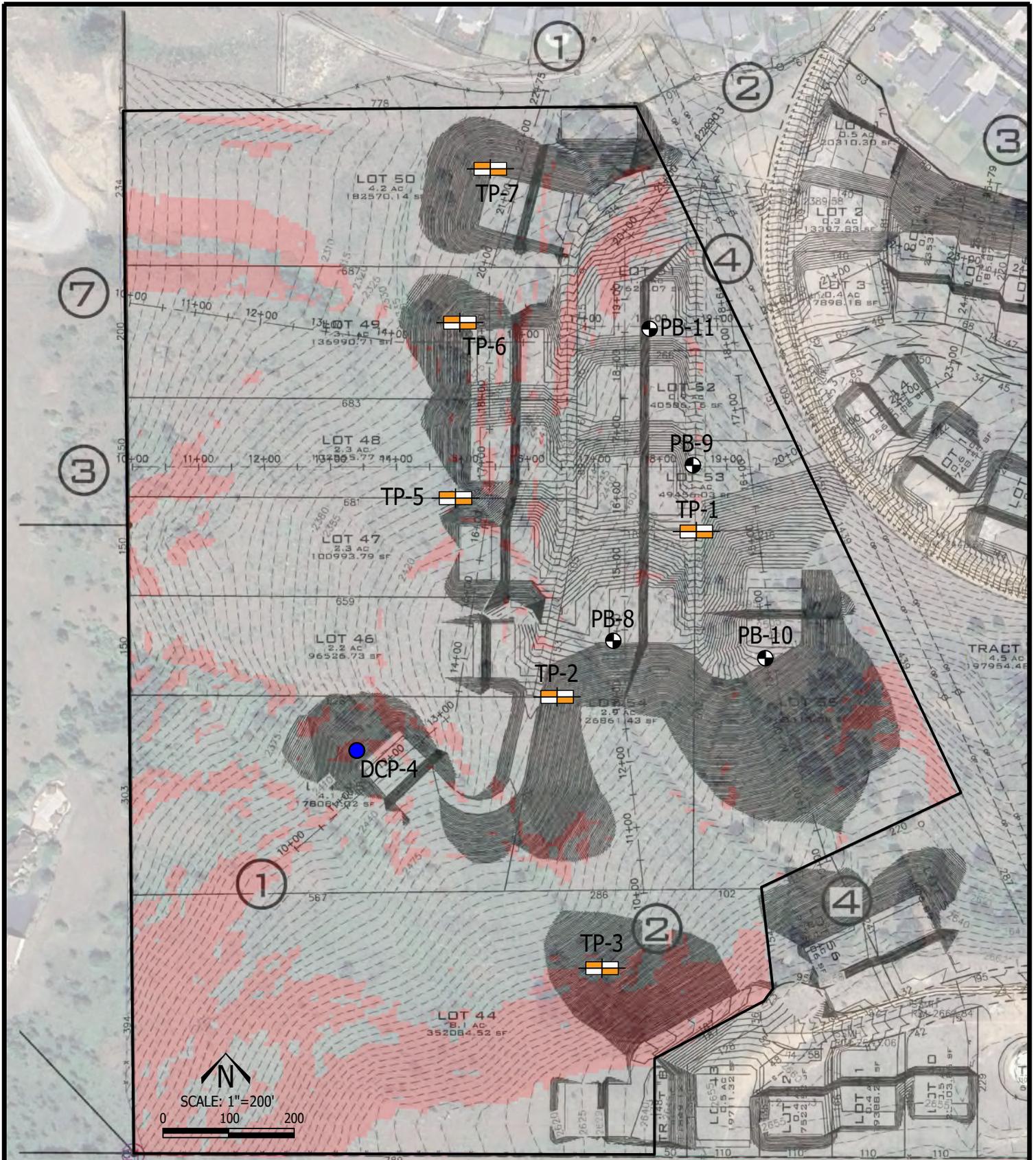

 SCALE: 1"=240'


BASE PLAN PROVIDED BY
 WCE DATED 3/04/22
 AERIAL IMAGERY PROVIDED
 BY MAPSPOKANE


Budinger
 & Associates

PREVIOUS SITE PLAN
 LEGACY RIDGE PHASE F
 LIBERTY LAKE, WASHINGTON

FIGURE R2-1
 PROJECT NUMBER S211189
 DATE: 6/2022



BASE PLAN PROVIDED BY WCE (DATED 7/17/2024)
 SATELLITE IMAGERY PROVIDED BY GOOGLE EARTH (DATED 5/12/2024)

	PROBE BORING LOCATION (PB-8)
	TEST PIT LOCATION (TP-1)
	DYNAMIC CONE PENETROMETER LOCATION (DCP-4)
AREAS LIGHTLY SHADED RED INDICATE SLOPES 40 PERCENT OR GREATER	



**Budinger
& Associates**

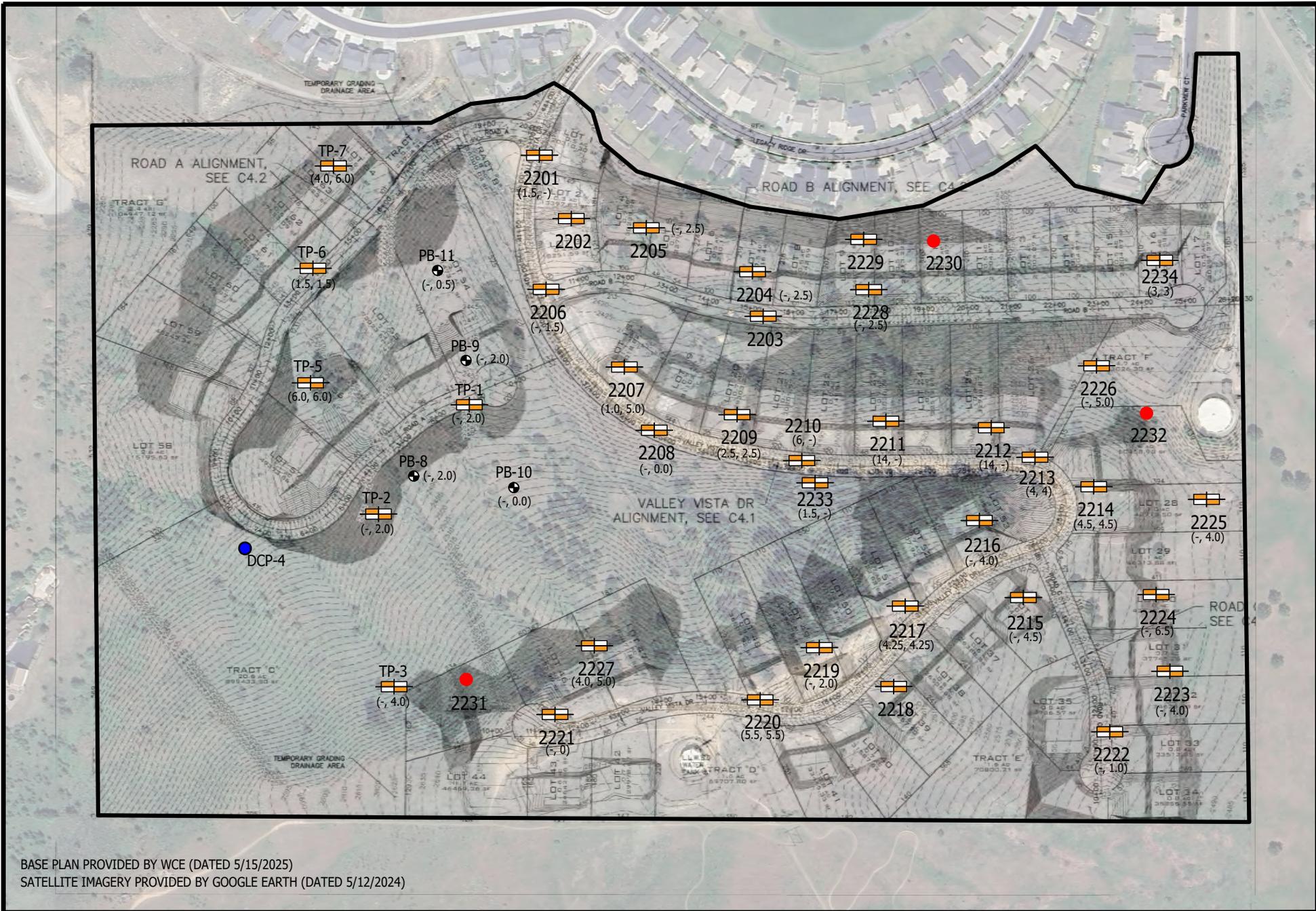
PREVIOUS SITE PLAN

LEGACY PHASE F
 LIBERTY LAKE, WASHINGTON

FIGURE R2-2

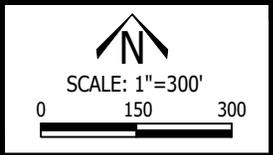
PROJECT NUMBER S241121

DATE: 2/2025



BASE PLAN PROVIDED BY WCE (DATED 5/15/2025)
 SATELLITE IMAGERY PROVIDED BY GOOGLE EARTH (DATED 5/12/2024)

	TEST PIT LOCATION
(2.5, 8.5)	DEPTH OF EXISTING FILL, DEPTH TO ROCK (FEET)
	WILDCAT DCP LOCATION
	KESSLER DCP LOCATION



Budinger & Associates

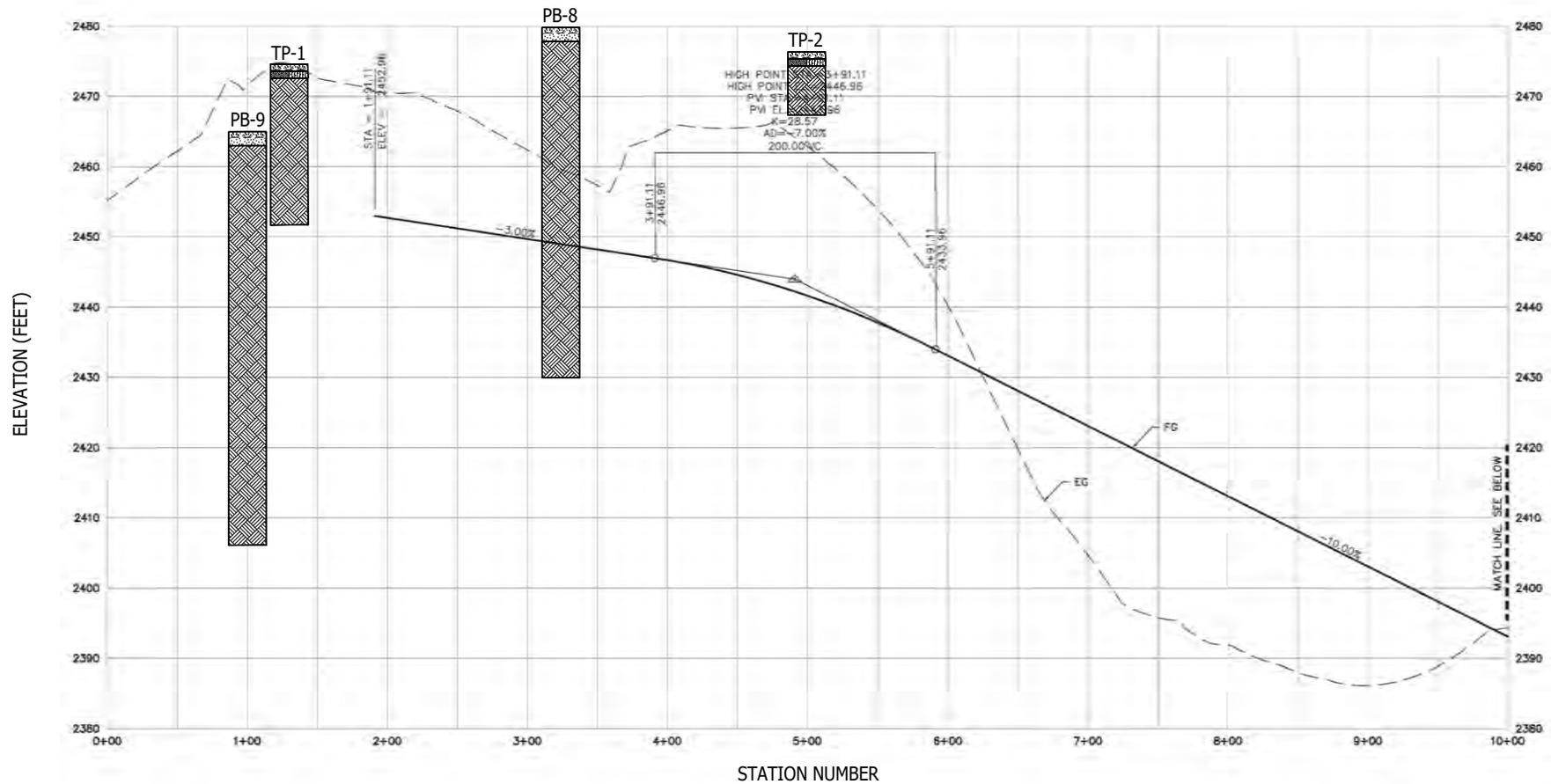
SITE PLAN

LEGACY PHASE F
 LIBERTY LAKE, WASHINGTON

FIGURE R2-3

PROJECT NUMBER S241121

DATE: 7/2025



LITHOLOGY GRAPHICS

-  TOPSOIL
-  SILTY SAND
-  GNEISS

EXPLORATION OFFSETS FROM STA CENTERLINE

- TP-2: 95 FEET LEFT
- PB-9: 70 FEET RIGHT
- PB-8: 95 FEET LEFT

HORIZONTAL SCALE: 1"=120'



VERTICAL EXAGGERATION 5X



Budinger & Associates

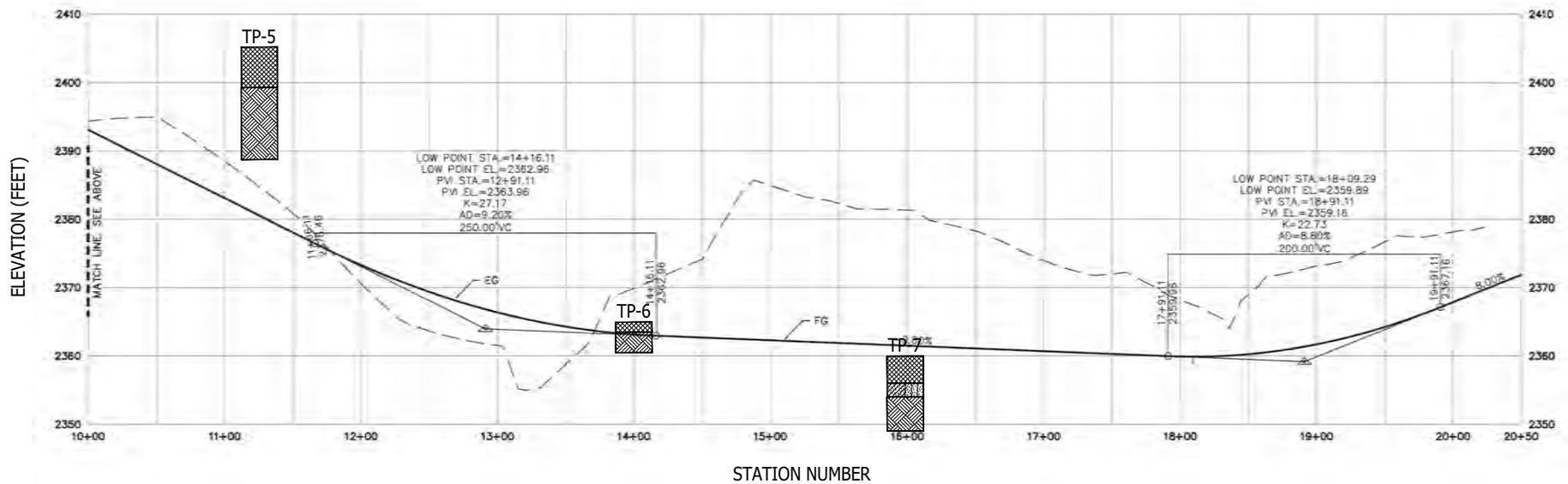
ROAD A PROFILE STA 0+00 - 10+00

LEGACY PHASE F
LIBERTY LAKE, WASHINGTON
BASED ON PLANS PROVIDED BY WCE (DATED 5/15/2025)

FIGURE R3-1

PROJECT NUMBER S241121

DATE: 7/2025



LITHOLOGY GRAPHICS

- EXISTING FILL
- SILTY SAND
- GNEISS

EXPLORATION OFFSETS FROM STA CENTERLINE

- TP-5: 110 FEET RIGHT
- TP-7: 155 FEET LEFT
- TP-6: 30 FEET LEFT

HORIZONTAL SCALE: 1"=120'



VERTICAL EXAGGERATION 5X



Budinger & Associates

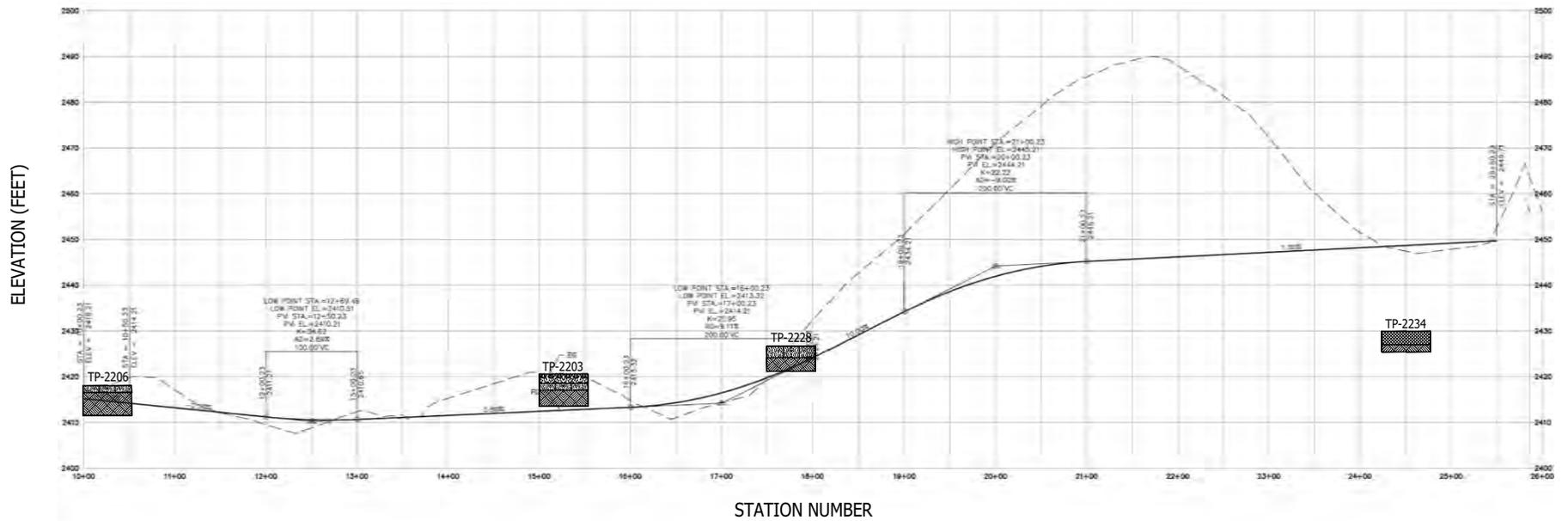
ROAD A PROFILE STA 10+00 - 20+50

LEGACY PHASE F
LIBERTY LAKE, WASHINGTON
BASED ON PLANS PROVIDED BY WCE (DATED 5/15/2025)

FIGURE R3-2

PROJECT NUMBER S241121

DATE: 7/2025

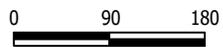


LITHOLOGY GRAPHICS

- EXISTING FILL
- SILTY SAND
- TOPSOIL
- GNEISS

EXPLORATION OFFSETS FROM STA CENTERLINE
 TP-2228: 60 FEET LEFT TP-2234: 100 FEET LEFT

HORIZONTAL SCALE: 1"=180'



VERTICAL EXAGGERATION 5X



Budinger
 & Associates

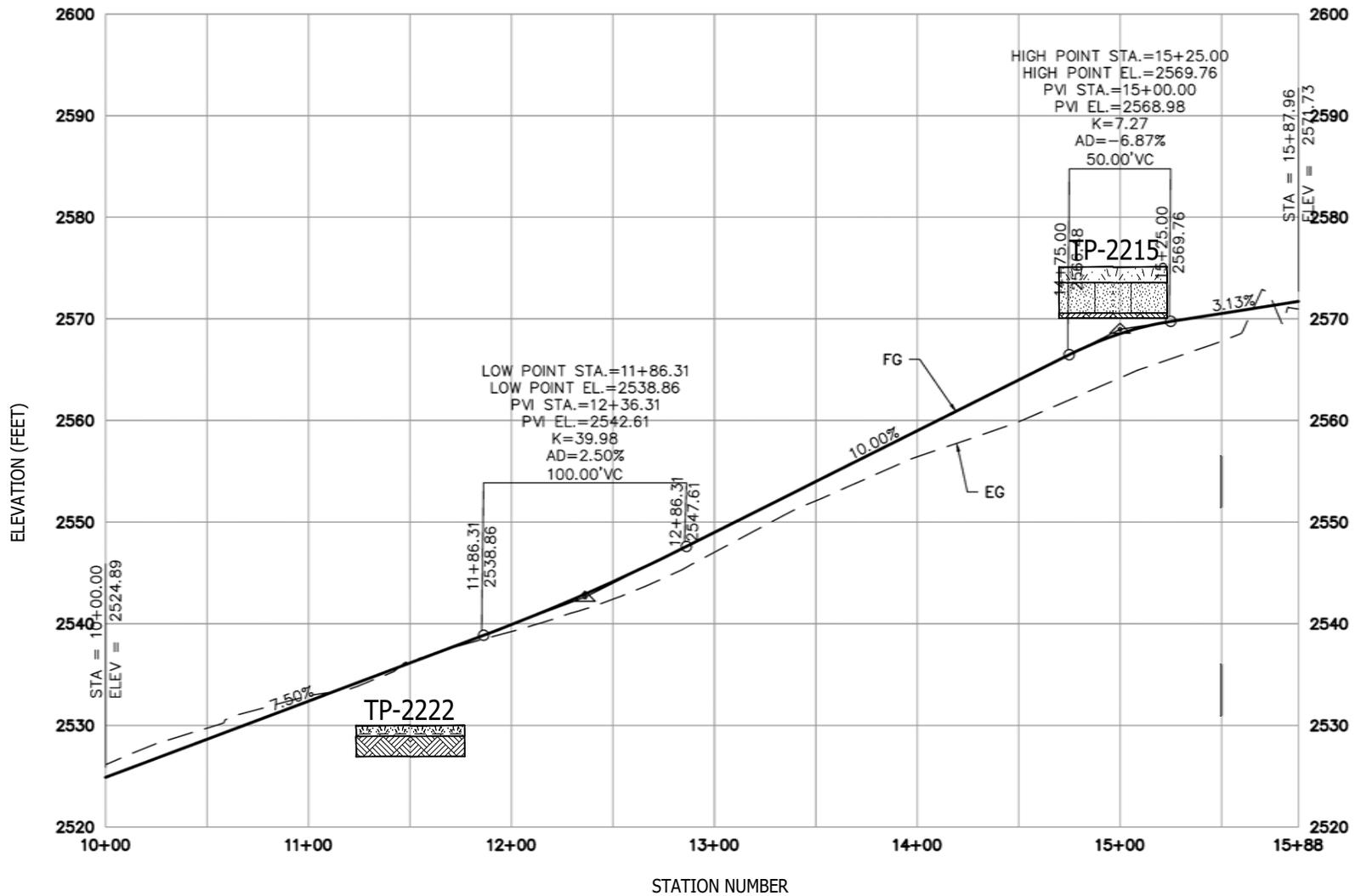
ROAD B PROFILE STA 10+00 - 26+00

LEGACY PHASE F
 LIBERTY LAKE, WASHINGTON
 BASED ON PLANS PROVIDED BY WCE (DATED 5/15/2025)

FIGURE R3-3

PROJECT NUMBER S241121

DATE: 7/2025

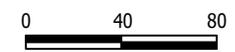


LITHOLOGY GRAPHICS

- TOPSOIL
- SILTY SAND
- GNEISS

EXPLORATION OFFSETS FROM STA CENTERLINE
 TP-2215: 80 FEET LEFT TP-2222: 20 FEET RIGHT

HORIZONTAL SCALE: 1"=80'



VERTICAL EXAGGERATION 5X



Budinger
& Associates

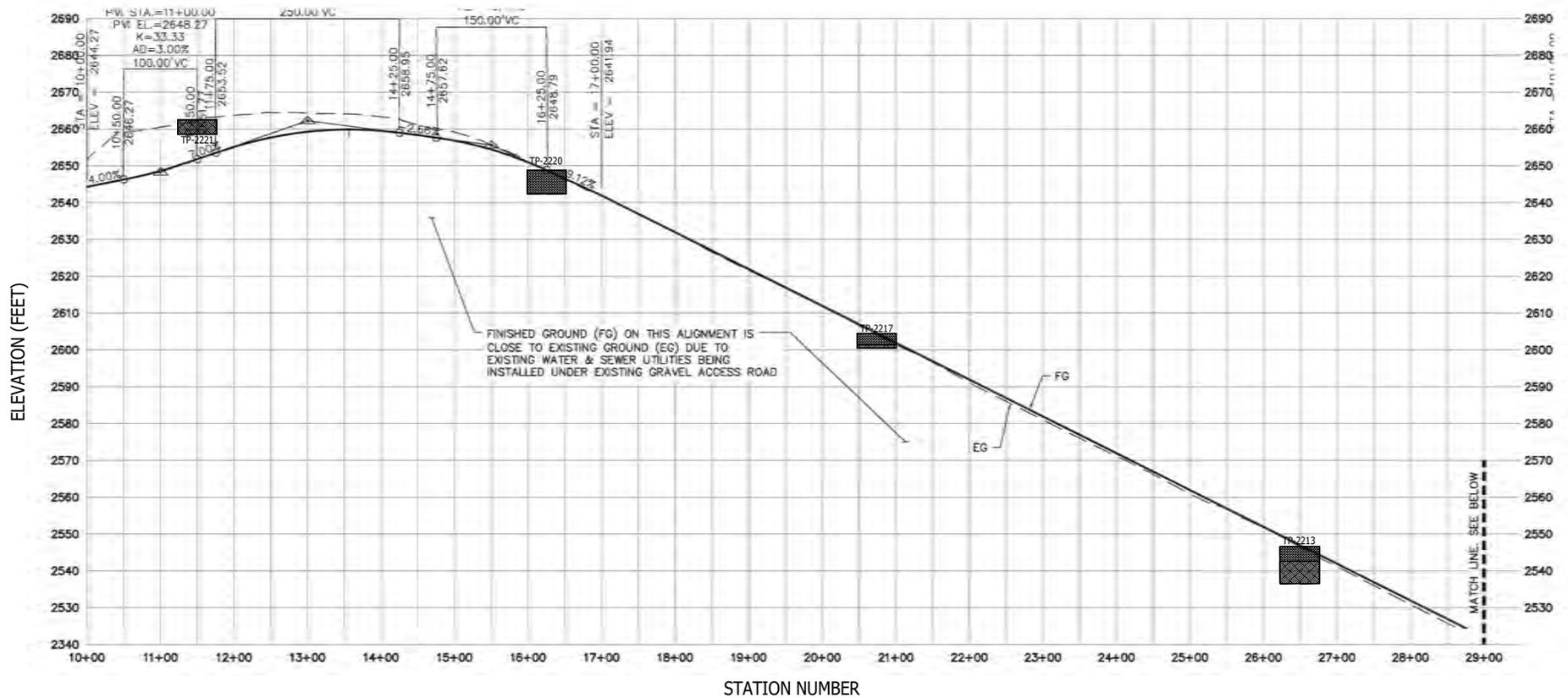
ROAD C PROFILE STA 10+00 - 15+88

LEGACY PHASE F
 LIBERTY LAKE, WASHINGTON
 BASED ON PLANS PROVIDED BY WCE (DATED 5/15/2025)

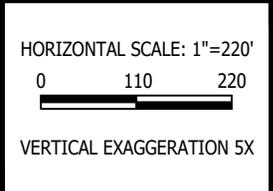
FIGURE R3-4

PROJECT NUMBER S241121

DATE: 7/2025



LITHOLOGY GRAPHICS	
 EXISTING FILL	 GNEISS
EXPLORATION OFFSETS FROM STA CENTERLINE	
TP-2213: 20 FEET RIGHT	TP-2220: 20 FEET LEFT
TP-2217: 50 FEET LEFT	TP-2221: 50 FEET LEFT



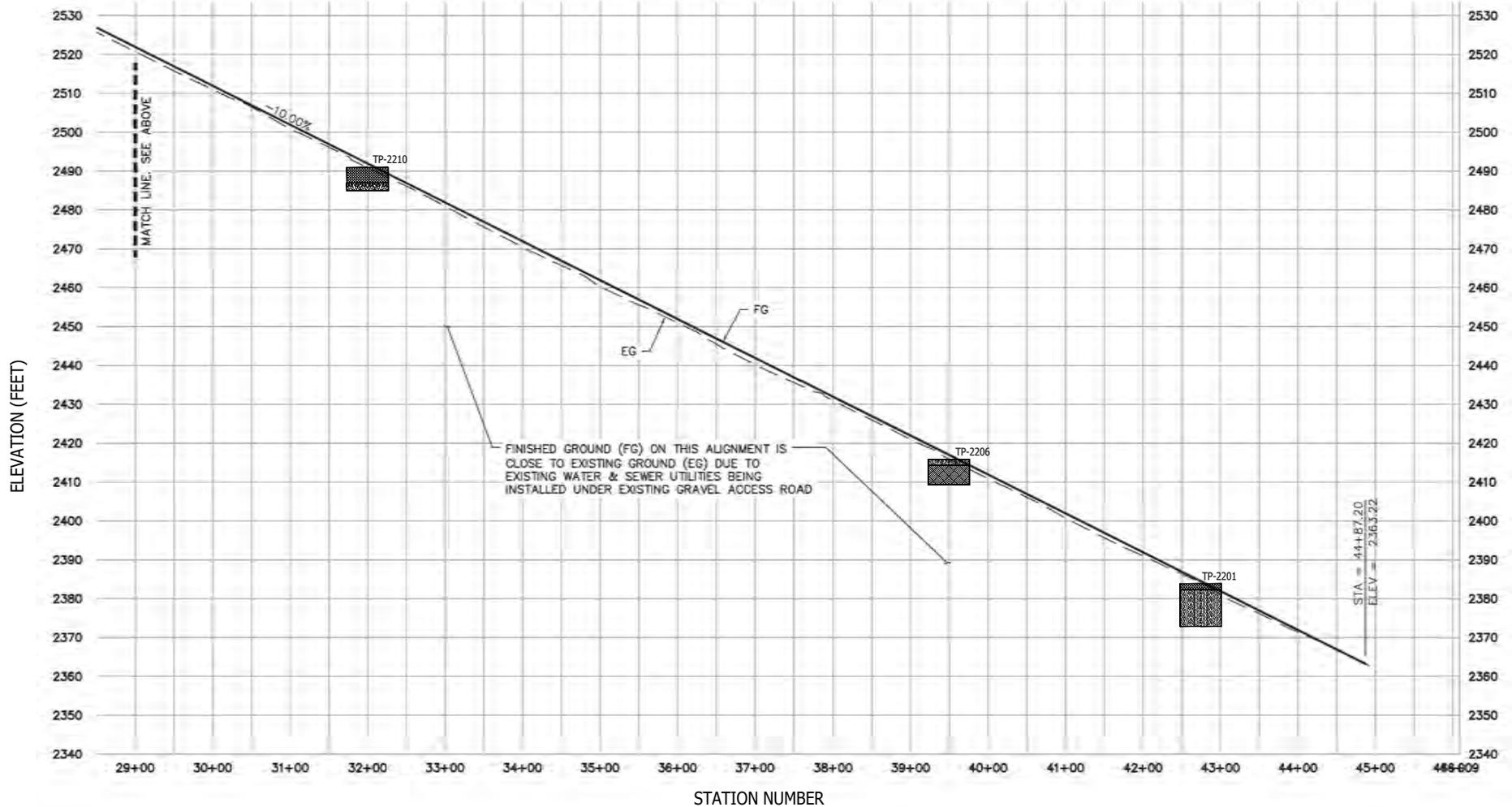
VALLEY VISTA DRIVE PROFILE
 STA 10+00 - 29+00

LEGACY PHASE F
 LIBERTY LAKE, WASHINGTON
 BASED ON PLANS PROVIDED BY WCE (DATED 5/15/2025)

FIGURE R3-5

PROJECT NUMBER S241121

DATE: 7/2025

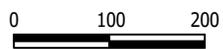


LITHOLOGY GRAPHICS

- | | |
|--|--|
|  EXISTING FILL |  SILTY SAND |
|  TOPSOIL |  GNEISS |

EXPLORATION OFFSETS FROM STA CENTERLINE
 TP-2201: 15 FEET RIGHT TP-2206: 25 FEET RIGHT

HORIZONTAL SCALE: 1"=200'



VERTICAL EXAGGERATION 5X



Budinger & Associates

VALLEY VISTA DRIVE PROFILE
 STA 29+00 - 46+00

LEGACY PHASE F
 LIBERTY LAKE, WASHINGTON
 BASED ON PLANS PROVIDED BY WCE (DATED 5/15/2025)

FIGURE R3-6

PROJECT NUMBER S241121

DATE: 7/2025

Legacy Phase F

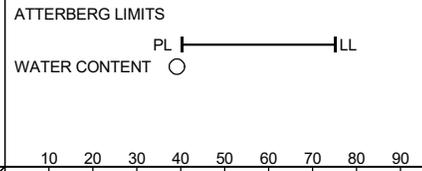
Appendix A: S211189 Legacy Ridge Phase F – Subsurface Exploration Logs

TEST PIT 2201

Date: 2-22-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: Centerline of road at lots 1
Surface: bare

Elevation: 2384 ft
Logged by: R. Lloyd
Size of hole: 10 x 4 feet

TEST RESULTS



DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	TEST RESULTS
0					
		moist, brown, medium dense	SILTY SAND with Gravel, coarse to fine, micaceous (POSSIBLE FILL)	[Cross-hatched pattern]	
		moist, brown, medium dense	SILTY SAND with Gravel, coarse to fine, micaceous (NATIVE)	[Dotted pattern]	○
5	[Hatched sample]				
10	[Hatched sample]				
		no free groundwater observed	End of Excavation @ 11 ft		
15					
20					



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TEST PIT LOGS

FIGURE 4-1

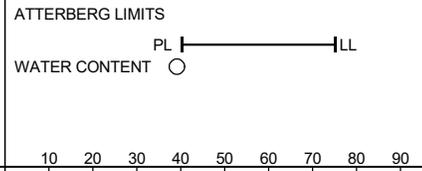
Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2202

Date: 2-22-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: lots 2 & 3
Surface: snow

Elevation: 2393 ft
Logged by: R. Lloyd
Size of hole: 15 x 4.5 feet

TEST RESULTS



DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	TEST RESULTS
0					10 20 30 40 50 60 70 80 90
5	[Hatched Box]	moist, brown, loose medium dense dense	SAND with Silt and occasional Gravel, coarse to fine, angular, micaceous 1.5-feet: communications wire in 3/4-inch gray conduit (moderate effort required to excavate)	[Soil Log Pattern]	○
10	[Hatched Box]				
15		no free groundwater observed	End of Excavation @ 12 ft		
20					



TEST PIT LOGS

FIGURE 4-2

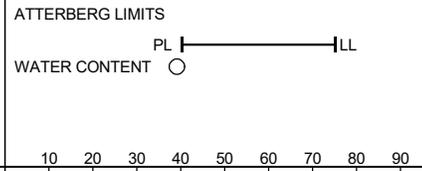
Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2203

Date: 2-22-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: Centerline of road at lot 8
Surface: grass and weeds

Elevation: 2421 ft
Logged by: R. Lloyd
Size of hole: 11 x 5 feet

TEST RESULTS



DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	TEST RESULTS									
0					10	20	30	40	50	60	70	80	90	
		moist, dark brown, loose	SILTY SAND with organics as roots (TOPSOIL)											
		moist, brown, medium dense	SILTY SAND with occasional gravel, coarse to fine, angular, micaceous											
5		moist, orangish brown, dense	SAND with Silt, coarse to fine, angular, micaceous (COMPLETELY WEATHERED GNEISS) (considerable effort required to excavate)											
		no free groundwater observed	End of Excavation @ 7 ft											
10														
15														
20														



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TEST PIT LOGS

FIGURE 4-3

Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2204

Date: 2-22-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: lots 7 & 8
Surface: snow

Elevation: 2397 ft
Logged by: R. Lloyd
Size of hole: 11 x 4.5 feet

					TEST RESULTS															
DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	ATTERBERG LIMITS PL ——— LL WATER CONTENT ○															
					10	20	30	40	50	60	70	80	90							
0		moist, orangish brown, dense	SILTY SAND, coarse to fine, angular, micaceous (COMPLETELY WEATHERED GNEISS)																	
		moist, orangish brown	GNEISS, medium to coarse grained, moderately weathered, moderately weak (R2)																	
5		no free groundwater observed	Excavator Refusal End of Excavation @ 5 ft																	
10																				
15																				
20																				



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TEST PIT LOGS

FIGURE 4-4

Project: Legacy Ridge Phase F
Location: Liberty Lake, WA
Number: S211189

TEST PIT 2205

Date: 2-23-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: lots 4 & 5
Surface: snow

Elevation: 2387 ft
Logged by: R. Lloyd
Size of hole: 13 x 5 feet

					TEST RESULTS															
DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	ATTERBERG LIMITS PL ———— LL WATER CONTENT ○															
					10	20	30	40	50	60	70	80	90							
0		moist, brown, medium dense	SAND with Silt, coarse to fine, angular, micaceous																	
	|	moist, orangish brown	GNEISS, medium to coarse grained, moderately weathered, moderately weak (R2) (considerable effort required to excavate)																	
5		no free groundwater observed	Excavator Refusal End of Excavation @ 5 ft																	
10																				
15																				
20																				



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 Spokane Valley, WA 99212

TEST PIT LOGS

FIGURE 4-5

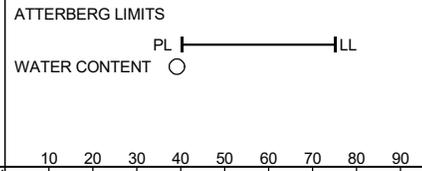
Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2206

Date: 2-23-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: intersection at north road
Surface: patchy snow

Elevation: 2415 ft
Logged by: R. Lloyd
Size of hole: 14 x 4.5 feet

TEST RESULTS



DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	TEST RESULTS
0					10 20 30 40 50 60 70 80 90
		moist, brown, medium dense	SILTY SAND, coarse to fine, angular, micaceous (FILL)		
		moist, orangish brown	GNEISS, medium to coarse grained, moderately weathered, moderately weak (R2) (considerable effort required to excavate)		
5			pocket penetrometer (pp) = 4.5 tsf		
		no free groundwater observed	End of Excavation @ 6.5 ft		
10					
15					
20					



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 Spokane Valley, WA 99212

TEST PIT LOGS

FIGURE 4-6

Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2207

Date: 2-23-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: lot 55
Surface: sparse weeds

Elevation: 2447 ft
Logged by: R. Lloyd
Size of hole: 10 x 4.5 feet

					TEST RESULTS														
DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	ATTERBERG LIMITS PL ———— LL WATER CONTENT ○														
					10	20	30	40	50	60	70	80	90						
0		moist, brown, loose	SILTY SAND, coarse to fine, angular, micaceous (FILL)																
		moist, brown, medium dense	SAND with Silt, coarse to fine, angular (COMPLETELY WEATHERED GNEISS)		○														
5		moist, orangish brown	GNEISS, medium to coarse grained, moderately weathered, moderately weak (R2)																
		no free groundwater observed	Excavator Refusal End of Excavation @ 7 ft																
10																			
15																			
20																			



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 Spokane Valley, WA 99212

TEST PIT LOGS

FIGURE 4-7

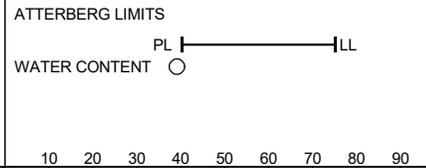
Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2208

Date: 2-23-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: centerline of road at lot 53
Surface: bare

Elevation: 2458 ft
Logged by: R. Lloyd
Size of hole: n/a

TEST RESULTS



DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	TEST RESULTS
0		moist, orangish brown no free groundwater observed	GNEISS, medium to coarse grained, moderately weathered, moderately weak (R2) Excavator Refusal (possible frost) End of Excavation @ 0.25 ft	/ / / / /	10 20 30 40 50 60 70 80 90
5					
10					
15					
20					



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 Spokane Valley, WA 99212

TEST PIT LOGS

FIGURE 4-8

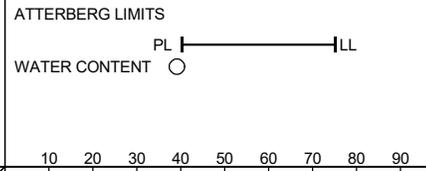
Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2209

Date: 2-23-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: lot 52
Surface: sparse weeds

Elevation: 2373 ft
Logged by: R. Lloyd
Size of hole: 13 x 4.5 feet

TEST RESULTS



DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	TEST RESULTS															
0																				
	[diagonal lines]	moist, dark brown, loose	SILTY SAND, stratified in approximately 1-inch intervals with gray Silty Sand (FILL)	[cross-hatch]																
	[diagonal lines]																			
	[diagonal lines]	moist, orangish brown	GNEISS, medium to coarse grained, moderately weathered, moderately weak (R2) (considerable effort required to excavate)	[diagonal lines]																
5		no free groundwater observed	Excavator Refusal End of Excavation @ 5 ft																	
10																				
15																				
20																				



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TEST PIT LOGS

FIGURE 4-9

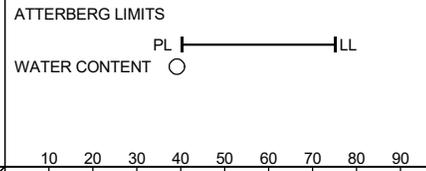
Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2210

Date: 2-23-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: centerline of road at lot 50
Surface: bare

Elevation: 2493 ft
Logged by: R. Lloyd
Size of hole: 6 x 4.3 feet

TEST RESULTS



DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	TEST RESULTS
0					
	1	moist, brown, loose	SAND with occasional gravel, coarse to fine, angular (FILL) (frost to 12-inches)	[Cross-hatched pattern]	○
	2				
	3				
	4				
	5	moist, dark brown, medium dense	SILTY SAND with organics (likely trench backfill)	[Dotted pattern]	○
	6		(6-feet: water line marking found in excavation, hole abandoned to avoid damage)		
	7	no free groundwater observed	End of Excavation @ 6 ft		
	8				
	9				
	10				
	11				
	12				
	13				
	14				
	15				
	16				
	17				
	18				
	19				
	20				



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TEST PIT LOGS

FIGURE 4-10

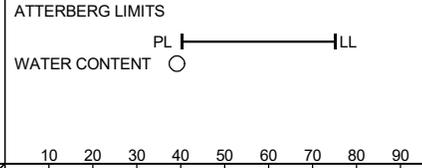
Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2211

Date: 2-23-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: lot 48
Surface: snow

Elevation: 2511 ft
Logged by: R. Lloyd
Size of hole: 17 x 4.5 feet

TEST RESULTS



DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG
0		moist, brown, loose	SILTY SAND with Gravel, Cobbles, and occasional Boulders, coarse to fine, angular (FILL)	SOIL LOG
		medium dense		
5	[Sample]	dense		
10				
15		no free groundwater observed	Maximum Reach End of Excavation @ 14 ft	
20				



TEST PIT LOGS **FIGURE 4-11**

Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2212

Date: 2-23-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: lots 45
Surface: snow

Elevation: 2534 ft
Logged by: R. Lloyd
Size of hole: 18 x 5 feet

					TEST RESULTS									
DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	ATTERBERG LIMITS									
					WATER CONTENT									
					PL ————— LL ○									
					10	20	30	40	50	60	70	80	90	
0		moist, brown, loose	SILTY SAND with Gravel, occasional cobbles and boulders, anthropogenic debris as PVC pipe (FILL)	[Cross-hatched pattern]										
	[Hatched sample]	medium dense												
5														
	[Hatched sample]	moist, olive brown, dense	SILTY SAND with Gravel, Cobbles, and occasional boulders (FILL)	[Cross-hatched pattern]										
10														
	[Hatched sample]	no free groundwater observed	Maximum Reach End of Excavation @ 14 ft											
15														
20														



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TEST PIT LOGS

FIGURE 4-12

Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2213

Date: 2-23-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: centerline road at lots 42 & 43
Surface: patchy snow

Elevation: 2547 ft
Logged by: R. Lloyd
Size of hole: 10 x 4.5 feet

TEST RESULTS

ATTERBERG LIMITS
 PL ———— LL
 WATER CONTENT ○

10 20 30 40 50 60 70 80 90

DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	TEST RESULTS
0	[diagonal lines]	moist, orangish brown, loose	SILTY SAND with Gravel, coarse to fine, angular (FILL)	[cross-hatch]	○
		medium dense			
5	[diagonal lines]	moist, orangish gray	GNEISS, medium to coarse grained, moderately weathered, moderately weak (R2)	[diagonal lines]	○
			(becomes strong R4)		
10		no free groundwater observed	Excavator Refusal End of Excavation @ 10 ft		
15					
20					



TEST PIT LOGS **FIGURE 4-13**

Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2214

Date: 2-24-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: lot 41
Surface: sparse weeds and snow

Elevation: 2559 ft
Logged by: R. Lloyd
Size of hole: 16 x 4.5 feet

				TEST RESULTS									
DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	ATTERBERG LIMITS								
					WATER CONTENT ○								
					10	20	30	40	50	60	70	80	90
0		moist, brown, loose medium dense	SILTY SAND with Gravel, coarse to fine, angular (FILL)		○								
		dense											
5		moist, orangish brown	4.5-feet: two 6-inch diameter steel pipes at north end of test pit										
		no free groundwater observed	GNEISS, medium to coarse grained, moderately weathered, moderately weak (R2) End of Excavation @ 5 ft										
10													
15													
20													



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TEST PIT LOGS

FIGURE 4-14

Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2215

Date: 2-24-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: Lots 38
Surface: grass and weeds

Elevation: 2575 ft
Logged by: R. Lloyd
Size of hole: 16 x 4.5 feet

					TEST RESULTS															
DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	ATTERBERG LIMITS PL ——— LL WATER CONTENT ○															
					10	20	30	40	50	60	70	80	90							
0		moist, dark brown, loose	SILT with Sand and organics as roots (TOPSOIL)																	
		moist, brown, medium dense	SILTY SAND with Gravel, coarse to fine, angular																	
		moist, orangish brown, dense	SILTY SAND, coarse to fine, angular, micaceous (COMPLETELY WEATHERED GNEISS)																	
5		moist, orangish brown	GNEISS, medium to coarse grained, moderately weathered, moderately weak (R2)																	
		no free groundwater observed	Excavator Refusal End of Excavation @ 5 ft																	
10																				
15																				
20																				



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TEST PIT LOGS

FIGURE 4-15

Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2216

Date: 2-24-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: lots 57 & 58
Surface: snow

Elevation: 2580 ft
Logged by: R. Lloyd
Size of hole: 13 x 4.5 feet

DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	TEST RESULTS									
					ATTERBERG LIMITS PL ————— LL WATER CONTENT ○									
					10	20	30	40	50	60	70	80	90	
0		moist, dark brown, loose	SILTY SAND with organics as roots (TOPSOIL)		○	H								
		moist, light brown, loose	SILTY SAND with occasional Gravel, coarse to fine, angular to subrounded pp=0.75 tsf											
		moist, orangish brown	GNEISS, medium to coarse grained, moderately weathered, moderately weak (R2)											
5		no free groundwater observed	Excavator Refusal End of Excavation @ 5.5 ft											
10														
15														
20														



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TEST PIT LOGS

FIGURE 4-16

Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2217

Date: 2-24-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: lots 60 & 61
Surface: bare

Elevation: 2604 ft
Logged by: R. Lloyd
Size of hole: 11 x 5 feet

TEST RESULTS

ATTERBERG LIMITS
 PL ————— LL
 WATER CONTENT ○

DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	TEST RESULTS
0		moist, brown, loose	SILTY GRAVEL with Sand and Cobbles, coarse to fine, angular (FILL)	[Cross-hatched pattern]	10 20 30 40 50 60 70 80 90
	[Diagonal hatching]	medium dense			○
		moist, orangish brown	GNEISS, medium to coarse grained, moderately weathered, moderately weak (R2)	[Diagonal hatching]	
		no free groundwater observed	Excavator Refusal End of Excavation @ 3.5 ft		
5					
10					
15					
20					



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TEST PIT LOGS

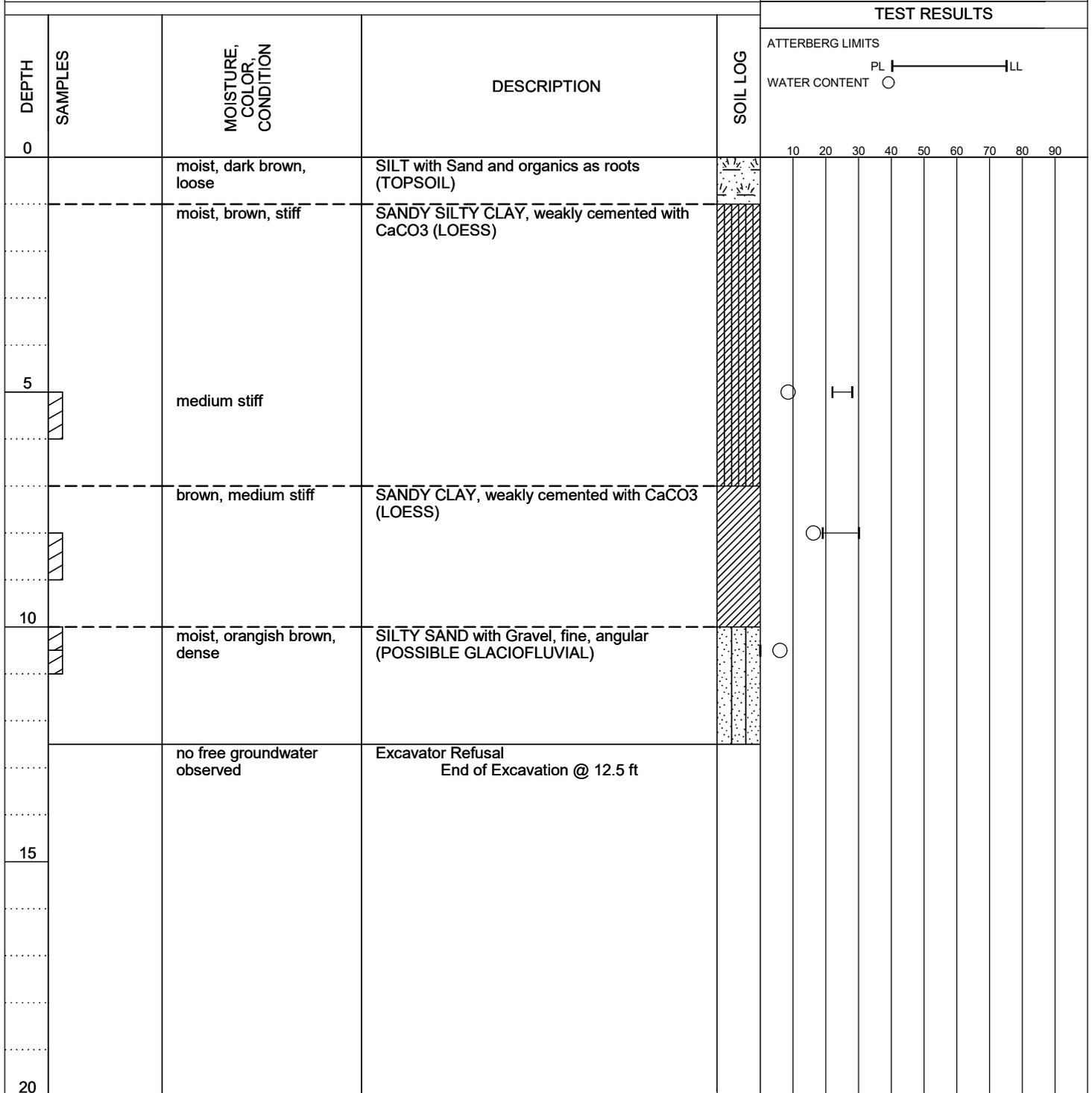
FIGURE 4-17

Project: Legacy Ridge Phase F
Location: Liberty Lake, WA
Number: S211189

TEST PIT 2218

Date: 2-24-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: lots 33 & 34
Surface: sparse weeds and snow

Elevation: 2627 ft
Logged by: R. Lloyd
Size of hole: 14 x 4.5 feet



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TEST PIT LOGS

FIGURE 4-18

Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2219

Date: 2-24-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: lot 63
Surface: bare

Elevation: 2637 ft
Logged by: R. Lloyd
Size of hole: 10 x 4.5 feet

TEST RESULTS

ATTERBERG LIMITS
 PL ———— LL
 WATER CONTENT ○

10 20 30 40 50 60 70 80 90

DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	TEST RESULTS															
0		moist, orangish gray, dense	SILTY SAND with Gravel, fine, micaceous (COMPLETELY WEATHERED GNEISS)																	
5		moist, orangish gray	GNEISS, medium to coarse grained, moderately weathered, moderately weak (R2)																	
10		no free groundwater observed	Excavator Refusal End of Excavation @ 6.5 ft																	
15																				
20																				



TEST PIT LOGS **FIGURE 4-19**

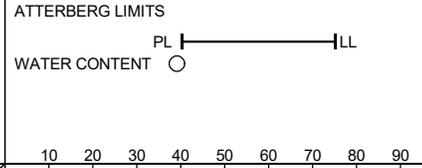
Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2220

Date: 2-24-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: centerline road at lot 64
Surface: bare

Elevation: 2648 ft
Logged by: R. Lloyd
Size of hole: 8 x 4 feet

TEST RESULTS



DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	TEST RESULTS
0					
	5	moist, orangish brown, dense	GRAVEL with Silt, Sand, Boulders, and Cobbles, coarse to fine, angular (FILL)	○	
		no free groundwater observed	End of Excavation @ 6.5 ft		
10					
15					
20					



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TEST PIT LOGS

FIGURE 4-20

Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2221

Date: 2-25-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: north of road at lot 68
Surface: grass and weeds

Elevation: 2660 ft
Logged by: R. Lloyd
Size of hole: 12 x 5.5 feet

DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	TEST RESULTS									
					ATTERBERG LIMITS PL |-----| LL WATER CONTENT ○									
0					10	20	30	40	50	60	70	80	90	
		moist, orangish grey	GNEISS, medium to coarse grained, moderately to slightly weathered, moderately weak (R2) to moderately strong (R3)											
5		no free groundwater observed	Excavator Refusal End of Excavation @ 4 ft											
10														
15														
20														



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TEST PIT LOGS

FIGURE 4-21

Project: Legacy Ridge Phase F
Location: Liberty Lake, WA
Number: S211189

TEST PIT 2222

Date: 2-25-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: south east parcel
Surface: sparse grass and weeds

Elevation: 2530 ft
Logged by: R. Lloyd
Size of hole: 11 x 4.5 feet

					TEST RESULTS								
DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	ATTERBERG LIMITS								
					WATER CONTENT								
					PL	LL							
					○								
0					16	20	30	40	50	60	70	80	90
	1	moist, dark brown, loose	SILTY SAND with organics as roots (TOPSOIL)										
		dry, orangish gray	GNEISS, medium to coarse grained, fresh to completely weathered, moderately weak (R2) to moderately strong (R3)										
		no free groundwater observed	Excavator Refusal End of Excavation @ 3 ft										
5													
10													
15													
20													



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TEST PIT LOGS

FIGURE 4-22

Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2223

Date: 2-25-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: south east of lot 23
Surface: sparse weeds and snow

Elevation: 2531 ft
Logged by: R. Lloyd
Size of hole: 15 x 5 feet

				TEST RESULTS									
DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	ATTERBERG LIMITS								
					WATER CONTENT ○								
					10	20	30	40	50	60	70	80	90
0	1	moist, dark brown, loose	SILTY SAND with organics as roots (TOPSOIL)		○								
	2	moist, brown, medium dense	SAND with SILT and Gravel, coarse to fine, angular		○								
5		orangish brown	GNEISS, medium to coarse grained, completely weathered, moderately weak (R2) (considerable effort required from excavator)										
		no free groundwater observed	Excavator Refusal End of Excavation @ 6 ft										
10													
15													
20													



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TEST PIT LOGS

FIGURE 4-23

Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2224

Date: 2-25-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: lot 22
Surface: grass and weeds

Elevation: 2531 ft
Logged by: R. Lloyd
Size of hole: 13 x 5 feet

					TEST RESULTS															
DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	ATTERBERG LIMITS PL ——— LL WATER CONTENT ○															
					10	20	30	40	50	60	70	80	90							
0	[diagonal lines]	moist, brown, medium dense	SILTY SAND with Gravel, coarse to fine, angular (FILL)	[cross-hatch]	○															
5	[diagonal lines]	moist, orangish brown, medium dense	SAND with SILT and Gravel, coarse, angular, micaceous (COMPLETELY WEATHERED GNEISS)	[dots]	○															
10		no free groundwater observed	Excavator Refusal End of Excavation @ 6.5 ft																	
15																				
20																				



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TEST PIT LOGS

FIGURE 4-24

Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2225

Date: 2-25-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: lots 19 & 20
Surface: sparse weeds and snow

Elevation: 2516 ft
Logged by: R. Lloyd
Size of hole: 14 x 5 feet

DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	TEST RESULTS									
					ATTERBERG LIMITS PL |-----| LL WATER CONTENT ○									
0					10	20	30	40	50	60	70	80	90	
		moist, dark brown, loose	SILTY SAND with organics as roots (TOPSOIL)											
		moist, orangish brown, medium dense	SILTY SAND with Gravel, coarse to fine, angular, micaceous (COMPLETELY WEATHERED GNEISS)											
		orangish gray	GNEISS, medium to coarse grained, moderately weathered, moderately strong (R3)											
5		no free groundwater observed	Excavator Refusal End of Excavation @ 4 ft											
10														
15														
20														



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TEST PIT LOGS

FIGURE 4-25

Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2226

Date: 2-25-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: lot 16
Surface: sparse weeds and snow

Elevation: 2490 ft
Logged by: R. Lloyd
Size of hole: 11 x 4.5 feet

					TEST RESULTS											
DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	ATTERBERG LIMITS											
					WATER CONTENT ○											
					10	20	30	40	50	60	70	80	90			
0	1	moist, dark brown, medium dense	SILTY SAND, coarse to fine, angular (FILL)		○											
	2	moist, orangish brown, dense	SAND with SILT and Gravel, coarse to fine, angular, micaceous (COMPLETELY WEATHERED GNEISS)		○											
5		no free groundwater observed	Excavator Refusal End of Excavation @ 5 ft													
10																
15																
20																



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TEST PIT LOGS

FIGURE 4-26

Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2227

Date: 2-25-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: northwest corner lot 66
Surface: sparse weeds and snow

Elevation: 2634 ft
Logged by: R. Lloyd
Size of hole: 14 x 4.5 feet

TEST RESULTS

ATTERBERG LIMITS
 PL |-----| LL
 WATER CONTENT ○

10 20 30 40 50 60 70 80 90

DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	TEST RESULTS
0					
	1	moist, brown, loose	SILTY SAND with Gravel and occasional cobbles, organics as fine roots (FILL)	[Cross-hatched pattern]	○
	2				
	3				
	4	moist, dark brown, loose	SILTY SAND with organics as roots (TOPSOIL)	[Dotted pattern]	
5		orangish gray	GNEISS, medium to coarse grained, moderately weathered, moderately weak (R2)	[Diagonal lines pattern]	
		no free groundwater observed	Excavator Refusal End of Excavation @ 7 ft		
10					
15					
20					



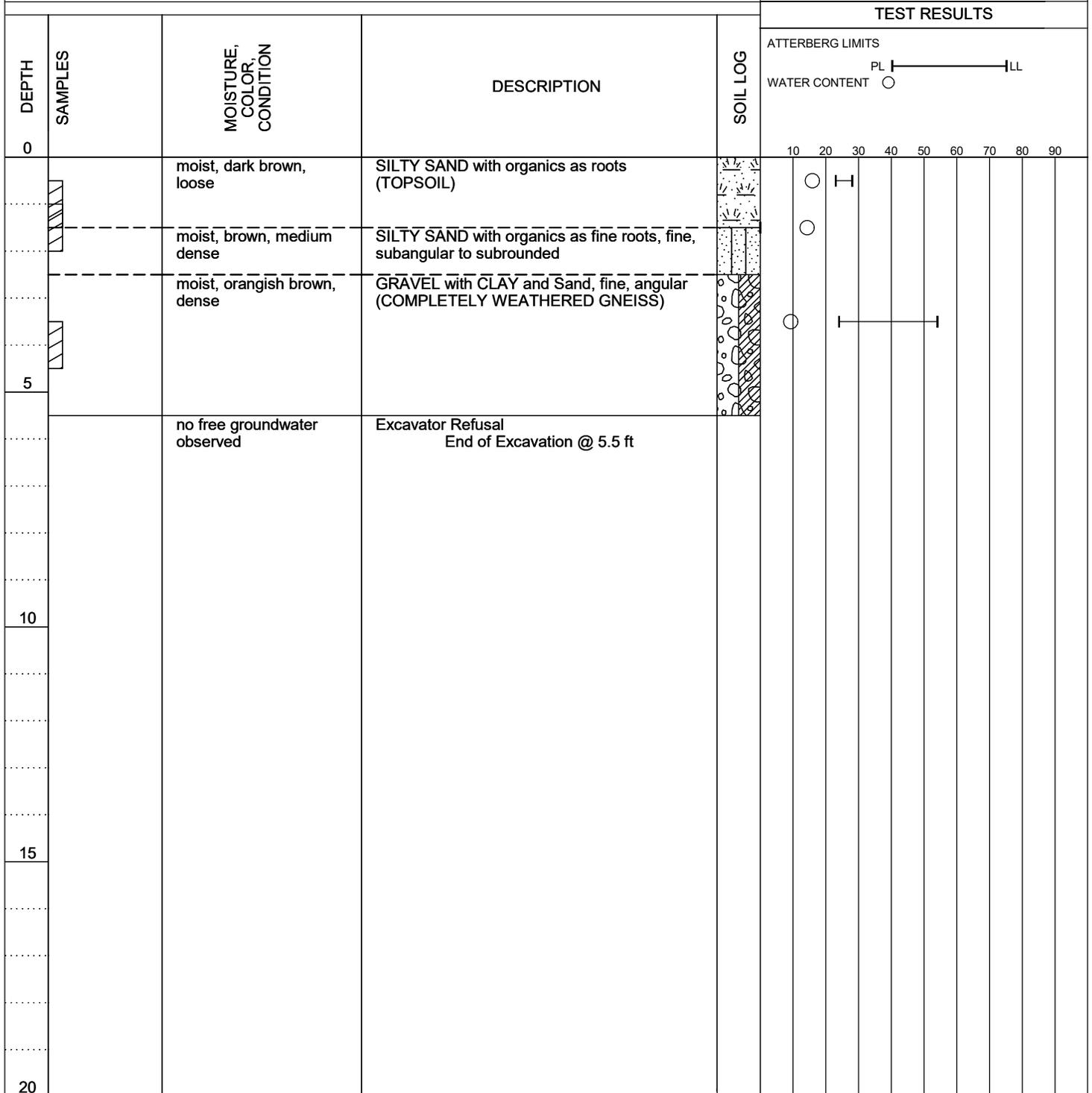
TEST PIT LOGS **FIGURE 4-27**

Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2228

Date: 2-25-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: southeast corner of lot 10
Surface: sparse weeds and snow

Elevation: 2416 ft
Logged by: R. Lloyd
Size of hole: 8.5 x 4 feet



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TEST PIT LOGS

FIGURE 4-28

Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2229

Date: 2-25-22
Excavator: Budinger & Assoc., Inc.
Equipment: CAT 315 Excavator w/42" bucket
Location: lots 10 & 11 north
Surface: sparse weeds and snow

Elevation: 2388 ft
Logged by: R. Lloyd
Size of hole: 13 x 4.5 feet

					TEST RESULTS								
DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	ATTERBERG LIMITS								
					WATER CONTENT								
					10	20	30	40	50	60	70	80	90
0		moist, brown, loose	SAND with Gravel, coarse to fine, angular (FILL)										
	1	moist, dark brown, medium dense	GRAVEL with CLAY and SAND, fine, subangular to sub rounded, organics as roots (TOPSOIL)		○	|	|	|					
	2	moist, brown, medium dense	SILTY SAND, coarse to medium, subangular to subrounded		○								
5		moist, olive gray, medium dense	Boulders and Cobbles in sand matrix (GLACIOFLUVIAL)										
	3	moist, olive gray, loose	SILTY SAND with Gravel, coarse to fine, angular to subrounded (GLACIOFLUVIAL)		○								
	4	medium dense			○								
10		moist, orangish brown, medium dense	SILTY SAND with Gravel, coarse to fine, angular, micaceous (COMPLETELY WEATHERED GNEISS)										
	5	no free groundwater observed	End of Excavation @ 13 ft										
15													
20													



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TEST PIT LOGS

FIGURE 4-29

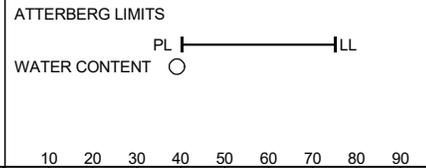
Project: Legacy Ridge Phase F
Location: Liberty Lake, WA
Number: S211189

TEST PIT 2233

Date: 6-1-22
Excavator: Selland Construction, Inc
Equipment: Yanmar ViO 50 Excavator
Location: across road from lot 50
Surface: pine needles

Elevation: 2495 ft
Logged by: R. Lloyd
Size of hole: 7 x 4 feet

TEST RESULTS



DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	TEST RESULTS															
0		moist, moderate brown	SILTY SAND with Gravel, medium to fine, angular, organics as roots up to 1-inch diameter (fill)																	
		moist, dark brown	SILTY SAND with occasional Gravel, medium to fine, organics as fine roots and roots up to 1-inch diameter (possible fill)																	
		moist, moderate brown	SILTY SAND with Gravel, medium to fine, angular (possible fill)																	
5		moist, orangish brown	SILTY SAND with Gravel, coarse to fine, angular (native)																	
		moist, tan	SILTY SAND, coarse to fine, angular (completely weathered gneiss)																	
		no free groundwater observed	terminated due to maximum equipment reach End of Excavation @ 8 ft																	
10																				
15																				
20																				



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TEST PIT LOGS

FIGURE 4-30

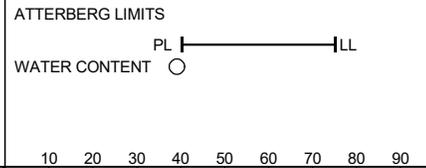
Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

TEST PIT 2234

Date: 6-1-22
Excavator: Selland Construction, Inc
Equipment: Yanmar ViO 50 Excavator
Location: 240 feet south of Skyview Court cul de sac
Surface: grass and weeds

Elevation: 2430 ft
Logged by: R. Lloyd
Size of hole: 7 x 4 feet

TEST RESULTS



DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	TEST RESULTS
0		moist, moderate brown	SAND with Silt and Gravel, medium to fine, angular, organics as fine roots in upper 6-inches (fill)	[Cross-hatched pattern]	10 20 30 40 50 60 70 80 90
	[Diagonal hatched pattern]	moist, orangish brown	SILTY SAND with Gravel, coarse to fine, angular (completely weathered gneiss)	[Diagonal hatched pattern]	
5		no free groundwater observed	excavation refusal End of Excavation @ 4.5 ft		
10					
15					
20					



Budinger & Associates
 1101 North Fancher Road
 Spokane Valley, WA 99212

TEST PIT LOGS

FIGURE 4-31

Project: Legacy Ridge Phase F
 Location: Liberty Lake, WA
 Number: S211189

WILDCAT DYNAMIC CONE LOG

Budinger and Associates, Inc
 1101 N Fancher Rd.
 Spokane Valley, WA, 99212

PROJECT NUMBER: S211189
 DATE STARTED: 03-08-2022
 DATE COMPLETED: 03-08-2022

HOLE #: DCP @ TP-2202
 CREW: Cameron Andrews
 PROJECT: Legacy Ridge West Phase F
 ADDRESS: unassigned
 LOCATION: Liberty Lake, WA

SURFACE ELEVATION: 2393
 WATER ON COMPLETION: N/A
 HAMMER WEIGHT: 35 lbs.
 CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm ²	GRAPH OF CONE RESISTANCE				N'	TESTED CONSISTENCY	
			0	50	100	150		NON-COHESIVE	COHESIVE
-	5	22.2	.....				6	LOOSE	MEDIUM STIFF
-	7	31.1	.....				8	LOOSE	MEDIUM STIFF
- 1 ft	10	44.4	.....				12	MEDIUM DENSE	STIFF
-	15	66.6	.....				19	MEDIUM DENSE	VERY STIFF
-	14	62.2	.....				17	MEDIUM DENSE	VERY STIFF
- 2 ft	13	57.7	.....				16	MEDIUM DENSE	VERY STIFF
-	10	44.4	.....				12	MEDIUM DENSE	STIFF
-	11	48.8	.....				13	MEDIUM DENSE	STIFF
- 3 ft	17	75.5	.....				21	MEDIUM DENSE	VERY STIFF
- 1 m	33	146.5	.....				25+	DENSE	HARD
-	39	150.5	.....				25+	DENSE	HARD
- 4 ft	50	193.0	.....				25+	VERY DENSE	HARD
-									
- 5 ft									
-									
- 6 ft									
- 2 m									
- 7 ft									
-									
- 8 ft									
-									
- 9 ft									
-									
- 3 m 10 ft									
-									
- 11 ft									
-									
- 12 ft									
-									
- 4 m 13 ft									

Figure 5-1

WILDCAT DYNAMIC CONE LOG

Budinger and Associates, Inc.
 1101 N Fancher Rd
 Spokane Valley, WA, 99212

PROJECT NUMBER: S211189
 DATE STARTED: 03-08-2022
 DATE COMPLETED: 03-08-2022

HOLE #: DCP @ TP-2204
 CREW: Cameron Andrews
 PROJECT: Legacy Ridge West Phase F
 ADDRESS: unassigned
 LOCATION: Liberty Lake, WA

SURFACE ELEVATION: 2397
 WATER ON COMPLETION: N/A
 HAMMER WEIGHT: 35 lbs.
 CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm ²	GRAPH OF CONE RESISTANCE				N'	TESTED CONSISTENCY	
			0	50	100	150		NON-COHESIVE	COHESIVE
-	2	8.9	••				2	VERY LOOSE	SOFT
-	3	13.3	•••				3	VERY LOOSE	SOFT
- 1 ft	5	22.2	•••••				6	LOOSE	MEDIUM STIFF
-	4	17.8	•••••				5	LOOSE	MEDIUM STIFF
-	6	26.6	••••••				7	LOOSE	MEDIUM STIFF
- 2 ft	12	53.3	••••••••••				15	MEDIUM DENSE	STIFF
-	14	62.2	•••••••••••				17	MEDIUM DENSE	VERY STIFF
-	15	66.6	••••••••••••				19	MEDIUM DENSE	VERY STIFF
- 3 ft	15	66.6	••••••••••••				19	MEDIUM DENSE	VERY STIFF
- 1 m	16	71.0	•••••••••••••				20	MEDIUM DENSE	VERY STIFF
-	20	77.2	••••••••••••••				22	MEDIUM DENSE	VERY STIFF
- 4 ft	39	150.5	••••••••••••••••••••				25+	DENSE	HARD
-	36	139.0	••••••••••~				25+	DENSE	HARD
-	50	193.0	••••••~				25+	VERY DENSE	HARD
- 5 ft									
- 6 ft									
- 2 m									
- 7 ft									
- 8 ft									
- 9 ft									
- 3 m	10 ft								
- 11 ft									
- 12 ft									
- 4 m	13 ft								

Figure 5-2

WILDCAT DYNAMIC CONE LOG

Budinger and Associates, Inc.
 1101 N Fancher Rd
 Spokane Valley, WA, 99212

PROJECT NUMBER: S211189
 DATE STARTED: 03-08-2022
 DATE COMPLETED: 03-08-2022

HOLE #: DCP @ TP-2205
 CREW: Cameron Andrews
 PROJECT: Legacy Ridge West Phase F
 ADDRESS: unassigned
 LOCATION: Liberty Lake, WA

SURFACE ELEVATION: 2387
 WATER ON COMPLETION: N/A
 HAMMER WEIGHT: 35 lbs.
 CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm ²	GRAPH OF CONE RESISTANCE				N'	TESTED CONSISTENCY	
			0	50	100	150		NON-COHESIVE	COHESIVE
-	4	17.8	.....				5	LOOSE	MEDIUM STIFF
-	12	53.3	.....				15	MEDIUM DENSE	STIFF
- 1 ft	19	84.4	.....				24	MEDIUM DENSE	VERY STIFF
-	18	79.9	.....				22	MEDIUM DENSE	VERY STIFF
-	30	133.2	.....				25+	DENSE	HARD
- 2 ft	47	208.7	.....				25+	VERY DENSE	HARD
-	50	222.0	.....				25+	VERY DENSE	HARD
-									
- 3 ft									
- 1 m									
-									
- 4 ft									
-									
- 5 ft									
-									
- 6 ft									
- 2 m									
-									
- 7 ft									
-									
- 8 ft									
-									
- 9 ft									
-									
- 3 m 10 ft									
-									
- 11 ft									
-									
- 12 ft									
-									
- 4 m 13 ft									

Figure 5-3

WILDCAT DYNAMIC CONE LOG

Budinger and Associates, Inc.
 1101 N Fancher Rd
 Spokane Valley, WA, 99212

PROJECT NUMBER: S211189
 DATE STARTED: 03-08-2022
 DATE COMPLETED: 03-08-2022

HOLE #: DCP @ TP-2207
 CREW: Cameron Andrews
 PROJECT: Legacy Ridge West Phase F
 ADDRESS: unassigned
 LOCATION: Liberty Lake, WA

SURFACE ELEVATION: 2447
 WATER ON COMPLETION: N/A
 HAMMER WEIGHT: 35 lbs.
 CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm ²	GRAPH OF CONE RESISTANCE				N'	TESTED CONSISTENCY	
			0	50	100	150		NON-COHESIVE	COHESIVE
-	2	8.9	••				2	VERY LOOSE	SOFT
-	6	26.6	••••••				7	LOOSE	MEDIUM STIFF
1 ft	9	40.0	••••••••				11	MEDIUM DENSE	STIFF
-	26	115.4	••••••••••••••••••••				25+	DENSE	HARD
2 ft	50	222.0	••••••••••••••••••••				25+	VERY DENSE	HARD
-									
3 ft									
1 m									
4 ft									
-									
5 ft									
-									
6 ft									
2 m									
7 ft									
-									
8 ft									
-									
9 ft									
3 m	10 ft								
-									
11 ft									
-									
12 ft									
-									
4 m	13 ft								

Figure 5-4

WILDCAT DYNAMIC CONE LOG

Budinger and Associates, Inc.
 1101 N Fancher Rd
 Spokane Valley, WA, 99212

PROJECT NUMBER: S211189
 DATE STARTED: 03-08-2022
 DATE COMPLETED: 03-08-2022

HOLE #: DCP @ TP-2211
 CREW: Cameron Andrews
 PROJECT: Legacy Ridge West Phase F
 ADDRESS: unassigned
 LOCATION: Liberty Lake, WA

SURFACE ELEVATION: 2511
 WATER ON COMPLETION: N/A
 HAMMER WEIGHT: 35 lbs.
 CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm ²	GRAPH OF CONE RESISTANCE				N'	TESTED CONSISTENCY	
			0	50	100	150		NON-COHESIVE	COHESIVE
-	2	8.9	••				2	VERY LOOSE	SOFT
-	7	31.1	••••••••				8	LOOSE	MEDIUM STIFF
1 ft	7	31.1	••••••••				8	LOOSE	MEDIUM STIFF
-	15	66.6	••••••••••••••				19	MEDIUM DENSE	VERY STIFF
-	22	97.7	••••••••••••••••••				25+	MEDIUM DENSE	VERY STIFF
2 ft	23	102.1	••••••••••~••••••••				25+	MEDIUM DENSE	VERY STIFF
-	21	93.2	••••~••••••••••••••				25+	MEDIUM DENSE	VERY STIFF
-	19	84.4	••••••••••••••••••				24	MEDIUM DENSE	VERY STIFF
3 ft	18	79.9	••••••••••••••••••				22	MEDIUM DENSE	VERY STIFF
1 m	20	88.8	••••••••••~••••••••				25	MEDIUM DENSE	VERY STIFF
-	22	84.9	••••••~••••••••••••				24	MEDIUM DENSE	VERY STIFF
4 ft	22	84.9	••••••~••••~••••••••				24	MEDIUM DENSE	VERY STIFF
-	30	115.8	••••••~••••~••••~••••				25+	DENSE	HARD
-	25	96.5	••••••~••••~••••~••••				25+	MEDIUM DENSE	VERY STIFF
5 ft	32	123.5	••••~••••~••••~••••~••				25+	DENSE	HARD
-	22	84.9	••••~••••~••••~••••~••				24	MEDIUM DENSE	VERY STIFF
-	12	46.3	••••~••••~••••~••••~••				13	MEDIUM DENSE	STIFF
6 ft	10	38.6	••••~••••~••••~••••~••				11	MEDIUM DENSE	STIFF
-	8	30.9	••••~••••~••••~••••~••				8	LOOSE	MEDIUM STIFF
2 m	42	162.1	••••~••••~••••~••••~••				25+	DENSE	HARD
-	32	109.4	••••~••••~••••~••••~••				25+	DENSE	HARD
7 ft	34	116.3	••••~••••~••••~••••~••				25+	DENSE	HARD
-	39	133.4	••••~••••~••••~••••~••				25+	DENSE	HARD
8 ft	50	171.0	••••~••••~••••~••••~••				25+	DENSE	HARD
-									
9 ft									
3 m	10 ft								
-									
-	11 ft								
-									
-	12 ft								
-									
4 m	13 ft								

Figure 5-6

WILDCAT DYNAMIC CONE LOG

Budinger and Associates, Inc.
 1101 N Fancher Rd
 Spokane Valley, WA, 99212

PROJECT NUMBER: S211189
 DATE STARTED: 03-08-2022
 DATE COMPLETED: 03-08-2022

HOLE #: DCP @ TP-2212
 CREW: Cameron Andrews
 PROJECT: Legacy Ridge West Phase F
 ADDRESS: unassigned
 LOCATION: Liberty Lake, WA

SURFACE ELEVATION: 2534
 WATER ON COMPLETION: N/A
 HAMMER WEIGHT: 35 lbs.
 CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm ²	GRAPH OF CONE RESISTANCE				N'	TESTED CONSISTENCY	
			0	50	100	150		NON-COHESIVE	COHESIVE
-	4	17.8	.....				5	LOOSE	MEDIUM STIFF
-	4	17.8	.....				5	LOOSE	MEDIUM STIFF
- 1 ft	7	31.1	.....				8	LOOSE	MEDIUM STIFF
-	29	128.8	.....				25+	DENSE	HARD
-	33	146.5	.....				25+	DENSE	HARD
- 2 ft	26	115.4	.....				25+	DENSE	HARD
-	28	124.3	.....				25+	DENSE	HARD
-	32	142.1	.....				25+	DENSE	HARD
- 3 ft	30	133.2	.....				25+	DENSE	HARD
- 1 m	34	151.0	.....				25+	DENSE	HARD
-	20	77.2	.....				22	MEDIUM DENSE	VERY STIFF
- 4 ft	26	100.4	.....				25+	MEDIUM DENSE	VERY STIFF
-	17	65.6	.....				18	MEDIUM DENSE	VERY STIFF
-	28	108.1	.....				25+	MEDIUM DENSE	VERY STIFF
- 5 ft	19	73.3	.....				20	MEDIUM DENSE	VERY STIFF
-	16	61.8	.....				17	MEDIUM DENSE	VERY STIFF
-	26	100.4	.....				25+	MEDIUM DENSE	VERY STIFF
- 6 ft	18	69.5	.....				19	MEDIUM DENSE	VERY STIFF
-	28	108.1	.....				25+	MEDIUM DENSE	VERY STIFF
- 2 m	27	104.2	.....				25+	MEDIUM DENSE	VERY STIFF
- 7 ft	21	71.8	.....				20	MEDIUM DENSE	VERY STIFF
-	19	65.0	.....				18	MEDIUM DENSE	VERY STIFF
-	16	54.7	.....				15	MEDIUM DENSE	STIFF
- 8 ft	15	51.3	.....				14	MEDIUM DENSE	STIFF
-	33	112.9	.....				25+	DENSE	HARD
-	38	130.0	.....				25+	DENSE	HARD
- 9 ft	62	212.0	.....				25+	VERY DENSE	HARD
-	50	171.0	.....				25+	DENSE	HARD
- 3 m	10 ft								
-	11 ft								
-	12 ft								
- 4 m	13 ft								

Figure 5-7

WILDCAT DYNAMIC CONE LOG

Budinger and Associates, Inc.
 1101 N Fancher Rd
 Spokane Valley, WA, 99212

PROJECT NUMBER: S211189
 DATE STARTED: 03-08-2022
 DATE COMPLETED: 03-08-2022

HOLE #: DCP @ TP-2214
 CREW: Cameron Andrews
 PROJECT: Legacy Ridge West Phase F
 ADDRESS: unassigned
 LOCATION: Liberty Lake, WA

SURFACE ELEVATION: 2559
 WATER ON COMPLETION: N/A
 HAMMER WEIGHT: 35 lbs.
 CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm ²	GRAPH OF CONE RESISTANCE				N'	TESTED CONSISTENCY	
			0	50	100	150		NON-COHESIVE	COHESIVE
-	5	22.2	.....				6	LOOSE	MEDIUM STIFF
-	10	44.4	.....				12	MEDIUM DENSE	STIFF
- 1 ft	16	71.0	.....				20	MEDIUM DENSE	VERY STIFF
-	21	93.2	.....				25+	MEDIUM DENSE	VERY STIFF
-	25	111.0	.....				25+	DENSE	HARD
- 2 ft	40	177.6	.....				25+	DENSE	HARD
-	50	222.0	.....				25+	VERY DENSE	HARD
-									
- 3 ft									
- 1 m									
-									
- 4 ft									
-									
- 5 ft									
-									
- 6 ft									
- 2 m									
-									
- 7 ft									
-									
- 8 ft									
-									
- 9 ft									
-									
- 3 m 10 ft									
-									
- 11 ft									
-									
- 12 ft									
-									
- 4 m 13 ft									

Figure 5-8

WILDCAT DYNAMIC CONE LOG

Budinger and Associates, Inc.
 1101 N Fancher Rd
 Spokane Valley, WA, 99212

PROJECT NUMBER: S211189
 DATE STARTED: 03-08-2022
 DATE COMPLETED: 03-08-2022

HOLE #: DCP @ TP-2215
 CREW: Cameron Andrews
 PROJECT: Legacy Ridge West Phase F
 ADDRESS: unassigned
 LOCATION: Liberty Lake, WA

SURFACE ELEVATION: 2575
 WATER ON COMPLETION: N/A
 HAMMER WEIGHT: 35 lbs.
 CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm ²	GRAPH OF CONE RESISTANCE				N'	TESTED CONSISTENCY	
			0	50	100	150		NON-COHESIVE	COHESIVE
-	4	17.8	•••••				5	LOOSE	MEDIUM STIFF
-	5	22.2	•••••				6	LOOSE	MEDIUM STIFF
- 1 ft	4	17.8	•••••				5	LOOSE	MEDIUM STIFF
-	5	22.2	•••••				6	LOOSE	MEDIUM STIFF
-	5	22.2	•••••				6	LOOSE	MEDIUM STIFF
- 2 ft	12	53.3	••••••••••				15	MEDIUM DENSE	STIFF
-	20	88.8	••••••••••••••				25	MEDIUM DENSE	VERY STIFF
-	27	119.9	••••••••••••••••••				25+	DENSE	HARD
- 3 ft	50	222.0	••••••••••••••••••••				25+	VERY DENSE	HARD
- 1 m									
-	4 ft								
-	5 ft								
-	6 ft								
- 2 m									
-	7 ft								
-	8 ft								
-	9 ft								
- 3 m	10 ft								
-	11 ft								
-	12 ft								
- 4 m	13 ft								

Figure 5-9

WILDCAT DYNAMIC CONE LOG

Budinger and Associates, Inc.
 1101 N Fancher Rd
 Spokane Valley, WA, 99212

PROJECT NUMBER: S211189
 DATE STARTED: 03-08-2022
 DATE COMPLETED: 03-08-2022

HOLE #: DCP @ TP-2216
 CREW: Cameron Andrews
 PROJECT: Legacy Ridge West Phase F
 ADDRESS: unassigned
 LOCATION: Liberty Lake, WA

SURFACE ELEVATION: 2580
 WATER ON COMPLETION: N/A
 HAMMER WEIGHT: 35 lbs.
 CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm ²	GRAPH OF CONE RESISTANCE				N'	TESTED CONSISTENCY	
			0	50	100	150		NON-COHESIVE	COHESIVE
-	3	13.3	•••				3	VERY LOOSE	SOFT
-	5	22.2	•••••				6	LOOSE	MEDIUM STIFF
- 1 ft	5	22.2	•••••				6	LOOSE	MEDIUM STIFF
-	5	22.2	•••••				6	LOOSE	MEDIUM STIFF
-	6	26.6	••••••				7	LOOSE	MEDIUM STIFF
- 2 ft	6	26.6	••••••				7	LOOSE	MEDIUM STIFF
-	5	22.2	•••••				6	LOOSE	MEDIUM STIFF
-	6	26.6	••••••				7	LOOSE	MEDIUM STIFF
- 3 ft	6	26.6	••••••				7	LOOSE	MEDIUM STIFF
- 1 m	5	22.2	•••••				6	LOOSE	MEDIUM STIFF
-	8	30.9	•••••••				8	LOOSE	MEDIUM STIFF
- 4 ft	12	46.3	••••••••••				13	MEDIUM DENSE	STIFF
-	11	42.5	••••••••••				12	MEDIUM DENSE	STIFF
-	21	81.1	••••••••••••••••				23	MEDIUM DENSE	VERY STIFF
- 5 ft	29	111.9	••••••••••••••••••••				25+	DENSE	HARD
-	39	150.5	••••••••••••••••••••••••				25+	DENSE	HARD
-	48	185.3	••••••••••••••~••••••••••				25+	VERY DENSE	HARD
- 6 ft	50	193.0	••••••~•••••••••••••••••••				25+	VERY DENSE	HARD
- 2 m									
- 7 ft									
- 8 ft									
- 9 ft									
- 3 m	10 ft								
- 11 ft									
- 12 ft									
- 4 m	13 ft								

Figure 5-10

WILDCAT DYNAMIC CONE LOG

Budinger and Associates, Inc.
 1101 N Fancher Rd
 Spokane Valley, WA, 99212

PROJECT NUMBER: S211189
 DATE STARTED: 03-08-2022
 DATE COMPLETED: 03-08-2022

HOLE #: DCP @ TP-2225
 CREW: Cameron Andrews
 PROJECT: Legacy Ridge West Phase F
 ADDRESS: unassigned
 LOCATION: Liberty Lake, WA

SURFACE ELEVATION: 2516
 WATER ON COMPLETION: N/A
 HAMMER WEIGHT: 35 lbs.
 CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm ²	GRAPH OF CONE RESISTANCE				N'	TESTED CONSISTENCY	
			0	50	100	150		NON-COHESIVE	COHESIVE
-	1	4.4	•				1	VERY LOOSE	VERY SOFT
-	3	13.3	•••				3	VERY LOOSE	SOFT
- 1 ft	1	4.4	•				1	VERY LOOSE	VERY SOFT
-	7	31.1	••••••••				8	LOOSE	MEDIUM STIFF
-	20	88.8	••••••••••••••••				25	MEDIUM DENSE	VERY STIFF
- 2 ft	19	84.4	••••••••••••••••				24	MEDIUM DENSE	VERY STIFF
-	31	137.6	••••••••••••••••••••				25+	DENSE	HARD
-	33	146.5	••••••••••••••••••••				25+	DENSE	HARD
- 3 ft	50	222.0	••••••~				25+	VERY DENSE	HARD
- 1 m									
-	4 ft								
-	5 ft								
-	6 ft								
- 2 m									
-	7 ft								
-	8 ft								
-	9 ft								
- 3 m	10 ft								
-	11 ft								
-	12 ft								
- 4 m	13 ft								

Figure 5-13

WILDCAT DYNAMIC CONE LOG

Budinger and Associates, Inc.
 1101 N Fancher Rd
 Spokane Valley, WA, 99212

PROJECT NUMBER: S211189
 DATE STARTED: 03-08-2022
 DATE COMPLETED: 03-08-2022

HOLE #: DCP @ TP-2226
 CREW: Cameron Andrews
 PROJECT: Legacy Ridge West Phase F
 ADDRESS: unassigned
 LOCATION: Liberty Lake, WA

SURFACE ELEVATION: 2490
 WATER ON COMPLETION: N/A
 HAMMER WEIGHT: 35 lbs.
 CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm ²	GRAPH OF CONE RESISTANCE				N'	TESTED CONSISTENCY	
			0	50	100	150		NON-COHESIVE	COHESIVE
-	7	31.1	.....				8	LOOSE	MEDIUM STIFF
-	14	62.2	.....				17	MEDIUM DENSE	VERY STIFF
- 1 ft	18	79.9	.....				22	MEDIUM DENSE	VERY STIFF
-	23	102.1	.....				25+	MEDIUM DENSE	VERY STIFF
-	43	190.9	.....				25+	VERY DENSE	HARD
- 2 ft	59	262.0	.....				25+	VERY DENSE	HARD
-	50	222.0	.....				25+	VERY DENSE	HARD
-									
- 3 ft									
- 1 m									
-									
- 4 ft									
-									
- 5 ft									
-									
- 6 ft									
- 2 m									
-									
- 7 ft									
-									
- 8 ft									
-									
- 9 ft									
-									
- 3 m 10 ft									
-									
- 11 ft									
-									
- 12 ft									
-									
- 4 m 13 ft									

Figure 5-14

WILDCAT DYNAMIC CONE LOG

Budinger and Associates, Inc.
 1101 Fancher Rd
 Spokane Valley, WA, 99212

PROJECT NUMBER: S211189
 DATE STARTED: 03-08-2022
 DATE COMPLETED: 03-08-2022

HOLE #: DCP TP-2228
 CREW: Cameron Andrews
 PROJECT: Legacy Ridge West Phase F
 ADDRESS: unassigned
 LOCATION: Liberty Lake, WA

SURFACE ELEVATION : 241
 WATER TABLE COMPLETION : /A
 HAMMER WEIGHT: 35 lbs.
 CORRECTED AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE g/cm	GRAPH OF CORRECTED RESISTANCE				TESTED CORRECTED		
			0	50	100	150	NON-COHESIVE	COHESIVE	
-	7	31.1					8	LOOSE	MEDIUM STIFF
-	10	44.4					12	MEDIUM DENSE	STIFF
- 1 ft	8	35.5					10	LOOSE	STIFF
-	9	40.0					11	MEDIUM DENSE	STIFF
-	1	71.0					20	MEDIUM DENSE	VERY STIFF
- 2 ft	21	93.2					25	MEDIUM DENSE	VERY STIFF
-	28	124.3					25	DENSE	HARD
-	35	155.4					25	DENSE	HARD
- 3 ft	24	102.1					25	MEDIUM DENSE	VERY STIFF
- 1 m	23	102.1					25	MEDIUM DENSE	VERY STIFF
-	50	193.0					25	VERY DENSE	HARD
- 4 ft									
-									
- 5 ft									
-									
- ft									
- 2 m									
- 7 ft									
-									
- 8 ft									
-									
- 9 ft									
-									
- 3 m 10 ft									
-									
- 11 ft									
-									
- 12 ft									
-									
- 4 m 13 ft									

Figure 5-16

WILDCAT DYNAMIC CONE LOG

Budinger and Associates, Inc.
 1101 Fancher Rd
 Spokane Valley, WA, 99212

PROJECT NUMBER: S211189
 DATE STARTED: 03-08-2022
 DATE COMPLETED: 03-08-2022

HOLE #: DCP TP-2229
 CREW: Cameron Andrews
 PROJECT: Legacy Ridge West Phase F
 ADDRESS: unassigned
 LOCATION: Liberty Lake, WA

SURFACE ELEVATION : 2388
 WATER TABLE COMPLETION : /A
 HAMMER WEIGHT: 35 lbs.
 CORRECTED AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE g/cm	GRAPH OF CORRECTED RESISTANCE				TESTED CORRECTED	
			0	50	100	150	LOOSE	COHESIVE
-	5	22.2					LOOSE	MEDIUM STIFF
-	11	48.8				13	MEDIUM DE SE	STIFF
- 1 ft	14	2.2				17	MEDIUM DE SE	VERY STIFF
-	15	.				19	MEDIUM DE SE	VERY STIFF
-	1	71.0				20	MEDIUM DE SE	VERY STIFF
- 2 ft	1	71.0				20	MEDIUM DE SE	VERY STIFF
-	18	79.9				22	MEDIUM DE SE	VERY STIFF
-	13	57.7				1	MEDIUM DE SE	VERY STIFF
- 3 ft	12	53.3				15	MEDIUM DE SE	STIFF
- 1 m	10	44.4				12	MEDIUM DE SE	STIFF
-	7	27.0				7	LOOSE	MEDIUM STIFF
- 4 ft	10	38.				11	MEDIUM DE SE	STIFF
-	9	34.7				9	LOOSE	STIFF
-	10	38.				11	MEDIUM DE SE	STIFF
- 5 ft	8	30.9				8	LOOSE	MEDIUM STIFF
-	11	42.5				12	MEDIUM DE SE	STIFF
-	10	38.				11	MEDIUM DE SE	STIFF
- ft	9	34.7				9	LOOSE	STIFF
-	9	34.7				9	LOOSE	STIFF
- 2 m	10	38.				11	MEDIUM DE SE	STIFF
- 7 ft	10	34.2				9	LOOSE	STIFF
-	12	41.0				11	MEDIUM DE SE	STIFF
-	15	51.3				14	MEDIUM DE SE	STIFF
- 8 ft	25	85.5				24	MEDIUM DE SE	VERY STIFF
-	28	95.8				25	MEDIUM DE SE	VERY STIFF
-	25	85.5				24	MEDIUM DE SE	VERY STIFF
- 9 ft	31	10 .0				25	MEDIUM DE SE	VERY STIFF
-	54	184.7				25	VERY DE SE	HARD
-	50	171.0				25	DE SE	HARD
- 3 m 10 ft								
-								
-								
- 11 ft								
-								
- 12 ft								
-								
- 4 m 13 ft								

Figure 5-17

WILDCAT DYNAMIC CONE LOG

Budinger and Associates, Inc.
 1101 N Fancher Rd
 Spokane Valley, WA, 99212

PROJECT NUMBER: S211189
 DATE STARTED: 03-08-2022
 DATE COMPLETED: 03-08-2022

HOLE #: DCP-32
 CREW: Cameron Andrews
 PROJECT: Legacy Ridge West Phase F
 ADDRESS: unassigned
 LOCATION: Liberty Lake, WA

SURFACE ELEVATION: 2420
 WATER ON COMPLETION: N/A
 HAMMER WEIGHT: 35 lbs.
 CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm ²	GRAPH OF CONE RESISTANCE				N'	TESTED CONSISTENCY	
			0	50	100	150		NON-COHESIVE	COHESIVE
-	20	88.8	.....				25	MEDIUM DENSE	VERY STIFF
-	43	190.9	.....				25+	VERY DENSE	HARD
- 1 ft	50	222.0	.....				25+	VERY DENSE	HARD
-									
- 2 ft									
-									
- 3 ft									
- 1 m									
-									
- 4 ft									
-									
- 5 ft									
-									
- 6 ft									
- 2 m									
-									
- 7 ft									
-									
- 8 ft									
-									
- 9 ft									
-									
- 3 m 10 ft									
-									
- 11 ft									
-									
- 12 ft									
-									
- 4 m 13 ft									

Figure 5-20

DCP TEST DATA

Project: S211189 Legacy Ridge Phase F

Date: 8-Mar-22

Location: TP-2206

Soil Type(s): SM

Hammer
 ● 10.1 lbs.
 ○ 17.6 lbs.
 ○ Both hammers used

Soil Type
 ○ CH
 ○ CL
 ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0.5	25	2
0.5	50	2
1	75	2
1	100	2
1.5	125	2
1.5	150	2
1.5	175	2
1.5	200	2
2.5	225	2
2.5	250	2
7	275	2
7	300	2
12.5	325	2
12.5	350	2
22.5	375	2
22.5	400	2
15	425	2
15	450	2

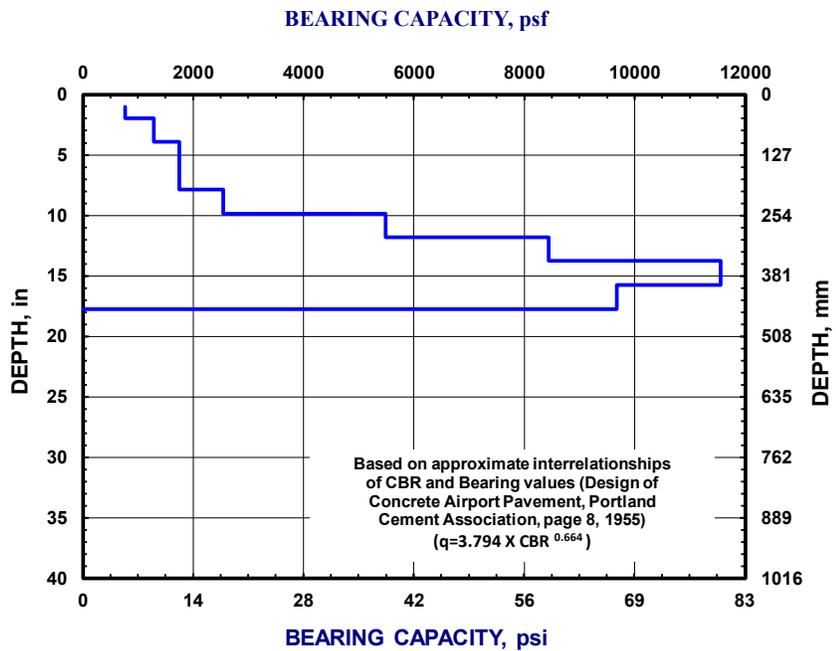
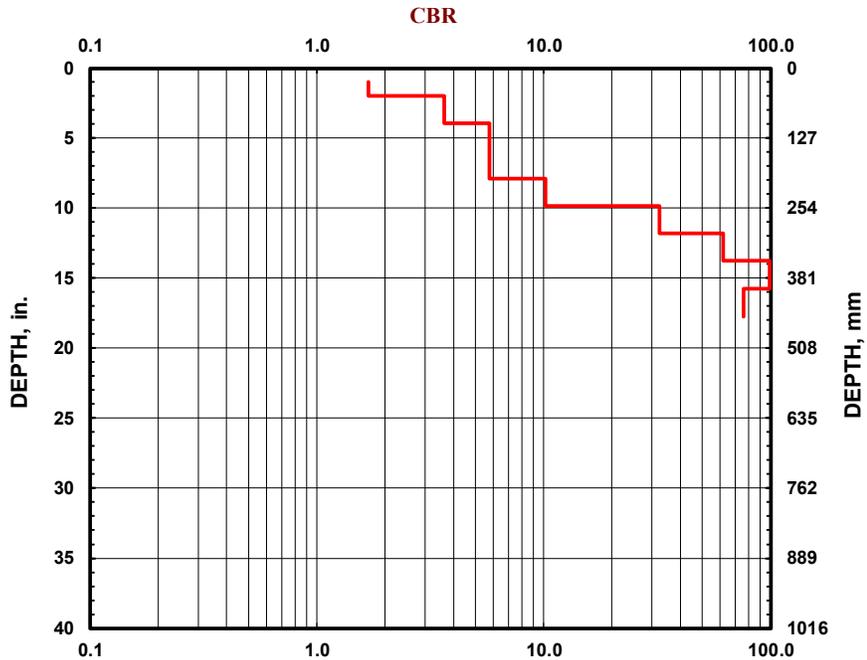


Figure 6-3

DCP TEST DATA

Project: S211189 Legacy Ridge Phase F

Date: 8-Mar-22

Location: TP-2220

Soil Type(s): SM

Hammer
 ● 10.1 lbs.
 ○ 17.6 lbs.
 ○ Both hammers used

Soil Type
 ○ CH
 ○ CL
 ● All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
1	25	2
1	50	2
2	75	2
2	100	2
6.5	125	2
6.5	150	2
6	175	2
6	200	2
6	225	2
6	250	2
4	275	2
4	300	2
12	325	2
12	350	2
15	375	2
15	400	2

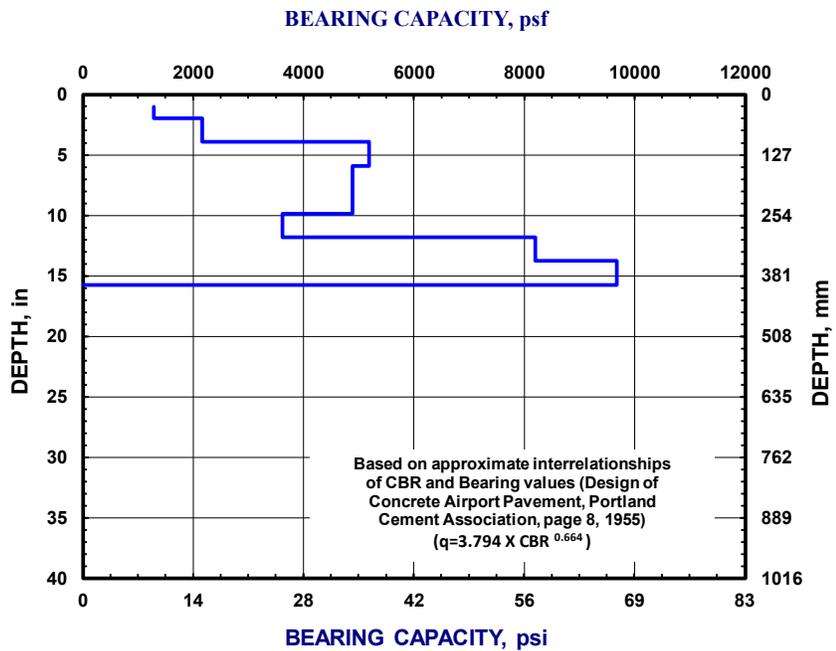
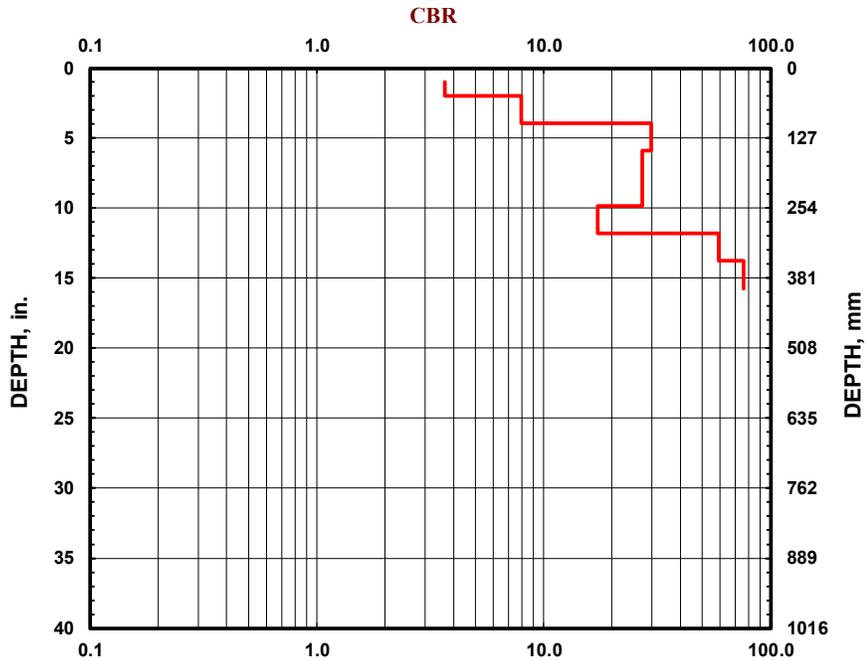


Figure 6-8

Legacy Phase F

Appendix B: S241121 Legacy Phase F – Subsurface Exploration Logs

TEST PIT 1

Date: 2-5-25
Excavator: Copenhaver Construction, Inc
Equipment: Komatsu PC 490 LC w/48" bucket
Location: Section Line 4 - STA 15 25 90 feet Left
Surface: snow, grass and weeds

Elevation: 2475 ft
Logged by: L. Long
Size of hole: 8 x 24 feet

TEST RESULTS														
DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	ATTERBERG LIMITS									
					WATER CONTENT ○									
					10	20	30	40	50	60	70	80	90	
0		moist, dark brown	SILTY SAND, with Gravel and Cobbles, coarse to fine, subangular, organics as fine roots, 6 inches of frozen soil (topsoil)		○									
		moist, orangish brown												
		tanish brown to orangish white	SILTY, CLAYEY SAND with Gravel and Cobbles, occasional Boulders, coarse to fine, angular to subangular, organics as fine roots											
5			GNEISS, highly weathered, very weak to moderately weak rock (R1-R2), characteristics are similar to Sand and Gravel with Silt upon excavation											
10					○									
15														
20		orangish white	becoming moderately to slightly weathered, moderately strong to strong (R3-R4), characteristics are similar to Gravel with Silt, Sand, and Cobbles upon excavation (maximum digging reach)											
25		no free groundwater observed	End of Excavation @ 23 ft											
30														



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TEST PIT LOGS

FIGURE 4-1

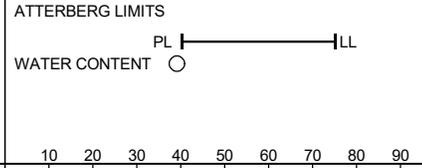
Project: Legacy Phase F
 Location: Liberty Lake, WA
 Number: S241121

TEST PIT 2

Date: 2-5-25
Excavator: Copenhaver Construction, Inc
Equipment: Komatsu PC 490 LC w/48" bucket
Location: Section Line 2 - STA 13 00 100 feet Left
Surface: snow, grass and weeds

Elevation: 2476 ft
Logged by: L. Long
Size of hole: 7 x 20 feet

TEST RESULTS



DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	TEST RESULTS									
0					10	20	30	40	50	60	70	80	90	
		moist, dark brown	SILTY SAND with Gravel, coarse to fine, subangular, organics as fine roots, 4 inches of frozen soil (topsoil)											
		moist, orangish brown												
		orangish brown to tanish orange	SILTY, CLAYEY SAND with Gravel, coarse to fine, angular to subangular, organics as fine roots											
5		orangish white	GNEISS, highly weathered, very weak to moderately weak rock (R1-R2), characteristics are similar to Sand and Gravel with Silt upon excavation becoming moderately to slightly weathered, moderately strong to strong (R3-R4), characteristics are similar to Gravel with Silt, Sand, and Cobbles upon excavation (digging refusal on stronger Gneiss)											
10		no free groundwater observed	End of Excavation @ 9 ft											
15														
20														
25														
30														



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TEST PIT LOGS

FIGURE 4-2

Project: Legacy Phase F
 Location: Liberty Lake, WA
 Number: S241121

TEST PIT 3

Date: 2-5-25
Excavator: Copenhagen Construction, Inc
Equipment: Komatsu PC 490 LC w/48" bucket
Location: Proposed Lot 44 central portion of east half
Surface: snow, grass and weeds

Elevation: 2560 ft
Logged by: L. Long
Size of hole: 7 x 24 feet

					TEST RESULTS								
DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	ATTERBERG LIMITS								
					WATER CONTENT ○								
0					10	20	30	40	50	60	70	80	90
0	1	moist, dark brown	SILTY SAND with Gravel, coarse to fine, subangular, organics as fine roots, 4 inches of fro en soil (topsoil)										
0	2	moist, orangish brown	SILTY, CLAYEY SAND with Gravel, coarse to fine, angular to subangular, organics as fine roots										
5	3	orangish brown to tanish orange	GNEISS, highly weathered, very weak to moderately weak rock (R1-R2), characteristics are similar to Sand and Gravel with Silt upon excavation										
10													
15	4	orangish brown to greenish gray											
20													
25	5	orangish white	becoming moderately to slightly weathered, moderately strong to strong (R3-R4), characteristics are similar to Gravel with Silt, Sand, and Cobbles upon excavation (maximum digging reach)										
25		no free groundwater observed	End of Excavation @ 25 ft										
30													



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TEST PIT LOGS

FIGURE 4-3

Project: Legacy Phase F
 Location: Liberty Lake, WA
 Number: S241121

TEST PIT 5

Date: 2-5-25
Excavator: Copenhaver Construction, Inc
Equipment: Komatsu PC 490 LC w/48" bucket
Location: Section Line 3 - STA 15 00 50 feet Right
Surface: snow, grass and weeds

Elevation: 2405 ft
Logged by: L. Long
Size of hole: 7 x 20 feet

				TEST RESULTS									
DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	ATTERBERG LIMITS								
					WATER CONTENT								
0					10	20	30	40	50	60	70	80	90
0	1	moist, dark to moderate brown	GRAVEL with Sand and Cobbles, coarse to fine, angular to subrounded, organics as fine roots, 9 inches of frozen soil (existing fill)	[Cross-hatched pattern]									
5	2	moist, dark to moderate brown	SILTY GRAVEL with Sand and Cobbles, coarse to fine, angular to subangular (existing fill)	[Cross-hatched pattern]									
10	3	orangish brown to tanish orange	GNEISS, highly weathered, very weak to moderately weak rock (R1-R2), characteristics are similar to Sand and Gravel with Silt upon excavation	[Diagonal lines pattern]									
15	4	orangish white	becoming moderately to slightly weathered, moderately strong to strong (R3-R4), characteristics are similar to Gravel with Silt, Sand, and Cobbles upon excavation (digging refusal on stronger Gneiss)	[Diagonal lines pattern]									
20		no free groundwater observed	End of Excavation @ 16.5 ft										
25													
30													



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TEST PIT LOGS

FIGURE 4-4

Project: Legacy Phase F
 Location: Liberty Lake, WA
 Number: S241121

TEST PIT 6

Date: 2-5-25
Excavator: Copenhaver Construction, Inc
Equipment: Komatsu PC 490 LC w/48" bucket
Location: Section Line 7 - STA 15 00 30 feet Left
Surface: snow, grass and weeds

Elevation: 2360 ft
Logged by: L. Long
Size of hole: 7 x 20 feet

DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	TEST RESULTS									
					ATTERBERG LIMITS PL |-----| LL WATER CONTENT ○									
0					10	20	30	40	50	60	70	80	90	
	1	moist, dark brown	SILTY SAND with Gravel and Cobbles, coarse to fine, subangular, organics as fine roots, 9 inches of frozen soil (existing fill)											
	2	tanish orange	GNEISS, moderately to slightly weathered, moderately strong to strong rock (R3-R4), characteristics are similar to Gravel with Silt, Sand, and Cobbles upon excavation (digging refusal on stronger Gneiss)											
5		no free groundwater observed	End of Excavation @ 4.5 ft											
10														
15														
20														
25														
30														



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TEST PIT LOGS

FIGURE 4-5

Project: Legacy Phase F
 Location: Liberty Lake, WA
 Number: S241121

TEST PIT 7

Date: 2-5-25
Excavator: Copenhaver Construction, Inc
Equipment: Komatsu PC 490 LC w/48" bucket
Location: Section Line 1 - STA 21 50 45 feet Left
Surface: snow, grass and weeds

Elevation: 2350 ft
Logged by: L. Long
Size of hole: 7 x 23 feet

				TEST RESULTS									
DEPTH	SAMPLES	MOISTURE, COLOR, CONDITION	DESCRIPTION	SOIL LOG	ATTERBERG LIMITS								
					WATER CONTENT ○								
0					10	20	30	40	50	60	70	80	90
	1	moist, gray	GRAVEL with Silt and Sand, medium to fine, subrounded, 9 inches of fro en soil (existing fill)	[Pattern]									
	2	moist, dark brown to orangish brown	SILTY, CLAYEY SAND with Gravel, Cobbles and Boulders, coarse to fine, angular to subangular, possible re-worked native soil (existing fill)	[Pattern]									
	3	moist, orangish brown	SILTY, CLAYEY SAND with Gravel, coarse to fine, angular to subangular, occasional Cobbles	[Pattern]									
	4	orangish brown to tanish orange	GNEISS, highly weathered, very weak to moderately weak rock (R1-R2), characteristics are similar to Sand and Gravel with Silt upon excavation	[Pattern]									
	5	dark tanish orange	becoming moderately to slightly weathered, moderately strong to strong (R3-R4), characteristics are similar to Gravel with Silt, Sand, and Cobbles upon excavation (digging refusal on stronger Gneiss)	[Pattern]									
	6	no free groundwater observed	End of Excavation @ 11 ft	[Pattern]									
10													
15													
20													
25													
30													



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TEST PIT LOGS

FIGURE 4-6

Project: Legacy Phase F
Location: Liberty Lake, WA
Number: S241121

PROBE BORI G 8

Date of Boring: 2-6-25
Driller: McCallum Rock Drilling
Type of Drill: Furukawa HCR900
Location: Section Line 2 - STA 13 75 20 feet Left
Surface: snow, grass and weeds

Elevation: 2480
Logged by: K. Savage
Size of hole: 4-inch-diameter button bit

DEPTH SAMPLES (RECOVERY)	MOISTURE, COLOR, CONDITION <small>note: soil rock is not fully permeable determination of depth to groundwater may not be possible</small>	DESCRIPTION <small>note: descriptions from probe borings are approximate based only on advancement rate and cuttings</small>	SOIL LOG	ADVANCEMENT RATE
0				
5	dark brown	SILTY SAND with Gravel (topsoil)		
10		GNEISS, highly to slightly weathered, very weak to moderately strong rock (R1-R3) (hammer percussion required 2 to 4 feet)		2 to 11 feet: 2 minutes, 10 seconds
15		(hammer percussion required 11 to 16 feet)		
20		(hammer percussion required 19 to 23 feet)		
25		(hammer percussion required 23 to 35 feet)		11 to 23 feet: 3 minutes, 50 seconds
30		(hammer percussion required 23 to 35 feet)		
35		(hammer percussion required 35 to 47 feet)		23 to 35 feet: 2 minutes, 48 seconds
40		(hammer percussion required 35 to 47 feet)		
45		(hammer percussion required 35 to 47 feet)		
50		End of Boring @ 50 ft		35 to 47 feet: 2 minutes, 50 seconds
55				
60				
65				

LOGS - ADVANCEMENT S241121.GPJ GINT STD.US.GDT 2/20/25



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PROBE LOGS

FIGURE 4-7

Project: Legacy Phase F
 Location: Liberty Lake, WA
 Number: S241121

PROBE BORI G 9

Date of Boring: 2-6-25
Driller: McCallum Rock Drilling
Type of Drill: Furukawa HCR900
Location: Section Line 3 - STA 18 50
Surface: snow, grass and weeds

Elevation: 2465
Logged by: K. Savage
Size of hole: 4-inch-diameter button bit

DEPTH 0 5 10 15 20 25 30 35 40 45 50 55 60 65	SAMPLES (RECOVERY)	MOISTURE, COLOR, CONDITION <small>note: soil rock is not likely to be determined on site to round later may not be possible</small>	DESCRIPTION <small>note: descriptions from probe borings are approximate based only on advancement rate and cutting</small>	SOIL LOG	ADVANCEMENT RATE
0		dark brown	SILTY SAND with Gravel (topsoil)		
5			GNEISS, highly to slightly weathered, very weak to moderately strong rock (R1-R3)		
10			Driller reports "really hard rock" from 6 to 7 feet		2 to 11 feet: 3 minutes, 49 seconds
15			(hammer percussion required 11 to 13 feet)		
20			(hammer percussion required 14 to 23 feet)		
25			(hammer percussion required 23 to 28 feet)		11 to 23 feet: 3 minutes, 58 seconds
30			(hammer percussion required 30 to 35 feet)		
35			(hammer percussion required 35 to 47 feet)		23 to 35 feet: 3 minutes, 45 seconds
40			(hammer percussion required 35 to 47 feet)		
45			(hammer percussion required 35 to 47 feet)		
50			Driller reports rock is "a little harder" from 47 to 59 feet		35 to 47 feet: 3 minutes, 55 seconds
55			(hammer percussion required 47 to 59 feet)	47 to 59 feet: 4 minutes, 01 second	
60			End of Boring @ 59 ft		
65					

LOGS - ADVANCEMENT S241121.GPJ GINT STD.US.GDT 2/20/25



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PROBE LOGS

FIGURE 4-8

Project: Legacy Phase F
 Location: Liberty Lake, WA
 Number: S241121

PROBE BORI G 10

Date of Boring: 2-6-25
Driller: McCallum Rock Drilling
Type of Drill: Furukawa HCR900
Location: Section Line 4 - STA 13 25
Surface: snow, grass and weeds

Elevation: 2520
Logged by: K. Savage
Size of hole: 4-inch-diameter button bit

DEPTH 0 5 10 15 20 25 30 35 40 45 50 55 60 65	SAMPLES (RECOVERY)	MOISTURE, COLOR, CONDITION <small>note: soil rock is not likely to be determined on a dry basis</small>	DESCRIPTION <small>note: descriptions from probe borings are approximate based only on advancement rate and soil cuttings</small>	SOIL LOG	ADVANCEMENT RATE
			GNEISS, highly to slightly weathered, very weak to moderately strong rock (R1-R3)		0 to 11 feet: 2 minutes, 59 seconds
			(hammer percussion required 0 to 7 feet)		
			(hammer percussion required 12 to 21 feet)		
					11 to 23 feet: 4 minutes, 9 seconds
			(hammer percussion required 25 to 35 feet)		
					23 to 35 feet: 3 minutes, 25 seconds
			(hammer percussion required 35 to 47 feet)		
					35 to 47 feet: 3 minutes, 11 seconds
			(hammer percussion required 47 to 59 feet)		
			(hammer percussion required 47 to 59 feet)		
			Driller reports "harder rock" beginning at 55 feet		
					47 to 59 feet: 3 minutes, 45 seconds
			End of Boring @ 59 ft		

LOGS - ADVANCEMENT S241121.GPJ GINT STD.US.GDT 2/20/25



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PROBE LOGS

FIGURE 4-9

Project: Legacy Phase F
 Location: Liberty Lake, WA
 Number: S241121

PROBE BORING 11

Date of Boring: 2-6-25
Driller: McCallum Rock Drilling
Type of Drill: Furukawa HCR900
Location: Section Line 7 - STA 18 00
Surface: snow, grass and weeds

Elevation: 2435
Logged by: K. Savage
Size of hole: 4-inch-diameter button bit

DEPTH SAMPLES (RECOVERY)	MOISTURE, COLOR, CONDITION <small>note: soil rock is not fully permeable determination of depth to groundwater may not be possible</small>	DESCRIPTION <small>note: descriptions from probe borings are approximate based only on advancement rate and observed cuttings</small>	SOIL LOG	ADVANCEMENT RATE	
0	dark brown	SILTY SAND with Gravel (topsoil)			
5		GNEISS, highly to slightly weathered, very weak to moderately strong rock (R1-R3) (hammer percussion required 0 to 11 feet)		0 to 11 feet: 3 minutes, 49 seconds	
10					
15		Driller reports "very hard rock" from 14 to 26 feet (hammer percussion required 11 to 23 feet)		11 to 23 feet: 4 minutes, 15 seconds	
20					
25		Driller reports "softer rock" 26 to 30 feet (hammer percussion required 23 to 35 feet) Driller reports "hard rock" 30 to 33 feet		23 to 35 feet: 4 minutes, 9 seconds	
30					
35		Driller reports "softer rock" 33 to 37 feet (hammer percussion required 35 to 47 feet) Driller reports "very hard rock" from 37 to 47 feet		35 to 47 feet: 5 minutes, 10 seconds	
40					
45					
50		End of Boring @ 47 ft			
55					
60					
65					

LOGS - ADVANCEMENT S241121.GPJ GINT STD US.GDT 2/20/25



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PROBE LOGS

FIGURE 4-10

Project: Legacy Phase F
 Location: Liberty Lake, WA
 Number: S241121

Legacy Phase F

Appendix C: GBC - Important Information about This Geotechnical-Engineering Report

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply this report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an

assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by:* the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help

others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold-prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical-engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your GBC-Member geotechnical engineer for more information.

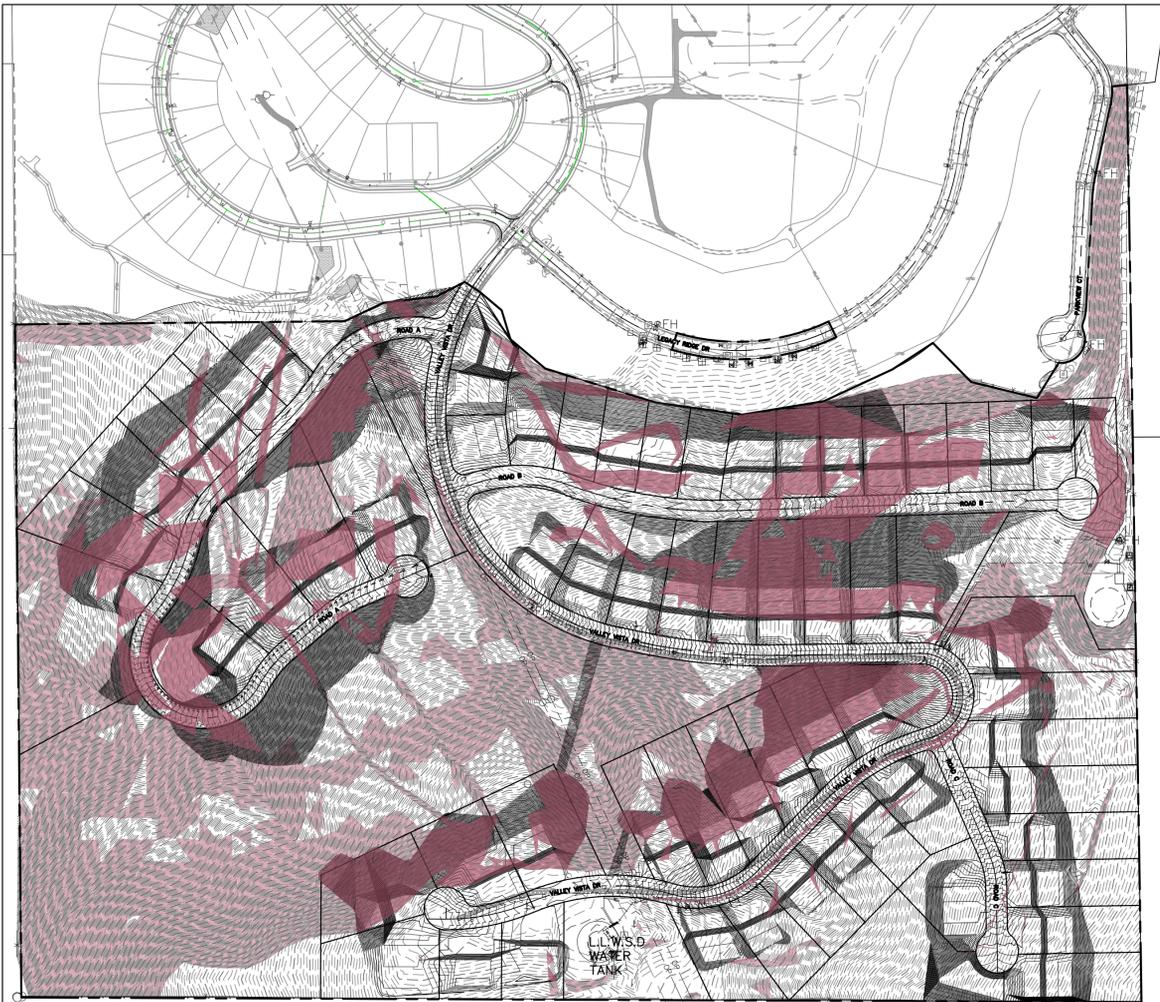


8811 Colesville Road/Suite G106, Silver Spring, MD 20910

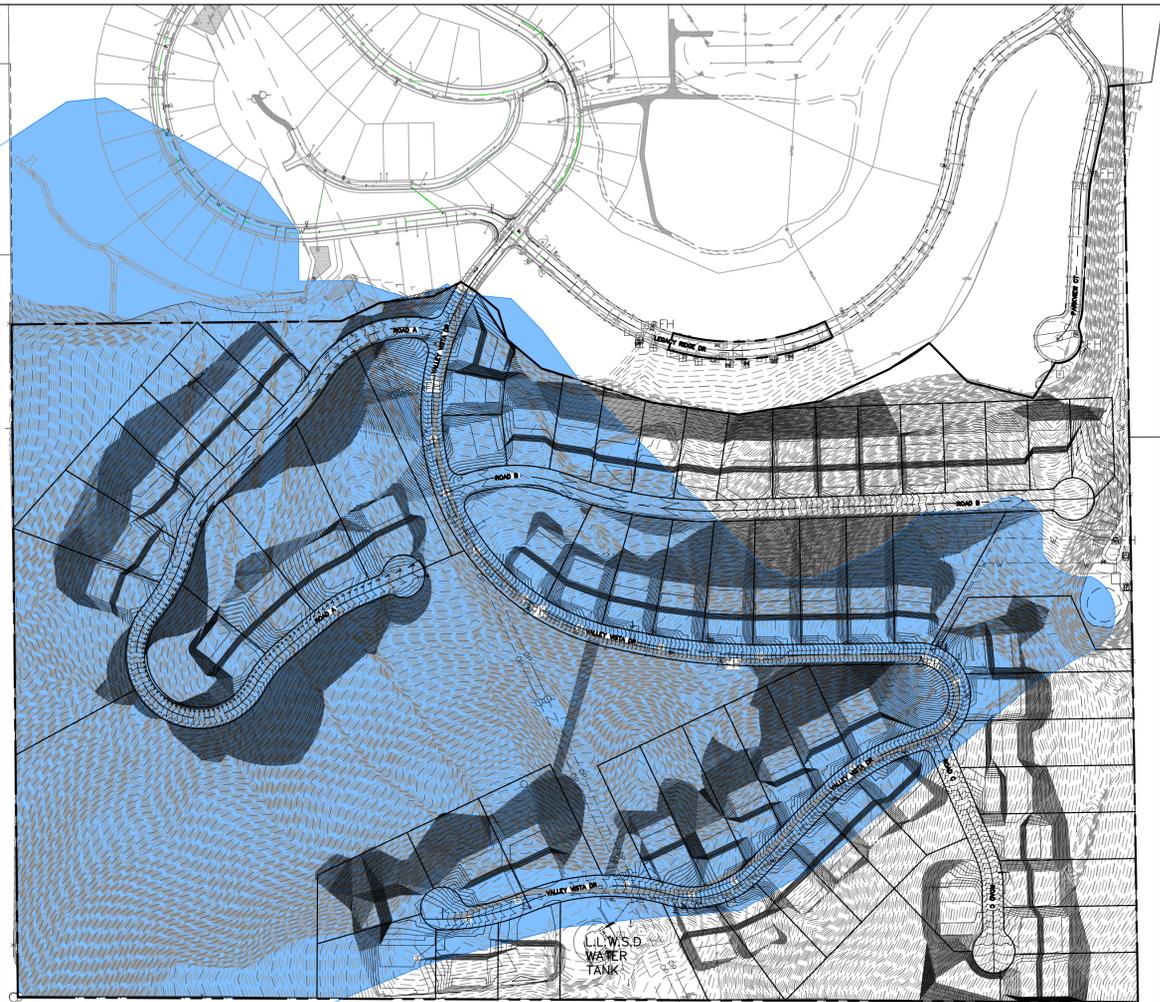
Telephone: 301/565-2733 Facsimile: 301/589-2017

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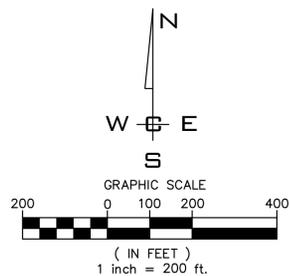
STEEP SLOPES EXHIBIT
SCALE: 1" = 200'



ERODIBLE SOILS EXHIBIT
SCALE: 1" = 200'

- LEGEND**
- AREA OF STEEP SLOPES, 30% OR GREATER
 - ERODIBLE SOILS PER MAPSPOKANE ARCGIS.COM

GRADING DATA		
CUT (CY):	322,435	
FILL (CY):	372,552	
EXISTING AREA OF 30% SLOPES (SF/AC)	1,625,556	37.32
GRADING WITHIN EXISTING 30% SLOPES (SF/AC)	650,696	14.94
PROPOSED GRADING WITH 30% SLOPES (SF/AC)	885,710	20.33
INCREASE OF 30% SLOPE ONSITE	235,014	5.40
NET AREA OF 30% SLOPES ONSITE (SF/AC)	1,860,570	42.71
PROPOSED CUT WITHIN EX. 30% SLOPES (CY/%)	89,016	0.28
PROPOSED FILL WITHIN EX. 30% SLOPES (CY/%)	118,363	0.32



W:\PROJECTS\2024\ACE\PROJECTS\2024-3776\KINNEY - LEGACY RIDGE-F\DWG\3776-MASS GRADING PLANS.DWG PLOT DATE:09/16/25

NAVD - 88
 THE MARK IS A WSDOT BRASS DISK SET
 IN A CONCRETE MONUMENT AT
 GROUND LEVEL WITH AN ELEV. 2070.160
 AND DESIGNATION OF GPS2090-49

NO.	DATE	BY	REVISIONS
B	05/14/25	JPP	REVISION FOR R.U.E.
A	10/17/24	RMA	ORIGINAL PREPARATION

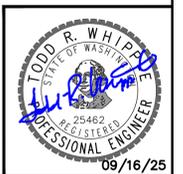
SCALE:
 HORIZONTAL:
 1" = 200'
 VERTICAL:
 N/A

PROJ #: 24-3776
 DATE: 09/16/25
 DRAWN: JPP
 REVIEWED: TRW

- CIVIL
- STRUCTURAL
- SURVEYING
- TRAFFIC
- PLANNING
- LANDSCAPE
- OTHER

WCE
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**LEGACY PHASE 'F' MASS GRADING
 STEEP SLOPES & ERODIBLE SOILS MAP
 VALLEY VISTA DR & LEGACY RIDGE DR
 LIBERTY LAKE, WA 99019**



SHEET
C4.1
 JOB NUMBER
24-3776