LANGAN

Memorandum

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To: Madeline Song / Discovery Land Company

From: Patrick Cole, PE
Luis Berroteran, PE

Info: James Landau / Discovery Land Company
Kyle Collins / Discovery Land Company
Rob Corette / Discovery Land Company
Agustina Gontaruk / Langan

Date: 15 November 2023
Revised 20 September 2024, 11 October 2024, and 21 November 2024

Re: Desktop Review and Geologic Study
Stagecoach Mountain Resort
Routt County, Colorado
Langan Project No.: 620044701

INTRODUCTION AND BACKGROUND

As requested, we performed an information review and preliminary geologic study for the site and our initial findings were reported in a memorandum dated 15 November 2023. We revised our memorandum on 20 September and 11 October 2024 based on updated development plans. We performed subsurface investigation in May 2024 and provided an addendum to our memorandum dated 30 May 2024. This revision to the memorandum combines the previous memorandum, and previous revisions, to reflect updates to the proposed site plan.

The objective of this information review and geologic study was to preliminarily identify potential geologic hazards and challenges for the proposed development at the Stagecoach Mountain Resort site in accordance with Section 3.33 of the Routt County Unified Development Code (UDC) adopted 11 June 2024. This memorandum summarizes our findings, which will form a basis to inform our future subsurface investigation program and will be incorporated into future geotechnical engineering reports for the site. Geotechnical recommendations are not provided herein but will be required for roadways, building lots, and other future developments.

The site is a mostly undeveloped parcel of land located at Stagecoach Mountain, developed in the early 1970s as a ski resort, which closed in 1974. The site is divided into several development areas: Ski Mountain, Mountain LPS, and Stetson LPS. Additionally, the South Shore Parcel is a separate part of the site to the northeast of the main site, which is bordered by Stagecoach Reservoir, County Road 18a, and County Road 16. The South Shore Parcel has no development

planned at this time. The areas are bordered by a small residential development. The main development area, which includes the Ski Mountain and Mountain LPS is generally bordered by open space to the south, east, and west, and a low-density community to the north and northeast along County Road 212, Schussmark Trail, and Blue Valley Lane. The Stetson LPS development is the northernmost development area at the site, is generally bordered by open space, and is intersected by County Road 14. The overall topography of the Ski Mountain, Mountain LPS, and Stetson developments may be described as moderately steep to very steep mountainous terrain.

According to the 13 November 2024 "Overall Master Plan_36.48" .jpg document provided by Design Workshop, we understand the proposed development at the site will consist of several mountain villages, retail shops, restaurants, day lodges, a market, and numerous recreational activities such as sports facilities, alpine skiing, and neighborhood parks. In addition, 5 new ski lifts are proposed at the site.

AutoCAD files provided on 12 November 2024 by Kimley-Horn (KH) show that the entire site covers approximately +/- 6,443 acres. The Ski Mountain and Mountain LPS development areas combine to form the main development area being approximately +/- 5,203 acres. The Stetson LPS development area has a separate mapped boundary and is approximately +/- 852 acres. The South Shore Parcel is approximately +/- 387 acres. The site will consist of 613 total units, proposed as single-family lots, cabin lots, ski villas, and condos. See Figure 1 for the proposed development. We understand that the owner, architect, and civil engineer have planned the proposed site development to avoid mapped geologic hazards where possible based on our original 15 November 2023 memorandum and previous revisions.

INFORMATION REVIEW

Our information review included researching and reviewing available publications and reports regarding the geological conditions at the site and its vicinity, reviewing available aerial photographs to document site history, reviewing geologic and topographic maps, and the Routt County Unified Development Code. Our findings are summarized below.

The earliest-available aerial imagery is from 1985 and it shows the site as a mostly undeveloped parcel of land with some ski trails and a ski lift/ski lift grading. The next available image from 1999 shows an increased number of ski runs, as well as off-road trails concentrated in the eastern half of the larger area of site; the center portion of the site shows tree removal and an off-road trail heading west. The 2005 imagery shows an additional area in the center of the larger area of the site with tree removal, and additional off-road trails around the site. Additional off-road trails appear in the 2011 imagery; the deforested areas now appear to regrow with vegetation. From the aerial imagery, it appears no major changes or further development have occurred at the site since 2011.

According to the United States Geological Survey (USGS) Quaternary Fault and Fold Database (QFFDB), accessed on 2 November 2023, the nearest faults to the site are the Killarney faults, located approximately 11.8 miles southwest of the site. The geologic maps[1,2] published by the USGS shows the site as being underlain mostly by residuum on Browns Park and Troublesome formations on the western part of the site. In the middle of the site, a sequence of Triassic and Cretaceous bedrock units are seen: the Mancos Shale and its Frontier Sandstone and Mowry Shale members, the Dakota, Morrison, and Sundance Formations, the Entrada and Glen Canyon Formations, and the Chinle Formation. The maps show that where the Triassic and Cretaceous bedrock sequences are present, slopes steepen and surficial deposits such as landslides are often present. At the northeastern and eastern parts of the site, the residuum on Browns Park and Troublesome formations is again the most commonly mapped unit, along with outcrops of basalt and tuff associated with Tertiary extrusive volcanic flows.

We reviewed the Routt County UDC and geologic hazards portal, and we understand that parts of the site are within mapped landslide deposits and other hazardous geologic units. Routt County identifies these areas as "Slope Failure Complexes" (SFC), "Landslides" (LS), "Unstable Slopes" (US) and "Potentially Unstable Slopes" (PUS). Additionally, Routt County identifies areas of rockfall potential as "Rockfall" (RF).

According to Items H of Section 3.33 of the Routt County UDC "development shall not be permitted on potentially unstable slopes unless mitigation measures pursuant to this section are implemented." Furthermore, Items H through K of the UDC state that in areas where landslides, mudflows, or unstable slopes exist water shall not be added to the slope (if it causes decreased stability), vegetation shall not be removed without timely replacement, no new loads shall be introduced at the top of the hillside, and existing hillslopes shall not be steepened or cut into without adequate mechanical reinforcement. The UDC requires mitigation techniques and construction practices recommended by a Colorado licensed professional engineer or qualified geologist of all development in landslide, mudflow, rockfall, and seismic areas.

PRELIMINARY GEOLOGIC INVESTIGATION

Langan performed field geologic mapping of the site from 5 September through 7 September 2023, observed the drilling of four borings between 7 and 9 May 2024, and performed additional geologic mapping of the Stetson LPS, Mountain LPS, and South Shore Parcel on 23 and 24 September 2024. The four preliminary boring locations were chosen to investigate the mapped deposits presented in our 17 January 2024 memorandum.

[1] "Surficial Geologic Map of the Steamboat Springs 30' x 60' Quadrangle, Grand, Jackson, and Routt Counties, Colorado" by Richard F. Madole, 1991.
[2] "Geologic Map of the Craig 1° x 2° Quadrangle, Northwestern Colorado" by Ogden Tweto, 1976.

Hereafter, borings are indicated with LB-# designations. The boring locations are depicted on Figure 2.

Field Reconnaissance and Geologic Mapping

We performed field geologic mapping of the site to identify geologic hazards potentially affecting the proposed development. Mapping was performed to delineate bedrock and surficial deposits, and identify previous slope movements, faults, and other geologic features where accessible. A summary of identified geologic units is provided below, and our site-specific geologic map incorporating our findings is presented in Figures 3a and 3b.

Borings

As a part of our investigation, Cascade Drilling LP drilled four borings (LB-1, LB-3, LB-4, and LB-15) from 40.8 to 51.5 feet below existing grades. Discovery Land Company coordinated site access, and a Langan geologist located and marked the boring locations using a mobile GPS unit.

Cascade used a Boart Longyear LS600T sonic track-mounted drill rig and support truck.

Soil samples were obtained using two types of samplers:

- Modified California, split-barrel sampler with a 3.0-inch outside diameter and 2.5-inch inside diameter lined with steel or brass tubes having an inside diameter of 2.43 inches.
- Standard Penetration Test (SPT) split-barrel sampler having a 2.0-inch outside diameter.

The borings were drilled under the full-time observation of a Langan field engineer or geologist. Our field personnel maintained logs of all explorations, classified soil and rock encountered, and obtained representative material samples. Logs for all borings are included in Appendix A. The materials encountered in the borings were classified in accordance with the Unified Soil Classification System (USCS).

The Standard Penetration Test (SPT)[3] sampling procedures were used to collect disturbed material samples. The SPT was conducted in general accordance with ASTM D-1586; and the SPT results were recorded by our field personnel. Typically, sampling was performed at 2-foot intervals for the first 10 feet, and then at 5-foot intervals to the completion depths of the borings. The SPT and Modified California samplers were driven with a 140-pound, automatic safety hammer falling 30 inches. The hammer blows shown on the boring logs are uncorrected for the

1. The SPT N-value is defined as the number of blows required to drive a 2-inch O.D. split-barrel sampler 12 inches, after an initial penetration of 6 inches using a 140-pound hammer falling freely for 30 inches.

sampler type; however, Langan uses SPT N_{60}[4] values in our design and discussions using the correlations in Table 1[5]. SPT-N_{60} is the SPT N-value corrected for the rig's specific hammer efficiency ratio, borehole diameter, rod length, and sampler type.

TABLE 1A
N_{60} Correlations for Granular Soils

N_{60}-value (BPF)	<4	4-10	11-30	31-50	>50
Relative Density	Very Loose	Loose	Medium	Dense	Very Dense

TABLE 1B
N_{60} Correlations for Cohesive Soils

N_{60}-value (BPF)	<2	2-4	5-8	9-15	16-30	>30
Consistency	Very Soft	Soft	Medium	Stiff	Very Stiff	Hard

Depth to groundwater was recorded if observed in the borings or inferred based on the moisture content of the soil. Upon completion, boreholes were backfilled with either cuttings or cement-bentonite grout.

SUBSURFACE INVESTIGATION FINDINGS

Descriptions of the subsurface materials encountered in our preliminary borings are presented in the following subsections. See Appendix A for logs of the borings.

In our field geologic mapping and four borings completed during this preliminary subsurface investigation, we encountered topsoil, landslide deposits (ls), younger gravel-bearing terrace alluvium (yg), residuum on the Browns Park and Troublesome formations (rBT), Mancos Shale (Km), Frontier Sandstone and Mowry Members (Kmfm), Dakota, Morrison, and Curtis Formations (KJdc), Entrada and Glen Canyon Formations (Jeg), Chinle and State Bridge Formations (TPcs), Residuum on Quartz Monzonite, Gneissic Granite, and Granodiorite (rQG), and Volcanic Flows (Tvf). Other geologic units exist on site but were not encountered in the four borings or field mapping completed in 2024. Descriptions of the units that were encountered are included below.

Topsoil

From 2 to 4 feet of topsoil was encountered above surficial soil deposits and bedrock in three of the four borings (LB-1, LB-3, and LB-15). The topsoil generally consisted of brown to dark-brown clay with some sand and some roots and rootlets. Topsoil was typically soft to stiff.

2. The blow counts required to drive the Modified California and SPT samplers 12 inches were converted to approximate N_{60} values using factors 0.7 and 1.2, respectively, to account for the sampler type.
3. Correlations are from Soil Mechanics in Engineering Practice (1996)

Landslide Deposits (ls)

Landslides and landslide deposits were encountered in LB-1 and LB-15 and mapped in various areas of the larger area of the site, derived from steep and very steep slopes composed of residuum on Browns Park and Troublesome formations. Some of these areas (landslides 1, 2, 3, and 41 on Figures 3a and 3b) indicate potential active movement, and other areas (landslides 4 through 40 and 42) contain landslide deposits of unknown age. The landslides and landslide deposits were observed to be a heterogeneous mixture of unconsolidated surficial material, and some were observed in hummocky terrain. The dominant movement type observed was rotational. Landslides and landslide deposits were often observed to exist either on steep slopes or where seasonal water flowed.

The landslide deposits were approximately 35 feet deep in both borings, although we expect that landslide thicknesses across the site may vary greatly. We encountered some 2-inch- to- 6-inch-thick clay lenses that we expect could be historical landslide failure surfaces. Landslide deposits typically were underlain by residuum or bedrock units. Fine-grained soils within landslide deposits were soft to hard, typically very stiff. Coarse-grained soils within landslide deposits were medium dense to very dense.

Younger Gravel-Bearing Terrace Alluvium (yg)

Terrace alluvium was observed immediately south of the Stagecoach Reservoir. The unit was observed to be sand and silt, with gravel and cobbles.

Residuum on Browns Park and Troublesome Formations (rBT)

The residuum on Browns Park and Troublesome formations was encountered in LB-4, at the ground surface. Additionally, the Browns Park formation bedrock was encountered in LB-1, LB-3, and two outcrops near the eastern edge of the site. We encountered the residuum typically as tannish brown to gray medium- to coarse-grained sand. Some gravel was present in the residuum, and occasional clay content was present within the sand. The residuum overlying the bedrock was found to be approximately 40 feet thick. The residual sand was typically very dense.

The Browns Park formation bedrock typically consists of tan to gray silty sandstone and sandy siltstone of fluvial origin. A bed of silty claystone was encountered around 40 feet below the ground surface in LB-3. Trace angular gravel was often present within the sandstone matrix. The bedrock was typically very hard, with refusal often encountered during SPT sampling.

Mancos Shale (Km)

Mancos Shale and associated residuum deposits were observed outside of the site and interpreted to exist near the high ridgeline of the site but were not encountered in the borings. The Mancos Shale unit was typically observed to consist of gray to tan clay and silt. The USGS notes that the Mancos Shale and its residuum are susceptible to landsliding and typically have moderate to high swell potential.

Frontier Sandstone and Mowry Shale Members (Kmfm)

The Frontier Sandstone and Mowry Shale Members, and their associated residuums, were observed near the high ridgeline of the site. We observed an outcrop of the Frontier sandstone along the ridgeline with near-vertical bedding and slickensides potentially caused by the nearby mapped fault and its associated shear zone. The sandstone was typically observed to be tan and fine- to- medium grained. The residuum typically consisted of sand, silt, clay, and variable amounts of sandstone clasts ranging in size from gravel to boulders. The residuum is expected to be relatively shallow (no more than 15 feet deep).

Dakota, Morrison, and Curtis Formations (KJdc)

Cretaceous Dakota, Morrison, Curtis, and Sundance formation bedrock deposits are mapped in select areas within the site, typically near the high ridgeline, but were not encountered in the borings. We expect these units may be encountered during subsurface investigation at the site.

Entrada and Glen Canyon Formations (Jeg)

Jurassic Entrada and Glen Canyon formation bedrock deposits are mapped in select areas within the site, typically near the high ridgeline, but were not encountered in the borings. We expect these units may be encountered during subsurface investigation at the site.

Chinle and State Bridge Formations (TPcs)

Triassic Chinle and State Bridge formation bedrock are mapped in select areas near the site, but outside of the site boundary. These units are typically mapped near the high ridgeline but were not encountered in the borings. We expect these units may be encountered during subsurface investigation at the site.

Residuum on Quartz Monzonite, Gneissic Granite, and Granodiorite (rQG)

Residuum on quartz monzonite, gneissic granite, and granodiorite was encountered in LB-15, underlying landslide deposits. The residuum material was observed to be mostly sand with clay-rich beds up to 1.5 feet thick. The sand was typically tannish gray to brown and included some

angular, crystalline gravel. The residuum was typically dense to very dense. The residuum is expected to be relatively shallow (no more than 15 feet deep), with quartz monzonite, gneissic granite, and granodiorite bedrock underlying.

Volcanic Flows (Tvf)

Volcanic flows were observed outside of the site on the northeastern end. The volcanic flows typically consist of basalt and tuff breccia.

Groundwater

Groundwater was not encountered in any of the four borings completed during this preliminary study to their completion depths. However, abundant snowmelt and surface-water infiltration were observed around the site. Additionally, two areas with groundwater seeps were observed during the mapping activities; the seep locations are shown in Figures 3a and 3b. Groundwater seeps can reduce the stability of slopes, and cause slope failures on shallow (less than 15% grades) to moderate (15 to 30% grades) slopes.

It should be noted that the observed water conditions are only representative of the time of our site visits. Although evidence of flowing water was not observed at the time of our site reconnaissance, shallow or "perched" groundwater is known to be a potential issue in the late spring and early summer months.

GEOLOGIC HAZARDS

From our information review and investigation findings, we developed a site-specific geologic map; see Figure 3.

Our initial evaluation of geologic hazards indicates that select areas within the site contain geologic hazards risk to the proposed development. We assessed hazards such as steep slopes, landslides, rockfall, fault rupture, flooding, and liquefaction at the site. Recommendations for investigation and mitigation/avoidance of these hazards will be developed in the next phases of work. Our preliminary thoughts regarding the geologic hazards at the site are described below.

Steep Slopes

Areas with steep slopes (grades 30% or greater) are delineated and shown on Figures 4a and 4b. Detailed slope stability analyses will be necessary where development will encroach upon the steep slope areas. We observed 33 landslides (both shallow and potentially deep-seated) derived from unconsolidated residuum on steep slopes; see Figures 3a and 3b.

Slopes with grades of 30% or greater encountered in surficial deposits or soils (residuum and/or alluvial and colluvial deposits) will be more prone to instability and development in these areas may be limited or require slope stabilization. Preliminarily, cuts steeper than 2H:1V (horizontal to vertical, typical) at the site will require detailed slope stability analysis to determine maximum cut angles and development buffers, if required. As mentioned previously, groundwater seeps can weaken slope materials and cause slope failures on shallow to moderately steep slopes. We understand some drainage solutions have been implemented adjacent to current developments; we can provide recommendations for drainage solutions for both existing and proposed developments, where required.

Landslides and Landslide Deposits

The processes that result in a downward and outward movement of materials such as rock, soil, or a combination of these is called a "landslide." No publicly available landslide hazard maps have been published by the USGS or the Colorado Geological Survey, but Routt County has an online geologic hazards portal which delineates landslide deposits and unstable slopes. We preliminarily delineated rotational landslides we encountered in our investigation; see Figures 3a and 3b. We interpret that landslides 1, 2, 3, and 41 saw recent movement at the site; landslides 4 through 40 and 42 are of unknown age. We recommend development avoid mapped landslides and landslide deposits where possible, otherwise we expect geologic hazard mitigation may be necessary. We preliminarily expect geologic hazard mitigation methods could consist of shallowing slopes, constructing fill buttresses, reinforced slopes, soil nail walls, or post-tensioned anchor walls. A subsurface investigation program and further analysis is needed to determine the likelihood of landslides (including mudflows and debris flows) at the site, and to come up with mitigation solutions if needed.

Rockfall

A rockfall hazard exists where outcrops are located above steep slope areas. We observed bedrock outcrops in the Frontier, Browns Park, and the Quartz Monzonite, Gneissic Granite, and Granodiorite formations. Generally, the outcrops were observed to be away from steep slopes; however, we expect grading for the development could create rockfall hazards, which should be analyzed.

Seismicity and Fault Rupture

The USGS QFFDB did not identify any faults at the site; however, based on preliminary geologic mapping, we anticipate there might be a structural geologic fault on the eastern portion of the site (Figure 3). The relationship of deposits and bedrock structures indicate that, if a fault is present, it is likely not of Holocene age (11,700 years or younger), and therefore likely inactive.

Our preliminary assessment is that fault rupture is a minimal hazard for the project, but we will assess further following our subsurface investigation (e.g., with geophysical surveys). If the preliminary investigation results indicate that a fault is present, additional investigations should be performed to determine the age and date of the most recent fault activity. Strong ground shaking commonly occurs with large magnitude seismic events. The structures must be designed to resist ground motions in accordance with the 2024 IBC Code. IBC seismic design parameters will be provided in the preliminary geologic hazards and geotechnical report.

Flood Map

According to the Federal Emergency Management Agency Flood Insurance Rate Map for panels 08107C1050D, 08107C1225D, 08107C1075D, and 08107C1250D, the site is located in Zone X, "Area of Minimal Flood Hazard." Proposed development should avoid wetlands, where possible, to reduce the likelihood of flooding from high seasonal water levels.

Liquefaction

Due to the expected shallow non-liquefiable bedrock materials, liquefaction is generally not anticipated to pose a significant hazard to the proposed development. However, after our subsurface investigation is complete, and the relative density of site soils is determined, we will evaluate the liquefaction potential at the site.

PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS

Geologic hazards we identified on the site include steep slopes, landslide deposits, rockfall, seismicity, fault rupture, and flooding. We identified landslide deposits in LB-1 and LB-15 and expect the landslide deposits surrounding LB-1 and LB-15 may present challenging conditions for safe development of roadways, building lots, utilities, or ski-area infrastructure. We recommend development avoid mapped landslides and landslide deposits where possible, otherwise we expect that mitigation of geologic hazards may be necessary.

We recommend an exploratory boring is logged in the mapped slope failure complexes within the Stetson LPS to assess subsurface conditions and preliminary mitigation needs. Roadways, bridges, retaining walls and other proposed infrastructure will require geotechnical recommendations in accordance with the Routt County UDC and Road and Bridge Roadway Standards. Each individual building lot or property should have a site-specific geotechnical study conducted to analyze localized geologic conditions and provide recommendations for geologic hazards, site grading, foundations, pavements, and other pertinent geotechnical items. Once the proposed development plan has been finalized, additional subsurface investigation should be

performed in each area of the project to provide detailed recommendations for avoidance or mitigation of geologic hazards and for geotechnical aspects of the project.

CLOSURE

This memorandum is intended to provide Discovery Land Company with preliminary findings from our initial geologic study at Stagecoach Mountain Resort. Geotechnical and geologic hazard-mitigation recommendations are not provided in this memorandum. Recommendations for investigation and mitigation/avoidance of these hazards will be provided in forthcoming geologic hazards and geotechnical reports for individual plats.

We thank you for the opportunity to assist you on this project. If you have any questions regarding this memorandum, please call.

Attachments:

Figure 1, Figure 2, Figure 3a & 3b, Figure 4a & 4b, Appendix A

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Legend

- Proposed Lot Lines
- Proposed Roadway Alignment
- Ski Alignment
- Site Boundary

Notes:
1. Aerial imagery provided through Langan's Esri ArcGIS software licensing and ArcGIS Online.
2. All features shown are approximate.

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Project
STAGECOACH MOUNTAIN RESORT
OAK CREEK
ROUTT COUNTY COLORADO

Figure Title
SITE PLAN

Project No. 620044701	Figure 1
Date 11/18/2024	
Scale 1"=4,000'	
Drawn By GS	

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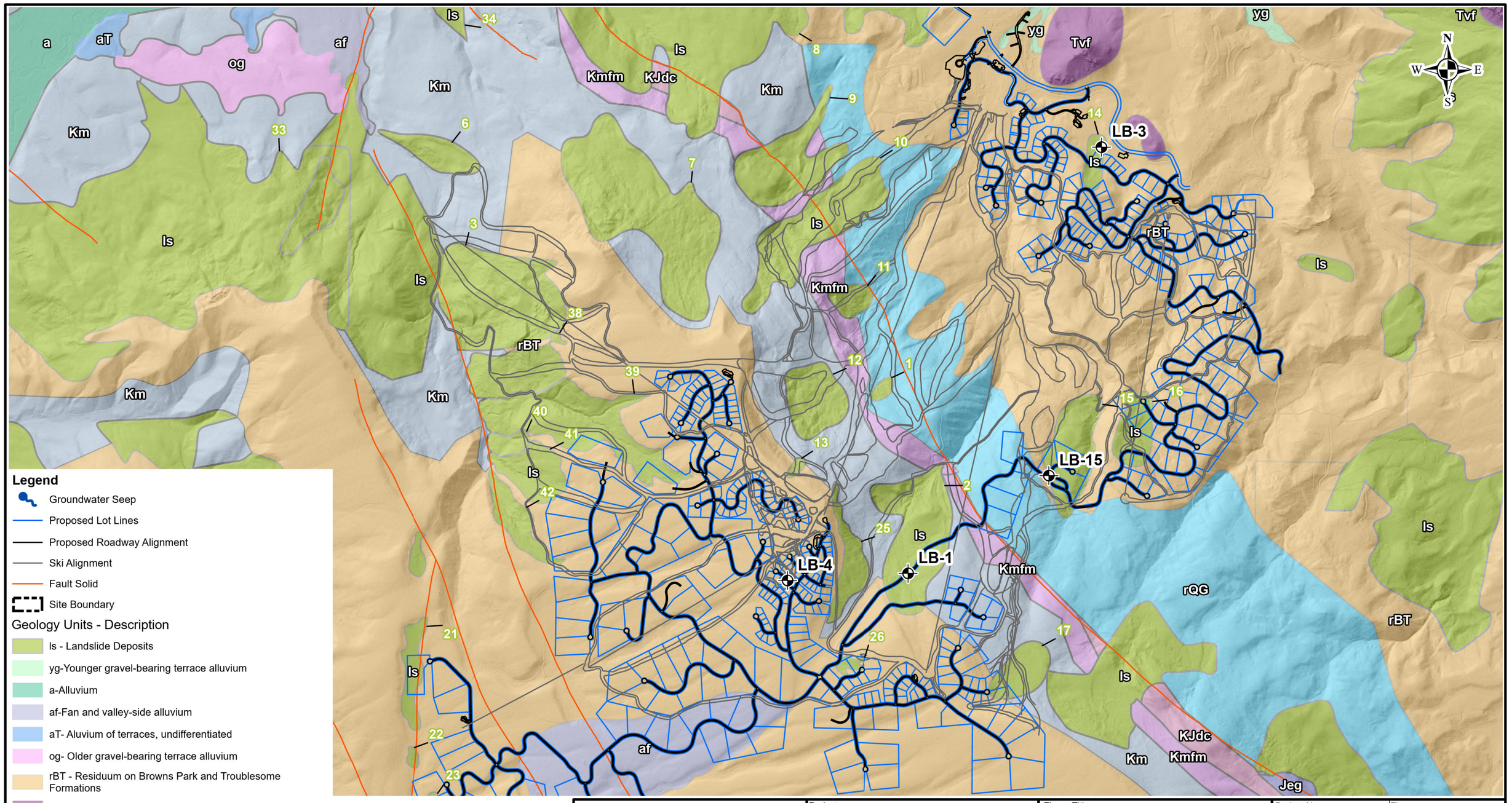

Legend

- Groundwater Seep
- Proposed Lot Lines
- Proposed Roadway Alignment
- Ski Alignment
- Fault Solid
- Site Boundary

Geology Units - Description

- ls - Landslide Deposits
- yg-Younger gravel-bearing terrace alluvium
- a-Alluvium
- af-Fan and valley-side alluvium
- aT- Aluvium of terraces, undifferentiated
- og- Older gravel-bearing terrace alluvium
- rBT - Residuum on Browns Park and Troublesome Formations
- Tvf - Volcanic Flows
- Kmfm-Frontier Sandstone and Mowry Shale
- Km-Mancos Shale
- KJdc-Dakota, Morrison and Curtis formations
- Jeg-Entrada and Glen Canyon Formations
- rQG - Residuum on Quartz Monzonite, Gneissic Granite, and Granodiorite

Notes:
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2. All features shown are approximate.
3. Geologic units within site boundary are from Langan, all else from USGS.

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Project
STAGECOACH MOUNTAIN RESORT
OAK CREEK
ROUTT COUNTY COLORADO

Figure Title
BORING LOCATION PLAN AND GEOLOGIC MAP

Project No.	Figure
620044701	2
Date: 11/21/2024	
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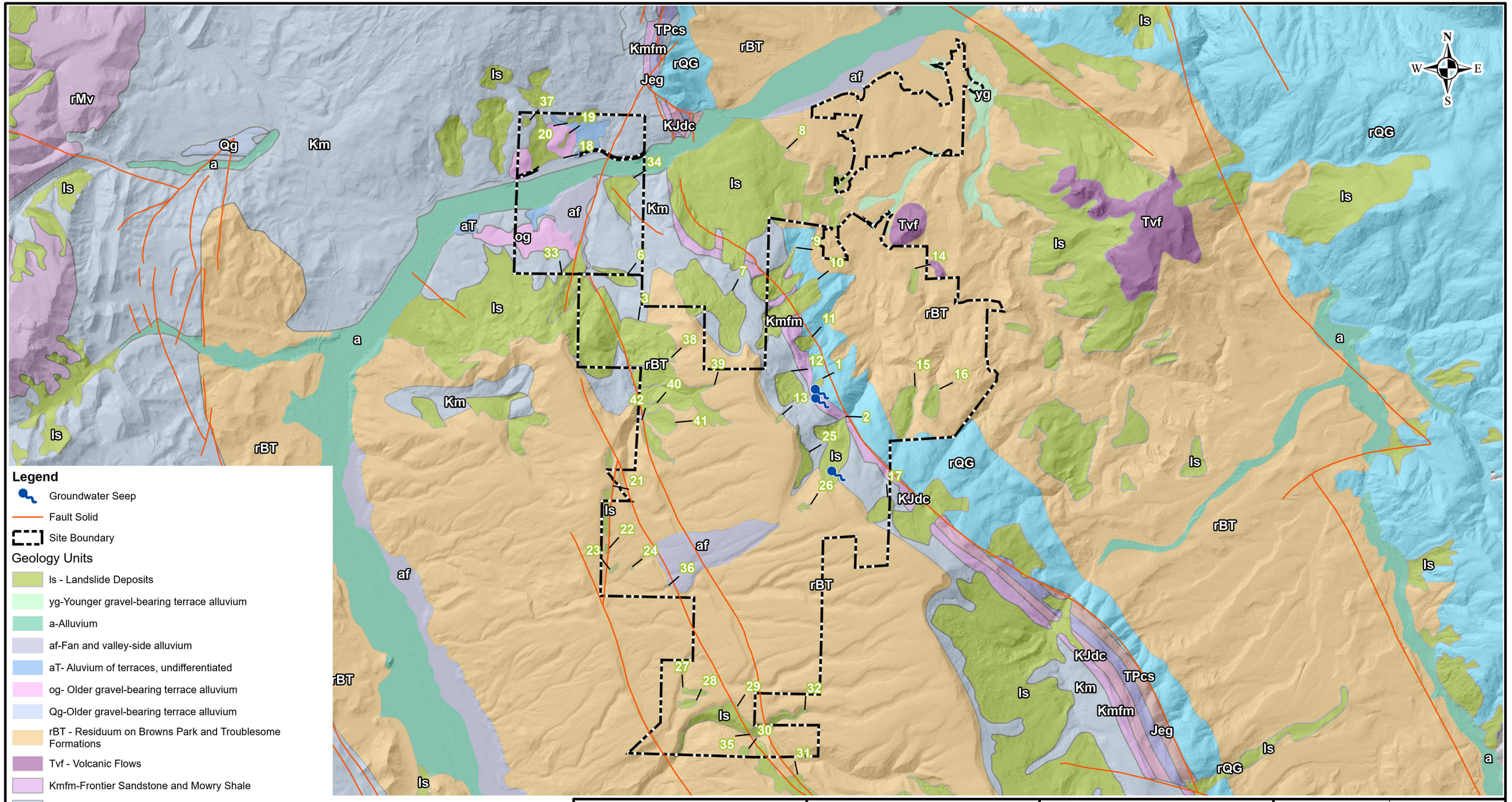

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Project
STAGECOACH MOUNTAIN RESORT
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Figure Title
21 NOVEMBER 2024 PROGRESS GEOLOGIC MAP

Project No.	620044701
Date	11/21/2024
Scale	1"=4,000'
Drawn By	GS
Figure	3a

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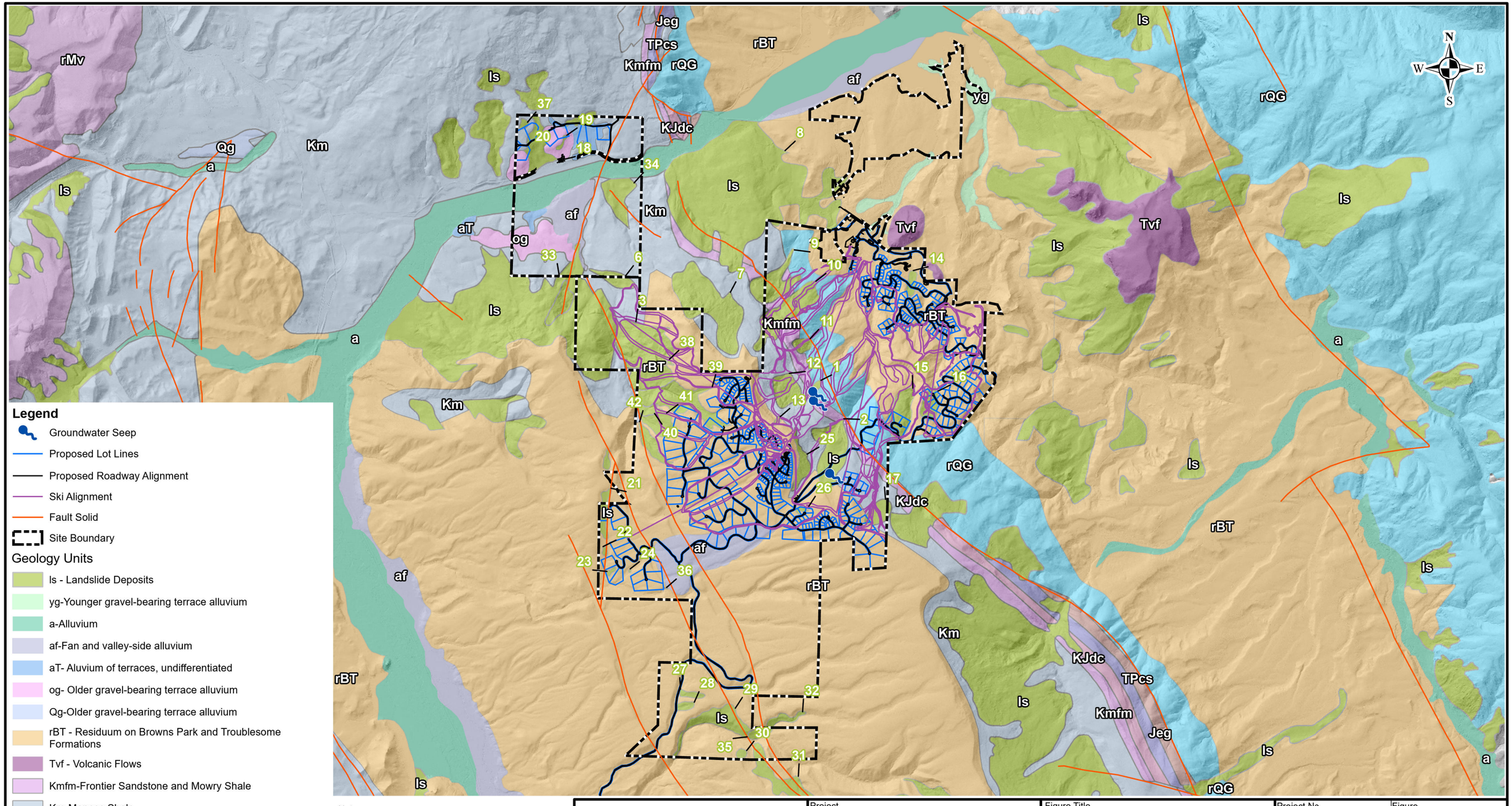

Legend

- Groundwater Seep
- Proposed Lot Lines
- Proposed Roadway Alignment
- Ski Alignment
- Fault Solid
- Site Boundary

Geology Units

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Project
STAGECOACH MOUNTAIN RESORT
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Figure Title
21 NOVEMBER 2024 DEVELOPMENT GEOLOGIC MAP

Project No.	620044701
Date	11/21/2024
Scale	1"=4,000'
Drawn By	GS
Figure	3b

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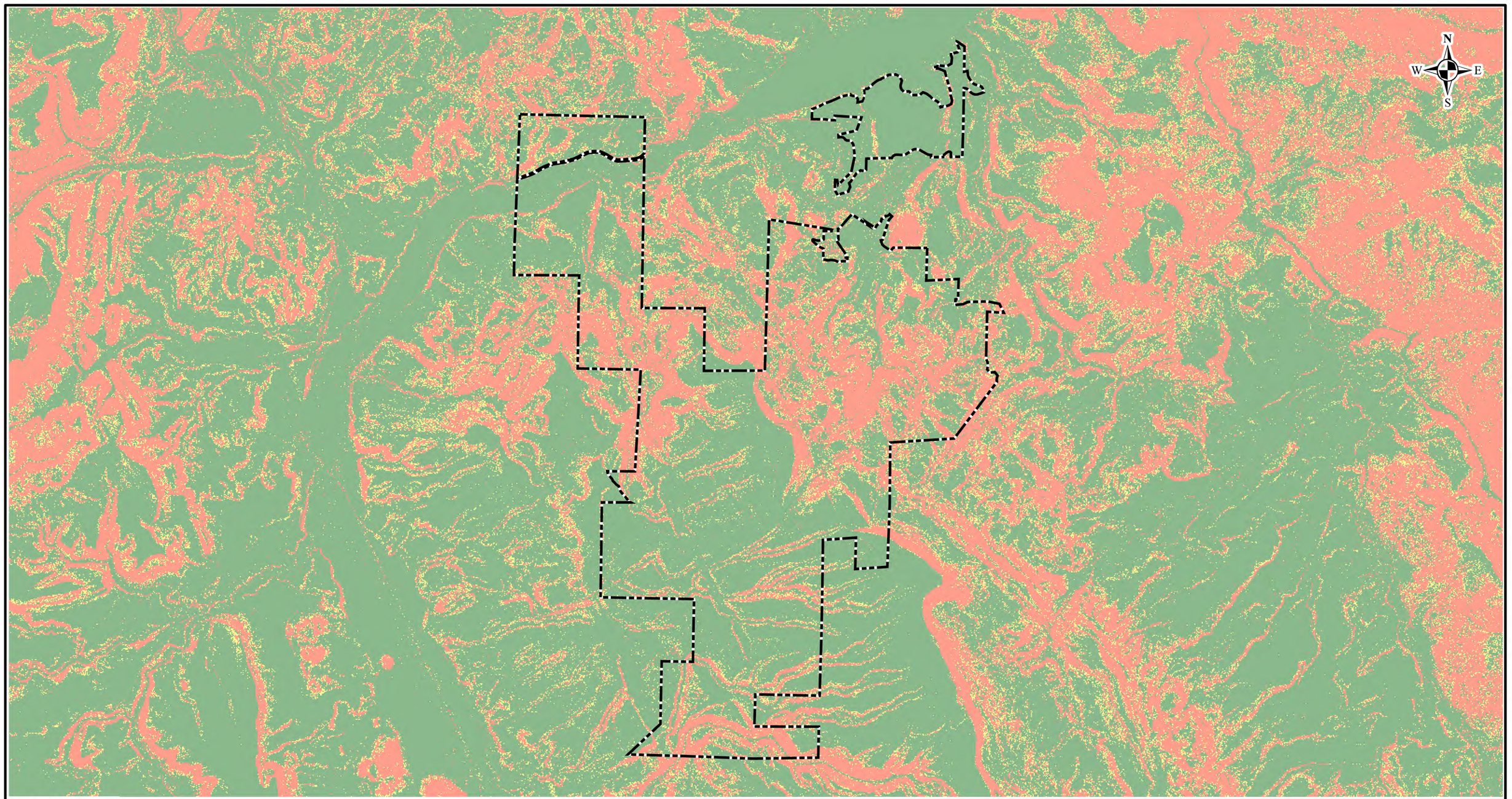

Legend

Site Boundary

Slope Percent

- >25%
- 25-30%
- >30%

Notes:
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Langan Engineering and Environmental Services, LLC

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Project
STAGECOACH MOUNTAIN RESORT
OAK CREEK
ROUTT COUNTY COLORADO

Figure Title
PROPERTY SLOPE MAP

Project No. 620044701	Figure 4a
Date 11/18/2024	
Scale 1"=4,000'	
Drawn By GS	

Path: \\langan.com\data\DEN\data7\620044701\Project Data\ArcGIS\APRX\620044701.aprx

N
W E
S

Legend

- Proposed Lot Lines
- Proposed Roadway Alignment
- Ski Alignment
- Site Boundary

Slope Percent

- >25%
- 25-30%
- >30%

Notes:
1. Aerial imagery provided through Langan's Esri ArcGIS software licensing and ArcGIS Online.
2. All features shown are approximate.

4,000 0 4,000
SCALE IN FEET

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Project
STAGECOACH MOUNTAIN RESORT
OAK CREEK
ROUTT COUNTY COLORADO

Figure Title
DEVELOPMENT SLOPE MAP

Project No.	620044701
Date	11/18/2024
Scale	1"=4,000'
Drawn By	GS

Figure 4b

Path: \\langan.com\data\DEN\data7\620044701\Project Data\ArcGIS\APRX\620044701.aprx

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Log of Boring **LB-01** Sheet 1 of 3

Project: Stagecoach Mountain Resort	Project No.: 620044701
Location: Oak Creek, Colorado	Elevation and Datum: Approx. el. 9087.0 (NAVD 88)
Drilling Company: Cascade Drilling, L.P.	Date Started: 5/8/2024 — Date Finished: 5/8/2024
Drilling Equipment: ProSonic 600T	Completion Depth: 50.2 ft — Rock Depth: 35.0 ft
Size and Type of Bit: 4in Carbide Core Bit	Number of Samples: Disturbed 14, Undisturbed 0, Core 0
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ N/A, Completion ▼ N/A, 24 HR. ▼ N/A
Casing Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	Drilling Foreman: Ryan Miller
Sampler: 2in OD Split Spoon, 3in Modified California Sampler	Field Engineer: Thomas Greene
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description
	+9087.0	Dark brown Sandy CLAY, trace fine subrounded gravel, some roots and organic materials, fine to medium sand (moist)[CH][TOPSOIL]
		Dark brown Sandy CLAY, trace fine subangular gravel, some roots and organic materials, fine to medium sand, sand content increases with depth (moist)[CH][TOPSOIL]
	+9083.0	
		Gray to dark gray Sandy CLAY, some fine gravel (moist)[CL][ls]
	+9082.0	
		Tannish brown Clayey fine to medium SAND, trace fine gravel (moist)[SC][ls]
		Tannish brown Clayey fine to coarse SAND, trace fine to coarse angular to subangular gravel (moist)[SC][ls]
		Tannish brown fine to coarse SAND, some fine to coarse angular to subangular gravel, some clay (moist)[SC][ls]
	+9077.0	
		Tannish brown fine to coarse SAND, some clay, some fine to coarse subangular to subrounded gravel (moist)[SP-SC][ls]
	+9072.0	
		Tannish gray to brown fine to coarse SAND, some clay, some fine subangular to angular crystalline gravel (moist)[SP][ls] fine-grained amphibolite minerals

Depth Scale: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

Sample Data

Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft)
S-1	SS	4	1, 3, 1	4
S-2	SS	17	2, 5, 8	13
S-3A	MC	17	12, 4, 6	10
S-3B				
S-4	SS	16	3, 10, 6	16
S-5	MC	6	11, 12, 10	22
S-6	SS	6	6, 11, 11	22
S-7	SS	9	12, 25, 28	53

N-Value (Blows/ft) axis: 10 20 30 40

Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)

Start Drilling: 0 ft, 5/8/2024 12:54:35 PM

Clay content decreases

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Log of Boring **LB-01** Sheet 2 of 3

Project	Project No.
Stagecoach Mountain Resort	620044701
Location	**Elevation and Datum**
Oak Creek, Colorado	Approx. el. 9087.0 (NAVD 88)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	+9071.0		16						Loose clayey sand lense 16 ft to 16.5 ft. Collect Grab Sample 1.
	+9067.0		17						
	+9066.7	Tannish brown to gray fine Clayey SAND, trace fine gravel (moist)[SC][ls]	18						
		Tannish brown to white medium to coarse SAND, trace clay, some fine gravel (moist)[SP][ls]	19						
			20	S-8A	SS	16	13 38		Soft, loose clayey sand layer. Saved as S-8A
			21	S-8B	SS		24	62	
			22						
			23						
			24						
		Tannish brown to white medium to coarse SAND, trace clay, some fine angular to subangular crystalline gravel (moist)[SP][ls]	25	S-9	SS	9	48 50/3"	50/3"	Drive 6 inch casing to 25 ft. Introduced Drilling Fluid.
			26						
			27						Encountered boulder
			28						
			29						
	+9057.0		30						
		Dark gray Clayey fine to medium SAND, trace fine subrounded to subangular gravel (moist)[SC][ls]	31	S-10	SS	2	50/2"	50/2"	
			32						
			33						
			34						
	+9052.0		35						
		Tannish gray to light gray fine SANDSTONE, some clay, some fine subangular to subrounded gravel, moderately well-cemented (moist)[BEDROCK][rBT]	36	S-11	SS	9	46 50/3"	50/3"	

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Log of Boring **LB-01** Sheet 3 of 3

Project	Project No.
Stagecoach Mountain Resort	620044701
Location	**Elevation and Datum**
Oak Creek, Colorado	Approx. el. 9087.0 (NAVD 88)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	+9051.0		36						
			37						
			38						
			39						
		Tannish gray to light gray fine SANDSTONE, some clay, some fine subangular to subrounded gravel, moderately well-cemented (moist)[BEDROCK][rBT]	40	S-12	SS	9	45 50/3"	50/3"	
			41						
			42						Clayey sand lense from 42 ft to 43 ft. Softer than material above and below. Grab sample 2.
			43						
			44						
		Mottled tan to gray medium to coarse SANDSTONE, some clay (moist)[BEDROCK][rBT]	45	S-13	SS	2	50/3"	50/3"	
			46						
			47						Difficult drilling. Gray SILTSTONE observed in sonic cuttings. Grab Sample 3.
			48						
			49						
	+9036.5	Mottled tan to gray fine to coarse SANDSTONE, some clay, some fine gravel, well-cemented (moist)[BEDROCK][rBT]	50	S-14	SS	3	50/3"	50/3"	Bottom of boring: 50.25 ft, 5/8/2024 4:53:19 PM Backfilled with 8 50-lb bags of Bentonite chips to 7 ft bgs. Native backfill above.
		End of Boring at 50.2ft.	51						
			52						
			53						
			54						
			55						
			56						

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Log of Boring **LB-03** Sheet 1 of 3

Project: Stagecoach Mountain Resort	Project No.: 620044701
Location: Oak Creek, Colorado	Elevation and Datum: Approx. el. 7555.0 (NAVD 88)
Drilling Company: Cascade Drilling, L.P.	Date Started: 5/9/2024 — Date Finished: 5/9/2024
Drilling Equipment: ProSonic 600T	Completion Depth: 40.8 ft — Rock Depth: 4.0 ft
Size and Type of Bit: 4in Carbide Core Bit	Number of Samples: Disturbed 12, Undisturbed 0, Core 0
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ N/A, Completion ▼ N/A, 24 HR. ▼ N/A
Casing Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	Drilling Foreman: Ryan Miller
Sampler: 2in OD Split Spoon, 3in Modified California Sampler	Field Engineer: Thomas Greene
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description
	+7555.0	Tannish brown to brown CLAY, trace fine to medium sand, some roots (moist)[CH][TOPSOIL]
	+7553.0	Light tan Silty fine SAND, faint residual structure (moist)[SM][rBT]
	+7551.0	Light tan Silty fine SANDSTONE, trace fine subangular sedimentary gravel, faint residual structure (moist)[BEDROCK][rBT]
		Light tan Silty fine SANDSTONE, trace fine subangular sedimentary gravel, faint residual structure (moist)[BEDROCK][rBT]
		Light tan Silty fine SANDSTONE, residual structure (moist)[BEDROCK][rBT]
		Light tan Silty fine SANDSTONE, trace fine angular to subangular sedimentary gravel, residual structure (moist)[BEDROCK][rBT]
		Light tan Sandy SILTSTONE trace fine angular to subangular sedimentary gravel, residual structure, fine sand (moist)[BEDROCK][rBT]

Depth Scale: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

Sample Data

Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft)
S-1	SS	18	2, 1, 1	2
S-2	SS	18	10, 19, 26	45
S-3	SS	14	16, 36, 50/4"	50/4"
S-4	SS	14	20, 38, 50/2"	50/2"
S-5	SS	9	22, 50/3"	50/3"
S-6	SS	10	21, 50/4"	50/4"
S-7	SS	9	47, 50/3"	50/3"

N-Value (Blows/ft): 10 20 30 40

Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)

Start Drilling: 0 ft, 5/9/2024 1:38:02 PM

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Log of Boring **LB-03** Sheet 2 of 3

Project	Project No.
Stagecoach Mountain Resort	620044701
Location	**Elevation and Datum**
Oak Creek, Colorado	Approx. el. 7555.0 (NAVD 88)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	+7539.0		16						
			17						
			18						
			19						
			20						
		Light tan Sandy SILTSTONE, residual structure, fine sand (moist)[BEDROCK][rBT]	21	S-8	SS	9	34 50	50	
			22						
			23						
			24						
			25						Drive 6 inch casing to 25 ft.
		Light tan Sandy SILTSTONE, residual structure, fine sand (moist)[BEDROCK][rBT]		S-9	SS	10	23 50/4"	50/4"	
			26						
			27						
			28						
			29						
			30						
		Light tan Sandy SILTSTONE, fine sand (moist)[BEDROCK][rBT]		S-10	SS	5	50/5"	50/5"	
			31						
			32						
			33						
			34						
			35						Drive casing to 35 ft.
		Light tan Silty fine SANDSTONE (moist)[BEDROCK][rBT]		S-11	SS	9	36 50/3"	50/3"	
			36						

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Log of Boring **LB-03** Sheet 3 of 3

Project	Project No.
Stagecoach Mountain Resort	620044701
Location	**Elevation and Datum**
Oak Creek, Colorado	Approx. el. 7555.0 (NAVD 88)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	+7519.0		36						
			37						
			38						
			39						
			40						
		Light tan to tannish brown Silty CLAYSTONE, some fine sand (moist)[BEDROCK][rBT]		S-12	SS	9	31 50/3"	50/3"	
	+7514.2	End of Boring at 40.8ft.	41						Bottom of boring: 40.75 ft, 5/9/2024 3:55:42 PM Backfilled with cuttings.
			42						
			43						
			44						
			45						
			46						
			47						
			48						
			49						
			50						
			51						
			52						
			53						
			54						
			55						
			56						

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Log of Boring **LB-04** Sheet 1 of 3

Project: Stagecoach Mountain Resort	Project No.: 620044701
Location: Oak Creek, Colorado	Elevation and Datum: Approx. el. 9335.0 (NAVD 88)
Drilling Company: Cascade Drilling, L.P.	Date Started: 5/7/2024 — Date Finished: 5/8/2024
Drilling Equipment: ProSonic 600T	Completion Depth: 50.2 ft — Rock Depth: Not Encountered
Size and Type of Bit: 4in Carbide Core Bit	Number of Samples: Disturbed 14 — Undisturbed 0 — Core 0
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First N/A — Completion N/A — 24 HR. N/A
Casing Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	Drilling Foreman: Ryan Miller
Sampler: 2in OD Split Spoon, 3in Modified California Sampler	Field Engineer: Thomas Greene
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	+9335.0	Tannish brown fine to coarse SAND, some clay, some fine gravel (moist)[SP][rBT]	0	S-1	SS	15	10, 11, 10	21	Start Drilling: 0 ft, 5/7/2024 12:55:31 PM
		Tannish brown fine to coarse SAND, some clay, some fine angular to subangular gravel (moist)[SP][rBT]	2	S-2	SS	9	11, 17, 50/5"	50/5"	
		Tannish brown to gray fine to coarse SAND, some clay, some fine to coarse angular to subangular gravel (moist)[SP][rBT]	4	S-3	SS	15	40, 16, 12	28	
		Tannish brown to gray fine to coarse SAND, some clay, some fine angular to subangular (moist)[SP][rBT]	6	S-4	SS	11	15, 8, 7	15	Introduced Drilling Fluid.
	+9327.0	Tannish brown to tannish gray fine to coarse SAND, some clay, some fine angular to subangular gravel (moist)[SW][rBT]	8	S-5	SS	12	11, 21, 27	48	
	+9325.0	Gray to brown medium to coarse SAND, some fine gravel, some clay (moist)[SP][rBT]	10	S-6	SS	11	32, 50/5"	50/5"	2 inch lense of clayey coarse sand
		Dark gray to tannish gray fine to coarse SAND, some clay, some fine subrounded to subangular gravel, some black fine-grained amphibolite minerals (moist)[SP][rBT]	15	S-7	SS	11	5, 50/5"	50/5"	Slough at top of sample causing low blowcount

N-Value (Blows/ft) scale: 10 20 30 40

Project	Project No.
Stagecoach Mountain Resort	620044701
Location	**Elevation and Datum**
Oak Creek, Colorado	Approx. el. 9335.0 (NAVD 88)

Material Symbol	Elev. (ft) +9319.0	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
			16						
			17						Clayey lense from 17.5 ft to 18 ft
			18						
			19						
		Dark gray to tannish gray fine to coarse SAND, some clay, trace fine gravel (moist)[SP][rBT]	20	S-8	SS	5	50/5"	50/5"	Drive 6 inch casing to 20 ft.
			21						
			22						
			23						
			24						
		Tannish gray to gray medium to coarse micaceous SAND, some fine subangular gravel, trace clay (moist)[SP][rBT]	25	S-9	SS	4	50/4"	50/4"	
			26						Difficult drilling,
			27						
			28						
			29						
		Dark gray fine to medium SAND, trace fine gravel (moist)[SP][rBT]	30	S-10	SS	3	50/3"	50/3"	
			31						
			32						
			33						
			34						
		Light gray fine to medium SAND, some fine subangular gravel derived from well-cemented fine to coarse grained conglomerate (moist)[SP][rBT]	35	S-11	SS	1	50/1"	50/1"	
			36						

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Log of Boring **LB-04** Sheet 3 of 3

Project	Project No.
Stagecoach Mountain Resort	620044701
Location	**Elevation and Datum**
Oak Creek, Colorado	Approx. el. 9335.0 (NAVD 88)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	+9299.0		36						
			37						
			38						
			39						
	+9295.0		40						
		Light gray Silty fine to medium SANDSTONE, trace fine subrounded gravel (moist)[BEDROCK][Tbp]		S-12	SS	3	50/3"	50/3"	
			41						
			42						
			43						Very difficult drilling
			44						
			45				50/2"	50/2"	Drive casing to 45 ft.
		Light gray Sandy SILTSTONE, trace subrounded gravel, fine-grained sand (moist)[BEDROCK][rBT]		S-13	SS	2			
			46						
			47						
			48						
			49						
	+9284.8		50						
		Mottled gray to tan fine to coarse SANDSTONE, some silt, some fine angular gravel (moist)[BEDROCK][rBT]		S-14	SS	3	50/3"	50/3"	Bottom of boring: 50.25 ft, 5/8/2024 10:53:47 AM
		End of Boring at 50.2ft.							
			51						
			52						
			53						
			54						
			55						
			56						

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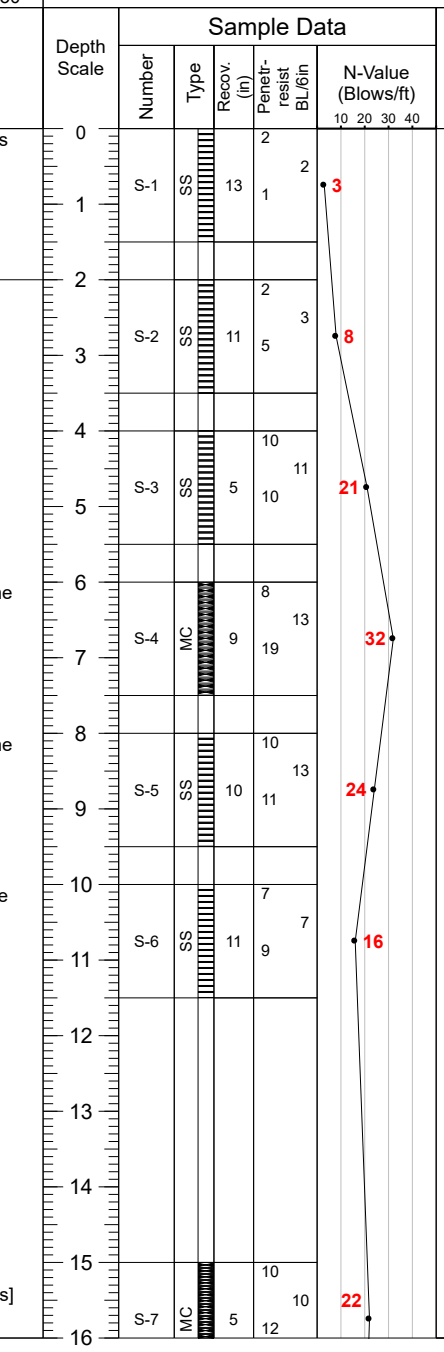
Log of Boring **LB-15** Sheet 1 of 3

Project: Stagecoach Mountain Resort	Project No.: 620044701
Location: Oak Creek, Colorado	Elevation and Datum: Approx. el. 8707.0 (NAVD 88)
Drilling Company: Cascade Drilling, L.P.	Date Started: 5/9/2024 — Date Finished: 5/9/2024
Drilling Equipment: ProSonic 600T	Completion Depth: 51.5 ft — Rock Depth: Not Encountered
Size and Type of Bit: 4in Carbide Core Bit	Number of Samples: Disturbed 14 — Undisturbed 0 — Core 0
Casing Diameter (in): N/A — Casing Depth (ft): N/A	Water Level (ft.): First ▽ N/A — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	Drilling Foreman: Ryan Miller
Sampler: 2in OD Split Spoon, 3in Modified California Sampler	Field Engineer: Thomas Greene
Sampler Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description
	+8707.0	Dark brown CLAY, some fine to medium sand, abundant roots and organic material (wet)[CH][TOPSOIL]
	+8705.0	Dark brown to brown Sandy CLAY, trace fine gravel, some roots (wet)[CL][ls]
		Dark brown to brown Sandy CLAY, trace fine gravel, trace oxidation staining (moist)[CL][ls]
		Tannish brown Sandy CLAY, some fine subangular gravel, fine to coarse sand (moist)[CL][ls]
		Tannish brown Sandy CLAY, some fine subangular gravel, fine to coarse sand (moist)[CL][ls]
		Tannish brown Sandy CLAY, trace fine subangular gravel, fine to medium sand, moderate plasticity (moist)[CL][ls]
		Brown to reddish brown Sandy CLAY, trace fine subangular gravel, fine to medium sand, moderate plasticity (moist)[CL][ls]



Sample Data

Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft)
S-1	SS	13	2 2 1	3
S-2	SS	11	2 3 5	8
S-3	SS	5	10 11 10	21
S-4	MC	9	8 13 19	32
S-5	SS	10	10 13 11	24
S-6	SS	11	7 7 9	16
S-7	MC	5	10 10 12	22

N-Value (Blows/ft) 10 20 30 40

Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)

- Start Drilling: 0 ft, 5/9/2024 7:58:11 AM
- 6 inch sleeve saved
- Increasing gravel and sand content
- 6 inch sleeve collected

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Log of Boring **LB-15** Sheet 2 of 3

Project	Project No.
Stagecoach Mountain Resort	620044701
Location	**Elevation and Datum**
Oak Creek, Colorado	Approx. el. 8707.0 (NAVD 88)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	+8691.0		16						
			17						
			18						
			19						
	+8687.0		20						
		Tannish brown to brown CLAY, some fine to coarse sand (moist)[CH][ls]	21	S-8	SS	10	5 8 9	17	
			22						
			23						
			24						
		Tannish brown CLAY, some fine to coarse sand (moist)[CH][ls]	25	S-9	MC	11	5 8 9	17	Drive 6 inch casing to 25 ft. Two 6 in sleeves collected
			26						
			27						
			28						
			29						
		Tannish brown CLAY, some fine to coarse sand, trace gravel (moist)[CH][ls]	30	S-10A	MC	18	10 12 29	41	Three 6 inch sleeves collected
	+8675.8		31	S-10B					
		Light tan to gray SAND, some fine gravel, some clay (moist) [SP][ls]	32						
			33						
			34						
	+8672.0		35						Drive casing to 35.00 ft.
		Tannish gray to dark gray fine to coarse SAND, trace clay, some fine gravel, crystalline quartz and amphibolite sand and gravel, moderately well-cemented (moist)[SP][rQG]	36	S-11	SS	14	29 40 50/2"	50/2"	

Template: Log-BH; Strip: BH-GEO; Printed on 11/21/2024

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Log of Boring **LB-15** Sheet 3 of 3

Project	Project No.
Stagecoach Mountain Resort	620044701
Location	**Elevation and Datum**
Oak Creek, Colorado	Approx. el. 8707.0 (NAVD 88)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	+8671.0		36						
			37						
			38						
			39						
	+8667.0		40						
	+8666.3	Brown to tannish gray Clayey fine to coarse SAND, some fine subrounded to subangular gravel (moist)[SC][rQG]		S-12A	SS	17	15 34		
		Yellowish brown to brown fine to coarse SAND, some fine angular to subangular crystalline gravel, trace clay (moist)[SP][rQG]	41	S-12B			32	66	
			42						
			43						
			44						
		Tannish brown to light gray fine to coarse SAND, some fine to coarse crystalline angular to subrounded gravel, some clay, quartz and amphibolite minerals (moist)[SP][rQG]	45	S-13	SS	17	24 33 32	65	Drive casing to 45.00 ft.
			46						
			47						
			48						
			49						
	+8657.0		50						
		Tannish brown Clayey fine to coarse SAND, trace gravel, 2 in clay seams (moist)[SC][rQG]		S-14	SS	14	9 12 21	33	
	+8655.5		51						
		End of Boring at 51.5ft.							Bottom of boring: 51.5 ft, 5/9/2024 11:05:13 AM Backfill with bentonite chips, 6 bags, 50 lbs each.
			52						
			53						
			54						
			55						
			56						