7/27/2026

Geology and Soils Evaluation Report

Honor Charter School

8250 Bent Grass Meadows Drive

El Paso County, Colorado

VIVID Project No.: D25-2-1113

VIVID Engineering Group

July 27, 2026

Report prepared for:

Waltz Construction
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GEOLOGY AND SOILS EVALUATION REPORT
Honor Charter School
8250 Bent Grass Meadows Drive
El Paso County, Colorado
VIVID Project No. D25-2-1113

Prepared by:

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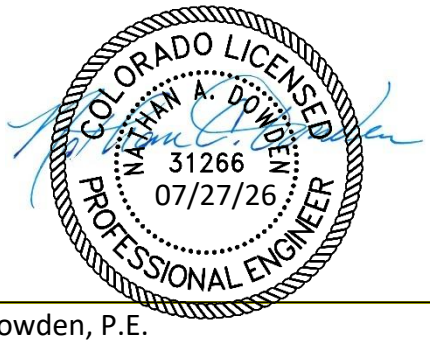

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Table of Contents

1.0 INTRODUCTION

1.1 GENERAL

This report presents the results of a geology and soils evaluation report performed for the proposed Honor Charter School Development located on Bent Grass Meadows Drive in unincorporated El Paso County near Peyton, Colorado. An attached Vicinity Map (Figure 1) shows the general location of the project (Ref. 1). Our investigation was performed for Waltz Construction and was authorized by Mr. Dominic Chapman.

1.2 PROJECT DESCRIPTION

Based on the information provided by the Client (*Site Development Plan for Honor Charter School*, Sheets S1-S5, by TAIT & Associates, Job No: C01517, dated 11/11/2024 (Ref. 2) , we understand that the project consists of the future development of a 2-story, approximately 48,428 square foot school building and associated paved parking areas, drive aisles, and playground/outdoor areas on a vacant 8.98-acre parcel located along Bent Grass Meadows Drive in Peyton, Colorado. Figure 2 presents the referenced Development Concept Plan. Other site activities are anticipated to include site grading and utility installation. We understand that no below-grade construction or retaining walls are planned for this site.

We have been provided with the proposed grading plan at the time of preparation of this report (*Grading and Erosion Control Documents for Honor Charter School*, Sheets G1-G14, by TAIT & Associates, Job No: C01517, dated 11/11/2024). Based on our review of the Grading Plan, we understand grading fills to achieve finish site grades, beneath the school building pad, will be on the order of 2.5 to 5 feet of fill. Additional cuts and fills throughout the overall property will be minimal (on the order of 1 to 5 feet) for general grading purposes.

Review of information from the El Paso County Assessor's website (Ref. 3), the existing parcel comprising this development is:

- EPC Parcel ID No. 53010000038

1.3 PURPOSE AND SCOPE

The purpose of this evaluation was to assess the site geology and potential geologic hazards for the proposed development. Additionally, VIVID's efforts included the performance of a preliminary subsurface soil investigation and development of pertinent geotechnical engineering information for use by others in planning and engineering studies of the site. This report is part of the submittal of the Preliminary Development Plan for this proposed development to El Paso County.

VIVID's scope of services included:

- A visual reconnaissance to observe surface and geologic conditions at the project site and locating the proposed soil borings;
- Completion of soil borings and logging of subsurface soil/bedrock and groundwater conditions for tactile evaluation of the soils and sampling for further laboratory testing;
- Laboratory testing of selected samples obtained during the boring explorations to evaluate relevant physical, geologic, and engineering properties of the soil; and

- Preparation of this report, which includes:
    - a description of the proposed project, a description of the surface and subsurface site conditions based on review of previous reports, and conditions found during our investigation;
    - geologic and geotechnical research and mapping for evaluation of challenges or geologic hazards that may impact the development;
    - develop geotechnical recommendations for:
        - earthwork and site preparation,
        - preliminary estimates of bearing capacities for shallow foundation systems,
        - support of slab-on-grade floors,
        - guidance regarding surface and subsurface drainage, from a geotechnical perspective.

VIVID previously completed and prepared a Geotechnical Evaluation Report in March, 2026 for this proposed school development. Our report, including all subsurface and laboratory test data, is included as Appendix A to this report and is entitled:

Geotechnical Evaluation Report
Proposed Honor Charter School Development
Bent Grass Meadows Drive
Peyton, Colorado
VIVID Project No.: D25-2-1113
Dated: March 5, 2026

1.4 QUALIFICATIONS OF PREPARERS

This Geology and Soils Evaluation Report was prepared by a Professional Geologist as defined by Colorado Revised Statutes section 34-1-201(3) and by a qualified Professional Engineer, with geotechnical expertise, pursuant to the requirements outlined in the El Paso County Land Development Code and Engineering Criteria Manual.

The principal investigators for this study are Brysen Mustain, P.G. and Nathan (Nate) Dowden, P.E. Mr. Mustain is a Professional Geologist as defined by State Statute (C.R.S 34-1-201) and a licensed Professional Geologist (PG-3718) by the State of Wyoming with over 22 years of experience in the geological and geotechnical engineering field. Mr. Mustain holds a B.S. in Geology from Adams State College, Alamosa, Colorado. Mr. Mustain has supervised and performed numerous geological and geotechnical field investigations throughout Colorado.

Nate Dowden, P.E. is a licensed Professional Engineer with over 38 years of experience in the geotechnical engineering fields. Mr. Dowden is a licensed professional engineer in Colorado (PE# 31266), Arizona and New Mexico. He holds a B.S. in Civil Engineering from the University of New Mexico and a M.S. in Civil Engineering (Geotechnical Emphasis) from the Colorado State University, Fort Collins, Colorado. Mr. Dowden has extensive experience in the development, supervision and performance of geological and geotechnical field investigation programs in Colorado and the Southwest Region of the United States.

2.0 FIELD EXPLORATION AND LABORATORY TESTING

2.1 FIELD EXPLORATION

A field exploration program performed on February 6, 2026, included drilling 10 exploratory borings at the approximate locations indicated on the attached Field Exploration Plans (Figures 2.1 and 2.2). The borings were drilled across the site, including 3 borings within or near the proposed building and 2 borings within the proposed parking area and access lanes. Borings were advanced to depths between approximately 14.4 and 34.6 feet below the existing ground surface.

The borings were advanced using a truck-mounted Diedrich D-90 drill rig equipped with 4.5-inch diameter, continuous-flight, solid-stem auger. Samples were taken with a California-type sampler (2.0-inch I.D./2.5-inch O.D.), a standard penetration (SPT) sampler and by bulk methods. Penetration tests were obtained at the various sample depths.

Boring logs presented in the Geotechnical Evaluation Report (Appendix A) describe the subsurface conditions. The lines defining boundaries between soil and rock types on the logs are based upon drill behavior and interpolation between samples and are therefore approximate. Transition between soil and rock types may be abrupt or may be gradual.

A summary of the subsurface exploration is presented below.

Table 1
Summary of Subsurface Exploration

Boring Designation	Approximate Total Depth of Exploration[1,2] [feet, bgs]	Approximate Depth of Bedrock[1] [feet, bgs]	Approximate Depth to Groundwater at time of Drilling[1] [feet, bgs]	Approximate Depth to Groundwater 72-hours after Drilling[1] [feet, bgs]
B-1	14.8	10.0	9.0	7.0
B-2	14.8	12.0	None encountered	8.0
B-3	14.6	7.0	8.0	5.5
B-4	14.8	12.0	None encountered	None encountered
B-5	34.4	10.0	8.0	None encountered
B-6	34.6	14.0	7.0	None encountered
B-7	34.5	8.0	None encountered	None encountered
B-8	14.4	7.0	None encountered	None encountered
B-9	14.7	12.0	None encountered	None encountered
B-10	14.8	12.0	9.0	None encountered

1. Depths referenced to feet below existing ground surface (bgs) at time of drilling.
2. "Total Depth of Exploration" includes final sampler penetration below bottom of auger.

2.2 GEOTECHNICAL LABORATORY TESTING

Laboratory tests were performed on selected soil and bedrock samples to estimate their relative engineering properties. Tests were performed in general accordance with the following methods of ASTM or other recognized standards-setting bodies, and local practice:

- Description and Identification of Soils (Visual-Manual Procedure)
- Moisture Content and Unit Weight of Soils
- Sieve Analysis
- Atterberg Limits
- Swell/Settlement Test
- R-Value
- Unconfined Compression Test

Results of the geotechnical laboratory tests are presented in the Geotechnical Evaluation Report (Appendix A). Selected test results are also shown on the boring logs in the referenced report.

2.3 ANALYSTICAL LABORATORY TESTING

Analytical testing for soil corrosivity was performed on selected samples and included the following tests:

- pH
- Resistivity
- Redox Potential
- Water-soluble Sulfate Content
- Water-soluble Chloride Content
- Sulfide Presence

Results of the analytical laboratory tests are presented in the Geotechnical Evaluation Report (Appendix A).

3.0 GEOLOGY AND SOILS

3.1 SITE DESCRIPTION

The school site is an approximate 8.98-acre vacant parcel north of the intersection of Bent Grass Meadows Drive and Sea Oats Drive in Peyton, Colorado. The site is surrounded by residential properties to the north and west, Bent Grass Meadows Drive to the south, and vacant land to the east. At time of our exploration, the ground surface was covered with grasses and weeds, with some small trees in the vicinity. Topographically, the site generally slopes down to the southeast, with an approximate difference in elevation of 15 feet across the site. Drainage structures were also present on the south side of the site, and a seasonal pond on the east side of the site, both of which were dry during the time of our investigation. Representative photographs of the site, obtained at the time of our field exploration, are presented in the Geotechnical Evaluation Report (Appendix A). The school is planned to be located in the southwest portion of the parcel.

3.2 GEOLOGIC RECONNAISSANCE

A visual geologic reconnaissance of the site was performed. This reconnaissance was supported by the review of geologic mapping and information from the following sources:

- Google Earth Pro, Aerial Imagery dates 9/3/1999 to 11/1/2025, accessed 7/22/2026 (Ref.4)
- Falcon Quadrangle Geologic Map, El Paso County, Colorado by M.L. Morgan and J.L. White., 2012, Colorado Geologic Survey Open-File Report OF-12-05 (Ref. 5)
- US Department of Agriculture (USDA), *Soil Survey of El Paso County Area, Colorado,* Soil Conservation Service, USDA, 1981 (Ref. 6)
- Historic aerial photographs, 1947-2023, www.historicaerials.com, accessed 07/24/2026 (Ref. 7)
- Review of available Geologic Hazard Studies in the surrounding area (Refs. 8-12)

A portion of the geologic map (Ref. 5) is presented as Figure 3 attached to this report. An NRCS Soil Survey Map and associated Soil Descriptions are presented as Figure 4.

3.3 SITE SOILS AND GEOLOGY

3.3.1 Site Stratigraphy

A portion of the Geologic Map of the Falcon Quadrangle showing the approximate site boundaries is presented on Figure 3. Three mappable units were identified on the site, which are underlain by Paleocene to Eocene-aged Dawson Arkose Formation (Tda):

Qa_1 Late Holocene Alluvium One	This alluvium unit is present within or near the east boundary of the site, within the unnamed ephemeral drainage. Based on the mapping, these alluvium deposits are generally tan to pale-brown in color and consist of poorly to moderately-sorted sand, gravel, silt and minor clay in currently active stream channels.
Qa_3 Late Pleistocene Alluvium Three	This alluvium unit is present within the majority of the site. Based on the mapping, these alluvium deposits are generally tan to reddish-brown to grayish-brown in color and consist of poorly-sorted, moderately consolidated silt, sand, gravel, silt and cobbly gravel and occasional boulders in stream terrace deposits. The unit also contains dark gray clay beds that may be expansive.
Qes Holocene to Late Pleistocene Eolian sand	The eolian sand deposits encountered on the site are generally associated with the Late Pleistocene and Holocene Ages. The material is typically yellowish-brown to light brown to tan in color. This unit typically consists of fine to coarse-grained sand and silt windblown deposits.

Based on our exploratory soil borings and review of previous preliminary investigation and geologic mapping, the following soil and bedrock materials are anticipated to be encountered on the site.

Sand

The overburden soils encountered at this site predominately consisted of clayey to silty sand and poorly to well-graded sand soils, extending from the ground surface to depths ranging from approximately 7 to 14 feet below the existing ground surface in every boring. The sand soils were generally light to medium brown or light gray in color, slightly moist to wet, and field penetration testing (blow counts) indicated the soils are very loose to medium dense. Swell/consolidation testing performed on samples of the poorly graded sand and silty sand materials exhibited no movement when wetted under loads ranging from 1,000 to 2,000 psf.

Clay

Sandy lean clay was encountered below the sand layer in one boring, B-4, from a depth of approximately 7 to 12 feet below the existing ground surface. The clay soils were dark grayish-brown, moist, and very stiff based on field penetration testing.

Bedrock

Although not shown as a mappable unit on the site, weathered to relatively unweathered sandstone and claystone bedrock of the Dawson Arkose Formation was encountered in every boring at depths of approximately 7 to 14 feet below the ground surface and extended to the maximum depths explored. The bedrock materials were bluish-gray, light gray and brown to tan in color, moist, and field penetration resistance testing (blow counts) indicated the relative density of the bedrock materials ranged from moderately hard to very hard. Swell/consolidation testing performed on samples of the sandstone and claystone materials exhibited swells of between 0.4 and 2.7 percent when wetted under loads of 1,000 or 2,000 psf. One clayey sandstone sample exhibited 0.5 percent compression when wetted under a 1,000 psf load.

As noted in our logs of exploratory borings, within the Dawson Formation, lenses of claystone bedrock will likely be encountered within the sandstone. We anticipate the sandstone bedrock encountered on this site will be weakly to moderately cemented. The estimated bedrock elevation throughout the site is presented as Figure 5, based on interpolation of the depths to bedrock encountered in our exploratory borings.

The boring logs in the Geotechnical Evaluation Report (Appendix A) should be reviewed for more detailed descriptions of the subsurface conditions at each of the boring locations explored.

3.4 ENGINEERING GEOLOGY AND MITIGATION OF GEOLOGIC HAZARDS

No geologic hazards were found that would preclude the proposed development as planned. The following presents a list of geologic hazards, their applicability to this site, and the typical mitigation techniques.

Expansive Soil and Bedrock

Clayey Sand and Clay soils and clayey Sandstone and Claystone layers within the Dawson Formation were encountered in our exploratory borings. Based on our laboratory testing, the sand and clay soils exhibit nil to low swell potential; samples of the silty Sand exhibited no movement under a 1,000 psf load upon wetting.

The clayey Sandstone and Claystone bedrock exhibited low to moderate swell potential, with samples having varying measured values from -0.5% (compression) to 2.7% (swell) when wetted under a 1,000 – 2,000 psf loads. Specific swell tests results are presented in the Geotechnical Evaluation Report (Appendix A).

Swell potential of the clayey Sand, Clay and clayey Sandstone and Claystone materials encountered at the site are anticipated to vary. If clay soils or claystone bedrock are encountered at elevations at or near the bottom of structure elevations, mitigation for this potential hazard may include over-excavation of a zone of the expansive materials and replacement with moisture treated soils or granular structural fill, or the use of deep foundations (i.e. drilled piers).

Settlement Prone Soil

The overburden sand and clay soils may undergo some settlement if heavily loaded and/or wetted. Mitigation for this potential hazard is addressed in the site-specific geotechnical evaluation report and includes properly preparing and compacting on-site soils prior to placement of fill and structural elements.

Erodible Soils

Soils with a sandy matrix, such as that encountered on the site, are susceptible to erosion when exposed. These concerns are normally addressed in an erosion control plan during construction and a long-term seeding/landscape plan that is typical for this type of development. Since we understand the majority of the site will have either a building constructed on it or will be paved and/or landscaped, the potential for erosion will be mitigated by these improvements.

Corrosive Soils

The site may be underlain by soil or bedrock materials that may contain corrosive minerals. Corrosive minerals can have detrimental effects on concrete and buried metals if not identified prior to design and properly mitigated.

Laboratory testing was completed to provide data regarding potential corrosivity of onsite soils. Our scope of services does not include corrosion engineering and, therefore, a detailed analysis of the corrosion test results is not included. A qualified corrosion engineer should be retained to review the test results and design protective systems that may be required.

Laboratory chloride concentration, sulfate concentration, pH, and electrical resistivity tests were performed on samples of onsite sand materials obtained during our field investigation. The results of the tests are included in the Geotechnical Evaluation Report (Appendix A) and are summarized below in Table 2.

Table 2
Summary of Laboratory Soil Corrosivity Testing

Boring No.	Sample Depth (ft)	Material	Water Soluble Chloride (%)	pH	Redox Potential (mV)	Resistivity (ohm-cm)	Water Soluble Sulfate (%)	Sulfide Presence
B-2	4.0	Sand	0.001	8.3	100.9	21,000	0.002	Trace
B-6	4.0	Sand	0.001	7.2	114.2	9,700	<0.001	Trace

Metal and concrete elements in contact with soil, whether part of a foundation system or part of a supported structure, are subject to degradation due to corrosion or chemical attack. Therefore, buried metal and concrete elements should be designed to resist corrosion and degradation based on accepted practices.

Based on the "10-point" method developed by the American Water Works Association (AWWA) in standard AWWA C105/A21.5, the corrosivity test results indicate that the onsite sands have low corrosive potential.

Mine Subsidence

This project is outside of areas of known mining and identified mine subsidence. Geomorphic features associated with mining and mine subsidence were not observed on the site. Mine subsidence is not anticipated to be a design factor for this site.

Slope Stability

The Dawson Formation and moderate to gentle slopes on this site are not considered to be prone to slope instability and there are no published geologic maps that indicate these issues exist on this site.

Flooding Potential

As shown in Figure 6, Flood Hazard Map, the proposed school site is outside of mapped flood plain areas. Based on the FEMA flood mapping (Ref. 13) and our site observations, flooding is not considered to be a hazard for this development. Review of historic aerial photographs indicate that surface runoff water from the northerly surrounding area previously crossed the site, being directed into man-made surface water catchments shown on Figure 2.2. The catchment areas are dry. Surface drainage appears to have been redirected through constructed drainage features along the northerly portion of the project site. These surface water flows will be addressed and catchment areas eliminated through the site drainage and grading plan.

Seismicity

The major structural feature of this region is the Rampart Range Fault System which is located approximately 15 miles west of the site along the Front Range. There is evidence of movement during

the past 2 million years along this fault zone. The Rampart Range Fault is considered to be active by the Colorado Geologic Survey. This area, as is the case with most of central Colorado, is subject to a degree of risk due to seismic activity (Ref. 14).

Based upon the geologic setting, subsurface soil conditions, and low seismic activity in this region, liquefaction is not expected to be a hazard at the site. Seismic design values are presented in the Geotechnical Evaluation Report (Appendix A).

Elevated Radioactivity/Radon

Results of an EPA supported radon study in Colorado (Ref. 15) found that soils similar to those that underlie this site are generally below the EPA guideline level of 4 pCi/l. However, radon levels often vary significantly within the same geologic formation. It should be mentioned that all of El Paso County is considered to be in Zone 1 of the EPA's Map of Radon Zones, which is a county considered to have a predicted average indoor radon screening level greater than 4 pCi/L. This is a more significant issue for inhabited below-grade construction and structures that are more air-tight such as residential structures. The higher concentrations of radon gas normally occur in residential structures that have been sealed to prevent exchange of outside air. Buildup of radon gas can usually be mitigated by providing frequent exchange of air within the structure and by sealing joints and cracks that are located adjacent to the subsoil. The presence and concentration of radon gas was not included in this investigation and is not considered an issue impacting development as no residential lots are proposed.

Groundwater

Groundwater was encountered in 5 of the exploratory borings at the locations, approximate depths, and times presented above in Table 1, and on the individual boring logs presented in the Geotechnical Evaluation Report (Appendix A). Groundwater at this site tends to perch on top of, or within, the less-permeable clay soils and claystone bedrock layers within the underlying Dawson Formation. The groundwater is found at intermittent locations and is characterized as localized perched groundwater as contrasted with a large scale, underground aquifer.

The Geotechnical Evaluation Report for the proposed structure and pavements provides mitigation measures to address control of groundwater, both during construction and throughout the life of the structure. As no below-grade, habitable construction is proposed, the measures include an underslab drainage layer and foundation perimeter drains, common to local design and construction techniques.

Based on the topography of the site, the surface water likely drains to the south and southeast. Ponding is anticipated to occur within any low-lying/depression features on the site during high precipitation events.

To aid in the evaluation of groundwater conditions present at the site, we have prepared a "Groundwater Elevation Map" based on the data we obtained. This exhibit is included as Figure 7 to this report. The groundwater elevations presented are interpolated based on the depths/elevations at which groundwater was encountered within our exploratory boring during our field investigation.

Geologic Hazards Opinion

It is our opinion that the project site exhibits no geologic hazards that pose a significant risk to the proposed project or adjacent properties that cannot be mitigated through proper land usage planning, foundation design, engineering design, and/or construction practice generally as discussed above. Recommendations regarding mitigation of the identified potential hazards are addressed in the Geotechnical Evaluation Report (Appendix A), or through the use of current building design codes. Additional recommendations pertinent to this development are provided in subsequent sections of this report.

3.5 ECONOMIC MINERAL RESOURCES

According *to El Paso County Master Plan for Mineral Extraction*, the project site is not mapped with any significant or viable aggregate deposits. The site is mapped as "*UPLAND DEPOSITS: Sand, gravel with silt and clay deposited by older streams on topographic highs or bench like features*". Based on the limited quantity and quality of the aggregate resources on the site and the proximity to developed residential features, the site is not deemed suitable for aggregate or mineral extraction. (Ref. 16)

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 GEOLOGIC/GEOTECHNICAL FEASIBILITY OF PROPOSED CONSTRUCTION

VIVID found generally fair to good subsurface conditions during this investigation that would indicate that development of the site as planned involves an average risk of suitable performance of the structures, assuming localized subgrade conditions are mitigated. The main geotechnical issue is the localized presence of loose, compressible overburden soils, low swell potential clays and claystone, and shallow groundwater. However, as long as the recommendations in this report and the Geotechnical Evaluation Report (Appendix A) are incorporated in the design and construction of the project, the deleterious effects of the identified geotechnical conditions of concern can be reduced.

It is our opinion that the project site exhibits no geologic hazards that pose a significant risk to the proposed project or adjacent properties that cannot be mitigated through proper land usage planning, foundation design, engineering design, and/or construction practice generally as discussed above.

Our geotechnical design and construction recommendations for site preparation, foundations, floor systems, pavements, and other related construction topics for the proposed Honor Charter School are provided in the Geotechnical Evaluation Report (Appendix A) and summarized below.

4.2 FOUNDATION RECOMMENDATIONS

4.2.1 Shallow Foundation Recommendations

As noted previously, a Geotechnical Evaluation providing site-specific geotechnical design parameters was previously completed and is presented in Appendix A. Based on the conditions encountered in our investigation, it is our opinion that structures within this development can be designed and constructed utilizing shallow foundation systems, providing the recommendations presented in the Geotechnical Evaluation Report (Appendix A) are implemented.

For foundations supported on properly prepared subgrade, we estimate allowable foundation soils contact pressure to be on the order of 2,800 psf. Foundation sizes should be determined by a structural engineer.

Additional criteria, such as Lateral Earth Pressures, are presented in the Geotechnical Evaluation Report (Appendix A).

4.3 FLOOR SYSTEMS

4.3.1 Slab-on-Grade Floor System

Slab-on-grade floor systems are considered acceptable provided the recommendations in the Geotechnical Evaluation Report (Appendix A) are implemented. Specifically, we recommend that a capillary break or moisture barrier be constructed below interior slabs-on-grade for habitable structures on this site.

4.3.2 Capillary Break or Moisture Barrier

If moisture sensitive flooring or adhesives will be utilized within the habitable structures, a capillary break or moisture barrier should be constructed below slabs at this site. Specific criteria are presented in the Geotechnical Evaluation Report (Appendix A).

4.4 PERIMETER EXTERIOR DRAIN SYSTEM

Due to the presence of shallow groundwater, we recommend installation of an exterior foundation perimeter drain connected to a gravity outlet or sump, with a working sump pump, be constructed around habitable structure.

4.5 CHEMICAL SULFATE SUSCEPTIBILITY AND CONCRETE TYPE

The degradation of concrete or cement grout can be caused by chemical agents in the soil or groundwater that react with concrete to either dissolve the cement paste or precipitate larger compounds within the concrete, causing cracking and flaking. The concentration of water-soluble sulfates in the soils is a good indicator of the potential for chemical attack of concrete or cement grout. The American Concrete Institute (ACI) in their publication Guide to Durable Concrete (ACI 201.2R-08) provides guidelines for this assessment.

The concentration of water-soluble sulfates measured on subsurface materials submitted for testing represents Class 0 exposure of sulfate attack on concrete exposed to the soils per CDOT Standard Specifications for Road and Bridge Construction, 2025, Section 601.04.

5.0 ADDITIONAL SERVICES & LIMITATIONS

5.1 ADDITIONAL SERVICES

Attached to Geotechnical Evaluation Report (Appendix A) is a document by the Geoprofessional Business Association (GBA) that summarizes limitations of geotechnical reports as well as additional services that are required to further confirm subgrade materials are consistent with that encountered at the specific boring locations presented in the report. This document should be read in its entirety before implementing design or construction activities. Examples of other services beyond completion of a geotechnical report are necessary or desirable to complete a project satisfactorily include:

- Review of design plans and specifications to verify that our recommendations were properly interpreted and implemented.
- Attendance at pre-bid and pre-construction meetings to highlight important items and clear up misunderstandings, ambiguities, or conflicts with design plans and specifications.
- Performance of construction observation and testing which allows verification that existing materials at locations beyond our borings are consistent with that presented in our report, construction is compliant with the requirements/recommendations, evaluation of changed conditions.

5.2 LIMITATIONS

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of VIVID's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions, and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. VIVID makes no other representation, guarantee, or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

This report may be used only by the Client and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two (2) years from the date of the report.

6.0 REFERENCES

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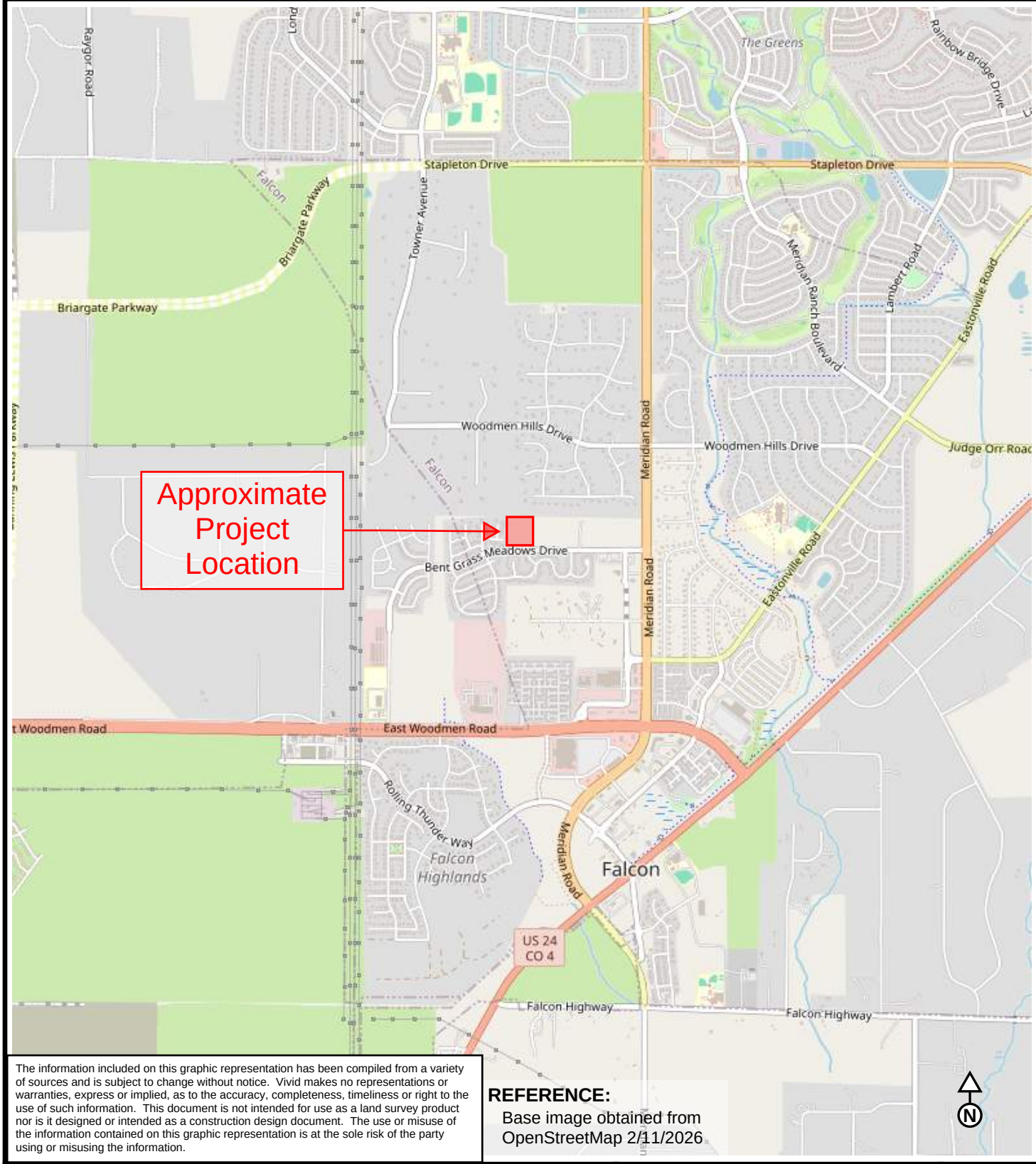
Figures



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REFERENCE:
Base image obtained from OpenStreetMap 2/11/2026

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719-896-4356

Project No. D25-2-1113

Date: 7/21/2026

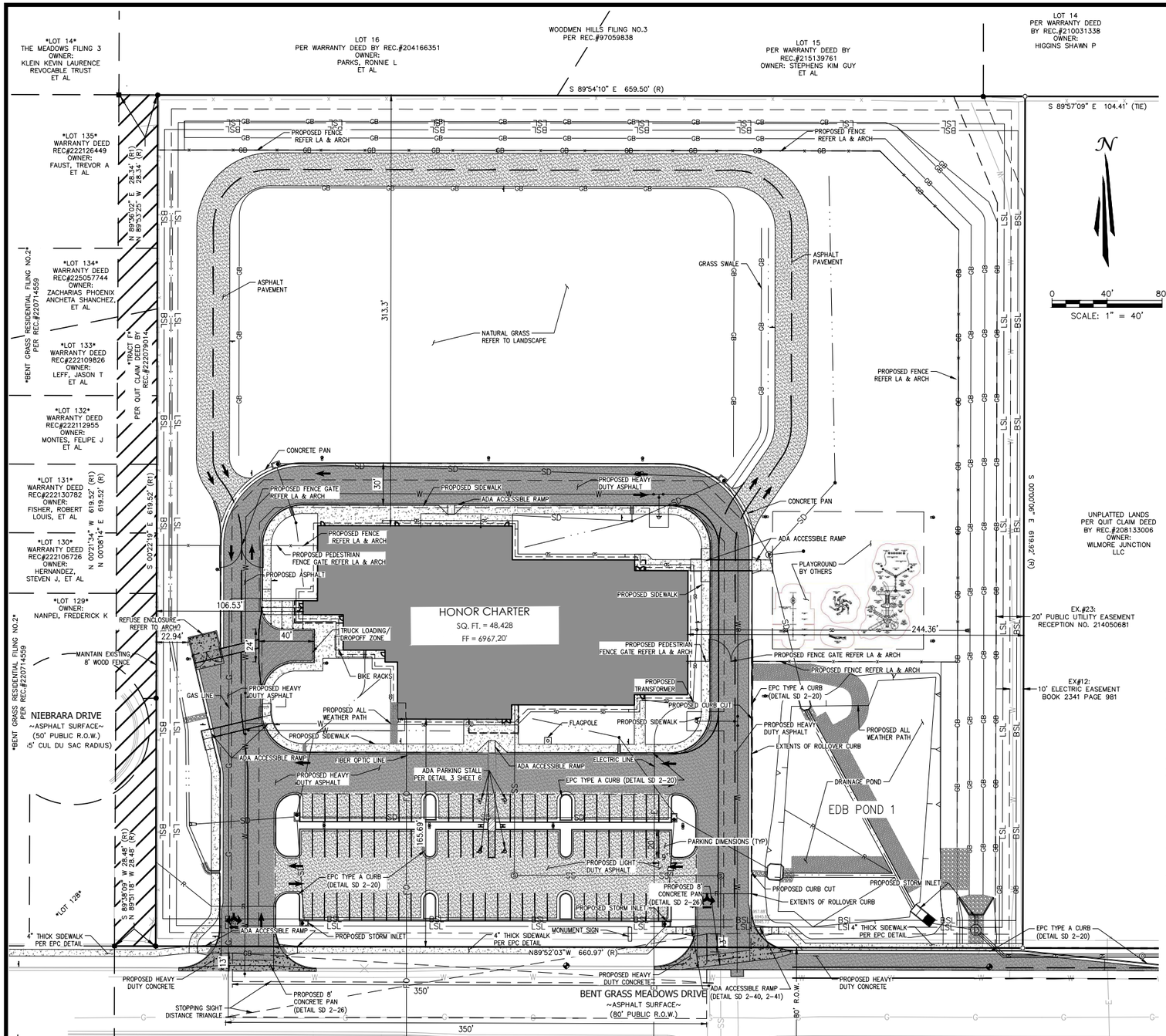
Drawn by: DHC

Reviewed by: NAD

VICINITY MAP

Proposed Honor Charter School Development
Bent Grass Meadows Drive
Peyton, Colorado

FIGURE
1



SUMMARY TABLE

CITY	PEYTON
COUNTY	EL PASO COUNTY
PROPERTY ADDRESS	8250 BENT GRASS MEADOWS DRIVE
PROPERTY TAX SCHEDULE NUMBER	PARCEL NO. 5301000038
CURRENT ZONING	PUD, PLANNED USE DEVELOPMENT, MIXED WITH RESIDENTIAL
LEGAL DESCRIPTION	TR IN S2NE4 SEC 1-13-65 DESC AS FOLS: COM AT NE COR OF SD SEC 1'S S2NE4, TH S 00<00'06" W 621.14 FT TO A PT ON N LN OF THE S 40.0 FT OF THE N2S2NE4, TH N 89<52'03" W 1979.60 FT FOR POB, TH CONT N 89<52'03" W 660.97 FT, N 00<08'14" E 619.52 FT, S 89<54'10" E 659.50 FT, S 00<00'06" W 619.92 FT TO POB *** NEW PARCEL NUMBERS FOR 2020 ARE PLATTED TO #14559 BENT GRASS RESIDENTIAL FIL NO 2 53012-01-009 THRU 015, 060 (LEFTOVER 53010-00-038) ***
LOT/PARCEL SIZE	391,129 SQ FT. 8.98 ACRES
LOT AREA COVERAGE	7.6% BUILDING COVERAGE
EXISTING/PROPOSED LAND USE ZONING	PUD
TOTAL GROSS BUILDING SQUARE FOOTAGE	48,428
OPEN SPACE PERCENTAGE	38.6%
LANDSCAPING PERCENTAGE	27.4%
IMPERMEABLE SURFACE PERCENTAGE	34%
REQUIRED PARKING	68 STALLS
PROVIDED PARKING	82 STALLS

OWNER INFORMATION

HONOR CHARTER SCHOOL BUILDING CORPORATION
12577 E CALEY AVE CENTENNIAL, CO 80111
ATTN: TAMMY SWEERIS
(616) 250-3566

APPLICANT INFORMATION

TAIT & ASSOCIATES, INC.
320 N LINCOLN AVE
LOVELAND, CO 80537
ATTN: BRIAN CAMPBELL, PE
(970) 613-1447
BCAMPBELL@TAIT.COM

DEVELOPER

HIGHMARK SCHOOL DEVELOPMENT
10808 S. RIVER FRONT PKWY SUITE 3126B
SOUTH JORDAN, UTAH 84095
ATTN: TAMMY SWEERIS
(616) 240-3566

SYMBOLS LEGEND

- PROPERTY LINE
- ADJACENT PROPERTY/ ROW LINE
- BUILDING SETBACK LINE
- PROPOSED EASEMENT
- LIMIT OF DISTURBANCE
- PROPOSED FENCE
- PROPOSED RIDGELINE
- PROPOSED GRADE BREAK
- PROPOSED TOP OF POND
- PROPOSED BOTTOM OF POND
- PROPOSED SWALE
- BUILDING SETBACK LINE
- LANDSCAPE SETBACK LINE
- PROPOSED FLAGPOLE
- PROPOSED SIGN
- PROPOSED SS CLEANOUT
- PROPOSED BACKFLOW PREVENTOR
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- PROPOSED STREET LIGHT
- EXISTING INLET
- PROPOSED INLET
- PROPOSED STORM INFRASTRUCTURE
- PROPOSED STORM MANHOLE
- PROPOSED TEE / THRUST BLOCK
- PROPOSED FLARED-END SECTION
- EXISTING SANITARY SEWER MANHOLE
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY CONCRETE
- PROPOSED HEAVY DUTY CONCRETE
- PROPOSED RIP RAP
- STOPPING SIGHT TRIANGLE

REFERENCE
"SITE DEVELOPEMENT PLAN" Received on 7/16/26 from Brian Campbell with TAIT:

TAIT & ASSOCIATES
Since 1964
320 North Lincoln Avenue
Loveland, CO 80537
p: 970.613.1447
www.tait.com
ENGINEERING ENVIRONMENTAL BUILDING LAND
Santa Ana Sacramento Denver Dallas
San Luis Obispo Riverside Boise

DRAWN: CW
DATE: 11/11/2024
CHECKED:
DATE:
REVISION #:
DATE:
JOB NO: CO1517

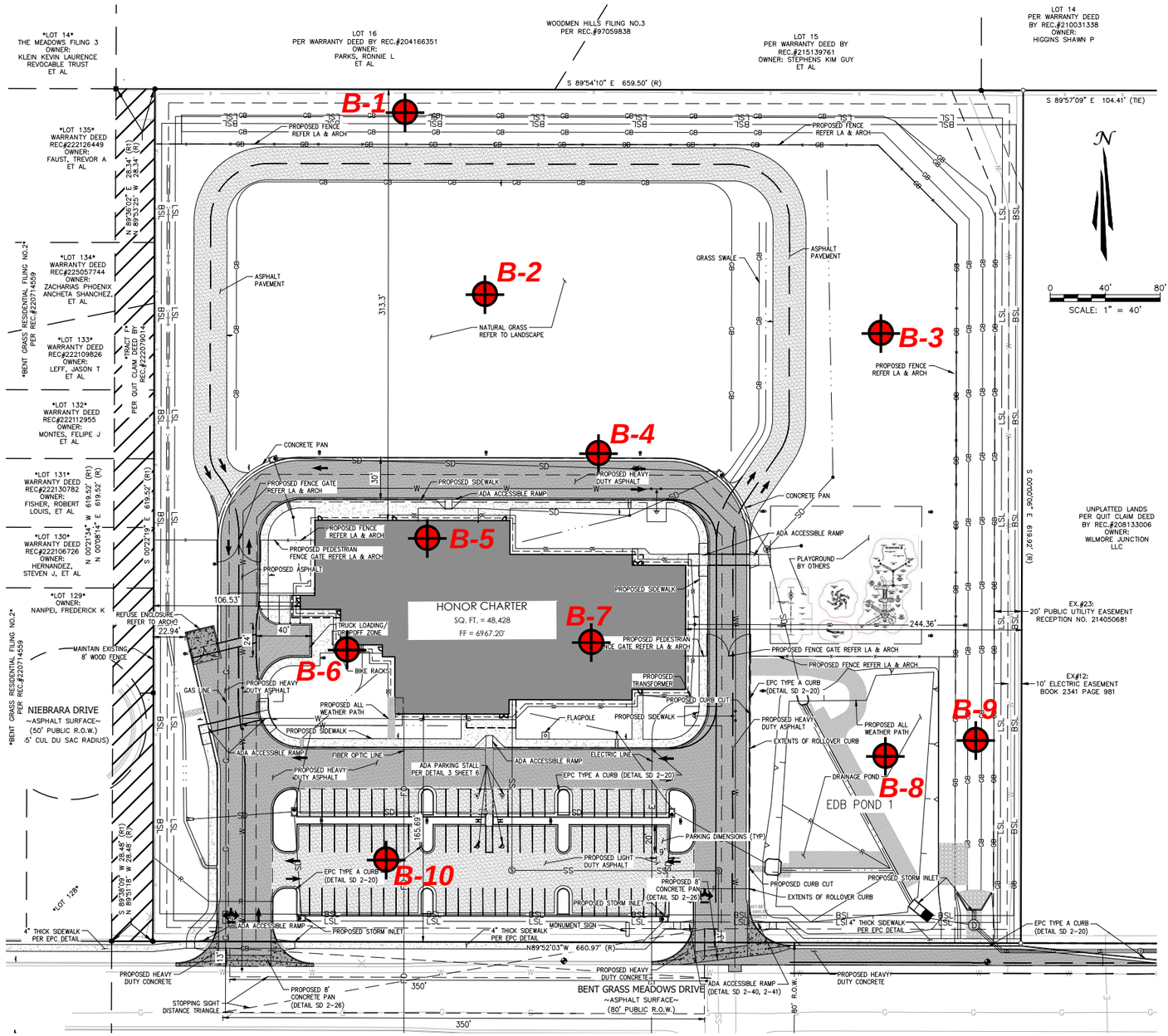
VIVID Engineering Group
VIVID Engineering Group, Inc.
1053 Elkton Drive
Colorado Springs, CO 80907
719-896-4356

Project No. D25-2-1113
Date: 7/21/2026
Drawn by: DC
Reviewed by: NAD

DEVELOPMENT CONCEPT PLAN

Proposed Honor Charter School Development
Bent Grass Meadows Drive
Peyton, Colorado

FIGURE
2



SYMBOLS LEGEND

- PROPERTY LINE
- ADJACENT PROPERTY/ ROW LINE
- BUILDING SETBACK LINE
- PROPOSED EASEMENT
- LIMIT OF DISTURBANCE
- PROPOSED FENCE
- PROPOSED RIDGELINE
- PROPOSED GRADE BREAK
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- PROPOSED FLARED-END SECTION
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- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY CONCRETE
- PROPOSED HEAVY DUTY CONCRETE
- PROPOSED RIP RAP
- STOPPING SIGHT TRIANGLE

LEGEND

B-1 Approximate Boring Location

Note: Not to Scale.

REFERENCE

"SITE DEVELOPEMENT PLAN" Received on 7/16/26 from Brian Campbell with TAIT:

TAIT & ASSOCIATES
Since 1964
320 North Lincoln Avenue
Loveland, CO 80537
p: 970.613.1447
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ENGINEERING ENVIRONMENTAL BUILDING LAND
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Colorado Springs, CO 80907
719-896-4356

Project No. D25-2-1113

Date: 7/21/2026

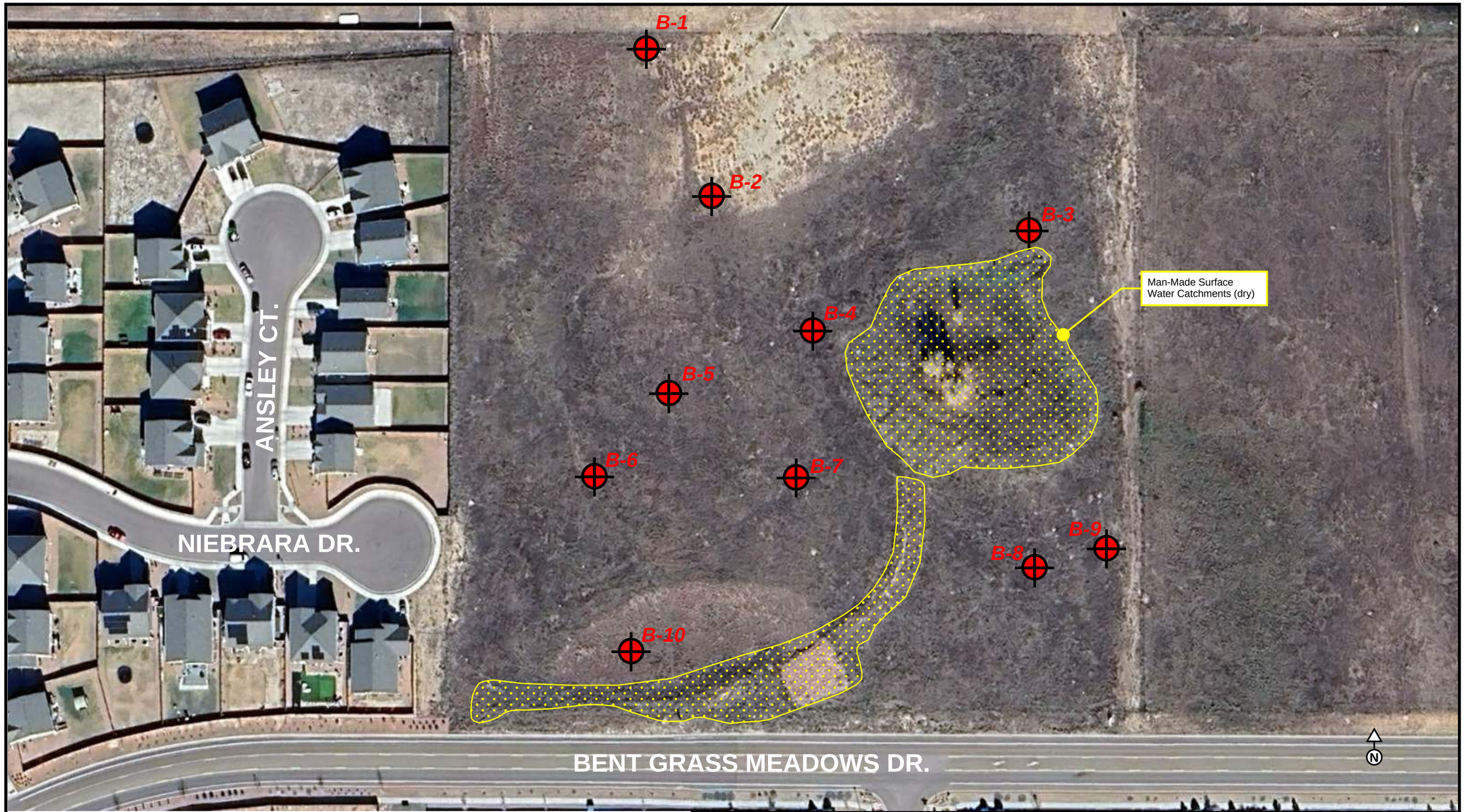
Drawn by: DHC

Reviewed by: NAD

FIELD EXPLORATION PLAN (CONCEPTUAL)

Proposed Honor Charter School Development
Bent Grass Meadows Drive
Peyton, Colorado

FIGURE 2.1



Note: Not to Scale.

REFERENCE
Base Image obtained from Google Earth Pro, 2025.

LEGEND
B-1 Approximate Boring Location

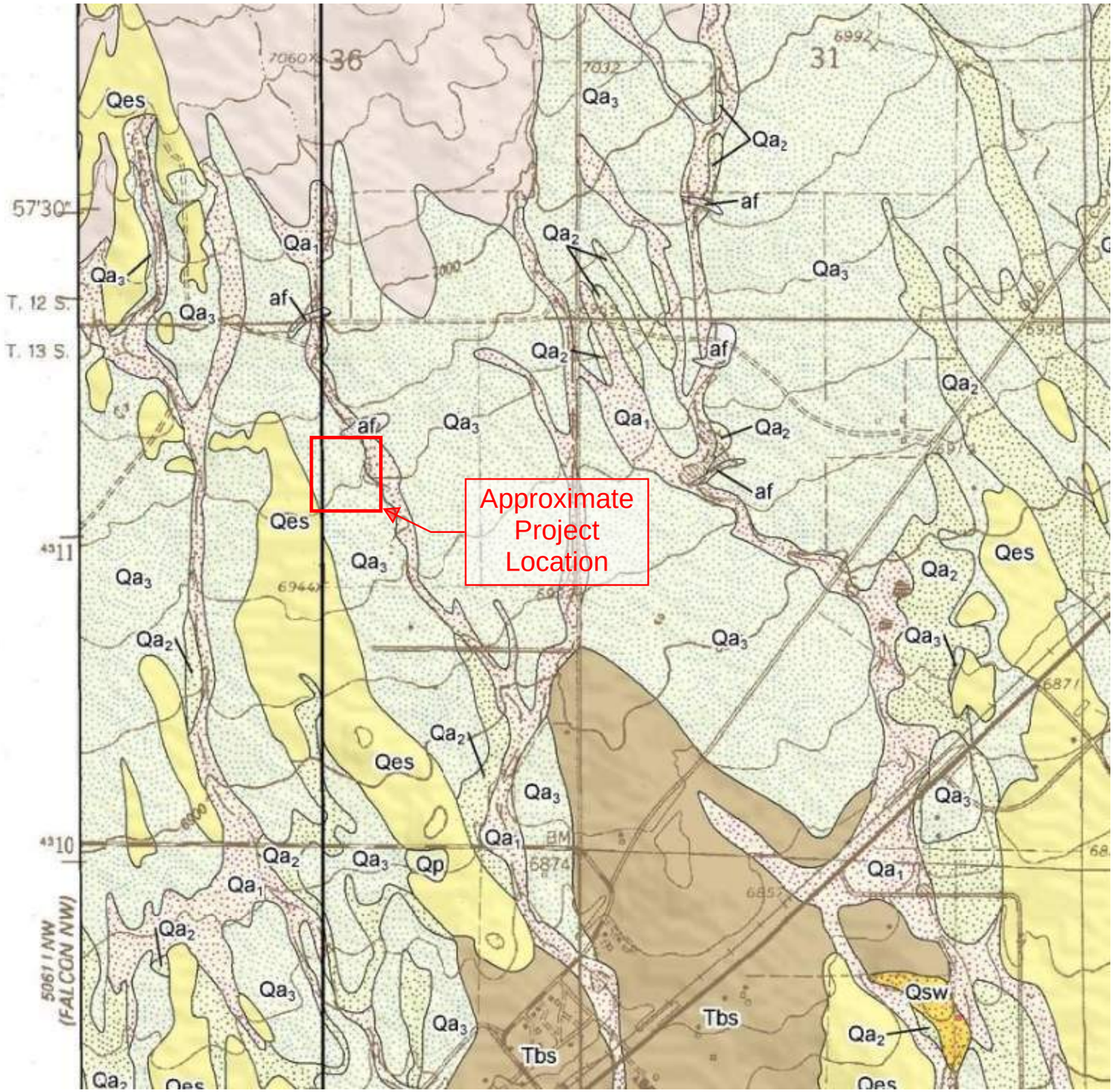
VIVID Engineering Group, Inc.
1053 Elkton Drive
Colorado Springs, CO 80907
719-896-4356

Project No. D25-2-1113
Date: 7/27/2026
Drawn by: SAM & DHC
Reviewed by: NAD

FIELD EXPLORATION PLAN
(AERIAL)

Proposed Honor Charter School Development
Bent Grass Meadows Drive
Peyton, Colorado

FIGURE
2.2



LIST OF MAP UNITS

SURFICIAL DEPOSITS

Qa_1 — **Alluvium one (upper Holocene)** — Tan to pale-brown, poorly to moderately sorted, poorly consolidated, sand, gravel, silt, and minor clay and occasional boulders in the currently active stream channels or in low stream-terrace deposits less than 5 feet above the current stream channel. It may be deposited as non-terrace forming alluvium in valleys and swales. Clasts are subrounded to well rounded and the dominant sediment is sandy gravel with a sandy silt matrix. The unit correlates with the Post-Piney Creek Alluvium described by Hunt (1954) in the Denver area and of Maberry and Lindvall (1972). The unit is subject to frequent flooding and is a source of sand and gravel. Maximum exposed thickness of the unit locally exceeds 5 feet.

Qa_3 — **Alluvium three (upper Pleistocene)** — Tan to reddish brown to grayish brown, poorly sorted, moderately consolidated, poorly to moderately stratified silt, sand, gravel, and cobbly gravel and occasional boulders in stream terrace deposits approximately 10-20 feet above the modern flood plain or as non-terrace forming alluvium in valley headwaters that underlies the younger alluviums. The unit contains dark gray clay beds that may be expansive. Clasts are subrounded to well rounded and the dominant sediment is sandy gravel with a sandy matrix. The unit correlates with the Broadway Alluvium described by Hunt (1954) in the Denver area and of Maberry and Lindvall (1972). The unit is a potential source of sand and gravel. Maximum exposed thickness of the unit locally exceeds 20 feet.

Qes — **Eolian sand (Holocene to upper Pleistocene)** — Yellowish-brown to tan, fine- to coarse-grained, frosted sand and silt deposited by wind. Typically this unit is faintly stratified and non-cohesive; dune forms are not present. The unit is likely deposited as a sandsheet by winds capable of moving very fine gravel-sized clasts. Eolian sand is moderately compacted, easily excavated, and drains well. Unit locally may exceed 5 feet in thickness.

N

Note: Not to Scale.

REFERENCE

Base Image obtained from CGS Geologic Map of the Falcon Quadrangle, El Paso County, Colorado (Morgan, M.L., and White, J,L.), 2012, Colorado Geological Survey Open-File Report OF-12-05.

VIVID Engineering Group, Inc.
1053 Elkton Drive
Colorado Springs, CO 80907
719-896-4356

Project No. D25-2-1113

Date: 7/21/2026

Drawn by: DHC

Reviewed by: NAD

GEOLOGIC MAP

Proposed Honor Charter School Development
Bent Grass Meadows Drive
Peyton, Colorado

FIGURE

3

El Paso County Area, Colorado (CO625)

El Paso County Area, Colorado (CO625)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
8	Blakeland loamy sand, 1 to 9 percent slopes	75.4	18.3%
9	Blakeland-Fluvaquentic Haplaquolls	3.7	0.9%
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	333.8	80.8%
Totals for Area of Interest		**412.9**	**100.0%**

Note: Not to Scale.

REFERENCE

Base Image obtained from Soil Survey of El Paso County Area, Colorado Soil Conservation Service, USDA, 1981.
https://websoilsurvey.nrcs.usda.gov/app/

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Colorado Springs, CO 80907
719-896-4356

Project No. D25-2-1113

Date: 7/21/2026

Drawn by: DHC

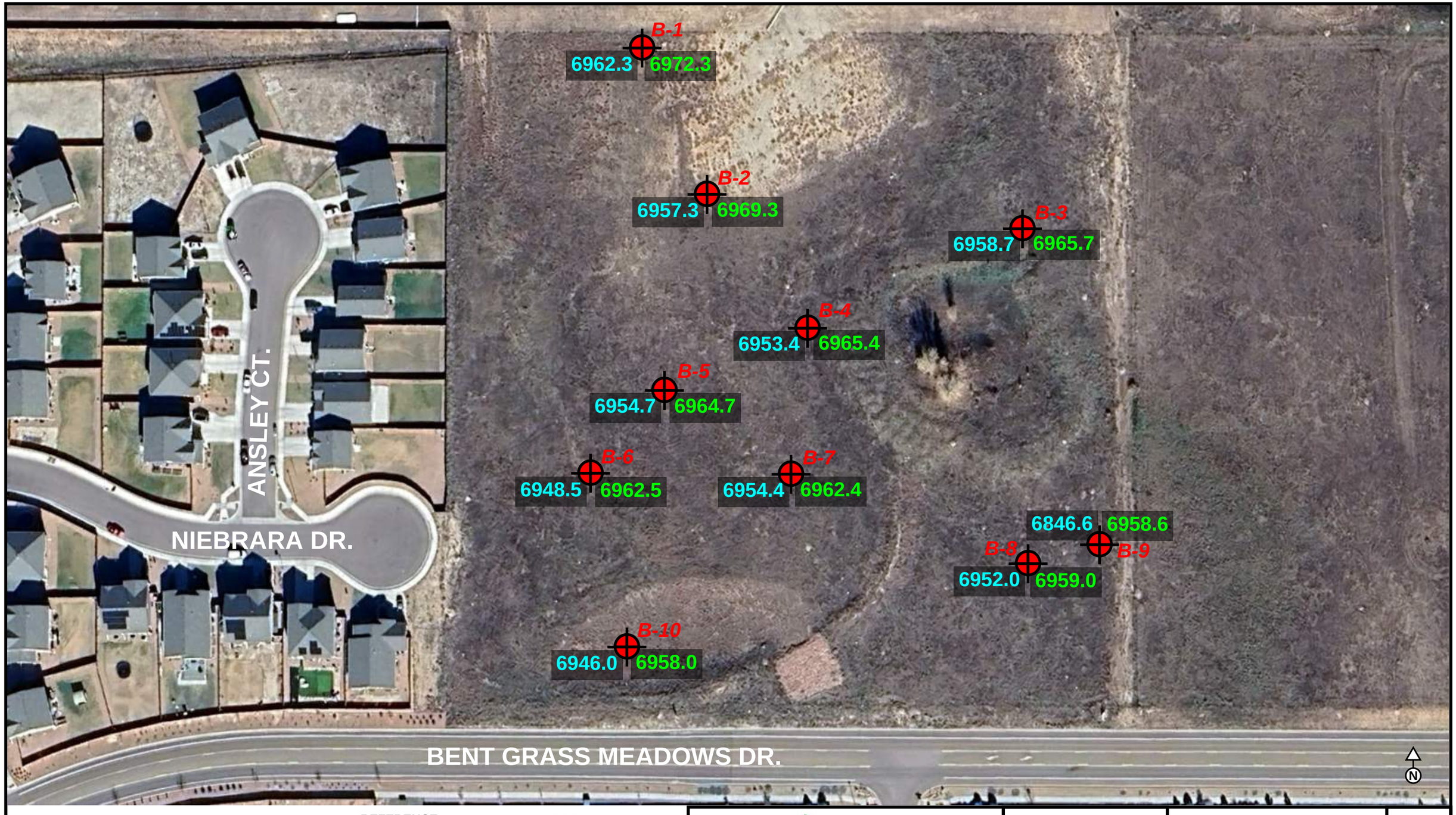
Reviewed by: NAD

NRCS SOIL SURVEY MAP

Proposed Honor Charter School Development
Bent Grass Meadows Drive
Peyton, Colorado

FIGURE

4



Note: Not to Scale.

REFERENCE

Base Image obtained from Google Earth Pro, 2025.

LEGEND

B-# 6962.3 6972.3 Soil Test Boring Location with reported ground elevation and approximate bedrock elevation

VIVID Engineering Group

VIVID Engineering Group, Inc.
1053 Elkton Drive
Colorado Springs, CO 80907
719-896-4356

Project No. D25-2-1113

Date: 7/22/2026

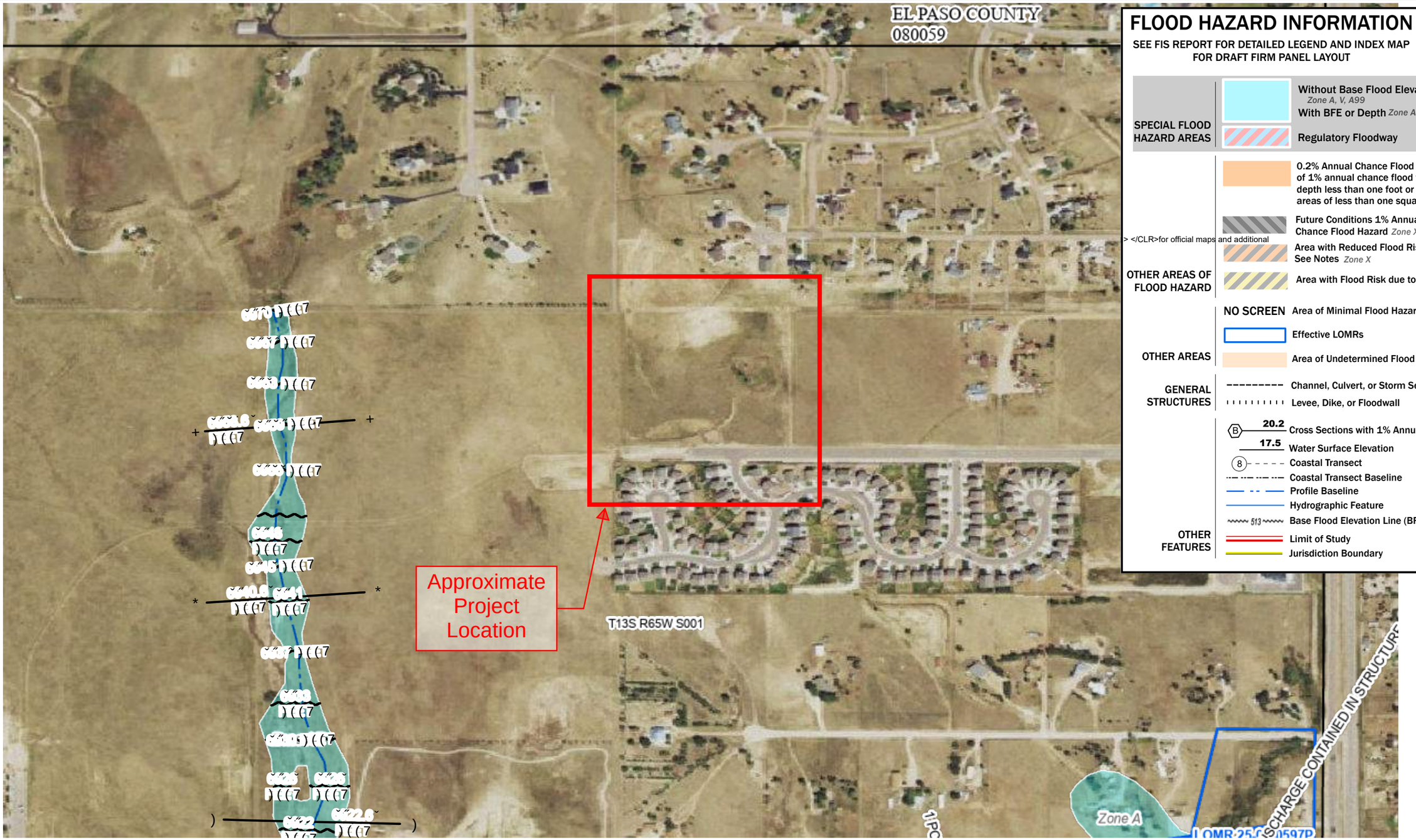
Drawn by: SAM

Reviewed by: NAD

BEDROCK ELEVATION MAP

Proposed Honor Charter School Development
Bent Grass Meadows Drive
Peyton, Colorado

FIGURE 5



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR DRAFT FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes *Zone X*
- Area with Flood Risk due to Levee *Zone D*

> </CLR>for official maps and additional

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

Note: Not to Scale.

REFERENCE

Base Image obtained from https://msc.fema.gov/portal/home, 2026.

VIVID Engineering Group, Inc.
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Colorado Springs, CO 80907
719-896-4356

Project No. D25-2-1113

Date: 7/27/2026

Drawn by: DHC

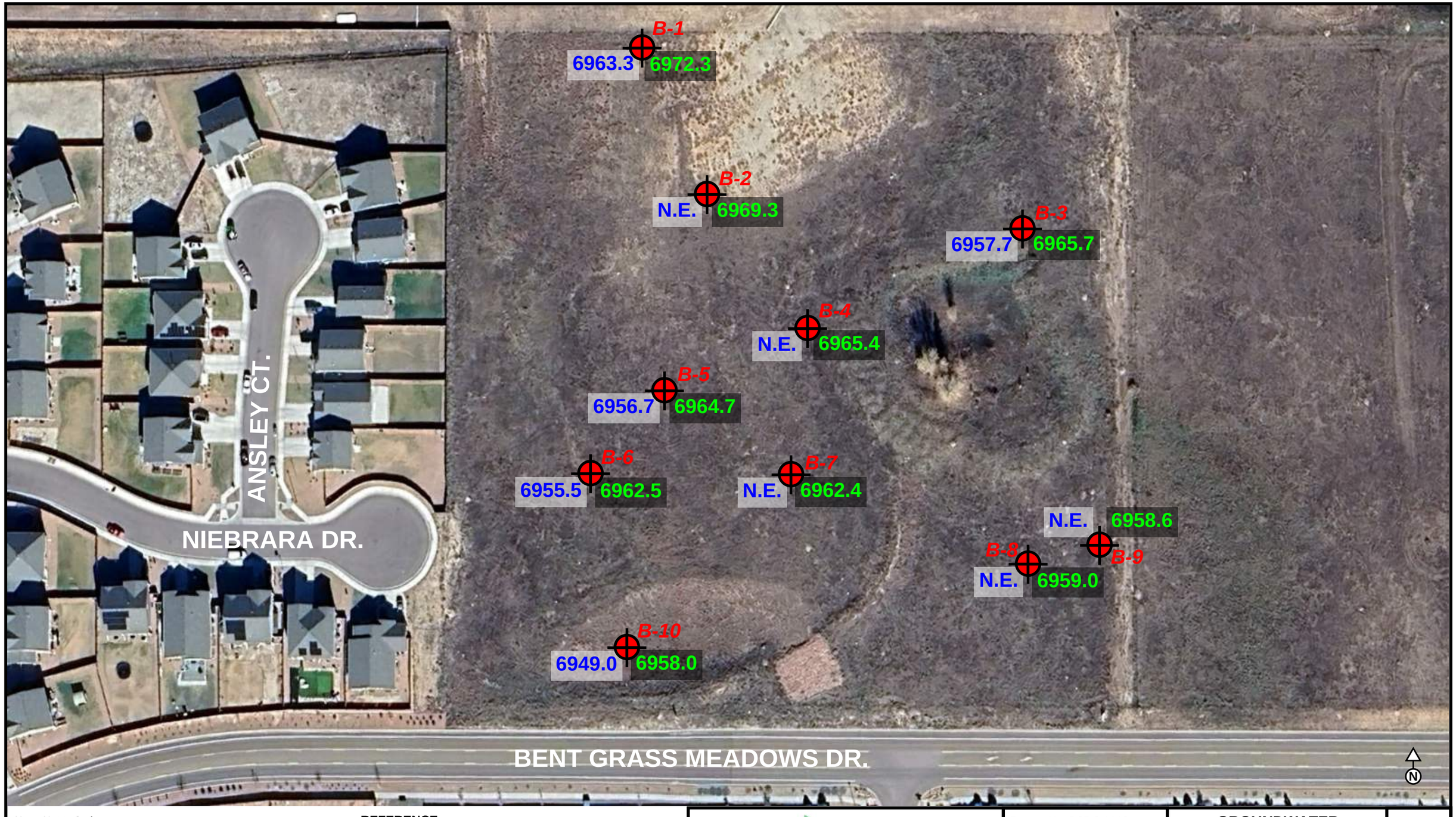
Reviewed by: NAD

FLOOD HAZARD MAP

Proposed Honor Charter School Development
Bent Grass Meadows Drive
Peyton, Colorado

FIGURE

6



Note: Not to Scale.

REFERENCE

Base Image obtained from Google Earth Pro, 2025.

LEGEND

B-# 6963.3 6972.3 — Soil Test Boring Location with reported ground elevation and approximate groundwater elevation

VIVID Engineering Group

VIVID Engineering Group, Inc.
1053 Elkton Drive
Colorado Springs, CO 80907
719-896-4356

Project No. D25-2-1113

Date: 7/22/2026

Drawn by: SAM

Reviewed by: NAD

GROUNDWATER ELEVATION MAP

Proposed Honor Charter School Development
Bent Grass Meadows Drive
Peyton, Colorado

FIGURE

7

Appendix A

Geotechnical Evaluation Report
Proposed Honor Charter School Development
Bent Grass Meadows Drive
Peyton, Colorado
VIVID Project No.: D25-2-1113
Dated: March 5, 2026

3/5/2026

Geotechnical Evaluation Report

Proposed Honor Charter School Development

Bent Grass Meadows Drive

Peyton, Colorado

VIVID Project No.: D25-2-1113

March 5, 2026

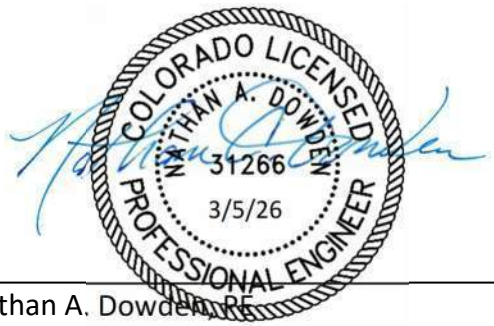
Report prepared for:

Dominic Chapman
Waltz Construction
dchapman@waltzconstruction.com

GEOTECHNICAL EVALUATION REPORT
Proposed Honor Charter School Development
Bent Grass Meadows Drive
Peyton, Colorado
VIVID Project No.: D25-2-1113

Prepared by:

Mary Beth Ray, PE
Project Engineer



Nathan A. Dowden, PE
Senior Geotechnical Engineer

VIVID Engineering Group, Inc.
1053 Elkton Drive
Colorado Springs, Colorado 80907
(719) 896-4356

Table of Contents

1.0 INTRODUCTION

1.1 GENERAL

This report presents the results of a geotechnical investigation performed for the proposed Honor Charter School Development located on Bent Grass Meadows Drive in Peyton, Colorado. An attached Vicinity Map (Figure 1) shows the general location of the project. Our investigation was performed for Waltz Construction and was authorized by Mr. Dominic Chapman.

This report includes our recommendations relating to the geotechnical aspects of project design and construction. The conclusions and recommendations stated in this report are based upon the subsurface conditions found at the locations of our exploratory borings at the time our exploration was performed. They are also subject to the provisions stated in the report section titled **Additional Services & Limitations**. Our findings, conclusions, and recommendations should not be extrapolated to other areas or used for other projects without our prior review. Furthermore, they should not be used if the site has been altered, or if a prolonged period has elapsed since the date of the report, without VIVID's prior review to determine if they remain valid.

1.2 PROJECT DESCRIPTION

Based on the information provided, we understand that the project consists of the future development of a 2-story, approximately 40,000 square foot school building and associated paved parking areas, drive aisles, and playground/outdoor areas on a vacant 8.98-acre parcel (#53010000038) located along Bent Grass Meadows Drive in Peyton, Colorado. Other site activities are anticipated to include site grading and utility installation. We understand that no below-grade construction or retaining walls are planned for this site.

We have not been provided with the proposed grading plan at the time of preparation of this report. We anticipate, in general, planned additional overlot grading cuts and fills to achieve finish site grades will be minimal (i.e. approximately 1 to 3 feet or less). This does not include deeper excavations that will be required for foundations, utilities, etc., that will likely range from approximately 3 to 10 feet in depth unless deep foundation elements (i.e. drilled piers) are required.

No structural loads were provided at the time this report was written. We assume lateral loads on the building structure foundations will not be significant, and the building will not be subject to large live loads or dynamic loads. **If the type of construction, planned grading, finished floor elevations, building locations or actual building loads vary significantly from those assumed above, VIVID should be notified to revise our recommendations, if required.**

1.3 PURPOSE AND SCOPE

The purpose of our investigation was to explore and evaluate subsurface conditions within or near the new building footprint, based upon the conditions found, develop recommendations relating to the geotechnical aspects of project design and construction. Our conclusions and recommendations in this report are based upon analysis of the data from our field exploration, laboratory tests, and our experience with similar soil and geologic conditions in the area.

VIVID's scope of services included:

- A visual reconnaissance to observe surface and geologic conditions at the project site and locating the exploratory borings;
- Notification of the Colorado 811 one-call center and a private locator to identify underground utility lines at the boring locations prior to our drilling;
- The drilling of 10 exploratory borings across the site including 3 within or near the building footprint and 2 within the proposed parking area and drive lanes. Boring locations were selected based upon the proposed site layout and utilities;
- Laboratory testing of selected samples obtained during the field exploration to evaluate relevant physical and engineering properties of the soil and bedrock;
- Evaluation and engineering analysis of the field and laboratory data collected to develop our geotechnical conclusions and recommendations; and
- Preparation of this report, which includes a description of the proposed project, a description of the surface and subsurface site conditions found during our investigation, our conclusions and recommendations as to foundation and floor slab design and construction, pavement design, other related geotechnical issues, and appendices which summarize our field and laboratory investigations.

2.0 FIELD EXPLORATION AND LABORATORY TESTING

2.1 FIELD EXPLORATION

A field exploration performed on February 6, 2026, included drilling 10 exploratory borings at the approximate locations indicated on the attached Field Exploration Plans (Figures 2 and 3). The borings were drilled across the site, including 3 borings within or near the proposed building and 2 borings within the proposed parking area and access lanes. Borings were advanced to depths between approximately 14.4 and 34.6 feet below the existing ground surface.

The borings were advanced using a truck-mounted Diedrich D-90 drill rig equipped with 6-inch diameter, continuous-flight, solid-stem auger. Samples were taken with a California-type sampler (2.0-inch I.D./2.5-inch O.D.), a standard penetration (SPT) sampler and by bulk methods. Penetration tests were obtained at the various sample depths.

Appendix A to this report includes logs describing the subsurface conditions. The lines defining boundaries between soil and rock types on the logs are based upon drill behavior and interpolation between samples and are therefore approximate. Transition between soil and rock types may be abrupt or may be gradual.

2.2 GEOTECHNICAL LABORATORY TESTING

Laboratory tests were performed on selected soil and bedrock samples to estimate their relative engineering properties. Tests were performed in general accordance with the following methods of ASTM or other recognized standards-setting bodies, and local practice:

- Description and Identification of Soils (Visual-Manual Procedure)
- Moisture Content and Unit Weight of Soils
- Sieve Analysis
- Atterberg Limits
- Swell/Settlement Test
- R-Value
- Unconfined Compression Test

Results of the geotechnical laboratory tests are presented in the report text, where applicable, and included in Appendix B of this report. Selected test results are also shown on the boring logs in Appendix A.

2.3 ANALYTICAL LABORATORY TESTING

Analytical testing for soil corrosivity was performed on selected samples and included the following tests:

- pH
- Resistivity
- Redox Potential
- Water-soluble Sulfates
- Water-soluble Chlorides

- Sulfides

Results of the analytical laboratory tests are presented in the report text, where applicable, and included in Appendix C of this report.

3.0 SITE CONDITIONS

3.1 SURFACE

The new school is planned to be located on a vacant parcel north of the intersection of Bent Grass Meadows Drive and Sea Oats Drive in Peyton, Colorado. The site is surrounded by residential properties to the north and west, Bent Grass Meadows Drive to the south, and vacant land to the east. At time of our exploration, the ground surface was covered with grasses and weeds, with some small trees in the vicinity. Topographically, the site generally slopes to the southeast, with an approximate difference in elevation of 15 feet across the site. Drainage structures were also present on the south side of the site, and a seasonal pond on the east side of the site, both of which were dry during the time of our investigation. Representative photographs of the site, obtained at the time of our field exploration, are presented in Appendix D to this report. The school is planned to be located in the southwest portion of the parcel.

3.2 GEOLOGY

Prior to drilling, the site geology was evaluated by reviewing available geologic information including the Colorado Geologic Survey (CGS) Falcon Quadrangle Geologic Map, El Paso County, Colorado (Morgan, M.L. and White, J.L., 2012). Mapping indicates the surficial soils in the general area of the project site comprise predominantly alluvium consisting of silt, sand and gravel underlain by sandstone and claystone bedrock of the Dawson Formation. The mapping is generally consistent with what was encountered in our exploratory borings.

3.3 SEISMICITY

Based upon the geologic setting, subsurface soil and bedrock conditions, and low seismic activity in this region, liquefaction is not expected to be a hazard at the site. Based on correlation of blow count data (N-values) from the borings advanced during this evaluation, the subsurface soil and bedrock profiles correspond with Site Class D of the 2015 International Building Code (IBC). The intermediate design acceleration values from IBC are presented below.

Table 1
Design Acceleration for Short Periods

S_S	F_a
0.169	1.6

S_S = The mapped spectral accelerations for short periods (seismicmaps.org, 2025)

F_a = Site coefficient from seismicmaps.org

Table 2
Design Acceleration for 1-Second Period

S_1	F_V
0.058	2.4

S_1 = The mapped spectral accelerations for 1-second period (seismicmaps.org, 2025)

F_v = Site coefficient from seismicmaps.org

3.4 SUBSURFACE

VIVID explored the subsurface conditions by drilling, logging and sampling 3 exploratory borings within or near the proposed building footprint, 2 within the proposed pavement area, and 5 at widely spaced locations within the surrounding site as shown approximately on Figure 2 and Figure 3. The building borings were drilled to depths of approximately 34 to 35 feet and the site and pavement borings were drilled to depths of approximately 14 to 15 feet below the existing ground surface. The general profile encountered in our borings consisted of the following:

Sand

The overburden soils encountered at this site predominately consisted of clayey to silty sand and poorly to well graded sand soils, extending from the ground surface to depths ranging from approximately 7 to 14 feet below the existing ground surface in every boring. The sand soils were generally light to medium brown or light gray in color, slightly moist to wet, and field penetration testing (blow counts) indicated the soils are very loose to medium dense. Swell/consolidation testing performed on samples of the poorly graded sand and silty sand materials exhibited no movement when wetted under loads ranging from 1,000 to 2,000 psf.

Clay

Sandy lean clay was encountered below the sand layer in one boring, P-4, from a depth of 7 to 12 feet below the existing ground surface. The clay soils were dark grayish brown, moist, and very stiff based on field penetration testing.

Bedrock

Weathered to relatively unweathered sandstone and claystone bedrock of the Dawson Formation was encountered in every boring at depths of approximately 7 to 14 feet below the ground surface and extended to the maximum depths explored. The bedrock materials were bluish gray, light grey and brown to tan in color, moist, and field penetration resistance testing (blow counts) indicated the relative density of the bedrock materials ranged from moderately hard to very hard. Swell/consolidation testing performed on samples of the sandstone and claystone materials exhibited swells of between 0.4 and 2.7 percent when wetted under loads of 1,000 or 2,000 psf. One clayey sandstone sample exhibited 0.5 percent compression when wetted under a 1,000 psf load.

The boring logs in Appendix A should be reviewed for more detailed descriptions of the subsurface conditions at each of the boring locations explored.

3.4.1 Groundwater

Groundwater was encountered in six of the borings at depths of 5.5 to 9 feet below the existing ground surface during the time of drilling or after drilling. **Groundwater will be a construction consideration for**

this project. Soil and bedrock moisture levels and groundwater levels commonly vary over time and space depending on seasonal precipitation, irrigation practices, land use, and runoff conditions. These conditions and the variations that they create often are not apparent at the time of field investigation. Accordingly, the soil and bedrock moisture and groundwater data in this report pertain only to the locations and times at which exploration was performed. They can be extrapolated to other locations and times only with caution. It should also be noted that VIVID has not performed a hydrologic study to verify the seasonal high-water level.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 GEOTECHNICAL FEASIBILITY OF PROPOSED CONSTRUCTION

Based on the information obtained during our exploration, it is VIVID's opinion that construction of the proposed building and new pavement, as planned, is feasible, provided the recommendations in this report are incorporated into the design and construction of the project. We did not identify geotechnical conditions we believe will preclude construction of the retail buildings as planned.

The main geotechnical issue is the presence of shallow groundwater at the site. The presence of shallow groundwater will likely impact utility trench installation and possibly excavation for building foundations. Additionally, consideration of use of moisture vapor barrier beneath slabs on grade should be evaluated where adhesive-bonding flooring materials are utilized. The contractor should be prepared for dewatering as described in Section 4.2.3 of this report.

Our geotechnical design and construction recommendations for site preparation, foundations, floor systems, and other related construction topics are provided in the following sections.

4.2 CONSTRUCTION CONSIDERATIONS

4.2.1 General

All site preparation and earthwork operations should be performed in accordance with applicable codes, safety regulations and other local, State or Federal guidelines.

4.2.2 Site Preparation and Grading

Initial site work should consist of removing debris, organic material, and other deleterious materials from areas to be filled and areas to be cut. This type of material should be removed for offsite disposal in accordance with local laws and regulations or, if appropriate, stockpiled in proposed landscaped areas for future use. Excavations to remove existing site features must be backfilled and properly compacted. Any loose soil shall be processed, recompacted, and tested. Areas to receive fill should be evaluated by the geotechnical engineer prior to the placement of any fill materials.

After performing the required excavations and prior to the placement of any compacted fill and/or structural elements, processing of the subgrade should be performed. This should include scarifying the subgrade to a depth of at least 8 inches and compacting as recommended in Section 4.2.6 of this report. All fill materials should be placed on a horizontal plane and placed in loose lifts not to exceed 8 inches in thickness, unless otherwise accepted by the geotechnical engineer.

4.2.3 Excavation Characteristics

Proposed site grading plans were not provided to us prior to compilation of this report. However, we anticipate localized cuts and fills for general grading will be on the order of about 1 to 3 feet. We anticipate that excavation of the on-site overburden soils can be performed with conventional heavy-duty earthmoving equipment. Excavations penetrating bedrock are not anticipated.

We anticipate that temporary (construction) dewatering techniques will need to be implemented due to the shallow groundwater conditions. Temporary techniques could involve the use of trenches, drains and sumps, as determined by the contractor.

All excavations must comply with applicable local, State and Federal safety regulations, and particularly with the excavation standards of the Occupational Safety and Health Administration (OSHA). Construction site safety, including excavation safety, is the sole responsibility of the Contractor as part of its overall responsibility for the means, methods and sequencing of construction operations. VIVID's recommendations for excavation support are intended for the Client's use in planning the project, and in no way relieve the Contractor of its responsibility to construct, support and maintain safe slopes. Under no circumstances should the following recommendations be interpreted to mean that VIVID is assuming responsibility for either construction site safety or the Contractor's activities.

We believe the soils on this site will classify as Type C materials using OSHA criteria. OSHA requires that unsupported cuts in Type C materials be laid back to ratios no steeper than 1½:1 (horizontal to vertical). In general, we believe that these slope ratios will be temporarily stable under unsaturated conditions. If groundwater seepage were to occur, flatter slopes will be required. Please note that the actual determination of soil type and allowable sloping must be made in the field by an OSHA-qualified "competent person."

4.2.4 Structural Fill

Based upon our subsurface investigation and laboratory testing, the on-site sand soils may be reused as structural fill. Due to the relatively clean and cohesionless nature of the on-site soils, compaction machinery with small footprints like jumping jacks and use of vibration on final upper lifts may prove problematic for compaction. In these cases, large plate compactors and smooth drum rollers without vibration for final lifts may be more efficient.

If imported structural fill is required at this site, it should consist of a non-expansive, non-plastic granular material with a maximum particle size of 2 inches, and between about 5 and 20 percent passing the No. 200 sieve. A sample of any imported fill material should be submitted to our office for approval and testing at least 1 week prior to stockpiling at the site. Specific recommendations in regard to depth of structural fill are presented in the following sections of this report for foundations, floor slabs, etc.

Structural fill should be compacted according to the recommendations in Section 4.2.6 of this report. We recommend that a qualified representative of VIVID visit the site during excavation and during placement of the structural fill to verify the soils exposed in the excavations are consistent with those encountered during our subsurface exploration and that proper foundation subgrade preparation and placement is performed.

4.2.5 Utility Trench Backfill

Backfill material should comprise of on-site soils or imported structural fill and be essentially free of plant matter, organic soil, debris, trash, other deleterious matter, and rock particles larger than 3 inches. However, backfill material in the "pipe zone" (from the trench floor to 1 foot above the top of pipe) should not contain rock particles larger than 1 inch. Strictly observe any requirements specified by the utility

agency for bedding and pipe-zone fill. In general, backfill above the pipe zone in utility trenches should be placed in lifts of 6 to 8 inches, and compacted using power equipment designed for trench work. Backfill in the pipe zone should be placed in lifts of 8-inches or less and compacted with hand-held equipment. Compact trench backfill as recommended in Section 4.2.6 of this report.

Shallow groundwater was encountered during our investigation. The utility installation contractor should be prepared to use trench dewatering techniques during excavation and installation.

4.2.6 Compaction Requirements

Fill materials should be placed in horizontal lifts compatible with the type of compaction equipment being used, moisture conditioned, and compacted in accordance with the following criteria:

Table 3
Compaction Specifications

FILL LOCATION [2]	MATERIAL TYPE	PERCENT COMPACTION[1]	MOISTURE CONTENT
Subgrade Preparation	On-site Sand Soil (8 inches Scarified, Moisture Treated, Re-compacted)	95 minimum of ASTM D 1557	± 2 % of optimum
Structural Fill	On-site Sand Soils or Imported Structure Backfill (see Section 4.2.4)	95 minimum of ASTM D 1557	± 2 % of optimum
Pavement Section Aggregate Base Course	Imported CDOT Class 5 or Class 6 ABC	95 minimum of ASTM D 1557	± 2 % of optimum
Exterior Flatwork Subgrade	On-site Sand Soils or Imported CDOT Class I Structure Backfill	95 minimum of ASTM D 1557	± 2 % of optimum
General Site Grading Fill	On-site Sand Soils	95 minimum of ASTM D 1557	± 2 % of optimum
Utility Trenches	(see Section 4.2.5)	95 minimum of ASTM D1557 or D698[3]	± 2 % of optimum

1) In non-structural or landscaped areas, the compaction specification may be reduced to 90 percent.
2) Where two or more "Fill Locations" coincide, the more stringent specification should be used.
3) Proctor type will be dependent on soils type.

Fill should be placed in level lifts not exceeding 8 inches in loose thickness and compacted to the specified percent compaction to produce a firm and unyielding surface. If field density tests indicate the required moisture content or percent compaction has not been obtained, the fill material should be reconditioned as necessary and re-compacted to the required percent compaction before placing any additional material.

4.2.7 Construction in Wet or Cold Weather

During construction, grade the site such that surface water can drain readily away from the building and pavement areas. Promptly pump out or otherwise remove any water that may accumulate in excavations

or on subgrade surfaces and allow these areas to dry before resuming construction. The use of berms, ditches and similar means may be used to prevent stormwater from entering the work area and to convey any water off site efficiently.

If earthwork is performed during the winter months when freezing is a factor, no grading fill, structural fill or other fill should be placed on frosted or frozen ground, nor should frozen material be placed as fill. Frozen ground should be allowed to thaw or be completely removed prior to placement of fill. A good practice is to cover the compacted fill with a "blanket" of loose fill to help prevent the compacted fill from freezing.

If the buildings or other site features are erected during cold weather, foundations, concrete slabs-on-grade, or other concrete elements should not be constructed on frozen soil. Frozen soil should be completely removed from beneath the concrete elements, or thawed, scarified and recompacted. The amount of time passing between excavation or subgrade preparation and placing concrete should be minimized during freezing conditions to prevent the prepared soils from freezing. The use of blankets, soil cover or heating as required may be utilized to prevent the subgrade from freezing.

4.2.8 Construction Testing and Observation

Testing and construction observation should take place under the direction of VIVID to support that engineer's professional opinion as to whether the earthwork does or does not substantially conform to the recommendations in this report. Furthermore, the opinions and conclusions of a geotechnical report are based upon the interpretation of a limited amount of information obtained from the field exploration. It is therefore not uncommon to find that actual site conditions differ somewhat from those indicated in the report. The geotechnical engineer should remain involved throughout the project to evaluate such differing conditions as they appear, and to modify or add to the geotechnical recommendations, as necessary.

4.2.9 Surface Drainage and Landscaping

Positive drainage away from the structures is essential to the performance of foundations and flatwork and should be provided during the life of the structures. Landscape areas within 10 feet of the structures should slope away at a minimum of 8 percent. Areas where pavements or slabs are constructed adjacent to the structures should slope away at a minimum grade of 2 percent. All downspouts from roof drains should be tight-lined to the on-site stormwater system or, at a minimum, cross all backfilled areas such that they discharge all water away from the backfill zone and the structures. Drainage should be created such that water is diverted off the site and away from backfill areas of adjacent buildings. **Landscaping improvements requiring supplemental watering are not recommended adjacent to improved areas including foundations or slabs.**

4.2.10 Permanent Cut and Fill Slopes

If required, permanent cut and fill slopes exposing the materials encountered in our borings are anticipated to be stable at slope ratios as steep as 3:1 (horizontal to vertical) under dry conditions. We believe that slope ratios of 4:1 or flatter are more reliable if subjected to wetting, and present less of a maintenance problem. New slopes should be revegetated as soon as possible after completion to reduce erosion problems.

4.3 SHALLOW FOUNDATIONS

Provided the following recommendations are complied with, the proposed building may be supported on shallow footing foundations. Our subsurface investigation indicates excavation for construction of shallow foundations for the proposed structures will likely expose sand materials comprised predominantly of silty and clayey sand and well to poorly graded sand with silt. Although not encountered in our borings, if existing fill is encountered at bottom of foundation elevation, it must be removed to a depth at which native sand soils are exposed. Structural fill, as described in Section 4.2.4 of this report, should be used as over-excavation backfill, if required. If native sand soils are encountered at bottom of foundation elevation, it should be scarified to a minimum depth of 8 inches, moisture conditioned and compacted as specified in Section 4.2.6 of this report. Anticipated bottom of footing elevations are presented on the boring logs for B-5 through B-7. If bottom of footing elevations vary significantly from what is presented, Vivid should be notified to re-evaluate foundation recommendations.

We recommend conventional spread foundations with the following criteria:

- Foundations bearing upon properly prepared subgrade should be designed for a maximum allowable soil bearing capacity of 2,800 psf. A one-third increase in bearing capacity is allowable for transient loads (e.g. wind loads). All foundations should be proportioned as much as practicable to minimize differential settlement.
- Foundation sizes should be determined by a structural engineer. However, as a minimum, we recommend isolated columns be supported on square pads of at least 24 inches by 24 inches in dimension. Continuous wall footings should be at least 18 inches in width.
- To resist lateral loading, a sliding coefficient of 0.4 may be used between the bottom of the footing and underlying sand soil. In addition, for compacted sand soil adjacent to footings, a passive earth pressure of 375 pounds per cubic foot may be utilized. As a significant amount of movement is required to fully mobilize passive earth pressures, we recommend a minimum factor of safety of 2 be applied.
- Exterior foundations must be protected from frost action. We recommend footings be protected with at least 30 inches of soil cover or that which is required by local building codes, whichever is greater. Foundation components must not be placed on frozen soils.
- If unstable conditions exist below foundation elements, stabilization options can only be determined when the conditions are observed but may include deeper Aggregate base course sections in combination with additional geo-grid placement, structural fill, rock stabilization, or similar options.
- A representative of VIVID should observe all foundation excavations prior to placement of fill and/or concrete. Additionally, the placement and compaction of structural fill should be observed and tested by a representative of our firm.

4.4 FLOOR SLABS

Similar to the recommendations provided for construction of foundations, we recommend slabs bear on at least 8 inches of properly prepared subgrade or structural fill material of the type recommended in Section 4.2.4 of this report and compacted as recommended in Section 4.2.6. If existing fill is encountered at bottom of floor slab elevation, it should be removed and replaced with properly prepared structural

fill. Subgrade preparation as described above for the interior slab shall be applied to exterior flatwork that is constructed adjacent the building structure as well.

The criteria presented below should be observed for design and construction of floor slabs on this site. The construction details should be considered when preparing the project documents.

- For concrete slab-on-grade design purposes, a modulus of subgrade reaction of 200 pounds per cubic inch (pci) can be used for slabs bearing on at least 8 inches of properly prepared subgrade or structural fill. Additional reinforcement can also be used to help resist damage due to differential movement of slabs.
- Floor slabs should be separated from all bearing walls and columns with expansion joints that allow unrestrained vertical movement. At door thresholds only, both interior and exterior slabs can be dowelled into the foundation stem wall to resist movement that can create a trip hazard or impede proper door operation.
- Floor slab control joints should be used to reduce damage due to shrinkage cracking. Control joint spacing is a function of slab thickness, aggregate size, slump and curing conditions. The requirements for concrete slab thickness, joint spacing and reinforcement should be established by the designer based on experience, recognized design guidelines and the intended slab use. Placement and curing conditions will have a strong impact on the final concrete slab integrity.

4.4.1 Capillary Break or Moisture Barrier

A capillary break or moisture barrier should be constructed below slabs at this site. Follow the floor manufacturers requirements for construction and slab moisture testing, as required. If no requirements exist, the following paragraphs provide general guidelines for the construction of such systems.

Construct slabs on grade over a **capillary break** at least 6 inches thick, consisting of gravel or crushed rock meeting the following criteria.

- The largest particle size should not exceed 1 inch,
- No more than 20 percent by weight should pass the No. 4 sieve,
- No more than 5 percent by weight, as placed, should pass the No. 200 sieve, and
- The material should be non-plastic.
- If material meeting these criteria cannot be obtained, please contact VIVID for a revised recommendation.

As an alternative, a **moisture barrier** may be utilized that consists of an impermeable membrane (e.g. 10-mil thick polyethylene) placed over the subgrade materials to reduce migration of moisture vapor through the concrete slabs. Take great care to prevent damage to the barrier during construction. The sheeting used for the barrier should be lapped and properly taped or joined at all seams and all penetrations by walls, pipes, or other objects. To avoid problems with concrete curing in the floor slab, spread a layer of fine sand at least 3 inches thick on the barrier before placing concrete.

4.4.2 Perimeter Drain System

Due to the presence of shallow groundwater, we recommend installation of a foundation perimeter drain connected to a gravity outlet or sump.

4.5 EXTERIOR CONCRETE FLATWORK/SLABS-ON-GRADE

The project will include exterior concrete slabs-on-grade for walkways, sidewalks, driveways etc. Subgrade preparation as described above for the interior slab shall be applied to exterior flatwork that is constructed adjacent the building structure as well. Additional techniques are available to reduce the expected long-term movement of the slab, including:

- Removal of any clay soils, and proper scarification, moisture conditioning, and re-compaction of the on-site sand soils or approved import granular fills,
- Avoidance of watering adjacent to slabs, and
- Structural reinforcement of slabs.

4.6 CORROSIVITY AND CONCRETE

4.6.1 Corrosion Potential

Laboratory testing was completed to provide data regarding corrosivity of onsite soils. Our scope of services does not include corrosion engineering and, therefore, a detailed analysis of the corrosion test results is not included. A qualified corrosion engineer should be retained to review the test results and design protective systems that may be required.

Laboratory chloride concentration, sulfate concentration, pH, and electrical resistivity tests were performed on samples of onsite materials obtained during our field investigation. The results of the tests are included in Appendix C to this report and are summarized below in Table 4.

Table 4
Summary of Laboratory Soil Corrosivity Testing

Boring No.	Sample Depth (ft)	Material	Water Soluble Chloride (%)	pH	Redox Potential (mV)	Resistivity (ohm-cm)	Water Soluble Sulfate (%)	Sulfide Content
B-2	0-4	Well-graded SAND with silt	0.001	8.3	100.9	2100	0.002	Trace
B-6	0-4	Clayey SAND	0.001	7.2	114.2	9700	<0.001	Trace

Metal and concrete elements in contact with soil, whether part of a foundation system or part of a supported structure, are subject to degradation due to corrosion or chemical attack. Therefore, buried metal and concrete elements should be designed to resist corrosion and degradation based on accepted practices.

Based on the "10-point" method developed by the American Water Works Association (AWWA) in standard AWWA C105/A21.5, the corrosivity test results indicate the on-site sand soils have low corrosion potential.

4.6.2 Chemical Sulfate Susceptibility and Concrete Type

The degradation of concrete or cement grout can be caused by chemical agents in the soil or groundwater that react with concrete to either dissolve the cement paste or precipitate larger compounds within the concrete, causing cracking and flaking. The concentration of water-soluble sulfates in the soils is a good indicator of the potential for chemical attack of concrete or cement grout. The American Concrete Institute (ACI) in their publication Guide to Durable Concrete (ACI 201.2R-08) provides guidelines for this assessment.

The concentration of water-soluble sulfates measured on the on-site sand materials submitted for testing represents Class 0 exposure of sulfate attack on concrete exposed to the soils per CDOT Standard Specifications for Road and Bridge Construction, 2023, Section 601.04.

4.7 PAVEMENT RECOMMENDATIONS

4.7.1 General

Paved parking lots and access/drive lanes are proposed for the site. Our borings indicate the pavement subgrade soils will generally consist of sandy materials. These types of soils are generally considered to provide fair to good support for pavements. Laboratory testing performed from samples obtained from the upper 4 feet of the pavement area borings resulted in a subgrade support value (R-value) of 74. All subgrade preparation, fill, and aggregate base course shall be compacted as recommended in Sections 4.2.2, 4.2.4, and 4.2.6 of this report.

4.7.2 Traffic Values

No traffic estimates were available for our use at the time this report was written. Based on past experience with similar projects, we anticipate areas of the pavement will be subjected to "light" passenger vehicle traffic, while other areas will be subject to heavier delivery trucks, trash trucks, and maintenance vehicles. For our design we have assigned a 20-year, 18-kip Equivalent Single Axle Load (ESAL) of 50,000 for areas of "light duty" vehicle use only, and an ESAL of 125,000 where heavier traffic loads are anticipated.

If traffic estimates vary significantly from those assumed, we should be contacted to re-evaluate our recommendations. The following pavement sections were designed using the AASHTO design methods for flexible and rigid pavements.

Table 5
Pavement Section Thickness Recommendations

PAVEMENT AREA	PORTLAND CEMENT CONCRETE/ AGGREGATE BASE COURSE (INCHES)[1]	ASPHALT CONCRETE/ AGGREGATE BASE COURSE (INCHES)[1]
Light Duty Use	5 / 6	3 / 6
Heavy Duty Use	6 / 6	3 / 6

1) Overlying a properly prepared subgrade as described in Section 4.7.3.

Concrete pavements should be provided with adequate reinforcement based upon anticipated loads. Asphalt does not perform well where trucks perform tight turn maneuvers, therefore concrete should be considered for these areas. A concrete pad is recommended in front of trash dumpster locations to support the heavy front wheel loads of trash trucks.

4.7.3 Pavement Subgrade Preparation

The prepared subgrade should be proof-rolled with a heavily loaded pneumatic-tired vehicle (such as a fully-loaded dump truck or similar weight equipment) after subgrade preparation and prior to placement of the pavement section and structural fill, if required. Pavement design procedures assume a firm and stable subgrade. Areas that deform under heavy wheel loads are not stable and should be removed to firm material and replaced to achieve a stable subgrade prior to paving. Care should be taken to ensure areas around manholes or other utility protrusions are proof-rolled adequately.

Subgrade soils may be at risk of pumping during construction. This risk is increased if pavements are being constructed during adverse weather conditions (e.g., heavy precipitation). In this event, stabilization options can only be determined when the conditions are observed but may include deeper Aggregate Base Course sections in combination with additional geo-grid placement, structural fill, rock stabilization, or similar options.

4.7.4 Pavement Construction Considerations

Pavement construction must be completed in accordance with El Paso County specifications. The specifications contain requirements for the roadway materials (asphalt concrete, concrete pavement, and aggregate base course) and the construction practices used (compaction and material sampling). Of particular importance are those specifications directed towards embankment construction, subgrade compaction, base course compaction, and utility trench compaction. Prior to pavement construction, the prepared subgrade should be proof-rolled with heavy construction equipment. A fully loaded dump truck or water truck would be acceptable for this purpose. During proof-rolling, particular attention should be directed to the areas immediately adjacent to manholes, valves, catch basins, and other similar surface features. Areas which exhibit excessive deflection during proof-rolling should be over-excavated and stabilized as required. If soil is imported to the subject site for final grading, the soil materials must be of a character similar to those described in this report.

Proper drainage is of paramount importance in enhancing pavement performance. To avoid distress to pavement from wet subgrade soils, we recommend the maintenance of good drainage away from all

pavements. Possible water sources include storm runoff, irrigation of landscaping adjacent the pavement and localized groundwater seepage, among others. Landscaping adjacent to the pavements should be avoided. Joints in the pavement or at asphalt/concrete interfaces should be sealed. Any cracks or openings in the finished pavement surface should be sealed and/or repaired as quickly as possible.

5.0 ADDITIONAL SERVICES & LIMITATIONS

5.1 ADDITIONAL SERVICES

Attached to this report is a document by the Geoprofessional Business Association (GBA) that summarizes limitations of geotechnical reports as well as additional services that are required to further confirm subgrade materials are consistent with that encountered at the specific boring locations presented in this report. This document should be read in its entirety before implementing design or construction activities. Examples of other services beyond completion of a geotechnical report are necessary or desirable to complete a project satisfactorily include:

- Review of design plans and specifications to verify that our recommendations were properly interpreted and implemented.
- Attendance at pre-bid and pre-construction meetings to highlight important items and clear up misunderstandings, ambiguities, or conflicts with design plans and specifications.
- Performance of construction observation and testing which allows verification that existing materials at locations beyond our borings are consistent with that presented in our report, construction is compliant with the requirements/recommendations, evaluation of changed conditions.

5.2 LIMITATIONS

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of VIVID's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions, and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. VIVID makes no other representation, guarantee, or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

This report may be used only by the Client and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two (2) years from the date of the report.

The work performed was based on project information provided by Client. If Client does not retain VIVID to review any plans and specifications, including any revisions or modifications to the plans and specifications, VIVID assumes no responsibility for the suitability of our recommendations. In addition, if there are any changes in the field to the plans and specifications, Client must obtain written approval from VIVID's engineer that such changes do not affect our recommendations. Failure to do so will vitiate VIVID's recommendations.

Figures

The information included on this graphic representation has been compiled from a variety of sources and is subject to change without notice. Vivid makes no representations or warranties, express or implied, as to the accuracy, completeness, timeliness or right to the use of such information. This document is not intended for use as a land survey product nor is it designed or intended as a construction design document. The use or misuse of the information contained on this graphic representation is at the sole risk of the party using or misusing the information.

REFERENCE:
Base image obtained from
OpenStreetMap 2/11/2026

VIVID Engineering Group, Inc.
1053 Elkton Drive
Colorado Springs, CO 80907
719-896-4356

Project No. D25-2-1113

Date: 2/11/2026

Drawn by: SAM

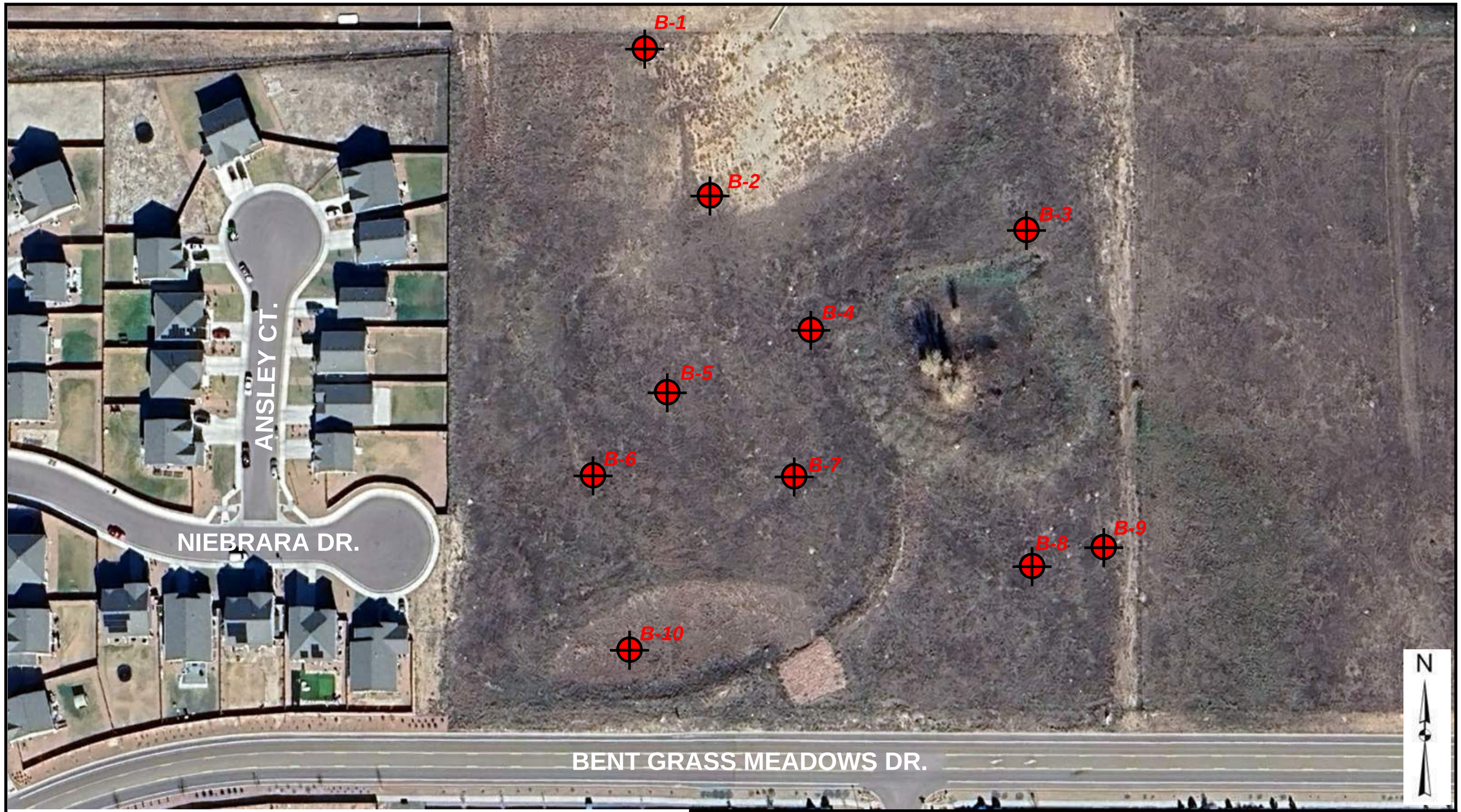
Reviewed by: MBR

VICINITY MAP

Proposed Honor Charter School Development
Bent Grass Meadows Drive
Peyton, Colorado

FIGURE

1



Note: Not to Scale.

REFERENCE
Base Image obtained from Google Earth Pro, 2025.

LEGEND
B-1 Approximate Boring Location

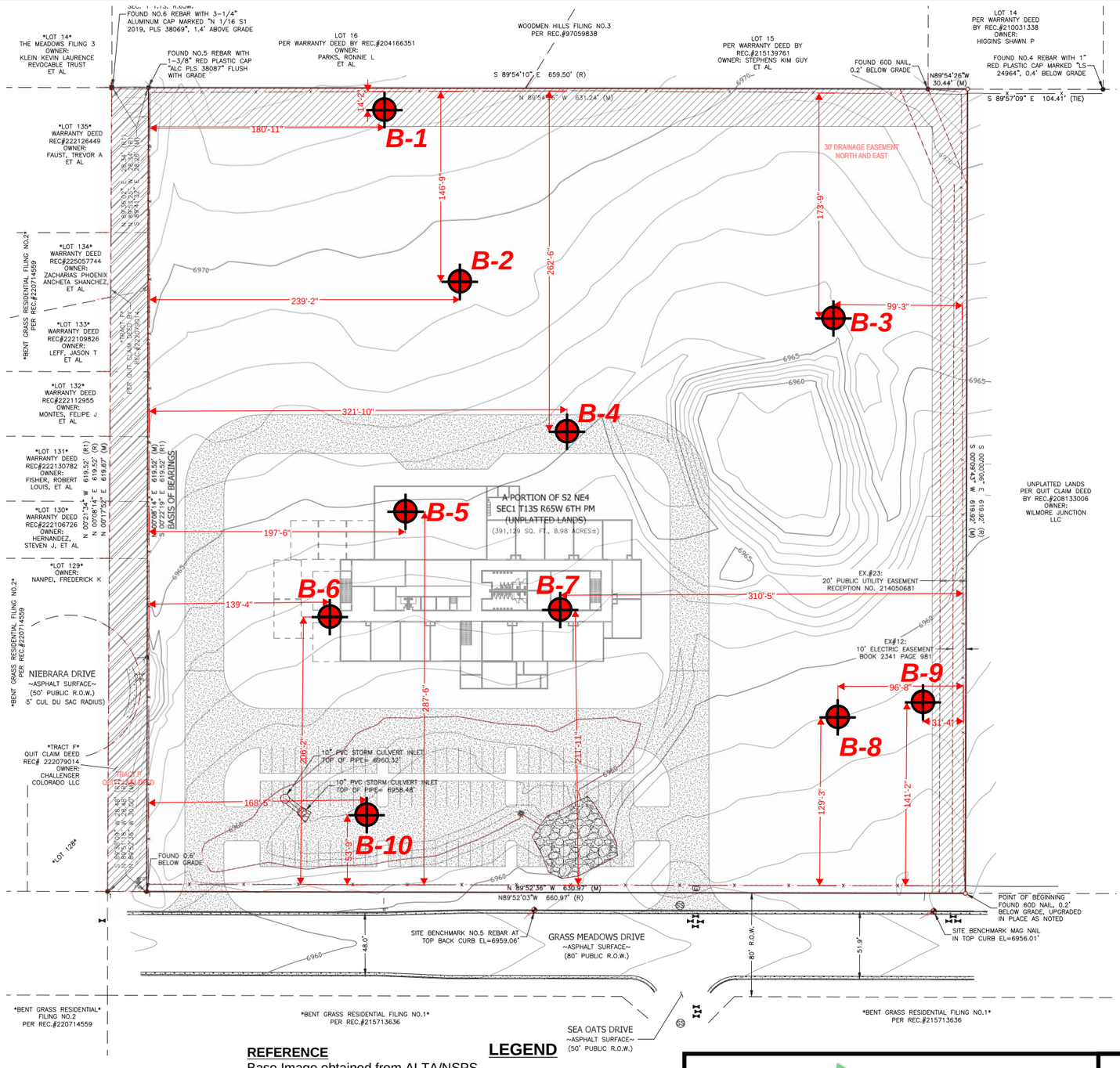
VIVID Engineering Group, Inc.
1053 Elkton Drive
Colorado Springs, CO 80907
719-896-4356

Project No. D25-2-1113
Date: 2/11/2026
Drawn by: SAM
Reviewed by: MBR

FIELD EXPLORATION PLAN
(AERIAL)

Proposed Honor Charter School Development
Bent Grass Meadows Drive
Peyton, Colorado

FIGURE
2



LEGEND

- ■ PLSS MONUMENT FOUND AS NOTED
- ● MONUMENT FOUND AS NOTED
- 1● FOUND NO.4 REBAR WITH 1" ORANGE PLASTIC CAP MARKED "PLS 38141" FLUSH UNLESS OTHERWISE NOTED
- ○ SET NO. 5 REBAR WITH 1-1/4" PURPLE PLASTIC CAP, PLS 38759 FLUSH WITH GRADE
- SITE BENCHMARK SET AS NOTED ELEVATIONS NAVD88 SEE NOTE 11
- (R) RECORD VALUE
- (R1) RECORD VALUE PER QUIT CLAIM DEED (AKA TRACT F) BY RECEPTION # 222079014. SEE SURVEYORS NOTE #12
- (M) MEASURED VALUE
- (C) CALCULATED VALUE
- * NOT A PART
- ± MORE OR LESS
- R.O.W. RIGHT OF WAY
- EXCEPTED PARCEL AREA (*TRACT F*) SEE SURVEYORS NOTE #13
- STORM STAND PIPE
- STORM CULVERT INLET
- UNDERGROUND FIBER OPTIC SIGN
- FVL FIBER OPTIC VAULT
- SS SANITARY SEWER MANHOLE
- WATER VALVE
- FIRE HYDRANT
- STREET SIGN
- GAS TEST STATION
- (-) WOODEN FENCE
- X BARBED-WIRE FENCE
- RIP RAP/GRAVEL

Note: Not to Scale.

REFERENCE

Base Image obtained from ALTA/NSPS LAND TITLE SURVEY; BEING A PART OF THE NORTHEAST QUARTER OF SECTION 1, TOWNSHIP 13 SOUTH, RANGE 65 WEST OF THE 6TH PRINCIPLE MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO by Apex Land Surveying and Mapping LLC dated 10/10/2025.

LEGEND

B-1 Approximate Boring Location

VIVID Engineering Group, Inc.
1053 Elkton Drive
Colorado Springs, CO 80907
719-896-4356

Project No. D25-2-1113

Date: 2/12/2026

Drawn by: SAM

Reviewed by: MBR

FIELD EXPLORATION PLAN (CONCEPTUAL)

Proposed Honor Charter School Development
Bent Grass Meadows Drive
Peyton, Colorado

FIGURE 3

Appendix A

Logs of Exploratory Borings

Vivid Engineering Group, Inc.
1053 Elkton Drive
Colorado Springs, Colorado 80907
Telephone: 719-896-4356
Fax: 719-896-4357

KEY TO SYMBOLS

CLIENT Waltz Construction

PROJECT NAME Proposed Honor Charter School Development

PROJECT NUMBER D25-2-1113

PROJECT LOCATION Peyton, Colorado

LITHOLOGIC SYMBOLS
(Unified Soil Classification System)


CL: USCS Low Plasticity Clay


CLAYSTONE


SANDSTONE


SC: USCS Clayey Sand


SM: USCS Silty Sand


SP: USCS Poorly-graded Sand


SP-SM: USCS Poorly-graded Sand with Silt


SW-SC: USCS Well-graded Sand with Clay


SW-SM: USCS Well-graded Sand with Silt


WEATHERED SANDSTONE

SAMPLER SYMBOLS


Grab Sample


2" I.D. Modified California Sampler (MC)


Standard Penetration Test (SPT)

WELL CONSTRUCTION SYMBOLS


No Backfill (just pipe): 1 pipe group, 1 pipe


Slotted Pipe: 1 pipe group, 1 pipe


Slough at bottom of hole

ABBREVIATIONS

LL - LIQUID LIMIT (%)
PI - PLASTIC INDEX (%)
MC - MOISTURE CONTENT (%)
DD - DRY DENSITY (PCF)
NP - NON PLASTIC
FINES- PERCENT PASSING NO. 200 SIEVE
UCS - UNCONFINED COMPRESSIVE STRENGTH


Water Level at Time Drilling, or as Shown


Water Level at End of Drilling, or as Shown


Water Level After 24 Hours, or as Shown

Appendix B

Geotechnical Laboratory Test Results

Vivid Engineering Group, Inc.
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Colorado Springs, Colorado 80907
Telephone: 719-896-4356
Fax: 719-896-4357

KEY TO SYMBOLS

CLIENT Waltz Construction

PROJECT NAME Proposed Honor Charter School Development

PROJECT NUMBER D25-2-1113

PROJECT LOCATION Peyton, Colorado

LITHOLOGIC SYMBOLS
(Unified Soil Classification System)


CL: USCS Low Plasticity Clay


CLAYSTONE


SANDSTONE


SC: USCS Clayey Sand


SM: USCS Silty Sand


SP: USCS Poorly-graded Sand


SP-SM: USCS Poorly-graded Sand with Silt


SW-SC: USCS Well-graded Sand with Clay


SW-SM: USCS Well-graded Sand with Silt


WEATHERED SANDSTONE

SAMPLER SYMBOLS


Grab Sample


2" I.D. Modified California Sampler (MC)


Standard Penetration Test (SPT)

WELL CONSTRUCTION SYMBOLS


No Backfill (just pipe): 1 pipe group, 1 pipe


Slotted Pipe: 1 pipe group, 1 pipe


Slough at bottom of hole

ABBREVIATIONS

LL - LIQUID LIMIT (%)
PI - PLASTIC INDEX (%)
MC - MOISTURE CONTENT (%)
DD - DRY DENSITY (PCF)
NP - NON PLASTIC
FINES- PERCENT PASSING NO. 200 SIEVE
UCS - UNCONFINED COMPRESSIVE STRENGTH


Water Level at Time Drilling, or as Shown


Water Level at End of Drilling, or as Shown


Water Level After 24 Hours, or as Shown

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BORING NUMBER B-1

CLIENT Waltz Construction
PROJECT NAME Proposed Honor Charter School Development
PROJECT NUMBER D25-2-1113
PROJECT LOCATION Peyton, Colorado
DATE STARTED 2/6/26 **COMPLETED** 2/6/26
GROUND ELEVATION 6972.3 **HOLE SIZE** 4.5 inches
DRILLING CONTRACTOR GDI Drilling, Inc. (Diedrich D-90 Truck)
GROUND WATER LEVELS:
DRILLING METHOD 4.5" Solid Stem Auger
AT TIME OF DRILLING 9.00 ft / Elev 6963.30 ft
LOGGED BY S. Mulcahey **CHECKED BY** M. Ray
AT END OF DRILLING ---
NOTES
AFTER DRILLING 7.00 ft / Elev 6965.30 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0.0					Silty SAND, light brown, moist to wet, medium dense	
2.5	GB					
5.0	MC	13-17				2' of stick-up above grade, no backfill, just pipe, solid riser pipe (1.5" diameter)
7.5						
10.0	MC	14-22	MC = 12.8% DD = 117.6 pcf LL = NP PL = NP Fines = 13.0%		10.0 **Dawson Formation** Weathered SANDSTONE, fine-grained, light gray with iron oxide staining, wet, moderately hard	Slotted pipe (1.5" diameter)
12.5					12.0 **Dawson Formation** Clayey SANDSTONE, fine-grained, bluish gray, slightly moist, hard	
	MC	50/9"			14.8	

Bottom of borehole at 14.8 feet.

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BORING NUMBER B-2

CLIENT Waltz Construction
PROJECT NAME Proposed Honor Charter School Development
PROJECT NUMBER D25-2-1113
PROJECT LOCATION Peyton, Colorado
DATE STARTED 2/6/26 **COMPLETED** 2/6/26
GROUND ELEVATION 6969.3 ft **HOLE SIZE** 4.5 inches
DRILLING CONTRACTOR GDI Drilling, Inc. (Diedrich D-90 Truck)
GROUND WATER LEVELS:
DRILLING METHOD 4.5" Solid Stem Auger
AT TIME OF DRILLING --- None Encountered
LOGGED BY S. Mulcahey **CHECKED BY** M. Ray
AT END OF DRILLING ---
NOTES
AFTER DRILLING 8.00 ft / Elev 6961.30 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0.0					Well-graded SAND with silt, light brown, moist, medium dense	
2.5	GB		MC = 4.9% LL = NP PL = NP Fines = 10.0%			
5.0	MC	13-16				6" of stick-up above grade, no backfill, just pipe, solid riser pipe (1.5" diameter)
7.0					Clayey SAND, grayish-brown, moist to wet, medium dense	
7.5						
10.0	MC	9-19	MC = 12.1% DD = 121.5 pcf LL = 27 PL = 16 Fines = 32.0%			
12.0					**Dawson Formation** Sandstone, fine-grained, gray to brown, moist, hard	Slotted pipe (1.5" diameter)
12.5						
	MC	50/9"				
14.8					Bottom of borehole at 14.8 feet.	

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BORING NUMBER B-3

CLIENT Waltz Construction
PROJECT NAME Proposed Honor Charter School Development
PROJECT NUMBER D25-2-1113
PROJECT LOCATION Peyton, Colorado
DATE STARTED 2/6/26 **COMPLETED** 2/6/26
GROUND ELEVATION 6965.7 ft **HOLE SIZE** 4.5 inches
DRILLING CONTRACTOR GDI Drilling, Inc. (Diedrich D-90 Truck)
GROUND WATER LEVELS:
DRILLING METHOD 4.5" Solid Stem Auger
AT TIME OF DRILLING --- None Encountered
LOGGED BY S. Mulcahey **CHECKED BY** M. Ray
AT END OF DRILLING 8.00 ft / Elev 6957.70 ft
NOTES
AFTER DRILLING 5.50 ft / Elev 6960.20 ft

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0.0					Well-graded SAND with silty clay, light brown, moist to wet, medium dense	
2.5	GB					
5.0	MC	13-12	MC = 11.2% DD = 110.1 pcf LL = 26 PL = 19 Fines = 9.0%			6" of stick-up above grade, no backfill, just pipe, solid riser pipe (1.5" diameter)
7.0					**Dawson Formation** Clayey SANDSTONE with silt, light gray, moist, hard	
7.5	MC	50/9"	MC = 9.9% DD = 115.4 pcf Compression = 0.5% when wetted under 1,000 psf load			Slotted pipe (1.5" diameter)
10.0						
12.5						
14.6	MC	50/7"			- brownish-gray at approximately 14 feet below the existing ground surface	

Bottom of borehole at 14.6 feet.

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BORING NUMBER B-4

CLIENT Waltz Construction
PROJECT NAME Proposed Honor Charter School Development
PROJECT NUMBER D25-2-1113
PROJECT LOCATION Peyton, Colorado
DATE STARTED 2/6/26 **COMPLETED** 2/6/26
GROUND ELEVATION 6965.4 ft **HOLE SIZE** 4.5 inches
DRILLING CONTRACTOR GDI Drilling, Inc. (Diedrich D-90 Truck)
GROUND WATER LEVELS:
DRILLING METHOD 4.5" Solid Stem Auger
AT TIME OF DRILLING --- None Encountered
LOGGED BY S. Mulcahey **CHECKED BY** M. Ray
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0	GB		MC = 5.3% LL = NP PL = NP Fines = 12.0%		Well-graded SAND with silt, medium brown, moist, very loose, organics
	MC	1-2			
2.5	GB				
3.0					Poorly Graded SAND with silt, light brown, very moist, medium dense
	MC	8-13			
5.0					
7.0					Sandy Lean CLAY, dark grayish-brown, moist, very stiff
7.5					
	MC	11-19	MC = 14.1% DD = 116.8 pcf UCS = 8,226 psf		
10.0					
12.0					**Dawson Formation** Clayey SANDSTONE, brownish-gray, slightly moist, hard
12.5					
	MC	50/10"			
14.8					

Bottom of borehole at 14.8 feet.

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BORING NUMBER B-5

CLIENT Waltz Construction
PROJECT NAME Proposed Honor Charter School Development
PROJECT NUMBER D25-2-1113
PROJECT LOCATION Peyton, Colorado
DATE STARTED 2/6/26 **COMPLETED** 2/6/26
GROUND ELEVATION 6964.7 ft **HOLE SIZE** 4.5 inches
DRILLING CONTRACTOR GDI Drilling, Inc. (Diedrich D-90 Truck)
GROUND WATER LEVELS:
DRILLING METHOD 4.5" Solid Stem Auger
▽ **AT TIME OF DRILLING** 8.00 ft / Elev 6956.70 ft
LOGGED BY S. Mulcahey **CHECKED BY** M. Ray
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION
0	GB				Poorly Graded SAND with silt, light brown to light gray, slightly moist to wet, loose to medium dense
	MC	3-7			
	GB				
5	MC	10-12	MC = 4.2% DD = 72.1 pcf LL = NP PL = NP Fines = 5.0%		
	MC	11-14	MC = 10.8% DD = 114.9 pcf No movement when wetted under 1,000 psf load		▽
10	SPT	4-5-8 (13)			- clayey with iron oxide staining at approximately 9 feet below the existing ground surface
			MC = 15.5%		10.0 **Dawson Formation** SANDSTONE, gray to bluish-gray, moist, hard
15	MC	50/8"	MC = 10.1% DD = 119.6 pcf Swell = 0.1% when wetted under 1,000 psf load		
20	MC	50/7"			
					24.0
25	MC	50/8"	MC = 17.5% Fines = 85.0%		**Dawson Formation** CLAYSTONE, gray to bluish-gray, moist, hard to very hard
30	MC	50/5"			
	MC	50/5"	MC = 13.0% DD = 113.0 pcf Swell = 2.7% when wetted under 1,000 psf load		34.4 Bottom of borehole at 34.4 feet.

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BORING NUMBER B-6

CLIENT Waltz Construction
PROJECT NAME Proposed Honor Charter School Development
PROJECT NUMBER D25-2-1113
PROJECT LOCATION Peyton, Colorado
DATE STARTED 2/6/26 **COMPLETED** 2/6/26
GROUND ELEVATION 6962.5 ft **HOLE SIZE** 4.5 inches
DRILLING CONTRACTOR GDI Drilling, Inc. (Diedrich D-90 Truck)
GROUND WATER LEVELS:
DRILLING METHOD 4.5" Solid Stem Auger
▽ **AT TIME OF DRILLING** 7.00 ft / Elev 6955.50 ft
LOGGED BY S. Mulcahey **CHECKED BY** M. Ray
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION
0	GB				Clayey SAND with organics, dark brown to medium brown, very moist, loose
	MC	4-5			
	GB				2.5 Well-graded SAND with clay, medium brown to light brown, moist, loose to medium dense
5	MC	14-16	MC = 7.4% DD = 121.2 pcf LL = 30 PL = 17 Fines = 11.0%		- with gravel at approximately 4 feet below the existing ground surface
					6.0
	MC	15-15	MC = 11.1% DD = 122.5 pcf Fines = 18.0% No movement when wetted under 1,000 psf load		▽ Silty SAND, light brownish-gray, wet, medium dense
10	MC	7-9			
			MC = 9.8% DD = 122.0 pcf LL = NP PL = NP Fines = 13.0%		14.0
15	MC	50/9"			**Dawson Formation** SANDSTONE, bluish-gray to light gray with pink grains, moist, hard to very hard
20	MC	50/10"	MC = 14.0% DD = 114.5 pcf Swell = 0.7% when wetted under 2,000 psf load		- with iron oxide staining at approximately 19 feet below the existing ground surface
25	MC	50/5"			- coarse-grained with some silt from approximately 24 to 34 feet below the existing ground surface
30	MC	50/6"			
	MC	50/7"			34.6

Bottom of borehole at 34.6 feet.

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BORING NUMBER B-7

CLIENT Waltz Construction
PROJECT NAME Proposed Honor Charter School Development
PROJECT NUMBER D25-2-1113
PROJECT LOCATION Peyton, Colorado
DATE STARTED 2/6/26 **COMPLETED** 2/6/26
GROUND ELEVATION 6962.4 ft **HOLE SIZE** 4.5 inches
DRILLING CONTRACTOR GDI Drilling, Inc. (Diedrich D-90 Truck)
GROUND WATER LEVELS:
DRILLING METHOD 4.5" Solid Stem Auger
AT TIME OF DRILLING --- None Encountered
LOGGED BY S. Mulcahey **CHECKED BY** M. Ray
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION
0	GB				Well-graded SAND with silt and gravel, medium brown to light brown, slightly moist, loose to medium dense
	MC	3-6	MC = 3.4% DD = 106.3 pcf LL = NP PL = NP Fines = 5.0%		
	GB				
5	MC	14-15	MC = 4.5% DD = 113.0 pcf LL = NP PL = NP Fines = 6.0%		
				6.0	Silty SAND, light gray, moist, medium dense
	MC	7-11		8.0	
			MC = 18.3% DD = 108.8 pcf Fines = 38.0% No movement when wetted under 2,000 psf load		**Dawson Formation** Weathered Clayey SANDSTONE, gray, moist, moderately hard
10	MC	18-21		12.0	
			MC = 9.6% DD = 121.1 pcf UCS = 679 psf		**Dawson Formation** SANDSTONE, gray to bluish gray with brown to olive staining, slightly moist, hard to very hard
15	MC	50/7"	MC = 12.1% DD = 119.9 pcf Swell = 0.9% when wetted under 2,000 psf load		
20	MC	50/7"			
25	MC	50/7"			
30	MC	50/5"			- clayey at approximately 29 feet below the existing ground surface
	MC	50/6"		34.5	- very coarse and light gray with pink grains at approximately 34 feet below the existing ground surface

Bottom of borehole at 34.5 feet.

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BORING NUMBER B-8

CLIENT Waltz Construction
PROJECT NAME Proposed Honor Charter School Development
PROJECT NUMBER D25-2-1113
PROJECT LOCATION Peyton, Colorado
DATE STARTED 2/6/26 **COMPLETED** 2/6/26
GROUND ELEVATION 6959 ft **HOLE SIZE** 4.5 inches
DRILLING CONTRACTOR GDI Drilling, Inc. (Diedrich D-90 Truck)
GROUND WATER LEVELS:
DRILLING METHOD 4.5" Solid Stem Auger
AT TIME OF DRILLING --- None Encountered
LOGGED BY S. Mulcahey **CHECKED BY** M. Ray
AT END OF DRILLING ---
NOTES
AFTER DRILLING --- None Encountered

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0.0	GB		MC = 10.0% DD = 116.3 pcf LL = NP PL = NP Fines = 10.0%		Well-graded SAND with silt, light brown, moist, medium dense	2' of stick-up above grade, no backfill, just pipe, solid riser pipe (1.5" diameter)'
2.5						
5.0	MC	13-14				
7.5					7.0 **Dawson Formation** Weathered Clayey SANDSTONE, light gray, moist, moderately hard	
10.0	MC	20-29	MC = 16.4% DD = 110.4 pcf LL = 36 PL = 18 Swell = 0.4% when wetted under 2,000 psf load			Slotted pipe (1.5" diameter)
12.5					12.0 **Dawson Formation** Silty SANDSTONE, light gray to tan, slightly moist, very hard	
	MC	50/5"			14.4	

Bottom of borehole at 14.4 feet.

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BORING NUMBER B-9

CLIENT Waltz Construction
PROJECT NAME Proposed Honor Charter School Development
PROJECT NUMBER D25-2-1113
PROJECT LOCATION Peyton, Colorado
DATE STARTED 2/6/26 **COMPLETED** 2/6/26
GROUND ELEVATION 6958.6 ft **HOLE SIZE** 4.5 inches
DRILLING CONTRACTOR GDI Drilling, Inc. (Diedrich D-90 Truck)
GROUND WATER LEVELS:
DRILLING METHOD 4.5" Solid Stem Auger
AT TIME OF DRILLING --- None Encountered
LOGGED BY S. Mulcahey **CHECKED BY** M. Ray
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					Well-graded SAND with silt, light brown, very moist, medium dense
2.5	GB				
5.0	MC	11-12			
7.0					Clayey SAND, light grayish-brown, moist, medium dense
10.0	MC	11-23	MC = 14.5% DD = 115.8 pcf LL = 30 PL = 16 Fines = 41.0%		
12.0					**Dawson Formation** CLAYSTONE, grayish-brown with iron oxide, slightly moist, hard
12.5	MC	50/8"			
14.7					Bottom of borehole at 14.7 feet.

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BORING NUMBER B-10

CLIENT Waltz Construction
PROJECT NAME Proposed Honor Charter School Development
PROJECT NUMBER D25-2-1113
PROJECT LOCATION Peyton, Colorado
DATE STARTED 2/6/26 **COMPLETED** 2/6/26
GROUND ELEVATION 6958 ft **HOLE SIZE** 4.5 inches
DRILLING CONTRACTOR GDI Drilling, Inc. (Diedrich D-90 Truck)
GROUND WATER LEVELS:
DRILLING METHOD 4.5" Solid Stem Auger
▽ **AT TIME OF DRILLING** 9.00 ft / Elev 6949.00 ft
LOGGED BY S. Mulcahey **CHECKED BY** M. Ray
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	TESTS	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0	GB		MC = 6.2% LL = 21 PL = 18 Fines = 13.0%		Silty SAND, light brown, moist, medium dense
	MC	6-7			
2.5	GB				
					4.0
	MC	9-10	MC = 11.8% DD = 121.7 pcf LL = 24 PL = 16 Fines = 18.0%		Clayey SAND, light gray, moist, medium dense
5.0					
					7.0
7.5					Silty SAND, light brown, wet, medium dense
	MC	14-30			▽
10.0					
					12.0
12.5					**Dawson Formation** SANDSTONE, light brown with medium brown and yellow, slightly moist, hard
	MC	50/9"			
					14.8

Bottom of borehole at 14.8 feet.

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SUMMARY OF LABORATORY RESULTS

CLIENT Waltz Construction

PROJECT NAME Proposed Honor Charter School Development

PROJECT NUMBER D25-2-1113

PROJECT LOCATION Peyton, Colorado

Exploration ID	Approx. Sample Depth (ft)	Sample Description	Passing 3/4" Sieve (%)	Passing #4 Sieve (%)	Passing #200 Sieve (%)	Liquid Limit (LL)	Plastic Limit (PL)	Plasticity Index (PI)	Moisture Content (%)	Dry Density (pcf)
B-1	9.0	SILTY SAND(SM)		91	13	NP	NP	NP	12.8	117.6
B-2	0.0	WELL-GRADED SAND with SILT(SW-SM)		96	10	NP	NP	NP	4.9	
B-2	9.0	CLAYEY SAND(SC)		100	32	27	16	11	12.1	121.5
B-3	4.0	WELL-GRADED SAND with SILTY CLAY(SW-SC)		98	9	26	19	7	11.2	110.1
B-3	9.0								9.9	115.4
B-4	0.0	WELL-GRADED SAND with SILT(SW-SM)		93	12	NP	NP	NP	5.3	
B-4	9.0								14.1	116.8
B-5	4.0	POORLY GRADED SAND with SILT(SP-SM)		99	5	NP	NP	NP	4.2	72.1
B-5	7.0								10.8	114.9
B-5	9.0								15.5	
B-5	14.0								10.1	119.6
B-5	24.0				85				17.5	
B-5	34.0								13.0	113.0
B-6	4.0	WELL-GRADED SAND with CLAY(SW-SC)		97	11	30	17	13	7.4	121.2
B-6	7.0			100	18				11.1	122.5
B-6	9.0	SILTY SAND(SM)		97	13	NP	NP	NP	9.8	122.0
B-6	19.0								14.0	114.5
B-7	2.0	WELL-GRADED SAND with SILT and GRAVEL(SW-SM)	100	85	5	NP	NP	NP	3.4	106.3
B-7	4.0	WELL-GRADED SAND with SILT(SW-SM)		90	6	NP	NP	NP	4.5	113.0
B-7	7.0				38				18.3	108.8
B-7	9.0								9.6	121.1
B-7	14.0								12.1	119.9
B-8	0.0	WELL-GRADED SAND with SILT(SW-SM)		96	10	NP	NP	NP	10.0	116.3
B-8	9.0					36	18	18	16.4	110.4
B-9	9.0	CLAYEY SAND(SC)		100	41	30	16	14	14.5	115.8
B-10	0.0	SILTY SAND(SM)		96	13	21	18	3	6.2	
B-10	4.0	CLAYEY SAND(SC)		98	18	24	16	8	11.8	121.7

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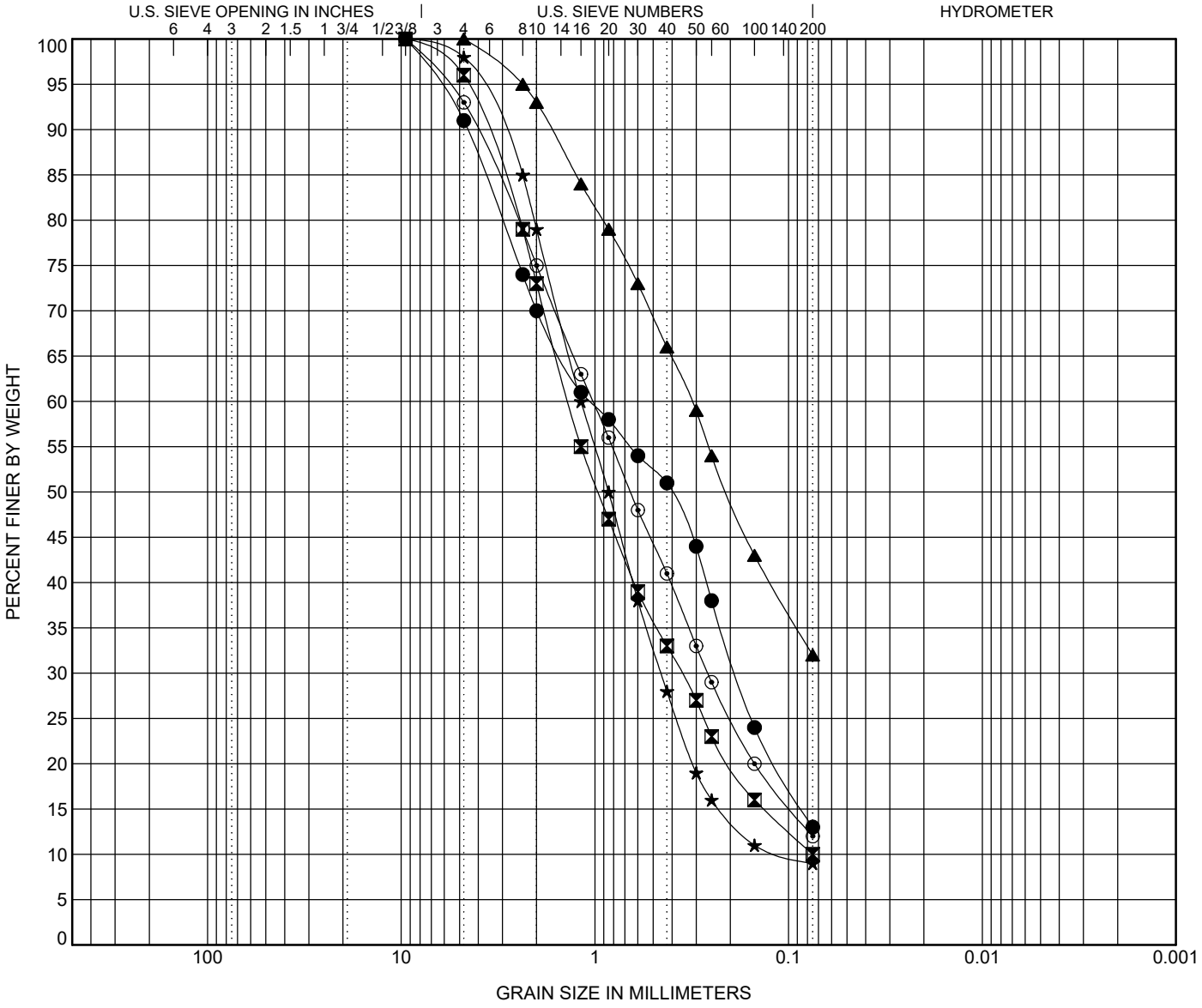
GRAIN SIZE DISTRIBUTION

CLIENT Waltz Construction

PROJECT NAME Proposed Honor Charter School Development

PROJECT NUMBER D25-2-1113

PROJECT LOCATION Peyton, Colorado



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	B-1	9.0	SILTY SAND(SM)	NP	NP	NP		
⊠	B-2	0.0	WELL-GRADED SAND with SILT(SW-SM)	NP	NP	NP	1.24	18.22
▲	B-2	9.0	CLAYEY SAND(SC)	27	16	11		
★	B-3	4.0	WELL-GRADED SAND with SILTY CLAY(SW-SC)	26	19	7	1.66	11.13
⊙	B-4	0.0	WELL-GRADED SAND with SILT(SW-SM)	NP	NP	NP	1.06	16.26

	BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-1	9.0	9.5	1.058	0.187		9.0	78.0	13.0	
⊠	B-2	0.0	9.5	1.366	0.357	0.075	4.0	86.0	10.0	
▲	B-2	9.0	4.75	0.315			0.0	68.0	32.0	
★	B-3	4.0	9.5	1.18	0.455	0.106	2.0	89.0	9.0	
⊙	B-4	0.0	9.5	1.025	0.262		7.0	81.0	12.0	

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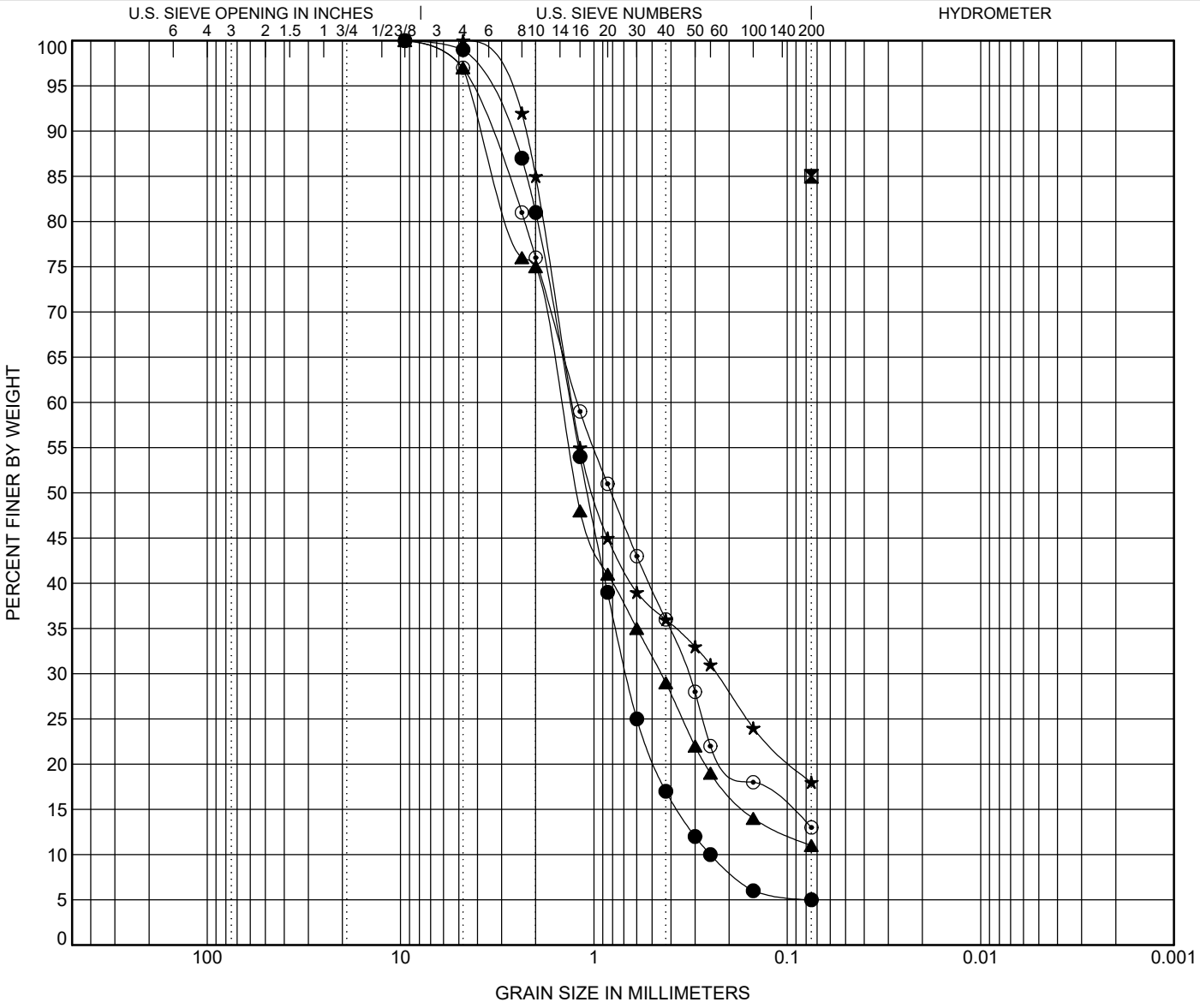
GRAIN SIZE DISTRIBUTION

CLIENT Waltz Construction

PROJECT NAME Proposed Honor Charter School Development

PROJECT NUMBER D25-2-1113

PROJECT LOCATION Peyton, Colorado



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	B-5	4.0	POORLY GRADED SAND with SILT(SP-SM)	NP	NP	NP	1.39	5.31
⊠	B-5	24.0						
▲	B-6	4.0	WELL-GRADED SAND with CLAY(SW-SC)	30	17	13	2.28	25.06
★	B-6	7.0						
⊙	B-6	9.0	SILTY SAND(SM)	NP	NP	NP		

	BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-5	4.0	9.5	1.327	0.679	0.25	1.0	94.0	5.0	
⊠	B-5	24.0	0.075						85.0	
▲	B-6	4.0	9.5	1.492	0.45		3.0	86.0	11.0	
★	B-6	7.0	4.75	1.288	0.232		0.0	82.0	18.0	
⊙	B-6	9.0	9.5	1.217	0.327		3.0	84.0	13.0	

Vivid Engineering Group, Inc.
1053 Elkton Drive
Colorado Springs, Colorado 80907
Telephone: 719-896-4356
Fax: 719-896-4357

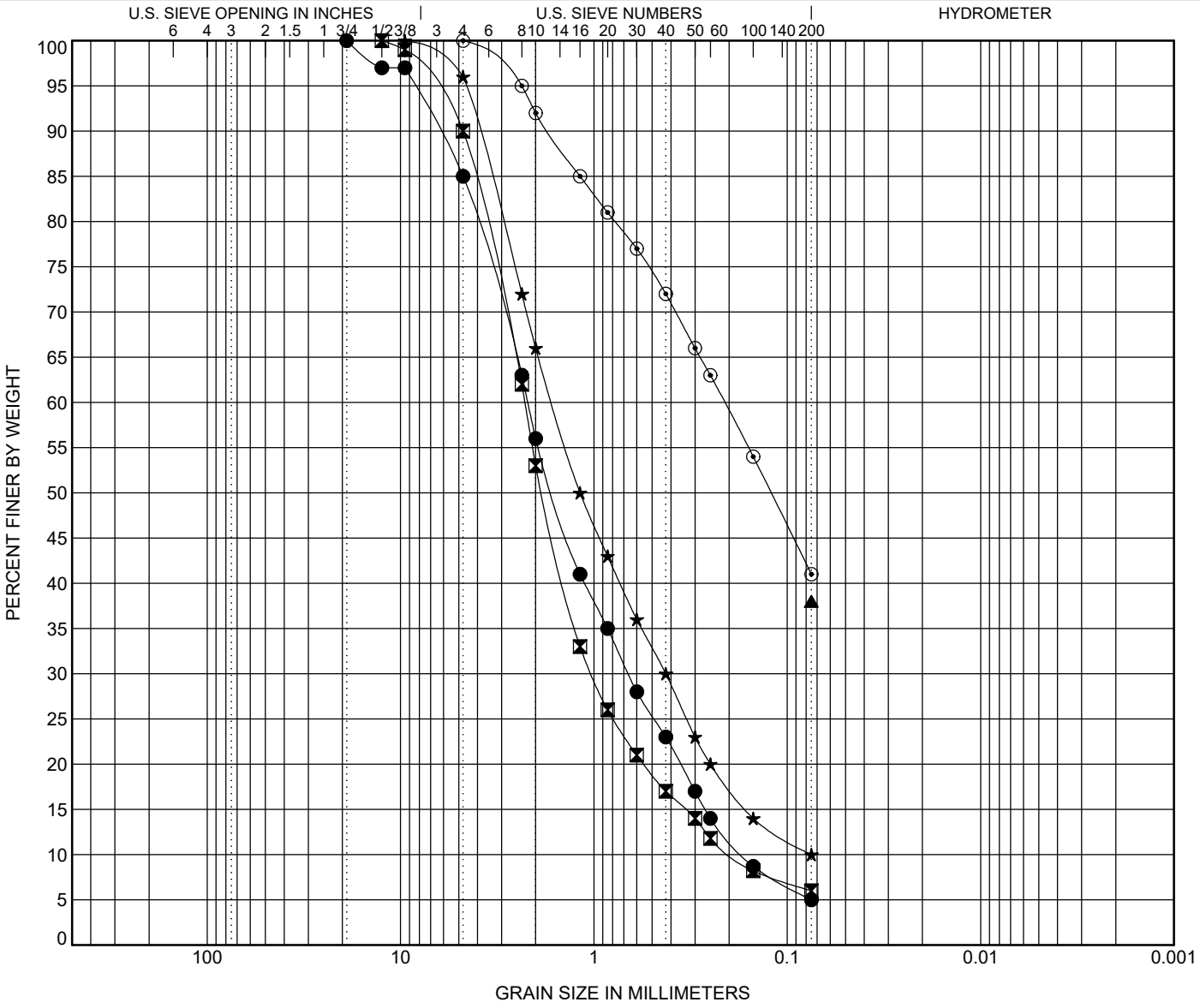
GRAIN SIZE DISTRIBUTION

CLIENT Waltz Construction

PROJECT NAME Proposed Honor Charter School Development

PROJECT NUMBER D25-2-1113

PROJECT LOCATION Peyton, Colorado



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	B-7	2.0	WELL-GRADED SAND with SILT and GRAVEL(SW-SM)	NP	NP	NP	1.18	12.93
⊠	B-7	4.0	WELL-GRADED SAND with SILT(SW-SM)	NP	NP	NP	2.39	11.75
▲	B-7	7.0						
★	B-8	0.0	WELL-GRADED SAND with SILT(SW-SM)	NP	NP	NP	1.47	21.88
⊙	B-9	9.0	CLAYEY SAND(SC)	30	16	14		

	BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-7	2.0	19	2.198	0.663	0.17	15.0	80.0	5.0	
⊠	B-7	4.0	12.5	2.275	1.025	0.194	10.0	84.0	6.0	
▲	B-7	7.0	0.075						38.0	
★	B-8	0.0	9.5	1.641	0.425	0.075	4.0	86.0	10.0	
⊙	B-9	9.0	4.75	0.211			0.0	59.0	41.0	

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1053 Elkton Drive
Colorado Springs, Colorado 80907
Telephone: 719-896-4356
Fax: 719-896-4357

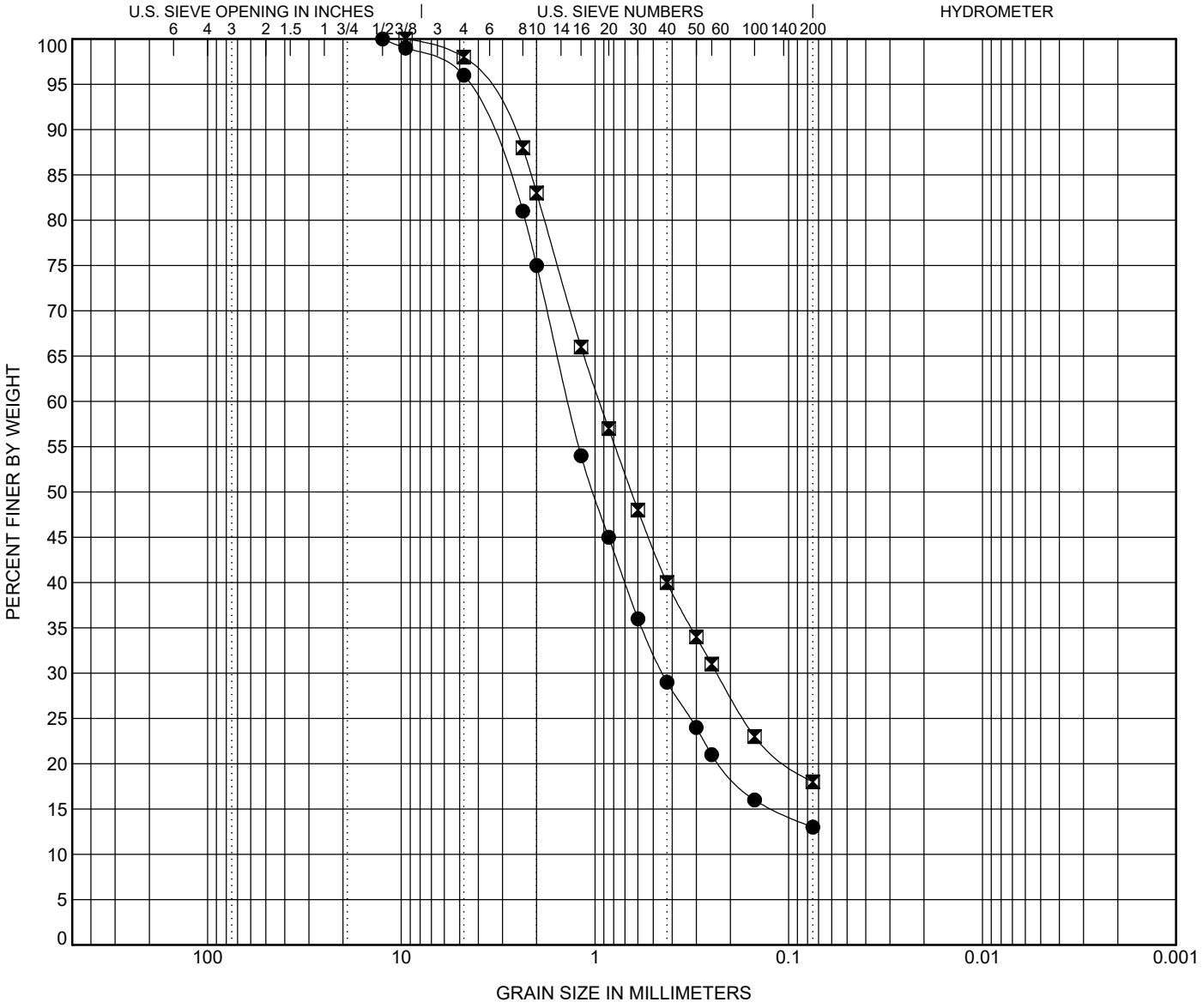
GRAIN SIZE DISTRIBUTION

CLIENT Waltz Construction

PROJECT NAME Proposed Honor Charter School Development

PROJECT NUMBER D25-2-1113

PROJECT LOCATION Peyton, Colorado



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	**B-10**	**0.0**	**SILTY SAND(SM)**	**21**	**18**	**3**		
⊠	**B-10**	**4.0**	**CLAYEY SAND(SC)**	**24**	**16**	**8**		

	BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**B-10**	**0.0**	**12.5**	**1.372**	**0.446**		**4.0**	**83.0**	**13.0**	
⊠	**B-10**	**4.0**	**9.5**	**0.948**	**0.235**		**2.0**	**80.0**	**18.0**	

Vivid Engineering Group, Inc.
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Colorado Springs, Colorado 80907
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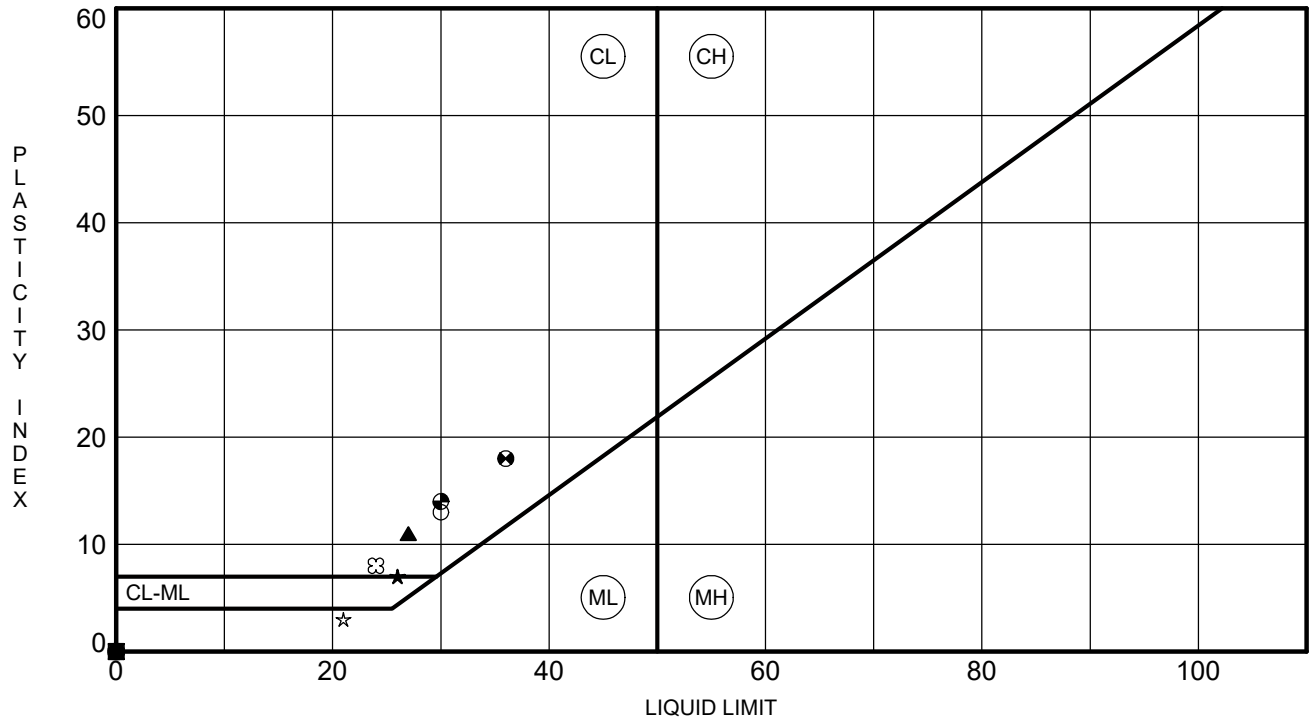
Fax: 719-896-4357

ATTERBERG LIMITS' RESULTS

CLIENT Waltz Construction **PROJECT NAME** Proposed Honor Charter School Development

PROJECT NUMBER D25-2-1113 **PROJECT LOCATION** Peyton, Colorado

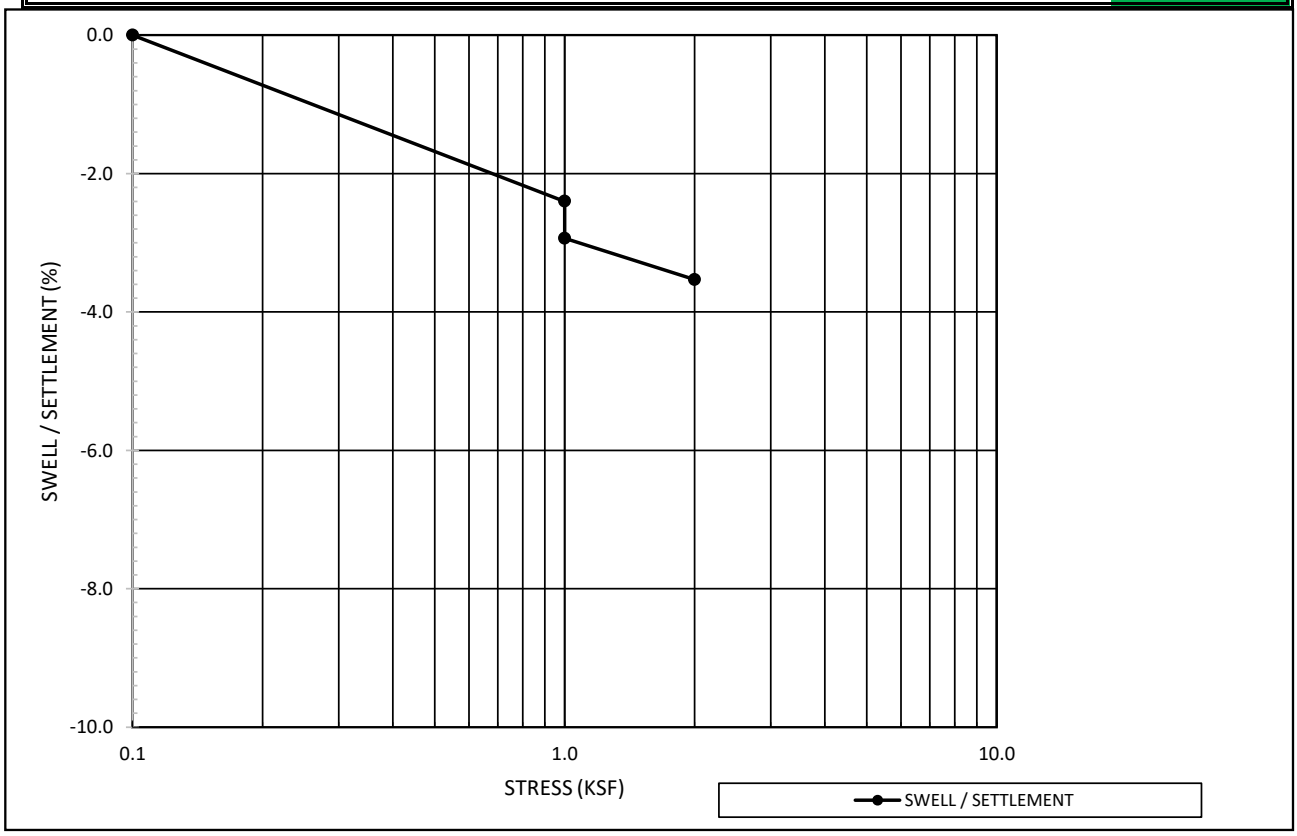


	BOREHOLE	DEPTH	LL	PL	PI	Fines	Classification
●	B-1	9.0	NP	NP	NP	13	SILTY SAND(SM)
⊠	B-2	0.0	NP	NP	NP	10	WELL-GRADED SAND with SILT(SW-SM)
▲	B-2	9.0	27	16	11	32	CLAYEY SAND(SC)
★	B-3	4.0	26	19	7	9	WELL-GRADED SAND with SILTY CLAY(SW-SC)
⊙	B-4	0.0	NP	NP	NP	12	WELL-GRADED SAND with SILT(SW-SM)
✿	B-5	4.0	NP	NP	NP	5	POORLY GRADED SAND with SILT(SP-SM)
○	B-6	4.0	30	17	13	11	WELL-GRADED SAND with CLAY(SW-SC)
△	B-6	9.0	NP	NP	NP	13	SILTY SAND(SM)
⊗	B-7	2.0	NP	NP	NP	5	WELL-GRADED SAND with SILT and GRAVEL(SW-SM)
⊕	B-7	4.0	NP	NP	NP	6	WELL-GRADED SAND with SILT(SW-SM)
□	B-8	0.0	NP	NP	NP	10	WELL-GRADED SAND with SILT(SW-SM)
⊛	B-8	9.0	36	18	18		
◕	B-9	9.0	30	16	14	41	CLAYEY SAND(SC)
☆	B-10	0.0	21	18	3	13	SILTY SAND(SM)
⊠	B-10	4.0	24	16	8	18	CLAYEY SAND(SC)

VIVID Engineering Group, Inc.

Project Name:	Proposed Honor Charter School Development	**Date**	2/20/2026
Project No.:	D25-2-1113		
Boring ID.:	B-3	**Sample Depth (ft)**	9
Sample Description:	Clayey SANDSTONE, light gray, moist		

	%
Compression @ Wetting Weight:	**-0.5**

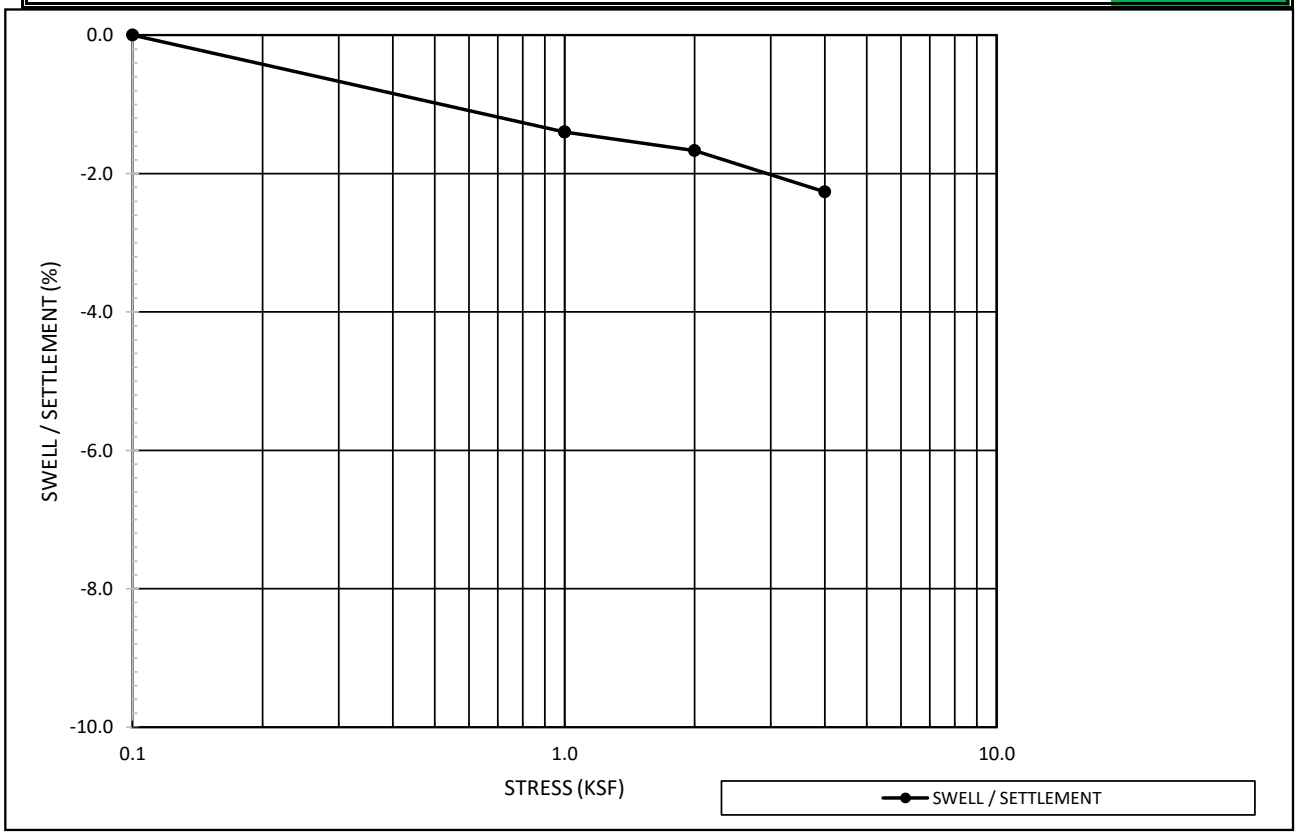


Initial Condition	
Moisture Content %	**9.9**
Dry Density (pcf)	**115.4**
Post-Swell Condition	
Moisture Content %	**14.5**

VIVID Engineering Group, Inc.

Project Name:	Proposed Honor Charter School Development	**Date**	2/20/2026
Project No.:	D25-2-1113		
Boring ID.:	B-5	**Sample Depth (ft)**	7
Sample Description:	Poorly Graded SAND with silt, light gray, moist		

	%
No Movement @ Wetting Weight:	**0.0**

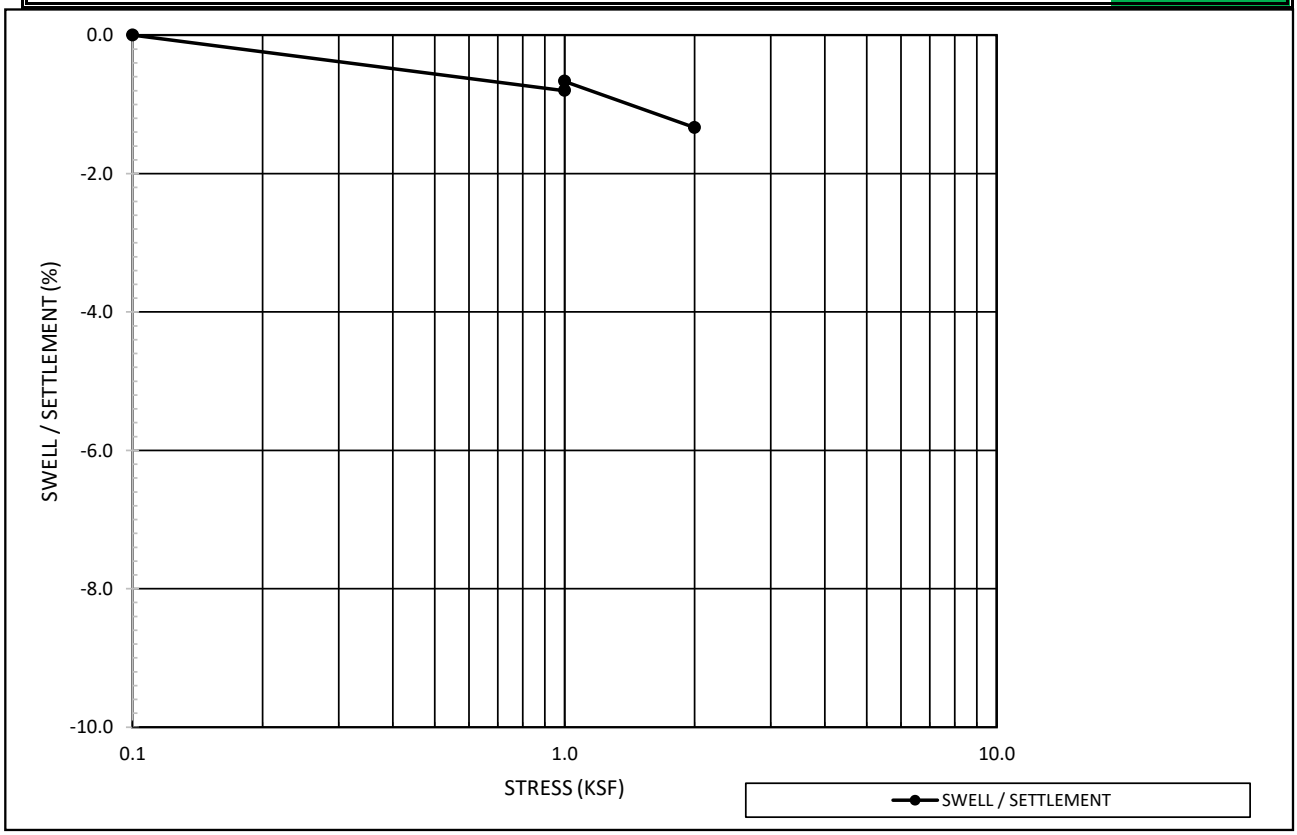


Initial Condition	
Moisture Content %	**10.8**
Dry Density (pcf)	**114.9**
Post-Swell Condition	
Moisture Content %	**14.0**

VIVID Engineering Group, Inc.

Project Name:	Proposed Honor Charter School Development	**Date**	2/20/2026
Project No.:	D25-2-1113		
Boring ID.:	B-5	**Sample Depth (ft)**	14
Sample Description:	SANDSTONE, gray, moist		

	%
Swell @ Wetting Weight:	**0.1**

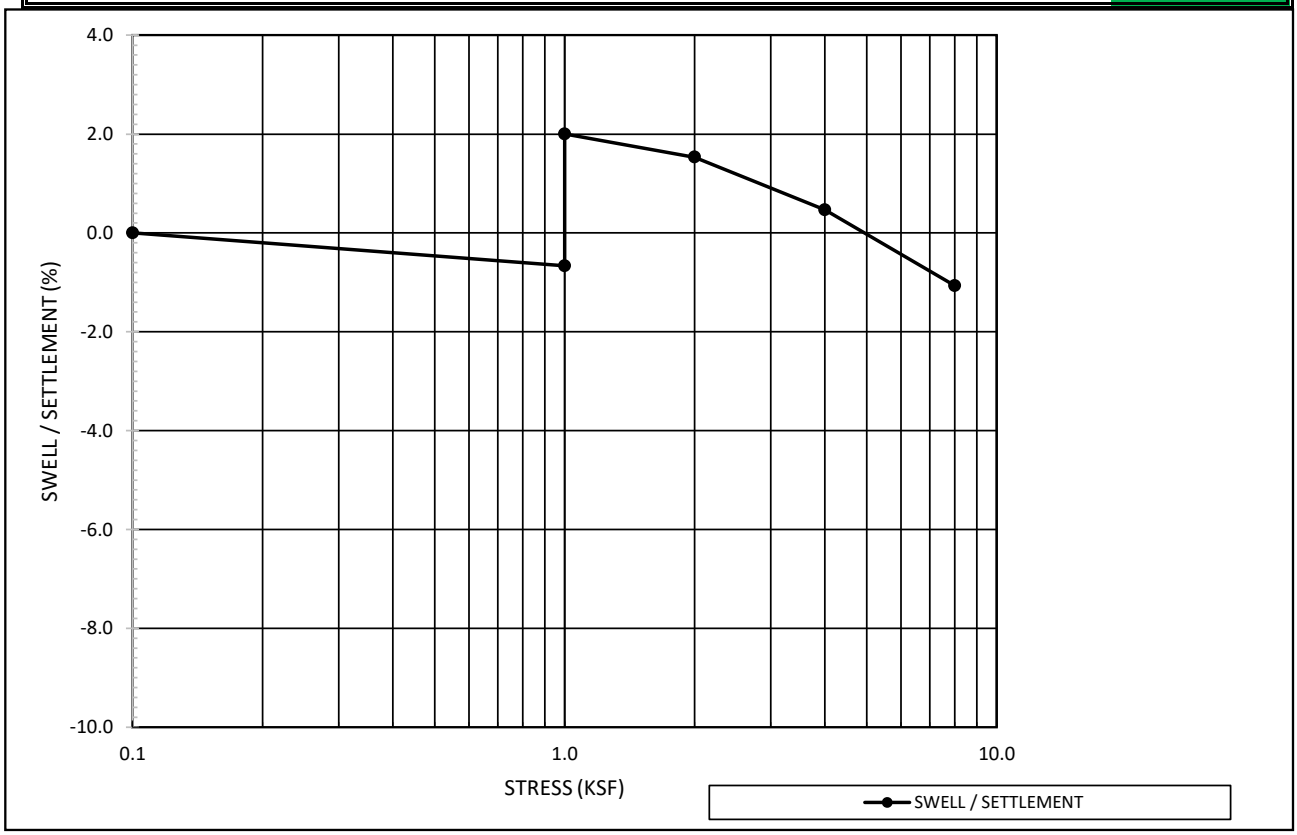


Initial Condition	
Moisture Content %	**10.1**
Dry Density (pcf)	**119.6**
Post-Swell Condition	
Moisture Content %	**14.5**

VIVID Engineering Group, Inc.

Project Name:	Proposed Honor Charter School Development	**Date**	2/20/2026
Project No.:	D25-2-1113		
Boring ID.:	B-5	**Sample Depth (ft)**	34
Sample Description:	CLAYSTONE, gray, moist		

	%
Swell @ Wetting Weight:	**2.7**

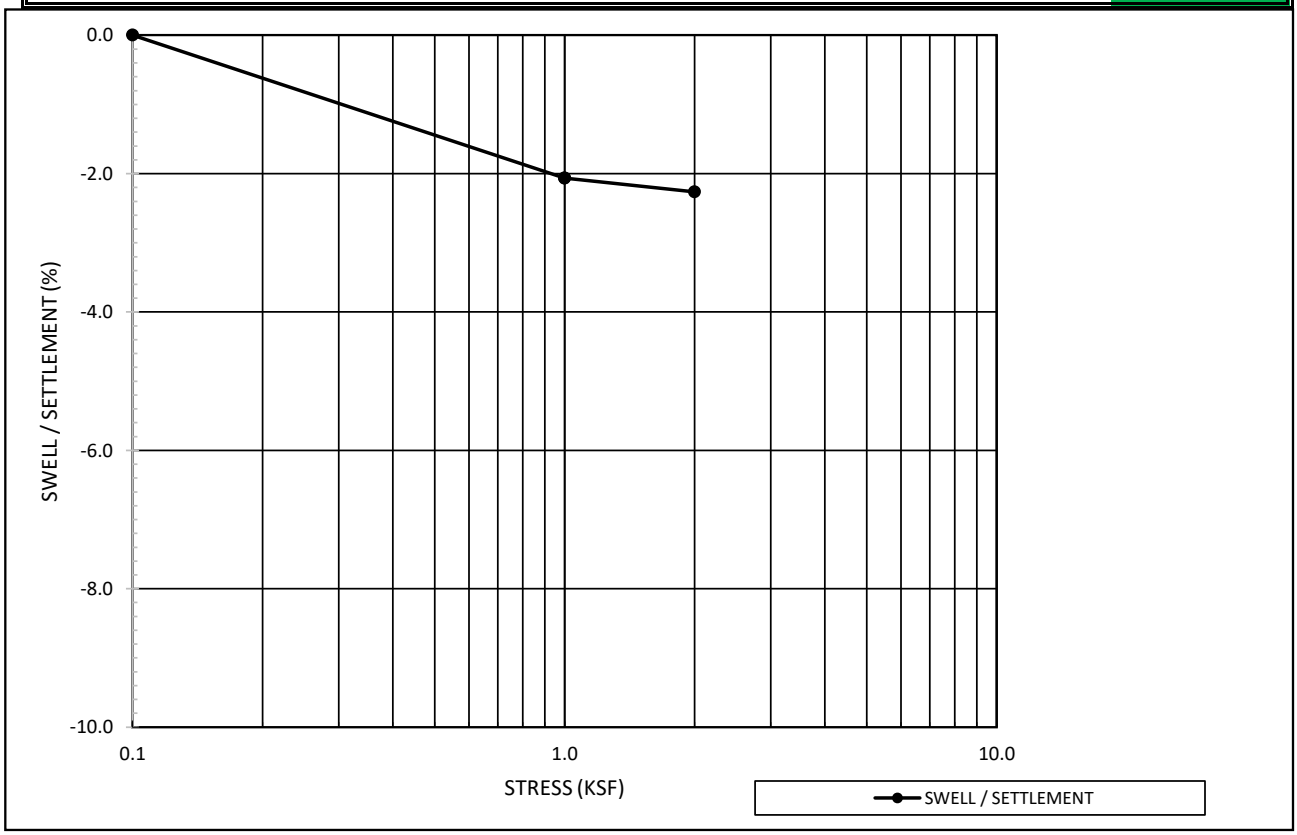


Initial Condition	
Moisture Content %	**13.0**
Dry Density (pcf)	**113.0**
Post-Swell Condition	
Moisture Content %	**18.5**

VIVID Engineering Group, Inc.

Project Name:	Proposed Honor Charter School Development	**Date**	2/20/2026
Project No.:	D25-2-1113		
Boring ID.:	B-6	**Sample Depth (ft)**	7
Sample Description:	Silty SAND, light brownish-gray, wet		

	%
No Movement @ Wetting Weight:	**0.0**

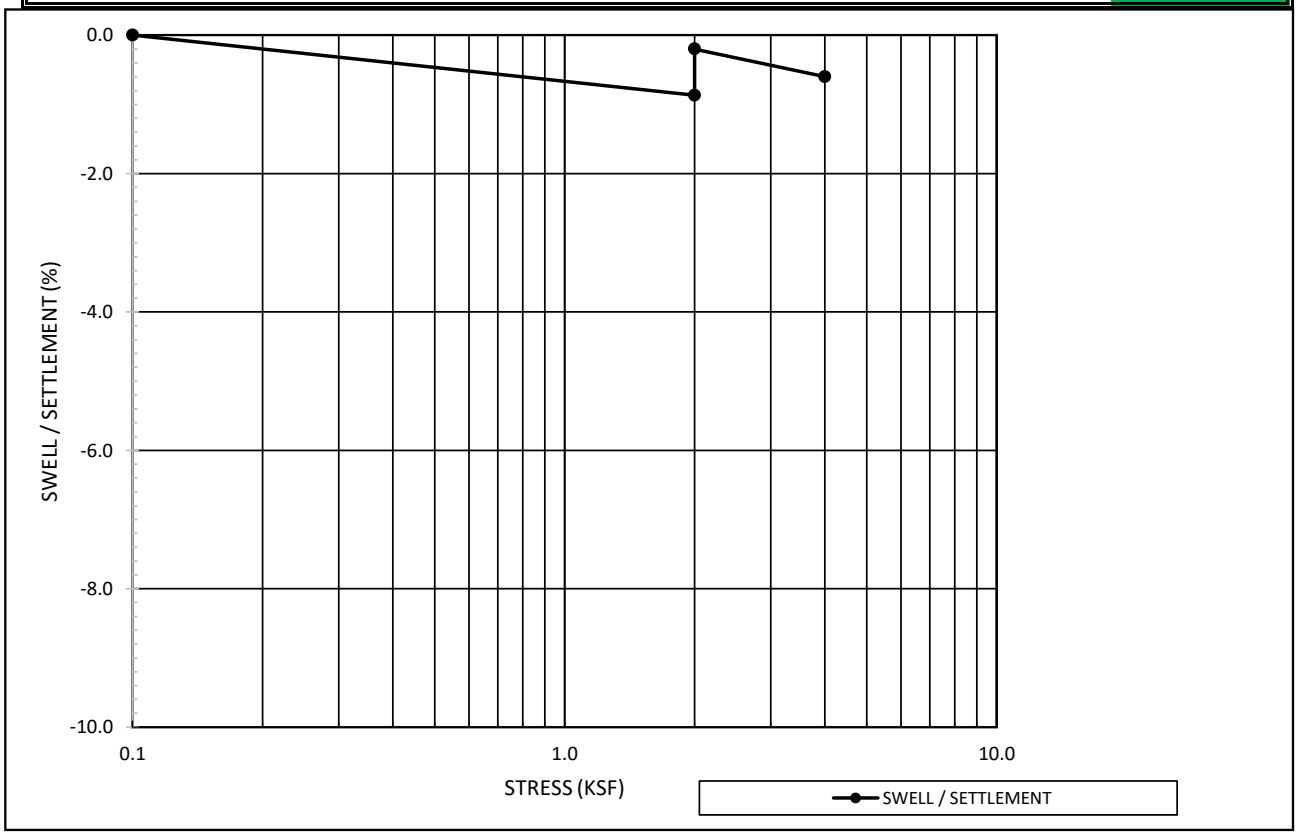


Initial Condition	
Moisture Content %	**11.7**
Dry Density (pcf)	**122.5**
Post-Swell Condition	
Moisture Content %	**13.1**

VIVID Engineering Group, Inc.

Project Name:	Proposed Honor Charter School Development	**Date**	2/20/2026
Project No.:	D25-2-1113		
Boring ID.:	B-6	**Sample Depth (ft)**	19
Sample Description:	SANDSTONE, light gray, moist		

	%
Swell @ Wetting Weight:	**0.7**

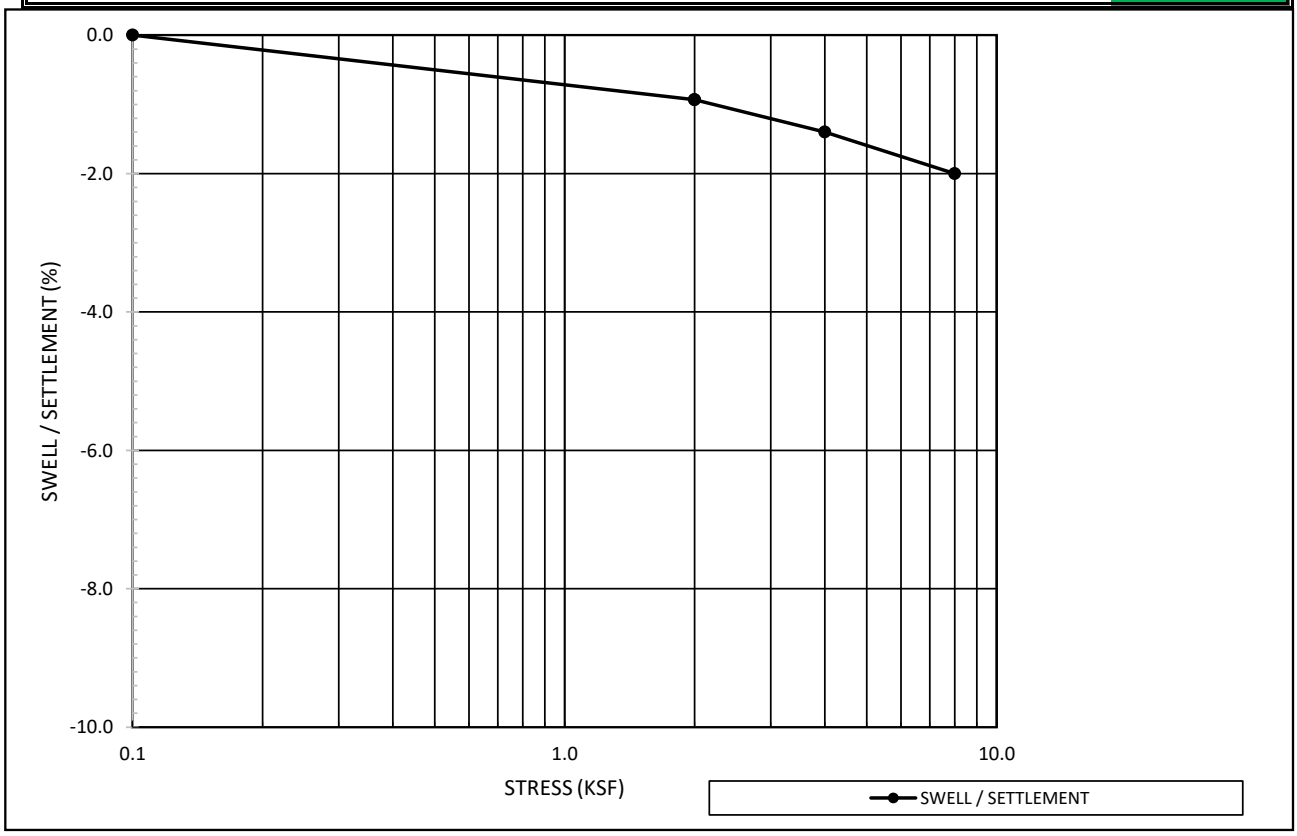


Initial Condition	
Moisture Content %	**14.0**
Dry Density (pcf)	**114.5**
Post-Swell Condition	
Moisture Content %	**17.5**

VIVID Engineering Group, Inc.

Project Name:	Proposed Honor Charter School Development	**Date**	2/20/2026
Project No.:	D25-2-1113		
Boring ID.:	B-7	**Sample Depth (ft)**	7
Sample Description:	Silty SAND, light gray, moist		

	%
No Movement @ Wetting Weight:	**0.0**

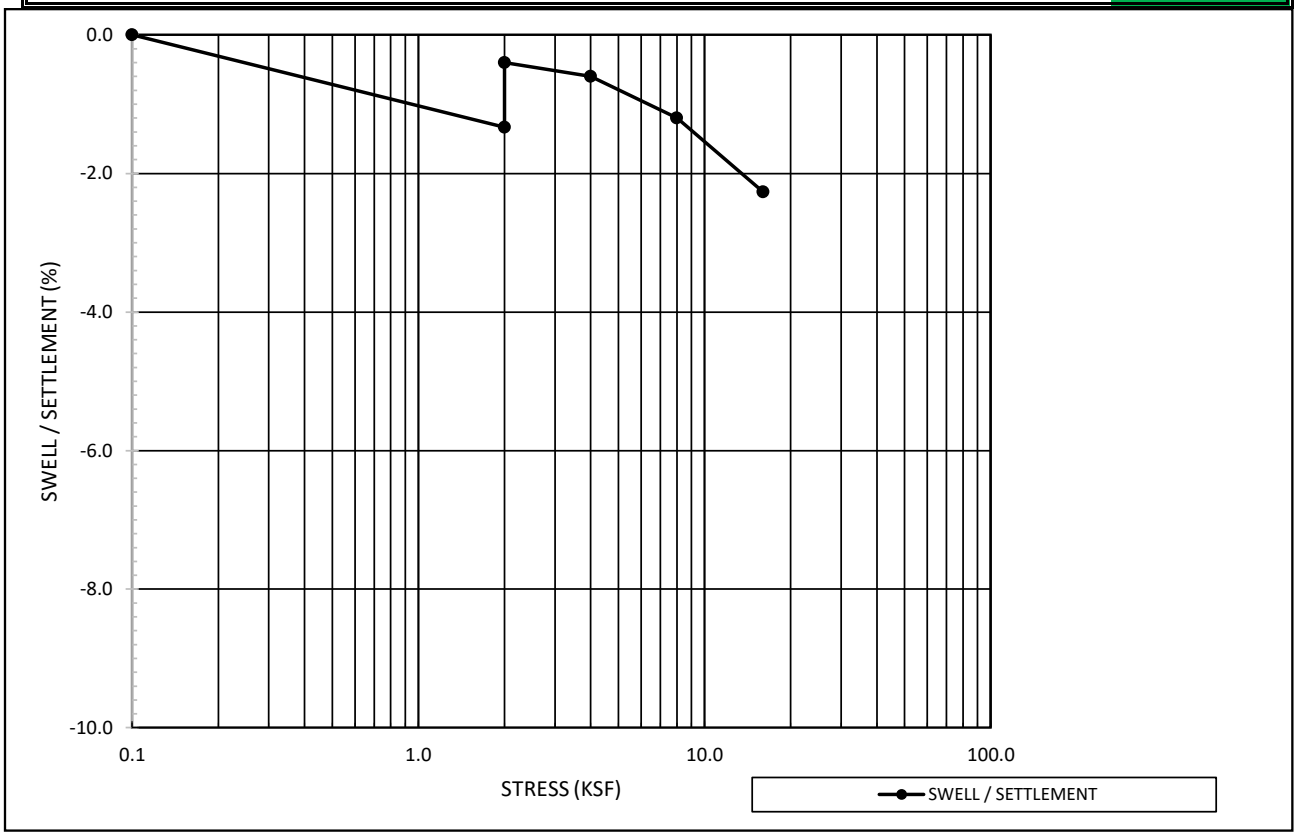


Initial Condition	
Moisture Content %	**19.7**
Dry Density (pcf)	**108.8**
Post-Swell Condition	
Moisture Content %	**20.0**

VIVID Engineering Group, Inc.

Project Name:	Proposed Honor Charter School Development	**Date**	2/20/2026
Project No.:	D25-2-1113		
Boring ID.:	B-7	**Sample Depth (ft)**	14
Sample Description:	Clayey SANDSTONE, gray, moist		

	%
Swell @ Wetting Weight:	**0.9**

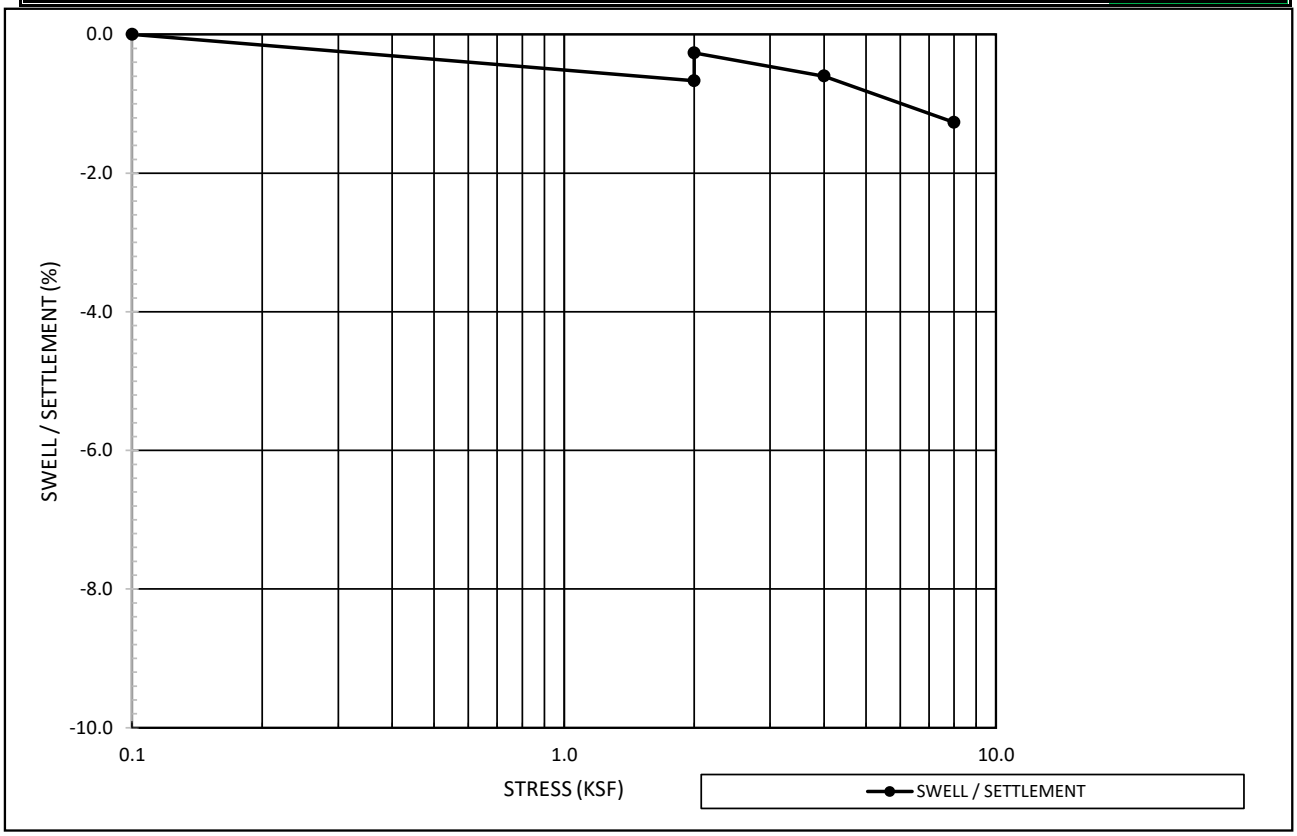


Initial Condition	
Moisture Content %	**12.1**
Dry Density (pcf)	**119.9**
Post-Swell Condition	
Moisture Content %	**15.1**

VIVID Engineering Group, Inc.

Project Name:	Proposed Honor Charter School Development	**Date**	2/20/2026
Project No.:	D25-2-1113		
Boring ID.:	B-8	**Sample Depth (ft)**	9
Sample Description:	Weathered Clayey SANDSTONE, light gray, moist		

	%
Swell @ Wetting Weight:	**0.4**



Initial Condition	
Moisture Content %	**16.4**
Dry Density (pcf)	**110.4**
Post-Swell Condition	
Moisture Content %	**18.9**

UNCONFINED COMPRESSION TEST
ASTM D 2166

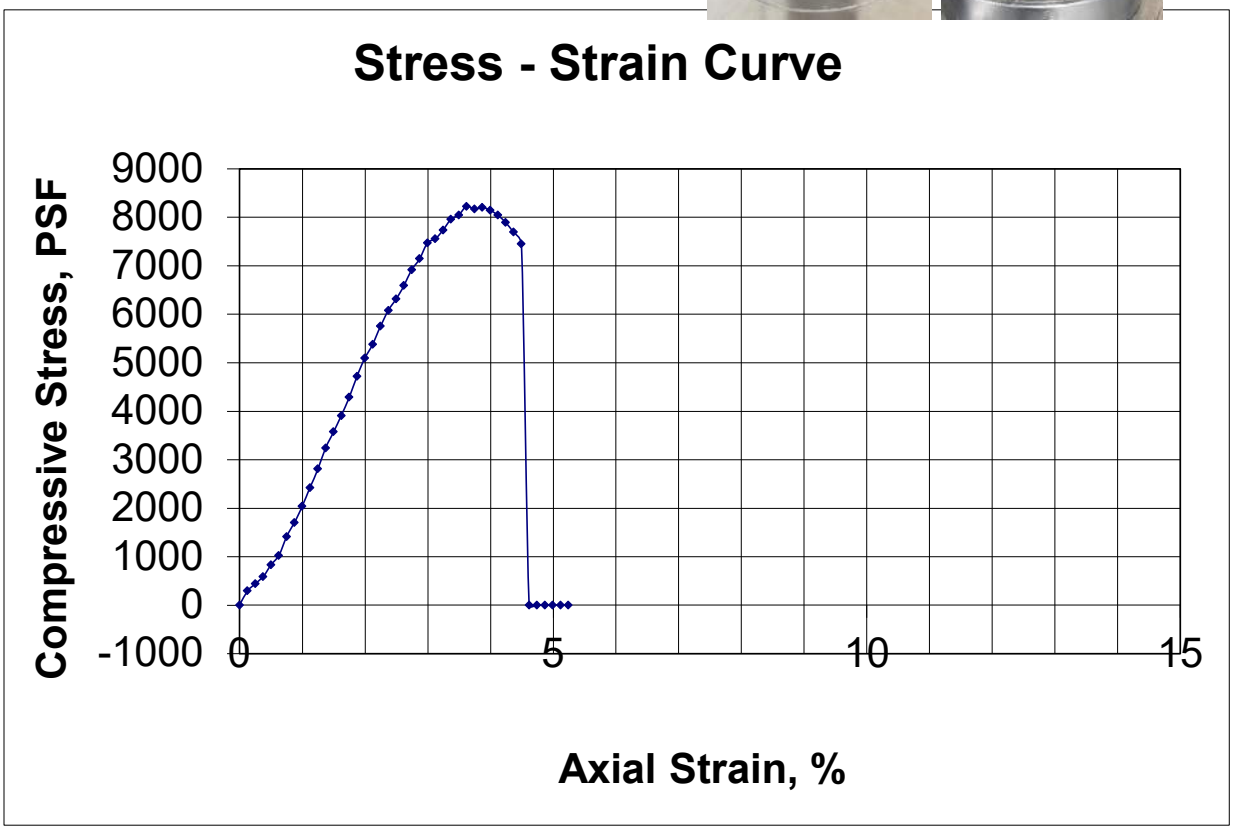
PROJECT NAME:	Proposed Honor Charter School	PROJECT ENG.:	NAD
PROJECT NO. :	D25-2-1113	DATE RECEIVED:	2/11/2026
CLIENT NAME:	Waltz Construction	DATE TESTED:	2/13/2026
		TESTED BY:	A Jones
BORING NO. :	B-4	DATA ENTRY:	A Jones
SAMPLE NO.:			
DEPTH, FT. :	9 FT	DESCRIPTION:	Sandy Lean CLAY,
TEST SPECIMEN NO.:		dark grayish-brown, moist	

INITIAL DATA

Avg. Height, In.:	4.007
Avg. Diameter, In.:	1.933
L/D Ratio:	2.1
Moisture Content, %: (Sample, After test)	14.1
Dry Density, pcf:	116.8
Assumed Specific Gravity:	2.7
Saturation, %:	86.4
Void Ratio:	0.442
Rate of Strain, %/Minute:	1.0

Photo:

	PSF	PSI
Compressive Strength @ Failure:	8226	57
Shear Strength @ Failure:	4113	29
Axial Strain @ Failure,%:	3.6	3.6



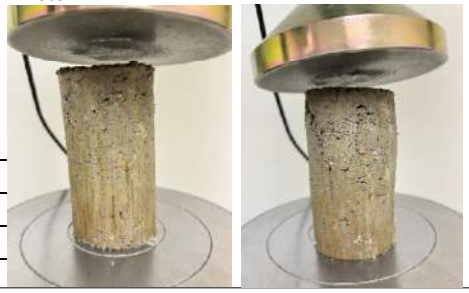
UNCONFINED COMPRESSION TEST
ASTM D 2166

PROJECT NAME:	Proposed Honor Charter School	PROJECT ENG.:	NAD
PROJECT NO. :	D25-2-1113	DATE RECEIVED:	2/11/2026
CLIENT NAME:	Waltz Construction	DATE TESTED:	2/13/2026
		TESTED BY:	A Jones
BORING NO. :	B-7	DATA ENTRY:	A Jones
SAMPLE NO.:			
DEPTH, FT. :	9 FT	DESCRIPTION:	Clayey SANDSTONE, gray, moist
TEST SPECIMEN NO.:			

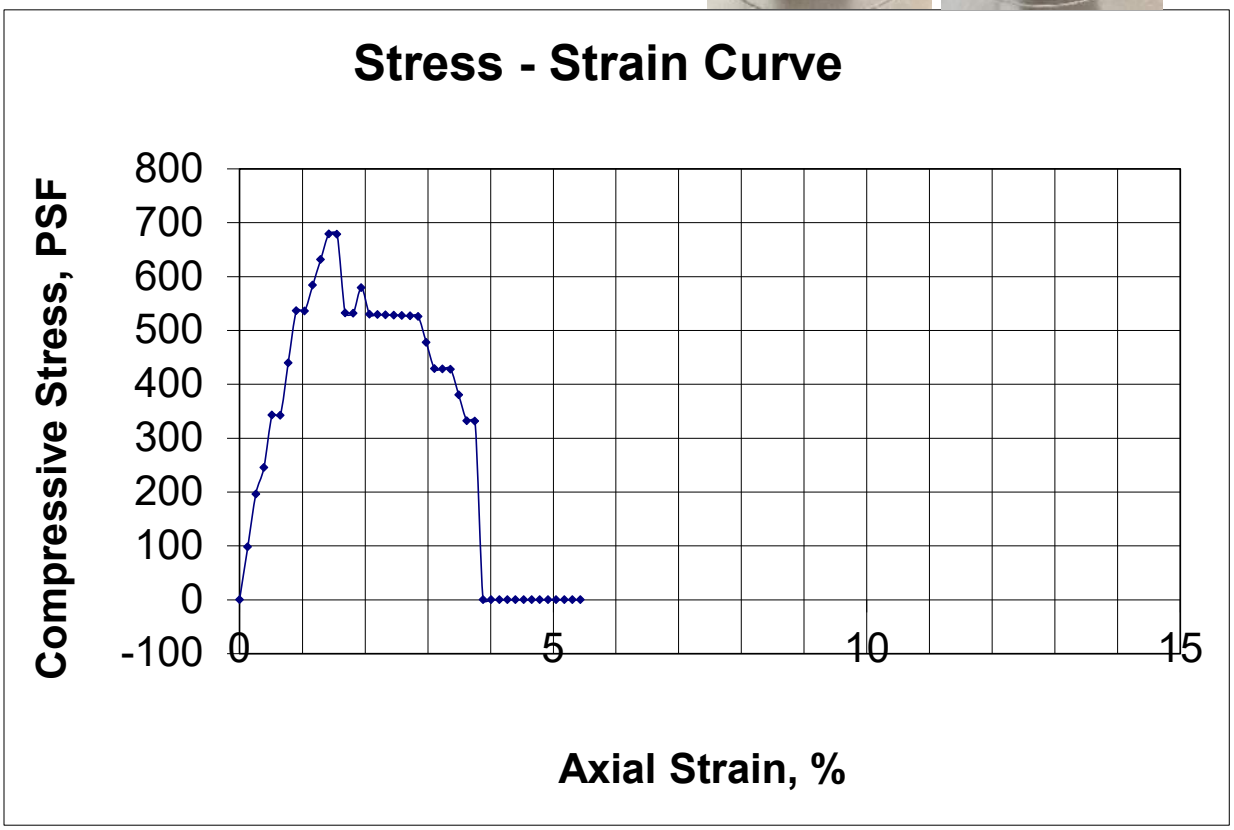
INITIAL DATA

Avg. Height, In.:	3.863
Avg. Diameter, In.:	1.930
L/D Ratio:	2.0
Moisture Content, %: (Sample, After test)	9.6
Dry Density, pcf:	121.1
Assumed Specific Gravity:	2.7
Saturation, %:	66.3
Void Ratio:	0.391
Rate of Strain, %/Minute:	1.0

Photo:



	PSF	PSI
Compressive Strength @ Failure:	679	5
Shear Strength @ Failure:	340	2
Axial Strain @ Failure,%:	1.4	1.4

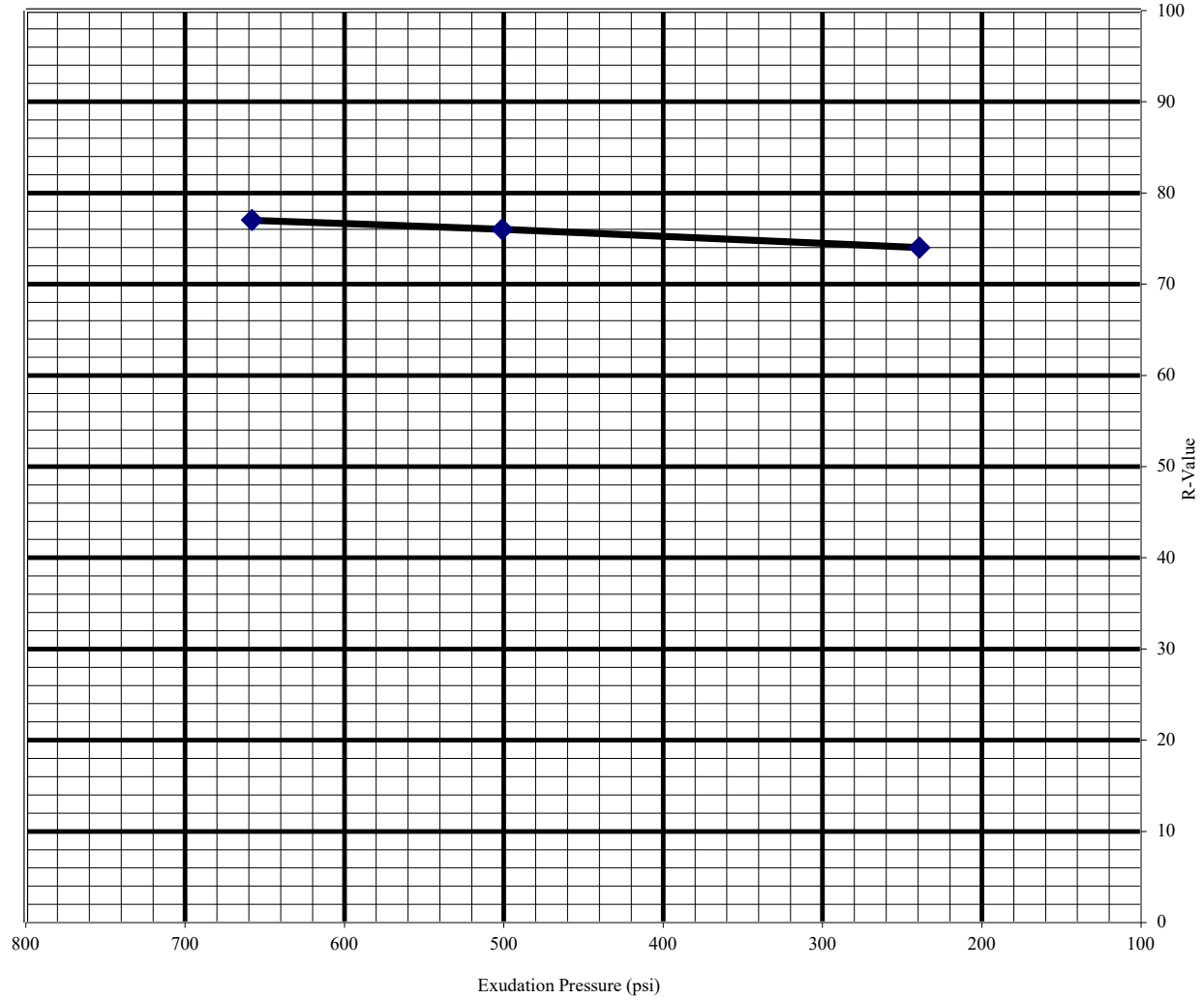


3885 Forest Street
Denver, CO 80207

Vivid Engineering Group
R-Value Test Report

Project Number:	D25-2-1113	**Project Name:**	Proposed Honor Charter School Development
Sample Id:	n/a	**Depth (ft):**	0-4'
Location:	B-10	**Sample Description:**	Silty SAND, light brown
Date Sampled:	2/9/2026	**Date Tested:**	2/16/2026

R-Value at 300 psi exudation pressure = **74**



Test No.	Compact. Press. (psi)	Density (pcf)	Moist. (%)	Horizont. Pressure (psi)'@ 160 psi	Sample Height (in).	Exud. Pressure (psi)	R Value	R Value Correct.
1	350	128.3	7.9	25	2.50	658	77	77
2	350	125.5	8.1	25	2.50	501	76	76
3	350	127.8	9.1	25	2.38	239	75	74

Sampled by: SAM **Tested by:** LV **Checked by:**

Rev. 12-13-2022

Appendix C

Analytical Laboratory Test Results

Corrosion Test Results

Project Name: Proposed Honor Charter School Development
Project No. D25-2-1113

Tested By: NB
Date Sampled: 2/6/2026
Date Tested: 3/3/2026

Sample ID: **B-2 @ 0-4'** Matrix: Soil

Test	Results		Method
Chloride - Water Soluble	0.001	%	AASHTO T291-91/ASTM D4327
pH	8.3	units	AASHTO T289-91/ASTM G51
Redox Potential	100.9	mv	ASTM D1498
Electrical Resistivity	21000	ohm-cm	AASHTO T288-91/ASTM G57
Sulfate - Water Soluble	0.002	%	CDOT CP-L 2103/ASTM D4327
Sulfide	Trace	-	AWWA C105

Sample ID: **B-6 @ 0-4'** Matrix: Soil

Test	Results		Method
Chloride - Water Soluble	0.001	%	AASHTO T291-91/ASTM D4327
pH	7.2	units	AASHTO T289-91/ASTM G51
Redox Potential	114.2	mv	ASTM D1498
Electrical Resistivity	9700	ohm-cm	AASHTO T288-91/ASTM G57
Sulfate - Water Soluble	<0.001	%	CDOT CP-L 2103/ASTM D4327
Sulfide	Trace	-	AWWA C105

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1053 Elkton Drive / Colorado Springs, CO 80907 / 719-896-4356

Appendix D

Site Photographs

SITE CONDITIONS AND DRILLING AT BORING B-2 - LOOKING NORTH

SITE CONDITIONS AND DRILLING AT BORING B-3 - LOOKING EAST

VIVID Engineering Group	Project No: D25-2-1113	**SITE PHOTOS**	**FIGURE**
	Date: 2/12/2026	Proposed Honor Charter School Development	
	Drawn by: SAM	Bent Grass Meadows Drive	**D-1**
	Reviewed by: ND	Peyton, Colorado	

SITE CONDITIONS AND DRILLING AT BORING B-6 - LOOKING NORTH

SITE CONDITIONS AND DRILLING AT BORING B-9 - LOOKING EAST

VIVID Engineering Group	Project No: D25-2-1113	**SITE PHOTOS**	**FIGURE**
	Date: 2/12/2026	Proposed Honor Charter School Development	
	Drawn by: SAM	Bent Grass Meadows Drive	**D-2**
	Reviewed by: ND	Peyton, Colorado	

Appendix E

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.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include 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.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

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