

#### EXCEEDING EXPECTATIONS

### GEOTECHNICAL INVESTIGATION REPORT

#### **FOR**

### BURKESVILLE-CUMBERLAND INDUSTRIAL DEVELOPMENT AUTHORITY

**CUMBERLAND RIVER INDUSTRIAL PARK** 

BURKESVILLE, KENTUCKY



## REPORT OF GEOTECHNICAL EXPLORATION CUMBERLAND RIVER INDUSTRIAL PARK BURKESVILLE, KENTUCKY

#### **TABLE OF CONTENTS**

l.	INTRODUCTION & SCOPE OF SERVICES	2
II.	PROVIDED INFORMATION	2
III.	AREA / SITE INFORMATION	3
IV.	FIELD FINDINGS	6
V.	SURFACE CONDITIONS	6
VI.	LABORATORY TESTING	8
VII.	DISCUSSION – GEOTECHNICAL ISSUES	8
VIII.	CONSTRUCTION APPROACH OPTIONS	11
IX.	EARTHWORK	11
Χ.	SITE DRAINAGE	12
XI.	FOUNDATIONS	13
XII.	SEISMIC SITE CLASSIFICATION	14
XIII.	CONCRETE SLAB ON-GRADE	14
XIV.	BELOW-GRADE WALL / STRUCTURES	14
XV.	PAVEMENT RECOMMENDATIONS	15
ΧVI	RECOMMENDATIONS	17

#### **APPENDICES**

APPENDIX A Boring Layout

APPENDIX B Soil Boring Logs

## REPORT OF GEOTECHNICAL EXPLORATION CUMBERLAND RIVER INDUSTRIAL PARK BURKESVILLE, KENTUCKY

#### I. INTRODUCTION & SCOPE OF SERVICES

As we proposed, we conducted a geotechnical exploration which is summarized in the following report. Our services included a review of the project information provided, conducting a subsurface exploration that utilized soil borings and/or test pit excavations to obtain samples for modeling the soil conditions at the subject site, an analysis of the data and information obtained and providing recommendations for the soil supports portions of the project.

#### II. PROVIDED INFORMATION

We understand that Burkesville-Cumberland Industrial Development Authority (BCIDA) is planning to develop a 93-acre parcel of land in Burkesville, Kentucky known as the Cumberland River Industrial Park. Site development is proposed and includes the construction of utilities, the construction of a new access roads, associated grading, and drainage, building pads, etc. We have been provided or assumed the following information:

- Minimum 10-year pavement life: both asphalt (light and heavy duty) and concrete pavement are considered as options.
- Roadways shall be designed for heavy (industrial) use.
- Proposed buildings may be between 25,000 SF to 300,000 SF.

If any of this information is incorrect, please let us know so we can reassess our scope of services needed and provide best fits recommendations for the project.

#### III. AREA/SITE INFORMATION

The site is located in the Mississippian Plateaus Physiographic Region of Kentucky. This area consists of a limestone plain characterized by thousands of sink holes, sinking streams, streamless valleys, springs, and caverns. This Karst terrain is dominated by a thick layer of Mississippian-age limestone. This limestone is soluble and can easily erode by water moving throughout the ground. Below is a figure of the location of the site with respect to the regional physiography. Published topographic mapping by the United States Geological Survey (USGS) Indicates the elevations in the site vicinity is generally around 600 feet.

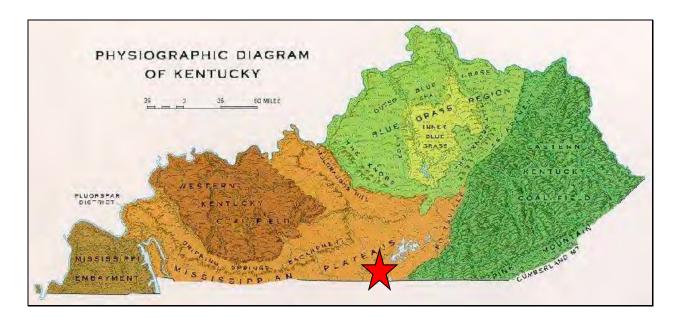


Figure 1: University of Kentucky - Physiographic Map of Kentucky





#### **3A SITE GEOLOGY**

The site is mapped in the western portion of the USGS Geologic Map of the Burkesville Quadrangle, Kentucky (dated 1963). The Quadrangle indicates the project site is located in an area underlain by the St. Louis Limestone of Mississippian deposits.

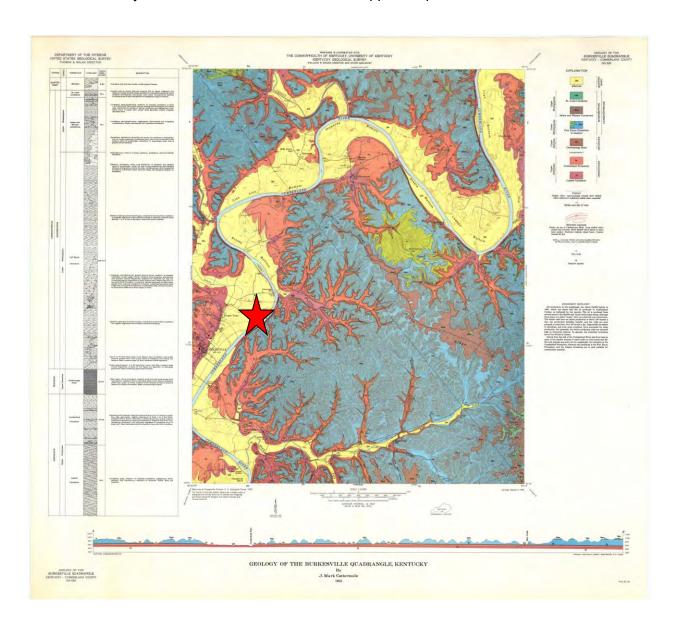


Figure 2: USGS Site Vicinity Map. A site located in the western portion of the Burkesville Quadrangle, Kentucky, 1963. Approximate site location indicated by red marker.





#### **3B PUBLISHED SITE SOIL CONDITIONS**

According to the USDA Soil Survey of Cumberland County (NRCS website), the soils underlying the project site consist of the soil series, Hu, Huntington Silt Loam, HoC2, Holston silt loam, NeD, Nelse fine sandy loam, MnC2, Monongahela silt loam, and Nk, Newark silt loam. Roughly 88% of the area included in the proposed development and has a Hydrologic Soil Group of 'B' and better, while the remaining 12% falls between Soil Group 'C' and 'D'. Soil Groups 'B' have a moderate infiltration rate when thoroughly wet, while Soil Group 'C' has a slow infiltration rate (equates to more runoff).

The following describes the soil series characteristics and limitations with respect to construction.

- The dominant soil has a Hydrologic Soil Group of B.
- Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of
  moderately deep or deep, moderately well drained, or well drained soils that have
  moderately fine texture to moderately coarse texture. These soils have a moderate rate
  of water transmission.

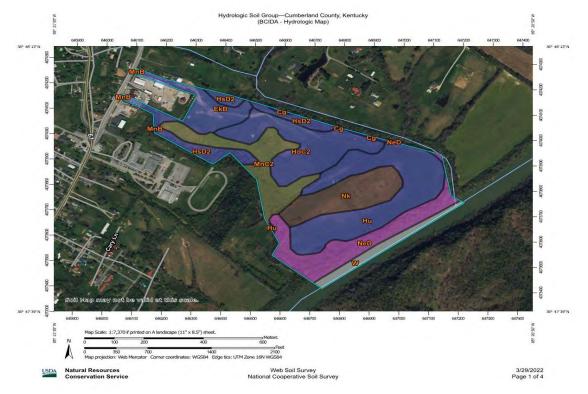






Figure 3: USDA Soil Survey Map of the Project Site.

#### IV. FIELD FINDINGS

#### 4 SITE SURFACE OBSERVATIONS

A site reconnaissance and subsurface borings were conducted by Precision Engineering on March 24<sup>th</sup> and 25<sup>th</sup>, 2022. Precision personnel performed sixteen (16) soil borings, collected samples, and transported them back to Precision's laboratory in Tompkinsville, KY for analysis.

The Project site is located on the west side of Highway 61 (Main Street) in Burkesville, Kentucky.

The site ground cover consisted of well-maintained grassed areas with vegetated ground cover. The site is accessed by a paved driveway.

#### V. SURFACE CONDITIONS

By the soil collected during the onsite geotechnical investigation, the local material is a highly variable mixture of clay, silt, and sand. The site is located adjacent to the Cumberland River and is comprised on Alluvium deposits.

#### **General Methodology used**

The subsurface conditions encountered at each of our soil boring locations are shown on the Boring Logs in the Appendix. It should be noted that our soil borings were sampled according to the procedures presented in the appendix. The Boring logs represent our interpretations of the subsurface conditions based on field logs, visual examination of field samples by an engineer or trained technician, and tests of the samples collected. The letters in parentheses following the soil descriptions are the soil classifications in accordance with the Unified Soil Classification System. It should be noted that the stratification lines shown on the soil boring logs represent approximate transitions between material types. In-situ stratum changes could occur gradually or at slightly different depths. Water levels shown on the boring logs represent the conditions only at the time of our exploration.





#### **5A SOIL CONDITIONS**

We performed sixteen (16) soil borings across the proposed site area (see the Boring Location Map for locations).

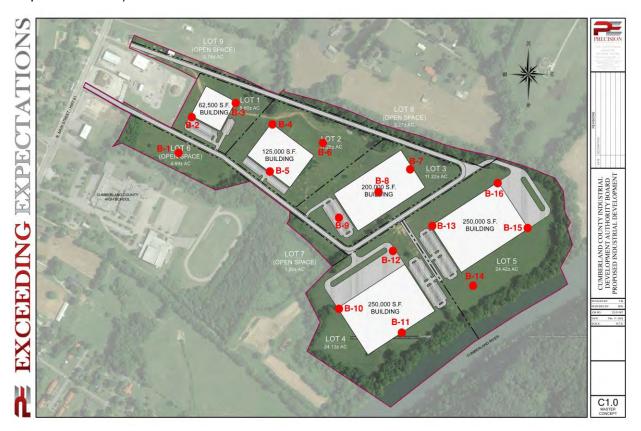


Figure: Boring Plan – Location of bores and test pit locations.

#### **5B GROUNDWATER CONDITIONS**

Groundwater was NOT observed in any of the borings. Typical water conditions on these sites are either very shallow ponding or in pockets just above isolated soil lenses.

In sites underlain by significant amounts of old fill, water conditions that usually affect construction and performance of project consist of trapped/perched water zones which occur in variable areas in the old fill mass. Perched water sources are often not linked to the more continuous relatively stable ground water table that typically occurs at greater depths. Site excavation activities or ground disturbance can expose these features and the resulting seepage can vary greatly.





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#### VI LABORATORY TESTING

Laboratory testing was performed on selected soil samples from our borings. Detailed descriptions of our testing and the results of our testing are included in the Appendix. Test performed at the discretion of our field engineer included:

- Moisture content
- Atterberg limits
- California bearing capacity tests (including standard proctors)

#### GEOTECHNICAL DISCUSSION AND RECOMMENDATION

#### VII DISCUSSION-GEOTECHNICAL ISSUES

Based on our experience with similar projects and the conditions observed during our subsurface exploration, we believe the site can be adapted for the proposed development. The primary geotechnical concerns for this site project are:

- Soft Soil Conditions
- Expansive Soils
- Depth of Rock

The following section of this report discuss each issue. However, recommendations to address the issues are contained in later sections of the report.

#### **7A Soft Soil Conditions**

Soft soil was predominantly detected throughout the site. Most borings were terminated at a depth of 15' where fat clay was collected. Bore B-13 was taken to a deeper depth of 25'. (We attempted to bore B-5 to a depth of 25' but refusal was found at 12.5'). From this effort we determined that sand is encountered between 15' and 20' in depth. Development on any weak soil includes an inherent risk relative to an undisturbed site. The degree of risk is a function of the understanding of the subsurface conditions and the ability of the engineer to correctly model the site. The most significant concerns with this site are differential settlement and variable support of foundations and floor slabs. To remove all risk associated with the weak soil will



require undercutting all unsuitable soils and bringing the site up to the required finished subgrade elevation using compacted structural soil fill.

#### **7B Expansive Soils**

All of our borings indicate the presence of a lean clay. Clay is an expansive soil which means it expands when saturated and contracts when dry. This movement of the soil can create stresses on footings, slabs, etc. which generally lead to cracking or differential settlement. For this reason, all grades proposed throughout the site shall be sloped such that runoff flows away from all foundations. Soil remediation should be anticipated during construction for all areas beneath the proposed building additions and the proposed roadway.

#### 7C Depth of Rock

We feel rock was never encountered during our exploration and is expected to be 50-60' below the existing grade of the site. This depth of rock likely creates an uneconomical approach to foundations which may be required to rest on rock. Other foundation design methods are recommended, such as piers, if such foundation methods are sought. We did meet refusal on bores B-3 and B-5 at depths of 6' and 12.5', respectively, but are confident this was an isolated hardpan (single rock) at each instance.









Figure 4: Boring activity on site; Cumberland River Industrial Park.





#### VIII CONSTRUCTION APPROACH OPTIONS

Because of the overlying material that exists on-site, some remediation approaches may be necessary to remediate risk with respect to settlement.

#### 8A Shallow Inverted "T" Foundation.

This option includes the same minor undercutting depth (only as needed directly beneath the footing), and recompacting the spoils/gravel up to finished subgrade elevations. Over the recompacted building are, a cheaper option is to use either an inverted-T foundation system with a structural slab or a combination heavily reinforced, turned down footing and a structural slab.

#### IX EARTHWORK

Historically, more change orders occur during the earthwork portion of construction than in almost any other part of the project. Further, the site and preparation phase of construction always affects the future performance if project structures and pavements. Add into this, the fact that earthwork is the portion of work most influenced by wet weather and unknown conditions and timewise, this section of the report could be the most important to prevent and minimize delays and costs during construction and for the life of the project.

Please review the concerns listed in Section VII prior to reading the following recommendations. If problems occur that the recommendations do not address or do not adequately remedy, please contact Precision Engineering as soon as possible.

#### **GENERAL EARTHWORK**

If filling activities are needed, our laboratory tests indicate that the on-site soils are suitable for use as structural fill material provided the material is placed and compacted in accordance with the following guidelines and specifications.

After the subgrade has been approved to receive new fill, the fill may commence with the following procedures and guidelines recommended:



- Place fill in maximum 8-inch-thick loose lifts.
- Fill lifts should be compacted to at least 95 percent of the soil's maximum dry density and maintain the moisture content of compacted fill within minus 3 to optimum moisture content.
- Maximum particle size of the soil should be limited to 8 inches in any dimension with no large concentrations of large fragments.
- Density testing should be performed to verify percent compaction and moisture content
  of the material as it is being placed and compacted. Please note that because of the
  rocky nature of the soils, density testing may not be accurate. Thus, a Precision
  engineer should be on site to provide recommendations utilizing proof rolling.
- Observation of fill stability is also critical, so it is recommended to observe the operation
  of the filling equipment traversing over the new fill to document movement.
- Soils should not be over compacted and construction traffic should be kept to minimum to assure compaction is achieved and that the soil is not allowed to break down.
- Retain a representative of Precision to observe and document fill placement and compaction operations.

#### **9A GENERAL NOTES**

 If any placement problems occur, Precision should be retained to provide additional recommendations, as needed.

#### X SITE DRAINAGE

During construction, water must not be allowed to pond in excavations or undercutting will likely be required. During the life of the project, slope the subgrade and other site features so that the surface water flows away from the site structures.

Diversion ditches should be used to keep surface water from accumulating at or near site structures. Drainage from pavement areas must be diverted into storm sewers and not be allowed to sheet flow to adjacent pavement edges. Note that poor site drainage could contribute to significant damage to the building and pavement by inducing settlement. Proper site drainage is essential to protect the project elements.





Wet conditions are possible in excavations during on-site construction. Daylighting wet zones for drainage for the use of French/rock drains may be prudent or cost-effective methods of dewatering wet areas of the site. Pumping with long-flexible hoses day-lighted hundreds of feet away or other types of pumping could also be utilized if necessary. Precision should be retained to observe all excavations in locations of springs or other water-bearing features.

#### XI FOUNDATIONS

Based on the possible construction scenarios, we feel there are a couple of construction methods suitable and economical for this project.

#### 11A INVERTED "T" FOUNDATION

The use of inverted-T foundations and floating reinforced floor slabs is likely the best method of construction for this particular site. The inverted-T slab foundation consists of a reinforced concrete foundation and reinforced concrete stem wall. This foundation system provides more flexural strength when compared to a conventional concrete foundation system. This additional flexural strength can help lessen your risk of differential settlement along the foundations.

Note: the use of floating floor slabs enables the floor slabs not to be tied to the foundations. An inverted "T" foundation or turned down foundation may be sized using a maximum allowable bearing pressure of 1,500 pounds per square foot.

Additional design considerations for project foundations are outlined as follows:

- The use of turned down slabs or thickened slab sections to support load bearing walls is discouraged. If a differential settlement occurs, cracking could occur in the transition area.
- All exterior footing bottoms should bear at least 30 inches below finished exterior.
- Grading (KBC Table 1805.2.1 for Perry County).
- Interior footings (those not exposed to freezing) may be placed at nominal depths or 12 inches deep, whichever is deeper.
- Include control joints at suitable intervals to help accommodate differential foundation movements.





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#### XII SEISMIC SITE CLASSIFICATION

The latest edition of the Kentucky Building Code was reviewed to determine the site seismic classification. Based on our review of the geologic data, our experience and subsurface conditions encountered, we recommend a seismic **SITE CLASS "D"** for design purposes.

A detailed geotechnical earthquake engineering analysis was not performed since it was beyond the scope of our authorized work. However, based on a review of published literature and our experience with similar subsurface conditions, we believe the potential for slope instability, liquefaction, and surface rupture due to faulting or lateral spreading resulting from earthquake motions is low. However, this potential could be elevated during wet periods of the year unless adequate drainage is provided.

#### XIII CONCRETE SLAB-ON-GRADE

Free Floating Reinforced Floor Slab – For any of the foundation options described above (excluding waffle slab foundations), free floating floor slabs should be considered. The floor slab should be independent of the foundations to allow for the movement between the foundations and the floor slab. At least 6 inches (compacted thickness) of stone should be used for slab stone base. The slab should be reinforced to resist bending in lieu of simply using welded wire mesh.

Other measures to reduce the risk of differential settlement and its effects on the floor slab include:

- The use of Geogrid TX-5 beneath the base stone;
- Thicker base stone beneath the floor slab;
- Thicker than normal concrete floor slab;
- Higher flexural strength concrete for the floor slab;

#### XIV BELOW GRADE WALL/STRUCTURES

Some pits or loading docks may be planned as part of this project. The most prevalent issues regarding these features deal with shallow water/wet conditions at or near the excavation depths. If retaining walls or other below grade structures are utilized on-site, they will be



subjected to lateral earth pressures due to the backfill behind them. Below-grade walls should be designed to provide sufficient drainage at the rear of the walls to relieve hydrostatic pressure. Below-grade structures will likely require additional dewatering measures as well as larger than normal cutbacks on the excavation and construction.

Also, since these below grade walls will obviously require suitable foundation bearing support, adequate consideration of loading and settlement tolerances should be made by the design team and Precision should be provided with in depth details of the locations of pits and foundation criteria of each location.

#### XV PAVEMENT RECOMMENDATIONS

We understand the proposed facility could have moderate traffic loading for its operational use. Adequate soil/subgrade support is critical for any pavement area. Please refer to the recommendations contained in the earthwork section of this report for the subgrade preparation. Prior to stone base placement, we recommended an additional heavy proof roll of the subgrade should be performed to verify subgrade conditions. Recommendations for undercutting/repair of the subgrade can be made at that time by a Precision geotechnical engineer.

Adequate drainage and slope of the pavement subgrade and pavement section should be provided to promote adequate drainage. Edges of the pavement should be provided a means of water outlet by extending the aggregate base course through to side ditches or providing drainpipes and weep holes at catch basin walls.

The following pavement recommendations are based on our experience with similar materials and loading conditions. The recommendations assume that the soil subgrade will be compacted according to the recommendations contained in this report.

#### **15A ASPHALT PAVEMENT**

We performed two California Bearing Ratio tests and measured values 6.6 and 6.8 percent. Thus, a value of 6 percent was used for this analysis. We recommend that the light duty pavement section be utilized in all new areas of pavement restricted mostly to employee parking stalls and that heavy duty pavement section be used in all other areas.



Thus, generalized pavement designs for both NEW light-duty, NEW heavy-duty, and existing roadway pavement are given below based on laboratory determined soil classifications and CBR tests.

Please note that DGA shall be placed in maximum lifts of 6 inches then compacted for any new pavement areas.

(NEW) Light-Duty Asphalt Pavement Section										
Pavement Section Thickness (in inches)										
Asphalt Surface Course	1.5									
Asphalt Binder Course	2.5									
Dense-Graded Aggregate (DGA)	8.0									

(NEW) Heavy-Duty Asphalt Pavement Section										
Pavement Section	Thickness (in inches)									
Asphalt Surface Course	1.5									
Asphalt Binder Course	3.5									
Dense-Graded Aggregate (DGA)	10.0									

The dense graded aggregate should be placed and compacted in accordance with Kentucky department of highways standard specifications, latest edition. The asphalt should be mixed, placed, and compacted in accordance with Kentucky department of highways standard specifications, latest edition. It is common practice to place the base stone and binder course prior to completion of construction without placing the surface course. It should be noted that repeated passes of heavily loaded construction traffic on the binder course will likely decrease the service life on your pavement.

#### **15B RIGID PAVEMENT (CONCRETE)**

Reinforced concrete pavement is proposed to be used in areas where the pavement is subjected to high stresses such as entrances/exits, dumpster pads, and other areas of the project site.





We recommend a minimum DGA thickness of 6 inches beneath new concrete pavement and a minimum concrete thickness of 6 inches for new concrete pavement areas. We recommend a compressive strength of 4,000 PSI concrete be used. If this assumed compressive strength concrete is not used for this project, Precision should be contacted, and new rigid pavement recommendations may be necessary. Obviously, thicker concrete pavement sections can be used in select areas where heavy wheel loads are expected. For dumpster pads and reuse container pads, the concrete pads should be large enough to accommodate both the refuse container and all axles of the truck.

#### XVI RECOMMENDATIONS

We recommend that this report be provided to the various design team members, the contractors, and the project owner. Potential contractors should be informed of this report in the instruction to bidders' sections of the bid documents. A geotechnical exploration, such as the one we performed, uses widely spaced borings to attempt to model the subsurface conditions at the site. Because no exploration contains complete data or a complete model, there is always a possibility that conditions between borings will be different from those at specific boring locations. Thus, it is possible that some subsurface conditions will not be anticipated by the project team or contractor. If this report is included or referenced in the actual contract documents, it shall be explicitly understood that this report is for informational purposes only. Precision shall not be responsible for the opinions of, or conclusions drawn by, others.

It has been our experience that the construction process often disturbs soil conditions and this process, no matter how much experience we use to anticipate construction methodology, is not completely predictable. Therefore, changes or modifications to our recommendations are likely needed due to these possible variances. Experienced Precision geotechnical personnel should be used unanticipated conditions and inadequate procedures should be reported to the design team along with timely recommendations to solve the problems created. We recommend that the owner retain Precision to provide this service based upon our familiarity with the project, the subsurface conditions, and the intent of our recommendations.

This report is based on the provided project information, the subsurface conditions observed at the time of the report, and our experience with similar conditions. As such, it cannot be applied to other project sites, types, or combinations thereof. If the project information section in this





report contains incorrect information or if additional information is available, you should convey the correct or additional information to us and retain us to review our recommendations. Our recommendations may then require modification. No section or portion of the report (including Appendix information) can be used as a stand-alone article to make distinct changes or assumptions. The entire report and Appendix should be used together as one resource.

We wish to remind you that our exploration services include storing the soil and/or rock core samples collected and making them available for inspection for 30 days. The soil and rock core samples are then discarded unless you request otherwise. Rock cores are kept typically until the foundation installation is complete, and then discarded. Please inform us if you wish to keep any of the obtained samples.







#### **APPENDIX**

Boring Location Map Soil Boring Logs



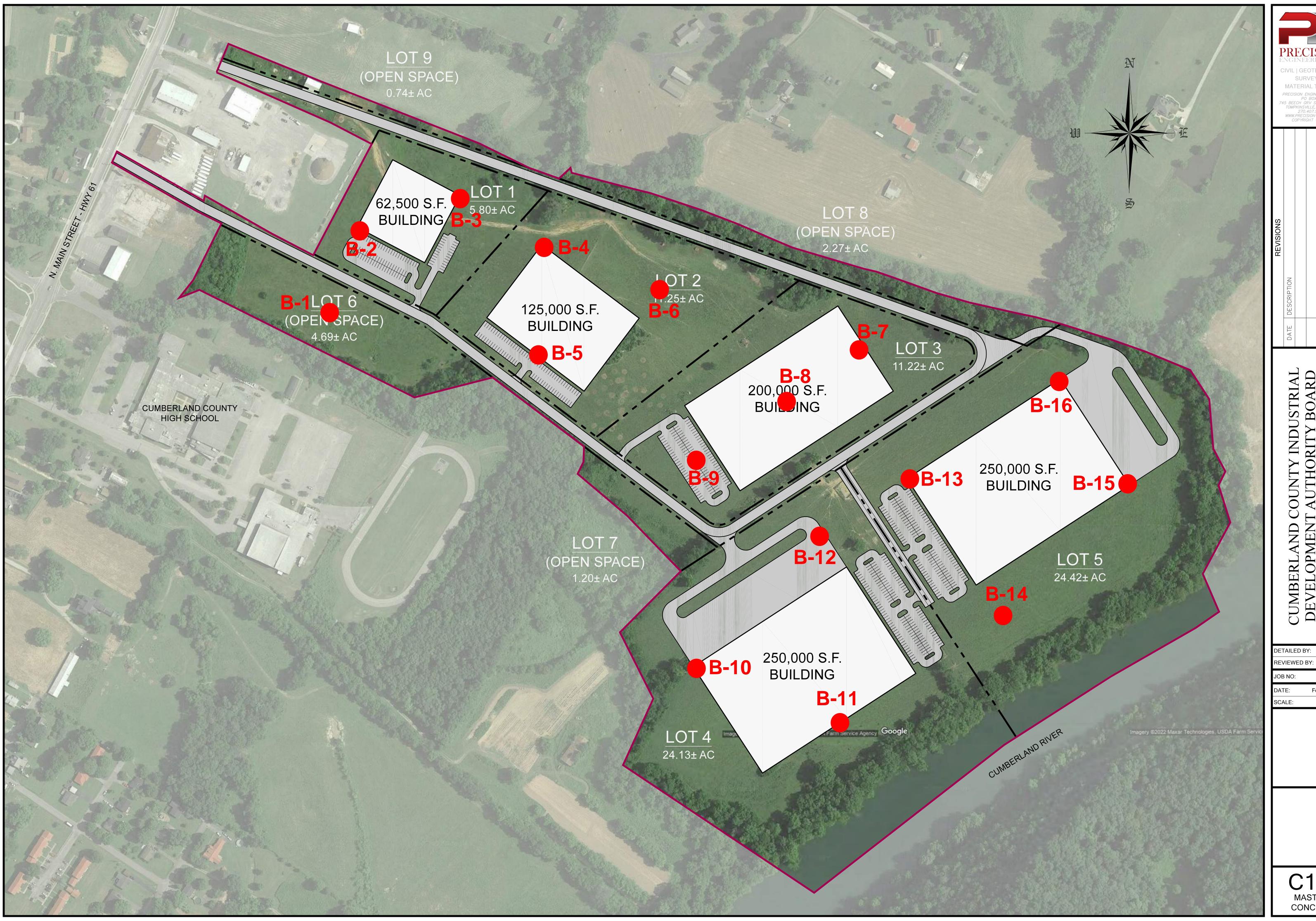


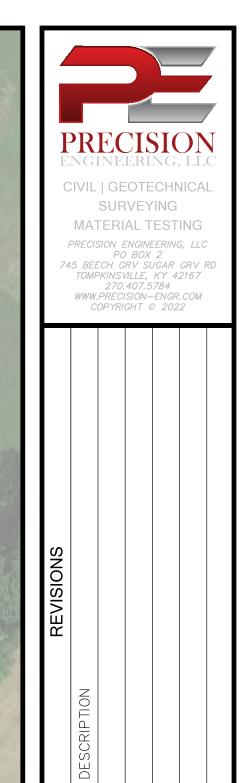
#### **APPENDIX 'A'**



**Boring Location Map** 

# PRECISION ENGINEERING, LLC





22-01-007

C1.0

MASTER
CONCEPT

#### **APPENDIX 'B'**

**Soil Boring Logs** 



# PRECISION ENGINEERING, LLC

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Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

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Standard Penetration Slit Spoon Sampler (SPT)

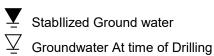
California Sampler

Shelby Tube

E CPP Sampler

Bulk/ Bag Sample

Boring Log: Sheet 2 of 2



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						N/A	587.34			15'	
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Depth (feet) Sample Type Sample Number Blow Counts (blows/foot) Graphic Log			o.	Soil	Group Name: modifier color	r, moisture, density/consistency, g	rain	<del>p</del> c	nte	Te	
(fe	Ĺ	<u> </u>	on /fo	70		, other descriptors	,,		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	ပို	ıal
ţ	lple	<u>e</u>	S S	phi					<u>  ;</u>	ire (%)	ior
Dek	an	ш	[ 6 일 일	jra			r, hardness/degree of concentration	n,	Plasticity Index	istı	Additional Test
_	တ	Sa			bed	ding and joint characteristics,	solutions, void conditions.		E	Moisture Content (%)	ΑC
				000000		Topsoil (3 inches)				_	
				3 3 3 3 3					1		
		4	2		1	CM Mall areded cond	a arrayally sand Minimal			20.6	
		1	3				s, gravelly sand. Minimal			20.6	
			3			fines.					
			4								
					1						
		2	5			SW - Well graded sand	s, gravelly sand. Minimal		21	27.8	
			5			fines.	-, g ·,				
			9								
5 —			9								
_											
		3	7		1	_	s, gravelly sand. Minimal			26.4	
			8			fines.					
			9								
_											
		1	6			C/M /Mall areaded a - :	o grovelly cond Minima			10.7	
_		4	6			fines.	s, gravelly sand. Minimal			19.7	
						IIIICS.					
10 —	10 📗 📗 9 🕃 🕃										
			l	(					1		



Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Project: Project Number: Client:	Boring No.
BCIDA 22-01-007 BCIDA	
Address  Burkesville, KY  Drilling Contract M&W Drill	
Logged By: Started: Bit Type:	Diameter:
Steve Harris, PE 3/25/2022 Hollow Stem	
Drill Crew: Crew #1 Completed: Hammer Type:	
USA Ticket Number: Backfilled: Hammer Weigh	
N/A 3/25/2022 140 lbs	
Groundwater Depth: Elevation: N/A 587.34	Total Depth of Boring:
l ithology	
	de;
Soil Group Name: modifier, color, moisture, density/co size, other descriptors  Soil Group Name: modifier, color, moisture, density/co size, other descriptors  Rock Description: modifier, color, hardness/degree of bodding and joint characteristics, solutions, void conditions.	blasticity Index concentration, ons.
	city (%)
Rock Description: modifier, color, hardness/degree of	concentration, str.   str.   concentration,   str.   concentration,   conc
Obty (100 Sample 1 Apple 1 Apple 1 Apple 1 Apple 1 Apple 1 Apple 2 App	Plasticity Index Moisture Content (%) Additional Test
3333	
SW - Well graded sands, gravelly sand.	Minimal 19.6
12 [3333]	
15 — 12 [333]	
Boring Terminated @ 15.0'	
20 —	



Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Boring Log: Sheet 2 of 2





Groundwater At time of Drilling

Project					Pro	ject Number:	Client:				
		3CIE	PΑ			22-01-007	BCIDA			B-3	
Addres	S		_				Drilling Contractor:	Drill	Rig T		
			Βι	ırkesvil	le, ł		M&W Drilling	<u> </u>		robe 66	610
Logged	-		i. D.			Started:	Bit Type:	lDiar	neter:	۔ ۔ ماہ ما	
Drill Cr		на	ris, PE		ø	3/25/2022 Completed:	Hollow Stem Auger Hammer Type:	2 inches			
		rew	#1		Date	3/25/2022	паншег туре.				
USA Ti					-	Backfilled:	Hammer Weight:	Ham	nmer D	ron:	
00/11	Onot	N/A				3/25/2022	140 lbs			inches	
		,,,	<u> </u>		Gro	oundwater Depth:	Elevation:	Tota		h of Bo	
						N/A	599.57		•	6.5'	
		)r			Lit	hology			×	nt	;;
et) hpe hpe ot) ot)			og	Sail	Group Name, modifier, color	r, moisture, density/consistency, g	roin	ge	nte	Les	
(fec	Depth (feet) Sample Type Imple Numb Slow Counts (blows/foot) Graphic Log			٦		, other descriptors	i, moisture, density/consistency, g	alli	l n	CO (	a
Ę.	Sample Type Sample Number Blow Counts (blows/foot) Graphic Log					, I			Plasticity Index	re (%)	Additional Test
ер					Roc	k Description: modifier, colo	r, hardness/degree of concentration	n,	sti	stu	diti
	San San G					ding and joint characteristics,			Pla	Moisture Content (%)	Ad
	000000					Tanaail (2 inahaa)				_	
					-	Topsoil (3 inches)					
	_										
		1	2				s, gravelly sand. Minimal			24.2	
			1			fines.					
			3								
	1										
		0	0			014/ 14/ 11			00	04.0	
		2	3			_	s, gravelly sand. Minimal		23	21.0	
			3			fines.					
5 —			4								
٦											
		3	4			SW - Well graded sand	s, gravelly sand. Minimal			22.4	
		J	6		1	fines.	s, gravelly salid. Willillia			22.7	
_	1										
			50/4	,,,,,		5 (					
					1	Refus	sal @ 6.5'				
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	$\dashv$ $\mid$ $\mid$										
10 —	10 —										
	-										
					1						
				<u>/////</u>							



Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Boring Log: Sheet 1 of 2



Project					Pro	oject Number:	Client: Boring N						
		BCIE	)A			22-01-007	BCIDA			B-4			
Addres	S		D.	ırkoovil	ا ما	<b>«</b>	Drilling Contractor:	Drill	Rig Ty	<b>ype:</b> robe 66	310		
Logged	l Bv.	1	DU	ırkesvil	ie, r	Started:	M&W Drilling Bit Type:	Dian	neter:	robe of	510		
			rris, PE			3/25/2022	Hollow Stem Auger	Diai		inches			
Drill Cr		, i iui	110, 1 L		ē	Completed:	Hammer Type:			11101100			
		crew	#1		Date	3/25/2022							
USA Tid						Backfilled:	Hammer Weight:	Ham	nmer D	rop:			
		N/A	١			3/25/2022 140 lbs				30 inches			
					Gro					otal Depth of Boring:			
			ı	1		N/A	583.47		15'				
_	o.	er	<b>(0</b> -	_	Litl	hology			×	ent	st		
et)	yp(	mb	ints ot)	ပို	Soil	Group Name: modifier, color	r, moisture, density/consistency, g	rain	l ğ	nt	Te		
Depth (feet)	Sample Type	Sample Number	Blow Counts (blows/foot)	Graphic Log		, other descriptors			Plasticity Index	Moisture Content (%)	Additional Test		
oth	ldι	<u>e</u>	» (	ph					ici	nre (%)	tio		
Del	àan	ш	3lov	Gra			r, hardness/degree of concentration	n,	ast	istı	gg		
	(0)	Sa			bed	ding and joint characteristics,	solutions, void conditions.		ᇫ	Mo	Ă		
						Topsoil (3 inches)							
						1 (- /							
_		1	2			CM Mall graded cand	a gravelly aand Minimal			21.0			
		'				fines.	s, gravelly sand. Minimal			21.0			
l —			2			IIIIes.							
			2										
					1								
					}								
		2	5			SW - Well graded sand	s, gravelly sand. Minimal		24	20.7			
_		_	5			fines.	o, graveny canal minima						
			7										
5 —			1										
<u> </u>													
		3	6			SW - Well graded sand	s, gravelly sand. Minimal			19.5			
			8		1	fines.							
			10		}								
			.										
_													
			_										
		4	4			_	s, gravelly sand. Minimal			19.2			
						fines.							
10	10 — 6												
10 —													
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		Щ,		****									



Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Project					Pro	ject Number:	Client:	Boring No.				
		BCIE	)A			22-01-007	BCIDA			B-4		
Addres	S		Rı	ırkesvil	le k	Υ	Drilling Contractor: M&W Drilling	Drill	Rig Ty	<b>ype:</b> robe 66	<sub>S10</sub>	
Logged	Bv:			IIICOVII	lC, 1	Started:	Bit Type:	Dian	neter:	1000 00	710	
			ris, PE			3/25/2022	Hollow Stem Auger			inches		
Drill Cr	ew:				Date	Completed:	Hammer Type:					
		rew			õ	3/25/2022						
USA Ti	cket					Backfilled:	Hammer Weight:	Ham	mer D	-		
		N/A	1		C*	3/25/2022 140 lbs  Groundwater Depth: Elevation: To			30 inches			
					Groundwater Depth: Elevation: Total 583.47				otal Depth of Boring: 15'			
		ŗ.			Litl	hology		I	×		t	
<b>£</b>	pe	nbe	nts ot)	og	e a i i	oil Group Name: modifier, color, moisture, density/consistency, grain				nte	Les	
(fec	Ţ	Inn	on V	C L		, other descriptors	, moisture, density/consistency, gi	am	l r	Col	_ _ _	
ŧ	ple	le N	v C	ohi					city	re (%)	ion	
Depth (feet)	Sample Type	Sample Number	Blow Counts (blows/foot)	Graphic Log	Roc	k Description: modifier, color	r, hardness/degree of concentratio	n,	Plasticity Index	stu	Additional Test	
-	တ	Sa		0	bed	ding and joint characteristics,	solutions, void conditions.		<u> </u>	Moisture Content (%)	ΨC	
						SW - Well graded sand			21.7			
		5	3			fines.						
			4									
			5									
15 —	-			/////		Borina Tern	ninated @ 15.0'					
						Borning Fornimiatod @ 10.0						
_												
_												
_												
_												
20 —												



Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Boring Log: Sheet 2 of 2





Groundwater At time of Drilling

Project									Boring No.			
		BCIE	)A			22-01-007	BCIDA			B-5		
Addres	S		ъ.	الديدة ماس	י בו	<b>/</b> /	Drilling Contractor:	Drill	Rig Ty			
Logge	I D	1	Bu	ırkesvil	ie, r	Started:	M&W Drilling Bit Type:	Dia		robe 66	010	
Logged			rris, PE			3/25/2022	Hollow Stem Auger	an וטן	neter:	inches		
Drill Cr		riai	пъ, г с		ø	Completed:	Hammer Type:			IIICIICS		
		crew	#1		Date	3/25/2022	Traininer Type.					
USA Tid					_	Backfilled:	Hammer Weight:	Ham	mer D	rop:		
		N/A				3/25/2022 140 lbs				30 inches		
					Gro	Groundwater Depth: Elevation: Total				otal Depth of Boring:		
						N/A	563.97		12.5'			
	4	er		_	Litl	hology			×	ent	st	
et)	/pe	qμ	nts ot)	o.	Soil	Group Name: modifier color	r, moisture, density/consistency, g	rain	<del> </del>	nte	Ä	
Depth (feet)	Sample Type	Sample Number	Blow Counts (blows/foot)	Graphic Log		, other descriptors	,		Plasticity Index	ပိ	Additional Test	
ŧ	lple	<u> </u>	v C	phi				icit	ire C (%)	ior		
Эер	am	ш	lo,	ra			r, hardness/degree of concentration	n,	asti	stı	ldit	
	S	Sa			bed	ding and joint characteristics,	solutions, void conditions.		<u> </u>	Moisture Content (%)	Αc	
						Topsoil (3 inches)				_		
						Topodii (o ilionod)						
_		,	_			014/ 14/ 11				04.0		
		1	2		}	•	s, gravelly sand. Minimal			21.3		
			3			fines.						
			4									
		2	8		}	SW Well graded sand	s, gravelly sand. Minimal		22	18.3		
		_				fines.	s, gravelly salid. Willillial		22	10.5		
			8			ililos.						
5 —			9									
		3	5			SW - Well graded sand	s, gravelly sand. Minimal			17.1		
			7			fines.	,					
-			8									
			0		1							
_												
		4	3			•	s, gravelly sand. Minimal			19.2		
			2			fines.						
<sub>10</sub>												
10 —												
						Defin	ol @ 12 5'					
		L,				Refus	al @ 12.5'					



Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Project					Pro	ject Number:	Client: Boring No.					
		BCIE	)A			22-01-007	BCIDA			B-6		
Addres	S		_			Λ/	Drilling Contractor:	Dril	I Rig T			
	. D		Bu	ırkesvil	le, ł		M&W Drilling	D:		robe 66	510	
Logged	-		rio DE			Started: 3/25/2022	Bit Type: Hollow Stem Auger	Diai	meter:	inches		
Drill Cr		: па	ris, PE		О	Completed:	Hammer Type:			inches		
		rew	#1		Date	3/25/2022	паншен туре.					
USA Tic					-	Backfilled:	Hammer Weight:	Han	nmer D	ron:		
	JICE	N/A				3/25/2022	140 lbs			inches		
		,,	<u> </u>		Gro	oundwater Depth:	Elevation:	Tota	otal Depth of Boring:			
						N/A	576.31		•	15'		
		ř			Lit	hology			×	nt	;;	
Depth (feet) Sample Type Sample Number Blow Counts (blows/foot) Graphic Log			og	e a ii	Croup Name, modifier colo	r maiatura danaitu/aanaiatanau g	rain	de	nte	Les		
fec	Depth (feet) Sample Type ample Numb Blow Counts (blows/foot) Graphic Log			Ä		, other descriptors	r, moisture, density/consistency, g	rain	<u>=</u>	ان دو	al	
딒	ple	e <b>2</b>	S/	hic		,			Cit)	re (%)	Additional Test	
eb	m l	ldu	% o	rap	Roc	k Description: modifier, colo	r, hardness/degree of concentration	n.	stic	stu	diti	
	Š	San	四号	Ð		ding and joint characteristics,		,	Plasticity Index	Moisture Content (%)	Ad	
		0,		404049494		T "(0: 1 )				2	,	
						Topsoil (3 inches)			4			
		1	2			SW - Well graded sand	s, gravelly sand. Minimal			22.5		
			2			fines.						
			3									
			3									
		2	4			SW - Well graded sand	s, gravelly sand. Minimal		22	23.2		
			7			fines.						
			8									
5 —			Ŭ									
-												
		3	5			_	s, gravelly sand. Minimal			23.6		
			8			fines.						
			10									
-												
		_	_			014/ 14/ 11				04.0		
		4	7				s, gravelly sand. Minimal			24.6		
						fines.						
40	10   12											
10 —	10 —     '* \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\											
_												



Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Project:					Project Number:		Client: Boring No.					
BCIDA					22-01-007		BCIDA	B-6				
Address						Λ/	Drilling Contractor:	Drill Rig Type:				
Burkesvi							M&W Drilling	Geoprobe 6610		510		
Logged By:								iameter: 2 inches				
Steve Harris, PE  Drill Crew:					a	3/25/2022 Completed:	Hollow Stem Auger Hammer Type:			inches		
Crew #1					Date	3/25/2022	Trailiner Type.					
USA Tid					-	Backfilled:	Hammer Weight:	Han	nmer D	rop:		
		N/A				3/25/2022	140 lbs			inches		
					Gro	oundwater Depth:	Elevation:	Total Depth of Boring:			oring:	
						N/A	576.31		15'			
		er			Litl	hology			×	ınt	st	
et)	/pe	ηp	nts ot)	o.	go go	Group Name: modifier color	r moisture density/consistency a	rain	ခို	nte	– e	
(fe	Ţ	In	Blow Counts (blows/foot)	C L		I Group Name: modifier, color, moisture, density/consistency, grain , other descriptors			=	ပ္သ	la	
£	eldi	le l		phi					<u>ci</u>	ire C (%)	ior	
Depth (feet)	Sample Type	Sample Number	lo,	Graphic Log			r, hardness/degree of concentration	n,	Plasticity Index	Moisture Content (%)	Additional Test	
_	လ	Sa		0	bed	ding and joint characteristics,	solutions, void conditions.		Αc			
										_		
					SW - Well graded sands, gravelly sand. Minimal fines.					22.2		
										22.2		
					111165.							
			7									
15 —	9 <u>  }}}</u>											
13	'`		Boring Terminated @ 15.0'									
	- $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $											
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20	20 —											
- $+$ $+$ $+$ $ -$												
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Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Boring Log: Sheet 2 of 2

▼ Stabllized Ground water



Groundwater At time of Drilling

Project:						ject Number:			Boring No.				
BCIDA					22-01-007		BCIDA	B-7					
Address						<b>/</b> /	Drilling Contractor:	Drill Rig Type:			.40		
Burkesvi							M&W Drilling	Geoprobe 6610  Diameter:			510		
Logged By:						Started: Bit Type: Diame 3/25/2022 Hollow Stem Auger				eter: 2 inches			
Steve Harris, PE  Drill Crew:						Completed: Hammer Type:					2 11101163		
Crew #1					Date	3/25/2022	Traininer Type:						
USA T					-	Backfilled:	Hammer Weight:	Han	nmer D	rop:			
		N/A				3/25/2022	140 lbs			inches			
					Gro	oundwater Depth:	Elevation:	Tota		h of Bo			
						N/A	578.40		•	15'			
		e.			Litl	hology			×	ınt	ĭt		
et)	_be	qu	nts ot)	og	اندی	Group Name: modifier color	r, moisture, density/consistency, g	rain	g	nte	Tes		
(fe	-	Į,	on J	C L		, other descriptors	, moisture, density/consistency, g	Ialli	=	S C			
Depth (feet)	Sample Type	le N	/ C	Graphic Log		, I		Plasticity Index loisture Conten (%) Additional Test			ion		
də	E	Sample Number	Blow Counts (blows/foot)	rap	Roc	ck Description: modifier, color, hardness/degree of concentration,			sti	stu	Additional Test		
	ŝ	Sar	B =	9		edding and joint characteristics, solutions, void conditions.				Moisture Content (%)	Ad		
3000000						T!! (0 :)				2			
1   <del>33333</del>						Topsoil (3 inches)			4				
1 3													
				g, g, g									
4 (2)						fines.							
			Ŭ										
_	-												
		_	_							00.0			
_		2	5			_	s, gravelly sand. Minimal		25	23.3			
			5			fines.							
_			7										
5 —													
_		2	2			C/M /Mall areaded a - :	o grovelly cond Minima			23.9			
		3	3			_	s, gravelly sand. Minimal			23.9			
_	4		6			fines.							
			8										
_													
		4	5			SW - Well graded sand	s, gravelly sand. Minimal			20.3			
_	T	T				fines.	o, gravery saria. Willinia			20.0			
			6										
10 —	-		7										



Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Project:					Project Number:		Client:	Boring No.				
BCIDA					22-01-007		BCIDA	B-7				
Addres	S		Вп	ırkesvil	le. k	Υ	Drilling Contractor: M&W Drilling	Drill Rig Type: Geoprobe 6610		10		
Logged By:					, .	Started:	Bit Type:	Dian	Diameter:			
Steve Harris, PE						3/25/2022	Hollow Stem Auger	2 inches				
Drill Crew:					Date	Completed: Hammer Type:						
Crew #1 USA Ticket Number:					۵	3/25/2022	Hamana an Walanka	11				
USA III	cket	Nun N/A				Backfilled: Hammer Weight: Hamm			imer Drop: 30 inches			
		111/1	1		Gro	oundwater Depth:	Elevation:	Tota	tal Depth of Boring:			
						N/A	578.40		Борс	15'		
	_	er			Litl	hology			×	ınt	),	
et)	/be	μ	nts ot)		Soil	Group Name: modifier color	r, moisture, density/consistency, gr	rain	Jde	nte	ě	
Depth (feet)	Sample Type	Sample Number	on ;/fo	ic L		, other descriptors	, molecule, denoity/consistency, grain		Plasticity Index	Moisture Content (%) Additional Test		
oth	βldι	le	Blow Counts (blows/foot)	Soil Group Name: m size, other descriptors  Rock Description: m				icit	ure C (%)	tior		
Del	San	m	slo (blc	Gra			r, hardness/degree of concentratio	n,	ast	istı	ddi	
	"	S			bed	pedding and joint characteristics, solutions, void conditions.				Mo	Ā	
						SW - Well graded sands, gravelly sand. Minimal				21.2		
		5	5 4 3333			fines.						
			5									
			6									
15 —					Boring Terminated @ 15.0'							
				Borning Forniniation (g) 10.0								
	-											
	-											
20 —												



Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Boring Log: Sheet 2 of 2



▼ Stabllized Ground water



Groundwater At time of Drilling

Project:						ject Number:			Boring No.				
BCIDA					22-01-007		BCIDA	B-8					
Address						<b>/</b> /	Drilling Contractor:	Drill Rig Type:			.40		
Burkesvi Logged By:						Started:	M&W Drilling Bit Type:	Geoprobe 6610		510			
Steve Harris, PE						3/25/2022	Hollow Stem Auger	Diameter: 2 inches					
Drill Crew:						Completed: Hammer Type:					inches		
Crew #1					Date	3/25/2022	Trainine Type.						
USA Ti					-	Backfilled:	Hammer Weight:	Han	nmer D	rop:			
		N/A				3/25/2022	140 lbs			inches			
					Gro	oundwater Depth:	Elevation:	Total Depth of Boring:					
						N/A	581.69			15'			
		er			Lit	hology			×	ınt	st		
et)	/pe	qu	nts ot)	og	Soil	Group Name: modifier color	r, moisture, density/consistency, g	rain	ge	nte	Tes		
(fe	7	Ĭ	lo o	ر ا د ا		, other descriptors	i, moisture, density/consistency, g	Ialli	=	ပိ	a		
Depth (feet)	Sample Type	Sample Number	V C	Soil Group size, other of					Plasticity Index	re (%)	ion		
de	am		Blow Counts (blows/foot)	īg	Roc	k Description: modifier, color, hardness/degree of concentration,		sti	stu	Additional Test			
	Ŝ	Sar	m =	ש	bed	dding and joint characteristics, solutions, void conditions.			Pla	Moisture Content (%)	Ad		
				00000000		Topsoil (3 inches)				_			
					-	ropsoli (3 inches)			_				
<u>-   </u>													
1 3				SW - Well graded sands, gravelly sand. Minimal 20.2									
3 (\$\$\$\$\$						fines.							
			4										
	-												
						<b></b>				00.0			
		2	4			_	ls, gravelly sand. Minimal		23	20.8			
			5			fines.							
_			7										
5 —													
_		3	7		1	SW Well graded sand	ls, gravelly sand. Minimal			21.1			
		J				fines.	is, gravelly sailu. Willillillal			Z 1. I			
	-		9			iiics.							
			12										
		4	7			SW - Well graded sand	ls, gravelly sand. Minimal			21.4			
_			10			fines.	, G = ,						
10 —	-		14										



Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Project	BCIDA					ject Number:	Client:	Bori	ng No		
		3CIE	)A			22-01-007	BCIDA			B-8	
Addres	S		D.	ırkesvil	ا ما	(V	Drilling Contractor: M&W Drilling	Drill	Rig T	<b>ype:</b> robe 66	:10
Logged	I Bv		В	II VG2AII	ie, r	Started:	Bit Type:	Dian	neter:	Tobe oc	110
			ris, PE			3/25/2022	Hollow Stem Auger	Dian		inches	
Drill Cr			,		Date	Completed:	Hammer Type:				
		rew			Da	3/25/2022					
USA Tid	cket					Backfilled:	Hammer Weight:	Ham	mer D	-	
		N/A	١			3/25/2022	140 lbs			inches	
					Gro	oundwater Depth: N/A	Elevation: 581.69	lota	ıı Dept	t <b>h of Bo</b> 15'	oring:
		L			Litl	hology	301.00	<u> </u>			
Ð	be	pe	its ot)	)g					gê	ıteı	esi
fee	T	un	onu	; Lc		<u>l <b>Group Name:</b></u> modifier, colo , other descriptors	r, moisture, density/consistency, g	rain	Ē	o o	al T
말	ple	e N	, Cc ws/	hic	5120	, other descriptors			city	re (%)	ou
Depth (feet)	Sample Type	npl	Blow Counts (blows/foot)	Graphic Log	Roc	k Description: modifier, colo	r, hardness/degree of concentration	n,	Plasticity Index	stu	Additional Test
	Š	Sample Number	B	9		ding and joint characteristics,		,	Pla	Moisture Content (%)	Ad
										_	
						SW - Well graded sand	ls, gravelly sand. Minimal			17.3	
		5	7			fines.	io, gravery saria. Willimia				
		0	7								
15 —	1		11	/////		Daring Torr	minated @ 15 0'				
						boning ren	minated @ 15.0'				
00											
20 —											
_											



California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Boring Log: Sheet 2 of 2



Project	BCIDA					ject Number:	Client:	Bori	ing No		
		BCIE	)A			22-01-007	BCIDA			B-9	
Addres	S		_	l		Λ/	Drilling Contractor:	Drill	Rig T		
1	. D		Bu	ırkesvil	le, ł		M&W Drilling	D:		robe 66	510
Logged	-		rio DE			Started: 3/25/2022	Bit Type:	Diar	neter:	inches	
Drill Cr		паі	rris, PE		Ð	Completed:	Hollow Stem Auger Hammer Type:			inches	
		rew	#1		Date	3/25/2022	паншег туре.				
USA Tic					-	Backfilled:	Hammer Weight:	Han	nmer D	ron:	
	JICE	N/A				3/25/2022	140 lbs			inches	
		,,	•		Gro	oundwater Depth:	Elevation:	Tota		h of Bo	
						N/A	577.44			15'	9
		ř			Lit	hology		<u>I</u>	×	n	ب
Œ.	be	qu	ts (tc	<sub>o</sub>	0-:	Cuarra Namas mandifian ada		!	de	ıte	Les
fee	T	<u>n</u>	Ĭ	Ϊ̈́		, other descriptors	r, moisture, density/consistency, g	raın	드	So.	a l
Depth (feet)	Sample Type	2	Blow Counts (blows/foot)	Graphic Log	0.20	, outer accomplish			<del> </del>	re (%)	oug
ер	Ē	ldι	8 6	Гар	Roc	k Description: modifier color	r, hardness/degree of concentration	n	stic	itu	diti
	Ss	Sample Number	四巴	Ō		ding and joint characteristics,		,	Plasticity Index	Moisture Content (%)	Additional Test
		0)		25050500	-					2	
						Topsoil (3 inches)					
		1	2			SW - Well graded sand	s, gravelly sand. Minimal			20.5	
			3			fines.	, 6				
-			3								
			3								
		2	5			SW - Well graded sand	s, gravelly sand. Minimal		22	21.7	
			5		}	fines.					
			6								
5 —											
_					1						
		3	6			_	s, gravelly sand. Minimal			23.9	
			6		}	fines.					
	1		7								
_					1						
		_	_		1	<b></b>					
		4	8		1	_	s, gravelly sand. Minimal			20.0	
			8			fines.					
4.5			13								
10 —											



Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

▼ Stabllized Ground water 

Project	roject: BCIDA .ddress					ject Number:	Client:	Bori	ng No		
		3CID	)A			22-01-007	BCIDA	<b>.</b>	<u> </u>	B-9	
Addres	S		Bu	ırkesvil	le. k	Υ	Drilling Contractor: M&W Drilling	Drill	Rig Ty	<b>ype:</b> robe 66	10
Logged	By:					Started:	Bit Type:	Dian	neter:		_
	_		ris, PE			3/25/2022	Hollow Stem Auger		2	inches	
Drill Cr					Date	Completed:	Hammer Type:				
LICA T		rew			۵	3/25/2022	Hanner Walnut				
USA Tid	скет	Nun N/A				Backfilled: 3/25/2022	Hammer Weight: 140 lbs	нат	mer D	rop: inches	
		111/1	<b>\</b>		Gra	oundwater Depth:	Elevation:	Tota		h of Bo	rina:
						N/A	577.44		Борс	15'	,g.
		er			Litl	hology			×	ınt	) t
et)	/be	μ	nts ot)	og.	Soil	Group Name: modifier color	r, moisture, density/consistency, g	rain	Jde	nte	ě
Depth (feet)	Sample Type	Sample Number	Blow Counts (blows/foot)	Graphic Log		, other descriptors	, molecule, deficitly/conclusionery, gi	a	Plasticity Index	Moisture Content (%)	Additional Test
oth	ldι	<u>e</u>	w C	phi					icit	ure C (%)	tio
De	San	mg	3lo) (blo	Gra			r, hardness/degree of concentratio	n,	last	ist	ddi
		Š			pead	ding and joint characteristics,	solutions, void conditions.			Mo	⋖
						SW - Well graded sand	s, gravelly sand. Minimal			20.2	
		5	5			fines.	, 0				
			5								
			8								
15 —	1		o l	/////		Boring Tern	ninated @ 15.0'				
						Doming 1 om	a.ca @ 10.0				
20 —											



California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Boring Log: Sheet 2 of 2



▼ Stabllized Ground water



Project	BCIDA					ject Number:	Client:	Bori	ing No		
		BCIE	)A			22-01-007	BCIDA			B-10	
Addres	S		_	l		Λ/	Drilling Contractor:	Drill	Rig T		.40
	. D		Bu	ırkesvil	le, r		M&W Drilling	D:		robe 66	510
Logged	-		rio DE			Started: 3/24/2022	Bit Type: Hollow Stem Auger	Diar	neter:	inches	
Drill Cr		: па	ris, PE		a	Completed:	Hammer Type:			inches	
		rew	#1		Date	3/24/2022	паншег туре.				
USA Ti					-	Backfilled:	Hammer Weight:	Han	nmer D	ron:	
	ONOL	N/A				3/24/2022	140 lbs			inches	
		,,	<u> </u>		Gro	oundwater Depth:	Elevation:	Tota		h of Bo	
						N/A	559.05		•	15'	
		÷			Litl	hology	•		×	nt	;;
£	pe	qu	nts ot)	og	6-:1	Croup Name, modifier colo	r maiatura danaitu/aanaiatanay a	rain	de	nte	Les
Į.	T	<u>n</u>	on L	Ä		, other descriptors	r, moisture, density/consistency, g	rain	느	ပ် (၁	al
Depth (feet)	Sample Type	e <b>P</b>	Blow Counts (blows/foot)	Graphic Log		,			Plasticity Index	re (%)	Additional Test
də	m	ldu	<u> </u>	rag	Roc	k Description: modifier. colo	r, hardness/degree of concentration	n.	sti	) tu	diti
	Š	Sample Number	⊞ ≅	Ō		ding and joint characteristics,		,	P a	Moisture Content (%)	Ad
		•		803030303		Tanasil (2 inabas)				2	
						Topsoil (3 inches)					
		1	2			SW - Well graded sand	s, gravelly sand. Minimal			29.8	
			3			fines.					
			3								
	-										
						<b></b>				26.5	
		2	3			_	s, gravelly sand. Minimal		26	26.5	
			3			fines.					
_			4								
5 —											
_		3	3			SW Well graded sand	s, gravelly sand. Minimal			28.6	
		J				fines.	s, gravelly sailu. Willillillal			20.0	
_	-		3			mios.					
			3								
		4	4			SW - Well graded sand	s, gravelly sand. Minimal			25.5	
_			5			fines.	, <u>J                                   </u>				
			7								
10 —	-		/								
		L.									



Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

✓ Stabllized Ground water✓ Groundwater At time of Drilling

Project	Project: BCIDA Address					ject Number:	Client:	Bori	ing No		
		BCIE	)A			22-01-007	BCIDA			B-10	
Addres	S		D:	ırkesvil	ا ما	(V	Drilling Contractor: M&W Drilling	Drill	Rig T	<b>ype:</b> robe 66	310
Logged	I Rv:		В	II KESVII	le, r	Started:	Bit Type:	Diar	neter:	TODE OC	510
			ris, PE			3/24/2022	Hollow Stem Auger	Diai		inches	
Drill Cr			,		ţ	Completed:	Hammer Type:				
	C	rew	#1		Date	3/24/2022					
USA Tid	cket	Nun	nber:			Backfilled:	Hammer Weight:	Han	nmer D	rop:	
		N/A	١			3/24/2022	140 lbs			inches	
					Gro	oundwater Depth:	Elevation:	Tota	al Dept	h of Bo	oring:
	1 1				1 :41	N/A	559.05		1	15'	
	ø	oer	s c	5	Liti	hology			eX	ten	est
eet	Ŋ	lm	unt	Lo			r, moisture, density/consistency, g	rain	<u>lu</u>	oni	Ĭ
ا (ئ	le]	ž	Co S/f	ιic	size	, other descriptors			īť	re C (%)	na
Depth (feet)	Sample Type	ple	Blow Counts (blows/foot)	Graphic Log	L				tic	ture (	itio
ă	Sal	Sample Number	B 등	Gr		ik Description: modifier, colo ding and joint characteristics,	r, hardness/degree of concentrations	n,	Plasticity Index	Moisture Content (%)	Additional Test
		S							ш	Š	7
						SW - Well graded sand	ls, gravelly sand. Minimal			20.6	
		5	4			fines.	, 3				
			4								
15 —			4	/////		Davis a Tarr	minated @ 15 O				
						Boring Terr	ninated @ 15.0'				
_											
-											
20 —											
_					1						
_											
					1						
		Щ,									



California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Boring Log: Sheet 2 of 2

Stabilized Ground water

Project	BCIDA					ject Number:	Client:	Bori	ing No		
		BCIE	)A			22-01-007	BCIDA			B-11	
Addres	S		ъ.	الديد دياس		Λ/	Drilling Contractor:	Drill	Rig T		.40
Loggod	l Dv.		BL	ırkesvil	ie, r	Started:	M&W Drilling	Diar	Geop neter:	robe 66	510
Logged	-		rris, PE			3/24/2022	Bit Type: Hollow Stem Auger	Diai		inches	
Drill Cr		riai	115, FE		Ф	Completed:	Hammer Type:			IIICHES	
		rew	#1		Date	3/24/2022	Traininer Type.				
USA Tic					-	Backfilled:	Hammer Weight:	Han	nmer D	rop:	
		N/A				3/24/2022	140 lbs			inches	
					Gro	oundwater Depth:	Elevation:	Tota		h of Bo	
						N/A	565.09		•	15'	
		e.			Lit	hology			×	ınt	ĭt
æ	/pe	qu	nts ot)	og	Sail	Group Name: modifier color	r, moisture, density/consistency, g	rain	ge	nte	Les
(fe	Ţ	ın	lo o	ļ ,		, other descriptors	, moisture, density/consistency, g	Ialli	_ =	ος Co	.  a
Depth (feet)	Sample Type	e _	Blow Counts (blows/foot)	Graphic Log		,			Plasticity Index	re (%)	Additional Test
ер	m	ldu	§ 6	гар	Roc	k Description: modifier. colo	r, hardness/degree of concentration	n.	sti	stu	diti
	Š	Sample Number	l ⊞ ≅	G		ding and joint characteristics,		,	P a	Moisture Content (%)	Ad
				893933333		Tanaail (2 inahaa)				2	
				******	<u> </u>	Topsoil (3 inches)					
		1	2			SW - Well graded sand	s, gravelly sand. Minimal			25.3	
			2			fines.					
			3								
										24.3	
		2	3			_	s, gravelly sand. Minimal		23	24.3	
			3			fines.					
_			3								
5 —											
					1						
		2	2			CM Mallana I I I I I	a manally seed Advisor 1			24.4	
		3	2			_	s, gravelly sand. Minimal			24.4	
_			3		1	fines.					
			4								
		4	3			SW - Well graded sand	s, gravelly sand. Minimal			23.2	
		7				fines.	s, graveny sand. Willinda			20.2	
			2			mios.					
10 —			4								
.5					}						
				rafafafaf							



Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Stabllized Ground water
Groundwater At time of Drilling

Project	roject: BCIDA ddress					ject Number:	Client:	Bori	ng No		
A -1 -1		3CIL	)A			22-01-007	BCIDA	D		B-11	
Addres	S		Bu	ırkesvil	le. k	Υ	Drilling Contractor: M&W Drilling	וווזטן	Rig Ty Geop	<b>ype:</b> robe 66	10
Logged	I By:				, .	Started:	Bit Type:	Dian	neter:		
	_		ris, PE			3/24/2022	Hollow Stem Auger		2	inches	
Drill Cr					Date	Completed:	Hammer Type:				
		rew			ũ	3/24/2022	11 14 14				
USA Tid	cket	Nun N/A				Backfilled: 3/24/2022	Hammer Weight: 140 lbs	Ham	mer D	<b>rop:</b> inches	
		IN/F	\		Gra	oundwater Depth:	Elevation:	Tota		h of Bo	rina:
						N/A	565.09		п Борс	15'	, inig.
		er			Litl	hology			×	ınt	, t
et)	/be	up	nts ot)	og	Soil	Group Name: modifier color	r, moisture, density/consistency, g	rain	Jde	nte	ĕ
Depth (feet)	Sample Type	Sample Number	Blow Counts (blows/foot)	Graphic Log		, other descriptors	, moistare, density/consistency, gi	um	Plasticity Index	Moisture Content (%)	Additional Test
t t	) Jdt	<u>e</u>	v C	phi					icit	ure C (%)	io
Dek	San	m	3lo (blc	Gra			r, hardness/degree of concentration	n,	ast	istı	ddi
	0,	Sa			bed	ding and joint characteristics,	solutions, void conditions.		ᇫ	<b>№</b>	ĕ
						SW - Well graded sand	s, gravelly sand. Minimal			23.5	
		5	4			fines.					
			4								
			6								
15 —			١	/////		Borina Tern	ninated @ 15.0'				
						<b>g</b>					
20 —											



California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Boring Log: Sheet 2 of 2



Project	BCIDA					ject Number:	Client:	Bori	ing No		
		BCIE	)A			22-01-007	BCIDA			B-12	
Addres	S		р.	اند م مرینا	اما	<b>/</b> /	Drilling Contractor:	Drill	Rig T		
Loggod	l Dv.		BL	ırkesvil	ie, r	Started:	M&W Drilling	Diar		robe 66	510
Logged	-		ris, PE			3/24/2022	Bit Type: Hollow Stem Auger	Diai	neter:	inches	
Drill Cr		riai	115, FE		Ð	Completed:	Hammer Type:			IIICHES	
		rew	#1		Date	3/24/2022	Traininer Type.				
USA Tid					-	Backfilled:	Hammer Weight:	Ham	nmer D	rop:	
		N/A				3/24/2022	140 lbs			inches	
					Gro	oundwater Depth:	Elevation:	Tota		h of Bo	
						N/A	564.33		-	15'	
		er			Lit	hology			×	ınt	šť
et)	/pe	qu	nts ot)	og	اندی	Group Name: modifier color	r, moisture, density/consistency, g	rain	ge	nte	Tes
(fe	7	Ĭ	loo /{o	C L		, other descriptors	, moisture, density/consistency, g	alli	=	ပိ	a
Depth (feet)	Sample Type	P	Blow Counts (blows/foot)	Graphic Log					Plasticity Index	re (%)	Additional Test
de	am	du	<u> </u>	La	Roc	k Description: modifier, colo	r, hardness/degree of concentration	n,	sti	stu	dit
	Š	Sample Number	<b>B</b> =	9	bed	ding and joint characteristics,	solutions, void conditions.		Pla	Moisture Content (%)	Ad
				89393933		Tanaail (2 inahaa)				_	
						Topsoil (3 inches)					
		1	2			SW - Well graded sand	s, gravelly sand. Minimal			26.6	
			3			fines.					
-			4								
-											
										00.5	
		2	3			_	s, gravelly sand. Minimal		26	22.5	
			4			fines.					
F -			5								
5 —											
		3	3			SW Well graded sand	s, gravelly sand. Minimal			20.6	
		J				fines.	s, gravelly sailu. Willillillal			20.0	
_			5			mios.					
			9								
		4	4			SW - Well graded sand	s, gravelly sand. Minimal			20.8	
			7			fines.	, G ,				
			9								
10 —			9								
		L.									



Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

✓ StabIlized Ground water✓ Groundwater At time of Drilling

Project	BCIDA					ject Number:	Client:	Bor	ing No		
		BCIE	)A			22-01-007	BCIDA			B-12	
Addres	S		_	l		Λ/	Drilling Contractor:	Drill	Rig T		
Lammad	L D		Bu	ırkesvil	ie, r		M&W Drilling	Dia		robe 66	510
Logged			rio DE			Started: 3/24/2022	Bit Type:	Diar	neter:	inches	
Drill Cro		: па	ris, PE		Ф	Completed:	Hollow Stem Auger Hammer Type:			inches	
		rew	<b>#</b> 1		Date	3/24/2022	Trailiner Type.				
USA Tid					_	Backfilled:	Hammer Weight:	Han	nmer D	rop:	
		N/A				3/24/2022	140 lbs			inches	
					Gro	oundwater Depth:	Elevation:	Tota		h of Bo	
						N/A	564.33			15'	
		er			Lit	hology			X	ınt	st
et)	/be	qμ	nts ot)	o.	Soil	Group Name: modifier color	r, moisture, density/consistency, g	rain	βρι	nte	– e
(fe	Ę	5	on /fo	C L		, other descriptors	, molecule, deficitly/conclusionally, g	- Cili	=	ပိ	a
ţ	ble	e	v C	phi					cit	ire (%)	ior
Depth (feet)	Sample Type	Sample Number	Blow Counts (blows/foot)	Graphic Log	Roc	k Description: modifier, colo	r, hardness/degree of concentration	n,	Plasticity Index	stu	Additional Test
	တ	Sal		0	bed	ding and joint characteristics,	solutions, void conditions.		<del>Ğ</del>	Moisture Content (%)	Αc
				33333						_	
_										00.0	
						_	ls, gravelly sand. Minimal			22.2	
		5	4			fines.					
			4								
4.5			4								
15 —						Boring Tern	ninated @ 15.0'				
						· ·					
_	-										
					1						
20 —											
_											
					1						
		L			1				<u> </u>		



California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Boring Log: Sheet 2 of 2

▼ Stabllized Ground water



Project	BCIDA					ject Number:	Client:	Bori	ing No		
		BCIE	)A			22-01-007	BCIDA			B-13	
Addres	S		р.	ان د د داس	احا	<b>/</b> /	Drilling Contractor:	Drill	Rig T		
Logged	I Dv		Вц	ırkesvil	ie, r	Started:	M&W Drilling Bit Type:	Diar	Geop neter:	robe 66	510
	-		rris, PE			3/24/2022	Hollow Stem Auger	Diai		inches	
Drill Cr		riai	П5, Г С		ø	Completed:	Hammer Type:			IIICIICS	
		rew	#1		Date	3/24/2022	Training Type.				
USA Tid					-	Backfilled:	Hammer Weight:	Ham	nmer D	rop:	
		N/A				3/24/2022	140 lbs			inches	
					Gro	oundwater Depth:	Elevation:	Tota	al Dept	h of Bo	oring:
						N/A	562.02			25'	
	,	er			Lit	hology			×	ınt	st
et)	/pe	qu	nts ot)	og	Soil	Group Name: modifier color	r, moisture, density/consistency, g	rain	ge	nte	Les
(fe	7	Ĭ	lo o	ر ا د ا		, other descriptors	, moisture, density/consistency, g	alli	=	ပိ	a
Depth (feet)	Sample Type	P	Blow Counts (blows/foot)	Graphic Log		•			Plasticity Index	re (%)	Additional Test
de	am	du	<u> </u>	īg	Roc	k Description: modifier, colo	r, hardness/degree of concentration	n,	sti	stu	dit
	Ŝ	Sample Number	<b>B</b> =	ש	bed	ding and joint characteristics,	solutions, void conditions.		Pla	Moisture Content (%)	Ad
				0200000		Topsoil (3 inches)				_	
					_	Topson (3 mones)					
			_								
		1	2				s, gravelly sand. Minimal			25.4	
			2			fines.					
			2								
		2	2			CM Mall areded cond	a arrayally sand Minimal		26	26.2	
		2	3			fines.	s, gravelly sand. Minimal		20	20.2	
			3			ilites.					
5 —			4								
3											
		3	2			SW - Well graded sand	s, gravelly sand. Minimal			24.6	
			2			fines.	o, gravony band. Willinia				
			3								
		4	5			SW - Well graded sand	s, gravelly sand. Minimal			15.2	
			7			fines.	- •				
			8								
10 —											



Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Project	Project: BCIDA Address					ject Number:	Client:	Bori	ng No		
		3CIE	)A			22-01-007	BCIDA			B-13	
Addres	S		Rı	ırkesvil	ااو ا	Υ	Drilling Contractor: M&W Drilling	Drill	Rig Ty	<b>ype:</b> robe 66	S <sub>10</sub>
Logged	d Bv:			IIICOVII	10, 1	Started:	Bit Type:	Dian	neter:	1000 00	710
			ris, PE			3/24/2022	Hollow Stem Auger			inches	
Drill Cr	ew:				Date	Completed:	Hammer Type:				
		rew			۵	3/24/2022					
USA Ti	cket					Backfilled:	Hammer Weight:	Ham	mer D		
		N/A	١		0	3/24/2022	140 lbs	T-4-		inches	
					Gro	oundwater Depth: N/A	Elevation: 562.02	lota	п рерт	<b>h of B</b> o 25'	oring:
		_			Litl	hology	J02.02				
Ð	be	əqı	ts t	g					de	ıter	est
fee	ΙŽ	nm	o d	Ľ		Group Name: modifier, color , other descriptors	r, moisture, density/consistency, g	rain	Ľ	Son	_  E
L L	<u>e</u>	e N	S/S	hic	3120	, other descriptors			ity	re C (%)	ouŝ
Depth (feet)	Sample Type	ldu	Blow Counts (blows/foot)	Graphic Log	Roc	k Description: modifier colo	r, hardness/degree of concentratio	n	Plasticity Index	stui	Additional Test
	လိ	Sample Number	图号	Ð		ding and joint characteristics,		,	Pla	Moisture Content (%)	Ad
				इंदेरेट्ट्रेट्ट्						2	
_	4										
							ls, gravelly sand. Minimal			17.3	
		5	4			fines.					
			5								
45			6								
15 —											
_	1 1										
_	1 1										
						SP - Poorly Graded Sar	nd gravelly sands			20.2	
		6	4			or - roomy Graded Gar	id, gravelly salids.				
			3								
			4								
20 —	1										
_	1 ]										
_	-										
_	1 1										



California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Boring Log: Sheet 2 of 3

▼ Stabilized Ground water

✓ Croundwater At time of F

Project:	Project: BCIDA Address					ject Number:	Client:	Boring No.			
		3CIE	)A			22-01-007	BCIDA			B-13	
Addres	S		Rı	ırkesvil	le k	<b>(</b> Y	Drilling Contractor: M&W Drilling	Drill	Rig Ty	<b>/pe:</b> robe 66	10
Logged	Bv:			IIICOVII	lo, i	Started:	Bit Type:	Dian	neter:	000 00	10
			ris, PE			3/24/2022	Hollow Stem Auger			inches	
Drill Cre					Date	Completed:	Hammer Type:				
		rew			۵	3/24/2022					
USA Tid	cket					Backfilled:	Hammer Weight:	Ham	ımer D	-	
		N/A	١			3/24/2022	140 lbs			inches	
					Gro	oundwater Depth: N/A	Elevation: 562.02	Tota	ıl Dept	<b>h of Bo</b> 25'	ring:
		_			Litl	hology	302.02		~		<b>—</b>
et)	ьe	Sample Number	nts ot)	og			i	!	Plasticity Index	nte	Additional Test
(fee	Ty	lun	our Foc	Ľ		, other descriptors	r, moisture, density/consistency, g	rain	l n	So.	a
th (	ple	e	, C ws/	hic		,			cit)	re C (%)	ion
Depth (feet)	Sample Type	npl	Blow Counts (blows/foot)	Graphic Log	Roc	k Description: modifier, colo	r, hardness/degree of concentratio	n,	ısti	stu	dit
	S	Sai	B (	9	bed	ding and joint characteristics,	solutions, void conditions.		Pla	Moisture Content (%)	Α
				(3)(3)							
		7	5								
		•	6							20.1	
			8			SP - Poorly Graded Sar	nd, gravelly sands.			20.1	
25 —			0	/////		Paring Torn	ninated @ 25.0'				
						Boning Ten	minated @ 25.0				
					1						
20 —											
20 —											
					1						



California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Boring Log: Sheet 3 of 3



▼ Stabllized Ground water



Project:					Pro	ject Number:	Client: Boring No.				
BCIDA						22-01-007	BCIDA	B-14			
Addres	S		ъ.			Λ/	Drilling Contractor:	Drill Rig Type:			240
Burkesvil Logged By:							M&W Drilling	Geoprobe 6610  Diameter:			010
	-		ris, PE			Started: 3/24/2022	Bit Type: Hollow Stem Auger	Diai		inches	
Drill Cr		riai	115, FE		Ф	Completed:	Hammer Type:			IIICHES	
		rew	#1		Date	3/24/2022	Traininer Type:				
USA Ti					-	Backfilled:	Hammer Weight:	Han	nmer D	rop:	
		N/A				3/24/2022	140 lbs			inches	
					Gro	oundwater Depth:	Elevation:	Tota		h of Bo	
						N/A	565.76		•	15'	
		e.			Lit	hology			×	ınt	ĭt
et)	/pe	qu	nts ot)	og	Sail	Group Name: modifier color	r, moisture, density/consistency, g	rain	g	nte	Tes
(fec	Ę	ın	on for	, , ,		, other descriptors	, moisture, density/consistency, g	Ialli	<u>=</u>	ςς Co	.  a
Depth (feet)	Sample Type	e _	Blow Counts (blows/foot)	Graphic Log		,				re (%)	Additional Test
də	an a	ldu	§ 6	гар	Roc	k Description: modifier, colo	r, hardness/degree of concentration	n,	Plasticity Index	stu	diti
	Š	Sample Number	B =	၂ ဗ		bedding and joint characteristics, solutions, void conditions.				Moisture Content (%)	Ad
		-		00000000		Topsoil (3 inches)				_	
					-	ropsoli (3 inches)			1		
		1	3			SW - Well graded sand		25.3			
			4			fines.					
			6								
						SW - Well graded sands, gravelly sand. Minimal				23.7	
		2	4								
			4			fines.					
5 —			5		}						
5											
		3	3			SW Well graded sand	s, gravelly sand. Minimal			25.0	
		J				fines.	s, gravelly sailu. Willillillal			23.0	
-			3			mios.					
			5								
		4	4			SW - Well graded sand	s, gravelly sand. Minimal			25.6	
_			4			fines.	, G =====, ============================				
			5								
10 —			၁								



Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

✓ Stabllized Ground water✓ Groundwater At time of Drilling

Project:					Pro	ject Number:	Client:	Boring No.					
BCIDA					22-01-007 BCIDA			B-14					
Address Burkesvi					le k	(Υ	Drilling Contractor: M&W Drilling	Drill Rig Type: Geoprobe 6610			<sub>S10</sub>		
Logged By:					, ,	Started:	Bit Type:	Dian	neter:	1000 00	710		
			ris, PE			3/24/2022	Hollow Stem Auger			inches			
Drill Cr					Date	Completed:	Hammer Type:						
		rew			õ	3/24/2022							
USA Ti	cket					Backfilled:	Hammer Weight:	Ham	mer D	-			
		N/A	١		Gr/	3/24/2022	140 lbs Elevation:	Tota		inches			
					Gre	oundwater Depth: N/A	565.76	TOLA	прери	Depth of Boring: 15'			
		ř			Litl	nology		<u> </u>	×		٠,		
) <del>(</del>	,pe	nbe	nts ot)	og	60:1	Group Names modifier color	r, moisture, density/consistency, gr	roin	de	nte	Les		
(fe	Ţ	In	on! /fo	C L		, other descriptors	, moisture, density/consistency, gi	Ialli	N N	Co (	_ 		
ŧ	ple	le l	v C ws	phi					cit	ire C (%)	ion		
Depth (feet)	Sample Type	Sample Number	Blow Counts (blows/foot)	Graphic Log			r, hardness/degree of concentratio	n,	Plasticity Index	Moisture Content (%)	Additional Test		
_	0)	Sa	ш		bed	ding and joint characteristics,	solutions, void conditions.		<u>a</u>	Mo	Ă		
						SW - Well graded sand	SW - Well graded sands, gravelly sand. Minimal			26.1			
		5	4	3333		fines.							
			5										
			7										
15 —	1		•			Borina Tern	ninated @ 15.0'						
						3	<b>O</b> 1 1						
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_	-												
20 —	]				1								



California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Boring Log: Sheet 2 of 2



Project:					Pro	ject Number:	Client: Boring No.				
BCIDA						22-01-007	BCIDA	B-15			
Address						<b>/</b> /	Drilling Contractor:	Drill Rig Type:			
Burkesvil Logged By:						Started:	M&W Drilling Bit Type:	Geoprobe 6610  Diameter:			510
	-		ris, PE			3/24/2022	Hollow Stem Auger	Diai		inches	
Drill Cr		riai	пъ, г с		ø	Completed:	Hammer Type:			IIICIICS	
		rew	#1		Date	3/24/2022	Training Type.				
USA Tid					-	Backfilled:	Hammer Weight:	Han	nmer D	rop:	
		N/A				3/24/2022	140 lbs			inches	
					Gro	oundwater Depth:	Elevation:	Tota	al Dept	h of Bo	oring:
						N/A	565.96			15'	
	,	er			Lit	hology			×	ınt	st
et)	/pe	qu	nts ot)	og	اندی	Group Name: modifier color	r moieture deneity/consistency a	rain	<del> </del>	nte	Les
(fe	7	Ĭ	loo /Ło	C L		<u>bil Group Name:</u> modifier, color, moisture, density/consistency, grain ze, other descriptors				Plasticity Index Moisture Content (%)	a
Depth (feet)	Sample Type	P	Blow Counts (blows/foot)	Graphic Log					Plasticity Index	re (%)	Additional Test
de	am	du	<u> </u>	La	Roc	k Description: modifier, colo	r, hardness/degree of concentration	n,	sti	stu	dit
	ŝ	Sample Number	B =	g		bedding and joint characteristics, solutions, void conditions.				<b>J</b> ois	Ad
		-		0000000		Topsoil (3 inches)				_	
						ropsoli (3 inches)			1		
		1	3			SW - Well graded sand		26.5			
			4			fines.					
			6								
		2	4			SW - Well graded sands, gravelly sand. Minimal				25.2	
		2	4			_	24	25.2			
			5			fines.					
5 —			6								
3											
		3	3			SW - Well graded sand	s, gravelly sand. Minimal			26.2	
			4			fines.	o, graveny sana. Williniai			20.2	
			-			inico.					
			6								
		4	5			SW - Well graded sand	s, gravelly sand. Minimal			23.5	
			5			fines.	,				
	7										
10 —			′								



Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Project:					Pro	ject Number:	Client:				
BCIDA									B-15		
Addres	S		Rı	ırkesvil				rill Rig Type: Geoprobe 6610			
Logged	By:				, ,	Started:	Bit Type:	Dian	neter:	000 00	710
			ris, PE			3/24/2022	Hollow Stem Auger			inches	
Drill Cr					Date	Completed:	Hammer Type:				
		rew			õ	3/24/2022					
USA Ti	cket					Backfilled:	Hammer Weight:	Ham	mer D	-	
		N/A	١		Gr/	3/24/2022 oundwater Depth:	140 lbs Elevation:	Tota	30 inches otal Depth of Boring:		
					Gre	N/A	565.96	TOLA	прери	11 OI BO	oring:
		ŗ			Litl	hology	000.00		×		<b>.</b>
) <del>(</del>	,pe	nbe	nts ot)	og	60:1	Group Names modifier color	r maiatura danaitu/aanaiatanay g	roin	de	nte	Les
Depth (feet)	Sample Type	Sample Number	Blow Counts (blows/foot)	Graphic Log		<u>Soil Group Name:</u> modifier, color, moisture, density/consistency, grai size, other descriptors				Moisture Content (%)	Additional Test
ŧ	ple	le l	V C	phi					cit	ire C (%)	ion
)eb	am	mp	old blo	ira			r, hardness/degree of concentratio	n,	Plasticity Index	istu	ddit
-	S	Sa			bed	ding and joint characteristics,	solutions, void conditions.		<u> </u>	Moi	ΑC
						SW - Well graded sand	SW - Well graded sands, gravelly sand. Minimal			24.1	
		5	4			fines.					
			4								
			6								
15 —	-			/////		Borina Tern	ninated @ 15.0'				
						209 . 0					
_											
20 —											
20											
	1										



California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Boring Log: Sheet 2 of 2



▼ Stabllized Ground water



Project:					Pro	ject Number:	Client: Boring No.				
BCIDA						22-01-007	BCIDA	B-16			
Address	S		_			Λ/	Drilling Contractor:	Drill Rig Type:			
Burkesvi							M&W Drilling	Geoprobe 6610  Diameter:			510
Logged	-		rio DE			Started: 3/24/2022	Bit Type:	Diar		inches	
Drill Cre		паі	ris, PE		Ð	Completed:	Hollow Stem Auger Hammer Type:			inches	
Dilli Cie		rew	#1		Date	3/24/2022	панше туре.				
USA Tic					-	Backfilled:	Hammer Weight:	Han	nmer D	ron.	
JOOA III	)NO L	N/A				3/24/2022	140 lbs			inches	
		,,	<u> </u>		Gro	oundwater Depth:	Elevation:	Tota		h of Bo	
						N/A	564.22		•	15'	
		ř			Lit	hology			×	nt	;;
et)	pe	qu	nts ot)	og	e a ii	Croup Name, modifier colo	r maiatura danaitu/aanaiatanau g	rain	de	nte	Les
fee	Т	<u>n</u>	on L	Ä		I Group Name: modifier, color, moisture, density/consistency, grain e, other descriptors				ပ် (၁	al
Depth (feet)	Sample Type	e <b>2</b>	Blow Counts (blows/foot)	Graphic Log		,			Plasticity Index	re (%)	Additional Test
eb	m	ldu	% o	rap	Roc	k Description: modifier, colo	r. hardness/degree of concentration	n.	sti	) tu	diti
	Š	Sample Number	四号	Ð		Rock Description: modifier, color, hardness/degree of concentration, bedding and joint characteristics, solutions, void conditions.				Moisture Content (%)	Ad
		0,		404049494		T "(0: 1 )				2	,
						Topsoil (3 inches)			-		
					1						
		1	4			SW - Well graded sand		25.2			
			3			fines.					
-			4								
			7								
									21		
		2	4			SW - Well graded sands, gravelly sand. Minimal				25.2	
			4			fines.					
			4								
5 —											
_		_	_			014/ 14/ 11				04.5	
		3	3			_	s, gravelly sand. Minimal			24.9	
			4			fines.					
			5		1						
					1						
		1	3			SW - Well graded sand	s gravelly sand Minimal			23.0	
-		7			1		is, gravelly saliu. Willillial			20.8	
						111100.					
10 —	10 —   5   5   5   5   5   5   5   5   5										
					1						
10 —		4	3 4 5			SW - Well graded sand fines.	ls, gravelly sand. Minimal			23.9	



Standard Penetration Slit Spoon Sampler (SPT)

California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

✓ Stabllized Ground water✓ Groundwater At time of Drilling

Project:					Pro	ject Number:	Client: Boring No.				
BCIDA						22-01-007	BCIDA	B-16			
Address Burkesvi					le k	(Υ	Drilling Contractor: M&W Drilling	Drill Rig Type: Geoprobe 6610			<sub>S10</sub>
Logged By:					, ,	Started:	Bit Type:	Dian	neter:	000 00	710
			ris, PE			3/24/2022	Hollow Stem Auger			inches	
Drill Cr					Date	Completed:	Hammer Type:				
		rew			õ	3/24/2022					
USA Ti	cket					Backfilled:	Hammer Weight:	Ham	mer D	-	
		N/A	1		Gr/	3/24/2022 oundwater Depth:	140 lbs Elevation:	Tota		inches	
					Gre	N/A	564.22	TOLA	прери	11 OI BO	oring:
		ř			Litl	nology		<u> </u>	×		٠,
et)	/pe	nbe	nts ot)	og	اندی	Group Name: modifier color	r, moisture, density/consistency, gr	rain	de	nte	Les
(fe	Ţ	In	lno /eo	C L		, other descriptors	, moisture, density/consistency, gi	Ialli	N N	Co (	_ 
ŧ	ple	le l	v C	phi					cit	ire C (%)	ion
Depth (feet)	Sample Type	Sample Number	Blow Counts (blows/foot)	Graphic Log			r, hardness/degree of concentratio	n,	Plasticity Index	Moisture Content (%)	Additional Test
_	S	Sa	ш		bed	ding and joint characteristics,	solutions, void conditions.		ā	Мо	¥
						SW - Well graded sands, gravelly sand. Minimal				18.6	
		5	5			fines.					
			5								
			6								
15 —				/////		Borina Tern	ninated @ 15.0'				
						209 . 0					
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California Sampler

Shelby Tube

CPP Sampler

Bulk/ Bag Sample

Boring Log: Sheet 2 of 2

▼ Stabllized Ground water





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