GORDON SERVICES – KEENE PIT
2024 HYDROGEOLOGIC INVESTIGATION REPORT

57 Route 9, Keene, New Hampshire
City of Keene Tax Map 215 Block 7
Town of Sullivan Tax Map 583 Lot 46 & 46-1

Prepared For:

Gordon Services
250 North Street
Jaffrey, New Hampshire 03452

Prepared By:

FRONTIER GEOSERVICES
127 OLD WARNER ROAD
BRADFORD, NEW HAMPSHIRE 03221

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December 18, 2024
Frontier Project No. 2024012

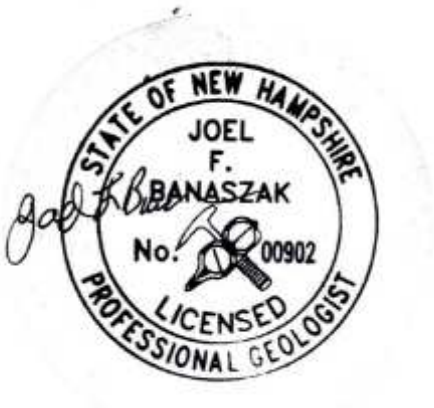


TABLE OF CONTENTS
GORDON SERVICES – KEENE PIT
2024 HYDROGEOLOGIC INVESTIGATION REPORT
KEENE, NEW HAMPSHIRE

SECTION **PAGE**

FIGURES

APPENDICES

1.0 INTRODUCTION

Frontier Geoservices, LLC. (Frontier) has completed a hydrogeological investigation at the property located at 57 Route 9, in the City of Keene, Cheshire County, New Hampshire The parcels comprising the Site are identified by the City of Keene's Assessor's office on Tax Map 215 as Block 7 (102.7-acres) and the Town of Sullivan, New Hampshire, Assessor's office on Tax Map 5 Lot 46 (172-acres) and 46-1 (25.82-acres. The Site is currently owned by G2 Holdings, LLC. of 250 North Street, Jaffrey, New Hampshire. Please refer to **Figure 1** for a **Site Location Map**.

Currently, the Site operates as a gravel and earth removal operation for Gordon Services. The current operations are permitted to only encompass one area, Period 8, of the Site. Gordon Services wishes to expand their current operations to include additional excavation in Period 8 and new excavations in Periods 1 – 7. Please refer to **Figure 2** for a **Site Plan/Monitoring Well Location Map**.

Applicants proposing Earth Excavation are required to provide the information requested in The City of Keene's Article 25 Earth Excavation Regulation. This report provides the information required to fulfill The City of Keene's Article 25.3.4 Groundwater Quantity. Site activities included the installation of eight (8) overburden monitoring wells and eight (8) bedrock monitoring wells. Monitoring groundwater elevations in the wells was conducted over a minimum of a 2-week period. Additional information was provided through a Limited Hydrogeologic Investigation Report completed by SLR International Corporation of Bedford, New Hampshire, dated March 25, 2022.

It should be noted that based on the results of this investigation and the previous, dewatering of the proposed excavation is not required.

2.0 SITE SETTING

The Site consists of a total of 300.52 acres of undeveloped land. The Site has a central latitude of 42°58'27.03" north and longitude of 72°13'34.66" west. The Site currently operates as a gravel and earth removal operation for Gordon Services. As previously mentioned, the Site currently only operates within the limits of Period 8 as shown on the Site Plan.

2.1 Description of Structures, Roads and other Improvements

The Site is accessed from the northern side of Route 9 in Keene, New Hampshire via a gravel driveway. The gravel driveway directs traffic to the east and west when entering the pit area. Prior to entering the pit area there is a fueling area, storage shed, and porta-potty located to the east. The current pit area has an elevation of 880-ft above mean sea level (AMSL). Earth removal and processing equipment is staged on the pit floor. Surface water drainage is currently directed to an infiltration basin located on the western side of the current Period 8 excavation. The proposed project area is accessed via former logging roads which were recently cleared.

2.2 Current Use of Adjoining Properties

South of the Site is New Hampshire State Route 9. To the east of the Site is a property which consists of various buildings which are occasionally used by the Habitat for Humanity. This property is also owned by G2 Holdings, LLC. There are no other developed properties located to the east of the Site. Several residential properties exist approximately 1,000-feet northwest of the northern property boundary. There are no developed parcels abutting to the east of the Site.

2.3 Site Physical Setting

The target property is depicted on the Marlborough, New Hampshire United States Geological Survey (USGS) 7.5 Minute Topographic Map dated 2018 at approximately 42°58'27.03" north and 72°13'34.66" west with a current pit floor elevations of 880-feet above the North American Datum (NAD) of 1983.

Based on review of the *Bedrock Geologic Map of New Hampshire*, 1997, bedrock in the vicinity of the target property is classified as the Silurian-aged Rangeley Formation which is a rusty weathering schist, gray quartz-biotite and muscovite-plagioclase schist that contain local calc-silicate layers. It also has rare quartz-rich layers that appear sandy. A **Bedrock Geologic Map** is included in **Appendix A**.

According to the United States Department of Agriculture's Natural Resource Conservation Service (NRCS) Web Soil Survey (http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx), soil beneath the target property consists of eight (8) soil types; the Colton gravelly sandy loam, 8 to 15 percent slopes, the Turnbridge-Berkshire complex, 15 to 25 percent slopes, very stony, the Turnbridge-Lyman-rock outcrop complex 8 to 15 percent slopes, the Turnbridge-Lyman-rock outcrop complex 15 to 25 percent slopes, the Turnbridge-Lyman-rock outcrop complex 25 to 60 percent slopes, the Berkshire fine sandy loam 15 to 25 percent slopes, the Marlow fine sandy loam 25 to 50 percent slopes, the Sunapee fine sandy loam 8 to 15 percent slopes. The soils identified at the Site are described as being excessively drained to well drained and having a depth to water of greater than 80-inches. Soil types at the Site are depicted in the **NRCS Soil Map** included in **Appendix A** which includes the **NRCS Soil Descriptions.**

The target property is located on the National Flood Insurance Program Flood Insurance Rate Map (FIRM) – Map Number 33005C0280E, effective May 23, 2006. The **FIRM Image** was available in the Federal Emergency Management Agency (FEMA) online database and was reviewed as part of this assessment and is included in **Appendix A**. The map depicts the Site in an area of Minimal Flood Hazard.

3.0 PREVIOUS HYDROGEOLOGIC INVESTIGATIONS

As previously mentioned, SLR International of Bedford, New Hampshire completed a Limited Hydrogeologic Investigation Report dated March 25, 2022. The investigation documented the completion of sixteen (16) test pits (TP-1 through TP-16), six (6) soil borings (SRL-1 through SLR-6) and the installation of three (3) groundwater monitoring wells (SRL-10 through SRL-12).

The test pits were excavated to depths ranging from a maximum of 15.5-feet below ground surface (bgs) at TP-4 to a minimum of 3-feet bgs at TP-8. Probable bedrock was encountered in test pits TP-7, TP-8, TP-9 and TP-10. The primary purpose of the test pits was to collect samples for gradation analyses performed in accordance with ASTM D442/D1140. Materials encountered in test pits TP-1, TP-2, TP-3, TP-5, TP-6, TP-7, TP9, TP-10, TP-13 and TP-14 were classified as glacial till. Materials encountered in test pits TP-4 and TP-12 were classified as glacial outwash. Samples were not collected from test pits TP-8, TP-11, TP-15 and TP-16. None of the test pits encountered saturated groundwater conditions.

Soil borings SRL-1 through SRL-6 were advanced to depths ranging from a maximum of 28-feet bgs at SRL-5 to a minimum of 2-feet bgs at SRL-2. Probable bedrock was encountered in soil borings

SRL-1, SRL-2, SRL-4, SRL-5 and SRL-6. The primary purpose of the soil borings was to collect samples for gradation analyses performed in accordance with ASTM D6913. Materials encountered in soil boring SRL-1 were classified as glacial till. Materials encountered in soil borings in soil borings SRL-4 and SRL-6 were classified as glacial outwash. SRL-5 materials had a combined consistency of glacial till and glacial outwash. Samples were not collected from SRL-2 and SRL-3. None of the soil borings encountered saturated groundwater conditions. SRL-6 did have "wet" materials at the bottom of the soil boring at 10-feet bgs. However, it should be noted that this boring was completed outside of the proposed project area.

Monitoring well SRL-10 was installed in the southwest corner of Period 8 to a depth of 55-feet bgs in overburden materials. Bedrock was not encountered at this location. The screened interval of the well was from 5-feet to 55-feet bgs. A water level of 42.9-feet bgs was recorded on March 22, 2022. This is interpreted to be the seasonal high for well SRL-10. More recently, a water level of 52.85-feet bgs was recorded on December 12, 2024.

Monitoring well SRL-11 was installed in the eastern section of the Period 8 area to a depth of 45.2-feet bgs in overburden materials. The advanced prior to the installation of the monitoring well was advanced to a depth of 76-feet bgs. Bedrock was not encountered at this location. The screened interval of the well was from 5-feet to 45.2-feet bgs. Groundwater was not encountered in the soil boring or observed during the March 22, 2022 gauging event. This well has since been destroyed.

Monitoring well SRL-12 was installed in bedrock in the north-central section of the Period 8 to a depth of 39.5-feet bgs. Bedrock was encountered at a depth of 11-feet bgs. The screened interval of the well was from 4.5-feet to 39.5-feet bgs. It should be noted that this well is cross-screened between the overburden and bedrock materials. A water bearing fracture was reportedly encountered at 28-feet bgs. A water level of 1.5-feet bgs was recorded on March 22, 2022. This is interpreted to be the seasonal high for well SRL-12. More recently, a water level of 7.5-feet bgs was recorded on December 12, 2024.

Please refer to **Appendix B** for a copy of the **SLR International Limited Hydrogeologic Investigation Report**.

4.0 JULY 2024 OVERBURDEN MONITORING WELL INSTALLATION

A total of eight (8) overburden locations were investigated for the potential of installation of a groundwater monitoring well on July 22 and 23, 2024. Prior to installation of a monitoring well a soil boring was conducted to refusal depth. Soils retrieved from the boring were logged for their lithologic and water content and also screened for volatile organic compounds (VOCs) using a MiniRae 3000 photo-ionization detector (PID). Monitoring wells were installed by advancing 4-inch diameter steel casing at the boring location. The casing was then "washed" using clean water. 2-inch diameter poly-vinyl chloride (PVC) screen and riser of varying lengths were used in construction of the wells. The annulus surrounding the screen portion of the monitoring wells was filled using clean silica sand to a level of 1-foot above the screen/riser interface. Bentonite chips were emplaced around the riser to a depth of 1-foot bgs and the remaining portion of the borehole was filled with native materials.

Please refer to **Figure 2** for a **Monitoring Well Location Map**.

4.1 Overburden Monitoring Well Installations

MW-1

Monitoring well MW-1 was installed in the on the boundary between proposed Period 1 and 2. Overburden materials consisted of dry, brown, sandy gravel. Bedrock was encountered at a depth of 3.3-feet bgs. A monitoring well was installed to a depth of 3.3-feet bgs and constructed using approximately 2-feet of PVC screen and 1.5-feet of solid riser. Groundwater was not encountered at this location.

MW-2

Monitoring well MW-2 was installed east of the central portion of Period 3 adjacent to the proposed quarry access road. Overburden materials consisted of dry, brown, sandy gravel. Bedrock was encountered at a depth of 12.0-feet bgs. A monitoring well was installed to a depth of 12.0' bgs and constructed using approximately 10-feet of PVC screen and 2-feet of solid riser. Groundwater was not encountered at this location.

MW-3

Monitoring well MW-3 was installed in the western portion of Period 3 along the proposed quarry access road. Overburden materials consisted of dry, brown, sandy gravel with occasional cobbles. Bedrock was encountered at a depth of 14.2-feet bgs. A monitoring well was installed to a depth of 14.2-feet bgs and constructed using approximately 10-feet of PVC screen and 5-feet of solid riser. Groundwater was not encountered at this location.

MW-4

Monitoring well MW-4 was installed in the southeastern portion of Period 5. Overburden materials consisted of dry, brown, sandy gravel. Bedrock was encountered at a depth of 3-feet bgs. A monitoring well was installed to a depth of 3-feet bgs and constructed using approximately 2-feet of PVC screen and 1-foot of solid riser. Groundwater was not encountered at this location.

MW-5

Monitoring well MW-5 was installed in the northeastern portion of Period 5. Overburden materials consisted of dry, brown, sandy gravel. Bedrock was encountered at a depth of 5-feet bgs. A monitoring well was installed to a depth of 5-feet bgs and constructed using approximately 4-feet of PVC screen and 1-foot of solid riser. Groundwater was not encountered at this location.

MW-6

Monitoring well MW-6 was installed in the northwestern portion of Period 6. Overburden materials consisted of dry, brown, silty sand, sand, gravel and fragmented bedrock. Bedrock was encountered at a depth of 0.9-feet bgs. A monitoring well was not installed at this location.

MW-7

Monitoring well MW-7 was installed upgradient of the central portion of Period 7. Overburden materials consisted of dry, brown, silty sand, sand, gravel and fragmented bedrock. Bedrock was encountered at a depth of 1.9-feet bgs. A monitoring well was not installed at this location.

MW-8

Monitoring well MW-8 was installed upgradient of the northern portion of Period 7. Overburden materials consisted of dry, brown, silty sand, sand, gravel and fragmented bedrock. Bedrock was encountered at a depth of 1.0-feet bgs. A monitoring well was not installed at this location.

Please refer to **Appendix C** for **Overburden Boring and Monitoring Well Construction Logs**.

4.1 Overburden Monitoring Well Groundwater Levels

Groundwater levels were measured on July 23, 2024, August 5, 2024 and October 17, 2024. Groundwater was not observed in any of the overburden groundwater monitoring wells.

5.0 OCTOBER 2024 BEDROCK MONITORING WELL INSTALLATION

Bedrock groundwater monitoring wells were installed at eight (8) locations on October 17 and 18, 2024. Monitoring wells were installed using a 3-inch diameter air hammer to a depth that was greater than or equal to 50-feet below the proposed pit elevation at the respective location. Lithology, water content and fracture occurrence were logged for each bedrock well. Samples were collected from the drill cuttings at each location for laboratory analysis of acid mine drainage potential which included acid base accounting and shake flask extraction. The results from the acid mine drainage potential analyses are included in a separate report titled "Gordon Services – Keene – Acid Mine Drainage Potential Report", dated December 18, 2024.

Please refer to **Figure 2** for a **Monitoring Well Location Map**.

5.1 Bedrock Well Installation

BRW-1
Monitoring well BRW-1 was installed in the on the boundary between proposed Period 1 and 2 adjacent to MW-1. Bedrock was encountered at a depth of 3.3-feet bgs. The bedrock well was installed as an open borehole to a depth of 54-feet bgs. The ground elevation at this location is 950-feet AMSL. The bottom of the borehole is at an elevation of 896-feet AMSL. The proposed pit floor elevation at this location is 950-feet AMSL. No fractures or water bearing zones were encountered at this location.

BRW-2
Monitoring well BRW-2 was installed east of the central portion of Period 3 adjacent to the proposed quarry access road. Bedrock was encountered at a depth of 12.0-feet bgs. The bedrock well was installed as an open borehole to a depth of 62-feet bgs. The ground elevation at this location is 944-feet AMSL. The bottom of the borehole is at an elevation of 882-feet AMSL. The proposed pit floor elevation at this location is 940-feet AMSL. No fractures or water bearing zones were encountered at this location.

BRW-3
Monitoring well BRW-3 was installed in the western portion of Period 3 along the proposed quarry access road. Bedrock was encountered at a depth of 14.0-feet bgs. The bedrock well was installed as an open borehole to a depth of 51-feet bgs. The ground elevation at this location is 1,052-feet AMSL. The bottom of the borehole is at an elevation of 1,001-feet AMSL. The proposed pit floor elevation at this location is 1050-feet AMSL. No fractures or water bearing zones were encountered at this location.

BRW-4
Monitoring well BRW-4 was installed in the southeastern portion of Period 5. Bedrock was encountered at a depth of 5.0-feet bgs. The bedrock well was installed as an open borehole to a depth

of 141-feet bgs. The ground elevation at this location is 1,103-feet AMSL. The bottom of the borehole is at an elevation of 962-feet AMSL. The proposed pit floor elevation at this location is 1,098-feet AMSL. No fractures or water bearing zones were encountered at this location.

BRW-5

Monitoring well BRW-5 was installed in the northeastern portion of Period 5. Bedrock was encountered at a depth of 3.0-feet bgs. The bedrock well was installed as an open borehole to a depth of 141-feet bgs. The ground elevation at this location is 1,112-feet AMSL. The bottom of the borehole is at an elevation of 971-feet AMSL. The proposed pit floor elevation at this location is 1,098-feet AMSL. No fractures or water bearing zones were encountered at this location.

BRW-6

Monitoring well BRW-6 was installed in the northwestern portion of Period 6. Bedrock was encountered at a depth of 1.0-feet bgs. The bedrock well was installed as an open borehole to a depth of 142-feet bgs. The ground elevation at this location is 1,192-feet AMSL. The bottom of the borehole is at an elevation of 1,050-feet AMSL. The proposed pit floor elevation at this location is 1,098-feet AMSL. No fractures or water bearing zones were encountered at this location.

BRW-7

Monitoring well BRW-7 was installed upgradient of the central portion of Period 7. This well is located outside of the proposed project area. Bedrock was encountered at a depth of 1.9-feet bgs. The bedrock well was installed as an open borehole to a depth of 141-feet bgs. The ground elevation at this location is 1,178-feet AMSL. The bottom of the borehole is at an elevation of 1,037-feet AMSL. The proposed pit floor elevation in Period 7, located approximately 70-feet to the south of BRW-7 is 1,098-feet AMSL. A water bearing fracture was encountered at a depth of 5.0' bgs. The fracture produced less than 5-gpm based on airlift testing conducted during drilling. A water level of 0.96-feet bgs was recorded on the day of drilling. No other fractures or water bearing zones were encountered below a depth of 5.0-feet bgs.

BRW-8

Monitoring well BRW-8 was installed upgradient of the northern portion of Period 7. This well is located outside of the proposed project area. Bedrock was encountered at a depth of 1.0-feet bgs. The bedrock well was installed as an open borehole to a depth of 141-feet bgs. The ground elevation at this location is 1,182-feet AMSL. The bottom of the borehole is at an elevation of 1,041-feet AMSL. The proposed pit floor elevation in Period 7, located approximately 125-feet to the southwest of BRW-8 is 1,098-feet AMSL. A water bearing fracture was encountered at a depth of 9.0' bgs. The fracture produced less than 5-gpm based on airlift testing conducted during drilling. A water level of 0.84-feet bgs was recorded on the day of drilling. No other fractures or water bearing zones were encountered below a depth of 9.0-feet bgs.

Below is a table summarizing the bedrock elevations, depths, groundwater levels and proposed pit floor elevations.

Well	Ground Elevation (ft AMSL)	Bedrock Depth (feet)	Depth/Bottom Elevation (feet/ ft AMSL)	Proposed Pit Floor Elevation (ft AMSL)	Groundwater Elevation (ft AMSL)
BRW-1	950	3	54/896	950	DRY
BRW-2	944	12	62/882	940	DRY
BRW-3	1052	14	51/1,001	1,050	DRY
BRW-4	1,103	3	81/1,022	1,098	DRY
BRW-5	1,112	3	141/971	1,098	DRY
BRW-6	1,192	1	142/1,050	1,098	DRY
BRW-7	1,178	1.9	141/1,037	1,098*	1,177.04
BRW-8	1,182	1	141/1,041	1,098*	1,179.16

*Well is located outside of project area. The pit floor elevation that is noted is the proposed elevation of the nearest excavation.

Please refer to **Appendix D** for **Bedrock Boring and Monitoring Well Construction Logs.**

5.1 Bedrock Monitoring Well Groundwater Levels

Groundwater levels were measured on October 18, 2024, November 1, 2024 and November 8, 2024. All bedrock wells were found to be dry with the exception of wells BRW-7 and BRW-8. Water levels recorded at those locations during each sampling event were all less than 1-foot below ground surface.

6.0 HYDROGEOLOGICAL CONCEPTUAL MODEL

A hydrogeologic conceptual model has been developed based on the previous hydrogeologic investigation report and results from the installation and monitoring of the eight (8) overburden monitoring wells and eight (8) bedrock wells installed for the proposed project.

None of the overburden monitoring wells installed for this project had any observable groundwater. Previously installed overburden monitoring well SRL-10, located in Period 8 of the project area most recently had a groundwater elevation of 831.85 ft AMSL. An elevation of 841.8 ft AMSL.

It is interpreted that recharge to the overburden aquifer is limited at the Site due to the relatively steep topography. Much of the atmospheric water which falls on the Site either runs off as surface water drainage or taken up through plant water uptake (transpiration). Furthermore, the materials encountered in the soil borings advanced prior to the installation of the overburden monitoring wells consisted primarily of a sand and gravel assortment. These materials are generally of very high hydraulic conductivity, suggesting that they have a high capacity to transmit water. Water which does infiltrate into the subsurface has a low residence time due to the steep topography and sloping bedrock interface. Water which may infiltrate into the overburden materials is transported relatively quickly to a base elevation for overburden groundwater which is interpreted to be demonstrated by the water levels observed in SRL-10.

Bedrock groundwater at the Site is controlled by fracture flow due to the crystalline nature of the bedrock which does not have any pore space. Fractures or groundwater bearing zones were not encountered at monitoring wells BRW-1 through BRW-6. A water bearing fracture was encountered during the previous hydrogeologic investigation at SRL-12 at a depth of 28-feet bgs, elevation 862-feet AMSL. The proposed grading in Period 1 does not encounter this elevation. The proposed grading from Period 1 to Period 8 located to the south maintains a separation of approximately 150-feet from the fracture. Water levels observed in SRL-12 are suspect to interference between overburden groundwater and bedrock groundwater due to the cross-screening of the overburden/bedrock interface. However, the proposed grading of the project does not call for excavation into the area of SRL-12 and therefore groundwater is unlikely to be encountered in Period 1.

Bedrock monitoring wells BRW-7 and BRW-8 encountered fractures at shallow depth of 5-feet and 9-feet respectively. These fractures yielded less than 5 gallons per minute. These wells are in an area where the topography slopes to the north, as opposed to the rest of the Site which slopes to the south. It is interpreted that groundwater flow from these wells is to the north, towards the adjacent wetlands.

7.0 PROPOSED WATER LEVEL MONITORING

Based on the results of the previous hydrogeologic investigation and the most recent it is proposed that groundwater level monitoring be conducted monthly at the Site in accordance with the City of Keene's Article 25.3.4C, although no groundwater dewatering is proposed at the Site. Overburden groundwater level monitoring is to be conducted at Site wells including; SRL-10, SRL-12, MW-2 and MW-4. Bedrock groundwater level monitoring is proposed to be conducted SRL-12, BRW-7 and BRW-8. Surface water levels are proposed to be collected from the six (6) wetland areas located adjacent to the project area. Additionally, precipitation data will be collected from a central location at the Site.

Please refer to **Figure 3** for a **Proposed Water Level Monitoring Location Map**.

Water levels will be reviewed in comparison to the precipitation data and noted for anomalous readings which do not align with the conceptual hydrogeologic model of the Site. Results from water level monitoring will be forwarded to the City of Keene on an annual basis in January of each calendar year. If anomalous groundwater levels are encountered the City of Keene will be notified with 24-hours and groundwater level monitoring of all domestic wells within ½-mile of the Site will be initiated. If water quantity disruptions have been observed in a domestic water supply well with 1/2-mile of the Site as a result of excavation activities, a licensed New Hampshire Well Contractor will be immediately retained for installation of a new water supply well in an unaffected area.

8.0 PROPOSED SITE GROUNDWATER QUALITY MONITORING

Due to the potential for groundwater at the Site to be affected by blasting activities, it is proposed that wells SRL-10, SRL-12, BRW-7 and BRW-8 be monitored on a bi-annual basis in the months of April and October for field parameters including; pH, specific conductance, oxidation reduction potential, dissolved oxygen and turbidity and laboratory analysis of volatile organic compounds and nitrate. Baseline, pre-excavation monitoring will consist of the collection of two (2) rounds of samples collected a minimum of 14 calendar days apart. Results will be reviewed in comparison to the New Hampshire Department of Environmental Services (NHDES) Ambient Groundwater Quality

Standards (AGQS). All results will be forwarded to the City of Keene Community Development Department within 45 days of sample collection.

9.0 PROPOSED OFF-SITE GROUNDWATER QUALITY MONITORING

In accordance with Article 25.3.5 all landowners with ½ -mile of the Site will be offered groundwater quality monitoring. Notification will be made to all landowners via United States Postal Service Certified Mail. The notification will include a description of the requirement to offer sampling and analysis of the landowner's domestic drinking water supply well and an option to decline the offer. It should be noted that landowners may opt in or opt out for sampling at any time during the term of the permit.

Baseline, pre-excavation monitoring of participating landowner wells will consist of the collection of two (2) rounds of drinking water samples collected a minimum of 14 calendar days apart. The samples will be analyzed for volatile organic compounds and nitrate. Sample results will be provided to the landowner via standard United State Postal Service mailing. Additionally, baseline results will be forwarded to the City of Keene Community Development Department within 45 days of sample collection.

On-going, post-excavation monitoring of participating landowner wells will consist of the collection of drinking water samples on a bi-annual basis during the term of the permit and 2 years following the cease of operations at the Site and reclamation. Results will be forwarded to landowners and the City of Keene Community Development Department similarly as noted above.

Drinking water results will be compared to the NHDES AGQS. If adverse impacts are noted, the applicant will immediately be notified to cease bedrock excavation. Additionally, NHDES and the City of Keene will be notified. If monitoring indicates that the excavation activities caused the identified contamination, a licensed New Hampshire Well Contractor will be immediately retained for installation of a new water supply well in an area that has not been impacted by contamination.

10.0 PROPOSED GROUNDWATER OCCURRENCE MONITORING

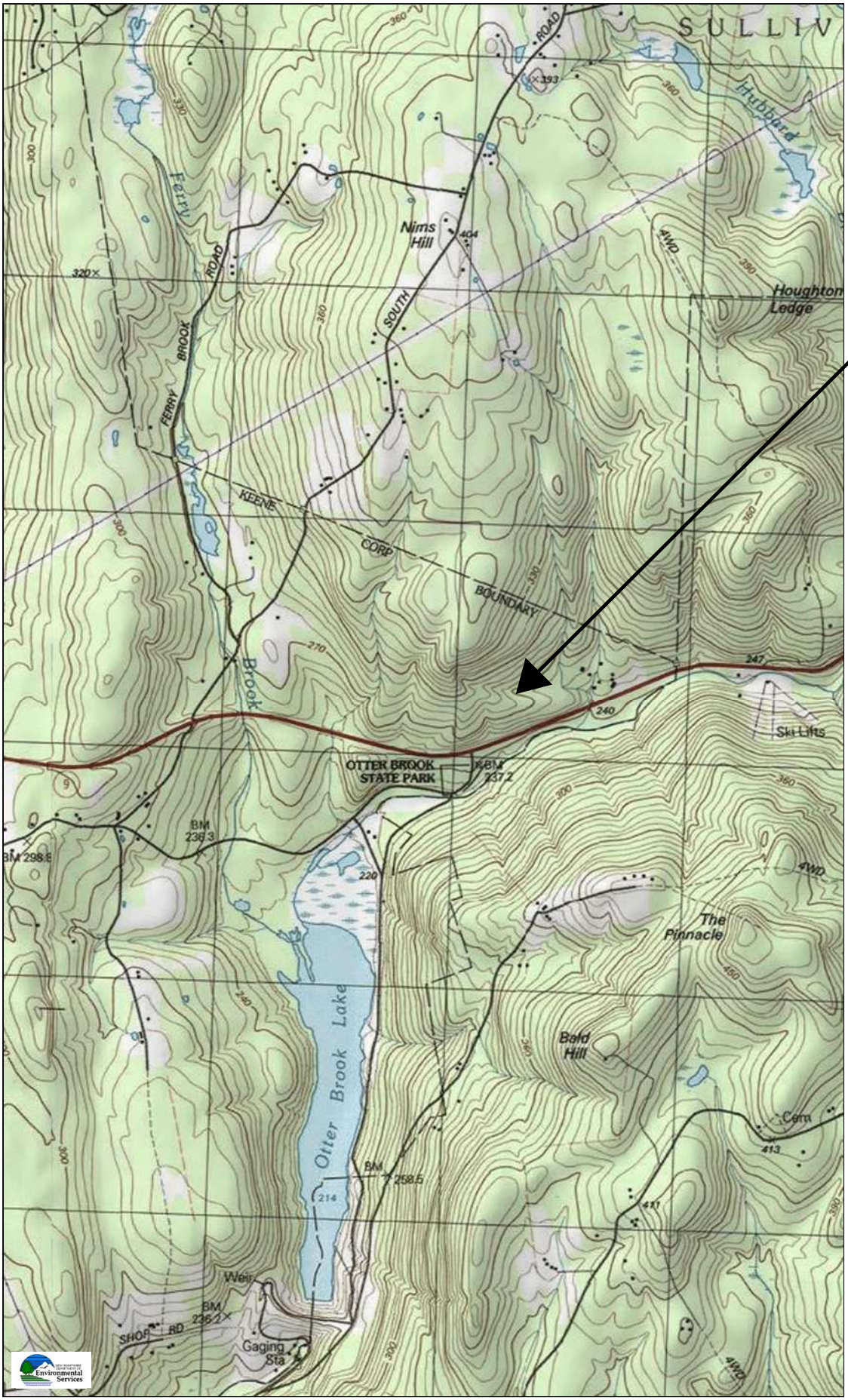
As previously mentioned, bedrock groundwater at the Site is controlled by fracture flow due to the crystalline nature of the bedrock. The blast hole driller shall maintain a log of all boreholes at the Site and note the location of the borehole, depth of the borehole and any fractures or water bearing zones encountered. If a fracture or water bearing zone is encountered in a borehole no blasting shall occur at that location.

FIGURES

Figure 1

Site Location Map

Figure 1 - Site Location Map



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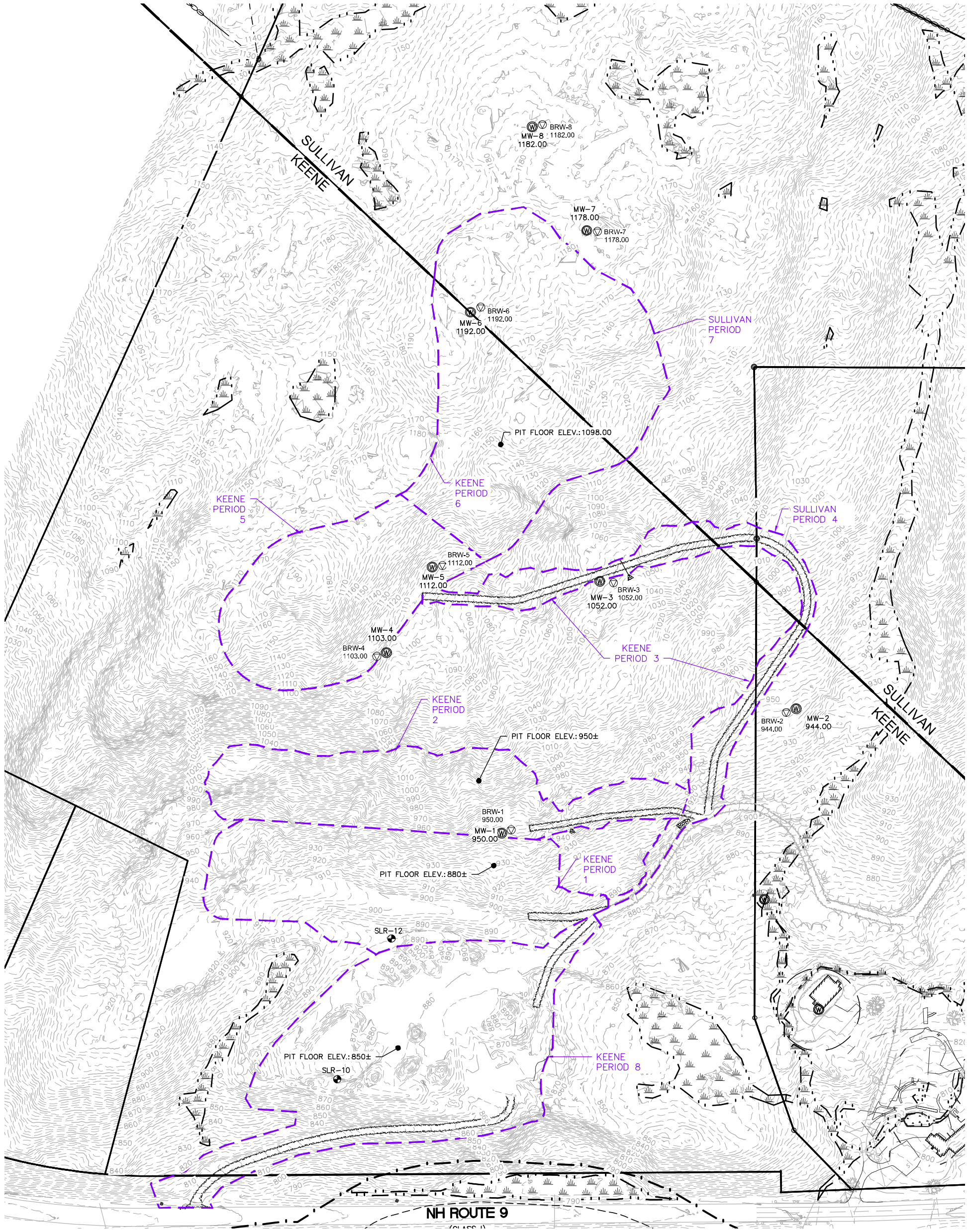
Notes

Figure 2

Site Plan/ Monitoring Well Location Map



LEGEND

- ABUTTER LINE
- PROPERTY LINE
- EXCAVATION SETBACK LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- WETLANDS BOUNDARY
- PROPOSED EDGE OF GRAVEL
- PERIOD LINE
- EX. TREELINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR

GRAPHIC SCALE

150 0 75 150 300 600

(IN FEET)
1 inch = 150 ft.

GRANITE ENGINEERING
civil engineering land planning municipal services

REVISIONS

No.	DATE	COMMENTS	BY
1	12/20/24	PROJECT SUBMITTAL	JD

OWNER/APPLICANT:
G2 HOLDINGS, LLC
250 NORTH STREET
JAFFREY, NH 03452

GRANITE ENGINEERING

civil engineering • land planning • municipal services

150 Dow Street, Tower 2, Suite 421
Manchester,
New Hampshire 03101

603.518.8030

www.GraniteEng.com

STAMP:

LOCATION:
KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
21 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

PROJECT:
GORDON SERVICES KEENE

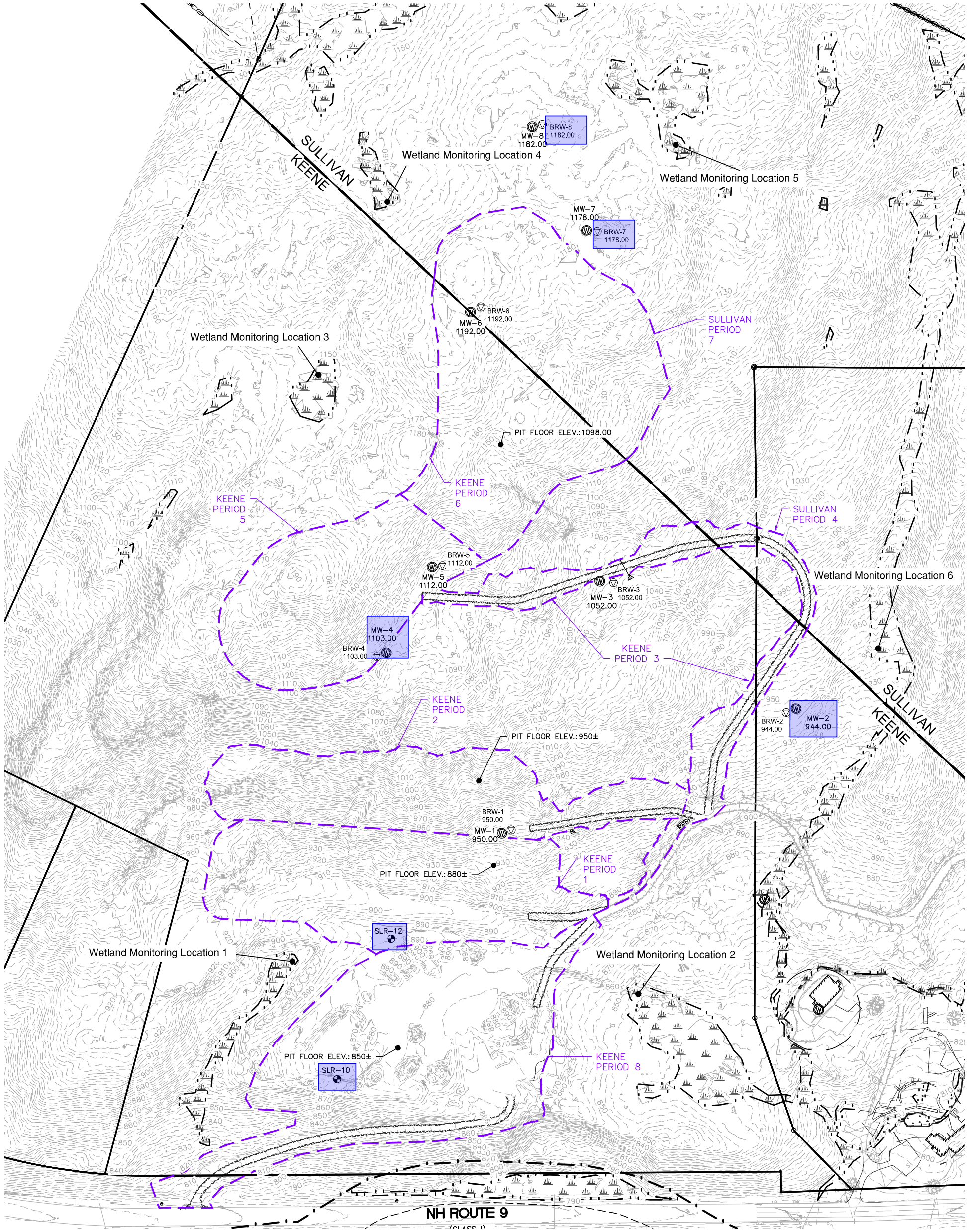
TITLE:
MONITORING WELL LOCATION PLAN

PROJECT No.	DATE:	SCALE:
23-0201-1	DECEMBER 20, 2024	HORIZ. 1"=150'
SHEET: 1 OF 1		

Figure 3

Proposed Water Level

Monitoring Location Map



LEGEND

- ABUTTER LINE
- PROPERTY LINE
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- EXISTING EDGE OF GRAVEL
- WETLANDS BOUNDARY
- PROPOSED EDGE OF GRAVEL
- PERIOD LINE
- EX. TREELINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR

GRAPHIC SCALE

150 0 75 150 300 600

(IN FEET)
1 inch = 150 ft.

REVISIONS

No.	DATE	COMMENTS	BY
1	12/20/24	PROJECT SUBMITTAL	JD

OWNER/APPLICANT:
G2 HOLDINGS, LLC
250 NORTH STREET
JAFFREY, NH 03452

GRANITE ENGINEERING
civil engineering • land planning • municipal services
150 Dow Street, Tower 2, Suite 421
Manchester, New Hampshire 03101
603.518.8030
www.GraniteEng.com

STAMP:

LOCATION:
KEENE TAX MAP 215 LOTS 7 & 8
SULLIVAN TAX MAP 5 LOTS 46 & 46-1
21 ROUTE 9
KEENE & SULLIVAN, NEW HAMPSHIRE
CHESHIRE COUNTY

PROJECT:
GORDON SERVICES KEENE

TITLE:
MONITORING WELL LOCATION PLAN

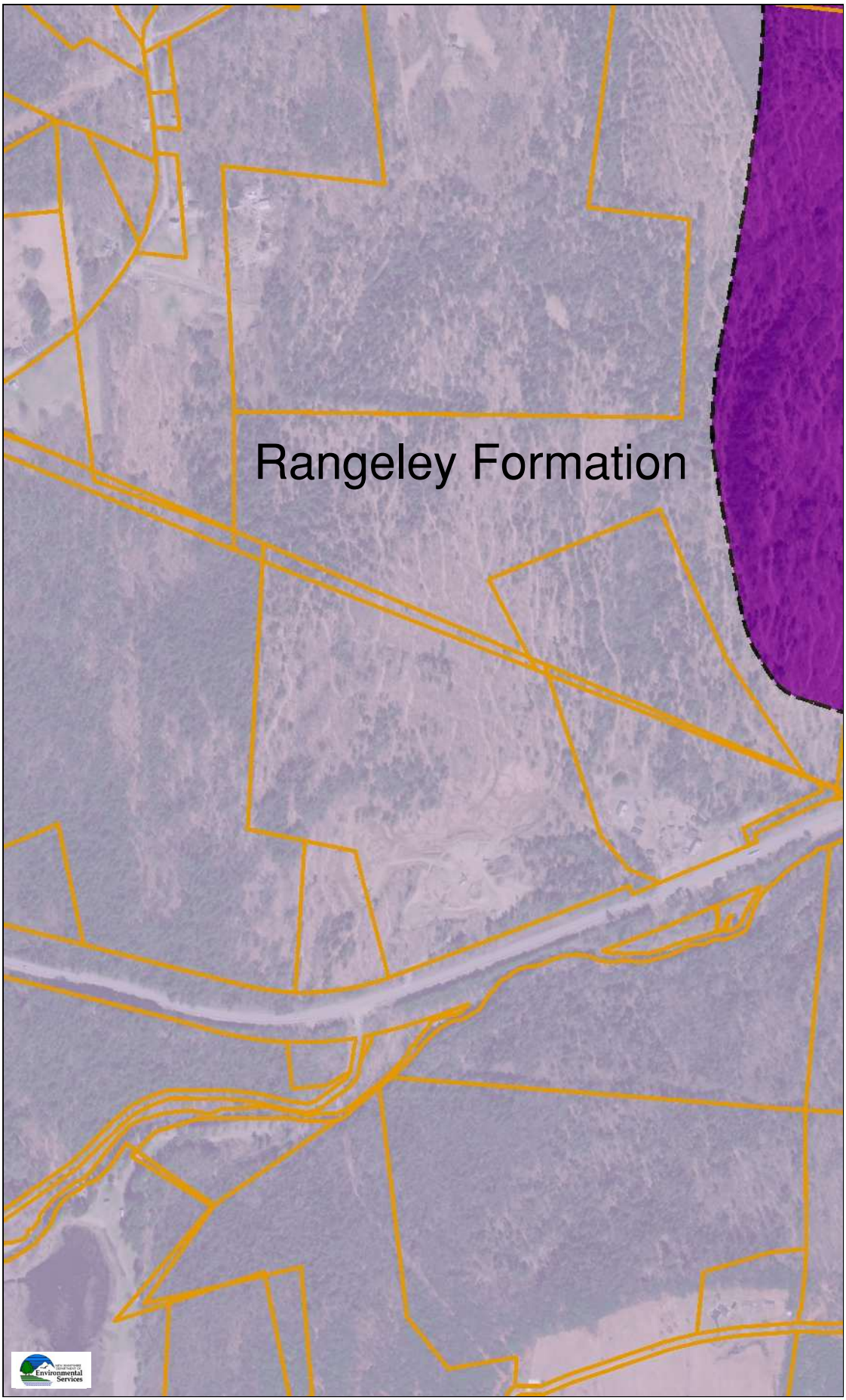
PROJECT No.	DATE:	SCALE:
23-0201-1	DECEMBER 20, 2024	HORIZ. 1"=150'
SHEET: 1 OF 1		

APPENDICES

Appendix A
Physical Setting Documentation

Bedrock Geologic Map

Bedrock Geology



Legend

Parcels

Map Scale

1: 10,000

Map Generated: 12/16/2024

Notes

NRCS Soil Map and Description

Soil Map—Cheshire County, New Hampshire
(Gordon Services - Keene Pit Soils)

Map Scale: 1:4,320 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cheshire County, New Hampshire
Survey Area Data: Version 28, Sep 3, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 15, 2020—Oct 31, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
22C	Colton gravelly sandy loam, 8 to 15 percent slopes	0.1	0.2%
61C	Tunbridge-Lyman-Rock outcrop complex, 8 to 15 percent slopes	2.9	5.3%
61D	Tunbridge-Lyman-Rock outcrop complex, 15 to 25 percent slopes	20.6	37.5%
73C	Berkshire fine sandy loam, 8 to 15 percent slopes, very stony	5.7	10.3%
73D	Berkshire fine sandy loam, 15 to 25 percent slopes, very stony	18.1	33.0%
77E	Marlow fine sandy loam, 25 to 50 percent slopes, very stony	5.6	10.1%
161E	Lyman-Tunbridge-Rock outcrop complex, 25 to 60 percent slopes	0.4	0.7%
169C	Sunapee fine sandy loam, 8 to 15 percent slopes, very stony	1.6	2.8%
Totals for Area of Interest		**54.9**	**100.0%**

Cheshire County, New Hampshire

22C—Colton gravelly sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2yjfn
Elevation: 10 to 2,000 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Colton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colton

Setting

Landform: Outwash terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy-skeletal glaciofluvial deposits

Typical profile

Ap - 0 to 7 inches: gravelly sandy loam
Bs - 7 to 14 inches: gravelly loamy sand
BC - 14 to 24 inches: very gravelly coarse sand
C - 24 to 65 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F146XY071ME - Sandy

Hydric soil rating: No

Minor Components

Adams

Percent of map unit: 10 percent
Landform: Outwash terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Sheepscot

Percent of map unit: 3 percent
Landform: Outwash terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Croghan

Percent of map unit: 2 percent
Landform: Outwash terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Data Source Information

Soil Survey Area: Cheshire County, New Hampshire
Survey Area Data: Version 28, Sep 3, 2024

Cheshire County, New Hampshire

61C—Tunbridge-Lyman-Rock outcrop complex, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2trpj
Elevation: 160 to 3,480 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Tunbridge, very stony, and similar soils: 39 percent
Lyman, very stony, and similar soils: 30 percent
Rock outcrop: 19 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tunbridge, Very Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountaintop, mountainbase, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
Oa - 3 to 5 inches: highly decomposed plant material
E - 5 to 8 inches: fine sandy loam
Bhs - 8 to 11 inches: fine sandy loam
Bs - 11 to 26 inches: fine sandy loam
BC - 26 to 28 inches: fine sandy loam
R - 28 to 38 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F144BY702ME - Shallow and Moderately-deep Till
Hydric soil rating: No

Description of Lyman, Very Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountaintop, mountainbase, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F144BY702ME - Shallow and Moderately-deep Till
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountaintop, mountainbase, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Igneous and metamorphic rock

Typical profile

R - 0 to 10 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low to very high (0.00 to 14.17 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Ecological site: F144BY801ME - Rockland (reserved)
Hydric soil rating: Unranked

Minor Components

Peru, very stony

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, mountaintop, mountainbase, side slope, crest
Microfeatures of landform position: Open depressions, open depressions, closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Moosilauke, very stony

Percent of map unit: 4 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, mountaintop, mountainbase, side slope, crest
Microfeatures of landform position: Open depressions, open depressions, closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Monadnock, very stony

Percent of map unit: 3 percent

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountaintop, mountainbase, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Data Source Information

Soil Survey Area: Cheshire County, New Hampshire
Survey Area Data: Version 28, Sep 3, 2024

Cheshire County, New Hampshire

61D—Tunbridge-Lyman-Rock outcrop complex, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2trpk
Elevation: 520 to 1,970 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Tunbridge, very stony, and similar soils: 40 percent
Lyman, very stony, and similar soils: 29 percent
Rock outcrop: 18 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tunbridge, Very Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountaintop, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
Oa - 3 to 5 inches: highly decomposed plant material
E - 5 to 8 inches: fine sandy loam
Bhs - 8 to 11 inches: fine sandy loam
Bs - 11 to 26 inches: fine sandy loam
BC - 26 to 28 inches: fine sandy loam
R - 28 to 38 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F144BY702ME - Shallow and Moderately-deep Till
Hydric soil rating: No

Description of Lyman, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountaintop, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F144BY702ME - Shallow and Moderately-deep Till
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountaintop, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Igneous and metamorphic rock

Typical profile

R - 0 to 10 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low to very high (0.00 to 14.17 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Ecological site: F144BY801ME - Rockland (reserved)
Hydric soil rating: Unranked

Minor Components

Peru, very stony

Percent of map unit: 6 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, mountaintop, side slope, crest
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Moosilauke, very stony

Percent of map unit: 4 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, mountaintop, side slope, crest
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Monadnock, very stony

Percent of map unit: 3 percent

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountaintop, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Data Source Information

Soil Survey Area: Cheshire County, New Hampshire
Survey Area Data: Version 28, Sep 3, 2024

Cheshire County, New Hampshire

73C—Berkshire fine sandy loam, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2wllw
Elevation: 130 to 1,840 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 55 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of local importance

Map Unit Composition

Berkshire, very stony, and similar soils: 87 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Berkshire, Very Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, mountainflank, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial meltout till derived from phyllite and/or loamy supraglacial meltout till derived from granite and gneiss and/or loamy supraglacial meltout till derived from mica schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 4 inches: fine sandy loam
E - 4 to 5 inches: fine sandy loam
Bs1 - 5 to 7 inches: fine sandy loam
Bs2 - 7 to 13 inches: fine sandy loam
Bs3 - 13 to 21 inches: fine sandy loam
BC1 - 21 to 28 inches: fine sandy loam
BC2 - 28 to 33 inches: fine sandy loam
C - 33 to 65 inches: fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Peru, very stony

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, mountainflank, interfluve, nose slope, side slope
Microfeatures of landform position: Open depressions, closed depressions, open depressions, closed depressions
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Tunbridge, very stony

Percent of map unit: 3 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, mountainflank, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Marlow, very stony

Percent of map unit: 3 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, mountainflank, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Lyme, very stony

Percent of map unit: 2 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, mountainflank, interfluve, nose slope, side slope

Microfeatures of landform position: Open depressions, closed depressions, open depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Cheshire County, New Hampshire
Survey Area Data: Version 28, Sep 3, 2024

Cheshire County, New Hampshire

73D—Berkshire fine sandy loam, 15 to 25 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2wllx
Elevation: 460 to 1,840 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 55 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Berkshire, very stony, and similar soils: 88 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Berkshire, Very Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial meltout till derived from phyllite and/or loamy supraglacial meltout till derived from granite and gneiss and/or loamy supraglacial meltout till derived from mica schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 4 inches: fine sandy loam
E - 4 to 5 inches: fine sandy loam
Bs1 - 5 to 7 inches: fine sandy loam
Bs2 - 7 to 13 inches: fine sandy loam
Bs3 - 13 to 21 inches: fine sandy loam
BC1 - 21 to 28 inches: fine sandy loam
BC2 - 28 to 33 inches: fine sandy loam
C - 33 to 65 inches: fine sandy loam

Properties and qualities

Slope: 15 to 25 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Peru, very stony

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Convex, concave
Across-slope shape: Convex, concave
Hydric soil rating: No

Lyman, very stony

Percent of map unit: 4 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Lyme, very stony

Percent of map unit: 2 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, closed depressions, open depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Marlow, very stony

Percent of map unit: 1 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Data Source Information

Soil Survey Area: Cheshire County, New Hampshire
Survey Area Data: Version 28, Sep 3, 2024

Cheshire County, New Hampshire

77E—Marlow fine sandy loam, 25 to 50 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2ty5t
Elevation: 360 to 2,360 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Marlow, very stony, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Marlow, Very Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 5 inches: fine sandy loam
E - 5 to 8 inches: fine sandy loam
Bs1 - 8 to 15 inches: fine sandy loam
Bs2 - 15 to 19 inches: fine sandy loam
BC - 19 to 33 inches: gravelly fine sandy loam
Cd - 33 to 65 inches: fine sandy loam

Properties and qualities

Slope: 25 to 50 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: 20 to 41 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Minor Components

Peru, very stony

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Berkshire, very stony

Percent of map unit: 4 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Tunbridge, very stony

Percent of map unit: 4 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Pillsbury, very stony

Percent of map unit: 2 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, nose slope, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Cheshire County, New Hampshire
Survey Area Data: Version 28, Sep 3, 2024

Cheshire County, New Hampshire

161E—Lyman-Tunbridge-Rock outcrop complex, 25 to 60 percent slopes

Map Unit Setting

National map unit symbol: 2trpr
Elevation: 460 to 2,490 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 55 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Lyman, very stony, and similar soils: 50 percent
Tunbridge, very stony, and similar soils: 26 percent
Rock outcrop: 12 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyman, Very Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 25 to 60 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F143XY702ME - Shallow And Moderately Deep Till
Hydric soil rating: No

Description of Tunbridge, Very Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
Oa - 3 to 5 inches: highly decomposed plant material
E - 5 to 8 inches: fine sandy loam
Bhs - 8 to 11 inches: fine sandy loam
Bs - 11 to 26 inches: fine sandy loam
BC - 26 to 28 inches: fine sandy loam
R - 28 to 38 inches: bedrock

Properties and qualities

Slope: 25 to 60 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F143XY702ME - Shallow And Moderately Deep Till, F143XY703ME - Shallow And Moderately Deep Humic Till
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, free face, side slope, free face
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Igneous and metamorphic rock

Typical profile

R - 0 to 10 inches: bedrock

Properties and qualities

Slope: 25 to 60 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low to very high (0.00 to 14.17 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Ecological site: F143XY801ME - Rockland
Hydric soil rating: Unranked

Minor Components

Monadnock, very stony

Percent of map unit: 7 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Marlow, very stony

Percent of map unit: 3 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Cabot, very stony

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave

Across-slope shape: Concave
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Cheshire County, New Hampshire
Survey Area Data: Version 28, Sep 3, 2024

Cheshire County, New Hampshire

169C—Sunapee fine sandy loam, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2trs8
Elevation: 690 to 2,200 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of local importance

Map Unit Composition

Sunapee, very stony, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sunapee, Very Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, mountainflank, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy supraglacial meltout till derived from phyllite and/or granite and gneiss and/or mica schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 3 inches: fine sandy loam
E - 3 to 5 inches: gravelly fine sandy loam
Bhs - 5 to 6 inches: gravelly fine sandy loam
Bs1 - 6 to 8 inches: gravelly fine sandy loam
Bs2 - 8 to 17 inches: gravelly fine sandy loam
Bs3 - 17 to 26 inches: gravelly fine sandy loam
C1 - 26 to 38 inches: gravelly sandy loam
C2 - 38 to 65 inches: gravelly sandy loam

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.03 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F143XY501ME - Loamy Slope
Hydric soil rating: No

Minor Components

Lyme, very stony

Percent of map unit: 6 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, mountainflank, interfluve, nose slope, side slope
Microfeatures of landform position: Open depressions, closed depressions, open depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Berkshire, very stony

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, mountainflank, interfluve, nose slope, side slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Peru, very stony

Percent of map unit: 2 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, mountainflank, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Monadnock, very stony

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, mountainflank, interfluve, nose slope, side slope
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex

Across-slope shape: Convex
Hydric soil rating: No

Data Source Information

Soil Survey Area: Cheshire County, New Hampshire
Survey Area Data: Version 28, Sep 3, 2024

Flood Insurance Rate Map

National Flood Hazard Layer FIRMette

FEMA

72°13'58"W 42°58'30"N

72°13'20"W 42°58'4"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR 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*

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

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 12/16/2024 at 4:14 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Appendix B

SLR International Limited Hydrogeologic Investigation Report

March 25, 2022

Mr. Jeff Kevan
TF Moran, Inc.
48 Constitution Drive
Bedford, NH 03110

RE: Limited Hydrogeologic Investigation
Proposed Sand and Gravel Pit
Tax Map 215, Lot 7
Route 9 Keene, NH
SLR #144.16535.00023

Dear Jeff:

SLR International Corporation (SLR) has completed a Limited Hydrogeologic Investigation for TF Moran, Inc. (TFM) in accordance with the March 2, 2022 proposed scope of work for the proposed sand and gravel pit to be located at the property identified as City of Keene Tax Map 215, Lot 7 situated off of New Hampshire Route 9 in Keene, NH. It is SLR's understanding that the City of Keene requires a 6 foot vertical separation distance between bottom of excavation and seasonal high water table (SHWT). Prior review of the TF Moran Sheet 1 of 3 dated January 21, 2022 indicated proposed excavation depths of approximately 15± feet to 30± feet.

On March 15, 16, and 17, 2022, SLR personnel supervised the installation of three borings that were each developed as groundwater monitoring wells (SLR-10, SLR-11, SLR-12) to approximately 40± to 55± feet deep that also penetrated at least 10± feet below the proposed sand and gravel pit bottom excavation depth. The purpose of these monitoring wells was to provide information regarding depth to groundwater and bedrock depth, where encountered. The results of this Limited Hydrogeologic Investigation are intended to aid your office in the evaluation of groundwater depths and flow direction in the area of the proposed sand and gravel pit.

PRIOR TEST PITS – SEPTEMBER 10 AND OCTOBER 22, 2020

On September 10, 2020, eleven test pits TP-1 through TP-11, as shown on Figure 1, were excavated under the observation of a geotechnical engineer from our office to evaluate geologic conditions for the proposed sand and gravel pit.

The surface and near surface shallow soil conditions encountered in the test pits consist of forest mat/topsoil materials. Granular fill materials were encountered in TP-1 and TP-7. Granular glacial outwash

deposits were encountered in test pits TP-2, -3, -4, -5, -6, -12, and -13. The main component of the subsurface materials below the upper level outwash deposits consists of glacial till deposits.

Miscellaneous fill was encountered in TP-1 and TP-7 to depths of approximately 5-feet and 2-feet, respectively. Below the fill in TP-7 are sand and silt subsoil materials. These materials consist of grey-brown coarse to fine sand, some silt, little cobbles/boulders. The fill materials likely consist of remolded glacial till from elsewhere on the site.

Glacial outwash deposits consisting of brown coarse to fine sand, and little gravel, little silt was encountered in TP-2, TP-3, TP-4, TP-5, and TP-6.

Each exploration encountered glacial till deposits. These till deposits consist of olive brown to grey coarse to fine sand some silt with varying amounts of gravel. Note that cobbles and boulders were encountered within the till deposits.

Probable bedrock was encountered in TP-7, TP-8, TP-9, and TP-10. Note that bedrock outcrops and large glacial erratics were observed near TP-8 and TP-9.

Selected soil samples were obtained from the test pits, and gradation analyses were conducted in general accordance with ASTM D422/D1140. Results of these analyses are attached and summarized in the below table:

Test Pit Summary				
Test Pit ID	**Total Depth (feet)**	**Sieve Sample Depth (feet)**	**Geologic Stratum**	**% Finer than #200 Sieve**
TP-1	15	6-8	Till	41.6
TP-2	15	10-12	Till	11.9
TP-3	14	7-9	Till	59.7
TP-4	15.5	2-4	Outwash	14.6
TP-5	13	8-10	Till	31.2
TP-6	14	4-7	Till	42.6
TP-7	12	4-6	Till	15.1
TP-8	3	Not Taken		
TP-9	9	4-6	Till	11.2
TP-10	5.5	1-3	Till	13.7
TP-11	14	Not Taken		
TP-12	8	3-4	Outwash	3.8
TP-13	6	4-5	Till	20.7
TP-14	6.5	1-3	Till	28.1
TP-15	6	Not Taken		
TP-16	5	Not Taken		

The Surficial Geologic Map of the Marlborough 7.5 Minute quadrangle, Cheshire County, New Hampshire notes that the site is underlain by Glacial Till Deposits. The 1997 Bedrock Geologic Map of New Hampshire has the bedrock mapped as the lower part of the Rangeley Formation consisting of gray, thinly laminated metapelite with local lentils of turbidites and thin quartz conglomerates; including sparse calc-silicate pods and coticule.

For reference, the test pit logs are attached to this report. The results of this test pit soil investigation were presented in the October 7 and 30, 2020 individual reports to TFM.

PRIOR TEST BORINGS - DECEMBER 9, 2021

On December 9, 2021, SLR documented the installation of six test borings designated SLR-1 to SLR-6 as shown on Figure 1. These borings were installed by New England Boring Contractors of Derry, New Hampshire using standard hollow stem auger boring drilling techniques to depths of 5± feet to 28± with split spoon samples recovered generally at 2-foot intervals. Ground surface elevations at boring locations were estimated by linear interpolation based on topographic contour intervals shown on the Grading and Drainage Plan provided by TFM. Boring locations and elevations should be considered accurate to the degree implied by the measuring methods used.

Soil samples from the test borings were classified in the field by SLR in general accordance with the Burmeister Soil Classification System. As presented in the attached boring logs, the surface and near surface shallow soil conditions at the site consist of forest mat/topsoil materials. Granular glacial outwash deposits were encountered in test borings SLR-1, SLR-4, SLR-5, and SLR-6. The main component of the subsurface materials below the upper level outwash deposits consists of glacial till deposits.

Refusal conditions encountered in SLR-1, SLR-2, SLR-4, SLR-5, and SLR-6 were inferred to be indicative of tightly nested boulders, hard weathered bedrock, or competent bedrock. Selected soil samples were obtained from the test borings as well as one from an existing processed soil stockpile on-site. Gradation analyses were conducted in general accordance with ASTM D6913. Results of these analyses are attached hereto and are summarized in the below table.

Test Boring Summary				
Boring Sample	**Total Depth (feet)**	**Sieve Sample Depth (feet)**	**Geologic Stratum**	**% Finer than #200 Sieve**
SLR-1	20.5	9-11	Till	37.1
SLR-2	5	Not taken		
SLR-3	25	Not taken		
SLR-4	14.7	4-6	Outwash	14.5
SLR-5	28	4-6	Outwash	7.1
SLR-5	28	9-11	Outwash	8.7
SLR-5	28	14-16	Till	62.5
SLR-6	10	4-6	Outwash	19.7

No groundwater monitoring wells were installed at these borings. For reference, boring logs are attached to this report. The results of this test boring investigation were presented in the January 5, 2021 letter report to TFM.

WELL INSTALLATION - MARCH 15-17, 2022

On March 15 to 17, 2022, SLR personnel observed the installation of three groundwater monitoring wells (SLR-10, SLR-11, SLR-12) as shown on the attached Figure 1 to evaluate depths to groundwater relative to the proposed excavation depths of the proposed sand and gravel pit. The groundwater monitoring wells, which were located approximately 350± to 450± feet apart, were advanced using hollow stem augers through the overburden soil and an air hammer through bedrock where encountered. No soil or bedrock core sampling was performed for these well installations. The borings were advanced depths of 39.5± to 76± feet below ground surface in order to be at least 10± feet below proposed bottom of excavation depths.

Table 1 summarizes the ground surface elevation, proposed sand and gravel pit excavation depth, total boring and well depths, well elevation, well screen interval, and depth/elevation to groundwater (where encountered). Each of the wells was installed with a steel guard pipe protective cover 3 to 4 feet above surface grades. The construction logs for each well are attached hereto.

Boring/well SLR-10

Boring/well SLR-10, which is located in the southwest corner of the proposed sand and gravel pit area, was installed to a depth of 55± feet below the ground surface elevation of EL 883±. The bottom elevation of the boring/well was EL 828± feet relative to a proposed excavation depth of EL 854± feet, the well screen interval was set at 5 to 55 feet, and groundwater was measured at EL 840.2± feet. Depth to groundwater shown in Table 1 was measured from surface grade and not the PVC well, which has a stickup inside the steel guard pipe approximately 1.7 feet above grade.

The soils encountered during drilling of boring SLR-10 consisted of native fill from 0 to 6 feet underlain by glacial till from 6 to 55 feet below grade. No bedrock was encountered.

Boring/well SLR-11

Boring/well SLR-11, which is located in the east side of the proposed sand and gravel pit area, was installed to a depth of 76± feet for the boring itself and a depth of 45.2± feet for the groundwater monitoring well from a ground surface elevation of 863±. The bottom elevation of the well was 817.8± feet relative to a proposed excavation depth of 856± feet, the well screen interval was 5 to 45 feet, no groundwater was observed at the bottom of the well to at least EL 817.8± feet. The dimensions shown in Table 1 were measured from surface grade and not the PVC well, which has a stickup inside a steel guard pipe of 2.3 feet above grade.

The soils encountered during installation of boring SLR-11 consisted of native fill from 0 to 14 feet underlain by glacial till from 14 to 76 feet below grade. No bedrock or apparent groundwater was encountered during drilling activities.

Boring/well SLR-12

Boring/well SLR-12, which is located in the northwest corner of the proposed sand and gravel pit area, was installed to a depth of 39.5± feet below the ground surface at EL 890±. The bottom elevation of the boring/well was EL 850.5± feet relative to a proposed excavation depth of EL 858± feet, the well screen interval was 4.5 to 39.5 feet, and groundwater elevation was measured at EL 888.5± feet. Depth to groundwater shown in Table 1 was measured from surface grade and not the PVC well, which was a stickup inside a steel guard pipe of 2.7 feet above grade.

The soils encountered during installation of boring SLR-10 consisted of glacial till from 0 to 9 feet underlain by weathered bedrock from 9 to 11 feet and competent bedrock between 11 to 39.5 feet below grade. An apparent water bearing fracture was encountered at 28± feet below grade.

Groundwater Depth and Flow Direction

The results of groundwater elevations obtained on March 22, 2022, which were measured from existing ground surfaces adjacent to well locations, indicate that depth to groundwater was observed at 42.5 feet below grade at well SLR-10, not observed to at least 45.2 feet below grade at well SLR-11, and observed at 1.5 feet below grade at well SLR-12. Prior to completing the SLR-11 well installation at 45.2 feet below grade, boring SLR-11 was advanced to 76 feet below grade in which no bedrock nor overt evidence of groundwater was observed.

Based on relative groundwater elevations observed in wells SLR-10 and SLR-12 and lack of groundwater observed at the bottom of well SLR-11, the inferred groundwater flow direction in the proposed sand and gravel pit area is east/southeasterly. This groundwater flow direction generally mimics surface topography that slopes downward toward the intersection where an unnamed brook/stream, which is located along the east boundary of the subject property, flows into Otter Brook, which is located approximately several hundred feet to the south on the south side of Franklin Pierce Highway Route 9. Inferred groundwater contour intervals and flow direction are illustrated on the attached Figure 1.

Please do not hesitate to contact this office should you have any questions on the above or require further information.

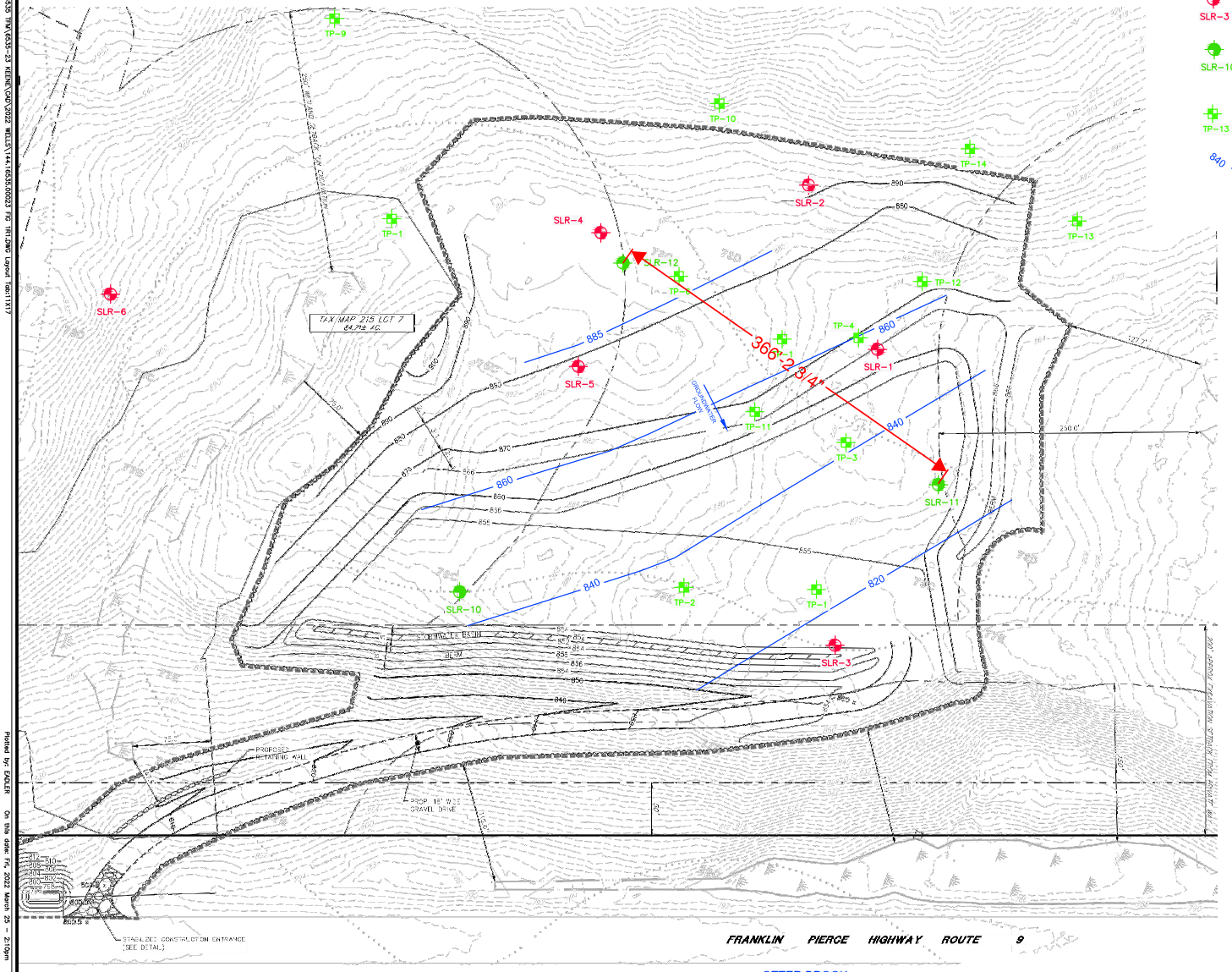
Sincerely,

SLR International Corporation

Stephan H. Landry, LSP, WWTPO 2-I, Geologist
Principal Consultant

Charles E. Teale, PE, LSP
Sr. Principal Engineer

Enclosures: Figure 1 – Exploration and Groundwater Flow Plan
Table 1 – Ground Surface, Well and Groundwater Elevations
Test Pit Logs – TP-1 to TP-16
Boring Logs – SLR-1 to SLR-6
Well Construction Logs – SLR-10, SLR-11, SLR-12
Soil Gradation Test Results



LEGEND

SLR-3 — APPROXIMATE LOCATION & DESIGNATION OF TEST BORING CONDUCTED BY NEW ENGLAND BORING CONTRACTORS OF DERRY NEW HAMPSHIRE ON DECEMBER 9, 2021; OBSERVED BY SLR.

SLR-10 — APPROXIMATE LOCATION & DESIGNATION OF FULL PENETRATION OBSERVATION WELL,INSTALLED BY NEW ENGLAND BORING CONTRACTORS BETWEEN MARCH 15 AND 17, 2022, AS OBSERVED BY SLR..

TP-13 — APPROXIMATE LOCATION & DESIGNATION OF TEST PIT BY GORDON SERVICES ON 9/10,/2020 OR 10/22/2020OBSERVED BY TFMORAN AND MMI

840 — APPROXIMATE INFERRED GROUNDWATER ELEVATION CONTOUR.

0' 50' 100'
0 1/2" 1"
SCALE 1" = 100'

NOTE: BASE PLAN "GRADING AND DRAINAGE PLAN - PHASE 2, EXCAVATION SITE, RTE. 9, KEENE/SULLIVAN/ROXBURY, NH OWNED BY/PREPARED FOR G2 HOLDINGS LLC" BY TF MORAN DATED MARCH 18, 2022

SLR
2 COMMERCE DRIVE, SUITE 110
BEDFORD, NH 03110
(603) 836-3310
SLRCONSULTING.COM

REVISIONS

FIGURE 1 - EXPLORATION & GROUNDWATER FLOW PLAN

PROPOSED GRAVEL PIT

FRANKLIN PIERCE HIGHWAY
KEENE, NEW HAMPSHIRE

SL	EAA	CET
DESIGNED	DRAWN	CHECKED

SCALE: 1"=100'

DATE: MARCH 2022

PROJECT NO.: 144.16535.00023

SHEET NO.: FIG 1

Drawing: B:\6500\16535 TRA\16535-23 KEENE\CAD\2022 WELLS\144-16535-00023 FIG 1RFLDWG Layout: Tab1 11X17
Plotted by: EADLER On: this date: Fri, 2022 March 25 - 2:10pm

TABLE 1
GROUND SURFACE, WELL, AND GROUNDWATER ELEVATIONS
Tax Map 215, Lot 7
Route 9, Keene, New Hampshire
Project # 144.16535.00023

Well ID	Ground Surface Elevation (feet)	Proposed Excavation Depth	Well Elevation At Top PVC (feet)	Total Well Depth (feet)	Bottom Well Elevation from Ground Surface (feet)	PVC Well Screen Interval (feet)	Depth to Groundwater Date	Depth to Groundwater from Ground Surface (feet)	Groundwater Elevation (feet)
SLR-10	883 ±	854 ±	884.7 ±	55	828 ±	5-55	3/22/22	42.9	840.1 ±
SLR-11	863 ±	856 ±	865.3 ±	45.2	817.8 ±	5-45	3/22/22	dry at 45.2	817.8 ±
SLR-12	890 ±	858 ±	892.7 ±	39.5	850.5 ±	4.5-39.5	3/22/22	1.5	888.5 ±

Notes:

1 . Ground surface and well elevation at monitoring well locations were provided by TF Moran
2. Groundwater level readings taken 3/22/22 using an electronic water level meter.
3. 2-inch PVC wells installed 3/15-17/22.
4. Proposed excavation depths taken from TFM Grading and Drainage Plan dated 3/18/22

TEST PIT LOG

MILONE & MACBROOM
2 Commerce Drive, Suite 110
Bedford, New Hampshire 03110
(603) 668-1654

PROJECT:	**Proposed Gravel Pit**	**TEST PIT NO.:** **TP-1**	**SHEET:** 1 of 1
LOCATION:	Franklin Pierce Highway, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJ. NO:	6535-23	**FOREMAN:**	
CLIENT:	TF Moran	**INSPECTOR:**	E. Adler
DATE:	September 10, 2020	**GROUND SURFACE ELEVATION:**	±872

EQUIPMENT		**TEST PIT DIMENSIONS (FT)**		**GROUNDWATER OBSERVATIONS**				**OTHER**
TYPE	Excavator							☐ FIELD TESTING
MAKE/MODEL	CAT 320	LENGTH	20	ELAPSED TIME (HR)				☐ LABORATORY TESTING
REACH (FT)	15	WIDTH	4	DEPTH (FT)				☐ PID SCREENING
CAPACITY (CY)	0.25	DEPTH	15	☒ **NO GROUNDWATER ENCOUNTERED**				☐

Depth (FT)	EXCAVATION EFFORT	BOULDER COUNT (QTY/CLASS)	REMARK NUMBER	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
1	E			Light brown coarse to fine SAND, little Gravel, little Silt, no structure, no odor, moist.	**FILL** 1.0	
2				Dark grey-brown coarse to fine SAND, some Silt, little (+) cobbles, mps=18", slightly bonded in-situ, no odor, moist.	**FILL**	
3	E					
4						
5					5	
5				Brown coarse to fine SAND, little (+) Silt, trace Gravel, no odor, moist.	5.5	
6				Dark grey-brown coarse to fine SAND, some Silt, little (+) Gravel, little cobbles/boulders, mps=24", well bonded in-situ, no odor, moist.	**TILL**	
7	D					
8						
9						
10						
11						
12	D					
13						
14						
15					15	
				Bottom of Exploration at ± 15'		

Remarks:

BOULDER DESIGNATION	
SIZE (IN)	DESIGNATION
6 to 18	A
18 to 36	B
36+	C

EXCAVATION EFFORT
E = EASY
M = MODERATE
D = DIFFICULT

PROPORTIONS
trace = 0% to 10%
little = 10% to 20%
some = 20% to 35%
and = 35 to 50%

TEST PIT LOG

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(603) 668-1654

PROJECT:	**Proposed Gravel Pit**	**TEST PIT NO.:** **TP-2**	**SHEET:** 1 of 1
LOCATION:	Franklin Pierce Highway, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJ. NO:	6535-23	**FOREMAN:**	
CLIENT:	TF Moran	**INSPECTOR:**	E. Adler
DATE:	September 10, 2020	**GROUND SURFACE ELEVATION:**	±877

EQUIPMENT		**TEST PIT DIMENSIONS (FT)**		**GROUNDWATER OBSERVATIONS**				**OTHER**
TYPE	Excavator							☐ FIELD TESTING
MAKE/MODEL	CAT 320	LENGTH	20	ELAPSED TIME (HR)				☐ LABORATORY TESTING
REACH (FT)	15	WIDTH	4	DEPTH (FT)				☐ PID SCREENING
CAPACITY (CY)	0.25	DEPTH	15	☒ **NO GROUNDWATER ENCOUNTERED**				☐

Depth (FT)	EXCAVATION EFFORT	BOULDER COUNT (QTY/CLASS)	REMARK NUMBER	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
1	M			Red-brown medium to fine SAND, little Gravel, little (+) Silt, no structure, no odor, moist.	**OUTWASH**	
2						
3						
	M			Note redoximorphic mottling at ±3.5'	3.5	
4					4.0	
5				Grey-brown coarse to fine SAND, some (-) Silt, little Gravel, little cobbles/boulders, mps=30", well bonded in-situ, no odor, moist.	**TILL**	
	D					
6						
7						
8						
9						
10						
11						
12						
	D					
13						
14						
15					15	
				Bottom of Exploration at ± 15'		

Remarks:

BOULDER DESIGNATION	
SIZE (IN)	DESIGNATION
6 to 18	A
18 to 36	B
36+	C

EXCAVATION EFFORT
E = EASY
M = MODERATE
D = DIFFICULT

PROPORTIONS
trace = 0% to 10%
little = 10% to 20%
some = 20% to 35%
and = 35 to 50%

TEST PIT LOG

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(603) 668-1654

PROJECT:	**Proposed Gravel Pit**	**TEST PIT NO.:** **TP-3**	**SHEET:** 1 of 1
LOCATION:	Franklin Pierce Highway, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJ. NO:	6535-23	**FOREMAN:**	
CLIENT:	TF Moran	**INSPECTOR:**	E. Adler
DATE:	September 10, 2020	**GROUND SURFACE ELEVATION:**	±879

EQUIPMENT		**TEST PIT DIMENSIONS (FT)**		**GROUNDWATER OBSERVATIONS**				**OTHER**
TYPE	Excavator							☐ FIELD TESTING
MAKE/MODEL	CAT 320	LENGTH	16	ELAPSED TIME (HR)				☐ LABORATORY TESTING
REACH (FT)	15	WIDTH	4	DEPTH (FT)				☐ PID SCREENING
CAPACITY (CY)	0.25	DEPTH	14	☒ **NO GROUNDWATER ENCOUNTERED**				☐

Depth (FT)	EXCAVATION EFFORT	BOULDER COUNT (QTY/CLASS)	REMARK NUMBER	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
1				Brown coarse to fine SAND, some Gravel, little (-) Silt, little (-) cobbles/ boulders, mps=14", no structure, no odor, moist.	**OUTWASH**	
2	M					
3					3.5	
4				Grey-brown SILT, some coarse to fine Sand, little Gravel, trace cobbles/ boulders, mps=18", well bonded in-situ, platey, no odor, moist.	**TILL**	
5	D					
6						
7						
8						
9						
10						
11	D					
12						
13						
14					14	
15				Bottom of Exploration at ± 14'		

Remarks:

BOULDER DESIGNATION	
SIZE (IN)	DESIGNATION
6 to 18	A
18 to 36	B
36+	C

EXCAVATION EFFORT
E = EASY
M = MODERATE
D = DIFFICULT

PROPORTIONS
trace = 0% to 10%
little = 10% to 20%
some = 20% to 35%
and = 35 to 50%

TEST PIT LOG

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PROJECT:	**Proposed Gravel Pit**	**TEST PIT NO.:** **TP-4**	**SHEET:** 1 of 1
LOCATION:	Franklin Pierce Highway, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJ. NO:	6535-23	**FOREMAN:**	
CLIENT:	TF Moran	**INSPECTOR:**	E. Adler
DATE:	September 10, 2020	**GROUND SURFACE ELEVATION:**	±889

EQUIPMENT		**TEST PIT DIMENSIONS (FT)**		**GROUNDWATER OBSERVATIONS**				**OTHER**
TYPE	Excavator							☐ FIELD TESTING
MAKE/MODEL	CAT 320	LENGTH	15	ELAPSED TIME (HR)				☐ LABORATORY TESTING
REACH (FT)	15	WIDTH	4	DEPTH (FT)				☐ PID SCREENING
CAPACITY (CY)	0.25	DEPTH	15.5	☒ **NO GROUNDWATER ENCOUNTERED**				☐

Depth (FT)	EXCAVATION EFFORT	BOULDER COUNT (QTY/CLASS)	REMARK NUMBER	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
1				Brown coarse to fine SAND, little (-) Gravel, little (+) Silt, trace cobbles, mps=8", no structure, no odor, moist.	**OUTWASH**	
2	M					
3				Note redoximorphic mottling at ±3.5'	3.5	
4					4.0	
5				Grey-brown coarse to fine SAND and Silt, little Gravel, trace cobbles/ boulders, mps=30", well bonded in-situ, blocky, no odor, moist.	**TILL**	
6						
7						
8	D					
9						
10						
11						
12						
13						
14					14	
14	D			Grey medium to fine SAND, trace (+) Silt, no structure, no odor, moist.	15	
15				Grey-brown coarse to fine SAND, little Gravel, some Silt, trace cobbles. Bottom of Exploration at ± 15.5	15.5	

Remarks:

BOULDER DESIGNATION	
SIZE (IN)	DESIGNATION
6 to 18	A
18 to 36	B
36+	C

EXCAVATION EFFORT
E = EASY
M = MODERATE
D = DIFFICULT

PROPORTIONS
trace = 0% to 10%
little = 10% to 20%
some = 20% to 35%
and = 35 to 50%

TEST PIT LOG

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PROJECT:	**Proposed Gravel Pit**	**TEST PIT NO.:** **TP-5**	**SHEET:** 1 of 1
LOCATION:	Franklin Pierce Highway, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJ. NO:	6535-23	**FOREMAN:**	
CLIENT:	TF Moran	**INSPECTOR:**	E. Adler
DATE:	September 10, 2020	**GROUND SURFACE ELEVATION:**	±891

EQUIPMENT		**TEST PIT DIMENSIONS (FT)**		**GROUNDWATER OBSERVATIONS**				**OTHER**
TYPE	Excavator							☐ FIELD TESTING
MAKE/MODEL	CAT 320	LENGTH	15	ELAPSED TIME (HR)				☐ LABORATORY TESTING
REACH (FT)	15	WIDTH	4	DEPTH (FT)				☐ PID SCREENING
CAPACITY (CY)	0.25	DEPTH	13	☒ **NO GROUNDWATER ENCOUNTERED**				☐

Depth (FT)	EXCAVATION EFFORT	BOULDER COUNT (QTY/CLASS)	REMARK NUMBER	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
1				Yellow-brown coarse to fine SAND, trace (-) Gravel, trace (+) Silt, trace roots, no odor, moist.	**OUTWASH**	
2						
3					3.0	
4				Grey-brown coarse to fine SAND, some Silt, little Gravel, trace cobbles/ boulders, mps=8", no structure, no odor, moist.	**TILL**	
5					5	
6				Grey-brown coarse to fine SAND, some Silt, little Gravel, trace cobbles/ boulders, mps=10", well bonded in-situ, blocky, no odor, moist.	**TILL**	
7						
8						
9						
10						
11						
12						
13					13	
13				Bottom of Exploration at ± 13'		
14						
15						

Remarks:

BOULDER DESIGNATION	
SIZE (IN)	DESIGNATION
6 to 18	A
18 to 36	B
36+	C

EXCAVATION EFFORT
E = EASY
M = MODERATE
D = DIFFICULT

PROPORTIONS
trace = 0% to 10%
little = 10% to 20%
some = 20% to 35%
and = 35 to 50%

TEST PIT LOG

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PROJECT:	**Proposed Gravel Pit**	**TEST PIT NO.:** **TP-6**	**SHEET:** 1 of 1
LOCATION:	Franklin Pierce Highway, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJ. NO:	6535-23	**FOREMAN:**	
CLIENT:	TF Moran	**INSPECTOR:**	E. Adler
DATE:	September 10, 2020	**GROUND SURFACE ELEVATION:**	±894

EQUIPMENT		**TEST PIT DIMENSIONS (FT)**		**GROUNDWATER OBSERVATIONS**				**OTHER**
TYPE	Excavator							☐ FIELD TESTING
MAKE/MODEL	CAT 320	LENGTH	14	ELAPSED TIME (HR)				☐ LABORATORY TESTING
REACH (FT)	15	WIDTH	4	DEPTH (FT)				☐ PID SCREENING
CAPACITY (CY)	0.25	DEPTH	14	☒ **NO GROUNDWATER ENCOUNTERED**				☐

Depth (FT)	EXCAVATION EFFORT	BOULDER COUNT (QTY/CLASS)	REMARK NUMBER	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
1				Yellow-brown coarse to fine SAND, little Silt, trace Gravel, no structure, no odor, moist.	**OUTWASH**	
2					2.5	
3				Note faint redoximorphic mottling at ±2.5'	3.0	
4				Olive brown coarse to fine SAND and Silt, little Gravel, trace cobbles/ boulders, mps=14", well bonded, trending to platey at ±10', no odor, moist.	**TILL**	
5						
6						
7						
8						
9						
10					10	
11					**TILL**	
12						
13						
14					14	
14				Bottom of Exploration at ± 14'		
15						

Remarks:

BOULDER DESIGNATION	
SIZE (IN)	DESIGNATION
6 to 18	A
18 to 36	B
36+	C

EXCAVATION EFFORT
E = EASY
M = MODERATE
D = DIFFICULT

PROPORTIONS
trace = 0% to 10%
little = 10% to 20%
some = 20% to 35%
and = 35 to 50%

TEST PIT LOG

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(603) 668-1654

PROJECT:	**Proposed Gravel Pit**	**TEST PIT NO.:** **TP-7**	**SHEET:** 1 of 1
LOCATION:	Franklin Pierce Highway, Keene, NH	**CONTRACTOR:** Gordon Services	
PROJ. NO:	6535-23	**FOREMAN:**	
CLIENT:	TF Moran	**INSPECTOR:** E. Adler	
DATE:	September 10, 2020	**GROUND SURFACE ELEVATION:**	±898

EQUIPMENT		**TEST PIT DIMENSIONS (FT)**		**GROUNDWATER OBSERVATIONS**				**OTHER**
TYPE	Excavator							☐ FIELD TESTING
MAKE/MODEL	CAT 320	LENGTH	12	ELAPSED TIME (HR)				☐ LABORATORY TESTING
REACH (FT)	15	WIDTH	4	DEPTH (FT)				☐ PID SCREENING
CAPACITY (CY)	0.25	DEPTH	12	☒ **NO GROUNDWATER ENCOUNTERED**				☐

Depth (FT)	EXCAVATION EFFORT	BOULDER COUNT (QTY/CLASS)	REMARK NUMBER	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
1				Black medium to fine SAND some Silt, many roots/logs, no structure, slight organic odor, moist.	**FILL**	
2					2.0	
3				Yellow-brown coarse to fine SAND, little (+) Silt, trace Gravel, no structure, no odor, moist.	**SUBSOIL** 3.0	
4				Brown coarse to fine SAND, some Gravel, little (+) Silt, trace cobbles/ boulders, mps=24", slightly bonded in-situ, no odor, moist.	**TILL**	
5						
6						
7						
8						
9						
10						
11						
12				Note large boulder/possible bedrock at 12'	12	
13				Bottom of Exploration at ± 12'		
14						
15						

Remarks:

BOULDER DESIGNATION	
SIZE (IN)	DESIGNATION
6 to 18	A
18 to 36	B
36+	C

EXCAVATION EFFORT
E = EASY
M = MODERATE
D = DIFFICULT

PROPORTIONS
trace = 0% to 10%
little = 10% to 20%
some = 20% to 35%
and = 35 to 50%

TEST PIT LOG

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PROJECT:	**Proposed Gravel Pit**	**TEST PIT NO.:** **TP-8**	**SHEET:** 1 of 1
LOCATION:	Franklin Pierce Highway, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJ. NO:	6535-23	**FOREMAN:**	
CLIENT:	TF Moran	**INSPECTOR:**	E. Adler
DATE:	September 10, 2020	**GROUND SURFACE ELEVATION:**	±930

EQUIPMENT		**TEST PIT DIMENSIONS (FT)**		**GROUNDWATER OBSERVATIONS**				**OTHER**
TYPE	Excavator							☐ FIELD TESTING
MAKE/MODEL	CAT 320	LENGTH	10	ELAPSED TIME (HR)				☐ LABORATORY TESTING
REACH (FT)	15	WIDTH	4	DEPTH (FT)				☐ PID SCREENING
CAPACITY (CY)	0.25	DEPTH	3	☒ **NO GROUNDWATER ENCOUNTERED**				☐

Depth (FT)	EXCAVATION EFFORT	BOULDER COUNT (QTY/CLASS)	REMARK NUMBER	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
1				Forest Mat/Topsoil	0.7	
2	M			Brown coarse to fine SAND, little Gravel, little Silt, redoximorphic markings at ±2', no odor, moist.	**TILL**	
3	D			Refusal on probable bedrock	3.0	
4				Bottom of Exploration at ± 3'		
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

Remarks:

BOULDER DESIGNATION	
SIZE (IN)	DESIGNATION
6 to 18	A
18 to 36	B
36+	C

EXCAVATION EFFORT
E = EASY
M = MODERATE
D = DIFFICULT

PROPORTIONS
trace = 0% to 10%
little = 10% to 20%
some = 20% to 35%
and = 35 to 50%

TEST PIT LOG

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PROJECT:	**Proposed Gravel Pit**	**TEST PIT NO.:** **TP-9**	**SHEET:** 1 of 1
LOCATION:	Franklin Pierce Highway, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJ. NO:	6535-23	**FOREMAN:**	
CLIENT:	TF Moran	**INSPECTOR:**	E. Adler
DATE:	September 10, 2020	**GROUND SURFACE ELEVATION:**	±934

EQUIPMENT		**TEST PIT DIMENSIONS (FT)**		**GROUNDWATER OBSERVATIONS**				**OTHER**
TYPE	Excavator							☐ FIELD TESTING
MAKE/MODEL	CAT 320	LENGTH	12	ELAPSED TIME (HR)				☐ LABORATORY TESTING
REACH (FT)	15	WIDTH	4	DEPTH (FT)				☐ PID SCREENING
CAPACITY (CY)	0.25	DEPTH	9	☒ **NO GROUNDWATER ENCOUNTERED**				☐

Depth (FT)	EXCAVATION EFFORT	BOULDER COUNT (QTY/CLASS)	REMARK NUMBER	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
				Forest Mat/Top Soil	0.5	
1				Brown coarse to fine SAND, some (+) Gravel, little (+) Silt, trace cobbles/	**TILL**	
2	M			boulders, mps=24", no structure, no odor, moist.		
3						
4						
5	D				5	
6				Bedrock shelf		
7						
8				Grey-brown coarse to fine SAND, some Silt, little	8	
9				Gravel, trace cobbles/boulders, no odor, moist.	9	
10				Refusal on probable bedrock at ±9' Bottom of Exploration at ± 9'		
11						
12						
13						
14						
15						

Remarks:
Note significant bedrock outcrops in test pit vicinity.

BOULDER DESIGNATION	
SIZE (IN)	DESIGNATION
6 to 18	A
18 to 36	B
36+	C

EXCAVATION EFFORT
E = EASY
M = MODERATE
D = DIFFICULT

PROPORTIONS
trace = 0% to 10%
little = 10% to 20%
some = 20% to 35%
and = 35 to 50%

TEST PIT LOG

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PROJECT:	**Proposed Gravel Pit**	**TEST PIT NO.:** **TP-10**	**SHEET:** 1 of 1
LOCATION:	Franklin Pierce Highway, Keene, NH	**CONTRACTOR:** Gordon Services	
PROJ. NO:	6535-23	**FOREMAN:**	
CLIENT:	TF Moran	**INSPECTOR:** E. Adler	
DATE:	September 10, 2020	**GROUND SURFACE ELEVATION:**	±915

EQUIPMENT		**TEST PIT DIMENSIONS (FT)**		**GROUNDWATER OBSERVATIONS**				**OTHER**
TYPE	Excavator							☐ FIELD TESTING
MAKE/MODEL	CAT 320	LENGTH	15	ELAPSED TIME (HR)				☐ LABORATORY TESTING
REACH (FT)	15	WIDTH	4	DEPTH (FT)				☐ PID SCREENING
CAPACITY (CY)	0.25	DEPTH	5.5	☒ **NO GROUNDWATER ENCOUNTERED**				☐

Depth (FT)	EXCAVATION EFFORT	BOULDER COUNT (QTY/CLASS)	REMARK NUMBER	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
	E			Forest Mat/Top Soil	0.33	
1				Light brown fine SAND, little Silt - SUBSOIL-	1.0	
	E			Yellow-brown coarse to fine SAND, some Gravel, some Silt, trace cobbles/	**TILL**	
2				boulders, mps=30", no structure, no odor, moist.		
					3.0	
3	D			Grey-brown coarse to fine SAND, some Silt, little Gravel, trace cobbles/	**TILL**	
				boulders, mps=36", well bonded in-situ, no odor, moist.	4.0	
4					**TILL**	
5				Refusal at ±4-5.5' on probable bedrock.	5.5	
				Bottom of Exploration at ± 5.5'		
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

Remarks:

BOULDER DESIGNATION	
SIZE (IN)	DESIGNATION
6 to 18	A
18 to 36	B
36+	C

EXCAVATION EFFORT
E = EASY
M = MODERATE
D = DIFFICULT

PROPORTIONS
trace = 0% to 10%
little = 10% to 20%
some = 20% to 35%
and = 35 to 50%

TEST PIT LOG

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PROJECT:	**Proposed Gravel Pit**	**TEST PIT NO.:** **TP-11**	**SHEET:** 1 of 1
LOCATION:	Franklin Pierce Highway, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJ. NO:	6535-23	**FOREMAN:**	
CLIENT:	TF Moran	**INSPECTOR:**	E. Adler
DATE:	September 10, 2020	**GROUND SURFACE ELEVATION:**	

EQUIPMENT		**TEST PIT DIMENSIONS (FT)**		**GROUNDWATER OBSERVATIONS**				**OTHER**
TYPE	Excavator							☐ FIELD TESTING
MAKE/MODEL	CAT 320	LENGTH	16	ELAPSED TIME (HR)				☐ LABORATORY TESTING
REACH (FT)	15	WIDTH	4	DEPTH (FT)				☐ PID SCREENING
CAPACITY (CY)	0.25	DEPTH	14	☒ **NO GROUNDWATER ENCOUNTERED**				☐

Depth (FT)	EXCAVATION EFFORT	BOULDER COUNT (QTY/CLASS)	REMARK NUMBER	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
0	E			Brown coarse to fine SAND, little Silt, trace Gravel, roots.	0.66	
1				Grey-brown coarse to fine SAND, some Silt, little Gravel, trace cobbles/ boulders, mps=12", well blended in-situ, no odor, moist.	**TILL**	
2	M					
3						
4						
5						
6					6	
7				Grey-brown coarse to fine SAND, some(+) Silt, little Gravel, trace cobbles/ boulders, mps=12", well blended in-situ, platey, no odor, moist.	**TILL**	
8	D					
9						
10						
11	D					
12						
13						
14					14	
15				Bottom of Exploration at ± 14'		

Remarks:

BOULDER DESIGNATION		**EXCAVATION EFFORT**	**PROPORTIONS**
SIZE (IN)	DESIGNATION		
6 to 18	A	E = EASY	trace = 0% to 10%
18 to 36	B	M = MODERATE	little = 10% to 20%
36+	C	D = DIFFICULT	some = 20% to 35%
			and = 35 to 50%

TEST PIT LOG

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PROJECT:	**Proposed Gravel Pit**	**TEST PIT NO.:** **TP-12**	**SHEET:** 1 of 1
LOCATION:	Franklin Pierce Highway, Keene, NH	**CONTRACTOR:** Gordon Services	
PROJ. NO:	6535-23	**FOREMAN:**	
CLIENT:	TF Moran	**INSPECTOR:** E. Adler	
DATE:	October 22, 2020	**GROUND SURFACE ELEVATION:**	

EQUIPMENT		**TEST PIT DIMENSIONS (FT)**		**GROUNDWATER OBSERVATIONS**				**OTHER**
TYPE	Excavator							☐ FIELD TESTING
MAKE/MODEL	CAT 320	LENGTH	10	ELAPSED TIME (HR)				☒ LABORATORY TESTING
REACH (FT)	15	WIDTH	4	DEPTH (FT)				☐ PID SCREENING
CAPACITY (CY)	0.25	DEPTH	8	☒ **NO GROUNDWATER ENCOUNTERED**				☐

Depth (FT)	EXCAVATION EFFORT	BOULDER COUNT (QTY/CLASS)	REMARK NUMBER	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
1	E			Brown coarse to fine SAND and Silt, many roots.	**FOREST MAT** 1.25	
2				Grey-brown to red-brown coarse to fine SAND, little Gravel, trace (+) Silt, redoximorphic staining, no odor, moist.	**OUTWASH**	
3	D					
4						
5						
6						
7					7.5	
8	D			Weathered bedrock	8	
9				Excavator refusal at ±8' Bottom of Exploration at ± 8'		
10						
11						
12						
13						
14						
15						

Remarks:
Note large surficial boulders in vicinity.

BOULDER DESIGNATION	
SIZE (IN)	DESIGNATION
6 to 18	A
18 to 36	B
36+	C

EXCAVATION EFFORT
E = EASY
M = MODERATE
D = DIFFICULT

PROPORTIONS
trace = 0% to 10%
little = 10% to 20%
some = 20% to 35%
and = 35 to 50%

TEST PIT LOG

MILONE & MACBROOM
2 Commerce Drive, Suite 110
Bedford, New Hampshire 03110
(603) 668-1654

PROJECT:	**Proposed Gravel Pit**	**TEST PIT NO.:** **TP-13**	**SHEET:** 1 of 1
LOCATION:	Franklin Pierce Highway, Keene, NH	**CONTRACTOR:** Gordon Services	
PROJ. NO:	6535-23	**FOREMAN:**	
CLIENT:	TF Moran	**INSPECTOR:** E. Adler	
DATE:	October 22, 2020	**GROUND SURFACE ELEVATION:**	

EQUIPMENT		**TEST PIT DIMENSIONS (FT)**		**GROUNDWATER OBSERVATIONS**				**OTHER**
TYPE	Excavator							☐ FIELD TESTING
MAKE/MODEL	CAT 320	LENGTH	10	ELAPSED TIME (HR)				☒ LABORATORY TESTING
REACH (FT)	15	WIDTH	4	DEPTH (FT)				☐ PID SCREENING
CAPACITY (CY)	0.25	DEPTH	6	☒ **NO GROUNDWATER ENCOUNTERED**				☐

Depth (FT)	EXCAVATION EFFORT	BOULDER COUNT (QTY/CLASS)	REMARK NUMBER	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
				Forest Mat	0.6	
1	E			Red-brown coarse to fine SAND, little Gravel, little Silt, no structure, no odor, moist.	**OUTWASH**	
2					2.5	
3				Yellow-brown medium to fine SAND, trace Silt, no structure, no odor.	3.0	
4	M			Grey-brown coarse to fine SAND, some Silt, little Gravel, well blended in-situ, no odor, moist.	**TILL**	
5						
6	D			Excavator refusal at 6' on probable bedrock.	6	
7				Bottom of Exploration at ± 6'		
8						
9						
10						
11						
12						
13						
14						
15						

Remarks:
Note large surficial boulders in vicinity.

BOULDER DESIGNATION	
SIZE (IN)	DESIGNATION
6 to 18	A
18 to 36	B
36+	C

EXCAVATION EFFORT
E = EASY
M = MODERATE
D = DIFFICULT

PROPORTIONS
trace = 0% to 10%
little = 10% to 20%
some = 20% to 35%
and = 35 to 50%

TEST PIT LOG

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(603) 668-1654

PROJECT:	**Proposed Gravel Pit**	**TEST PIT NO.:** **TP-14**	**SHEET:** 1 of 1
LOCATION:	Franklin Pierce Highway, Keene, NH	**CONTRACTOR:** Gordon Services	
PROJ. NO:	6535-23	**FOREMAN:**	
CLIENT:	TF Moran	**INSPECTOR:** E. Adler	
DATE:	October 22, 2020	**GROUND SURFACE ELEVATION:**	

EQUIPMENT		**TEST PIT DIMENSIONS (FT)**		**GROUNDWATER OBSERVATIONS**				**OTHER**
TYPE	Excavator							☐ FIELD TESTING
MAKE/MODEL	CAT 320	LENGTH	8	ELAPSED TIME (HR)				☒ LABORATORY TESTING
REACH (FT)	15	WIDTH	4	DEPTH (FT)				☐ PID SCREENING
CAPACITY (CY)	0.25	DEPTH	6.5	☒ **NO GROUNDWATER ENCOUNTERED**				☐

Depth (FT)	EXCAVATION EFFORT	BOULDER COUNT (QTY/CLASS)	REMARK NUMBER	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
				Forest Mat	0.5	
1	E			Olive-brown coarse to fine SAND, little (+) Silt, trace Gravel, little cobbles/boulders, mps=2', faint redoximorphic staining, no odor, moist.	**TILL**	
2						
3	M				3.0	
4					4.0	
5	D					
6						
7				Refusal on probable bedrock at ±3 to ±6.5'	6.5	
8				Bottom of Exploration at ± 6.5'		
9						
10						
11						
12						
13						
14						
15						

Remarks:
Note large surficial boulders in vicinity.

BOULDER DESIGNATION	
SIZE (IN)	DESIGNATION
6 to 18	A
18 to 36	B
36+	C

EXCAVATION EFFORT
E = EASY
M = MODERATE
D = DIFFICULT

PROPORTIONS
trace = 0% to 10%
little = 10% to 20%
some = 20% to 35%
and = 35 to 50%

TEST PIT LOG

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(603) 668-1654

PROJECT:	**Proposed Gravel Pit**	**TEST PIT NO.:** **TP-15**	**SHEET:** 1 of 1
LOCATION:	Franklin Pierce Highway, Keene, NH	**CONTRACTOR:** Gordon Services	
PROJ. NO:	6535-23	**FOREMAN:**	
CLIENT:	TF Moran	**INSPECTOR:** E. Adler	
DATE:	October 22, 2020	**GROUND SURFACE ELEVATION:**	

EQUIPMENT		**TEST PIT DIMENSIONS (FT)**		**GROUNDWATER OBSERVATIONS**				**OTHER**
TYPE	Excavator							☐ FIELD TESTING
MAKE/MODEL	CAT 320	LENGTH	8	ELAPSED TIME (HR)				☐ LABORATORY TESTING
REACH (FT)	15	WIDTH	4	DEPTH (FT)				☐ PID SCREENING
CAPACITY (CY)	0.25	DEPTH	6	☒ **NO GROUNDWATER ENCOUNTERED**				☐

Depth (FT)	EXCAVATION EFFORT	BOULDER COUNT (QTY/CLASS)	REMARK NUMBER	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
	E			Forest Mat	0.5	
1	M			Olive-brown coarse to fine SAND, some Silt, trace Gravel, well blended in-situ, no odor, moist.	**TILL**	
2						
3						
4					4.5	
5	D			Red-brown coarse to fine SAND and Gravel, trace Silt, rock matrix intact, no odor, moist. Refusal on competent bedrock at ±6'	**WEATHERED BEDROCK**	
6					6	
7				Bottom of Exploration at ± 6'		
8						
9						
10						
11						
12						
13						
14						
15						

Remarks:
Note large surficial boulders in vicinity.

BOULDER DESIGNATION	
SIZE (IN)	DESIGNATION
6 to 18	A
18 to 36	B
36+	C

EXCAVATION EFFORT
E = EASY
M = MODERATE
D = DIFFICULT

PROPORTIONS
trace = 0% to 10%
little = 10% to 20%
some = 20% to 35%
and = 35 to 50%

TEST PIT LOG

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(603) 668-1654

PROJECT:	**Proposed Gravel Pit**	**TEST PIT NO.:** **TP-16**	**SHEET:** 1 of 1
LOCATION:	Franklin Pierce Highway, Keene, NH	**CONTRACTOR:** Gordon Services	
PROJ. NO:	6535-23	**FOREMAN:**	
CLIENT:	TF Moran	**INSPECTOR:** E. Adler	
DATE:	October 22, 2020	**GROUND SURFACE ELEVATION:**	

EQUIPMENT		**TEST PIT DIMENSIONS (FT)**		**GROUNDWATER OBSERVATIONS**				**OTHER**
TYPE	Excavator							☐ FIELD TESTING
MAKE/MODEL	CAT 320	LENGTH		ELAPSED TIME (HR)				☐ LABORATORY TESTING
REACH (FT)	15	WIDTH		DEPTH (FT)				☐ PID SCREENING
CAPACITY (CY)	0.25	DEPTH		☐ **NO GROUNDWATER ENCOUNTERED**				☐

Depth (FT)	EXCAVATION EFFORT	BOULDER COUNT (QTY/CLASS)	REMARK NUMBER	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
				Forest Mat	0.4	
1				Olive-brown coarse to fine SAND, some Silt, little Gravel, little cobbles/	**TILL**	
	M			boulders, mps=1', well blended in-situ, no odor, moist.		
2						
3						
	M					
4						
				Excavator refusal at ±5' on probable bedrock.	5	
5				Bottom of Exploration at ± 5'		
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

Remarks:
Note large surficial boulders in vicinity.

BOULDER DESIGNATION	
SIZE (IN)	DESIGNATION
6 to 18	A
18 to 36	B
36+	C

EXCAVATION EFFORT
E = EASY
M = MODERATE
D = DIFFICULT

PROPORTIONS
trace = 0% to 10%
little = 10% to 20%
some = 20% to 35%
and = 35 to 50%

TEST BORING LOG

SLR
2 Commerce Drive; Suite 110
Bedford, New Hampshire 03110
603-668-1654

PROJECT:	Proposed Sand & Gravel Pit	BORING NO.:	SLR-1
LOCATION:	Franklin Pierce Highway	CONTRACTOR:	New England Boring Contractors
PROJ. NO:	144.16535.00023	FOREMAN:	M. Thompson
CLIENT:	TF Moran	INSPECTOR:	E. Adler
DATE:	December 9, 2021	GROUND SURFACE ELEVATION:	

SHEET: 1 of 1

EQUIPMENT:	AUGER	CASING	SAMPLER	COREBRL.	GROUNDWATER OBSERVATIONS			
TYPE	HSA	--	S	--	ELAPSED TIME (HR)	0		
SIZE ID (IN)	3 1/4	--	1 3/8	--	CASING AT (FT)	19		
HAMMER WT (LB)	--	--	140	--	DEPTH (FT)	14		
HAMMER FALL (IN)	--	--	30	--	☐ NO GROUNDWATER ENCOUNTERED			

☐ FIELD TESTING
☐ LABORATORY TESTING
☐ MONITORING WELL INSTALLED
☐ PID SCREENING

Depth (FT)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
1					**FILL**	
2						
3						
4				Loose dark brown medium to fine SAND, some Silt, trace organics, slight organic odor, moist.	4.5	
5	S1	6	2 4	Loose red-brown coarse to fine SAND, little SILT, trace Gravel, no structure, no odor, moist.		
6			3 4			
7						
8				Auger action indicates strata change at ±8'	8	
9						
10	S2	22	15 18	Dense grey-brown medium to fine SAND, some Silt, trace Gravel, well blended in-situ, no odor, moist.		
11			27 30			
12						
13						
14						
15	S3	24	26 40	Very dense grey-brown medium to fine SAND, some Silt, trace (+) Gravel, well blended in-situ, no odor, moist.		
16			79 74			
17				Auger cuttings indicate wet material at ±17'		
18				Auger action indicates material change at ±18'	18	
19						
20	S4	16	31 47 57	Very dense grey medium to fine SAND, little (-) Silt, trace Gravel, Clay, layered with frequent fine SAND partings/lenses and clay varves,	20.5	
21				Bottom of Exploration at ± 20.5' No Refusal		
22						

Notes:
1) TYPE OF RIG: CME 550X, ATV Mounted
2) HAMMER/HOIST TYPE: Automatic

FILE:)\6535 TFM\6535-23 Keene\2021 Borings\[144.16535.00023 TBLog.xls]S

COHESIONLESS SOILS	COHESIVE SOILS	SAMPLE TYPE	PROPORTIONS
N = 0 - 4 = VERY LOOSE	N = 0 -2 = VERY SOFT	C = ROCK CORE	trace = 0% - 10%
4-10 = LOOSE	2 - 4 = SOFT	S = SPLIT SPOON	little = 10% - 20%
10-30 = MEDIUM	4 - 8 = MEDIUM	UP = UNDISTURBED PISTON	some = 20% - 35%
30-50 = DENSE	8 -15 = STIFF	UT = UNDISTURBED THINWALL	and = 35% - 50%
50 + = VERY DENSE	30 + = HARD		

TEST BORING LOG

SLR
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603-668-1654

PROJECT:	**Proposed Sand & Gravel Pit**	**BORING NO.:**	**SLR-2**
LOCATION:	Franklin Pierce Highway	**CONTRACTOR:**	New England Boring Contractors
PROJ. NO:	144.16535.00023	**FOREMAN:**	M. Thompson
CLIENT:	TF Moran	**INSPECTOR:**	E. Adler
DATE:	December 9, 2021	**GROUND SURFACE ELEVATION:**	

SHEET: 1 of 1

EQUIPMENT:	AUGER	CASING	SAMPLER	COREBRL.	GROUNDWATER OBSERVATIONS			
TYPE	HSA	--	S	--	ELAPSED TIME (HR)			
SIZE ID (IN)	3 1/4	--	1 3/8	--	CASING AT (FT)			
HAMMER WT (LB)	--	--	140	--	DEPTH (FT)			
HAMMER FALL (IN)	--	--	30	--	[X] NO GROUNDWATER ENCOUNTERED			

- [ ] FIELD TESTING
- [ ] LABORATORY TESTING
- [ ] MONITORING WELL INSTALLED
- [ ] PID SCREENING

Depth (FT)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
4	S1	5	29 50/2"	Very dense olive-brown coarse to fine SAND, little (+) Silt, trace Gravel, no structure, no odor, moist.	5	
5				Auger refusal at ±5' Bottom of Exploration at ± 5'		

Notes:

1) TYPE OF RIG: CME 550X, ATV Mounted
2) HAMMER/HOIST TYPE: Automatic

FILE:)\6535 TFM\6535-23 Keene\2021 Borings\[144.16535.00023 TBLog.xls]S

COHESIONLESS SOILS	COHESIVE SOILS	SAMPLE TYPE	PROPORTIONS
N = 0 - 4 = VERY LOOSE	N = 0 -2 = VERY SOFT	C = ROCK CORE	trace = 0% - 10%
4-10 = LOOSE	2 - 4 = SOFT	S = SPLIT SPOON	little = 10% - 20%
10-30 = MEDIUM	4 - 8 = MEDIUM	UP = UNDISTURBED PISTON	some = 20% - 35%
30-50 = DENSE	8 -15 = STIFF	UT = UNDISTURBED THINWALL	and = 35% - 50%
50 + = VERY DENSE	30 + = HARD		

TEST BORING LOG

SLR
2 Commerce Drive; Suite 110
Bedford, New Hampshire 03110
603-668-1654

PROJECT:	**Proposed Sand & Gravel Pit**	**BORING NO.:**	**SLR-3**
LOCATION:	Franklin Pierce Highway	**CONTRACTOR:**	New England Boring Contractors
PROJ. NO:	144.16535.00023	**FOREMAN:**	M. Thompson
CLIENT:	TF Moran	**INSPECTOR:**	E. Adler
DATE:	December 9, 2021	**GROUND SURFACE ELEVATION:**	

SHEET: 1 of 2

EQUIPMENT:	AUGER	CASING	SAMPLER	COREBRL.	GROUNDWATER OBSERVATIONS			
TYPE	HSA	--	S	--	ELAPSED TIME (HR)	0		
SIZE ID (IN)	3 1/4	--	1 3/8	--	CASING AT (FT)	25		
HAMMER WT (LB)	--	--	140	--	DEPTH (FT)	DRY		
HAMMER FALL (IN)	--	--	30	--	[X] NO GROUNDWATER ENCOUNTERED			

☐ FIELD TESTING
☐ LABORATORY TESTING
☐ MONITORING WELL INSTALLED
☐ PID SCREENING

Depth (FT)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
1				Auger probe to determine groundwater Granular Fill	**FILL**	
2					2	
3				Grey coarse to fine SAND, some Silt, trace Gravel	**TILL**	
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

Notes:
1) TYPE OF RIG: CME 550X, ATV Mounted
2) HAMMER/HOIST TYPE: Automatic

FILE:)\6535 TFM\6535-23 Keene\2021 Borings\[144.16535.00023 TBLog.xls]S

COHESIONLESS SOILS	COHESIVE SOILS	SAMPLE TYPE	PROPORTIONS
N = 0 - 4 = VERY LOOSE	N = 0 -2 = VERY SOFT	C = ROCK CORE	trace = 0% - 10%
4-10 = LOOSE	2 - 4 = SOFT	S = SPLIT SPOON	little = 10% - 20%
10-30 = MEDIUM	4 - 8 = MEDIUM	UP = UNDISTURBED PISTON	some = 20% - 35%
30-50 = DENSE	8 -15 = STIFF	UT = UNDISTURBED THINWALL	and = 35% - 50%
50 + = VERY DENSE	30 + = HARD		

TEST BORING LOG

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PROJECT:	**Proposed Sand & Gravel Pit**	**BORING NO.:** **SLR-3**	**SHEET:** 2 of 2
LOCATION:	Franklin Pierce Highway	**CONTRACTOR:**	New England Boring Contractors
PROJ. NO:	144.16535.00023	**FOREMAN:**	M. Thompson
CLIENT:	TF Moran	**INSPECTOR:**	E. Adler
DATE:	December 9, 2021	**GROUND SURFACE ELEVATION:**	

EQUIPMENT:	**AUGER**	**CASING**	**SAMPLER**	**COREBRL.**
TYPE	HSA	--	S	--
SIZE ID (IN)	3 1/4	--	1 3/8	--
HAMMER WT (LB)	--	--	140	--
HAMMER FALL (IN)	--	--	30	--

GROUNDWATER OBSERVATIONS			
ELAPSED TIME (HR)	0		
CASING AT (FT)	25		
DEPTH (FT)	DRY		
[X] **NO GROUNDWATER ENCOUNTERED**			

- [ ] FIELD TESTING
- [ ] LABORATORY TESTING
- [ ] MONITORING WELL INSTALLED
- [ ] PID SCREENING

Depth (FT)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
23						
24						
25				Bottom of Exploration at ± 25', No Refusal.	25	
26						
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						
43						
44						

Notes:
1) TYPE OF RIG: CME 550X, ATV Mounted
2) HAMMER/HOIST TYPE: Automatic

FILE:)\6535 TFM\6535-23 Keene\2021 Borings\[144.16535.00023 TBLog.xls]S

COHESIONLESS SOILS	**COHESIVE SOILS**	**SAMPLE TYPE**	**PROPORTIONS**
N = 0 - 4 = VERY LOOSE	N = 0 -2 = VERY SOFT	C = ROCK CORE	trace = 0% - 10%
4-10 = LOOSE	2 - 4 = SOFT	S = SPLIT SPOON	little = 10% - 20%
10-30 = MEDIUM	4 - 8 = MEDIUM	UP = UNDISTURBED PISTON	some = 20% - 35%
30-50 = DENSE	8 -15 = STIFF	UT = UNDISTURBED THINWALL	and = 35% - 50%
50 + = VERY DENSE	30 + = HARD		

TEST BORING LOG

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PROJECT:	**Proposed Sand & Gravel Pit**	**BORING NO.:** **SLR-4**	**SHEET:** 1 of 1
LOCATION:	Franklin Pierce Highway	**CONTRACTOR:**	New England Boring Contractors
PROJ. NO:	144.16535.00023	**FOREMAN:**	M. Thompson
CLIENT:	TF Moran	**INSPECTOR:**	E. Adler
DATE:	December 9, 2021	**GROUND SURFACE ELEVATION:**	

EQUIPMENT:	AUGER	CASING	SAMPLER	COREBRL.	GROUNDWATER OBSERVATIONS			
TYPE	HSA	--	S	--	ELAPSED TIME (HR)	0		
SIZE ID (IN)	3 1/4	--	1 3/8	--	CASING AT (FT)	14		
HAMMER WT (LB)	--	--	140	--	DEPTH (FT)	13		
HAMMER FALL (IN)	--	--	30	--	☐ NO GROUNDWATER ENCOUNTERED			

☐ FIELD TESTING
☐ LABORATORY TESTING
☐ MONITORING WELL INSTALLED
☐ PID SCREENING

Depth (FT)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
1						
2						
3						
4						
5	S1	16	21 20 24	Dense brown coarse to fine SAND and Gravel, trace Silt, redoximorphic staining, no odor, moist. Note coarse gravel in spoon tip.	5.7	
6			50/3"			
7						
8						
9						
10	S2	4	100/4"	Very dense brown coarse to fine SAND and Gravel, trace Silt, no structure, no odor, moist.		
11						
12						
13						
14						
15	S3	0	100/1"	Very dense, No Recovery. Auger refusal at ±14.7' Bottom of Exploration at ± 14.7'	14.7	
16						
17						
18						
19						
20						
21						
22						

Notes:
1) TYPE OF RIG: CME 550X, ATV Mounted
2) HAMMER/HOIST TYPE: Automatic

FILE:)\6535 TFM\6535-23 Keene\2021 Borings\[144.16535.00023 TBLog.xls]S

COHESIONLESS SOILS	COHESIVE SOILS	SAMPLE TYPE	PROPORTIONS
N = 0 - 4 = VERY LOOSE	N = 0 -2 = VERY SOFT	C = ROCK CORE	trace = 0% - 10%
4-10 = LOOSE	2 - 4 = SOFT	S = SPLIT SPOON	little = 10% - 20%
10-30 = MEDIUM	4 - 8 = MEDIUM	UP = UNDISTURBED PISTON	some = 20% - 35%
30-50 = DENSE	8 -15 = STIFF	UT = UNDISTURBED THINWALL	and = 35% - 50%
50 + = VERY DENSE	30 + = HARD		

TEST BORING LOG

SLR
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PROJECT:	Proposed Sand & Gravel Pit	BORING NO.:	SLR-5
LOCATION:	Franklin Pierce Highway	CONTRACTOR:	New England Boring Contractors
PROJ. NO:	144.16535.00023	FOREMAN:	M. Thompson
CLIENT:	TF Moran	INSPECTOR:	E. Adler
DATE:	December 9, 2021	GROUND SURFACE ELEVATION:	

SHEET: 1 of 2

EQUIPMENT:	AUGER	CASING	SAMPLER	COREBRL.	GROUNDWATER OBSERVATIONS			
TYPE	HSA	--	S	--	ELAPSED TIME (HR)	0.2		
SIZE ID (IN)	3 1/4	--	1 3/8	--	CASING AT (FT)	28		
HAMMER WT (LB)	--	--	140	--	DEPTH (FT)	DRY		
HAMMER FALL (IN)	--	--	30	--	[X] NO GROUNDWATER ENCOUNTERED			

- [ ] FIELD TESTING
- [ ] LABORATORY TESTING
- [ ] MONITORING WELL INSTALLED
- [ ] PID SCREENING

Depth (FT)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
1						
2						
3						
4	S1	17	13	Dense olive-brown coarse to fine SAND, some Gravel, trace (+) Silt,		
5			20	no structure, no odor, moist.		
6			25			
7			30			
8				Auger action indicates cobble at ±8.5'	8.5	
9	S2	16	12	Dense brown coarse to fine SAND, little Gravel, trace (+) Silt,		
10			15	well blended in-situ, no odor, moist.		
11			15			
12			17			
13						
14	S3	24	13	Dense olive-grey and red-brown SILT, trace fine Sand, trace Clay,		
15			17	layered with frequent fine sand partings and clay varves, no odor,		
16			21	moist.		
17			34			
18						
19	S4	16	10	Very dense olive-grey and red-brown SILT, little (-) fine SAND, trace		
20			20	Clay, layered with frequent fine SAND partings/lenses and clay varves,		
21			30	no odor, moist.		
22						

Notes:

1) TYPE OF RIG: CME 550X, ATV Mounted
2) HAMMER/HOIST TYPE: Automatic

FILE:)\6535 TFM\6535-23 Keene\2021 Borings\[144.16535.00023 TBLog.xls]S

COHESIONLESS SOILS	COHESIVE SOILS	SAMPLE TYPE	PROPORTIONS
N = 0 - 4 = VERY LOOSE	N = 0 -2 = VERY SOFT	C = ROCK CORE	trace = 0% - 10%
4-10 = LOOSE	2 - 4 = SOFT	S = SPLIT SPOON	little = 10% - 20%
10-30 = MEDIUM	4 - 8 = MEDIUM	UP = UNDISTURBED PISTON	some = 20% - 35%
30-50 = DENSE	8 -15 = STIFF	UT = UNDISTURBED THINWALL	and = 35% - 50%
50 + = VERY DENSE	30 + = HARD		

TEST BORING LOG

SLR
2 Commerce Drive; Suite 110
Bedford, New Hampshire 03110
603-668-1654

PROJECT:	Proposed Sand & Gravel Pit	BORING NO.:	SLR-5
LOCATION:	Franklin Pierce Highway	CONTRACTOR:	New England Boring Contractors
PROJ. NO:	144.16535.00023	FOREMAN:	M. Thompson
CLIENT:	TF Moran	INSPECTOR:	E. Adler
DATE:	December 9, 2021	GROUND SURFACE ELEVATION:	

SHEET: 2 of 2

EQUIPMENT:	AUGER	CASING	SAMPLER	COREBRL.	GROUNDWATER OBSERVATIONS			
TYPE	HSA	--	S	--	ELAPSED TIME (HR)	0.2		
SIZE ID (IN)	3 1/4	--	1 3/8	--	CASING AT (FT)	28		
HAMMER WT (LB)	--	--	140	--	DEPTH (FT)	DRY		
HAMMER FALL (IN)	--	--	30	--	[X] NO GROUNDWATER ENCOUNTERED			

☐ FIELD TESTING
☐ LABORATORY TESTING
☐ MONITORING WELL INSTALLED
☐ PID SCREENING

Depth (FT)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
24	S5	18	12 24 40	Very dense grey and red-brown SILT, little fine SAND, frequent fine sand partings, occasional fine sand lenses, no odor, moist.		
26				Auger action indicates coarse gravel/cobble at ±26'	26	
28				Auger refusal at 28'	28	
				Bottom of Exploration at ± 28'		

Notes:
1) TYPE OF RIG: CME 550X, ATV Mounted
2) HAMMER/HOIST TYPE: Automatic

FILE:)\6535 TFM\6535-23 Keene\2021 Borings\[144.16535.00023 TBLog.xls]S

COHESIONLESS SOILS	COHESIVE SOILS	SAMPLE TYPE	PROPORTIONS
N = 0 - 4 = VERY LOOSE	N = 0 -2 = VERY SOFT	C = ROCK CORE	trace = 0% - 10%
4-10 = LOOSE	2 - 4 = SOFT	S = SPLIT SPOON	little = 10% - 20%
10-30 = MEDIUM	4 - 8 = MEDIUM	UP = UNDISTURBED PISTON	some = 20% - 35%
30-50 = DENSE	8 -15 = STIFF	UT = UNDISTURBED THINWALL	and = 35% - 50%
50 + = VERY DENSE	30 + = HARD		

TEST BORING LOG

SLR
2 Commerce Drive; Suite 110
Bedford, New Hampshire 03110
603-668-1654

PROJECT:	**Proposed Sand & Gravel Pit**	**BORING NO.:**	**SLR-6**
LOCATION:	Franklin Pierce Highway	**CONTRACTOR:**	New England Boring Contractors
PROJ. NO:	144.16535.00023	**FOREMAN:**	M. Thompson
CLIENT:	TF Moran	**INSPECTOR:**	E. Adler
DATE:	December 9, 2021	**GROUND SURFACE ELEVATION:**	

SHEET: 1 of 1

EQUIPMENT:	AUGER	CASING	SAMPLER	COREBRL.	GROUNDWATER OBSERVATIONS			
TYPE	HSA	--	S	--	ELAPSED TIME (HR)	0		
SIZE ID (IN)	3 1/4	--	1 3/8	--	CASING AT (FT)	4		
HAMMER WT (LB)	--	--	140	--	DEPTH (FT)	4		
HAMMER FALL (IN)	--	--	30	--	☐ NO GROUNDWATER ENCOUNTERED			

☐ FIELD TESTING
☐ LABORATORY TESTING
☐ MONITORING WELL INSTALLED
☐ PID SCREENING

Depth (FT)	SAMPLE NUMBER	RECOVERY (IN)	BLOWS PER 6"	SOIL AND ROCK CLASSIFICATION-DESCRIPTION BURMISTER SYSTEM (SOIL) U.S. CORPS OF ENGINEERS SYSTEM (ROCK)	STRATUM CHANGE DESCRIPTION	PID (PPM)
1						
2						
3						
4	S1	18	15	Very dense brown coarse to fine SAND, little Gravel, little Silt, no		
5			22	structure, no odor, moist to wet.		
			33			
6			40			
7				Auger action indicates strata change at ±7'	7	
8						
9	S2	6	26	Very dense olive-grey to brown coarse to fine SAND and SILT, trace		
10			100/3"	Gravel, well blended in-situ, no odor, wet.	10	
				Auger refusal at ±10'		
11				Bottom of Exploration at ± 10'		
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

Notes:
1) TYPE OF RIG: CME 550X, ATV Mounted
2) HAMMER/HOIST TYPE: Automatic

FILE:)\6535 TFM\6535-23 Keene\2021 Borings\[144.16535.00023 TBLog.xls]S

COHESIONLESS SOILS	COHESIVE SOILS	SAMPLE TYPE	PROPORTIONS
N = 0 - 4 = VERY LOOSE	N = 0 -2 = VERY SOFT	C = ROCK CORE	trace = 0% - 10%
4-10 = LOOSE	2 - 4 = SOFT	S = SPLIT SPOON	little = 10% - 20%
10-30 = MEDIUM	4 - 8 = MEDIUM	UP = UNDISTURBED PISTON	some = 20% - 35%
30-50 = DENSE	8 -15 = STIFF	UT = UNDISTURBED THINWALL	and = 35% - 50%
50 + = VERY DENSE	30 + = HARD		

BURMISTER SOIL CLASSIFICATION SYSTEM

A. CLASSIFICATION OF SOIL COMPONENTS

PRINCIPAL COMPONENT	DESCRIPTIVE PARTICLE SIZE	SMALLEST DIAMETER OF ROLLED THREAD (IN.)	SIEVE SIZE	OVERALL PLASTICITY AND PLASTICITY INDEX
GRAVEL	Coarse Fine	---- ----	3/4" to 3" No. 4 to 3/4"	---- ----
SAND	Coarse Medium Fine	---- ---- ----	No. 10 to No. 4 No. 40 to No. 10 No. 200 to No. 40	---- ---- ----
SILT	----	----	Passing No. 200	Non-Plastic 0
Clayey Silt	----	1/4	Passing No. 200	Slight 1 to 5
SILT and CLAY	----	1/8	Passing No. 200	Low 5 to 10
CLAY and SILT	----	1/16	Passing No. 200	Medium 10 to 20
Silty Clay	----	1/32	Passing No. 200	High 20 to 40
CLAY	----	1/64	Passing No. 200	Very High 40 and greater
PEAT	Partially decomposed fibrous organic matter without living fibers			

B. INDENTIFICATION OF DESCRIPTION TERMS

DESCRIPTION OF SOIL COMPONENTS	PERCENTAGE OF SAMPLE BY WEIGHT
PRINCIPAL COMPONENT	
GRAVEL, SAND, SILT CLAY, etc.	50 or more
MINOR COMPONENTS	
and fine to coarse SAND, and GRAVEL, etc.	35 to 50
some some Gravel, some Silt, etc.	20 to 35
little little Gravel, little Silt, etc.	10 to 20
trace trace Gravel, trace Silt, etc.	1 to 10

C. DEFINITION OF TERMS IDENTIFYING THE GRADATION OF THE GRANULAR COMPONENT

GRADATION DESIGNATIONS FOR IDENTIFICATION	DEFINING PROPORTIONS
fine to coarse	all fractions greater than 10 percent
medium to coarse	less than 10 percent fine
fine to medium	less than 10 percent coarse
medium	less than 10 percent coarse and fine
fine	less than 10 percent coarse and medium

D. DENSITY OR CONSISTENCY

GRANULAR SOILS

Standard Penetration Resistance (N value) blows/foot	Relative Density
0 - 4	Very loose
4 - 10	Loose
10 - 30	Medium dense
30 - 50	Dense
50+	Very dense

PLASTIC SOILS

Standard Penetration Resistance (N value) Blows/foot	Consistency
0 - 2	Very soft
2 - 4	Soft
4 - 8	Medium
8 - 15	Stiff
15 - 30	Very stiff
30+	Hard

E. GLOSSARY OF MISCELLANEOUS TERMS

PLUS (+) NEARER THE UPPER LIMIT OF THE PROPORTION OR OVERALL PLASTICITY
MINUS (-) NEARER THE LOWER LIMIT OF THE PROPORTION OR OVERALL PLASTICITY
NO SIGN - MIDDLE RANGE OF THE PROPORTION OR OVERALL PLASTICITY
COBBLES - ROUNDED PIECES OR ROCK BETWEEN 3 TO 6 INCHES
BOULDERS - ROUNDED PIECES OF ROCK LARGER THAN 6 INCHES
ROCK FRAGMENTS - ANGULAR PIECES OF ROCK WHICH HAVE SEPARATED FROM PARENT ROCK AND ARE PRESENT IN A SOIL MATRIX
QUARTZ - A HARD SILICA MINERAL OFTEN FOUND IN SOME GLACIAL LAYERS
IRONITE - CEMENTED DEPOSITS OF IRON OXIDE WITHIN A SOIL LAYER
CEMENTED SAND - VARIOUS SIZED AND GRAINS CEMENTED BY CALCIUM CARBONATE OR OTHER MINERALS WITHIN THE SOIL DEPOSIT
VARVED DEPOSITS - ALTERNATING LIGHT AND DARK LAYERS OF COHESIVE CLAYS AND SILTS DEPOSITED AS GLACIAL LAKE SEDIMENTATION
FISSURED CLAYS - COHESIVE SOILS AND EXHIBITING A JOINT STRUCTURE, GENERALLY SLIGHTLY TO HIGHLY OVER CONSOLIDATED

ORGAINIC MATTER (EXCLUDING PEAT):
TOPSOIL - SURFICIAL SOILS THAT SUPPORT PLANT LIFE AND WHICH CONTAIN CONSIDERABLE AMOUNTS OF ORGANIC MATTER
DECOMPOSED VEGETATION - PARTIALLY DECOMPOSED ORGANIC MATTER WHICH RETAINS ITS ORIGIANAL CHARACTER;
LIGNITE - IMMATURE COALS WITH LOW FIXED CARBON CONTENT GENERALLY EXHIBITING DISTINCT TEXTURE OF WOOD;
HUMUS - COMPLETELY DECOMPOSED ORGANICMATTER
FILL - MAN MADE DEPOSIT CONTAINING SOIL, ROCK OR FOREIGN MATTER
PROBABLE FILL - SOILS WHICH CONTAIN NO VISUALLY DETECTABLE FOREIGN MATTER BUT WHICH ARE SUSPECT WITH RESPECT TO ORIGIN
LENSES - LAYER LESS THAN 1/2 INCH **LAYERS** - 1/2 TO 12 INCH THICK LAYER
POCKET - DISCONTINUOUS LAYERS LESS THAN 12 INCHES
STRATUM - CONTINUOUS LAYERS GREATER THAN 12 INCHES
COLOR SHADING - LIGHT OR DARK TO INIDCATE SUBSTANTIAL DIFFERENCE IN COLOR
MOISTURE CONDITIONS - WET, MOIST, OR DRY PER VISUAL OBSERVATION

WELL INSTALLATION REPORT

WELL NO. SLR-10

Page 1 of 1

PROJECT	Proposed Sand & Gravel Pit	PROJECT #	144.16535.00023
LOCATION	Franklin Pierce Highway, Keene/Sullivan/Roxbury, NH	PROJECT MGR.	S. Landry
CLIENT	TF Moran	FIELD REP.	E. Adler
CONTRACTOR	New England Boring Contractors	DATE INSTALLED	3/16-17/2022
DRILLER	M. Thompson	WATER LEVEL (ft)	42.2

Boring Location: 42.969814°,-72.225620°

Ground Surface Elevation: ± 883 ft. Datum: MSL

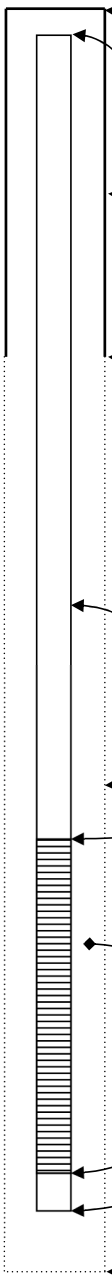
Well Riser Elevation: ± 884.7 ft.

Protective Cover: N/A

Type of Protective Cover/Lock: N/A

GEOLOGIC INTERPRETATION	BOREHOLE BACKFILL
	NATIVE BACKFILL 3.9
MISC NATIVE FILL	Bentonite Plug 5
6	
GLACIAL TILL	#2 Filter Sand
55	55

Bottom of Exploration
(Depth in Feet from Ground Surface)



Height of Guard Pipe above ground surface: N/A ft.

Depth Above Ground surface to Riser.: 1.7 ft.

Type of Protective casing: N/A

Casing Length: N/A ft.

Casing Diameter: N/A in.

Depth of Guard Pipe Bottom: N/A ft.

Type of Seals	Top of Seal (ft)	Thickness (ft)
Bentonite Plug	3.9	1.1

Type of Riser Pipe: Schedule 40 PVC

Riser Diameter: 2 in.

Diameter of Borehole: 4 in.

Top of Well Screen Depth: 5 ft.

Type of Well Screen: Schedule 40 PVC

Screen Gauge or Slot Size: 0.01 in

Screen Diameter: 2 in

Backfill Around Screen: #2 Filter Sand

Bottom of Well Screen: 55 ft.

Bottom of Silt Trap: 55 ft.

Bottom of Borehole: 55 ft.

(This diagram is not to scale.)

COMMENTS:

Note water bearing fracture in competant bedrock at ±28'

Location and elevations were obtained via GPS, relative to MSL.

WELL INSTALLATION REPORT

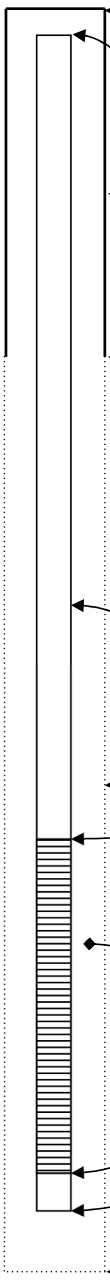
WELL NO. SLR-11

Page 1 of 1

PROJECT	Proposed Sand & Gravel Pit	PROJECT #	144.16535.00023
LOCATION	Franklin Pierce Highway, Keene/Sullivan/Roxbury, NH	PROJECT MGR.	S. Landry
CLIENT	TF Moran	FIELD REP.	E. Adler
CONTRACTOR	New England Boring Contractors	DATE INSTALLED	3/15-16/2022
DRILLER	M. Thompson	WATER LEVEL (ft)	DRY @ 45.2
Boring Location	42.970370°,-72.224130°		
Ground Surface Elevation	±863 ft. Datum MSL	Protective Cover	N/A
Well Riser Elevation	± 865.3 ft.	Type of Protective Cover/Lock	N/A

GEOLOGIC INTERPRETATION	BOREHOLE BACKFILL
	0.5
	Bentonite Plug
MISC	4
NATIVE	
FILL	
14	
GLACIAL	#2 Filter
TILL	Sand
	45.2
	3/4" STONE
76	76

Bottom of Exploration
(Depth in Feet from Ground Surface)



Height of Guard Pipe above ground surface	N/A	ft.
Depth Above Groundsurface to Riser.	2.3	ft.
Type of Protective casing	N/A	
Casing Length	N/A	ft.
Casing Diameter	N/A	in.
Depth of Guard Pipe Bottom	N/A	ft.

Type of Seals	Top of Seal (ft)	Thickness (ft)
Bentonite Plug	0.5	3.5

Type of Riser Pipe	Schedule 40 PVC	
Riser Diameter	2	in.
Diameter of Borehole	4	in.
Top of Well Screen Depth	5	ft.
Type of Well Screen	Schedule 40 PVC	
Screen Gauge or Slot Size	0.01	in
Screen Diameter	2	in
Backfill Around Screen	#2 Filter Sand	
Bottom of Well Screen	45	ft.
Bottom of Silt Trap	45.2	ft.
Bottom of Borehole	76	ft.

(This diagram is not to scale.)

COMMENTS:

Note water bearing fracture in competant bedrock at ±28'

Location and elevations were obtained via GPS, relative to MSL.

WELL INSTALLATION REPORT

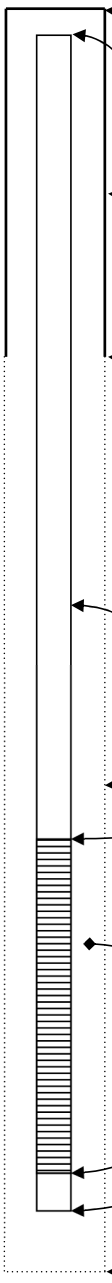
WELL NO. SLR-12

Page 1 of 1

PROJECT	Proposed Sand & Gravel Pit	PROJECT #	144.16535.00023
LOCATION	Franklin Pierce Highway, Keene/Sullivan/Roxbury, NH	PROJECT MGR.	S. Landry
CLIENT	TF Moran	FIELD REP.	E. Adler
CONTRACTOR	New England Boring Contractors	DATE INSTALLED	3/15-17/2022
DRILLER	M. Thompson	WATER LEVEL (ft)	4.7*
Boring Location	42.970850°,-72.225815°		
Ground Surface Elevation	± 890 ft. Datum MSL	Protective Cover	N/A
Well Riser Elevation	± 892.7 ft.	Type of Protective Cover/Lock	N/A

GEOLOGIC INTERPRETATION	BOREHOLE BACKFILL
	#2 SAND
	0.5
GLACIAL TILL	Bentonite Plug
	3.5
9	
WEATHERED BEDROCK	
11	
BEDROCK	
	#2 Filter Sand
39.5	39.5

Bottom of Exploration
(Depth in Feet from Ground Surface)



Height of Guard Pipe above ground surface	N/A	ft.
Depth Above Ground surface to Riser.	2.7	ft.
Type of Protective casing	N/A	
Casing Length	N/A	ft.
Casing Diameter	N/A	in.
Depth of Guard Pipe Bottom	N/A	ft.

Type of Seals	Top of Seal (ft)	Thickness (ft)
Bentonite Plug	0.5	3

Type of Riser Pipe	Schedule 40 PVC	
Riser Diameter	2	in.
Diameter of Borehole	4	in.
Top of Well Screen Depth	4.5	ft.
Type of Well Screen	Schedule 40 PVC	
Screen Gauge or Slot Size	0.01	in
Screen Diameter	2	in
Backfill Around Screen	#2 Filter Sand	
Bottom of Well Screen	39.5	ft.
Bottom of Silt Trap	39.5	ft.
Bottom of Borehole	39.5	ft.

(This diagram is not to scale.)

COMMENTS:

Note water bearing fracture in competant bedrock at ±28'

* Note non-stabilized groundwater level checked same day as well installation.

Location and elevations were obtained via GPS, relative to MSL.

LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	NEBC
PROJECT NO.:	144.16535.00023	**SOURCE:**	On-site

SAMPLE NO.:	SLR-1 S-2	**TEST METHOD:**	ASTM D422/D1140	**DATE RETRIEVED:**	12/9/2021
TEST DATE:	1/4/2022	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, and Silt, little Gravel

PROPOSED SAMPLE USE:

	SIEVE SIZE	SIEVE OPENINGS		WEIGHT RETAINED (grams)	CUMULATIVE WEIGHT RETAINED (grams)	PERCENT FINER OF TOTAL	NHDOT 209.2.1.1 (Granular Backfill - sand)	NHDOT 209.2.1.2 (Granular Backfill - gravel)	NHDOT 304.1 (Sand)	NHDOT 304.2 (Gravel)
		inches	millimeters							
GRAVEL	3"	3.000	76.20	0.0	0.0	100.0	100.0	95-100	---	---
	2"	2.000	50.80	0.0	0.0	100.0	---	---	---	---
	1-1/2"	1.500	38.10	0.0	0.0	100.0	---	---	---	---
	1"	1.000	25.40	0.0	0.0	100.0	---	---	---	---
	3/4"	0.750	19.00	9.6	9.6	96.8	---	---	---	---
	1/2"	0.500	12.70	10.3	19.9	93.4	---	---	---	---
	3/8"	0.375	9.50	5.4	25.3	91.7	---	---	---	---
SAND	#4	0.187	4.75	11.9	37.2	87.8	70-100	**25-70**	70-100	**25-70**
	#10	0.079	2.00	18.7	55.9	81.6	---	---	---	---
	#40	0.017	0.43	39.6	95.5	68.6	---	---	---	---
	#100	0.006	0.15	60.4	155.9	48.7	---	---	---	---
	#200	0.003	0.07	35.3	191.2	37.1	---	---	---	---
	#200*	--	--	--	--	42.2*	**0-12***	**0-12***	**0-12***	**0-12***
Silt or Clay	Pan	0.000	0.00	8.6	199.8	34.2	---	---	---	---
			Total weight of sample		303.8					

* Based on the percent passing the #4 sieve.

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tel: 603 668 1654 web: slrconsulting.com

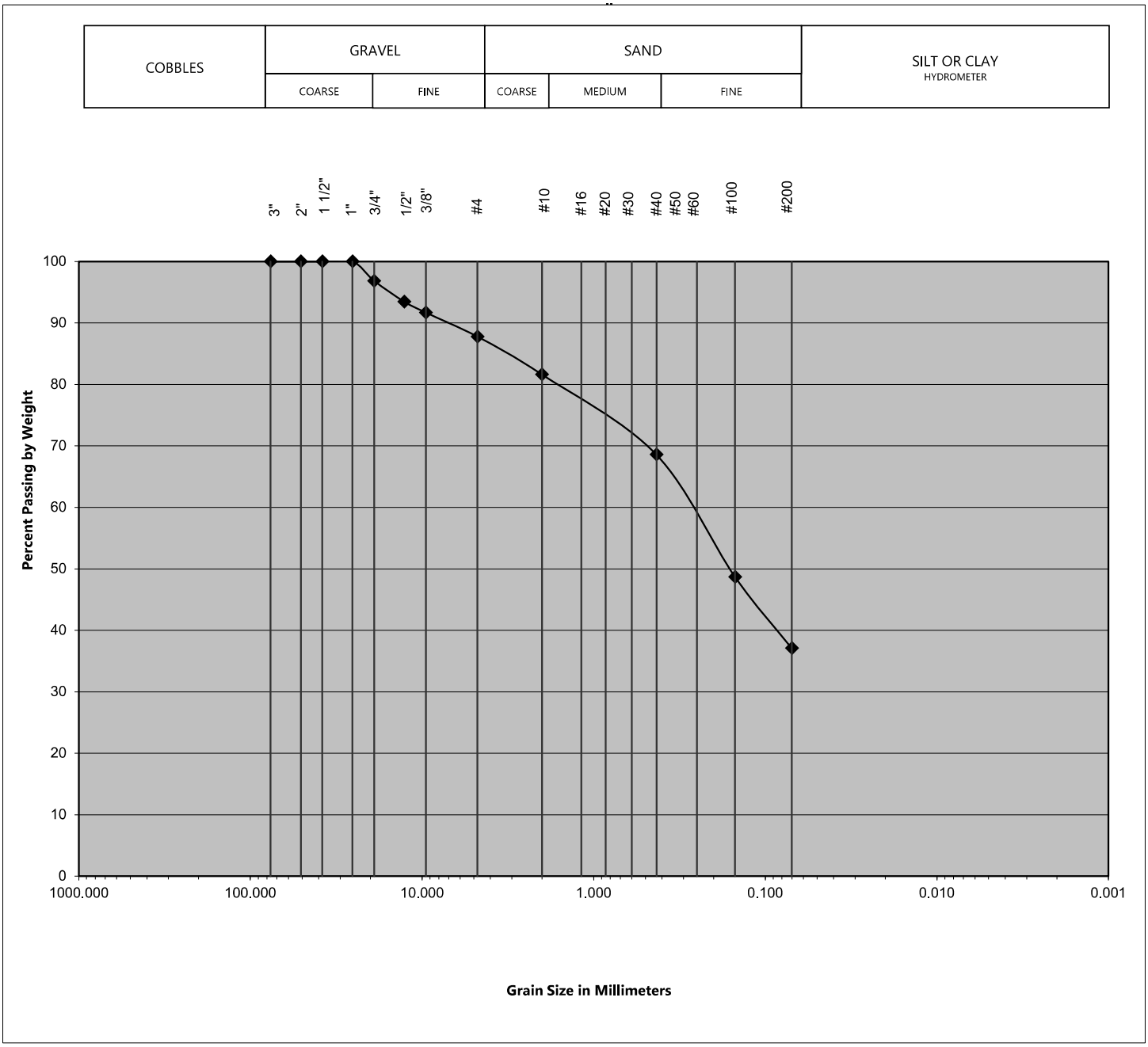
LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	NEBC
PROJECT NO.:	144.16535.00023	**SOURCE:**	On-site

SAMPLE NO.:	SLR-1 S-2	**TEST METHOD:**	ASTM D 422 / D 1140	**DATE RETRIEVED:**	12/9/2021
DATE TESTED:	1/4/2022	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, and Silt, little Gravel

PROPOSED SAMPLE USE:



LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	144.16535.00023	**SOURCE:**	On-site

SAMPLE NO.:	SLR-4 S-1	**TEST METHOD:**	ASTM D422/D1140	**DATE RETRIEVED:**	12/9/2021
TEST DATE:	1/4/2022	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, some Gravel, little Silt

PROPOSED SAMPLE USE:

	SIEVE SIZE	SIEVE OPENINGS		WEIGHT RETAINED (grams)	CUMULATIVE WEIGHT RETAINED (grams)	PERCENT FINER OF TOTAL	NHDOT 209.2.1.1 (Granular Backfill - sand)	NHDOT 209.2.1.2 (Granular Backfill - gravel)	NHDOT 304.1 (Sand)	NHDOT 304.2 (Gravel)
		inches	millimeters							
GRAVEL	3"	3.000	76.20	0.0	0.0	100.0	100.0	95-100	---	---
	2"	2.000	50.80	0.0	0.0	100.0	---	---	---	---
	1-1/2"	1.500	38.10	0.0	0.0	100.0	---	---	---	---
	1"	1.000	25.40	0.0	0.0	100.0	---	---	---	---
	3/4"	0.750	19.00	64.7	64.7	79.3	---	---	---	---
	1/2"	0.500	12.70	8.5	73.2	76.6	---	---	---	---
	3/8"	0.375	9.50	8.4	81.6	73.9	---	---	---	---
SAND	#4	0.187	4.75	24.0	105.6	66.2	**70-100**	25-70	**70-100**	25-70
	#10	0.079	2.00	22.7	128.3	59.0	---	---	---	---
	#40	0.017	0.43	49.5	177.8	43.1	---	---	---	---
	#100	0.006	0.15	62.5	240.3	23.1	---	---	---	---
	#200	0.003	0.07	27.0	267.3	14.5	---	---	---	---
	#200*	--	--	--	--	21.9*	**0-12***	**0-12***	**0-12***	**0-12***
Silt or Clay	Pan	0.000	0.00	12.1	279.4	10.6	---	---	---	---
			Total weight of sample		312.6					

* Based on the percent passing the #4 sieve.

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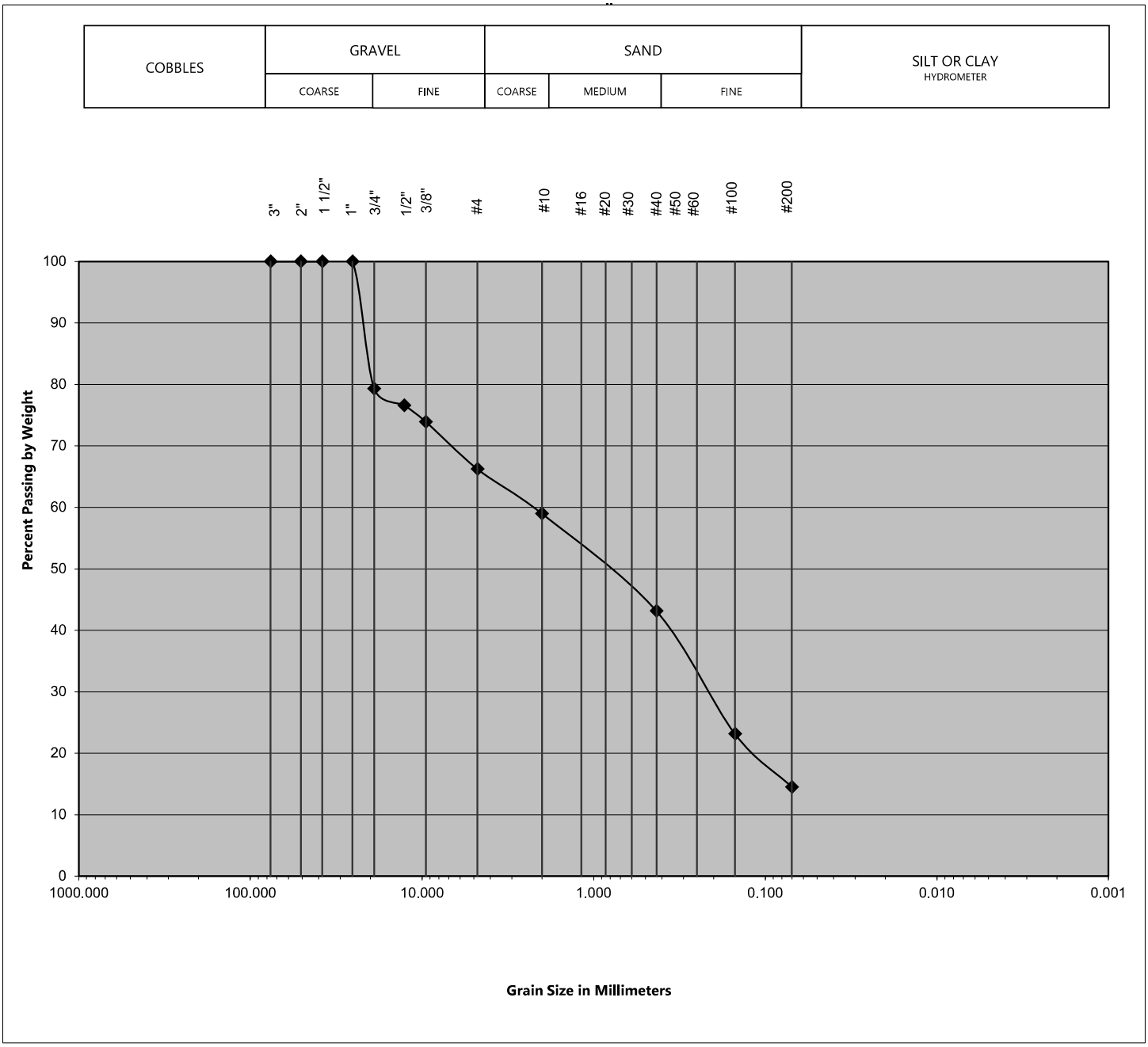
LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	144.16535.00023	**SOURCE:**	On-site

SAMPLE NO.:	SLR-4 S-1	**TEST METHOD:**	ASTM D 422 / D 1140	**DATE RETRIEVED:**	12/9/2021
DATE TESTED:	1/4/2022	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, some Gravel, little Silt

PROPOSED SAMPLE USE:



LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	144.16535.00023	**SOURCE:**	On-site

SAMPLE NO.:	SLR-5 S-1	**TEST METHOD:**	ASTM D422/D1140	**DATE RETRIEVED:**	12/9/2021
TEST DATE:	1/3/2022	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Gray fine to coarse SAND and fine Gravel, trace Silt

PROPOSED SAMPLE USE:

	SIEVE SIZE	SIEVE OPENINGS		WEIGHT RETAINED (grams)	CUMULATIVE WEIGHT RETAINED (grams)	PERCENT FINER OF TOTAL	NHDOT 209.2.1.1 (Granular Backfill - sand)	NHDOT 209.2.1.2 (Granular Backfill - gravel)	NHDOT 304.1 (Sand)	NHDOT 304.2 (Gravel)
		inches	millimeters							
GRAVEL	3"	3.000	76.20	0.0	0.0	100.0	100.0	95-100	---	---
	2"	2.000	50.80	0.0	0.0	100.0	---	---	---	---
	1-1/2"	1.500	38.10	0.0	0.0	100.0	---	---	---	---
	1"	1.000	25.40	0.0	0.0	100.0	---	---	---	---
	3/4"	0.750	19.00	66.4	66.4	81.7	---	---	---	---
	1/2"	0.500	12.70	29.3	95.7	73.6	---	---	---	---
	3/8"	0.375	9.50	17.0	112.7	68.9	---	---	---	---
SAND	#4	0.187	4.75	44.3	157.0	56.7	**70-100**	25-70	**70-100**	25-70
	#10	0.079	2.00	50.9	207.9	42.6	---	---	---	---
	#40	0.017	0.43	71.5	279.4	22.9	---	---	---	---
	#100	0.006	0.15	41.3	320.7	11.5	---	---	---	---
	#200	0.003	0.07	16.0	336.7	7.1	---	---	---	---
	#200*	--	--	--	--	12.5*	**0-12***	**0-12***	**0-12***	**0-12***
Silt or Clay	Pan	0.000	0.00	4.2	340.9	5.9	---	---	---	---
			Total weight of sample		362.4					

* Based on the percent passing the #4 sieve.

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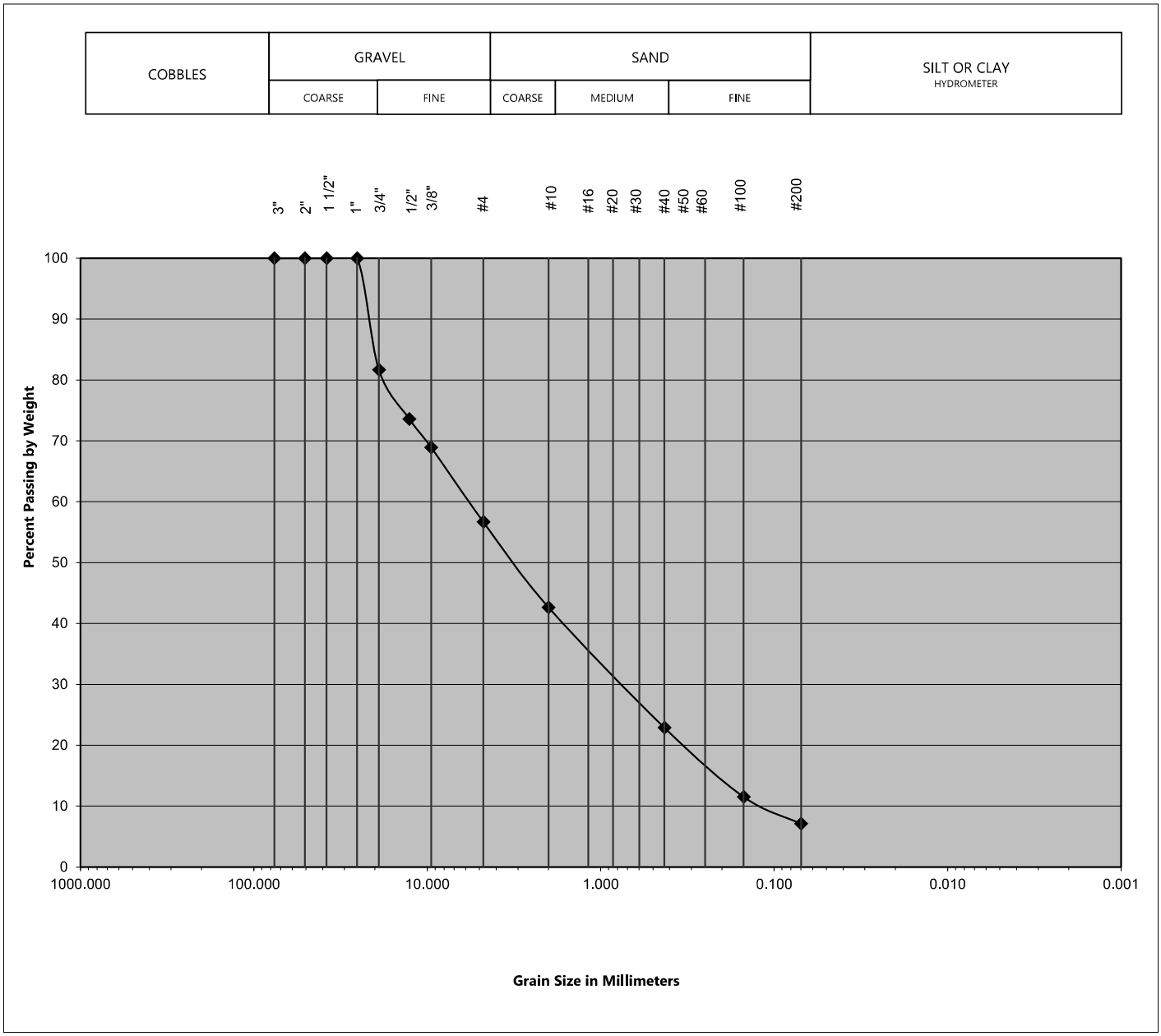
LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	144.16535.00023	**SOURCE:**	On-site

SAMPLE NO.:	SLR-5 S-1	**TEST METHOD:**	ASTM D 422 / D 1140	**DATE RETRIEVED:**	12/9/2021
DATE TESTED:	1/3/2022	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Gray fine to coarse SAND and fine Gravel, trace Silt

PROPOSED SAMPLE USE:



LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	144.16535.00023	**SOURCE:**	On-site

SAMPLE NO.:	SLR-5 S-2	**TEST METHOD:**	ASTM D422/D1140	**DATE RETRIEVED:**	12/9/2021
TEST DATE:	1/3/2022	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND and fine Gravel, trace Silt

PROPOSED SAMPLE USE:

	SIEVE SIZE	SIEVE OPENINGS		WEIGHT RETAINED (grams)	CUMULATIVE WEIGHT RETAINED (grams)	PERCENT FINER OF TOTAL	NHDOT 209.2.1.1 (Granular Backfill - sand)	NHDOT 209.2.1.2 (Granular Backfill - gravel)	NHDOT 304.1 (Sand)	NHDOT 304.2 (Gravel)
		inches	millimeters							
GRAVEL	3"	3.000	76.20	0.0	0.0	100.0	100.0	95-100	---	---
	2"	2.000	50.80	0.0	0.0	100.0	---	---	---	---
	1-1/2"	1.500	38.10	0.0	0.0	100.0	---	---	---	---
	1"	1.000	25.40	43.3	43.3	87.5	---	---	---	---
	3/4"	0.750	19.00	27.1	70.4	79.7	---	---	---	---
	1/2"	0.500	12.70	17.1	87.5	74.7	---	---	---	---
	3/8"	0.375	9.50	11.2	98.7	71.5	---	---	---	---
SAND	#4	0.187	4.75	29.6	128.3	63.0	**70-100**	25-70	**70-100**	25-70
	#10	0.079	2.00	42.5	170.8	50.7	---	---	---	---
	#40	0.017	0.43	59.5	230.3	33.5	---	---	---	---
	#100	0.006	0.15	67.1	297.4	14.1	---	---	---	---
	#200	0.003	0.07	18.9	316.3	8.7	---	---	---	---
	#200*	--	--	--	--	13.8*	**0-12***	**0-12***	**0-12***	**0-12***
Silt or Clay	Pan	0.000	0.00	3.9	320.2	7.5	---	---	---	---
			Total weight of sample		346.3					

* Based on percent passing the #4 sieve.

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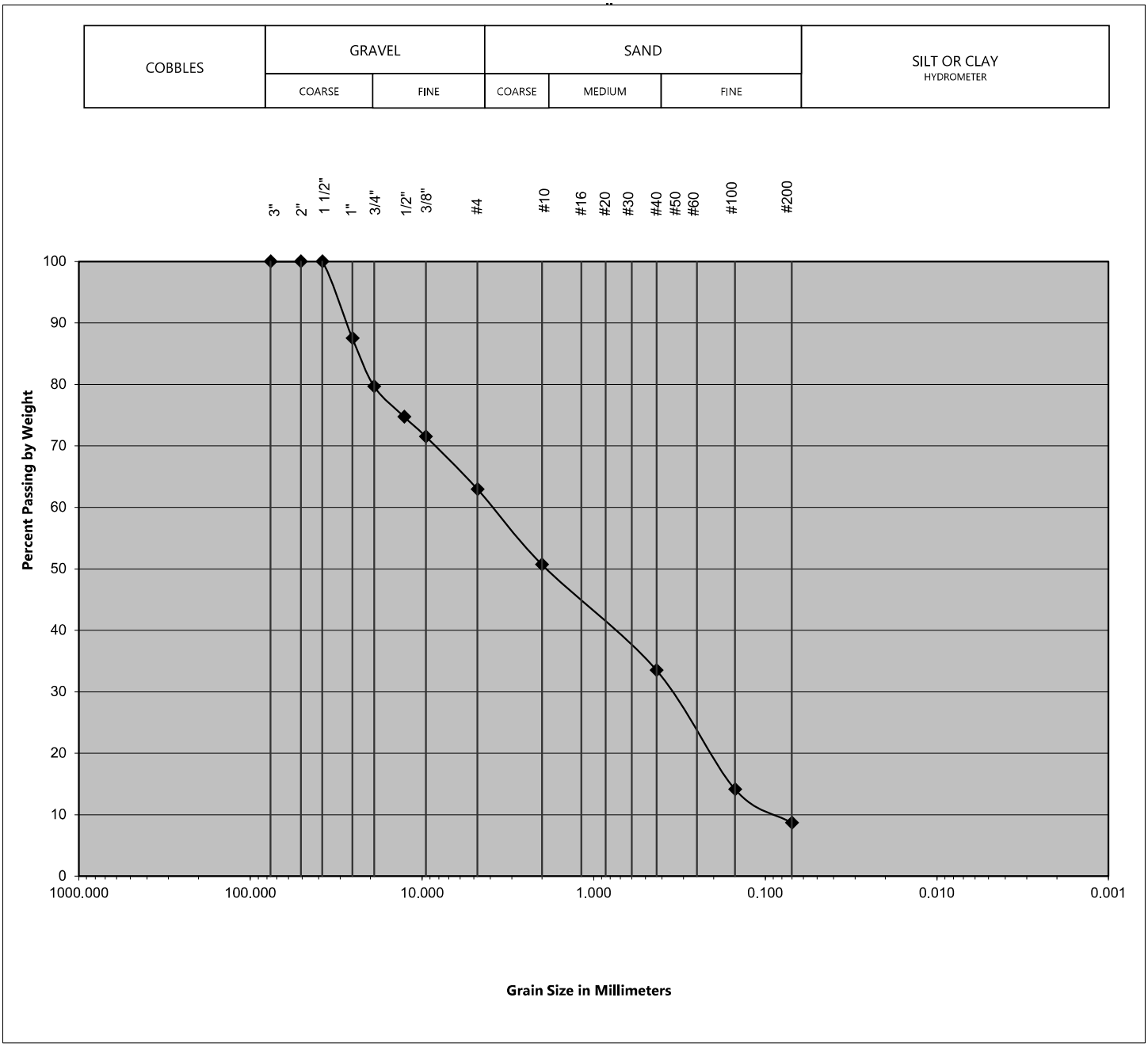
LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	144.16535.00023	**SOURCE:**	On-site

SAMPLE NO.:	SLR-5 S-2	**TEST METHOD:**	ASTM D 422 / D 1140	**DATE RETRIEVED:**	12/9/2021
DATE TESTED:	1/3/2022	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND and fine Gravel, trace Silt

PROPOSED SAMPLE USE:



LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	144.16535.00023	**SOURCE:**	On-site

SAMPLE NO.:	SLR-5 S-3	**TEST METHOD:**	ASTM D422/D1140	**DATE RETRIEVED:**	12/9/2021
TEST DATE:	1/3/2022	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown SILT, and fine to coarse Sand, trace Gravel

PROPOSED SAMPLE USE:

	SIEVE SIZE	SIEVE OPENINGS		WEIGHT RETAINED (grams)	CUMULATIVE WEIGHT RETAINED (grams)	PERCENT FINER OF TOTAL	NHDOT 209.2.1.1 (Granular Backfill - sand)	NHDOT 209.2.1.2 (Granular Backfill - gravel)	NHDOT 304.1 (Sand)	NHDOT 304.2 (Gravel)
		inches	millimeters							
GRAVEL	3"	3.000	76.20	0.0	0.0	100.0	100.0	95-100	---	---
	2"	2.000	50.80	0.0	0.0	100.0	---	---	---	---
	1-1/2"	1.500	38.10	0.0	0.0	100.0	---	---	---	---
	1"	1.000	25.40	0.0	0.0	100.0	---	---	---	---
	3/4"	0.750	19.00	0.0	0.0	100.0	---	---	---	---
	1/2"	0.500	12.70	0.0	0.0	100.0	---	---	---	---
	3/8"	0.375	9.50	0.0	0.0	100.0	---	---	---	---
SAND	#4	0.187	4.75	4.1	4.1	98.3	70-100	**25-70**	70-100	**25-70**
	#10	0.079	2.00	2.9	7.0	97.1	---	---	---	---
	#40	0.017	0.43	17.4	24.4	89.7	---	---	---	---
	#100	0.006	0.15	41.7	66.1	72.1	---	---	---	---
	#200	0.003	0.07	22.8	88.9	62.5	---	---	---	---
	#200*	--	--	--	--	63.6*	**0-12***	**0-12***	**0-12***	**0-12***
Silt or Clay	Pan	0.000	0.00	1.4	90.3	61.9	---	---	---	---
			Total weight of sample		237.3					

* Based on percent passing the #4 sieve.

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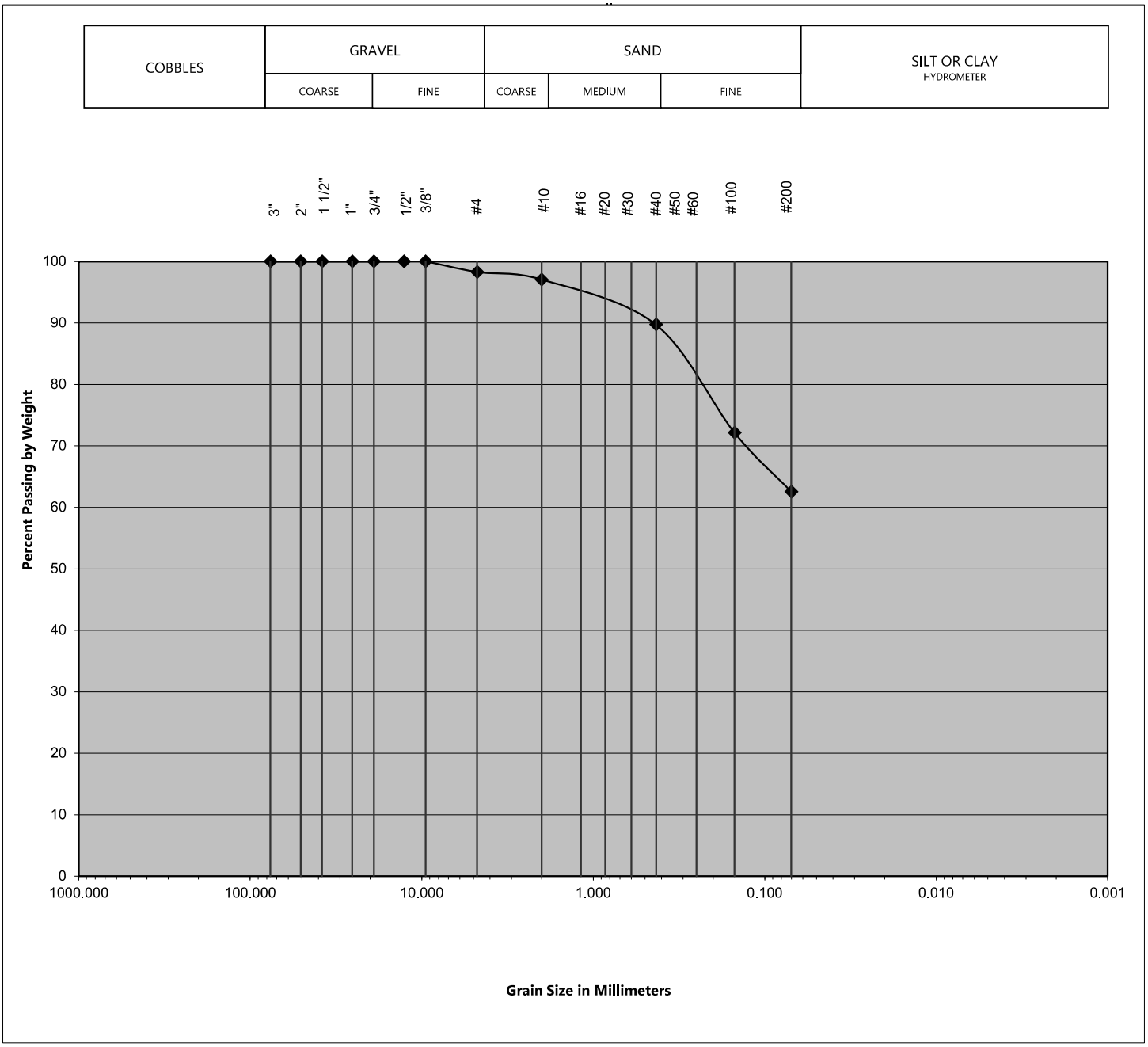
LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	144.16535.00023	**SOURCE:**	On-site

SAMPLE NO.:	SLR-5 S-3	**TEST METHOD:**	ASTM D 422 / D 1140	**DATE RETRIEVED:**	12/9/2021
DATE TESTED:	1/3/2022	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown SILT, and fine to coarse Sand, trace Gravel

PROPOSED SAMPLE USE:



LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	144.16535.00023	**SOURCE:**	On-site

SAMPLE NO.:	SLR-6 S-1	**TEST METHOD:**	ASTM D422/D1140	**DATE RETRIEVED:**	12/9/2021
TEST DATE:	1/4/2022	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, some Gravel, little Silt

PROPOSED SAMPLE USE:

	SIEVE SIZE	SIEVE OPENINGS		WEIGHT RETAINED (grams)	CUMULATIVE WEIGHT RETAINED (grams)	PERCENT FINER OF TOTAL	NHDOT 209.2.1.1 (Granular Backfill - sand)	NHDOT 209.2.1.2 (Granular Backfill - gravel)	NHDOT 304.1 (Sand)	NHDOT 304.2 (Gravel)
		inches	millimeters							
GRAVEL	3"	3.000	76.20	0.0	0.0	100.0	100.0	95-100	---	---
	2"	2.000	50.80	0.0	0.0	100.0	---	---	---	---
	1-1/2"	1.500	38.10	0.0	0.0	100.0	---	---	---	---
	1"	1.000	25.40	48.5	48.5	84.7	---	---	---	---
	3/4"	0.750	19.00	0.0	48.5	84.7	---	---	---	---
	1/2"	0.500	12.70	23.4	71.9	77.4	---	---	---	---
	3/8"	0.375	9.50	12.4	84.3	73.5	---	---	---	---
SAND	#4	0.187	4.75	24.8	109.1	65.7	**70-100**	25-70	**70-100**	25-70
	#10	0.079	2.00	34.6	143.7	54.8	---	---	---	---
	#40	0.017	0.43	49.7	193.4	39.2	---	---	---	---
	#100	0.006	0.15	37.9	231.3	27.3	---	---	---	---
	#200	0.003	0.07	24.0	255.3	19.7	---	---	---	---
	#200*	--	--	--	--	30.0*	**0-12***	**0-12***	**0-12***	**0-12***
Silt or Clay	Pan	0.000	0.00	19.1	274.4	13.7	---	---	---	---
			Total weight of sample		318.0					

* Based on percent passing the #4 sieve.

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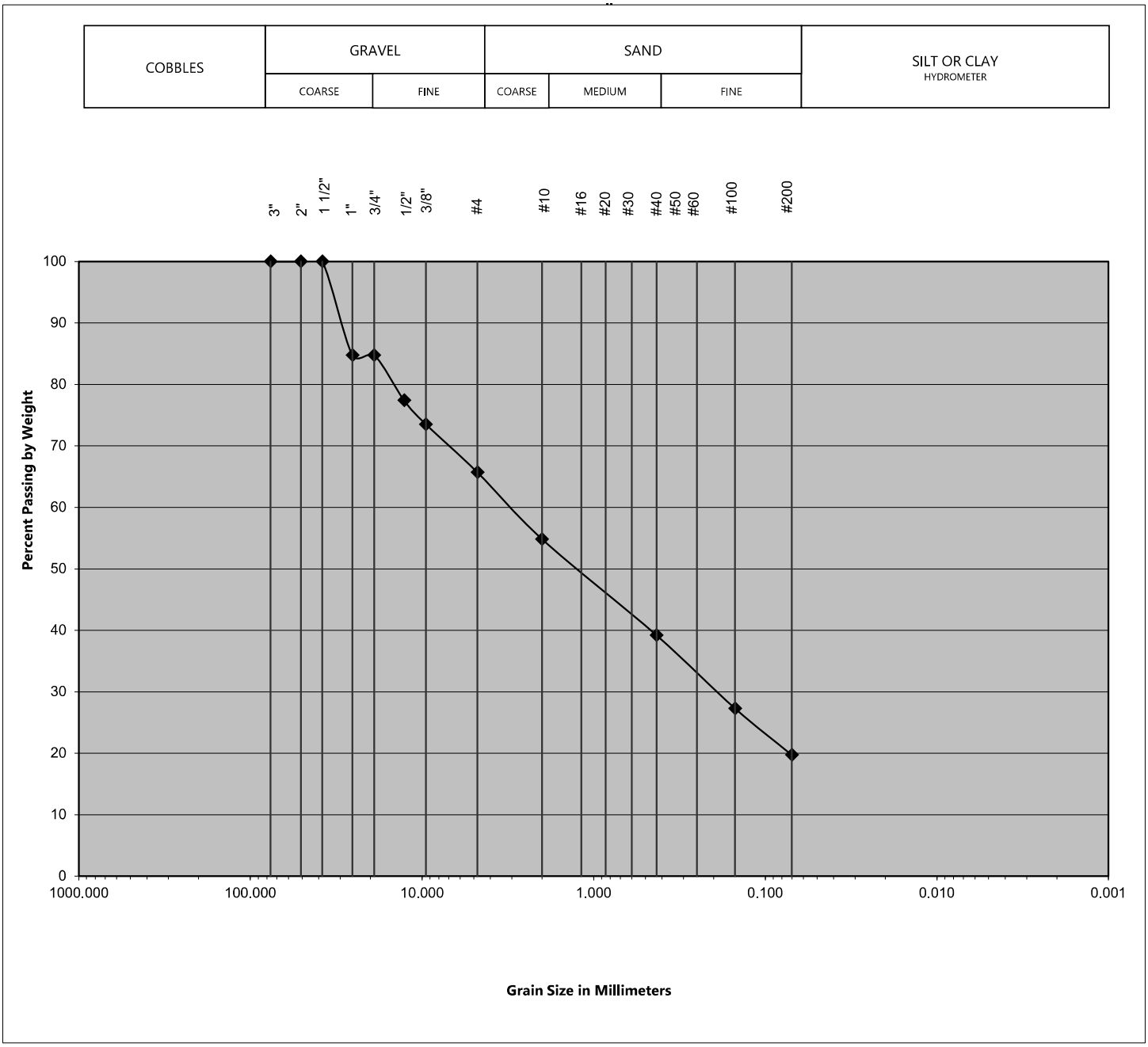
LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	144.16535.00023	**SOURCE:**	On-site

SAMPLE NO.:	SLR-6 S-1	**TEST METHOD:**	ASTM D 422 / D 1140	**DATE RETRIEVED:**	12/9/2021
DATE TESTED:	1/4/2022	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, some Gravel, little Silt

PROPOSED SAMPLE USE:



LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	144.16535.00023	**SOURCE:**	On-site

SAMPLE NO.:	Stockpile	**TEST METHOD:**	ASTM D422/D1140	**DATE RETRIEVED:**	12/9/2021
TEST DATE:	12/21/2021	**TESTED BY:**	JAW	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Light brown fine to coarse SAND, some Gravel, trace Silt

PROPOSED SAMPLE USE:

	SIEVE SIZE	SIEVE OPENINGS		WEIGHT RETAINED (grams)	CUMULATIVE WEIGHT RETAINED (grams)	PERCENT FINER OF TOTAL	NHDOT 209.2.1.1 (Granular Backfill - sand)	NHDOT 209.2.1.2 (Granular Backfill - gravel)	NHDOT 304.1 (Sand)	NHDOT 304.2 (Gravel)
		inches	millimeters							
GRAVEL	3"	3.000	76.20	0.0	0.0	100.0	100.0	95-100	---	---
	2"	2.000	50.80	0.0	0.0	100.0	---	---	---	---
	1-1/2"	1.500	38.10	0.0	0.0	100.0	---	---	---	---
	1"	1.000	25.40	0.0	0.0	100.0	---	---	---	---
	3/4"	0.750	19.00	156.1	156.1	94.5	---	---	---	---
	1/2"	0.500	12.70	499.3	655.4	77.0	---	---	---	---
	3/8"	0.375	9.50	223.8	879.2	69.1	---	---	---	---
SAND	#4	0.187	4.75	363.4	1242.6	56.3	**70-100**	25-70	**70-100**	25-70
	#10	0.079	2.00	302.8	1545.4	45.7	---	---	---	---
	#40	0.017	0.43	742.3	2287.7	19.6	---	---	---	---
	#100	0.006	0.15	303.7	2591.4	8.9	---	---	---	---
	#200	0.003	0.07	84.8	2676.2	5.9	---	---	---	---
	#200*	--	--	--	--	10.5*	0-12*	0-12*	0-12*	0-12*
Silt or Clay	Pan	0.000	0.00	167.5	2843.7	0.0	---	---	---	---
			Total weight of sample		2843.7					

* Based on percent passing the #4 sieve.

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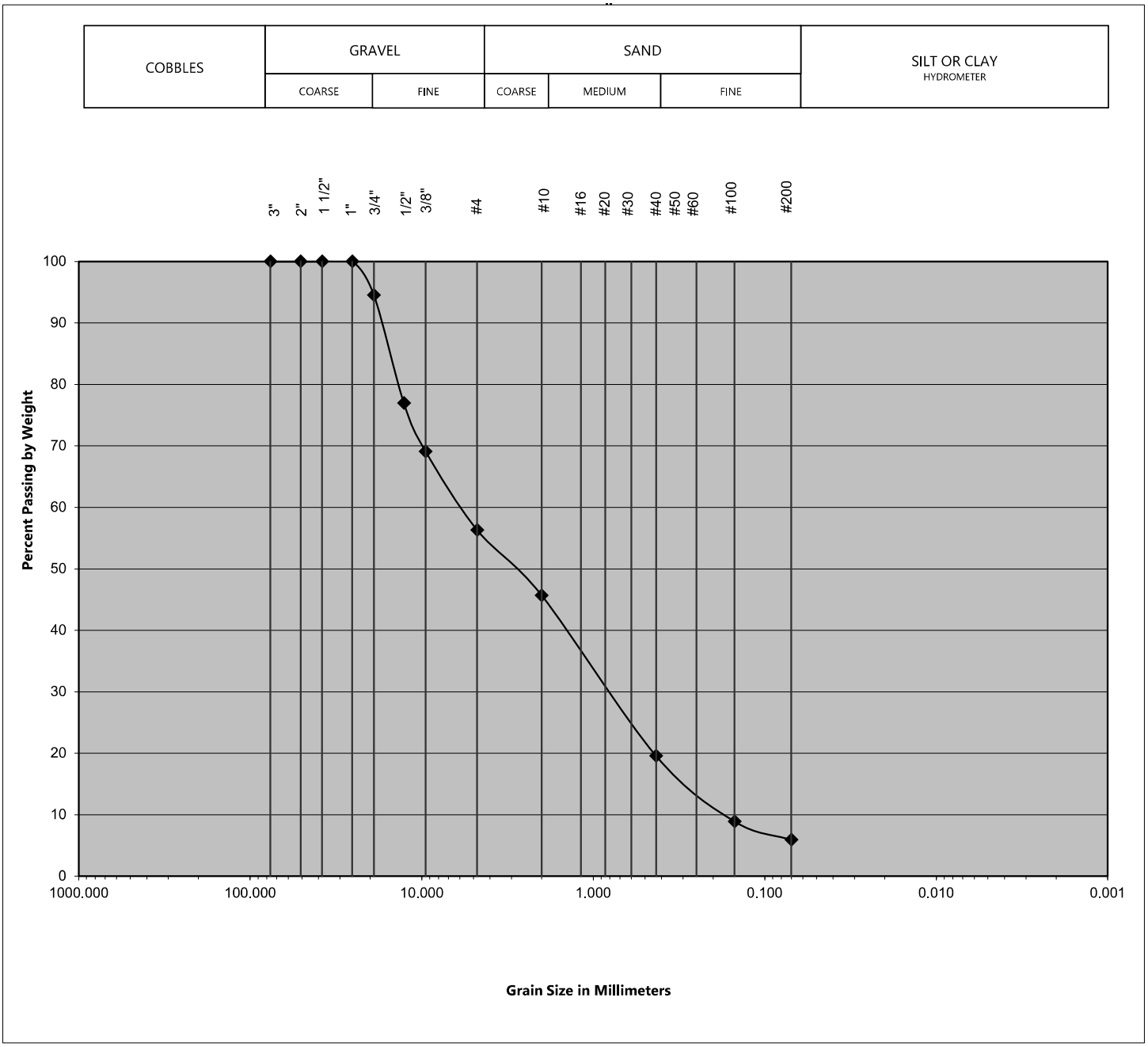
LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	144.16535.00023	**SOURCE:**	On-site

SAMPLE NO.:	Stockpile	**TEST METHOD:**	ASTM D 422 / D 1140	**DATE RETRIEVED:**	12/9/2021
DATE TESTED:	12/21/2021	**TESTED BY:**	JAW	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Light brown fine to coarse SAND, some Gravel, trace Silt

PROPOSED SAMPLE USE:



MILONE & MACBROOM

LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-Site

SAMPLE NO.:	TP-1, 6-8'	**TEST METHOD:**	ASTM D422/D1140	**DATE RETRIEVED:**	9/10/2020
TEST DATE:	9/16/2020	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, and CLAY/SILT, trace Gravel

PROPOSED SAMPLE USE:

	SIEVE SIZE	SIEVE OPENINGS		WEIGHT RETAINED (grams)	CUMULATIVE WEIGHT RETAINED (grams)	PERCENT FINER OF TOTAL	NHDOT 209.2.1.1 (Granular Backfill - sand)	NHDOT 209.2.1.2 (Granular Backfill - gravel)	NHDOT 304.1 (Sand)	NHDOT 304.2 (Gravel)
		inches	millimeters							
GRAVEL	3"	3.000	76.20	0.0	0.0	100.0	100.0	95-100	---	---
	2"	2.000	50.80	0.0	0.0	100.0	---	---	---	---
	1-1/2"	1.500	38.10	0.0	0.0	100.0	---	---	---	---
	1"	1.000	25.40	0.0	0.0	100.0	---	---	---	---
	3/4"	0.750	19.00	36.7	36.7	98.9	---	---	---	---
	1/2"	0.500	12.70	91.8	128.5	96.3	---	---	---	---
	3/8"	0.375	9.50	52.4	180.9	94.8	---	---	---	---
SAND	#4	0.187	4.75	117.7	298.6	91.4	70-100	25-70	70-100	25-70
	#10	0.079	2.00	158.2	456.8	86.9	---	---	---	---
	#40	0.017	0.43	446.3	903.1	74.1	---	---	---	---
	#100	0.006	0.15	887.3	1790.4	48.6	---	---	---	---
	#200	0.003	0.07	243.4	2033.8	41.6	---	---	---	---
	#200*	--	--	--	--	45.5 *	0-12*	0-12*	0-12*	0-12*
Silt or Clay	Pan	0.000	0.00	1447.7	3481.5	0.0	---	---	---	---
			Total weight of sample		3481.5					

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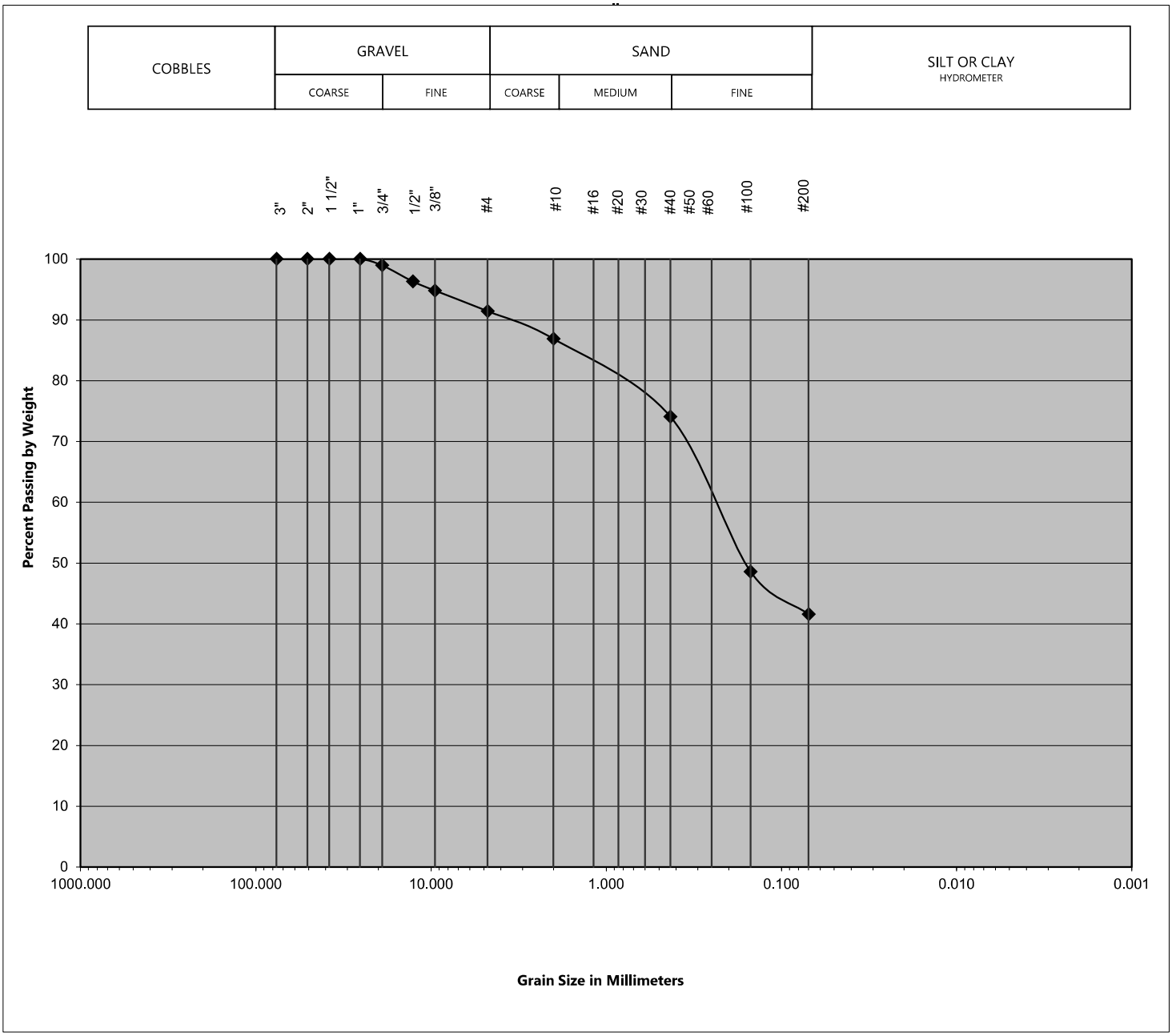
LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-Site

SAMPLE NO.:	TP-1, 6-8'	**TEST METHOD:**	ASTM D 422 / D 1140	**DATE RETRIEVED:**	9/10/2020
DATE TESTED:	9/16/2020	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, and CLAY/SILT, trace Gravel

PROPOSED SAMPLE USE:



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LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-Site

SAMPLE NO.:	TP-2, 10-12'	**TEST METHOD:**	ASTM D422/D1140	**DATE RETRIEVED:**	9/10/2020
TEST DATE:	9/16/2020	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, some Gravel, little Silt

PROPOSED SAMPLE USE:

	SIEVE SIZE	SIEVE OPENINGS		WEIGHT RETAINED (grams)	CUMULATIVE WEIGHT RETAINED (grams)	PERCENT FINER OF TOTAL	NHDOT 209.2.1.1 (Granular Backfill - sand)	NHDOT 209.2.1.2 (Granular Backfill - gravel)	NHDOT 304.1 (Sand)	NHDOT 304.2 (Gravel)
		inches	millimeters							
GRAVEL	3"	3.000	76.20	0.0	0.0	100.0	100.0	95-100	---	---
	2"	2.000	50.80	250.1	250.1	94.6	---	---	---	---
	1-1/2"	1.500	38.10	84.8	334.9	92.8	---	---	---	---
	1"	1.000	25.40	272.5	607.4	86.9	---	---	---	---
	3/4"	0.750	19.00	178.3	785.7	83.0	---	---	---	---
	1/2"	0.500	12.70	287.2	1072.9	76.8	---	---	---	---
	3/8"	0.375	9.50	196.3	1269.2	72.6	---	---	---	---
SAND	#4	0.187	4.75	387.4	1656.6	64.2	70-100	25-70	70-100	25-70
	#10	0.079	2.00	442.2	2098.8	54.6	---	---	---	---
	#40	0.017	0.43	1087.7	3186.5	31.1	---	---	---	---
	#100	0.006	0.15	692.3	3878.8	16.2	---	---	---	---
	#200	0.003	0.07	198.0	4076.8	11.9	---	---	---	---
	#200*	--	--	--	--	18.5 *	0-12*	0-12*	0-12*	0-12*
Silt or Clay	Pan	0.000	0.00	550.3	4627.1	0.0	---	---	---	---
			Total weight of sample		4627.1					

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MILONE & MACBROOM

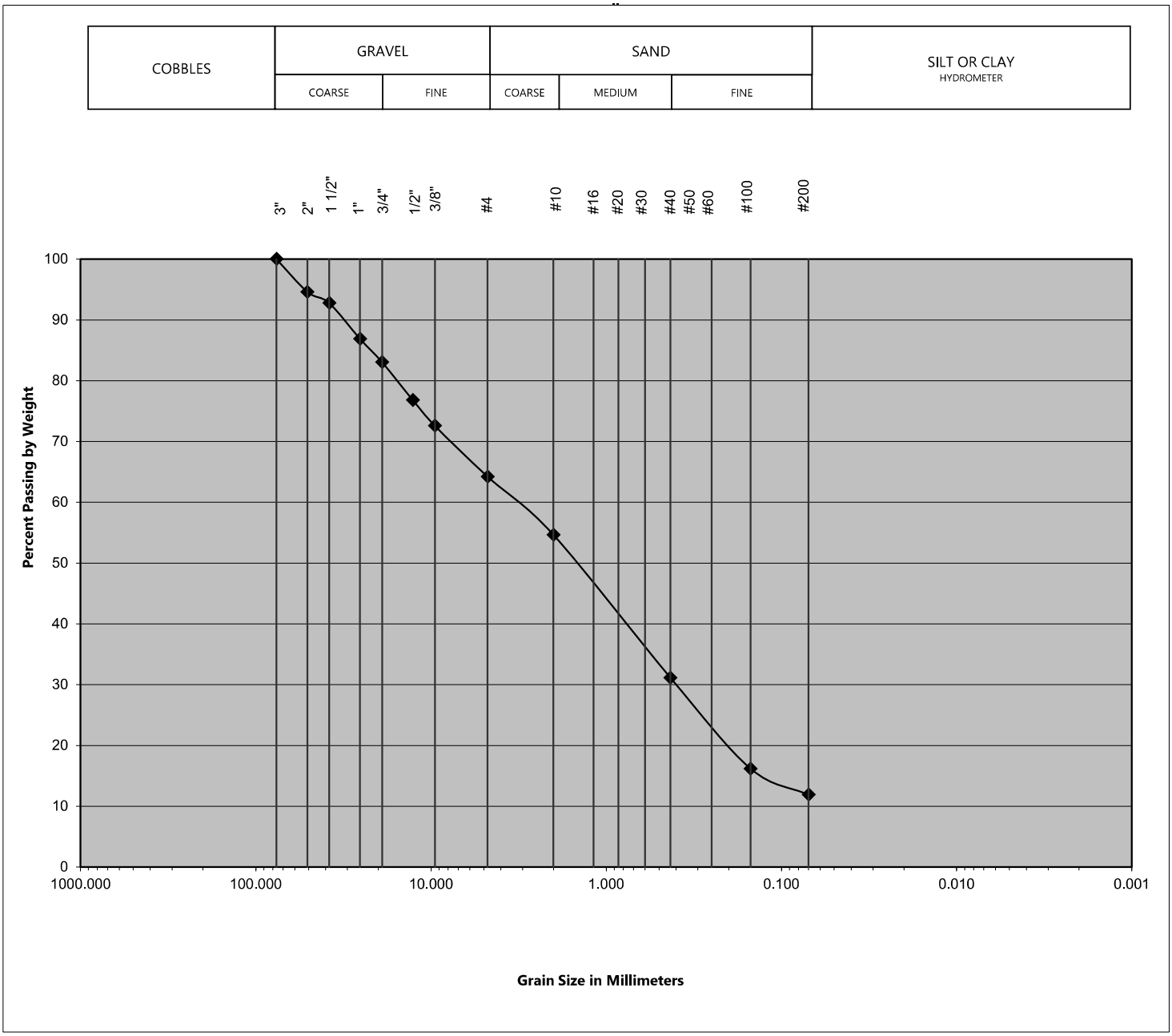
LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-Site

SAMPLE NO.:	TP-2, 10-12'	**TEST METHOD:**	ASTM D 422 / D 1140	**DATE RETRIEVED:**	9/10/2020
DATE TESTED:	9/16/2020	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, some Gravel, little Silt

PROPOSED SAMPLE USE:



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LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-Site

SAMPLE NO.:	TP-3, 7-9'	**TEST METHOD:**	ASTM D422/D1140	**DATE RETRIEVED:**	9/10/2020
TEST DATE:	9/15/2020	**TESTED BY:**	JAW	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Light Brown SILT/CLAY, some Sand, trace Gravel

PROPOSED SAMPLE USE:

	SIEVE SIZE	SIEVE OPENINGS		WEIGHT RETAINED (grams)	CUMULATIVE WEIGHT RETAINED (grams)	PERCENT FINER OF TOTAL	NHDOT 209.2.1.1 (Granular Backfill - sand)	NHDOT 209.2.1.2 (Granular Backfill - gravel)	NHDOT 304.1 (Sand)	NHDOT 304.2 (Gravel)
		inches	millimeters							
GRAVEL	3"	3.000	76.20	0.0	0.0	100.0	100.0	95-100	---	---
	2"	2.000	50.80	0.0	0.0	100.0	---	---	---	---
	1-1/2"	1.500	38.10	0.0	0.0	100.0	---	---	---	---
	1"	1.000	25.40	0.0	0.0	100.0	---	---	---	---
	3/4"	0.750	19.00	48.1	48.1	98.5	---	---	---	---
	1/2"	0.500	12.70	61.2	109.3	96.6	---	---	---	---
	3/8"	0.375	9.50	25.9	135.2	95.8	---	---	---	---
SAND	#4	0.187	4.75	82.2	217.4	93.3	70-100	25-70	70-100	25-70
	#10	0.079	2.00	88.1	305.5	90.6	---	---	---	---
	#40	0.017	0.43	307.6	613.1	81.1	---	---	---	---
	#100	0.006	0.15	498.8	1111.9	65.8	---	---	---	---
	#200	0.003	0.07	196.2	1308.1	59.7	---	---	---	---
	#200*	--	--	--	--	64.0 *	0-12*	0-12*	0-12*	0-12*
Silt or Clay	Pan	0.000	0.00	1941.1	3249.2	0.0	---	---	---	---
			Total weight of sample		3249.2					

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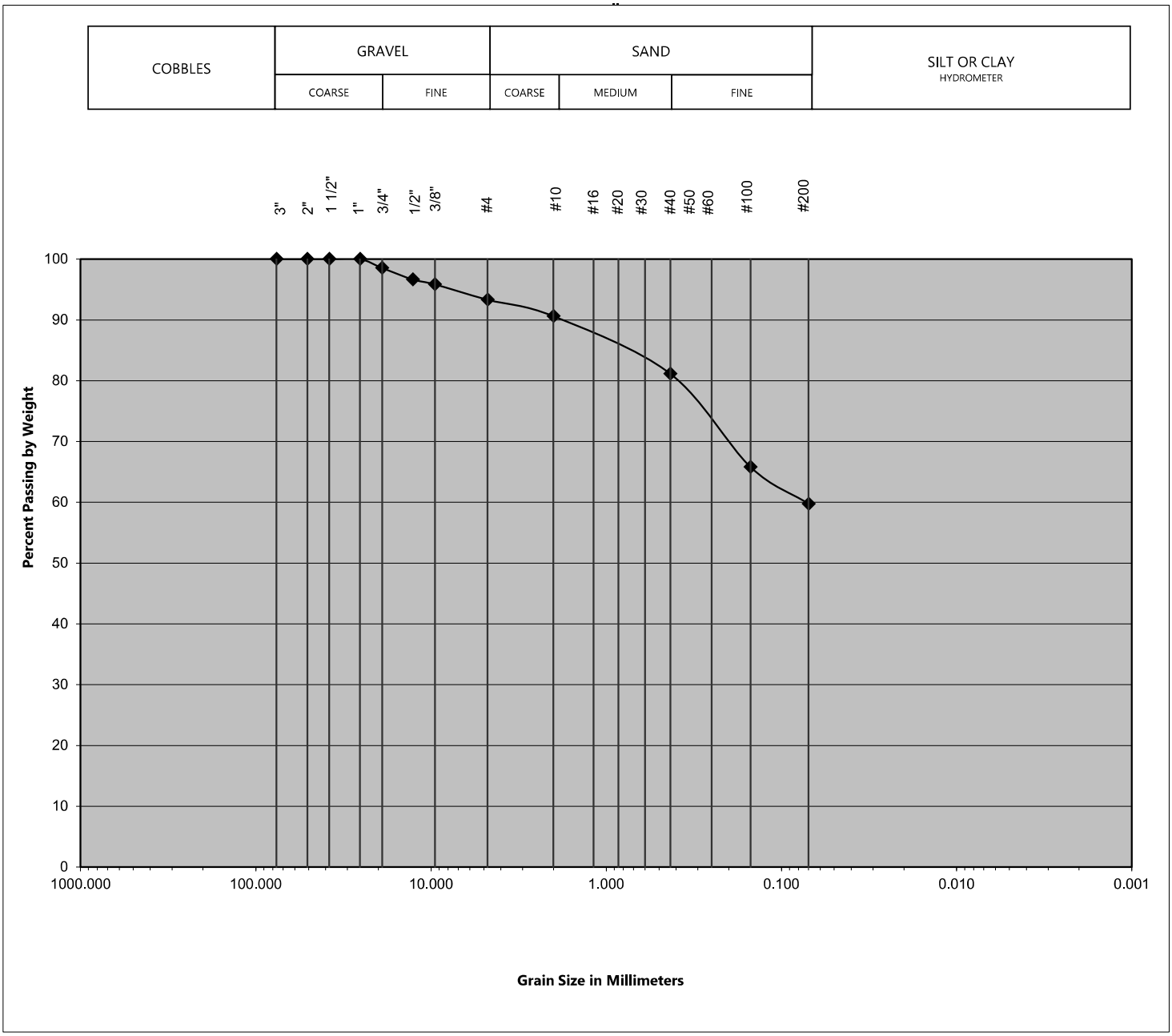
LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-Site

SAMPLE NO.:	TP-3, 7-9'	**TEST METHOD:**	ASTM D 422 / D 1140	**DATE RETRIEVED:**	9/10/2020
DATE TESTED:	9/15/2020	**TESTED BY:**	JAW	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Light Brown SILT/CLAY, some Sand, trace Gravel

PROPOSED SAMPLE USE:



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LABORATORY GRADATION REPORT

PROJECT:	Keene	**CLIENT:**	TF Moran
LOCATION:	Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-Site

SAMPLE NO.:	TP-4, 2-4'	**TEST METHOD:**	ASTM D422/D1140	**DATE RETRIEVED:**	9/10/2020
TEST DATE:	9/15/2020	**TESTED BY:**	JAW	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, little Gravel, little Silt

PROPOSED SAMPLE USE:

	SIEVE SIZE	SIEVE OPENINGS		WEIGHT RETAINED (grams)	CUMULATIVE WEIGHT RETAINED (grams)	PERCENT FINER OF TOTAL	NHDOT 209.2.1.1 (Granular Backfill - sand)	NHDOT 209.2.1.2 (Granular Backfill - gravel)	NHDOT 304.1 (Sand)	NHDOT 304.2 (Gravel)
		inches	millimeters							
GRAVEL	3"	3.000	76.20	0.0	0.0	100.0	100.0	95-100	---	---
	2"	2.000	50.80	0.0	0.0	100.0	---	---	---	---
	1-1/2"	1.500	38.10	0.0	0.0	100.0	---	---	---	---
	1"	1.000	25.40	77.6	77.6	97.5	---	---	---	---
	3/4"	0.750	19.00	112.5	190.1	93.9	---	---	---	---
	1/2"	0.500	12.70	141.4	331.5	89.4	---	---	---	---
	3/8"	0.375	9.50	65.5	397.0	87.4	---	---	---	---
SAND	#4	0.187	4.75	200.1	597.1	81.0	70-100	25-70	70-100	25-70
	#10	0.079	2.00	238.7	835.8	73.4	---	---	---	---
	#40	0.017	0.43	1120.8	1956.6	37.7	---	---	---	---
	#100	0.006	0.15	491.8	2448.4	22.1	---	---	---	---
	#200	0.003	0.07	233.8	2682.2	14.6	---	---	---	---
	#200*	--	--	--	--	18.0 *	0-12*	0-12*	0-12*	0-12*
Silt or Clay	Pan	0.000	0.00	459.0	3141.2	0.0	---	---	---	---
			Total weight of sample		3141.2					

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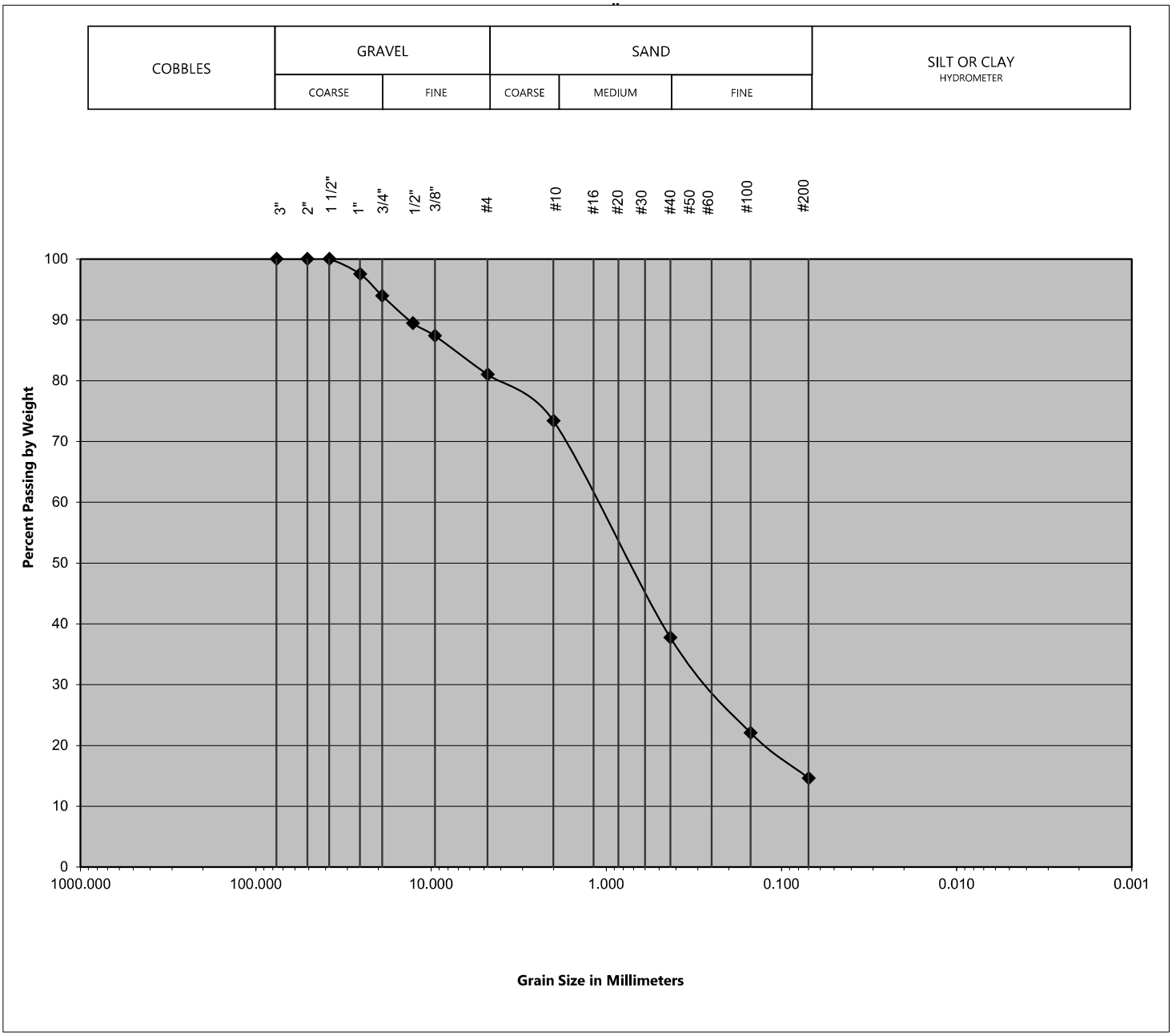
LABORATORY GRADATION REPORT

PROJECT:	Keene	**CLIENT:**	TF Moran
LOCATION:	Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-Site

SAMPLE NO.:	TP-4, 2-4'	**TEST METHOD:**	ASTM D 422 / D 1140	**DATE RETRIEVED:**	9/10/2020
DATE TESTED:	9/15/2020	**TESTED BY:**	JAW	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, little Gravel, little Silt

PROPOSED SAMPLE USE:



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LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-Site

SAMPLE NO.:	TP-5, 8-10'	**TEST METHOD:**	ASTM D422/D1140	**DATE RETRIEVED:**	9/10/2020
TEST DATE:	9/17/2020	**TESTED BY:**	JAW	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, some Clay/Silt, trace Gravel

PROPOSED SAMPLE USE:

	SIEVE SIZE	SIEVE OPENINGS		WEIGHT RETAINED (grams)	CUMULATIVE WEIGHT RETAINED (grams)	PERCENT FINER OF TOTAL	NHDOT 209.2.1.1 (Granular Backfill - sand)	NHDOT 209.2.1.2 (Granular Backfill - gravel)	NHDOT 304.1 (Sand)	NHDOT 304.2 (Gravel)
		inches	millimeters							
GRAVEL	3"	3.000	76.20	0.0	0.0	100.0	100.0	95-100	---	---
	2"	2.000	50.80	0.0	0.0	100.0	---	---	---	---
	1-1/2"	1.500	38.10	0.0	0.0	100.0	---	---	---	---
	1"	1.000	25.40	51.5	51.5	98.5	---	---	---	---
	3/4"	0.750	19.00	32.6	84.1	97.6	---	---	---	---
	1/2"	0.500	12.70	174.6	258.7	92.6	---	---	---	---
	3/8"	0.375	9.50	77.8	336.5	90.4	---	---	---	---
SAND	#4	0.187	4.75	186.1	522.6	85.1	70-100	25-70	70-100	25-70
	#10	0.079	2.00	254.7	777.3	77.8	---	---	---	---
	#40	0.017	0.43	789.5	1566.8	55.3	---	---	---	---
	#100	0.006	0.15	619.4	2186.2	37.7	---	---	---	---
	#200	0.003	0.07	227.2	2413.4	31.2	---	---	---	---
	#200*	--	--	--	--	36.7 *	0-12*	0-12*	0-12*	0-12*
Silt or Clay	Pan	0.000	0.00	1095.2	3508.6	0.0	---	---	---	---
			Total weight of sample		3508.6					

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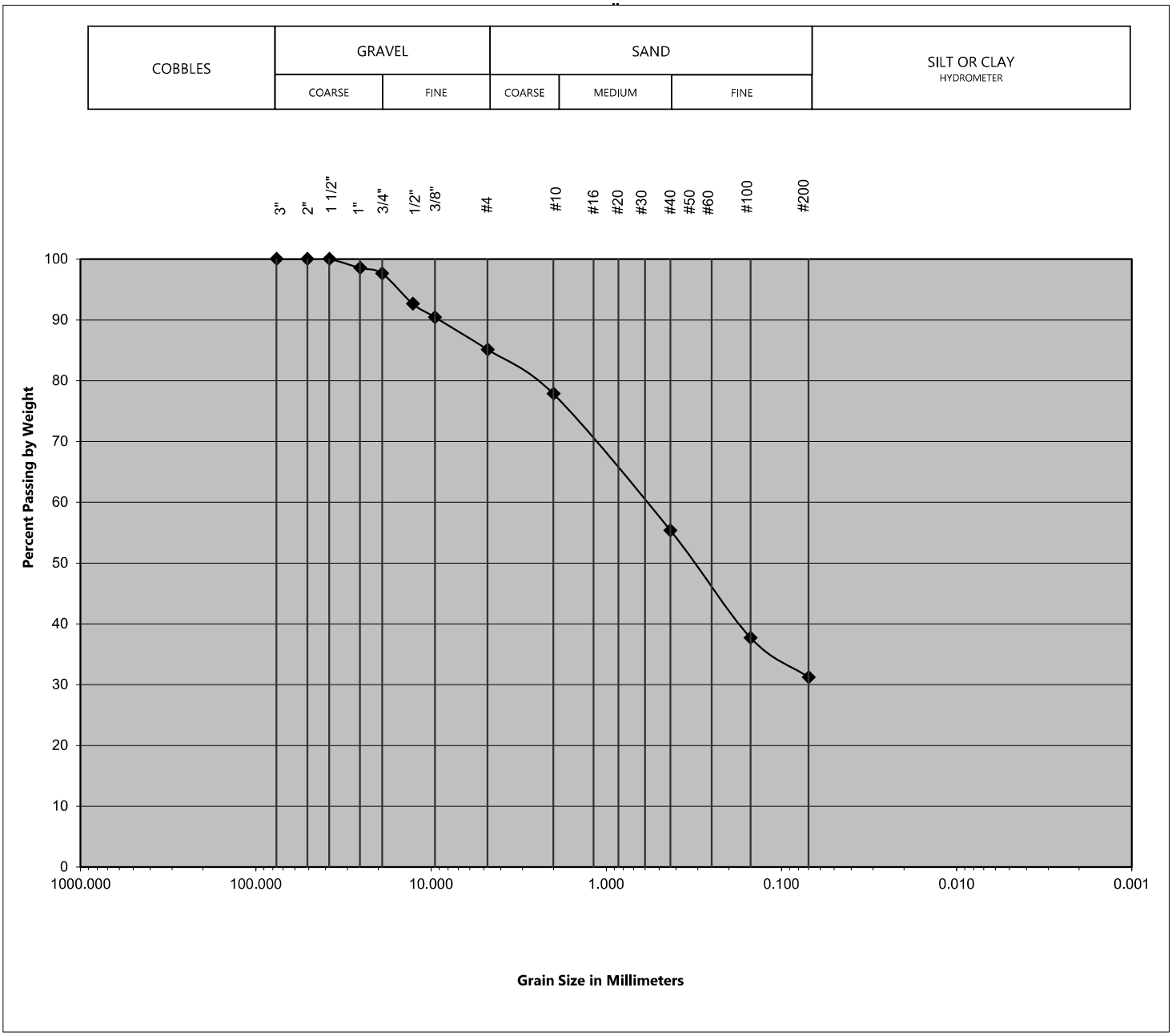
LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-Site

SAMPLE NO.:	TP-5, 8-10'	**TEST METHOD:**	ASTM D 422 / D 1140	**DATE RETRIEVED:**	9/10/2020
DATE TESTED:	9/17/2020	**TESTED BY:**	JAW	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, some Clay/Silt, trace Gravel

PROPOSED SAMPLE USE:



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LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-Site

SAMPLE NO.:	TP-6, 4-7'	**TEST METHOD:**	ASTM D422/D1140	**DATE RETRIEVED:**	9/10/2020
TEST DATE:	9/17/2020	**TESTED BY:**	JAW	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, and CLAY/SILT, little Gravel

PROPOSED SAMPLE USE:

	SIEVE SIZE	SIEVE OPENINGS		WEIGHT RETAINED (grams)	CUMULATIVE WEIGHT RETAINED (grams)	PERCENT FINER OF TOTAL	NHDOT 209.2.1.1 (Granular Backfill - sand)	NHDOT 209.2.1.2 (Granular Backfill - gravel)	NHDOT 304.1 (Sand)	NHDOT 304.2 (Gravel)
		inches	millimeters							
GRAVEL	3"	3.000	76.20	0.0	0.0	100.0	100.0	95-100	---	---
	2"	2.000	50.80	0.0	0.0	100.0	---	---	---	---
	1-1/2"	1.500	38.10	314.5	314.5	90.2	---	---	---	---
	1"	1.000	25.40	0.0	314.5	90.2	---	---	---	---
	3/4"	0.750	19.00	13.3	327.8	89.8	---	---	---	---
	1/2"	0.500	12.70	20.1	347.9	89.1	---	---	---	---
	3/8"	0.375	9.50	24.8	372.7	88.3	---	---	---	---
SAND	#4	0.187	4.75	63.1	435.8	86.4	70-100	25-70	70-100	25-70
	#10	0.079	2.00	79.8	515.6	83.9	---	---	---	---
	#40	0.017	0.43	178.3	693.9	78.3	---	---	---	---
	#100	0.006	0.15	780.7	1474.6	53.9	---	---	---	---
	#200	0.003	0.07	361.2	1835.8	42.6	---	---	---	---
	#200*	--	--	--	--	49.3 *	0-12*	0-12*	0-12*	0-12*
Silt or Clay	Pan	0.000	0.00	1362.9	3198.7	0.0	---	---	---	---
			Total weight of sample		3198.7					

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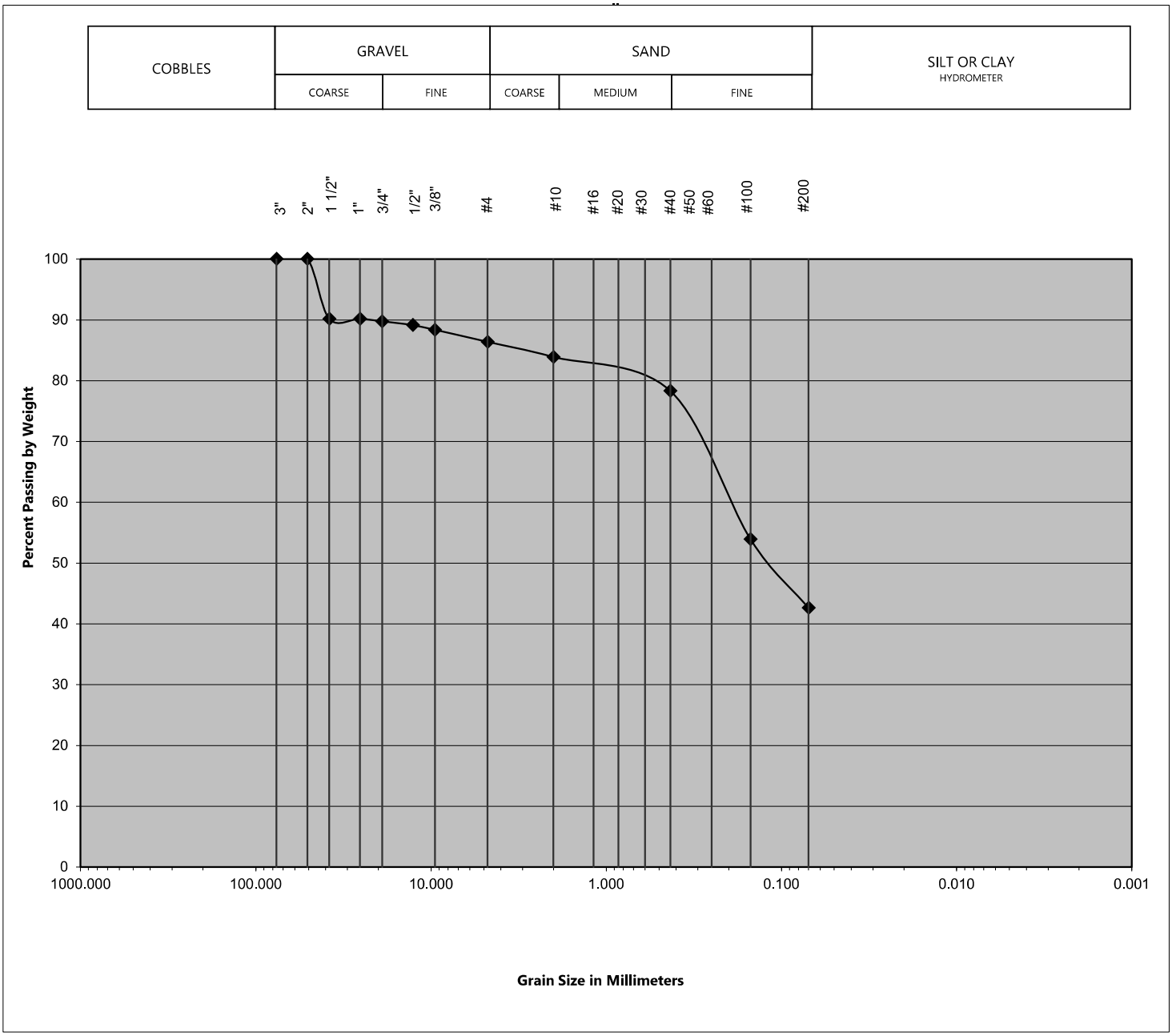
LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-Site

SAMPLE NO.:	TP-6, 4-7'	**TEST METHOD:**	ASTM D 422 / D 1140	**DATE RETRIEVED:**	9/10/2020
DATE TESTED:	9/17/2020	**TESTED BY:**	JAW	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, and CLAY/SILT, little Gravel

PROPOSED SAMPLE USE:



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LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-Site

SAMPLE NO.:	TP-7, 4-6'	**TEST METHOD:**	ASTM D422/D1140	**DATE RETRIEVED:**	9/10/2020
TEST DATE:	9/21/2020	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND and Gravel, little silt

PROPOSED SAMPLE USE:

	SIEVE SIZE	SIEVE OPENINGS		WEIGHT RETAINED (grams)	CUMULATIVE WEIGHT RETAINED (grams)	PERCENT FINER OF TOTAL	NHDOT 209.2.1.1 (Granular Backfill - sand)	NHDOT 209.2.1.2 (Granular Backfill - gravel)	NHDOT 304.1 (Sand)	NHDOT 304.2 (Gravel)
		inches	millimeters							
GRAVEL	3"	3.000	76.20	0.0	0.0	100.0	100.0	95-100	---	---
	2"	2.000	50.80	171.7	171.7	95.0	---	---	---	---
	1-1/2"	1.500	38.10	89.2	260.9	92.3	---	---	---	---
	1"	1.000	25.40	421.9	682.8	80.0	---	---	---	---
	3/4"	0.750	19.00	143.3	826.1	75.8	---	---	---	---
	1/2"	0.500	12.70	184.2	1010.3	70.4	---	---	---	---
	3/8"	0.375	9.50	160.8	1171.1	65.7	---	---	---	---
SAND	#4	0.187	4.75	276.9	1448.0	57.5	70-100	25-70	70-100	25-70
	#10	0.079	2.00	246.8	1694.8	50.3	---	---	---	---
	#40	0.017	0.43	501.1	2195.9	35.6	---	---	---	---
	#100	0.006	0.15	485.6	2681.5	21.4	---	---	---	---
	#200	0.003	0.07	214.4	2895.9	15.1	---	---	---	---
	#200*	--	--	--	--	26.2 *	0-12*	0-12*	0-12*	0-12*
Silt or Clay	Pan	0.000	0.00	66.7	2962.6	13.1	---	---	---	---
			Total weight of sample		3410.2					

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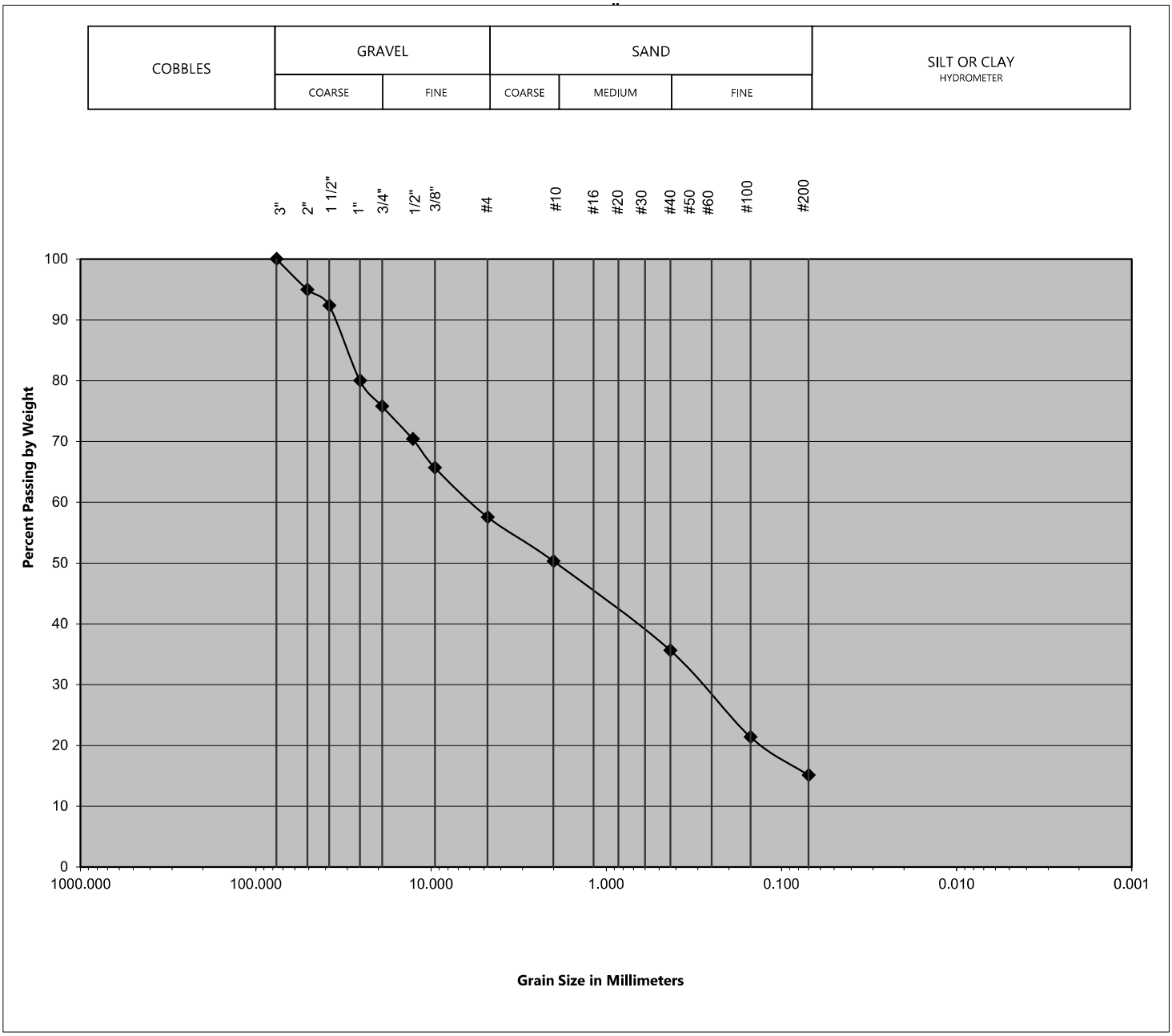
LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-Site

SAMPLE NO.:	TP-7, 4-6'	**TEST METHOD:**	ASTM D 422 / D 1140	**DATE RETRIEVED:**	9/10/2020
DATE TESTED:	9/21/2020	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND and Gravel, little silt

PROPOSED SAMPLE USE:



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LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-Site

SAMPLE NO.:	TP-9, 4-6'	**TEST METHOD:**	ASTM D422/D1140	**DATE RETRIEVED:**	9/10/2020
TEST DATE:	9/21/2020	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND and Gravel, little Silt

PROPOSED SAMPLE USE:

	SIEVE SIZE	SIEVE OPENINGS		WEIGHT RETAINED (grams)	CUMULATIVE WEIGHT RETAINED (grams)	PERCENT FINER OF TOTAL	NHDOT 209.2.1.1 (Granular Backfill - sand)	NHDOT 209.2.1.2 (Granular Backfill - gravel)	NHDOT 304.1 (Sand)	NHDOT 304.2 (Gravel)
		inches	millimeters							
GRAVEL	3"	3.000	76.20	0.0	0.0	100.0	100.0	95-100	---	---
	2"	2.000	50.80	0.0	0.0	100.0	---	---	---	---
	1-1/2"	1.500	38.10	182.0	182.0	94.5	---	---	---	---
	1"	1.000	25.40	351.2	533.2	83.8	---	---	---	---
	3/4"	0.750	19.00	163.8	697.0	78.8	---	---	---	---
	1/2"	0.500	12.70	273.6	970.6	70.5	---	---	---	---
	3/8"	0.375	9.50	142.9	1113.5	66.1	---	---	---	---
SAND	#4	0.187	4.75	355.1	1468.6	55.4	70-100	25-70	70-100	25-70
	#10	0.079	2.00	364.3	1832.9	44.3	---	---	---	---
	#40	0.017	0.43	482.6	2315.5	29.6	---	---	---	---
	#100	0.006	0.15	410.9	2726.4	17.1	---	---	---	---
	#200	0.003	0.07	195.7	2922.1	11.2	---	---	---	---
	#200*	--	--	--	--	20.2 *	0-12*	0-12*	0-12*	0-12*
Silt or Clay	Pan	0.000	0.00	60.8	2982.9	9.3	---	---	---	---
			Total weight of sample		3289.2					

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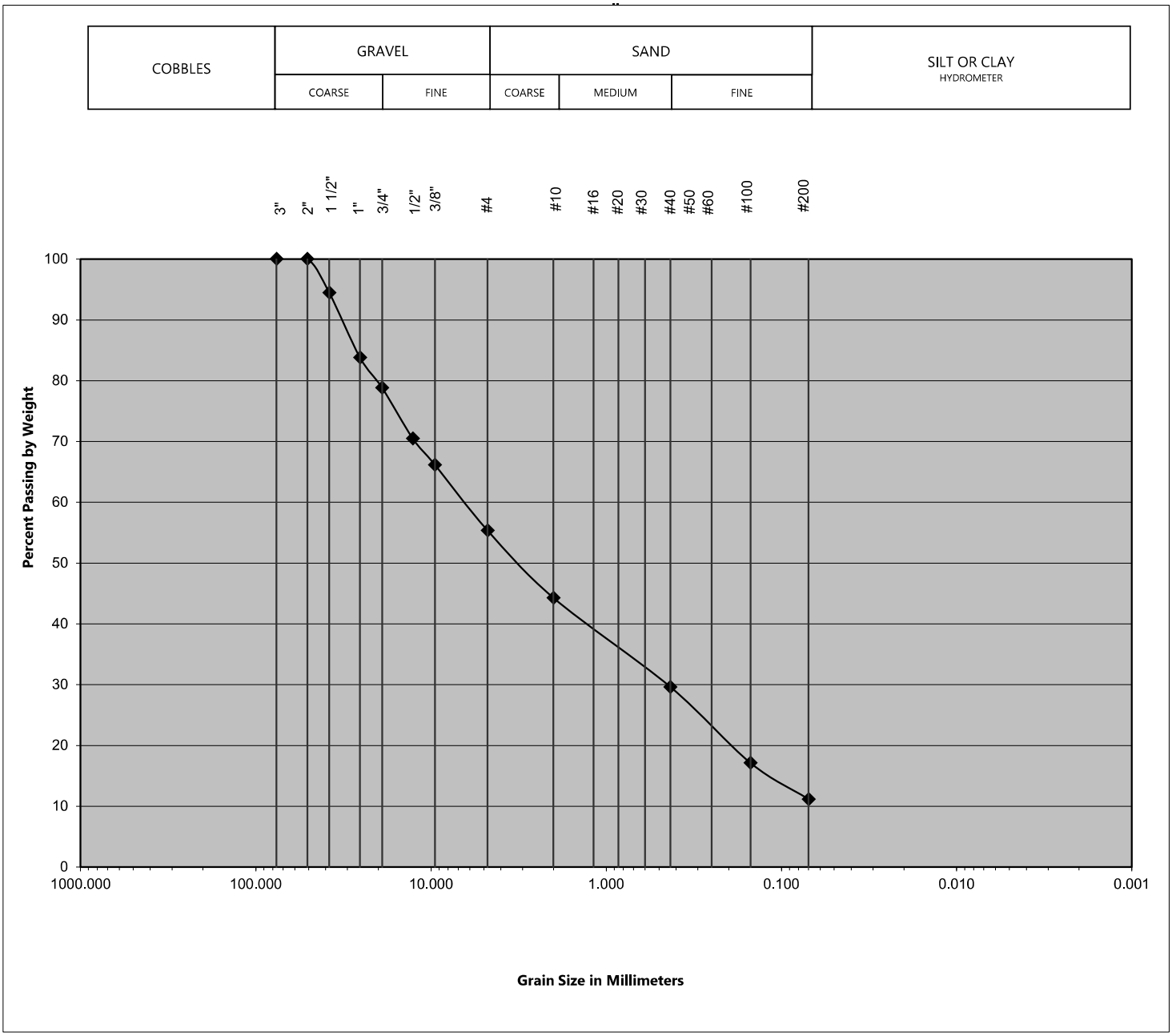
LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-Site

SAMPLE NO.:	TP-9, 4-6'	**TEST METHOD:**	ASTM D 422 / D 1140	**DATE RETRIEVED:**	9/10/2020
DATE TESTED:	9/21/2020	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND and Gravel, little Silt

PROPOSED SAMPLE USE:



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LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-site

SAMPLE NO.:	TP-10, 1-3'	**TEST METHOD:**	ASTM D422/D1140	**DATE RETRIEVED:**	9/10/2020
TEST DATE:	9/21/2020	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, some Gravel, some Silt

PROPOSED SAMPLE USE:

	SIEVE SIZE	SIEVE OPENINGS		WEIGHT RETAINED (grams)	CUMULATIVE WEIGHT RETAINED (grams)	PERCENT FINER OF TOTAL	NHDOT 209.2.1.1 (Granular Backfill - sand)	NHDOT 209.2.1.2 (Granular Backfill - gravel)	NHDOT 304.1 (Sand)	NHDOT 304.2 (Gravel)
		inches	millimeters							
GRAVEL	3"	3.000	76.20	0.0	0.0	100.0	100.0	95-100	---	---
	2"	2.000	50.80	210.0	210.0	93.6	---	---	---	---
	1-1/2"	1.500	38.10	0.0	210.0	93.6	---	---	---	---
	1"	1.000	25.40	176.5	386.5	88.3	---	---	---	---
	3/4"	0.750	19.00	224.0	610.5	81.5	---	---	---	---
	1/2"	0.500	12.70	262.1	872.6	73.5	---	---	---	---
	3/8"	0.375	9.50	124.8	997.4	69.7	---	---	---	---
SAND	#4	0.187	4.75	254.9	1252.3	62.0	70-100	25-70	70-100	25-70
	#10	0.079	2.00	233.7	1486.0	54.9	---	---	---	---
	#40	0.017	0.43	659.3	2145.3	34.9	---	---	---	---
	#100	0.006	0.15	502.5	2647.8	19.7	---	---	---	---
	#200	0.003	0.07	197.3	2845.1	13.7	---	---	---	---
	#200*	--	--	--	--	22.1 *	0-12*	0-12*	0-12*	0-12*
Silt or Clay	Pan	0.000	0.00	63.3	2908.4	11.8	---	---	---	---
			Total weight of sample		3296.0					

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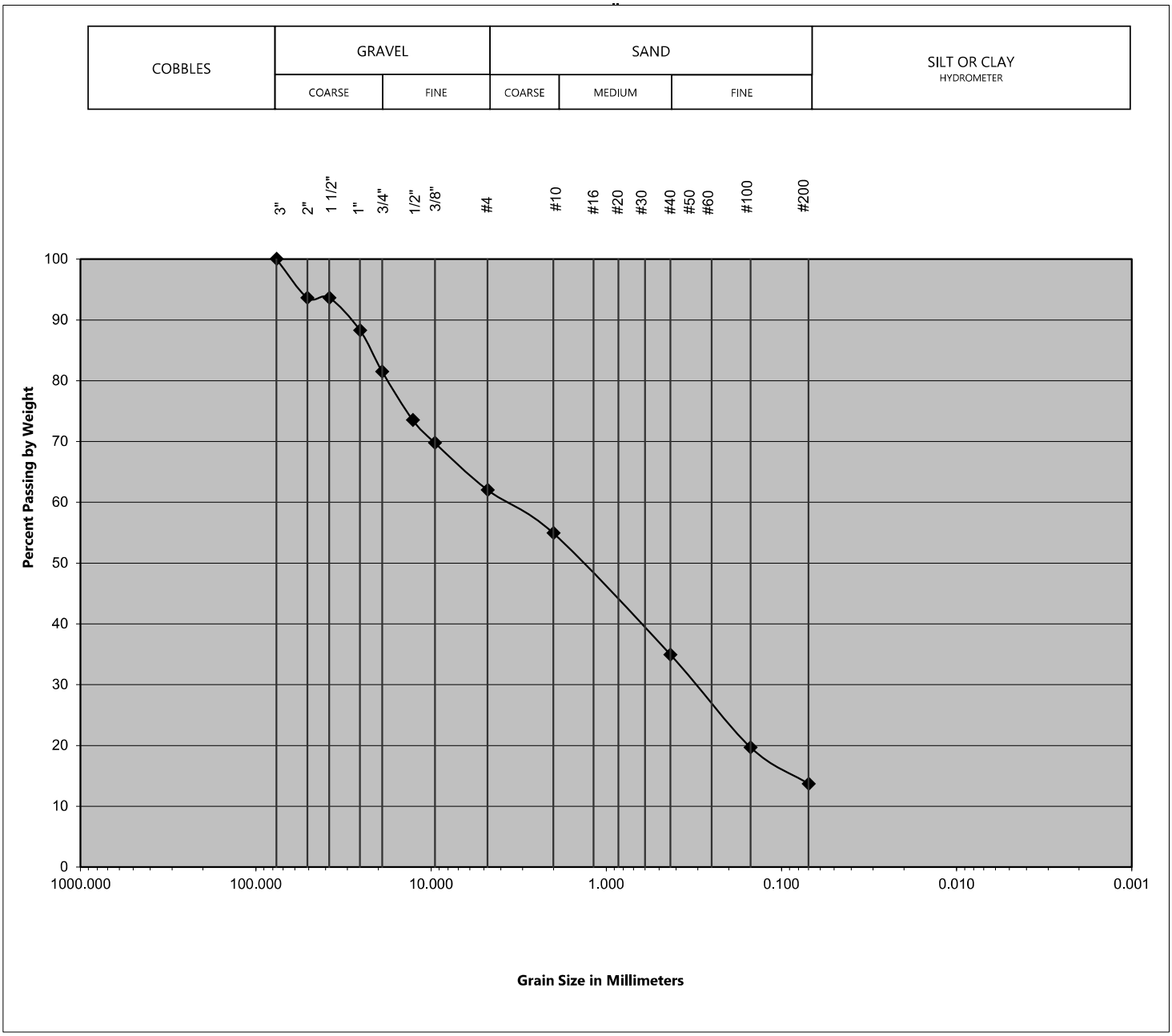
LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-site

SAMPLE NO.:	TP-10, 1-3'	**TEST METHOD:**	ASTM D 422 / D 1140	**DATE RETRIEVED:**	9/10/2020
DATE TESTED:	9/21/2020	**TESTED BY:**	DJS	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, some Gravel, some Silt

PROPOSED SAMPLE USE:



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LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-site

SAMPLE NO.:	TP-12, 3-4'	**TEST METHOD:**	ASTM D422/D1140	**DATE RETRIEVED:**	10/22/2020
TEST DATE:	10/27/2020	**TESTED BY:**	JAW	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, and fine to coarse Gravel, trace Silt

PROPOSED SAMPLE USE:

	SIEVE SIZE	SIEVE OPENINGS		WEIGHT RETAINED (grams)	CUMULATIVE WEIGHT RETAINED (grams)	PERCENT FINER OF TOTAL	NHDOT 209.2.1.1 (Granular Backfill - sand)	NHDOT 209.2.1.2 (Granular Backfill - gravel)	NHDOT 304.1 (Sand)	NHDOT 304.2 (Gravel)
		inches	millimeters							
GRAVEL	6"	6.000	152.4		0.0	100.0	---	---	100.0	100.0
	3"	3.000	76.20	0.0	0.0	100.0	100.0	95-100	---	---
	2"	2.000	50.80	227.8	227.8	90.1	---	---	---	---
	1-1/2"	1.500	38.10	0.0	227.8	90.1	---	---	---	---
	1"	1.000	25.40	238.2	466.0	79.8	---	---	---	---
	3/4"	0.750	19.00	138.0	604.0	73.8	---	---	---	---
	1/2"	0.500	12.70	172.7	776.7	66.3	---	---	---	---
	3/8"	0.375	9.50	91.8	868.5	62.3	---	---	---	---
SAND	#4	0.187	4.75	278.2	1146.7	50.2	70-100	25-70	70-100	25-70
	#10	0.079	2.00	274.2	1420.9	38.3	---	---	---	---
	#40	0.017	0.43	505.9	1926.8	16.3	---	---	---	---
	#100	0.006	0.15	220.0	2146.8	6.8	---	---	---	---
	#200	0.003	0.07	68.6	2215.4	3.8	---	---	---	---
	#200*	--	--	--	--	7.5 *	0-12*	0-12*	0-12*	0-12*
Silt or Clay	Pan	0.000	0.00	87.2	2302.6	0.0	---	---	---	---
			Total weight of sample		2302.6					

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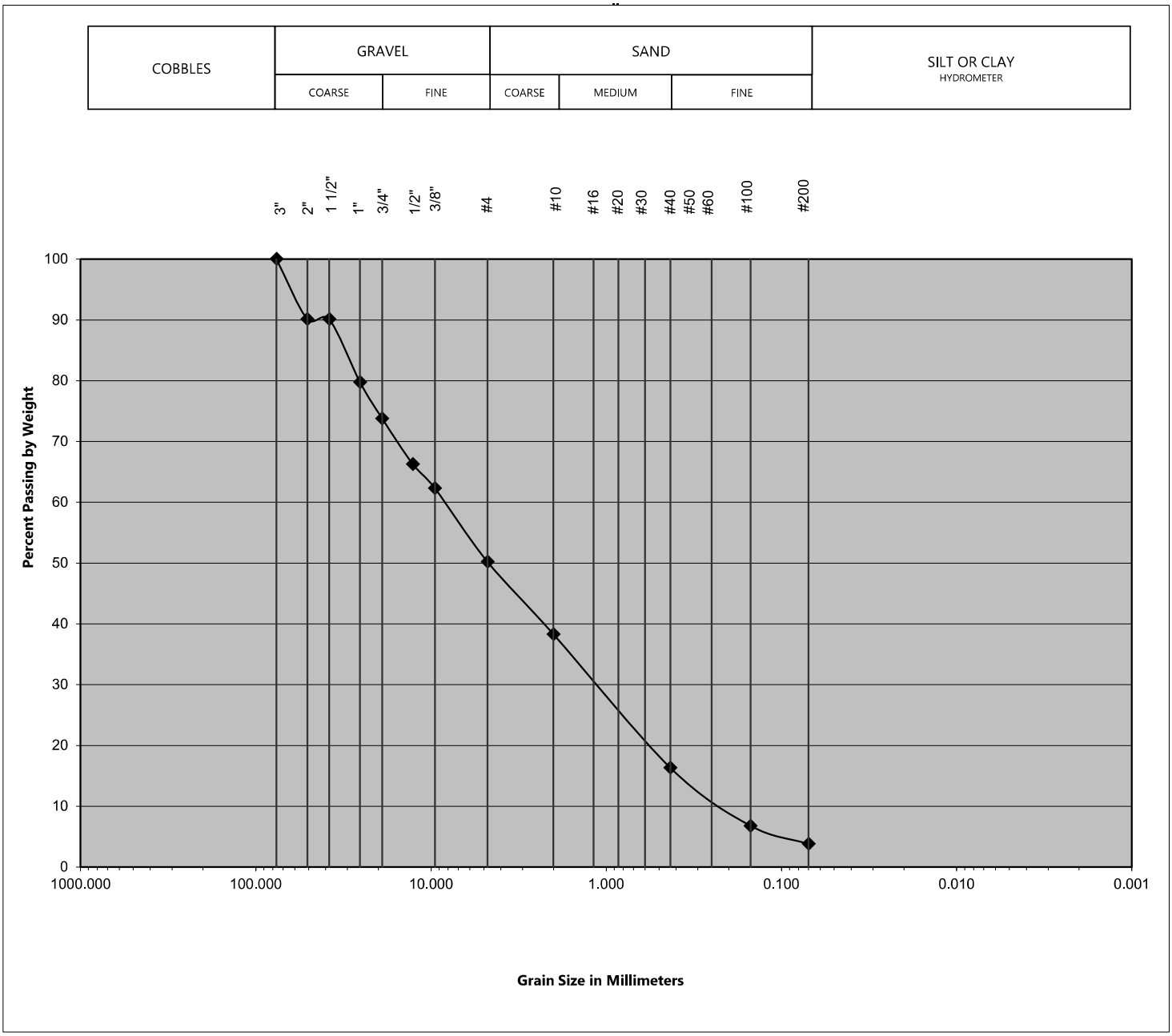
LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-site

SAMPLE NO.:	TP-12, 3-4'	**TEST METHOD:**	ASTM D 422 / D 1140	**DATE RETRIEVED:**	10/22/2020
DATE TESTED:	10/27/2020	**TESTED BY:**	JAW	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, and fine to coarse Gravel, trace Silt

PROPOSED SAMPLE USE:



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LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-site

SAMPLE NO.:	TP-13, 4-5'	**TEST METHOD:**	ASTM D422/D1140	**DATE RETRIEVED:**	10/22/2020
TEST DATE:	10/28/2020	**TESTED BY:**	JAW	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, some Silt, trace Gravel

PROPOSED SAMPLE USE:

	SIEVE SIZE	SIEVE OPENINGS		WEIGHT RETAINED (grams)	CUMULATIVE WEIGHT RETAINED (grams)	PERCENT FINER OF TOTAL	NHDOT 209.2.1.1 (Granular Backfill - sand)	NHDOT 209.2.1.2 (Granular Backfill - gravel)	NHDOT 304.1 (Sand)	NHDOT 304.2 (Gravel)
		inches	millimeters							
GRAVEL	6"	6.000	152.4	0.0	0.0	100.0	---	---	100.0	100.0
	3"	3.000	76.20	0.0	0.0	100.0	100.0	95-100	---	---
	2"	2.000	50.80	0.0	0.0	100.0	---	---	---	---
	1-1/2"	1.500	38.10	0.0	0.0	100.0	---	---	---	---
	1"	1.000	25.40	24.4	24.4	98.6	---	---	---	---
	3/4"	0.750	19.00	26.2	50.6	97.1	---	---	---	---
	1/2"	0.500	12.70	53.5	104.1	94.0	---	---	---	---
	3/8"	0.375	9.50	27.0	131.1	92.4	---	---	---	---
SAND	#4	0.187	4.75	90.7	221.8	87.2	70-100	25-70	70-100	25-70
	#10	0.079	2.00	108.0	329.8	81.0	---	---	---	---
	#40	0.017	0.43	566.7	896.5	48.2	---	---	---	---
	#100	0.006	0.15	365.4	1261.9	27.1	---	---	---	---
	#200	0.003	0.07	110.8	1372.7	20.7	---	---	---	---
	#200*	--	--	--	--	23.8 *	0-12*	0-12*	0-12*	0-12*
Silt or Clay	Pan	0.000	0.00	359.0	1731.7	0.0	---	---	---	---
			Total weight of sample		1731.7					

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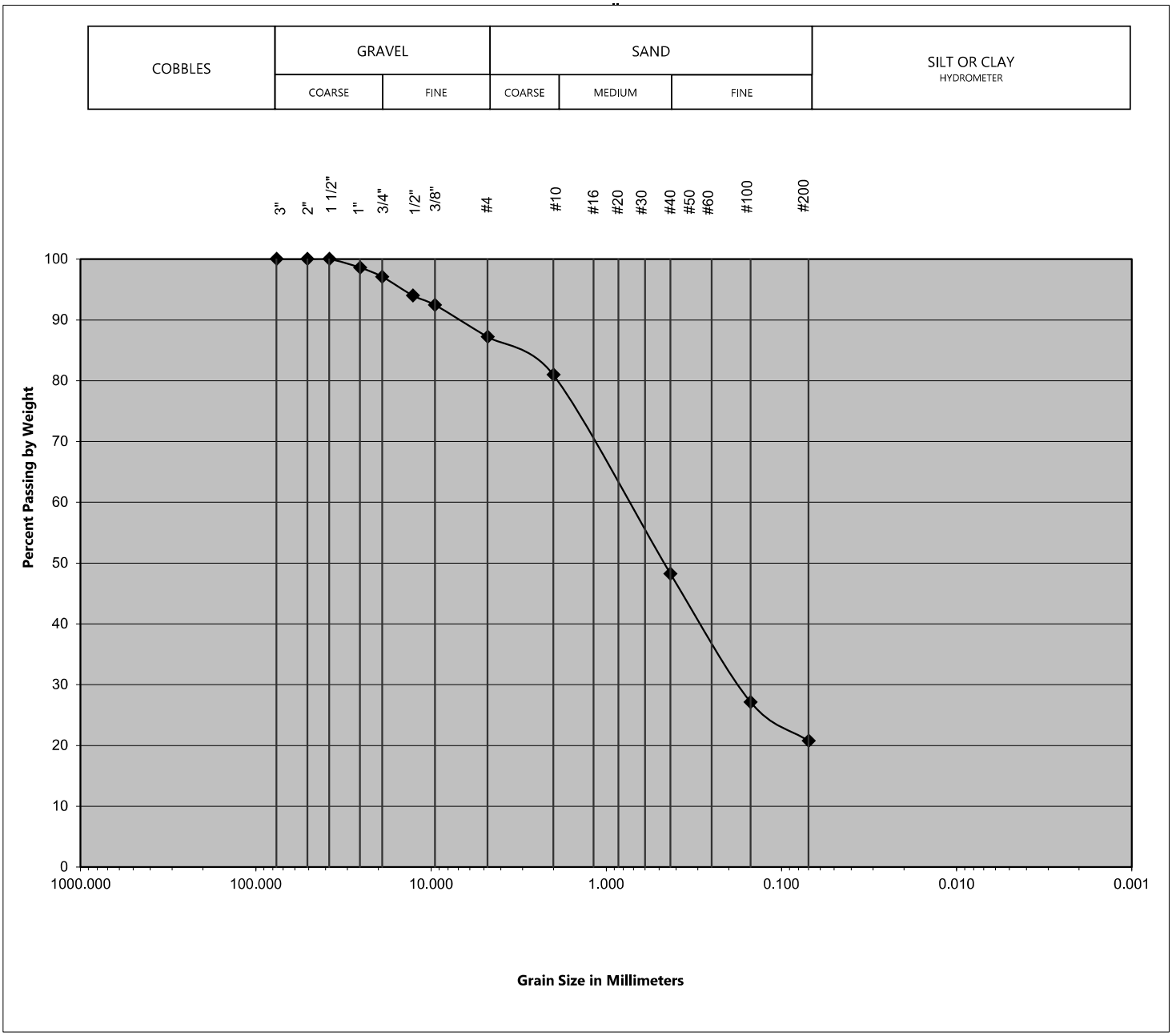
LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-site

SAMPLE NO.:	TP-13, 4-5'	**TEST METHOD:**	ASTM D 422 / D 1140	**DATE RETRIEVED:**	10/22/2020
DATE TESTED:	10/28/2020	**TESTED BY:**	JAW	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, some Silt, trace Gravel

PROPOSED SAMPLE USE:



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LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-site

SAMPLE NO.:	TP-14, 1-3'	**TEST METHOD:**	ASTM D422/D1140	**DATE RETRIEVED:**	10/22/2020
TEST DATE:	10/28/2020	**TESTED BY:**	JAW	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, some Silt, some Gravel

PROPOSED SAMPLE USE:

	SIEVE SIZE	SIEVE OPENINGS		WEIGHT RETAINED (grams)	CUMULATIVE WEIGHT RETAINED (grams)	PERCENT FINER OF TOTAL	NHDOT 209.2.1.1 (Granular Backfill - sand)	NHDOT 209.2.1.2 (Granular Backfill - gravel)	NHDOT 304.1 (Sand)	NHDOT 304.2 (Gravel)
		inches	millimeters							
GRAVEL	3"	3.000	76.20	0.0	0.0	100.0	100.0	95-100	---	---
	2"	2.000	50.80	0.0	0.0	100.0	---	---	---	---
	1-1/2"	1.500	38.10	0.0	0.0	100.0	---	---	---	---
	1"	1.000	25.40	51.9	51.9	96.9	---	---	---	---
	3/4"	0.750	19.00	180.9	232.8	86.0	---	---	---	---
	1/2"	0.500	12.70	86.1	318.9	80.8	---	---	---	---
	3/8"	0.375	9.50	50.0	368.9	77.8	---	---	---	---
SAND	#4	0.187	4.75	102.9	471.8	71.6	70-100	25-70	70-100	25-70
	#10	0.079	2.00	92.3	564.1	66.1	---	---	---	---
	#40	0.017	0.43	230.5	794.6	52.2	---	---	---	---
	#100	0.006	0.15	277.9	1072.5	35.5	---	---	---	---
	#200	0.003	0.07	124.2	1196.7	28.1	---	---	---	---
	#200*	--	--	--	--	39.2 *	0-12*	0-12*	0-12*	0-12*
Silt or Clay	Pan	0.000	0.00	466.7	1663.4	0.0	---	---	---	---
			Total weight of sample		1663.4					

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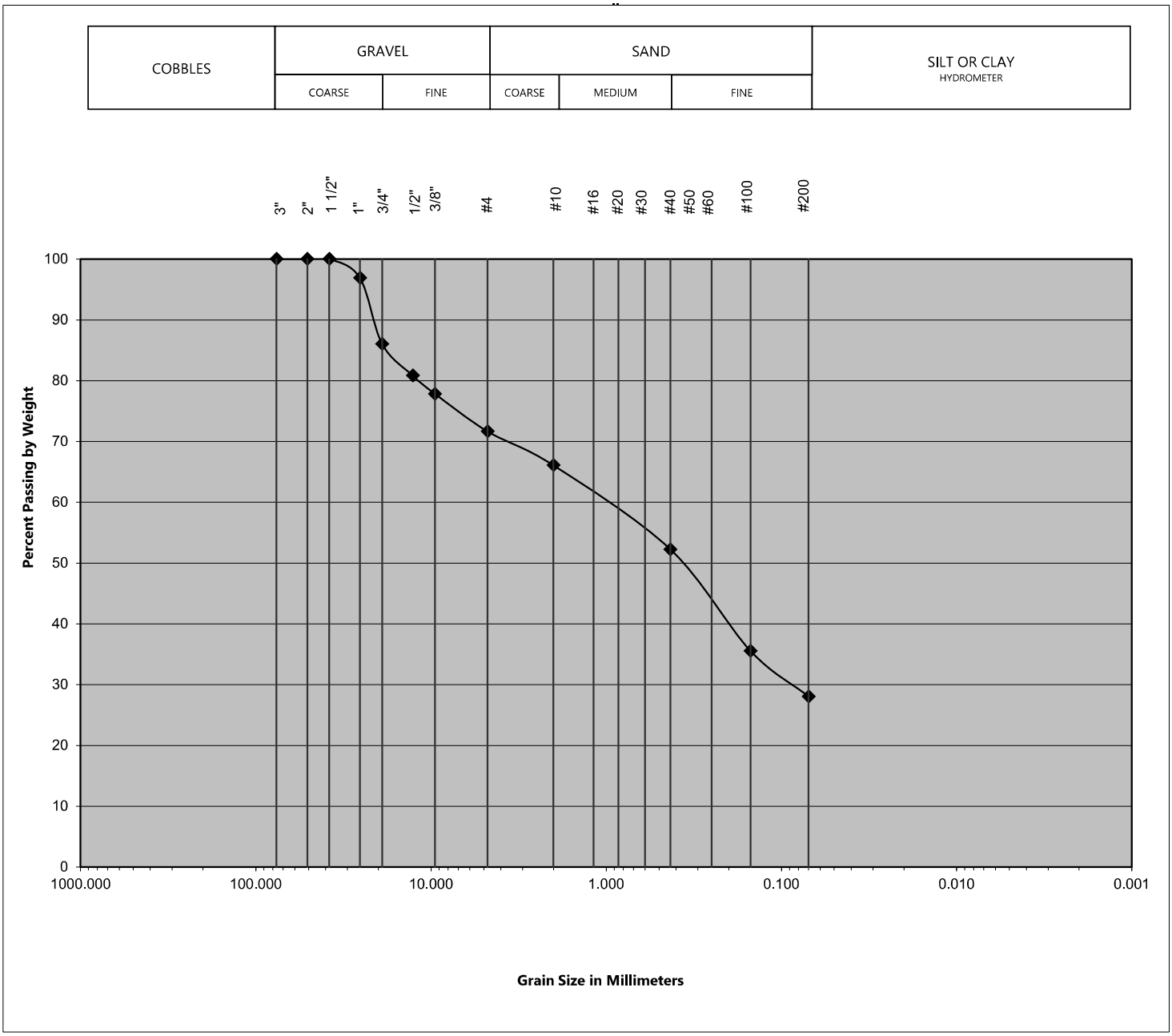
LABORATORY GRADATION REPORT

PROJECT:	Proposed Gravel Pit	**CLIENT:**	TF Moran
LOCATION:	Route 9, Keene, NH	**CONTRACTOR:**	Gordon Services
PROJECT NO.:	6535-23	**SOURCE:**	On-site

SAMPLE NO.:	TP-14, 1-3'	**TEST METHOD:**	ASTM D 422 / D 1140	**DATE RETRIEVED:**	10/22/2020
DATE TESTED:	10/28/2020	**TESTED BY:**	JAW	**CHECKED BY:**	EAA

SAMPLE DESCRIPTION: Brown fine to coarse SAND, some Silt, some Gravel

PROPOSED SAMPLE USE:



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Appendix C
Overburden Monitoring Well Construction Logs

PROJECT	BORING NO.	MW-1
Gordon Services - Keene Pit	SHEET	1 of 1
21 Route 9, Keene & Sullivan, New Hampshire	FILE NO.	2024012
	CHKD. BY	JFB

Boring Co.	Northern Test Boring, Inc.	Boring Location	See Boring Location Plan		
Driller	Michael Nadeau	Ground Surface El.	950 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	7/22/2024	Date End	7/22/2024

Sampler Type:	Split Spoon
Sampler Size:	2 - inch sampler
Type Drill Rig:	Deidrich D-50 - Track Mounted
Drilling Method:	140 lb - Auto Drop Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
7/22/2024	10:45:00 AM	DRY	DRY	~2.5 hours
8/5/2024	8:35:00 AM	DRY	DRY	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	WELL CONSTRUCTION DETAILS (NOT TO SCALE)
1			20/24	0.5-2	8	0.0	0 - 0.5' Ground cover, silty sand, brown, dry	
					13		0.5' - 3.0' Sandy gravel, brown, dry	
2					20	0.0		
					24			
3			14/16	2-3.3	26	0.1		
					22			
4					28	0.1		
					27		3.0 - 3.3' - Fragmented bedrock, granite, whitish-gray, dry	
5							Boring refusal at 3.3' BGS	
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	2. U denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff	5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard	6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

Well installed with approximately 2-feet of 2-inch diameter screen and 1-foot of solid riser. Filter sand emplaced in the screened portion of the borehole annulus and native materials were used to bakfill around the solider riser.

FRONTIER GEOSERVICES	**PROJECT** Gordon Services - Keene Pit 21 Route 9, Keene & Sullivan, New Hampshire	BORING NO. MW-2 SHEET 1 of 1 FILE NO. 2024012 CHKD. BY JFB

Boring Co.	Northern Test Boring, Inc.	Boring Location	See Boring Location Plan		
Driller	Michael Nadeau	Ground Surface El.	944 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	7/22/2024	Date End	7/22/2024

Sampler Type:	Split Spoon
Sampler Size:	2 - inch sampler
Type Drill Rig:	Deidrich D-50 - Track Mounted
Drilling Method:	140 lb - Auto Drop Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
7/22/2024	11:45:00 AM	DRY	DRY	~2.5 hours
8/5/2024	9:00:00 AM	DRY	DRY	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	WELL CONSTRUCTION DETAILS (NOT TO SCALE)
1			18/24	0-2	6 11	0.0	0 - 0.5' Ground cover, silty sand, brown, dry 0.5' - 12.0' Sandy gravel, brown, dry	
2					22 23	0.0		
3			20/24	2-4	31 20	0.1		
4					20 22	0.1		
5			22/24	4-6	26 22	0.0		
6					20 26	0.0		
7			22/24	6-8	22 18	0.1		
8					22 24	0.1		
9			24/24	8-10	24 22	0.0		
10					20 22	0.1		
11			20/24	10-12	24 28	0.1		
12					24 50+	0.0	Some fragmented rock in shoe of split spoon. Whitish gray, granite, dry.	
13							Boring Refusal at 12' BGS.	
14								
15								
16								
17								
18								
19								
20								

GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	2. U denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff	5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard	6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

PROJECT	BORING NO.	MW-3
Gordon Services - Keene Pit	SHEET	1 of 1
21 Route 9, Keene & Sullivan, New Hampshire	FILE NO.	2024012
	CHKD. BY	JFB

Boring Co.	Northern Test Boring, Inc.	Boring Location	See Boring Location Plan		
Driller	Michael Nadeau	Ground Surface El.	1052 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	7/22/2024	Date End	7/22/2024

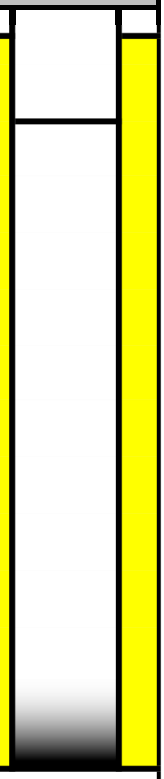
Sampler Type:	Split Spoon
Sampler Size:	2 - inch sampler
Type Drill Rig:	Deidrich D-50 - Track Mounted
Drilling Method:	140 lb - Auto Drop Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
7/22/2024	1:30:00 PM	DRY	DRY	~2.5 hours
8/5/2024	9:20:00 AM	DRY	DRY	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION
1			18/24	0-2	11 17	0.1	0 - 0.5' Ground cover, silty sand, brown, dry 0.5' - 14.0' Sandy gravel, brown, dry
2					21 18	0.2	
3			20/24	2-4	22 23	0.0	
4					28 29	0.0	
5			22/24	4-6	42 26	0.1	Cobble encountered at 4-feet bgs.
6					26 24	0.0	
7			22/24	6-8	23 27	0.1	
8					26 29	0.0	
9			24/24	8-10	25 27	0.1	
10					29 29	0.0	
11			20/24	10-12	27 28	0.0	
12					24 50+	0.1	
13						0.1	
14						0.1	14.0-14.2' Fragement bedrock, granite, whitish-gray, dry
15							14.2' Bedrock refusal encountered.
16							
17							
18							
19							
20							

WELL CONSTRUCTION DETAILS (NOT TO SCALE)



GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	2. U denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff	5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard	6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

Monitoring well installed to a depth of 14' BGS. Constructed using 12' of 2-inch diameter PCV screen and 2-feet of solid riser. Clean silica sand was used to fill the borehole annulus to approximately 1-foot above the screen/riser interface. The remainder of the annulus was filled with native materials.

PROJECT		BORING NO.	MW-4
Gordon Services - Keene Pit		SHEET	1 of 1
21 Route 9, Keene & Sullivan, New Hampshire		FILE NO.	2024012
		CHKD. BY	JFB

Boring Co.	Northern Test Boring, Inc.	Boring Location	See Boring Location Plan		
Driller	Michael Nadeau	Ground Surface El.	1103 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	7/22/2024	Date End	7/22/2024

Sampler Type:	Split Spoon
Sampler Size:	2 - inch sampler
Type Drill Rig:	Deidrich D-50 - Track Mounted
Drilling Method:	140 lb - Auto Drop Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
7/22/2024	3:30:00 PM	DRY	DRY	~2.5 hours
8/5/2024	9:40:00 AM	DRY	DRY	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	WELL CONSTRUCTION DETAILS (NOT TO SCALE)
1			22/24	0-2	16	0.0	0 - 0.5' Ground cover, silty sand, brown, dry	
					25		0.5' - 2.5' Sandy gravel, brown, dry	
2					29	0.1		
					28			
3			12/12	2-4	33	0.0	2.5-3.0' Fragement bedrock, granite, whitish-gray, dry	
					50+		3.0' Bedrock refusal encountered.	
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)
0 to 4 - Very Loose	0 to 2 - Very Soft
5 to 10 - Loose	3 to 4 - Soft
11 to 30 - Medium Dense	5 to 8 - Medium Stiff
31 to 50 - Dense	9 to 15 - Stiff
Over 50 - Very Dense	16 to 30 - Very Stiff
	Over 30 - Hard

SYMBOL KEY

1. S denotes split-barrel sampler.
2. U denotes 3-inch O.D. undisturbed sample.
3. UO denotes 3-inch Osterberg undisturbed sample.
4. PEN denotes penetration length of sampler.
5. REC denotes recovered length of sample.
6. SPT denotes Standard Penetration Test.
7. PID denotes Photoionization Detector
8. PPM denotes parts per million.
9. PP denotes Pocket Penetrometer.
10. FVST denotes field vane shear test.
11. RQD denotes Rock Quality Designation.
12. R denotes core run number.

Monitoring well installed to a depth of 3' BGS. Constructed using 2 of 2-inch diameter PCV screen and 1-foot of solid riser. Clean silica sand was used to fill the borehole annulus to approximately 1-foot above the screen/riser interface. The remainder of the annulus was filled with native materials.

PROJECT	BORING NO.	MW-5
Gordon Services - Keene Pit	SHEET	1 of 1
21 Route 9, Keene & Sullivan, New Hampshire	FILE NO.	2024012
	CHKD. BY	JFB

Boring Co.	Northern Test Boring, Inc.	Boring Location	See Boring Location Plan		
Driller	Michael Nadeau	Ground Surface El.	1112 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	7/23/2024	Date End	7/23/2024

Sampler Type:	Split Spoon
Sampler Size:	2 - inch sampler
Type Drill Rig:	Deidrich D-50 - Track Mounted
Drilling Method:	140 lb - Auto Drop Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
7/23/2024	10:45:00 AM	DRY	DRY	~2.5 hours
8/5/2024	10:10:00 AM	DRY	DRY	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	WELL CONSTRUCTION DETAILS (NOT TO SCALE)
1			22/24	0-2	20	0.1	0 - 0.5' Ground cover, silty sand, brown, dry	
					21		0.5' - 4.5' Sandy gravel, brown, dry	
2					20	0.0		
					19			
3			24/24	2-4	27	0.1		
					24			
4					25	0.1		
					27			
5			10/12		29	0.1		
					50+		4.5-5.0' Fragement bedrock, granite, whitish-gray, dry	
6							5.0' Bedrock refusal encountered.	
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)
0 to 4 - Very Loose	0 to 2 - Very Soft
5 to 10 - Loose	3 to 4 - Soft
11 to 30 - Medium Dense	5 to 8 - Medium Stiff
31 to 50 - Dense	9 to 15 - Stiff
Over 50 - Very Dense	16 to 30 - Very Stiff
	Over 30 - Hard

SYMBOL KEY

1. S denotes split-barrel sampler.
2. U denotes 3-inch O.D. undisturbed sample.
3. UO denotes 3-inch Osterberg undisturbed sample.
4. PEN denotes penetration length of sampler.
5. REC denotes recovered length of sample.
6. SPT denotes Standard Penetration Test.
7. PID denotes Photoionization Detector
8. PPM denotes parts per million.
9. PP denotes Pocket Penetrometer.
10. FVST denotes field vane shear test.
11. RQD denotes Rock Quality Designation.
12. R denotes core run number.

Monitoring well installed to a depth of 5' BGS. Constructed using 4-feet of 2-inch diameter PCV screen and 1-foot of solid riser. Clean silica sand was used to fill the borehole annulus to approximately 0.5-foot above the screen/riser interface. The remainder of the annulus was filled with native materials.

FRONTIER GEOSERVICES	**PROJECT** Gordon Services - Keene Pit 21 Route 9, Keene & Sullivan, New Hampshire	BORING NO. MW-6 SHEET 1 of 1 FILE NO. 2024012 CHKD. BY JFB

Boring Co.	Northern Test Boring, Inc.	Boring Location	See Boring Location Plan		
Driller	Michael Nadeau	Ground Surface El.	1192 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	7/23/2024	Date End	7/23/2024

Sampler Type:	Split Spoon
Sampler Size:	2 - inch sampler
Type Drill Rig:	Deidrich D-50 - Track Mounted
Drilling Method:	140 lb - Auto Drop Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
7/23/2024	11:45:00 AM	DRY	DRY	~2.5 hours
8/5/2024	10:40:00 AM	DRY	DRY	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	WELL CONSTRUCTION DETAILS (NOT TO SCALE)
1			22/24	0-2	20 21	0.1	0 - 0.5' Ground cover, silty sand, brown, dry 0.5' - 0.9' Fragemented bedrock with sand and gravel, whitish-gray and brown, dry	Open Borehole
2					20 19	0.0	0.9' BGS Bedrock Refusal Encountered.	
3			24/24	2-4	27 24	0.1		
4					25 27	0.1		
5			10/12		29 50+	0.1		
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	2. U denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff	5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard	6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

No monitoring well installed at this location.

PROJECT	BORING NO.	MW-7
Gordon Services - Keene Pit	SHEET	1 of 1
21 Route 9, Keene & Sullivan, New Hampshire	FILE NO.	2024012
	CHKD. BY	JFB

Boring Co.	Northern Test Boring, Inc.	Boring Location	See Boring Location Plan		
Driller	Michael Nadeau	Ground Surface El.	1178 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	7/23/2024	Date End	7/23/2024

Sampler Type:	Split Spoon
Sampler Size:	2 - inch sampler
Type Drill Rig:	Deidrich D-50 - Track Mounted
Drilling Method:	140 lb - Auto Drop Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
7/23/2024	12:20:00 PM	DRY	DRY	~2.5 hours
8/5/2024	11:05:00 AM	DRY	DRY	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	WELL CONSTRUCTION DETAILS (NOT TO SCALE)
1			20/24	0-2	17	0.1	0 - 0.5' Ground cover, silty sand, brown, dry	Open Borehole
					27		0.5' - 1.2' Sandy gravel, brown, dry	
2					33	0.0		
					50+		1.2'-1.9' Fragmented bedrock, granite, whitish-gray, dry	
3							1.9' BGS Bedrock Refusal Encountered.	
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)
0 to 4 - Very Loose	0 to 2 - Very Soft
5 to 10 - Loose	3 to 4 - Soft
11 to 30 - Medium Dense	5 to 8 - Medium Stiff
31 to 50 - Dense	9 to 15 - Stiff
Over 50 - Very Dense	16 to 30 - Very Stiff
	Over 30 - Hard

SYMBOL KEY

1. S denotes split-barrel sampler.
2. U denotes 3-inch O.D. undisturbed sample.
3. UO denotes 3-inch Osterberg undisturbed sample.
4. PEN denotes penetration length of sampler.
5. REC denotes recovered length of sample.
6. SPT denotes Standard Penetration Test.
7. PID denotes Photoionization Detector
8. PPM denotes parts per million.
9. PP denotes Pocket Penetrometer.
10. FVST denotes field vane shear test.
11. RQD denotes Rock Quality Designation.
12. R denotes core run number.

No monitoring well installed at this location.

PROJECT	BORING NO.	MW-8
Gordon Services - Keene Pit	SHEET	1 of 1
21 Route 9, Keene & Sullivan, New Hampshire	FILE NO.	2024012
	CHKD. BY	JFB

Boring Co.	Northern Test Boring, Inc.	Boring Location	See Boring Location Plan		
Driller	Michael Nadeau	Ground Surface El.	1180 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	7/23/2024	Date End	7/23/2024

Sampler Type:	Split Spoon
Sampler Size:	2 - inch sampler
Type Drill Rig:	Deidrich D-50 - Track Mounted
Drilling Method:	140 lb - Auto Drop Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
7/23/2024	1:45:00 PM	DRY	DRY	~2.5 hours
8/5/2024	11:35:00 AM	DRY	DRY	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	WELL CONSTRUCTION DETAILS (NOT TO SCALE)
1			10/12	0-2	26	0.1	0 - 0.5' Ground cover, silty sand, brown, dry	Open Borehole
					50+		0.5' - 1.0' Fragmented bedrock with sand, granite, whitish-gray and brown, dry	
2							1.0' BGS Bedrock Refusl Encountered	
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)
0 to 4 - Very Loose	0 to 2 - Very Soft
5 to 10 - Loose	3 to 4 - Soft
11 to 30 - Medium Dense	5 to 8 - Medium Stiff
31 to 50 - Dense	9 to 15 - Stiff
Over 50 - Very Dense	16 to 30 - Very Stiff
	Over 30 - Hard

SYMBOL KEY

1. S denotes split-barrel sampler.
2. U denotes 3-inch O.D. undisturbed sample.
3. UO denotes 3-inch Osterberg undisturbed sample.
4. PEN denotes penetration length of sampler.
5. REC denotes recovered length of sample.
6. SPT denotes Standard Penetration Test.
7. PID denotes Photoionization Detector
8. PPM denotes parts per million.
9. PP denotes Pocket Penetrometer.
10. FVST denotes field vane shear test.
11. RQD denotes Rock Quality Designation.
12. R denotes core run number.

No monitoring well installed at this location.

Appendix D
Bedrock Monitoring Well Construction Logs

FRONTIER GEOSERVICES	**PROJECT** Gordon Services - Keene Pit 21 Route 9, Keene & Sullivan, New Hampshire	BORING NO. BRW-1 SHEET 1 of 1 FILE NO. 2024012 CHKD. BY JFB

Boring Co.	Capitol Rock Drilling & Blasting	Boring Location	See Boring Location Plan		
Driller	Steven James	Ground Surface El.	950 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	10/17/2024	Date End	10/17/2024

Sampler Type:	Grab samples from cuttings
Sampler Size:	N/A
Type Drill Rig:	Epiroc - T40
Drilling Method:	3-inch Air Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
10/17/2024	10:45:00 AM	DRY	DRY	~2.5 hours
11/1/2024	8:35:00 AM	DRY	DRY	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	WELL CONSTRUCTION DETAILS (NOT TO SCALE)
5							0 - 3' Overburden materials, sand and gravel, dry 3.0' - 54.0' Granite, whitish-gray, dry, relatively hard drilling, white sand cuttings, no fractures or water bearing zones encountered	Open Bedrock Borehole
10								
15								
20								
25								
30								
35								
40								
45								
50								
55								
60							Boring terminated at 54.0' BGS.	
65								
70								
75								
80								
85								
90								
95								
100								

GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)
0 to 4 - Very Loose	0 to 2 - Very Soft
5 to 10 - Loose	3 to 4 - Soft
11 to 30 - Medium Dense	5 to 8 - Medium Stiff
31 to 50 - Dense	9 to 15 - Stiff
Over 50 - Very Dense	16 to 30 - Very Stiff
	Over 30 - Hard

SYMBOL KEY

1. S denotes split-barrel sampler.
2. U denotes 3-inch O.D. undisturbed sample.
3. UO denotes 3-inch Osterberg undisturbed sample.
4. PEN denotes penetration length of sampler.
5. REC denotes recovered length of sample.
6. SPT denotes Standard Penetration Test.
7. PID denotes Photoionization Detector
8. PPM denotes parts per million.
9. PP denotes Pocket Penetrometer.
10. FVST denotes field vane shear test.
11. RQD denotes Rock Quality Designation.
12. R denotes core run number.

Open borehole to 54.0' BGS. No fractures or water bearing zones encountered during drilling.

Sample of cuttings submitted to SGS Canada, Inc. of Lakefield, Ontario for acid base accounting, trace metal scan, and shake flask extraction analysis.

PROJECT	BORING NO.	BRW-2
Gordon Services - Keene Pit	SHEET	1 of 1
21 Route 9, Keene & Sullivan, New Hampshire	FILE NO.	2024012
	CHKD. BY	JFB

Boring Co.	Capitol Rock Drilling & Blasting	Boring Location	See Boring Location Plan		
Driller	Steven James	Ground Surface El.	944 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	10/17/2024	Date End	10/17/2024

Sampler Type:	Grab samples from cuttings
Sampler Size:	N/A
Type Drill Rig:	Epiroc - T40
Drilling Method:	3-inch Air Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
10/17/2024	12:30:00 PM	DRY	DRY	~2.5 hours
11/1/2024	9:05:00 AM	DRY	DRY	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION: Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	WELL CONSTRUCTION DETAILS (NOT TO SCALE)
5							0 - 12' Overburden materials, sand and gravel, dry	Open Borehole
10								
15							12.0' - 62.0' Granite, whitish-gray, dry, relatively hard drilling, white sand cuttings,	
20							no fractures or water bearing zones encountered	
25								
30								
35								
40								
45								
50								
55								
60							Boring terminated at 62.0' BGS.	
65								
70								
75								
80								
85								
90								
95								
100								

GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	2. U denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff	5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard	6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

Open borehole to 62.0' BGS. No fractures or water bearing zones encountered during drilling.

Sample of cuttings submitted to SGS Canada, Inc. of Lakefield, Ontario for acid base accounting, trace metal scan, and shake flask extraction analysis.

FRONTIER GEOSERVICES	**PROJECT** Gordon Services - Keene Pit 21 Route 9, Keene & Sullivan, New Hampshire	BORING NO. BRW-3 SHEET 1 of 1 FILE NO. 2024012 CHKD. BY JFB

Boring Co.	Capitol Rock Drilling & Blasting	Boring Location	See Boring Location Plan		
Driller	Steven James	Ground Surface El.	1052 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	10/17/2024	Date End	10/17/2024

Sampler Type:	Grab samples from cuttings
Sampler Size:	N/A
Type Drill Rig:	Epiroc - T40
Drilling Method:	3-inch Air Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
8/17/2024	2:00:00 PM	DRY	DRY	~2.5 hours
11/1/2024	9:20:00 AM	DRY	DRY	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	WELL CONSTRUCTION DETAILS (NOT TO SCALE)
5							0 - 14.0' Overburden materials, sand and gravel, dry	Open Borehole
10								
15							14.0' - 51.0' Granite, whitish-gray, dry, relatively hard drilling, white sand cuttings,	
20							no fractures or water bearing zones encountered	
25								
30								
35								
40								
45								
50								
55							Boring terminated at 51.0' BGS.	
60								
65								
70								
75								
80								
85								
90								
95								
100								

GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	2. U denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff	5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard	6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

Open borehole to 51.0' BGS. No fractures or water bearing zones encountered during drilling.

Sample of cuttings submitted to SGS Canada, Inc. of Lakefield, Ontario for acid base accounting, trace metal scan, and shake flask extraction analysis.

FRONTIER GEOSERVICES	**PROJECT** Gordon Services - Keene Pit 21 Route 9, Keene & Sullivan, New Hampshire	BORING NO. BRW-4 SHEET 1 of 1 FILE NO. 2024012 CHKD. BY JFB

Boring Co.	Capitol Rock Drilling & Blasting	Boring Location	See Boring Location Plan		
Driller	Steven James	Ground Surface El.	1103 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	10/17/2024	Date End	10/17/2024

Sampler Type:	Grab samples from cuttings
Sampler Size:	N/A
Type Drill Rig:	Epiroc - T40
Drilling Method:	3-inch Air Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
10/17/2024	3:30:00 PM	DRY	DRY	~2.5 hours
11/1/2024	9:35:00 AM	DRY	DRY	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	WELL CONSTRUCTION DETAILS (NOT TO SCALE)
5							0 - 3' Overburden materials, sand and gravel, dry 3.0' - 81.0' Granite, whitish-gray, dry, relatively hard drilling, white sand cuttings, no fractures or water bearing zones encountered	Open Borehole
10								
15								
20								
25								
30								
35								
40								
45								
50								
55								
60								
65								
70								
75								
80							Boring terminated at 81.0' BGS.	
85								
90								
95								
100								

GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	2. U denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff	5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard	6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

Open borehole to 81.0' BGS. No fractures or water bearing zones encountered during drilling.

Sample of cuttings submitted to SGS Canada, Inc. of Lakefield, Ontario for acid base accounting, trace metal scan, and shake flask extraction analysis.

FRONTIER GEOSERVICES	**PROJECT** Gordon Services - Keene Pit 21 Route 9, Keene & Sullivan, New Hampshire	BORING NO. BRW-5 SHEET 1 of 2 FILE NO. 2024012 CHKD. BY JFB

Boring Co.	Capitol Rock Drilling & Blasting	Boring Location	See Boring Location Plan		
Driller	Steven James	Ground Surface El.	1112 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	10/17/2024	Date End	10/17/2024

Sampler Type:	Grab samples from cuttings
Sampler Size:	N/A
Type Drill Rig:	Epiroc - T40
Drilling Method:	3-inch Air Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
10/17/2024	4:30:00 PM	DRY	DRY	~2.5 hours
11/1/2024	10:00:00 AM	DRY	DRY	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	WELL CONSTRUCTION DETAILS (NOT TO SCALE)
5							0 - 5.0' Overburden materials, sand and gravel, dry	
10							5.0' - 141.0' Granite, whitish-gray, minor color changes noted to more gray at 86' BGS dry, relatively hard drilling, white sand cuttings,no fractures or water bearing zones encountered	
15								
20								
25								
30								
35								
40								
45								
50								
55								
60								
65								
70								
75								
80								
85								
90								
95								
100							Continues on Page 2	

GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	2. U denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff	5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard	6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

Open borehole to 141.0' BGS. No fractures or water bearing zones encountered during drilling.

Sample of cuttings submitted to SGS Canada, Inc. of Lakefield, Ontario for acid base accounting, trace metal scan, and shake flask extraction analysis.

PROJECT	BORING NO.	BRW-5
Gordon Services - Keene Pit	SHEET	2 of 2
21 Route 9, Keene & Sullivan, New Hampshire	FILE NO.	2024012
	CHKD. BY	JFB

Boring Co.	Capitol Rock Drilling & Blasting	Boring Location	See Boring Location Plan		
Driller	Steven James	Ground Surface El.	1112 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	10/17/2024	Date End	10/17/2024

Sampler Type:	Grab samples from cuttings
Sampler Size:	N/A
Type Drill Rig:	Epiroc - T40
Drilling Method:	3-inch Air Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
10/17/2024	4:30:00 PM	DRY	DRY	~2.5 hours
11/1/2024	10:00:00 AM	DRY	DRY	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	WELL CONSTRUCTION DETAILS (NOT TO SCALE)
105							5.0' - 141.0' Granite, whitish-gray, minor color changes noted to more gray at 86' BGS dry, relatively hard drilling, white sand cuttings,no fractures or water bearing zones encountered	Open Borehole
110								
115								
120								
125								
130								
135								
140							Boring terminated at 141.0' BGS.	
145								
150								
155								
160								
165								
170								
175								
180								
185								
190								
195								
200								

GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	2. U denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff	5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard	6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

Open borehole to 141.0' BGS. No fractures or water bearing zones encountered during drilling.

Sample of cuttings submitted to SGS Canada, Inc. of Lakefield, Ontario for acid base accounting, trace metal scan, and shake flask extraction analysis.

PROJECT	BORING NO.	BRW-6
Gordon Services - Keene Pit	SHEET	1 of 2
21 Route 9, Keene & Sullivan, New Hampshire	FILE NO.	2024012
	CHKD. BY	JFB

Boring Co.	Capitol Rock Drilling & Blasting	Boring Location	See Boring Location Plan		
Driller	Steven James	Ground Surface El.	1192 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	10/18/2024	Date End	10/17/2024

Sampler Type:	Grab samples from cuttings
Sampler Size:	N/A
Type Drill Rig:	Epiroc - T40
Drilling Method:	3-inch Air Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
10/18/2024	10:30:00 AM	DRY	DRY	~2.5 hours
11/1/2024	10:25:00 AM	DRY	DRY	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	WELL CONSTRUCTION DETAILS (NOT TO SCALE)
5							0 - 1.0' Overburden materials, sand and gravel, dry	
10							1.0' - 142.0' Granite, whitish-gray, minor color changes noted to more gray at 73' BGS dry, relatively hard drilling, white sand cuttings,no fractures or water bearing zones encountered	
15								
20								
25								
30								
35								
40								
45								
50								
55								
60								
65								
70								
75								
80								
85								
90								
95								
100							Continues on Page 2	

Open Borehole

GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	2. U denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff	5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard	6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

Open borehole to 142.0' BGS. No fractures or water bearing zones encountered during drilling.

Sample of cuttings submitted to SGS Canada, Inc. of Lakefield, Ontario for acid base accounting, trace metal scan, and shake flask extraction analysis.

PROJECT	BORING NO.	BRW-6
Gordon Services - Keene Pit	SHEET	2 of 2
21 Route 9, Keene & Sullivan, New Hampshire	FILE NO.	2024012
	CHKD. BY	JFB

Boring Co.	Capitol Rock Drilling & Blasting	Boring Location	See Boring Location Plan		
Driller	Steven James	Ground Surface El.	1192 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	10/18/2024	Date End	10/18/2024

Sampler Type:	Grab samples from cuttings
Sampler Size:	N/A
Type Drill Rig:	Epiroc - T40
Drilling Method:	3-inch Air Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
10/18/2024	10:30:00 AM	DRY	DRY	~2.5 hours
11/1/2024	10:25:00 AM	DRY	DRY	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	WELL CONSTRUCTION DETAILS (NOT TO SCALE)
105							5.0' - 142.0' Granite, whitish-gray, minor color changes noted to more gray at 73' BGS dry, relatively hard drilling, white sand cuttings,no fractures or water bearing zones encountered	Open Borehole
110								
115								
120								
125								
130								
135								
140								
145							Boring terminated at 142' BGS.	
150								
155								
160								
165								
170								
175								
180								
185								
190								
195								
200								

GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	2. U denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff	5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard	6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

Open borehole to 142.0' BGS. No fractures or water bearing zones encountered during drilling.

Sample of cuttings submitted to SGS Canada, Inc. of Lakefield, Ontario for acid base accounting, trace metal scan, and shake flask extraction analysis.

PROJECT	BORING NO.	BRW-7
Gordon Services - Keene Pit	SHEET	1 of 2
21 Route 9, Keene & Sullivan, New Hampshire	FILE NO.	2024012
	CHKD. BY	JFB

Boring Co.	Capitol Rock Drilling & Blasting	Boring Location	See Boring Location Plan		
Driller	Steven James	Ground Surface El.	1178 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	10/18/2024	Date End	10/18/2024

Sampler Type:	Grab samples from cuttings
Sampler Size:	N/A
Type Drill Rig:	Epiroc - T40
Drilling Method:	3-inch Air Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
10/18/2024	11:30:00 AM	0.96' BGS	1177.904	~2.5 hours
11/1/2024	11:00:00 AM	1.04' BGS	1176.96	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION: Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	WELL CONSTRUCTION DETAILS (NOT TO SCALE)
5							0 - 1.9' Overburden materials, sand and gravel, dry 1.9' - 141.0' Granite, whitish-gray, minor color changes noted to more gray at 95' BGS dry, relatively hard drilling, white sand cuttings, water bearing fracture encountered at 5' BGS. Yield is <0.5 gallon per minute.	Open Borehole
10								
15								
20								
25								
30								
35								
40								
45								
50								
55								
60								
65								
70								
75								
80								
85								
90								
95								
100							Continues on Page 2	

GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	2. U denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff	5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard	6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

Open borehole to 141.0' BGS. Water bearing fracture encountered at 5' BGS. Yield is <0.5 gallon per minute.

Sample of cuttings submitted to SGS Canada, Inc. of Lakefield, Ontario for acid base accounting, trace metal scan, and shake flask extraction analysis.

PROJECT	BORING NO.	BRW-7
Gordon Services - Keene Pit	SHEET	2 of 2
21 Route 9, Keene & Sullivan, New Hampshire	FILE NO.	2024012
	CHKD. BY	JFB

Boring Co.	Capitol Rock Drilling & Blasting	Boring Location	See Boring Location Plan		
Driller	Steven James	Ground Surface El.	1178 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	10/18/2024	Date End	10/18/2024

Sampler Type:	Grab samples from cuttings
Sampler Size:	N/A
Type Drill Rig:	Epiroc - T40
Drilling Method:	3-inch Air Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
10/18/2024	11:30:00 AM	0.96' BGS	1177.904	~2.5 hours
11/1/2024	11:00:00 AM	1.04' BGS	1176.96	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION: Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	WELL CONSTRUCTION DETAILS (NOT TO SCALE)
105							1.9' - 141.0' Granite, whitish-gray, minor color changes noted to more gray at 95' BGS dry, relatively hard drilling, white sand cuttings, water bearing fracture encountered at 5' BGS. Yield is <0.5 gallon per minute.	Open Borehole
110								
115								
120								
125								
130								
135								
140							Boring terminated at 141' BGS.	
145								
150								
155								
160								
165								
170								
175								
180								
185								
190								
195								
200								

GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	2. U denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff	5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard	6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

Open borehole to 141.0' BGS. Water bearing fracture encountered at 5' BGS. Yield is <0.5 gallon per minute.

Sample of cuttings submitted to SGS Canada, Inc. of Lakefield, Ontario for acid base accounting, trace metal scan, and shake flask extraction analysis.

PROJECT	BORING NO.	BRW-8
Gordon Services - Keene Pit	SHEET	1 of 2
21 Route 9, Keene & Sullivan, New Hampshire	FILE NO.	2024012
	CHKD. BY	JFB

Boring Co.	Capitol Rock Drilling & Blasting	Boring Location	See Boring Location Plan		
Driller	Steven James	Ground Surface El.	1182 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	10/18/2024	Date End	10/18/2024

Sampler Type:	Grab samples from cuttings
Sampler Size:	N/A
Type Drill Rig:	Epiroc - T40
Drilling Method:	3-inch Air Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
10/18/2024	12:45:00 PM	0.84' BGS	1179.16	~2.5 hours
11/1/2024	11:15:00 AM	0.95' BGS	1179.05	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION: Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	WELL CONSTRUCTION DETAILS (NOT TO SCALE)
5							0 - 1.0' Overburden materials, sand and gravel, dry 1.0' - 141.0' Granite, whitish-gray, minor color changes noted to more gray at 103' BGS dry, relatively hard drilling, white sand cuttings, water bearing fracture encountered at 9' BGS. Yield is <0.5 gallon per minute.	Open Borehole
10								
15								
20								
25								
30								
35								
40								
45								
50								
55								
60								
65								
70								
75								
80								
85								
90								
95								
100							Continues on Page 2	

GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	2. U denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff	5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard	6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

Open borehole to 141.0' BGS. Water bearing fracture encountered at 9' BGS. Yield is <0.5 gallon per minute.

Sample of cuttings submitted to SGS Canada, Inc. of Lakefield, Ontario for acid base accounting, trace metal scan, and shake flask extraction analysis.

PROJECT	BORING NO.	BRW-8
Gordon Services - Keene Pit	SHEET	2 of 2
21 Route 9, Keene & Sullivan, New Hampshire	FILE NO.	2024012
	CHKD. BY	JFB

Boring Co.	Capitol Rock Drilling & Blasting	Boring Location	See Boring Location Plan		
Driller	Steven James	Ground Surface El.	1182 FT AMSL	Datum	NAD83
Logged By	JFB	Date Start	10/18/2024	Date End	10/18/2024

Sampler Type:	Grab samples from cuttings
Sampler Size:	N/A
Type Drill Rig:	Epiroc - T40
Drilling Method:	3-inch Air Hammer

Groundwater Readings (from ground surface)

Date	Time	Depth	Elev.	Stabilization Time
10/18/2024	12:45:00 PM	0.84' BGS	1179.16	~2.5 hours
11/1/2024	11:15:00 AM	0.95' BGS	1179.05	~2 weeks

DEPTH	Casing Blows (ft)	SAMPLE INFORMATION Type & No.	PEN/REC (inches)	DEPTH (feet)	BLOWS PER 6 INCHES	PID ppmv	SAMPLE DESCRIPTION	WELL CONSTRUCTION DETAILS (NOT TO SCALE)
105							1.9' - 141.0' Granite, whitish-gray, minor color changes noted to more gray at 95' BGS dry, relatively hard drilling, white sand cuttings, water bearing fracture encountered at 5' BGS. Yield is <0.5 gallon per minute.	Open Borehole
110								
115								
120								
125								
130								
135								
140							Boring terminated at 141' BGS.	
145								
150								
155								
160								
165								
170								
175								
180								
185								
190								
195								
200								

GRANULAR SOILS (N-Values)	COHESIVE SOILS (N-Values)	SYMBOL KEY	
0 to 4 - Very Loose	0 to 2 - Very Soft	1. S denotes split-barrel sampler.	7. PID denotes Photoionization Detector
5 to 10 - Loose	3 to 4 - Soft	2. U denotes 3-inch O.D. undisturbed sample.	8. PPM denotes parts per million.
11 to 30 - Medium Dense	5 to 8 - Medium Stiff	3. UO denotes 3-inch Osterberg undisturbed sample.	9. PP denotes Pocket Penetrometer.
31 to 50 - Dense	9 to 15 - Stiff	4. PEN denotes penetration length of sampler.	10. FVST denotes field vane shear test.
Over 50 - Very Dense	16 to 30 - Very Stiff	5. REC denotes recovered length of sample.	11. RQD denotes Rock Quality Designation.
	Over 30 - Hard	6. SPT denotes Standard Penetration Test.	12. R denotes core run number.

Open borehole to 141.0' BGS. Water bearing fracture encountered at 9' BGS. Yield is <0.5 gallon per minute.

Sample of cuttings submitted to SGS Canada, Inc. of Lakefield, Ontario for acid base accounting, trace metal scan, and shake flask extraction analysis.