

8 November 2022
File No. 0206711-000

R.A.D. Sports
171 VFW Drive
Rockland, MA 02370

Attention: Sean Boyd, P.E.

Subject: Subsurface Data and Geotechnical Considerations Report
Granby Memorial High School
Granby, CT

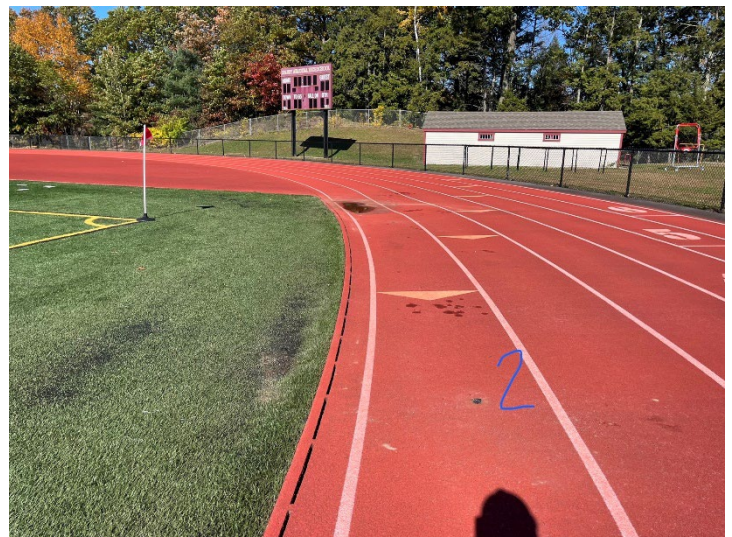
Ladies and Gentlemen:

This letter report provides a summary of the subsurface explorations conducted for the Granby Memorial High School track settlement investigation located at 54 N Granby Road, Granby, Connecticut, (refer to Figure 1). The purpose of the subsurface investigation program conducted at the subject site was to obtain information on the subsurface conditions and any observable void spaces beneath the existing track surface. The work reported herein was undertaken by Haley & Aldrich, Inc. (Haley & Aldrich) in accordance with our agreement dated 23 September 2022 and your subsequent written authorization.

Existing Site Conditions

Based on historic aerials photographs of the high school campus, the project site has been used for a track since at least 1992. We understand that the current track surface was constructed between 2012 and 2013 and that the proposed site grade changes required for construction in the area of the observed track settlement were not significantly greater than the existing site grades. Existing site grades are approximately Elevation (El.) 220 to 222 (NAVD88)¹ in the area of the track and athletic field surface.

We understand that settlement has been observed on the inside lane of the track in the northeast corner which has caused water to



¹ Elevations in this report are in feet and reference the North American Vertical Datum of 1988 (NAVD88).

pool. The purpose of our investigation program was to observe the subsurface conditions underlying the track and evaluate the presence of possible void spaces beneath the track surface resulting in observed surficial settlement.

Subsurface Conditions

The designation and approximate location of subsurface explorations are indicated on Figure 2. The recent subsurface explorations were located in the field by Haley & Aldrich personnel by measuring from existing site features and therefore are considered approximate.

On 20 October 2022, SeaBoard Drilling, Inc. of Chicopee, Massachusetts conducted a total of seven (7) geoprobe explorations. The geoprobes were drilled to depths ranging from 10 to 15 ft below ground surface (bgs) with the use of a track-mounted geoprobe rig. Refer to the geoprobe logs included in Appendix A for additional information.

Subsurface soil conditions encountered in the recent explorations consisted of the following generalized sequence of subsurface units, listed in descending order of occurrence below ground surface.

Generalized Subsurface Stratum	Depth Top of Stratum (ft)	Stratum Thickness (ft)
Fill	0.0	7.0 to 15.0
Glaciofluvial Deposits	7.0 to 13.0	Not Determined

A detailed description of the units encountered is provided below.

Fill – The Fill encountered generally consisted of gray and brown SAND with varying amounts of gravel, brick, organics, and wood. The Fill layer was encountered in each of the test borings and ranged from 7.0 to 15.0 ft in thickness. A 0.1-ft thick layer of track rubber and a 0.5-ft thick layer of bituminous asphalt was encountered at the ground surface at each geoprobe location.

At geoprobes HA-2, HA-4, and HA-5, little to no drilling resistance was observed upon advancement. Although difficult to determine from geoprobe drill action, the evidence of little to no drilling resistance often is indicative of voids in the soil strata or very loose material.

The Fill layer was not fully penetrated in HA-5 and HA-6 to depths of 10 to 15 ft respectively.

Glaciofluvial Deposits – Glaciofluvial Deposits were encountered beneath the fill in five (5) geoprobes. It generally consisted of light brown poorly-graded SAND with varying amounts of silt and gravel. The Glaciofluvial Deposit was encountered in HA1 through HA-4 and HA-7.

The groundwater was not observed in the geoprobes at the time of drilling.

Geotechnical Mitigation Considerations

Based on visual observation, the observed settlement of the track surface is currently limited to the northeast corner of the track in the general location where the exploration program was performed. Additional areas of the track may be experiencing similar settlement conditions during its service life that may not be visible at current day. Prior to conducting repairs to the existing track, we recommend conducting an optical survey of the track surface to evaluate sections of the track relative to the design criteria when the track was constructed.

Based on the remaining service life duration for the track surface, potential mitigation strategies to the currently impacted track area will range in complexity and may include one of the following:

- **Full Depth Restoration (recommended repair option)** – As mentioned previously, due to the presence of possible voids, presence of uncontrolled fill and wood in this area, all of which have the potential to cause future ground settlement, our recommendation is to excavate and remove the full depth of this Fill or up to a 10 ft depth in the observed settlement area and 10 ft laterally outside the limits of the track.

After the Fill has been excavated, the subgrade shall be compacted to 95% of the material's maximum dry unit weight (determined in accordance with ASTM D1557) using appropriate compactive efforts. As a minimum, the subgrade should receive four complete coverages with suitable compaction equipment. The excavated material may be reused after the wood or degradable materials are removed from the Fill material. The excavation shall be backfilled with excavated Fill material or Granular Fill placed in loose lift thicknesses not exceeding 9 in., and the material shall be compacted to 95% of the material's maximum dry unit weight (determined in accordance with ASTM D1557) using appropriate compactive efforts. As a minimum, each layer of fill should receive four complete coverages with suitable compaction equipment.

Following backfill and compaction to design subgrade elevation, re-construct the track subbase and surface per the original construction drawings.

- **Partial Depth Restoration (alternate consideration)** – Full depth over-excavation of the Fill material and backfill may result in significant costs. If project construction costs associated with full depth over-excavation, processing and backfilling are determined to not be acceptable to the Owner, a reduced scope could be considered by the Owner. A reduction in scope would increase the risk of potential long term field performance issues due to the presence of the remaining uncontrolled fill below the over-excavation limits. The following reduced scope of work is provided for consideration by the Owner:
 - Over-excavate the Fill to a depth of 5 ft below design subgrade and laterally 10 ft beyond the limits of the existing synthetic track;
 - Prepare and compact the subgrade;
 - Place a woven geotextile fabric (Mirafi 600X or similar) on top of the prepared and approved subgrade as well as on the sides of the excavation;

- Backfill with the excavated Fill after the wood is segregated from the Fill material; and
 - Backfill the excavation by placing and compacting Fill material or Granular Fill.
 - Following backfill and compaction to design subgrade elevation, re-construct the track subbase and surface per the original construction drawings.
- **Track Surface Restoration (temporary fix)** – Remove/mill track surface down to asphalt base layer, patch observed cracks and shim depressions in the asphalt, and replace with new synthetic track surface. Surface track restoration should be conducted by a specialty contractor familiar with the construction and repair of synthetic turf track systems.

If project construction costs associated with full depth or partial over-excavation and backfilling are determined to not be acceptable to the Owner, the reduced scope of track surface restorations could be considered by the Owner as a temporary fix. The temporary fix would not mitigate the risk of potential long term field performance issues due to the presence of the remaining unsuitable soils below the over-excavation limits but could allow the track to be utilized in the short term.

Limitations

This report was prepared in accordance with our authorized Agreement with R.A.D. Sports and our proposal dated 23 September 2022. This report has been prepared for the specific application to the Granby Memorial High School track.

The nature and extent of variations in the subsurface conditions between explorations may not become evident until construction, and the project design may change from our current understanding. Any additional information pertaining to the project that becomes available should be provided to Haley & Aldrich, so that our conclusions and recommendations can be reviewed and modified, as necessary.

We appreciate the opportunity to provide engineering services on this project. Please do not hesitate to call if you have any questions or comments.

Sincerely yours,
HALEY & ALDRICH, INC.



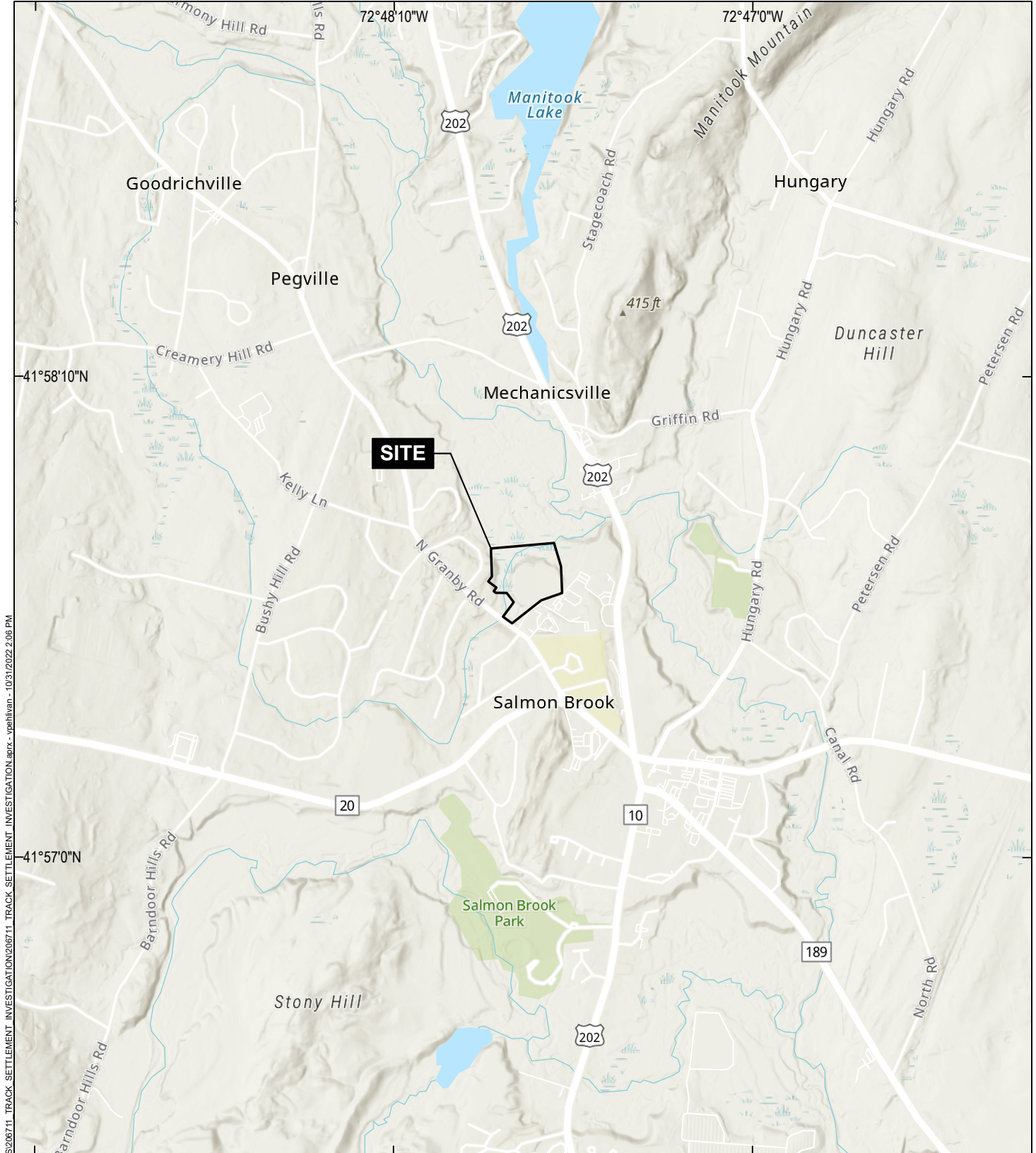
Megan Hamilton, PE (NY)
Assistant Project Manager



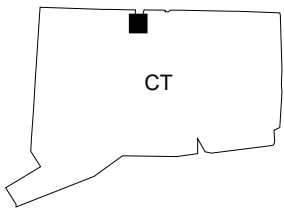
R. Scott Goldkamp, PE (MA/NH)
Principal

Attachments:

- Figure 1 – Site Locus
- Figure 2 – Site and Subsurface Exploration Location Plan
- Appendix A – Test Boring Logs



GIS: \\haleyaldrich.com\share\CF\Projects\0206711\GIS\0206711_TRACK SETTLEMENT INVESTIGATION\0206711_TRACK SETTLEMENT INVESTIGATION.aprx - vphlvan - 10/31/2022 2:06 PM



MAP SOURCE: ESRI
SITE COORDINATES: 41°51'41"N, 72°47'44"W

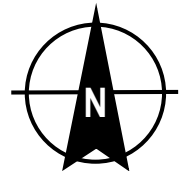
**HALEY
ALDRICH**

GRANBY MEMORIAL HIGH SCHOOL
GRANBY, CONNECTICUT

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
OCTOBER 2022

FIGURE 1



NOTES

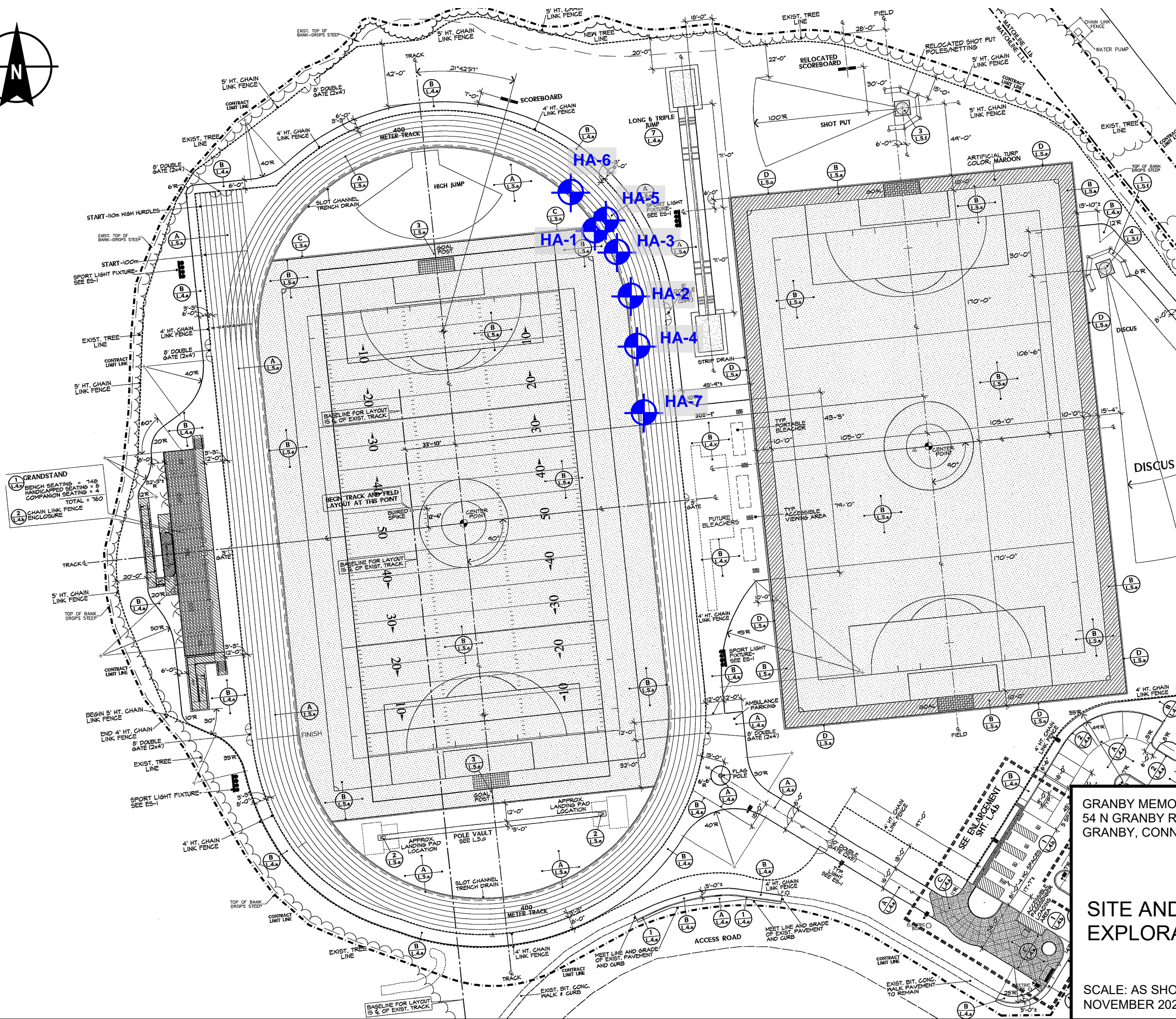
1. BASE PLAN TAKEN FROM DRAWING L1.A. TITLED "SITE LAYOUT PLAN" DATED 1 NOVEMBER 2012 AND PROVIDED BY R.A.D. SPORTS.

2. ELEVATIONS REFERENCE THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

LEGEND



HA-1
DESIGNATION AND APPROXIMATE LOCATION OF GEOPROBE CONDUCTED BY SEABOARD DRILLING INC. ON 20 OCTOBER 2022 AND OBSERVED BY HALEY & ALDRICH, INC.



GRANBY MEMORIAL HIGH SCHOOL
54 N GRANBY RD
GRANBY, CONNECTICUT

HALEY
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SITE AND SUBSURFACE EXPLORATION LOCATION PLAN

SCALE: AS SHOWN
NOVEMBER 2022

FIGURE 2

APPENDIX A

Test Boring Logs

J:\GRAPHIC\TEMP\MCELENEY-T\FIELD SERVICES\SUBSURFACE EXPLORATION LOG KEYS\SUBSURFACE EXPLORATION KEY2008-1027.DWG

IDENTIFICATION AND DESCRIPTION OF SUBSURFACE MATERIALS

SOIL

Soil description on logs of subsurface explorations are based on Standard Penetration Test results, visual-manual examination of exposed soil and soil samples, and the results of laboratory tests on selected samples. The criteria, descriptive terms and definitions are as follows:

DENSITY OR CONSISTENCY

Density of Cohesionless Soils	Penetration Resistance (Blows per ft.)	Consistency of Cohesive Soils	Penetration Resistance (Blows per ft.)
Very Loose	0-4	Very Soft	0-2
Loose	5-10	Soft	3-4
Medium	11-30	Medium	5-8
Dense	31-50	Stiff	9-15
Very Dense	over 50	Very Stiff	16-30
		Hard	over 30

PENETRATION RESISTANCE

Standard Penetration Test (ASTM D-1586) - Number of blows required to drive a standard 2 in. O.D. split spoon sampler 1 ft. with a 140 lb. weight falling freely through 30 in.

COLOR: Basic colors and combinations: black, brown, gray, yellow-brown, etc.

SUPPLEMENTAL SOIL TERMINOLOGY:

Laminae	- 0 to 1/16 in. thick (cohesive)
Parting	- 0 to 1/16 in. thick (granular)
Seam	- 1/16 to 1/2 in. thick
Layer	- 1/2 to 12 in. thick
Stratum	- > 12 in. thick
Pocket	- Small, erratic deposit less than 12 in. size
Lens	- Lenticular deposit larger than a pocket
Occasional	- One or less per 12 in. of thickness
Frequent	- More than one per 12 in. of thickness
Interbedded	- Alternating soil layers of differing composition
Varved	- Alternating thin seams of silt and clay
Mottled	- Variation of color

GEOLOGIC INTERPRETATION

Deposit type - GLACIAL TILL, ALLUVIUM, FILL.....

The natural soils are identified by criteria of Unified Soil Classification System (USCS), with appropriate group symbol in parenthesis for each soil description. Fill materials may not be classified by USCS criteria.

ROCK

Rock descriptions noted on logs of subsurface explorations are based on visual-manual examination of exposed rock outcrops and core samples. The criteria, descriptive terms and definitions used are as follows:

FIELD HARDNESS: A measure of resistance to scratching.

Very Hard	Cannot be scratched with a knife point or sharp pick.
Hard	Can be scratched with a knife point or sharp pick, only with difficulty.
Moderately Hard	Can be readily scratched with a knife point or pick.
Medium Hard	Can be grooved or gouged 1/16 in. deep with firm pressure on a knife point or sharp pick.
Soft	Can be grooved or gouged easily with a knife point or pick.
Very Soft	Can be carved with a knife and excavated with a pick point.

WEATHERING: The action of organic and inorganic and chemical and physical processes resulting in alteration of color, texture and composition.

Fresh-FR	No visible sign of alteration, except perhaps slight discoloration on major discontinuity surfaces.
Slight-SL	Discoloration of rock material and discontinuity surfaces. All rock may be discolored and/or somewhat weaker than in its fresh condition.
Moderate-MOD	Less than half the rock material is decomposed and/or disintegrated to a soil. Some fresh or discolored rock is present as either a continuous framework or as corestones.
High-HIGH	More than half the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present as either a discontinuous framework or as corestones.
Complete-COMP	All rock material is decomposed and/or disintegrated to soil. The original mass structure is largely intact.
Residual Soil	All rock material is converted to soil. The mass structure and material fabric are destroyed. There has been a large change of volume, but the material has not been significantly transported.

COLOR: Basic colors and combinations: gray, light gray, brown, red-brown.

TEXTURE: Size, shape and arrangements of constituents.

Term	Size	
	Igneous	Sedimentary
Coarse-grained	> 5 mm	> 2 mm
Medium-grained	1 - 5 mm	0.625 - 2 mm
Fine-grained	< 1 mm	< 0.625 mm
Aphanitic	Individual grains invisible to the unaided eye.	

LITHOLOGY: Rock classification and modifiers; accepted formation names.

DISCONTINUITIES:

Type	Definition
Joint	A natural fracture along which no displacement has occurred. May occur in parallel groups called sets.
Shear	A natural fracture along which displacement has occurred. Surface may be slickensided or striated.
Fault	A natural fracture along which displacement has occurred. Usually lined with gouge and slickensides.
Shear or Fault Zone	Zone of fractured rock and gouge bordering the displacement plane.

ORIENTATION/ATTITUDE:

Term	Angle (degrees)
Horizontal	0-5
Low Angle	6-35
Moderately Dipping	36-55
High Angle	56-85
Vertical	86-100

SPACING:

Discontinuity Term	Bedding Term	Inches
Extremely Close	Extremely Thin	< 3/4
Very Close	Very Thin	3/4 - 2.5
Close	Thin	2.5 - 8
Moderate	Medium	8 - 24
Wide	Thick	24 - 80
Very Wide	Very Thick	80 - 240
Extremely Wide	Extremely Thick	> 240

PERSISTENCE/CONTINUITY:

Term	Feet
Very Low	0-3
Low	3-10
Medium	10-35
High	35-65
Very High	> 65

APERTURE/GAP:

Term	Distance
Very Tight	< 0.1mm
Tight	0.1mm-0.25mm
Partly Open	0.25mm-0.5mm
Open	0.5mm-2.5mm
Moderately Wide	2.5mm-1cm
Wide	> 1cm
Very Wide	1cm-10cm
Extremely Wide	10cm-1m
Cavernous	> 1m

POROSITY:

Type
Primary:
Pre-depositional and depositional inter- and intra- granular, particle, or crystalline pores.

Secondary:
Solution features including pits, vugs, caverns, molds, and channels.
Fracture features including joints, shears, faults, shrinkage and breccia fabrics.

Term	Size
Micro	< 0.0625 mm
Meso	0.0625-4.0 mm
Mega	4.0-256 mm








GENERAL NOTES

1. Logs of subsurface explorations depict soil, rock and groundwater conditions only at the locations specified on the dates indicated. Subsurface conditions may vary at other locations and at other times.
2. Water levels noted on the logs were measured at the times and under the conditions indicated. During test borings, these water levels could have been affected by the introduction of water into the borehole, extraction of tools on other procedures and thus may not reflect actual groundwater level at the test boring location. Groundwater level fluctuations may also occur as a result of variations in precipitation, temperature, season, tides, adjacent construction activities and pumping of water supply wells and construction dewatering systems.

HALEY
ALDRICH

SUBSURFACE EXPLORATION KEY

Nov 7, 22
\\HALEYALDRICH.COM\SHARE\CF\PROJECTS\0206711\GINT\0206711-GP.GPJ
H&A-GEOPROBE-09 PLOG-HA-LIB09-BOS STANDARD ONLY - COPY.GLB HA-TB-CORE-WELL-07-1.GDT

<div><div><div>HALEYALDRICH</div><div>GEOPROBE REPORT</div></div></div>										Boring No. HA-1									
Project GRANBY HIGH SCHOOL TRACK, 54 N GRANBY RD, GRANBY CT										File No. 0206711-000									
Client R.A.D. SPORTS										Sheet No. 1 of 1									
Contractor Sea Board Drilling										Start October 20, 2022									
										Finish October 20, 2022									
										Driller M. Kern									
										H&A Rep. J. Shaw									
Type										Elevation 222.0 (est.)									
Inside Diameter (in.)										Datum NAVD88									
Hammer Weight (lb)										Location See Plan									
Hammer Fall (in.)																			
		Casing	Sampler	Barrel	Drilling Equipment and Procedures														
			G		Rig Make & Model: Geoprobe 6620														
			1.5		Bit Type: Geoprobe Spoon														
			Auto	-	Drill Mud: None														
				-	Casing: Push														
				-	Hoist/Hammer: - Automatic Hammer														
					PID Make & Model: Not used														
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME & SYMBOL, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)					Gravel		Sand			Field Test			
											% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity
0		G1 42	0.0 5.0	221.9 0.1 221.4 0.6	SW SP	-TRACK RUBBER- -ASPHALT- Gray to gray-brown well-graded SAND with gravel (SW), no structure, no odor, dry					5	10 15	10 10	20 15	55 60				
						- FILL - Light red-brown to tan poorly-graded SAND (SP), no structure, no odor, moist, trace organics													
5		G2 36	5.0 10.0		SM	Light brown to tan SAND (SM), no structure, no odor, wet, wood fragments, trace organics						10	10	20	45	15			
					SM	Gray to gray-brown silty SAND (SM), no structure, no odor, moist, trace wood fragments, trace organics						10	15	20	30	25			
10		G3 36	10.0 15.0	211.0 11.0	SP	Light brown to tan poorly-graded SAND with gravel (SP), no structure, no odor, wet					5	10	10	20	55				
						- GLACIOFLUVIAL DEPOSITS -													
15				207.0 15.0		BOTTOM OF EXPLORATION 15.0 FT													
Water Level Data										Sample ID		Well Diagram		Summary					
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			O - Open End Rod T - Thin Wall Tube U - Undisturbed Sample S - Splitspoon Sample G - Geoprobe	 Riser Pipe  Screen  Filter Sand  Cuttings  Grout  Concrete  Bentonite Seal	Overburden (ft) 15.0											
			Bottom of Casing	Bottom of Hole	Water			Rock Cored (ft) 0.0											
								Samples G3											
												Boring No. HA-1							
Field Tests:										Dilatancy: R - Rapid S - Slow N - None		Plasticity: N - Nonplastic L - Low M - Medium H - High							
										Toughness: L - Low M - Medium H - High		Dry Strength: N - None L - Low M - Medium H - High V - Very High							
Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.																			

H&A-GEOPROBE-09 PLOG-HA-LIB09-BOS STANDARD ONLY - COPY.GLB HA-TB-CORE-WELL-07-1.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\0206711\GINT\0206711-GP.GPJ Nov 7, 22

<div><div><div>HALEYALDRICH</div><div>GEOPROBE REPORT</div></div></div>											Boring No. HA-2			
Project GRANBY HIGH SCHOOL TRACK, 54 N GRANBY RD, GRANBY CT											File No. 0206711-000			
Client R.A.D. SPORTS											Sheet No. 1 of 1			
Contractor Sea Board Drilling											Start October 20, 2022			
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											Driller M. Kern			
											H&A Rep. J. Shaw			
Type											Elevation 222.0 (est.)			
Inside Diameter (in.)											Datum NAVD88			
Hammer Weight (lb)											Location See Plan			
Hammer Fall (in.)														
Casing														
Sampler														
Barrel														
Drilling Equipment and Procedures														
Rig Make & Model: Geoprobe 6620														
Bit Type: Geoprobe Spoon														
Drill Mud: None														
Casing: Push														
Hoist/Hammer: - Automatic Hammer														
PID Make & Model: Not used														
VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION											Gravel			
(Density/consistency, color, GROUP NAME & SYMBOL, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)											Sand			
											Field Test			
											Dilatancy			
											Toughness			
											Plasticity			
											Strength			
Depth (ft)											% Coarse			
Sampler Blows per 6 in.											% Fine			
Sample No. & Rec. (in.)											% Coarse			
Sample Depth (ft)											% Medium			
Stratum Change Elev/Depth (ft)											% Fine			
USCS Symbol											% Fines			
-TRACK RUBBER-														
-ASPHALT-														
SW											5			
SP											10			
Gray to gray-brown well-graded SAND with gravel (SW), no structure, no odor, dry											15			
Light brown to tan poorly-graded SAND with gravel (SP), no structure, no odor, dry											10			
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<div style="display: flex; justify-content: space-between; align-items: center;"> <div> GEOPROBE REPORT </div> </div>												Boring No. HA-3						
<div style="display: flex; justify-content: space-between;"> <div> Project GRANBY HIGH SCHOOL TRACK, 54 N GRANBY RD, GRANBY CT Client R.A.D. SPORTS Contractor Sea Board Drilling </div> <div> File No. 0206711-000 Sheet No. 1 of 1 Start October 20, 2022 Finish October 20, 2022 Driller M. Kern H&A Rep. J. Shaw </div> </div>																		
		Casing	Sampler	Barrel	Drilling Equipment and Procedures													
Type			G		Rig Make & Model: Geoprobe 6620													
Inside Diameter (in.)			1.5		Bit Type: Geoprobe Spoon													
Hammer Weight (lb)			Auto	-	Drill Mud: None													
Hammer Fall (in.)				-	Casing: Push													
					Hoist/Hammer: - Automatic Hammer													
					PID Make & Model: Not used													
					Elevation 222.0 (est.)													
					Datum NAVD88													
					Location See Plan													
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME & SYMBOL, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel		Sand			Field Test						
							% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength		
0		G1 36	0.0 5.0	221.9 0.1 221.4 0.6		-TRACK RUBBER-												
					SW	-ASPHALT-	5	10	10	20	55							
					SP	Gray to gray-brown well-graded SAND with gravel (SW), no structure, no odor, dry	10	15	20	55								
						Light brown to tan poorly-graded SAND (SP), no structure, no odor, dry												
					SP	Light brown to brown poorly-graded SAND (SP), no structure, no odor, dry	10	15	20	55								
5		G2 36	5.0 10.0		SP	Tan to light brown poorly-graded SAND (SP), no structure, no odor, dry	10	15	20	55								
						-FILL-												
				212.5 9.5	SM	Light brown silty SAND (SM), no structure, no odor, dry				20	40	40						
10		G3 36	10.0 15.0	212.0 10.0	SP	Light brown to tan poorly-graded SAND (SP), no structure, no odor, moist			15	30	55							
						- GLACIOFLUVIAL DEPOSITS -												
15				207.0 15.0		BOTTOM OF EXPLORATION 15.0 FT												

Water Level Data						Sample ID	Well Diagram	Summary
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			O - Open End Rod T - Thin Wall Tube U - Undisturbed Sample S - Splitspoon Sample G - Geoprobe		Overburden (ft) 15.0 Rock Cored (ft) 0.0 Samples G3
			Bottom of Casing	Bottom of Hole	Water			
								Boring No. HA-3

Field Tests:
 Dilatancy: R - Rapid S - Slow N - None
 Toughness: L - Low M - Medium H - High

Plasticity: N - Nonplastic L - Low M - Medium H - High
 Dry Strength: N - None L - Low M - Medium H - High V - Very High

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

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<div><div><div>HALEYALDRICH</div><div>GEOPROBE REPORT</div></div></div>											Boring No. HA-4									
Project GRANBY HIGH SCHOOL TRACK, 54 N GRANBY RD, GRANBY CT											File No. 0206711-000									
Client R.A.D. SPORTS											Sheet No. 1 of 1									
Contractor Sea Board Drilling											Start October 20, 2022									
											Finish October 20, 2022									
											Driller M. Kern									
											H&A Rep. J. Shaw									
Type											Elevation 222.0 (est.)									
Inside Diameter (in.)											Datum NAVD88									
Hammer Weight (lb)											Location See Plan									
Hammer Fall (in.)																				
		Casing	Sampler	Barrel	Drilling Equipment and Procedures															
			G		Rig Make & Model: Geoprobe 6620															
			1.5		Bit Type: Geoprobe Spoon															
			Auto	-	Drill Mud: None															
				-	Casing: Push															
				-	Hoist/Hammer: - Automatic Hammer															
					PID Make & Model: Not used															
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME & SYMBOL, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel		Sand			Field Test								
							% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity	Strength				
0		G1 30	0.0 5.0	221.9 0.1 221.4 0.6	SW SP	-TRACK RUBBER- -ASPHALT- Gray to gray-brown well-graded SAND with gravel (SW), no structure, no odor, dry Light brown poorly-graded SAND (SP), no structure, no odor, dry	5	10 10	10 15	20 20	55 55									
5		G2 12	5.0 10.0		SP	Light brown to red-brown poorly-graded SAND (SP), no structure, no odor, dry Note: Upon advancing geoprobe sleeve, observed little to no resistance between 5.4 to 5.8 ft. - FILL -		10	15	20	55									
10		G3 42	10.0 15.0		SP	Light red-brown poorly graded SAND (SP), no structure, no odor, dry, pockets of dark brown organics, occasional brick specks, appears disturbed			10	20	70									
				209.0 13.0	SP	Light brown poorly-graded SAND with gravel (SP), no structure, no odor, dry	5	10	15	20	50									
					SM	Light brown silty SAND (SM), no structure, no odor, dry				20	40	40								
15				207.0 15.0		- GLACIOFLUVIAL DEPOSITS - BOTTOM OF EXPLORATION 15.0 FT														
Water Level Data															Sample ID		Well Diagram		Summary	
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			O - Open End Rod T - Thin Wall Tube U - Undisturbed Sample S - Splitspoon Sample G - Geoprobe		Riser Pipe Screen Filter Sand Cuttings Grout Concrete Bentonite Seal	Overburden (ft) 15.0											
			Bottom of Casing	Bottom of Hole	Water				Rock Cored (ft) 0.0											
									Samples G3											
										Boring No. HA-4										
Field Tests: Dilatancy: R - Rapid S - Slow N - None Plasticity: N - Nonplastic L - Low M - Medium H - High																				
Toughness: L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High																				
Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.																				

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<div><div><div>HALEYALDRICH</div><div>GEOPROBE REPORT</div></div></div>											Boring No. HA-5			
Project GRANBY HIGH SCHOOL TRACK, 54 N GRANBY RD, GRANBY CT											File No. 0206711-000			
Client R.A.D. SPORTS											Sheet No. 1 of 1			
Contractor Sea Board Drilling											Start October 20, 2022			
											Finish October 20, 2022			
											Driller M. Kern			
											H&A Rep. J. Shaw			
Type											Elevation 222.0 (est.)			
Inside Diameter (in.)											Datum NAVD88			
Hammer Weight (lb)											Location See Plan			
Hammer Fall (in.)														
Casing											Drilling Equipment and Procedures			
Sampler											Rig Make & Model: Geoprobe 6620			
Barrel											Bit Type: Geoprobe Spoon			
											Drill Mud: None			
											Casing: Push			
											Hoist/Hammer: - Automatic Hammer			
											PID Make & Model: Not used			
VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION											Gravel			
(Density/consistency, color, GROUP NAME & SYMBOL, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)											Sand			
											Field Test			
											Dilatancy			
											Toughness			
											Plasticity			
											Strength			
Depth (ft)											% Coarse			
Sampler Blows per 6 in.											% Fine			
Sample No. & Rec. (in.)											% Coarse			
Sample Depth (ft)											% Medium			
Stratum Change Elev/Depth (ft)											% Fine			
USCS Symbol											% Fines			
-TRACK RUBBER-														
-ASPHALT-														
Gray to gray-brown well-graded SAND with gravel (SW), no structure, no odor, dry											5 10 10 20 55			
Light brown poorly-graded SAND with gravel (SP), no structure, no odor, moist											5 10 15 20 50			
Note: Upon advancing geoprobe sleeve, observed little to no resistance between 2.4 to 2.6 ft.														
-FILL-														
Light brown to red-brown poorly-graded SAND (SP), no structure, no odor, moist											10 15 20 55			
Brown poorly-graded SAND (SM), no structure, no odor, moist, bottom 2 in. wood, dark lenses of organics, possible former Topsoil/Loess horizon, disturbed											10 10 50 30			
BOTTOM OF EXPLORATION 10.0 FT														
Water Level Data											Sample ID			
Date											Well Diagram			
Time											Summary			
Elapsed Time (hr.)											Overburden (ft) 15.0			
Depth (ft) to:											Rock Cored (ft) 0.0			
Bottom of Casing											Samples G2			
Bottom of Hole											Boring No. HA-5			
Water														
O - Open End Rod											Riser Pipe			
T - Thin Wall Tube											Screen			
U - Undisturbed Sample											Filter Sand			
S - Splitspoon Sample											Cuttings			
G - Geoprobe											Grout			
											Concrete			
											Bentonite Seal			
Field Tests:											Plasticity: N - Nonplastic L - Low M - Medium H - High			
Dilatancy: R - Rapid S - Slow N - None											Dry Strength: N - None L - Low M - Medium H - High V - Very High			
Toughness: L - Low M - Medium H - High														
Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.														

GEOPROBE REPORT

Boring No. **HA-6**

Project	GRANBY HIGH SCHOOL TRACK, 54 N GRANBY RD, GRANBY CT
Client	R.A.D. SPORTS
Contractor	Sea Board Drilling

File No.	0206711-000
Sheet No.	1 of 1
Start	October 20, 2022
Finish	October 20, 2022
Driller	M. Kern
H&A Rep.	J. Shaw

Elevation	222.0 (est.)
Datum	NAVD88

Location	See Plan
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	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type		G		Rig Make & Model: Geoprobe 6620
Inside Diameter (in.)		1.5		Bit Type: Geoprobe Spoon
Hammer Weight (lb)		Auto	-	Drill Mud: None
Hammer Fall (in.)			-	Casing: Push
				Hoist/Hammer: - Automatic Hammer
				PID Make & Model: Not used

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (In.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME & SYMBOL, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel		Sand			% Fines	Field Test			
							% Coarse	% Fine	% Coarse	% Medium	% Fine		Dilatancy	Toughness	Plasticity	Strength
0		G1 42	0.0 5.0	221.9 0.1 221.4 0.6	SW SP	-TRACK RUBBER- -ASPHALT- Gray to gray-brown well-graded SAND with gravel (SW), no structure, no odor, dry Light brown poorly-graded SAND with gravel (SP), no structure, no odor, dry	5 5	10 10	10 15	20 20	55 50					
5		G2 36	5.0 10.0		SM	Light brown to tan silty SAND (SM), no structure, no odor, moist, occasional dark brown organic lenses		10	15	20	25	30				
10		G3 30	10.0 15.0		SP	Brown to tan poorly-graded SAND (SP), no structure, no odor, moist, bottom 5 in. wood - FILL -		10	15	20	50	5				
15				207.0 15.0	SP	Light brown to tan poorly-graded SAND (SP), no structure, no odor, moist, trace organic lenses, trace brick particles, block of wood (3 in. length) in middle of sample BOTTOM OF EXPLORATION 15.0 FT		10	15	20	55					

Water Level Data








Sample ID

Well Diagram

Summary

Date	Time	Elapsed Time (hr.)	Depth (ft) to:		
			Bottom of Casing	Bottom of Hole	Water

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

	Riser Pipe
	Screen
	Filter Sand
	Cuttings
	Grout
	Concrete
	Bentonite Seal








Overburden (ft)	10.0
Rock Cored (ft)	0.0
Samples	G

Boring No. **HA-6**

Field Tests:	Dilatancy: R - Rapid S - Slow N - None	Plasticity: N - Nonplastic L - Low M - Medium H - High
	Toughness: L - Low M - Medium H - High	Dry Strength: N - None L - Low M - Medium H - High V - Very High

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

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<div><div><div>HALEYALDRICH</div><div>GEOPROBE REPORT</div></div></div>											Boring No. HA-7									
Project GRANBY HIGH SCHOOL TRACK, 54 N GRANBY RD, GRANBY CT											File No. 0206711-000									
Client R.A.D. SPORTS											Sheet No. 1 of 1									
Contractor Sea Board Drilling											Start October 20, 2022									
											Finish October 20, 2022									
											Driller M. Kern									
											H&A Rep. J. Shaw									
Type											Elevation 222.0 (est.)									
Inside Diameter (in.)											Datum NAVD88									
Hammer Weight (lb)											Location See Plan									
Hammer Fall (in.)																				
		Casing	Sampler	Barrel	Drilling Equipment and Procedures															
			G		Rig Make & Model: Geoprobe 6620															
			1.5		Bit Type: Geoprobe Spoon															
			Auto	-	Drill Mud: None															
				-	Casing: Push															
				-	Hoist/Hammer: - Automatic Hammer															
					PID Make & Model: Not used															
Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME & SYMBOL, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)						Gravel		Sand			Field Test			
												% Coarse	% Fine	% Coarse	% Medium	% Fine	% Fines	Dilatancy	Toughness	Plasticity
0		G1 42	0.0 5.0	221.9 0.1 221.4 0.6 221.0 1.0	SW	-TRACK RUBBER- -ASPHALT- Gray to gray-brown well-graded SAND with gravel (SW), no structure, no odor, dry - FILL - Light brown to brown poorly-graded SAND (SP), no structure, no odor, dry, trace brick - FILL -						5	10	10	20	55				
					SP															
5		G2 36	5.0 10.0	215.0 7.0	SP	Tan to light red-brown poorly-graded SAND with gravel (SP), no structure, no odor, dry - GLACIOFLUVIAL DEPOSITS -						5	10		20	65				
10		G3 42	10.0 15.0		SP	Light red-brown poorly-graded SAND (SP), no structure, no odor, dry										100				
15				207.0 15.0		BOTTOM OF EXPLORATION 15.0 FT														
Water Level Data					Sample ID		Well Diagram		Summary											
Date	Time	Elapsed Time (hr.)	Depth (ft) to:			O - Open End Rod T - Thin Wall Tube U - Undisturbed Sample S - Splitspoon Sample G - Geoprobe	 Riser Pipe  Screen  Filter Sand  Cuttings  Grout  Concrete  Bentonite Seal	Overburden (ft) 15.0												
			Bottom of Casing	Bottom of Hole	Water			Rock Cored (ft) 0.0												
								Samples G3												
								Boring No. HA-7												
Field Tests:					Dilatancy: R - Rapid S - Slow N - None Toughness: L - Low M - Medium H - High				Plasticity: N - Nonplastic L - Low M - Medium H - High Dry Strength: N - None L - Low M - Medium H - High V - Very High											
Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.																				