

August 31, 2021

Town of Southington
c/o Colliers Project Leaders
135 New Road
Madison, Connecticut 06443

Attn: Mr. John Koplas (email: john.koplas@colliers.com)

Re: Preliminary Geotechnical Engineering Recommendations
Proposed New Elementary School – Derynoski School Site
240 Main Street (Route 10), Southington, Connecticut
Town of Southington Purchase Order 20220613-00

Principals
Charles C. Brown, P.E.
James F. Norden, P.E.
Amy Jagaczewski, P.E.

Principal Emeritus
Kenneth Gible, P.E.

Geotechnical Associate
David L. Freed, P.E.

Structural Associate
Richard A. Centola, P.E.

Dear Mr. Koplas:

This letter report summarizes our preliminary foundation design recommendations for a proposed new school to be located west of the existing Derynoski Elementary School in Southington, Connecticut. Our geotechnical engineering work, as summarized herein, has been completed in accordance with our proposal dated July 13, 2021, as authorized by the Town of Southington August 5, 2021 purchase order no. 20220613-00.

GNCB planned, arraigned, and monitored a preliminary program of 5 test borings (B-1 to B-5), which were drilled up to 24 ft. deep; refer to Drawing 1, "Test Boring Plan" for approximate locations of explorations. This information indicates that subsurface conditions generally consist of a surface man-placed fill and alluvium soil, ranging from 4.0 ft. to 18 ft. thick, underlain by a granular outwash soil consisting of a gravelly coarse to fine SAND; groundwater is typically about 11 ft. below ground surface. In our opinion, the existing man-placed fill and alluvium soils are not suitable to support a new school building; the outwash sand is a suitable bearing material. For preliminary design, we recommend that the density of the existing unsuitable man-placed fill and alluvium soils be improved by a system of rammed aggregate piers, so that the new school building can be supported on shallow reinforced concrete spread footings bearing on the improved soils; the ground floor slab may be an earth supported concrete slab.

SITE LOCATION AND PROPOSED CONSTRUCTION

The approximately 20 acre Derynoski School property, located along Main Street (Route 10) and west of its intersection with Route 120, comprises an upper rectangular shaped school building and lower paved and grass athletic fields, and paved parking areas. This site is also bounded by Eden Street on the north, and residential and commercial areas on the west and south sides; the Quinnipiac River exists to the west of the site.

We understand that the new building expansion will consist of a one-story structure (no basement) that has a footprint of about 50,000 sq. ft. Plans also include a loop road around the building with expanded and improved paved parking areas. The east half of the lower area (i.e., within the paved athletic surface) is the location for the new school building expansion. This area is essentially level varying in elevation by a few feet. Not having any specific elevation data, we have assumed for this report that the area along the north side of the athletic paved surface (i.e., vicinity of test boring B-1) is at El. 100 ft.

SUBSURFACE CONDITIONS

Preliminary Phase Test Borings: In order to determine subsurface soil conditions at depth for our preliminary study, GNCB concurred with your plan to drill five test borings (B-1 to B-5). The test borings were drilled on August 17, 2021, at the approximate locations shown on the attached Drawing 1. GNCB monitored the field work, located the explorations by rough tape measurement from existing site features, and visually estimated ground surface elevations based on the assumed B-1 site grade at El. 100.

Table I summarizes the subsurface conditions observed at each exploration; detailed soil descriptions are contained in the following report section. Logs of the test borings, prepared by the contractor and reviewed by GNCB, are attached as Appendix A.

General Borings, Inc. of Prospect, Connecticut, under contract to GNCB, drilled the test borings using a standard rubber-tired truck rig. Boreholes were advanced using 3-1/4 in. inside diameter hollow stem augers; soil samples (ASTM D 1586) were obtained generally at 5 ft. intervals, except near continuously to a depth of 12 ft. at B-1 and B-2. All test borings terminated within the underlying natural granular soils at depths from 22 ft. to 24 ft. below ground surface.

Subsurface Conditions: Test borings revealed that subsurface conditions consisted of three major soil strata, a topsoil/man-placed fill and underlying alluvium, which is further underlain by a granular outwash deposit. These conditions are described below, progressing downward from ground surface:

<u>Thickness (ft.)</u>	<u>General Description</u>
4.0 to 15.0	Loose to medium dense brown silty medium to fine SAND, little gravel (TOPSOIL/MAN-PLACED FILL).
0.0 to 3.5	Loose to medium dense dark brown to black fine sandy SILT, silty fine SAND, trace organic particles, or sandy ORGANIC SILT (ALLUVIUM)
Up to 17.0	Dense to very dense brown to gray gravelly coarse to fine SAND, little to trace silt to medium to fine SAND, trace silt (OUTWASH DEPOSIT)

The test borings were all drilled in vegetated grass areas where the topsoil (a brown loamy fine SAND, trace roots) was generally less than 12 in. thick; we do not know the pavement thickness in the athletic court area. Below the surface topsoil, the test borings encountered a granular man-placed fill that ranged in density from loose to medium dense. The thickness of fill generally increased from east, where it ranged from 5 ft. thick at B-5, to 7 ft. to 9 ft. at B-1, B-2, and B-4, to 15 ft. at B-3 at the southwest corner of the area explored.

Except at B-2 and B-5, a loose to medium dense alluvium sand deposit with pockets of organic silt and sand that contained organic matter. This material is a more recent deposit of soil and organic matter which overflowed from the nearby Quinnipiac River during storm events.

The predominant soil deposit at the site, below these surface (man-placed fill and alluvium) soils consisted of a granular outwash material deposited from meltwater streams. Interpolated contours of top of granular outwash, as summarized on Table 1, ranges from about El. 97 (at the west end at B-5) to about El. 84 (at the southwest corner of the site at B-3).

Groundwater Levels: Groundwater observed at the completion of test borings ranged from about 11 ft. to 12 ft. below ground surface, corresponding to about EL. 90 (based on the assumed site datum referenced above). These water levels however were made over a short period of time and may not represent the static groundwater level. In any event, water levels vary with precipitation, season, and other factors. As a result, water levels encountered during and after construction may differ from those observed in the test borings.

PRELIMINARY RECOMMENDATIONS FOR FOUNDATION DESIGN AND CONSTRUCTION

Building Foundations and Ground Floor Slab: The topsoil/man-placed fill and alluvium deposits, which extend to 18 ft. below ground surface (at B-3), are not suitable to support the new building frame and ground floor load. The naturally-deposited outwash granular soils are suitable bearing materials. Accordingly, for preliminary design, we recommend that the density of the surface unsuitable soils be improved by a system of rammed aggregate piers (RAPs), and the building frame be supported on conventional shallow spread footings bear on the improved man-placed fill and alluvium. The need for RAPs below the entire building slab should be made after a final building location and slab grade have been determined and additional explorations have been made that define the thickness and composition of the unsuitable materials; the RAPs may only be needed below the building columns. The RAPs should be design and the program implemented by a specialty foundation contractor. We have discussed the project with Mr. Derek Simpson at Helical Drilling in Braintree MA, and have received his concurrence that the RAPs are a suitable and cost effective solution for the site.

For preliminary design, we recommend that the RAP design comply with the following foundation design criteria:

1. Design in accordance with the applicable provisions of the current (2018) edition of the State of Connecticut Code, which incorporates the 2015 International Building Code (IBC).
2. Locate bottoms of footings at least 3.5 ft. below exterior ground surface exposed to freezing.
3. Proportion footings for a net allowable soil bearing pressure equal to 1.3 times the least lateral footing dimension as measured in feet, up to a maximum of 4 kips per sq. ft. (ksf).
4. Design the RAP system for a total footing settlement of about $\frac{3}{4}$ in. Footing settlement is expected to occur as the load is applied. We do not expect that differential settlement will exceed $\frac{1}{4}$ in.
5. Remove all surface topsoil, or other deleterious material from the building limits, prior to implementing the RAPs site improvement. Following removal of the surface topsoil, recompact the existing subgrade with at least 6 passes of a vibratory roller that weighs at least 10 tons. Replace any soils that are visually unstable with compacted structural fill. As a minimum, provide at least 9 in. of compacted structural fill below the building ground floor slab.

Alternate Foundation Design: Depending on the location of the new building and the results of additional test borings during final design to determine in greater detail the depth of unsuitable materials, it may be economical to remove the unsuitable soils and replace them with an off-site compacted structural fill. For this scheme, the following additional preliminary design criteria apply:

1. Proportion footings for a net allowable soil bearing pressure equal to 1.7 times the least lateral footing dimension as measured in feet, up to a maximum of 5 kips per sq. ft. (ksf).
2. Remove all man-placed fill and alluvium soil from the building area and placed compacted structural fill to lateral limits beyond the building exterior equal to the depth of fill below the footing plus 2 ft.

Foundation Drainage: In our opinion, the groundwater will be sufficiently below the building ground floor slab, such that perimeter or underslab drains will not be required. However, the requirement for foundation drainage should be determined during final design, when the building floor grade is established.

Lateral Earth Pressure: We are not aware of any below grade foundation walls which would require design for lateral soil pressure. We can provide you with recommendations for lateral soil pressure if need.

Seismic Design: Table 20.3-1 (Manual ASCE 7-10) referenced in the Code provides recommendations for seismic site soil class. Based on our interpretation of the test boring logs, we recommend that the building be designed based on a Site Soil Class D. In addition, we recommend that seismic design include spectral acceleration design values for the Town of Southington, as contained in Appendix N Municipality – Specific Structural Design Parameters of the State of Connecticut 2018 code, of $S_s=0.185$ and $S_1=0.064$.

The natural inorganic soils at the site or compacted structural fill to be placed are not susceptible to liquefaction.

Compacted Structural Fill: Fill for use as compacted structural fill below the building footings and slab, to replace unsuitable soils for the alternate foundation system, should consist of sandy gravel or gravelly sand, free of organic material, snow, ice, or other unsuitable materials, and should be well graded within the following limits:

<u>Sieve Size</u>	<u>Percent Finer By Weight</u>
4 in.	100
No. 4	20 - 80
No. 40	5 - 50
No. 200	0 - 10

Compacted structural fill should be placed in horizontal layers having a maximum loose lift thickness of 10 in. (open areas) or 6 in. (confined areas). Each layer should be compacted to a dry density at least 95 percent of the maximum dry density as determined in accordance with ASTM Test Designation D1557. The on-site soils will not satisfy the requirements for compacted structural fill.

CONSTRUCTION CONSIDERATIONS

We have the following preliminary comments regarding foundation construction:

1. Excavation for slab and new footings for the alternate foundation system is expected to consist of the surface topsoil and man-placed fill and alluvium granular soils. We expect that standard backhoe and excavator equipment will be adequate for their removal.
2. We do not anticipate that groundwater will be a site factor unless the alternate foundation scheme of remove and replace is implemented. Excavation below the groundwater would most likely require a systematic dewatering system such as deep wells or wellpoints to lower the water at least one foot below the lowest anticipated excavation. For footing excavations, any water that accumulates in excavations can be controlled with open sump pumping.
3. Following excavation, the building area should be recompacted with heavy vibratory rollers that weigh at least 10 tons. In addition, footing bearing surfaces should be recompacted with small plate compactors following excavation and prior to forming/setting steel.

ADDITIONAL TEST BORINGS AND GEOTECHNICAL ENGINEERING STUDIES

Once a building location and design is completed, we recommend a final design subsurface exploration and foundation study program be completed for the project. The additional explorations will help to confirm the preliminary information, quantify the thickness and quality of the surface man-placed fill and alluvium that requires site improvement, and provide information on the density of the near surface natural sands. In our opinion,

Town of Southington
c/o Colliers Project Leaders
August 31, 2021
Page 7 of 7



a final test boring program should provide about one test boring per 3,000 to 5,000 sq. ft. of building footprint. Geotechnical engineering studies would be needed to confirm the foundation type (i.e., shallow spread footing and slab construction with soil improvement by RAPs or the excavate and replace alternate foundation system), to prepare final foundation design criteria, including allowable soil bearing pressure, and to prepare appropriate specifications for project bidding and construction.

Please give us a call if you have any questions or need additional information.

Very truly yours,

A handwritten signature in blue ink, reading "David L. Freed". The signature is fluid and cursive, with a long horizontal stroke at the end.

David L. Freed, P.E.
Geotechnical Associate

Enclosures:

Table I – Summary of Test Borings
Drawing 1 – Test Boring Plan
Appendix A – Test Boring Logs (B-1 to B-5)

cc: Colliers Project Leaders, Attn: Mr. Charles Warrington
charles.warrington@colliers.com

TABLE I

SUMMARY OF TEST BORINGS

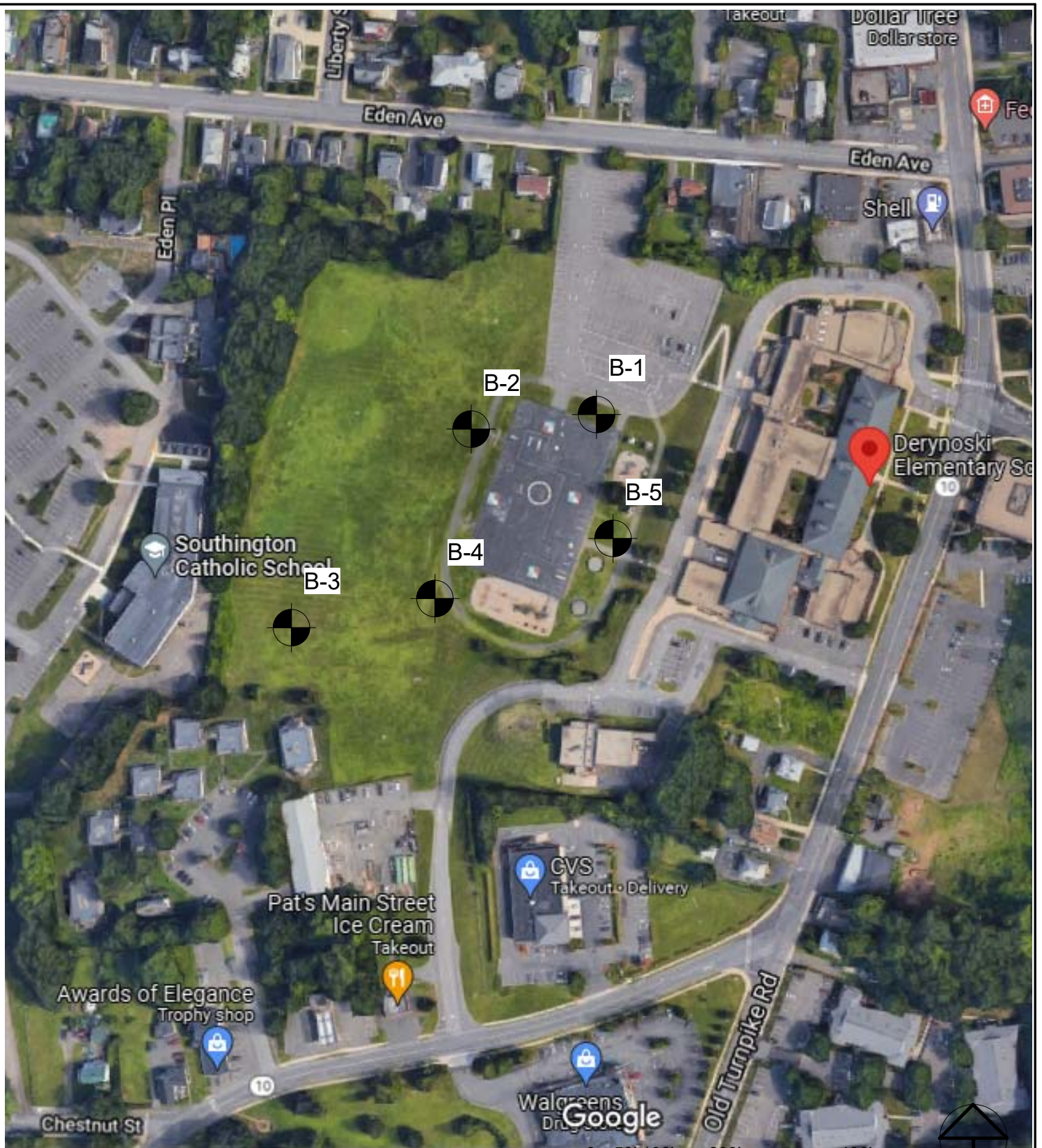
**BUILDING EXPANSION AT DERYNOSKI SCHOOL
240 MAIN STREET, SOUTHLINGTON, CONNECTICUT**

TEST BORING NO.	TOTAL DEPTH (FT.)	APPROX. GROUND SURFACE ELEV. (FT.)	ELEV. WATER (FT.)	THICKNESS SOIL (FT.)			ELEV. TOP SAND AND GRAVEL (FT.)
				MAN-PLACED FILL	ALLUVIUM	SAND AND GRAVEL	
B-1	22.0	100.0	89.5	8.0	2.5	11.5+	89.5
B-2	24.0	101.0	90.0	7.0	0.0	17.0+	94.0
B-3	24.0	102.0	91.0	15.0	3.0	6.0+	84.0
B-4	24.0	101.0	90.0	9.0	3.5	11.5+	88.5
B-5	22.0	101.0	91.0	4.0	0.0	18.0+	97.0

(R) Refusal on hollow stem augers

NOTES:

1. Refer to Drawing 1 for locations of test borings.
2. Elevations are in feet and refer to an assumed site datum where B-1 is assumed to be at Elev. 100.0.



NOTES

1. BASE PLAN IS AN ELECTRONIC COPY OF "GOOGLE MAPS" DATED 2021.
2. ELEVATIONS ARE IN FEET AND REFER TO AN ASSUMED DATUM.

LEGEND



B101

APPROXIMATE LOCATION OF TEST BORING DRILLED BY GENERAL BORINGS, INC. OF PROSPECT, CT. ON AUGUST 17, 2021.

0 50' 100' 200' 400'

GRAPHIC SCALE: 1" = 200'

NORTH

GNCB
Consulting Engineers, P.C.

1358 BOSTON POST ROAD
POST OFFICE BOX 802
OLD SAYBROOK
CONNECTICUT 06475
PHONE: 860 388 1224
GNCBENGINEERS.COM

DERYNOSKI SCHOOL
SOUTHINGTON, CT

TEST BORING PLAN

SCALE: 1" = 200'-0"

AUGUST 2021

		General Borings, Inc. P. O. BOX 7135 PROSPECT, CT 06712										SHEET 1 OF 1	
CLIENT: GNCB Consulting Engineers, Inc.													
FOREMAN/DRILLER: John Wyant												PROJECT NAME: Derynoski Elementary School	
INSPECTOR: Garry Jacobsen		LOCATION: Southington, CT		DESIGN ENGINEER									
Surface Elevation: 100		GBI JOB NO. 153-21											
Date Started: 8/17/21		TYPE	S Auger	Casing	Sampler	Core Bar	Hole No. B-1						
Date Finished: 8/17/21			H Auger	HA	S . S.		Line & Station						
Groundwater Observations		Size I. D.		3-1/4"	1-3/8"		Offset L R						
AT 10.5 AFTER 0.0 HRS		Hammer			140 LBS.	Bit	N Coordinate						
AT AFTER HRS		Fall			30"		E. Coordinate						
D E P T H	Casing blows per foot	SAMPLE					BLOWS PER 6 INCHES ON SAMPLER				STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)	
		DEPTH IN FEET FROM - TO	NO.	PEN. IN	REC. IN	TYPE	0-6	6-12	12-18	18-24			
5		0-2.0	1	24	20	SS	5	12	23	25	.5'	Dark brown loamy SAND.	
		2.0-4.0	2	24	20	SS	12	11	13	15	FILL	1) Dense-Red-brown silty medium-fine SAND, little gravel. 2) Medium-Same as above, with layer of gravel, coarse-fine sand, asphalt. 3) Dense-Red-brown to dark brown silty medium-fine SAND. 4) Augered Cobbles 7.0'-8.0'	
		5.0-7.0	3	24	18	SS	27	23	14	6		8.0'	
		7.0-7.5	4	6	0	SS	50						
10		9.0-11.0	5	24	18	SS	1	2	4	10	ALLUVIUM 10.5'	5) Loose-Dark brown silty fine SAND, trace organic soil.	
		11.0-13.0	6	24		SS	13	14	13	12	SAND GRAVEL	Bottom - Brown gravelly medium-fine SAND, little silt. 6) Medium-Brown gravelly medium-fine SAND. 7) Medium-Same as above	
15		15.0-17.0	7	24		SS	7	8	8	7		22.0'	8) Dense-Same as above
20		20.0-22.0	8	24		SS	4	13	19	20	EOB	END OF BORING 22.0'	
25													
30													
35													
40													
From Ground Surface to		Feet Used		in. Casing Then		in. Casing For		Feet					
Feet in Earth 22		Feet in Rock 0		No. of Samples 8		Hole No. B-1							
SAMPLE TYPE CODING:		SS = DRIVEN		C = CORE		A = AUGER		U = UNDISTURBED PISTON					
PROPORTIONS USED:		TRACE = 1-10%		LITTLE = 10-20%		SOME = 20-35%		AND = 35-50%					

		General Borings, Inc. P. O. BOX 7135 PROSPECT, CT 06712										SHEET 1 OF 1	
CLIENT: GNCB Consulting Engineers, Inc.													
FOREMAN/DRILLER: John Wyant												PROJECT NAME: Derynoski Elementary School	
INSPECTOR: Garry Jacobsen		LOCATION: Southington, CT		DESIGN ENGINEER									
Surface Elevation: 101		GBI JOB NO. 153-21											
Date Started: 8/17/21		TYPE	S Auger	Casing	Sampler	Core Bar	Hole No. B-2						
Date Finished: 8/17/21			H Auger	HA	S . S.		Line & Station						
Groundwater Observations		Size I. D.		3-1/4"	1-3/8"		Offset L R						
AT 11.0 AFTER 0.0 HRS		Hammer			140 LBS.	Bit	N Coordinate						
AT AFTER HRS		Fall			30"		E. Coordinate						
D E P T H	Casing blows per foot	SAMPLE					BLOWS PER 6 INCHES ON SAMPLER				STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)	
		DEPTH IN FEET FROM - TO	NO.	PEN. IN	REC. IN	TYPE							
							0-6	6-12	12-18	18-24			
5		0-2.0	1	24	14	SS	3	8	18	26	FILL	1) Medium-Dark brown loamy fine SAND. Red-brown silty medium-fine SAND, little gravel. 2) Augered COBBLES 2.0'-5.5'	
		2.0-2.5	2	6	0	SS	40						
	10		5.0-7.0	3	24	18	SS	13	17	9	8	FILL	3) Medium-Red-brown to dark brown silty medium-fine SAND.
			7.0-9.0	4	24	22	SS	10	11	9	9		
15			10.0-12.0	5	24	18	SS	10	6	3	3	SAND	4) Medium-Red-brown gravelly medium-fine SAND to medium-fine SAND, little silt. 5) Loose-Red-brown medium-fine SAND, little gravel and silt.
			15.0-17.0	6	24	16	SS	3	3	4	4		
	20		20.0-22.0	7	24	18	SS	5	5	7	11	GRAVEL	6) Medium-Same as above
			22.0-24.0	8	24	18	SS	6	5	6	5		
25												24.0'	7) Medium-Red-brown medium-fine SAND, little silt, with gravelly layers. 8) Medium-Same as above
	30											EOB	END OF BORING 24.0'
35													
	40												
From Ground Surface to		Feet Used		in. Casing Then		in. Casing For		Feet					
Feet in Earth 24		Feet in Rock 0		No. of Samples 8		Hole No. B-2							
SAMPLE TYPE CODING:		SS = DRIVEN		C = CORE		A = AUGER		U = UNDISTURBED PISTON					
PROPORTIONS USED:		TRACE = 1-10%		LITTLE = 10-20%		SOME = 20-35%		AND = 35-50%					

		General Borings, Inc. P. O. BOX 7135 PROSPECT, CT 06712										SHEET 1 OF 1	
CLIENT: GNCB Consulting Engineers, Inc.													
FOREMAN/DRILLER: John Wyant												SOIL ENGINEER	
INSPECTOR: Garry Jacobsen		PROJECT NAME: Derynoski Elementary School										DESIGN ENGINEER	
Surface Elevation: 102		LOCATION: Southington, CT											
Date Started: 8/17/21		GBI JOB NO. 153-21											
Date Finished: 8/17/21		TYPE		S Auger		Casing		Sampler		Core Bar		Hole No. B-3	
Groundwater Observations		H Auger				HA		S . S.				Line & Station	
AT 11.0 AFTER 0.0 HRS		Size I. D.				3-1/4"		1-3/8"				Offset L R	
AT AFTER HRS		Hammer						140 LBS.		Bit		N Coordinate	
		Fall						30"				E. Coordinate	
D E P T H	Casing blows per foot	SAMPLE					BLOWS PER 6 INCHES ON SAMPLER				STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)	
		DEPTH IN FEET FROM - TO	NO.	PEN. IN	REC. IN	TYPE	0-6	6-12	12-18	18-24			
5		0-2.0	1	24	14	SS	2	2	3	4	1.0'	Dark brown loamy medium-fine SAND. 1) Loose-Red-brown silty medium-fine SAND, little gravel. 2) Loose-Top - Same as above	
											FILL		
		4.0-6.0	2	24	14	SS	2	3	3	3	5.5'		
10		6.0-8.0	3	24	16	SS	4	5	6	5	FILL	Bottom - Brown fine SAND. 3) Medium-Top - Same as above Bottom - Red-brown silty medium-fine SAND, little gravel. 4) Medium-Red-brown gravel, coarse-fine SAND, little silt, wet.	
		10.0-12.0	4	24	18	SS	6	5	6	7			
15											15.0'	5) Very loose-Black to dark brown fine SAND to sandy organic SILT, trace wood. Augers grinding at 18.0'	
		15.0-17.0	5	24	14	SS	1	1	1	3	ALLUVIUM 18.0'		
20		20.0-22.0	6	24	14	SS	10	12	13	7	SAND	6) Medium-Red-brown gravelly medium-fine SAND, little silt. 7) Medium-Same as above	
		22.0-24.0	7	24	14	SS	10	12	10	11			GRAVEL 24.0'
25											EOB	END OF BORING 24.0'	
30													
35													
40													
From Ground Surface to		Feet Used		in. Casing Then		in. Casing For		Feet					
Feet in Earth 24		Feet in Rock 0				No. of Samples 7		Hole No. B-3					
SAMPLE TYPE CODING:		SS = DRIVEN		C = CORE		A = AUGER		U = UNDISTURBED PISTON					
PROPORTIONS USED:		TRACE = 1-10%		LITTLE = 10-20%		SOME = 20-35%		AND = 35-50%					

		General Borings, Inc. P. O. BOX 7135 PROSPECT, CT 06712										SHEET 1 OF 1	
CLIENT: GNCB Consulting Engineers, Inc.													
FOREMAN/DRILLER: John Wyant												SOIL ENGINEER	
INSPECTOR: Garry Jacobsen		PROJECT NAME: Derynoski Elementary School										DESIGN ENGINEER	
Surface Elevation: 101		LOCATION: Southington, CT											
Date Started: 8/17/21		GBI JOB NO. 153-21											
Date Finished: 8/17/21		TYPE		S Auger		Casing		Sampler		Core Bar		Hole No. B-4	
Groundwater Observations		H Auger				HA		S . S.				Line & Station	
AT 11.0 AFTER 0.0 HRS		Size I. D.				3-1/4"		1-3/8"				Offset L R	
AT AFTER HRS		Hammer						140 LBS.		Bit		N Coordinate	
		Fall						30"				E. Coordinate	
D E P T H	Casing blows per foot	SAMPLE					BLOWS PER 6 INCHES ON SAMPLER				STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)	
		DEPTH IN FEET FROM - TO	NO.	PEN. IN	REC. IN	TYPE	0-6	6-12	12-18	18-24			
5		0-2.0	1	24	10	SS	10	16	18	20	FILL	1) Dense-Dark brown loamy fine SAND. Bottom - Red- brown silty medium-fine sand, little gravel. 2) No recovery Augered COBBLES 2.0'-8.0'	
10		5.0-5.4	2	5	0	SS	50/5				9.0'		
15		10.0-12.0	3	24	14	SS	3	3	3	2	ALULVIUM 12.5'	3) Medium-Mottled gray SILT, trace organics. 4) Stiff-Top - Same as above	
20		12.0-14.0	4	24	18	SS	2	2	8	9	SAND GRAVEL	Bottom - Red-brown coarse-fine sandy SILT, little gravel. 5) Medium-Red-brown gravelly medium-fine SAND, little silt.	
25		15.0-17.0	5	24	3	SS	12	14	11	10	24.0' EOB	6) Medium-Same as above 7) Loose-Red-brown medium-fine SAND, little silt, with layers of gravelly coarse-fine sand. END OF BORING 24.0'	
30		20.0-22.0	6	24	8	SS	4	8	7	5			
35		22.0-24.0	7	24	12	SS	3	4	4	4			
40													
From Ground Surface to		Feet Used		in. Casing Then		in. Casing For		Feet					
Feet in Earth 24		Feet in Rock 0		No. of Samples 7		Hole No. B-4							
SAMPLE TYPE CODING:		SS = DRIVEN		C = CORE		A = AUGER		U = UNDISTURBED PISTON					
PROPORTIONS USED:		TRACE = 1-10%		LITTLE = 10-20%		SOME = 20-35%		AND = 35-50%					

		General Borings, Inc. P. O. BOX 7135 PROSPECT, CT 06712										SHEET 1 OF 1	
CLIENT: GNCB Consulting Engineers, Inc.													
FOREMAN/DRILLER: John Wyant												SOIL ENGINEER	
INSPECTOR: Garry Jacobsen		PROJECT NAME: Derynoski Elementary School										DESIGN ENGINEER	
Surface Elevation: 101		LOCATION: Southington, CT											
Date Started: 8/17/21		GBI JOB NO. 153-21											
Date Finished: 8/17/21		TYPE		S Auger	Casing	Sampler	Core Bar	Hole No. B-5					
Groundwater Observations		H Auger		HA	S . S.			Line & Station					
AT 10.0 AFTER 0.0 HRS		Size I. D.		3-1/4"	1-3/8"			Offset L R					
AT AFTER HRS		Hammer			140 LBS.	Bit		N Coordinate					
		Fall			30"			E. Coordinate					
D E P T H	Casing blows per foot	SAMPLE					BLOWS PER 6 INCHES ON SAMPLER				STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)	
		DEPTH IN FEET FROM - TO	NO.	PEN. IN	REC. IN	TYPE	0-6	6-12	12-18	18-24			
5		0-2.0	1	24	3	SS	4	6	6	8	1.0'	1) Medium-Dark brown loamy fine SAND.	
											FILL 4.0'	Bottom - Red-brown silty medium-fine SAND, little gravel.	
10		5.0-7.0	2	24	14	SS	8	9	14	14	SAND GRAVEL	2) Medium-Red-brown fine SAND.	
												Augering hard 7.0'-20.0	
15		10.0-12.0	3	24	10	SS	11	10	9	8	SAND GRAVEL	3) Medium-Red-brown gravelly medium-fine SAND, trace silt.	
20		15.0-17.0	4	24	12	SS	5	6	7	8	SAND GRAVEL	4) Medium-Same as above	
25		20.0-22.0	5	24	18	SS	5	9	40	50*	22.0' EOB	5) Very dense-Same as above	
												*Sand blew in split spoon, possible over filled casing causing high blows.	
												END OF BORING 22.0'	
30													
35													
40													
From Ground Surface to		Feet Used		in. Casing Then		in. Casing For		Feet					
Feet in Earth 22		Feet in Rock 0		No. of Samples 5		Hole No. B-5							
SAMPLE TYPE CODING:		SS = DRIVEN		C = CORE		A = AUGER		U = UNDISTURBED PISTON					
PROPORTIONS USED:		TRACE = 1-10%		LITTLE = 10-20%		SOME = 20-35%		AND = 35-50%					