



# RCRBD Record Set

July 16, 2019

Steamboat School District RE-2  
c/o NEI Construction  
Todd Raper  
629 Sawatch Road  
Eagle, CO 81631

Job Number: 18-11203

Subject: Foundation Recommendations,  
Strawberry Park Middle School Mechanical  
Upgrades, Steamboat Springs, Colorado.

Todd,

This report presents Foundation Recommendations for the Roof Top Unit (RTU) footings that were recently constructed as part of the Strawberry Park Middle School Mechanical Upgrades in Steamboat Springs, Colorado. NWCC understands that a total of nineteen individual footing pads were constructed for the six RTU (RTU-01 to RTU-06). NWCC, Inc. (NWCC) was requested to observe and sample the bearing soils adjacent to each of the RTU's and provide foundation recommendations based on our findings. A brief discussion of the subsurface and laboratory investigations completed, as well as our recommendations are provided below.

**Subsurface Investigation:** To evaluate the soil conditions at the site, the contractor, FCI Constructors Inc., had one (1) ten-inch diameter core hole drilled at each RTU. The contractor hand excavated through the underslab gravels and then excavated an additional 12 inches down to reach the footing grades (FG). NWCC obtained hand drive and/or small disturbed samples from each of the core holes at the approximate FG.

**Laboratory Investigation:** The samples were submitted to our laboratory for classification, strength and swell-consolidation testing. Based on our field observations and the laboratory test results, the soils encountered below the underslab gravels were somewhat variable and generally consisted of previously placed fill materials that ranged from sandy clays with gravels to clayey sands and gravels, and classified as CL, SC, SC-CL and SC-GC soils in accordance with the Unified Soil Classification System.

The fill materials appeared to be very stiff to medium dense and adequately compacted. Unconfined compressive strength tests conducted on two of the relatively undisturbed hand drive samples indicate the fill materials exhibited unconfined compressive strength (UCS) values ranging from 2,900 to 4,260 psf. Two swell-consolidation tests were also conducted on relatively undisturbed hand drive samples of the fill materials. The swell-consolidation tests exhibited a low degree of consolidation under an initial loading of 1,000 psf and then exhibited nil to low swell potentials when wetted under a constant load. The

classification and UCS test results are summarized in the attached Table 1. The swell-consolidation test results are shown in attached Figures #1 and #2.

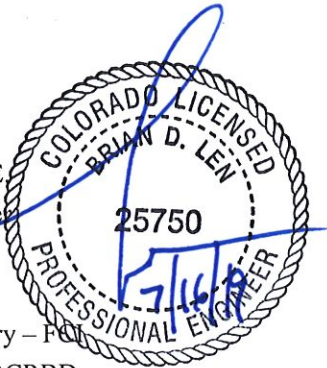
**Foundation Recommendations:** Based on the subsurface conditions encountered in the core holes at the footing grades, NWCC believes the existing fill materials will provide an allowable soil bearing pressure of at least 2,500 psf.

Based on our review of Sheet S001 of the structural plans, prepared by JVA and dated 5-15-2019, it appears that the footing pads were designed using a minimum allowable soil bearing pressure of 1,500 psf. Therefore, the footings should be suitable for support of the foundations.

If you have any questions regarding this report or if we may be of further service, please do not hesitate to contact us.

Sincerely,  
NWCC, INC.

Brian D. Len, P.E.  
Principal Engineer



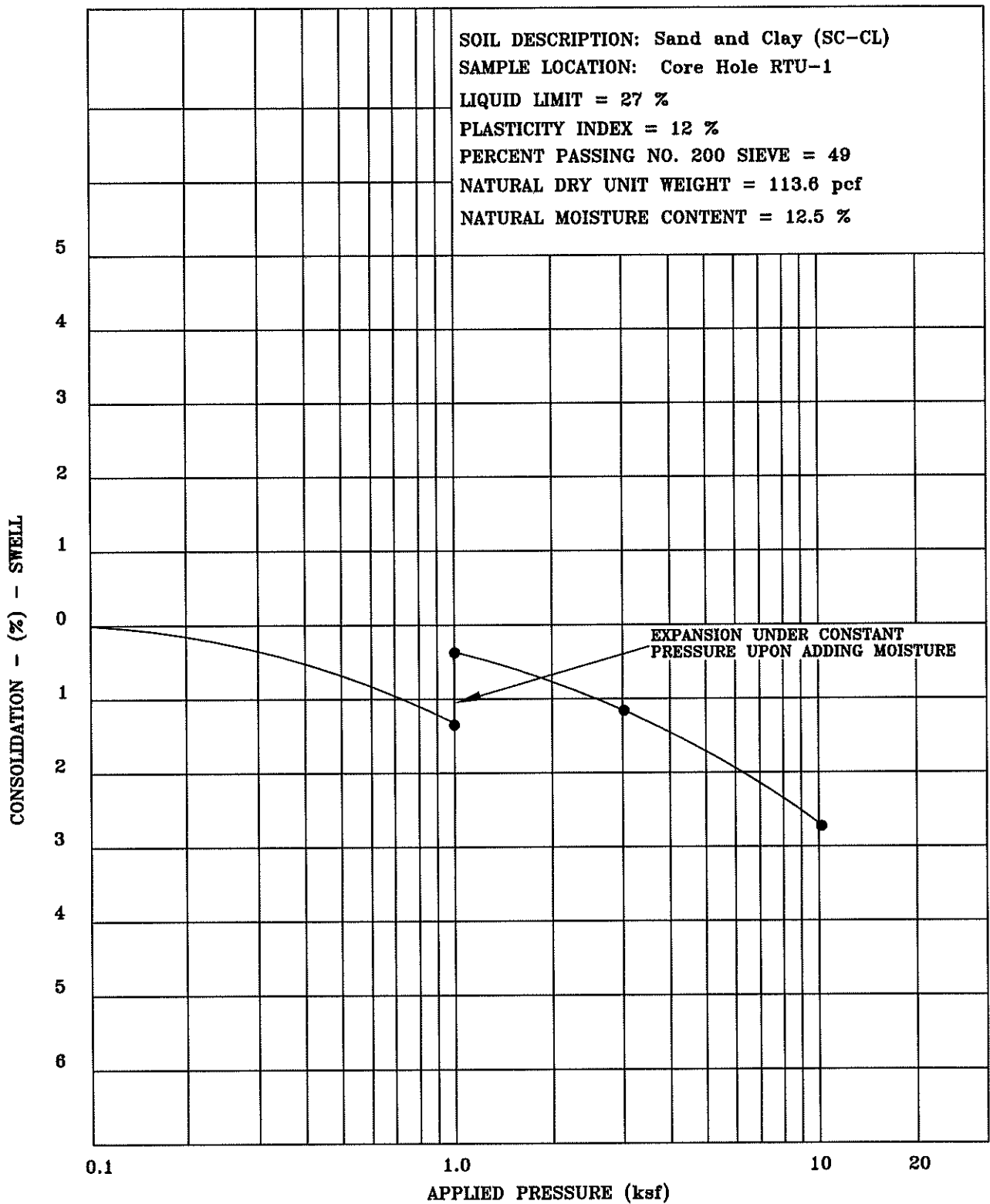
cc: Paul Mewberry - PCL  
Todd Carr - RCRBD

NWCC, Inc.

TABLE 1

SUMMARY OF LABORATORY TEST RESULTS

SAMPLE LOCATION		NATURAL MOISTURE CONTENT (%)	NATURAL DRY DENSITY (pcf)	ATTERBERG LIMITS		GRADATION		PERCENT PASSING No. 200 SIEVE	UNCONFINED COMPRESSIVE STRENGTH (psf)	SOIL or BEDROCK DESCRIPTION	UNIFIED SOIL CLASS.
CORE HOLE	DEPTH (feet)			LIQUID LIMIT (%)	PLASTICITY INDEX (%)	GRAVEL (%)	SAND (%)				
RTU-1	FG	12.5	113.6	27	12	7	44	49		Sand and Clay With Gravels	SC-CL
RTU-2	FG	12.5	106.8	28	11	5	68	27		Clayey Sand With Gravels	SC
RTU-3	FG	14.8	110.3	29	13	2	29	69	4260	Sandy Clay With Gravels	CL
RTU-4	FG	14.7	108.7	31	14	7	41	52	2900	Very Sandy Clay With Gravels	SC-GC
RTU-5	FG	8.8	117.5	26	11	33	35	32		Clayey Sand and Gravels	CL
RTU-6	FG	13.1	116.2	29	11	6	34	60		Very Sandy Clay With Gravels	CL



Title: SWELL-CONSOLIDATION TEST RESULTS

Date: 7/8/2019

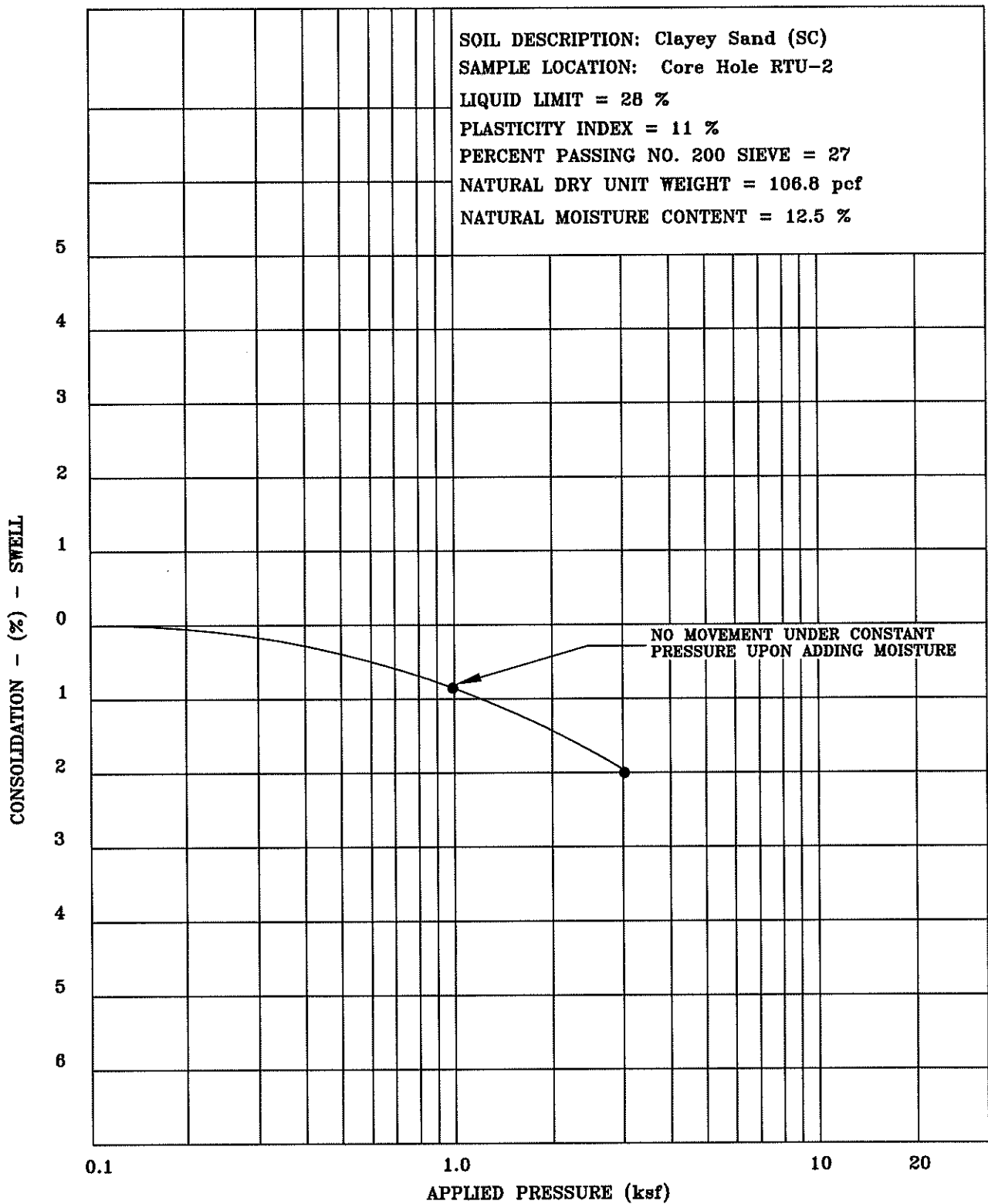
Job Name: Middle School Mechanical Upgrades

Job No. 18-11203

Location: Steamboat Springs, Colorado

Figure #1





Title: **SWELL-CONSOLIDATION TEST RESULTS**

Date: **7/7/2019**

Job Name: **Middle School Mechanical Upgrades**

Job No. **18-11203**

Location: **Steamboat Springs, Colorado**

Figure **#2**

