

23-1529 S

July 31, 2023

Rochester School District  
Attn: David Totty  
150 Wakefield St.  
Rochester, NH 03867

Subject: Preliminary Geotechnical Site Assessment  
Nancy Loud Elementary School  
5 Cocheco Avenue  
Rochester, New Hampshire

Dear David,

As requested, we have made a site visit to observe existing building and site conditions at the subject site. This report summarizes our findings, and its contents are subject to the limitations set forth in Appendix A.

## **1.0 PROJECT UNDERSTANDING**

The site is located off the southeast side of Cocheco Avenue in Rochester, New Hampshire and is comprised of the existing Nancy Loud Elementary School located in the central portion of the site. A paved parking lot is located in the southwestern portion of the site, an existing playground in the southern portion of the site, and open grassed areas occupy the remaining portions. Based on available LIDAR survey data, site grades are highest around the existing building, sloping downward radially from the building about 2 to 4 feet in elevation.

Based on correspondence with you, we understand the existing building is consists of a 2-story wood framed construction with basement level founded on brick and mortar, overlying a rubble stone and mortar foundation. We understand the existing foundation has experienced several areas of foundation distress and a “sinkhole” has been observed towards the central portion of the building. We understand a preliminary study is being conducted to determine the economic feasibility of foundation remediation to maintain temporary building usability.

## **2.0 SITE OBSERVATIONS**

As requested, we made a site visit to observe the site and existing building foundation conditions.

Our site visit began along the exterior of the existing building. Based on our observations, several areas along the southwest and southeast perimeter foundation walls have shown severe displacement and separation of the existing brick structure. There are several voids within the existing walls where bricks have deteriorated and are missing. The existing southeast foundation wall was also observed to bow outward away from the building.

Our site visit then moved to the interior of the building. Observations along the southeast wall coincide with exterior observations where the existing foundation appears to bow away from the building. Based on our observations, the existing floor joists are no longer seated atop the foundation wall. Several areas along the existing perimeter wall showed displacement and separation of the brick and rubble stone structure with some areas missing bricks and stones. Toward the central portion of the building, we observed a depression below an existing firewall. The extents of the depression appear to be encroaching toward existing load bearing columns. Based on correspondence with you, we understand this area pools stormwater and has been growing wider over the past several years.

Photos of observed conditions are shown in Appendix B.

## **3.0 GEOTECHNICAL ASSESSMENT AND RECOMMENDATIONS**

Based on our observations, the separation of foundation and floor joists along the southeast perimeter wall and depression in the central portion of the building indicate soil movement and settlement below existing foundations. The cause of which are not apparent at this time. As evidence of depression widening and brick separation, we anticipate that settlement is ongoing and will continue without remediation efforts. As such, we recommend a site investigation consisting of a combination of test pit and test boring explorations be performed to analyze the subsurface soils for potential causes of foundation distress, and to determine feasible options for foundation remediation.



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#### **4.0 CLOSURE**

It has been a pleasure to be of assistance to you with this phase of your project. We look forward to working with you as your project progresses.

Sincerely,

**S. W. Cole Engineering, Inc.**

Tyler S. Demers, P. E.  
Project Geotechnical Engineer

TSD:rec

## **APPENDIX A**

### **Limitations**

This report has been prepared for the exclusive use of the Rochester School District for specific application to the Nancy Loud Elementary School Site Assessment at 5 Cocheco Avenue in Rochester, New Hampshire. S. W. Cole Engineering, Inc. (S.W.COLE) has endeavored to conduct our services in accordance with generally accepted soil and foundation engineering practices. No warranty, expressed or implied, is made.

S.W.COLE's scope of services has not included the investigation, detection, or prevention of any Biological Pollutants at the project site or in any existing or proposed structure at the site. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and the byproducts of any such biological organisms.

Recommendations contained in this report are based substantially upon information provided by others regarding the proposed project. In the event that any changes are made in the design, nature, or location of the proposed project, S.W.COLE should review such changes as they relate to analyses associated with this report. Recommendations contained in this report shall not be considered valid unless the changes are reviewed by S.W.COLE.

## **APPENDIX B**

### **Photos**



Brick displacement along Southeast perimeter wall



Missing brick on Southern building corner





Southeast perimeter wall



Missing brick and brick displacement along Southeast perimeter wall





Interior view of Southeast perimeter wall



Floor joists along Southeast perimeter wall





Depression and brick displacement in central portion of building



Depression and brick displacement in central portion of building