ROBERT E. DALE
LIMITED
CONSULTING ENGINEERS

R. Geoffrey Dale

geoff@redaleltd.ca

Our File #-16-362

Lambton Kent District School Board

Building Services

476 McNaughton Avenue East

P. O. Box 1000

Chatham, Ontario
N7M 5L7

Attention: Mr. Andy Scheibli, P. Eng

Manager of Plant and Maintenance

Dear Sir;

As requested, please see attached our summary of structural items uncovered during our recent structural assessment of Sarnia Collegiate Institute and Technical School (SCITS), and St. Clair Secondary School (SCSS) presented as an executive summary.

S.C.I.T.S. Executive Summary

A structural review was completed at S.C.I.T.S. on March 14, 2016, to visually examine and evaluate the present condition and material physical deficiencies of the structural system of the building.

The following observations were noted:

- The suspended floor assemblies were reviewed and noted to be generally in good structural condition.
- The brick veneer for the building is in poor condition for a large portion of the school, and in very poor condition at the parapet. It has been reported that numerous bricks have become displaced, and have fallen. Numerous previous repairs and patches are evident, again, namely on the parapet. These patches are in varying states of disrepair, with some continuing to be structurally sound, and others having numerous issues. We recommend that

replacement of the brick assembly be forecast for the near future in the parapet area. Estimated costing for these repairs is expected to be in the order of $175,000 to $250,000.

- Numerous locations on the East side of the building show evidence of water infiltration into the wall assembly, namely with corrosion present on the window sills. In numerous areas, it is evident that water has been present in the cavity of the wall system, and during the winter months, has frozen, and expanded that area, causing displacement of the window sills, and numerous bricks. This should be repaired. Numerous sills and caps at the top of the parapet structure show evidence of deflection and shifting. There is evidence of water infiltration at the chimney structure at the northeast area of the structure. We recommend that repairs for these items be forecast for the near future. The costing for this is included in the brick repair estimate as noted above.
- It is further noted that the existing brick is starting to shale in minimal areas, and some spalling is present. There is also evidence that some efflorescence, although minor, is beginning to occur. The costing for this is included in the brick repair estimate as noted above.
- The interior wall assemblies appear to be generally in reasonable structural shape, however, there are many locations where settlement is present:
- The fact that settlement is being seen in this school after nearly 100 years, leads us to believe that ongoing, minor settlement of the structure can be expected. At this point in time, none of the settlement seen (outside of the pool area) appears to be a structural cause for concern. Please note that monitoring should be completed on an ongoing basis, to ensure that the cracking does not grow, or that the settlement does not increase. The only costing that is required to be allotted at this point in time for this is for routine monitoring.
- It is noted that structural concerns exist with the southerly wall of the pool structure. Presently, there is noticeable horizontal and longitudinal deflection of the wall assemblies, measuring approximately 7/8" – 1 1/4" over a 4'-0" length. Stress cracking is present at the mid height of this wall, which is the highest stress point of the wall. Step cracking is also present at the southerly wall near the east corner. The exterior grading adjacent to the southerly wall assembly is in very poor condition, and drainage patterns are presently blocked, which is allowing a buildup of water to be present on the exterior of this wall. Due to the difficult access to this location, repairs in this area, which should be allocated in the near future, should be budgeted for in the order of $1,000,000.
- It is also noted that horizontal deflection of the northerly wall is present, but to a lesser extent.
- There are two areas in the changerooms adjacent to the Pool that have exposed rebar, on being a 'slab' area, the other a 'beam' area, which are showing signs of corrosion. We estimate that repairs to this area should be less than $10,000.

429 Exmouth Street Suite 208 • Sarnia, ON • N7T5P1 • Ph: (519) 337.7211 • Fx: (519) 337.7213 • Website: www.redaleltd.ca

- A number of minor structural issues were noted within the basement structure of the building. The major issue encountered dealt with water infiltration into the basement, which has led to some of the wall and concrete slab assemblies being heavily corroded. Repairs to these areas are recommended. We estimate that repairs to this area should be less than $10,000.
- In a single location in the basement, an existing concrete column has been notched in two locations, which requires repair. We estimate that repairs to this area should be less than $3,000.
- Multiple areas of the existing masonry (block) walls in the basement have improperly constructed openings in them, with no lintels present. This has led to stress cracking of the masonry, specific to this area, and should be repaired. We estimate that repairs to this area should be less than $2,000.
- Areas of settlement are present in the Girls Changeroom area of the basement. At this point, these are minor in nature, and should be monitored similar to the previously noted settlement.
- A large opening has been improperly constructed in the mechanical room, and reinforcing steel has been cut and removed from this location. This has compromised the bearing support of the floor in this area, and should be repaired. We estimate that repairs to this area should be less than $2,000.
- At the receiving area, the retaining wall at the stairs to the basement has stress cracking present. This should be repaired. This repair should be budgeted to replace the wall structure, and repairs in the order of $10,000 to $15,000 should be anticipated.
- Due to difficulties in assessing the roof structure, due to materials used (concrete), no analysis or engineering calculations have been completed to determine capacity of the roof structure with respect to snow or snow drift loading. No stress cracking is evident at this point in time for the roof structure.
- TOTAL ESTIMATED REQUIRED STRUCTURAL REPAIRS: $1,287,000 +-

429 Exmouth Street Suite 208 • Sarnia, ON • N7T5P1 • Ph: (519) 337.7211 • Fx: (519) 337.7213 • Website: www.redaleltd.ca

ST. CLAIR HIGH SCHOOL Executive Summary

A structural review was completed at St. Clair High School on March 15, 2016, to visually examine and evaluate the present condition and material physical deficiencies of the structural system of the building.

The following observations were noted:

- The suspended floor assemblies were reviewed and noted to be generally in good structural condition, with no major structural defects seen.
- The brick veneer is in generally good condition, with some minor settlement noted.
- The existing exterior wall assembly is in good structural condition, with no visible signs of structural distress being present.
- There is evidence of some water infiltration at the windows on the east portion of the structure, above the roof line. This is in minor locations, and repairs to this should be less than $10,000.
- The interior wall assemblies appear to be generally in reasonable shape; however, there are many locations where settlement is present. The fact that settlement is being seen in this school after 50+ years, leads us to believe that ongoing, minor settlement of the structure can be expected. At this point in time, none of the settlement seen appears to be a structural cause for concern. Please note that monitoring should be completed on an ongoing basis, to ensure that the cracking does not grow, or that the settlement does not increase. The only costing that is required to be allotted at this point in time for this is for routine monitoring.
- The existing roof structure has been previously addressed and upgraded as part of a previous major capital project.
- There is a single masonry pilaster that requires repair in the South Gymnasium. Costing for this repair is to be in the order of $3,000.
- A large opening has been improperly constructed in the mechanical pump room in the rifle range area, and reinforcing steel has been cut and removed from this location. This has compromised the bearing support of the wall in this area, and should be repaired. We estimate that repairs to this area should be less than $2,000.
- TOTAL ESTIMATED REQUIRED STRUCTURAL REPAIRS: $15,000

429 Exmouth Street Suite 208 • Sarnia, ON • N7T5P1 • Ph: (519) 337.7211 • Fx: (519) 337.7213 • Website: www.redaleltd.ca

Should you have any further comments or questions, please feel free to contact our Office.

Respectfully submitted,

ROBERT E. DALE LIMITED, CONSULTING ENGINEERS

R. Geoffrey Dale

President

Robert E. Dale, B. A. Sc, P. Eng.

Senior Engineering Manager

429 Exmouth Street Suite 208 • Sarnia, ON • N7T5P1 • Ph: (519) 337.7211 • Fx: (519) 337.7213 • Website: www.redaleltd.ca