

JOHN T. DALESSIO, P.E., P.P.

LICENSED TO PRACTICE IN

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August 19, 2013

Union Township Board of Education
2369 Morris Avenue
Union, New Jersey 07083-5712

Attention: Mr. Tom Wiggins, Supervisor of Buildings and Grounds

Re: Proposal
Union Township Board of Education Administration Building/Maintenance Garage
Structural Evaluation

Dear Mr. Wiggins,

Based on our site visit of August 13, 2013, review of the building and review of building construction plans, I offer the following proposal for structural engineering services.

A. PROJECT DESCRIPTION

The Administration Building for the Union Township Board of Education was constructed in 1959. In 1960, an addition was constructed along the northerly elevation. The addition was for a maintenance garage. Since that date, there have been other additions constructed for the storage and servicing of school buses. The focus of this investigation is the exterior northerly wall of the 1960 building addition.

Currently, the addition is used for motor vehicle storage and storage of equipment and material. Along the northerly wall, at the northeast corner, there is a small shop area. There is an overhead door in the east wall and a personnel door in the north wall. This is approximately the third of the length of the north wall. The remaining two thirds of the length of the north wall are adjacent to a men's room and a women's room.

The roof deck is wood frame construction. The roof joists span in the east/west direction. Spanning across the addition in the north/south direction are deep steel beams. The steel beams are supported on interior brick masonry piers. At the north wall, there are shallow depth steel beams which span from the interior pier to the exterior wall. The shallow beams support the roof framing and the sheetrock finish of the ceiling.

The interior walls are constructed of various materials. The predominant material is concrete masonry unit. The interior walls are not load bearing. The interior finish of the shop area is painted masonry. The interior finish of the restrooms is glazed concrete masonry unit. It is not know whether it is a full depth block or a tile.

The north wall is a load bearing wall at discrete points to support the structural steel roof

beams. The wall construction is a double wythe. The exterior wythe is brick masonry. The interior wythe is concrete masonry unit. There is no cavity in the wall system. The wall is supported on a concrete strip footing. The footing is supported on the original grade.

As seen from the interior, there is cracking through the concrete masonry units. There is a step like crack at the interior concrete masonry unit wythe of the north wall adjacent to the shop area. This extends from the floor up most of the height of the wall.

Within the women's room, there is evidence of prior cracking and movement of the glazed finish concrete masonry units. One of these cracks has been repaired with mortar. An Avongard crack monitor has been placed across the crack. The crack monitor indicates that there has been up to a millimeter of movement.

Within the men's room, there are vertical and step cracks in both the interior concrete masonry unit wall and at the exterior concrete masonry unit wall. At the interior concrete masonry unit wall, the cracks are seen both within the men's room and in within the adjacent storage area. At the exterior wall, the cracks are seen in the concrete masonry unit and at the exterior brick masonry. There is horizontal, vertical and out of plane movement across the crack in the concrete masonry unit. The out of plane movement varies between $\frac{3}{8}$ " and $\frac{1}{2}$ ".

As seen from the exterior, the brick wythe has dropped. There is a pattern of cracking, which forms an arch, beginning at the entrance of the men's room, continuing up toward the roof and then back down to grade toward the door into the shop area. The greatest order of magnitude is at the expansion joint in the brick masonry. This expansion joint corresponds in location to the wall between the men's room and the women's room.

The specific cause of the movement of the north wall is not known. The first impression is that the movement is due to a failure of the soil below the footing. It is possible that a void developed in this area. It is possible that there was organic material below the footing which has decayed. It is possible that there has been long term consolidation of a clay substrate.

The focus of this investigation will be the determination of the cause of the movement and a preparation of report with recommendations for repair. A followup proposal will be presented for the preparation of construction drawings for the repair.

B. SCOPE OF ENGINEERING SERVICES

The Scope of Engineering Services shall include:

1. Initial site visit to review the overall condition of the building and perform a preliminary review of the construction plans.
2. Preparation of a document with recommendations and procedures for a site investigation, including exploratory work and removal of finishes. This will also include excavation of a test pit along the foundation.

3. A site visit to view the exploratory work including the digging of a test pit.
4. Review of documentation within the Union Township Board of Education files with respect to the construction of the building, maintenance of the building, modifications of the building and work in the adjacent area which might effect the subsoil condition.
5. A review of documents concerning the placement of the crack monitors.
6. Evaluation of the conditions found.
7. Preparation of a report with recommendations for remedial work.

C. INFORMATION TO BE PROVIDED

The following information shall be provided:

1. Access to the site for the site visits.
2. Access to the Union Township Board of Education files to review the construction plans, history of maintenance to the building, records with respect to the installation of the crack monitors and records with respect to any construction work in the area which would effect the subsoil condition.
3. Assistance of the Union Township Board of Education employees and/or a contractor to provide temporary shoring of the roof structure and walls prior to undertaking exploratory work.
4. Assistance of a Union Township Board of Education employees and/or a contractor to dig a test hole along the length of the wall to expose the footing and the subsoil condition.

Note: Depending on the results of the test hole, it may be necessary to retain a soils engineer to undertake additional testing of the soil condition.

D. WORK NOT INCLUDED

The following is not included in the Scope of Engineering Services:

1. Preparation of a topographic and boundary survey.
2. Preparation of a site plan.
3. Subsurface soil investigation with preparation of a geotechnical report with foundation recommendations.

4. Architectural, mechanical, electrical and plumbing design.
5. Removal of building finishes to inspect the substrate.
6. Removal of building materials for testing purposes.
7. Preparation of as-built plans of the building.
8. Preparation of construction drawings for the remedial work.
9. Construction management, supervision and inspection.
10. Site safety.

E. FEE

The Scope of Engineering Services shall be provided on a lump sum fee basis. The lump sum fee shall be \$3,000.

Work beyond the Scope of Engineering Services, or additional work requested by the client, will be provided on either an agreed upon lump sum fee basis or upon an hourly rate basis. The hourly rates are shown on the attached "2013 Rates and Insurance Schedule".

If this proposal is satisfactory to you please sign the copy on the space provided and return it to this office.

Thank you for the opportunity to present this proposal.

Very truly yours,



John T. Dalessio, P.E., P.P.
Lic. No. 19628

JTD/nha

I Concur _____ Date _____

JOHN T. DALESSIO, P.E., P.P.

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2013 RATES AND INSURANCE SCHEDULE

I. Billing Rates Inclusive of Payroll and Other Costs - Effective to and including December 31, 2013

- Principal.....\$140.00/hr
- Engineer.....\$120.00/hr
- Assistant Engineer.....\$110.00/hr
- Engineering Assistant.....\$ 100.00/hr

II Reimbursable Expenses

Reimbursable expenses include all identifiable costs directly chargeable to performance of services including, but not limited to, reproduction of drawings, specifications, and other documents; automobile mileage and travel costs to/from clients/project sites including overnight accommodations; application fees for local agencies; subcontracted services, express mailings, photography, videos, laboratory work, equipment rental, etc.

In-house expenses shall be reimbursed based on the following rate schedule:

- Copies (8½ x 11 to 11 x 17).....\$0.10/page
- Prints (large format).....\$ 0.50/sq.ft.
- Plotting (paper/vellum).....\$ 2.50/sq.ft.
- Plotting (mylar).....\$ 3.50/sq.ft.
- Mileage.....current IRS rate

Other reimbursable expenses which may be necessary to complete the work shall be reimbursed at the actual amount of the expense.

Subcontracted services shall be reimbursed at the actual amount of the subcontract expense times a multiplier calculated on the basis of 1.15 x the actual invoice amount.

III Billing

Unless otherwise agreed to by Contract, billing shall be monthly, payable fifteen (15) days after the invoice date. A service charge will be applied to all bills 30 days past due. The rate is 1.5% per month based upon an annual percentage of 18%.

IV Insurance - John T. Dalessio, P.E., P.P. Consulting Engineer carries the following general and professional liability insurance policies:

- Workers Compensation and Employers Liability.....\$1,000,000
- Commercial General Liability.....\$2,000,000
- Professional Liability.....\$1,000,000

Certification of insurance will be forwarded to a client upon request

Dated 1/1/13