

ACCURATE INFORMATION ON THE NEW WELLESLEY HIGH SCHOOL FOUNDATION By Michael Eby, Chair, Permanent Building Committee

Recent comments have been made on the foundation system of the proposed new Wellesley High School building. The following provides accurate information on this matter. The proposed foundation, a conventional system based on a comprehensive Geotechnical Evaluation Report, is comprised of the following:

- a combination of 14" thick reinforced, cast-in-place concrete walls on continuous strip footings, around the perimeter of the building, extending at least 4'-0" below finished grade;
- Individual spread footings at columns with allowable bearing pressures as recommended in the Geotechnical Evaluation Report.

The new Wellesley High School building is not required to be constructed on a pile foundation system based on the opinion of the architect and geotechnical engineers retained by the Town to design the foundation. They indicated this position at Town Meeting and continue to do so today.

The original 1938 High School building and the 1956 addition were in fact constructed on a pile foundation system, however all other additions, including the 1964 three-story science wing were constructed on a conventional foundation system. Less than 40% of the existing High School footprint is constructed on a pile foundation system.

The geotechnical engineer reviewed the soil boring logs found on the 1938 drawings. At the time the 1938 building was designed, the science of soil engineering was not advanced enough to understand the types of soils found on the site, much less calculate their effect. Large heavy buildings were routinely constructed on piles when soils of this nature were found. Building design and construction has evolved since 1938 in three significant ways: 1) the science of soils engineering has advanced; 2) building construction has become much lighter; and 3) the design of conventional foundation systems has become better understood. Consequently the latter building additions in 1963, 1964, 1979 and 2002 were all constructed on conventional foundations.

Since the question was brought up at the October Special Town Meeting and to be particularly cautious, the PBC again reviewed the foundation system with its architect. First, we directed the geotechnical engineer to re-calculate its foundation analysis. And second, we retained a second highly regarded geotechnical engineering firm, Haley & Aldrich, to perform an independent peer review of the foundation analysis. The re-calculation by the geotechnical engineer indicated that a conventional foundation system is appropriate. The geotechnical engineers are aware of the history of Hunnewell Field and of the area in general in the soil exploration work they have undertaken.

We offer the following detail to these findings. First, ten of the eighteen borings showed consistently granular material with good bearing and drainage characteristics and for which a conventional foundation system is appropriate.

Second, five of the eighteen borings showed a layer of organic material (peat), of which four were within the proposed building footprint. These borings are concentrated in the western most portion of the new school building, the gymnasium wing, and represent 20% of the building

footprint area. This layer varied in thickness from six inches to three feet and was located between three feet to eight feet below grade. This material has always been indicated to be excavated to firm natural ground and replaced with compacted structural fill. The construction budget is sufficient for this work and the conventional foundation system is appropriate for this area.

Third, six of the eighteen borings showed a layer of loose sands and silty sands, of which five were within the proposed building footprint. These borings, which are for the most part the same borings listed above for the peat, were also concentrated within the western most portion of the new school building. This layer varied between six feet and thirty-five feet in thickness. The conventional foundation system is being designed to take this soil type into account.

Lastly, statements made that the building will collapse if an earthquake were to occur are simply inaccurate according to our architect and its engineers. The geotechnical engineer has performed a liquefaction analysis, an engineering technology not available in 1938. Their findings show that the conventional foundation system exceeds the Massachusetts Building Code and is the most appropriate system for this building.

Our architect and consulting engineers have determined that the conventional foundation system is the correct system for this building. From the very beginning of the High School's design effort, the soils at the site and the appropriate foundation system have been a central element of the PBC's design, working closely with the Town's architects and engineers. The foundation system at the gymnasium wing will remain in our focus over the course of detailed design and should any new information indicate a different approach to this wing, we have sufficient contingency to implement any such approach.. The PBC will continue to work with its consultants to construct a safe and well built new High School for the Town of Wellesley and do whatever is necessary to achieve that goal, which is always how the PBC undertakes its projects. The new Wellesley High School design is no exception.