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31 State Street  
8th Floor  
Boston, MA 02109  
T: 617.963.1000

www.gza.com



October 18, 2017  
File No. 01.0172642.20

Ms. Maria Morelli  
Planning and Community Development  
Town of Brookline  
333 Washington Street  
Brookline, MA 02445

Re: Response to Fuss & O'Neill Letter to Town of Brookline  
Proposed 6-Story Residential Structure  
107-111 Cypress Street  
Brookline, Massachusetts 02445

Dear Ms. Morelli:

On behalf of 107-111 Cypress Street Realty Trust (Applicant), GZA GeoEnvironmental, Inc. (GZA) has prepared this letter responding to the issues raised in the Fuss & O'Neill "Environmental Technical Review" letter to the Town of Brookline dated August 16, 2017 regarding the above referenced project. In their letter, Fuss & O'Neill recommended that the Applicant provide a Soil Management Plan, a Dewatering Plan, a Bedrock Excavation Plan and a Public Safety plan. This letter addresses concerns raised by Fuss & O'Neill and describes the main elements in each of the plans.

## BACKGROUND

GZA previously performed a preliminary geotechnical evaluation dated March 9, 2016 for the above-referenced Site. As part of that work, we performed four borings and performed a limited amount of soil and groundwater testing. We understand that the lowest level of the proposed 6-story residential building will be at about El. 43.5, compared to existing pavement grades south of the existing building of approximately El. 54 to 57 and Cypress Street at about El. 60 to 63. The project is currently undergoing permitting review by the Town of Brookline and its consultants.

Elevations cited in this letter are in feet and referenced to the Town of Brookline Datum (6.6 Town of Brookline datum= 0.0 NAVD).

## RESPONSES TO REQUESTED INFORMATION

### Soil Management Plan

It is anticipated that excess soil will be generated during foundation and utility construction that will require off-Site disposal. The project specifications will include a soil management specification that will include soil classifications for off-Site disposal, soil stockpiling criteria, and soil tracking requirements.

Soils will be characterized for off-Site disposal. We anticipate that several samples will be collected and analyzed prior to construction in conjunction with a second round of geotechnical explorations performed for project design. However, due to the presence of the on-Site building, additional sampling and analyses will not be completed until after the building is demolished. These samples will be obtained from either borings/test pits/GeoProbes or, to a limited extent, from on-Site stockpiles. We anticipate one suite of environmental testing for every 500 cubic



yards (CY) of soil to be disposed of off-Site, but we are prepared to conduct more frequent testing as required by the disposal facility or facilities, and as dictated by analytical results.

Soils will be disposed of at appropriately licensed facilities and will be tracked by either Massachusetts Department of Environmental Protection (MassDEP) Material Shipping Records (MSRs) or Bills of Lading (BOLs), as appropriate. Disposal facilities are anticipated to include Massachusetts or out-of-state landfills, or "RCS-1" facilities, assuming that the soils meet the criteria for such facilities. At this time, the names/locations of facilities where excess soil will be disposed are not known since the chemical constituents in the soil to be disposed of are unknown, as is the availability/capacity of individual disposal facilities.

The limited testing to date has not indicated constituents in soil or groundwater at levels regulated by the Massachusetts Contingency Plan (MCP). However, if exceedances are detected that warrant notification, then the MassDEP will be notified and the appropriate response actions taken under the supervision of a Licensed Site Professional (LSP) in accordance with the MCP. Such response actions may include either Preliminary Response Actions or Comprehensive Response Actions as warranted by Site conditions and the construction schedule, as is typical with these types of projects.

### **Dewatering Plan**

The lowest slab level of the proposed structure will be about El. 43.5, which is above the stabilized groundwater level measured following our geotechnical exploration program and above groundwater levels measured by others at the adjacent Mobil station. Groundwater was measured at about El. 40 in the monitoring well installed at boring GZ-1 approximately two weeks after the well was installed; the well was dry when measured on October 16, 2017 indicating the groundwater level was below El. 36.5 at that time. Based on data presented in reports prepared by ATC and filed with the MassDEP for the adjacent Mobil station, groundwater levels in off-Site wells in the northwest portion of the Mobil station (that is, the area closest to the Applicant's property) have varied between approximately El. 38 and 42 between 2011 and May 2017.

Based on the data gathered to date, dewatering should not be required to construct the general building excavation. However, dewatering will be required for localized footing excavations which may extend up to about 4 feet below the slab (to about El. 39.5), for deeper utility construction, and to remove precipitation which enters the excavations. Based on the available data, it is anticipated that this can be achieved with localized sumps and pumps, and thus should not significantly impact off-Site groundwater flow direction or contours. Once final building grades have been set, additional borings conducted with wells installed, and additional on-Site groundwater measurements obtained, the likely extent of construction dewatering will be further assessed.

During construction, limited amounts of pumped water may be discharged to on-Site excavations outside of the proposed building area. Larger flows will require off-Site discharge. When off-Site discharge to the local storm drain system is required, groundwater testing will be performed and the appropriate local, state and/or federal permits will be obtained.

Additional monitoring wells will be installed and groundwater levels further assessed as part of final design. Even if measured groundwater levels are below the proposed slab, there is the potential of groundwater levels rising to above slab level in the future. Thus, the building will be either be designed to resist groundwater pressures so that permanent pumping is not required, or a slab underdrain will be installed to handle temporary rises in the groundwater table. We understand that an underdrain may be considered if measured levels are close to the proposed slab elevation and if groundwater modeling shows that an underdrain would not result in contaminants from the adjacent Mobil station entering the underdrain system. Any permanent discharge would be subject to local, state and/or federal regulations.

### **Bedrock Excavation Plan**

Bedrock was not encountered within the GZA borings previously conducted at the Site. The borings extended to approximately El. 32.5 to 42.5, except for boring GZ-3 which was terminated due to the potential presence of a utility. Thus, based on the borings to date, bedrock excavation is not anticipated to be required to construct the general building excavation.



Additional borings will be conducted during final design to further evaluate subsurface conditions and the potential for encountering rock. If localized zones of bedrock are encountered, we expect that an excavator with a hoe ram attachment will be used to remove the bedrock, and limit off-Site vibrations resulting from the rock removal. Vibration limits will be set in the project specifications to protect off-Site structures and utilities and, in the event that rock removal is required, vibration monitoring will be performed. The project specifications will also make the contractor responsible for damage to off-Site structures and utilities that results from the contractor's activities. We understand that the Applicant does not plan to conduct blasting at the Site.

### Public Safety Plan

A temporary lateral earth support system will be required during excavation to protect adjacent structures, utilities, roadways and sidewalks. Project-specific specifications will be developed requiring that the lateral earth support system be designed by a Professional Engineer registered in the Commonwealth of Massachusetts and installed by a contractor experienced in lateral earth support construction. Project specifications will require that the lateral earth support system be designed to support applicable earth pressures, temporary and permanent surcharge loads (such as traffic loads), construction equipment loads, and other surcharge loads. The specifications will also require that the earth support system be monitored for movement so that if excessive movement occurs, resulting in potential damage to off-Site facilities occurs, appropriate steps can be taken to address the situation.

We also understand that the Applicant will require the contractor to provide Site safety protocols and hazard mitigation processes prior to the start of construction. The contractor is responsible for securing the Site, including fencing to avoid trespassers and help protect the public from Site activities.

Please do not hesitate to contact the undersigned if you have any questions.

Very truly yours,  
GZA GEOENVIRONMENTAL, INC.

A handwritten signature in blue ink that reads 'Jahan Khalili'.

Jahan Khalili, P.E.  
Assistant Project Manager

A handwritten signature in blue ink that reads 'David E. Leone'.

David E. Leone, LSP  
Associate Principal

A handwritten signature in blue ink that reads 'Mary B. Hall'.

Mary B. Hall, P.E.  
Senior Principal

cc: David Anderson (107-111 Cypress Street Realty Trust)  
Joseph Penney (DiPrete Engineering)  
Hans Strauch (HDS Architecture)