



TOWN of BROOKLINE
Massachusetts

BUILDING DEPARTMENT

Daniel Bennett
Building Commissioner

TO: Selectboard/ School Committee

FROM: Ray Masak, PE Project Manager

SUBJECT: Brookline High School- Amendment 14
Design Services (FY 19)

DATE: February 13, 2020

On the Calendar this week, the Building Department is requesting the approval of an amendment for designer services for the subject project in the total amount of \$97,900.

The appropriation for this contract was approved by Town Meeting as part of the overall CIP for FY19. This amendment is for design services involving the need for additional geotechnical support for the overall project. Refer to the Hill memo dated February 10, 2020 and the Rawn memo dated February 4, 2020 for further explanation of services.

The Building Department will be available on Tuesday evening to answer any questions. Thank you for your consideration.

TOWN OF BROOKLINE
333 Washington Street, Brookline, Massachusetts 02445

PURCHASE ORDER CHANGE FORM

INVOICE DATE: 10-Feb-20

TO:	William Rawn Associates, Architects, Inc 10 Post Office Square, Suite 1010 Boston MA 02109
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Purchase Order Number

21803108

Vendor Number

53540

PAYMENT AMOUNT

\$97,900.00

BUDGET 14,838,648.00
BALANCE 8,785,622.22

FUND	ORGANIZATION	ACTIVITY	OBJECT
	2594C204		524003

FOR: Brookline High School Expansion

Amendment	Date	
14	2/4/2020	Additional Services - Geotechnical Services

AMOUNT
\$97,900.00

BUILDING COMMISSION

APPROVAL OF:

Janet Fierman, Chairman

George Cole

Kenneth Kaplan

Karen Breslawski

Nathan E. Peck

SELECT BOARD

APPROVAL OF:

Bernard W. Greene, Chairman

Benjamin J. Franco

Nancy S. Heller

Heather Hamilton

Raul Fernandez

SCHOOL COMMITTEE

APPROVAL OF:

Mary Ellen Normen, Assistant Superintendent For Administration and Finance

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HILL
Hill International

Hill International, Inc.
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Needham, MA 02494
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Fax: 617-778-0999
www.hillintl.com

February 10, 2020

Mr. Ray Masak, P.E.
Project Manager
Town of Brookline Building Department
333 Washington Street
Brookline, MA 02445

Re: William Rawn Associates Amendment 14

Dear Ray:

Attached please find a proposal and Amendment 14 for additional geotechnical engineering services. This work will be performed by McPhail Associates, the geotechnical engineer of record through William Rawn Associates (WRA).

Scope #1: Additional Geotechnical Engineering Services for Construction Administration Projects H

The helical piles and drilled mini-piles for the platform and catenary foundation systems require continual special inspections by a Geotechnical Engineer per building code requirements, as detailed in the proposal from WRA/McPhail. McPhail further clarified to Hill that the weekly rate of \$5,500 can cover day or night shift work.

Scope #2: Additional soil profiles requested by Skanska

In order to expedite soil export operations and maintain scheduled work flow through the use of multiple or back-up soil disposal sites, Skanska requested that (12) additional soil profiles be generated by McPhail. This scope item reflects the cost for McPhail to prepare and submit these (12) soil profiles.

Scope #3: Additional Construction Administration related Geotechnical Engineering Services for Projects A (Cypress Building) and Project C (STEM Wing)

McPhail's base scope for Projects A and C included construction services for an estimated (20) weeks during Skanska's sitework and foundation activities. Skanska's recent schedule update extended these sitework and foundation activities to a total duration of (29) weeks. However, an extension of overall duration for sitework and foundation activities may not warrant an extension of services for McPhail, as they may have been utilizing the same amount of resources and subsequent cost, simply over a longer period of time. As such, Hill asked McPhail to first advise on their historical "burn rate" for services over this twenty week period. McPhail reported that their historical "burn rate" of services over a three month period is between \$5,100 - \$5,900 per week, substantiating their initial base services estimate of \$5,500 per week for (20) weeks. Given this information and analysis, Hill is in support of this scope item.

The attached letter from WRA dated February 4, 2020 and the supporting proposal from McPhail provides additional detail for this work. Hill recommends approval of the \$97,900.00 Amendment 14.

Sincerely,



Ian Parks
Senior Project Manager

cc. A. Jonic - WRA, T. Guigli - ToB

WILLIAM RAWN ASSOCIATES | Architects, Inc.

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Boston, MA 02109
t. 617.423.3470
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Ray Masak
Project Manager
Town of Brookline Building Department
Brookline Town Hall
333 Washington Street
Brookline, MA 02445

February 4, 2020

Project Name: Brookline High School Expansion Project

Re: Contract Amendment #14 - Additional geotech
services \$97,900

Dear Ray,

The following additional service proposal for Geotechnical Engineering services for Project H (MBTA Platform + OCS), Project A (Cypress Building), and Project C (STEM Wing) has been broken into the following distinct scopes of work for clarity.

Scope #1: Additional Geotechnical Engineering Services for Construction Administration Projects H

Scope #2: Additional soil profiles requested by Skanska

Scope #3: Additional Construction Administration related Geotechnical Engineering Services for Projects A (Cypress Building) and Project C (STEM Wing)

Scope #1: Continuous Special Inspections by a Geotechnical Engineer for Project H (MBTA OCS Foundations and MBTA Platform)

Per building code requirements, a geotechnical engineer is required to provide continual special inspections of mini-piles and helical piles (see code language in Scope #3 below). The Overhead Catenary Support (OCS) steel portal foundations include mini-piles and the platform foundation consists of helical piles. McPhail has already provided third party installation and loading inspections on good faith for OCS foundations as authorized by Hill International. We have not asked AECOM for a proposal because their geotechnical engineering proposal for environmental soil analysis was significantly higher than McPhail's and anticipate a similar outcome.

OCS Foundations (drilled mini-pile test pile, load test, and production pile installation): 2 weeks

Helical Pile Installation – Eastern portion of the new platform: 4 weeks

Helical Pile Installation – Western portion of the new platform: 4 weeks

Total: 10 weeks @ \$5,500 per week

- McPhail Fee: \$55,000
 - WRA Admin (10%): \$5,500
- Scope #1 Total Fee: \$60,500**

Scope #2: Preparation of additional facility disposal profiles for off-site disposal

Additional services fee for the preparation of (12) additional soil profiles at the request of the Construction Manager (Skanska).

- | | |
|---------------------------------------|-----------------|
| • McPhail | \$12,000 |
| • William Rawn 10% Administration Fee | \$1,200 |
| Scope #2 Total: | \$13,200 |

Scope #3: Increased Time on Site for Continuous and Periodic Special Inspections by the Geotechnical Engineer at the Cypress Building (Project A) and STEM Wing (Project C)

There are two State of Massachusetts requirements (IBC 2015) for on-site special inspections by a licensed geotechnical engineer:

Code Requirement #1: Continuous Special Inspections

Table 1705.6 Required Special Inspections and Tests of Soils

4. Verify use of proper materials, densities, and lift thicknesses during placement and compaction of compacted fill.

Table 1705.7 Required Special Inspections and test of Driven Depp Foundation Elements

1. Verify element materials, sizes and lengths comply with the requirements.
2. Determine capacities of test elements and conduct additional load tests, as required
3. Inspect driving operations and maintain complete and accurate records for each element.
4. Verify placement locations and plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and document any damage to foundation element.

Table 1705.8 Required Special Inspections and Tests of Cast-in-Place Deep Foundation Elements

1. Inspect drilling operations and maintain complete and accurate records for each element.
2. Verify placement locations and plumbness, confirm element diameters, bell diameters (if applicable), lengths, embedment into bedrock (if applicable), and adequate end-bearing strata capacity. Record concrete grout volumes.

Code Requirement #2: Periodic Special Inspections

Table 1705.6 Required Special Inspections and Tests of Soils

1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity
2. Verify excavations are extended to proper depth and have reached proper material
3. Perform classification and testing of compacted fill materials.

5. Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.

Table 1705.8 Required Special Inspections and Tests of Cast-in-Place Deep Foundation Elements

3. For concrete elements, perform tests and additional special inspection in accordance with Section 1705.3.

McPhail's March 23, 2018 proposal for construction phase services for Projects A and C was based on a total duration of 20 weeks for these requirements. McPhail did not have the benefit of reviewing a detailed construction schedule when preparing their proposal.

Although unavailable to McPhail at the time of their March 23rd proposal, it is worth noting that the durations for earthwork improvements and foundations have been extended significantly when comparing Skanska's September 2018 schedule (9/5/2019 run date) and their current January 2020 Schedule (1/16/2020 run date). The duration for Cypress building sitework and foundations has increased by 12 weeks. The duration for STEM Wing sitework and foundations has increase by 4 weeks.

Project A Cypress Building Sitework and Foundations

September 2018 Schedule

September 10, 2019 to January 10, 2020

Duration: 4 months (17 weeks)

January 2020 Schedule

September 6, 2019 to March 31, 2020

Duration: 6 months (29 weeks)

Duration Increase: 12 weeks

Project C STEM Wing Sitework and Foundations

September 2018 Schedule

September 27, 2019 to November 25, 2020

Duration: 2 months (9 weeks)

January 2020 Schedule

November 8, 2019 to February 5, 2020

Duration: 6 months (13 weeks)

Duration Increase: 4 weeks

McPhail is requesting additional services for an additional 22 weeks of on-site time in addition the 10 Project H weeks listed above. Upon their initial review of McPhail's proposal, Hill International questioned the +\$100k fee increase above and beyond McPhail's original proposal for Projects A and C. We recommend approval of 4 additional weeks of time on site as part of this Contract Amendment in order to maintain their efforts in the field. We can assess the need for additional time on site on a monthly basis going forward.

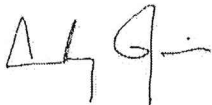
4 weeks @ \$5,500 / week = \$22,000

- | | |
|---------------------------------------|-----------------|
| • McPhail | \$22,000 |
| • William Rawn 10% Administration Fee | \$2,200 |
| Scope #1 Total: | \$24,200 |

TOTAL ADDITIONAL SERVICE FEE: \$97,900

Please let us know if you have any questions or comments. Upon approval of this additional service will submit formal paperwork (Attachment F).

Regards,



Andy Jonic, AIA
Senior Associate
William Rawn Associates, Architects Inc.
Attachments: McPhail Additional Service Proposal dated January 28, 2020
McPhail Original Proposal dated March 23, 2018