



CERTIFICATE OF APPROPRIATENESS APPLICATION FORM

Incomplete applications will not be processed for Commission review.
Please print legibly.

1. **HISTORIC NAME OF PROPERTY OR HISTORIC DISTRICT:** (if known)
Concordia Historic District - Wgema Campus (Former Concordia Campus) Wgettha (Albrecht Hall & Library)
ADDRESS OF PROPERTY:
3138 W. Kilbourn Ave., Milwaukee, WI 53203

2. **NAME AND ADDRESS OF OWNER:**
Name(s): Forest County Potawatomi Community c/o: Wgema Leasing
Address: 3215 West State St., Suite 300
City: Milwaukee State: WI ZIP: 53233
Email: tdevine@potawatombdc.com
Telephone number (area code & number) Daytime: (414) 290-9400 Evening: (414) 290-9400

3. **APPLICANT, AGENT OR CONTRACTOR:** (if different from owner)
Name(s): Quorum Architects, Inc.
Address: 3112 W. Highland Blvd.
City: Milwaukee State: WI ZIP Code: 53208
Email: chris@quorumarchitects.com
Telephone number (area code & number) Daytime: (414) 265-9265 Evening: (414) 265-9465

4. **ATTACHMENTS:** (Because projects can vary in size and scope, please call the HPC Office at 414-286-5712 for submittal requirements)
 - A. **REQUIRED FOR MAJOR PROJECTS:**
 - X Photographs of affected areas & all sides of the building (annotated photos recommended)
 - X Sketches and Elevation Drawings (1 full size and 1 reduced to 11" x 17" or 8 1/2" x 11")
A digital copy of the photos and drawings is also requested.
 - X Material and Design Specifications (see next page)

 - B. **NEW CONSTRUCTION ALSO REQUIRES:**
 - _____ Floor Plans (1 full size and 1 reduced to a maximum of 11" x 17")
 - _____ Site Plan showing location of project and adjoining structures and fences


**PLEASE NOTE: YOUR APPLICATION CANNOT BE PROCESSED UNLESS
BOTH PAGES OF THIS FORM ARE PROPERLY COMPLETED
AND SIGNED.**

5. DESCRIPTION OF PROJECT:

Tell us what you want to do. Describe all proposed work including materials, design, and dimensions. Additional pages may be attached.

See attached project description dated 6/18/2015.

6. SIGNATURE OF APPLICANT:



Signature

Chris Hau, Quorum Architects, Inc.

Please print or type name

6/18/2015

Date

This form and all supporting documentation **MUST** arrive by 12:00 noon on the deadline date established to be considered at the next Historic Preservation Commission Meeting. Any information not provided to staff in advance of the meeting will not be considered by the Commission during their deliberation. Please call if you have any questions and staff will assist you.

Hand Deliver or Mail Form to:
Historic Preservation Commission
City Clerk's Office
200 E. Wells St. Room B-4
Milwaukee, WI 53202

PHONE: (414) 286-5722

FAX: (414) 286-3004

www.milwaukee.gov/hpc

Or click the **SUBMIT** button to automatically email this form for submission.

SUBMIT

6/18/2015

Attention: City of Milwaukee Historic Preservation Commission

RE: Project Name: Wgema Campus – Wgetthta Buildings
Concordia Historic District (Former Concordia Campus)
3138 W. Kilbourn Ave., Milwaukee, WI 53203
Quorum Architect's Project Number: 05015.01



Description of Project:

The project consists of exterior stabilization to two buildings located on the former Concordia College Campus, now known as the Wgema campus. The two buildings Albrecht Hall and The Library have been renamed Wgetthta by the Forest County Potawatomi Community. The intent of this scope of work is to stabilize the exterior of the building as identified in the drawings dated 5/29/2015. This work consists of:

- Tuckpointing and repair of masonry and Indiana Limestone (Albrecht & Library)
- Cleaning of masonry to remove grime and efflorescence (Albrecht & Library)
- Replacement of steel lintels that are severely corroded and show signs of rust-jacking (Library)
- Flat roof replacement and re-building of partial parapet (Library)
- Minor roofing and flashing repair to match existing materials and details (Albrecht)

Albrecht Hall Masonry consists of a tan iron-spot brick, laid in a common bond pattern, with colored mortar butter joints. The existing brick units are predominately good conditions with the exception of spot areas of spalling and staining along the water table and at downspout locations. These areas also show signs of efflorescence and sub-florescence due to high levels of moisture infiltration. The existing mortar is decomposed from high moisture levels and large voids are present. The proposed plan is to cut and repoint 100% due to mortar loss. Repointing defective mortar will be accomplished by duplicating the original in composition, color, joint style, texture and strength. The mortar joints are approximately 3/16" thick. Field construction mock-ups are required for mortar repointing. The existing mortar for Albrecht Hall has been sent out for testing to the US Heritage Group and has been included as an attachment.

Indiana limestone comprises the quoins, coping, sills, miscellaneous trim and ornament. These are predominantly in good condition with the exceptions of spot areas of spalling or fractured limestone noted on the drawings. Spalled limestone will be patched using restoration mortars to repair spalled units as noted on the drawings. Field construction mock-ups are required for stone patching with stone repair mortar.

The existing masonry will be cleaned utilizing the gentlest method possible. On-site testing in small areas will validate product selection. Efflorescence will be neutralized.

Library Masonry consists of a red face brick in a wide color range, laid in a common bond pattern. The existing brick units are predominately good conditions with the exception of spot areas of spalling and staining as noted on the drawings. Mortar is severely decomposed below the window sills and at several window heads as noted on the drawings. The proposed plan is to cut and repoint only at the mortar joints located just below the sills and at the replaced steel lintels as noted on the drawings. Repointing defective mortar will be accomplished by



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duplicating the original in composition, color, aggregate, joint style, tooling profile, texture and strength. Field construction mock-ups are required for mortar repointing.



Indiana limestone comprises the quoins, coping, sills, miscellaneous trim and ornament. These are predominantly in good condition with the exceptions of spot areas of spalling or fractured limestone noted on the drawings. Spalled limestone will be patched using restoration mortars to repair spalled units as noted on the drawings. Field construction mock-ups are required for stone patching with stone repair mortar.

The existing masonry will be cleaned utilizing the gentlest method possible. On-site testing in small areas will validate product selection. Efflorescence will be neutralized.

Library Roof / Parapet: The existing flat roof on the Library will be replaced. The existing flat roof membrane has had a spray-on urethane insulation installed over the existing membrane roof. Both systems are past their serviceable life and will be removed. The existing roofing systems run up the inside face of the parapet. The new roof will match the old flat roof in size and shape. The original color of the roof is unknown. The new flat roof material proposed is a .080 inch thick white reinforced TPO (Thermoplastic Polyolefin) roofing material that will be installed over new rigid insulation that will slope to four existing roof drains in the four corners of the building.

The existing South and East parapets are unstable and require rebuilding down to the top limestone belt course. The proposal is to replace these segments of the parapet that are leaning and twisted in kind to match the existing construction of the adjacent parapets. The reconstruction will follow the existing constitution to be confirmed once the roofing is removed from the roofside of the parapet face. The face brick detailing will be documented and replicated in the reconstruction (coursing, details, balustrades, spacing, etc.) Brick from the existing parapets will be salvaged for reuse on the exterior sides of the parapets. Any new brick required (if salvaged units from the building are insufficient) will consist of matching brick. Brick mortar will match the original in composition, color, aggregate, joint style, tooling profile, texture and strength. All original Indiana limestone coping units and decorative stone will be carefully stored during the work and reinstalled at their original locations. Various limestone coping requires replacement in kind as the segments are fractured and spalled beyond repair, see drawings for specific locations.

Albrecht Hall Roof: Existing steel Ventilator Caps on the roof of Albrecht Hall will be re-furbished. Severely corroded elements will be patched to match adjacent material, construction and detailing. Corrosion will be removed by soda blasting the entire metal unit. Once corrosion has been removed, the metal will be primed and finished with a rust-inhibitive primer and paint. Minor roof repair and patching of the existing red asphalt singles to match adjacent is planned and is noted on the attached drawings.

Sincerely,

A handwritten signature in black ink that reads "Chris Hau". The signature is written in a cursive, flowing style.

Chris Hau, Associate AIA
Project Manager
Quorum Architects, Inc.

Attached: Custom Mortar Matching Report from US Heritage Group dated 2/23/2012



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Custom Mortar Matching Report

USHG Project: #12-006

Analysis Date: 2/23/2012 thru 2/28/2012

Client: Donna Weiss, Kubalá Washatko Architects

W61 N617 Mequon Ave, Cedarburg, WI 53217

Phone: 262-377-6039

Client Requirements: Match Mortar / Package B

Mortar Dated: 1901

INTRODUCTION

The findings and recommendations presented in this report are premised on the results of tests performed on three mortar samples delivered to our laboratory on February 21, 2012.

The scope of testing was limited to the determination of the physical mix proportions of the major ingredients used in the mortar samples. The testing included visual examination, both with and without magnification, as well as analysis of the aggregate color, particle shape and grain size distribution.

The sample's physical characteristics, original date of construction, and guidelines from the U.S. Department of the Interior National Park Service were used to determine the proposed mortar component recommendations as well as the aggregate ratios for the replacement mix.

U.S. Heritage Group interpreted and adjusted the proposed mortar formulation based on the information provided to us regarding: current site conditions; present conditions; type of masonry; the function of the replacement mortar; and the degree of weather exposure. Assuming the samples provided are representative of the original mortar, the analysis and mortar-matching diagnosis detailed in this report will give a reliable indication of the original ingredients and allow U.S. Heritage Group to recommend historically correct replacement mortars for the Olney Friends School exterior masonry restoration project.

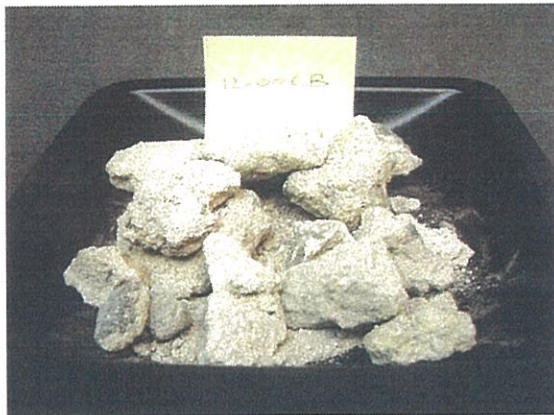
SAMPLES

Three individually packaged mortar samples were received for analysis. Each bag contained mortar pieces extracted from different locations on the building.

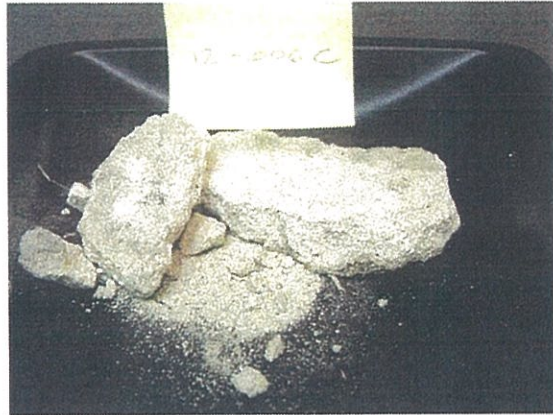
The samples were identified in our laboratory as:



USHG 12-006A
Exterior Iron Spot Face Brick mortar,
Butterjoint



USHG 12-006B Interior Limestone Foundation



USHG 12-006C Exterior Limestone Foundation

PRELIMINARY TESTING

Following preliminary cleaning U.S. Heritage Group technicians visually examined received mortar pieces. Both samples from limestone foundation were similar in texture and color. Sample from face brick appeared to be made with finer aggregate and addition of red pigment. Next we broke each mortar piece in half to see if lime inclusions are formulated within mortar mass and to check possible contamination from previous repair. Cross sections of each sample were consistent in color and texture showing no presence of different material. Different sized lime inclusions were discovered in all three mortar samples.

Next we compared each sample against other mortars of a similar age and appearance by measuring their relative compression resistance. Direct pressure testing revealed that the compression resistance of all three samples is around low to medium strength. This suggests they may contain a hydraulic component.

AGGREGATE ANALYSIS

Technicians next crushed each sample and chemically removed the binder from the aggregate using a dilute acid solution. After drying the aggregate, it was viewed under 40X magnification to determine the characteristics of the particles. A sieve separation process established the distribution of aggregate particles by a percent of total weight. We prepared gradation charts for each sample to graphically display the color, shape and size of the aggregate particles. The aggregate sieve sizes requisite in ASTM C144 meet ASTM E11 specification requirements. The sand weight retained on each testing sieve was as follows:

Samples:	12-006A	12-006B	12-006C
Testing Sieve Size	% of sand retained		
4.75mm, No. 4	0.0	0.0	0
2.36mm, No. 8	0.0	1.3	0
1.18mm, No. 16	2.3	2.7	1.8
600micro, No. 30	3.5	9.4	5.4
300micro, No. 50	11.6	31.3	26.3
150micro, No. 100	54.7	41.8	50.4
75micro, No. 200	27.9	13.5	16.1
Total sand weight	100%	100%	100%

Sand grain distribution charts illustrating the sands isolated from each sample are attached.

Based on the particle color and shape similarities it appears that the sand extracted from all three mortar samples was originally obtained from the same source. The material is classified as fine to medium sized aggregate. The aggregate appears to be round and sub-round in shape. Under magnification, the majority of the aggregate is transparent buff with gray particles scattered throughout the material. Binder in brick mortar sample appears to be pigmented into red color and has small in size white lime inclusions. The binder in both mortar samples from limestone foundation has light buff/gray color with white medium size lime inclusions.

BINDER TO AGGREGATE RATIO

Amount of binder in each mortar sample was established using wet chemical process.

All samples indicated high binder content in a range above 50% of the total weight. This mix design would be considered a binder-rich formulation. The results of this calculation can be affected by the presence of calcium carbonate in the aggregate which would have been dissolved out during the chemical wet process. This factor was considered in the evaluation of the proposed replacement formulation.

Sample	12-006A	12-006B	12-006C
Binder	65%	53%	53%
Aggregate	35%	47%	47%

SUMMARY OF TEST RESULTS

Direct pressure testing indicates low to medium compressive strength for all mortar samples. The material reaction noted during the wet chemistry process suggests presence of a hydraulic binder only in two samples representing "limestone foundation mortar". Brick mortar sample did not indicate presence of cement in their mix composition.

These results, coupled with the samples' appearance, suggest that mortar used in brick wall masonry was originally mixed using a non-hydraulic slaked lime putty, and sand with no cement.

Mortar used for limestone foundation masonry appears to similar to Type O mortar formulation made with portland cement, slaked lime putty and sand. Mortars mixed with lime putty typically leave traces of lime inclusions that were identified in these samples and hydrated lime in bags was not available on the market until 1930.

PROPOSED REPLACEMENT MIX

In light of these findings and the intended use of the replacement material, U.S. Heritage Group recommends the following mortar formulations:

Brick wall Masonry: (1:2.5)

1 part lime putty and 2.5 parts sand selected from the USHG sand library. Mineral-based color pigments were used to match the original color.

Note: Masonry work using this formulation must be completed 45 days prior to freeze thaw cycles occurring. Do not perform any masonry work unless air temperatures are between 40 degrees Fahrenheit (10 degrees Celsius) and 95 degrees Fahrenheit (32 degrees Celsius) and will remain so for at least 5 weeks after the completion of the work.

Limestone Foundation Masonry: (1:2:8)

1 part portland cement, 2 parts slaked lime putty and 8 parts sand selected from the USHG sand library. Mineral-based color pigments were used to match the original color.

This mix design would fall under the classification "Type O" in ASTM C270. The portland cement should be white in color and meet ASTM C150; the non-hydraulic slaked lime putty should meet ASTM C1489. Type O formulation made with lime putty is suggested for its flexibility, adequate compressive strength and compatibility to the substrate.

Note: Masonry work using this formulation must be completed 21 days prior to freeze thaw cycles occurring. Do not perform any masonry work unless air temperatures are between 40 degrees Fahrenheit (10 degrees Celsius) and 95 degrees Fahrenheit (32 degrees Celsius) and will remain so for at least 3 weeks after the completion of the work.

Above recommendations were made in accordance with Preservation Brief 2:

"The new mortar must be as vapor permeable and as soft or softer (measured in compressive strength) than the historic mortar."

JOBSITE MOCK-UP SAMPLE

U.S. Heritage Group will prepare 10-pound site-ready replacement mortar samples to be field-tested through a jobsite mock-up. The mock-up sample should be installed by a qualified craftsperson who understands the curing and application details of traditional lime mortars. Once the mock-up sample is installed, appropriate precautions should be taken to ensure that the mortar is protected from wind, sun, rain and frost to enable slow curing to take place.

Thank you for seeking our advice and entrusting these important details to U.S. Heritage Group. We are always available to discuss these findings with you in detail. Please contact me directly at 773-286-2100 x307 if you have any questions.

We look forward to providing you with a custom, ready-to-use, historically correct mortar for your project.

Respectfully,
U.S. Heritage Group, Inc.

A handwritten signature in black ink, appearing to read 'Tom Glab', is written over a horizontal line. The signature is stylized and cursive.

Tom Glab
Laboratory Manager

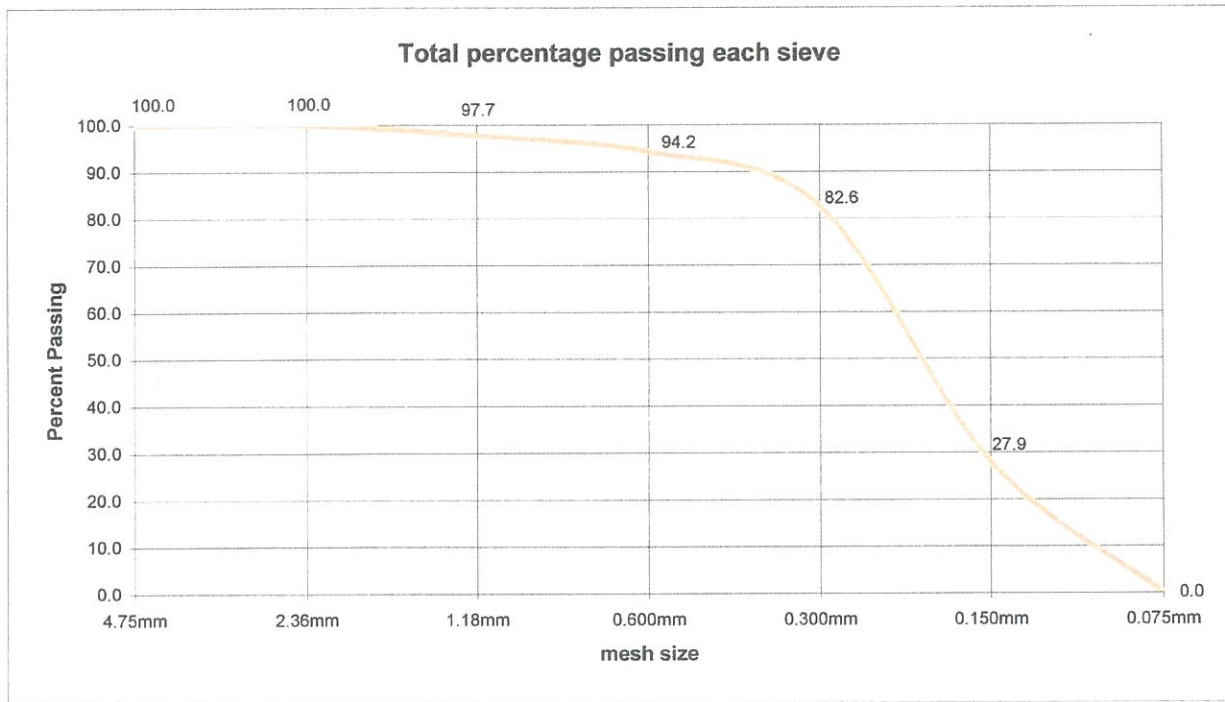
Note: This information is held in confidence and becomes a permanent record at the U.S. Heritage Group laboratories located at 3516 North Kostner Ave., Chicago, IL 60641. It can be referenced at any time in the future by the property owner named above or by an authorized mason contractor involved with the restoration work. When inquiring about this match please use the project number USHG #12-006

USHG # 12-006A Albrecht Hall - Exterior Iron Spot Face Brick, Butterjoint

SIEVE ANALYSIS REPORT

Sieve size	percent retained on each sieve [%]	Total percentage passing each sieve	Cumulative Percent Retained [%]
4.75mm	0.0	100.0	0.0
2.36mm	0.0	100.0	0.0
1.18mm	2.3	97.7	2.3
0.600mm	3.5	94.2	5.8
0.300mm	11.6	82.6	17.4
0.150mm	54.7	27.9	72.1
0.075mm	27.9	0.0	100.0

Fineness Modulus **0.98**



USHG # 12-006A Albrecht Hall - Exterior Iron Spot Face Brick, Butterjoint

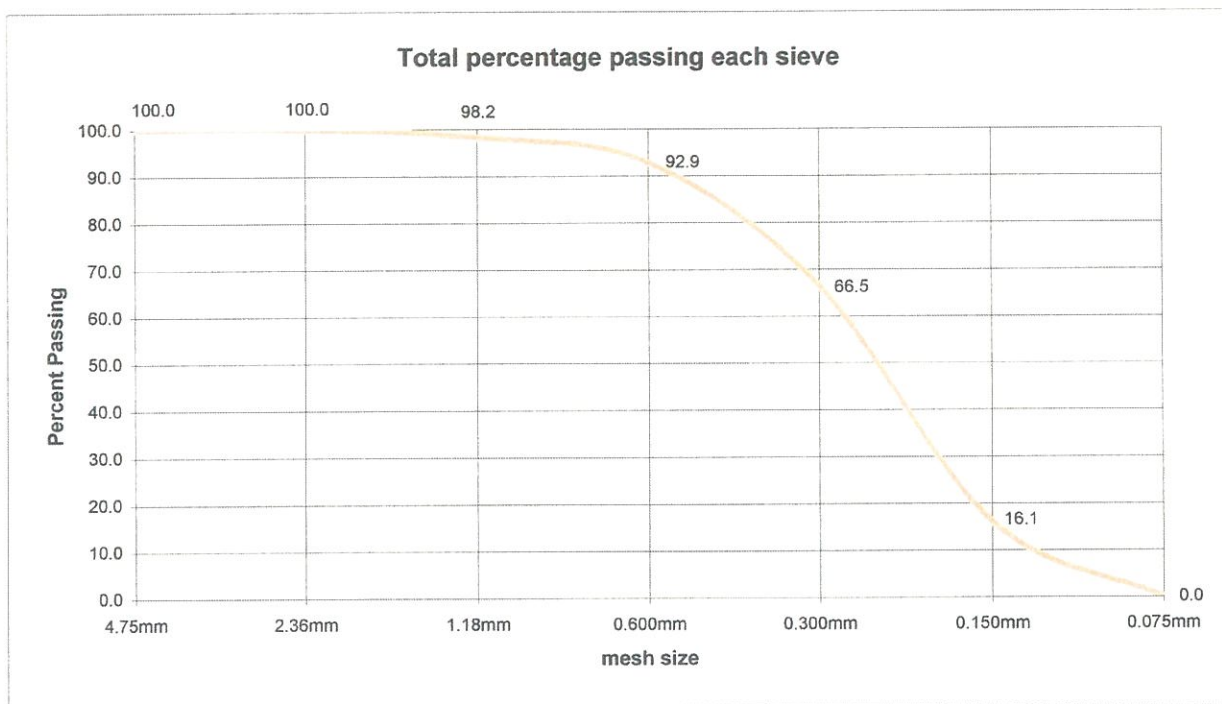


USHG # 12-006C Albrecht Hall - Exterior Limestone Foundation Mortar

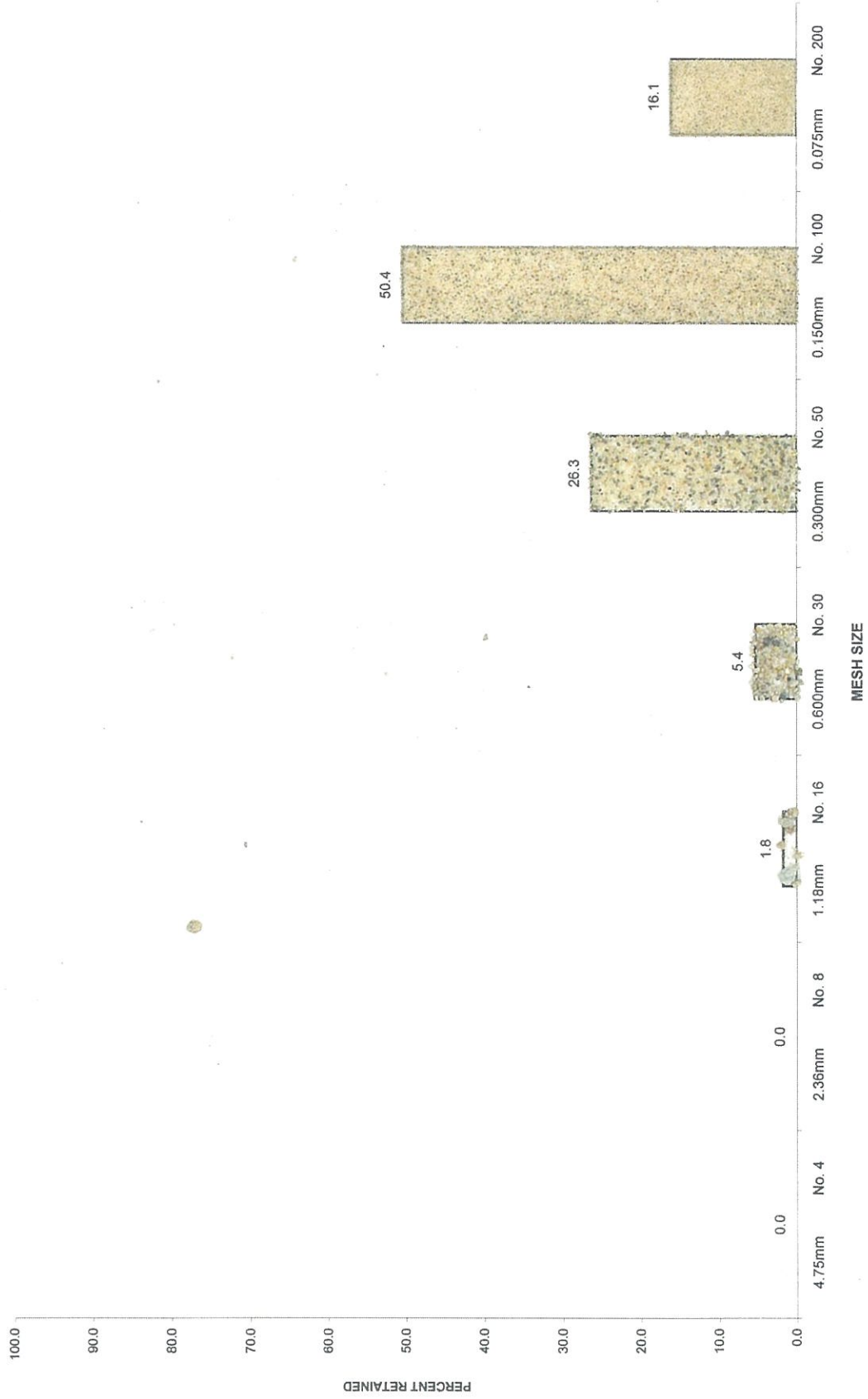
SIEVE ANALYSIS REPORT

Sieve size	percent retained on each sieve [%]	Total percentage passing each sieve	Cumulative Percent Retained [%]
4.75mm	0.0	100.0	0.0
2.36mm	0.0	100.0	0.0
1.18mm	1.8	98.2	1.8
0.600mm	5.4	92.9	7.1
0.300mm	26.3	66.5	33.5
0.150mm	50.4	16.1	83.9
0.075mm	16.1	0.0	100.0

Fineness Modulus **1.26**



USHG # 12-006C Albrecht Hall - Exterior Limestone Foundation Mortar

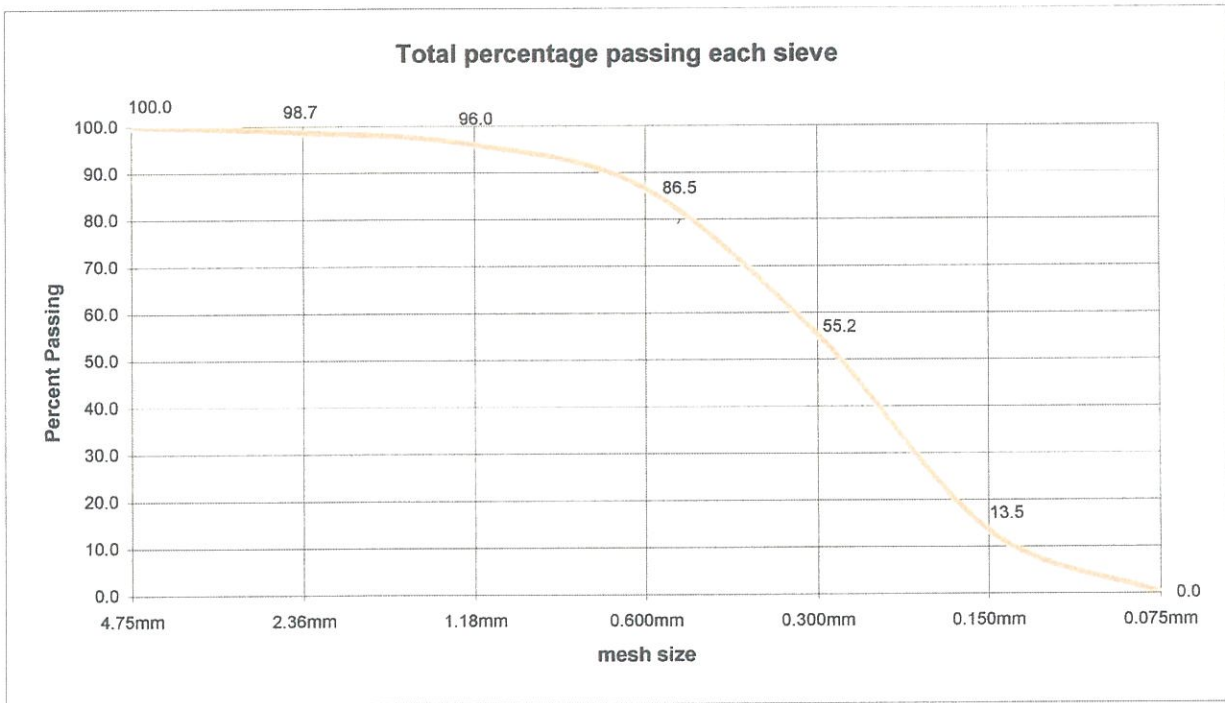


USHG # 12-006B Albrecht Hall - Interior Limestone Foundation Mortar

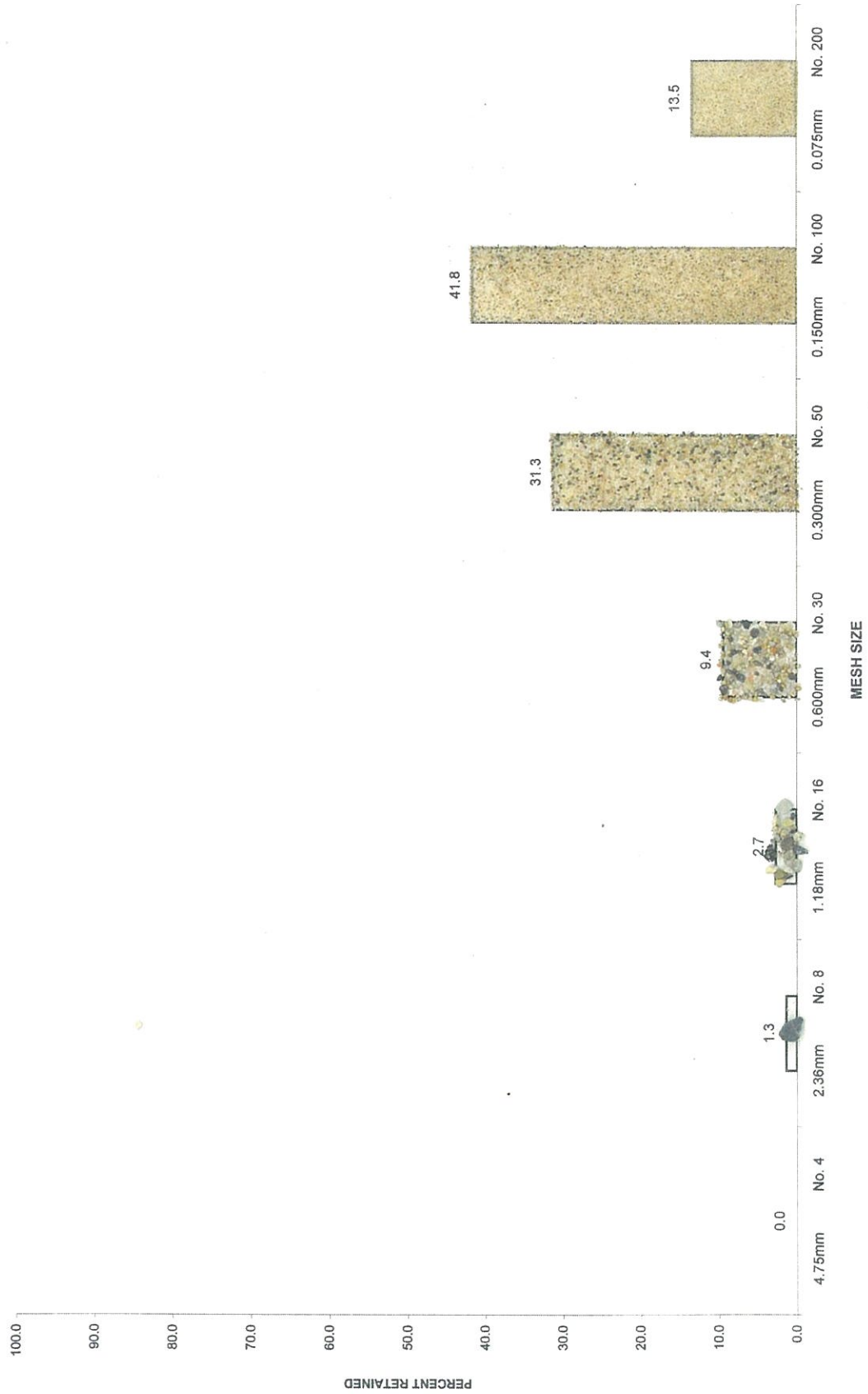
SIEVE ANALYSIS REPORT

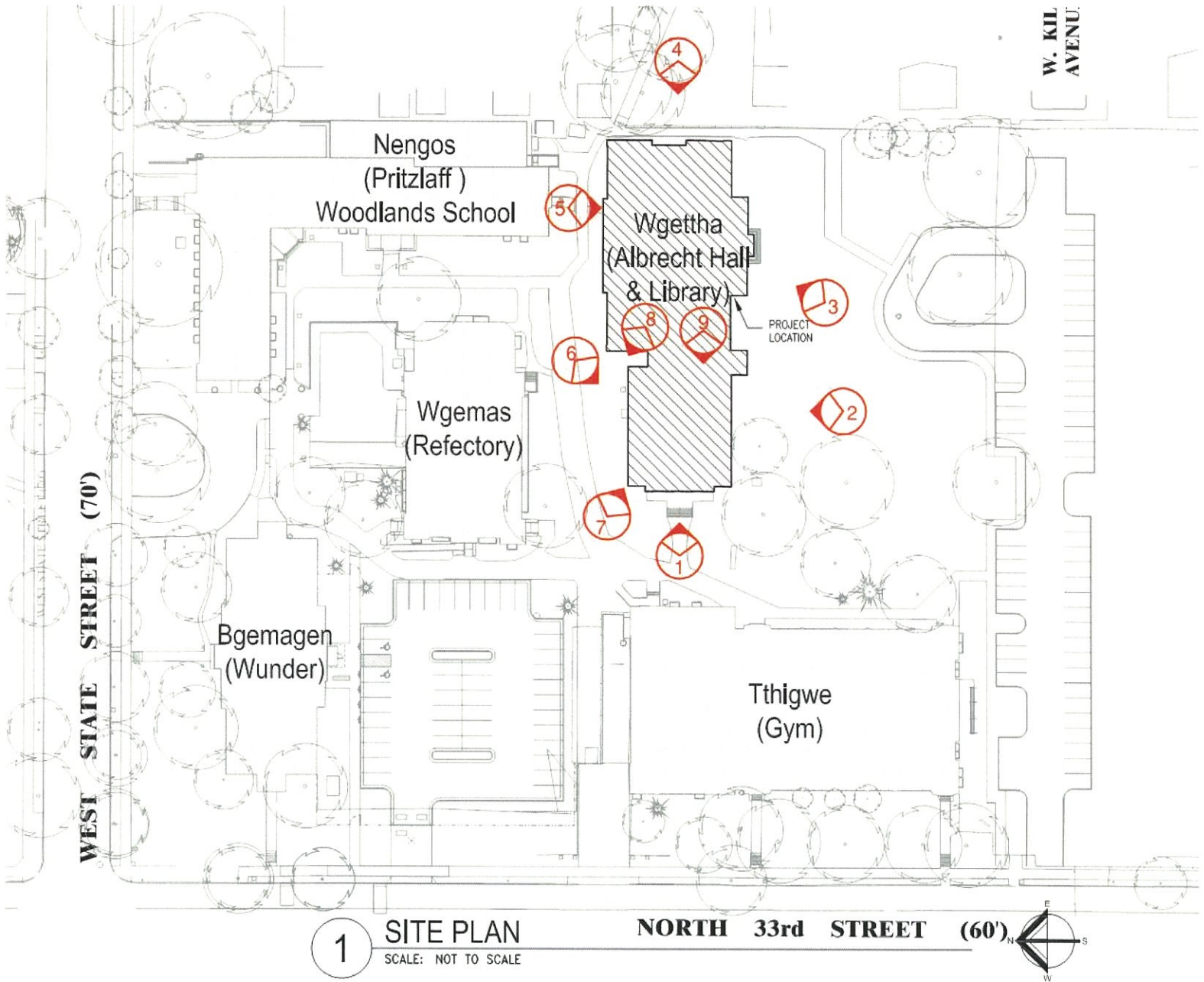
Sieve size	percent retained on each sieve [%]	Total percentage passing each sieve	Cumulative Percent Retained [%]
4.75mm	0.0	100.0	0.0
2.36mm	1.3	98.7	1.3
1.18mm	2.7	96.0	4.0
0.600mm	9.4	86.5	13.5
0.300mm	31.3	55.2	44.8
0.150mm	41.8	13.5	86.5
0.075mm	13.5	0.0	100.0

Fineness Modulus **1.50**



USHG # 12-006B Albrecht Hall - Interior Limestone Foundation Mortar





1 SITE PLAN
SCALE: NOT TO SCALE

NORTH 33rd STREET (60')

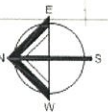




Photo 1 - West elevation of Library



Photo 2 - South elevation of Library



Photo 3 – South elevation of Albrecht Hall



Photo 4 - East elevation of Albrecht Hall



Photo 5 - North elevation of Albrecht Hall



Photo 6 - North elevation of Albrecht Hall and Library



Photo 7 - Northwest corner of Library and Albrecht Hall



Photo 8 - Library Roof, looking northwest



Photo 9 - Library Roof, looking west