



# TUDOR PLACE ARCHIVES AND COLLECTIONS

TUDOR PLACE FOUNDATION

1644 31ST STREET NW

HARTMAN-COX ARCHITECTS

JULY 3, 2019 OLD GEORGETOWN BOARD MEETING  
CONCEPT REVIEW CONTINUATION



June 12, 2019

TO: Old Georgetown Board

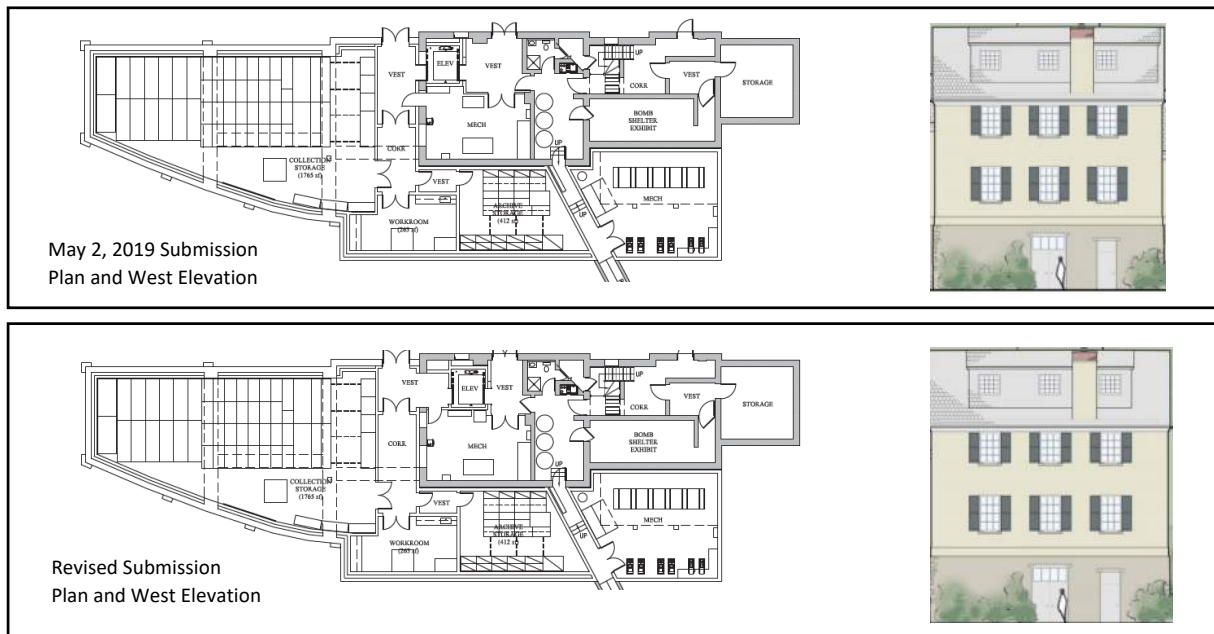
FROM: Mark Hudson, Executive Director, Tudor Place Historic House & Garden

SUBJECT: Response to Comments Regarding the Tudor Place Garage Addition (OG 19-155)

<b>1. Relocation of Elevator</b>	<b>Page 1</b>
<b>2. Need for Collection Storage Space</b>	<b>Page 2</b>
<b>3. Maintenance of 32<sup>nd</sup> Street Perimeter</b>	<b>Page 6</b>

### 1. Relocation of Elevator

During the discussion of Tudor Place's concept design submission to the Old Georgetown Board on May 2, 2019, staff and commissioners raised concerns about the extension of the dormer in the southwest corner of the Garage that is required to house the elevator overrun. We considered several alternatives with our architects and have endorsed a design which moves the elevator north of the location in the initial design. This will allow for the overrun to be concealed within the existing dormer. Further details of this design are appended to this memorandum.



## **2. Need for Collection Storage Space**

During the discussion of Tudor Place's concept design submission to the Old Georgetown Board on May 2, 2019, it was suggested that Tudor Place consider reducing the size of the collections storage facility. As a method for achieving this, members of the public and an OGB Board member recommended digital formatting as an alternative to the storage of original historical materials. While Tudor Place's Master Preservation Plan includes digitization as a means of improving access and promoting the preservation of collections, these initiatives will not reduce the space requirements for the care of these treasures. Our response to this inquiry is based upon three factors:

- A. The extent and nature of these collections.
- B. Space requirements for collections care and the methodology used in determining this.
- C. The efforts already undertaken to reduce the size of the addition.

### **A. Extent and Nature of the Collections**

Most of Tudor Place's collections are items conveyed with the house and grounds through the 1983 Will of Armistead Peter 3<sup>rd</sup>, the estate's final private owner. These collections are managed in two general categories: Museum Collections and the Archive.

#### **Museum Collection**

Among the over 15,000 objects in the Museum Collection are items once owned by George and Martha Washington, including furniture, dishware and silver, clothing, and artwork. Beyond the core Washington Collection are thousands of objects that were acquired, made, and used by six generations of the Peter family: metalwork, jewelry, furniture, costume and furnishing, textiles, paintings, prints, sculpture, porcelain and ceramics, glass, weaponry, and musical instruments, as well as everyday items that document the lives of the family and the enslaved and paid employees who worked here. These objects are essential to the museum experience at Tudor Place, are used in educational programming and scholarly research, and will be presented in the gallery proposed for the Garage Addition. Given their close association with the site and their continual use in programming, storage of the museum collection elsewhere would break those essential ties to the property and minimize public access to these treasures. Off-site storage also would be prohibitively expensive and presents unacceptable risks of loss and damage.

#### **Archive**

Accompanying the museum collection is the smaller, yet equally significant, Archive. The Archive holds a collection of 5,000 books and a Manuscript Collection of 300 linear feet that includes early land records, maps, photographs, moving pictures, diaries, household receipts, correspondences, and one of only three extant letters from George to Martha Washington. These troves, representing every generation of Peter family occupation, are a window into our nation's history and culture. These items provide rich documentation of the lives of those who lived and worked at Tudor Place, details of changes to the architecture and landscapes of the site, and provenance for the museum collection. While the archive has inherent value as a resource to support academic research on many aspects of life in the 19<sup>th</sup> and 20<sup>th</sup> centuries, its primary value is in support of interpretive, educational, and curatorial activities at Tudor Place.

## B. Physical Requirements of Collections Care

Considerable study and planning has gone into the design of the collections management facility proposed for the Garage Addition. This work, spanning more than a decade, was most recently summarized in the *Collection Storage Plan* developed by Conservator Wendy Jessup in 2018. The study included a comprehensive examination of the collections currently stored in over thirty locations in the Main House (basement, attic, west wing bedrooms and baths, hallways, closets, stair landings) Garage (basement bomb shelter), and Dower House (basement, attic, and unused bathroom). The consultants then assigned storage module recommendations based upon museum best practices for efficient collections storage and the preferences and guidance provided by Tudor Place staff. Their calculations also recognized that the Garage Addition will provide space for the exhibition of collections and vacated rooms currently used for storage in the Main House will become interpreted spaces. Priority was given to objects that would benefit most from being housed in an optimal museum storage environment. As a result, some of the collections were not factored into these calculations and will continue to be housed in other locations on the site, including:

- Archaeological collections - artifacts discovered during investigations on site and at adjacent properties;
- Architectural collections - windows, doors, and other building components that have been removed during renovations and other changes on the site;
- Sculptures;
- Glass and ceramic objects.

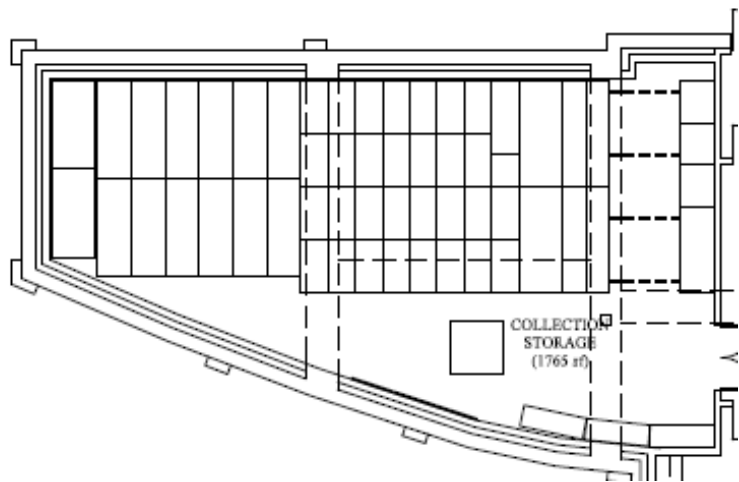
Using this criterion and with these considerable exclusions, the study determined that Tudor Place will require 2,180 square feet of storage space for museum collections and 415 square feet for the storage of books and the archive. Even with the use of compact shelving and minimizing space for circulation within these spaces, the proposed design will not fully accommodate the collection nor provide room for future growth of the collection. Therefore, reducing the size of the collections storage facility is unfeasible given the scope of our holdings and our mission to protect the collections in our care.

Collections	Space Need	Space Available	Difference
Museum Collections	2,180 sf.	1,765 sf	-415 sf
Books/Archive	415 sf	412 sf	-3 sf
	2,595 sf	2,330 sf	-418 sf

The *Collections Storage Plan* developed by Wendy Jessup and Associates in 2018 is appended to this memorandum.

The *Collections Storage Plan* estimated the space requirements without taking the configuration of the proposed collection space into consideration. To accommodate the collections in the proposed space and to optimize the storage efficiency, we worked with Spacesaver, the compact storage company, to accommodate the objects listed in the 2018 *Collections Storage Plan*. The layout, illustrated on the current drawings, incorporates a range of storage types to meet the varying needs of the objects. The high-density movable storage system is attached to floor-mounted rails for compact storage and flexible access.

All items requiring closed cabinets have been accommodated in the design, providing ample storage for objects requiring secured storage, such as jewelry, weapons and hazardous items. Open and adjustable shelving accommodates large unboxed objects and furniture pieces, small items stored in archival boxes, and hanging garments on a rod. Framed materials such as papers, textiles and paintings will be stored on wall-mounted painting screens, and unframed paper-based materials will be stored in flat file drawers incorporated into the movable system. Wall mounted roll storage will accommodate large textiles.



Shelving Configuration in Collections Area



A concentrated collections management effort to maximize storage with variations in the shelf configuration and loading resulted in an increased efficiency of the system. However, despite these efforts, the proposed Spacesaver configuration results in a deficiency of approximately 460 sf and does not allow for future growth.



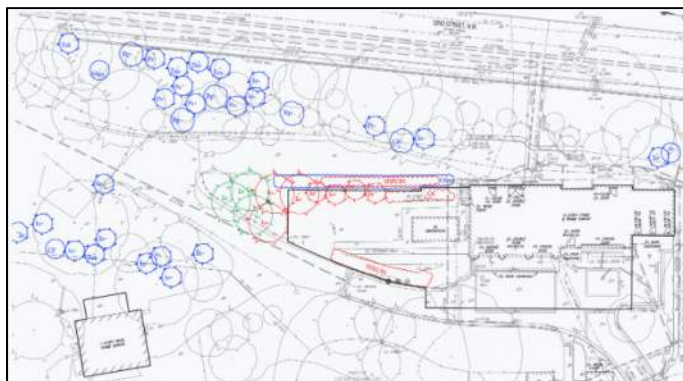
### C. Efforts Already Undertaken to Reduce the Size of the Garage Addition

Since the first iterations of the Tudor Place Master Preservation Plan were promulgated in 2009, Tudor Place has worked collaboratively with neighbors to address concerns about the visual impact of the Garage Addition, most notably through a significant reduction in the massing of the addition and the placement of the collections storage and mechanical operations into an expanded basement.

#### 2009 Proposal



#### 2019 Proposal



Tudor Place also recognizes that strategically placed plantings will do a great deal to screen the new construction from view from the street and homes on 32<sup>nd</sup> Street. Consistent with our Landscape Management Plan, our project plans include restoration of the slope between the 32<sup>nd</sup> Street sidewalk and the service drive behind the Garage in order to improve the overall health of this steep

perimeter to support the planting of evergreens (pines, hollies). We anticipate work on this perimeter will begin in the fall of 2019.

While we regret that the project will require removal of mature holly trees, we will be planting nearly two dozen new trees in the vicinity of the project. This is consistent with our Landscape Management Plan and our horticultural practices throughout the site.

### **3. Maintenance of the 32<sup>nd</sup> Street Perimeter**

At the hearing, several residents of 32<sup>nd</sup> Street voiced concerns about the maintenance and appearance of the 32<sup>nd</sup> Street perimeter of Tudor Place. Specific items mentioned included the visibility of trash and recycling receptacles near the 32<sup>nd</sup> Street gate, maintenance of the exterior of the Garage, and the overgrowth of vegetation on the slope between the Garage service drive and the sidewalk. We listened closely to their concerns and are responding proactively to each.

#### **A. Visibility of Trash and Recycling Receptacles**

The trash and recycling receptacles have been placed at this location because the 32<sup>nd</sup> Street gate is the only location on the site that can be accessed by trash trucks. While we cannot remove them entirely from this location, we can take steps to reduce their visibility from the street and the homes on 32<sup>nd</sup> Street. Toward that end, we have widened the pad adjacent to the trash dumpsters, allowing us to tuck the recycling bins into the space beside the dumpsters. We also will be installing taller plantings around the receptacles to shield them from view at 32<sup>nd</sup> and Q Streets. Work on the dumpster relocation will be complete the week of June 10, 2019.



*Current Configuration*



*Improved Configuration*

#### **B. Maintenance of the Garage Exterior**

In 2017, Tudor Place completed a full restoration of all windows of the Garage. This work was conducted by the Craftsmen Group at a cost of nearly \$50,000. Unfortunately, available funds ran out before needed work could be done on the shutters. Last month, we contracted with John Juenemann Painting & Decorating to repair, restore, and repaint each shutter on the Garage. This work will be complete in July 2019.

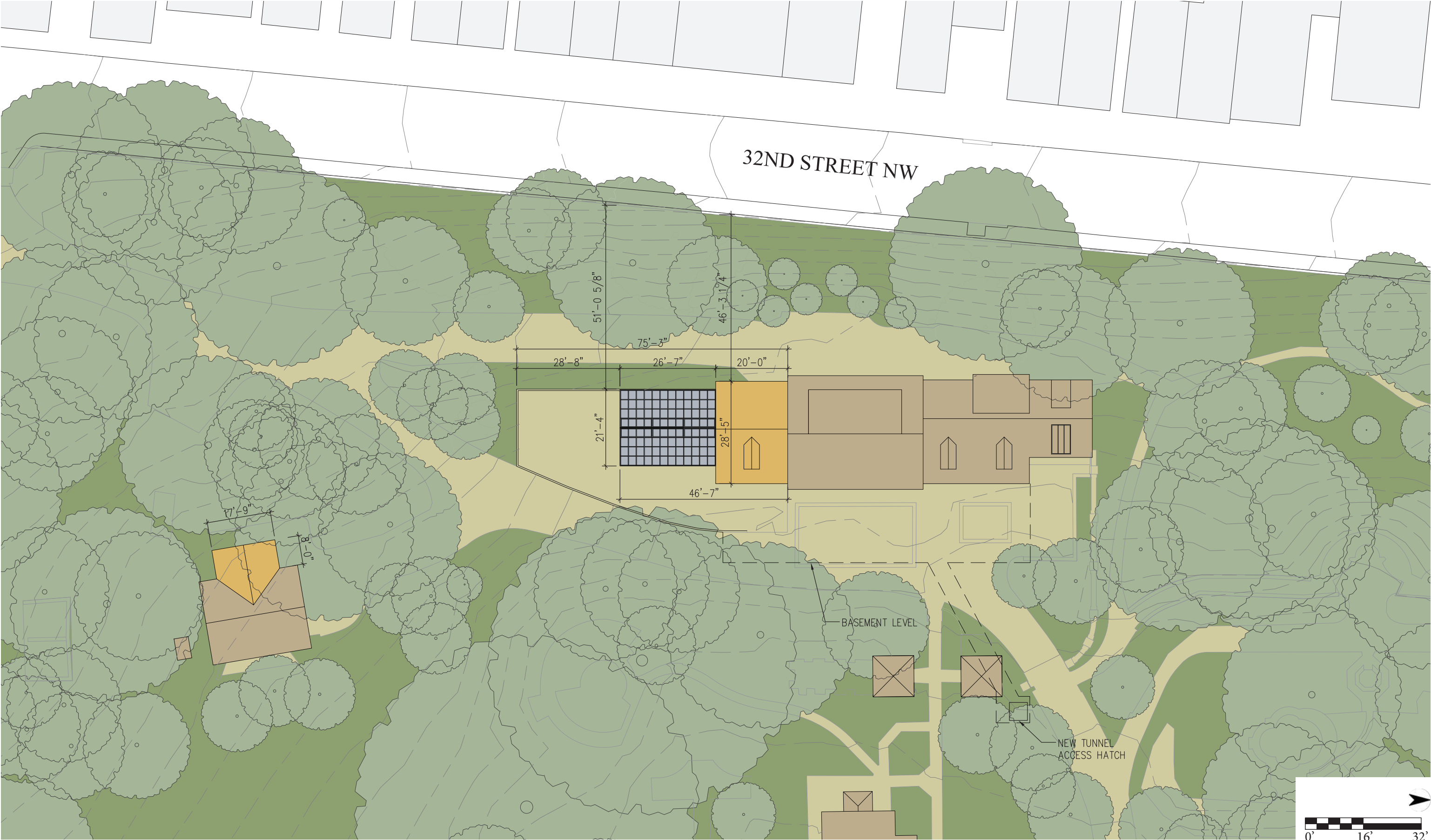
#### **C. Overgrown Vegetation**

Consistent with our Landscape Management Plan, we are planning to “restore the character of the 32<sup>nd</sup> Street border landscape while addressing neighbor concerns for a visible buffer.” With work on the restoration of the 31<sup>st</sup> and Q Street perimeters (part of a larger storm water management initiative) concluding later this month, our attention will be turning to the 32<sup>nd</sup> Street perimeter. Director of Buildings, Gardens & Grounds Joshua Meyer is developing plans for a workshop and other opportunities to gain input from our neighbors about the character and appearance of this slope. These efforts, along with the planting of additional trees in this vicinity, will advance both health and appearance of this area while providing additional screening for the Garage. We anticipate that much of this work will be complete in the fall of 2019.

Appendix 1  
Relocation of Elevator











CONCEPT SUBMISSION REVIEWED BY OLD GEORGETOWN BOARD ON MAY 2, 2019

Building heights relative to first floor and basement level of existing building.

TUDOR PLACE HISTORIC HOUSE AND GARDEN

JULY 3, 2019 MEETING

PAGE 1.3

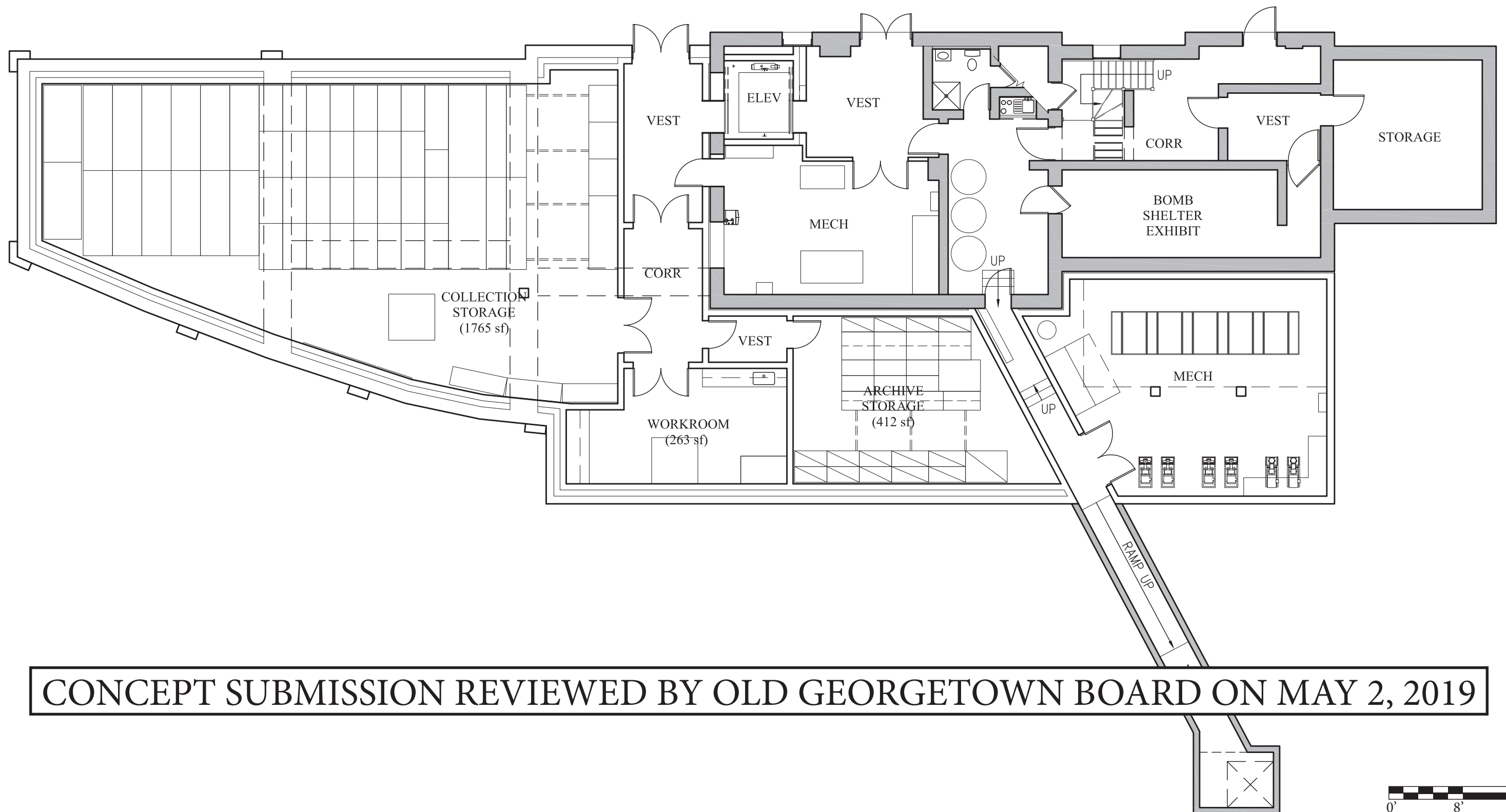
ARCHIVE AND COLLECTION STORAGE BUILDING, GREENHOUSE & EDUCATION CLASSROOM

WEST ELEVATION

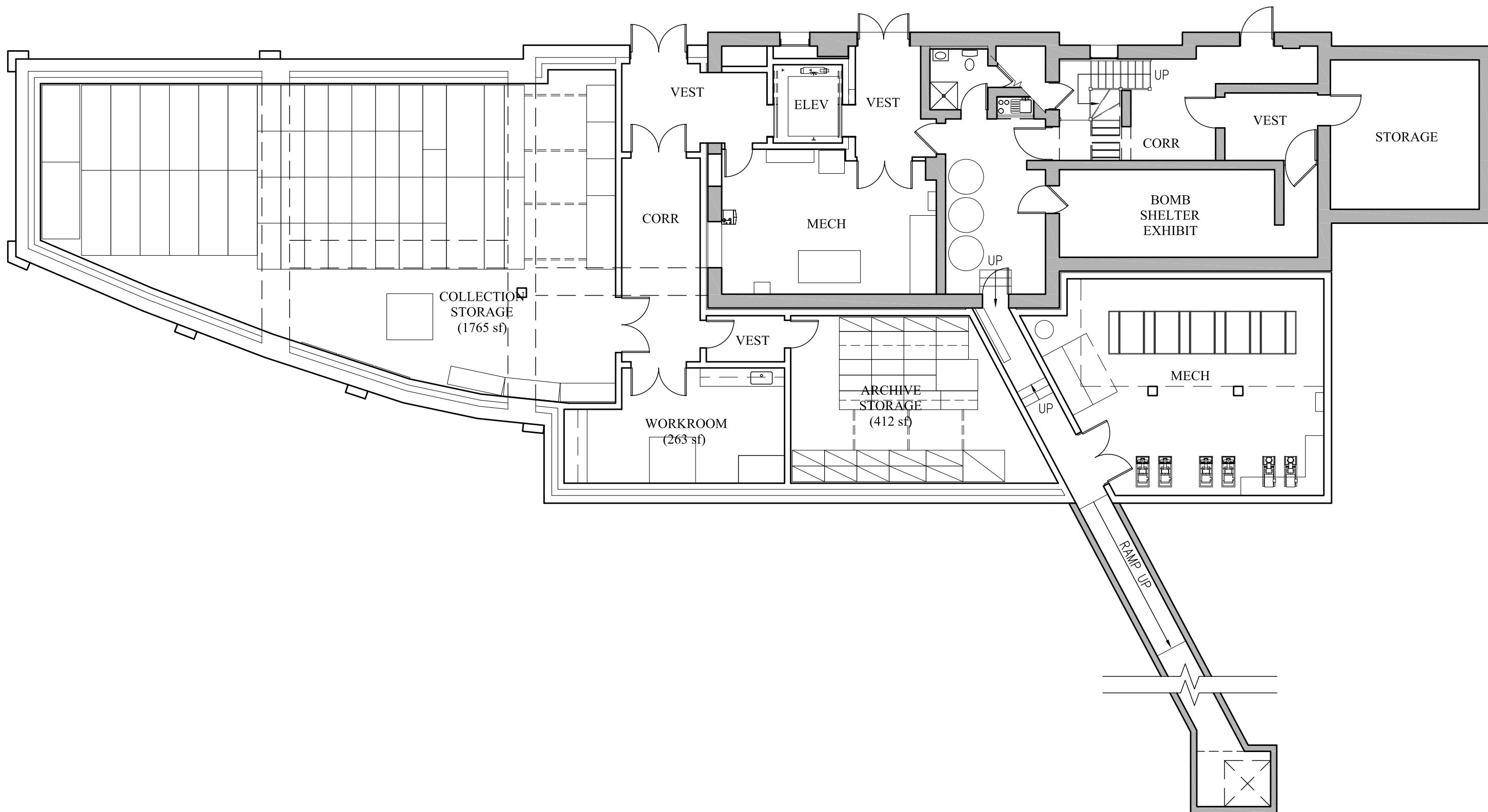


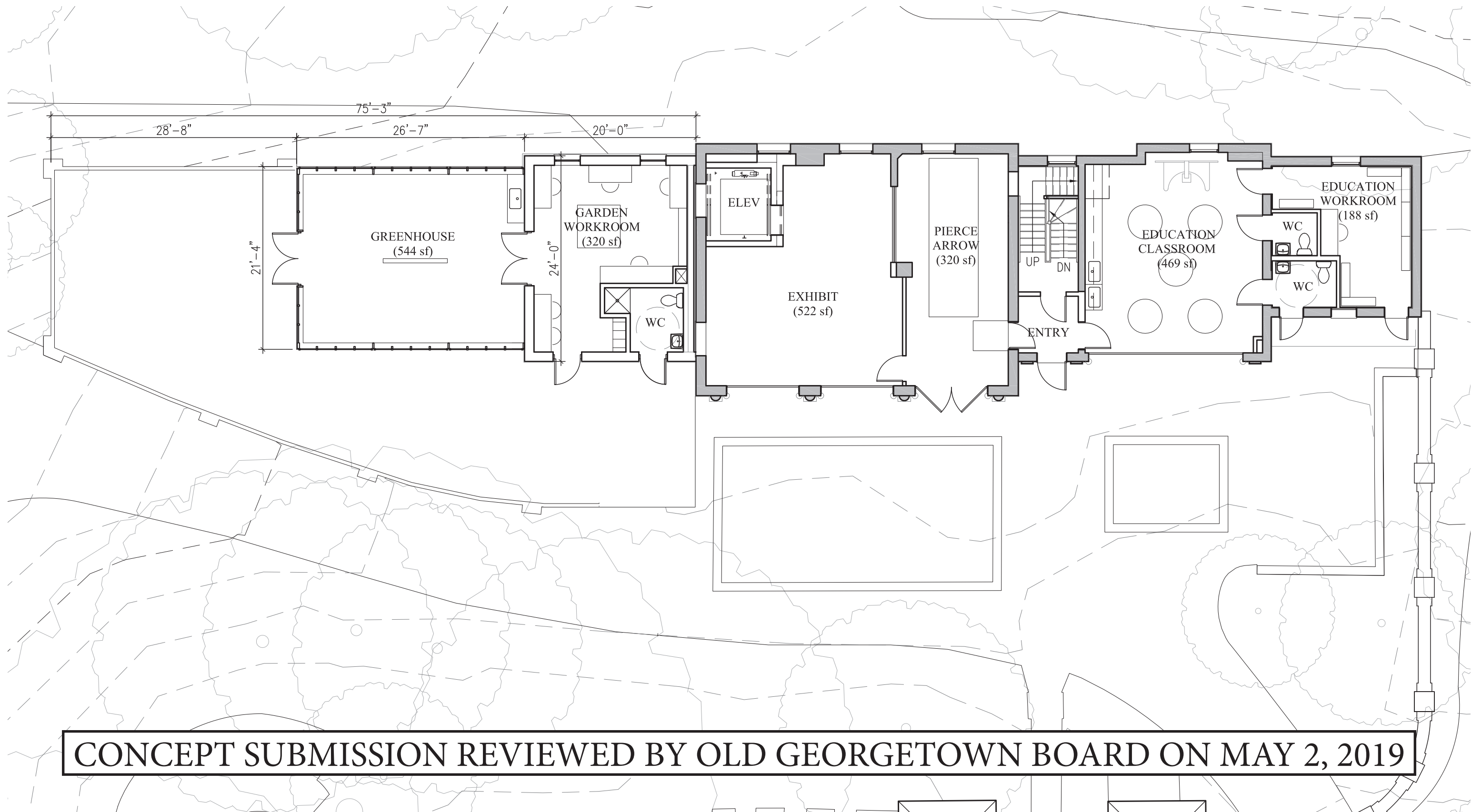
Building heights relative to first floor and basement level of existing building.





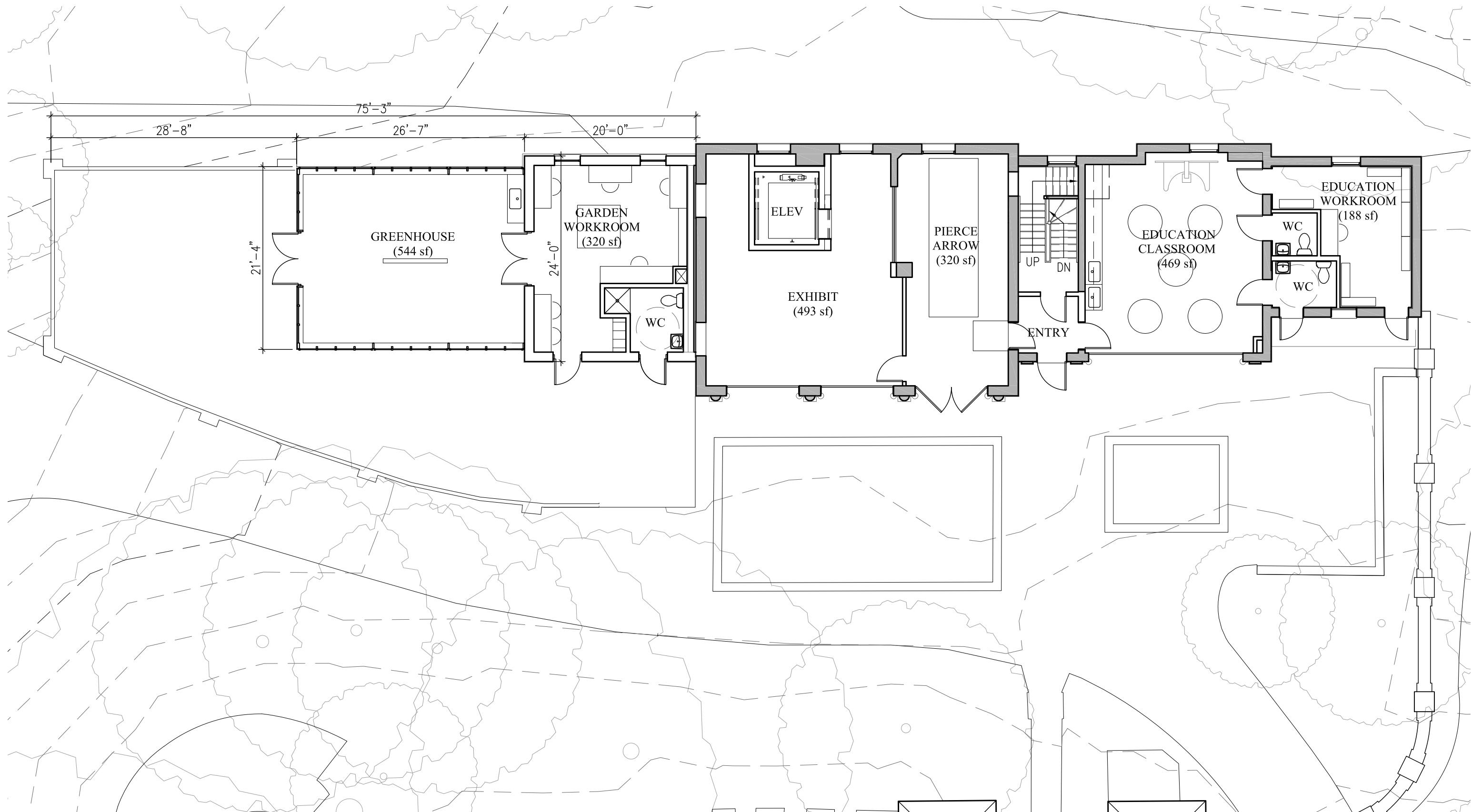
CONCEPT SUBMISSION REVIEWED BY OLD GEORGETOWN BOARD ON MAY 2, 2019



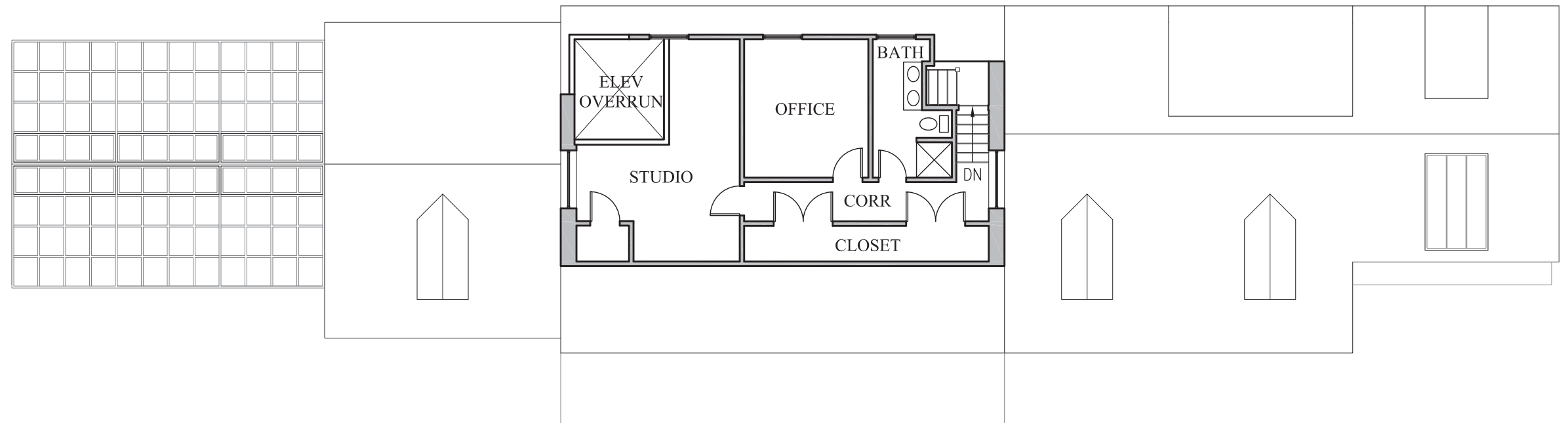


CONCEPT SUBMISSION REVIEWED BY OLD GEORGETOWN BOARD ON MAY 2, 2019

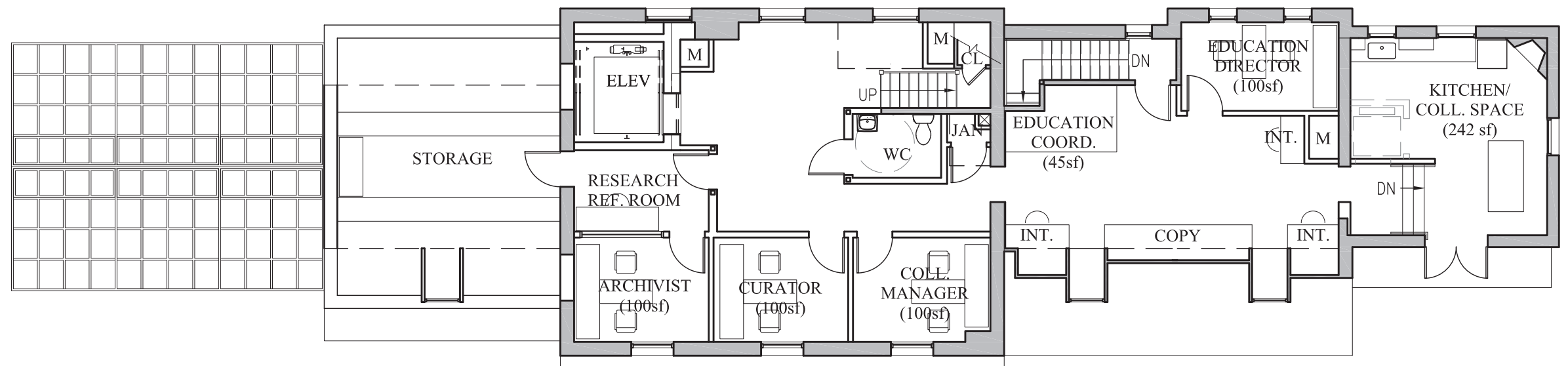








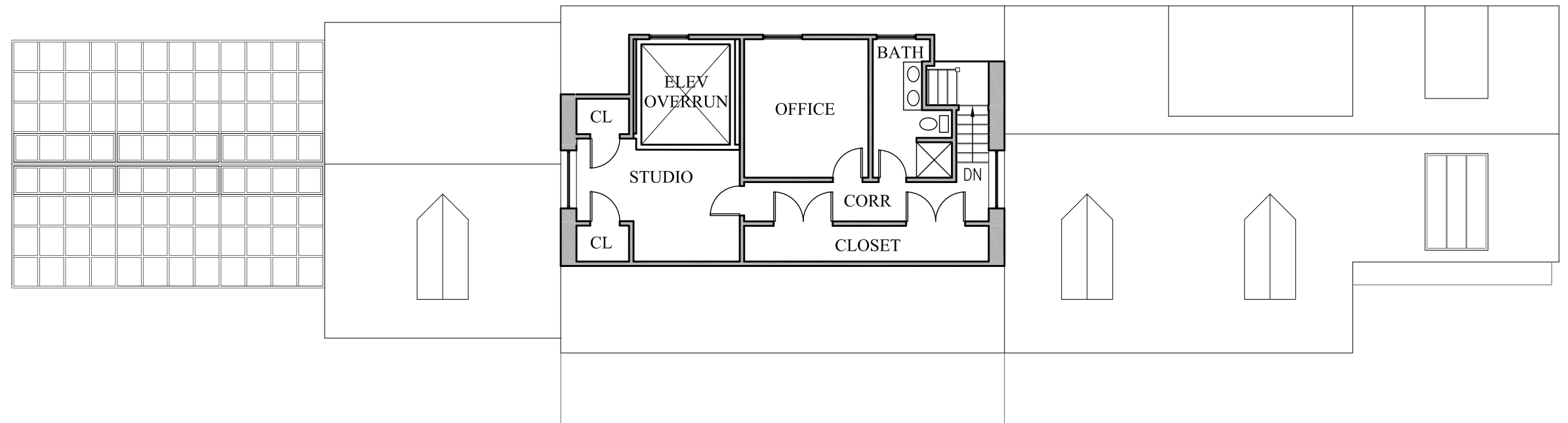
THIRD FLOOR PLAN | PROPOSED



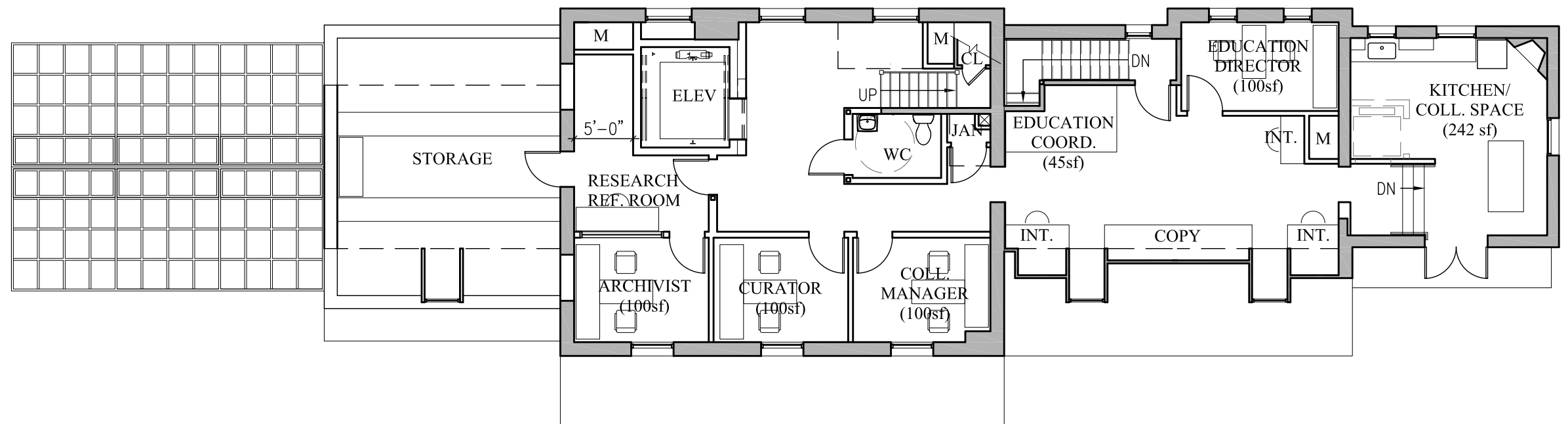
SECOND FLOOR PLAN | PROPOSED

CONCEPT SUBMISSION REVIEWED BY OLD GEORGETOWN BOARD ON MAY 2, 2019





THIRD FLOOR PLAN



SECOND FLOOR PLAN





CONCEPT SUBMISSION REVIEWED BY OLD GEORGETOWN BOARD ON MAY 2, 2019









CONCEPT SUBMISSION REVIEWED BY OLD GEORGETOWN BOARD ON MAY 2, 2019







Appendix 2  
Need for Collection Storage Space

*Collections Storage Plan*  
*Prepared by Wendy Jessup and Associates, Inc.*



WENDY  
JESSUP

AND ASSOCIATES, INC.

## COLLECTIONS STORAGE PLAN

*Prepared for*  
**Tudor Place Historic House and Garden**  
**Washington, D.C.**

*Prepared by*  
Wendy Jessup and Associates, Inc.

08 June 2018

Care of  
Cultural  
Property

*Wendy Jessup and Associates, Inc.*  
*4620 Lee Highway, Suite 206*  
*Arlington, VA 22207*  
*703-522-2801*



## TABLE OF CONTENTS

Cover	i
Table of Contents	ii
Project Directory	iii
Executive Summary	iv
Introduction	1
Project Guidance	2
Terminology	4
Methodology	5
Current Storage Area Conditions	7
Loan Collection	15
Technical Guidance and Considerations for Proposed Collections Storage Facility	16
Storage Environment Recommendations	17
Additional Recommendations and Considerations	19
Storage Equipment Guidelines	20
Museum Storage Equipment Manufacturers/Vendors	21
Storage Equipment Recommendations	22
Existing Storage Equipment	23
Storage Equipment Specifications and Cut Sheets	

## END OF CONTENTS

# PROJECT DIRECTORY

## Project

### **COLLECTIONS STORAGE PLAN**

Tudor Place Historic House and Garden  
Washington, D.C.

## Client

### **Tudor Place Historic House and Garden**

Tudor Place Foundation  
1644 31<sup>st</sup> St. NW  
Washington, D.C. 20007  
Web: [www.tudorplace.org](http://www.tudorplace.org)

Mark Hudson  
Grant Quertermous  
Kristin Barrow

Executive Director  
Curator  
Collections Manager

## Consultant

### **Wendy Jessup and Associates, Inc.**

4620 Lee Highway, Suite 206  
Arlington, Virginia 22207  
Phone: (703) 522-2801  
Email: [prevcon@collectioncare.com](mailto:prevcon@collectioncare.com)

Preventive Conservation  
and Collections Management

Wendy Claire Jessup  
Allison LaCroix

Conservator  
Collections Management Analyst/Technical Associate

# END OF PROJECT DIRECTORY

# TUDOR PLACE HISTORIC HOUSE AND GARDEN COLLECTIONS STORAGE PLAN

08 June 2018

## EXECUTIVE SUMMARY

Wendy Jessup and Associates, Inc. (WJ&A) was contracted by the Tudor Place Historic House and Garden (Tudor Place) to conduct a detailed assessment of their existing collections storage spaces and develop a *Collections Storage Plan*. The purpose of this assessment is to document the storage needs of the collection to develop recommendations for improvements, including a program of museum-quality equipment needed to properly store the collection. The recommendations from this project will be incorporated into a revision of the *Master Preservation Plan* (MPP) completed by Hartman-Cox Architects in 2012, which provides for the construction of a partially below grade addition to the ca. 1914 Garage. In addition to new curatorial office and work spaces, expanded program spaces for school groups, temporary exhibit space, and a greenhouse for the garden staff, the new construction will include a 1,950 sq. ft. space dedicated for collections storage and 380 sq. ft. for archives storage.

At present, the collection is stored in approximately 30 different spaces across three buildings, in addition to storage space leased at Artex, an art storage facility in Maryland. These spaces include the basement of the ca. 1816 main house, in addition to several rooms, closets, hallways, and case furniture throughout the 1<sup>st</sup> and 2<sup>nd</sup> floors of the house. Collections are also stored in offices as well as the attic of the main house. Additional collections are stored in the 1960s Bomb Shelter and adjacent Vault located beneath the ca. 1914 garage, as well as the basement and attic of another ancillary building on the property known as the Dower House.

While only an estimated 85% of the collection is cataloged in PastPerfect, and many of the catalog records have missing, incomplete, or non-standardized measurements recorded, WJ&A used a variety of techniques to assign storage module recommendations based upon accepted museological best practices for efficient collections storage and the preferences and guidance provided by Tudor Place staff. These recommendations were used to determine the type and quantity of museum-quality storage equipment needed to properly store the collection, and the estimated footprint in sq. ft. of this equipment. With circulation/access space included, approximately 2,180 sq. ft. are needed to accommodate the stored object collection, with an additional 320 sq. ft. needed to store the archives, and 95 sq. ft. for the rare book collection. These calculations include the space currently needed to store the large Loan collection on site at the Tudor Place. This Loan collection would occupy approximately 240 sq. ft. in the new storage facility.

These calculations were done using standard equipment measurements, however, Tudor Place is encouraged to engage a specialist such as SpaceSaver to determine exact equipment size required to optimize the use of the space.

The MPP also establishes a plan for improvements to the environmental management, fire protection and electrical systems in the main house. Consequently, the two projects will require phasing to protect the collections in both buildings and allow for transfer of objects between the spaces during significant phases of construction. Tudor Place is encouraged to engage a collections move and logistics specialist to develop a Collections Move Manual and provide recommendations for phasing the project and the safe transportation of objects between the main house and storage in the addition to the garage building.

# TUDOR PLACE HISTORIC HOUSE AND GARDEN

## COLLECTIONS STORAGE PLAN

08 June 2018

### INTRODUCTION

Wendy Jessup and Associates, Inc. (WJ&A) was contracted by the Tudor Place Historic House and Garden (Tudor Place) to conduct a detailed assessment of their existing collections storage spaces and develop a *Collections Storage Plan*. The purpose of this assessment is to document the storage needs of the collection to develop recommendations for improvements, including a program of museum-quality equipment needed to properly store the collection. The recommendations from this project will be incorporated into a revision of the *Master Preservation Plan* (MPP) developed by Hartman-Cox Architects in 2012, which provides for the construction of a partially below grade addition to the ca. 1914 Garage. In addition to new curatorial office and work spaces, expanded program spaces for school groups, temporary exhibit space, and a greenhouse for the garden staff, the new construction will include a 1,950 sq. ft. space dedicated for collections storage and 380 sq. ft. for archives storage.

The Tudor Place collection includes over 15,000 objects owned by Martha Washington's granddaughter and six generations of her descendants, the Custis-Peter family, who resided in the house from the 18<sup>th</sup> through 20<sup>th</sup> centuries. These materials include examples of fine and decorative arts as well as household and domestic objects. The collection also includes over 5,000 books and periodicals, and more than 350,000 manuscripts, photographs, motion pictures, and scrapbooks. The collections are nationally significant, as they include one of the largest publicly held concentrations of George and Martha Washington-related objects and manuscripts.

At present, the collection is stored in approximately 30 different spaces across three buildings, in addition to storage space leased at Artex, an art storage facility in Maryland. These spaces include the basement of the ca. 1816 main house, in addition to several rooms, closets, hallways, and case furniture throughout the 1<sup>st</sup> and 2<sup>nd</sup> floors of the house. Collections are also stored in offices as well as the attic of the main house. Additional collections are stored in the 1960s Bomb Shelter and adjacent Vault located beneath the ca. 1914 garage, as well as the basement and attic of another ancillary building on the property known as the Dower House.

The spaces currently used for collections storage include rooms in the main house originally used as servant living and work areas and the bomb shelter under the garage. Once the new storage addition to the garage is completed, these spaces can transition to actively interpreted and furnished spaces, which will expand interpretation of the site and its history for the 25,000+ visitors who visit Tudor Place each year.

The MPP also establishes a plan for improvements to the environmental management, fire protection and electrical systems in the main house. Consequently, the two projects will require phasing to protect the collections in both buildings and allows for transfer of objects between the spaces during significant phases of construction. Tudor Place is encouraged to engage a collections move and logistics specialist to develop a *Collections Move Manual* and provide recommendations for phasing the project and the safe transportation of objects between the main house and storage in the addition to the garage building.

This report addresses storage of all collections in the new storage addition to the garage building with exception of materials selected by Tudor Place staff for furnishing the interpreted spaces in the main house or those items regularly used for seasonal rotations. Recommendations are included for museum-quality storage equipment as well as rehousing of portions of the collections to reduce overcrowding and improve access.

## PROJECT GUIDANCE

This project has been completed in conformance to the following professional criteria:

- The American Alliance of Museums *Code of Ethics* and *National Standards and Best Practices for U.S. Museums*;
- The *Code of Ethics for Registrars* (RC-AAM);
- *Code of Ethics* and *Guidelines for Practice* of the American Institute for Conservation of Historic & Artistic Works, and associated *Commentaries* to the *Guidelines for Practice*;
- The American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 2011 ASHRAE HVAC *Applications Handbook*, Chapter 23: “Museums, Galleries, Archives and Libraries”.

The Tudor Place Historic House and Garden (Tudor Place) staff provided the following parameters, information and guidance over the course of the project:

- The needs of the collection will necessitate purchase of new equipment;
- Existing equipment in acceptable condition (i.e. structurally sound and without rust or other damage) may be reused or repurposed;
- The footprint for collections storage in the Garage addition is established in the *Master Preservation Plan*. Some flexibility may be possible with respect to ceiling height, but the overall size is limited by what can be built based on the cost of underground construction, as well as neighborhood restrictions and the need to minimize visual impact of the new facility;
- The space allocated for collection storage in the Garage addition was based on a study completed in 2011 by SpaceSaver for Hartman-Cox Architects. The spatial calculations were based on previously completed studies of cubic footage provided by Tudor Place collections staff, and the collection has expanded since the last studies were done over ten years ago;
- Additional growth of the collection is not anticipated due to the museum’s narrow collecting focus, other than possible acquisition of a large loan collection that is already housed on site. An assessment needs to be done to determine how much space is currently being occupied by the loan collection;
- Minimal deaccessioning is anticipated;
- The entire collection to be stored on site;
- Books currently stored off-site at Artex need to be moved to on-site storage;
- The Archives collection will continue to be maintained as a separate collection with a separate purview from the objects collection. However, some paper-based items currently in the objects collection may need to be integrated with the Archives collection for best storage;
- Items currently in storage to be excluded from the storage calculations include:
  - Archaeology collections
  - Architecture collections
  - Institutional archives
  - Trunks in the Attic
  - Radios and radio equipment
  - Items identified by the Curator for furnishing the Servants’ Rooms and Library;
  - Wax tableau currently stored in the Dower House
  - Glass and ceramic objects
  - Paul Wayland Bartlett sculpture collection



- Office [227] in the main house, as well as the large Linen Press, some case furniture, and a portion of the Vault [117] will be retained as temporary/rotating storage for items that require frequent seasonal rotation. The most frequently accessed and rotated objects are the silver and table linens;
- 80% of the objects currently on display in the house will remain on display in the house. Storage locations for these items in the Garage addition are not required;
- Storage space is not required for exhibit furniture or loans/crate storage outside of what will be designated for temporary/rotating storage space;
- An estimated 85% of the collection is cataloged in PastPerfect. Many of the catalog records have missing, incomplete, or non-standardized measurements recorded;
- Rehousing will be required for many of the stored objects:
  - Paintings/framed materials should be stored on painting screens
  - Larger prints/drawings currently in boxes need to be stored in flat files/map cases;
  - Rolled and hanging textile storage is needed for quilts, coverlets, and possibly rugs;
  - If possible, garments currently folded in boxes should either be placed in drawers or hung on padded hangers;
  - Hats and footwear should be housed on forms as needed;
  - Silver flatware should be stored in trays in drawers;
  - Jewelry should be cavity packed in drawers;
- A designated intake/processing space, an exhibit prep space, a conservation work space, and a researcher work space are all required;
- During the time that the *Master Preservation Plan* work will be on-going in the main house, portions of the permanent display collection will be moved to the new storage facility as a “holding location” until the work is completed in the main house. After that time, the new facility will be used for its intended purpose for the long-term storage of collections that are not displayed often or that need to stay in storage due to fragility or other factors.

## TERMINOLOGY

The following terms are used throughout this document and in the attached collections storage equipment recommendations spreadsheet:

<i>Storage module</i>	A compartment of storage equipment: drawer; flat-file drawer; shelf; screen side, etc.
<i>Storage unit</i>	Storage equipment which is made up of storage modules: cabinet; shelving; painting screen; flat file unit
<i>Closed Cabinet</i>	Metal storage unit with vented doors, enclosing adjustable shelf space as well as wide, deep, and shallow drawers
<i>Flat file</i>	A multi-drawer unit with wide, deep and shallow drawers used to store large flat items such as posters, large drawings, textiles requiring flat storage
<i>Painting screen</i>	A panel upon which framed materials can be hung; can be either pull-out or lateral movement or fixed
<i>Rolled storage</i>	Tubes upon which large textiles are rolled; generally hung on a rod that is supported by cantilever arm equipment
<i>Hanging storage</i>	Rack upon which garments are hung on padded hangers
<i>Open Shelving</i>	Metal shelving units that are open on either one side or all four sides depending on access needs
<i>Mobile aisle, or mobile system, also called compactor storage</i>	A system of equipment on tracks or casters, which allow it to be mobile and flexible in any given space. Users manually move the storage units as needed

## METHODOLOGY

The following methodology was used to develop the recommendations for the collections storage plan:

1. WJ&A reviewed all storage spaces on site and conducted a general survey of the collection materials in each space. Collections were assessed either on an item-by-item basis, a box-by-box basis, or more broadly based on current storage equipment. These techniques were used depending upon the space and the type of objects it contained;
2. WJ&A recorded dimensions of all existing storage furniture and whether or not it was of a condition sufficient for reuse, as well as dimensions of larger items and boxes as needed. WJ&A simultaneously documented if the current storage module for the collection was sufficient or if the materials required rehousing and/or a change in storage technique;
3. WJ&A met with Tudor Place Executive Director Mark Hudson and Architect Mary Katherine Lanzillotta, FAIA, LEED AP of Hartman-Cox Architects to determine how the *Collections Storage Plan* fit into the larger MPP;
4. Tudor Place staff converted the relevant portions of their collections database from PastPerfect into MS-Excel® format and provided the electronic files to WJ&A. The database provided information about each object including the following:
  - a. Object ID
  - b. Object Name
  - c. Location
  - d. Dimensions (when available)
  - e. Material
5. Additional collections information not available in PastPerfect was provided in MS-Excel® format by Collections staff including: a full inventory of the Loan collection (no dimensions), an inventory of items currently stored in case furniture throughout the house, an inventory of textiles stored in the main house Attic (with dimensions), and an inventory of framed items in [204] with frame dimensions;
6. WJ&A assigned storage module recommendations based upon accepted museological best practices for efficient collections storage and the preferences and guidance provided by Tudor Place staff. Module assignments were made based on varied techniques, as only a portion of the Tudor Place collection is cataloged, and existing catalog records were not always complete with dimensions or accurate locations. As such, the PastPerfect data provided could not be relied on heavily for storage calculations. Given this, much of the storage calculations were based on in-person assessment of space needs and estimated decompression needs based on existing housing – often at either the shelf or box level. In some instances, specific object dimensions were recorded and existing dimensions in PastPerfect were used as guides when available. When possible, storage modules were assigned following these basic guidelines:
  - a. Unboxed three-dimensional objects or objects requiring rehousing with heights of less than 2.5” (jewelry, silverware, etc.) were assigned to 3.5” deep drawers inside of closed cabinets\*;
  - b. Unboxed three-dimensional objects or objects requiring rehousing with heights 3” or greater (hats, shoes, etc.) were assigned to adjustable shelving inside of a closed cabinet: shelf spacing was set at 6” increments for objects that would fit within a standard museum storage cabinet;
  - c. Boxed items not requiring rehousing were assigned to metal open shelving units; small boxes to be stacked no more than two high. Given the space constraints of the new facility, open shelving size was customized based on 6” increments for shelf depth, as well as 6” increments for shelf height spacing, with an additional custom 8” shelf height increment to

economize space use (the 8” height accommodates a large portion of the stored textile collection and archive collection with minimal space waste). Shelf width was calculated based on standard shelving widths; however, as both the proposed collections storage space and archives storage space in the new facility are asymmetrical and roughly trapezoidal, actual shelf width will need to be determined based on ultimate space layout so as to maximize the space use in the irregularly shaped spaces;

- d. Three-dimensional objects with dimensions larger than a standard museum storage cabinet were identified for accommodation on oversize open shelving units, or on pallets on the floor as necessary;
  - e. Framed materials of all types (paper-based objects; textiles; paintings, etc.) were assigned storage on painting screens;
  - f. Unframed paper-based materials such as posters and prints were assigned storage in flat-file drawers;
  - g. Large flat textiles were assigned to be rolled and supported by cradles on cantilever arms;
  - h. Garments exceeding a standard textile box size were assigned to be hung on garment racks;
  - i. Weapons including guns, swords, and their accessories were assigned to secured closed cabinet units requiring custom-built supports and cradles;
  - j. Hazardous collections items including taxidermy animals or furs were assigned to an existing cabinet unit to be labeled as hazardous and secured and moved to the Garage addition;
  - k. Archives collections currently in freezer storage are to remain in the freezer;
7. Based on limited storage space and the cost of storing a large collection, calculations were done to determine how much space the Loan collection was occupying in the storage space needs projections.
8. No room for growth was calculated into the collection outside of what would be gained from limited deaccessioning.
9. WJ&A calculated the quantity of storage modules required to store each type of object and the total number of storage units required to accommodate the modules. Partial modules were rounded up to full modules; partial units were rounded up to full units.

\* As part of the original space plan done in 2011 with SpaceSaver, Delta Design closed cabinets were included; however, Viking Cabinets replaced Delta in their relationship with SpaceSaver, so dimensions for a standard size Viking cabinet were used for this report.



## **CURRENT STORAGE AREA CONDITIONS**

The following conditions were observed onsite by WJ&A in February 2018, with the future space plans recorded as advised by Tudor Space staff during the onsite evaluation. See attached table for Existing Storage Equipment specs.

### **MAIN HOUSE**

#### **BASEMENT**

##### **[C06] Wood Cellar**

- This space currently houses miscellaneous furniture pieces, including a couch slated for deaccessioning, along with modern stand fans and a large metal cabinet housing several taxidermy pieces and other collections items.

##### **Future Space Use and Collections Requirements:**

- To become interpreted space. Some items currently in the space will be retained in place for interpretation, the remainder require storage space in the new facility;
- Large metal cabinet to be retained and reused only for taxidermy collection (approximately 10 pieces in the collection) and other hazardous collections items including furs;
- Other collections pieces currently in the metal cabinet require rehousing.

##### **[C07] Coal Cellar**

- This space currently houses the Paul Wayland Bartlett sculpture collection on metal shelving units along with a few pieces of garden furniture.

##### **Future Space Use and Collections Requirements:**

- This space may be retained as is for storage of the sculpture collection. May be considered for open storage to be on view by the public;
- Garden furniture will require storage space.

##### **[C08] Cellar Hall**

- The hall currently houses several items of garden furniture as well as several large crocks.

##### **Future Space Use and Collections Requirements:**

- To become interpreted space; the crocks will all remain in place;
- Some furniture pieces in the hall will require storage.

##### **[C10] Archives Storage**

- This room currently houses a majority of the archives collection on metal shelving units.

##### **Future Space Use and Collections Requirements:**

- To become interpreted space;
- All archives will require storage space in the new facility with needed room for decompression, rehousing, and growth;
- Metal shelving units currently in the space are fit for re-use if the new space configuration allows;
- Shelving would need to be re-decked with archival shelving materials.

### **[C13] Housekeeping**

- This room currently houses items on loan as well as some garden furniture.

#### **Future Space Use and Collections Requirements:**

- To become interpreted space; some items will remain in the space for interpretation, while others require storage.

### **[C14] Archives Work Room**

- This room currently houses the photograph collection, archives flat files, and archives freezer in addition to shelving units with miscellaneous hardware (nails, etc.).

#### **Future Space Use and Collections Requirements:**

- To become interpreted space;
- All archives will require storage space in the new facility with some room for decompression/rehousing;
- Flat file units need to be replaced and additional units are needed for decompression and rehousing (some materials currently boxed or rolled need to be moved to flat file units);
- Freezer to be retained and used in new storage facility; the freezer is 10 years old but still in good working condition and adequately sized with little to no additional needed freezer space anticipated;
- Shelving with miscellaneous hardware to potentially stay in place as part of the space interpretation.

### **[C15] Hall**

- As an extension of [C08] this space houses benches and crocks.

#### **Future Space Use and Collections Requirements:**

- To become interpreted space; bench and crocks will stay in place.

### **[C17B] Hall**

- This space has two large built-in metal cabinets housing more archives materials.

#### **Future Space Use and Collections Requirements:**

- To become interpreted space;
- Cabinets may remain in place, but the contents all require rehousing in the new facility.

### **[C19] Docent Lounge**

- This room currently houses a few misc. items including a large bust.

#### **Future Space Use and Collections Requirements:**

- To become interpreted space; all items need storage.

## **1<sup>st</sup> FLOOR**

### **[117] Vault**

- This space is currently one of two secure storage spaces on site; it houses valuable small items including jewelry and medals, as well as valuable items from the Mount Vernon loan collection;
- The space is sealed with two doors and is fitted with two built-in wooden shelving units.

**Future Space Use and Collections Requirements:**

- May be used as a combination storage and display space. The back portion of the space is not visible if the vault door is left open, so it could be retained as a temporary or rotating collections storage space. If the front portion is retained for display of valuable items, a Plexiglas™ or sheet acrylic cover should be installed at the front of the shelves to provide additional protection and security;
- The built-in shelving can be reused;
- Space is available to add a small metal shelving unit to provide additional temporary storage space;
- All items currently located in the space require storage in the new facility;
- Jewelry and other valuable “smalls” will need to be housed in locking closed cabinet in the new facility.

**[119] Office Closet**

- This space currently contains miscellaneous loose collections items.

**Future Space Use and Collections Requirements:**

- Space needs to be emptied of all stored contents due to pest concerns.

**[Case Furniture 1<sup>st</sup> Floor]****Future Space Use and Collections Requirements:**

- All case furniture needs to be emptied of stored contents and retained for temporary storage space only as needed. All stored items require housing in new storage facility.

**2<sup>nd</sup> FLOOR****[202] Textile Storage**

- This room currently contains boxed textiles in addition to a few rolled textiles on metal shelving units.

**Future Space Use and Collections Requirements:**

- To become interpreted space;
- All collections will require storage space in the new facility with room for decompression and rehousing;
- Rolled and hanging storage will be needed for some flat textiles and garments;
- Metal shelving units currently in the space can be re-used for boxed materials if the new space configuration allows. However, the units require re-decking with archival shelving materials.

**[203] Furniture Storage**

- This room currently houses a majority of the furniture collection on open shelving units, with overflow furniture stored on the floor.

**Future Space Use and Collections Requirements:**

- To become interpreted space;
- All collections will require storage space in the new facility;
- Some anticipated deaccessions from the furniture collection will allow space for needed decompression;
- Metal shelving units currently in the space can be reused if the new space configuration allows. However, shelving would need to be re-decked with archival shelving materials.

#### **[204] Servants Bathroom**

- This space currently houses a majority of the print and framed items in the objects collection (distinct from the archives collection) on two wire shelving units.

##### **Future Space Use and Collections Requirements:**

- To become interpreted space;
- All items require rehousing in the new facility;
- A modular flat file storage and painting screens will be required for these materials.

#### **[207] Stair Hall and Closets**

- This space currently houses a few large pieces of case furniture as well as an assortment of smaller furniture items including chairs and an easel, all currently stored on the floor.

##### **Future Space Use and Collections Requirements:**

- To become interpreted space;
- Some pieces will be put on display, but the remainder require storage space in the new facility.

#### **[207a] Closet**

- This closet currently houses objects in 20 Hollinger bankers boxes.

##### **Future Space Use and Collections Requirements:**

- Space to be emptied and kept as rotating/temporary storage space;
- Boxes of objects to be moved to closet 207b.

#### **[207b] Closet**

- This closet currently houses miscellaneous collections items on built-in shelves.

##### **Future Space Use and Collections Requirements:**

- All items currently stored need to be rehoused and moved to the new storage facility;
- Space will be used to house boxes of objects from 207a.

#### **[207c] Closet**

- This closet currently houses Christmas decorations on built-in shelves.

##### **Future Space Use and Collections Requirements:**

- To be retained as Christmas storage with no change.

#### **[211] Closet**

- This closet currently serves as open storage for hanging textiles on a built-in rack, as well as wide brimmed hats and hatboxes on built-in shelves, and a chevalier mirror. This closet is attached to Guest Bedroom [208].

##### **Future Space Use and Collections Requirements:**

- To become closed storage;
- Some items currently in the space (mirror and wide brimmed hats) can remain on the built-in shelves;

- Hanging garments to be moved to [212] for storage;
- Remaining space to be used for overflow storage.

#### **[212] Closet**

- This closet currently houses a mixture of hanging textiles on a built-in rack, boxed textiles and miscellaneous collections items on built-in shelving, and a desk on the floor.

#### **Future Space Use and Collections Requirements:**

- To become mixed open storage/display space with some off-view built-in shelves available for temporary/rotating storage space;
- Most items require storage space in new facility;
- Space to be filled with items from [211].

#### **[217] Painting Closet**

- Currently used as miscellaneous/auxiliary storage.

#### **Future Space Use and Collections Requirements:**

- No change;
- All collections items in this space will either be put on display in the servants wing or remain in this space.

#### **[218] Bathroom**

- Currently used as miscellaneous/auxiliary storage.

#### **Future Space Use and Collections Requirements:**

- No change;
- All collections items in this space will either be put on display in the servants wing or to remain in the storage space as is.

#### **[219] Stair Hall**

- Currently houses assorted furniture pieces including large case furniture and small tables.

#### **Future Space Use and Collections Requirements:**

- Space to be cleared of contents;
- Some collections items in this space will be put on display in the servants wing, but others require storage in the new facility.

#### **[222] Curator's Office**

- This space currently serves as the Curator's Office with an assortment of collections items stored hanging on the walls or on shelves.

#### **Future Space Use and Collections Requirements:**

- To become open storage for all ceramics and glass, many of which are currently stored in a pantry on display;
- All items currently stored in the space require relocation to the new facility;
- Office space needed in new building.



### **[223] Storage Bathroom**

- This room currently stored assorted furniture, including a bed and some smaller tables/desks.

#### **Future Space Use and Collections Requirements:**

- To become interpreted space;
- All items currently in this space need storage in the new facility

### **[227] Curatorial Intern's Office**

- This space is currently a shared office for the Collections Manager and Collections Intern, as well as a space for object prep and conservation work. Some items are also stored in this space in boxes or hung on the walls.

#### **Future Space Use and Collections Requirements:**

- To become a closed storage space for seasonally rotated collections;
- All items currently stored in the space require storage in the new facility;
- Office space needed in new building;
- Conservation/collections prep work area needed in new building.

### **[Case Furniture 2<sup>nd</sup> Floor]**

#### **Future Space Use and Collections Requirements:**

- All case furniture needs to be emptied of stored contents and retained as temporary storage space only as needed, except the large Linen Press.
- The Linen Press will be retained as storage for frequently rotated textiles.
- All other stored items require relocation to the new storage facility.

### **ATTIC**

- The attic is currently not climate controlled and has no storage equipment, but houses many collections including trunks, textiles, furniture, ceramics, framed items, and modern Christmas decorations.

#### **Future Space Use and Collections Requirements:**

- To become interpreted space with added climate control;
- Some of the items including the trunks will stay in the space for interpretation.
- Other items including the ceramics and some of the furnishings will be moved into the house for open storage or display;
- All of the remaining items need to be rehoused and stored in the new facility on a variety of equipment, including closed cabinets, hanging racks, rolled tubes, painting screens, and open shelving. Bin storage can be used for some framed works if needed, but the use of painting screens will be more efficient in the space and ultimately better for the preservation of the frames.

## **GARAGE**

### **Bomb Shelter**

- This room currently houses items on metal shelving units including radios and radio equipment, a large assortment of garden tools (shovels, ladders, rakes, grind stone, plows, etc.), and a variety of weapons (guns, swords, etc.).

#### **Future Space Use and Collections Requirements:**

- To become interpreted space;
- Radios and radio equipment will remain in place for interpretation;
- Garden tools may stay on site or be moved to other locations for display;
- All other stored items require storage in the new facility, including the weapons collection, which requires a secure storage unit such as a lockable closed cabinet designed for weapons storage;
- Metal shelving units currently in the space can be re-used if the new space configuration allows;
- Shelving requires re-decking with archival shelving materials.

### **Bomb Shelter Hall**

- Currently 10 chairs are stored on metal shelving units in this area.

#### **Future Space Use and Collections Requirements:**

- To become interpreted space;
- All chairs need storage in new storage facility;
- Metal shelving units currently in the space can be re-used if the new space configuration allows;
- Shelving requires re-decking with archival shelving materials.

### **Silver Vault**

- This space is currently the second of two secure storage spaces on site, and houses numerous boxes of ceramics and glass on metal shelving units in addition to a large collection of silver in closed metal cabinets;
- The space does not have environmental control at present, and experiences spikes in room temperature, possibly caused by steam pipes that run through the space, or the heat generated by the portable dehumidifier in the space.

#### **Future Space Use and Collections Requirements:**

- This space may be retained for collections storage, possibly to house the rare book collection that is currently off site or for overflow archives storage;
- All collections currently in the space will need to be rehoused and stored either in the main house in open storage or in a temporary rotating collections storage area, or moved to the new facility;
- The plans for this space include the addition of environmental control. However, an internal barrier system such as a vestibule may need to be built into the space to enable the environmental conditions to be held at a stable, desired level, especially if archival materials will be stored in this space. An improved system for dehumidification will be needed;
- This space may also be considered for visible storage, or retained as secure storage;
- Metal shelving units currently in the space can be re-used if the new space configuration allows;
- Shelving requires re-decking with archival shelving materials;

- Metal cabinets in the space are either fit for reuse in the new space if space configuration allows, or can stay in place as storage for collections items.

### **Under Stairs**

- Currently two flat file units are stored under the stairs.

#### **Future Space Use and Collections Requirements:**

- To become interpreted space;
- Flat files need to be relocated possibly for reuse as rotating storage.

### **Rare Books Closet**

- Currently houses a few boxes of the rare book collection;
- The space is not climate controlled and has limited access.

#### **Future Space Use and Collections Requirements:**

- Space needs to be emptied of collections items;
- May be reused for supply storage or other use.

## **DOWER HOUSE**

### **Attic**

- This space is currently used for storage of approximately 12-13 rolled rugs and some architectural elements.

#### **Future Space Use and Collections Requirements:**

- Rugs should be moved to the new storage facility if possible;
- The load bearing capacity of the attic should be inspected, and if deemed fit, some storage equipment could be moved into this space to improve storage conditions for items including the architectural elements, which can remain stored in this space.

### **Basement**

- Currently houses many architectural elements and some furniture.

#### **Future Space Use and Collections Requirements:**

- No change.

### **Bathroom**

- Currently used for storage of a wax figure diorama.

#### **Future Space Use and Collections Requirements:**

- This space should be emptied of all stored collections items;
- Diorama to be removed from this space and either put on display or sent out for conservation.



## LOAN COLLECTION

Tudor Place is currently and indefinitely in possession of a large loan collection of ~1,350 items, comprised of four separate loans from lenders Martha Custis Peter and Walter Gibson Peter, who are siblings and descendants of the former occupants of Tudor Place.

The lenders each have a collection of Peter family related objects, and a collection of Mount Vernon and Washington family related objects on loan to the Tudor Place. Of these items, only ~35 are on display, with the remainder occupying a significant amount of space in storage. Roughly only half of this collection has been added to PastPerfect at this time, but the collection has been fully inventoried. ~1,219 items are currently on loan from Martha Custis Peter, and ~131 are on loan from Walter Gibson Peter.

Currently, these items are occupying storage space in the main house in the following locations: Archives Storage [C10]; Housekeeping [C13]; Furniture Storage [203]; Servants Bathroom [204]; Textile Storage [202]; and the Vault [117]. Portions of these loans are also located in the Garage in the Bomb Shelter, Bomb Shelter Hall, and the Silver Vault.

The loan collection in its entirety (excluding pieces on display) would occupy approximately **160 sq. ft.** of storage space in the new facility for the storage equipment alone (room for access is not included in this estimate).

## TECHNICAL GUIDANCE AND CONSIDERATIONS FOR PROPOSED COLLECTIONS STORAGE FACILITY

Based on the storage recommendations in the attached table, the following amount of space is needed to adequately house the collection:

Collections storage area provided: <b>1,950 sq. ft.</b>	Collections storage area needed (with circulation): <b>2,180 sq. ft.*</b>
Archives storage area provided: <b>380 sq. ft.</b>	Archives storage area needed (with circulation): <b>320 sq. ft.*</b>
	Rare books storage area needed (with circulation): <b>95 sq. ft.</b>

*\* These space estimates include the needed footprint for equipment with a standard increase of (x1.5) for access/circulation. These calculations do not take space layout into account, which may necessitate a different total for overall sq. ft. needed to accommodate the equipment with appropriate access. Due to the irregular shape of the proposed storage areas, it is likely that some of the equipment will need to be custom-made to fit into and optimize space utilization. The shape of the space will limit the actual usable square footage provided in the new facility.*

For long-term preservation of collections, the overall objective is to minimize the risks or threats to the collections by creating a dedicated storage area that is:

- Secure and physically separated from the public, visitors, unauthorized staff, vendors and contractors, including maintenance and service contractors, with intrusion detection and alarms tied into the museum's security monitoring system;
- Within a single contiguous space for safety and security, systems efficiency, and personnel efficiency;
- Actively and passively protected from fire, smoke and water originating within the space, and separated and protected from the fire, smoke and water that may originate in another part of the building;
- Isolated from external pest loci and pest food sources, especially insects and rodents;
- Protected from sources of water or moisture, such as exterior weather or internal leakage from building systems and services, and have water intrusion detection with alarms tied into the museum's security monitoring and facilities maintenance systems;
- Protected from damaging levels of ultraviolet or visible light from either natural or artificial sources;
- Environmentally stable year-round with respect to relative humidity and temperature, within ranges that are suitable for the collections (i.e., conditions that do not allow germination of microorganisms and do not create damaging dimensional change in hygroscopic materials), yet will not jeopardize the longevity of the building envelope. Environmental stability is usually accomplished by a combination of envelope and HVAC systems strategies, balanced for both construction and operating costs;
- Protected from interior and exterior environmental particulates and pollutants such as dust, reactive gases and soluble or reactive particulates, including off-gassing from architectural finishes and furnishings;
- Structurally robust, particularly with respect to storage loads, but also with respect to vibration and deflection from activities within, or outside the storage area; and,
- Is configured and finished to facilitate regular housekeeping and maintenance and pest management inspections, without inaccessible gaps behind, between, beneath and above storage equipment, and with sufficient power receptacles to plug in task lighting and vacuum cleaners.

In addition, collections storage should:

- Be separate from crate or exhibit furniture storage;
- Have an adjacent secured and dedicated workspace for object processing/intake;

- Be equipped with high-quality storage furniture manufactured by a qualified museum equipment vendor, which is configured for ease of accessibility. Equipment should allow all objects to be stored a minimum of 6” off of the floor with at least an 8” clearance from the ceiling, or according to building code requirements. Please see the attached table for equipment recommendations;
- Provide appropriate housings and storage mounts for individual collections items to prevent the objects from direct contact with storage furniture and allow for safe handling; and,
- Have an independent monitoring program for relative humidity and temperature.

## STORAGE ENVIRONMENT RECOMMENDATIONS

As the addition to the 1914 Garage will be new construction, Tudor Place has the opportunity to create collections storage spaces that provide optimal conditions for the collections. It is reasonable to expect that the new construction will be of robust construction that is fully insulated, with a vapor retarder, double-glazed windows, and double doors. The location of the collections storage areas partially or fully below grade, will help with thermal stability. However, the construction must be watertight and water detection devices will be needed to monitor for potential water intrusion.

The current prevailing guideline for environmental management for collections longevity in museums, libraries and archives is Chapter 23: “Museums, Galleries, Archives and Libraries” of the 2015 *Applications Handbook* published by the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE). Chapter 23, developed by engineers, museum conservators and conservation scientists, provides guidance for reasonably achievable interior environmental management criteria, based on the envelope characteristics of a building. The ASHRAE Chapter A23 guidelines for temperature and relative humidity reflect the degree of control (or conversely, the degree of variability) that might be expected for different types of building construction commonly encountered in buildings used as museums.

With robust design and construction, it is reasonable to expect that the new storage areas can be provided with ASHRAE Class A control for environmental management, which should eliminate the risk of environmentally-induced mechanical damage to most objects, paintings, photographs and books in the Tudor Place collections. However, cool and cold storage may be required for some of the archival collections.

There are two options available for achieving ASHRAE Class A control: fixed and float. These options are outlined in the table below:

Class of control	Temperature: set point	Relative Humidity: set point or historical annual average	Seasonal Adjustment in System Set Point
A: Fixed for general collections	between 59 and 77° F ± 4° F.	50% ± 10%	RH: no change; T: up 9° F., down 18° F.
A: Float for general collections		50% ± 5%	RH: up 10%; down 10% T: up 9° F., down 18° F.
Cool storage for chemically-unstable library and archival materials	50° F	30 – 50%	No change



Please note:

- Tudor Place is encouraged to eliminate occupancy in collections storage areas. This will allow the temperature in those areas to remain in the cooler end of the above-noted range. This will help to reduce the rate of chemical deterioration of collections materials;
- While the recommendation for cool storage is provided, its feasibility in the new building is unknown;
- Chemically unstable archival materials requiring cold storage can be accommodated in the existing freezer.

An independent environmental monitoring system should be employed in the new facility along with the continuing use of the approximately 20-30 environmental dataloggers currently deployed by the Tudor Place throughout the property. These loggers should be bench checked annually for accuracy and replaced as needed.

Separate HVAC zones should be set up for the collections storage, archives, and work areas. The exhibit prep space should be set slightly warmer than the collections storage areas to allow for acclimation of the objects before being moved to exhibit in the main house or elsewhere.

## **ADDITIONAL RECOMMENDATIONS AND CONSIDERATIONS**

### **Additional Object Considerations:**

- A significant portion of the collection in all collections storage areas require rehousing with adequate padding/support, decompression, etc. and will require relocation to the new facility;
- A complete inventory, along with proper numbering and labeling of each item in the collection should be completed prior to any collection move or relocation;
- Safe transport of objects between storage facility and main house must be considered and a system must be devised to account for weather considerations (thermal shock, humidity, rain, snow/ice, etc.) as well as the general safe carry and transport of objects of all sizes;
- The project will need to be phased to accommodate both the new construction and the upgrades to the main house systems;
- Precautions will have to be put in place to protect objects and minimize the number of times objects need to be moved and eliminate the need for off-site storage.

### **Additional Space Considerations:**

- Space will be needed for supply storage for both archives and objects collections;
- While the ceiling height of the facility is somewhat flexible at this point, access considerations must be taken into account, and additional space for specialized equipment may be needed to safely access collections are stored higher than 5-6 feet;
- Floor loading capacity needs to be studied for mobile aisle shelving;
- Considerations will need to be made for the heat generated by the archives freezer unit;
- As the facility shares space next to and beneath a greenhouse, a rigorous leak detection program is required;
- The concurrent storm water management plan will help reduce shed runoff as the Tudor Place is located on a hilltop; nonetheless, flooding and earthquake protection and preparedness must be considered;
- Secure access must be available to authorized personnel only: provisions and policies must be in place for who can access the space, what kind of access they need, and how that access can be controlled. This includes access for key staff members, contractors, researchers, etc.;
- Access also includes consideration of physical access; the elevator must be sufficiently sized and located to accommodate the largest collections item and must have the ability to be secured from the public;
- Any conservation workspace must have appropriate ventilation and security;
- Any research or reference room must have an attached office/supervisory space.

### **Additional Equipment Considerations:**

- Many of the existing metal shelving units are in acceptable condition for reuse if the composite board decking is replaced with metal decking. These units were purchased in 2006-2007, and were designed to be custom fit into the spaces they currently occupy. This may make the units difficult to reuse in the new facility. Additionally, for optimal space use, all units in the new facility will need to be on mobile aisle units, necessitating that the existing units be converted for mobile aisle use. These required conversions and the space available may make reuse of the shelving units impracticable, inefficient, and ultimately more expensive than purchasing new equipment altogether. Portions of the existing shelving may be reused elsewhere on site for storage of the temporary/rotating collection in Office [227] or used for supply storage or temporary shelving in the object work/prep space.



## STORAGE EQUIPMENT GUIDELINES

- The lowest shelf of each unit will be 6” off the floor (the height of the casters); the top of the unit will be a minimum of 8” from the ceiling;
- Shelves holding furniture or unboxed items require lining with archival board for protection against direct contact with or penetration through wire rack shelving.

Please note the following:

- Manufacturers’ cut sheets for the equipment mentioned in the spreadsheet are appended to this report for reference;
- Standard (i.e. non-custom) equipment manufactured by established museum storage equipment vendors are to be used to the extent possible.

Please see the attached spreadsheet for detailed information about the types and quantities of storage equipment recommended. Reading from left to right the spreadsheet provides:

<b>Storage Location</b>	Anticipated location of collection to be stored
<b>Equipment Type</b>	Type of storage equipment which is made up of storage modules: cabinet; shelving; painting screen; flat file unit
<b>Number of Units</b>	The total number of storage equipment units required to accommodate the necessary modules.
<b>Overall Unit Dimensions (exterior) (H x W x D)</b>	Exterior height in inches x exterior width in inches x exterior depth in inches, and where relevant the height of space between shelves
<b>Equipment Module</b>	Whether the objects are placed on shelves, in drawers, etc. (see Terminology above).
<b>Number of Modules</b>	Number of modules of this type that are needed to store these materials.
<b>Area (sq. ft.) of equipment</b>	
<b>Comments</b>	Further explanation of the individual lines of equipment.

## MUSEUM STORAGE EQUIPMENT MANUFACTURERS/VENDORS

The following manufacturers have experience in working with museum collections and may be contacted for additional information and contacts for representatives in Washington, D.C.

Viking Metal Cabinet Company  
24047 W. Lockport St. Ste. 209  
Plainfield, IL 60544  
Phone: 800-776-7767  
Fax: 800-990-0981  
Email: [sales@vikingmetal.com](mailto:sales@vikingmetal.com) Web:  
[www.vikingmetal.com](http://www.vikingmetal.com)

SpaceSaver  
1450 Janesville Avenue  
Fort Atkinson, WI 53538  
Phone: 800-255- 8170  
Web: [www.spacesaver.com](http://www.spacesaver.com)

Delta Designs Limited  
P.O. Box 1733,  
Topeka, Kansas USA 66601  
Phone: 785-234-2244  
800-656-7426  
Fax: 785-233-1021  
Email: [sales@deltadesignsltd.com](mailto:sales@deltadesignsltd.com)  
[info@deltadesignsltd.com](mailto:info@deltadesignsltd.com)  
Web: [www.deltadesignsltd.com](http://www.deltadesignsltd.com)

Aurora Storage Products, Inc. 600  
South Lake Street Aurora, IL 60506  
Phone: 630-897-6951  
800-277-1699  
Fax: 630-897-6994  
Web: [www.aurorastorage.com](http://www.aurorastorage.com)

InterMetro Industries  
Phone: 973-715-8135  
Fax: 973-875-5377





Existing Storage Equipment										
Building	Floor	Room Number	Room Name	Equipment Type	# of Units	Height (in.)	Width (in.)	Depth (in.)	# of Modules	Notes
Main House	Basement	C06	Wood Cellar	Metal cabinet	1	78	36	24		Retain for taxidermy storage
Main House	Basement	C07	Coal Cellar	Metal shelving	1	72	36.5	18.5	4	Retain in place
Main House	Basement	C07	Coal Cellar	Metal shelving	4	75	36	24	4	Retain in place
Main House	Basement	C08	Cellar Hall	N/A						Items currently on floor
Main House	Basement	C10	Archives Storage	Metal shelving	18	70	36	15	5	
Main House	Basement	C10	Archives Storage	Metal shelving	1	68	36	15	5	
Main House	Basement	C13	Housekeeping	N/A						Items currently on floor
Main House	Basement	C14	Archives Work Room	Flat files	2	17.5	54	40.5	5	
Main House	Basement	C14	Archives Work Room	Flat files	2	16	54	42.5	5	Replace both units
Main House	Basement	C14	Archives Work Room	Fridge	1	55	28	26		
Main House	Basement	C17B	Hall	Metal cabinet	2	89	32	35	6	Exterior dimensions including 6" footer
Main House	Basement	C19	Docent Lounge	N/A						Items currently on floor
Main House	1st Floor	117	Vault	Built-in shelving						*Vault storage currently: 10 shelves + floor (shelves 41w x 25d)
Main House	1st Floor	119	Office Closet	Built-in shelving						
Main House	1st Floor		Case Furniture	N/A						
Main House	2nd Floor	202	Textile Storage	Metal shelving	1	96	109.5	36	3	each unit is 2 units connected together
Main House	2nd Floor	202	Textile Storage	Metal shelving	2	96	121.5	36	3	each unit is 2 units connected together
Main House	2nd Floor	202	Textile Storage	Metal shelving	1	96	72	36	3	
Main House	2nd Floor	203	Furniture Storage	Metal shelving	1	108	108	48	3	2 units connected together
Main House	2nd Floor	203	Furniture Storage	Metal shelving	3	108	72	30	3	
Main House	2nd Floor	203	Furniture Storage	Metal shelving	1	108	84	30	3	
Main House	2nd Floor	203	Furniture Storage	Metal shelving	1	108	48	30	3	
Main House	2nd Floor	203	Furniture Storage	Metal shelving	1	108	180	36	3	3 units connected together
Main House	2nd Floor	204	Servants Bathroom	Metro shelving	1	72	36	18	3	
Main House	2nd Floor	204	Servants Bathroom	Metro shelving	1	36	20	36	2	
Main House	2nd Floor	211	Closet	Built-in shelving						
Main House	2nd Floor	212	Closet	Built-in shelving						
Main House	2nd Floor	217	Painting Closet	N/A						Items currently on floor
Main House	2nd Floor	218	Bathroom	N/A						Items currently on floor
Main House	2nd Floor	219	Stair Hall	N/A						Items currently on floor
Main House	2nd Floor	222	Curators Office	N/A						
Main House	2nd Floor	223	Storage Bathroom	N/A						Items currently on floor
Main House	2nd Floor	227	Curatorial Intern's Office	N/A						
Main House	2nd Floor	207a	Closet	Built-in shelving						
Main House	2nd Floor	207b	Closet	Built-in shelving						
Main House	2nd Floor	207c	Closet	Built-in shelving						
Main House	2nd Floor		Case Furniture	N/A						
Main House	Attic	301		N/A						Items currently on floor
Garage			Bomb Shelter	Metal shelving	1	84	157	30.5	3	2 units connected together
Garage			Bomb Shelter	Metal shelving	4	99	36	24	5	
Garage			Bomb Shelter	Metal shelving	1	99	36	24	4	
Garage			Bomb Shelter Hall	Metal shelving	1	84	72.5	36		
Garage			Silver Vault	Metal cabinet	5	78	36	24	5	
Garage			Silver Vault	Metal shelving	2	96	72	24.5	2	
Garage			Silver Vault	Metal shelving	1	96	97	24.5	3	
Garage			Silver Vault	Metal shelving	1	96	72	24.5	3	
Garage			Silver Vault	Metal shelving	1	100	48	30	5	
Garage			Files Under Stairs	Flat Files	2	16	54	42	5	Currently empty - can be repurposed
Garage			Rare Books Closet	N/A						
Dower House	Attic			N/A						Items currently on floor
Dower House	Basement			N/A						Retain storage as is
Dower House	2nd Floor		Bathroom	N/A						