MASTER PLAN

HARTFORD BOTANICAL GARDEN

AT COLT PARK

December 3, 2007

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EXECUTIVE SUMMARY

This Master Plan has been developed in collaboration with the Board of the Hartford Botanical Garden, and in consultation with many interested constituencies in the neighborhood, city, and state. We are indebted to the continued interest, involvement and commitment of all involved, including in particular Lisa Musumeci (Chairperson), Linda Osten, and Jack Hale. The purpose of this master plan is to present a strong and clear vision for HBG, clearly define the long-term plan, and establish manageable incremental steps to achieve that goal. When implemented the master plan will provide a facility that satisfies the mission of HBG and establishes a center for horticultural study and enjoyment serving Hartford and the region as a whole.

The study is organized in two parts:

I. Existing Conditions
II. The Master Plan

An Appendix provides supporting materials from a variety of sources.

Highlights of the report are as follows:

Existing Conditions:

The approximately 18-acre site is part of the original gardens and grounds of Armsmear, the Colt Family estate, which was built in 1857. This provides a rich historical legacy, including some documentation of the original gardens, ponds and greenhouses, which were part of the estate. The site slopes to the east, with some long-range views across the Ct River valley. A number of large specimen trees remain on the site, particularly along the western edge at Wethersfield Avenue. In addition it includes several original support buildings for the Colt Estate, in varying levels of disrepair.

The report outlines the current condition of each building and includes recommendations for renovations. Those buildings defined as 'contributing structures' in formal historic site descriptions for the Department of the Interior (National Park Service), the Carriage Barn and Gardener's Cottage, require careful and sensitive renovation that meets the specific NPS standards for historic preservation.

The Master Plan:

The Master Plan envisions gardens that offer a wide variety of plant types and growing conditions, which address the three major themes of Heritage, Urban Horticulture, and Ecologies of the region. Within these larger categories are more focused gardens addressing such topics as: historic gardens of the Colt Estate, plants from the home countries of Hartford's immigrants, healing gardens, invasive plants and children's gardens, among others. In support of the HBG mission, the gardens and buildings will provide opportunities for both enjoyment of the gardens and structured educational programs (visiting school groups, after-school programs etc.).

The program developed for HBG suggests a total of 37,400 Assignable SF, of which about 15,000 ASF can be accommodated within the existing buildings on the site. The remaining program areas will be included in the two new structures proposed: a Working Greenhouse (including educational spaces) to be located at the southern edge of the site, and a Conservatory Building to be located just south of the Carriage Barn and Shade Gardens. This structure will be the final 'jewel' of the master plan, providing four glass-enclosed Plant Rooms as well as a large multi-purpose reception hall.

Phasing / Cost:

Phasing / Cost:
The master plan breaks the project into three phases. Subject to fund-raising efforts for the project, the Master Plan has assumed the following dates for start of construction for the initial phases:

Phase I (2008): Estimated Construction Cost in 2008: $2.5 Million

Renovate 25 Stonington St. and the Park Maintenance Building, and begin the Shade Gardens.

Phase II (2010): Estimated Construction Cost in 2010: $6.5 Million.

Renovate the Gardeners House, Carriage Barn, and construct the Working Greenhouse. Extend the Shade Gardens, and begin the Teaching Gardens and plots at the south end of the site.

Phase III (TBD): Estimated Construction Cost: to be determined .

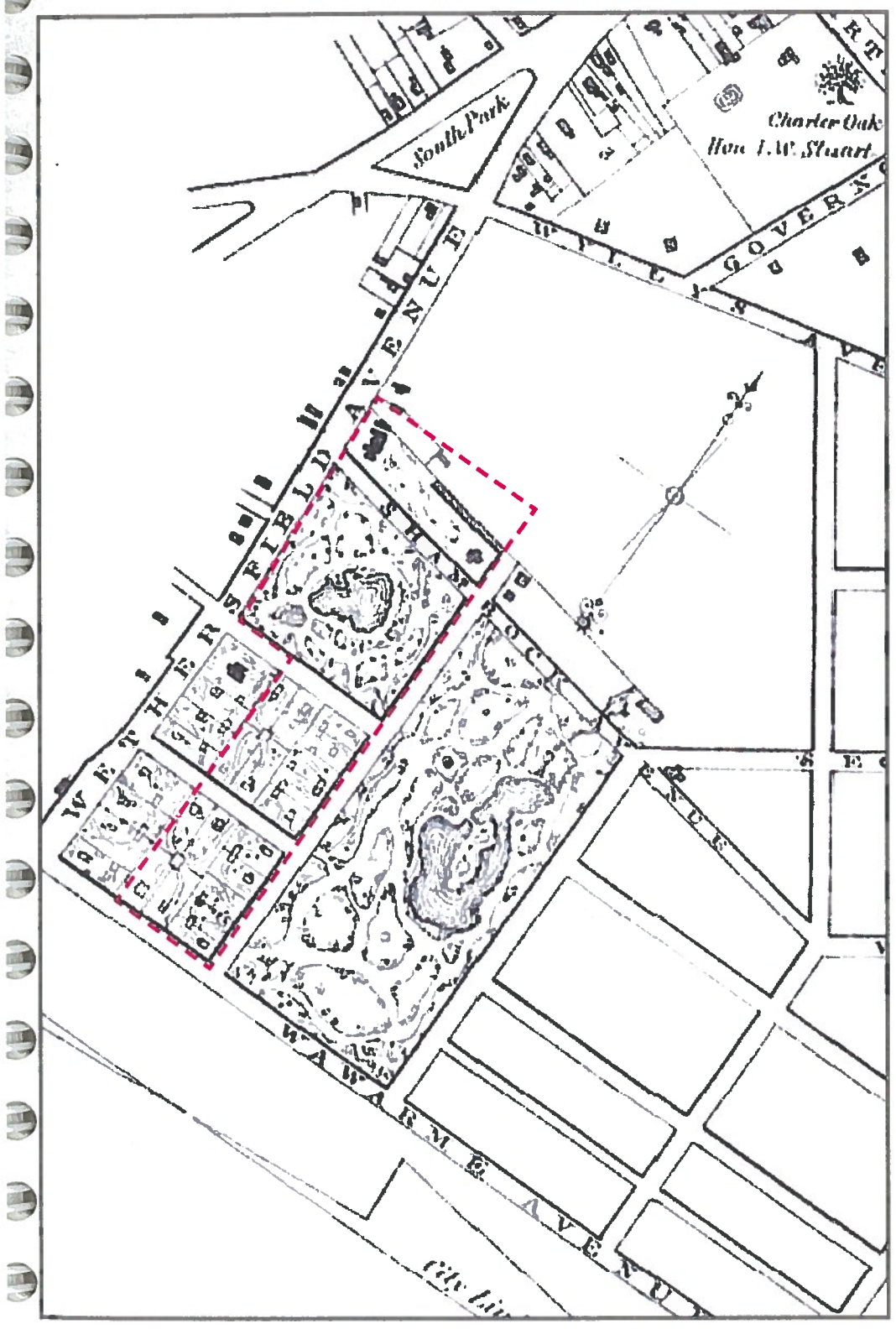
Construct the Conservatory, and complete the Terrace Gardens and other remaining portions of the garden plan.

These costs are estimated for construction and do not include other associated 'soft costs', such as design fees, legal fees and permits, testing, etc. Changes in construction timing, scope or market escalation will affect the final costs.

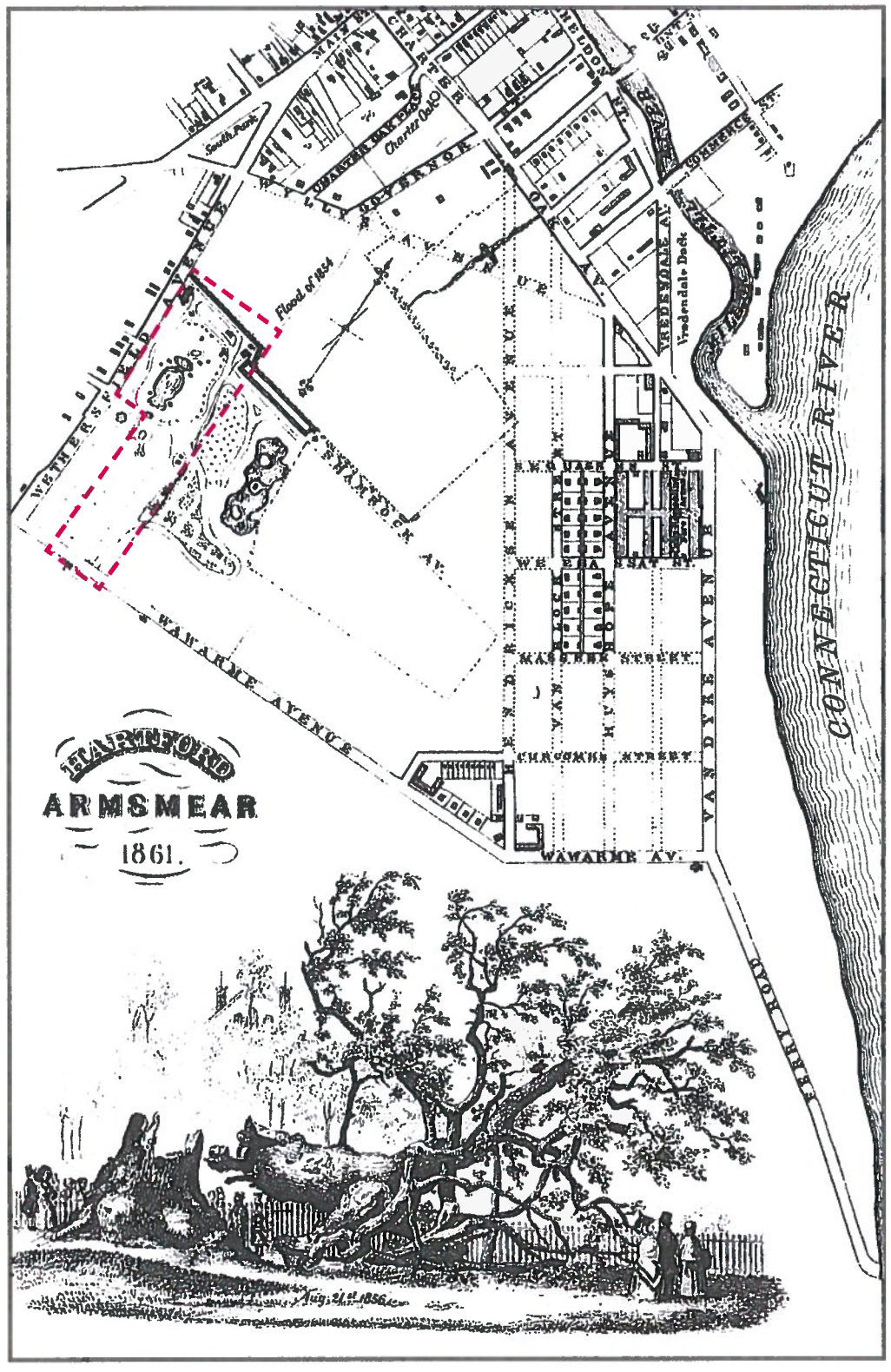
History of the Site:

The approximately 18 acre site is part of the original gardens and grounds of Armsmear, the Colt Family estate, which was built in 1857. At that time the site offered dramatic views across meadows and floodplains to the Connecticut River to the east and south. The estate grounds were designed by landscape architects Cleveland & Copeland and included a variety of gardens, ponds and water features, along with orchards, working gardens, greenhouses, and support buildings. There was a deer paddock, duck pond, peacocks and other exotic wildlife. There were also plant varieties from many parts of the world, some growing on the grounds, others maintained within the large conservatory that was attached to the south side of Armsmear.

1856



1861



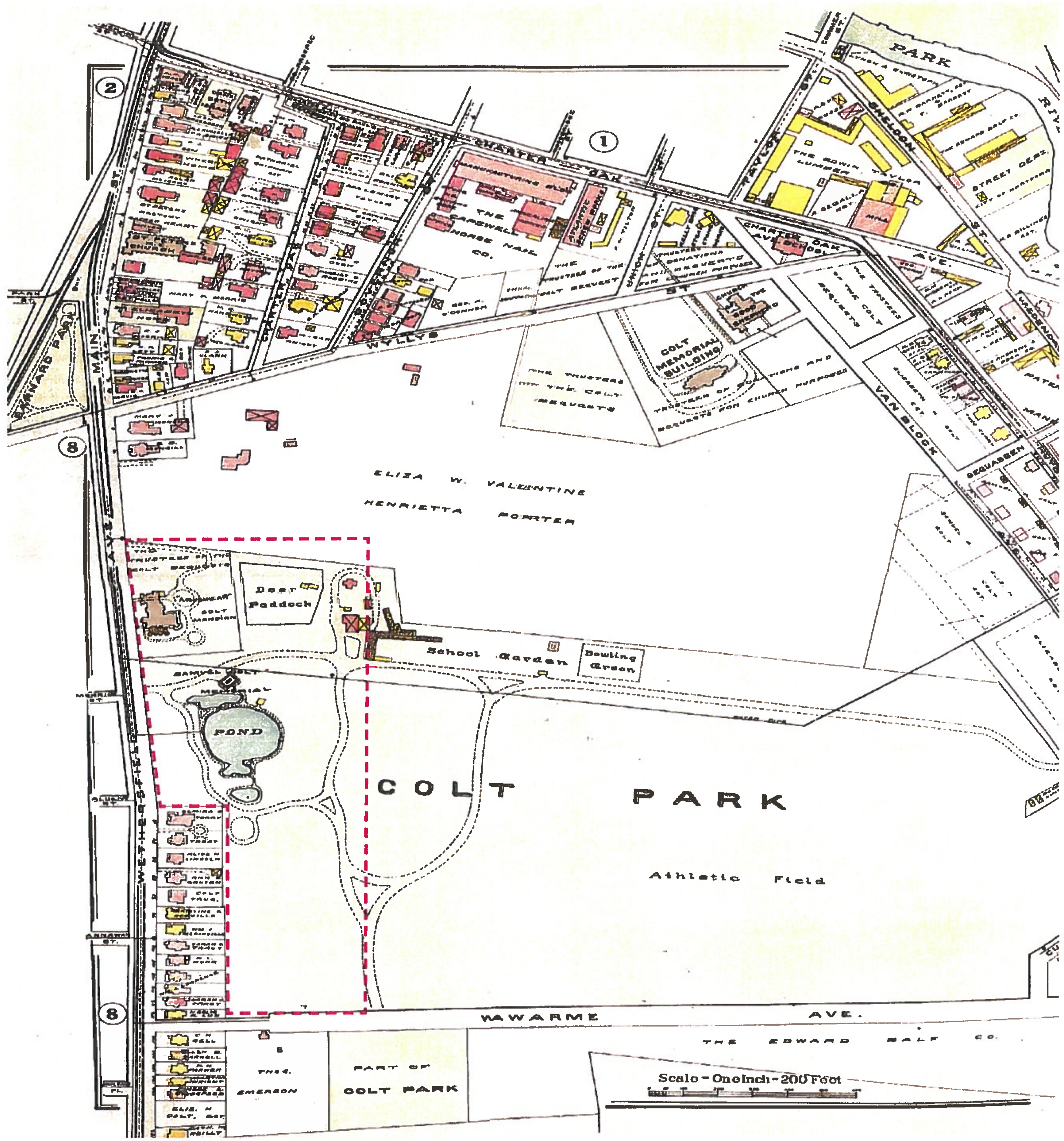
An extensive group of greenhouses stretched down the hill, adjacent to present-day Stonington Street and covered much of the area currently occupied by Parks Department maintenance sheds and the Community Pool. In addition, the site contained a residence for the Colt family gardener, an Ice House and a Carriage Barn (all built in the 1860's and 70's and considered by the National Park Service to be 'contributing structures' to the Colt Estate).

A memorial to Sam Colt was erected on the site in the early 1900's, adjacent to the upper ponds. In 1905, upon the death of Elizabeth Colt, 100 acres were donated to the City of Hartford, creating Colt Park. The city added playing fields, a skating rink and pavilions to the park. They also demolished the greenhouses to create school and community gardens, and filled in the ponds, which were deemed to be a hazard. A community swimming pool was added in the 1920's, and enlarged in 2005.

In the 1930's the city built a series of maintenance sheds for the use of the Parks Department, including an addition to the east side of the Carriage Barn. In the 1940's a house was constructed at 25 Stonington Street as a residence for the Head of the City Parks Department.

In the intervening years, city budgets for park maintenance and staffing have steadily diminished, resulting in an increasing level of neglect of the grounds and buildings.

1910



MAIN ST.
WETHERSFIELD AVE.
BRAINARD PARK
CHARTER OAK ST.
WYLLYS ST.
UNION ST.
TAYLOR ST.
SHELDON ST.
VAN BLOCK AVE.
WAWARME AVE.
ELIZA W. VALENTINE
HENRIETTA PORTER
Deer Paddock
POND
School Garden
Bowling Green
COLT PARK
Athletic Field
COLT MEMORIAL BUILDING
THE EDWARD BALF CO.
THOS. EMERSON
PART OF COLT PARK
PARK RIVER
Scale - One Inch - 200 Feet

SITE ANALYSIS

Existing Site Conditions:

The site is located in the south end of Hartford, within the western side of what is currently Colt Park. The Hartford Botanical Gardens (HBG) site borders on Wethersfield Avenue to the west, Wawarme Avenue to the south, and Stonington Street to the north. The easterly boundary of the HBG property falls on the east side of the existing internal roadway leading from Wawarme Avenue to the paved parking lots used by the adjacent Colt Park athletic fields.

The site generally slopes from west to east, from Wethersfield Avenue down towards Colt Park itself. Maximum elevation along Wethersfield Avenue is approximately 65', while the site slopes to a minimum elevation of approximately 20' along the internal roadway along the eastern property line. The vast majority of the site is grassed lawn area, with groups of trees dispersed randomly throughout. Trees range from small 8"-10" crabapple trees to 20"-24" pines, to some large 40"-48" oak and maple trees. A paved walkway bisects the site, and there are two major internal paved roadways, one which outlets to Wawarme Avenue, and one which outlets to the signalized intersection with Wethersfield Avenue. A small driveway enters the site from Stonington Street in the north to access a small off-street parking area. This parking area is not connected to any of the internal roadways. The internal roadways continue to the northeast corner of the site where they meet at a T intersection and continue on the east, and provide access to the Hartford DPW maintenance garage located on the Colt Park property. All three existing building on site are located in this area. These buildings include the "Carriage Barn" building and two other residential structures. Additionally, a portion of the Hartford DPW's maintenance garage is located on the far northeastern part of the HBG site.

Soils on the site consist of mostly disturbed urban complex soils. The Colt Park property, located to the east, consists of a majority of silty loam soils due to its lower and flatly sloped topography, and its closer proximity to the Connecticut River. As the HBG property slopes up and away from the Colt Park property, the soils begin to improve with more coarse grained material and less silty soils. However, due to the generally disturbed urban soil conditions, and the presence of historical earthwork (cuts and fills), it is important to conduct on-site soil testing. Both deep tests and soil borings are recommended to determine soil characteristics, as well as to determine the presence of ledge or groundwater. Testing should be conducted in areas where proposed buildings, retaining walls, or other structures are being located. Soil condition will also play an important role in the design and functionality of the bioswale and pond.

Utility Inventory

Due to the HBG site's location within the City of Hartford, all necessary utilities located in the three public streets bordering the site are accessible from the site. A following is a list of available utilities by street:

Wethersfield Avenue:
- Underground Electric Service (CL&P)
- Underground CATV and Telephone Service
- Public Water (MDC)
- Public Sewer (Gravity) (MDC)
- Natural Gas Service (CNG)
- Municipal Storm Drainage

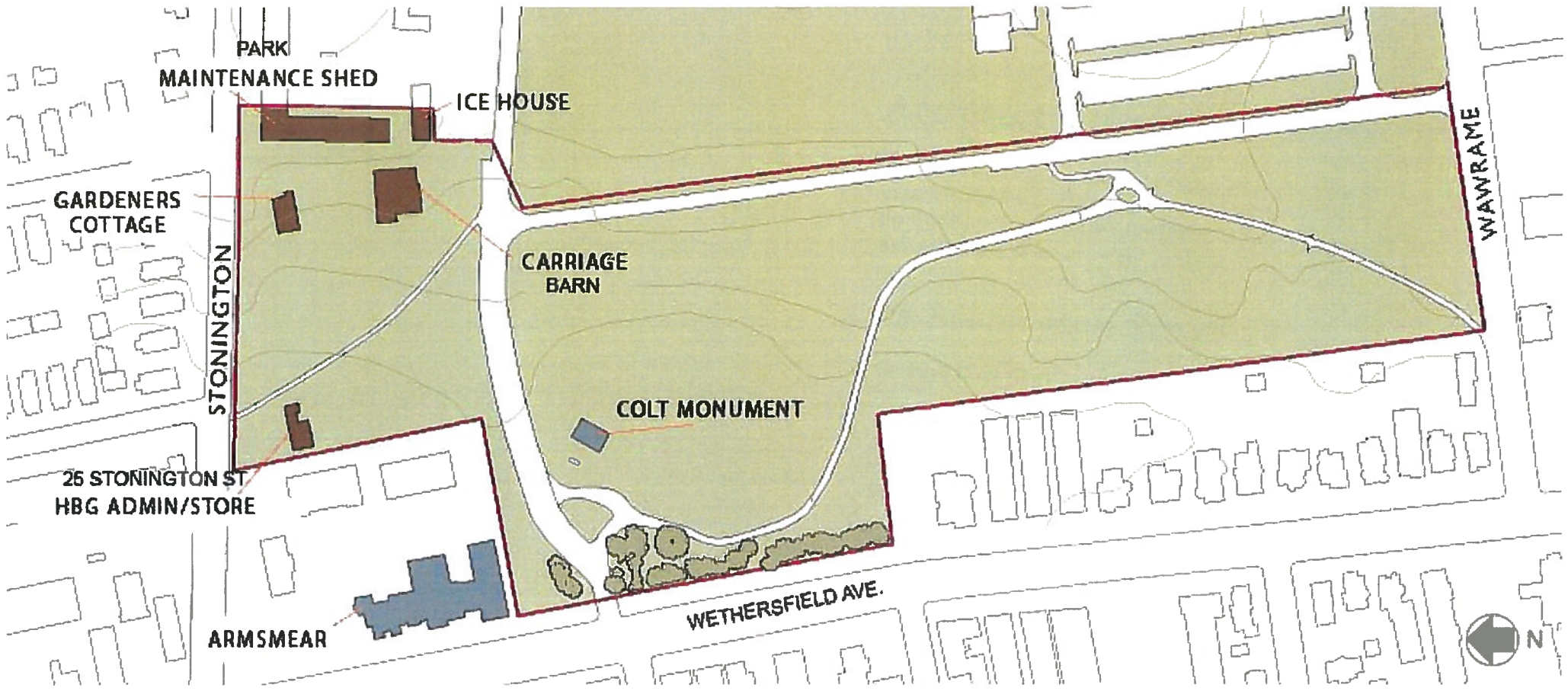
Stonington Street
- Above Ground (Pole Mounted) Electric Service (CL&P)
- Above Ground (Pole Mounted) CATV and Electric Service
- Public Water (MDC)
- Public Sewer (Gravity) (MDC)
- Natural Gas Service (CNG)
- Municipal Storm Drainage

Wawarme Avenue
- Underground Electric Service (CL&P)
- Underground CATV and Telephone Service
- Public Water (MDC)
- Natural Gas Service (CNG)
- Municipal Storm Drainage

*Public Sewer (MDC) is located just south of the site on Wawarme Ave, at the intersection with Ledyard Street

Due to the current uses associated with Colt Park, utilities which extend into the site are fairly limited. Utilities located on-site include electric service from Wawarme Avenue for the roadway and parking lot lighting, and Wethersfield Avenue for the roadway and monument lighting on the west side of the site. All on-site buildings are served by public water and public sewer through standard service connections, as well as electric, CATV and telephone connections from Stonington Street. Gas service is provided to the existing Hartford DPW garage from Stonington Street. Gas service is assumed to be similarly provided to the remaining 3 on-site buildings, but this has not been field verified. The initial phases of development will need only minor utility work, since existing utility connections to the buildings slated for renovation and use should be sufficient. Later phases, which involve the construction of the working greenhouse and the conservatory, will require new utility connections. These will include underground electric, CATV and telephone service, domestic water and fire protection water lines, sanitary sewer laterals, and natural gas connections. Because these buildings will be constructed in later phases, careful initial planning of utility routings should be considered so that disruption to completed portions of the site can be minimized.

BUILDING ASSESSMENT



Building Description and Summary:

There are currently five buildings located on the site under consideration for the Hartford Botanical Garden. At least two, including the Gardener's House and Carriage Barn, date from the original Armsmear period of the late 19th century. As such, they have historical importance, both architecturally and as a contributing element to the grounds of the Colt Estate. They are listed as contributing structures in the National Historic Landmark Nomination, dated February 7, 2007. Both the Gardener's House and the Carriage Barn are in poor condition and will require substantial renovation. The more recent buildings on the site, the Maintenance Building and 25 Stonington Street, have been continuously occupied over the years and are in considerably better condition.

Codes and Standards:

Any work on this site would be required to meet the standards of the following codes:

- 2003 International Building Code (IBC) and 2005 Connecticut Supplement
- 2003 International Existing Building Code (IEBC) and 2005 Connecticut Supplement
- 2003 International Mechanical Code (IMC) and 2005 Connecticut Supplement
- 2003 International Plumbing Code (IPC) and 2005 Connecticut Supplement
- 2005 National Electrical Code (NFPA 70-2005)
- 2005 Fire / Life Safety Code (NFPA 101-2005)
- 2003 Accessibility Code (ANSI 117.1-2003) and 2005 Connecticut Supplement
- 2003 International Energy Conservation Code (ASHRAE/IES 90.1)

It is assumed that restoration work on the existing buildings would comply with the Secretary of the Interior's Standards for the Treatment of Historic Properties, and review by the local state historic commission (Historic Preservation and Museum Division of the CT Department of Culture & Tourism).

Architectural and Historical Assessment:

The following summary describes the architectural and historical attributes and conditions at each of the five buildings on the site. The Appendix contains a Limited Conditions Survey (by BVHIS), which details the condition of existing systems, and recommendations for repair or replacement of structural and mechanical/ electrical building systems.

25 Stonington Street (The Ct. Store)

General Overview:

This building was constructed in 1937 (Architect: Russell F. Barker) with Colonial Revival detailing. It is in generally good condition. It has been occupied during most of its lifetime, so that regular maintenance has been performed. A small wooden entryway was added to the front door, and the original breezeway connector to the garage was enclosed.

There is a step at the entrance and tight clearance at the door, which restricts wheelchair access to the building.

Historical Overview:

The building does not have any strong historical value, as it was constructed in the 1940's, well after the Colt estate was turned over to the City.

Observations:

The brick veneer is mostly intact, with minimal re-pointing required. The roof appears to be in fair condition. There is some evidence, particularly on the shaded north side, of mildew development. The aluminum gutters are functioning, although there is a length missing from the south side. The windows are original, with aluminum storm windows added. They appear to be in good condition. Metal security grilles have been installed on most of the windows.

The interior is in good condition. The ground floor has recently been converted into the CT Store, with most of the area used for retail space, and the breezeway and garage used for storage and work area.

Recommendations:

- Replace the existing wood clad vestibule on the north side with a larger, glassy entrance vestibule. Adjust walk and grading at both north and south entrance to provide handicapped accessibility to the First Floor.
- Repair isolated cracks in masonry
- Repair storm window system to ensure weather-tightness.
- Replace roof shingles (within 5 years)
- Replace/repair aluminum gutters and downspouts. Provide splash blocks at ground level.

The Gardener's House

General Overview:

The building is in fair condition. It has been occupied as office space for the Parks Department during recent time, so that some regular maintenance has been performed (roof replacement). The wooden porch on the south and east sides is in poor condition and needs replacement, and there are some serious masonry issues at the west gable end and the east wing.

There is a step at the entrance and tight clearance at the front door, which restricts wheelchair access to the building.

Historical Overview:

This building has historical significance because it is an original part of the Colt estate. It was constructed in the 1860's as a residence for the Colt family's English gardener, James Stubbins. Built in the Carpenter Gothic style popular at that time, the house is constructed of brick, with an L-shaped plan and a south-facing porch. Two small additions (porch and 'el') were added to the east (rear) elevation in the 20th century. The windows on most elevations are paired rectangular double-hung windows on the first floor, paired arched windows on the second floor, and a single small pointed arch window at the attic. Much of the original wood detailing is intact, including wooden hoodmolds at the windows, and bargeboard brackets at the roof gables. These consist of a serpentine shape at the lower corners, long vertical braces with pendants, and a large central arch bearing on the braces. The area between the arch and roof peak forms a trefoil opening. The interior was converted to office use and has little historic detailing intact. An effort should be made to restore the building, following the guidelines of the Secretary of the Interior (National Parks Service).

Observations:

The main portion of the house has a brownstone foundation that encloses the lower level. Some re-pointing is needed and one opening on the north side has been blocked up. The brick on the main portion of the house is mostly intact, with minimal replacement and approximately 10% re-pointing required. As noted on the structural report, the brick wall at the attic level on the west side has settled inward a few inches. This area will require internal bracing, and rebuilding of the upper portions of this wall. There are some significant settlement cracks and a missing section of brick on the east wing. This area will require replacement of more brick and re-pointing of approximately 50%. Two brownstone sills on the south side below the porch are severely deteriorated and should be replaced. The roof of the main portion appears to be in fair condition. There is some evidence, particularly on the shaded north side, of mildew development. The shallow sloped roof on the east wing should be replaced, along with the porch roof. The aluminum gutters are functioning, although there is a length missing from the north side, above the entrance vestibule. The wood windows are original. They appear to be in poor condition. The ornamental trim at the main roof eaves is in good condition. The trim, soffit and fascia board at the east wing is in poor condition with missing elements and severe rot in some locations.

The interior of the building is in fair condition. The bathrooms are no longer functioning. The finishes are worn and need replacement (in conjunction with new building systems).

Recommendations:

- Replace the existing wood porch on the south side with a new structure, matching the profile of the existing.
- Adjust the grading and walks to provide for an accessible entrance at the front door as well as the porch floor.
- Replace missing and damaged brick, and repair isolated cracks in masonry. Repoint 10-50%.
- Repair window frames. Replace wood sash with new sash, matching the profile.
- Replace, repair and repaint all exterior wood trim
- Replace roof shingles (within 5 years).
- Replace flashing and roof on east wing with new adhered membrane.
- Replace/repair aluminum gutters and downspouts. Provide splash blocks at ground level.

Park Maintenance Building

General Overview:

The building (ca. 1940) is in generally good condition. The building has been in continuous use by the Parks Department in recent years so that regular maintenance has been performed. The lower level and adjacent building will remain in use by the Parks Department. The floor level is approximately 24" above grade on the west side. There are steps and concrete platforms at the entrances, which restrict wheelchair access to the building. The northern two thirds of the roof is a shingles hip roof. The southern section is a flat roof .

Historical Overview:

The building does not have any strong historical value, as it was constructed well after the Colt estate was turned over to the City. There is, however, a marker on the southwest corner of the building that indicates the high water mark reached in the flooding of 1938.

Observations:

The exterior brick is mostly intact, with minimal re-pointing required. The roof appears to be in good condition. The wood windows on the northern portion are original, and in poor condition. Insulated aluminum replacement windows have been installed in the southern portion. They appear to be in good condition. There are a number of concrete steps and platforms built against the building on the west side. Many of these elements should be removed and new steps or ramps installed at the building entrances.

The interior of the northern portion has been used as storage and work areas, so the finishes are minimal. The ceiling is exposed and flexible ductwork is draped through the rafters. The floors are in poor condition, with oils impregnating the wood flooring, and a cementitious topping slab applied over the floor in one area. The southern portion is subdivided as office space. The finishes are in poor condition, and the layout may not meet the needs of a new use without reorganization. There are two air-conditioning units located on the roof of the southern portion, which provide cooling to that area and one workroom in the northern section.

Recommendations:

- Repair/ repoint approximately 10% of the brick.
- Replace the wood double-hung windows with new clad insulated units.
- Remove most concrete steps and loading platforms. Add ramp(s) to provide access to the main floor level.
- Repair and restore large wood doors. Replace smaller doors with new units.

The Ice House

General Overview:

The building is in generally good condition. It is a simple rectangular shape with gable roof spanning its width. There is a basement, with dirt floor, located below the main floor. It is accessible only from the exterior (north side). The exterior is clad in horizontal wood siding, with three small windows on the south, two on the north, a one facing east. The west façade has a pair of metal clad (insulated) doors. There is a gable roof with a raised ridge vent and two roof monitors. It has been in continuous use by the Parks Department in recent years. There are two steps at the entry door, making the building inaccessible to the handicapped in its current arrangement. This appears to be easily modified to provide access.

Historical Overview:

Although not mentioned in available historical information, the building was likely a part of the original Colt Estate, and as such may be considered a contributing structure, although it is not specifically mentioned in the Historic Landmark Nomination documentation. It was built in the 1870's. An effort should be made to restore it, following the guidelines of the Secretary of the Interior.

Observations:

The siding is in good condition. The roof appears to be in good condition, although there is some deformed flashing evident along the ridge vent. The wood windows on the hip roofed portion are original, and in fair condition. The windows are in fair condition and should be repaired or replaced. The interior finishes are minimal, with wood plank ceiling and walls, and a wood floor.

Recommendations:

- Replace the insulated double doors with new HM doors, possibly with glass lites.
- Repaint the siding and trim
- Repair metal flashing

The Carriage Barn

General Overview:

The building, comprised of an original section and a later addition, is in fair condition. The basement of the original section is currently inaccessible from interior or exterior. The lower level of the addition contains five bays with rolling overhead doors, and has been used by the Parks Department for equipment storage. The main floor opens to grade at the upper level. This part of the building has been unoccupied for a number of years.

Historical Overview:

This building has historical significance because the original portion, built in the 1860's, was part of the Colt estate, and as such it is considered a contributing structure. The original portion is of brick construction with shallow-pitched hip roof interrupted by gable projections. It was originally topped by a large cupola. The wall surfaces feature recessed arches, with round arches in the center bay and flattened round arches in the side bays. The west elevation, which faces up the slope toward Armsmear, is divided into three bays, with small square windows on the first story and a double-door loft opening on the second. It is extended to the south by a wing, possibly representing an enlargement of the carriage house sometime after its original construction. The north elevation has a pair of round-arched doorways in the center bay, flanked by small circular windows in the side bays. The second floor window openings are square, with a small circular window within the gable over the center bay. The south elevation, which has a brownstone base at the partially buried first floor, has three bays, each containing an arched window on the main (second floor) and square windows on the third floor. A 1930's era addition to the east side has little historic significance.

The building was constructed as a stable and carriage barn for the estate. A few interior features survive. In particular, there is an area inside that is reputed to have been the site of cock fighting events. An upper floor was added into the southern portion of the building in recent years, when additional structural bracing was introduced to support the roof. An effort should be made to restore the building, following the guidelines of the Secretary of the Interior.

Observations:

The roofs of both sections are in poor condition. Roof drainage on the addition has been blocked so there is significant ponding of water there. The entire roof drainage system should be flushed and repaired as soon as possible. The concrete coping on the addition has open joints and needs resetting and re-caulking. The brick on both buildings is in generally good condition with minimal repair and re-pointing needed. There are some settlement cracks on the north side near the joint between the two building sections. Many of the window and door openings on the original section are boarded up. The addition contains steel windows, which are in poor condition.

The brownstone retaining wall stretching from the Carriage Barn to the Gardener's House has collapsed in several places and is in need of reconstruction.

The cock fighting 'ring' on the second floor is seriously deteriorated and requires substantial reconstruction. New steel posts and an upper floor area were added in the main Barn area, both for additional space, and to provide additional support for sagging roof trusses.

Recommendations:

- Replace the sloped roofing on the original section, and the flat roofing on the addition.
- Flush, repair and/or replace the roof drainage systems.
- Replace the wood windows in the original section with new clad windows of similar profile.
- Replace the steel windows in the addition with new aluminum units of similar profile.
- Repair and restore any large wood doors remaining. Replace missing doors with new, matching the profile of the existing doors.
- Replace/repair aluminum gutters and downspouts. Provide splash blocks at ground level or tie into storm drain system.

Drawing

GARAGE

ICE HOUSE

GARDENER'S COTTAGE

CARRAIGE HOUSE

PIN OAK

STONINGTON STREET

CT STORE HBG ADMIN

SILVER MAPLE

WEEPING SILVER LINDEN

EUROPEAN BEECH

WETHERSFIELD AVENUE

EXISTING CONDITIONS

SCALE: 1:50

PLAY FIELDS

EXISTING PARKING

FOREGROUND VIEWS TO BE SCREENED

TREES

TREES

TREES

VIEW

VIEW

SLOPING

PATHWAY

HILLTOP SPACE

STONINGTON STREET

WETHERSFIELD AVENUE

WAVERLY AVENUE

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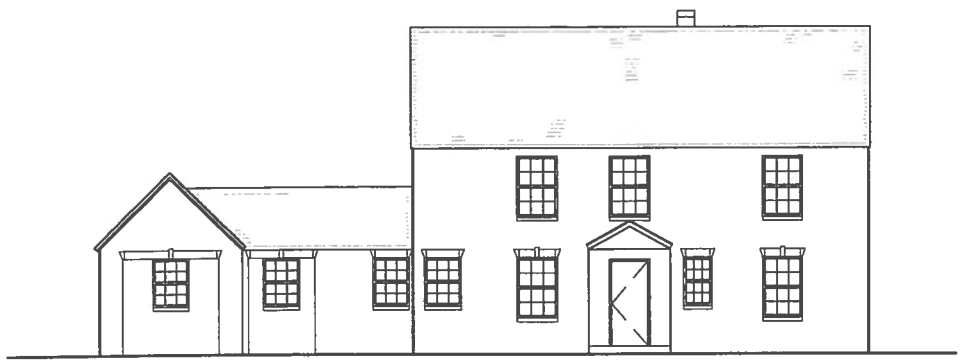
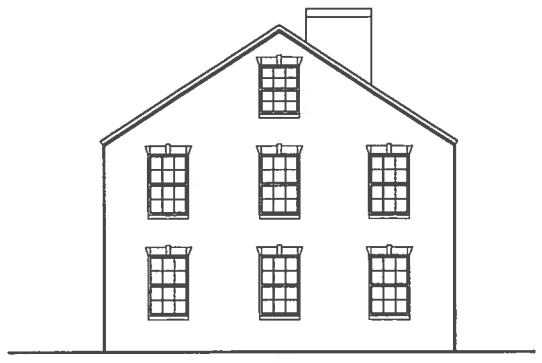
SITE ANALYSIS

HARTFORD BOTANICAL GARDEN
TSKP, CRVA · 1" = 50' 4·29·06



North Elevation

Scale: 1/16"=1'-0"

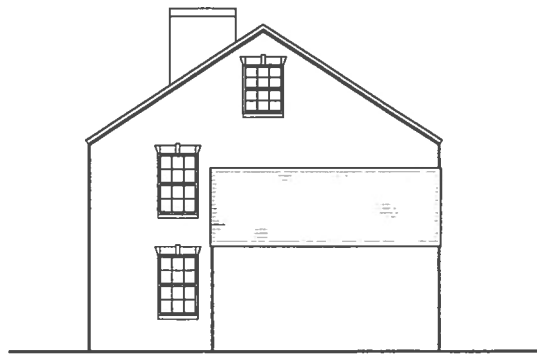


West Elevation

Scale: 1/16"=1'-0"

South Elevation

Scale: 1/16"=1'-0"



East Elevation

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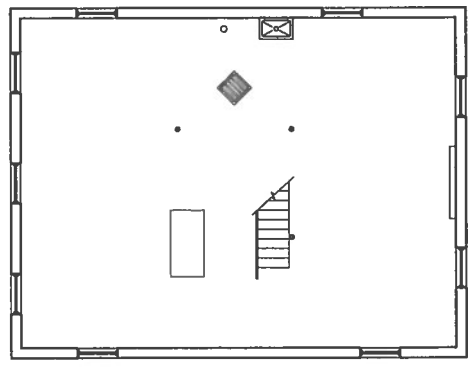
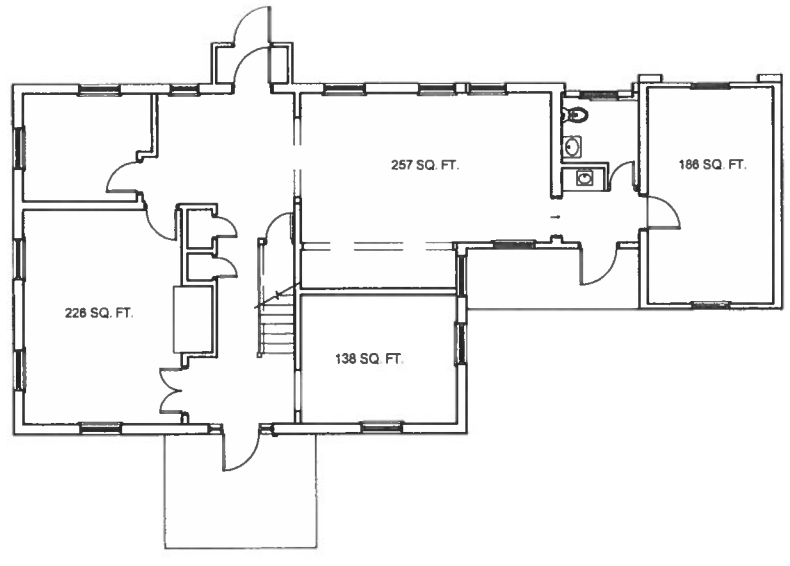


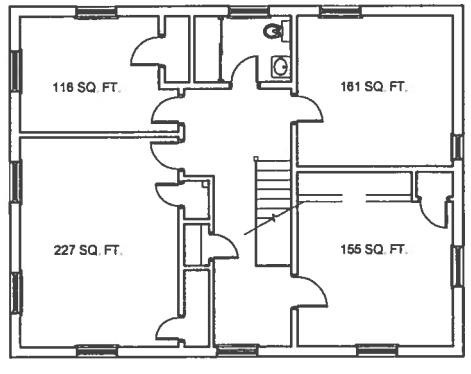
Basement Floor Plan

Scale: 1/16"=1'-0"



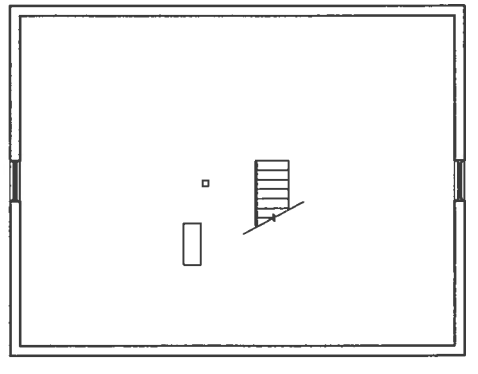
First Floor Plan

Scale: 1/16"=1'-0"



Second Floor Plan

Scale: 1/16"=1'-0"



Attic Floor Plan

Scale: 1/16"=1'-0"

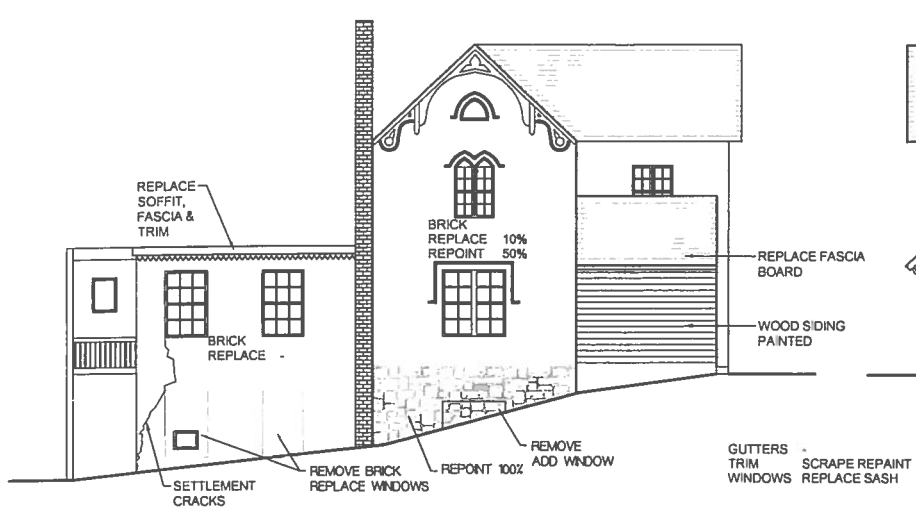
2,650 GSF

TAI SOO KIM

Tai Soo Kim Partners

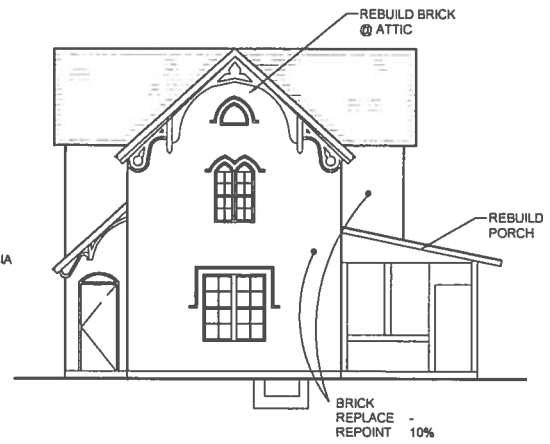
March 1, 2007

Hartford Botanical Garden
25 Stonington Street



North Elevation

Scale: 1/16"=1'-0"



West Elevation

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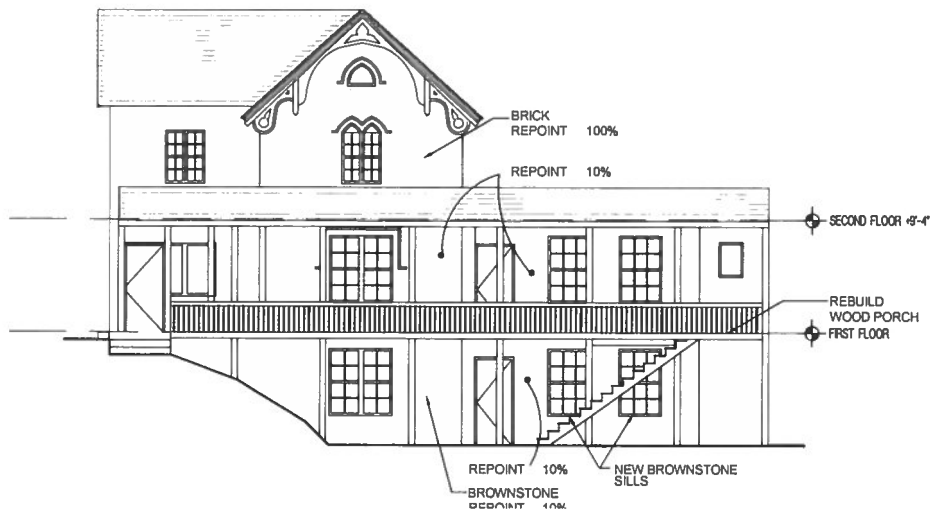

South Elevation

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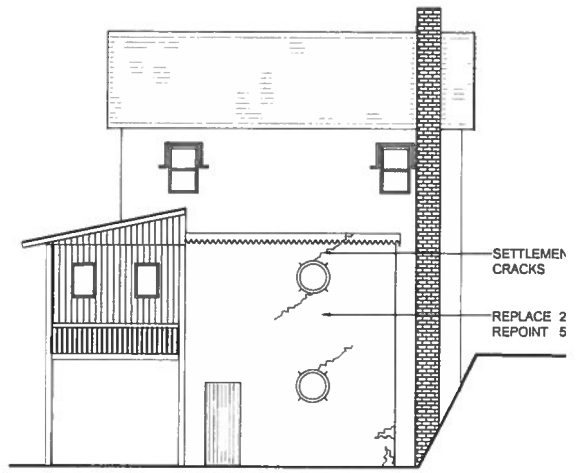
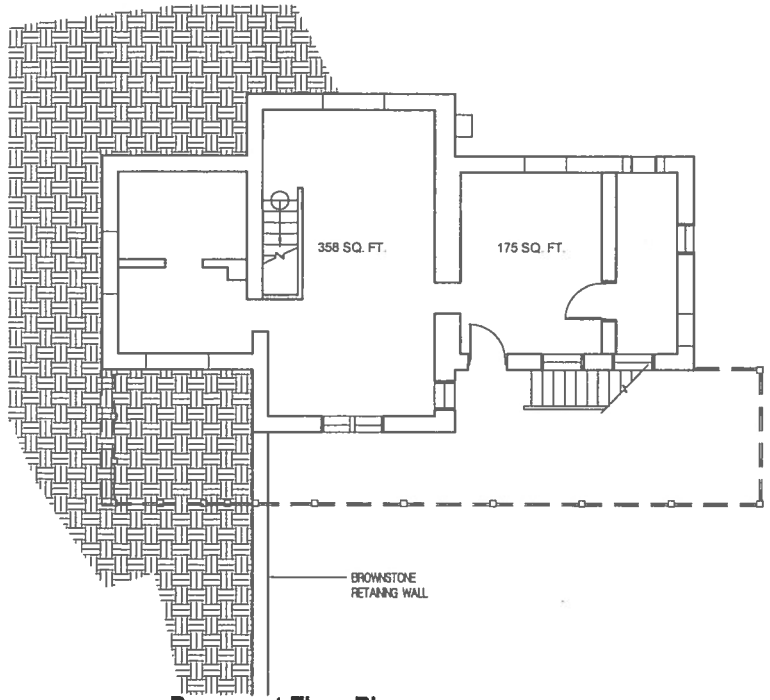


East Elevation

Scale: 1/16"=1'-0"



Basement Floor Plan

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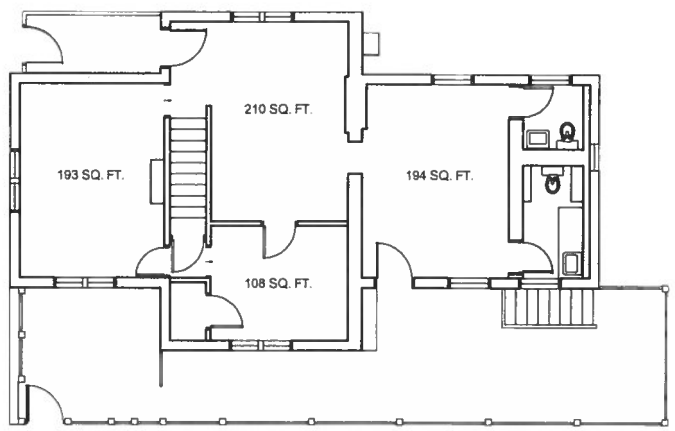

First Floor Plan

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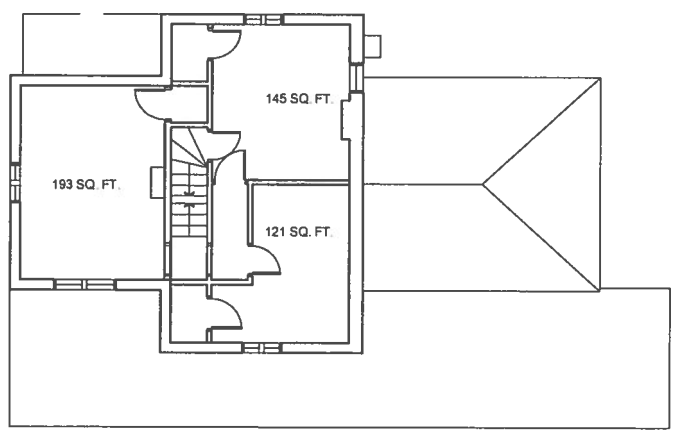
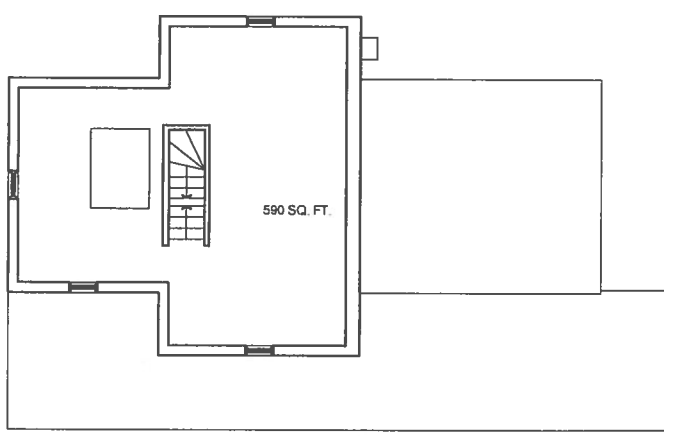


Second Floor Plan

Scale: 1/16"=1'-0"



Attic Floor Plan

Scale: 1/16"=1'-0"

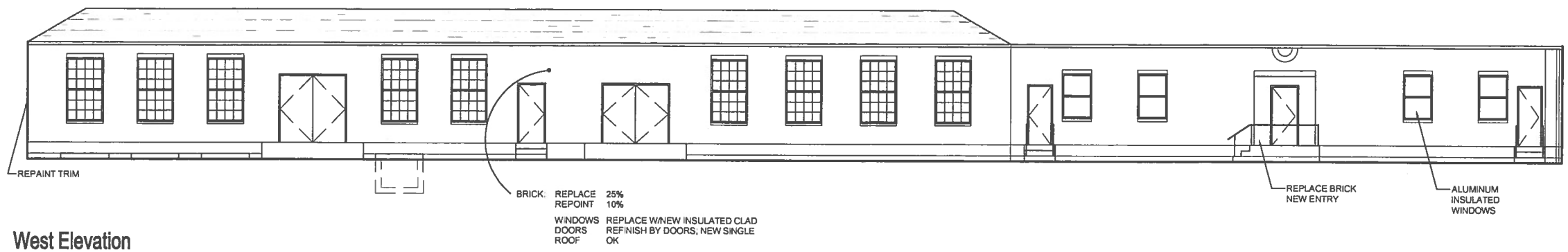
2,000 GSF

TAI SOO KIM

Tai Soo Kim Partners

March 1, 2007

Hartford Botanical Garden
Existing Gardener House



West Elevation

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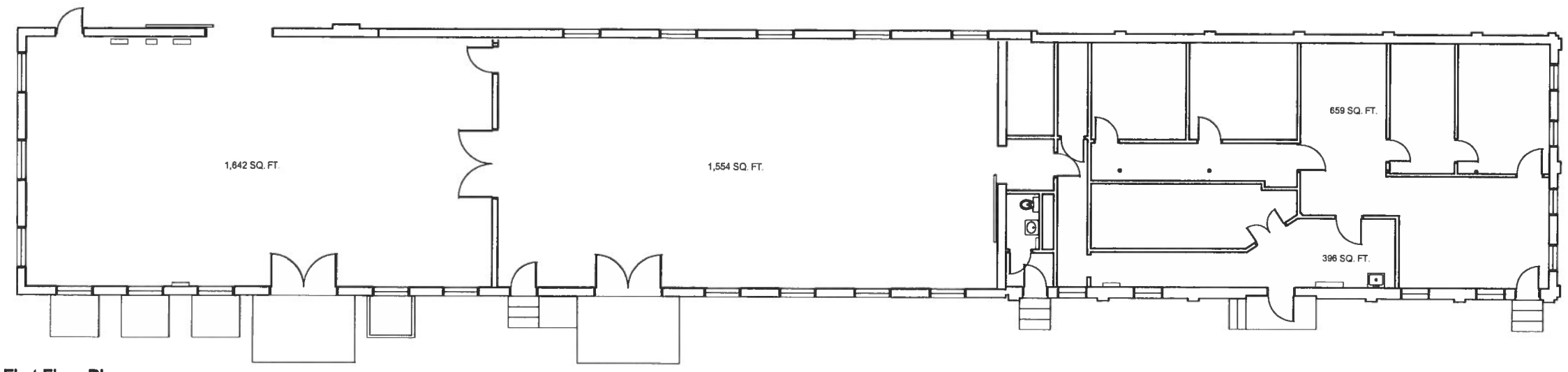

First Floor Plan

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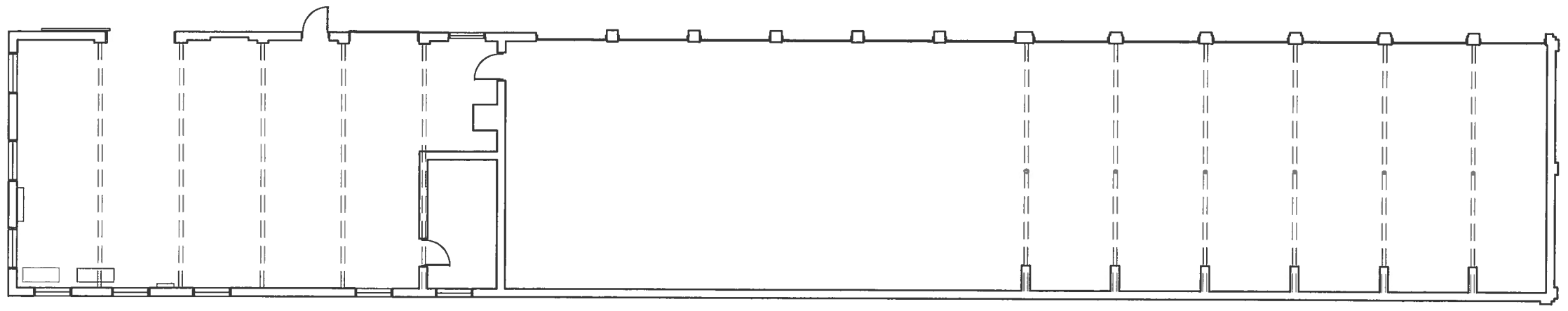


5,824 GSF

Basement Floor Plan

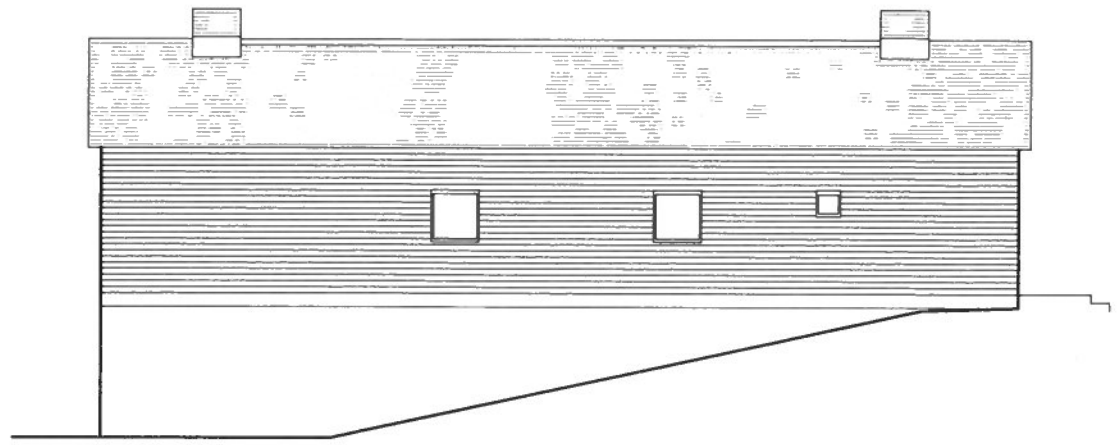
Scale: 1/16"=1'-0"

TAI SOO KIM

Tai Soo Kim Partners

March 1, 2007

Hartford Botanical Garden
Existing Maintenance Building



North Elevation

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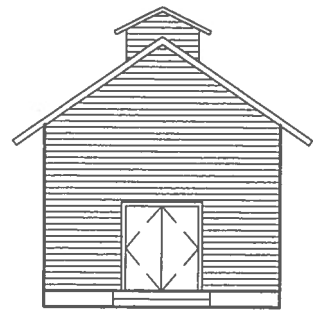
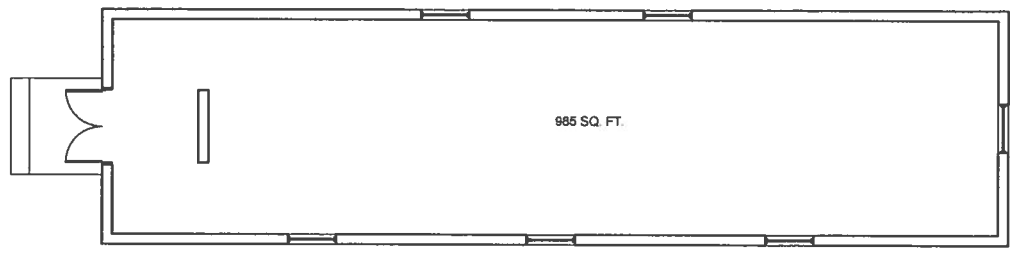


West Elevation

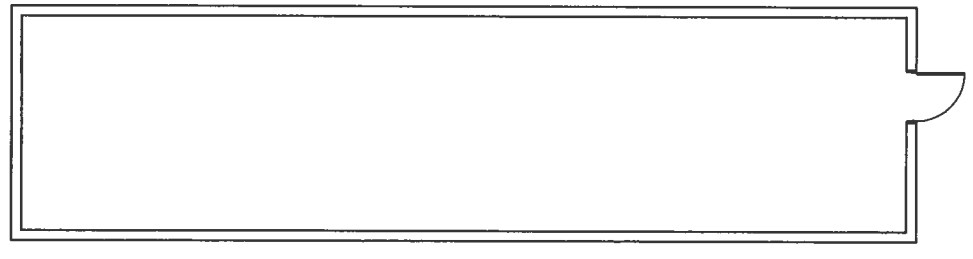
Scale: 1/16"=1'-0"

SIDING	OK
ROOF	-
DOOR	NEW
WINDOWS	NEW



First Floor Plan

Scale: 1/16"=1'-0"



Basement Floor Plan

Scale: 1/16"=1'-0"

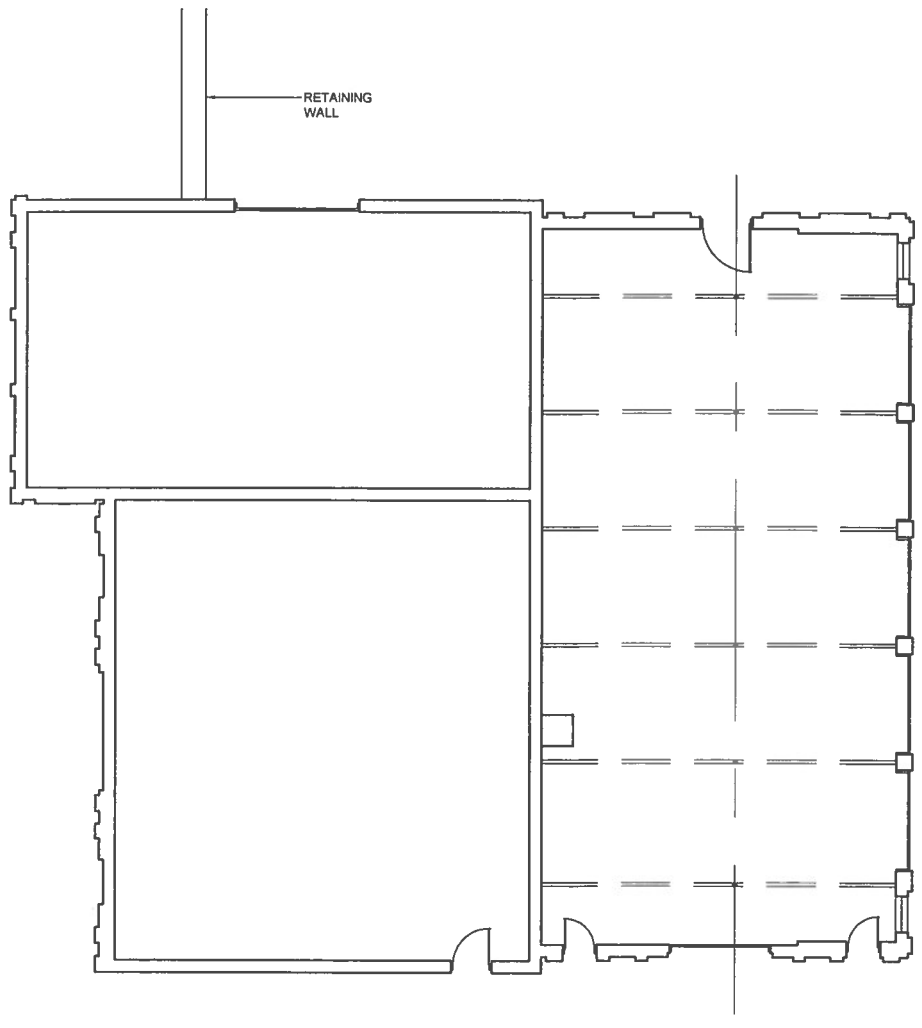
1,425 GSF

TAI SOO KIM

Tai Soo Kim Partners

March 1, 2007

Hartford Botanical Garden
Existing Ice House



Basement Floor Plan
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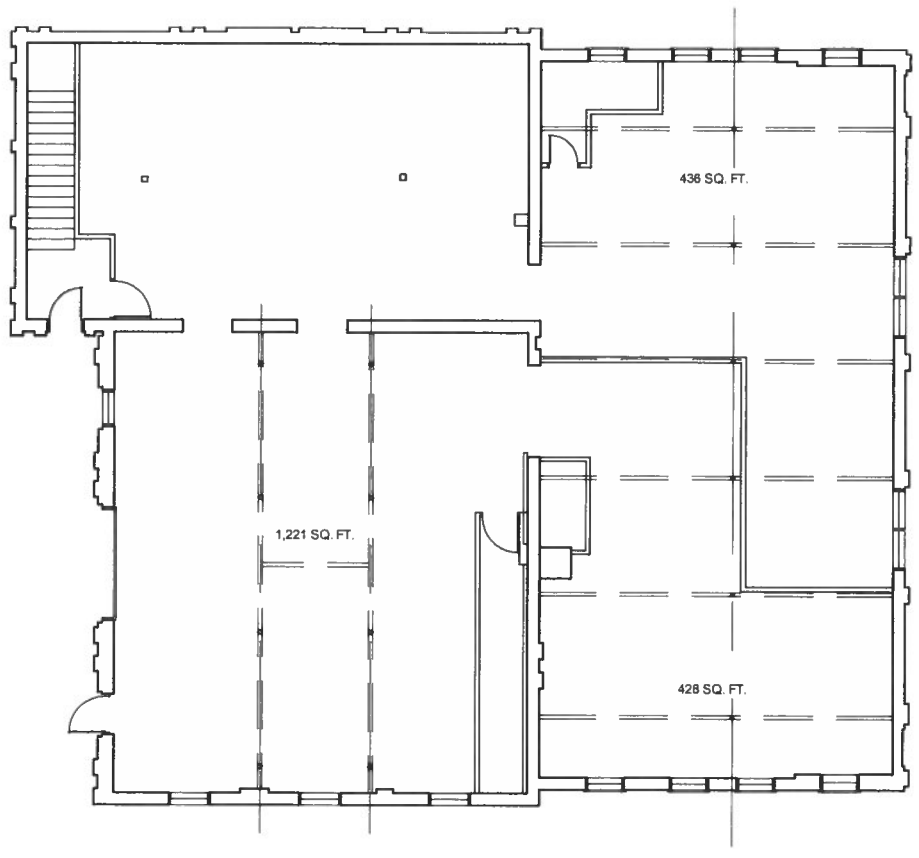
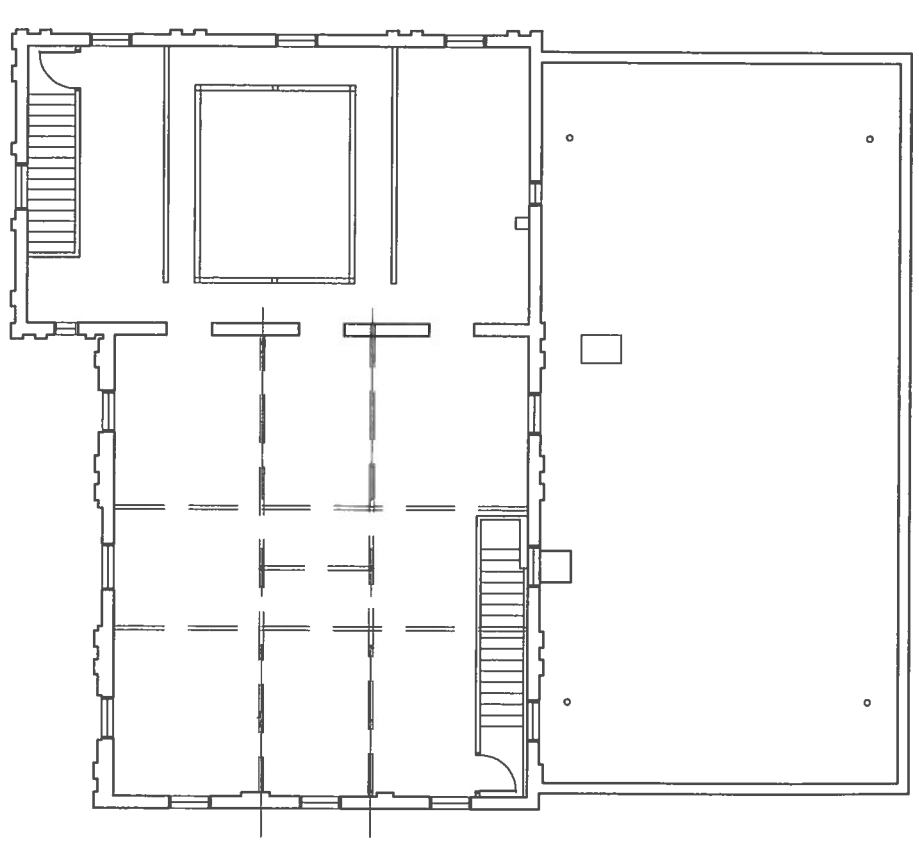


First Floor Plan
Scale: 1/16"=1'-0"



Second Floor Plan
Scale: 1/16"=1'-0"

7,450 GSF

TAI SOO KIM

Tai Soo Kim Partners

March 1, 2007

Hartford Botanical Garden
Existing Carriage Barn Plans

THE MASTER PLAN

Mission Statement for the Hartford Botanical Garden:

The Hartford Botanical Garden (HBG) will be a 21st century garden steeped in the history of Hartford's Colt Park and the region's rich horticultural fabric. Specializing in past, present, and future linkages between people and plants in urban environments, the Garden will feature demonstration gardens for urban settings. Visitors will find information on the area's horticultural history, research on horticulture's role in creating a healthy city, and a focus on sustainability. The Garden will be dedicated to the science and art of gardening and to being a place for inspiration, respite, education and enjoyment.

Program and Planning Guidelines:

Based on a series of meetings with HBG as well as a wide range of interested constituents during the past year (neighborhood, institutional, city, and state agencies), a wide variety of potential themes and areas of interest were proposed and discussed that could guide the development of the programs and garden designs for the Botanical Garden. These can be defined as three major themes, which will be discussed in more detail in other sections of the master plan report:

1. **Heritage:**

   The Colts and the Colt era
   Native Americans of Connecticut
   Local economic heritage (e.g. – tobacco, onions, orchards, etc.)
   Familiar plants from areas home to current Hartford residents (often tropical and thus suited to conservatory growing) – perhaps focused on food and economic plants

2. **Urban horticulture:**

   Small space design
   Plants well suited to urban/challenging environments
   Sustainable planting (low water, hardy, low maintenance, etc.)

3. **Ecologies:**

   Native plants in the landscape
   Native plant communities/habitats
   Invasive plants

Following further review and refinement in consultation with the HBG Board, a program was developed that defines the space requirements needed to accommodate the mission of the Hartford Botanical Garden. This program (in Appendix) identifies a need for 37,400 assignable square feet of space. The existing buildings can accommodate approximately 15,000 asf, leaving over 22,000 asf to be provided by new construction.

In planning the site improvements, one important factor was to preserve public access through the site to the Colt Park pool and athletic fields. This must be balanced with the need to maintain a level of security around certain areas of the gardens and buildings.

HARTFORD BOTANICAL GARDEN
PRELIMINARY SPACE PROGRAM
5/1/2007

Type	Space Name	Comments	Qty	Area	Total		Actual Assignable Area Proposed New Construction: Conservatory:	Wkg Grnhse:	
Conservatory Space									
	Lobby	info/tkt desk			1,000		1,100		
	Reception Hall	(160-200 seats)			3,000		2,550		
	Visitor Orientation	(film)			400		450		
	Staff Office			150	150		120		
	Permanent Exhibit	one high space	2	3,000	6,000		5,400		
	Temporary Exhibit		2	3,000	6,000		5,500		
	Gift Shop / Bookstore	including storage/workroom			2,000		1,720		
	Serving Pantry			150	150		250		
	Table/Chair Storage			200	200		200		
	Toilets		2	250	500		500		
						19,400	17,790		
Auxiliary Conservatory Space									
	Exhibit Space / Gallery	In Lobby, Corridors, etc							
	Multi-Purpose Room	125			1,500				
	Classroom/Lecture	Subdivided MP Room	3	600	1,800			2,000	
	Storage	Teaching supplies, etc			200				
	Café/Restaurant	60-70 seats			1,500				
	Kitchen				400				
	Kit. Delivery / Food Storage				200				
	Library / Resource Room	Combined with Hort Society							
	Toilets		4	250	1,000				
	Storage				1,000				
	Administration:								
	Office		4	150	600				
	Reception			200	200				
	Administrative Asst		1	100	100				
	Conference Room			350	350				
	Workroom			250	250				
	Files / Storage			150	150				
						9,250			
Other Tenant Space									
	Horticultural Society								
	Library / Conference				700				
	Kitchen/Service pantry				100				
	Administration Area				400				
						1,200			
	Assorted Garden Groups	Orchids, Bonsai, etc							
	Office/workroom		4	150	600	600			
	Conference room			250		250			
Support Space									
	Working Greenhouse		2	1,800	3,600		1,120	1,872	
	Headhouse / Potting		2	300	600		100	432	
	Tool Shed				400		300	432	
	Field House	Equipment			2,000		1,830		
	Lockers/Showers for staff		2	250	500		400		
	Office (Groundskeeper)			150	150		120	300	
						7,250	3,870	3,036	
							21,660	5,036	
									26,696

EXISTING BUILDING AREAS:	Assignable (ASF)		Gross (GSF)	
25 Stonington St	1,566		4,798	
Maintenance Building	4,251		11,513	
Gardener's Cottage	2,260		3,469	
Carriage Barn	6,100		13,214	
Ice House	985		2,925	
	15,182	ASF	35,919	GSF

	Existing Buildings:				New Construction Target:		
Assignable Area:	15,182	~	Total Assignable	37,950	ASF	22,768	ASF
		65%	Est. Grossing Factor	24,668			
Gross Area:	35,919	~	TOTAL:	62,618	GSF	26,699	GSF
		137%			Actual Gross Area:		
					25,200	7,484	
						32,684	GSF

MASTER PLAN CONCEPT:

The concept for the master plan is based on the goal for a facility that reinforces the Mission Statement for HBG. At the same time, the master plan is defined in such a way that it can be implemented incrementally as funds become available, beginning with the adaptive reuse of existing structures on the site. The plan culminates in the development of a variety of garden environments across the entire site, and the construction of new working greenhouses and a new state-of-the-art conservatory, that continues the innovation demonstrated by Sam Colt in his time, and carries it forward into the twenty-first century.

Site Access:

Because of the urban location of the site, and the desire for sustainability, it is important to account not only for vehicular traffic, but also pedestrian traffic and access to mass transit. One of the goals of this project is to link it seamlessly into the city's transportation infrastructure, and to tap into visitor pool drawn to existing tourist destinations in the City (Mark Twain House, Convention Center, Riverfront, etc.). It will be important to create opportunities for city visitors to easily combine a number of attractions for a full day experience in Hartford. For example, there is a very rich concentration of superb 19th century architecture stretching along Main Street, Wethersfield Avenue and Charter Oak Place. An architectural walking tour could easily be defined here, which would lead the visitor from the downtown area, and arriving at the gates of the Botanical Garden. In addition, a link to the Botanical Garden can be created by extending pedestrian and bike trails from the existing Riverfront area to the site, through Coltsville and Colt Park. The more alternatives for access to the site (mass transit, pedestrian, biking, etc) that can be offered, the less private automobiles will be required. This would constitute one of the first 'points' supporting a sustainable design approach.

In order to promote alternative modes of transportation, bicycle storage racks are recommended, and should be located where major internal walkways meet the surrounding sidewalks.

Public transportation is available in the form of CT Transit bus service. The CT Transit "U – Wethersfield" line runs down Wethersfield Avenue and past the current main entrance to Colt Park, in the location of the proposed HBG Drop-off and Bus Parking turnaround. In addition, the CT Transit "G" line runs on the east side of Colt Park, up along Wawarme Avenue to Locust Street. Although this line does not directly serve the HBG site, it does serve the remainder of Colt Park, and would offer a second option to CT Transit users looking to access the site.

Bus pick-up and drop-off will take place at its own location, separate from the vehicle parking areas. The bus drop-off area will be located in the existing Colt Park entrance from Wethersfield Avenue, near the existing Colt Monument. This driveway intersects Wethersfield Avenue at an existing traffic signal. This will allow safe traffic movements for the buses to enter the drop-off area. Having a separate bus drop off area will eliminate potential conflicts between visitors exiting busses and vehicles searching for parking spaces. Proper design is needed in this area to ensure proper turning radii for busses, as well as parking/ waiting areas for busses not actively picking up or dropping off passengers.

Parking:

Parking for the HBG site will be satisfied by a mix of on-site dedicated parking, off-site on-street parking, and overflow/event parking using the adjacent Colt Park paved parking areas, as well as the existing paved areas adjacent to the Hartford DPW garage.

On-street parallel parking is currently allowed on both sides of Wethersfield Avenue, as well as the north side of Stonington Street. Parking is not allowed on the south side of Stonington Street or on either side of Wawarme Avenue. On-street parking is also allowed on many of the side streets which run perpendicular to Stonington Street and Wethersfield Avenue, although these spaces were not included in this analysis. Only on-street parking on street directly adjacent to the HBG site was analyzed. Based on field measurements, there are 18 available on-street parking spaces on the north side of Stonington Street in the vicinity of the site. There are 50 available on-street parking spaces on the west side of Wethersfield Avenue, and 52 spaces on the east side of Wethersfield Avenue. The total off-site on-street parking spaces available are 120 spaces.

On-site dedicated parking currently consists of two small parking areas containing a total of 13 parking spaces. Both of these lots are located on the north side of the site, near the existing buildings, and will be accessed from Stonington Street.

Overflow/event parking will consist of parking in the existing Colt Park paved lot, accessed from Wawarme Avenue, as well as the paved areas adjacent to the Hartford DPW garage. The existing Colt Park paved lot contains 129 spaces. The ability to use this parking area would be beneficial. It is directly adjacent to the Working Greenhouse, and is the only accessible parking off Wawarme Avenue. Currently, there are no on-site dedicated parking spaces for the Working Greenhouse or the garden plots located in the south side of the site. The plan of re-development for Colt Park also includes plans to turn the existing ice skating rink to additional vehicle parking. The HBG master plan suggests shifting this parking area slightly east in order to accommodate the proposed stage area at the foot of the slope. This parking area is located directly adjacent to the current Colt Park paved lot, and would add another 120 (approx) spaces to the 129 already contained in the paved lot. This would bring the total number of potential shared parking spaces to 249. The most beneficial use for these spaces would be for continuous overflow parking during normal operating hours. If additional parking was needed for a special event, the use of the paved area adjacent to the Hartford DPW garage could be requested. Since special events would normally occur outside business hours, use of this lot would not disrupt Hartford DPW operations. Although this lot is not striped as a vehicular parking lot, event staff could potentially park approximately 185 vehicles in this area. This would give HBG staff the needed parking to host special events, fund raisers, etc. that would attract an abnormally large number of visitors.

Parking requirements for the site are shown in the attached spreadsheet.
Phase 1 of the project, which will include renovation and use of the top floor of the Park Maintenance Building, the Ice House, and the building at 25 Stonington Street, will require approximately 66 parking spaces. This parking demand can be met by utilizing on-street parking on Stonington Street and Wethersfield Avenue, the proposed 10 space parking lot near 25 Stonington Street, 3 spaces behind the Gardener's House, as well as the existing paved areas near the Carriage House and the rear of the DPW garage. The need for overflow parking is not anticipated in this Phase, but additional parking for special events could be required. Use of either the Colt Park paved lot, or the DPW garage could be required.

Phase 2 of the project includes the renovation and use of the Gardener's Cottage, Carriage Barn, and the construction of the new Working Greenhouse. This phase will require an additional 61 parking spaces, bringing the required total to 127. In order to close the gap between available and required spaces, use of the Colt Park paved lot would be needed for overflow parking. Special event parking could use either the Colt Park paved lot or the DPW garage lot.

Phase 3 of the project includes the construction of the Conservatory. This building is the centerpiece of the project. Additional parking required as a result of the construction of the Conservatory is 77 spaces. This brings the total required parking to 205 spaces. With the additional of the Conservatory, overflow parking in the Colt Park paved lot would be needed, and special event parking could be provided at the DPW garage lot.

Site Circulation:

Internal pedestrian circulation consists of a number of paved walkways meandering throughout the site. Multiple accessible and non-accessible routes are shown, allowing pedestrian traffic to be dispersed on multiple routes to maintain the "low traffic" atmosphere of the HBG while providing variation in route choice. Due to site topography, accessible routes will need to be carefully designed to ensure safe slopes, ramps and rest areas. Also, routes with steps and/or retaining walls will potentially need to be designed based on the height and soils conditions at that location.
Site walkways originate/terminate on the public streets surrounding the site. Currently, sidewalks are located on both sides of Wethersfield Avenue. The sidewalks on Wethersfield Avenue continue into downtown Hartford, and will connect the HBG site to the rest of Hartford.

Wawarme Avenue has a sidewalk located on the south side of the street only. Because Wawarme Avenue is a 4 lane arterial, adding a street crossing adjacent to the HBG site to reach the sidewalk is not advisable unless it is coupled with additional improvements to the street itself to ensure safe crossing. Instead, extending the sidewalk along the HBG property on the north side of the street, to connect with the existing sidewalk, which ends at the HBG property line, would be the preferred option. This would connect the internal walkways to the street sidewalk network on the south side of the site.

Stonington Street has a sidewalk on the north side of the street only. Since Stonington Street is a two lane cross street with less traffic than Wawarme Avenue, it would be beneficial to install crosswalks to reach the sidewalk across the street from the HBG property. These crosswalks, located at the intersections of Stonington Street and Groton Street, and Stonington Street and Lisbon Street, will connect the HBG internal walkways with the sidewalk network in the neighborhoods to the north of the site.

Buildings

1. 25 Stonington Street
2. Parks Maintenance Building
3. Icehouse
4. Gardener's Cottage
5. Barn/Carriage House
6. Working Greenhouse and Classrooms
7. Conservatory

Elements

1. Main Entrance
2. Samuel Colt Monument
3. Interpretive Panels
4. Café Terrace
5. Parking and Drop-off
6. Parking
7. Stage
8. Elizabeth Colt Monument
9. South Orchard
10. Garden Plots
11. Bus Drop-off
12. Greenhouse Yard
13. Serviceway/Walkway
14. East Orchard
15. Conservatory Yard
16. Green Roof
17. Vehicular Drop-off
18. Bus Drop-off and Shelter
19. Information Booth

Gardens

1. **Great Lawn**
   Preserves the long views to the river and the existing open space for continued use by the Hartford community
2. **Shade Garden**
   Interconnects the existing and future buildings with an accessible walkway system through a naturalistic garden of shade-loving plants
3. **Colt Garden**
   Conveys the experience of the garden of the Colt's era with curving walk-ways through mature canopy trees
4. **Connecticut Natives Garden**
   Introduces garden visitors as well as neighborhood residents passing through the garden to plants that are native and well-adapted to the Hartford area
5. **Bioswale and Wetland Garden**
   Collects garden run-off and conveys it via a bioswale to the pond and wetland gardens that enhance the setting for the stage
6. **Elizabeth Colt Garden**
   Celebrates Elizabeth Colt's generousity to her community with a garden that includes garden plots and a fruit orchard
7. **Teaching Garden**
   Supports visiting classroom use and demonstrates approaches to school yard gardens
8. **Heritage Gardens**
   Showcases plants from Hartford's many ethnic heritages along an accessible walkway that traverses the slope of the Great Lawn
9. **Conservatory Gardens**
   Features sun-loving collections, a garden terrace, sustainable approaches to residential garden design, and green roof technology

Phase 3
Hartford Botanical Garden Master Plan
November 2007

Landscape:

The Hartford Botanical Garden has been designed to recognize and celebrate many elements unique to its setting—its place in history as established by the Colts, its place within Hartford's and Connecticut's natural ecosystem, its place within the multi-cultural community of Hartford, and its key location within the Charter Oak neighborhood. The Garden will celebrate the legacy of the Colts using various approaches—elements of the original garden can be recreated within the garden, elements can be developed that recall the spirit of the Colts and their landscape, the locations of original elements of the garden can be identified with landscape materials, and the original garden can be interpreted through the use of photos reproduced and mounted in the landscape to afford the visitor the opportunity to apply the earlier image to the landscape before them.

The Botanical Garden will celebrate its place within the larger ecosystem by introducing visitors to plants that are native to Hartford and Connecticut. Much of the Shade Garden, portions of the Residential Demonstration Gardens, and the Connecticut Natives Garden, which covers most of the public section of the Garden, will feature native species. The maintenance benefits of this approach across the site will further enhance the Garden's message regarding the sustainable benefits of selecting native plants.

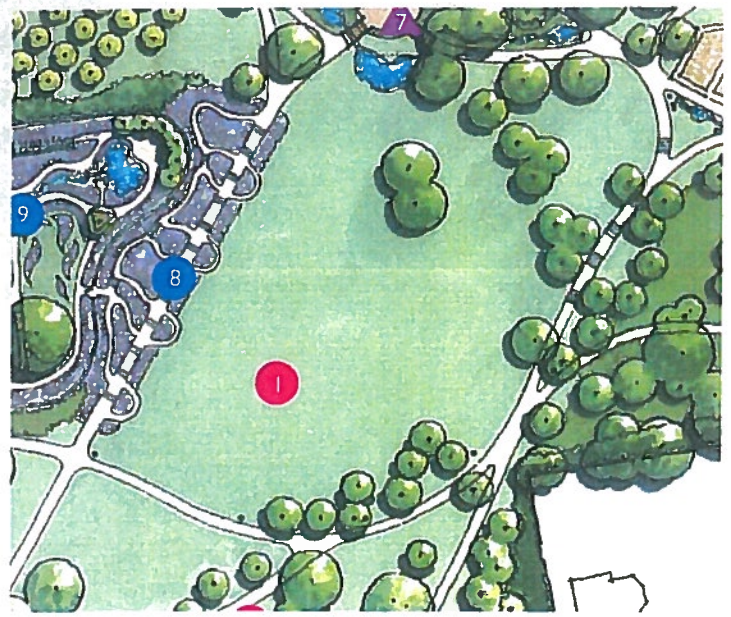
The rich cultural heritage of Hartford will be celebrated within the Botanical Garden through the creation of the Heritage Gardens. Prominently located along stepped walkway adjacent to the Great Lawn, the Heritage Gardens will be the feature of the meandering walkway that provides an accessible route down the slope. The intricacy of the Garden will provide an easily subdivided space to honor the many countries of origin of the people of Hartford. Plant species that are hardy in Hartford will be arranged by the heritage for which the plants are significant.

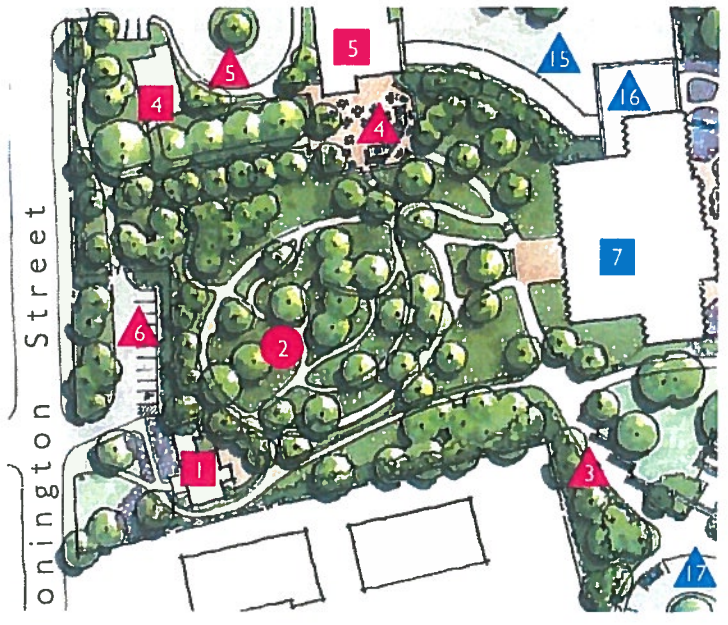
The Garden will also celebrate the unique views and topography of the site itself and its location at a crossroads between neighborhoods, schools, and the significant recreational resource of Colt Park. Through the careful siting of the Conservatory and the Conservatory Gardens, the significant views are maintained, the community sledding hill is preserved and enhanced with the addition of a stage to further its use as an amphitheatre, and existing routes between neighborhoods and schools that currently cross the site are accommodated and enhanced with their incorporation within the Garden and their punctuation by garden benches, interpretive panels, and special collections. All of the major walkways through the Garden will be accessible and lighted in the evening.

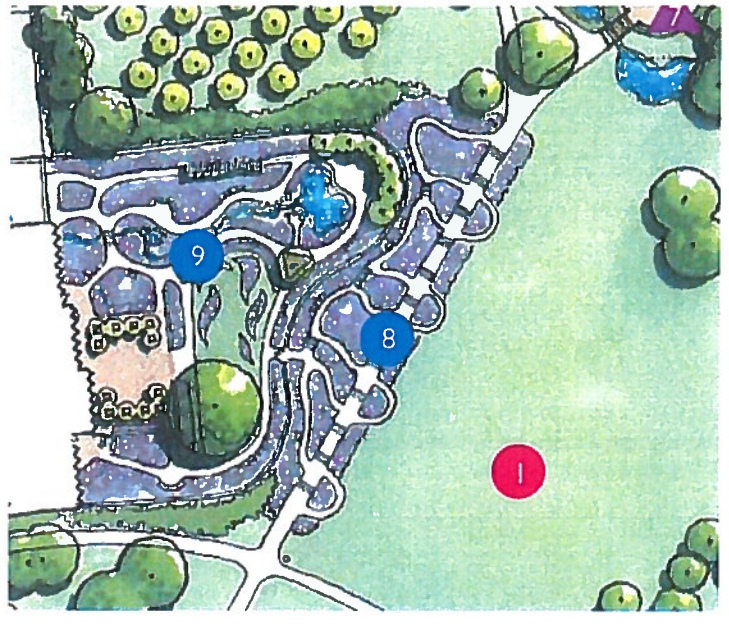
Botanical Garden Entry:

The main entrance to the Botanical Garden will be the historic entrance to Colt Park, located at the site of the first improvement made to the estate in its evolution to a public park. Upon entering the site, the visitor to the Botanical Garden will be greeted by the long existing view toward the river that closely parallels the view corridor enjoyed by the Colts from their home. Just to the left of the view corridor and featured prominently in the entry experience, stands Elizabeth's imposing monument to her husband. The monument will be the centerpiece for a series of interpretive panels, which will feature the Colts and their garden paradise. The panel series will follow the alignment of the first walkway into the park and will lead the visitor to the functional heart of the Botanical Garden—the new Conservatory and its associated gardens.

The drop-off is intended for use by buses and automobiles. Three accessible parking spaces and one bus parking space will be provided. A small kiosk will provide shelter for a staff person to direct visitors to parking areas. The location for a covered waiting area adjacent to the drop-off is also indicated.







Great Lawn:

The expansive view toward the river, which probably attracted the Colts to this site in 1857, still remains today and will be preserved within the Botanical Garden by the designation of the view corridor as the Great Lawn. The ponds of the Colt Estate that comprised the foreground of this view will be interpreted through interpretive panels that feature historical photographs of the Colts' landscape. These panels will be carefully placed to duplicate the sight line of the photograph and provide the visitor with a view of the landscape during the Colts' time. In addition, some of the edges of the ponds could be suggested through a change in plant materials, and the associated fountains, statuary, and structures could be identified with medallions in the ground plane to further aid the visitors' imagining of the earlier landscape.

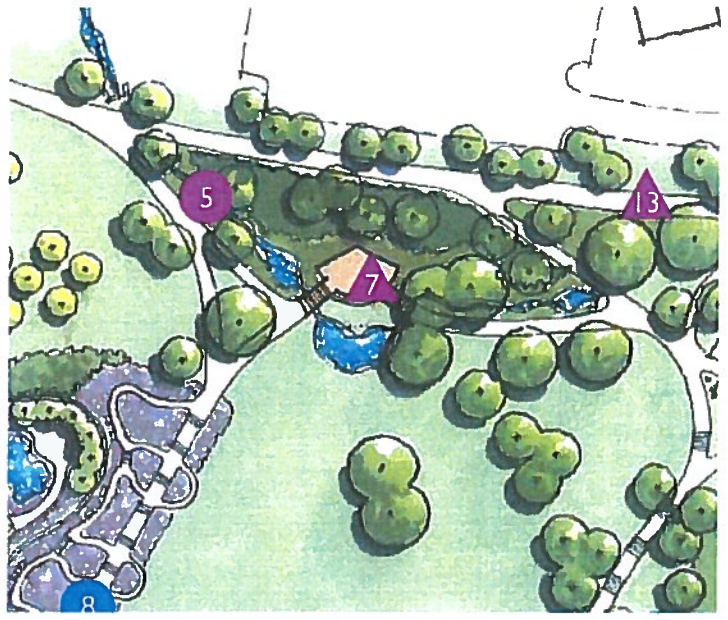
Shade Garden:

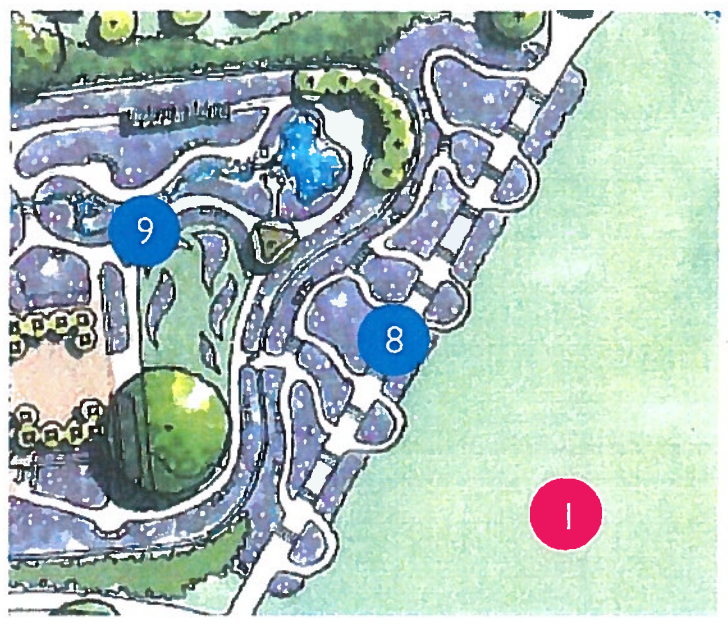
Prior to entering the Conservatory, the visitor passes through the fence-enclosed Shade Garden, located on the site of the Colts' Deer Park. Once planted with "flowers, shrubs, and trees" the area will be returned to its naturalistic appearance through the display of the garden's collection of native shade-loving perennials, shrubs, and flowering trees, which will be enjoyed along a meandering pathway system through the existing tall tree canopy. Within the Shade Garden, plants with fragrance or interesting textures can be grouped to form a sensory garden or plants of medicinal value (which includes many native plants) can be grouped to create a medicinal garden. The walkways will also provide accessible connections between the Conservatory, 25 Stonington Street, the Gardener's Cottage, and the Barn/Carriage House and its café terrace. The terrace will be sized to accommodate large groups as a venue for rentals; garden structures within the terrace will create spaces that will feel comfortable to small groups of visitors as well. Interpretive panels within this area not only will provide visitors with historical views of the Deer Park, but also information about the earlier uses of the Gardener's Cottage and the Barn/Carriage House. The interpretive panels will be paired with site benches to create slightly larger paved areas along the path. These spaces can accommodate special displays/events within the garden, such as an ice sculpture festival.

Conservatory Gardens:

On the south side of the Conservatory, the Conservatory Gardens are designed to interpret further the Colts' love of gardens through the display of the sun-loving collections of the Botanical Garden. The Gardens will also provide examples of sustainable residential design, create a garden retreat for visitors to the Conservatory; provide an attractive venue for weddings and other functions, and preserve the significant existing tree. As in the Shade Garden, within the Conservatory Gardens plants can be grouped to form special gardens. Given the proximity of Hartford Hospital and the Institute for Living, the creation of a medicinal garden would offer the opportunity for collaboration with the hospital for providing patient therapy. The addition of garden structures will enhance the space for visitors as well as provide the opportunity to display residential-scale garden features, enhance the garden as a venue for rental groups, and interpret "Elizabeth's Bower," the "vine-clad summer house," of the Colts' garden. Details from the original Bower could be incorporated into the new structure, and images of the original summer house could be mounted nearby.

The Conservatory Gardens will also provide the opportunity to convey the innovative spirit of Samuel Colt. He is described as having a "consuming interest in innovation…in architecture, gardening, agriculture, and domestic economy" and an "almost messianic desire to light the way to an idealized future." Colt's project at the time of his death was to dig an Artesian well, "deeper than any in France" and utilize the hot water from the earth to heat his extensive greenhouses. The collection of storm water from the Conservatory and surrounding





paved areas, its filtration by the water gardens in the Conservatory Gardens, and its ultimate reuse for the irrigation of the gardens/Conservatory continues the tradition of Samuel Colt's innovative use of water, and the proposed sustainable stormwater system can be explained alongside the interpretation of Samuel Colt's inventiveness. The incorporation of the water system into the residential demonstration garden area represents a step in the illumination of a better future of which Samuel Colt dreamed.

Stormwater System:

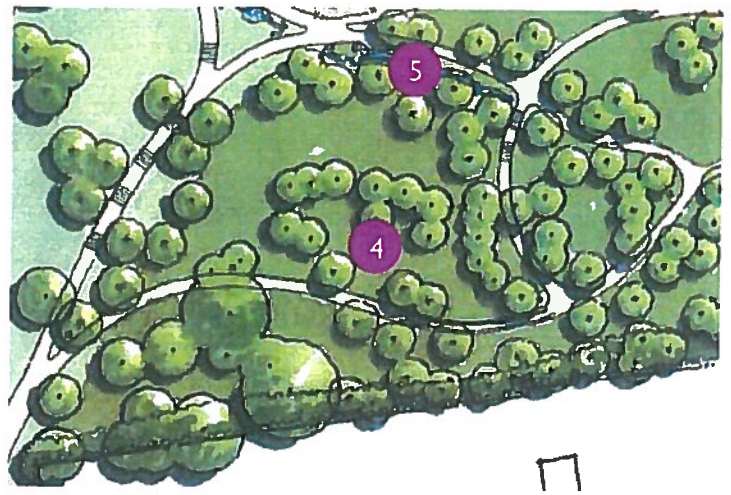
Colt's innovative tradition will also be continued through the construction of a green roof on the shed proposed for the service area and the collection of stormwater from the slopes of the Botanical Garden in a bioswale and pond system that finally connects to the stormwater system proposed for Colt Park. The bioswale will parallel a major walkway through the Garden. It will be shaped to provide eddies in the flow, and the placement of boulders will not only provide opportunities for closer inspection of the wetland plant collection but also provide opportunities for juxtaposing the interpretation of this sustainable treatment of stormwater with Samuel Colt's innovative spirit.

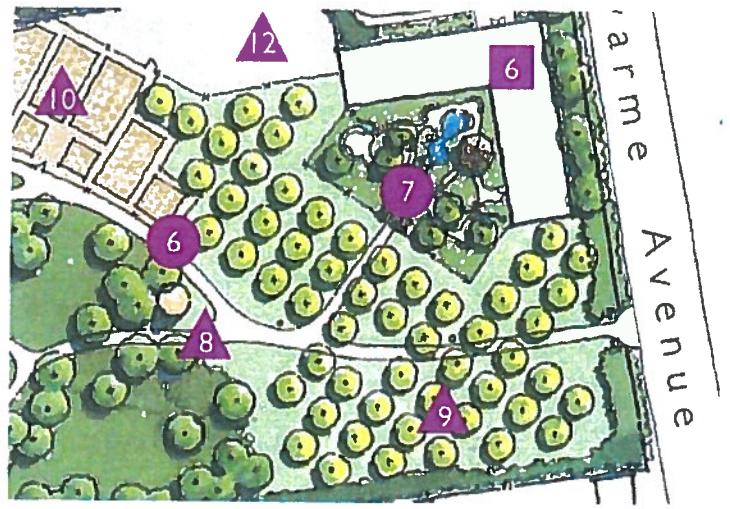
Pond and Stage:

The pond within the stormwater system will be located at the bottom of the Great Lawn as the foreground for the stage. The pond and stage provide an opportunity to interpret the ponds and bridges that were the centerpieces of the Colts' garden. In addition to displaying historic photos of the rustic bridge, the Colts' bridge could be interpreted through the construction of bridges over the bioswale to connect the walkway system to the stage. The new bridges could employ some of the detailing of the original bridge that connected the two upper ponds and that contributed to the picturesque character of the Colts' garden. Recognizing that the Great Lawn is the sledding hill for the neighborhood, the grading of the bottom of the hill will allow for the flattening of the slope to keep the sledders away from the pond.

Heritage Gardens:

Centered on the drop-off to the right of the monument and leading directly down the slope to the pond and stage will be a major stepped walkway through the site that is designed to accommodate neighborhood linkages to the swimming pool and the north end of Colt Park. A 5% sloped walkway will traverse the slope, crossing the central walkway as it meanders between the north and south sides of the walkway. The area within and around this sloped gardenesque route will be the Heritage Gardens—display beds for showcasing the countries and the plants important to the many different ethnic groups who have made the Hartford area their home. Herbaceous species of the Heritage Garden collection will be located to the south side of the central walkway; herbaceous and woody species will be located in the less exposed area to the north of the walkway.





Colt Gardens:

At the upper end of Great Lawn, the Colt Garden will link the two ends of the Botanical Garden. The area features many existing mature trees, including some that could date back to the Colts' era. Walkways through the area will largely follow the existing routes that have persisted from the Colts' garden and will allow the visitor to have the same experience of strolling along shaded walkways enjoyed by the Colts and their guests. Historic views of the Colts' garden can be mounted to match existing views to help visitors make the connection through time. New planting will reinforce the character of this area during the Colts' lifetimes.

Connecticut Natives Gardens:

The area east of the Colt Gardens and the Great Lawn will provide a flowing garden landscape for the enjoyment of the visitors to the Botanical Garden as well as the neighborhood residents who are passing through the Garden enroute to other destinations. This area will be planted with species that are native to Connecticut and well suited to the upland growing conditions of the site. This sustainable approach to the landscape will not only enhance the public's awareness and appreciation of the plants that are the best suited to growing in their area, but also minimize the maintenance required for this large portion of the Garden.

Elizabeth Colt Gardens:

The Working Greenhouse, orchard and gardening plots at the southern end of the Botanical Garden will provide an opportunity to grow some of the plants enjoyed by the Colts and interpret Elizabeth Colt's concern for healthy foods and her generous distribution of the fruits from her estate. A monument to Elizabeth Colt, which will celebrate her interests and philanthropy, is proposed for this southern end of the Garden within sight of the orchard and garden plots. Although in a different location, the proposed orchard can accommodate many of the fruit trees grown in the Colts' orchards—peaches, pears, plums, etc. With further study, the location of the original orchard could be located and celebrated with the planting of a row of the appropriate fruit trees.

Teaching Garden:

The teaching garden alongside the working greenhouse can accommodate the growth of other fruiting plants cultivated by the Colts, including figs and grapes, on arbors. In conjunction with the interior classroom spaces, the garden will be designed to accommodate school groups through carefully selected plantings and features that relate to state-wide curriculums in science, history and language arts. This space will also be a school demonstration garden that serves to inspire teachers and learning communities to develop natural and agricultural spaces on their school property. The teaching garden and garden plots will not only recreate and help to interpret the school gardens that existed in the early days of Colt Park, but, once again, convey Samuel Colt's belief in a brighter future and Elizabeth Colt's efforts to create that future for the citizens of Hartford.

Horticulture:

The Garden will be dedicated to the science and art of gardening and to being a place for inspiration, respite, education and enjoyment.

The plant collections of the Hartford Botanical Gardens will be used for educational programs, display, aesthetic appeal, and to a lesser extent research. As such, the plant collections shall have two primary objectives: first, to display and study native and well-adapted plants for their sustainable potential while educating the public about this flora and the ecology of natural systems; and second, to preserve the spirit of the Colt legacy as an example of 20th century innovation with a focus on horticultural diversity, community involvement, urban agriculture, medicinal and experimental gardens.

Horticulture at the Botanical Garden, will be a multi-purpose activity, supporting the institution's mission and balancing this with a high-quality visitor amenity. The living collections represent a resource for botanical practice, whether for personal pleasure, public health, private gardens, pure scientific purposes or those with economic potential. Most important of all, the living collections and the horticultural skill that cares for them are a resource for conservation of regional plant diversity, education and awareness of our plant systems, horticulture heritage in the Connecticut River Valley, and their integration within urban ecologies.

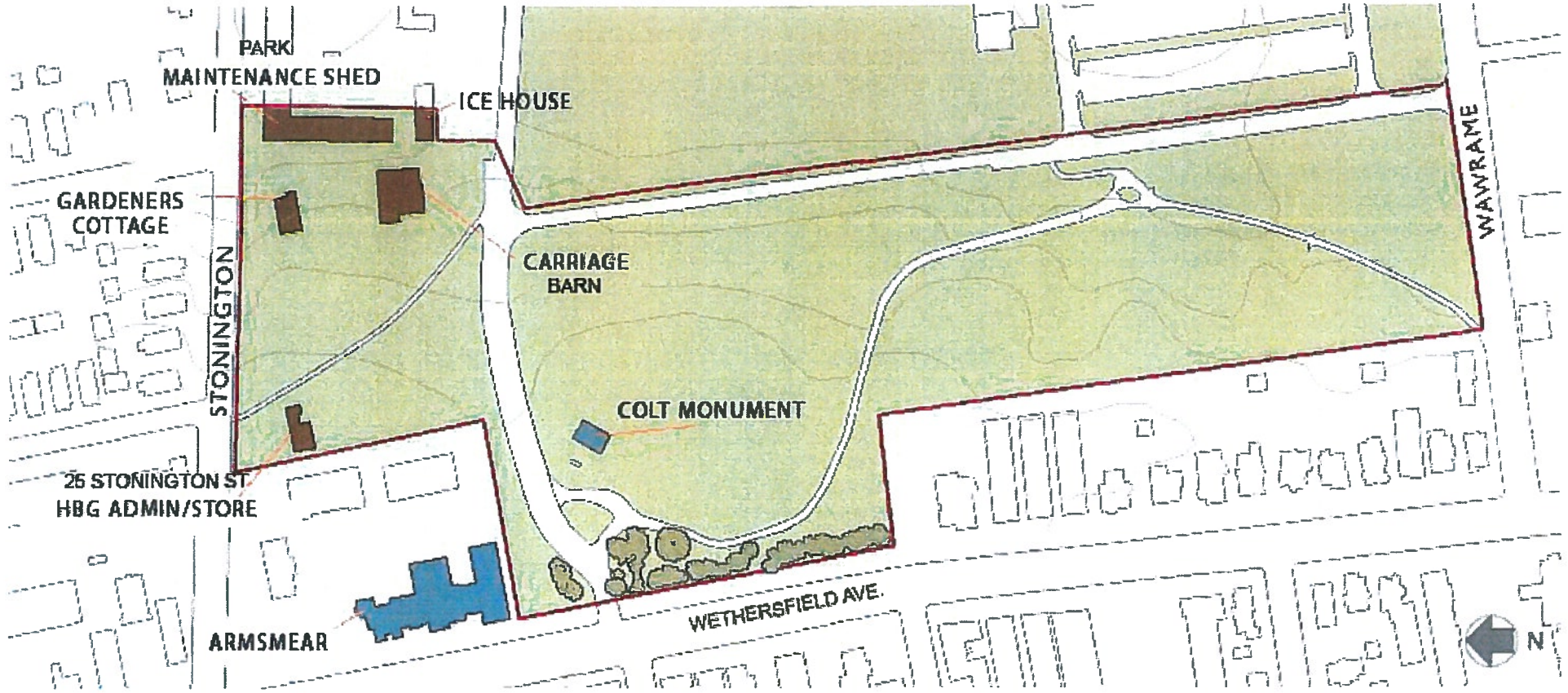
Major Themes

Heritage
Urban Horticulture
Ecologies

Garden Types and Designated Areas

Gardens for small spaces
Culinary plants
Medicinal plants
Sensory garden
Fruit trees/ Orchard
Demonstration garden
Ecological demonstration areas
Gathering areas

Note: See Plant Collections Policy in Appendix



Architecture:

The master plan will be implemented in phases, beginning with those portions that can be renovated and put into service as quickly and inexpensively as possible. This will allow the HBG programs to begin operations, building membership and community support. This will, in turn, provide funding resources to move forward with the subsequent phases of work.

Existing Buildings:

The work will include the restoration of the Gardeners House, Carriage Barn and Ice House. These buildings have been determined to be 'contributing structures' to the historic character of the site, and will be restored to the standards of the Dept of the Interior – National Park Service for historic renovations. In addition, 25 Stonington Street and the west wing of the Park Maintenance Building will also be renovated. The Architectural / Historical Assessment section of this report describes in more detail the scope of restoration and renovation work necessary for each existing structure.

25 Stonington Street:

Currently in use as the CT Store as well as offices for HBG, this building will eventually be used for office space for associated garden and horticultural organizations.

Park Maintenance Building:

The upper floor of this building will be renovated to provide two large multi-purpose meeting/exhibit space, as well as office, library and meeting space for HBG and associated organizations.

Gardener's House:

This historic building will be renovated to provide permanent administrative offices for HBG.

Carriage Barn:

The historic barn (and later addition) will be renovated into a Café and reception space on the main and upper levels, with lower level used for kitchen storage, tools and bays for garden equipment. A new covered connector is proposed linking the lower levels of the Gardener's House to the north, and the proposed Conservatory to the south.

Ice House:

The building will be renovated for use as a storage and work space. Water and sanitary will be added for a toilet as well as general water use (potting) in the building.
New Construction: As funding becomes available, new buildings will be added to accommodate the remaining program needs for HBG. In general this space will be the indoor plant spaces, both working greenhouses and display greenhouses, as well as larger assembly spaces.

New Construction:

Working Greenhouse:

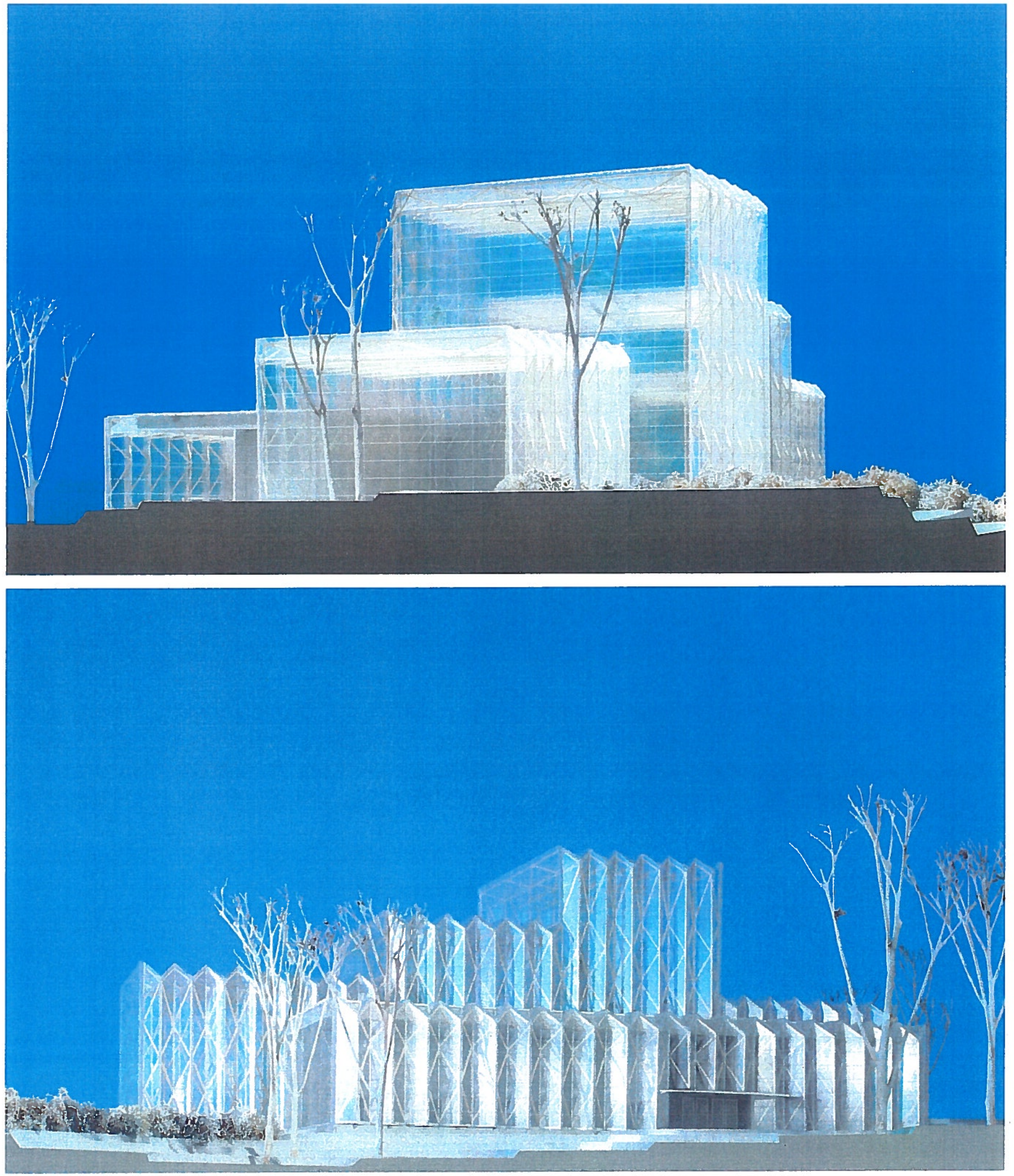
A Working Greenhouse of approximately 7,300 GSF is proposed at the southern edge of the site, adjacent to Wawarme Street and the existing Colt Park parking area. This one-story building will contain both 'back-of-house' growing, potting, and work space, as well as rooms that can provide a space for visiting school groups to learn about and work with plants. This building opens out to a fenced outdoor garden area with raised planting beds and other features supporting outdoor educational programs.

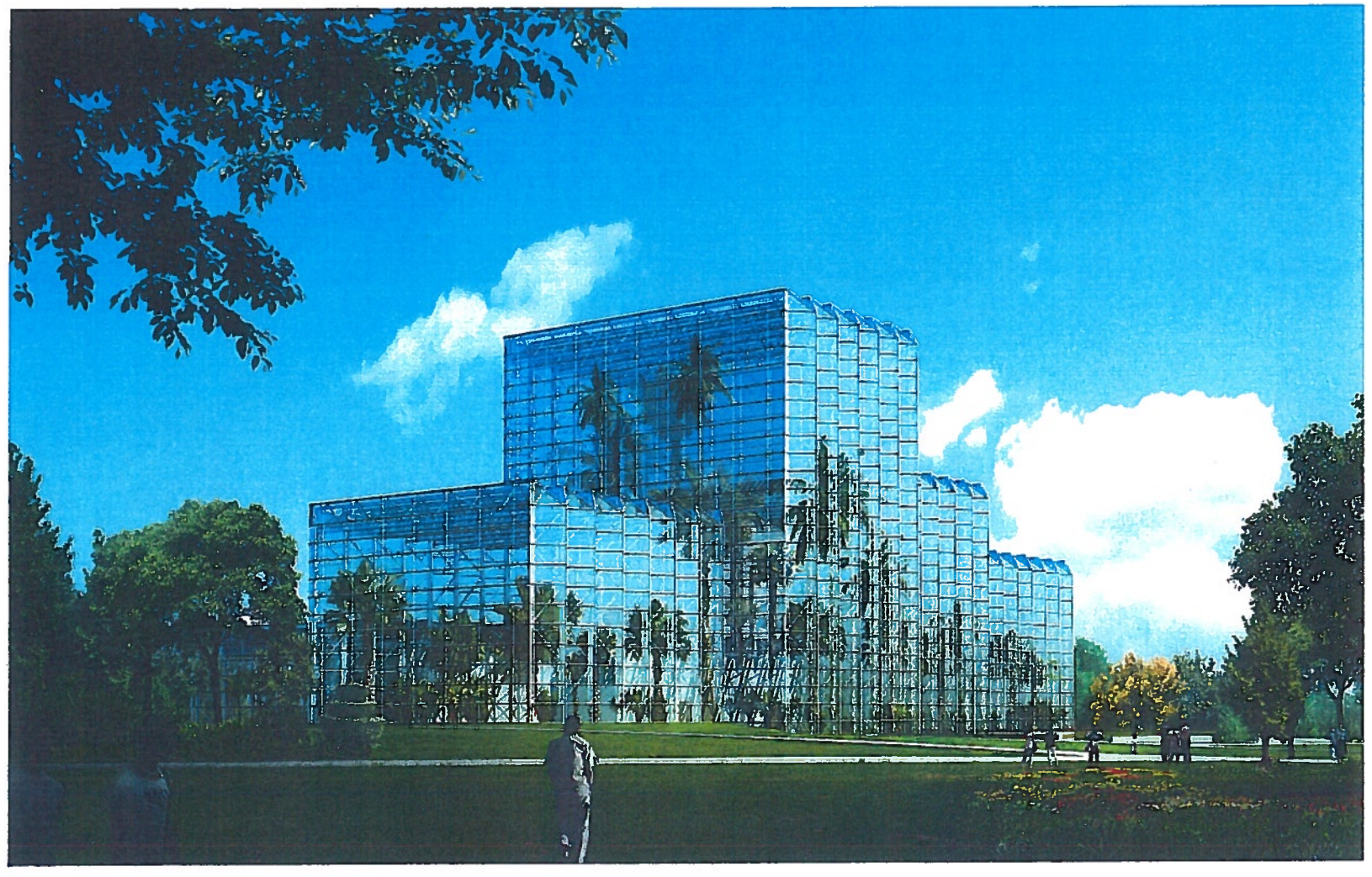
Conservatory:

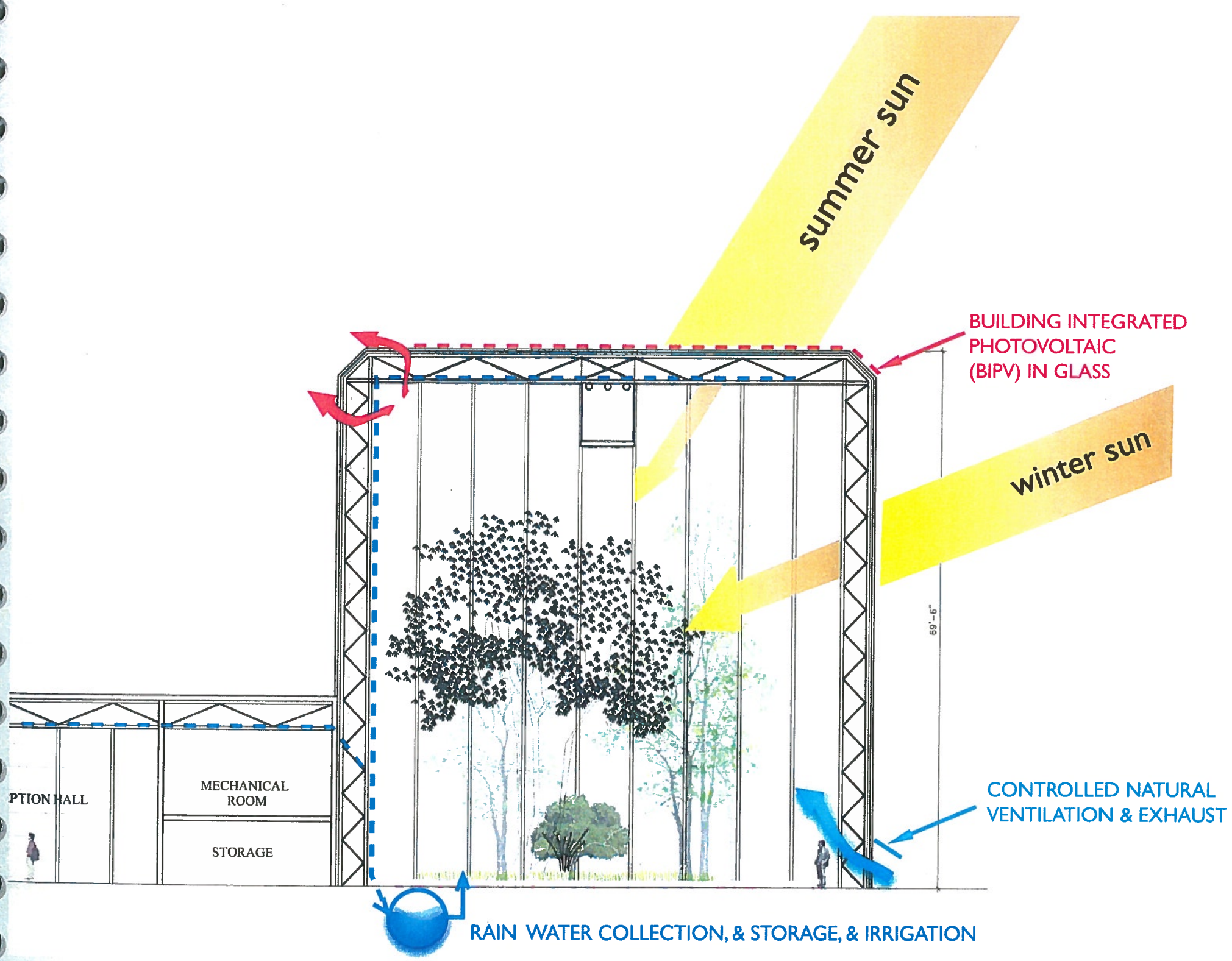
This 25,000 GSF structure will be the final component of the Master Plan for the Hartford Botanical Garden. In response to the history of this site (Armsmear) as well as Samuel Colt's well-documented legacy of innovation, this structure is envisioned as 'a Victorian Glass House for the twenty-first century'. The exposed steel truss structural system and glass skin provides the levels of natural lighting necessary for plant growth, and carries on the tradition of glass conservatory buildings of the 19th and 20th century, including those that had existed on this property as a part of the Colt Estate. However, this building will be a contemporary structure, representative of its time. It will use a wide range of new technologies to minimize energy and resource use. In addition to its functional role as conservatory, it will also serve as a model of sustainable design strategies in its use of materials, energy, and water resources (see Sustainability section below).

The building will contain four separate Plant Rooms, of varying height and size. Each space can be set for a different climate conditions (Tropical, Temperate, Arid, etc). They will include catwalk access to operable vents, lighting, misting, and other equipment. A large Reception Hall will be located directly off of the Lobby. This multi-purpose space will provide table seating for approximately 162 persons, with an additional 30-50 seats in the adjacent Orientation Room and Lobby. The Orientation Room will serve as a gathering space for visiting school groups. Across the lobby, a new Store will provide a larger space for the relocated CT Store, which would then vacate 25 Stonington Street.

Support spaces for the building are located in the basement level, which opens to grade on the east end, as well as a mezzanine level containing the primary mechanical spaces for the building.



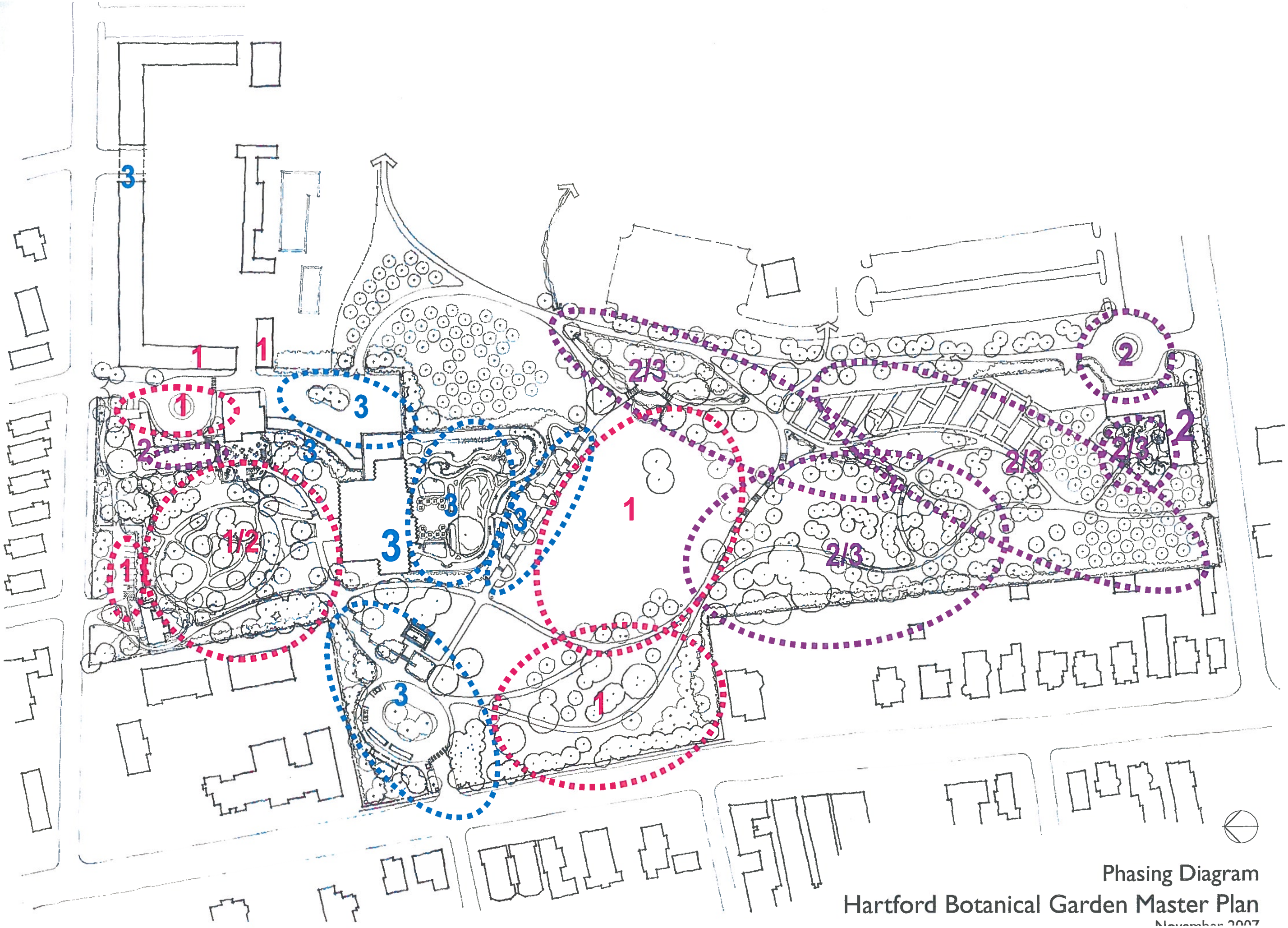




Sustainability:

All new construction, including the new Working Greenhouses and Conservatory buildings, will be designed in accordance with the best strategies for sustainable design for these building types. The goal would be to achieve a Silver Level LEED Certification (see attached LEED Checklist indicating proposed and possible points). In addition to the use of local and recycled materials wherever possible, other components of sustainable design may include the following:

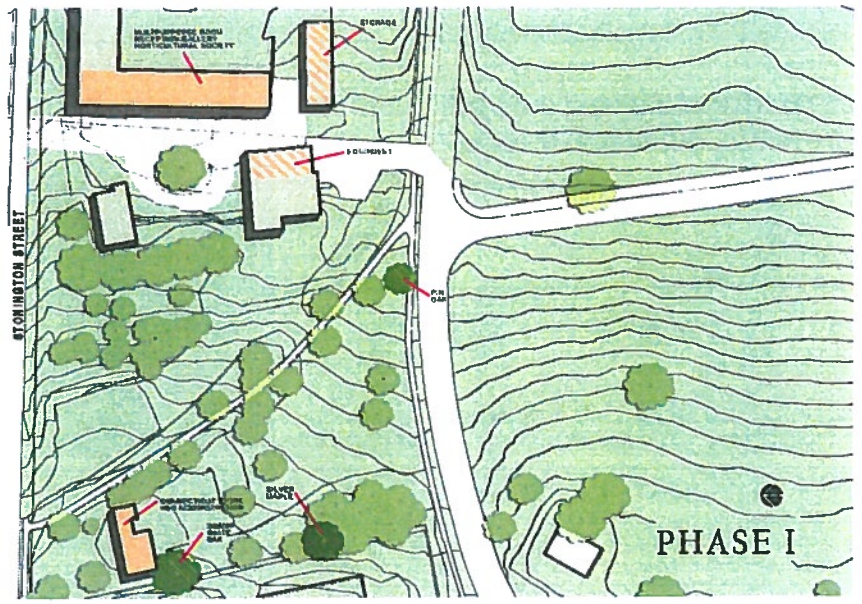
- Access to alternative transportation.
- Use of local materials wherever possible.
- Use of renewable resource materials.
- Materials with low VOC components.
- Natural ventilation and natural daylighting.
- Geothermal well system providing cooling water in summer and heating water in winter.
- Possible glass-integrated photo-voltaic system on the conservatory, combining elec trical generation with sun shading.
- Rain water collection and use for watering and irrigation of gardens and plants.
- Storm-water management to accommodate run-off and support related plant types.
- Possible fuel cell for power generation.

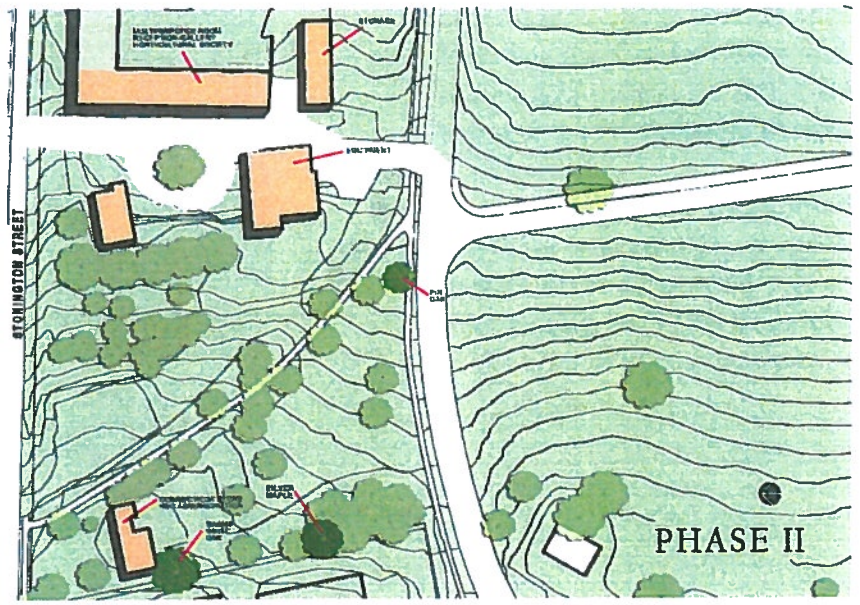


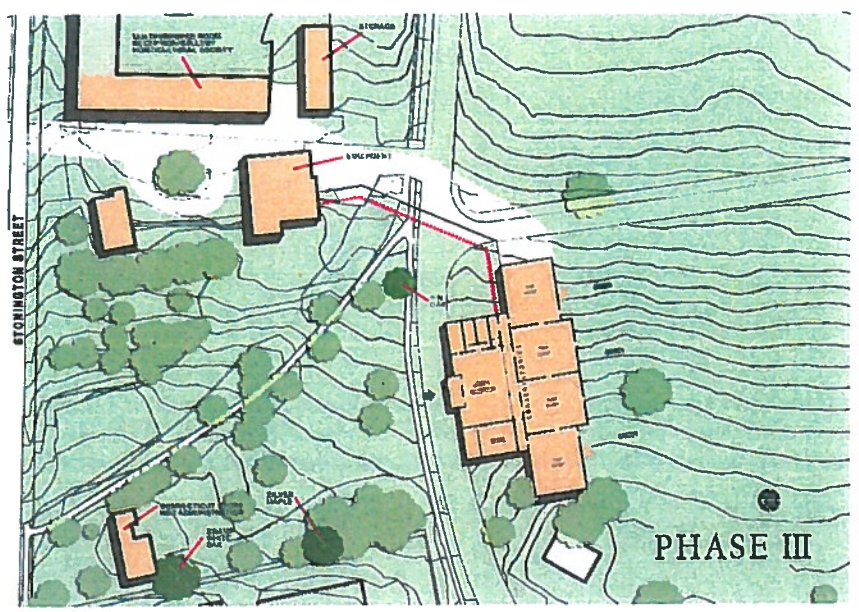
Phasing Diagram

Hartford Botanical Garden Master Plan

November 2007







PHASING PLAN:

Phase I: 2008

- Complete renovations to 25 Stonington Street.
- Renovate the upper floor of the Park Maintenance Building (West Wing), to accommodate multi-purpose meeting and educational space, as well as office and library space for the use of HBG and as sociated garden organizations.
- Renovate the Ice House for use as potting shed for the gardens.
- Reconfigure parking area adjacent to 25 Stonington Street.
- Add new entrance drive off of Stonington Street with new parking and walks between the Gardeners House and the Park Maintenance Building.
- Begin the development of the Shade Gardens (adjacent to 25 Stoning-ton Street).
- Begin development of Colt Estate Gardens at the western (upper) end of the site.

Phase II: 2010 (est.)

- Renovate and restore the Gardener's Cottage, for use as administra-tive offices for HBG.
- Renovate and restore the Carriage Barn, for use as a Café and Recep tion Room on the main and upper floors, and garden equipment stor age on the lower level.
- Construct a covered walkway and new retaining wall between the lower levels of the Gardener's Cottage and Carriage Barn.
- Complete development of Shade Gardens, including a dining terrace adjacent to the west side of the Carriage Barn.
- Construct Working Greenhouse at south end of site.
- Begin installation of teaching gardens.

Phase III: To Be Determined

- Remove existing entry drive, and construct new Drop-Off at Wethersfield Avenue entrance.
- Construct new Conservatory, including Reception Hall, Store, and four plant rooms (phasing of two plant rooms is possible), with sup port spaces on lower level.
- Construct covered walkway, link between lower levels of Carriage Barn and Conservatory, with green roof above.
- Develop Conservatory Gardens
- Develop Heritage Gardens and stepped/sloping walk system to Stage.
- Complete teaching gardens
- Complete main walkways surrounding Conservatory.

COST ESTIMATE:

The cost estimate breaks the project into three phases as defined above. Subject to fund-raising efforts for the project, the Master Plan has assumed the following dates for start of construction:

		Current 2007 Cost:	Escalated Cost (est.):
Phase I:	2008	$2,346,726	$2,510,996
Phase II:	2010 est.	$5,400,080	$6,511,390
Phase III:	TBD	$22,919,882	TBD

The first phase has an estimated construction cost of $2.5 million, and the second phase an estimated construction cost of $6.5 million. The final phase, including the Conservatory and final gardens, is estimated to cost approximately $23 million (in 2007). This cost is dependent on many factors, including extent of sustainable design elements and the actual year of construction.

These costs include an assumed escalation rate escalation of 7% per year, to the dates indicated. These estimated costs are for construction and do not include other associated 'soft costs', such as design fees, legal fees and permits, testing, etc. A full description of assumptions and exclusions is included in the complete cost estimate, located in the Appendix.

Drawings

Buildings

1. 25 Stonington Street
2. Parks Maintenance Building
3. Icehouse
4. Gardener's Cottage
5. Barn/Carriage House
6. Working Greenhouse and Classroom

Elements

1. Main Entrance
2. Samuel Colt Monument
3. Interpretive Panels
4. Café Terrace
5. Parking and Drop-off
6. Parking
7. Stage
8. Elizabeth Colt Monument
9. South Orchard
10. Garden Plots
11. Bus Drop-off
12. Greenhouse Yard
13. Serviceway/Walkway

Gardens

1. **Great Lawn**
   Preserves the long views to the river and the existing open space for continued use by the Hartford community
2. **Shade Garden**
   Interconnects the existing and future buildings with an accessible walkway system through a naturalistic garden of shade-loving plants
3. **Colt Garden**
   Conveys the experience of the garden of the Colt's era with curving walk-ways through mature canopy trees
4. **Connecticut Natives Garden**
   Introduces garden visitors as well as neighborhood residents passing through the garden to plants that are native and well-adapted to the Hartford area
5. **Bioswale and Wetland Garden**
   Collects garden run-off and conveys it via a bioswale to the pond and wetland gardens that enhance the setting for the stage
6. **Elizabeth Colt Garden**
   Celebrates Elizabeth Colt's generousity to her community with a garden that includes garden plots and a fruit orchard
7. **Teaching Garden**
   Supports visiting classroom use and demonstrates approaches to school yard gardens

Phases 1 and 2
Hartford Botanical Garden Master Plan
November 2007

Buildings

1. 25 Stonington Street
2. Parks Maintenance Building
3. Icehouse
4. Gardener's Cottage
5. Barn/Carriage House
6. Working Greenhouse and Classrooms
7. Conservatory

Elements

1. Main Entrance
2. Samuel Colt Monument
3. Interpretive Panels
4. Café Terrace
5. Parking and Drop-off
6. Parking
7. Stage
8. Elizabeth Colt Monument
9. South Orchard
10. Garden Plots
11. Bus Drop-off
12. Greenhouse Yard
13. Serviceway/Walkway
14. East Orchard
15. Conservatory Yard
16. Green Roof
17. Vehicular Drop-off
18. Bus Drop-off and Shelter
19. Information Booth

Gardens

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   Preserves the long views to the river and the existing open space for continued use by the Hartford community
2. **Shade Garden**
   Interconnects the existing and future buildings with an accessible walkway system through a naturalistic garden of shade-loving plants
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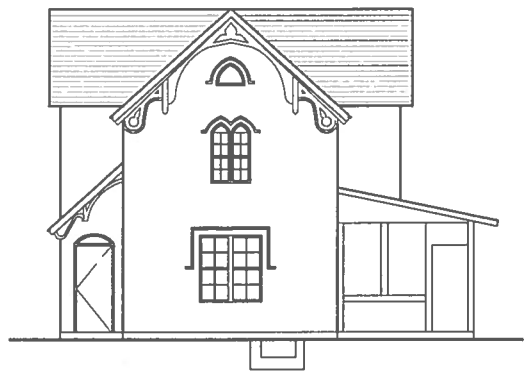
6. **Elizabeth Colt Garden**
   Celebrates Elizabeth Colt's generousity to her community with a garden that includes garden plots and a fruit orchard
7. **Teaching Garden**
   Supports visiting classroom use and demonstrates approaches to school yard gardens
8. **Heritage Gardens**
   Showcases plants from Hartford's many ethnic heritages along an accessible walkway that traverses the slope of the Great Lawn
9. **Conservatory Gardens**
   Features sun-loving collections, a garden terrace, sustainable approaches to residential garden design, and green roof technology

Phase 3
Hartford Botanical Garden Master Plan
November 2007

North Elevation

Scale: 1/16"=1'-0"



West Elevation

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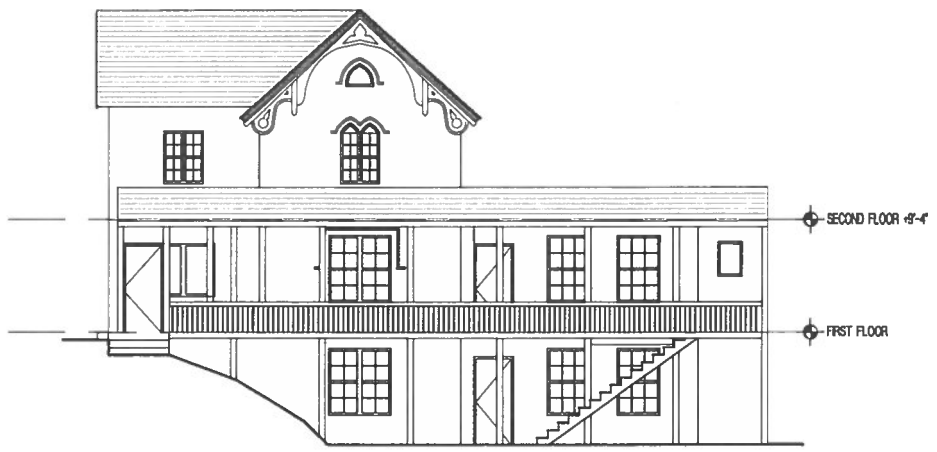

South Elevation

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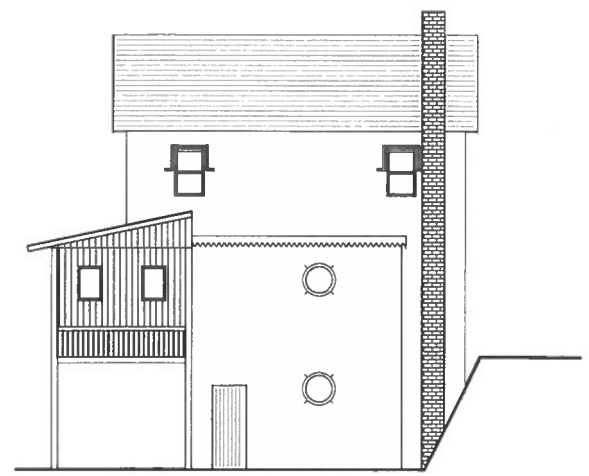

East Elevation

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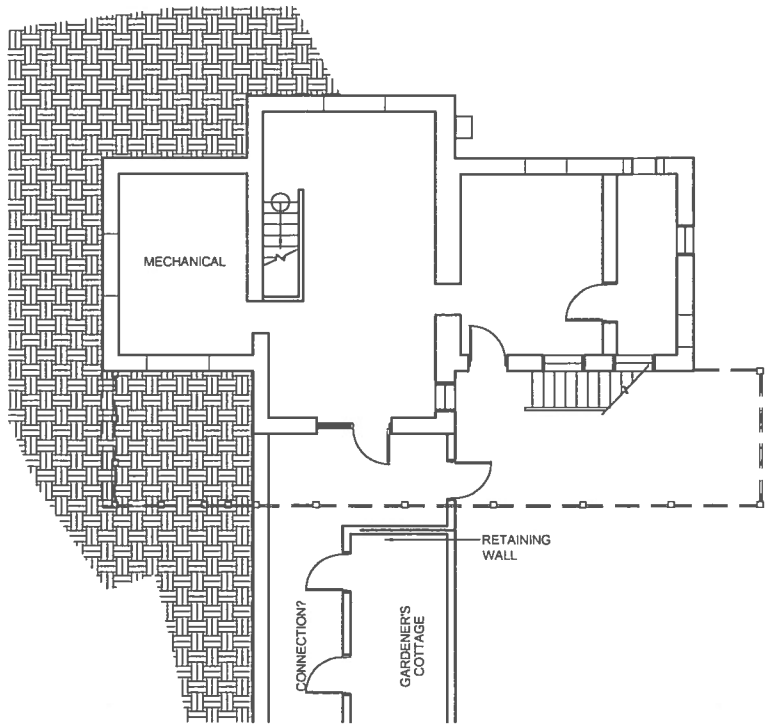
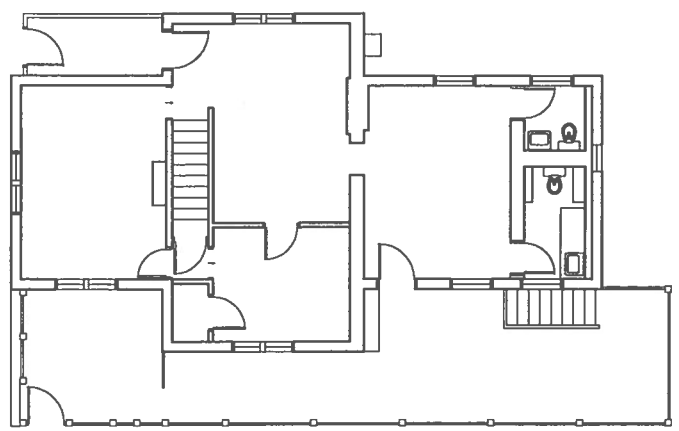


Basement Floor Plan

Scale: 1/16"=1'-0"



First Floor Plan

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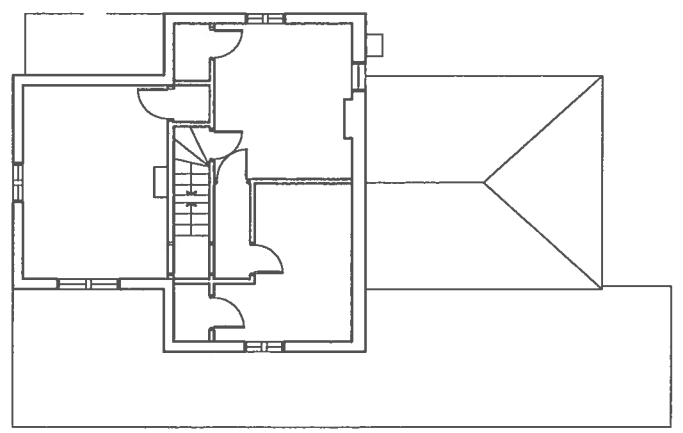

Second Floor Plan

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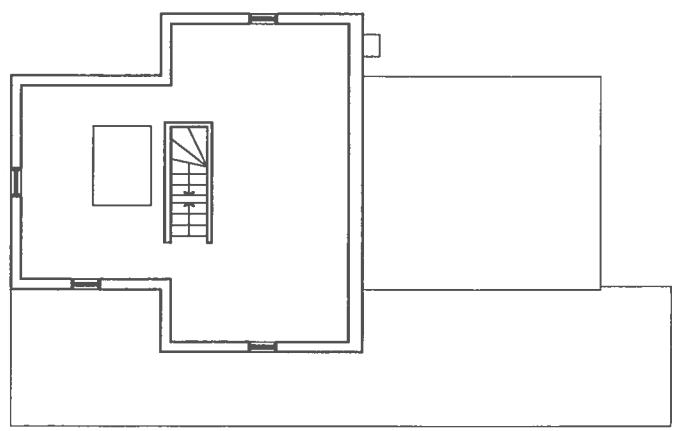


Attic Floor Plan

Scale: 1/16"=1'-0"

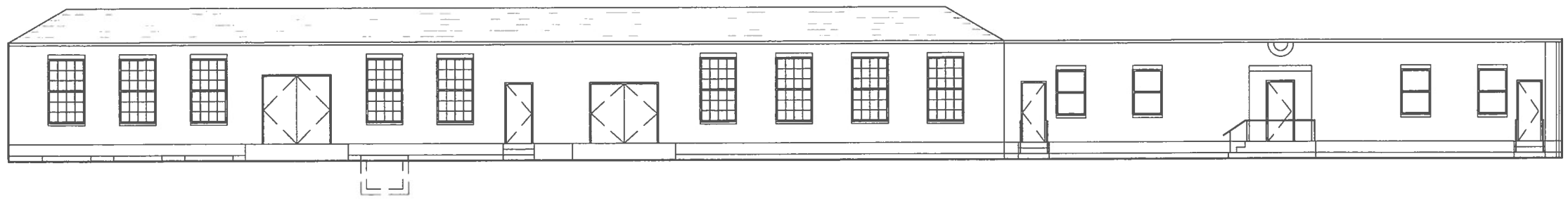
2,000 GSF

TAI SOO KIM

Tai Soo Kim Partners

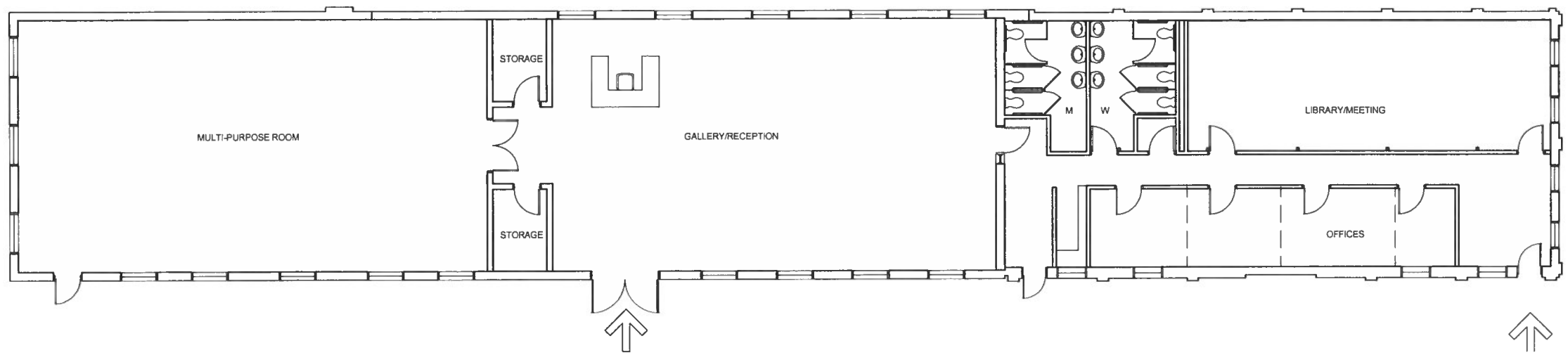
March 1, 2007

Proposed Gardener House



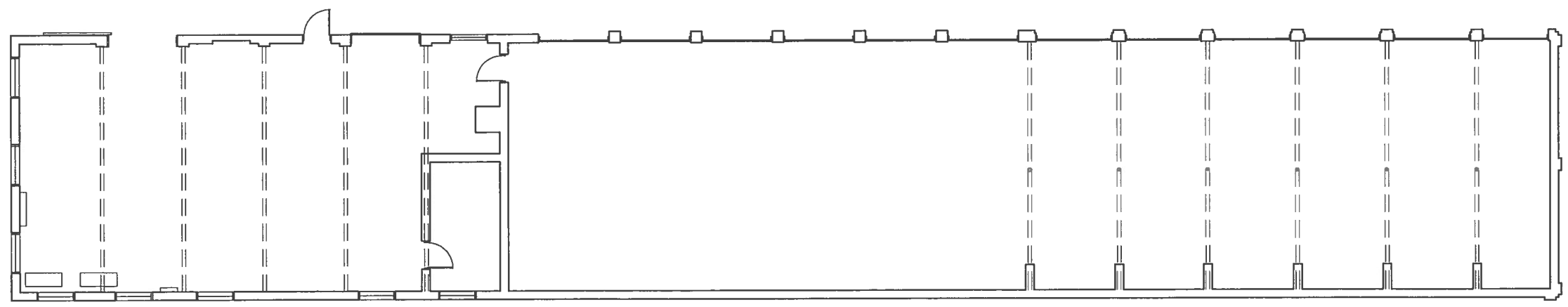
West Elevation

Scale: 1/16"=1'-0"



First Floor Plan

Scale: 1/16"=1'-0"



Basement Floor Plan

Scale: 1/16"=1'-0"

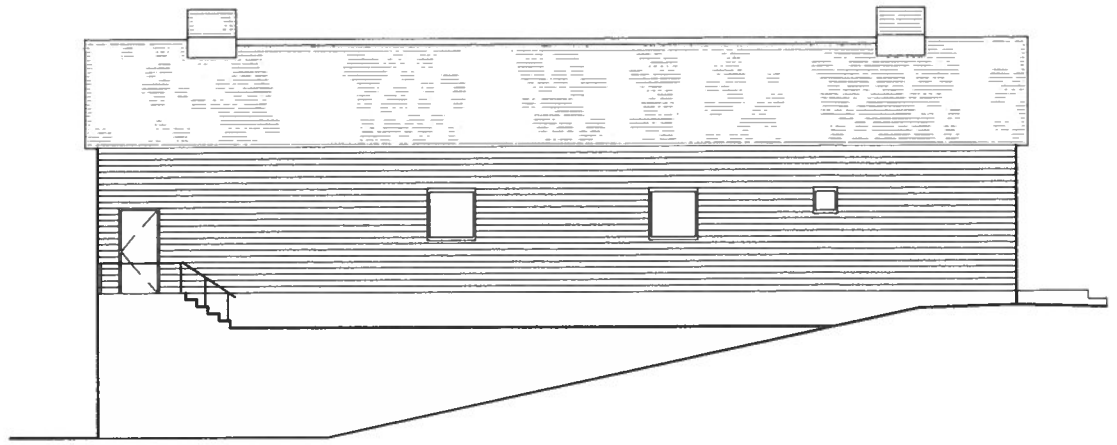
5,824 GSF

TAI SOO KIM

Tai Soo Kim Partners

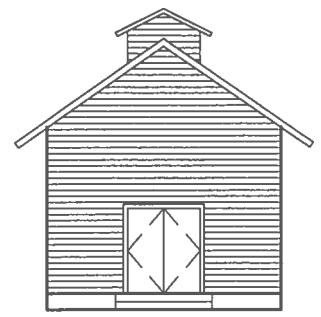
March 1, 2007

Proposed Maintenance Building



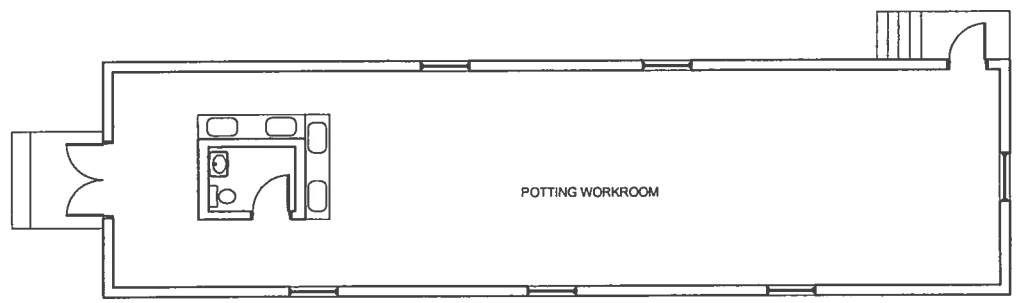
North Elevation

Scale: 1/16"=1'-0"



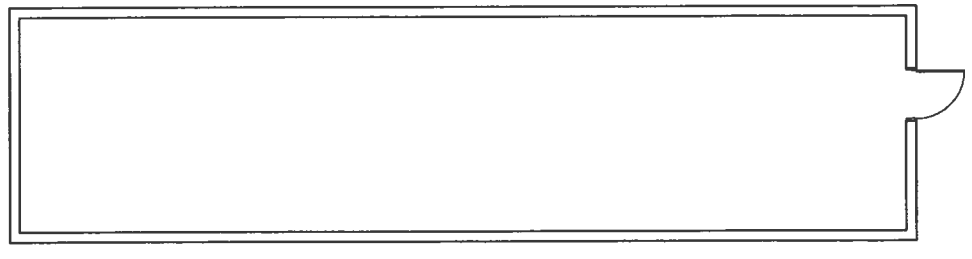
West Elevation

Scale: 1/16"=1'-0"



First Floor Plan

Scale: 1/16"=1'-0"



Basement Floor Plan

Scale: 1/16"=1'-0"

1,425 GSF

TAI SOO KIM

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March 1, 2007

Proposed Ice House

RETAINING WALL

TO GARDENER'S COTTAGE

FOOD STORAGE/DELIVERIES

FIELD HOUSE

STORAGE

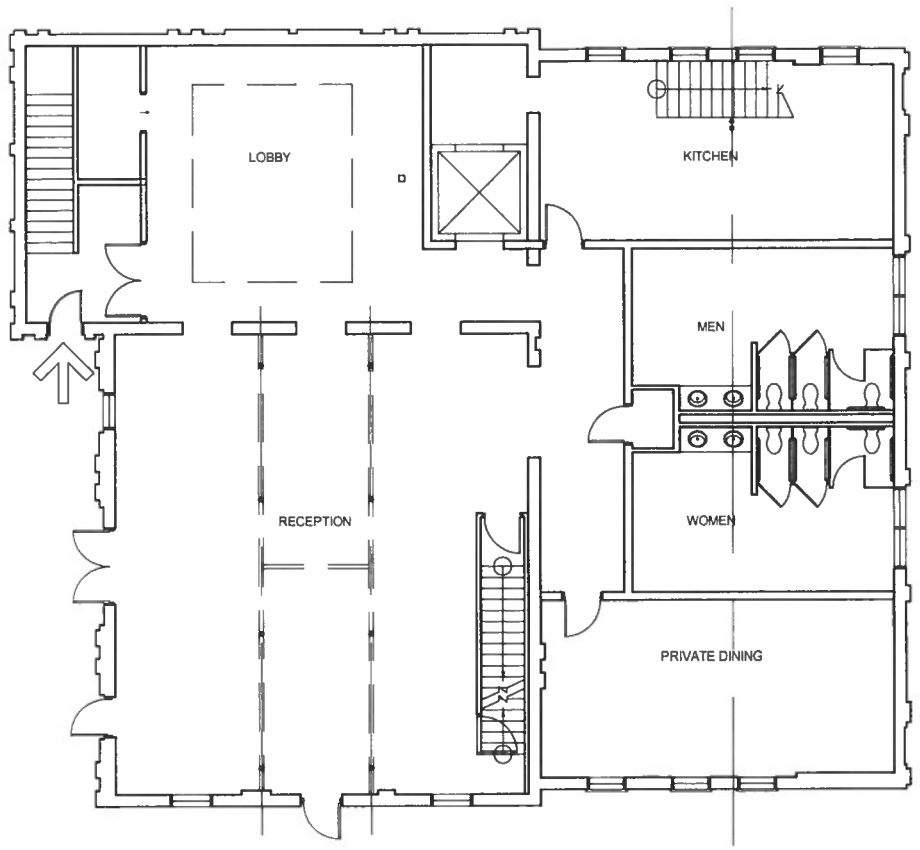
STORAGE

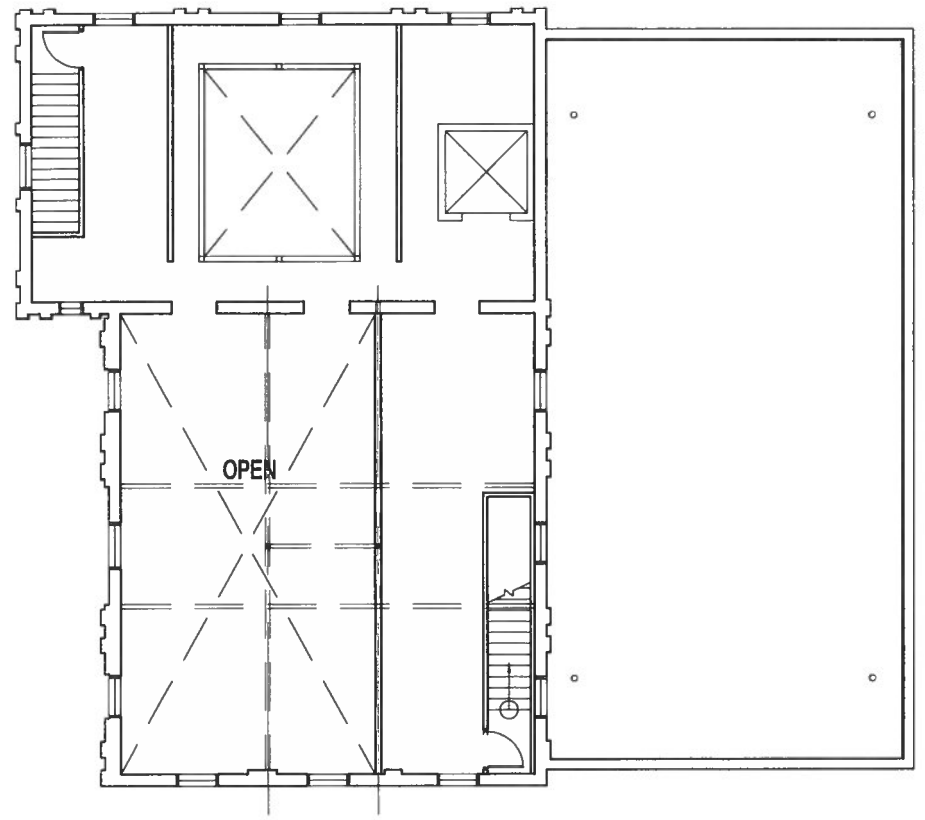
TOOLS

I Botanical Garden_Phase3\CH-baseb.dwg

G.H.

TO CONSERVATORY





Basement Floor Plan

Scale: 1/16"=1'-0"

First Floor Plan

Scale: 1/16"=1'-0"

Second Floor Plan

Scale: 1/16"=1'-0"

7,450 GSF

TAI SOO KIM

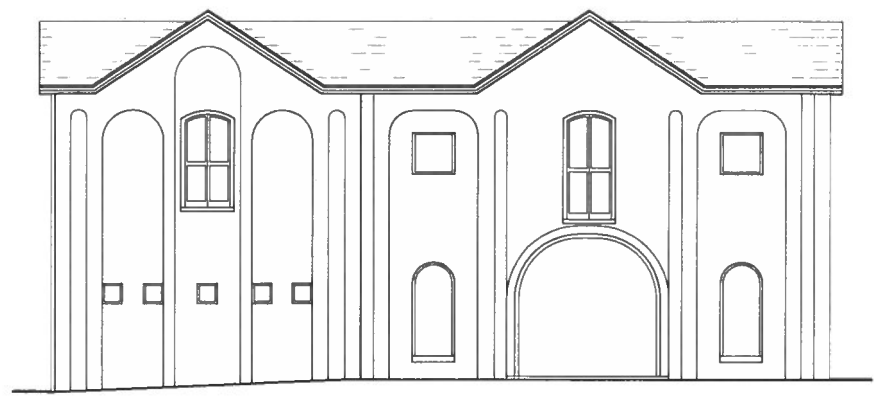
Tai Soo Kim Partners

March 1, 2007

Proposed Carriage Barn Plans

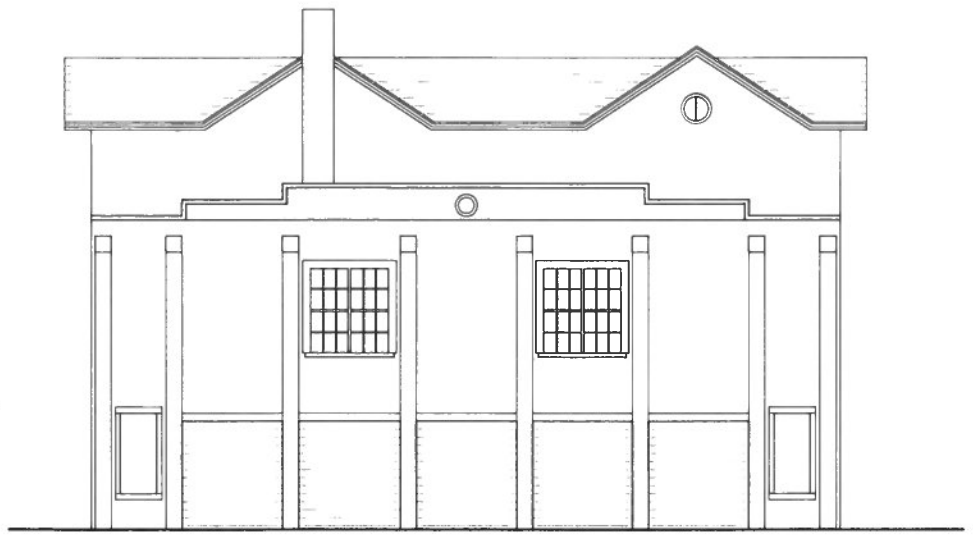
South Elevation

Scale: 1/16"=1'-0"



West Elevation

Scale: 1/16"=1'-0"



East Elevation

Scale: 1/16"=1'-0"

North Elevation

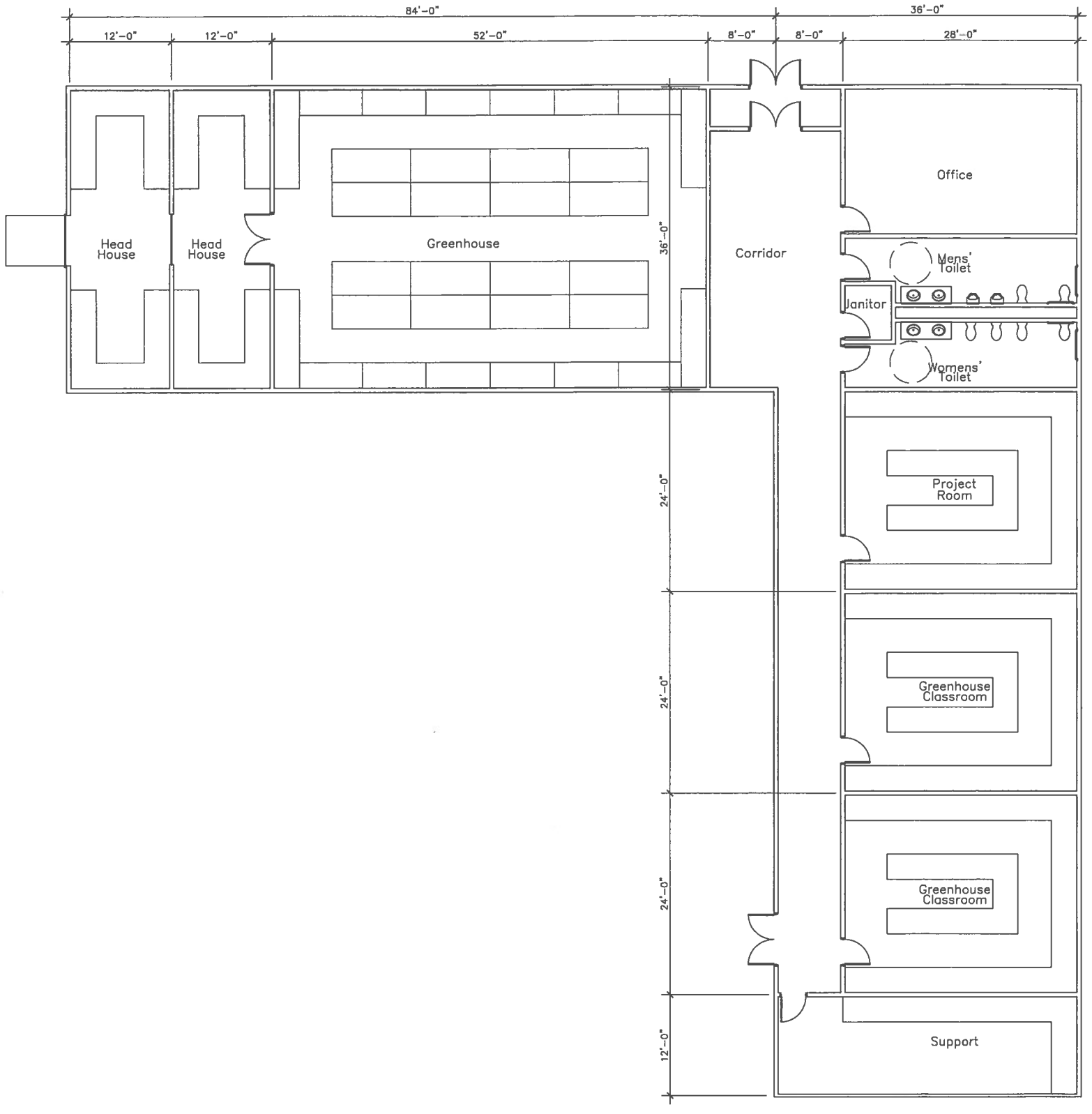
Scale: 1/16"=1'-0"

TAI SOO KIM

Tai Soo Kim Partners

March 1, 2007

Carriage Barn Elevations



First Floor Plan

Scale: 1/8" = 1'-0"

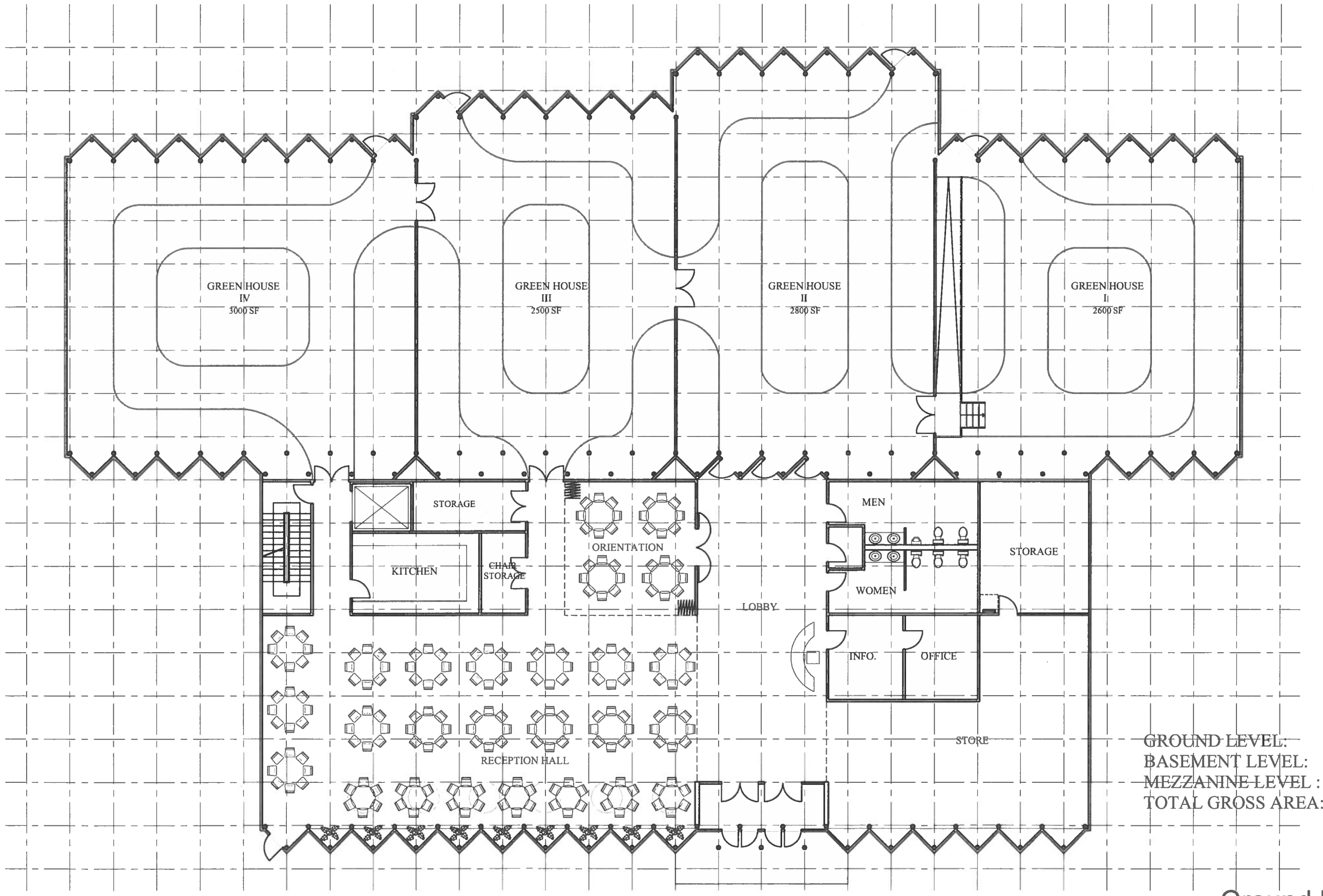
7,484 GSF

TAI SOO KIM

Tai Soo Kim Partners

March 1, 2007

Working Greenhouse



GROUND LEVEL:	19,012 SF.
BASEMENT LEVEL:	3,738 SF.
MEZZANINE LEVEL :	2,450 SF.
TOTAL GROSS AREA:	25,200 SF.

TAI SOO KIM

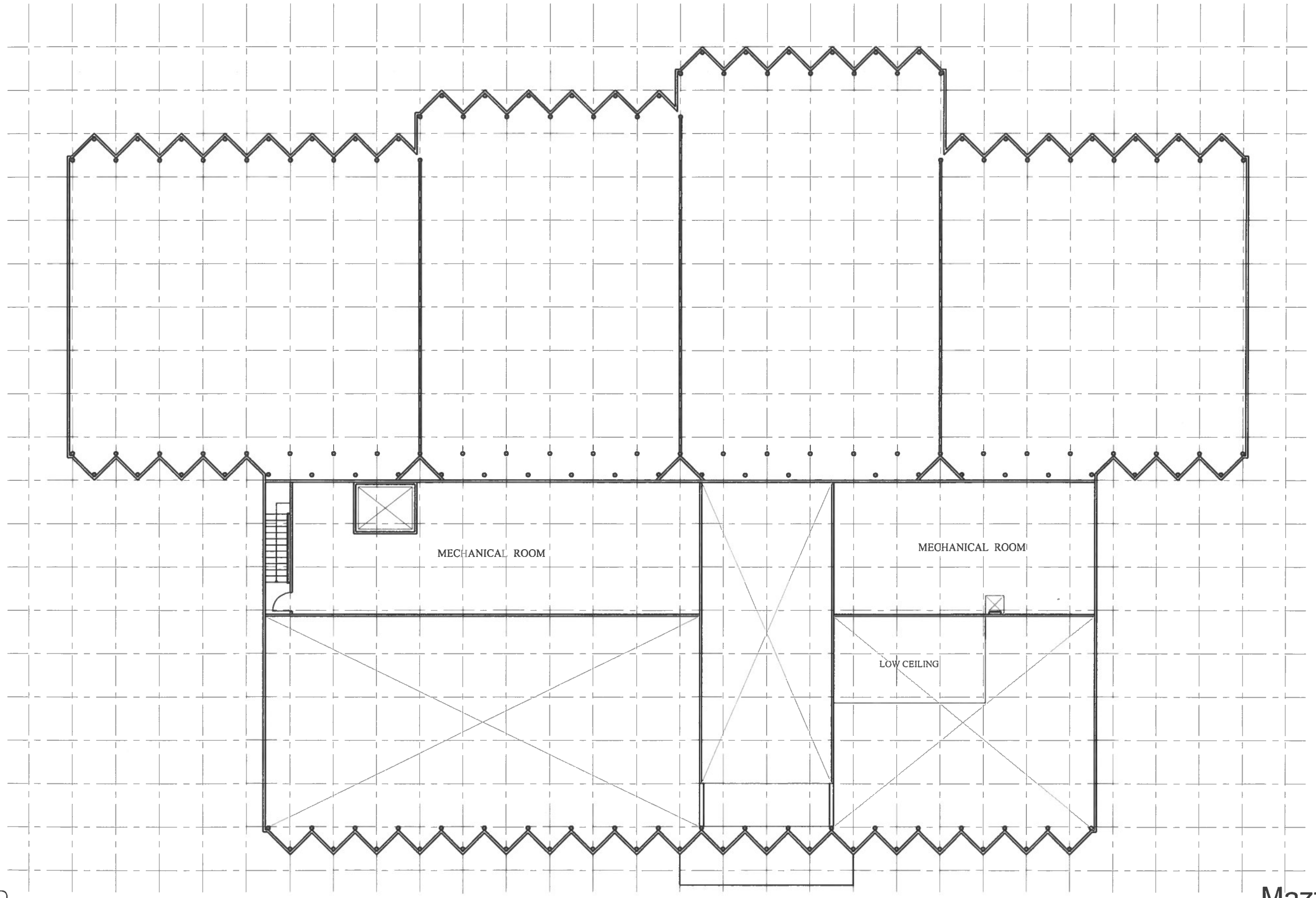
Tai Soo Kim Partners

March 1, 2007

Ground Level Plan

Scale: 1/16"=1'-0"

Area: 19.012 sf



TAI SOO KIM

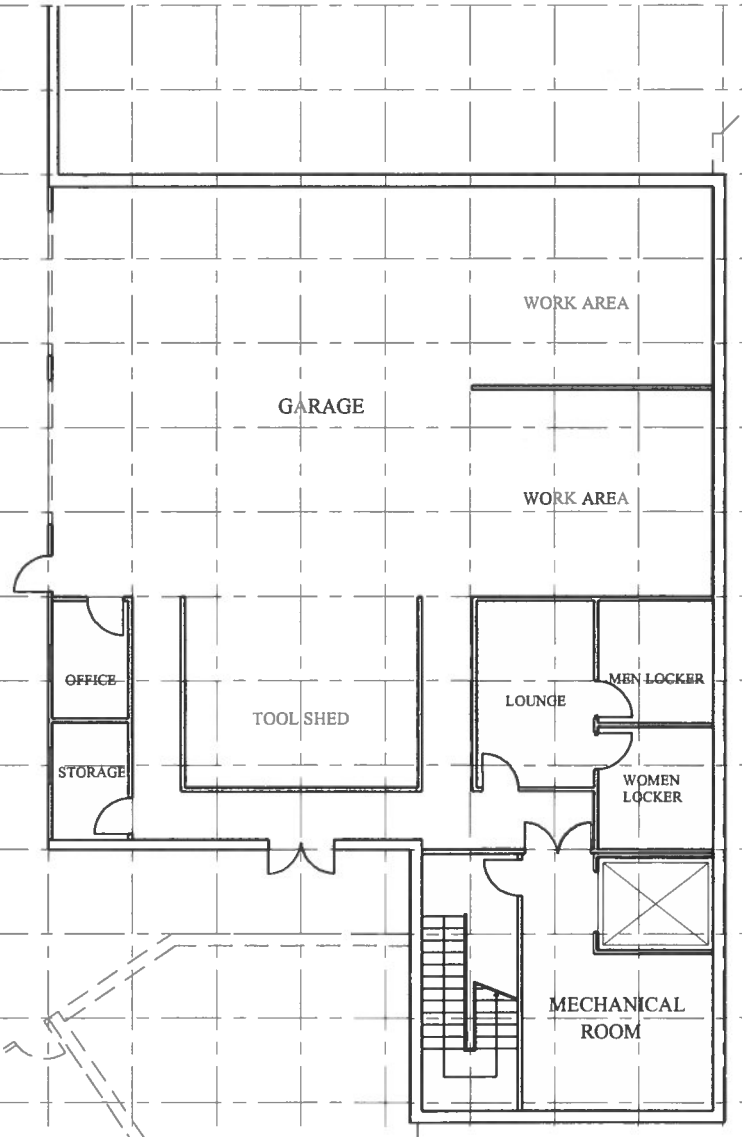
Tai Soo Kim Partners

March 1, 2007

Mazzanine Plan

Scale: 1/16"=1'-0"

Area: 2,450 sf



GARDENING / WORKING
1120 SF

TAI SOO KIM

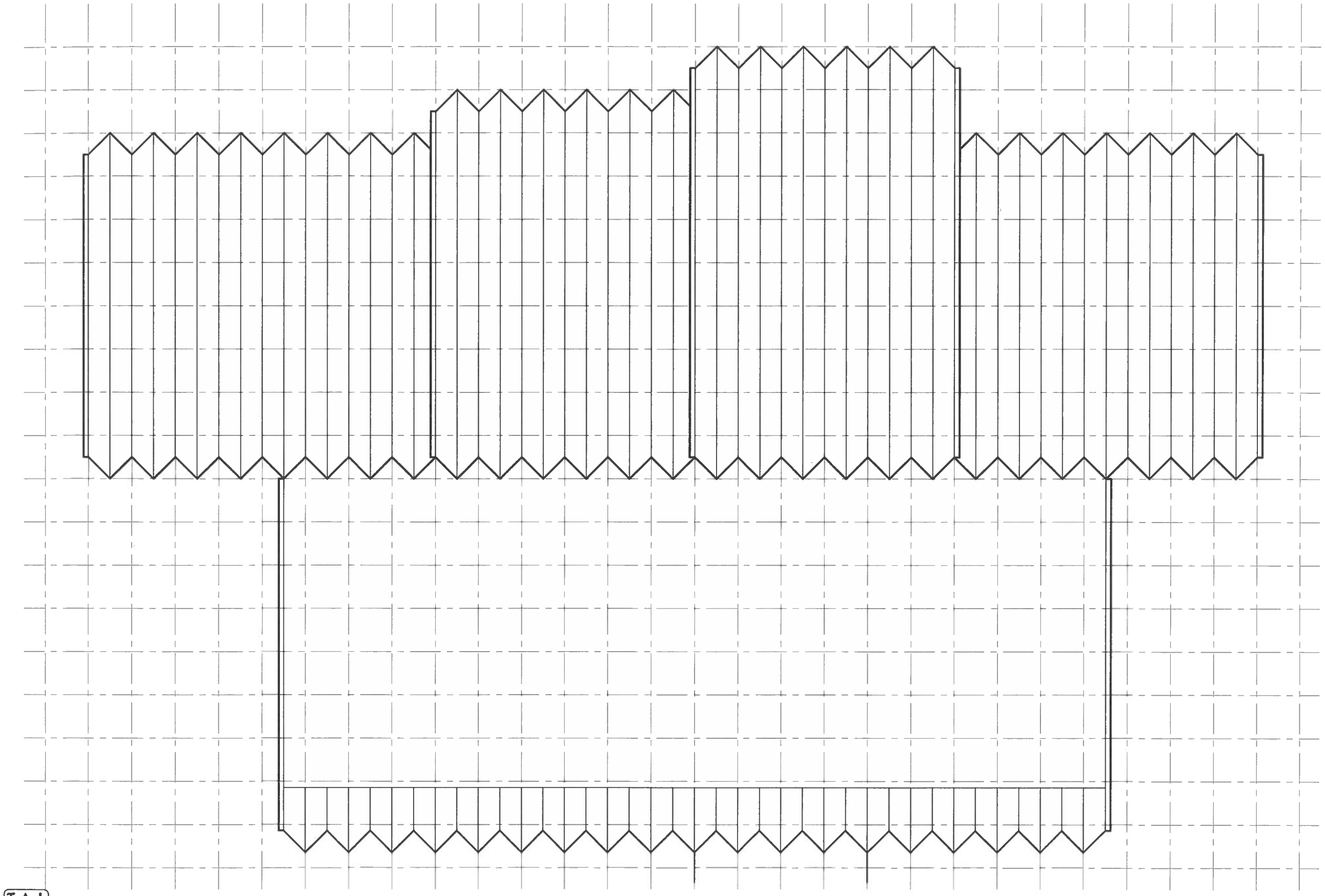
Tai Soo Kim Partners

March 1, 2007

Basement Plan

Scale : 1/16" =1'-0"

Area: 3,738 sf



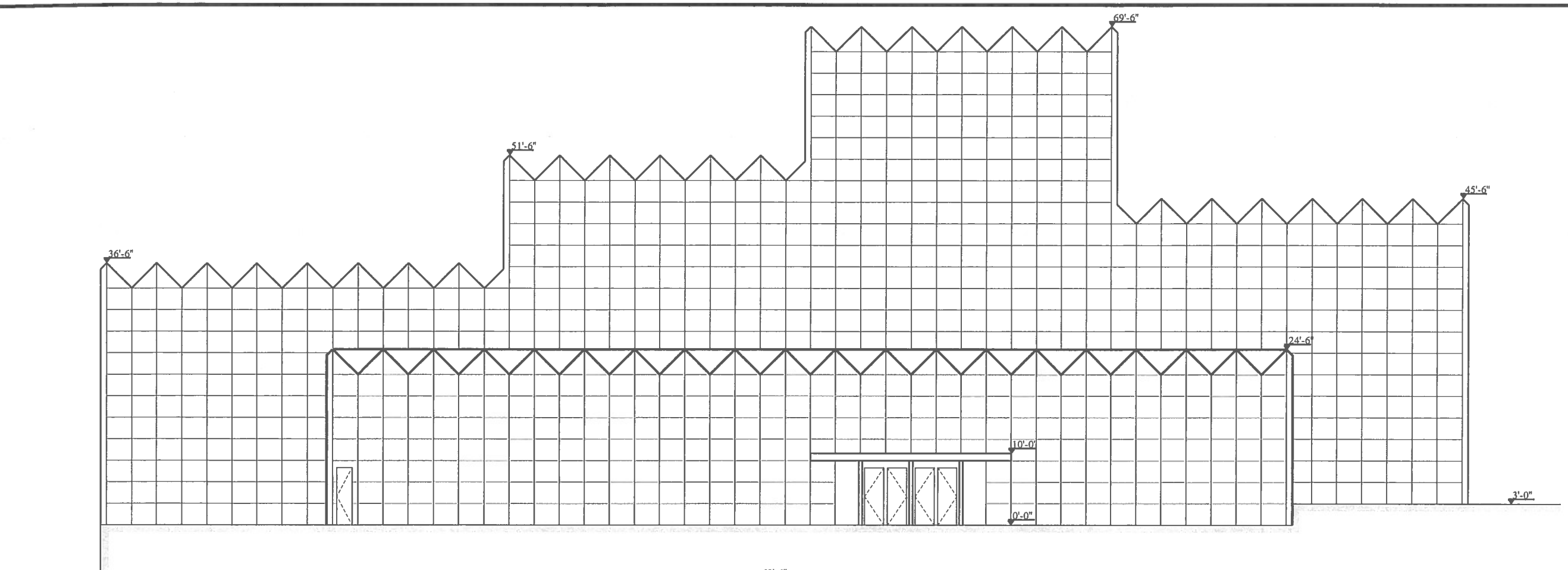
TAI SOO KIM

Tai Soo Kim Partners

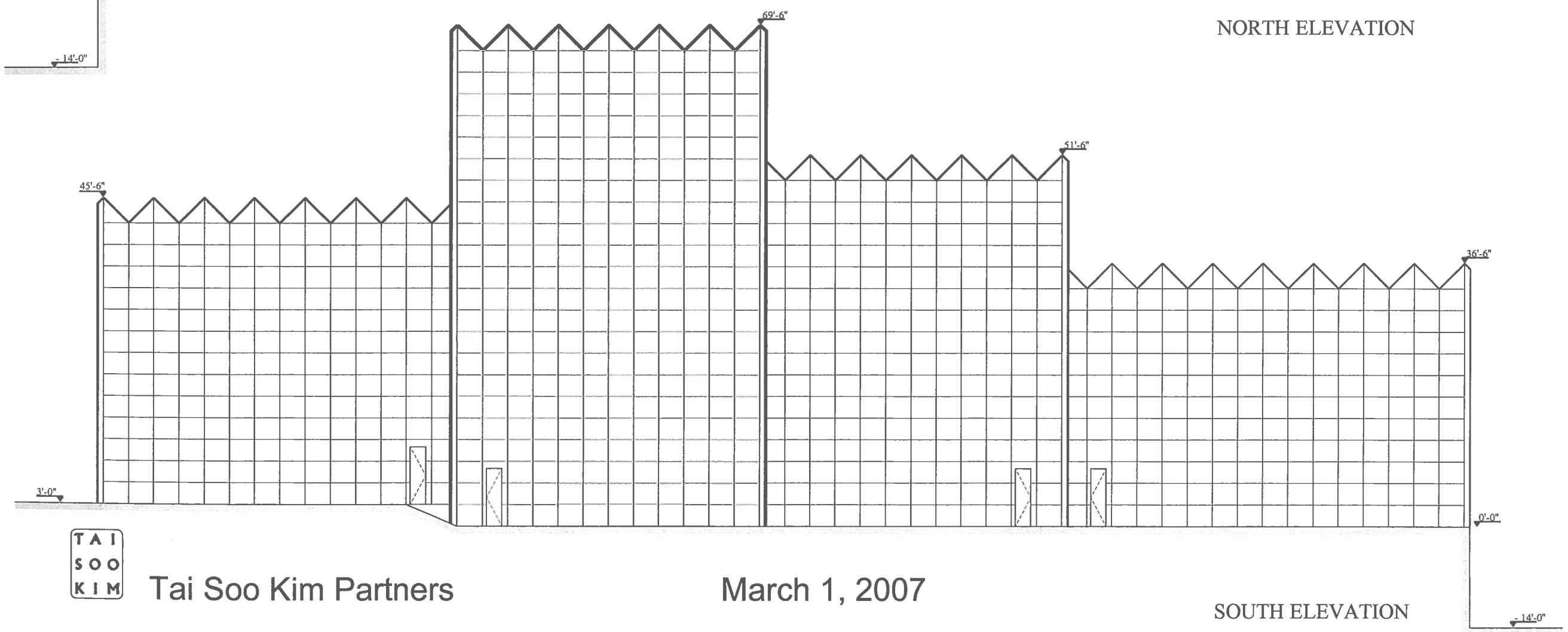
March 1, 2007

Roof Plan

Scale : 1/16" =1'-0"



NORTH ELEVATION



SOUTH ELEVATION

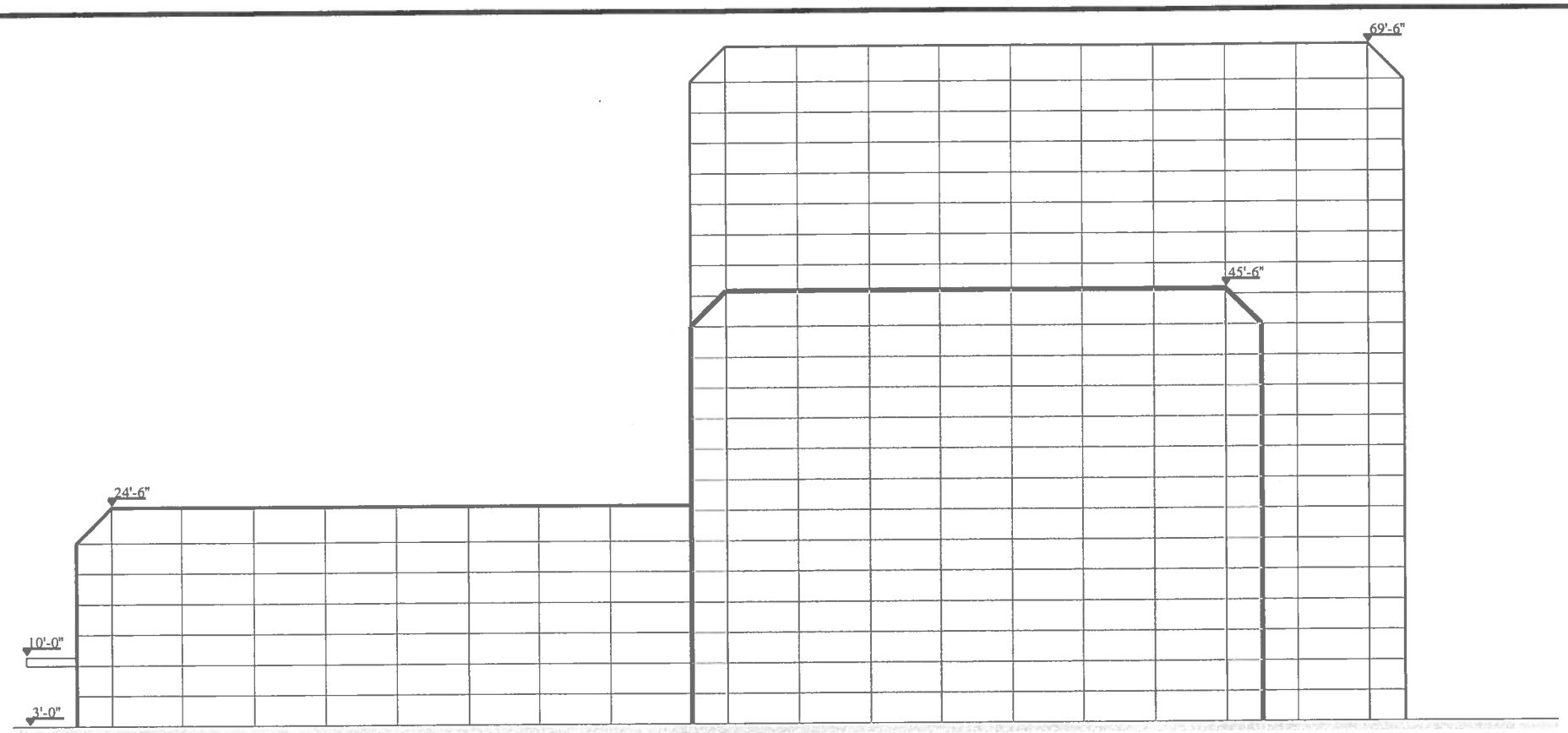
TAI SOO KIM

Tai Soo Kim Partners

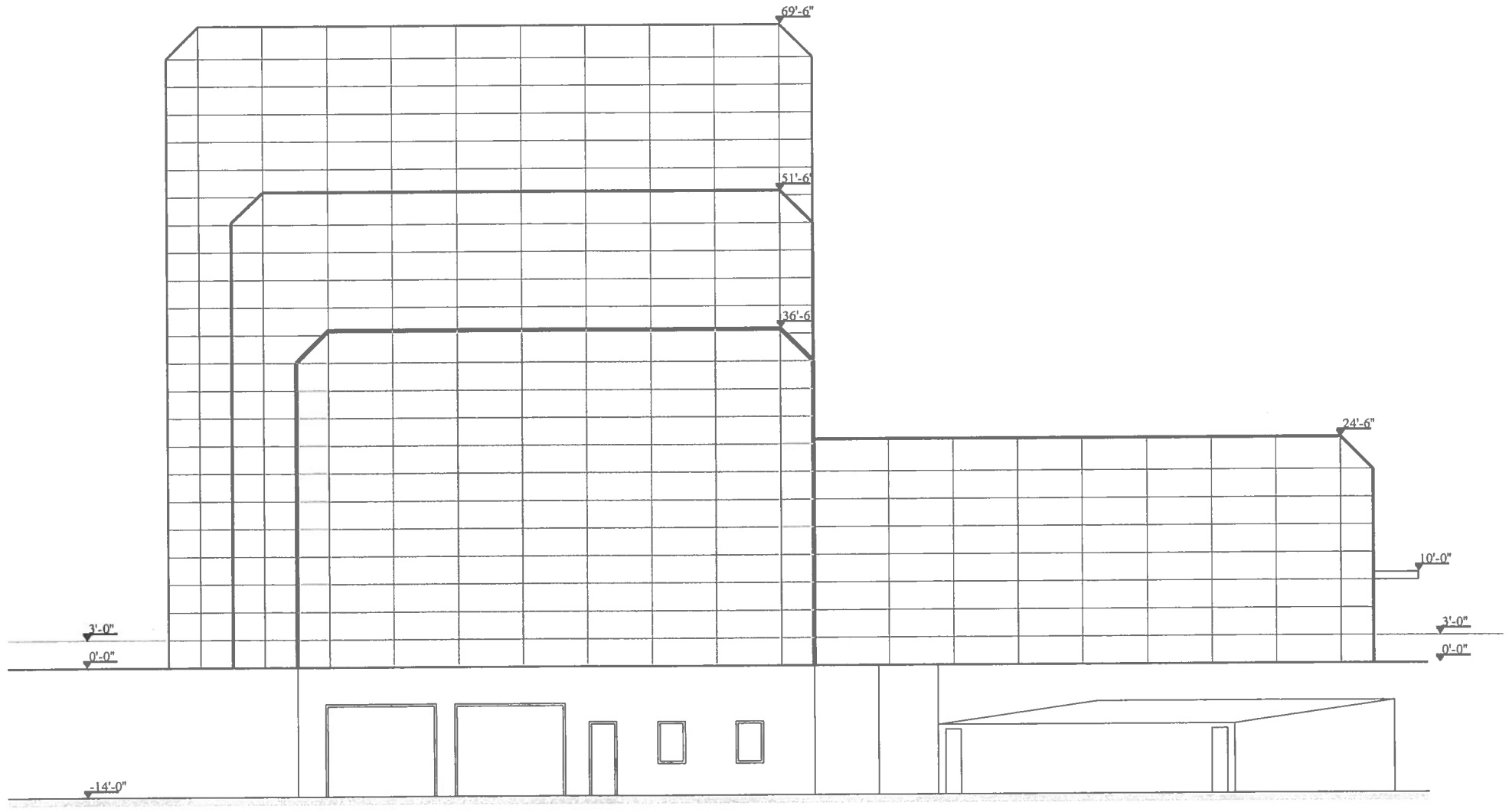
March 1, 2007

Elevations

Scale : 1/16" =1'-0"



WEST ELEVATION



EAST ELEVATION

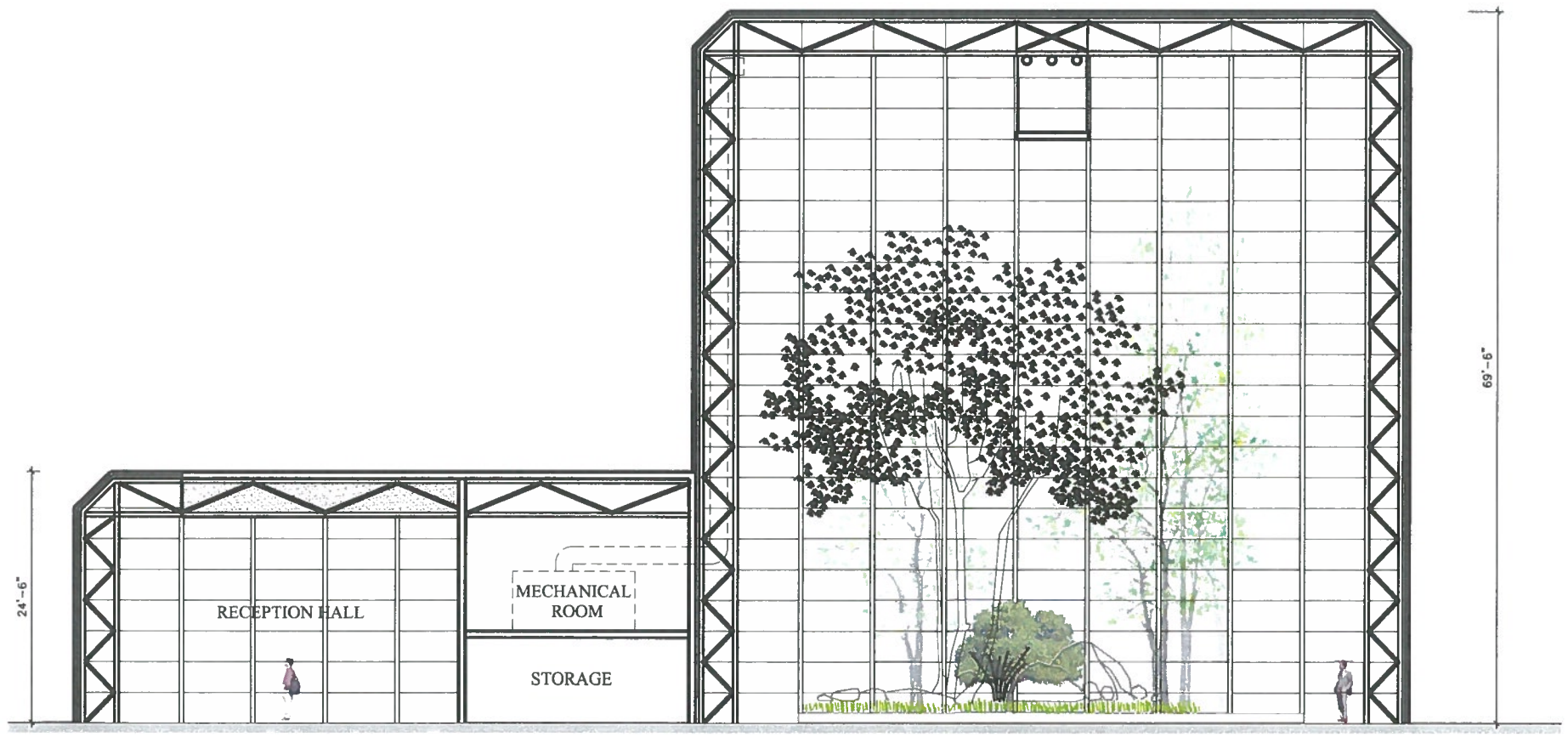
TAI SOO KIM

Tai Soo Kim Partners

March 1, 2007

Elevations

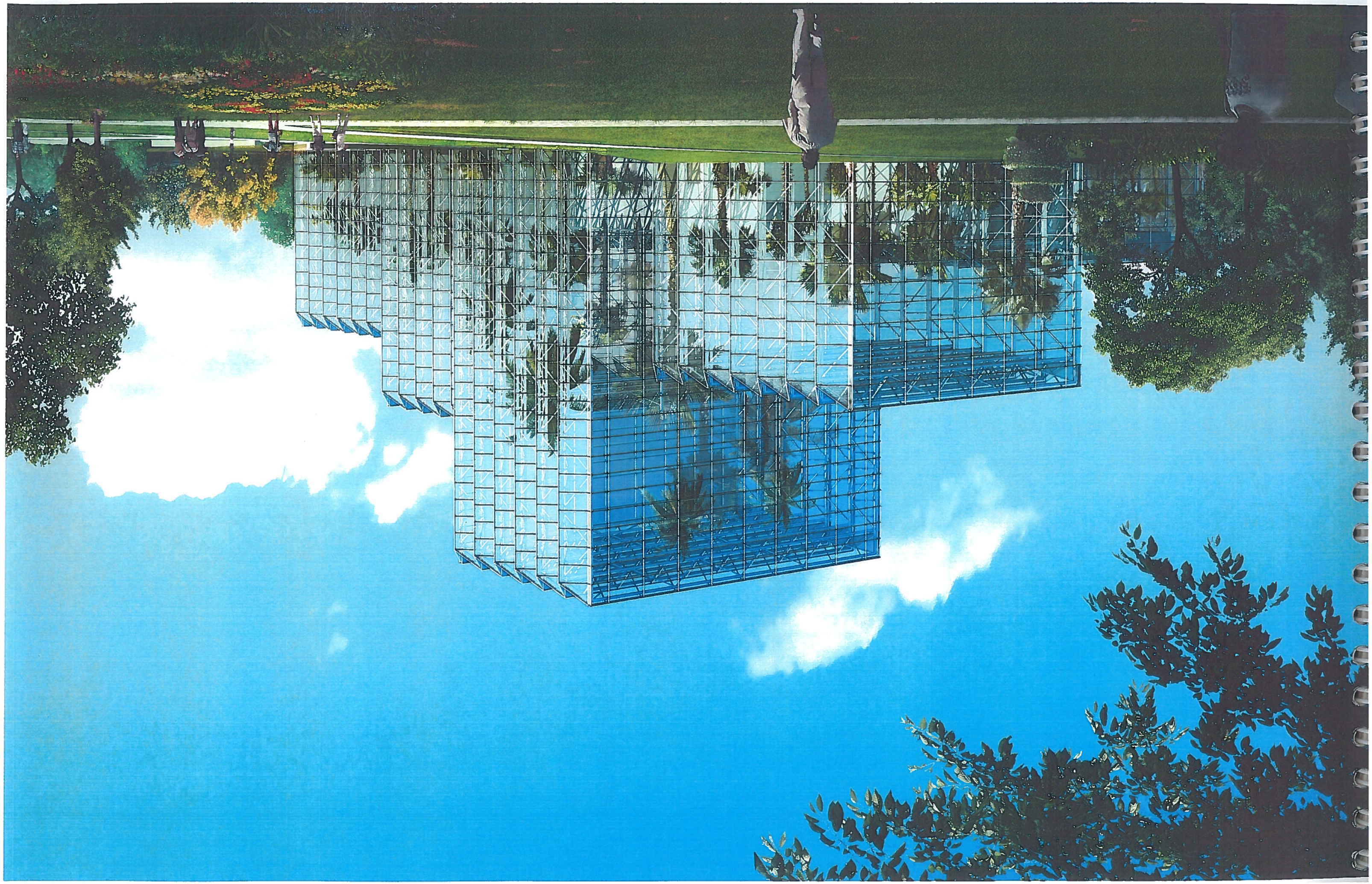
Scale : 1/16" =1'-0"



Tai Soo Kim Partners

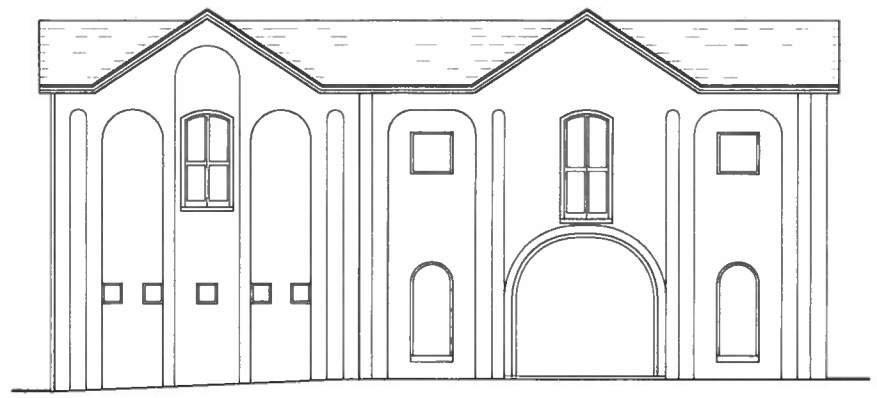
March 1, 2007

Section
Scale : 1/16" =1'-0"



South Elevation

Scale: 1/16"=1'-0"

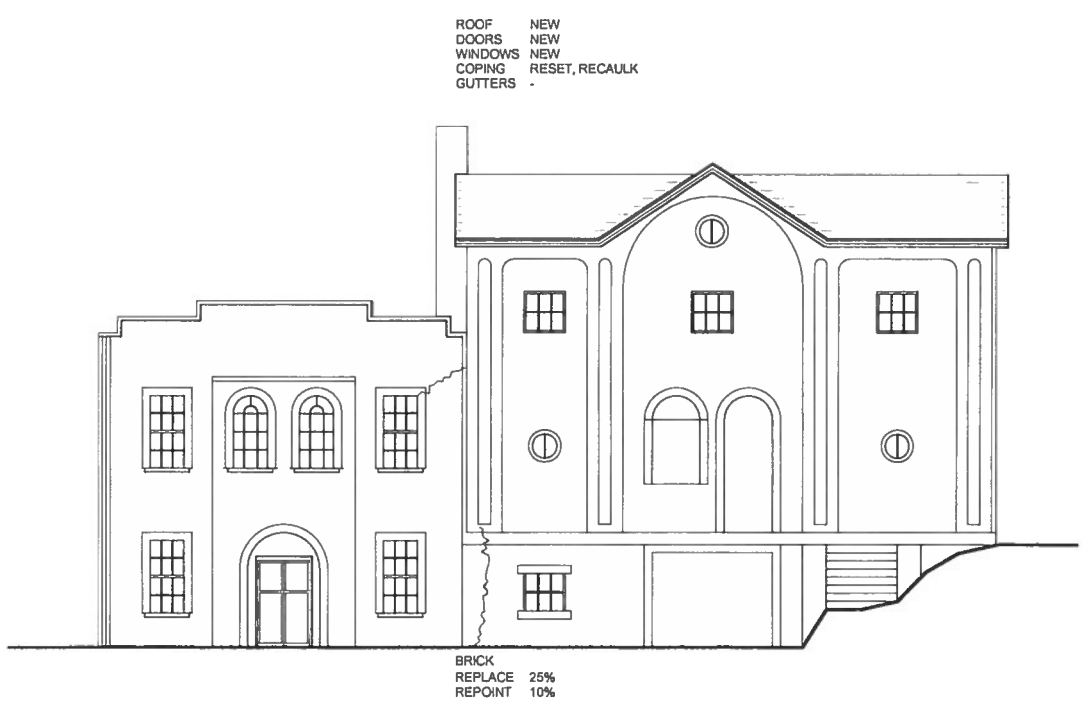


West Elevation

Scale: 1/16"=1'-0"

East Elevation

Scale: 1/16"=1'-0"



North Elevation

Scale: 1/16"=1'-0"

TAI SOO KIM

Tai Soo Kim Partners

March 1, 2007

Hartford Botanical Garden
Existing Carriage Barn Elevations

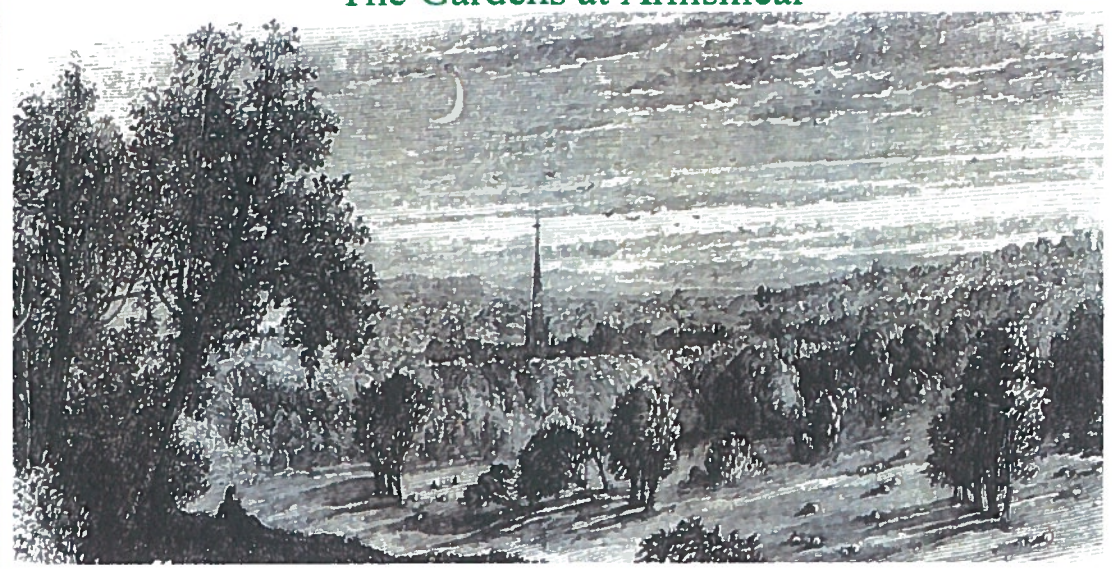
Appendix

Powerpoint: The Gardens at Armsmear (Bill Hosley)

The Gardens at Armsmear

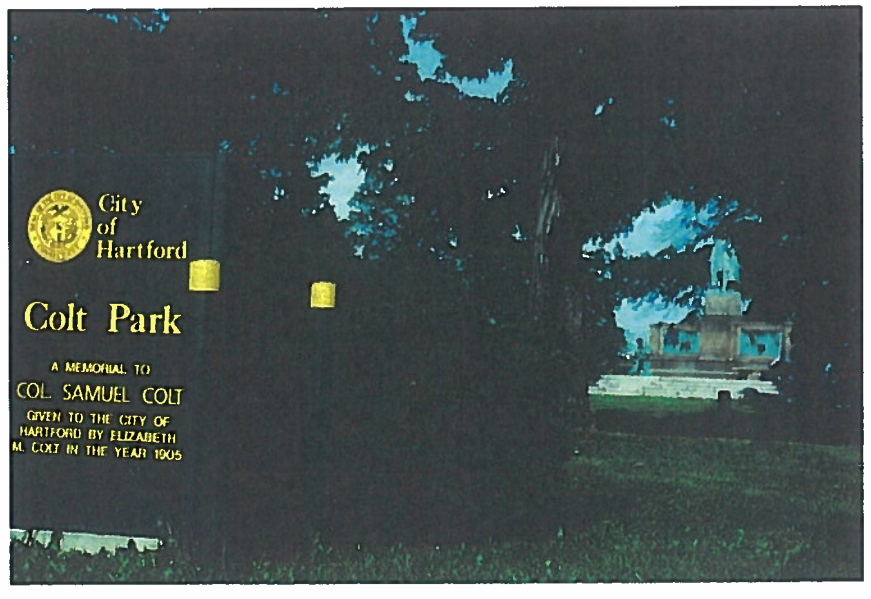
Livestock, tobacco farming and community gardening were carried out within Coltsville.

The Gardens at Armsmear



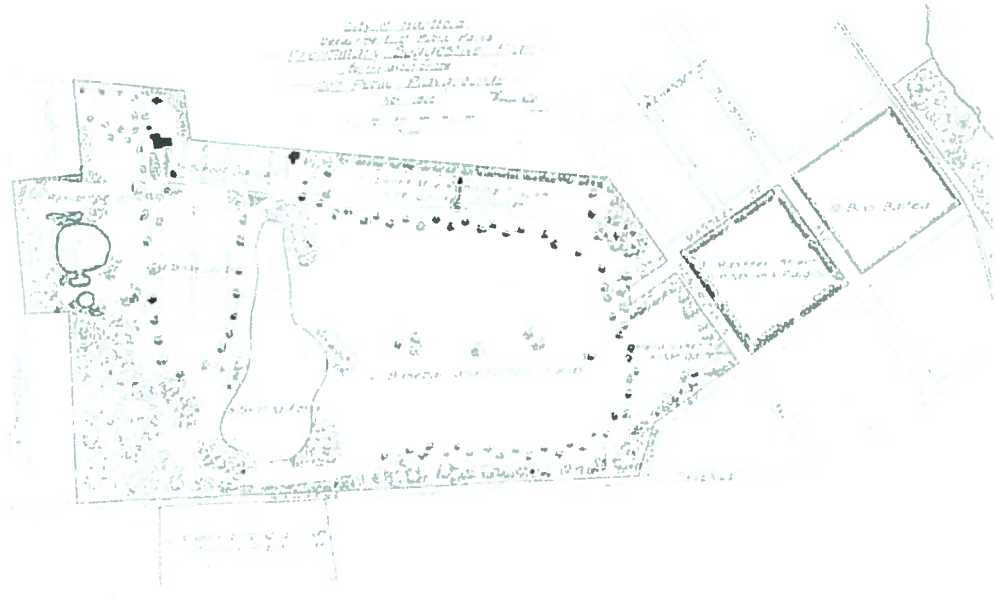
View from the southeast corner of Coltsville looking south toward Wethersfield. Note the Church spire in the distance!

The Gardens at Armsmear



In 1905, Elizabeth Colt bequeathed 100 acres of the estate to create Colt Park.

The Gardens at Armsmear



The city added ball fields, a skating rink, and other amenities to Colt Park. Around 1910, the greenhouse, garden, and ponds were removed.

The Gardens at Armsmear

The community pool, enlarged in 2005, replaced one built in the 1920s. Changing community needs brought more recreational and athletic amenities to Colt Park.

The Gardens at Armsmear

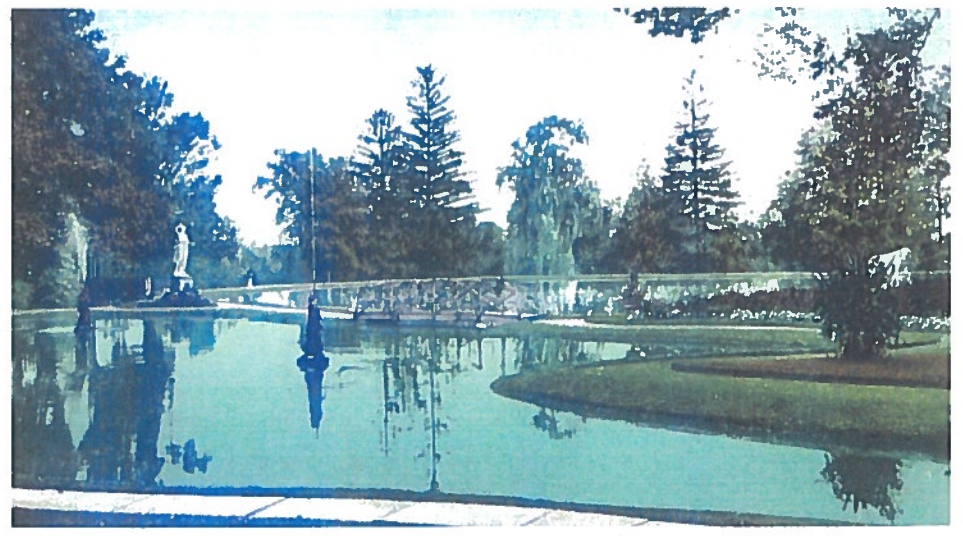
Horace Cleveland, ca 1895

The Colts' picturesque "park" and gardens were designed by the pioneering, Boston-based landscape design firm of Cleveland & Copeland who participated in the design competition for Central Park in New York. Cleveland went on to become a famous park designer in the Midwest.

The Gardens at Armsmear

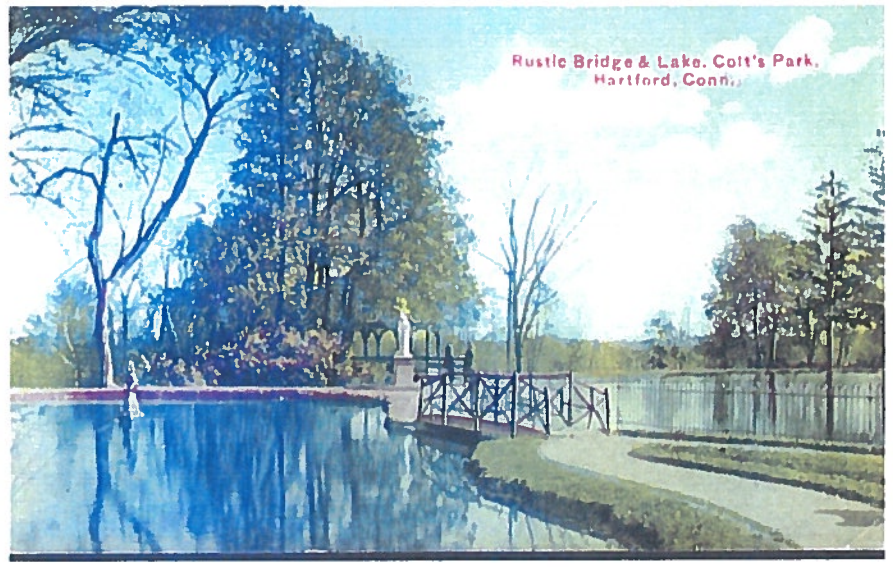
From 1857 until the 1910s, the grounds were landscaped for picturesque effect.

The Gardens at Armsmear



The grass and raised beds around the pond were manicured and rimmed with flowers.

The Gardens at Armsmear



From the time of its completion in the late 1850s the landscaped grounds at *Armsmear* had a public life.

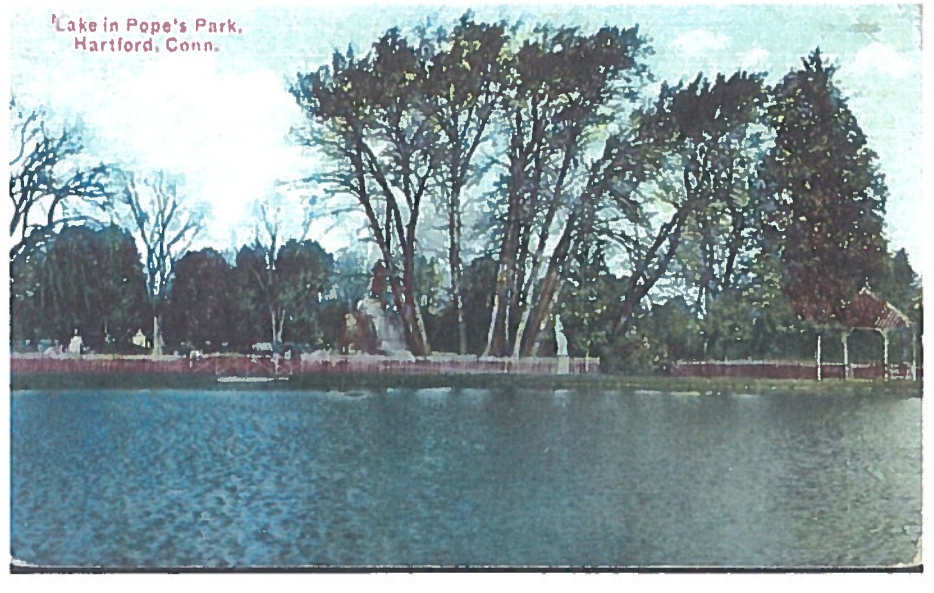
The Gardens at Armsmear

This shows the artistic placement of sculpture and the proximity of the pond to the Colt statue (on the left).

The Gardens at Armsmear

This was the view looking north toward *Armsmear* and the Colt statue.

The Gardens at Armsmear



The garden park at *Armsmear* was one of the most photographed attractions in 19th-century Hartford.

The Gardens at Armsmear

Its picturesque character was emphasized by curved lines.

The Gardens at Armsmear

The Colts commissioned a painting of their famous swan – a gift from the British Royal Family.

The Gardens at Armsmear

Today, the best known feature of the park is the Colt Memorial Statue.

The Gardens at Armsmear

When the Memorial Statue was built in 1905, it became an artistic focal point for the garden and grounds.

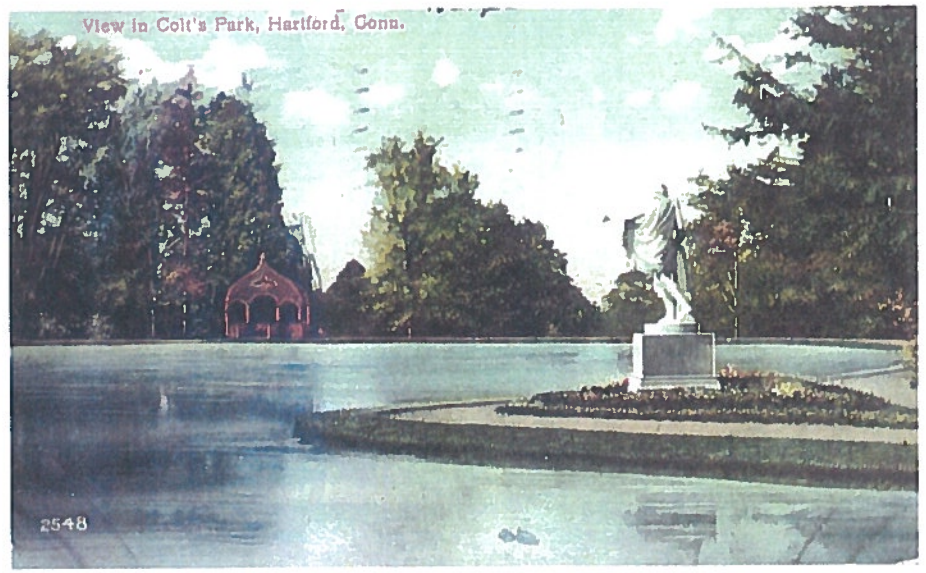
The Gardens at Armsmear

The Colt Memorial Statue was designed by J. Massey Rhine in 1902.

The Gardens at Armsmear

The statue includes a bas relief scene of Sam Colt lecturing the British House of Commons about American manufacturing and a portrait of the *boy genius* modeling his first revolver at age 17.

The Gardens at Armsmear

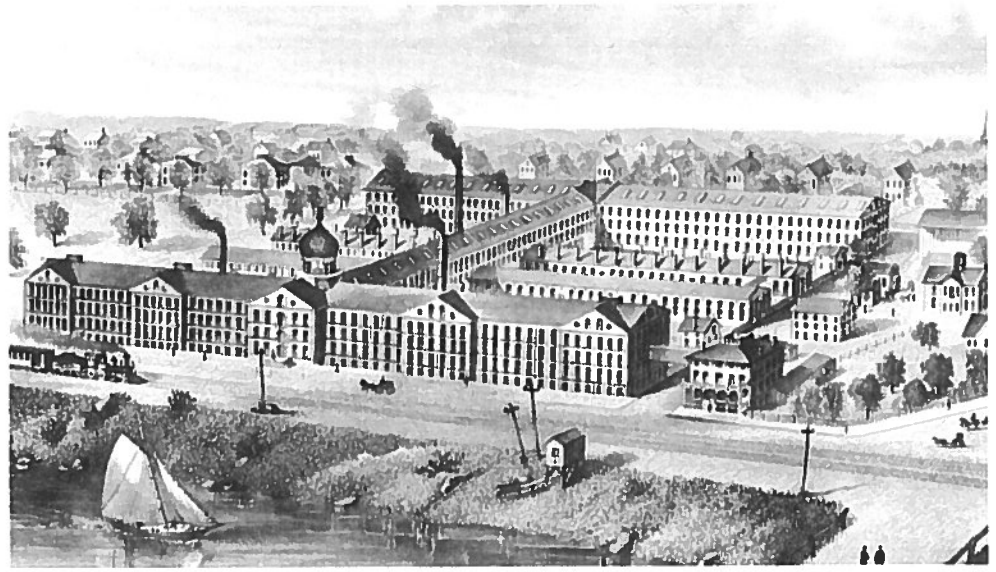


Monument-maker and Travelers Insurance Co. founder James G. Batterson helped the Colts assemble the collection of garden sculpture.

The Gardens at Armsmear

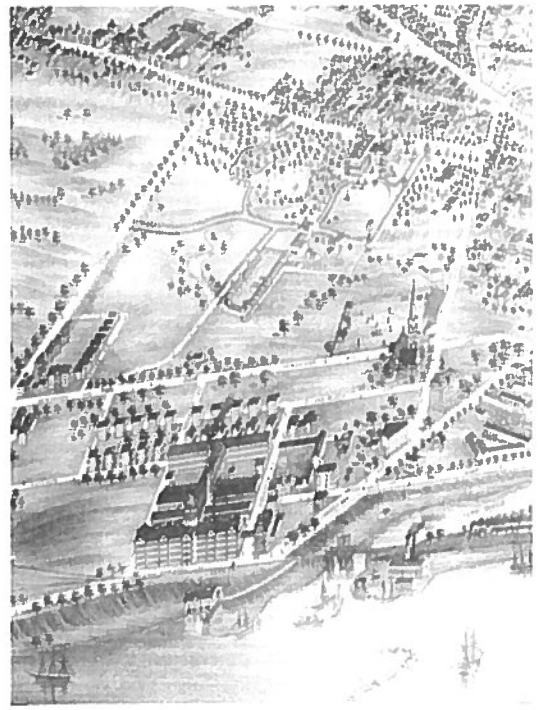
Elizabeth Colt was the greatest philanthropist in Hartford's history. She founded a church, a social service agency and a widows home. She also left the City a park and an art museum wing to house an important collection. A Botanical Garden inspired by her vision will perpetuate the Colt legacy and add an important attraction to the city she loved.

The Gardens at Armsmear



Colt's Armory has been nominated as a *National Historic Landmark*. The National Park Service is exploring the feasibility of creating a National Historic Site here.

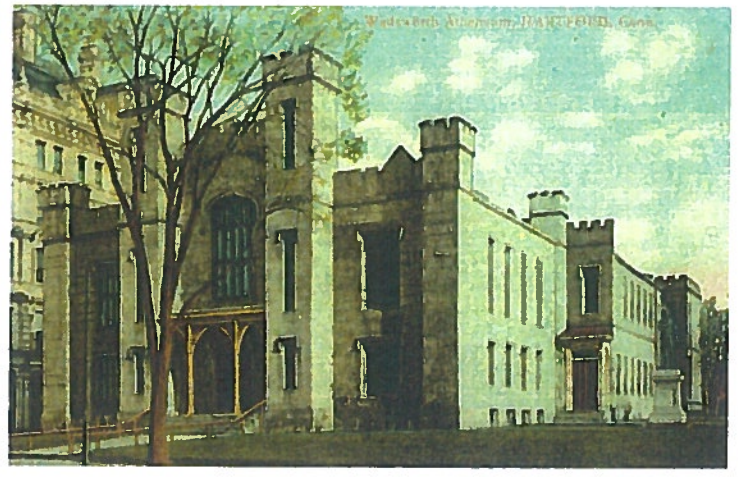
The Gardens at Armsmear



Birdseye view of Coltsville, 1877

Revival of interest in Coltsville and the achievements of the industrial age is the key to increasing tourism and fulfilling our aspirations to make Hartford a great 21st-century American city.

The Gardens at Armsmear



The Colts were involved with the Hartford Horticultural Society which held its annual exhibits at Wadsworth Atheneum. Their cultivated roses were illustrated by Hartford's Kellogg Bros.

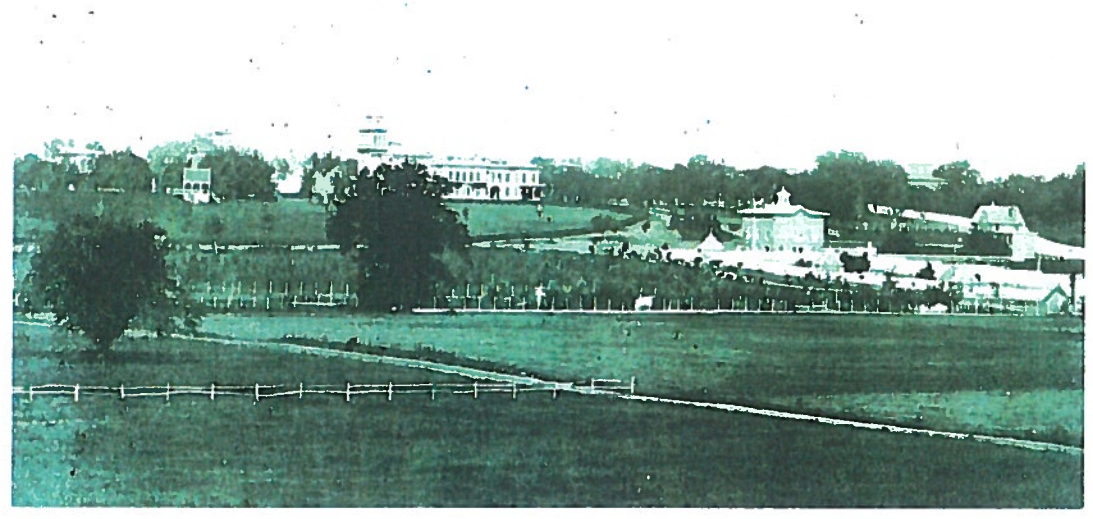
The Gardens at Armsmear

The Colts grew Hyrdrangeas (L), Stephenotis, Acasias, Fushsias, Caladiums (R) , Hoyas, Azaleas, Chrysanthemums and more.

The Gardens at Armsmear

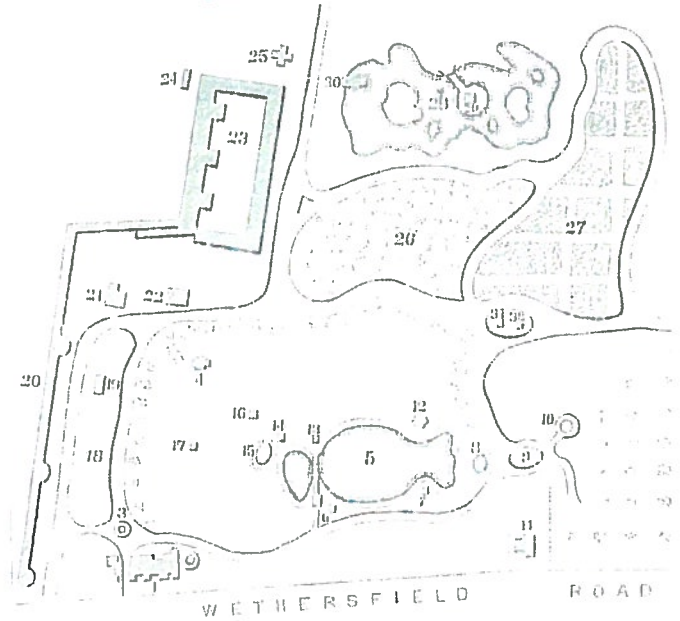
Fuchsias (L) and Chrysanthemums (R)

The Gardens at Armsmear



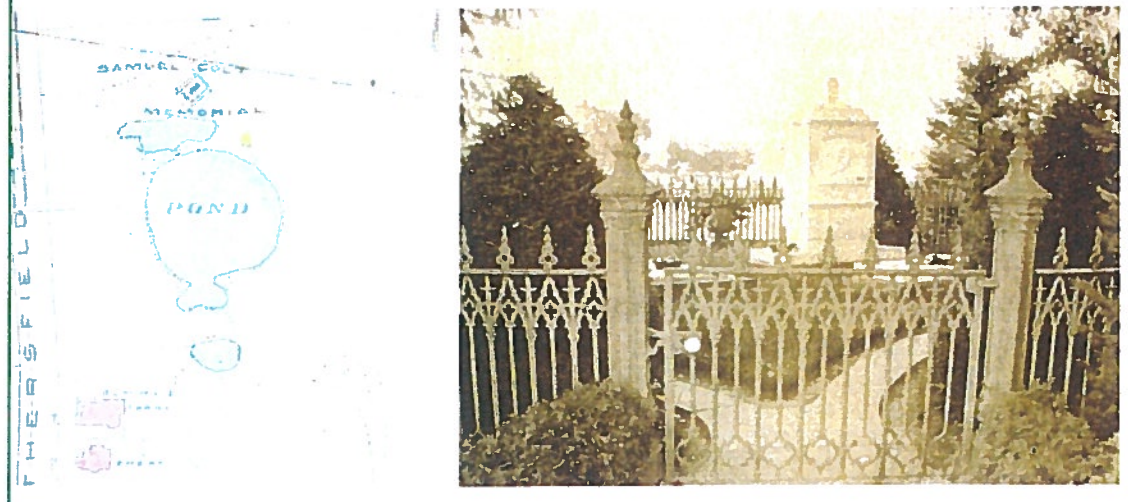
Viewed from the east, Colt's greenhouse, carriage barn, garden and orchard (in the foreground) were an imposing sight.

The Gardens at Armsmear



This map shows the *swan and duck pond* (28), the *Deer Park* (18), the *dwarf pear orchard* (26), and other forgotten landscape features.

The Gardens at Armsmear



The Colt "Grove of Graves," where Sam Colt & their children were buried, was on the present site of the Colt Statue.

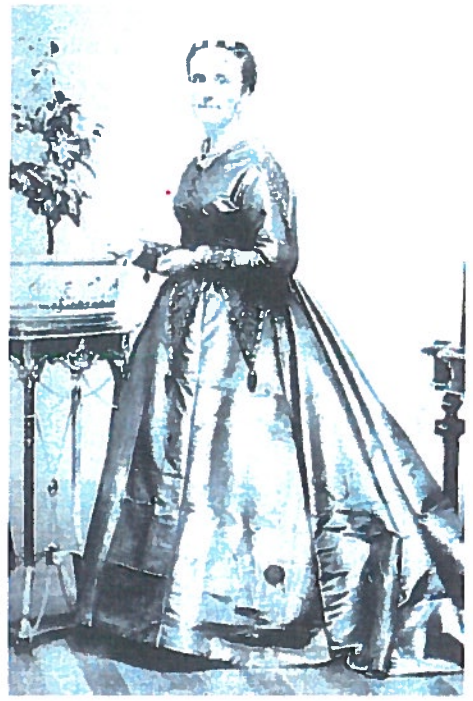
The Gardens at Armsmear

The *Swan and Duck Pond* east of the mansion was not widely photographed.

The Gardens at Armsmear

The Colts' Deer Park was an exotic feature. American White-tailed deer were much rarer in 1860 than they are today.

The Gardens at Armsmear



Sam & Elizabeth Colt embraced the cultural and technological movements of their times. Gardening, urban parks & horticulture were lifelong passions. The garden, greenhouse and conservatory at *Armsmear* were the most grandiose in New England.

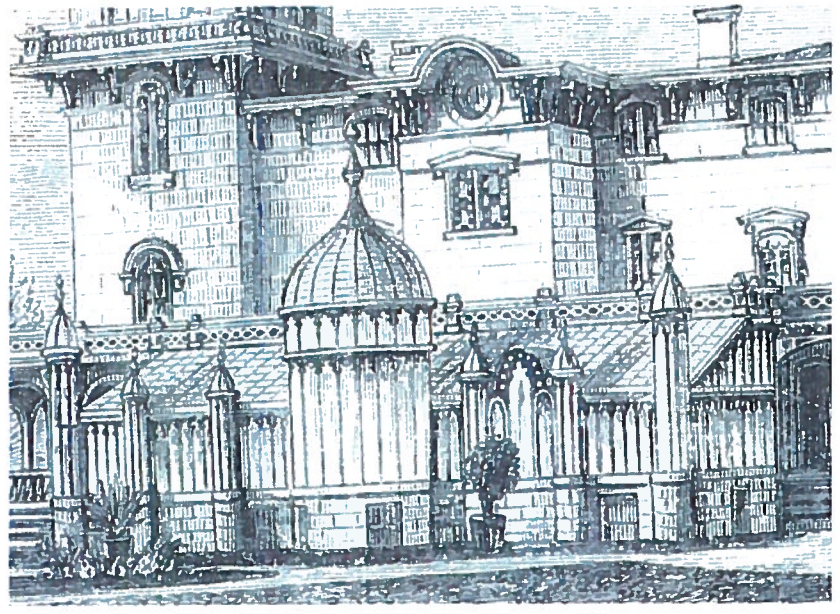
The Gardens at Armsmear

The Colts built and occupied Armsmear in 1857. Its estate garden was designed by pioneering landscape architects Cleveland & Copeland.

The Gardens at Armsmear

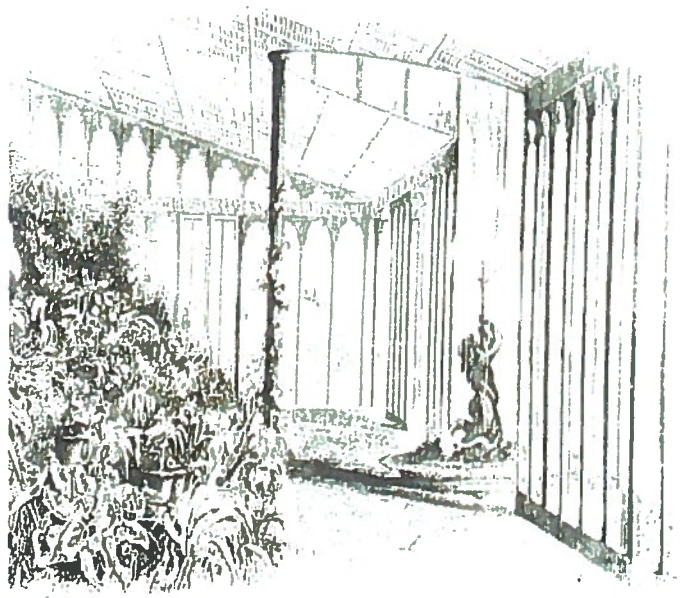
On the south side of their mansion on Wethersfield Avenue was a steel and glass conservatory. Behind were 2,600 linear feet of greenhouses and a quasi-public garden park.

The Gardens at Armsmear



The conservatory was a steel and glass structure inspired by the London "Crystal Palace" where Sam Colt exhibited his firearms in 1851.

The Gardens at Armsmear

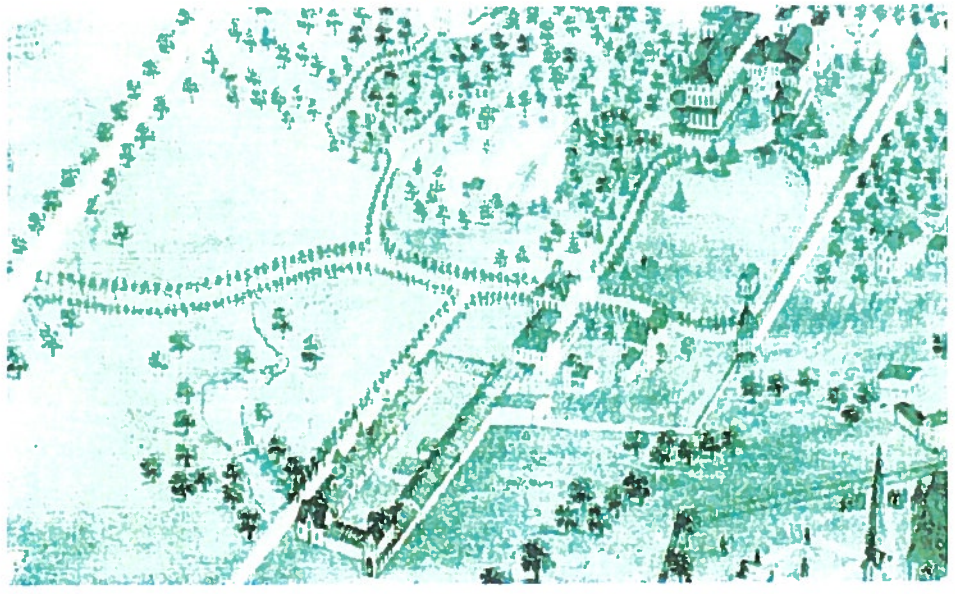


This was the view inside the conservatory overlooking the gardens at *Armsmear*.

The Gardens at Armsmear

In 1865, Elizabeth Colt commission artist Harry Fenn to paint views of the *Armsmear* gardens and grounds, shown here.

The Gardens at Armsmear



View of Colt's garden and greenhouse, 1877

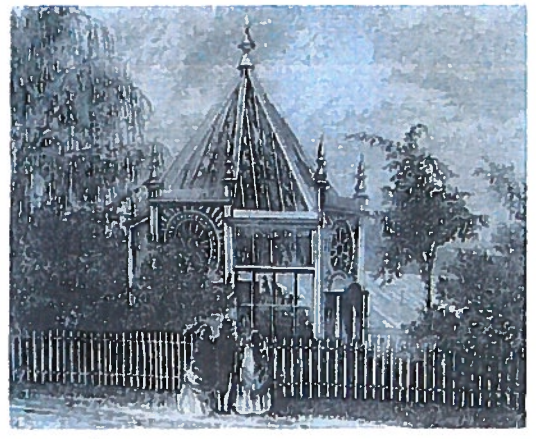
The Gardens at Armsmear

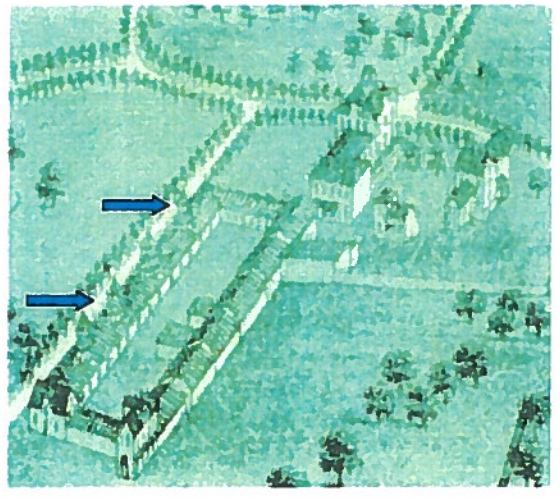
Colt's gardens with the factories beyond as viewed from Wethersfield Avenue in 1876.

The Gardens at Armsmear

View of Colt's greenhouse, 1860s

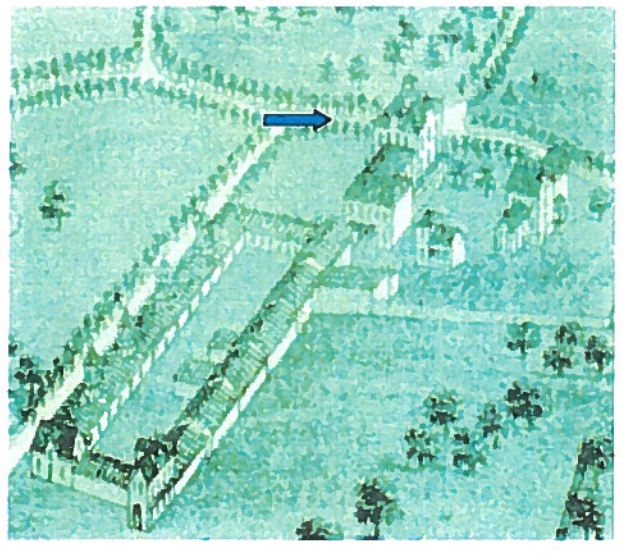
The Gardens at Armsmear





Greenhouses and one of four steel and glass pavilions.

The Gardens at Armsmear

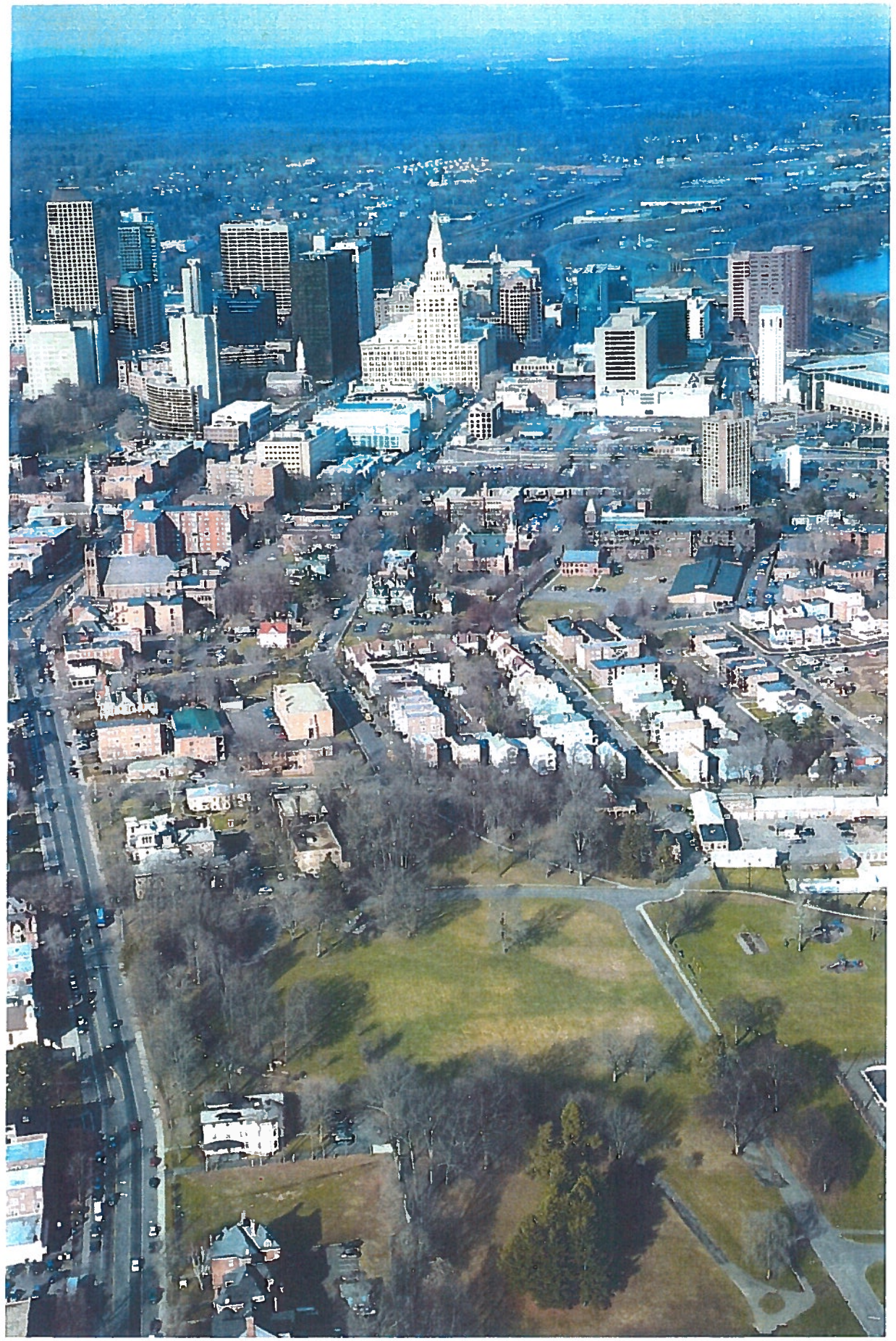


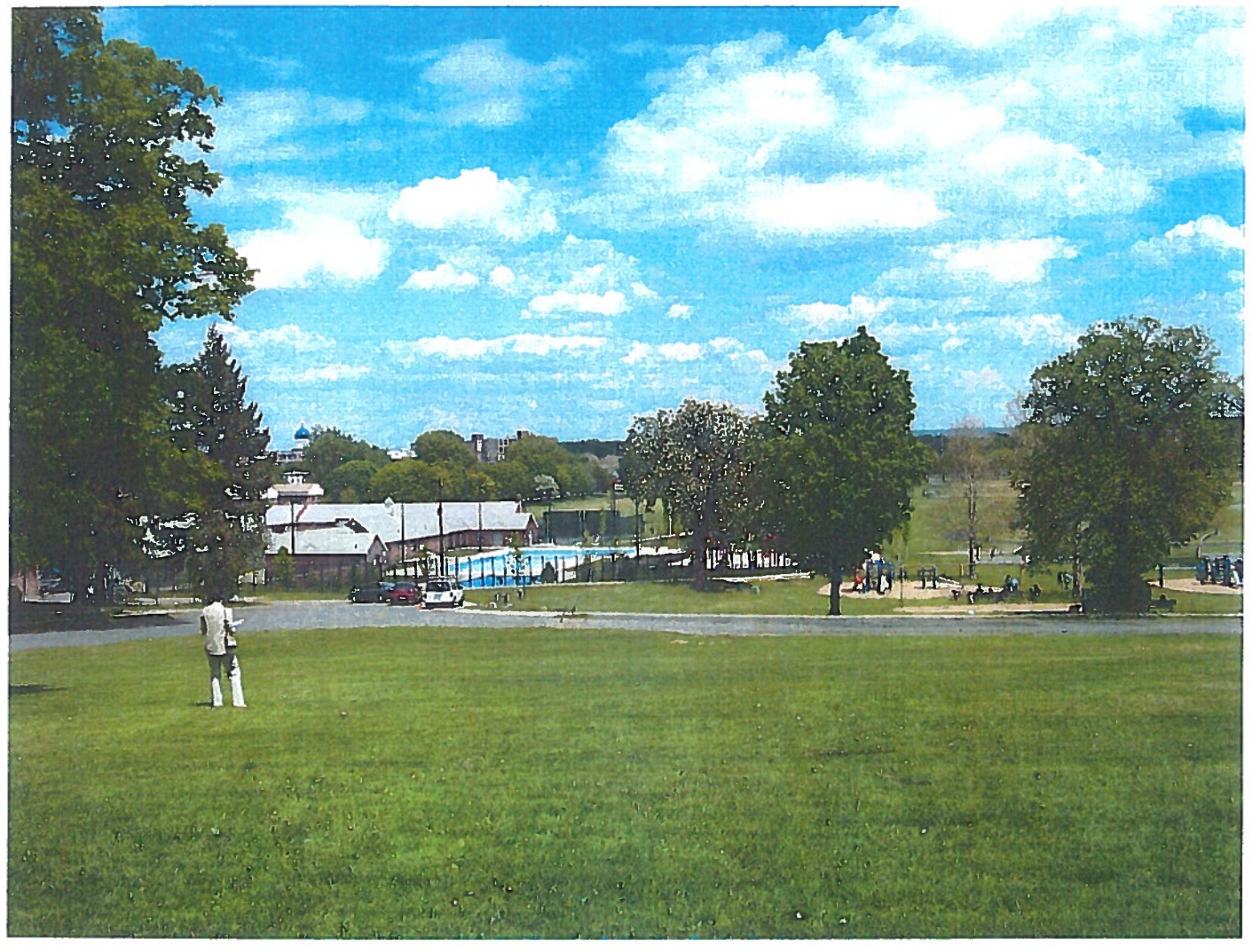
The Colts' stable survives and is envisioned as a site for exhibitions and educational programs.

The Gardens at Armsmear

This house was originally the residence of James Stubbins, the Colts' English gardner.

Existing Photos



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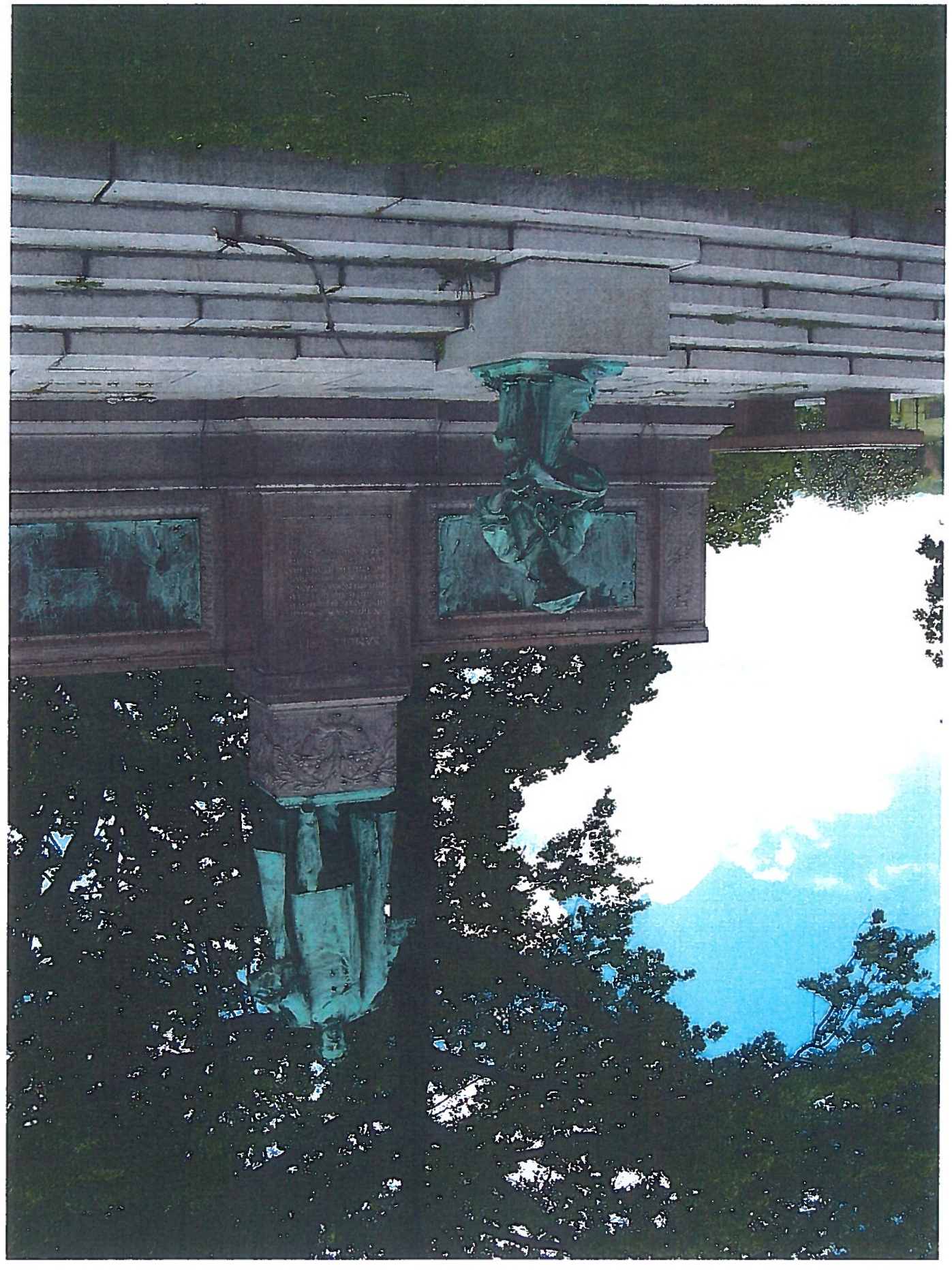


Meeting Minutes (Composite)

HARTFORD BOTANICAL GARDEN
COMPOSITE NOTES FROM PUBLIC MEETINGS
5/15 & 5/23/06

- **Types of programs:**
  - Present the history of immigrants (growing of plants such as tobacco in the CT River valley which brought many Puerto Ricans to Hartford); tools, tobacco sheds, oral histories, medicinal plants that they brought with them
  - **Botanic garden as a hub of and guide to a city-wide Hartford Arboretum** (to include all the parks) – orient visitors to resources of all the parks, especially since there isn't room for an entire arboretum collection at the Colt Park site. Give collaborative tree tour. Similar to existing "CT Wine Trail" and "Impressionist Trail"
  - Present the history of school gardening in the park.
  - The Wawarme Street dyke / dam is "teachable history" in and of itself.
  - Science curriculum (especially with the adjacent high school). Principal of the Montessori School at the Learning Corridor suggested that we look at the new science curriculum established by the Dept of Ed and align ourselves with the units of study / science components in order to be a resource for area schools
  - Several schools now being built have a greenhouse component and might wish to look to the botanical gardens as being experts in this area (how to build / maintain a greenhouse)
  - **Educational programs linked to both elementary schools and to college-level students** (St. Joseph's College Biology Dept mentioned). Use planting process to encourage a 'multi-visit experience'. "All you need is one enthusiastic teacher with a few tools" to get started
  - Use this site as a guide to how historic parks and landscapes were designed. Keney was the "forest park" with entirely native species.
  - Docent program for volunteers to teach, give senior tours, neighborhood tours, etc.
  - Photography classes
  - Craft workshops
  - Cooking classes, using edible plants
  - Special seasonal displays
  - **Resource center and library**
  - Community Gardening
  - **Greenhouse(s) could be used to generate income by selling herbs and vegetables** as well as teaching entrepreneurship and farming education
  - Student internships are desired – particularly targeted towards kids who are on the verge of dropping out of school.
  - Tie-in with Future Farmers of America program
  - Hand-outs on how to grow specific plants is desired
  - Workshops that offer scholarships for low-income people
  - Orchid Society rep. said they would like a moderate-cost place to meet monthly (likely for other horticultural groups as well): 65 people, convenient vehicular drop-off of plants; good lighting for plant displays; slide presentations. Difficult for non-profit plant groups to find moderate-cost meeting space. Jay Presbie will e-mail other horticultural organizations to elicit interest (Rhododendron society, bonsai society, etc.). Similar to size of this meeting room (30' X 60'). Orchid Society has also an annual show in early spring: over 1,000 plants in bloom; can be intermixed with other displays in conservatory. Space needs to be four times this size (can be in various locations around a site).
  - Smaller horticultural organizations could also use some small office space as a base of operations.
  - Show how to make small urban gardens
  - Partnership with hospital? The Division of Integrative Medicine has a "healing path"
  - Collaboration with the Connecticut Science Exploration Center being built next to the Convention Center.
  - Research: historic relation of humans to the land: how as cities grew that relationship changed
  - **Demonstration gardens and planters** are a priority
  - Master gardener classes could be offered
  - For kids: ladybugs, caterpillars, butterflies, children's maze, rain garden
  - Lead 'Dream Tours' of the site early in the process, in order to show visitors what is planned and how to visualize what can be developed (with their help).
  - Prof. Dorothy Keller has photos of Armsmear interiors. Could be used for an historic exhibit.
  - **Culinary Garden**.
  - **An on-site restaurant** would be a good draw, as there aren't a lot of dining options in the area. Possibly link with area restaurants for a 'day out' experience?
  - The main Conservatory should be the focus of the facility. Could it accommodate multi-purpose space for receptions (4th of July, etc.)?
  - Consider after-school programs. During the summer, kids are available from 3:30pm onward, after their camp programs end.
  - The Village for Families & Children, across the street from Bulkeley HS, has a Community Room that holds 90 people. They are looking for programs – interested in working with HBG.
  - Provide jobs for kids.
  - Locations to display art (sculpture garden)?
  - Winter activities:
    - A good time for elementary school groups to visit.
    - Plant shows and exhibits.
    - Ice Sculptures (in the Ice House?)

- **Types of plants:**
  - Historic/heirloom plants, especially plants prior to European settlement (pre-Colonial); what was in the kitchen gardens of the original houses of Hartford.
  - **Plants good for urban horticulture**, rooftop gardening, container gardening, small gardens
  - Organic / non-genetically-modified vs non-organic / genetically-modified
  - Water gardens
  - **Sensorial gardens** (olfactory / taste / tactile) gardens for preschoolers is desirable
  - Inter-generational and wheelchair-accessible gardens and areas
  - **Edible plants** from other regions of the world representing over 60 nationalities living in Hartford. Plants from home regions of Hartford residents.
  - Grow crops to supply local restaurants
  - **Plant indigenous species**: chestnuts, blue bells and willows (latter planted by Colt to stabilize the river banks) Willow trees could / should be a part of gardens with not only growing but demonstrations of basketweaving included to reflect back on the Colt tradition

- Emphasis should be on CT-grown plants: Mountain Laurel and other plants and species developed at the Ag station; Comstock-Ferre also a resource for plants unique to CT
- Grow orchids inside
- **Re-establish some of the original plants from the Colt collection**. Willow trees – Colt connections
- A fernery
- **Four-Season Plants**: Plants with Winter-interest, as well as garden areas that demonstrate the interaction between gardens and wildlife/birdlife during the winter months.
- Holistic, healing gardens ('Find Horn')
- Plants that attract and provide food for birds

The Site:

- Provide paths through the park that are welcome and open to all.
- Where are the "natural paths" in the park (where people now walk that aren't necessarily marked as paths)? Following / accentuating those rather than erasing them would help to integrate the plan with neighborhood and community.
- The gardens should not appear to be "elite" but rather accessible and in harmony with neighborhood – especially the youth of the area. This is best way to assure that the neighborhood will "protect" the gardens from vandalism
- Likely that casual visitors would be mothers with children – need area where adults can sit and chat while kids can be occupied. Should have a lot of benches and places to rest and reflect.
- **Add water feature back into the park**. Provide a pond that could be used for skating during the winter. Cost implications of this type of feature were mentioned.
- Could some of the slopes be graded into terraces to make better use of the limited land resources while still permitting sledding?
- **Parking**: In general people are looking for convenience. They won't want to park on the street at night in the winter. Parking is generally available at Bulkeley HS as well as at St. Cyril School during the summer. Summer parking needs may be greater due to heavy use of play fields.
  - Make sure the plan allows sufficient room for bus dropoff and parking. In conjunction with accommodating conventioneer shopping, a drop-off area for cabs or short-term parking is desirable.
  - Make sure that the Hartford Parking Authority does not put parking meters along the nearby streets.
  - Discussed traffic impact on Stonington Street. Parks Dept trucks would enter their area off of Stonington Street instead of through the park as they currently do.
- Would like the site to be as "uniquely Colt" as possible. Priority should be to return the area as much as possible to what it was in Colt's day.
- There was a WWI memorial, an allee of elms, most of which died. Historic markers are stored in the ice house; can this be re-established?
- Preserve the existing trees. Beware of resistance to any tree removals by city, neighbors and other interested groups.
- **Develop a bike/walking path** that can link from HBG and the proposed underpass to Riverfront Recapture adjacent to Colt Gateway.
- **Provide good signage system** for historical markers related to Colt legacy, as well as clear way-finding for entrance, parking, and access to the facilities.
- Bill Hosley theorizes that the broken statuary may have been buried in the backfilling of the original ponds. Perhaps arrange for an archeological dig using ground radar?
- Fund-raising strategies: provide memorial gardens, or memorial bricks that visitors can purchase. Keep cost of each low enough so that it is affordable for neighborhood residents.
- Consider using Green Roof demonstration area. Perhaps over service bays?
- More garden space needed than that currently shown on the Concept Drawing. Use more of the open slope areas. Perhaps sledding can happen over cultivated beds where plants do not winter over. Leave space for kids to be kids (open lawn/slope).

Other Comments:

- Income Sources:
  - Admissions
  - Membership
  - Grants
  - Store
  - Private Events (Weddings, parties)
- What is the potential for employment, particularly for people from the surrounding neighborhoods? Could there be an internship program? Park ranger?
- **Should be a restaurant on the grounds to keep people in the park?** Until there is a restaurant – or in conjunction with one – market carts that vend ice cream, popcorn and other snacks (a la Central Park) would help to keep people in the park
- **Security**: How do you create a sense of ownership? One idea: Include youth in the establishment of the garden; they'll protect it and defend it
- **Public vs "private" access to collections**: the goal is the keep the current uses and connections through the park while protecting the collection. These public uses would continue. People come from all over the city to gather in this park
- Is this a "touchable" space – or a "viewing only" space?
- From a media relations perspective, there should be a strong component that is unique – something that would draw visitors from afar
- Try to hook into convention schedule and especially be aware of when conventioneers are in town but nothing is on their schedule; keep the Creative Store open during "off hours" to accommodate conventioneers who wish to shop for CT-related items and nothing else is open.
- Keep admission low: families can't afford to spend $30-40 for a day's outing
- **Conservatory is critical to attracting visitors**
- How do you see this garden serving the community?
- Not too much of the garden should be given over to the community's public use.
- Balance: the garden has to have something "to knock your socks off."
- Should be an escape during the winter months
- Green buildings.
- Bury some of "back-of-house" operations into the hill with green roof. Or present as an educational feature.
- Composting, rain barrels.
- Money could be raised via selling memorial plaques for benches, etc.
- Developing visitor volume is critical. This can be achieved through the development of links to other sights in the city.
- **HBG can be a destination at the end of a walking tour of Main Street**. Develop a system of historical signage that can easily inform visitors of items of historical interest along Main Street as well as on the HBG site itself (similar to Freedom Trail).

- Link with Butler-McCook House/Garden, as well as with Wadsworth. Create brochure to guide visitors to each.
- **Shuttle bus linkage to other sights/sites** in the city is critical. It can help to minimize parking needs (in keeping with the goals of sustainability), and can allow visitors to incorporate the Botanical Garden into a half or full-day visit to the City.
- Retirement Homes /Assisted Living Communities should be targeted. They could be a good source of visitors/volunteers (they may miss their gardens).
- The CT Commission on Culture & Tourism has assigned Rich Emonds to the project. He indicated that they could provide media exposure for HBG through outlets such as the CT Building at the Big 'E', and through Hotel/Restaurant associations. However, they do not have the resources to cover the cost of printing, etc.
- Will there be admission charged? Memberships? Make sure that neighborhood families can still have the opportunity to visit/use the botanical garden.
- **The neighborhood needs assurance that the play fields, pool, and basketball court will not be affected by this development.**
- Sam and Elizabeth Colt are buried at Cedar Hill Cemetery. It has 360 acres and includes a large arboretum collection. They feel connected and would like to be a part of this development. Consider using shuttles (trams?) to provide tours that are accessible for the elderly, handicapped.
- The architecture of the Conservatory should be compatible with the surroundings and the historical legacy of the Armsmear, but it should be of its own time ('state-of-the-art', sustainable design), not a historic recreation.

HBG Plant Collections Policy

HARTFORD BOTANICAL GARDENS
PLANT COLLECTIONS POLICY

1.0 INTRODUCTION

1.1 Mission Statement

The Hartford Botanical Garden (HBG) will be a 21st century garden steeped in the history of Hartford's Colt Park and the region's rich horticultural fabric. Specializing in past, present, and future linkages between people and plants in urban environments, the Garden will feature demonstration gardens for urban settings. Visitors will find information on the area's horticultural history, research on horticulture's role in creating a healthy city, and a focus on sustainability. The Garden will be dedicated to the science and art of gardening and to being a place for inspiration, respite, education and enjoyment.

1.2 Purpose of the Hartford Botanical Gardens Project Plant Collections Policy

The plant collections of the HBG will be used for educational programs, display, aesthetic appeal, and to a lesser extent research. As such, the plant collections shall have two primary objectives: first, to display and study native and well-adapted plants for their sustainable potential while educating the public about this flora and the ecology of natural systems; and second, to preserve the spirit of the Colt legacy as an example of 20th century innovation with a focus on horticultural diversity, community involvement, urban agriculture, medicinal and experimental gardens.

The Plant Collections are to be consistent with the mission of the HBG as set forth in the Articles of Incorporation and By-Laws. (do we have these two documents as an organization?)

2.0 FORMULATION AND MANAGEMENT OF THE PLANT COLLECTION POLICY

2.1 Responsibility for the Establishment of the Policy

The responsibility for the establishment of the Plant collections Policy is vested in the HBG Board of Trustees. The Plant Collections Committee is responsible for defining the policy governing the development and management of the Plant Collections. The Executive Director is responsible for the administration of the policy. (The Horticulture Director will implement the policy in conjunction with appropriate staff members.?)

2.2 Make-up of Plant Collections Committee

The Plant Collections Committee shall consist of one representative of the Board of Trustees who will be appointed by the President of the Board and will chair the Plant collection Committee (See Appendix A for Job Description), Chairpersons and an appropriate staff person(s) from garden subcommittees, the Executive Director, the Horticulture Director, and others from the HBG staff. Two individuals will be selected from outside of the institution by the Plant Collections Committee to serve for not more than two consecutive three year terms. As the HBG grows in staff, the most appropriate staff members will serve on the committee with the total number of committee members not to exceed twelve (?). All members of this committee will have voting privileges. Special advisors and/or observers may be invited to provide specific expertise, but will not have voting privileges.

2.3 Plant Collections Committee Meetings

The Committee shall meet prior t the annual meeting of the HBG of Trustees and as requested by the Committee Chairperson, the President of the Board, or the Executive Director. A dated record will be kept of actions confirmed by vote. The Chairperson of the Committee shall report to the membership at the annual meeting and upon the request of the Board of Trustees.

2.4 Policy Review and Revisions

Revisions and exceptions to this document will be made as deemed appropriate by the Plant Collections Committee upon approval of the Board of Trustees. The Plan Collections Committee will review and/or update this document every five (5) years or sooner if necessary. Next review year will be 2012.

3.0 COLLECTION TYPES / THEMES

3.1 General Thinking

General thinking, based on mission statement and plant collection policy is that the HBG will not be like a traditional botanical garden with an emphasis on research, education, and comprehensive collections, but instead, will be more like a highly enhanced public park with a substantial number of themes, threads, and elements.

3.2 Major Themes

3.2.1 Heritage (elaborate)
3.2.2 Urban Horticulture (elaborate)
3.2.3 Ecologies (elaborate)

3.3 Garden Types and Designated Areas (elaborate on these areas below)

3.3.1 Gardens for confined spaces
3.3.2 Culinary/medicinal herbs
3.3.3 Sensory garden
3.3.4 Orchard
3.3.5 Demonstration garden
3.3.6 Ecological areas (i.e. water gardens, wetland gardens, rain gardens)
3.3.7 An area for performances like poetry readings)
3.3.8 Places for photographs (weddings, etc.)
3.3.9 Healing garden
3.3.10 Places for monuments/sculpture
3.3.11 Green roofs on buildings
3.3.12 Other

4.0 ACQUISITION OF PLANTS

4.1 General

Plant material acquired (i.e., accessioned) shall be in accordance with the selection criteria set forth in this section 4.0. The appropriate department director, the head, or curator may make routine acquisitions for the various collections with input from the staff. Major acquisitions and acquisitions of whole collections shall be approved by the Plant Collections Committee. Every reasonable effort shall be made to gather detailed original locality information for all acquisitions.

All plant material will be acquired only when collected , exported, and imported in compliance with the laws and regulations of the country of origin, of the Federal Government of the United States, of the individual states of the

United States, and of international treaties. Evidence of proper collection in accordance with government regulations shall be provided to the designated person managing plant collections for the archives.

HBG's procedure governing both the receipt of all plants that are presented to the HBG, whether simply received or formally accessioned and whether obtained through the mail or presented by "walk-ins", is set forth below in the section below.

4.2 Selection Criteria

4.2.1 The taxon fulfills one or more of the objectives of this Plant Collections Policy.

4.2.2 The taxon can be grown at the HBG under reasonable cultural practices.

4.2.3 The HBG can properly relocate and care for the acquisition in terms of staff, facilities, space in the garden, and money for curatorial and general maintenance.

4.2.4 Each taxon must be true to name in the judgment of the professional staff.

4.2.5 The taxon has no know objectionable characteristics according to the judgment of the professional staff; e.g., considered an invasive threat.

4.2.6 Each taxon acquired must have a documented garden location or use.

4.2.7 The taxon must be incorporated into the collection in an aesthetically pleasing landscape design.

4.3 Methods of Acquisition

4.3.1 Purchase

Large purchases shall be made only with the approval of the Plant Collection Committee (or Board or both??). The appropriate department or curator may make small purchases. Copies of receipts must be delivered to the Plant Records Keeper for the archives.

4.3.2 Field Collections?

4.3.3 Gifts

All gifts of living plants must be unconditional. Before accepting plant gifts, a Deed of Gift Record (Appendix D) will be signed by the donor and the Executive Director of the HBG. Rejection of gifts will include an explanation that these plants are, by Board policy, not acceptable at the present time for inclusion in the Plan Collections. The staff of the HBG will not make appraisals of gifts.

Extensive gifts of plants or collections must be accompanied by sufficient endowment to enable curatorial and long-term general maintenance. The Plant Collections Committee must approve these gifts and has the right to waive the endowment requirement upon the approval of the Board. If an endowed collection is deaccessioned, the endowment will be redirected within the budget for the management of the plant collections.

4.3.4 Exchanges

Exchanges with other gardens and institutions shall be made with the approval of the appropriate department director or curator.

4.3.5 Loans

Loans are temporary holdings of collections from other institutions or individuals. Their purpose shall fulfill the Mission Statement and Plant Collections Policy purpose. The Executive Director in consultation with appropriate staff members will be responsible for accepting incoming loans and granting outgoing loans. Major or extensive loans of plants must be approved by the Plant Collections Committee. A Receipt for Loans and a Loan Agreement (See Appendix E&F) will be signed by the donor and the Executive Director of the HBG. A loan period shall be agreed upon and stated on the Loan Agreement.

5.0 ACCESSIONING OF PLANTS

6.0 DEACCESSIONING OF PLANTS

7.0 DISTRIBUTION OF PLANT MATERIALS

8.0 MAINTENANCE

9.0 PLANT RECORDS / INVENTORY

10.0 NATURAL DISASTER PREAPARATION, ASSESSMENT AND RESPONSE

11.0 ACCESS AND USE

11.1 General

Public access to the grounds, records and plant material of the HBG will be granted with the following provisions:

11.2 Grounds

The visiting public has access to designated areas during specified hours. Public accessibility and the welfare of the collections will be considered in the design and interpretation of the collections. HBG maintains the right to refuse access to the collections due to, but not limited to, considerations of resource limitations, security, object availability, intellectual property requirements, applicable restrictions, and preservation constraints.

Visitors must request permission from the appropriate curator for access to the non-public collections or areas of the HBG prior to arrival at the HBG. Upon arrival, visitors must sign the guest register and report to the appropriate curator or a designated employee. No material may be removed without permission from the Manager of Plant Collections or the curator of the individual collection.

11.3 Plant Records

Public use of the plant records is allowed with an appointment and the assistance of a staff member.

11.4 Plant Material

A distribution program will be developed to disseminate desirable plant materials.

LIST OF APPENDICES

Thoughts toward a collections policy – based on committee meeting (4/26/07)

In attendance: Karen O'Maxfield, Mary Sherwin, Frank Gagliardo, Jack Hale (note taker)

General thinking, based on mission and discussions is that HBG will not be like a traditional botanical garden (emphasis on research, education, comprehensive collection) but will be more like a highly enhanced public park with a substantial number of design themes, threads, elements.

The committee identified 3 major themes and related elements:

1. Heritage
   - The Colts and the Colt era
   - Native Americans of Connecticut
   - Local economic heritage (e.g. – tobacco, onions, orchards, etc.)
   - Familiar plants from areas home to current Hartford residents (often tropical and thus suited to conservatory growing) – perhaps focused on food and economic plants
2. Urban horticulture
   - Small space design
   - Plants well suited to urban/challenging environments
   - Sustainable planting (low water, hardy, low maintenance, etc.)
3. Ecologies
   - Native plants in the landscape
   - Native plant communities/habitats
   - Invasive plants

The committee then identified suggested types of gardens/spaces that could be built into the garden as it carried out the themes and functions indicated above:

1. Gardens for confined spaces
2. Culinary/medicinal herbs
3. Sensory garden
4. Orchard
5. Demonstration gardens
6. Ecological areas (do we want a water/swamp garden?)
7. An area for performances like poetry readings
8. Places for photographs (weddings, etc.)
9. Healing garden
10. Places for monuments/sculpture
11. Green roof on buildings
12. Rain garden(s)
13. Etc.

At this point, listing of specific plants seems to be beyond our capabilities.

Limited Condition Survey (BVHIS)

TABLE OF CONTENTS

1. USE AND RELIANCE RESTRICTION

BVH Integrated Services, Inc. (BVH) has produced this document under an agreement between BVH Integrated Services, Inc. and Tai Soo Kim Partners. All terms and conditions of that agreement are included within this document by reference. Other than to Tai Soo Kim Partners, BVH Integrated Services, Inc. disclaims any obligations to any other person with respect to any material presented in this document, and no person may rely upon this document without advance and express written consent from BVH Integrated Services, Inc. and such person's written agreement is to be bound by the limitations, qualifications, terms, conditions, and indemnities to BVH Integrated Services, Inc. set forth in that agreement. BVH specifically states that its review of the property in question is subject to monetary restraints and scope limitations. Given those limitations and conditions, it has made what in its opinion, is a reasonable investigation. It has also relied upon interview and documents with the understanding that independent verification of their factual content is beyond the scope of BVH's work. The materials presented in this document are "to BVH's knowledge" where such phrase means to BVH's actual knowledge of the subject matter after such inquiry as BVH considered reasonable in light of the qualifications and limitations upon the scope of work.

The extent of the physical observation for the production of this report has been limited by Contract to a walk-around visual inspection of the property, random operation of equipment, non-destructive, non-invasive testing, interviews, and a cursory review of documents. Assumptions regarding the overall condition of the property have been developed based upon observation of representative areas of the building. As such, the development of schematic methods and associated costs for the correction of identified deficiencies is based upon the overview observation and is also limited with respect to completeness.

2. EXECUTIVE SUMMARY

BVH Integrated Services, Inc. was retained by Tai Soo Kim Partners to review the present building conditions of certain buildings at the Hartford Botanical Gardens off Stonington Street in Hartford, Connecticut including the structural systems, plumbing systems, fire protection systems, HVAC systems, electrical systems, and lighting systems.

This report includes descriptions of the various systems, the areas they serve, existing conditions, areas of concern, life expectancy, and recommendations for each system. The report also includes an Opinion of Probable Cost for recommended changes. All code related items are reviewed for conformance with building codes presently in effect.

The current International Existing Building Code will allow repairs and alterations, however each must be defined either as a repair or a Level 1, Level 2, or Level 3 Alteration, each having different requirements and exemptions. A change of occupancy and other code requirements will impact any future work on these buildings.

Each of the buildings have structural items that need attention. The CT Creative Store, the Ice House, and Maintenance Building are in generally good condition. The Caretakers House and the Carriage Barn have portions or areas that need more extensive structural repairs.

In general, the Plumbing/Fire Protection systems are either non-existent or in poor condition. New systems should be planned for all buildings.

Heating and Air Conditioning systems for the majority of the buildings are either non-existent or in poor condition. New systems should be planned for all buildings.

The Power Distribution systems are generally in poor condition. New systems should be planned for all buildings.

The lighting systems are generally in poor condition. New systems should be planned for all buildings.

3. CODES AND STANDARDS

This report is based on the current Connecticut Building Codes and Standards as follows:

2003	International Building Code (IBC) and 2005 Connecticut Supplement
2003	International Existing Building Code (IEBC) and 2005 Connecticut Supplement
2003	International Mechanical Code (IMC) and 2005 Connecticut Supplement
2003	International Plumbing Code (IPC) and 2005 Connecticut Supplement
2005	National Electric Code (NFPA 70-2005)
2005	Fire/Life Safety Code (NFPA 101-2005)
2003	Accessibility Code (ANSI 117.1-2003) and 2005 Connecticut Supplement
2003	International Energy Conservation Code (ASHRAE/IES 90.1)

4. BUILDING DESCRIPTIONS

General Overview:
The buildings described in the Limited Condition Survey are located in Hartford on the north side of Colt Park and accessed from Stonington Street. The buildings have a variety of uses and are each in different condition. Each building has a brick exterior and is wood-framed.

The CT creative store is currently occupied and in good condition. The Carriage House is currently being used for storage. Some portions of the Carriage House are in poor condition but most of it is in serviceable condition. The Gardener's House is currently unoccupied and deteriorating. The Maintenance Building is currently occupied and in good condition. The Ice House is currently used for storage and is in generally good condition.

5. SYSTEMS REVIEW

The CT Creative Store

5.1 Structural Systems

General Overview:
The building is typically wood frame construction with brick veneer exterior. Foundations are cast-in-place concrete with slab-on-grade in the basement and garage. The framing is supported off the foundation walls and central girder supported by steel pipe columns.

Observations:
The house has a full height basement. The connector to the garage has a wood-framed floor above a shallow crawl space. The basement walls appear to have a moisture problem, although no real damage or deterioration was noted. A few minor cracks were observed but they do not present a structural concern.

Exposed framing in the attic is rough cut full dimension lumber with tongue and groove sheathing on the roof. The flooring also appears to be tongue and groove. The framing observed appear to be in good condition. There were no moisture stains or deterioration observed.

The brick veneer along the connector has cracks indicating movement/settlement.

Recommendations:
- The basement cracks should be sealed.
- The basement moisture problem should be addressed. Perimeter drainage (exterior) may need to be added to relieve ground water conditions. Interior coatings could be removed and replaced after the drainage is added.
- The connector should be stabilized and the masonry restored.

5.2 Plumbing Systems

1. Water Distribution Piping

General Overview:
Most of the water piping was concealed in walls and in the ceiling. The typical domestic piping is copper. Sanitary piping consists of cast iron, ABS, and PVC.

The water service enters with a 1" copper service and is metered just inside the foundation wall.

Domestic hot water is produced by a gas fired, tank type heater.

Observations:
The piping observed appeared to be in fair condition. Valves appear to be in fair condition although some are newer than others.

There is a bathroom on the second floor, another in the connector on the first floor, and a utility sink in the basement.

There is a floor drain and sump pit/pump in the basement. Some of the piping configurations near the utility sink and sump pit on the sanitary piping could be simplified.

The water heater was installed last year and is in excellent condition.

Recommendations:
- All valves should be tested and replaced if they no longer work properly.
- The sump pump should be replaced (complete).
- Sanitary piping near the utility sink could be simplified.
- The utility sink should be removed if no longer needed.
- Unused piping and valves should be removed.

2. Plumbing Fixtures

General Overview:
The bathrooms in this building have residential fixtures.

Observations:
The fixtures observed appeared to be functional but dated. There were no provisions for handicapped use.

Recommendations:
- Replace existing fixtures.

3. Natural Gas

General Overview:
The building is served by natural gas. The boiler and water heater are both gas-fired. The gas meter is located outside on the south side of the building.

Observations:
The gas service appears adequate for the present use.

Recommendations:
- None

5.3 Fire Protection Systems

1. Sprinkler System

General Overview:
There was no sprinkler system observed.

Observations:
None.

Recommendations:
- None.

5.4 HVAC Systems

1. Heating, Ventilation and Air Conditioning

General Overview:
The heating system consists of a gas-fired Bryant boiler, which is adjacent to an A.O. Smith water heater. The boiler feeds a hot water distribution system.

There is no ventilation system other than operable windows.

Air conditioning consists of window units on both floors of the building.

There are supplemental electric wall heaters throughout.

Observations:
The boiler appears to be in fair condition, however, the 1997 inspection certificate expired in 1999. The boiler has only one circulator pump indicating the house is on a single zone unless there is a zone valve for the second floor. There is a thermostat on each floor, however the first floor thermostat appears to control the pump.

Piping was insulated throughout the basement and isolation valves were observed at the wall mounted radiation.

The electrical wall heaters appear to be in poor condition.

Recommendations:
- The boiler should be cleaned, inspected and re-certified.
- Isolation valves should be tested and replaced if necessary.
- Ventilation and air conditioning should be reviewed based on usage and occupancy.

5.5 Electrical Systems

1. System: Main Electrical Service

General Overview:
The building is fed by a 200 amp, 120/240 volt service. The service enters the building to a remote Federal Pacific fused switch which then feeds a 225 amp GE panel with circuit breakers located about twenty feet away.

Observations:
The Federal Pacific main disconnect switch is mounted in the corner and was obstructed by furniture and other objects.

The GE panel does not have a main breaker so the shut off has to be done at the Federal Pacific panel. The GE panel is not full and has room for expansion.

Recommendations:
· All breakers should be exercised and tested. Replace any that are faulty.
· All breakers should be properly labeled.
· All obstructions should be removed from each panel and the area between them.

2. System: Power Distribution

General Overview:
Most of the wiring was concealed in walls and in the ceiling. There is some exposed BX wiring in the attic.

Observations:
There appears to be remnants of an older two-wire system still in use. Newer wiring and receptacles overlap some areas. There are several junction boxes without covers.

Recommendations:
· The older two-wire system should be replaced with new wiring that is properly grounded.
· Older wiring no longer in use should be removed.
· Receptacles, and switches no longer active should be removed.
· Older receptacles and switches without grounding should be replaced.

3. System: Lighting

General Overview:
The majority of the lighting in this building is surfaced mounted fluorescent, with incandescent lights in the bathrooms and attic.

Observations:
The attic lights consist of exposed incandescent bulbs in porcelain sockets. Some are mounted vertical and others are mounted horizontal with service receptacles.

The bathrooms have wall mounted incandescent fixtures with integral receptacles.

The office and store area lights are ceiling mounted fluorescents with wrap around lenses. Some of the lenses have yellowed with age. The basement lights are also ceiling mounted fluorescents but they do not have any lenses.

Recommendations:
· The lenses of the office and store areas should be cleaned or replaced.

4. System: Emergency Lighting

General Overview:
There did not appear to be any emergency lighting in the building.

Observations:
None.

Recommendations:
· Emergency lights should be installed on each level of the building. Battery backs would be the most practical for this application.

5. System: Emergency Exit Signs

General Overview:
There did not appear to be any emergency exist signs in the building.

Observations:
None.

Recommendations:
· The paths of egress should be clearly marked with illuminated exit signs with battery back-up.

6. System: Fire Alarm

General Overview:
There did not appear to be a fire alarm service in the building.

Observations:
None.

Recommendations:
· A zoned fire alarm system with heat and smoke detectors, pull stations, and audio visual alarms should be provided for the building.

7. System: Site Lighting

General Overview:
Site lighting is limited to building mounted fixtures. Conventional flood lights are mounted high along the rear wall and a large flood light sits high hear the roof line to illuminate the front yard.
Observations:
The lights were not on during this investigation. A timer in the basement controls these lights.

Recommendations:
· All lights should be tested and re-aimed if necessary.
· All lamps should be replaced (if not replaced recently)

The Gardener's House

6.1 Structural Systems

General Overview:
The foundation walls are stone and brick masonry and the basement has a concrete slab-on-grade. The wood-frame structure is conventionally framed. Wood floor joists and rafters are supported by stud walls, masonry partitions, and foundation walls. Roof deck and visible flooring appears to be wood plank.

Observations:
The house framing in general is in good condition. The porch is weak and suffering from decay. There are also a few isolated areas where framing needs replacement in the basement near the soil piping and along the soffits.

The masonry exterior in the attic is curling inward since there is no backup or bracing at that level. There are other areas of masonry that are failing with open mortar joints, cracks, and loose brick.

Basement walls appear to be intact with some signs of fatigue. Some of the walls are bowed and some have some cracks. The exterior brick masonry also has cracks and decay (which may be described in the Architectural study). Headers and some masonry are weakened but performing as intended. Some of the masonry is starting to loosen and crack.

Recommendations:
· The porch should be removed and rebuilt with new framing and foundations.
· The masonry in the attic should be stabilized. Stud backup or other methods should be reviewed before being implemented so damage is not done to the masonry during this process.
· The exterior masonry should be restored. Re-pointing, replacement, etc., should be performed as needed and as directed by the Architect using proper materials and mortars for this construction.
· The basement walls should be restored where weakened. Some reconstruction or epoxy injection may resolve these areas. Straightening or "trueing" the walls may do more harm than good, but the walls need to be stabilized and made sound.
· Door headers and frames should be replaced. Parging could be added if aesthetics or waterproofing are desired.

6.2 Plumbing Systems

1. Water Distribution Piping

General Overview:
Most of the water piping was concealed in walls and in the ceiling. The visible piping was in fair to poor condition.

Observations:
The was a leak in the sanitary drain riser, in the basement.

Recommendations:
· With the age of the piping, we recommend it be completely replaced.

2. Plumbing Fixtures

General Overview:
The bathrooms in this building have residential fixtures. Hot water is produced by an old 40 gallon water heater.

Observations:
The fixtures observed appeared to be no longer functional. There were no provisions for handicapped use. The water heater is in poor condition.

Recommendations:
· Replace all existing fixtures and the water heater.

3. Natural Gas

General Overview:
There does not appear to be any natural gas service to this building.

Observations:
None

Recommendations:
· Gas should be considered when replacing the heating system.

6.3 Fire Protection Systems

1. Sprinkler System

General Overview:
There was no sprinkler system observed.

Observations:
None.

Recommendations:
· None.

6.4 HVAC Systems

1. Heating, Ventilation and Air Conditioning

General Overview:
The heating source for this building is an oil-fired boiler served by a 275 gallon storage tank located in the basement of the building. Cast iron hot water radiators are located throughout the building. There is one zone pump, to control the heat for the building.

Ventilation is provided by operable windows, and there is no air conditioning in this building.

Observations:
The Weil McLain boiler appears to be beyond its useful life and is currently in poor condition. The certificate of operation is dated 3-27-1997.

The oil feed from the storage tank was installed below the slab and is not visible.

Recommendations:
· The boiler should be replaced along with the breeching and all related piping.
· The oil storage tank should be removed.
· Gas and oil should each be considered as a fuel source when the boiler is replaced.
· Hot water heating should be considered as a replacement to the current steam system.
· The oil feed line should be removed. The area should be evaluated for any possible leaks and the slab restored after the line is removed.
· The chimney should be evaluated for condition, size, draft, etc., and properly sized for the new boiler. Repair or line as necessary.
· Air conditioning and ventilation should be evaluated after the occupancy and usage are determined.

6.5 Electrical Systems

1. System: Main Electrical Service

General Overview:
The building is served by a 200 amp GE service panel.

Observations:
The panel appears to be in serviceable condition and currently has 16 spares. None of the breakers were exercised during this investigation.

Recommendations:
· The panel should be replaced when the building is renovated.
· The mast, meter box, and service entrance should all be replaced when the building is renovated.

2. System: Power Distribution

General Overview:
Most of the wiring was concealed in walls and in the ceiling and could not be evaluated.

Observations:
The wiring, receptacles, etc., all appear to be old and at the end of their useful life. Certain areas have duplicate devices such as a new receptacle next to an old receptacle. It is unclear if the older system was stripped out or abandoned.

Recommendations:
· All wiring, receptacles, switches, and other devices should be replaced when the building is renovated. All existing wiring, devices, wiring, boxes, etc., should be removed as part of the replacement.

3. System: Lighting

General Overview:
The building has both incandescent and fluorescent lighting in various areas of the building. Most are surface mounted, while some are slightly recessed.

Observations:
The light fixtures observed are in poor condition.

Recommendations:
· All lighting fixtures should be replaced. All existing fixtures should be removed along with all mounting hardware, junction boxes, wiring, etc.

4. System: Emergency Lighting

General Overview:
There did not appear to be any emergency lighting in the building.

Observations:
None.

Recommendations:
Emergency lights should be installed on each level of the building. Battery backs would be the most practical for this application.

5. System: Emergency Exit Signs

General Overview:
There did not appear to be any emergency exist signs in the building.

Observations:
None.

Recommendations:

· We recommend illuminated exit signs with battery backup be provided to mark the path of egress.

6. System: Fire Alarm

General Overview:
There did not appear to be a fire alarm service in the building.

Observations:
None.

Recommendations:

· We recommend a simple fire alarm system with pull stations, smoke and heat detectors, audio visual alarms and remote monitoring be installed.

7. System: Site Lighting

General Overview:
There did not appear to be any site lighting associated with this building.

Observations:
None.

Recommendations:

· None.

The Maintenance Building

7.1 Structural Systems

General Overview:
The building has cast-in-place concrete foundations and structural steel beams supporting the floor. The basement or lower floor is a concrete slab-on-grade. Their main floor is wood-framed supported on wood nailers over the beam flanges. The roof is framed with wood trusses and rafters which support a wooden roof deck. The floor decking is diagonal wood planking and "X" type bracing for the floor joists. The main floor has a large area that has been topped with metal lath and a cementitious topping.

Observations:
The building appears to be structurally sound. There are small areas of decay in the decking and wood framing, and the cementitious topping is deteriorating. There are some added components such as a small half-ton monorail beam and hoist supported from the underside or the structural floor.

Recommendations:

· Hanger loads, material storage, floor loading and other superimposed loads should be reviewed as the building plans take shape.

· The deteriorated cementitious topping should be removed. A new topping could be considered if needed.

· Deteriorated wood sills, framing, and decking, should be replaced as the building is renovated or remodeled.

7.2 Plumbing Systems

1. Water Distribution Piping

General Overview:
The domestic water enters the building in the basement near the gas meter. Domestic hot and cold water is copper, uninsulated. There is a 50 gallon gas-fired water heater in the basement, dated 1991.

Observations:
There is evidence of corrosion on the domestic water piping. The water heater, being 15 years old, is near the end of its useful life.

Recommendations:

· Replace all the water piping and the heater.

2. Plumbing Fixtures

General Overview:
There are several toilet rooms in the building, with vitreous china fixtures. The toilet rooms are not handicapped accessible.

Observations:
The fixtures are serviceable and in fair condition.

Recommendations:

· As part of a renovation, we recommend replacing the fixtures with a new water conservation type, and handicapped accessible models where required.

3. Compressed Air

General Overview:
There is a 30-gallon compressor in the basement adjacent to the gas meter. Piping extends to several locations in the building.

Observations:
The system appears to be functional but aging.

Recommendations:

· This system should be replaced or eliminated depending on the future plans for the building.

4. Natural Gas

General Overview:
The gas meter is located in the basement and serves the water heater and the steam boiler.

Observations:
The gas piping appeared to be in fair condition.

Recommendations:

· None.

7.3 Fire Protection Systems

1. Sprinkler System

General Overview:
There was no sprinkler system observed.

Observations:
None.

Recommendations:

· None.

7.4 HVAC Systems

1. Heating, Ventilation and Air Conditioning

General Overview:
The main heat for the building is produced by a 1-1/2 year old Weil McLain cast iron steam boiler.

Heat for the facility is provided by original steam radiators with no control valves.

One area of the shop of the upper level is air conditioned by a split system with exposed ductwork, and a roof mounted condensing unit.

The office area is air conditioned by a rooftop unit. Heat is produced by electric radiation and heaters.

Observations:
The steam radiation, piping, and air conditioning systems are generally in fair to poor condition.

The boiler and boiler room accessories are in excellent condition.

Recommendations:

· Except for the steam boiler, replace all the HVAC systems as part of renovating the building.

7.5 Electrical Systems

1. System: Main Electrical Service

General Overview:
The building is serviced by a 400 ampere, 120/208 volt, 3 phase service. There is a main distribution panel that feeds the pool building and (8) 100 ampere load centers.

Observations:
The electrical service is fairly new and in good condition. The feeders do not appear adequately supported.

Recommendations:
· Re-use the main service and panels where size and location are still appropriate for the new use. Properly support the main conduit runs.

2. System: Power Distribution

General Overview:
The power distribution is a combination of conduit and MC cable.

Observations:
Feeders to device are in poor condition, with open junction boxes, and evidence of corrosion, particularly in the basement.

Recommendations:
· Replace all the circuiting from the distribution panels and provide new devices.

3. System: Lighting

General Overview:
Lighting is mostly fluorescent fixtures (with T-12 lamps), with some metal halide in the shop areas, and some incandescent in other areas.

Observations:
The fixtures are generally old and in poor condition. Some fixtures are not adequately supported.

Recommendations:
· Except for salvaging the metal halide fixtures, all of the lighting and associated wiring should be replaced during the renovation.

4. System: Emergency Lighting

General Overview:
There did not appear to be any emergency lighting in the building.

Observations:
None.

Recommendations:
· Emergency lights should be installed on each level of the building. Battery backs would be the most practical for this application.

5. System: Emergency Exit Signs

General Overview:
There did not appear to be any emergency exist signs in the building.

Observations:
None.

Recommendations:
· The paths of egress should be clearly marked with illuminated exit signs with battery back-up.

6. System: Fire Alarm

General Overview:
There did not appear to be a fire alarm service in the building.

Observations:
None.

Recommendations:
· A zoned fire alarm system with heat and smoke detectors, pull stations, and audio visual alarms should be provided for the building.

7. System: Security

General Overview:
There is a Discovery 5000 security system with motion detectors and radio communication.

Observations:
None.

Recommendations:
· The security system should be modified as part of the renovation.

The Carriage House

8.1 Structural Systems

General Overview:
The building has a concrete slab-on-grade and some steel framing to support the wood framing. Steel beams and columns are present in both the original building and the addition. The original building was constructed around 1890 and was added onto in the 1920's. The building framing system consists of wood floor joists with rafters and trusses at the roof. Flooring is both wood plank and plywood and some steel beams and posts were added to the building system. There are masonry and wood framed partitions in this building.

Observations:
The roof trusses were reinforced with steel plates at some point and some of the framing is much newer than most of the building. The steel beams and posts are in good condition. There are posted signs in the areas of the building listing the maximum floor loading at 125 pounds per square foot. (It is unclear if this was calculated or who added these signs).

Some of the wood framing and decking is deteriorating. There is decay at many perimeter areas where moisture has intruded but the areas are still intact. Other areas such as the cock fighting pit have simply deteriorated to an unsafe condition.

Some interior walls have cracks and infill areas that should be stabilized.

Recommendations:
· The areas of dry rot and decay should be restored as the building envelope is improved. The roof deck should be evaluated when the roof is stripped. Some members will need reinforcing while others will need replacement.
· The areas such as the cock fighting pit should be kept off limits to any visitors until the area can be completely reconstructed.
· Some of the masonry walls and partitions need re-pointing or partial reconstruction.
· Lintels and wall construction should be restored where weakened or cracked.

8.2 Plumbing Systems

1. Water Distribution Piping

General Overview:
There is no water distribution system in this building.

Observations:
None

Recommendations:
· New water service and distribution could be installed if required by alterations, or future uses of this building. Sanitary service would also be required if this was added.

2. Plumbing Fixtures

General Overview:
There were no active plumbing fixtures observed in this building. There is an abandoned toilet room behind the garage bays.

Observations:
None

Recommendations:
· None.

3. Natural Gas

General Overview:
The only gas piping in the building serves a gas-fired unit heater in a workshop area of the building.

Observations:
The gas piping is in good condition.

Recommendations:
None

8.3 Fire Protection Systems

1. Sprinkler System

General Overview:
There is no fire protection system in this building.

Observations:
None

Recommendations:
· Future use may require a fire protection system which would require a new water service.

8.4 HVAC Systems

1. Heating, Ventilation and Air Conditioning

General Overview:
The building is mostly unheated. The only heat source observed was a gas-fired unit heater in a workshop area.

Observations:
The gas-fired unit heater has 100,000 BTU maximum output and is controlled by a thermostat. There is no air conditioning in the building, and ventilation is natural.

Recommendations:
· Any change of use or occupancy would necessitate the installation of at least a heating and ventilating system. Air conditioning could also be considered.

8.5 Electrical Systems

1. System: Main Electrical Service

General Overview:
The electrical service was limited to a small panel on the lower level.

Recommendations:
· As part of any renovation a new electrical service will be required.

2. System: Power Distribution

General Overview:
There is very limited power distribution, mostly just feeding lights.

Observations:
Some of the existing wiring was installed in conduit while other wiring was installed exposed.

Recommendations:
· The building should receive a complete new power distribution system.

3. System: Lighting

General Overview:
Lighting in the building is minimal, with incandescent fixtures in random locations. There are a few metal halide fixtures on the outside of the building.

Observations:
Some of the lighting is provided by surface mounted ceramic fixtures for incandescent bulbs, while other areas are lit with incandescent construction lights which have been hung where needed. The exterior fixtures are in poor condition.

Recommendations:
· All existing lighting should be replaced with modern fixtures as needed for the future use of the building.

4. System: Emergency Lighting

General Overview:
There did not appear to be any emergency lighting in the building.

Observations:
None

Recommendations:
· Emergency lights should be installed on each level of the building. Battery backs would be the most practical for this application.

5. System: Emergency Exit Signs

General Overview:
There did not appear to be any emergency exist signs in the building.

Observations:
None.

Recommendations:
· Repair

6. System: Fire Alarm

General Overview:
There did not appear to be a fire alarm service in the building.

Observations:
None.

Recommendations:
· None.

7. System: Site Lighting

There did not appear to be any site lighting associated with this building.

Observations:
None.

Recommendations:
· None.

The Ice House

9.1 Structural Systems

General Overview:
The building has cast-in-place concrete foundation walls which support a wood-framed floor. The floor joists are supported on wooden girders and wooden pipe columns which rest on concrete spread footings. The basement floor is dirt. The roof-framing system consists of wood rafters with a ridge beam and collar ties.

Observations:
There is one crack in the foundation wall and the basement is damp. The wood sill is deteriorating in a few areas which appear to be water related.

The storage loading (roof and floor) appears to be acceptable since there were no visible signs of distress.

There is no access between the two levels of this building.

Recommendations:
- The crack in the foundation wall should be repaired
- A concrete slab should be installed in the basement along with some ventilation and moisture control.
- A perimeter foundation drain could be installed to alleviate some of the moisture around the building.
- The building floor loading should be analyzed for any future uses.

9.2 Plumbing Systems

1. Natural Gas

General Overview:
Natural gas is fed underground from the maintenance building, and feeds a gas fired unit heater.

Observations:
The piping is in good condition.

Recommendations:
- None

9.3 Fire Protection Systems

1. Sprinkler System

General Overview:
The building does not have a fire protection system.

Recommendations:
- None.

9.4 HVAC Systems

1. Heating, Ventilation and Air Conditioning

General Overview:
The main floor is heated by a gas-fired unit heater and cooled by a through wall air conditioning unit. The basement has no heat or ventilation.

Observations:
The systems are in fair to good condition

Recommendations:
- None

9.5 Electrical Systems

1. System: Main Electrical Service

General Overview:
Power is fed from the maintenance building, underground, to a new 100 ampere panel.

Observations:
The panel is in good condition. The panel does not have a main breaker.

Recommendations:
The panel should have a main breaker, to quickly shut down all the power in the building. This is a requirement of the National Electric Code.

2. System: Power Distribution

General Overview:
Power distribution is limited to lighting, the unit heater and only a few receptacles.

Recommendations:
- None.

3. System: Lighting

General Overview:
The main level is illuminated by fluorescent industrial strip lights. The basement is illuminated by bare incandescent bulbs.

Observations:
The lighting is in fair to good condition. There is some loose wiring in the basement that should be fixed.

Recommendations:
- Other than making the basement wiring safe, the lighting is acceptable for the present use.

4. System: Emergency Lighting

General Overview:
There is no emergency lighting in the building.

Recommendations:
- We recommend self contained wall pack emergency lights with battery backup be provided at each level.

5. System: Emergency Exit Signs

General Overview:
There are no exit signs in the building.

Recommendations:
- We recommend illuminated exit signs with battery backup be provided at the egress doors at each level.

6. System: Fire Alarm

General Overview:
There is no fire alarm system in the building.

Recommendations:
- Even if the building is to remain as storage, we recommend at least a simple fire alarm system with pull stations, smoke and heat detectors , audio visual alarms and remote monitoring be installed.

A-1 The former residence now a business faces Stonington Street. The garage and connector are part of the store. The brick masonry exterior has a few cracks from settlement in the connector.

A-2 The electrical service and site lighting are mounted to the face of the building.

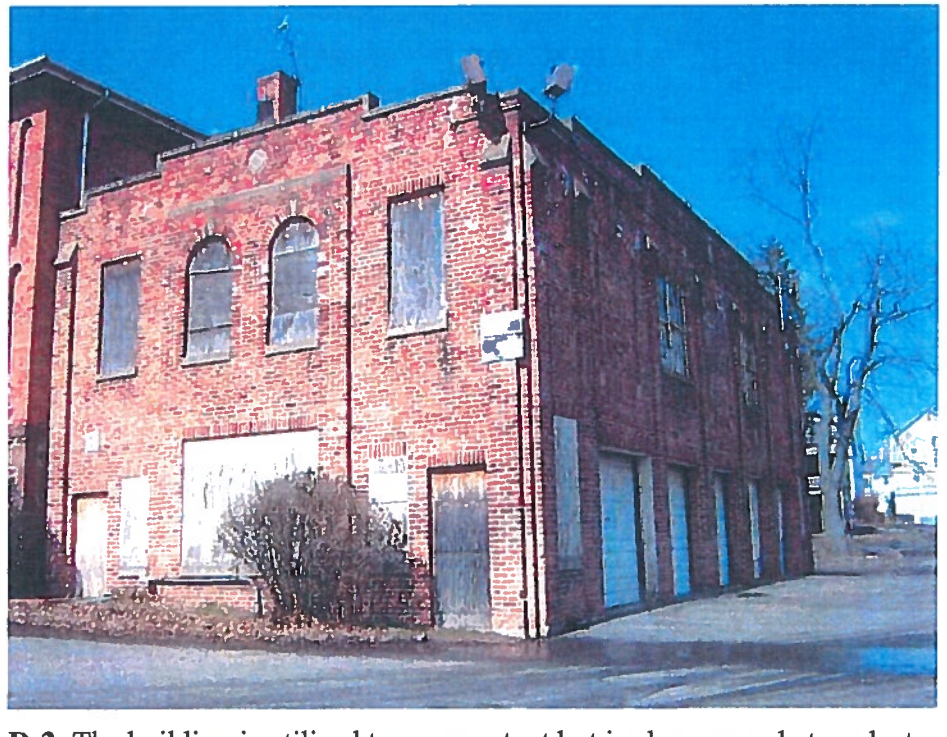
B-1 The Gardener's House is slowly falling apart. The porch is at a point where it should be replaced.

B-2 The brick masonry exterior is unraveling and cracking in several areas.

C-1 The Maintenance Building described in this report is only a portion of the total building. The hip roof seen in this view along with the flat roof to the right are the portions discussed here.

C-2 The rear of the Maintenance Building shows two stories along with the continuation of the building going off to the right.

D-1 The original Carriage House was added onto and is in need of repairs.



D-2 The building is utilized to some extent but is also somewhat neglected. Site lighting is attached to the building exterior.

MEP Schematic Design Narrative (BVHIS)

Schematic Design Narrative

HARTFORD BOTANICAL GARDEN CONSERVATORY

March 2007

A. Introduction:

This document summarizes the mechanical and electrical scope of work for the proposed new conservatory for the Hartford Botanical Garden in Hartford, Connecticut. The purpose of this document is to enable a professional cost estimator to arrive at a reasonably accurate schematic level opinion of probable construction cost for the project. This document, prepared by BVH Integrated Services, Inc., shall be used in conjunction with the Architectural and Schematic Plans and other information made available by the Owner.

As this is a schematic development document, only major systems and their nature are described. Sizes of equipment are indicated where appropriate. The estimator shall exercise due diligence to include costs of all items that are normally associated with similar facilities.

This document is arranged as follows:

Section	Title
A.	Introduction
B.	Project Overview
C.	Systems
	1. Fire Suppression
	2. Plumbing
	3. HVAC
	4. Electrical

B. Project Overview:

This project includes the proposed approximately 11,000 SF of Greenhouse (approximate) addition and 12,000 SF (approximate) of public/mechanical spaces. Refer to the Architectural Drawings for the proposed floor plans.

The project direction is to provide a building featuring sustainable and energy efficient design features and possibly apply for LEED certification.

C. Systems:

1. Fire Suppression

General

Fire Protection Service
- New 4" inch fire protection service will be provided for the building.
- A fire department connection will be provided on the building.
- The design shall be coordinated with the Fire Marshal and Insurance Underwriter and shall include all special requirements.

Sprinkler System
- Sprinkler and standpipe system shall be hydraulically designed per NFPA #13. The design shall be coordinated with the Owner's Insurance Underwriter and shall include all special requirements.
- Complete sprinkler coverage shall be provided throughout the building including the greenhouses, all closets, electrical rooms, elevator shafts, stair landings, and other special areas requiring coverage, per NFPA 13.
- West chemical extinguishing system will be provided as part of the kitchen exhaust hood.

Standpipe System
- The building third floor (highest level) is not 30 feet above the lowest level of the fire department vehicle access, so no standpipe is required.

Sprinkler Heads
- All sprinkler heads shall be UL listed and FM approved for their proper application.
- All office, public and other areas with finished ceilings shall be protected with quick-response concealed sprinkler heads with white cover plates.
- All utility areas with finished ceilings shall be protected with quick-response semi-recessed sprinkler heads with chrome-plated escutcheons.
- All mechanical rooms and utility areas without finished ceilings shall be protected with standard upright bronze sprinkler heads.
- The greenhouse shall be protected by upright large droplet sprinkler heads.

Design Density Criteria
- Light Hazard Occupancy: 0.10 gpm over 1,500 sq. ft. area with 168 sq. ft. per head maximum spacing.
- Ordinary Hazard Group I: 0.15 gpm over 1,500 sq. ft. area with 130 sq. ft. per head maximum spacing.
- Ordinary Hazard Group II: 0.20 gpm over 1,500 sq. ft. area with 130 sq. ft. per head maximum spacing.
- Other Areas: According to NFPA 13.
- Final design density shall be reviewed with Owner's Insurance Underwriter.

Valves

- All sprinkler/standpipe valves shall be UL listed and FM approved for their proper application.
- All sprinkler floor control valves and standpipe riser isolation valves (butterfly) shall be indicating type and equipped with electrically supervised tamper switches.

Piping Materials

- Fire service piping below grade shall be cement-lined, Class 54 ductile iron with mechanical or push-on joints. Service shall be installed per NFPA 24.
- Piping 2-inches and smaller shall be Schedule 40 black steel pipe with 125#, malleable iron threaded fittings.
- Piping 2½-inches and larger shall be Schedule 40 steel pipe with rolled groove ends and rolled groove joints.

2. *Plumbing*

General

- All plumbing systems will be designed in accordance with the State of Connecticut Building Code and the Americans with Disabilities Act.

Services

- A new 2" water service will be extended from the site to serve the domestic water. Water service piping below grade shall be cement-lined, Class 54 ductile iron with mechanical or push-on joints.
- Storm and sanitary sewer will be piped individually from the building to separated systems. Storm piping below grade and outside the building will be HDPE pipe. Sanitary piping below grade and outside the building will be SDR35 PVC.

Fixtures

- All plumbing fixtures will be of institutional quality. Handicapped-accessible fixtures will be ADA compliant. Flush valves and faucets will be of the water conservation type.
- Lavatories will be provided with hard wired infra-red sensors, to reduce water usage.
- Urinals will be 'waterless' type, also to reduce water usage. .

Plumbing Specialties

- Backflow preventers shall be provided on main water service and on all cold water make-ups to mechanical equipment.
- Water pressure reducing valves shall be provided as required by the fixture or equipment.
- Water hammer arrestors shall be provided on all quick closing valves (flush valves, foot operated faucet controls valves, solenoid valves, metering valves etc.). Water hammer arrestors shall be installed at the top of all risers with access provided.
- Exterior nonfreeze wall hydrants shall be provided, one per building face (a minimum of 4) In addition, hydrants will be provided within each of the four greenhouses for irrigation.
- Drain valves shall be provided at all low points of the water distribution system and at the bottom of risers.

- Floor and wall cleanouts within drainage systems (sanitary, storm, etc.) shall be provided as required by the Code.

Domestic Water Piping System

- Domestic water service into the building from 5' beyond building wall shall be by the Plumbing Contractor. Continuation to site water distribution system by the Site Contractor including gate valve and curb box.
- Water meter with by-pass and backflow preventer shall be provided and installed per Water Company requirements.
- The 2" domestic water service shall be provided with an isolation valve, pressure gauge and drain and drain valve at the service entrance.
- Domestic water hot and cold piping shall be extended from distribution mains to all plumbing fixtures, wall hydrants and mechanical equipment cold water make-ups.

Sanitary, Waste & Vent System

- Under ground sanitary drainage system within building to 5' beyond the building wall shall be by the Plumbing Contractor. Continuation to site sanitary drainage system by the Site Contractor.
- Soil piping shall be extended from underground drainage system within the building to all new plumbing fixtures and floor drains.
- Installation of condensate piping from HVAC equipment to drainage system through air gap.
- Floor drains shall be provided in the following areas mechanical rooms, toilet rooms, and janitor closets. Floor drains with sediment interceptors will be provided within each greenhouse. All floor drains will be provided with trap primers
- Trap primers shall be provided on all floor drains.
- If the kitchen is to include pot washer and a dishwasher, the kitchen waste will be required to be piped to an exterior grease interceptor.

Vent Piping System

- Vent piping shall be extended from all plumbing fixtures and floor drains through the roof.

Storm System

- Underground storm drainage system within building to 5' beyond the building wall shall be by the Plumbing Contractor. Continuation to site storm drainage system by the Site Contractor.
- Rain water leaders shall be extended at columns from new underground drainage system all roof drains. The greenhouse roof will also be collected and piped to the drainage system. The rain water will be collected in a gray water tank, for use for irrigation of the gardens.

Domestic Water Heater

- Domestic hot water will be preheated by solar collector panels, mounted on grade. The solar heated water will indirectly pre-heat the domestic hot water through a tank with a coil.

- Domestic hot water shall be generated by the storage type electric water heaters. The system shall include expansion tank, thermostatic mixing valve and recirculating pumps. Hot water shall be stored at 140 degrees F and piped through a master thermostatic mixing valve set at 110 degrees F before being distributed to the building. Dedicate 140 degrees F shall be piped to kitchen.

Materials and Methods

- Building storm, sanitary, waste and vent piping buried shall be hub and spigot with push-on neoprene gasket joints. Storm, sanitary, waste and vent piping above grade shall be no-hub cast iron with heavy duty stainless steel clamps.
- Domestic water piping above grade will be Type "L" copper with wrought copper sweat fittings using 95/5 solder.
- Building sanitary, storm, waste and vent piping below grade will be service-weight cast iron bell and spigot, with push-on, neoprene-gasketed joints.
- Gas piping under two (2") inch diameter will be Schedule 40 black steel with malleable threaded fittings or copper; gas piping two (2") inch diameter and over will be Schedule 40 black steel with welded fittings installed according to NFPA Bulletin #54, and BOCA 1990.
- Condensate piping will be Type "M" copper with 95/5 soldered joints or Schedule 40 PVC with solvent-welded joints, where code permits.
- Domestic hot, cold, hot water recirculating, condensate and all horizontal storm piping will be insulated with fiberglass insulation with preformed insulated fittings and vapor barrier.

3. *HVAC*

General

- All HVAC systems will be designed in accordance with the State of Connecticut Building Code, and current ASHRAE Standards.

System Description

- The heating and cooling will be provided by ground source heat pumps.
- Condenser water pumps will be based mounted, with variable speed drives.
- The ground source will be a closed system, with HPDE supply and return piping buried in "bore holes" in a vertical configuration. Estimate approximately 15 bore holes, typically 400 feet deep, with supply and return piping in a concrete slurry. The bore holes will be 15 foot on center and manifolded into a pump house on the site. Assume about 40 tons of heat pumps required.
- The heat pumps will be grounds source water to water producing 44 degree chilled water and 115 hot water. For the reception/store/lobby areas, 2 pipe, ducted fan coil units will be provided. The system will be provided with full economizer to allow for "free cooling" and full ventilation during moderate ambient conditions.
- A ground source heat pump will provide hot water for radiant slab heat for the greenhouses. Each greenhouse will be set up as a separate zone.

- The system will be set up for some units to be in cooling mode with others in the heating mode to satisfy differing loads in the swing season. The heat pumps will be high efficiency.
- The greenhouses will be provided with operable glass up high and down low to provide convective air flow for summer ventilation. Mechanical ventilation may be required in one or more greenhouses, depending on the ambient requirements of the plants.
- Ventilation air will be provided with air-to-air heat recovery to save energy.
- All refrigeration equipment will be specified as non HCFC, to qualify for LEED.
- Miscellaneous exhaust fans shall be toilet rooms, etc will be provided. If the kitchen program is to include cooking a UL listed hood and grease exhaust system will be required.
- Condenser water pumps shall be set up for one run/one standby.
- Unit heaters will be provided in all mechanical and storage spaces. Cabinet heaters will be provided at stairs (in ceiling) and entrances.

Automatic Temperature Controls

- The automatic temperature control system will be a direct digital control (DDC) system.

Design Conditions

- The HVAC systems will be designed to meet the following design criteria:

<u>*Heating*</u>

Outdoor Design Temperature:	0° F. Dry Bulb
Indoor Space Temperature:	72°F. Dry Bulb

<u>*Cooling*</u>

Outdoor Design Conditions:	91° F. Dry Bulb/73° F. Wet Bulb
Indoor Space Temperature:	74° F. Dry Bulb
Indoor Relative Humidity:	50% R.H.

<u>*Ventilation*</u>

Ventilation air for all project areas will meet or exceed the quantities listed in the latest edition of ASHRAE Standard 62.

HVAC Materials and Methods

- Condenser water piping 1/2 inches and larger will be Schedule 40 black steel with welded or groove fittings. Piping two (2") inches and smaller will be Schedule 40 black steel with Class 125 cast iron screwed fittings. Hydronic piping under 2" may be Type "L" copper with 95/5 (lead free) soldered fittings.
- Radiant slab heat piping will be "Pex" tubing.
- All ductwork and accessories will be constructed, fabricated and installed in accordance with the latest SMACNA Standards manuals for low pressure or high pressure ducts, fire damper installations and flexible ducts.
- Kitchen exhaust hood ductwork will be 16-gauge black steel with continuously welded longitudinal seams.
- Furnish and install UL listed fire dampers and access doors at all duct penetrations of walls, floors, partitions, etc., that are required to have a fire resistance rating

- Piping, ductwork, and equipment will be insulated in accordance with ASHRAE 90.1.

4. Electrical

General
- All electrical systems will be designed in accordance with the State of Connecticut Building Code, the National Electrical Code.

Services
- Provide electrical service, including new utility pole or pad mounted transformer. Main service switchboard will be 400 ampere and 120/208 volt 3 phase with TVSS protection.

Photovoltaics
- A small portion of the electrical needs will be produced by protovoltaic panels, either built into the glass or on a concrete pad on grade.

Distribution Equipment and Feeders
- A 480/277 volt, 3 phase, 4 wire distribution system will be provided to serve panelboards for major mechanical equipment, lighting and miscellaneous equipment supply.
- A 208/120 volt, 3 phase, 4 wire distribution system will be provided to serve panelboards for the mechanical equipment, receptacles, lighting, and miscellaneous equipment supply. Computer receptacles will be fed from separate dedicated panelboards.

Panelboards and Branch Circuits
- Panelboards for branch circuit distribution power will be provided with door-in-door trim. Load centers will not be used. A minimum of 25% free space will be provided in all panelboards to allow for future growth.
- All branch circuit wiring for lighting and power will originate at the respective panelboard.
- All spaces throughout the school will be provided with numerous receptacles: general type and for computers. Computer receptacles will be orange.

Lighting
- Interior lighting will be energy efficient fluorescent fixtures conforming to the National Energy Policy Act and Northeast Utilities Energy Conscious Construction Program requirements.
- Lighting levels will be per published IES standards. Lighting will be designed to meet power density ASHRAE 90.1 requirements.
- In general, lighting in most spaces will be controlled automatically through occupancy sensors; the only exceptions will include mechanical and electrical utility rooms. These controls will consist of occupancy sensors. The greenhouse lighting will be time clock controlled.
- Additionally, where practical, lighting in areas with daylighting will be controlled separately by a daylight sensor, occupancy sensor and on/off switch. The lights within the perimeter zone will be equipped with fluorescent dimming ballasts.

- The reception hall lighting will be via pendant-mounted direct/indirect steel fluorescent fixtures. Office and administrative areas will be illuminated with recessed fluorescent type parabolic 2x4 fixtures.
- Lighting in all service and back of house areas will be 2x4 fluorescent prismatic type troffers.
- Mechanical rooms and back of house areas without ceilings will be provided with industrial fluorescent strip lighting.
- Greenhouse lighting will be track mounted, with flexibility to highlight plants and be easily adjusted.
- Site lighting will illuminate all entrances, parking areas, and walkways. Building-mounted security lighting will be provided on all sides of the building. Site lighting will be limited, per zoning regulations for energy savings and reduced light pollution. It will be controlled by photocell and timeclock.

Emergency Lighting and Exit Signs

- Emergency lighting and exit signs will be provided with battery back-up and will be installed in all areas as required by code.
- Exit signs will be LED illuminated, low energy usage fixtures with polycarbonate housing.

Fire Alarm Systems

- An addressable fire alarm system will be installed.
- Coded manual pull stations will be installed in the egress paths at exterior doors.
- Audible and visual signaling devices will be installed throughout.
- The fire alarm system shall be provided with dial out communication to the Hartford Department.

Security System

- Security system for the facility will be provided. Security system will include motion detection in the corridors, doors contacts, surveillance camera at the main entrance and loading area, and card (or FOB) access for secure doors (all exterior doors). Interior doors will be provided with locksets.

Electrical Materials and Methods

- Electrical Metallic Tubing (EMT) will be used for feeders run above ground, all exposed branch circuit wiring, telephone wiring and security or fire alarm system wiring, and for all circuit homeruns.
- Rigid galvanized steel conduit will be used for all buried wiring except as noted below or as specifically noted on the Drawings.
- Polyvinyl chloride (PVC) conduit may be used for underground power and telephone wiring except as specifically otherwise noted on the Drawings. All elbows will be rigid galvanized steel conduit.
- Type MC Metal-Clad cable may be used for concealed branch wiring only to light fixtures, receptacles and switches; MC cable length not to exceed 6 feet. Type AC armored cable will not be permitted on the job.
- Flexible Metallic Conduit (FMC) or liquidtight flexible metallic conduit (LFMC) will be used for connections to vibrating equipment.

- All panelboards will be Square D Type "NQOD" or I-Line series panelboards or acceptable equivalent by General Electric or Westinghouse. Panelboards will be furnished with main lugs or main circuit breaker, and bolt-on type branch breakers as noted on the panelboard schedule, catch locks, ground bus, and circuit index card holder and hinged door-in-door cover.
- Safety switches will be heavy-duty Type in NEMA enclosures suitable for the environment in which they will be installed. Switches will be rated for 600 VAC as manufactured by General Electric, Square D or Westinghouse.
- Switches and receptacles will be specification-grade as manufactured by Arrow Hart, Leviton, Pass and Seymour or Hubbell. Receptacles for computer equipment will be orange. Cover plates will be stainless steel.
- Provide all required supports, hangers and seismic bracing for fixtures, including recessed troffers.
- All ballasts for fluorescent fixtures will be electronic, CBM/ETL certified with an "A" sound rating.
- Electrical manholes on site will be precast vaults approximately 8' x 8', with access manholes to grade.
- Electrical duct banks will be installed with appropriate spacers and encased in concrete.

Parking Calculation

Plumbing Calculation

HARTFORD BOTANICAL GARDEN **03/01/07**
OCCUPANT LOAD / PARKING CALCULATION

Building	Occupancy	Type	Area	Occ. Load Factor	Occ. Load	# Cars at 1 per 4 pers.
PHASE I						
25 Stonington	Offices	B	1466	100	15	4
Maint. Building	Assembly		3196	15	213	53
	Offices		396	100	4	1
	Library		659	50	13	3
Ice House			985	50	20	5
						66
PHASE II						
Gardeners Cottage	Offices	B	2287	100	23	6
Carriage Barn	Assembly		2975	15	198	50
	Offices	B	436	100	4	1
Working Greenhouse	Work Area		4740	300	16	4
	Offices	B	450	100	5	1
						61
PHASE III						
Conservatory	Assembly		3770	15	251	63
	Retail		1200	60	20	5
	Greenhouses		10900	300	36	9
	Offices		224	100	2	1
						77

Total Pkg. Required: **205**

HARTFORD BOTANICAL GARDEN **03/14/07**
OCCUPANT LOAD / PLUMBING CALCULATION

	Building	Occupanc	Type	Area	Occ. Load Factor	Occ. Load	# WC @ 1/75, 1/75	#Lav @ 1/200
PHASE I								
	25 Stoning	Offices	B	1466	100	15	1	1
	Maint. Buil	Assembly		3196	15	213	3	1
		Offices		396	100	4	0	0
		Library		659	50	13	1	0
	Ice House			985	50	20	0	0
							4	2
PHASE II								
	Gardeners	Offices	B	2287	100	23	1	1
	Carriage B	Assembly		2975	15	198	3	1
		Offices	B	436	100	4	0	0
	Working Gi	Work Area		4740	300	16	1	0
		Offices	B	450	100	5	1	0
							5	2
PHASE III								
	Conservato	Assembly		3770	15	251	3	1
		Retail		1200	60	20	1	1
		Greenhouses		10900	300	36	1	1
		Offices		224	100	2	0	0
							6	3
					Total Plbg. Required:		**16**	**7**

Preliminary LEED Checklist

Project Checklist

Project Name: HARTFORD BOTANICAL GARDEN - CONSERVATORY

Sustainable Sites — 14 Possible Points

Y	?	N			
Y			Prereq 1	**Erosion & Sedimentation Control**	Required
	?		Credit 1	**Site Selection**	1
		N	Credit 2	**Urban Redevelopment**	1
		N	Credit 3	**Brownfield Redevelopment**	1
Y			Credit 4.1	**Alternative Transportation,** Public Transportation Access	1
Y			Credit 4.2	**Alternative Transportation**, Bicycle Storage & Changing Rooms	1
		N	Credit 4.3	**Alternative Transportation**, Alternative Fuel Refueling Stations	1
	?		Credit 4.4	**Alternative Transportation**, Parking Capacity	1
Y			Credit 5.1	**Reduced Site Disturbance**, Protect or Restore Open Space	1
	?		Credit 5.2	**Reduced Site Disturbance**, Development Footprint	1
Y			Credit 6.1	**Stormwater Management**, Rate or Quantity	1
Y			Credit 6.2	**Stormwater Management**, Treatment	1
Y			Credit 7.1	**Landscape & Exterior Design to Reduce Heat Islands**, Non Roof	1
Y			Credit 7.2	**Landscape & Exterior Design to Reduce Heat islands**, Roof	1
Y			Credit 8	**Light Pollution Reduction**	1

Water Efficiency — 5 Possible Points

Y	?	N			
Y			Credit 1.1	**Water Efficient Landscaping**, Reduce by 50%	1
	?		Credit 1.2	**Water Efficient Landscaping**, No Potable Use or No Irrigation	1
Y			Credit 2	**Innovative Wastewater Technologies**	1
Y			Credit 3.1	**Water Use Reduction**, 20% Reduction	1
	?		Credit 3.2	**Water Use Reduction**, 30% Reduction	1

Energy & Atmosphere — 17 Possible Points

Y	?	N			
Y			Prereq 1	**Fundamental Building Systems Commissioning**	Required
Y			Prereq 2	**Minimum Energy Performance**	Required
Y			Prereq 3	**CFC Reduction in HVAC&R Equipment**	Required
	?		Credit 1.1	**Optimize Energy Performance**, 20% New / 10% Existing	2
	?		Credit 1.2	**Optimize Energy Performance**, 30% New / 20% Existing	2
		N	Credit 1.3	**Optimize Energy Performance**, 40% New / 30% Existing	2
		N	Credit 1.4	**Optimize Energy Performance**, 50% New / 40% Existing	2
		N	Credit 1.5	**Optimize Energy Performance**, 60% New / 50% Existing	2
	?		Credit 2.1	**Renewable Energy**, 5%	1
	?		Credit 2.2	**Renewable Energy**, 10%	1
		N	Credit 2.3	**Renewable Energy**, 20%	1
Y			Credit 3	**Additional Commissioning**	1
Y			Credit 4	**Ozone Depletion**	1
Y			Credit 5	**Measurement & Verification**	1
Y			Credit 6	**Green Power**	1

LEED™ Rating System Project Checklist
6/1/2007

Project Name: HARTFORD BOTANICAL GARDEN - CONSERVATORY

Materials & Resources — 13 Possible Points

Y	?	N			
Y			Prereq 1	**Storage & Collection of Recyclables**	Required
		N	Credit 1.1	**Building Reuse**, Maintain 75% of Existing Shell	1
		N	Credit 1.2	**Building Reuse**, Maintain 100% of Shell	1
		N	Credit 1.3	**Building Reuse**, Maintain 100% Shell & 50% Non-Shell	1
	?		Credit 2.1	**Construction Waste Management**, Divert 50%	1
	?		Credit 2.2	**Construction Waste Management**, Divert 75%	1
	?		Credit 3.1	**Resource Reuse**, Specify 5%	1
		N	Credit 3.2	**Resource Reuse**, Specify 10%	1
Y			Credit 4.1	**Recycled Content**, Specify 25%	1
		N	Credit 4.2	**Recycled Content**, Specify 50%	1
Y			Credit 5.1	**Local/Regional Materials**, 20% Manufactured Locally	1
	?		Credit 5.2	**Local/Regional Materials**, of 20% Above, 50% Harvested Locally	1
Y			Credit 6	**Rapidly Renewable Materials**	1
	?		Credit 7	**Certified Wood**	1

Indoor Environmental Quality — 15 Possible Points

Y	?	N			
Y			Prereq 1	**Minimum IAQ Performance**	Required
Y			Prereq 2	**Environmental Tobacco Smoke** (ETS) **Control**	Required
Y			Credit 1	**Carbon Dioxide (CO_2) Monitoring**	1
Y			Credit 2	**Increase Ventilation Effectiveness**	1
Y			Credit 3.1	**Construction IAQ Management Plan**, During Construction	1
Y			Credit 3.2	**Construction IAQ Management Plan**, Before Occupancy	1
Y			Credit 4.1	**Low-Emitting Materials**, Adhesives & Sealants	1
Y			Credit 4.2	**Low-Emitting Materials**, Paints	1
Y			Credit 4.3	**Low-Emitting Materials**, Carpet	1
Y			Credit 4.4	**Low-Emitting Materials**, Composite Wood	1
Y			Credit 5	**Indoor Chemical & Pollutant Source Control**	1
	?		Credit 6.1	**Controllability of Systems**, Perimeter	1
	?		Credit 6.2	**Controllability of Systems**, Non-Perimeter	1
Y			Credit 7.1	**Thermal Comfort**, Comply with ASHRAE 55-1992	1
Y			Credit 7.2	**Thermal Comfort**, Permanent Monitoring System	1
Y			Credit 8.1	**Daylight & Views**, Daylight 75% of Spaces	1
Y			Credit 8.2	**Daylight & Views**, Views for 90% of Spaces	1

Innovation & Design Process — 5 Possible Points

Y	?	N			
Y			Credit 1.1	**Innovation in Design**: Geo-Thermal system?	1
	?		Credit 1.2	**Innovation in Design**: Fuel Cell?	1
	?		Credit 1.3	**Innovation in Design**: Glass-integrated PV?	1
	?		Credit 1.4	**Innovation in Design**: Specific Title	1
Y			Credit 2	**LEED™ Accredited Professional**	1

Project Totals — 69 Possible Points

Y	?	N				
33	21	15	**Certified** 26-32 points	**Silver** 33-38 points	**Gold** 39-51 points	**Platinum** 52-69 points

COST ESTIMATE

Tai Soo Kim Partners, Architects

Hartford Botanical Gardens

Renovations & Additions

Hartford, CT

MASTERPLAN COST ESTIMATE

May 7, 2007

Faithful+Gould
205 Church Street, Suite 409, New Haven, CT 06510
Telephone (203) 772-5557 Fax (203) 772-5866

205 CHURCH STREET SUITE 409 NEW HAVEN CT 06510 PH 203 772 5557 FX 203 772 5866

May 7, 2007

Mr. T. Whitcomb Iglehart
Tai Soo Kim Partners, Architects
285 Farmington Avenue
Hartford, CT 06105

Dear Whit:

Re: Renovations & Additions

Please find enclosed our Construction Cost Estimate for the above referenced project based on the Conceptual Development / Masterplan information received on April 24, 2007.

	Construction Start	Gross Floor Area	$/sf	Estimated Cost
The CT Store	Spring 2008	4,261	$38.06	$162,155
Maintenance Building	Spring 2008	10,680	$96.03	$1,025,611
Icehouse	Spring 2008	2,572	$71.66	$184,302
Phase 1 sitework	Spring 2008			$1,138,928
Gardener's House	Spring 2010	2,905	$171.85	$499,219
Carriage House	Spring 2010	9,516	$213.99	$2,036,337
Greenhouse	Spring 2010	7,484	$445.45	$3,333,785
Phase 2 sitework	Spring 2010			$642,049
Conservatory	Spring 2012	23,294	$1,215.61	$28,316,463
Phase 3 sitework	Spring 2012			$2,490,271
Phase I	Spring 2008			$2,510,996
Phase II	Spring 2010			$6,511,390
Phase III	Spring 2012			$30,806,734
ESTIMATED CONTRACT AWARD				**$39,829,120**

This estimate includes all direct construction costs, general contractor's overhead and profit and design contingency. Cost escalation assumes start dates indicated above.

equipment (Other then Compact Shelving as described), architect's and engineer's fees, moving, administrative and financing costs.

Bidding conditions are expected to reflect competitive bidding to pre-qualified general contractors, open bidding for sub-contractors, open specifications for materials and manufactures.

The estimate is based on prevailing union rates for construction in this market and represents a reasonable opinion of cost. It is not a prediction of the successful bid from a contractor as bids will vary due to fluctuating market conditions, errors and omissions, proprietary specifications, lack or surplus of bidders, perception of risk, etc. Consequently the estimate is expected to fall within the range of bids from a number of competitive contractors or subcontractors, however we do not warrant that bids or negotiated prices will not vary from the final construction cost estimate.

If you have any questions or require further analysis please do not hesitate to contact us.

Sincerely,
Faithful+Gould

Neal Fontana
Associate

MASTERPLAN COST ESTIMATE

INTRODUCTION

This Construction Cost Estimate was produced from masterplan drawings(3/1/07), limited condition surveys(6/6/06) and scope narratives(4/23/07) prepared by Tai Soo Kim Partners and their design team and forwarded to Faithful+Gould on April 24, 2007. Design and engineering changes occurring subsequent to the issue of these documents have not been incorporated in this estimate.

This estimate is based upon the measurement of quantities where possible. For the remainder, parametric measurements were used in conjunction with references from similar projects recently estimated by Faithful+Gould.

PROJECT OUTLINE

This project comprises of new construction, renovations and additions to multiple buildings at the Hartford Botanical Gardens site located within Colt Park in Hartford, CT.

BASIS FOR PRICING

This estimate reflects the fair construction value for the construction of this project and should not be construed as a prediction of low bid. Prices are based on probable local prevailing union wage construction costs at the time the estimate was prepared, however an escalation line item is included to project the current costs to the projected construction start approximately 10 months from the date of this report. Pricing assumes a procurement process with competitive bidding for every portion of the construction work, which is to mean a minimum of 4 bids including for all subcontractors and materials/equipment suppliers. If fewer bids are solicited or received, prices can be expected to be higher. **Please note that this estimate assumed competitive bid by general contractors. Should a CM/GMP procurement route be selected then the anticipated contract award will be higher**

Subcontractor's markups have been included in each line item unit price. Markups cover the cost of field overhead, home office overhead and subcontractor's profit. Subcontractor's markups typically range from 5% to 15% of the unit price depending on market conditions.

General Contractor's general conditions' cost is calculated on a percentage basis. General Contractor's overhead and fees is based on a percentage of the total direct (trade) costs plus general conditions, and covers the contractor's bond, insurance, site office overheads, building permit applications, and profit.

Unless identified otherwise, the cost of such items as shift premiums, and allowances for temporary occupancy permits, police details or street/sidewalk permits are excluded.

We have excluded a Design Contingency/Design Reserve percentage to cover cost increases that will occur during design elaboration or unforeseen design issues. As the design develops, the design contingency is reduced, and is eliminated at the final Construction Document estimate. These cost are assumed by the owner.

A Construction Contingency or GMP contingency is excluded from this estimate. However, in finalizing the project budget, it is recommended that the Owner should add a construction contingency to the Total Estimated Construction Cost in anticipation of change orders likely to occur during construction., that will not be covered by this GMP contingency.

Hartford, CT

MASTERPLAN COST ESTIMATE

INTRODUCTION

ITEMS NOT CONSIDERED IN THIS ESTIMATE

Items not included in this estimate are:

- Land acquisition, feasibility, and financing costs
- All professional fees and insurance
- Site or existing conditions surveys investigations costs, including to determine subsoil conditions
- Items identified in the design as Not In Contract (NIC)
- Owner supplied and/or installed items (e.g.. draperies, furniture and equipment)
- Tel/data, security and AV networks, equipment or software (unless identified otherwise)
- Rock excavation; special foundations (unless indicated by design engineers)
- Hazardous materials investigations and abatement
- Utility company back charges, including work required off-site
- Work to City streets and sidewalks, (except as noted in this estimate)
- Construction or occupancy phasing or off hours' work, (except as noted in this estimate)
- Owners Construction Contingency for scope changes

ITEMS THAT MAY AFFECT THIS ESTIMATE

Such items include, but are not limited to the following:

- Modifications to the scope of work subsequent to the preparation of this estimate
- Unforeseen subsurface conditions
- Special requirements for site access, off-hour work or phasing activities
- Restrictive technical specifications, excessive contract or non-competitive bid conditions
- Sole source specifications for materials or products
- Bid approvals delayed beyond the anticipated project schedule
- Market Contingency

STATEMENT OF PROBABLE COST OF CONSTRUCTION

Faithful+Gould requests that the Owner and Architect carefully review this estimate, including all line item descriptions, unit prices, clarifications, exclusions, inclusions and assumptions, contingencies, escalation, and markups to ensure that requirements have been correctly identified. If this estimate does not correspond to the Owner's budgetary objectives, Faithful+Gould strongly suggests that evaluations of other design alternatives/project procurement options should be made before proceeding further.

Faithful+Gould has prepared this estimate in accordance with generally accepted principles and practices to reflect the fair market value of the project. This estimate is made on the basis of the experience, qualifications, and the best judgment of professional consultants who are familiar with the construction industry.

However, Faithful+Gould has no control over the method of determining prices adopted by any individual general contractor, subcontractor or supplier. Faithful+Gould cannot control the cost of labor and materials, the bidding environment or other market conditions, and it is not possible to provide any guarantee that proposals, bids, or actual construction costs will not deviate from this or subsequent cost estimates.

Any requests for modifications to this document must be made to Faithful+Gould within ten (10) days of receipt. Otherwise, it will be understood that the contents are fully concurred with and accepted. Notifications of any apparent errors or omissions should be made to Faithful+Gould as soon as they are discovered.

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		SUB-TOTAL	TOTAL	$/SF	%
A10	**FOUNDATIONS**					
	A1010	Standard Foundations	$0			
	A1020	Special Foundations	$16,070			
	A1030	Lowest Floor Construction	$1,944	**$18,014**	$4.23	15.1%
A20	**BASEMENT CONSTRUCTION**					
	A2010	Basement Excavation	$0			
	A2020	Basement Walls	$2,268	**$2,268**	$0.53	1.9%
B10	**SUPERSTRUCTURE**					
	B1010	Upper Floor Construction	$0			
	B1020	Roof Construction	$0	**$0**	$0.00	0.0%
B20	**EXTERIOR CLOSURE**					
	B2010	Exterior Walls	$25,415			
	B2020	Windows	$1,560			
	B2030	Exterior Doors	$2,000	**$28,975**	$6.80	24.3%
B30	**ROOFING**					
	B3010	Roof Coverings	$14,690			
	B3020	Roof Openings	$0	**$14,690**	$3.45	12.3%
C10	**INTERIOR CONSTRUCTION**					
	C1010	Partitions	$500			
	C1020	Interior Doors	$0			
	C1030	Specialties/Millwork	$0	**$500**	$0.12	0.4%
C20	**STAIRCASES**					
	C2010	Stair Construction	$0			
	C2020	Stair Finishes	$0	**$0**	$0.00	0.0%
C30	**INTERIOR FINISHES**					
	C3010	Wall Finishes	$300			
	C3020	Floor Finishes	$0			
	C3030	Ceiling Finishes	$0	**$300**	$0.07	0.3%
D10	**CONVEYING SYSTEMS**					
	D1010	Elevator	$0	**$0**	$0.00	0.0%
D20	**PLUMBING**					
	D20	Plumbing	$12,500	**$12,500**	$2.93	10.5%
D30	**HVAC**					
	D30	HVAC	$2,400	**$2,400**	$0.56	2.0%

Hartford Botanical Gardens
Renovations & Additions
Hartford, CT

07-May-07

MASTERPLAN COST ESTIMATE - The CT Store

4,261 GFA

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		SUB-TOTAL	TOTAL	$/SF	%
D40	**FIRE PROTECTION**					
	D40	Fire Protection	$0	**$0**	$0.00	0.0%
D50	**ELECTRICAL**					
	D5010	Service & Distribution	$11,000			
	D5020	Lighting & Power	$4,500			
	D5030	Communication & Security Systems	$7,457			
	D5040	Other Electrical Systems	$5,631	**$28,588**	$6.71	24.0%
E10	**EQUIPMENT**					
	E10	Equipment	$0	**$0**	$0.00	0.0%
E20	**FURNISHINGS**					
	E2010	Fixed Furnishings	$0	**$0**	$0.00	0.0%
F10	**SPECIAL CONSTRUCTION**					
	F10	Special Construction	$0	**$0**	$0.00	0.0%
F20	**SELECTIVE BUILDING DEMOLITION**					
	F2010	Building Elements Demolition	$3,308			
	F2020	Hazardous Components Abatement	$0	**$3,308**	$0.78	2.8%
G	**SITE PREP/DEVELOPMENT**					
	G10	Site Preparation/Demolition	$1,300			
	G20	Site Improvements	$4,500			
	G30	Civil / Mechanical Utilities	$0			
	G40	Electrical Utilities	$2,000	**$7,800**	$1.83	6.5%
TOTAL DIRECT COST (Trade Costs)				***$119,343***	*$28.01*	*100.0%*
MARK UP						
		General Conditions/Permit/Insurance	$13,768			
		Overhead/Fee/Profit	$4,659	**$18,427**	$4.32	
SUBTOTAL CONSTRUCTION				***$137,770***	*$32.33*	
CONTINGENCIES/ESCALATION						
		Design & Pricing Contingency	$13,777			
		Escalation	$10,608			
		Construction Contingency	$0	**$24,385**	$5.72	
ESTIMATED CONTRACT AWARD				***$162,155***	*$38.06*	

MASTERPLAN COST ESTIMATE - The CT Store

4,261 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
GROSS FLOOR AREA CALCULATION						
Basement				972		
First Floor				1,345		
Second Floor				972		
Attic				972		
TOTAL Net Floor Area (NSF)				*4,261*	*sf*	
A10 FOUNDATIONS						
A1010 STANDARD FOUNDATIONS						
No items in this section						
SUBTOTAL					0	
A1020 SPECIAL FOUNDATIONS						
Miscellaneous						
Excavate for perimeter drains, R&D excess mat'l	176	cy	45.00	7,920		
Perimeter foundation drain @ main house fdn.	126	lf	25.00	3,150		
Stabilize connector	1	ls	5,000.00	5,000		
SUBTOTAL					16,070	
A1030 LOWEST FLOOR CONSTRUCTION						
Miscellaneous						
Seal cracks to basement floor	972	sf	2.00	1,944		
SUBTOTAL					1,944	
TOTAL - FOUNDATIONS						*$18,014*
A20 BASEMENT CONSTRUCTION						
A2010 BASEMENT EXCAVATION						
No items in this section						
SUBTOTAL					0	
A2020 BASEMENT WALLS						
Miscellaneous						
Seal cracks to basement walls	567	sf	4.00	2,268		
SUBTOTAL					2,268	
TOTAL - BASEMENT CONSTRUCTION						*$2,268*
B10 SUPERSTRUCTURE						
B1010 UPPER FLOOR CONSTRUCTION						
No items in this section						
SUBTOTAL					0	
B1020 ROOF CONSTRUCTION						
No items in this section						
SUBTOTAL					0	
TOTAL - SUPERSTRUCTURE						*$0*

MASTERPLAN COST ESTIMATE - The CT Store

4,261 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
B20 EXTERIOR CLOSURE						
B2010 EXTERIOR WALLS						
Miscellaneous						
Glass entrance @ north side of vestibule	105	sf	75.00	7,875		
Allow for repairs to existing perimeter @ north vestibule	46	lf	20.00	920		
Repair of isolated cracks in masonry, assume 25% of exterior	1,487	sf	10.00	14,870		
Restore masonry at connector	1	ls	1,750.00	1,750		
SUBTOTAL					25,415	
B2020 WINDOWS						
Repair storm windows thru-out, existing windows to remain	390	sf	4.00	1,560		
SUBTOTAL					1,560	
B2030 EXTERIOR DOORS						
Aluminum & glass storefront, single	1	ea	2,000.00	2,000		
SUBTOTAL					2,000	
TOTAL - EXTERIOR CLOSURE						*$28,975*
B30 ROOFING						
B3010 ROOF COVERINGS						
Asphalt roof shingles, incl. barrier	1,617	sf	5.00	8,085		
Ice and water shield	260	sf	2.00	520		
Aluminum flashings	130	lf	5.00	650		
Miscellaneous Roofing						
Alum. gutters	133	lf	25.00	3,325		
Alum. Downspouts	70	lf	20.00	1,400		
Splash blocks	6	ea	25.00	150		
Ridge vent	56	lf	10.00	560		
SUBTOTAL					14,690	
B3020 ROOF OPENINGS						
No items in this section						
SUBTOTAL					0	
TOTAL - ROOFING						*$14,690*
C10 INTERIOR CONSTRUCTION						
C1010 PARTITIONS						
GWB patching to existing wall @ connector	1	ls	500.00	500		
SUBTOTAL					500	
C1020 INTERIOR DOORS						
No items in this section						
SUBTOTAL					0	
C1030 SPECIALTIES / MILLWORK						
No items in this section						
SUBTOTAL					0	
TOTAL - INTERIOR CONSTRUCTION						*$500*

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
C20 STAIRCASES						
C2010 STAIR CONSTRUCTION						
No items in this section						
SUBTOTAL					0	
C2020 STAIR FINISHES						
No items in this section						
SUBTOTAL					0	
TOTAL - STAIRCASES						$0
C30 INTERIOR FINISHES						
C3010 WALL FINISHES						
Paint to new GWB	1	ls	300.00	300		
SUBTOTAL					300	
C3020 FLOOR FINISHES						
No items in this section						
SUBTOTAL					0	
C3030 CEILING FINISHES						
No items in this section						
SUBTOTAL					0	
TOTAL - INTERIOR FINISHES						$300
D10 CONVEYING SYSTEMS						
D1010 ELEVATOR						
No items in this section						
SUBTOTAL					0	
TOTAL - CONVEYING SYSTEMS						$0
D20 PLUMBING						
D20 PLUMBING, GENERALLY						
Fixtures						
Water Closets	2	ea	2,500.00	5,000		
Lavatories	2	ea	2,500.00	5,000		
Stainless Steel Sink	1	ea	2,500.00	2,500		
SUBTOTAL					12,500	
TOTAL - PLUMBING						$12,500
D30 HVAC						
D30 HVAC, GENERALLY						
Heating / Cooling Equipment						
Natural Gas ,Hot Water Boilers, Clean & Service	1	ls	1,000.00	1,000		
Replace / Service Isolation Valves	1	ls	1,400.00	1,400		
SUBTOTAL					2,400	
TOTAL - HVAC						$2,400

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
D40 FIRE PROTECTION						
D40 FIRE PROTECTION, GENERALLY						
No items in this section						
SUBTOTAL					0	
TOTAL - FIRE PROTECTION						$0
D50 ELECTRICAL						
D5010 SERVICE & DISTRIBUTION						
Service and distribution gear						
Test existing equipment and replace faulty equipment with new, label all breakers as per code.	1	ls	2,500.00	2,500		
Remove old wiring not in use	1	ls	5,000.00	5,000		
Remove switches and receptacles that are no longer active.	1	ls	1,500.00	1,500		
Remove and replace switches and receptacles that do not have adequate grounding	1	ls	2,000.00	2,000		
SUBTOTAL					11,000	
D5020 LIGHTING & POWER						
Lighting						
Clean are or replace lenses in office and storage areas	1	ls	1,000.00	1,000		
Install emergency lighting on all floors.	1	ls	1,500.00	1,500		
Install exit/egress w/ battery backup lighting on all floors.	1	ls	2,000.00	2,000		
SUBTOTAL					4,500	
D5030 COMMUNICATION & SECURITY SYSTEMS						
Fire alarm						
Install zoned fire alarm w/ heat / smoke detectors, pull stations, and audiovisual alarms.	4,261	sf	1.75	7,457		
SUBTOTAL					7,457	
D5040 OTHER ELECTRICAL SYSTEMS						
Temporary services						
Temporary power and lights	4,261	sf	0.50	2,131		
Demolition						
Demolition	1	ls	3,000.00	3,000		
Reimbursables						
Fees & permits	1	ls	500.00	500		
SUBTOTAL					5,631	
TOTAL - ELECTRICAL						$28,588
E10 EQUIPMENT						
E10 EQUIPMENT, GENERALLY						
No items in this section						
SUBTOTAL					0	
TOTAL - EQUIPMENT						$0

MASTERPLAN COST ESTIMATE - The CT Store

4,261 GFA

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	E20 FURNISHINGS						
	E2010 FIXED FURNISHINGS						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - FURNISHINGS						***$0***
	F10 SPECIAL CONSTRUCTION						
	F10 SPECIAL CONSTRUCTION						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - SPECIAL CONSTRUCTION						***$0***
	F20 SELECTIVE BUILDING DEMOLITION						
	F2010 BUILDING ELEMENTS DEMOLITION						
	Remove roof shingles	1,617	sf	1.50	2,426		
	Remove exterior wall	126	sf	7.00	882		
	SUBTOTAL					3,308	
	F2020 HAZARDOUS COMPONENTS ABATEMENT						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - SELECTIVE BUILDING DEMOLITION						***$3,308***
	G SITE PREP/DEVELOPMENT						
	G10 SITE PREPARATION & DEMOLITION						
	Site Demolitions and Relocations						
	Remove existing walkway	1	ls	1,000.00	1,000		
	Remove existing shrubs/plantings	1	ls	300.00	300		
	SUBTOTAL					1,300	
	G20 SITE IMPROVEMENTS						
	New concrete walk, sloped for HC access, north & south entrance	600	sf	5.00	3,000		
	Repairs to existing lawn, loam & seed	1	ls	500.00	500		
	Allow for new shrubs/plantings	1	ls	1,000.00	1,000		
	SUBTOTAL					4,500	
	G30 CIVIL MECHANICAL UTILITIES						
	No items in this section						
	SUBTOTAL					0	
	G40 ELECTRICAL UTILITIES						
	Site lighting						
	Test and relamp exterior building mounted fixtures	1	ls	2,000.00	2000		
	SUBTOTAL					2,000	
	TOTAL - SITE DEVELOPMENT						***$7,800***

MASTERPLAN COST ESTIMATE - The CT Store

4,261 GFA

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	MARK UP						
	GENERAL COND. / PERMIT / INS.						
	General Conditions	8.00%		119,343	9,547		
	Insurance & bond	2.00%		128,890	2,578		
	Permit	1.25%		131,468	1,643		
	SUBTOTAL					13,768	
	FEE						
	Overhead & profit/fee	3.50%		133,111	4,659		
	SUBTOTAL					4,659	
	TOTAL - MARK UP						***$18,427***
	CONTINGENCIES/ESCALATION						
	DESIGN & PRICING						
	Design contingency - assumed included by owner separately.	10.00%		137,770	13,777		
	SUBTOTAL					13,777	
	ESCALATION						
	Price escalation due to increases in labor and material costs (included at 7% per annum)	7.00%		151,547	10,608		
	SUBTOTAL					10,608	
	CONSTRUCTION CONTINGENCY						
	Excluded - Recommend that 5% construction contingency is included in the overall project budget	0.00%		162,155	0		
	SUBTOTAL					0	
	TOTAL - CONTINGENCIES/ESCALATION						***$24,385***

MASTERPLAN COST ESTIMATE - The Maintenance Building 10,680 GFA

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		SUB-TOTAL	TOTAL	$/SF	%
A10	**FOUNDATIONS**					
	A1010	Standard Foundations	$0			
	A1020	Special Foundations	$0			
	A1030	Lowest Floor Construction	$10,680	**$10,680**	$1.00	1.4%
A20	**BASEMENT CONSTRUCTION**					
	A2010	Basement Excavation	$0			
	A2020	Basement Walls	$12,200	**$12,200**	$1.14	1.6%
B10	**SUPERSTRUCTURE**					
	B1010	Upper Floor Construction	$62,500			
	B1020	Roof Construction	$15,000	**$77,500**	$7.26	10.3%
B20	**EXTERIOR CLOSURE**					
	B2010	Exterior Walls	$59,055			
	B2020	Windows	$39,032			
	B2030	Exterior Doors	$5,400	**$103,487**	$9.69	13.7%
B30	**ROOFING**					
	B3010	Roof Coverings	$11,390			
	B3020	Roof Openings	$0	**$11,390**	$1.07	1.5%
C10	**INTERIOR CONSTRUCTION**					
	C1010	Partitions	$56,593			
	C1020	Interior Doors	$16,400			
	C1030	Specialties/Millwork	$34,400	**$107,393**	$10.06	14.2%
C20	**STAIRCASES**					
	C2010	Stair Construction	$0			
	C2020	Stair Finishes	$0	**$0**	$0.00	0.0%
C30	**INTERIOR FINISHES**					
	C3010	Wall Finishes	$12,972			
	C3020	Floor Finishes	$29,832			
	C3030	Ceiling Finishes	$29,924	**$72,728**	$6.81	9.6%
D10	**CONVEYING SYSTEMS**					
	D1010	Elevator	$0	**$0**	$0.00	0.0%
D20	**PLUMBING**					
	D20	Plumbing	$26,200	**$26,200**	$2.45	3.5%
D30	**HVAC**					
	D30	HVAC	$240,300	**$240,300**	$22.50	31.8%

Hartford Botanical Gardens
Renovations & Additions
Hartford, CT

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MASTERPLAN COST ESTIMATE - The Maintenance Building 10,680 GFA

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		SUB-TOTAL	TOTAL	$/SF	%
D40	**FIRE PROTECTION**					
	D40	Fire Protection	$0	**$0**	$0.00	0.0%
D50	**ELECTRICAL**					
	D5010	Service & Distribution	$27,700			
	D5020	Lighting & Power	$14,180			
	D5030	Communication & Security Systems	$0			
	D5040	Other Electrical Systems	$7,170	**$49,050**	$4.59	6.5%
E10	**EQUIPMENT**					
	E10	Equipment	$0	**$0**	$0.00	0.0%
E20	**FURNISHINGS**					
	E2010	Fixed Furnishings	$0	**$0**	$0.00	0.0%
F10	**SPECIAL CONSTRUCTION**					
	F10	Special Construction	$0	**$0**	$0.00	0.0%
F20	**SELECTIVE BUILDING DEMOLITION**					
	F2010	Building Elements Demolition	$33,898			
	F2020	Hazardous Components Abatement	$0	**$33,898**	$3.17	4.5%
G	**SITE PREP/DEVELOPMENT**					
	G10	Site Preparation/Demolition	$4,000			
	G20	Site Improvements	$6,000			
	G30	Civil / Mechanical Utilities	$0			
	G40	Electrical Utilities	$0	**$10,000**	$0.94	1.3%
	TOTAL DIRECT COST (Trade Costs)			***$754,826***	*$70.68*	*100.0%*
	MARK UP					
		General Conditions/Permit/Insurance	$87,084			
		Overhead/Fee/Profit	$29,467	**$116,551**	$10.91	
	SUBTOTAL CONSTRUCTION			***$871,377***	*$81.59*	
	CONTINGENCIES/ESCALATION					
		Design & Pricing Contingency	$87,138			
		Escalation	$67,096			
		Construction Contingency	$0	**$154,234**	$14.44	
	ESTIMATED CONTRACT AWARD			***$1,025,611***	*$96.03*	

MASTERPLAN COST ESTIMATE - The Maintenance Building

10,680 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
GROSS FLOOR AREA CALCULATION						
Basement				5,340		
First Floor				5,340		
TOTAL Net Floor Area (NSF)				**10,680**	**sf**	
A10 FOUNDATIONS						
A1010 STANDARD FOUNDATIONS						
No items in this section						
SUBTOTAL					0	
A1020 SPECIAL FOUNDATIONS						
No items in this section						
SUBTOTAL					0	
A1030 LOWEST FLOOR CONSTRUCTION						
Seal cracks to basement floor	5,340	sf	2.00	10,680		
SUBTOTAL					10,680	
TOTAL - FOUNDATIONS						**$10,680**
A20 BASEMENT CONSTRUCTION						
A2010 BASEMENT EXCAVATION						
No items in this section						
SUBTOTAL					0	
A2020 BASEMENT WALLS						
Miscellaneous						
Seal cracks to basement walls	3,050	sf	4.00	12,200		
SUBTOTAL					12,200	
TOTAL - BASEMENT CONSTRUCTION						**$12,200**
B10 SUPERSTRUCTURE						
B1010 UPPER FLOOR CONSTRUCTION						
Allow for structural upgrades to building	1	ls	50,000.00	50,000		
New wood decking @ removed deteriorated topping	2,500	sf	5.00	12,500		
SUBTOTAL					62,500	
B1020 ROOF CONSTRUCTION						
Additional roof/hanger supports	1	ls	15,000.00	15,000		
SUBTOTAL					15,000	
TOTAL - SUPERSTRUCTURE						**$77,500**
B20 EXTERIOR CLOSURE						
B2010 EXTERIOR WALLS						
Miscellaneous						
Repointing exterior	463	sf	15.00	6,945		
Remove & replace exterior brick	1,158	sf	45.00	52,110		
SUBTOTAL					59,055	
B2020 WINDOWS						
New windows	574	sf	68.00	39,032		
SUBTOTAL					39,032	

MASTERPLAN COST ESTIMATE - The Maintenance Building

10,680 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
B2030 EXTERIOR DOORS						
Wood entry door, single	2	ea	1,500.00	3,000		
Wood entry door, double	1	ea	2,400.00	2,400		
SUBTOTAL					5,400	
TOTAL - EXTERIOR CLOSURE						**$103,487**
B30 ROOFING						
B3010 ROOF COVERINGS						
Miscellaneous Roofing						
Alum. gutters	392	lf	25.00	9,800		
Alum. Downspouts	72	lf	20.00	1,440		
Splash blocks	6	ea	25.00	150		
SUBTOTAL					11,390	
B3020 ROOF OPENINGS						
No items in this section						
SUBTOTAL					0	
TOTAL - ROOFING						**$11,390**
C10 INTERIOR CONSTRUCTION						
C1010 PARTITIONS						
Interior GWB partitions	3,497	sf	8.50	29,725		
Furring, insulation & gwb to interior of exterior walls	4,478	sf	6.00	26,868		
SUBTOTAL					56,593	
C1020 INTERIOR DOORS						
New doors, frames & hardware, single	12	ea	1,200.00	14,400		
New doors, frames & hardware, double	1	ea	2,000.00	2,000		
SUBTOTAL					16,400	
C1030 SPECIALTIES / MILLWORK						
Toilet compartments, typ.	4	ea	1,000.00	4,000		
Toilet compartments, HC	2	ea	1,200.00	2,400		
Bathroom accessories, sm.	2	ea	750.00	1,500		
Reception desk	16	lf	750.00	12,000		
Storage room shelving	2	rms	2,000.00	4,000		
Misc. casework not yet shown	1	ls	10,000.00	10,000		
Janitor closet	1	ea	500.00	500		
SUBTOTAL					34,400	
TOTAL - INTERIOR CONSTRUCTION						**$107,393**
C20 STAIRCASES						
C2010 STAIR CONSTRUCTION						
No items in this section						
SUBTOTAL					0	
C2020 STAIR FINISHES						
No items in this section						
SUBTOTAL					0	
TOTAL - STAIRCASES						**$0**

MASTERPLAN COST ESTIMATE - The Maintenance Building

10,680 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
C30 INTERIOR FINISHES						
C3010 WALL FINISHES						
Paint to new GWB	11,472	sf	1.00	11,472		
Misc. other painting	1	ls	1,500.00	1,500		
SUBTOTAL					12,972	
C3020 FLOOR FINISHES						
Repairs to existing floors @ multi-purpose & gallery rooms	3,196	sf	6.00	19,176		
Ceramic tile @ bathrooms	260	sf	12.00	3,120		
Carpeting to office/mtg. rms	1,884	sf	4.00	7,536		
SUBTOTAL					29,832	
C3030 CEILING FINISHES						
Make good existing exposed ceilings @ multi-purpose & gallery rooms	3,196	sf	7.00	22,372		
ACT	1,888	sf	4.00	7,552		
SUBTOTAL					29,924	
TOTAL - INTERIOR FINISHES						***$72,728***
D10 CONVEYING SYSTEMS						
D1010 ELEVATOR						
No items in this section						
SUBTOTAL					0	
TOTAL - CONVEYING SYSTEMS						***$0***
D20 PLUMBING						
D20 PLUMBING, GENERALLY						
Equipment						
Hot Water Domestic Water Heater	1	ls	2,800.00	2,800		
Fixtures						
Water Closets	6	ea	1,200.00	7,200		
Lavatories	6	ea	1,200.00	7,200		
Compressed Air						
Replace exsisting system (Allowance)	1	ls	9,000.00	9,000		
SUBTOTAL					26,200	
TOTAL - PLUMBING						***$26,200***
D30 HVAC						
D30 HVAC, GENERALLY						
Heating / Cooling Equipment						
The exsisting Boiler & Boiler Room Piping Stays.						
Replace the Remaining Heating & Air Conditioning	5,340	sft	45.00	240,300		
SUBTOTAL					240,300	
TOTAL - HVAC						***$240,300***
D40 FIRE PROTECTION						
D40 FIRE PROTECTION, GENERALLY						
No items in this section						
SUBTOTAL					0	
TOTAL - FIRE PROTECTION						***$0***
D50 ELECTRICAL						
D5010 SERVICE & DISTRIBUTION						
Service and distribution gear						
Properly support conduit runs	1	ls	1,000.00	1,000		
Remove and replace all existing wiring, receptacles, switches, and other devices.	5,340	sf	5.00	26,700		

MASTERPLAN COST ESTIMATE - The Maintenance Building

10,680 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
SUBTOTAL					27,700	
D5020 LIGHTING & POWER						
Lighting						
Remove and replace all lighting fixtures	5,340	sf	2.00	10,680		
Salvage HID Fixtures	1	ls	500.00	500		
Install emergency lighting on all floors.	1	ls	1,500.00	1,500		
Install exit/egress w/ battery backup lighting on all floors.	1	ls	1,500.00	1,500		
SUBTOTAL					14,180	
D5030 COMMUNICATION & SECURITY SYSTEMS						
No items in this section						
SUBTOTAL					0	
D5040 OTHER ELECTRICAL SYSTEMS						
Temporary services						
Temporary power and lights	5,340	sf	0.50	2,670		
Demolition						
Demolition	1	ls	4,000.00	4,000		
Reimbursables						
Fees & permits	1	ls	500.00	500		
SUBTOTAL					7,170	
TOTAL - ELECTRICAL						***$49,050***
E10 EQUIPMENT						
E10 EQUIPMENT, GENERALLY						
No items in this section						
SUBTOTAL					0	
TOTAL - EQUIPMENT						***$0***
E20 FURNISHINGS						
E2010 FIXED FURNISHINGS						
No items in this section						
SUBTOTAL					0	
TOTAL - FURNISHINGS						***$0***
F10 SPECIAL CONSTRUCTION						
F10 SPECIAL CONSTRUCTION						
No items in this section						
SUBTOTAL					0	
TOTAL - SPECIAL CONSTRUCTION						***$0***

MASTERPLAN COST ESTIMATE - The Maintenance Building — 10,680 GFA

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
F20	*SELECTIVE BUILDING DEMOLITION*						
F2010	BUILDING ELEMENTS DEMOLITION						
	Demo walls	3,874	sf	2.00	7,748		
	Remove deteriorated cementitious topping	2,500	sf	2.00	5,000		
	Remove exterior wall for new door opening	1	loc	750.00	750		
	Remove windows	17	ea	300.00	5,100		
	Remove doors & frames	22	ea	150.00	3,300		
	Misc. other demo	1	ls	10,000.00	10,000		
	Temp. supports	1	ls	2,000.00	2,000		
	SUBTOTAL					33,898	
F2020	HAZARDOUS COMPONENTS ABATEMENT						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - SELECTIVE BUILDING DEMOLITION						*$33,898*
G	*SITE PREP/DEVELOPMENT*						
G10	SITE PREPARATION & DEMOLITION						
	Site Demolitions and Relocations						
	Remove concrete steps	2	ea	500.00	1,000		
	Remove concrete loading dock platforms	2	ea	1,500.00	3,000		
	SUBTOTAL					4,000	
G20	SITE IMPROVEMENTS						
	New concrete walk, sloped for HC access to main floor	500	sf	5.00	2,500		
	Repairs to existing aspalt pavement	1	ls	2,500.00	2,500		
	Allow for new shrubs/plantings	1	ls	1,000.00	1,000		
	SUBTOTAL					6,000	
G30	CIVIL MECHANICAL UTILITIES						
	No items in this section						
	SUBTOTAL					0	
G40	ELECTRICAL UTILITIES						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - SITE DEVELOPMENT						*$10,000*

MASTERPLAN COST ESTIMATE - The Maintenance Building — 10,680 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
MARK UP						
GENERAL COND. / PERMIT / INS.						
General Conditions	8.00%		754,826	60,386		
Insurance & bond	2.00%		815,212	16,304		
Permit	1.25%		831,516	10,394		
SUBTOTAL					87,084	
FEE						
Overhead & profit/fee	3.50%		841,910	29,467		
SUBTOTAL					29,467	
TOTAL - MARK UP						*$116,551*
CONTINGENCIES/ESCALATION						
DESIGN & PRICING						
Design contingency - assumed included by owner separately.	10.00%		871,377	87,138		
SUBTOTAL					87,138	
ESCALATION						
Price escalation due to increases in labor and material costs (included at 7% per annum)	7.00%		958,515	67,096		
SUBTOTAL					67,096	
CONSTRUCTION CONTINGENCY						
Excluded - Recommend that 5% construction contingency is included in the overall project budget	0.00%		1,025,611	0		
SUBTOTAL					0	
TOTAL - CONTINGENCIES/ESCALATION						*$154,234*

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		SUB-TOTAL	TOTAL	$/SF	%
A10	**FOUNDATIONS**					
	A1010	Standard Foundations	$0			
	A1020	Special Foundations	$14,485			
	A1030	Lowest Floor Construction	$13,503	**$27,988**	$10.88	20.6%
A20	**BASEMENT CONSTRUCTION**					
	A2010	Basement Excavation	$0			
	A2020	Basement Walls	$2,000	**$2,000**	$0.78	1.5%
B10	**SUPERSTRUCTURE**					
	B1010	Upper Floor Construction	$0			
	B1020	Roof Construction	$0	**$0**	$0.00	0.0%
B20	**EXTERIOR CLOSURE**					
	B2010	Exterior Walls	$9,262			
	B2020	Windows	$0			
	B2030	Exterior Doors	$2,400	**$11,662**	$4.53	8.6%
B30	**ROOFING**					
	B3010	Roof Coverings	$1,000			
	B3020	Roof Openings	$0	**$1,000**	$0.39	0.7%
C10	**INTERIOR CONSTRUCTION**					
	C1010	Partitions	$2,720			
	C1020	Interior Doors	$1,200			
	C1030	Specialties/Millwork	$4,750	**$8,670**	$3.37	6.4%
C20	**STAIRCASES**					
	C2010	Stair Construction	$0			
	C2020	Stair Finishes	$0	**$0**	$0.00	0.0%
C30	**INTERIOR FINISHES**					
	C3010	Wall Finishes	$2,140			
	C3020	Floor Finishes	$8,472			
	C3030	Ceiling Finishes	$9,506	**$20,118**	$7.82	14.8%
D10	**CONVEYING SYSTEMS**					
	D1010	Elevator	$0	**$0**	$0.00	0.0%
D20	**PLUMBING**					
	D20	Plumbing	$8,800	**$8,800**	$3.42	6.5%
D30	**HVAC**					
	D30	HVAC	$45,010	**$45,010**	$17.50	33.2%

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MASTERPLAN COST ESTIMATE - The Icehouse

2,572 GFA

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		SUB-TOTAL	TOTAL	$/SF	%
D40	**FIRE PROTECTION**					
	D40	Fire Protection	$0	**$0**	$0.00	0.0%
D50	**ELECTRICAL**					
	D5010	Service & Distribution	$500			
	D5020	Lighting & Power	$3,000			
	D5030	Communication & Security Systems	$2,251			
	D5040	Other Electrical Systems	$3,643	**$9,394**	$3.65	6.9%
E10	**EQUIPMENT**					
	E10	Equipment	$0	**$0**	$0.00	0.0%
E20	**FURNISHINGS**					
	E2010	Fixed Furnishings	$0	**$0**	$0.00	0.0%
F10	**SPECIAL CONSTRUCTION**					
	F10	Special Construction	$0	**$0**	$0.00	0.0%
F20	**SELECTIVE BUILDING DEMOLITION**					
	F2010	Building Elements Demolition	$0			
	F2020	Hazardous Components Abatement	$0	**$0**	$0.00	0.0%
G	**SITE PREP/DEVELOPMENT**					
	G10	Site Preparation/Demolition	$0			
	G20	Site Improvements	$1,000			
	G30	Civil / Mechanical Utilities	$0			
	G40	Electrical Utilities	$0	**$1,000**	$0.39	0.7%
	TOTAL DIRECT COST (Trade Costs)			***$135,642***	*$52.74*	*100.0%*
	MARK UP					
		General Conditions/Permit/Insurance	$15,649			
		Overhead/Fee/Profit	$5,295	**$20,944**	$8.14	
	SUBTOTAL CONSTRUCTION			***$156,586***	*$60.88*	
	CONTINGENCIES/ESCALATION					
		Design & Pricing Contingency	$15,659			
		Escalation	$12,057			
		Construction Contingency	$0	**$27,716**	$10.78	
	ESTIMATED CONTRACT AWARD			***$184,302***	*$71.66*	

MASTERPLAN COST ESTIMATE - The Icehouse — 2,572 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
GROSS FLOOR AREA CALCULATION						
Basement				1,286		
First Floor				1,286		
TOTAL Net Floor Area (NSF)				2,572	sf	
A10 FOUNDATIONS						
A1010 STANDARD FOUNDATIONS						
No items in this section						
SUBTOTAL					0	
A1020 SPECIAL FOUNDATIONS						
Miscellaneous						
Excavate for perimeter drains, R&D excess mat'l	213	cy	45.00	9,585		
Perimeter foundation drain @ main house fdn.	196	lf	25.00	4,900		
SUBTOTAL					14,485	
A1030 LOWEST FLOOR CONSTRUCTION						
New slab on grade @ basement, 7"	1,286	sf	9.00	11,574		
Underslab drainage	1,286	sf	1.50	1,929		
SUBTOTAL					13,503	
TOTAL - FOUNDATIONS						***$27,988***
A20 BASEMENT CONSTRUCTION						
A2010 BASEMENT EXCAVATION						
No items in this section						
SUBTOTAL					0	
A2020 BASEMENT WALLS						
Miscellaneous						
Seal cracks to basement/foundation walls	1	ls	2,000.00	2,000		
SUBTOTAL					2,000	
TOTAL - BASEMENT CONSTRUCTION						***$2,000***
B10 SUPERSTRUCTURE						
B1010 UPPER FLOOR CONSTRUCTION						
No items in this section						
SUBTOTAL					0	
B1020 ROOF CONSTRUCTION						
No items in this section						
SUBTOTAL					0	
TOTAL - SUPERSTRUCTURE						***$0***
B20 EXTERIOR CLOSURE						
B2010 EXTERIOR WALLS						
Miscellaneous						
Clean & repaint exterior siding	3,368	sf	2.75	9,262		
SUBTOTAL					9,262	
B2020 WINDOWS						
No items in this section						
SUBTOTAL					0	

MASTERPLAN COST ESTIMATE - The Icehouse — 2,572 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
B2030 EXTERIOR DOORS						
HM entry door w/ glass lites, double	1	ea	2,400.00	2,400		
SUBTOTAL					2,400	
TOTAL - EXTERIOR CLOSURE						***$11,662***
B30 ROOFING						
B3010 ROOF COVERINGS						
Repairs to metal flashing	1	ls	1,000.00	1,000		
SUBTOTAL					1,000	
B3020 ROOF OPENINGS						
No items in this section						
SUBTOTAL					0	
TOTAL - ROOFING						***$1,000***
C10 INTERIOR CONSTRUCTION						
C1010 PARTITIONS						
Interior GWB partitions	320	sf	8.50	2,720		
SUBTOTAL					2,720	
C1020 INTERIOR DOORS						
New doors, frames & hardware, single	1	ea	1,200.00	1,200		
SUBTOTAL					1,200	
C1030 SPECIALTIES / MILLWORK						
Bathroom accessories, sm.	1	ea	750.00	750		
Countertop along bathroom wall	16	lf	250.00	4,000		
SUBTOTAL					4,750	
TOTAL - INTERIOR CONSTRUCTION						***$8,670***
C20 STAIRCASES						
C2010 STAIR CONSTRUCTION						
No items in this section						
SUBTOTAL					0	
C2020 STAIR FINISHES						
No items in this section						
SUBTOTAL					0	
TOTAL - STAIRCASES						***$0***
C30 INTERIOR FINISHES						
C3010 WALL FINISHES						
Paint to new GWB	640	sf	1.00	640		
Misc. other painting	1	ls	1,500.00	1,500		
SUBTOTAL					2,140	
C3020 FLOOR FINISHES						
Repairs to existing floor	1,286	sf	6.00	7,716		
Ceramic tile @ bathrooms	63	sf	12.00	756		
SUBTOTAL					8,472	

MASTERPLAN COST ESTIMATE - The Icehouse

2,572 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
C3030 CEILING FINISHES						
Make good existing exposed ceilings	1,286	sf	7.00	9,002		
GWB @ bathroom	63	sf	8.00	504		
SUBTOTAL					9,506	
TOTAL - INTERIOR FINISHES						*$20,118*
D10 CONVEYING SYSTEMS						
D1010 ELEVATOR						
No items in this section						
SUBTOTAL					0	
TOTAL - CONVEYING SYSTEMS						*$0*
D20 PLUMBING						
D20 PLUMBING, GENERALLY						
Equipment						
Water Heater	1	ea	1,800.00	1,800		
Fixtures						
Water Closets	1	ea	3,500.00	3,500		
Lavatories	1	ea	3,500.00	3,500		
SUBTOTAL					8,800	
TOTAL - PLUMBING						*$8,800*
D30 HVAC						
D30 HVAC, GENERALLY						
Heating / Cooling Equipment						
Allowance	1,286	sft	35.00	45,010		
SUBTOTAL					45,010	
TOTAL - HVAC						*$45,010*
D40 FIRE PROTECTION						
D40 FIRE PROTECTION, GENERALLY						
No items in this section						
SUBTOTAL					0	
TOTAL - FIRE PROTECTION						*$0*

MASTERPLAN COST ESTIMATE - The Icehouse

2,572 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
D50 ELECTRICAL						
D5010 SERVICE & DISTRIBUTION						
Service and distribution gear						
Install main breaker for service panel	1	ls	500.00	500		
SUBTOTAL					500	
D5020 LIGHTING & POWER						
Lighting						
Repair loose wiring in basement.	1	ls	1,000.00	1,000		
Install emergency lighting on all floors.	1	ls	1,000.00	1,000		
Install exit/egress w/ battery backup lighting on all floors.	1	ls	1,000.00	1,000		
SUBTOTAL					3,000	
D5030 COMMUNICATION & SECURITY SYSTEMS						
Fire alarm						
Install zoned fire alarm w/ heat / smoke detectors, pull stations, and audiovisual alarms.	1,286	sf	1.75	2,251		
SUBTOTAL					2,251	
D5040 OTHER ELECTRICAL SYSTEMS						
Temporary services						
Temporary power and lights	1,286	sf	0.50	643		
Demolition						
Demolition	1	ls	2,500.00	2,500		
Reimbursables						
Fees & permits	1	ls	500.00	500		
SUBTOTAL					3,643	
TOTAL - ELECTRICAL						*$9,394*
E10 EQUIPMENT						
E10 EQUIPMENT, GENERALLY						
No items in this section						
SUBTOTAL					0	
TOTAL - EQUIPMENT						*$0*
E20 FURNISHINGS						
E2010 FIXED FURNISHINGS						
No items in this section						
SUBTOTAL					0	
TOTAL - FURNISHINGS						*$0*
F10 SPECIAL CONSTRUCTION						
F10 SPECIAL CONSTRUCTION						
No items in this section						
SUBTOTAL					0	
TOTAL - SPECIAL CONSTRUCTION						*$0*

MASTERPLAN COST ESTIMATE - The Icehouse

2,572 GFA

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	F20 SELECTIVE BUILDING DEMOLITION						
	F2010 BUILDING ELEMENTS DEMOLITION						
	No items in this section						
	SUBTOTAL					0	
	F2020 HAZARDOUS COMPONENTS ABATEMENT						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - SELECTIVE BUILDING DEMOLITION						**$0**
	G SITE PREP/DEVELOPMENT						
	G10 SITE PREPARATION & DEMOLITION						
	No items in this section						
	SUBTOTAL					0	
	G20 SITE IMPROVEMENTS						
	Allow for new shrubs/plantings	1	ls	1,000.00	1,000		
	SUBTOTAL					1,000	
	G30 CIVIL MECHANICAL UTILITIES						
	No items in this section						
	SUBTOTAL					0	
	G40 ELECTRICAL UTILITIES						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - SITE DEVELOPMENT						**$1,000**

MASTERPLAN COST ESTIMATE - The Icehouse

2,572 GFA

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	MARK UP						
	GENERAL COND. / PERMIT / INS.						
	General Conditions	8.00%		135,642	10,851		
	Insurance & bond	2.00%		146,493	2,930		
	Permit	1.25%		149,423	1,868		
	SUBTOTAL					15,649	
	FEE						
	Overhead & profit/fee	3.50%		151,291	5,295		
	SUBTOTAL					5,295	
	TOTAL - MARK UP						**$20,944**
	CONTINGENCIES/ESCALATION						
	DESIGN & PRICING						
	Design contingency - assumed included by owner separately.	10.00%		156,586	15,659		
	SUBTOTAL					15,659	
	ESCALATION						
	Price escalation due to increases in labor and material costs (included at 7% per annum)	7.00%		172,245	12,057		
	SUBTOTAL					12,057	
	CONSTRUCTION CONTINGENCY						
	Excluded - Recommend that 5% construction contingency is included in the overall project budget	0.00%		184,302	0		
	SUBTOTAL					0	
	TOTAL - CONTINGENCIES/ESCALATION						**$27,716**

MASTERPLAN COST ESTIMATE - The Gardener's House 2,905 GFA

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		SUB-TOTAL	TOTAL	$/SF	%
A10	**FOUNDATIONS**					
	A1010	Standard Foundations	$0			
	A1020	Special Foundations	$10,000			
	A1030	Lowest Floor Construction	$1,592	**$11,592**	$3.99	3.6%
A20	**BASEMENT CONSTRUCTION**					
	A2010	Basement Excavation	$0			
	A2020	Basement Walls	$5,508	**$5,508**	$1.90	1.7%
B10	**SUPERSTRUCTURE**					
	B1010	Upper Floor Construction	$28,080			
	B1020	Roof Construction	$13,068	**$41,148**	$14.16	12.7%
B20	**EXTERIOR CLOSURE**					
	B2010	Exterior Walls	$35,875			
	B2020	Windows	$1,560			
	B2030	Exterior Doors	$2,000	**$39,435**	$13.57	12.1%
B30	**ROOFING**					
	B3010	Roof Coverings	$18,193			
	B3020	Roof Openings	$0	**$18,193**	$6.26	5.6%
C10	**INTERIOR CONSTRUCTION**					
	C1010	Partitions	$21,978			
	C1020	Interior Doors	$20,400			
	C1030	Specialties/Millwork	$0	**$42,378**	$14.59	13.0%
C20	**STAIRCASES**					
	C2010	Stair Construction	$0			
	C2020	Stair Finishes	$0	**$0**	$0.00	0.0%
C30	**INTERIOR FINISHES**					
	C3010	Wall Finishes	$3,588			
	C3020	Floor Finishes	$18,200			
	C3030	Ceiling Finishes	$23,240	**$45,028**	$15.50	13.9%
D10	**CONVEYING SYSTEMS**					
	D1010	Elevator	$0	**$0**	$0.00	0.0%
D20	**PLUMBING**					
	D20	Plumbing	$19,000	**$19,000**	$6.54	5.8%
D30	**HVAC**					
	D30	HVAC	$33,000	**$33,000**	$11.36	10.2%

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MASTERPLAN COST ESTIMATE - The Gardener's House 2,905 GFA

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		SUB-TOTAL	TOTAL	$/SF	%
D40	**FIRE PROTECTION**					
	D40	Fire Protection	$0	**$0**	$0.00	0.0%
D50	**ELECTRICAL**					
	D5010	Service & Distribution	$18,025			
	D5020	Lighting & Power	$7,810			
	D5030	Communication & Security Systems	$5,084			
	D5040	Other Electrical Systems	$3,953	**$34,872**	$12.00	10.7%
E10	**EQUIPMENT**					
	E10	Equipment	$0	**$0**	$0.00	0.0%
E20	**FURNISHINGS**					
	E2010	Fixed Furnishings	$0	**$0**	$0.00	0.0%
F10	**SPECIAL CONSTRUCTION**					
	F10	Special Construction	$0	**$0**	$0.00	0.0%
F20	**SELECTIVE BUILDING DEMOLITION**					
	F2010	Building Elements Demolition	$29,318			
	F2020	Hazardous Components Abatement	$0	**$29,318**	$10.09	9.0%
G	**SITE PREP/DEVELOPMENT**					
	G10	Site Preparation/Demolition	$1,431			
	G20	Site Improvements	$4,000			
	G30	Civil / Mechanical Utilities	$0			
	G40	Electrical Utilities	$0	**$5,431**	$1.87	1.7%
TOTAL DIRECT COST (Trade Costs)				***$324,903***	*$111.84*	*100.0%*
MARK UP						
		General Conditions/Permit/Insurance	$37,484			
		Overhead/Fee/Profit	$12,684	**$50,168**	$17.27	
SUBTOTAL CONSTRUCTION				***$375,071***	*$129.11*	
CONTINGENCIES/ESCALATION						
		Design & Pricing Contingency	$37,507			
		Escalation	$86,641			
		Construction Contingency	$0	**$124,148**	$42.74	
ESTIMATED CONTRACT AWARD				***$499,219***	*$171.85*	

MASTERPLAN COST ESTIMATE - The Gardener's House 2,905 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
GROSS FLOOR AREA CALCULATION						
Basement				798		
First Floor				929		
Second Floor				590		
Attic				590		
TOTAL Net Floor Area (NSF)				***2,905***	***sf***	
A10 FOUNDATIONS						
A1010 STANDARD FOUNDATIONS						
No items in this section						
SUBTOTAL					0	
A1020 SPECIAL FOUNDATIONS						
Footings for porch supports	8	ea	1,250.00	10,000		
SUBTOTAL					10,000	
A1030 LOWEST FLOOR CONSTRUCTION						
Miscellaneous						
Seal cracks to basement floor	798	sf	2.00	1,592		
SUBTOTAL					1,592	
TOTAL - FOUNDATIONS						***$11,592***
A20 BASEMENT CONSTRUCTION						
A2010 BASEMENT EXCAVATION						
No items in this section						
SUBTOTAL					0	
A2020 BASEMENT WALLS						
Miscellaneous						
Seal cracks to basement walls	1,377	sf	4.00	5,508		
SUBTOTAL					5,508	
TOTAL - BASEMENT CONSTRUCTION						***$5,508***
B10 SUPERSTRUCTURE						
B1010 UPPER FLOOR CONSTRUCTION						
Wood support columns to porch	16	ea	700.00	11,200		
Floor structure to porch, joists & sheathing	594	sf	20.00	11,880		
Stabilize masonry in attic	1	ls	5,000.00	5,000		
SUBTOTAL					28,080	
B1020 ROOF CONSTRUCTION						
Roof structure to porch	594	sf	22.00	13,068		
SUBTOTAL					13,068	
TOTAL - SUPERSTRUCTURE						***$41,148***
B20 EXTERIOR CLOSURE						
B2010 EXTERIOR WALLS						
Miscellaneous						
Repointing exterior	1,195	sf	15.00	17,925		
Remove & replace exterior brick	332	sf	45.00	14,940		
Allow for repairs to existing perimeter @ porch tie-in	56	lf	20.00	1,120		
Repair exterior wood trim	126	lf	15.00	1,890		
SUBTOTAL					35,875	
B2020 WINDOWS						
New windows	390	sf	4.00	1,560		
SUBTOTAL					1,560	
B2030 EXTERIOR DOORS						
Aluminum & glass storefront, single	1	ea	2,000.00	2,000		
SUBTOTAL					2,000	

MASTERPLAN COST ESTIMATE - The Gardener's House 2,905 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
TOTAL - EXTERIOR CLOSURE						***$39,435***
B30 ROOFING						
B3010 ROOF COVERINGS						
Asphalt roof shingles, incl. barrier	1,497	sf	5.00	7,485		
Ice and water shield	254	sf	2.00	508		
Aluminum flashings	127	lf	5.00	635		
Membrane roofing @ east wing	360	sf	10.50	3,780		
Miscellaneous Roofing						
Alum. gutters	95	lf	25.00	2,375		
Alum. Downspouts	136	lf	20.00	2,720		
Splash blocks	6	ea	25.00	150		
Ridge vent	54	lf	10.00	540		
SUBTOTAL					18,193	
B3020 ROOF OPENINGS						
No items in this section						
SUBTOTAL					0	
TOTAL - ROOFING						***$18,193***
C10 INTERIOR CONSTRUCTION						
C1010 PARTITIONS						
Interior GWB partitions	1,044	sf	8.50	8,874		
Repairs to interior of exterior walls, allow 50%	1	ls	13,104.00	13,104		
SUBTOTAL					21,978	
C1020 INTERIOR DOORS						
New doors, frames & hardware, single	17	ea	1,200.00	20,400		
SUBTOTAL					20,400	
C1030 SPECIALTIES / MILLWORK						
No items in this section						
SUBTOTAL					0	
TOTAL - INTERIOR CONSTRUCTION						***$42,378***
C20 STAIRCASES						
C2010 STAIR CONSTRUCTION						
No items in this section						
SUBTOTAL					0	
C2020 STAIR FINISHES						
No items in this section						
SUBTOTAL					0	
TOTAL - STAIRCASES						***$0***

MASTERPLAN COST ESTIMATE - The Gardener's House

2,905 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
C30 INTERIOR FINISHES						
C3010 WALL FINISHES						
Paint to new GWB	2,088	sf	1.00	2,088		
Misc. other painting	1	ls	1,500.00	1,500		
SUBTOTAL					3,588	
C3020 FLOOR FINISHES						
Ceramic tile @ bathrooms	80	sf	12.00	960		
Carpeting throughout	2,825	sf	4.00	11,300		
Mahogany decking to porch	594	sf	10.00	5,940		
SUBTOTAL					18,200	
C3030 CEILING FINISHES						
New GWB ceilings throughout	2,905	sf	8.00	23,240		
SUBTOTAL					23,240	
TOTAL - INTERIOR FINISHES						*$45,028*
D10 CONVEYING SYSTEMS						
D1010 ELEVATOR						
No items in this section						
SUBTOTAL					0	
TOTAL - CONVEYING SYSTEMS						*$0*
D20 PLUMBING						
D20 PLUMBING, GENERALLY						
Equipment						
Hot Water Domestic Heater	1	ls	1,800.00	1,800		
Fixtures & Water & Sanitary Piping						
Water Closets	2	ea	3,500.00	7,000		
Lavatories	2	ea	3,500.00	7,000		
Piping Insulation	1	ls	700.00	700		
Natural Gas Piping	1	ls	2,500.00	2,500		
SUBTOTAL					19,000	
TOTAL - PLUMBING						*$19,000*
D30 HVAC						
D30 HVAC, GENERALLY						
Heating / Cooling Equipment						
Dual fuel ,Hot Water Boilers	1	ls	12,000.00	12,000		
Fin Tube Radiation	1	ls	5,500.00	5,500		
Demo & Replace 275 gal. fuel oil tank.	1	ls	2,600.00	2,600		
Re Line the exsisting Chimmeny	1	ls	4,500.00	4,500		
Piping						
Hot Water Piping	1	ls	6,500.00	6,500		
Insulation						
H/W Piping	1	ls	1,000.00	1,000		
Fans						
General Exhaust / Bathrooms	1	ls	400.00	400		
Temperature Controls	1	ls	500.00	500		
SUBTOTAL					33,000	
TOTAL - HVAC						*$33,000*

MASTERPLAN COST ESTIMATE - The Gardener's House

2,905 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
D40 FIRE PROTECTION						
D40 FIRE PROTECTION, GENERALLY						
No items in this section						
SUBTOTAL					0	
TOTAL - FIRE PROTECTION						*$0*
D50 ELECTRICAL						
D5010 SERVICE & DISTRIBUTION						
Service and distribution gear						
Replace Panel, service riser, and meter	1	ls	3,500.00	3,500		
Remove and replace all existing wiring, receptacles, switches, and other devices.	2,905	sf	5.00	14,525		
SUBTOTAL					18,025	
D5020 LIGHTING & POWER						
Lighting						
Remove and replace all lighting fixtures	2,905	sf	2.00	5,810		
Install emergency lighting on all floors.	1	ls	1,000.00	1,000		
Install exit/egress w/ battery backup lighting on all floors.	1	ls	1,000.00	1,000		
SUBTOTAL					7,810	
D5030 COMMUNICATION & SECURITY SYSTEMS						
Fire alarm						
Install zoned fire alarm w/ heat / smoke detectors, pull stations, and audiovisual alarms.	2,905	sf	1.75	5,084		
SUBTOTAL					5,084	
D5040 OTHER ELECTRICAL SYSTEMS						
Temporary services						
Temporary power and lights	2,905	sf	0.50	1,453		
Demolition						
Demolition	1	ls	2,000.00	2,000		
Reimbursables						
Fees & permits	1	ls	500.00	500		
SUBTOTAL					3,953	
TOTAL - ELECTRICAL						*$34,872*
E10 EQUIPMENT						
E10 EQUIPMENT, GENERALLY						
No items in this section						
SUBTOTAL					0	
TOTAL - EQUIPMENT						*$0*
E20 FURNISHINGS						
E2010 FIXED FURNISHINGS						
No items in this section						
SUBTOTAL					0	
TOTAL - FURNISHINGS						*$0*

MASTERPLAN COST ESTIMATE - The Gardener's House — 2,905 GFA

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	F10 SPECIAL CONSTRUCTION						
	F10 SPECIAL CONSTRUCTION						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - SPECIAL CONSTRUCTION						***$0***
	F20 SELECTIVE BUILDING DEMOLITION						
	F2010 BUILDING ELEMENTS DEMOLITION						
	Demo existing porch	509	sf	7.00	3,563		
	Allow for careful demolision along ext. wall	59	lf	10.00	590		
	Remove exterior wall for new door opening	1	loc	750.00	750		
	Remove windows	21	ea	150.00	3,150		
	Remove doors & frames	17	ea	150.00	2,550		
	Remove floor & ceiling finishes complete	2,905	sf	3.00	8,715		
	Misc. other demo	1	ls	7,000.00	7,000		
	Temp. supports	1	ls	3,000.00	3,000		
	SUBTOTAL					29,318	
	F2020 HAZARDOUS COMPONENTS ABATEMENT						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - SELECTIVE BUILDING DEMOLITION						***$29,318***
	G SITE PREP/DEVELOPMENT						
	G10 SITE PREPARATION & DEMOLITION						
	Site Demolitions and Relocations						
	Remove existing patio under porch	377	sf	3.00	1,131		
	Remove existing shrubs/plantings	1	ls	300.00	300		
	SUBTOTAL					1,431	
	G20 SITE IMPROVEMENTS						
	New concrete walk, sloped for HC access, front & porch entrance	500	sf	5.00	2,500		
	Repairs to existing lawn, loam & seed	1	ls	500.00	500		
	Allow for new shrubs/plantings	1	ls	1,000.00	1,000		
	SUBTOTAL					4,000	
	G30 CIVIL MECHANICAL UTILITIES						
	No items in this section						
	SUBTOTAL					0	
	G40 ELECTRICAL UTILITIES						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - SITE DEVELOPMENT						***$5,431***

MASTERPLAN COST ESTIMATE - The Gardener's House — 2,905 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
MARK UP						
GENERAL COND. / PERMIT / INS.						
General Conditions	8.00%		324,903	25,992		
Insurance & bond	2.00%		350,895	7,018		
Permit	1.25%		357,913	4,474		
SUBTOTAL					37,484	
FEE						
Overhead & profit/fee	3.50%		362,387	12,684		
SUBTOTAL					12,684	
TOTAL - MARK UP						***$50,168***
CONTINGENCIES/ESCALATION						
DESIGN & PRICING						
Design contingency - assumed included by owner separately.	10.00%		375,071	37,507		
SUBTOTAL					37,507	
ESCALATION						
Price escalation due to increases in labor and material costs (included at 7% per annum)	21.00%		412,578	86,641		
SUBTOTAL					86,641	
CONSTRUCTION CONTINGENCY						
Excluded - Recommend that 5% construction contingency is included in the overall project budget	0.00%		499,219	0		
SUBTOTAL					0	
TOTAL - CONTINGENCIES/ESCALATION						***$124,148***

MASTERPLAN COST ESTIMATE - The Carriage House 9,516 GFA

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		SUB-TOTAL	TOTAL	$/SF	%
A10	**FOUNDATIONS**					
	A1010	Standard Foundations	$0			
	A1020	Special Foundations	$0			
	A1030	Lowest Floor Construction	$16,112	**$16,112**	$1.69	1.2%
A20	**BASEMENT CONSTRUCTION**					
	A2010	Basement Excavation	$0			
	A2020	Basement Walls	$2,000	**$2,000**	$0.21	0.2%
B10	**SUPERSTRUCTURE**					
	B1010	Upper Floor Construction	$9,930			
	B1020	Roof Construction	$25,375	**$35,305**	$3.71	2.7%
B20	**EXTERIOR CLOSURE**					
	B2010	Exterior Walls	$82,666			
	B2020	Windows	$45,696			
	B2030	Exterior Doors	$17,400	**$145,762**	$15.32	11.0%
B30	**ROOFING**					
	B3010	Roof Coverings	$40,935			
	B3020	Roof Openings	$0	**$40,935**	$4.30	3.1%
C10	**INTERIOR CONSTRUCTION**					
	C1010	Partitions	$101,178			
	C1020	Interior Doors	$14,400			
	C1030	Specialties/Millwork	$12,200	**$127,778**	$13.43	9.6%
C20	**STAIRCASES**					
	C2010	Stair Construction	$13,500			
	C2020	Stair Finishes	$1,950	**$15,450**	$1.62	1.2%
C30	**INTERIOR FINISHES**					
	C3010	Wall Finishes	$29,322			
	C3020	Floor Finishes	$39,504			
	C3030	Ceiling Finishes	$67,228	**$136,054**	$14.30	10.3%
D10	**CONVEYING SYSTEMS**					
	D1010	Elevator	$114,000	**$114,000**	$11.98	8.6%
D20	**PLUMBING**					
	D20	Plumbing	$44,800	**$44,800**	$4.71	3.4%
D30	**HVAC**					
	D30	HVAC	$428,220	**$428,220**	$45.00	32.3%

MASTERPLAN COST ESTIMATE - The Carriage House 9,516 GFA

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		SUB-TOTAL	TOTAL	$/SF	%
D40	**FIRE PROTECTION**					
	D40	Fire Protection	$47,580	**$47,580**	$5.00	3.6%
D50	**ELECTRICAL**					
	D5010	Service & Distribution	$26,532			
	D5020	Lighting & Power	$23,532			
	D5030	Communication & Security Systems	$0			
	D5040	Other Electrical Systems	$7,758	**$57,822**	$6.08	4.4%
E10	**EQUIPMENT**					
	E10	Equipment	$35,000	**$35,000**	$3.68	2.6%
E20	**FURNISHINGS**					
	E2010	Fixed Furnishings	$0	**$0**	$0.00	0.0%
F10	**SPECIAL CONSTRUCTION**					
	F10	Special Construction	$0	**$0**	$0.00	0.0%
F20	**SELECTIVE BUILDING DEMOLITION**					
	F2010	Building Elements Demolition	$68,476			
	F2020	Hazardous Components Abatement	$0	**$68,476**	$7.20	5.2%
G	**SITE PREP/DEVELOPMENT**					
	G10	Site Preparation/Demolition	$7,500			
	G20	Site Improvements	$2,500			
	G30	Civil / Mechanical Utilities	$0			
	G40	Electrical Utilities	$0	**$10,000**	$1.05	0.8%
	TOTAL DIRECT COST (Trade Costs)			***$1,325,294***	*$139.27*	*100.0%*
	MARK UP					
		General Conditions/Permit/Insurance	$152,899			
		Overhead/Fee/Profit	$51,737	**$204,636**	$21.50	
	SUBTOTAL CONSTRUCTION			***$1,529,930***	*$160.77*	
	CONTINGENCIES/ESCALATION					
		Design & Pricing Contingency	$152,993			
		Escalation	$353,414			
		Construction Contingency	$0	**$506,407**	$53.22	
	ESTIMATED CONTRACT AWARD			***$2,036,337***	*$213.99*	

MASTERPLAN COST ESTIMATE - The Carriage House

9,516 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
GROSS FLOOR AREA CALCULATION						
Basement				4,028		
First Floor				4,028		
Second Floor				1,460		
TOTAL Net Floor Area (NSF)				9,516	sf	
A10 FOUNDATIONS						
A1010 STANDARD FOUNDATIONS						
No items in this section						
SUBTOTAL					0	
A1020 SPECIAL FOUNDATIONS						
No items in this section						
SUBTOTAL					0	
A1030 LOWEST FLOOR CONSTRUCTION						
Repairs to basement SOG	4,028	sf	4.00	16,112		
SUBTOTAL					16,112	
TOTAL - FOUNDATIONS						$16,112
A20 BASEMENT CONSTRUCTION						
A2010 BASEMENT EXCAVATION						
No items in this section						
SUBTOTAL					0	
A2020 BASEMENT WALLS						
Miscellaneous						
Seal cracks to basement/foundation walls	1	ls	2,000.00	2,000		
SUBTOTAL					2,000	
TOTAL - BASEMENT CONSTRUCTION						$2,000
B10 SUPERSTRUCTURE						
B1010 UPPER FLOOR CONSTRUCTION						
New 2nd floor structure	662	sf	15.00	9,930		
SUBTOTAL					9,930	
B1020 ROOF CONSTRUCTION						
Allow for repairs to existing roof structure / trusses / supports	1	ls	15,000.00	15,000		
Exterior grade roof sheathing	4,150	sf	2.50	10,375		
SUBTOTAL					25,375	
TOTAL - SUPERSTRUCTURE						$35,305
B20 EXTERIOR CLOSURE						
B2010 EXTERIOR WALLS						
Miscellaneous						
Clean exterior walls	8,122	sf	2.75	22,336		
Repointing exterior	646	sf	15.00	9,690		
Remove & replace exterior brick	992	sf	45.00	44,640		
Repair/replace lintels	1	ls	2,500.00	2,500		
Allow for partial reconstruction of some ext. walls	1	ls	3,500.00	3,500		
SUBTOTAL					82,666	

MASTERPLAN COST ESTIMATE - The Carriage House

9,516 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
B2020 WINDOWS						
New windows	672	sf	68.00	45,696		
SUBTOTAL					45,696	
B2030 EXTERIOR DOORS						
New garage doors, 9' x 8'	5	ea	1,800.00	9,000		
HM entry door w/ glass lites, single	5	ea	1,200.00	6,000		
HM entry door w/ glass lites, double	1	ea	2,400.00	2,400		
SUBTOTAL					17,400	
TOTAL - EXTERIOR CLOSURE						$145,762
B30 ROOFING						
B3010 ROOF COVERINGS						
Asphalt shingles	2,380	sf	4.50	10,710		
Membrane roof	1,770	sf	10.50	18,585		
Miscellaneous Roofing						
Repairs to roof drainage system	1	ls	2,000.00	2,000		
Alum. gutters	292	lf	25.00	7,300		
Alum. Downspouts	112	lf	20.00	2,240		
Splash blocks	4	ea	25.00	100		
SUBTOTAL					40,935	
B3020 ROOF OPENINGS						
No items in this section						
SUBTOTAL					0	
TOTAL - ROOFING						$40,935
C10 INTERIOR CONSTRUCTION						
C1010 PARTITIONS						
Interior GWB partitions	7,524	sf	8.50	63,954		
Premium for shaft wall @ elevator	1,296	sf	4.50	5,832		
Furring, insulation & gwb to interior of exterior walls	5,232	sf	6.00	31,392		
SUBTOTAL					101,178	
C1020 INTERIOR DOORS						
New doors, frames & hardware, single	10	ea	1,200.00	12,000		
New doors, frames & hardware, double	1	ea	2,400.00	2,400		
SUBTOTAL					14,400	
C1030 SPECIALTIES / MILLWORK						
Toilet compartments, typ.	4	ea	1,000.00	4,000		
Toilet compartments, HC	2	ea	1,200.00	2,400		
Toilet Accessories in large bathrooms	2	ea	2,000.00	4,000		
Vanity counters in restrooms	12	lf	150.00	1,800		
SUBTOTAL					12,200	
TOTAL - INTERIOR CONSTRUCTION						$127,778
C20 STAIRCASES						
C2010 STAIR CONSTRUCTION						
Interior wood stairs	3	flts	4,500.00	13,500		
SUBTOTAL					13,500	
C2020 STAIR FINISHES						
Paint/stain to stairs	3	flts	650.00	1,950		
SUBTOTAL					1,950	
TOTAL - STAIRCASES						$15,450
C30 INTERIOR FINISHES						
C3010 WALL FINISHES						
Paint to new GWB	15,048	sf	1.00	15,048		
Misc. other painting throughout	9,516	sf	1.50	14,274		
SUBTOTAL					29,322	

MASTERPLAN COST ESTIMATE - The Carriage House

9,516 GFA

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
C3020	**FLOOR FINISHES**						
	Repairs to existing 1st floor	4,028	sf	6.00	24,168		
	New wood floor to 2nd floor	662	sf	12.00	7,944		
	Ceramic tile @ bathrooms	616	sf	12.00	7,392		
	SUBTOTAL					39,504	
C3030	**CEILING FINISHES**						
	Make good existing exposed ceilings	8,900	sf	7.00	62,300		
	GWB @ bathroom	616	sf	8.00	4,928		
	SUBTOTAL					67,228	
	TOTAL - INTERIOR FINISHES						*$136,054*
D10	*CONVEYING SYSTEMS*						
D1010	**ELEVATOR**						
	Hydraulic passenger, holeless, 2-sided, 3-stop	1	ea	114,000.00	114,000		
	SUBTOTAL					114,000	
	TOTAL - CONVEYING SYSTEMS						*$114,000*
D20	*PLUMBING*						
D20	**PLUMBING, GENERALLY**						
	Equipment						
	Water & Sanitary Main Installed to Bldg. if Required	1	ls	7,000.00	7,000		
	Water Heater	1	ea	2,800.00	2,800		
	Fixtures						
	Water Closets	6	ea	3,500.00	21,000		
	Lavatories	4	ea	3,500.00	14,000		
	SUBTOTAL					44,800	
	TOTAL - PLUMBING						*$44,800*
D30	*HVAC*						
D30	**HVAC, GENERALLY**						
	Heating / Cooling Equipment						
	Allowance	9,516	sft	45.00	428,220		
	SUBTOTAL					428,220	
	TOTAL - HVAC						*$428,220*
D40	*FIRE PROTECTION*						
D40	**FIRE PROTECTION, GENERALLY**						
	Fire protection, allow	9,516	sf	5.00	47,580		
	SUBTOTAL					47,580	
	TOTAL - FIRE PROTECTION						*$47,580*
D50	*ELECTRICAL*						
D5010	**SERVICE & DISTRIBUTION**						
	Service and distribution gear						
	New Service	1	ls	7,500.00	7,500		
	New power distribution system	9,516	sf	2.00	19,032		
	SUBTOTAL					26,532	
D5020	**LIGHTING & POWER**						
	Lighting						
	Remove and replace all lighting fixtures	9,516	sf	2.00	19,032		
	Install emergency lighting on all floors.	1	ls	2,000.00	2,000		
	Install exit/egress w/ battery backup lighting on all floors.	1	ls	2,500.00	2,500		
	SUBTOTAL					23,532	

MASTERPLAN COST ESTIMATE - The Carriage House

9,516 GFA

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
D5030	**COMMUNICATION & SECURITY SYSTEMS**						
	No items in this section						
	SUBTOTAL					0	
D5040	**OTHER ELECTRICAL SYSTEMS**						
	Temporary services						
	Temporary power and lights	9,516	sf	0.50	4,758		
	Demolition						
	Demolition	1	ls	2,500.00	2,500		
	Reimbursables						
	Fees & permits	1	ls	500.00	500		
	SUBTOTAL					7,758	
	TOTAL - ELECTRICAL						*$57,822*
E10	*EQUIPMENT*						
E10	**EQUIPMENT, GENERALLY**						
	Café/kitchen equipment	1	ls	35,000.00	35,000		
	SUBTOTAL					35,000	
	TOTAL - EQUIPMENT						*$35,000*
E20	*FURNISHINGS*						
E2010	**FIXED FURNISHINGS**						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - FURNISHINGS						*$0*
F10	*SPECIAL CONSTRUCTION*						
F10	**SPECIAL CONSTRUCTION**						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - SPECIAL CONSTRUCTION						*$0*

MASTERPLAN COST ESTIMATE - The Carriage House

9,516 GFA

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	F20 SELECTIVE BUILDING DEMOLITION						
	F2010 BUILDING ELEMENTS DEMOLITION						
	Completely gut interior	9,516	sf	4.00	38,064		
	Remove 2nd flr structure @ cock fighting pit	966	sf	7.00	6,762		
	Remove roof to structure	4,150	sf	3.00	12,450		
	Remove windows & boarding	28	ea	400.00	11,200		
	SUBTOTAL					68,476	
	F2020 HAZARDOUS COMPONENTS ABATEMENT						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - SELECTIVE BUILDING DEMOLITION						**$68,476**
	G SITE PREP/DEVELOPMENT						
	G10 SITE PREPARATION & DEMOLITION						
	Demo site retaining wall, salvage stone	1	ls	7,500.00	7,500		
	SUBTOTAL					7,500	
	G20 SITE IMPROVEMENTS						
	No items in this section						
	Allow for new shrubs/plantings/seeding	1	ls	2,500.00	2,500		
	SUBTOTAL					2,500	
	G30 CIVIL MECHANICAL UTILITIES						
	No items in this section						
	SUBTOTAL					0	
	G40 ELECTRICAL UTILITIES						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - SITE DEVELOPMENT						**$10,000**

MASTERPLAN COST ESTIMATE - The Carriage House

9,516 GFA

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	MARK UP						
	GENERAL COND. / PERMIT / INS.						
	General Conditions	8.00%		1,325,294	106,024		
	Insurance & bond	2.00%		1,431,318	28,626		
	Permit	1.25%		1,459,944	18,249		
	SUBTOTAL					152,899	
	FEE						
	Overhead & profit/fee	3.50%		1,478,193	51,737		
	SUBTOTAL					51,737	
	TOTAL - MARK UP						**$204,636**
	CONTINGENCIES/ESCALATION						
	DESIGN & PRICING						
	Design contingency - assumed included by owner separately.	10.00%		1,529,930	152,993		
	SUBTOTAL					152,993	
	ESCALATION						
	Price escalation due to increases in labor and material costs (included at 7% per annum)	21.00%		1,682,923	353,414		
	SUBTOTAL					353,414	
	CONSTRUCTION CONTINGENCY						
	Excluded - Recommend that 5% construction contingency is included in the overall project budget	0.00%		2,036,337	0		
	SUBTOTAL					0	
	TOTAL - CONTINGENCIES/ESCALATION						**$506,407**

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		SUB-TOTAL	TOTAL	$/SF	%
A10	**FOUNDATIONS**					
	A1010	Standard Foundations	$53,488			
	A1020	Special Foundations	$0			
	A1030	Lowest Floor Construction	$54,640	**$108,128**	$14.45	4.9%
A20	**BASEMENT CONSTRUCTION**					
	A2010	Basement Excavation	$0			
	A2020	Basement Walls	$0	**$0**	$0.00	0.0%
B10	**SUPERSTRUCTURE**					
	B1010	Upper Floor Construction	$0			
	B1020	Roof Construction	$756,668	**$756,668**	$101.10	34.3%
B20	**EXTERIOR CLOSURE**					
	B2010	Exterior Walls	$404,553			
	B2020	Windows	$14,300			
	B2030	Exterior Doors	$17,400	**$436,253**	$58.29	19.8%
B30	**ROOFING**					
	B3010	Roof Coverings	$44,748			
	B3020	Roof Openings	$0	**$44,748**	$5.98	2.0%
C10	**INTERIOR CONSTRUCTION**					
	C1010	Partitions	$47,940			
	C1020	Interior Doors	$12,000			
	C1030	Specialties/Millwork	$20,847	**$80,787**	$10.79	3.7%
C20	**STAIRCASES**					
	C2010	Stair Construction	$0			
	C2020	Stair Finishes	$0	**$0**	$0.00	0.0%
C30	**INTERIOR FINISHES**					
	C3010	Wall Finishes	$13,359			
	C3020	Floor Finishes	$36,424			
	C3030	Ceiling Finishes	$12,614	**$62,397**	$8.34	2.8%
D10	**CONVEYING SYSTEMS**					
	D1010	Elevator	$0	**$0**	$0.00	0.0%
D20	**PLUMBING**					
	D20	Plumbing	$65,936	**$65,936**	$8.81	3.0%
D30	**HVAC**					
	D30	HVAC	$374,200	**$374,200**	$50.00	17.0%

Hartford Botanical Gardens
Renovations & Additions
Hartford, CT

07-May-07

MASTERPLAN COST ESTIMATE - Working Greenhouse

7,484 GFA

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		SUB-TOTAL	TOTAL	$/SF	%
D40	**FIRE PROTECTION**					
	D40	Fire Protection	$52,388	**$52,388**	$7.00	2.4%
D50	**ELECTRICAL**					
	D5010	Service & Distribution	$26,323			
	D5020	Lighting & Power	$42,659			
	D5030	Communication & Security Systems	$34,903			
	D5040	Other Electrical Systems	$6,813	**$110,698**	$14.79	5.0%
E10	**EQUIPMENT**					
	E10	Equipment	$0	**$0**	$0.00	0.0%
E20	**FURNISHINGS**					
	E2010	Fixed Furnishings	$2,250	**$2,250**	$0.30	0.1%
F10	**SPECIAL CONSTRUCTION**					
	F10	Special Construction	$0	**$0**	$0.00	0.0%
F20	**SELECTIVE BUILDING DEMOLITION**					
	F2010	Building Elements Demolition	$0			
	F2020	Hazardous Components Abatement	$0	**$0**	$0.00	0.0%
G	**SITE PREP/DEVELOPMENT**					
	G10	Site Preparation/Demolition	$22,355			
	G20	Site Improvements	$30,000			
	G30	Civil / Mechanical Utilities	$25,000			
	G40	Electrical Utilities	$35,650	**$113,005**	$15.10	5.1%
	TOTAL DIRECT COST (Trade Costs)			***$2,207,458***	*$294.96*	*100.0%*
	MARK UP					
		General Conditions/Permit/Insurance	$242,200			
		Overhead/Fee/Profit	$81,954	**$324,154**	$43.31	
	SUBTOTAL CONSTRUCTION			***$2,531,612***	*$338.27*	
	CONTINGENCIES/ESCALATION					
		Design & Pricing Contingency	$242,348			
		Escalation	$559,825			
		Construction Contingency	$0	**$802,173**	$107.19	
	ESTIMATED CONTRACT AWARD			***$3,333,785***	*$445.45*	

MASTERPLAN COST ESTIMATE - Working Greenhouse

7,484 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
GROSS FLOOR AREA CALCULATION						
First Floor				7,484		
TOTAL Net Floor Area (NSF)				7,484	sf	
A10 FOUNDATIONS						
A1010 STANDARD FOUNDATIONS						
Strip footings (3' x 1')						
Excavation	498	cy	8.00	3,984		
Remove off site	498	cy	18.00	8,964		
Backfill with gravel	442	cy	20.00	8,840		
Formwork	960	sf	10.00	9,600		
Re-bar	4,200	lbs	0.90	3,780		
Concrete material	58	cy	105.00	5,880		
Place from truck & vibrate	56	cy	50.00	2,800		
Miscellaneous						
Perimeter foundation drains	480	lf	18.00	8,640		
Local de-watering during excavation	1	ls	1,000.00	1,000		
SUBTOTAL					53,488	
A1020 SPECIAL FOUNDATIONS						
No items in this section						
SUBTOTAL					0	
A1030 LOWEST FLOOR CONSTRUCTION						
Slab on Grade, 4" thick						
Gravel fill, 8"	186	cy	20.00	3,720		
Rigid insulation under slab on grade	7,484	sf	1.50	11,226		
Vapor barrier	7,484	sf	0.20	1,497		
Mesh reinforcing 15% lap	8,607	sf	0.65	5,595		
Concrete - 4" thick	116	cy	105.00	12,180		
Place and finish slab	116	cy	50.00	5,800		
Control joints - saw cut	7,484	sf	0.35	2,619		
Perimeter joints	480	lf	1.50	720		
Elevator Pits						
Excavation for elevator pit	48	cy	8.00	384		
Remove off site	48	cy	18.00	864		
Backfill with gravel	6	cy	20.00	120		
Elevator pit walls						
formwork	256	sf	12.00	3,072		
reinforcement	384	lbs	0.90	346		
concrete material	3	cy	105.00	315		
placing concrete	3	cy	50.00	150		
Slab						
formwork	96	sf	10.00	960		
reinforcement	720	lbs	0.90	648		
concrete material in slab	4	cy	105.00	420		
placing concrete	4	cy	50.00	200		
Cementitious waterproofing to elevator pit	192	sf	12.00	2,304		
Miscellaneous						
Allow for equipment pads	1	ls	1,500.00	1,500		
SUBTOTAL					54,640	
TOTAL - FOUNDATIONS						$108,128
A20 BASEMENT CONSTRUCTION						
A2010 BASEMENT EXCAVATION						
No items in this section						
SUBTOTAL					0	

MASTERPLAN COST ESTIMATE - Working Greenhouse

7,484 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
A2020 BASEMENT WALLS						
No items in this section						
SUBTOTAL					0	
TOTAL - BASEMENT CONSTRUCTION						$0
B10 SUPERSTRUCTURE						
B1010 UPPER FLOOR CONSTRUCTION						
No items in this section						
SUBTOTAL					0	
B1020 ROOF CONSTRUCTION						
Roof framing	45	tons	3,700.00	166,500		
Glass roof @ greenhouse & project rooms	3,880	sf	150.00	582,000		
Decking systems						
Metal deck, except greenhouses	3,799	sf	2.15	8,168		
SUBTOTAL					756,668	
TOTAL - SUPERSTRUCTURE						$756,668
B20 EXTERIOR CLOSURE						
B2010 EXTERIOR WALLS						
Exterior skin						
Storefront @ greenhouse ext. wall	2,160	sf	85.00	183,600		
Brick w/ CMU backup everywhere else	3,600	sf	53.00	190,800		
Lintels	21	lf	25.00	525		
Interior skin						
Insulation	3,600	sf	1.60	5,760		
Vapor barrier	3,600	sf	0.25	900		
Metal furring & drywall	3,600	sf	3.50	12,600		
Miscellaneous						
Scaffolding/Lifts to wall	5,760	sf	1.80	10,368		
SUBTOTAL					404,553	
B2020 WINDOWS						
3' x 5' window, incl. blocking & sealants	13	ea	1,100.00	14,300		
SUBTOTAL					14,300	
B2030 EXTERIOR DOORS						
Alum. & glass entry door, double	3	ea	5,000.00	15,000		
Overhead door, 6' x 8'	2	ea	1,200.00	2,400		
SUBTOTAL					17,400	
TOTAL - EXTERIOR CLOSURE						$436,253
B30 ROOFING						
B3010 ROOF COVERINGS						
Asphalt shingles @ decking	3,799	sf	4.25	16,146		
Ext. grade sheathing	3,799	sf	2.00	7,598		
Insulation	3,799	sf	1.20	4,559		
Ice and water shield	1,245	sf	2.00	2,490		
Aluminum flashings	415	lf	5.00	2,075		
Miscellaneous Roofing						
Alum. gutters	408	lf	25.00	10,200		
Alum. Leaders	84	lf	20.00	1,680		
SUBTOTAL					44,748	

MASTERPLAN COST ESTIMATE - Working Greenhouse — 7,484 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
B3020 ROOF OPENINGS						
No items in this section						
SUBTOTAL					0	
TOTAL - ROOFING						*$44,748*
C10 INTERIOR CONSTRUCTION						
C1010 PARTITIONS						
Interior GWB partitions	5,640	sf	8.50	47,940		
SUBTOTAL					47,940	
C1020 INTERIOR DOORS						
HM entry door w/ glass lites, single	8	ea	1,200.00	9,600		
HM entry door w/ glass lites, double	1	ea	2,400.00	2,400		
SUBTOTAL					12,000	
C1030 SPECIALTIES / MILLWORK						
Toilet compartments, typ.	4	ea	1,000.00	4,000		
Toilet compartments, HC	2	ea	1,200.00	2,400		
Vanity counters in restrooms	12	lf	150.00	1,800		
Toilet Accessories in large bathrooms	2	rms	2,000.00	4,000		
Backer panels in electrical closets	1	ls	500.00	500		
Signage/Directories/Bulletin Boards	1	ls	2,500.00	2,500		
Fire extinguisher cabinets	4	ea	350.00	1,400		
Janitors Accessories	1	ea	250.00	250		
Allowance for miscellaneous metals not identifiable at this design stage	1	ls	2,500.00	2,500		
Miscellaneous sealants throughout building	7,484	sf	0.20	1,497		
SUBTOTAL					20,847	
TOTAL - INTERIOR CONSTRUCTION						*$80,787*
C20 STAIRCASES						
C2010 STAIR CONSTRUCTION						
No items in this section						
SUBTOTAL					0	
C2020 STAIR FINISHES						
No items in this section						
SUBTOTAL					0	
TOTAL - STAIRCASES						*$0*
C30 INTERIOR FINISHES						
C3010 WALL FINISHES						
Paint to new GWB	11,280	sf	0.75	8,460		
Ceramic tile wainscot, 3' ht	426	sf	11.50	4,899		
SUBTOTAL					13,359	
C3020 FLOOR FINISHES						
Floor covering						
Ceramic Tile	504	sf	11.00	5,544		
Resilient flooring	6,980	sf	4.00	27,920		
Base finish						
Ceramic tile base	108	lf	10.00	1,080		
4" Vinyl cove base	940	lf	2.00	1,880		
SUBTOTAL					36,424	

MASTERPLAN COST ESTIMATE - Working Greenhouse — 7,484 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
C3030 CEILING FINISHES						
ACT ceilings, 2 x 4'	3,604	sf	3.50	12,614		
SUBTOTAL					12,614	
TOTAL - INTERIOR FINISHES						*$62,397*
D10 CONVEYING SYSTEMS						
D1010 ELEVATOR						
No items in this section						
SUBTOTAL					0	
TOTAL - CONVEYING SYSTEMS						*$0*
D20 PLUMBING						
D20 PLUMBING, GENERALLY						
Fixtures	12	ea	3,000.00	36,000		
Plumbing, generally	7,484	sf	4.00	29,936		
SUBTOTAL					65,936	
TOTAL - PLUMBING						*$65,936*
D30 HVAC						
D30 HVAC, GENERALLY						
Allowance HVAC / Heating & A/C	7,484	sf	50.00	374,200		
SUBTOTAL					374,200	
TOTAL - HVAC						*$374,200*
D40 FIRE PROTECTION						
D40 FIRE PROTECTION, GENERALLY						
Allow for fire protection	7,484	sf	7.00	52,388		
SUBTOTAL					52,388	
TOTAL - FIRE PROTECTION						*$52,388*
D50 ELECTRICAL						
D5010 SERVICE & DISTRIBUTION						
Service and distribution gear						
Normal power service and distribution gear	7,484	sf	1.50	11,226		
Normal power feeders	7,484	sf	1.00	7,484		
Grounding and bonding	1	ls	2,000.00	2,000		
Equipment wiring						
Equipment wiring	7,484	sf	0.75	5,613		
SUBTOTAL					26,323	
D5020 LIGHTING & POWER						
Lighting						
Lighting fixtures	7,484	sf	3.00	22,452		
Lighting control	7,484	sf	0.30	2,245		
Small power devices						
Small power devices	7,484	sf	0.40	2,994		
Branch circuitry						
Branch circuitry	7,484	sf	2.00	14,968		
SUBTOTAL					42,659	

MASTERPLAN COST ESTIMATE - Working Greenhouse

7,484 GFA

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
D5030	COMMUNICATION & SECURITY SYSTEMS						
	Fire alarm						
	Fire alarm control panel	1	ea	3,500.00	3,500		
	Fire alarm remote annunciator	1	ea	1,250.00	1,250		
	Master box	1	ea	3,200.00	3,200		
	Exterior beacon	1	ea	150.00	150		
	Knox box	1	ea	600.00	600		
	Fire alarm devices	7,484	sf	0.60	4,490		
	Fire alarm circuitry	7,484	sf	0.50	3,742		
	Testing and programming	1	ls	1,500.00	1,500		
	Telephone/CATV/Data System						
	Devices and cabling	7,484	sf	1.50	11,226		
	Rough In	7,484	sf	0.30	2,245		
	MDF fit out	1	ea	3,000.00	3,000		
	SUBTOTAL					34,903	
D5040	OTHER ELECTRICAL SYSTEMS						
	Lightning protection						
	Lightning protection	7,484	sf	0.25	1,871		
	Temporary services						
	Temporary power and lights	7,484	sf	0.50	3,742		
	Reimbursables						
	Fees & permits	1	ls	1,200.00	1,200		
	SUBTOTAL					6,813	
	TOTAL - ELECTRICAL						*$110,698*
E10	*EQUIPMENT*						
E10	EQUIPMENT, GENERALLY						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - EQUIPMENT						*$0*
E20	*FURNISHINGS*						
E2010	FIXED FURNISHINGS						
	Entry mats & frames	90	sf	25.00	2,250		
	SUBTOTAL					2,250	
	TOTAL - FURNISHINGS						*$2,250*
F10	*SPECIAL CONSTRUCTION*						
F10	SPECIAL CONSTRUCTION						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - SPECIAL CONSTRUCTION						*$0*

MASTERPLAN COST ESTIMATE - Working Greenhouse

7,484 GFA

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
F20	*SELECTIVE BUILDING DEMOLITION*						
F2010	BUILDING ELEMENTS DEMOLITION						
	No items in this section						
	SUBTOTAL					0	
F2020	HAZARDOUS COMPONENTS ABATEMENT						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - SELECTIVE BUILDING DEMOLITION						*$0*
G	*SITE PREP/DEVELOPMENT*						
G10	SITE PREPARATION & DEMOLITION						
	Site Demolitions and Relocations						
	Site clearing	1	ls	2,500.00	2,500		
	Site cuts & fills	1	ls	8,000.00	8,000		
	Fine grading	9,355	sf	1.00	9,355		
	Silt fence/erosion control	500	lf	2.50	1,250		
	Hay bales	500	lf	2.50	1,250		
	Rock excavation premium - assumed not applicable						
	Hazardous Waste Remediation						
	Remove contaminated soils - assumed not applicable						
	Dispose/treat contaminated water - assumed not applicable						
	SUBTOTAL					22,355	
G20	SITE IMPROVEMENTS						
	Walkways	1	ls	15,000.00	15,000		
	Landscaping-shrubs, trees, loam & seeding	1	ls	15,000.00	15,000		
	SUBTOTAL					30,000	
G30	CIVIL MECHANICAL UTILITIES						
	Water Service						
	Connect to existing	1	ls	10,000.00	10,000		
	Sewer System						
	Connect to existing	1	ls	10,000.00	10,000		
	Storm Drainage						
	Connect to existing	1	ls	5,000.00	5,000		
	SUBTOTAL					25,000	
G40	ELECTRICAL UTILITIES						
	Electrical distribution						
	Primary service						
	Primary electrical service ductbank	100	lf	42.50	4,250		
	Riser pole	1	ea	2,000.00	2,000		
	Transformer pad	1	ea	2,000.00	2,000		
	Secondary service						
	Secondary electrical service ductbank	50	lf	118.00	5,900		
	Site lighting						
	Site lighting (Allow)	1	ls	15,000.00	15,000		
	Site communications and security						
	Communication service ductbank	100	lf	65.00	6,500		
	SUBTOTAL					35,650	
	TOTAL - SITE DEVELOPMENT						*$113,005*

Hartford Botanical Gardens
Renovations & Additions
Hartford, CT

07-May-07

MASTERPLAN COST ESTIMATE - Working Greenhouse

7,484 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
MARK UP						
GENERAL COND. / PERMIT / INS.						
General Conditions	8.00%		2,099,330	167,946		
Insurance & bond	2.00%		2,267,276	45,346		
Permit ($50 first $1k, $5 per additional $1k)	1.25%		2,312,622	28,908		
SUBTOTAL					242,200	
FEE						
Overhead & profit/fee	3.50%		2,341,530	81,954		
SUBTOTAL					81,954	
TOTAL - MARK UP						*$324,154*
CONTINGENCIES/ESCALATION						
DESIGN & PRICING						
Design contingency - assumed included by owner separately.	10.00%		2,423,484	242,348		
SUBTOTAL					242,348	
ESCALATION						
Price escalation due to increases in labor and material costs (included at 7% per annum)	21.00%		2,665,832	559,825		
SUBTOTAL					559,825	
CONSTRUCTION CONTINGENCY						
Excluded - Recommend that 5% construction contingency is included in the overall project budget	0.00%		3,225,657	0		
SUBTOTAL					0	
TOTAL - CONTINGENCIES/ESCALATION						*$802,173*

Hartford Botanical Gardens
Renovations & Additions
Hartford, CT

07-May-07

MASTERPLAN COST ESTIMATE - Conservatory

23,294 GFA

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		SUB-TOTAL	TOTAL	$/SF	%
A10	**FOUNDATIONS**					
	A1010	Standard Foundations	$262,062			
	A1020	Special Foundations	$0			
	A1030	Lowest Floor Construction	$123,958	**$386,020**	$16.57	2.3%
A20	**BASEMENT CONSTRUCTION**					
	A2010	Basement Excavation	$70,596			
	A2020	Basement Walls	$132,772	**$203,368**	$8.73	1.2%
B10	**SUPERSTRUCTURE**					
	B1010	Upper Floor Construction	$1,195,911			
	B1020	Roof Construction	$160,610	**$1,356,521**	$58.23	8.1%
B20	**EXTERIOR CLOSURE**					
	B2010	Exterior Walls	$6,036,780			
	B2020	Windows	$2,200			
	B2030	Exterior Doors	$30,700	**$6,069,680**	$260.57	36.4%
B30	**ROOFING**					
	B3010	Roof Coverings	$5,221,927			
	B3020	Roof Openings	$2,000	**$5,223,927**	$224.26	31.3%
C10	**INTERIOR CONSTRUCTION**					
	C1010	Partitions	$381,183			
	C1020	Interior Doors	$34,800			
	C1030	Specialties/Millwork	$143,850	**$559,833**	$24.03	3.4%
C20	**STAIRCASES**					
	C2010	Stair Construction	$54,000			
	C2020	Stair Finishes	$0	**$54,000**	$2.32	0.3%
C30	**INTERIOR FINISHES**					
	C3010	Wall Finishes	$58,786			
	C3020	Floor Finishes	$91,640			
	C3030	Ceiling Finishes	$35,049	**$185,475**	$7.96	1.1%
D10	**CONVEYING SYSTEMS**					
	D1010	Elevator	$81,000	**$81,000**	$3.48	0.5%
D20	**PLUMBING**					
	D20	Plumbing	$199,940	**$199,940**	$8.58	1.2%
D30	**HVAC**					
	D30	HVAC	$1,281,170	**$1,281,170**	$55.00	7.7%

MASTERPLAN COST ESTIMATE - Conservatory 23,294 GFA

CONSTRUCTION COST SUMMARY

	BUILDING SYSTEM		SUB-TOTAL	TOTAL	$/SF	%
D40	**FIRE PROTECTION**					
	D40	Fire Protection	$163,058	**$163,058**	$7.00	1.0%
D50	**ELECTRICAL**					
	D5010	Service & Distribution	$144,764			
	D5020	Lighting & Power	$390,175			
	D5030	Communication & Security Systems	$129,012			
	D5040	Other Electrical Systems	$22,471	**$686,422**	$29.47	4.1%
E10	**EQUIPMENT**					
	E10	Equipment	$0	**$0**	$0.00	0.0%
E20	**FURNISHINGS**					
	E2010	Fixed Furnishings	$2,250	**$2,250**	$0.10	0.0%
F10	**SPECIAL CONSTRUCTION**					
	F10	Special Construction	$0	**$0**	$0.00	0.0%
F20	**SELECTIVE BUILDING DEMOLITION**					
	F2010	Building Elements Demolition	$0			
	F2020	Hazardous Components Abatement	$0	**$0**	$0.00	0.0%
G	**SITE PREP/DEVELOPMENT**					
	G10	Site Preparation/Demolition	$50,368			
	G20	Site Improvements	$30,000			
	G30	Civil / Mechanical Utilities	$105,000			
	G40	Electrical Utilities	$40,650	**$226,018**	$9.70	1.4%
TOTAL DIRECT COST (Trade Costs)				***$16,678,682***	*$716.01*	*100.0%*
MARK UP						
	General Conditions/Permit/Insurance		$1,879,685			
	Overhead/Fee/Profit		$636,032	**$2,515,717**	$108.00	
SUBTOTAL CONSTRUCTION				***$19,194,399***	*$824.01*	
CONTINGENCIES/ESCALATION						
	Design & Pricing Contingency		$1,880,838			
	Escalation		$7,241,226			
	Construction Contingency		$0	**$9,122,064**	$391.61	
ESTIMATED CONTRACT AWARD				***$28,316,463***	*$1,215.61*	

MASTERPLAN COST ESTIMATE - Conservatory 23,294 GFA

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	GROSS FLOOR AREA CALCULATION						
	Basement				3,680		
	Ground Floor				17,654		
	Mezzanine Level				1,960		
	TOTAL Net Floor Area (NSF)				***23,294***	***sf***	
	A10 FOUNDATIONS						
	A1010 STANDARD FOUNDATIONS						
	Strip footings (3' x 1')						
	Excavation	804	cy	8.00	6,432		
	Remove off site	804	cy	18.00	14,472		
	Backfill with gravel	714	cy	20.00	14,280		
	Formwork	1,550	sf	10.00	15,500		
	Re-bar	6,750	lbs	0.90	6,075		
	Concrete material	90	cy	105.00	9,450		
	Place from truck & vibrate	90	cy	50.00	4,500		
	Column footings, 6' x 6' x 2'-0"						
	Excavation	2,122	cy	8.00	16,976		
	Remove off site	2,122	cy	18.00	38,196		
	Backfill with gravel	1,936	cy	22.00	42,592		
	Formwork	3,183	sf	10.00	31,830		
	Re-bar	16,232	lbs	0.90	14,609		
	Concrete material	186	cy	100.00	18,600		
	Placing concrete	186	cy	50.00	9,300		
	Set anchor bolts grout plates	66	ea	50.00	3,300		
	Miscellaneous						
	Perimeter foundation drains	775	lf	18.00	13,950		
	Local de-watering during excavation	1	ls	2,000.00	2,000		
	SUBTOTAL					262,062	
	A1020 SPECIAL FOUNDATIONS						
	No items in this section						
	SUBTOTAL						0
	A1030 LOWEST FLOOR CONSTRUCTION						
	Slab on Grade, 6" thick						
	Gravel fill, 6"	438	cy	20.00	8,760		
	Rigid insulation under slab on grade	17,654	sf	1.50	26,481		
	Vapor barrier	17,654	sf	0.20	3,531		
	Mesh reinforcing 15% lap	20,302	sf	0.65	13,196		
	Concrete - 6" thick	327	cy	105.00	34,335		
	Place and finish slab	327	cy	50.00	16,350		
	Control joints - saw cut	17,654	sf	0.35	6,179		
	Perimeter joints	775	lf	1.50	1,163		
	Elevator Pits						
	Excavation for elevator pit	48	cy	8.00	384		
	Remove off site	48	cy	18.00	864		
	Backfill with gravel	6	cy	20.00	120		
	Elevator pit walls						
	formwork	256	sf	12.00	3,072		
	reinforcement	384	lbs	0.90	346		
	concrete material	3	cy	105.00	315		
	placing concrete	3	cy	50.00	150		
	Slab						
	formwork	96	sf	10.00	960		
	reinforcement	720	lbs	0.90	648		
	concrete material in slab	4	cy	105.00	420		
	placing concrete	4	cy	50.00	200		
	Cementitious waterproofing to elevator pit	192	sf	12.00	2,304		

MASTERPLAN COST ESTIMATE - Conservatory

23,294 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
Miscellaneous						
Interior ramp @ greenhouse 1	168	sf	10.00	1,680		
Allow for equipment pads	1	ls	2,500.00	2,500		
SUBTOTAL					123,958	
TOTAL - FOUNDATIONS						*$386,020*
A20 BASEMENT CONSTRUCTION						
A2010 BASEMENT EXCAVATION						
Excavate for basement	1,904	cy	12.00	22,848		
Deposit part of fill on site for backfill	325	cy	4.00	1,300		
Remove surplus excavated material from site	1,579	cy	18.00	28,422		
Backfill around basement walls with gravel	216	cy	20.00	4,320		
Backfill with surplus excavated material	325	cy	6.00	1,950		
Footing drains to basement walls	292	lf	18.00	5,256		
Allow for miminal earthwork support at basement excavations	1	ls	5,000.00	5,000		
Local de-watering during excavation	1	ls	1,500.00	1,500		
SUBTOTAL					70,596	
A2020 BASEMENT WALLS						
Formwork to basement wall	5,840	sf	14.00	81,760		
Reinforcement in basement walls (120 lbs/cy)	17,280	lbs	0.90	15,552		
Concrete material in basement walls	144	cy	105.00	15,120		
Placing concrete in basement walls	144	cy	50.00	7,200		
Waterproofing and protection mat to basement walls	2,920	sf	3.00	8,760		
Rigid insulation to basement walls	2,920	sf	1.50	4,380		
SUBTOTAL					132,772	
TOTAL - BASEMENT CONSTRUCTION						*$203,368*
B10 SUPERSTRUCTURE						
B1010 UPPER FLOOR CONSTRUCTION						
Floor Structure - Steel:						
Steel beams and columns in floor framing - w sections	157	tns	3,500.00	549,500		
Column/tube steel in floor framing	159	tns	3,700.00	588,300		
Shear studs (20 per 100sf)	1,128	ea	2.50	2,820		
Decking systems						
4 1/2" deep x 18 gage cellular acoustic deck, type JCA	5,640	sf	5.00	28,200		
4" Concrete topping						
Mesh reinforcement in concrete topping	6,486	sf	0.65	4,216		
Concrete topping to metal decking, 5 1/2" total thickness normal weight- pump mix	39	cy	105.00	4,095		
Pump, place & finish concrete	5,640	sf	2.00	11,280		
Miscellaneous						
Fire proofing floor construction, (beams and columns only) - not required						
Fire stopping floors	1	flrs	2,500.00	2,500		
Allowance for expansion joints	1	ls	5,000.00	5,000		
SUBTOTAL					1,195,911	

MASTERPLAN COST ESTIMATE - Conservatory

23,294 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
B1020 ROOF CONSTRUCTION						
Structural Steel Roof						
Steel beams in roof framing - w sections	34	tns	3,500.00	119,000		
Decking systems						
3" deep x 18 gage roof deck	5,670	sf	3.00	17,010		
4" Concrete topping						
Mesh reinforcement in concrete topping	6,521	sf	0.65	4,239		
Concrete topping to metal decking, 4" total thickness normal weight- pump mix	73	cy	105.00	7,665		
Pump, place & finish concrete	5,670	sf	1.65	9,356		
Miscellaneous						
Fire proofing roof construction (beams and columns only) - not required						
Fire stopping	1	ls	2,500.00	2,500		
SUBTOTAL					160,610	
TOTAL - SUPERSTRUCTURE						*$1,356,521*
B20 EXTERIOR CLOSURE						
B2010 EXTERIOR WALLS						
Exterior skin						
Precast concrete veneer	12,303	sf	55.00	676,665		
8" CMU backup, grouted & reinforced	12,303	sf	16.00	196,848		
Lintels	1	ls	1,000.00	1,000		
Custom glass walls	25,277	sf	200.00	5,055,400		
Interior skin						
Insulation	12,303	sf	1.60	19,685		
Vapor barrier	12,303	sf	0.25	3,076		
Metal furring & drywall	12,303	sf	3.50	43,061		
Miscellaneous						
Front canopy	252	sf	75.00	18,900		
Scaffolding/Lifts to wall	12,303	sf	1.80	22,145		
SUBTOTAL					6,036,780	
B2020 WINDOWS						
3' x 5' window, incl. blocking & sealants	2	ea	1,100.00	2,200		
SUBTOTAL					2,200	
B2030 EXTERIOR DOORS						
Alum. & glass entry door, double	2	ea	5,000.00	10,000		
Alum. & glass entry door, single	3	ea	2,500.00	7,500		
Overhead door, 10' x 12'	2	ea	3,600.00	7,200		
HM entry door w/ glass lites, single	3	ea	1,200.00	3,600		
HM entry door w/ glass lites, double	1	ea	2,400.00	2,400		
SUBTOTAL					30,700	
TOTAL - EXTERIOR CLOSURE						*$6,069,680*
B30 ROOFING						
B3010 ROOF COVERINGS						
White EPDM roofing	5,670	sf	4.25	24,098		
Ext. grade sheathing	5,670	sf	2.00	11,340		
Insulation	5,670	sf	1.20	6,804		
Custom glass roofing	17,220	sf	300.00	5,166,000		
Miscellaneous Roofing						
Alum. Wall cap	391	lf	35.00	13,685		
SUBTOTAL					5,221,927	

MASTERPLAN COST ESTIMATE - Conservatory

23,294 GFA

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
B3020	**ROOF OPENINGS**						
	Access hatch	1	ea	2,000.00	2,000		
	SUBTOTAL					2,000	
	TOTAL - ROOFING						*$5,223,927*
C10	*INTERIOR CONSTRUCTION*						
C1010	**PARTITIONS**						
	Interior GWB partitions	13,716	sf	8.50	116,586		
	Premium for 8" CMU partitions	5,486	sf	4.50	24,687		
	Elevator shaft wall	1,386	sf	15.00	20,790		
	Greenhouse divider walls	9,960	sf	22.00	219,120		
	SUBTOTAL					381,183	
C1020	**INTERIOR DOORS**						
	HM entry door w/ glass lites, single	19	ea	1,200.00	22,800		
	HM entry door w/ glass lites, double	5	ea	2,400.00	12,000		
	SUBTOTAL					34,800	
C1030	**SPECIALTIES / MILLWORK**						
	Toilet compartments, typ.	3	ea	1,000.00	3,000		
	Toilet compartments, HC	2	ea	1,200.00	2,400		
	Vanity counters in restrooms	12	lf	150.00	1,800		
	Toilet Accessories in large bathrooms	2	rms	2,000.00	4,000		
	Backer panels in electrical closets	1	ls	500.00	500		
	Signage/Directories/Bulletin Boards	1	ls	2,500.00	2,500		
	Fire extinguisher cabinets	6	ea	350.00	2,100		
	Janitors Accessories	1	ea	250.00	250		
	Locker room benches & lockers	2	ea	8,000.00	16,000		
	Kitchen casework	42	lf	650.00	27,300		
	Storage room shelving	1	ls	15,000.00	15,000		
	Offices casework	42	lf	450.00	18,900		
	Reception desk	12	lf	750.00	9,000		
	Ladder to roof	1	ea	1,500.00	1,500		
	Allowance for miscellaneous metals not identifiable at this design stage	23,294	sf	1.50	34,941		
	Miscellaneous sealants throughout building	23,294	sf	0.20	4,659		
	SUBTOTAL					143,850	
	TOTAL - INTERIOR CONSTRUCTION						*$559,833*
C20	*STAIRCASES*						
C2010	**STAIR CONSTRUCTION**						
	Egress stair from basement to mezzanine	3	flts	18,000.00	54,000		
	Interior ramp @ greenhouse 1						
	SUBTOTAL					54,000	
C2020	**STAIR FINISHES**						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - STAIRCASES						*$54,000*

MASTERPLAN COST ESTIMATE - Conservatory

23,294 GFA

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
C30	*INTERIOR FINISHES*						
C3010	**WALL FINISHES**						
	Paint to GWB partitions	27,432	sf	0.75	20,574		
	Paint to CMU partitions	32,278	sf	1.00	32,278		
	Ceramic tile wainscot, 4' ht	516	sf	11.50	5,934		
	SUBTOTAL					58,786	
C3020	**FLOOR FINISHES**						
	Floor covering						
	Ceramic tile @ bathroom	306	sf	11.00	3,366		
	Quarry tile @ kitchen	200	sf	14.00	2,800		
	Colored concrete @ greenhouses	10,900	sf	2.00	21,800		
	Resilient flooring	11,888	sf	5.00	59,440		
	Base finish						
	Ceramic tile base	129	lf	10.00	1,290		
	4" Vinyl cove base	1,472	lf	2.00	2,944		
	SUBTOTAL					91,640	
C3030	**CEILING FINISHES**						
	GWB ceiling @ reception & bathroom	2,576	sf	7.50	19,320		
	ACT ceilings, 2 x 4'	4,494	sf	3.50	15,729		
	Exposed ceiling, no finish						
	SUBTOTAL					35,049	
	TOTAL - INTERIOR FINISHES						*$185,475*
D10	*CONVEYING SYSTEMS*						
D1010	**ELEVATOR**						
	Hydraulic 2-stop passenger elevator	1	ea	81,000.00	81,000		
	SUBTOTAL					81,000	
	TOTAL - CONVEYING SYSTEMS						*$81,000*
D20	*PLUMBING*						
D20	**PLUMBING, GENERALLY**						
	Equipment						
	Hot Water Heater	1	ls	18,000.00	18,000		
	Expansion Tank	1	ea	1,800.00	1,800		
	Thermostactic Mixing Valve	1	ea	2,200.00	2,200		
	Fixtures						
	Water Closets	6	ea	1,200.00	7,200		
	Lavatories	4	ea	1,100.00	4,400		
	Janitor Sink	1	ea	1,150.00	1,150		
	Kitchen Sinks	2	ea	1,300.00	2,600		
	Kitchen Equipment Hook Ups	3	ea	450.00	1,350		
	Floor Drains	4	ea	465.00	1,860		
	Trap Primers	4	ea	245.00	980		
	Domestic Water Piping	23,294	sft	3.00	69,882		
	Sanitary Waste & Vent	23,294	sft	2.00	46,588		
	Storm Piping	23,294	sft	1.40	32,612		
	Piping Insulation	23,294	sft	0.40	9,318		
	SUBTOTAL					199,940	
	TOTAL - PLUMBING						*$199,940*

MASTERPLAN COST ESTIMATE - Conservatory

23,294 GFA

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	D30 HVAC						
	D30 HVAC, GENERALLY						
	Allowance HVAC / Heating & A/C	23,294	sft	55.00	1,281,170		
	SUBTOTAL					1,281,170	
	TOTAL - HVAC						***$1,281,170***
	D40 FIRE PROTECTION						
	D40 FIRE PROTECTION, GENERALLY						
	Allow for fire protection	23,294	sf	7.00	163,058		
	SUBTOTAL					163,058	
	TOTAL - FIRE PROTECTION						***$163,058***
	D50 ELECTRICAL						
	D5010 SERVICE & DISTRIBUTION						
	Service and distribution gear						
	Normal power service and distribution gear	23,294	sf	4.00	93,176		
	Grounding and bonding	1	ls	5,000.00	5,000		
	Equipment wiring						
	Equipment wiring	23,294	sf	2.00	46,588		
	SUBTOTAL					144,764	
	D5020 LIGHTING & POWER						
	Lighting						
	Lighting fixtures	23,294	sf	10.00	232,940		
	Lighting control	23,294	sf	2.00	46,588		
	Small power devices						
	Small power devices	23,294	sf	1.25	29,118		
	Branch circuitry						
	Branch circuitry	23,294	sf	3.50	81,529		
	SUBTOTAL					390,175	
	D5030 COMMUNICATION & SECURITY SYSTEMS						
	Fire alarm						
	Fire alarm control panel	1	ea	7,500.00	7,500		
	Fire alarm remote annunciator	1	ea	1,250.00	1,250		
	Master box	1	ea	3,200.00	3,200		
	Exterior beacon	1	ea	150.00	150		
	Knox box	1	ea	600.00	600		
	Fire alarm devices	23,294	sf	1.50	34,941		
	Fire alarm circuitry	23,294	sf	0.80	18,635		
	Testing and programming	1	ls	1,500.00	1,500		
	Telephone/CATV/Data System						
	Devices and cabling	23,294	sf	1.75	40,765		
	Rough In	23,294	sf	0.75	17,471		
	MDF fit out	1	ea	3,000.00	3,000		
	SUBTOTAL					129,012	
	D5040 OTHER ELECTRICAL SYSTEMS						
	Lightning protection						
	Lightning protection	23,294	sf	0.25	5,824		
	Temporary services						
	Temporary power and lights	23,294	sf	0.50	11,647		
	Reimbursables						
	Fees & permits	1	ls	5,000.00	5,000		
	SUBTOTAL					22,471	
	TOTAL - ELECTRICAL						***$886,422***
	E10 EQUIPMENT						
	E10 EQUIPMENT, GENERALLY						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - EQUIPMENT						***$0***

MASTERPLAN COST ESTIMATE - Conservatory

23,294 GFA

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	E20 FURNISHINGS						
	E2010 FIXED FURNISHINGS						
	Entry mats & frames	90	sf	25.00	2,250		
	SUBTOTAL					2,250	
	TOTAL - FURNISHINGS						***$2,250***
	F10 SPECIAL CONSTRUCTION						
	F10 SPECIAL CONSTRUCTION						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - SPECIAL CONSTRUCTION						***$0***
	F20 SELECTIVE BUILDING DEMOLITION						
	F2010 BUILDING ELEMENTS DEMOLITION						
	No items in this section						
	SUBTOTAL					0	
	F2020 HAZARDOUS COMPONENTS ABATEMENT						
	No items in this section						
	SUBTOTAL					0	
	TOTAL - SELECTIVE BUILDING DEMOLITION						***$0***
	G SITE PREP/DEVELOPMENT						
	G10 SITE PREPARATION & DEMOLITION						
	Site Demolitions and Relocations						
	Site clearing	1	ls	4,500.00	4,500		
	Site cuts & fills	1	ls	20,000.00	20,000		
	Fine grading	22,068	sf	1.00	22,068		
	Silt fence/erosion control	760	lf	2.50	1,900		
	Hay bales	760	lf	2.50	1,900		
	Rock excavation premium - assumed not applicable						
	Hazardous Waste Remediation						
	Remove contaminated soils - assumed not applicable						
	Dispose/treat contaminated water - assumed not applicable						
	SUBTOTAL					50,368	

MASTERPLAN COST ESTIMATE - Conservatory

23,294 GFA

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
G20	SITE IMPROVEMENTS						
	Walkways	1	ls	15,000.00	15,000		
	Landscaping-shrubs, trees, loam & seeding	1	ls	15,000.00	15,000		
	SUBTOTAL					30,000	
G30	CIVIL MECHANICAL UTILITIES						
	Water Service						
	Connect to existing	1	ls	40,000.00	40,000		
	Sewer System						
	Connect to existing	1	ls	25,000.00	25,000		
	Storm Drainage						
	Connect to existing	1	ls	25,000.00	25,000		
	Gas service						
	Excavate and backfill	1	ls	15,000.00	15,000		
	Gas main install by gas company						
	SUBTOTAL					105,000	
G40	ELECTRICAL UTILITIES						
	Electrical distribution						
	Primary service						
	Primary electrical service ductbank	100	lf	42.50	4,250		
	Riser pole	1	ea	2,000.00	2,000		
	Transformer pad	1	ea	2,000.00	2,000		
	Secondary service						
	Secondary electrical service ductbank	50	lf	118.00	5,900		
	Site lighting						
	Site lighting (Allow)	1	ls	20,000.00	20,000		
	Site communications and security						
	Communication service ductbank	100	lf	65.00	6,500		
	SUBTOTAL					40,650	
	TOTAL - SITE DEVELOPMENT						$226,018

MASTERPLAN COST ESTIMATE - Conservatory

23,294 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
MARK UP						
GENERAL COND. / PERMIT / INS.						
General Conditions	8.00%		16,292,662	1,303,413		
Insurance & bond	2.00%		17,596,075	351,922		
Permit ($50 first $1k, $5 per additional $1k)	1.25%		17,947,997	224,350		
SUBTOTAL					1,879,685	
FEE						
Overhead & profit/fee	3.50%		18,172,347	636,032		
SUBTOTAL					636,032	
TOTAL - MARK UP						$2,515,717
CONTINGENCIES/ESCALATION						
DESIGN & PRICING						
Design contingency - assumed included by owner separately.	10.00%		18,808,379	1,880,838		
SUBTOTAL					1,880,838	
ESCALATION						
Price escalation due to increases in labor and material costs (included at 7% per annum)	35.00%		20,689,217	7,241,226		
SUBTOTAL					7,241,226	
CONSTRUCTION CONTINGENCY						
Excluded - Recommend that 5% construction contingency is included in the overall project budget	0.00%		27,930,443	0		
SUBTOTAL					0	
TOTAL - CONTINGENCIES/ESCALATION						$9,122,064

Hartford Botanical Gardens
Renovations & Additions
Hartford, CT

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MASTERPLAN COST ESTIMATE - Phase 1 Sitework

0 GFA

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
	G SITE PREP/DEVELOPMENT						
	G10 SITE PREPARATION & DEMOLITION						
	Site Demolitions and Relocations						
	Misc. site clearing	1	ls	7,500.00	7,500		
	Remove existing shrubs/plantings	1	ls	3,500.00	3,500		
	Remove existing asphalt	14,800	sf	1.00	14,800		
	SUBTOTAL					25,800	
	G20 SITE IMPROVEMENTS						
	Reconfigure parking area adjacent to 25 Stonington Street	5,600	sf	5.00	28,000		
	New entrance drive & parking @ Gardener's House	27,200	sf	4.00	108,800		
	8' H industrial chain link fencing	1,225	lf	65.00	79,625		
	Single gate	2	ea	1,500.00	3,000		
	Double gate	3	ea	3,500.00	10,500		
	Precast concrete curbing	1,285	lf	14.00	17,990		
	Shade Garden						
	Colored concrete walks	25,850	sf	6.00	155,100		
	Concrete steps in walk	7	loc	5,000.00	35,000		
	Sitting benches	3	ea	2,500.00	7,500		
	Garden feature, allow	1	ls	20,000.00	20,000		
	Large trees	30	ea	1,800.00	54,000		
	Small trees	20	ea	1,000.00	20,000		
	Shrubs/plantings/mulch/seeding	1	ls	25,000.00	25,000		
	Western(upper) end						
	Asphalt roadway @ monument	7,650	sf	4.00	30,600		
	Precast concrete curbing	815	lf	14.00	11,410		
	Pavement markings	1	ls	2,500.00	2,500		
	Colored concrete walks	20,400	sf	6.00	122,400		
	Large trees	20	ea	1,800.00	36,000		
	Small trees	10	ea	1,000.00	10,000		
	Shrubs/plantings/mulch/seeding	1	ls	15,000.00	15,000		
	Interpretive panels	4	ea	2,500.00	10,000		
	SUBTOTAL					802,425	
	G30 CIVIL MECHANICAL UTILITIES						
	No items in this section						
	SUBTOTAL					0	
	G40 ELECTRICAL UTILITIES						
	Site lighting	1	ls	10,000.00	10,000		
	SUBTOTAL					10,000	
	TOTAL - SITE DEVELOPMENT						***$838,225***

Hartford Botanical Gardens
Renovations & Additions
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MASTERPLAN COST ESTIMATE - Phase 1 Sitework

0 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
MARK UP						
GENERAL COND. / PERMIT / INS.						
General Conditions	8.00%		838,225	67,058		
Insurance & bond	2.00%		905,283	18,106		
Permit	1.25%		923,389	11,542		
SUBTOTAL					96,706	
FEE						
Overhead & profit/fee	3.50%		934,931	32,723		
SUBTOTAL					32,723	
TOTAL - MARK UP						***$129,429***
CONTINGENCIES/ESCALATION						
DESIGN & PRICING						
Design contingency - assumed included by owner separately.	10.00%		967,654	96,765		
SUBTOTAL					96,765	
ESCALATION						
Price escalation due to increases in labor and material costs (included at 7% per annum)	7.00%		1,064,419	74,509		
SUBTOTAL					74,509	
CONSTRUCTION CONTINGENCY						
Excluded - Recommend that 5% construction contingency is included in the overall project budget	0.00%		1,138,928	0		
SUBTOTAL					0	
TOTAL - CONTINGENCIES/ESCALATION						***$171,274***
ESTIMATED CONTRACT AWARD						***$1,138,928***

Hartford Botanical Gardens
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MASTERPLAN COST ESTIMATE - Phase 2 Sitework

0 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
G SITE PREP/DEVELOPMENT						
G10 SITE PREPARATION & DEMOLITION						
Site Demolitions and Relocations						
Misc. site clearing/prep for teaching gardens	1	ls	5,000.00	5,000		
SUBTOTAL					5,000	
G20 SITE IMPROVEMENTS						
Covered connector to Gardener's House	120	lf	700.00	84,000		
Stone retaining wall to Gardener's House w/ cap, assume avg. 8'H	120	lf	575.00	69,000		
Dining terrace @ carriage house	5,600	sf	35.00	196,000		
Stone wall @ perimeter of terrace, 3' H	188	lf	215.00	40,420		
Teaching garden						
Colored concrete walks	2,240	sf	6.00	13,440		
Small water feature & pond	1	ls	10,000.00	10,000		
SUBTOTAL					412,860	
G30 CIVIL MECHANICAL UTILITIES						
No items in this section						
SUBTOTAL					0	
G40 ELECTRICAL UTILITIES						
No items in this section						
SUBTOTAL					0	
TOTAL - SITE DEVELOPMENT						***$417,860***
MARK UP						
GENERAL COND. / PERMIT / INS.						
General Conditions	8.00%		417,860	33,429		
Insurance & bond	2.00%		451,289	9,026		
Permit	1.25%		460,315	5,754		
SUBTOTAL					48,209	
FEE						
Overhead & profit/fee	3.50%		466,069	16,312		
SUBTOTAL					16,312	
TOTAL - MARK UP						***$64,521***
CONTINGENCIES/ESCALATION						
DESIGN & PRICING						
Design contingency - assumed included by owner separately.	10.00%		482,381	48,238		
SUBTOTAL					48,238	
ESCALATION						
Price escalation due to increases in labor and material costs (included at 7% per annum)	21.00%		530,619	111,430		
SUBTOTAL					111,430	
CONSTRUCTION CONTINGENCY						
Excluded - Recommend that 5% construction contingency is included in the overall project budget	0.00%		642,049	0		
SUBTOTAL					0	
TOTAL - CONTINGENCIES/ESCALATION						***$159,668***
ESTIMATED CONTRACT AWARD						***$642,049***

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MASTERPLAN COST ESTIMATE - Phase 3 Sitework

0 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
MARK UP						
GENERAL COND. / PERMIT / INS.						
General Conditions	8.00%		1,452,650	116,212		
Insurance & bond	2.00%		1,568,862	31,377		
Permit	1.25%		1,600,239	20,003		
SUBTOTAL					167,592	
FEE						
Overhead & profit/fee	3.50%		1,620,242	56,708		
SUBTOTAL					56,708	
TOTAL - MARK UP						***$224,300***
CONTINGENCIES/ESCALATION						
DESIGN & PRICING						
Design contingency - assumed included by owner separately.	10.00%		1,676,950	167,695		
SUBTOTAL					167,695	
ESCALATION						
Price escalation due to increases in labor and material costs (included at 7% per annum)	35.00%		1,844,645	645,626		
SUBTOTAL					645,626	
CONSTRUCTION CONTINGENCY						
Excluded - Recommend that 5% construction contingency is included in the overall project budget	0.00%		2,490,271	0		
SUBTOTAL					0	
TOTAL - CONTINGENCIES/ESCALATION						***$813,321***
ESTIMATED CONTRACT AWARD						***$2,490,271***

Hartford Botanical Gardens
Renovations & Additions
Hartford, CT

07-May-07

MASTERPLAN COST ESTIMATE - Phase 3 Sitework

0 GFA

DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
MARK UP						
GENERAL COND. / PERMIT / INS.						
General Conditions	8.00%		1,452,650	116,212		
Insurance & bond	2.00%		1,568,862	31,377		
Permit	1.25%		1,600,239	20,003		
SUBTOTAL					167,592	
FEE						
Overhead & profit/fee	3.50%		1,620,242	56,708		
SUBTOTAL					56,708	
TOTAL - MARK UP						*$224,300*
CONTINGENCIES/ESCALATION						
DESIGN & PRICING						
Design contingency - assumed included by owner separately.	10.00%		1,676,950	167,695		
SUBTOTAL					167,695	
ESCALATION						
Price escalation due to increases in labor and material costs (included at 7% per annum)	35.00%		1,844,645	645,626		
SUBTOTAL					645,626	
CONSTRUCTION CONTINGENCY						
Excluded - Recommend that 5% construction contingency is included in the overall project budget	0.00%		2,490,271	0		
SUBTOTAL					0	
TOTAL - CONTINGENCIES/ESCALATION						*$813,321*
ESTIMATED CONTRACT AWARD						*$2,490,271*

E-1 The Ice House has a simple roof and a full basement.

E-2 Each level has a single access. The concrete foundation and wood-framed structure appears to be performing well.

The CT Creative Store