

Environmental Analysis

Beyer
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Architects & Planners LLP

GARAGE INFILL
SI Project Number 0703103
March 20, 2009



Smithsonian
National Museum of American History
Kenneth E. Behring Center

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1.0 Introduction

On April 2, 2009, the Smithsonian Institution (SI) will submit a design proposal to infill the existing garage space with newly enclosed museum support space at the National Museum of American History, for review and approval by the National Capital Planning Commission (NCPC) at the May 7 Commission meeting. In preparation for the submission the SI with the consulting firm, Beyer, Blinder, Belle, Architects & Planners, LLC have prepared this Environmental Analysis. This Analysis will be placed on the NCPC web site preceding the submission so that public comments can be garnered before NCPC completes its review process. The intention is that public comment period apply both the National Environmental Policy Act and National Historic Preservation Act, Section 106 (36 CFR 800.2(d)(3)) processes. NCPC will be the Lead Responsible Federal Agency for the NEPA compliance effort.

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1.1 Project Information

Project Title: Garage Infill at National Museum of American History, Kenneth E. Behring Center (NMAH)

SI Project Number: 0703103

Location: 14th Street and Constitution Avenue, NW, Washington, DC

Project Staff: Patrick Ladden, Renovation Program Manager, NMAH
 Pedro I. Colon, Project Executive for NMAH, Office of Planning and Project Management, OFEO
 Santiago Caballero, AIA, Design Manager, OFEO, OEDC

Preliminary Construction Budget: \$15,710,000



GARAGE INFILL: ENVIRONMENTAL ANALYSIS

SI Project Number 0703103

National Museum of American History, Washington, DC

VICINITY MAP

March 20, 2009

1.2 Summary

The SI considered a reasonable range of alternatives from which a preferred alternative was selected. These alternatives included additions to the east and west sides of the NMAH building, other sites on the NMAH grounds, a non-specific offsite location, and no action alternative, and the preferred alternative, noted as “Alternative A: Proposed Action.” Additionally, the SI determined the preferred alternative has no adverse effects on cultural and historical resource. The SI has consulted with the D.C. State Historic Preservation Officer regarding this determination and a copy of his letter of concurrence is included in Appendix A, page 27. Based on this consultation and the analysis that follows the SI has determined a Finding of No Significant Impact for the work associated with Alternative A, the preferred alternative.

1.3 Background

The National Museum of American History, Kenneth E. Behring Center (NMAH) is one of the Smithsonian’s most visited museums, and home of over three million objects. Designed by Walter Cain of McKim, Mead & White, the Museum will be eligible for the National Register of Historic Places due to its location on the National Mall. The museum contains a variety of spaces, both public and non-public. Floors one, two, three, and part of the lower level are publicly accessible and used for exhibits, education, public gatherings, retail shopping, food services, offices, and collections storage. Except for food services and the museum shop, the lower level and the fourth and fifth floors are

used primarily for offices, collections storage, and building support functions. See Appendix B, pages 29 through 33, for existing conditions.

1.4 Purpose and Need

The proposed project follows the recommendations from the NMAH Comprehensive Facilities Development Plan (Master Plan) prepared by Skidmore, Owings & Merrill, LLP, dated February 3, 2006, which was guided by the Report of the Blue Ribbon Commission on the National Museum of American History, dated March, 2002.

From the Blue Ribbon Commission report, the following are a summary of the basic overriding purposes guiding its twenty recommendations:

- To improve the architectural and aesthetic setting for exhibits;
- To improve visitors’ substantive orientation;
- To assure appropriate balance in exhibit themes and content;
- To increase Museum’s reach; and
- To enhance the prospect of effective implementation.

A key goal underlying the first overriding purpose (relating to architectural and aesthetic setting) was the desire to recapture additional exhibit space through the relocation and reorganization of non-essential functions.

The subsequent Master Plan of 2006 introduces the resulting challenges:

“With a changing mission and emerging requirements over four decades, the Smithsonian National Museum of American History, Behring Center (NMAH) has experienced a diversification and growth of functions needing accommodation within the building. These changes included the growth of some functions and creation of new ones. In the absence of a master plan, the Museum has been treating each emerging need in isolation, without integration to the “big picture. Functional clarity and space efficiency were lost, resulting in a chaotic mix of public and private spaces that waste valuable National Mall real estate and are disconcerting to navigate...”

The 2006 Master Plan was driven by the following goals:

- Prepare future plan with the following characteristics:
 - Visual Orientation
 - Comprehensive and Conceptual Clarity
 - Clustering (Group Related Exhibits and Activities)
 - Improve Museum Lighting – Artificial and Natural
 - Increase visitor’s access to wonderful external vistas
- Provide Additional Exhibit Space
 - Exhibit Space a Premium on the Mall: reorganize and relocate non-essential functions

- Reduce Clutter
- Provide Space for Introductory Exhibit

The resulting Concept Components and Defining Elements are numerous and can be referenced in the original report. Recommendations that were most critical in guiding the currently proposed plan include the consolidation of support and service functions in the Lower Level “back of house”; and the longer-term strategy of maximizing the east and west portions of the museum’s site with significant future East and West Wing additions to free up additional interior space.

2.0 Alternative A: Proposed Action

2.1 Description

Location

The proposed site occupies approximately 30,000 square feet of space, of which 25,000 square feet is within a currently underground, non-visible parking garage area. The existing parking garage, located along the southern edge of NMAH at Floor One (parallel to Madison Drive, NW and beneath the entry terrace facing the National Mall) will be converted into a “suite” of spaces that sit in the “back” of public Floor One and are contiguous to a semi-private zone. The existing garage space, entirely below grade, currently houses 65 parking spaces and accommodates two roadways: Roadway 1 runs from east to west through the garage; Roadway 2, just to the north, runs from east to west, down to the Lower Level loading dock and

exits to the west. Roadway 2 will remain unaffected in the proposed project. Overall dimensions of the garage area to be infilled are approximately 49 feet wide by 500 feet long. The resulting net area reclaimed from the garage is approximately 25,000 square feet of the 30,000 square foot program requirement.

See Appendix C, pages 35 through 43, for the proposed site and floor plans and renderings.

Uses:

The new suite of spaces will accommodate the SI Office of Protection Services, Smithsonian Early Enrichment Center (SEEC) child care facility adjacent to its playground; Health Unit; shared swing office space for visiting Fellows; Information Technology Group; Exhibits Technology Group, NMAH Collections Management; NMAH Collections Records; and the Lemelson Center for the Study of Invention and Innovation (a private endowment by the Lemelson family that includes two fellowships).

Organization and Design Concepts:

The primary design challenges for an underground addition/renovation, with an exceptionally long, narrow configuration, include spatial quality and light.

To mitigate the narrow configuration, the proposed design jogs the corridor and creates ‘nodes’ at the intersections with the Museum’s east and west corridors. In addition, glass entry ‘pavilions’ are located at the far east and west ends of the space to accommodate required program uses, and to use light to

create a strong visual impression at the two entrances. The placement of two similar ‘pavilions’ at the east and west is a response to the symmetry of the existing Museum.

The lightness of these ‘pavilions’ is extended deeper into the infill space through the use of luminous ceilings, glass walls, glass clerestory windows, glass sidelights, illuminated display cases along the corridor, and open office landscape areas.

The ‘pavilions’ are located within the existing walls of the Museum, lightly ‘touching’ the existing garage entry at the existing entrance overhang elements, or ‘headers’. The ‘pavilions’ are detached, and freestanding, from the south Museum wall, touching only the garage entrance ‘header’. The east ‘pavilion’ vestibule will contain an SI Office of Protective Services (OPS) security station with a manned staff (24/7 security) and SEEC entrance. The west ‘pavilion’ vestibule will contain the Lemelson Center conference area with a dedicated Lemelson Center entrance and separate, non-manned staff entrance (with card reader and camera). Both east and west entrances/exits will serve as emergency egress routes from the Museum’s First Floor.

Other Site Issues:

In addition to the garage infill described above, there are also changes to the East Yard configuration. The SEEC modular building will be removed. The existing driveway approach (from 12th Street, NW), will be

reconfigured to accommodate a circular drive for convenient daycare center drop-off, while maintaining roadway clearance for access to the Lower Level loading docks. With the removal of the modular building, the existing playground will remain and eventually be reconfigured. Preliminary concepts included in this assessment show an oval-shaped playground area nestled alongside the newly reconfigured drop-off driveway. Twenty-six existing parking spaces along the current east access driveway will be retained. Nine existing parking spaces will be retained along the west access driveway, and ten will be lost due to the reconfiguration around the west 'pavilion' vestibule.

3.0 Alternative A: Proposed Action's Environmental Effects

3.1 Summary

This alternative proposes a below grade solution with the two exposed ends handled both contextually and sensitively. The SI has determined that this alternative would have no adverse effect under NHPA, Section 106. The DC SHPO concurs with this determination. Additionally, the SI has determined a Finding of No Significant Impact for work associated with implementing this alternative.

3.1.a Natural / ecological features

The Mall is located in an urban environment, in which the natural environment has been

previously disturbed, developed, and partially restored as a grassy landscaped area. Therefore, the area does not provide natural habitat for plant and animal species.

Vegetation:

In general, vegetation at the NMAH consists of landscaped grasses, shrubbery, trees, and gardens.

The landscaping of the site underscores the visual prominence of the building facades. The preponderance of the vegetation, trees, bushes, and ground cover, is located at the corners of the site, permitting larger expanses of open space directly in front of the four sides of the museum. These comparatively open lawn areas allow greater visibility for the marble walls which are enframed by denser stands of trees at the corners (Smithsonian Institution 2005).

Existing shade trees on the Museum grounds (including completion of current Perimeter Security landscape plan) include: American elm, Willow and Red oaks, Maple, Pine, and Sweetgum.

Existing Shrubs and Ornamental trees on the Museum grounds (including completion of current Perimeter Security landscape plan) include: Flowering Dogwood, Japanese Cedar, Corneliancherry Dogwood, Pear, Apple,

Lynwood Forsythia, Inkberry, American Holly, Natchez Crapemyrtle, Oregon Grapeholly, Southern Waxmyrtle, Sweetbay Magnolia, Azalea, Rose, Himalayan Sarcococca, Anglojap Yew, and Lantanaphylium Viburnum.

Existing groundcovers and climbers on the Museum grounds (including completion of current Perimeter Security landscape plan) include: Baltic English Ivy, Creeping Lilyturf, Doffodil, and Ground-covering raspberry.

Under the Proposed alternative, construction of garage infill space would occur only within previously developed and paved areas, with no impact on existing vegetation. The reconfiguration of the driveway and the removal of the SEEC modular building will have a minor impact on the overall site, with a slight increase in driveway paving balanced by a slight increase in landscaped area with the removal of SEEC. There will be no removal of Canopy specimen trees (>900mm) or Broadleaf evergreen specimen trees (>900mm). Any disturbed vegetation (grass, ornamental shrubs, and ornamentals) would be restored, to the degree possible, upon completion of construction.

Phased construction and appropriate best management practices shall be implemented to minimize vegetation disturbance.

Wildlife:

The existing wildlife community likely includes common urban species of small mammals and birds, such as gray squirrels (*Sciurus carolinensus*), Norway rats (*Rattus norvegicus*), house sparrows (*Passer domesticus*), pigeons (*Columbia livia*), and starlings (*Sturnus vulgaris*). There are no listed or endangered animal species, or critical habitat for such species, at or adjacent to the Mall.

The proposed garage infill would occur on a previously disturbed site, incurring no long-term impact on the area's habitat. Wildlife on the project site would be temporarily disrupted by construction. The operation of construction equipment such as backhoes, generators, and jackhammers, and the operation of trucks hauling materials to and from the site, would produce noise and vibrations that would disrupt natural behaviors of area wildlife. Therefore, there would be minor, short-term construction impacts to wildlife.

3.1.b Air Quality

Short-term construction-related impacts to air quality could occur as a result of: (1) emissions from construction equipment and from trucks hauling construction materials to the site and demolished/excavated materials from the site; (2) emissions from vehicles driven to and from the site by construction workers; and (3)

fugitive dust from sitework. Emissions produced during construction would vary daily depending on the type of activity. Mitigation should include the implementation of appropriate best management practices during construction to minimize, or eliminate construction vehicle dust emissions. Two assumptions, important for preventing air quality impacts, should be included in contractor specifications: (1) Electric power for construction should be provided by available commercial power instead of portable generators, wherever feasible; and (2) Water should be used on active excavation areas, exposed soil, and material stockpiles to eliminate wind erosion during high wind conditions.

Under the proposed project, new building elements would be contained below-grade (exposed only at the east and west ‘pavilion’ vestibules, and within existing walls of the Museum). Based on the size of the garage infill and its relatively minor exposure, there would be a negligible effect on air quality due to the completed construction.

In addition, the proposed project would result in decreased vehicle trips, due to a loss of 65 parking spaces within the existing below-grade garage space, and the loss of 10 parking spaces at the west driveway. This total loss of 75

parking spaces, along with NMAH’s continued encouragement of public transportation use by staff, will result in a decrease in mobile emissions.

3.1.c Sound levels

The District of Columbia limits weekday construction and demolition noise to 80 dBA L_{eq} from 7 a.m. to 7 p.m., unless granted a variance. The construction equipment anticipated to be used on-site under the proposed project is not expected to reach this noise level since no pile driving is required. Construction noise levels would be expected to be within the District limits due to the type of construction and equipment required and the planned time of day for construction. During the workday, pedestrians, motorists, office workers, and visitors to NMAH would be subject to construction noise in the vicinity of the project. This area would be limited to the east and west ends of the existing garage, the only exposed areas of new construction. Visitors to the museums, which are considered to be sensitive noise receptors, may be affected by demolition and construction activities such as removal of pavement, soil excavation, hauling of materials, and construction of security measures. There are no other sensitive noise receptors on or adjacent to NMAH. Overall, minor, short-term, construction noise impacts are anticipated on-site. Short-term construction-related noise will

be minimized by controlling noise at its source through implementation of appropriate best management practices, as necessary, to meet the District noise standards.

The movement of heavy trucks transporting construction materials could create an adverse noise impact on residences adjacent to the designated travel routes. However, the use of haul routes is expected to be limited to the construction hours specified above, and the routes would comprise major traffic arterials and interstate highways. Therefore, there would be minor noise impacts associated with haul routes under the proposed project. Construction specifications will require the selection of truck routes that will minimize the potential for noise impacts to residences.

There may be a minor increase in visitation as a result of the implementation of the proposed project. Therefore, there could be a long-term increase in traffic or traffic generated noise due to the operation of the project. However, mitigation for this increase is provided in the removal of 75 parking spaces from the garage and site.

3.1.d Water supply, wastewater treatment and storm water runoff

Water Supply:

The DC-WASA provides water supply to the District. The source of raw water comes from the Potomac River, which is treated via the Dalecarlia and McMillan Reservoirs (for sedimentation) and DC-WASA water treatment plants. Pump stations within the distribution system deliver water through mains and laterals to the buildings and facilities (fire hydrants) within the Mall. Water mains of 4- and 20-inch diameter are located along Constitution Avenue, with distribution pipes of 4- to 8-inch diameter connecting the water mains to the buildings, including NMAH.

Implementation of the proposed project would not include excavation in the areas of the water mains and distribution pipes. Therefore, water supply pipes will not be impacted during construction.

Because additional plumbing fixtures and wet-pipe sprinkler capacity will be added to the garage infill area, and additional visitors may be added to the project site as a result of the implementation of the proposed project, the demands on the water supply would increase. Therefore, the capacity of the water supply system of the project site would be impacted.

Wastewater Treatment:

The District of Columbia Water and Sewer Authority (DC-WASA) provides wastewater

management in DC that includes collection, treatment, and the discharge of effluent. A majority of the sewage systems in DC are comprised of combined storm and sanitary sewer lines. Sewage and storm water are collected and transported in this combined sewer system for treatment at DC-WASA's Blue Plains Wastewater Treatment Plant (WWTP). Treated effluent is then discharged into the Potomac River. Under extreme storm water events, combined sewer overflows (CSO's) may be released directly into the Potomac River due to combined flows exceeding the hydraulic capacity of the system. Even though CSO's contain an untreated wastewater component, their release into the River occurs for a short duration and the wastewater is diluted by the storm water component of the discharge and the storm water-laden river.

There are two sanitary sewer laterals serving the building located at the northwest and southwest corner of the NMAH. These lines extend to the existing 457mm sanitary pipes running north and south of the building and connecting to the existing Constitution Avenue and 14th Street sanitary sewer systems. An existing sanitary sewer pipe crossing Constitution Avenue enters the NMAH site near the intersection of Constitution Avenue and 14th Street and

connects to the existing sanitary sewer pipe located at 14th Street.

The proposed project would add the following water and sewer demands which would impact the existing wastewater treatment systems:

- Water closets: 10
- Lavatories: 9
- Urinals: 1
- Drinking fountains: 2
- Mop basins: 2
- Sinks: 7
- Laundry sink: 1
- Washer: 1
- Eye wash: 1
- Hose bibs: 2
- Dishwasher: 1
- Shower: 1

(In addition, 2 existing sinks and 1 existing toilet will be demolished).

The overall impact at peak demand would necessitate a 2 ½" water supply (min.), and 4" sanitary sewer, which constitutes the minor impact on the sanitary sewer system.

Storm Water Runoff:

The storm water runoff generated from the area north of the NMAH building site sheet flows toward Constitution Avenue and is collected by the existing inlets near the existing Fountain and

the existing Constitution Avenue curb inlet structures. The storm water runoff from the area south of the building sheet flows to the existing area drains located at the perimeter of the NMAH building and then is directed to the existing 457mm diameter storm sewer system located at Madison Drive. The storm water runoffs from the east area of the building are collected by the existing grate inlets and directed through the existing 457mm diameter storm sewer pipe running parallel to the east face of the building to the existing Constitution Avenue storm drain system. The drainage from the west area of the building sheet flows to the sunken area where the existing bandstand structure is located, and then directed to the existing 457mm diameter storm sewer located at Madison Drive. The storm water runoffs from the parking lots located east and west of the NMAH building are collected by the existing inlets within the parking lots and directed to the existing storm sewer systems running parallel to the east and south faces of the NMAH building.

Drainage from the NMAH roof structure is directed through the existing closed storm sewer pipes into the existing storm sewer systems. Drainage from the modular SEEC roof structure flows off the building into the landscaped east area and collected the existing grate inlets as described in the previous paragraph.

Implementation of the proposed project would maintain the current impacts on the storm sewer system. The combination of removal of the SEEC modular building and its concrete pad, along with the introduction of a new turn-around drop-off at the east access drive will create an approximately equal amount of impervious surface area. Any difference will be beneath the threshold required to develop a new storm water management plan. Therefore, there are no additional impacts under the proposed project.

3.1.e Energy requirements and conservation

Electrical service to the NMAH building is provided via four 15kV PEPCO feeders supplying four 15kV switchgears located in the Lower Level switchgears rooms. Eight 15kV feeders originating from 15kV switchgear supply eight substations equipped with network transformers (13.2kV primary / 480 / 277V secondary). 480/277V feeders are distributed throughout the building to serve electrical closets housing power distribution panels. New electrical rooms have been recently provided, and circuits feeding the proposed garage infill project will be transferred to the new panels in the new electrical rooms. Additional capacity generated by the proposed project has been accounted for.

The cooling plant serving NMAH is located in the Lower Level basement. The total plant capacity is 2,475 tons provided by three electric chillers. The chilled water is distributed through the building by a primary/secondary pumping system. Additional demand due to the proposed project was anticipated and provided for in previous recent modifications. A total capacity of 100 tons is available for the proposed project.

NMAH's heating is provided by GSA. High pressure steam is brought to the building to a two-stage pressure reducing station. The low pressure steam is then distributed through the building for heating and humidification purposes. Additional steam capacity will be required to provide heating for the proposed 30,000 sf garage infill project.

3.1.f Solid waste

Non-hazardous solid waste is generated by the operation of NMAH and is removed for disposal or recycling. Non-operational activities such as construction activities generate solid waste that requires separate waste haulers. Several landfills are located near the District for the disposal of various types of non-hazardous solid wastes.

Construction of the proposed project would generate amounts of non-hazardous solid waste such as asphalt, concrete, and other

construction-related materials. This generation of solid waste would have a short-term impact on the method and frequency of collecting, hauling, and disposing of solid waste. Additional collection facilities designed for demolition and solid waste would be required in the vicinity of the construction activity. To minimize potential adverse impacts to solid waste systems from the construction of the proposed project, the following mitigation measures are recommended: (1) Recycle building materials where possible; and (2) Promote cost-effective waste reduction and recycling activities.

Because additional visitors may be added to the project site as a result of the implementation of the proposed project, there would be a minor long-term impact to solid waste systems.

3.1.g Transportation

Vehicular:

Vehicular circulation involves both vehicle and truck access into the site, and vehicular traffic on the surrounding streets. Vehicles entering the site do so from 12th Street (southbound access only) and proceed either down to the existing parking area (site of proposed project) under the Mall Plaza, with 65 parking spaces, or down to the Lower Level loading docks (trucks). Limited site parking currently exists along the east driveway (22 spaces) and west

driveways (19 spaces). Exiting occurs on 14th Street. Guard booths secure both the 12th Street entry, and the 14th Street exit.

VIP drop-off and primary fire/emergency access is off Constitution Avenue at the north “Fountain” drive. This driveway is controlled by an operable barrier for security concerns. Secondary emergency access is provided at the lay by on Madison Drive.

Vehicle parking is allowed on some streets surrounding the NMAH. Metered parking is allowed on the south side of Madison Drive and both sides of Constitution Avenue. 12th Street provides limited parking, and no parking is allowed on 14th Street. Taxi service to NMAH is accommodated by a limited taxi stand on the south side of Madison Drive.

Under the proposed project, on-site parking is impacted. All 65 parking spaces in the garage beneath the Mall Plaza would be replaced by the garage infill museum program; and 10 parking spaces would be lost from the west access driveway. Proximity to Metro and bus lines helps to mitigate the loss of on-site parking.

Public Transportation:

A variety of buses and the Metro subway provide transportation to those going to, or near,

the NMAH site. Constitution Avenue is a major thoroughfare with two-direction traffic. Many bus routes utilize Constitution Avenue, with stops located on both north and south sides of the street. There is also a variety of bus stops near the corners of 12th and 14th Streets and Constitution Avenue, bracketing Federal Triangle. Visitors from these buses will enter the Museum at the Constitution Avenue entry.

Madison is a one-way, narrow street, fronting the National Mall, with no passing ability. Large tour buses wait (often in long rows backed up to 12th Street), pick-up and drop-off on the north side of the street directly in front of the museum, east of the lay by. The amount of large and wide vehicles on narrow Madison Drive can easily lead to congestion on busy days.

The NMAH is well-served by two DC Metrorail stations close to the site. The Smithsonian Station is directly south across the Mall, close to the Department of Agriculture, convenient for the Madison Drive entry. The Federal Triangle Station is one-half block north of Constitution Avenue. Visitors from this station approach from 12th Street and enter on the First Floor of the Museum. Pedestrians who exit from Federal Triangle courtyard mid-block are obliged to walk to the corner to cross Constitution Avenue.

Under the proposed project, there may be a slight increase in visitors to the NMAH, and there would be a potential increase in transit ridership among Museum staff due to the loss of 75 on-site parking spaces. Therefore, there would be a minor impact to transit systems.

3.1.h Community facilities and services

Recreational Facilities:

Open space and its associated natural, scenic, and recreational qualities are high priorities in the District of Columbia. There are hundreds of acres of open space in the District serving the recreational needs of both the city's residents and visitors. The Mall is one of the most significant and widely used areas of open space within the city. The NMAH fits within this open space network, and due to its low percentage of lot occupancy compared to most other museums on the Mall, provides large areas of open space that add to the visual extension of adjacent open spaces. Under the proposed project, the garage infill space is within a previously developed area, below grade, with no impact on the open space. The reconfiguration of the east access drive adds a small amount of paved surface to accommodate a turn-around loop, but this is mitigated by the removal of the modular SEEC structure and its concrete foundation pad from the east side of the Museum.

Cultural Facilities:

The NMAH is a significant cultural institution with national and international prominence. The proposed project, with its reorganization of support spaces, and opening up of public spaces, will have a significant positive impact on the functioning of the Museum, and its ability to meet its Purpose and Need.

Other Facilities:

The mission of the Smithsonian Institution, the increase and diffusion of knowledge," is educational in nature. The Smithsonian Early Enrichment Center (SEEC), housed in NMAH is a museum-based early childhood program, providing educational care for 50 pre-school children (with 10 full-time and 3 part-time staff/teachers). As a model program, SEEC extends its offerings to education in schools and museums through educational outreach initiatives. The SEEC is a benefit to both staff and others in the community. Under the proposed project, the SEEC would be relocated to the east garage infill space. This move would have the following positive impacts: (1) easier access to the facility by parents, children and staff, in close proximity to the proposed circular drop-off at the east access driveway; (2) closer proximity to the playground on the east side of the building. In addition, with the removal of the existing modular building in the east yard of

the Museum site, there is ample room to reconfigure and improve the playground.

The nearest public safety facilities are the First District Police Station at 415 4th Street, SW, and Engine 13 at 450 6th Street, SW. There are no religious facilities in the immediate area.

3.1.i Economic resources

Due to the fact that the proposed project would not affect commercial space, there should be no direct economic or fiscal impacts as a result of implementation. There may be positive indirect economic or fiscal impacts due to the potential increase in visitors to NMAH as a result of the proposed project, who would spend money in the Mall vicinity.

There would be no fiscal impacts related to property taxes; no property tax is currently received from the Mall area because the buildings and land are owned by federal entities.

3.1.j Historic and aesthetic features

Historic Plans for the Mall:

L'Enfant's Plan of Washington, DC, completed in 1791, and drafted by Benjamin Banneker and others, is the sole American example of a comprehensive baroque city plan with a coordinated system of radiating avenues, parks, and vistas overlaid upon an orthogonal grid of streets. The Plan defines the physical and

symbolic character of the nation's capital city through its arrangement of buildings, structures, and views. The Plan also establishes a preliminary idea for an expanse of green space, primary axis, and cross axes to follow in the development of the National Mall. The indication of buildings along perimeter of the central ground did not reflect today's scale and monumentality, which would be introduced in later plans.

By 1867, Andrew Jackson Downing proposed a much different "Method of laying Out the Public Grounds at Washington," characterized by several distinct subgroups or garden "scenes" and naturalistic-style landscape of the "Picturesque landscape" period. Only the area adjacent to the Smithsonian Institution Building was actually developed according to Downing's Plan.

The Senate Park Commission of 1901, known as the McMillan Commission, expanded L'Enfant's plan to create the most elegant example of the "City Beautiful" tenets in the nation. The McMillan Plan reaffirmed L'Enfant's sense of unity with an uninterrupted "greensward" vista from the Capitol to the Washington Monument. Cross axes were strengthened and the picturesque and clustered tree plantings were replaced with the strong borders of straight lined trees sited between four

parallel vehicular drives. Unlike the L'Enfant Plan, and more in keeping with the "City Beautiful" movement, the buildings along Constitution Avenue and Independence Avenues are grander and more formal.

Another development plan for the Mall was put forth in 1933 by Harold Ickes, Secretary of the Department of the Interior and Administrator of the Public Works Administration, to improve the water services, transportation flow, and design in accordance with the L'Enfant and McMillan Plans. This vision included an open vista between the Capitol and Washington Monument with the removal and replanting of trees, grading of the landscape, and a geometric organization of public buildings.

The Skidmore, Owings, and Merrill Plan of 1965/1974, as amended, is a further evolution of the McMillan Plan, effecting the conversion of Adams and Washington Drives into packed gravel pedestrian paths, forcing cross streets underground, and otherwise humanizing the landscape palette. The Comprehensive plan for Smithsonian Mall Site Improvements, completed in 1994, is supportive of the L'Enfant/McMillan tradition, while introducing the concept of spatial zones surrounding each building and entrance.

The National Mall was listed on the National Register in 1966 as an historic site. The nomination was then updated in 1981. It lists "Landscape Architecture" as the Area of Significance, an acknowledgement of the formal rows, or allees, of mature elm trees that help define the open space, and mentions nine buildings, two sculpture gardens, and five statues on or adjacent to the Mall. However, it states that the buildings are only mentioned for reference.

The NMAH, along the north edge of the Mall, sits within the heart of this historic site. The proposed project is respectful of the building's placement within the Mall, with no impacts to the outer edges of the Mall. Since the proposed action would be located, sensitively, within the previously developed area of the Museum, the greensward and spatial definition of the mall would not be impacted.

L'Enfant's plan for the City of Washington was listed on the National Register in 1997. The National Park Service has nominated the L'Enfant plan to be a National Historic Landmark. This nomination also recognizes components of the McMillan Plan that contribute to the plan of the historic city of Washington, DC. The nomination identifies historic streets, reservations, and appropriations, and historic vistas. L'Enfant's Plan was also

preliminarily listed in the DC Inventory of Historic Sites in 1964.

Due to the location of the proposed project and open space refinements, the general spatial layout and historic character of L'Enfant's Plan would not be impacted.

Historic Buildings:

There are a number of sites and buildings in the immediate area that are listed or considered eligible for listing on the National Register of Historic Places and/or the District of Columbia Inventory of Historic Sites, or are considered historic. Although not all of the SI buildings on the Mall are currently listed on the National Register or DC Inventory, the SI regards all of its major SI Mall buildings as "historic." In consultation with the DC SHPO, the SI has determined that the NMAH is eligible for listing on the Register as a contributing element of the National Mall Historic District. The SI will prepare a nomination package within the year.

Distinguished as the first modern building constructed on the Mall, the National Museum of American History (originally called the Museum of History and Technology) was designed by McKim, Mead, and White and Steinman, Cain, and White in 1964. Described by the Smithsonian as "Contemporary Classic," the building was transitional in style and

character. It was effectively a modern building derived closely from traditional architectural examples, such as the Lincoln Memorial and the Stripped Classicism of Paul Cret.

The proposed project touches the building lightly by occupying previously developed space hidden below-grade, and by adding two 'pavilion' entrance vestibules with a symmetrical relationship to the original symmetrical façade of the building. These two glassy, transparent pavilions are largely hidden from view, one level below the main Mall Plaza open space. There would be a minor impact on the architecture of the Museum, due to the limited exposure of the two end pavilions.

As noted earlier the SI has determined that this alternative would have no adverse effect under NHPA, Section 106. The DC SHPO concurs with this determination. Additionally, the SI has determined a Finding of No Significant Impact related to the work related to implementing this alternative.

Visual Resources:

The main goal of the proposed project's site selection includes locating the museum spaces within an existing service/garage area to reduce visual impact on NMAH and National Mall visitors. The proposed Museum programs housed within the garage infill site would not be

visible from the majority of the NMAH’s visitor areas, and from the majority of public spaces within the National Mall. In addition, the proposed project would not be visible to NMAH’s neighbors.

The architectural features that are exposed to the exterior include two, glass-enclosed ‘pavilions’ at the east and west ends of the former garage space that house program elements as well as new entry points for staff and other user groups. These light, transparent structures evoke the symmetry of the original museum, and create a first impression at the new entry points that is carried through to the interior spaces by the use of luminous ceilings, glass walls, glass clerestory, glass sidelights, and illuminated display cases, all supporting a theme of lightness and transparency. The two pavilions contrast with the heavy masonry language of the original Museum, and touch the former garage entry very lightly, at the “headers” of the former garage entrance openings. The simple, light structures clearly distinguish old and new, and would be potentially reversible if future needs should change.

3.1.k Environmental justice

The NMAH and its immediate surroundings do not contain sizeable residential populations. The Mall is located within Ward 2, in Census Tract 62.2. According to the 2000 Census,

Tract 62.2 contains only 12 residents, five identified as Black and seven identified as White. Thus, there should not be communities of concern with regard to environmental justice within the immediate area surrounding the proposed NMAH Garage infill improvements.

4.0 Other Alternatives Considered

See Appendix D, page 47 for other alternative locations.

4.1 Alternative B: No Action

Under the No Action Alternative, no Garage Infill improvements would be implemented at the Lower Level of NMAH. The current garage functions and circulation would remain in place. Thus, there would be no impacts to any of the following Impact Topics relative to current conditions:

- Natural / ecological features
- Air Quality
- Sound levels
- Water supply, wastewater treatment and storm water runoff
- Energy requirements and conservation
- Solid waste
- Transportation
- Community facilities and services
- Economic effects
- Historic and aesthetic features
- Environmental justice

Challenges:

Under the No Build Alternative, the necessary improvements to the functionality of NMAH would not occur, and, consequently, NMAH would not fulfill its Purpose and Need.

Impacts:

As stated above, no new impacts would occur relative to current conditions under the No Action Alternative. However, relative to the Proposed Alternative, the No Build Alternative would maintain existing vehicle-related impacts that would be reduced in the proposed action. Vehicle trips and on-site parking generated from 75 parking spaces that would be removed in the proposed project would continue to have negative impacts on air quality, traffic, and noise.

4.2 Alternative C: East Addition

Under the East Addition Alternative, no Garage Infill improvements would be implemented at the Lower Level of NMAH. Instead, the 30,000 square feet of program would be located in a freestanding addition (with a connector element) within the landscaped open area on the east side of the Museum.

Challenges:

Site Value and Potential: While the Smithsonian's Master Plan of 2006 foresaw a major addition in this area, the proposed uses indicated in the Master Plan are markedly different. Given the precious nature of the

site on the National Mall, being one of very few sites that could accommodate a substantial addition, an east-side addition of 30,000 square feet would undervalue the site's potential. The opportunity for a more substantial consolidated library /archives center, as envisioned in the Master Plan, would be removed.

Functionality: Adjacency issues are critical to the functioning of the Museum and in its ability to meet its Purpose and Need. Information Technology requires direct connections to infrastructure hubs running through the center of the Museum; and the Exhibits Technology Group requires physical access because all audio-visual exhibit components emanates from this user.

Scale: Due to program requirements and the need to maintain large object access on the east side of the Museum, an east-addition would be detached from the main building, and joined with a connector. The 30,000 square feet of program would likely be reduced to account for those functions (such as IT) that need better connectivity and adjacency to the center bay of the Museum. The end result would be a small-scale addition floating in the landscaped open space. The small-scale addition would be larger than a pavilion and smaller than an urban-edge-defining structure in character with the buildings lining the National Mall.

Site Obstacles: The east yard of the Museum sits above a WMATA Metrorail tunnel and easement. While construction above the tunnel is feasible, it will likely

add to the economic challenges faced by an east addition. The extra cost associated with building over a Metro tunnel would be better absorbed in a more substantial addition.

Impacts:

The impacts generated by the East Addition Alternative would affect several of the Impact Topics:

- The addition would have a significant impact on Vegetation, Storm water runoff, Historic Features, and Visual Resources.
- There would be moderate increases in the impacts on Energy requirements (being above grade, greater façade/roof exposure; heat gain/heat loss).

4.3 Alternative D: West Addition

Under the West Addition Alternative, no Garage Infill improvements would be implemented at the Lower Level of NMAH. Instead, the 30,000 square feet of program would be located in a substantially connected addition within the landscaped open area on the west side of the Museum.

Challenges:

Site Value and Potential: While the Smithsonian's Master Plan of 2006 foresaw a major addition in this area, the proposed uses indicated in the Master Plan are markedly different. Given the precious nature of the site on the National Mall, being one of very few sites that could accommodate a substantial addition, a west-

side addition of 30,000 square feet would undervalue the site's potential. The opportunity for a more substantial expansion on more than one level, incorporating larger-scale public uses (such as auditorium and cafeteria spaces), as envisioned in the Master Plan, would be removed.

Functionality: Adjacency issues are critical to the functioning of the Museum and in its ability to meet its Purpose and Need. Information Technology requires direct connections to infrastructure hubs running through the center of the Museum; and the Exhibits Technology Group requires physical access because all audio-visual exhibit components emanates from this user.

Scale: A west-addition would be connected to the main building as an extension of the Museum's base, or plinth. The 30,000 square feet of program would likely be reduced to account for those functions (such as IT) that need better connectivity and adjacency to the center bay of the Museum. The end result would be a small-scale addition attached to the existing Museum. The small-scale addition would be larger than a pavilion and smaller than an urban-edge-defining structure in character with the buildings lining the National Mall.

Impacts:

The impacts generated by the West Addition Alternative would affect several of the Impact Topics:

- The addition would have a significant impact on Vegetation, Storm water runoff, Historic Features, and Visual Resources.
- There would be moderate increases in the impacts on Energy requirements (being above grade, greater façade/roof exposure; heat gain/heat loss).

4.4 Alternatives Considered but Dismissed:

4.4.a Northeast , northwest, southeast and southwest corners

As part of the current process of consolidating support uses and expand public spaces in the Museum, four additional preliminary alternatives were considered during the design process. These alternatives looked at placing the required program space in the general vicinity of each of the four corners of the site. The corner sites were dismissed early on for the following reasons:

- Existing tree massing at all four corners would require the removal of a significant landscape component of the site. The corner tree massing was an integral part of the original site design. The landscaping of the site underscored the visual prominence of the building facades. The preponderance of the vegetation, trees, bushes, and ground cover, is located at the corners of the site, permitting larger expanses of open space directly in front of the four sides of the museum. These comparatively open lawn

areas allow greater visibility for the marble walls which are enframed by denser stands of trees at the corners (Smithsonian Institution 2005).

- The appearance of a structure placed on one of the four corners appeared ad-hoc and unrelated to the original site design.
- Most of the required program uses cannot function in a remote location. Program and infrastructural adjacencies are necessary for basic functionality.
- Unlike the southeast and southwest corners, which could accommodate additions partially tucked into the existing berm, additions at the northwest or northeast corners would encroach on the strongly defined urban edge along Constitution Avenue, with significant impacts on the character of one of the L'Enfant Plan's major streets.
- To fit the required program, buildings at the corners would encroach upon the desired fifty-foot security setback. Mitigating this encroachment with a sufficiently armored building structure would be economically unfeasible.

4.4.b Off-Site

Under the Off-Site Alternative, program components that could function remotely would be housed off-site in an undetermined location.

Program components that require physical connections to the Museum would remain on-site, in the location of the existing garage.

Challenges:

Out of the current program, only about 10% of the necessary program space can be housed off-site and still meet the Purpose and Need for NMAH.

Adjacency issues are critical to the functioning of the Museum and in its ability to meet its Purpose and Need. Collections Records needs to remain at the Museum. Information Technology requires direct connections to infrastructure hubs running through the center of the Museum; and the Exhibits Technology Group requires physical access because all audio-visual exhibit components emanates from this user. In addition, staff logistics and movement between the Museum and off-site location would require solutions (such as shuttle routes) that would generate another set of impacts.

Impacts:

Because a large majority of the uses would remain in the garage infill space, the effects under this alternative would be the same as those described for the proposed alternative in Section 3, plus the effects associated with

relocation, resulting in a net increase in overall impact.

5.0 Agencies and Persons Consulted

The following Federal agencies were consulted over the course of the environmental analysis process for the proposed project:

- Smithsonian Institution, National Museum of American History (NMAH)
- Smithsonian Institution, Office of Facilities and Engineering operations (OFEO)
- Smithsonian Institution, Architectural History and Historic Preservation Division (AHHP)
- National Capital Planning Commission (NCPC)

The following local agencies and entities provided project input through internal scoping, individual meetings and contacts:

- U.S. Commission of Fine Arts (CFA)
- District of Columbia State Historic Preservation Officer (DC SHPO)

6.0 References

Smithsonian National Museum of American History Behring Center. *The Making of a Modern Museum: Report on the Design and Construction of the National Museum of American History, Behring Center*. 2005.

Smithsonian Institution. *National Museum of American History, Behring Center: Comprehensive Facilities Development Plan: Existing Conditions Report*. 2005.

Smithsonian Institution. *National Museum of American History, Behring Center: Comprehensive Facilities Development Plan: Master Plan*. 2006.

Smithsonian Institution. *Smithsonian Institution Mall-Wide Perimeter Security Improvements: Environmental Assessment*. 2004.

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Appendix A: NHPA, Section 106 Consultation

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GOVERNMENT OF THE DISTRICT OF COLUMBIA
STATE HISTORIC PRESERVATION OFFICER



March 18, 2009

Ms. Amy Ballard
Historic Preservation Specialist
Smithsonian Institution
Post Office Box 37012 MRC 511
Washington, DC 20013-7012

RE: Proposed Garage Infill Project; National Museum of American History

Dear Ms. Ballard:

Thank you for responding to the March 10, 2009 letter from the DC State Historic Preservation Office (SHPO) regarding the above-referenced undertaking. We have reviewed your response and are writing in accordance with Section 106 of the National Historic Preservation Act to provide additional comments regarding effects on historic properties.

We understand that the Smithsonian Institution has determined that the National Museum of American History (NMAH) is eligible for listing in the National Register of Historic Places as a contributing element of the National Mall Historic District under Criterion C:

That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

Although the interior of the NMAH has been significantly altered, the integrity of the interior does not necessarily need to be intact for the building to be considered eligible as a whole. In addition, the NMAH is such an "integral part" of the National Mall Historic District that it qualifies for listing as a contributing element of that district even though the museum is not quite yet 50 years old. Criteria Consideration G may also be applicable because of the building's exceptional importance.

We understand that the Smithsonian will prepare a National Register nomination package for the NMAH within one year of our March 10, 2009 letter and we greatly appreciate the Smithsonian Institution's commitment to its historic properties.

Since the NMAH has been determined eligible for the National Register for Section 106 purposes pursuant to 36 CFR 800.4(c)(2), we have applied the criteria of adverse effect and can now concur with the Smithsonian Institution's determination of "no adverse effect" for the proposed garage infill project. In light of this determination, we also agree that the Smithsonian Institution's use of National Environmental Policy Act (NEPA) procedures will provide adequate opportunities for public involvement in accordance with 36 CFR 800.2(d)(3).

Ms. Amy Ballard
Proposed Garage Infill Project; National Museum of American History
March 18, 2009
Page 2

If you should have any questions or comments regarding this matter, please feel free to contact me at david.maloney@dc.gov or 202-442-8850 or Andrew Lewis at andrew.lewis@dc.gov or 202-442-8841. Otherwise, we look forward to receiving the National Register nomination package for the NMAH as soon as it can be made available and we thank you for providing this opportunity to review and comment.

Sincerely,

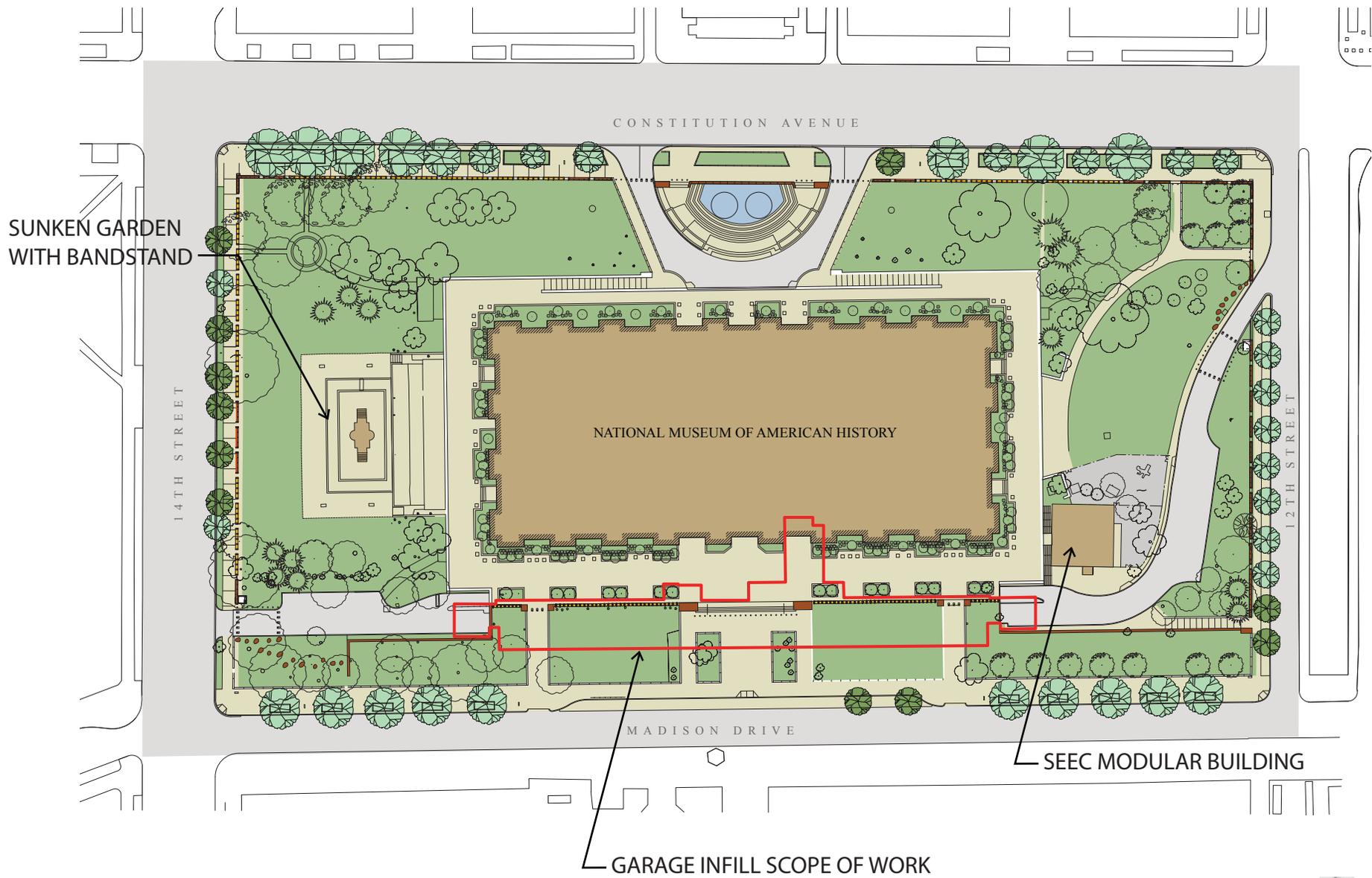
David Maloney
State Historic Preservation Officer

09-043
cc: Patrick Andrus, National Register
Frederick Lindstrom, CFA
Nancy Witherell, NCPC

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Appendix B: Existing Conditions

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GARAGE INFILL: ENVIRONMENTAL ANALYSIS

SI Project Number 0703103

National Museum of American History, Washington, DC

EXISTING SITE PLAN

March 20, 2009



GARAGE INFILL: ENVIRONMENTAL ANALYSIS

SI Project Number 0703103

National Museum of American History, Washington, DC

EXISTING CONDITIONS - GARAGE

March 20, 2009



GARAGE INFILL: ENVIRONMENTAL ANALYSIS

SI Project Number 0703103

National Museum of American History, Washington, DC

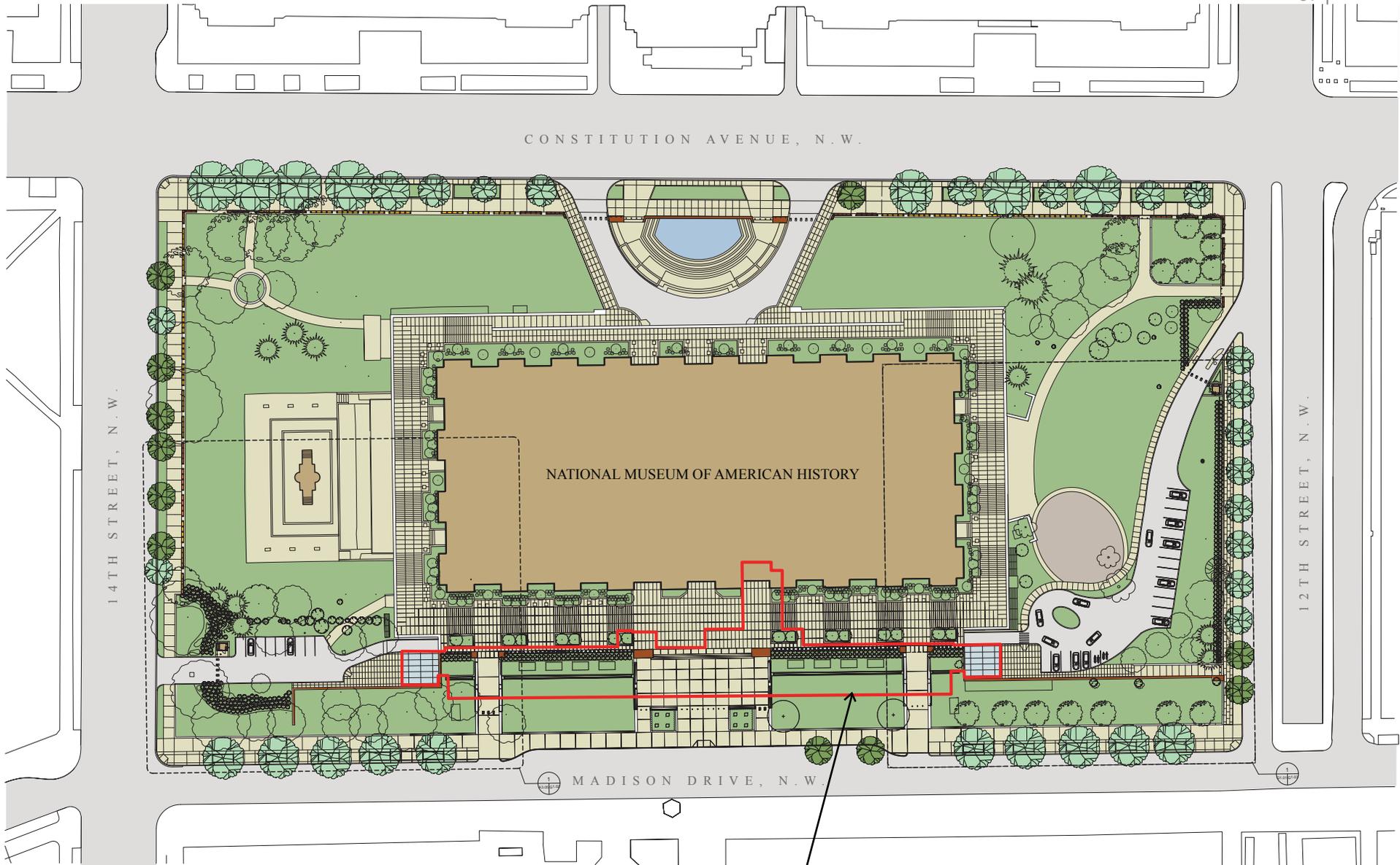
EXISTING CONDITIONS - EAST END/12TH STREET

March 20, 2009

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**Appendix C: Proposed Alternative: Site Plan, Floor Plan,
Site Location Diagrams, and Proposed Renderings**

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← GARAGE INFILL SCOPE OF WORK

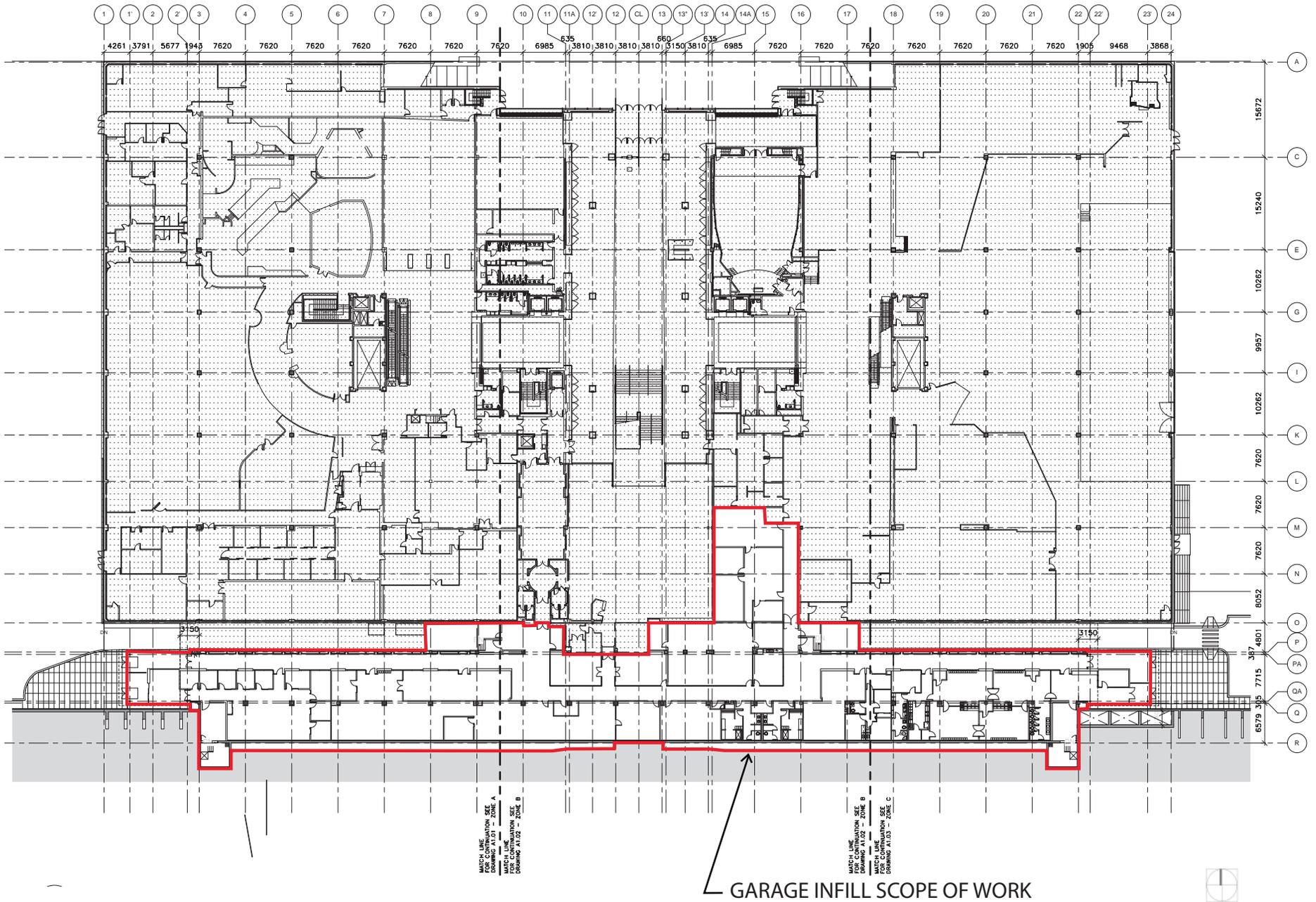
GARAGE INFILL: ENVIRONMENTAL ANALYSIS

SI Project Number 0703103

National Museum of American History, Washington, DC

PROPOSED SITE PLAN

March 20, 2009



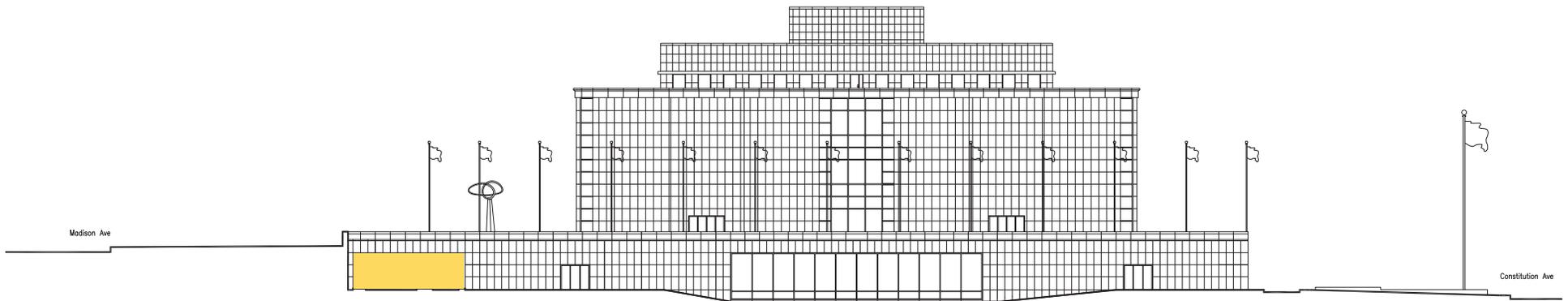
GARAGE INFILL: ENVIRONMENTAL ANALYSIS

SI Project Number 0703103

National Museum of American History, Washington, DC

PROPOSED FIRST FLOOR PLAN

March 20, 2009



 Proposed Site Location

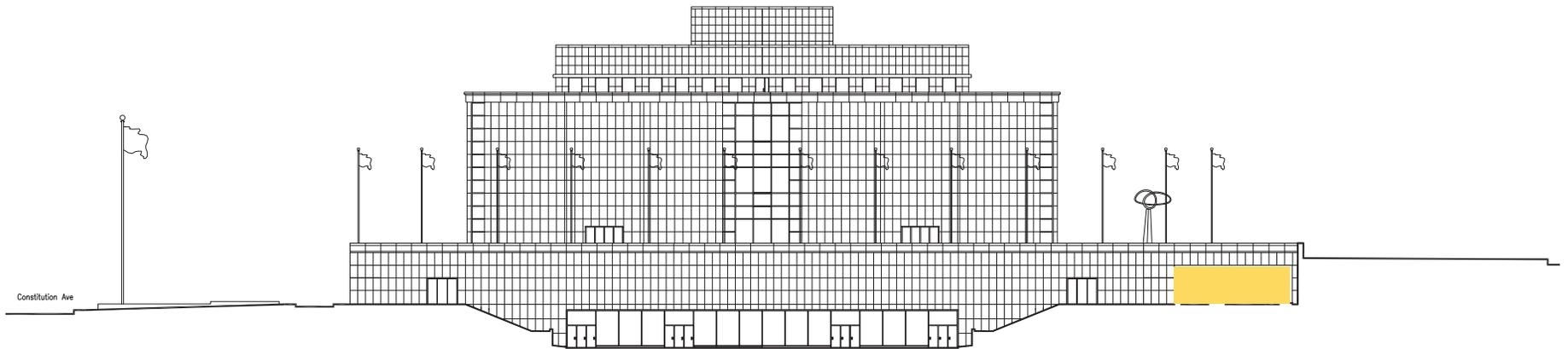
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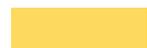
SI Project Number 0703103

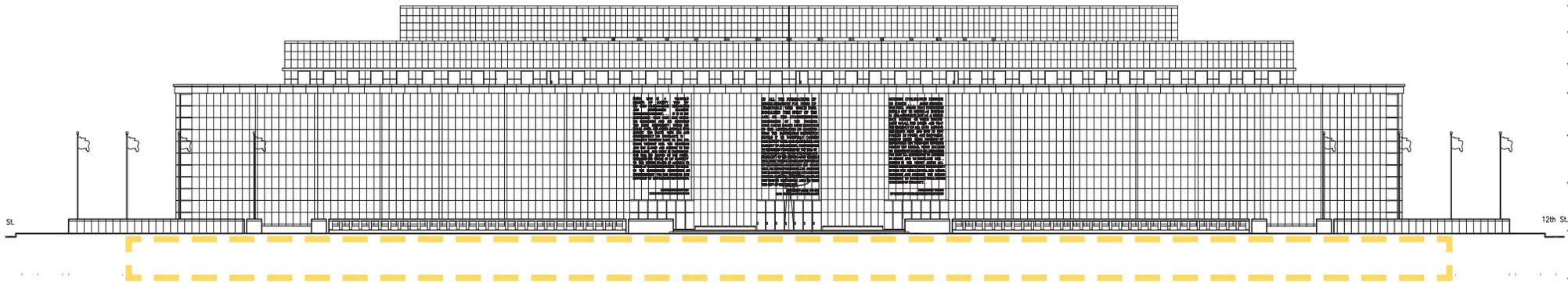
National Museum of American History, Washington, DC

EXISTING BUILDING ELEVATION - EAST

March 20, 2009



 Proposed Site Location



 Proposed Site Location

GARAGE INFILL: ENVIRONMENTAL ANALYSIS

SI Project Number 0703103

National Museum of American History, Washington, DC

EXISTING BUILDING ELEVATION - SOUTH

March 20, 2009



Before



After

GARAGE INFILL: ENVIRONMENTAL ANALYSIS

SI Project Number 0703103

National Museum of American History, Washington, DC

PROPOSED RENDERINGS - EAST END

March 20, 2009



Before



After

GARAGE INFILL: ENVIRONMENTAL ANALYSIS

SI Project Number 0703103

National Museum of American History, Washington, DC

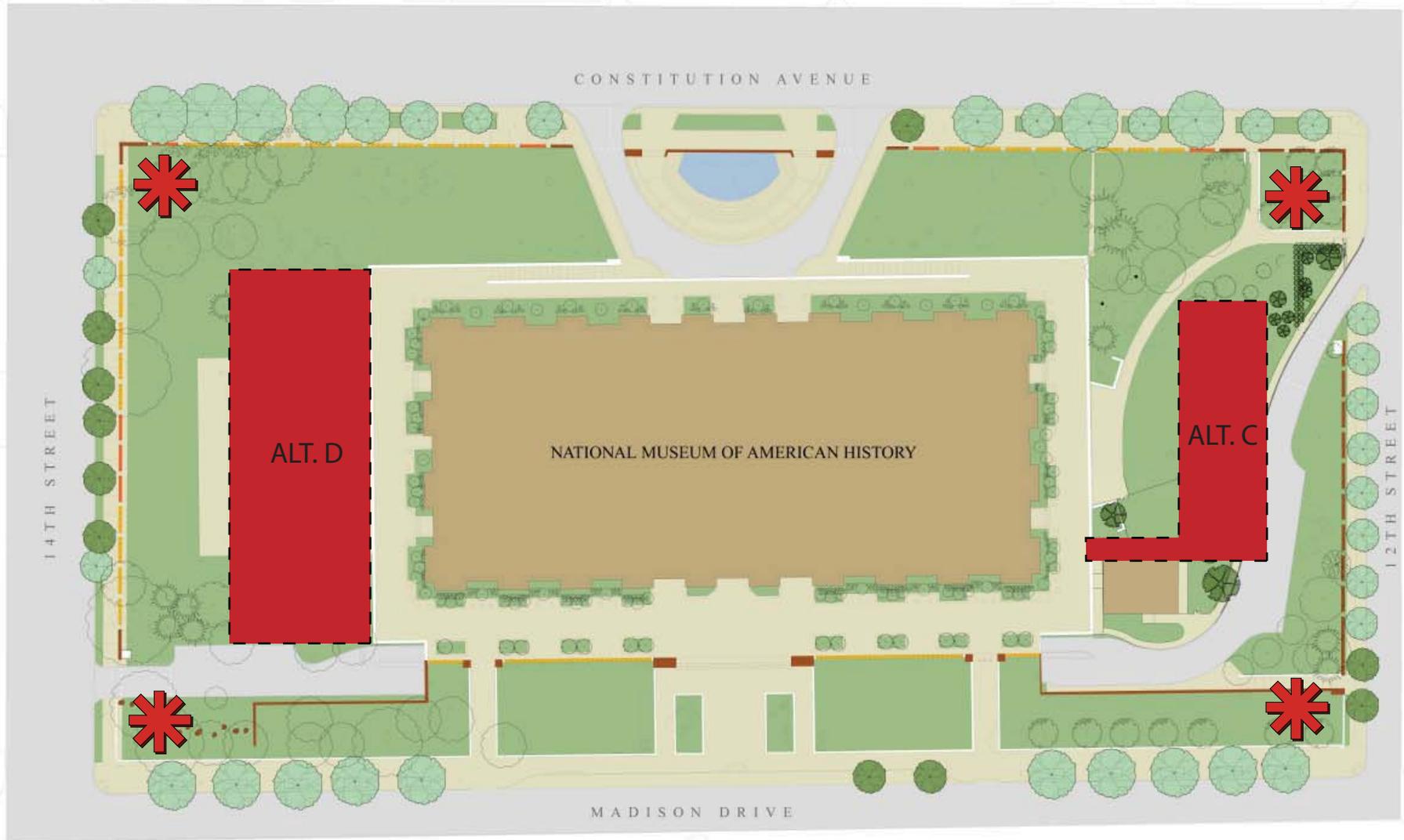
PROPOSED RENDERINGS - WEST END

March 20, 2009

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Appendix D: Potential Site Alternatives Study

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 Alternatives considered but dismissed

