



WASHINGTON MONUMENT

## New Visitor Security Screening Facility



**National Capital Planning Commission**

FINAL APPROVAL SUBMISSION

December 30, 2016

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## Project Narrative

In June of 2010, the National Park Service (NPS) National Mall and Memorial Parks (NAMA) and National Capital Region (NCR) initiated the design of a new Visitor Entrance and Security Screening Facility (VSF) to replace the temporary facility that currently rests at the base of the east façade of the Washington Monument (Monument). Beyer Blinder Belle Architects & Planners, LLP (BBB) and a team of consultants was tasked with developing a range of alternatives for the improvement of security and visitor screening. In December 2013 the team received preliminary approval and with this submission is requesting final approval. The design process, basic program, and basic concept remain substantially unchanged as they impact the exterior appearance and the relationship to the Monument since the 2013 preliminary approval with two exceptions as noted below:

Minor modifications proposed to the building to include a granite curb to meet the plaza, mullion placements, the lowering of the connecting hyphen roof, and separation of the ingress and egress doors. We are providing the architectural set and the previous and current renderings to show the minor changes due to this design evolution.

With the overall examination of systems in the monument coming recently to the fore, NPS and the team reviewed the best long term solution that included both the VSF and the Monument. They include a range from separate systems to connecting to the existing system. In review of this report with NPS, it was decided that the entire system for both the VSF and the monument would be geothermal. This meant that the previous number of wells and their location needed to be increased. This change and the impacts from heritage to water quality to geotechnical soil conditions to maintenance were carefully considered in making this decision. The plan of the previous and the current well locations is provided for review. Similar to the first presentation, discussion, and preliminary approval, there will be no evidence of the wells once the project is completed. At this time the team has completed an initial geotechnical analysis and does not anticipate that soil engineering is required to stabilize the monument and we have geotechnical services in place to monitor and confirm any changes.



Figure 1 - Existing Conditions Aerial Photo. Source: Carol Highsmith

### NPS Project Manager

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## Design Process

BBB began the design process in 2010 and was given the task of refining and revalidating the 2003 option prepared by the NPS in conjunction with another architectural firm that was referred to as the Pavilion design scheme and utilized the Monument Lodge as the sole screening facility. BBB then began to develop alternative means of accessible visitor access to the Monument, via on-grade pathways, a recessed concourse, or vehicular transport.

In the Summer of 2010, the BBB team initiated environmental and historic preservation compliance and began to develop a range of alternatives for consideration. Over the course of the next two years, BBB and NPS facilitated a substantial design effort in tandem with the EA, Section 106 process, and Regulatory Design Approval process. A summary of coordination and consultation with the public, federal agencies and stakeholders (including the U.S. Park Police, CFA, NCPC, and SHPO), and consulting parties is included on page 11 of this report.

Over 40 options were developed and presented to NPS and covered a full spectrum of design possibilities for a new visitor screening facility including, but not limited to, three general categories:

- A range of options that utilized existing facilities such as the Sylvan Theater and Monument Lodge for security screening with pathways leading to the Monument

- A range of options of varying sizes and shapes for a new above-ground security screening facility located in different positions relative to the Monument

- A range of options for a new subsurface entry into the Monument that were incorporated into the landscape in different configurations

A representative sample of options considered by dismissed is included later in this report.

Throughout the design process, the consulting parties' within the Section 106 process encouraged the size, scale, and footprint to be as minimal as possible while still satisfying the Purpose and Need of the project. The NPS concurred so the screening facility was designed to a minimum footprint with the requisite 5' diameter turns included for accessibility purposes.

The massing also went through numerous design iterations and intense scrutiny by the design community to insure that the proper scale and massing was achieved in the context of the Monument Core of our nation's capital. Through a viewshed analysis and input from the Section 106 process, the design community favored a minimal cube with the smallest footprint and height that would embody a balanced proportion.

While a short volume seemed to be the most thermally efficient, it was deemed to be too squat and incongruent with the pure cube that could harmoniously coexist with the pure geometry of the obelisk.



Figure 2 Proposed Revised Design

## Building Program

The building program remains as set in the preliminary approvals for the new Screening Facility includes queueing for 20-25 visitors, an accessible restroom for NPS and USPP staff only, a USPP Office, and requisite space for screening equipment.

## Summary of the Basic Design Concept

The conceptual design approach for the new visitor's security screening facility is based on the principal of a passageway, or portal, rather than an object in its own right. While the pure geometry of a cube initially seemed to be an appropriate complement to the Monument obelisk, the gesture ultimately seemed more to compete with the adjacent form. The current design aesthetic is approximately 30 feet wide by 27 feet deep by 17-1/2 feet tall, resting at the foot of the Monument's east façade. Rather than being firmly anchored to the Monument, it will reside alongside it, function independently, and be connected the most minimal way. The design parameters and requirements that generated this as stated in the preliminary submission remain unchanged.

## Design Parameters & Requirements

The USPP and NPS have specific requirements for the new facility:

- Full visibility is required outward to the north, east, and south.
- Full visibility inward is prohibited; from a datum of four feet above the floor level, translucent or opaque material must be used
- Queuing for 20-25 people must be provided in the new facility
- Circulation within the new facility is deliberately circuitous to avoid allowing a path of direct access toward the Monument
- A new accessible staff restroom must be provided in the new facility

- A USPP office must be provided with full visual control of the security screening and proximate to the entrance to the Monument to enable lock down, if needed
- One magnetometer and one x-ray machine must be accommodated
- Egress must be managed such that no visitors are allowed back into the Monument after they exit; this condition is resolved currently through a stanchion and turnstile on the exterior of the visitor's facility.
- The facility needs to have a ballistic rating
- The facility needs to have a blast rating
- Materials analysis (interior and exterior materials and finishes)

## Functional Analysis of Building Program

Currently, visitors can obtain timed passes at the Monument Lodge for Monument visitation in half hour scheduled increments. As visitors retrieve their tickets, they are notified of the limited facilities in the Monument (i.e. no restrooms) and then they proceed to the Monument to queue outside the existing security screening facility in groups of approximately 20-25. Once admitted, each visitor proceeds into the screening facility's southeast door and through screening via x-ray and magnetometer. Visitors then enter the Monument through the east opening to ascend to the viewing platform by elevator in groups of no more than 24. Upon departure, visitors descend at their leisure in the elevator and exit the Monument through the east opening into the visitor screening facility and out the southwest exit. Backflow prevention is managed through a stanchion and turnstile immediately outside the south exit.

The existing security screening facility is 443 square feet and approximately 16 feet wide by 28 feet long and 12 feet high. Screening equipment consists of one magnetometer and one x-ray machine. A USPP Station with room for one to two officers is positioned behind the security screening equipment.

Under the proposed design, the ticketing process will not change; visitors will still retrieve their tickets at the Monument Lodge. However, the new facility will accommodate queuing for 20-25 people (approximately 22 people + 1 wheelchair) prior to security screening. This design enhancement will alleviate the need for large groups congregating outside on the Plaza. The USPP does not want to have large groups in front of the facility as it obscures their view outward, which is a primary security concern.

The new facility will function similarly to the existing facility in terms of equipment, screening, and the USPP office, but the exit process will incorporate a sally port, which removes the necessity for a stanchion and turnstile on the exterior of the building.

No modifications are proposed for the interior of the Monument proper or the Monument Lodge.

## Materials

The approved design incorporates a double glazed envelope separated by a heavy structural member and airspace. A detail of the exterior wall at several conditions has been developed and is included in the provided architectural drawings attached separately. The outer layer is proposed to be ballistic rated laminated glass (or polycarbonate) with a metal mesh insert. The roof of the facility will be fritted glass or tinted glass to mitigate heat gain.

## Architectural Lighting

An architectural lighting specialist was engaged to insure that the site lighting is designed in accordance with the IESNA guidelines and is compatible with the nighttime illumination of other Monuments and Memorials on the National Mall. The proposed solution includes code compliant pathway lighting on the granite with the VSF exterior walls lit from their base so that the cube glows at the base of the monument.

The primary design intent is to provide adequate ambient lighting for circulation and security without obstructing nighttime views of the monument. Secondly, minimize the lighting load and maximize energy conservation. The lighting fixtures will utilize the most energy efficient source available for each space.

Screening Area and Queuing - Targeted task lighting for screening, queuing, and the exit hallway will be provided by pairs of adjustable cylinders mounted to architectural structure in single machined canopy. Fixtures shall be concealed from visitor view behind mullion and have regressed lamp for additional shielding. Anticipated illumination levels are 1520 foot candles for circulation at queuing and the exit hallway.

Exterior Façade & Portal - Linear LED tapelight with grazing optic mounted to each exterior structural support on North and South side will light metal mesh within glazing. Each fixture will be 5' in length to extend between vertical mullions with housing painted to match structure finish.

## **Exterior Envelope**

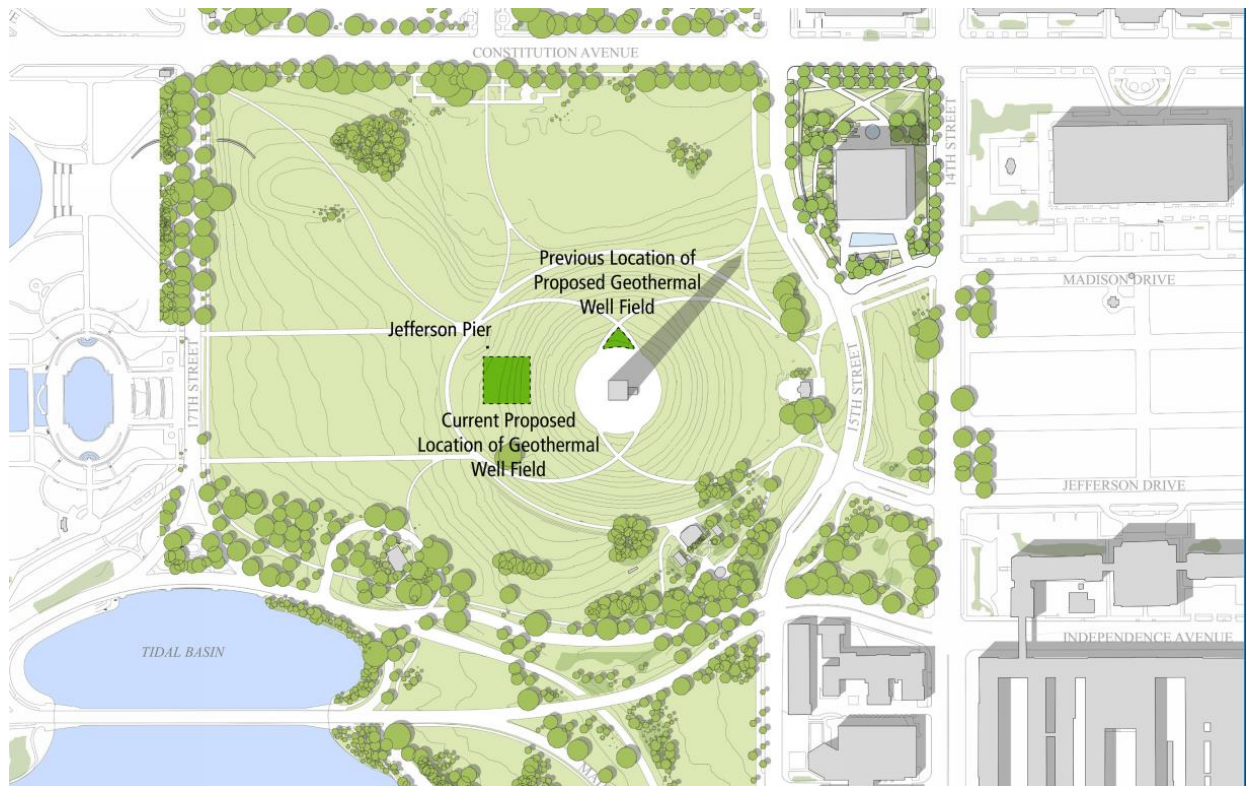
A comprehensive Threat Assessment and Blast Analysis has been undertaken and is incorporated into the proposed design. This analysis was essential to inform the proper design of structural details, including the foundations and building envelope. This effort is reflected in the proposed revised design for final approval.

## **Site Design**

The proposed new facility that will replace the existing visitor security screening facility will be in the same location on the Monument plaza. Due to the visual sensitivity of the facility, both from the ground and from aerial vantage points, there is no rooftop heat rejection equipment. All venting is done just above the hyphen connection roof in the wall of the VSF cube and is not visible from grade or from above the VSF.

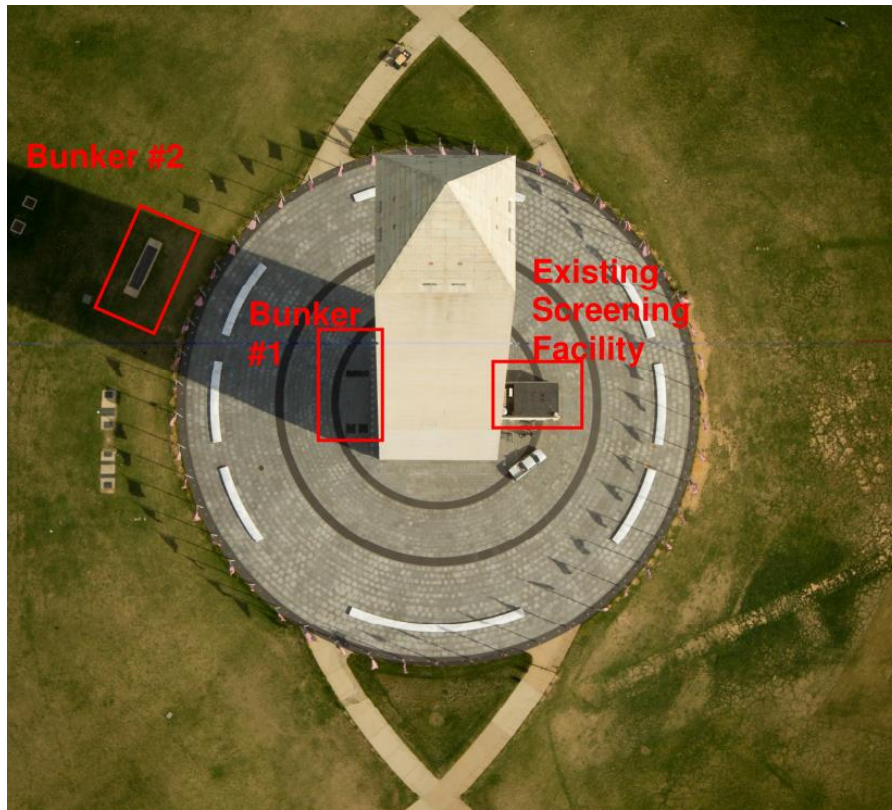
The proposed system for mechanical heat rejection is a geothermal and hydronic system. In reviewing all options for the heating and cooling of the VSF, the team looked at the current design for the Monument. This led to a detailed evaluation of the existing system and resulted in a recommendation to have the Monument and the VSF on one system as the steam system and the chilled water heat rejection equipment, the Washington Monument is in need for a mechanical system infrastructure upgrade. In an effort to reduce visibility of the mechanical systems, the majority of the mechanical equipment will be located underground or in the Monument mechanical bunkers. The installation of a ground-coupled geothermal heat recovery chilled water system will be installed in an existing Monument mechanical bunker. This type of mechanical system provides the ability to have heating or cooling year-round while delivering an extremely high level of overall building energy efficiency.

A ground-coupled geothermal borehole field will be positioned west of the monument. The field is placed to avoid conflicts with underground existing utilities and to protect the Jefferson Pier. In addition to providing clearance from the Jefferson Pier, the documents include notations about required protection and monitoring for the duration of the project.



**Figure 3 Proposed and Previous Well Field Locations**

Geothermal boreholes will be approximately 200 to 400 feet in depth, depending on the thermal properties and ground temperature associated with the project site. Vertical geothermal borehole loop piping will be encased in a thermally enhanced grout, promoting good heat transfer between the loop piping and earth. Circuit mains from geothermal boreholes will be routed to Bunker #2. Previously the design for the smaller area of the VSF had wells estimated at 400 to 500 feet in depth. The new proposal has shallower wells due to the soil conditions at the location. The warranty life span of the wells is 50 years for the piping within the wells with an inspection at that time, they can continue service indefinitely. The glycol feeders in bunker #2 are the primary inspection location for the system and require annual inspection for any leaking similar to other equipment within the space. This inspection and other required maintenance are included in the commissioning and turn over process to the NPS.



**Figure 4 Existing Bunker Locations Proposed for Re-Use**

Production of heating water and chilled water for the new mechanical equipment will be accomplished through a modular heating and cooling plant, located within Bunker #2. The heat recovery chiller included as part of this plant is capable of simultaneously generating both chilled water and heating water for the project site. Excess heating and cooling energy from this system will be transferred to and from the geothermal well field, helping to maximize the overall energy efficiency of this system.

All major mechanical infrastructure components, including distribution pumps, incoming geothermal piping, associated headers, modular cooling and heating plant, air separators, and expansion tanks will be located within Bunker #2

Therefore, the only modification to the landscape within the scope of the project is the installation of the wells. Each well is drilled at a diameter of approximately 12 inches in diameter and spaced a minimum of 20 feet apart from the next well. Once installed, the wells are covered with 6-12 inches of soil and turf and are not visually perceptible.

## Construction Staging

Construction would be performed on an optimized schedule to limit facility closures. Construction staging would occur on the southwest corner of the Monument grounds as was done approved for the recent earthquake repair efforts.

## Status of coordination and consultation with the public, federal agencies and stakeholders

The team is submitting and has continued communication relative to the proposed changes noted in this request for approval. Review included the evaluation of the relocation of the well field relative to any archaeological impacts and no additional potential has been provided or found with the relocated field. All documents for this work will follow the required processes as have been approved for other work at the Monument.

As stated in the EA, Coordination with local and federal agencies and various interest groups was conducted during the NEPA process to identify issues and/or concerns related to the proposed Monument visitor screening facility. In accordance with Section 7 of the Endangered Species Act, consultation letters were sent from the NPS to the USFWS on October 14, 2010, and to the District of Columbia Department of the Environment, Fisheries and Wildlife Division on October 22, 2010.

Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties. In accordance with the regulations implementing Section 106, letters initiating the process were sent to the SHPO and ACHP on November 3, 2010. In addition, NCPC requested and was identified as a cooperating agency for this project (defined by CEQ as an agency that has jurisdiction by law or special expertise with respect to any environmental impact involved in the project).

In addition, a number of agencies, organizations, stakeholders were invited to participate in this process as consulting parties. Below is a list of consulting parties that participated:

- Advisory Council on Historic Preservation (ACHP)
- U.S. Commission of Fine Arts
- Committee of 100
- Washington DC State Historic Preservation Office
- DC Preservation League
- National Capital Planning Commission
- National Coalition to Save Our Mall
- National Parks Conservation Association
- National Trust for Historic Preservation
- Smithsonian Institution
- Washington, D.C., Guild of Professional Tour Guides

Throughout this project, the Section 106 process and NEPA assessment have been closely coordinated, and in some cases, public scoping has been used to satisfy the requirement for both processes. For the purposes of Section 106, several consulting party meetings were held.

## Schedule for construction

Currently, the project is scheduled to begin construction in July 2017.

## **Existing Conditions and Proposed Design Presentation**

# Washington Monument

Visitor Security Screening Facility

Submission  
National Capitol Planning Commission

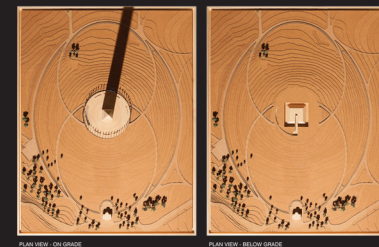
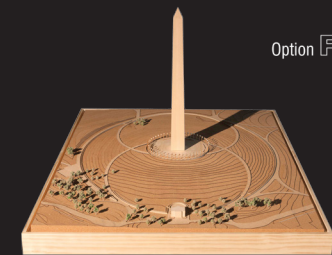
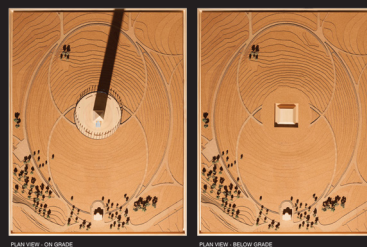
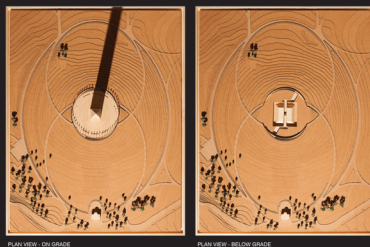
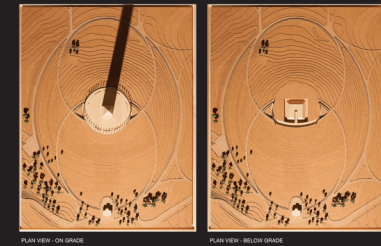
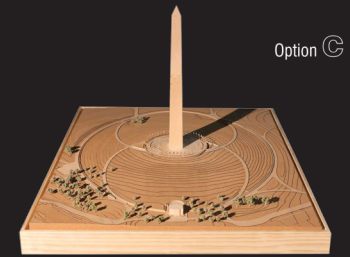
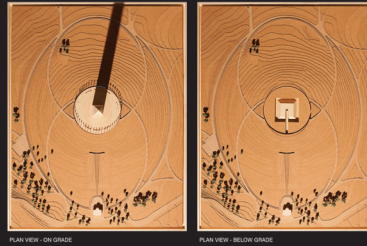
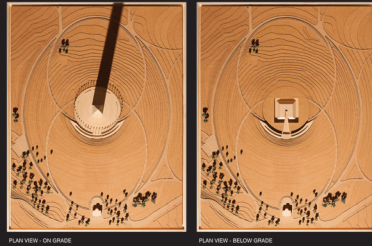
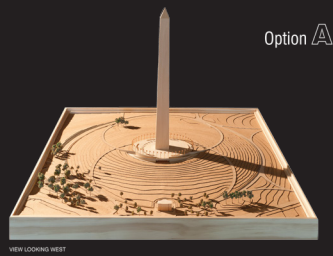
December 2016





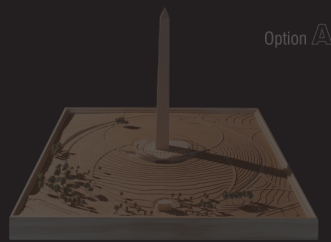
## Existing Site Plan





## Range of Design Options Considered





Option A

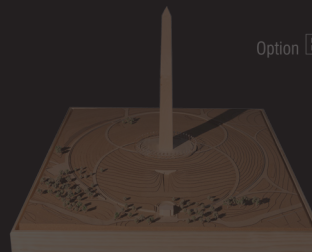
VIEW LOOKING WEST



PLAN VIEW - ON GRADE



PLAN VIEW - BELOW GRADE



Option B

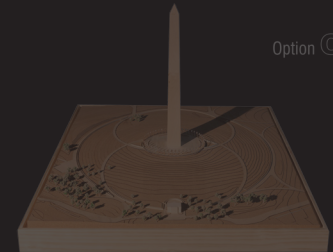
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PLAN VIEW - ON GRADE

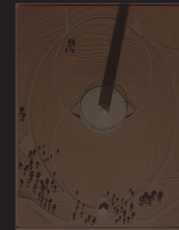


PLAN VIEW - BELOW GRADE



Option C

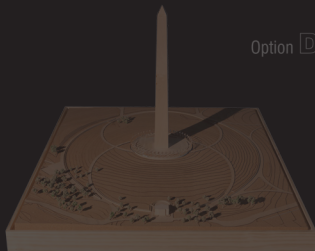
VIEW LOOKING WEST



PLAN VIEW - ON GRADE



PLAN VIEW - BELOW GRADE



Option D

VIEW LOOKING WEST



PLAN VIEW - ON GRADE



PLAN VIEW - BELOW GRADE



Option E

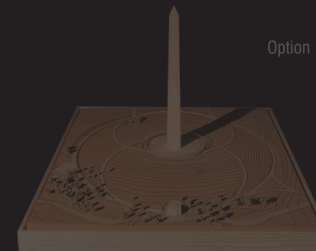
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PLAN VIEW - ON GRADE

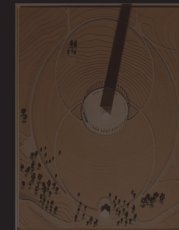


PLAN VIEW - BELOW GRADE



Option F

VIEW LOOKING WEST



PLAN VIEW - ON GRADE



PLAN VIEW - BELOW GRADE

# Approved Design Option



Option E



VIEW LOOKING WEST



PLAN VIEW - ON GRADE



PLAN VIEW - BELOW GRADE

Approved Design Option





Alternative 01



Alternative 02



Alternative 03



Alternative 04

## Range of Design Options Considered





Alternative 01



Alternative 02



Alternative 03



Alternative 04

Approved Design Option





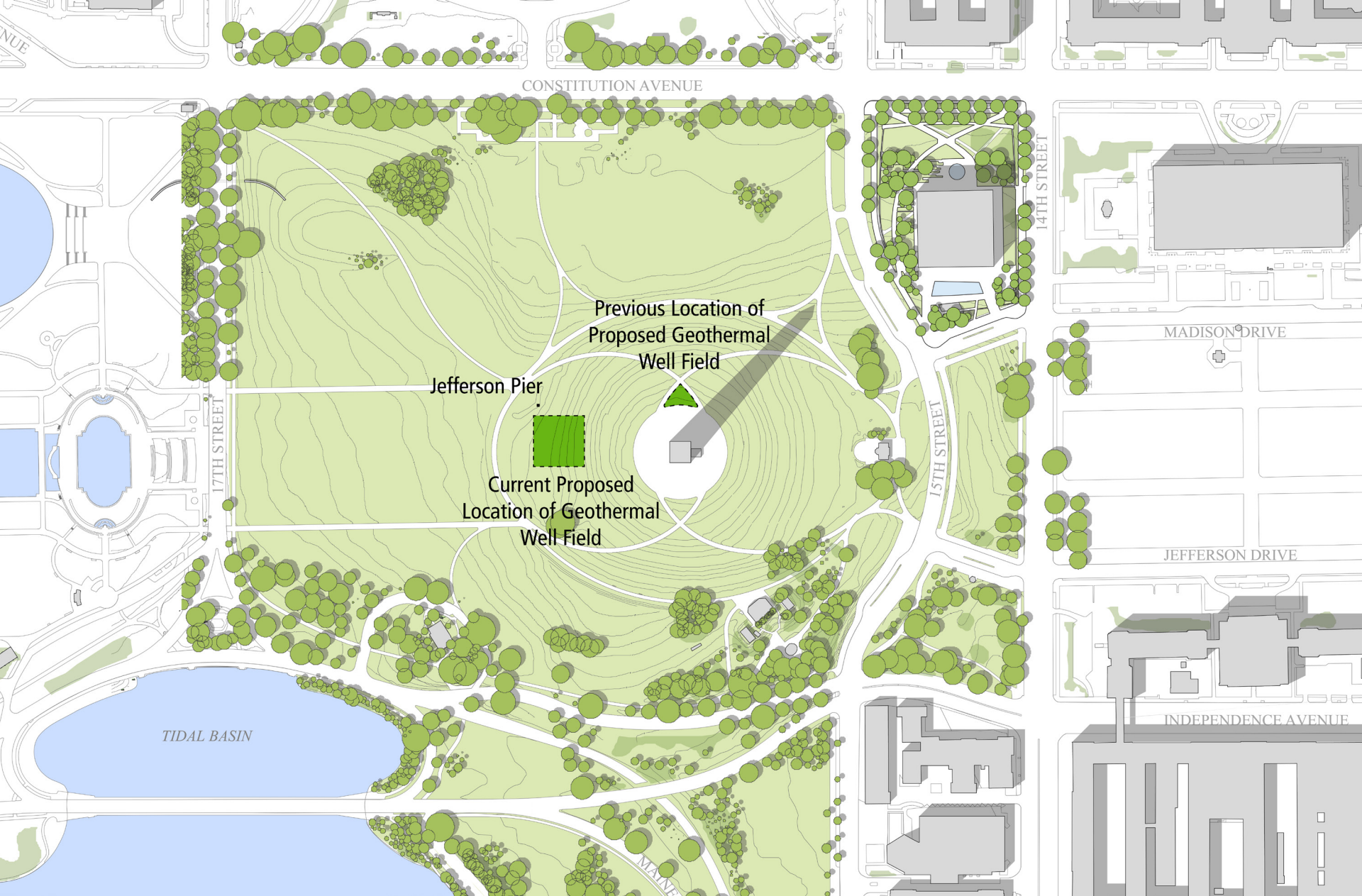
## Approved Design Option





## Revised Design Option





## Proposed Location of Geothermal Well Field

