

COMMISSION OF FINE ARTS

March 16, 2023

SMITHSONIAN GARDENS: STREET TREE FENCE DESIGN

Preserve Smithsonian Gardens Tree Collection, Street Tree Fencing



PROJECT SCOPE

Scope excludes planters with incompatible conditions

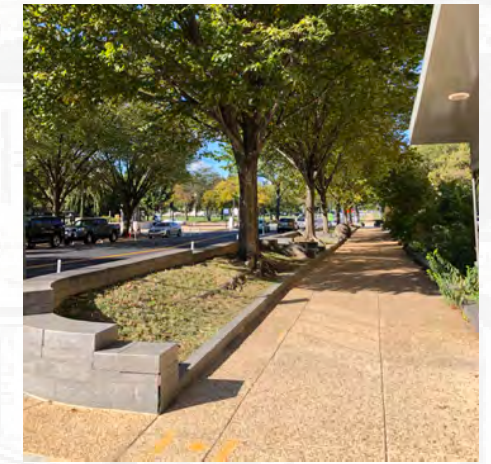
pilot project location
implementation: fall 2023



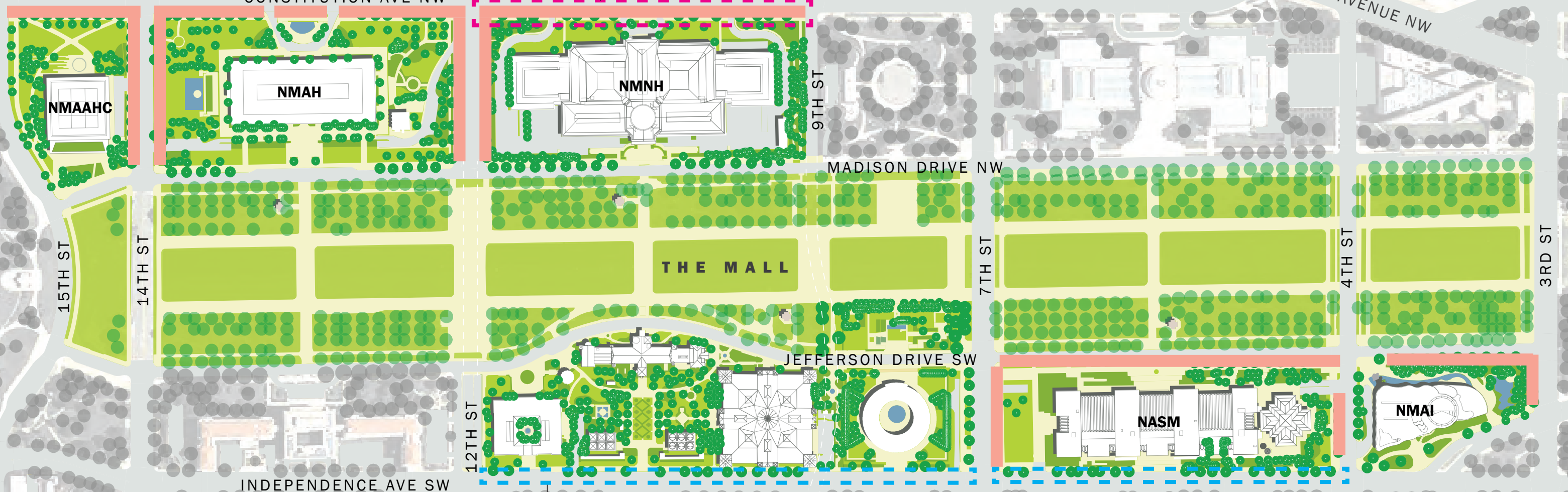
LIMITED SOIL VOLUME



NARROW BED



CUSTOM PLANTERS



tree fences to be considered as part of Independence Avenue Streetscape project (drive lane removal and re-design)



SITE INVENTORY

CONSTITUTION AVENUE AT NMNH; LOOKING NORTHEAST

TREE BED INVENTORY

3 TYPES

AT GRADE WITHOUT STEP-OFF ZONE



14th Street NW at NMAAHC, looking northwest

AT GRADE WITH STEP-OFF ZONE




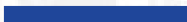

12th Street NW at NMAH, looking northwest

ELEVATED WITH STEP-OFF ZONE



Constitution Avenue at NMAAHC, looking west

TREE BED INVENTORY

-  **AT GRADE
WITHOUT STEP-OFF ZONE**
-  **AT GRADE
WITH STEP OFF ZONE**
-  **ELEVATED
WITH STEP-OFF ZONE**



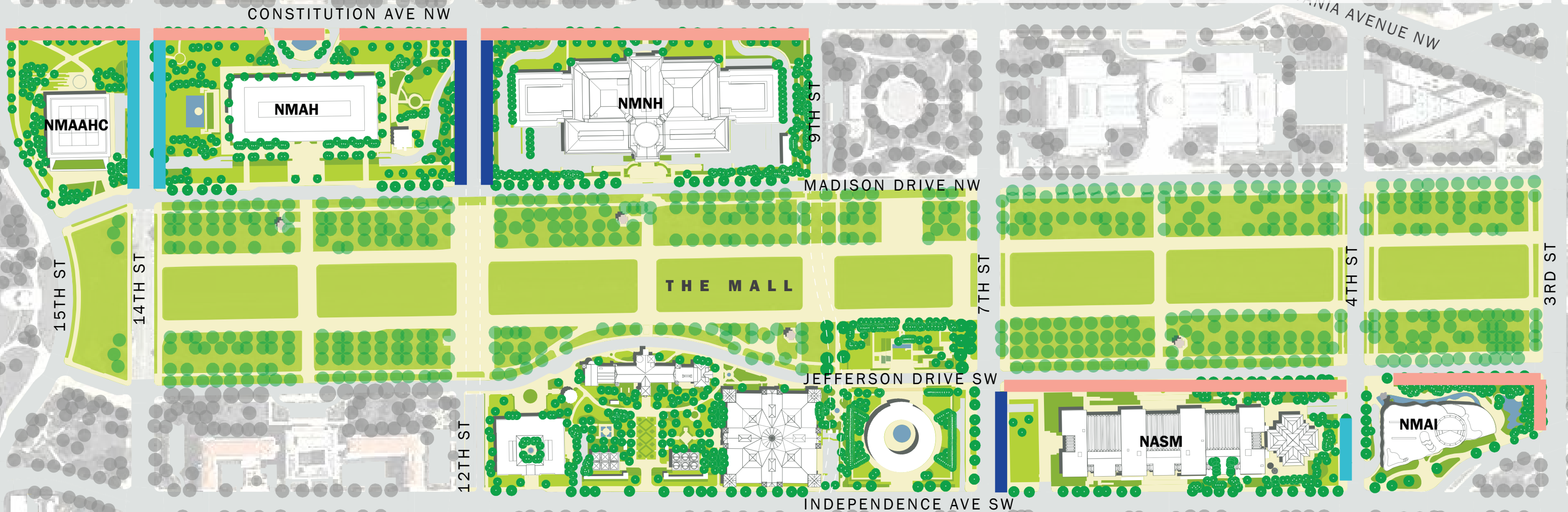
**AT GRADE
WITHOUT STEP-OFF ZONE**



**AT GRADE
WITH STEP-OFF ZONE**



**ELEVATED
WITH STEP-OFF ZONE**





PROPOSED DESIGN

CONSTITUTION AVENUE AT NMAH, LOOKING WEST

SOIL IS THE HOUSING FOR LIVING COLLECTIONS

EXISTING SOIL COMPACTION CREATES

- MINIMAL OPEN PORE SPACE
- LOW SOIL MOISTURE
- SHORTENED TREE LIFESPANS / POOR HEALTH
- DIFFICULTY TO ESTABLISH PLANTING
- SURFACE ROOTS/CURB AND PAVEMENT HEAVING



DESIGN CONSIDERATIONS



PLANT HEALTH

protect plants/roots and reduce soil compaction

VEHICLE CLEARANCES / DURABILITY

vehicle & pedestrian clearance from curb

backup parallel parking clearance from curb (cars/
large vehicle clearance)



APPEARANCE

iconic, unique to Smithsonian Gardens / Institution
visibility into planter (perennials)

DESIGN CONSIDERATIONS

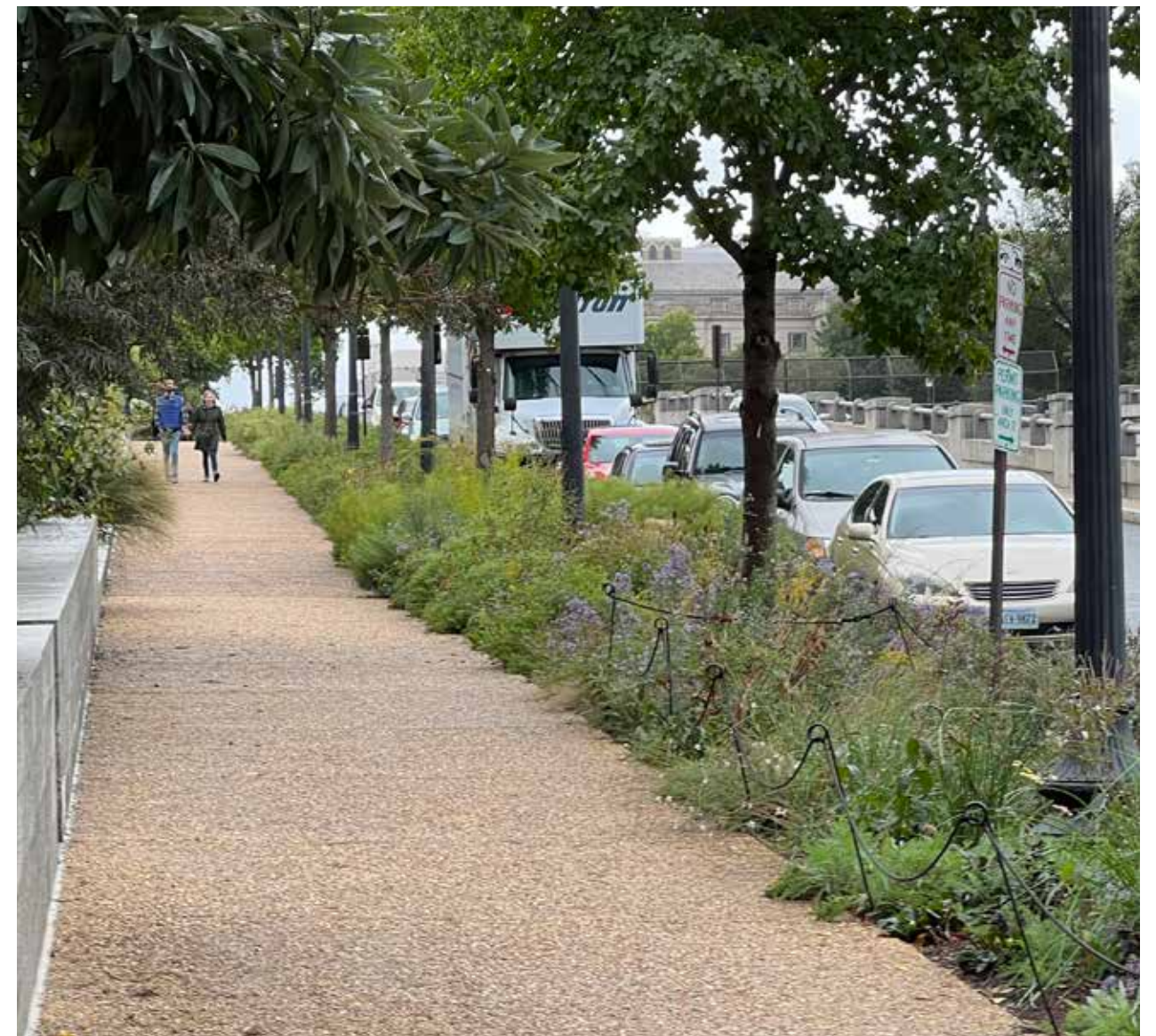


SAFETY

visibility of fence: tripping while in crowds
durability during parades: human-proof
no sharp points, climbing

MAINTENANCE

flexibility for modular vs custom installation
reduced long term maintenance (paint, repairs)
ease of access for plant maintenance
(24" width access for plant maintenance)



PATTERN LANGUAGE: SMITHSONIAN INSTITUTION

ARCS, CIRCLES & FLORAL MOTIFS



Renwick Gates



Enid A. Haupt Garden



Arts and Industries Building

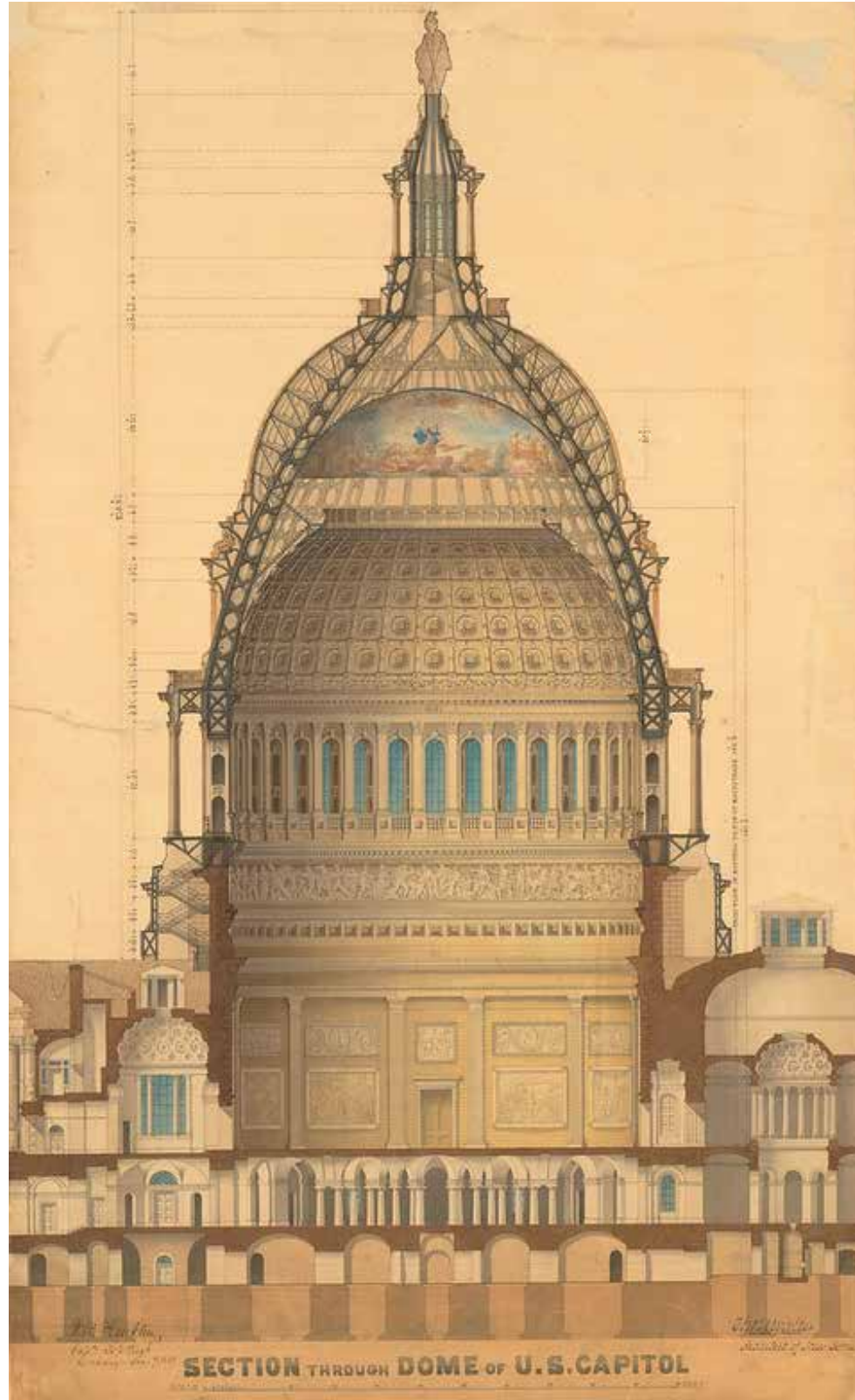
TESSELATION



Smithsonian Castle Commons

PATTERN LANGUAGE: MONUMENTAL CORE

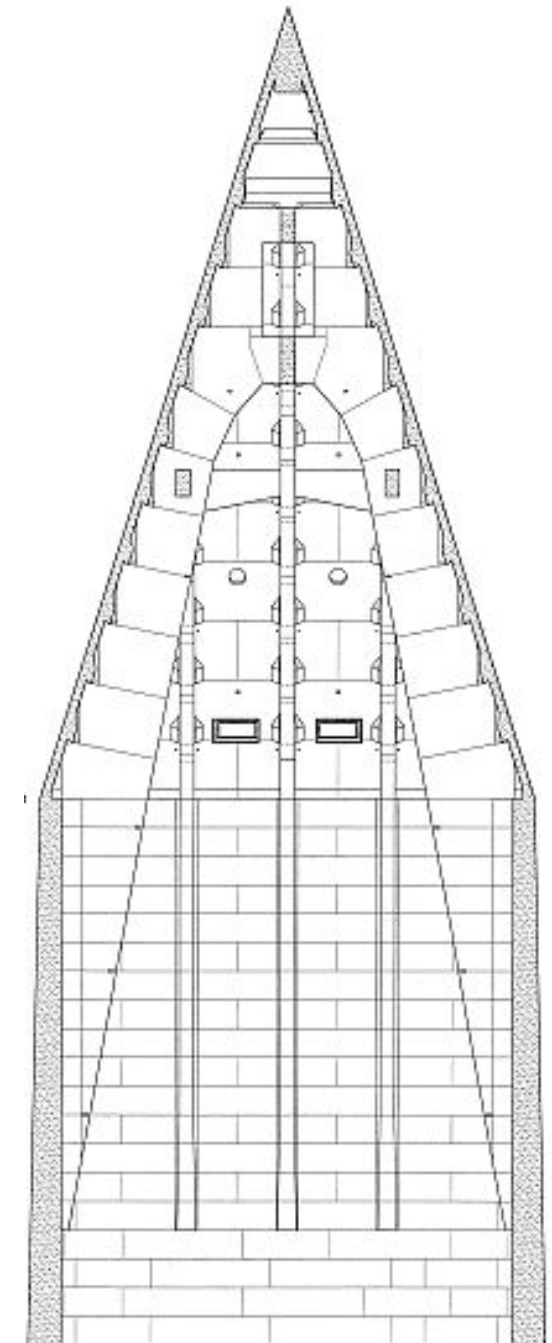
CAPITOL DOME



Rounded and pointed arch forms



WASHINGTON MONUMENT



PATTERN LANGUAGE: MONUMENTAL CORE

AMERICAN ELM TREES - VASE-LIKE FORM AND ARCHING BRANCHES



Elm tree along Constitution Avenue, at NMNH



Elm trees along Madison Drive NW, at NMAH

PATTERN LANGUAGE: SMITHSONIAN INSTITUTION

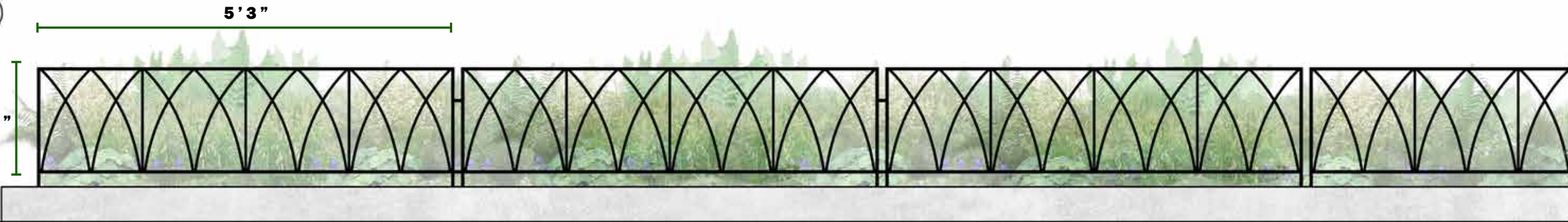
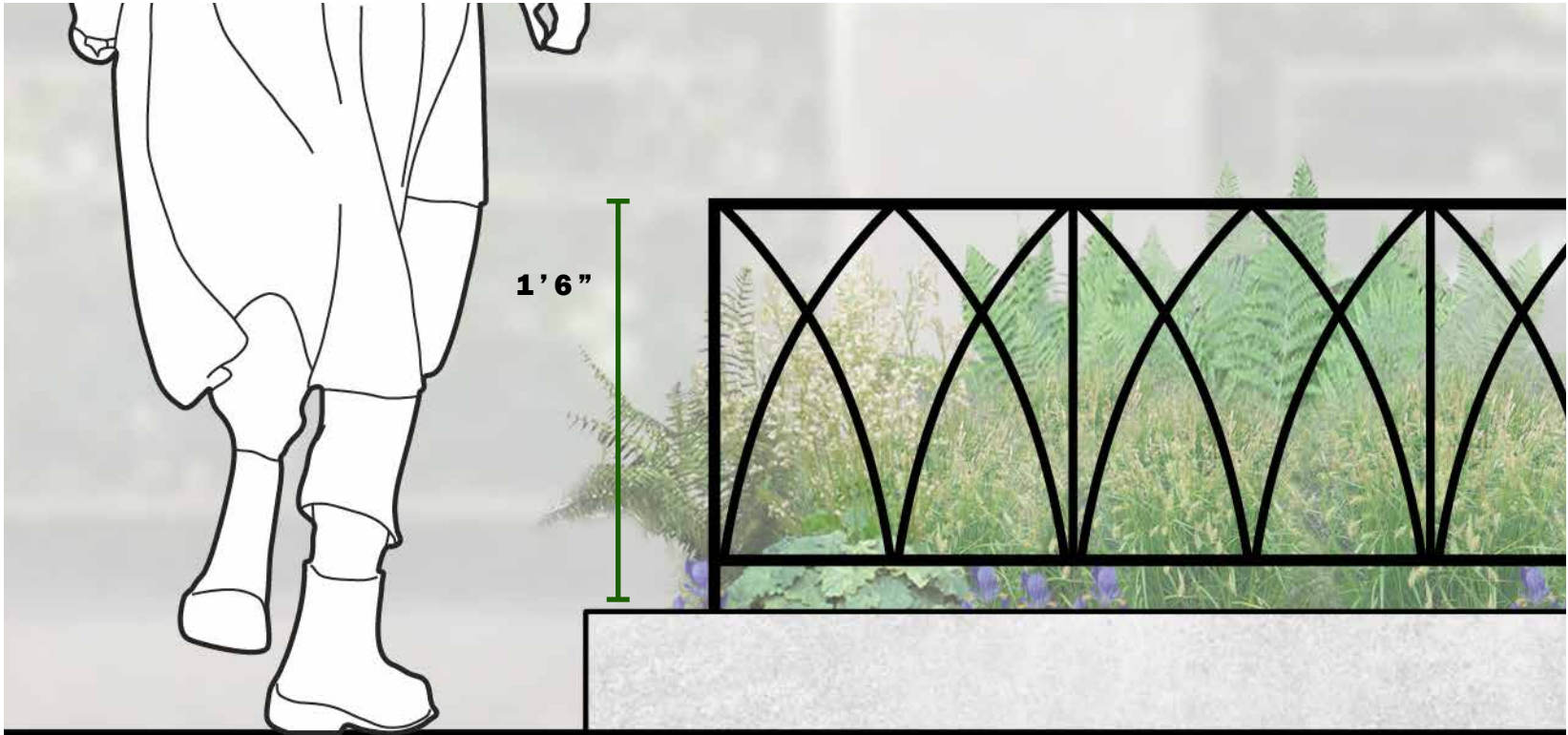
CASTLE COMMONS



TESSELATION: repeated arches of the ribbed vault ceiling



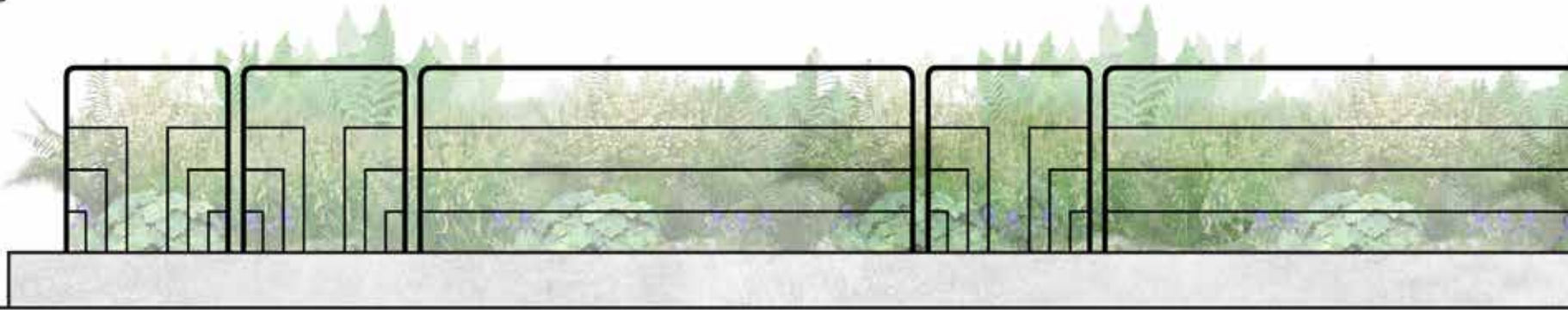
PROPOSED STREET TREE FENCE DESIGN



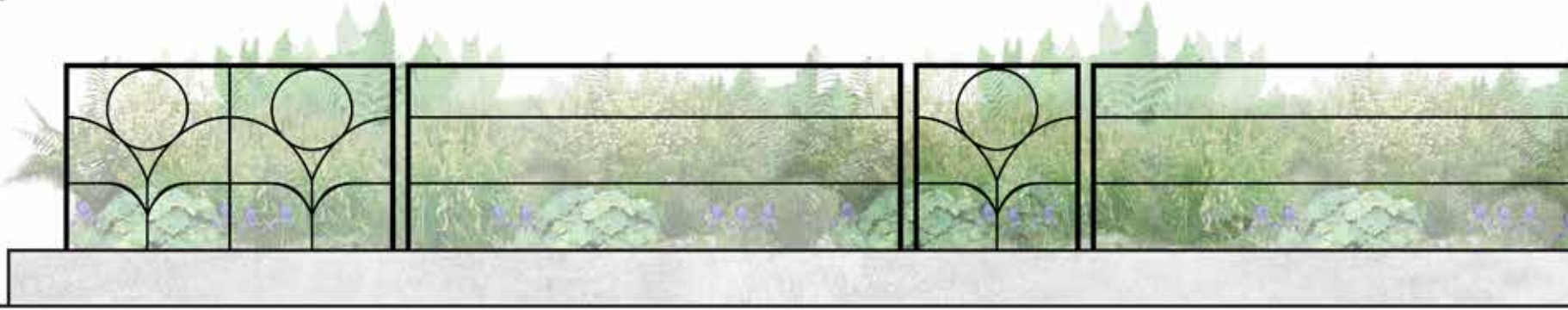
ELEVATED - 6" CURB

DESIGN ALTERNATIVES

CONSIDERED, BUT NOT SELECTED



ORTHOGONAL



CIRCLE + FLORAL MOTIF

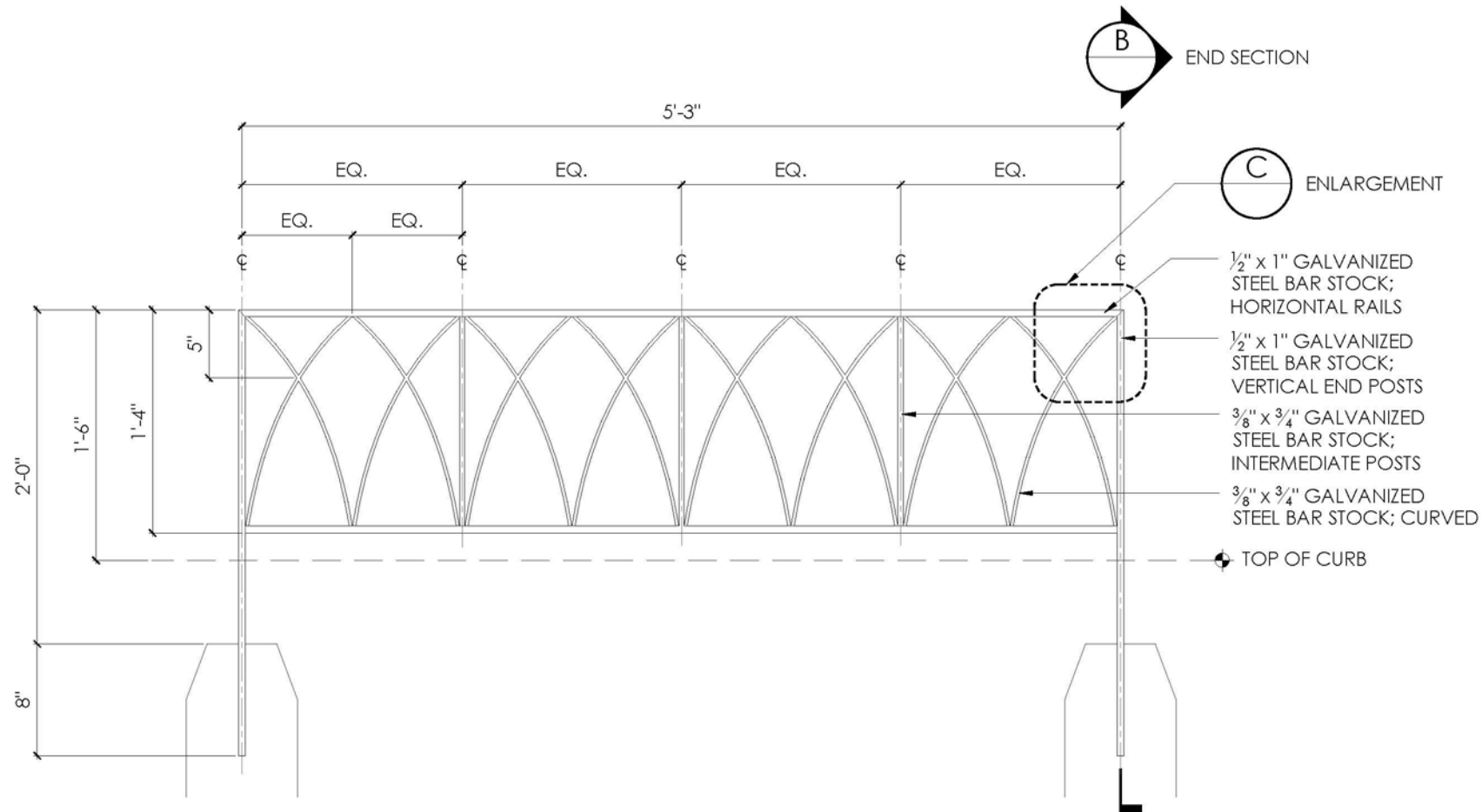


NASM looking northeast



Renwick Gates

CONSTRUCTION DETAIL



A. ELEVATION

NOTES:

1. ALL STEEL POSTS, RAILS, AND COMPONENTS SHALL BE GALVANIZED AND RECEIVE A HIGH PERFORMANCE EXTERIOR COATING. PANELS WILL BE SHOP PAINTED, AND WELDS BETWEEN PANELS FIELD PAINTED.

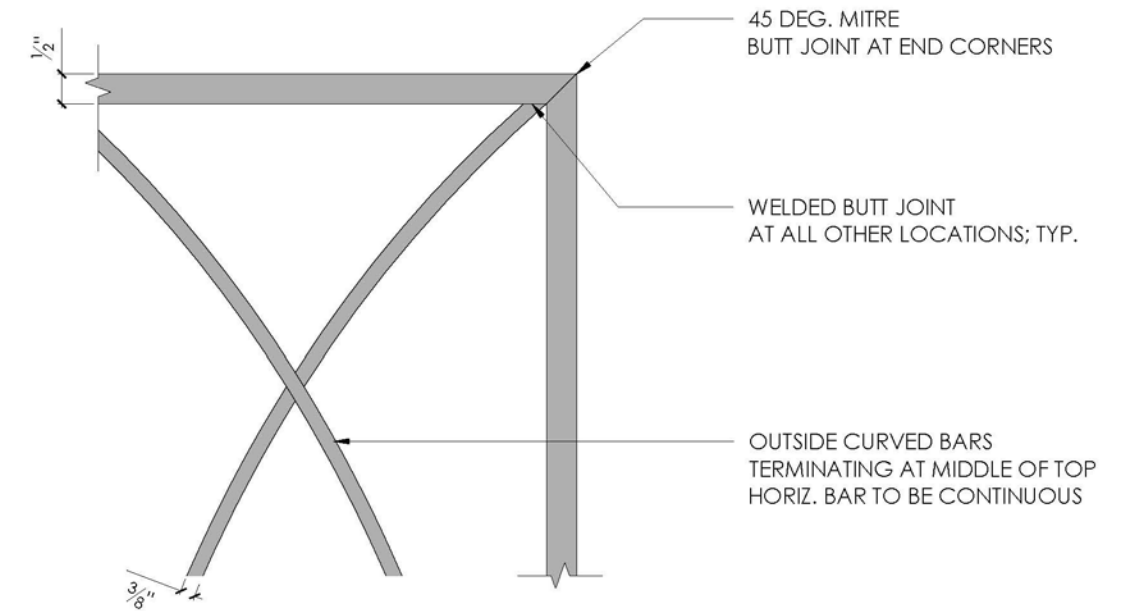


B. END SECTION

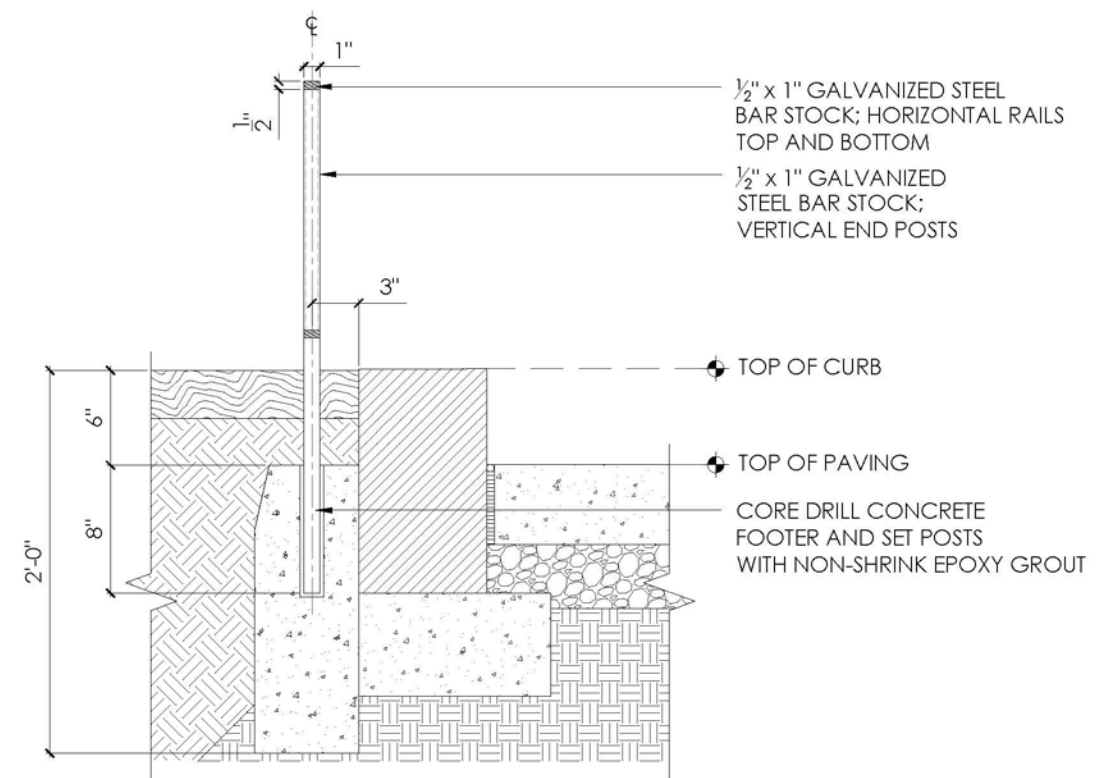


C. ENLARGEMENT

- 1/2" x 1" GALVANIZED STEEL BAR STOCK; HORIZONTAL RAILS
- 1/2" x 1" GALVANIZED STEEL BAR STOCK; VERTICAL END POSTS
- 3/8" x 3/4" GALVANIZED STEEL BAR STOCK; INTERMEDIATE POSTS
- 3/8" x 3/4" GALVANIZED STEEL BAR STOCK; CURVED
- TOP OF CURB



C. ENLARGEMENT



B. END SECTION

TREE FENCE - TYPICAL SEGMENT

SCALE: 1" = 1'0"

MATERIAL AND FINISH

MATERIAL

Welded steel frame from bar stock with two hot-dip galvanized coatings

Benefits of hot-dip galvanized finished frames:

- frame and welds are galvanized
- long-lasting and durable
- lightly textured finish



hot dipped galvanized texture

FINISH

Galvanized metal frames to be shop painted with two 2mm coatings of black high performance oil based paint. Semi-gloss finish.

The finish does not compete with the variety of finishes found on the existing streetlights, benches, and waste receptacles.



BLACK FINISH ON MOCK-UP FENCE PANEL

CONSTITUTION AVENUE: Before

NMNH AT CONSTITUTION AVE. & 12TH ST.



CONSTITUTION AVENUE: Proposed

NMNH AT CONSTITUTION AVE. & 12TH ST.



MUSEUM CONTEXT: NMAAHC



NMAAHC looking southwest



Constitution Avenue at NMAAHC looking west



0 ft. 1 ft. 2 ft. 4 ft.



**Northeast Elevation, looking southwest
14th Street NW at NMAAHC**



**North Elevation, looking south
Constitution Avenue NW at NMAAHC**

ANALYSIS Preferred design is mostly visible against the black granite landscape wall setback from the sidewalk. The repeating arch pattern resonates with the geometric open quality of NMAAHC's corona. The street tree fences are not proposed on 15th Street to avoid visual impacts on the open character of the Washington Monument Grounds and its existing post and chain fence design.

MUSEUM CONTEXT: NMAH



NMAH from Constitution Avenue NW



Constitution Avenue at NMAH looking west



MUSEUM CONTEXT: NMNH



NMNH from Constitution Avenue



Constitution Avenue at NMNH looking east



0 ft. 1 ft. 2 ft. 4 ft.



**North Elevation, looking southwest
Constitution Avenue NW at NMNH**



**North Elevation, looking southeast
Constitution Avenue NW at NMNH**

ANALYSIS The perimeter of the NMNH site contains a granite perimeter security wall with segments of open grill work in a pattern based upon the character defining large windows on the Museum building. Large geological specimens provide perimeter security at the corner of Constitution Avenue and 9th Street. This perimeter security design varies between 30” and 44” in height, and was determined to have an “adverse effect” on the NMNH, National Mall, and the Plan of the City of Washington. The preferred street tree fence design is complementary in NMNH’s setting to the American elm trees and existing bench groupings and other street furniture.

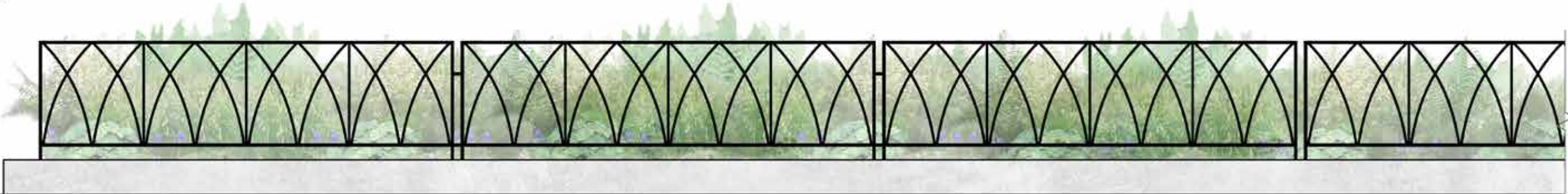
MUSEUM CONTEXT : NASM



Rendered view of new vestibule now under construction at NASM from Jefferson Drive SW



Jefferson Drive SW at NASM, looking southeast



0 ft. 1 ft. 2 ft. 4 ft.

MUSEUM CONTEXT: NMAI



NMAI from the intersection of Jefferson Drive SW and 4th Street SW



3rd Street SW at NMAI looking south



0 ft. 1 ft. 2 ft. 4 ft.



**Northeast Elevation, looking southwest
Jefferson Drive SW at NMAI**

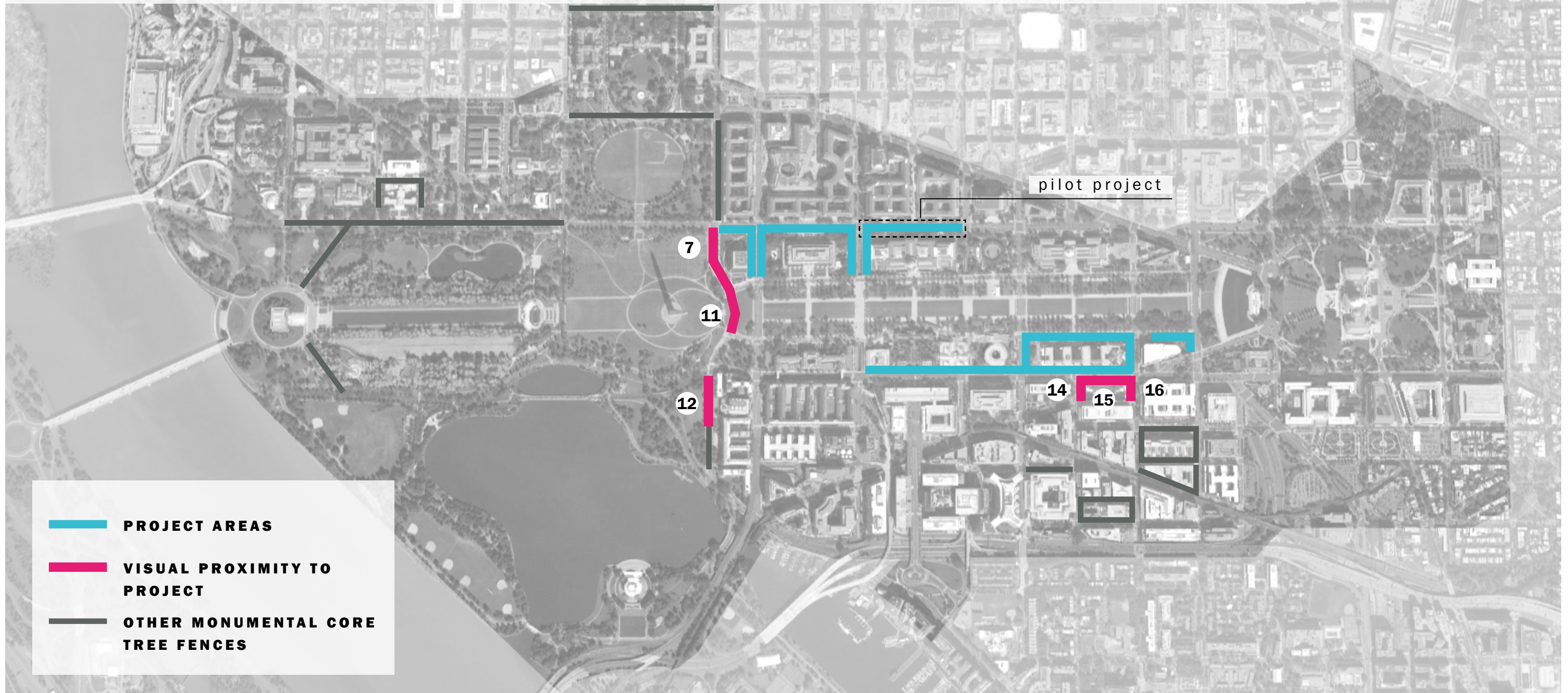


**East Elevation, looking west
3rd Street SW at NMAI**

ANALYSIS The NMAI site features various site walls and designed raised plantings. The preferred design is complementary to the curvature of the Museum building facades and the complex landscaping within the site.

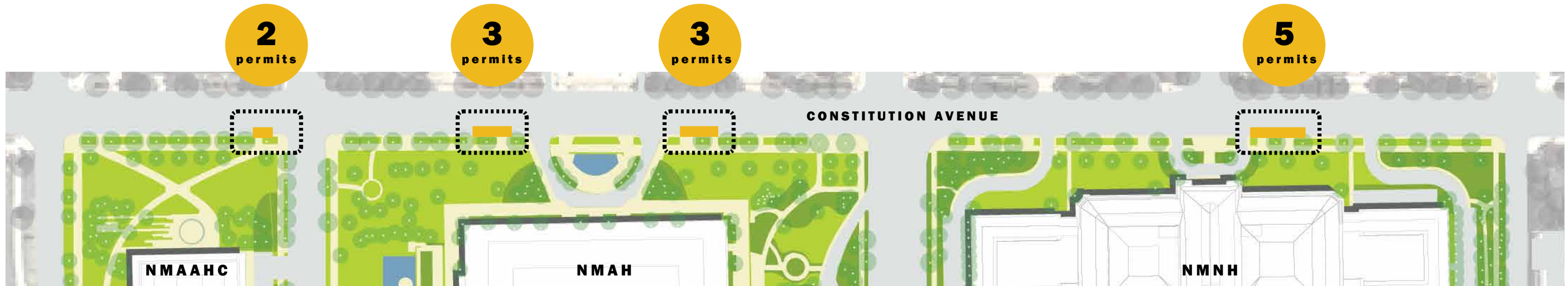
ADJACENT TREE FENCES

NPS-STYLE POST AND CHAIN FENCING

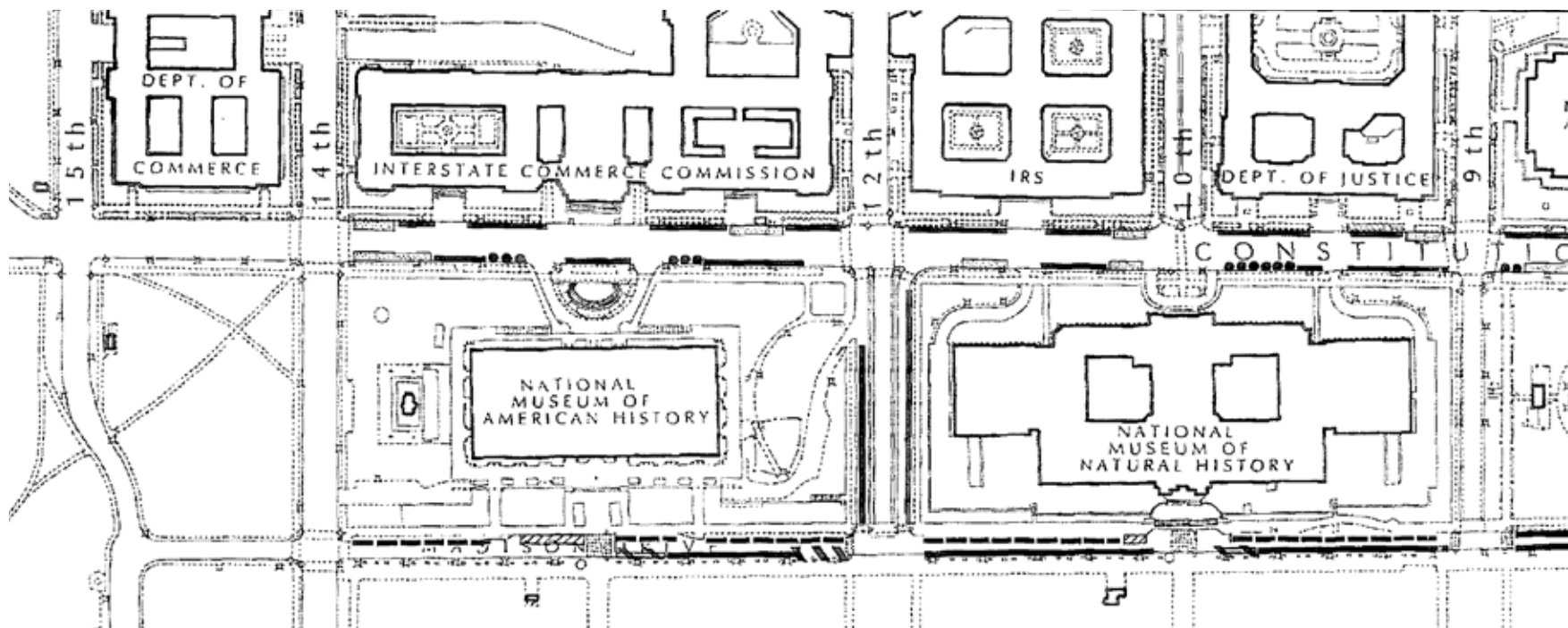


VENDING LOCATIONS

CONSTITUTION AVENUE LEGAL VENDING LOCATIONS



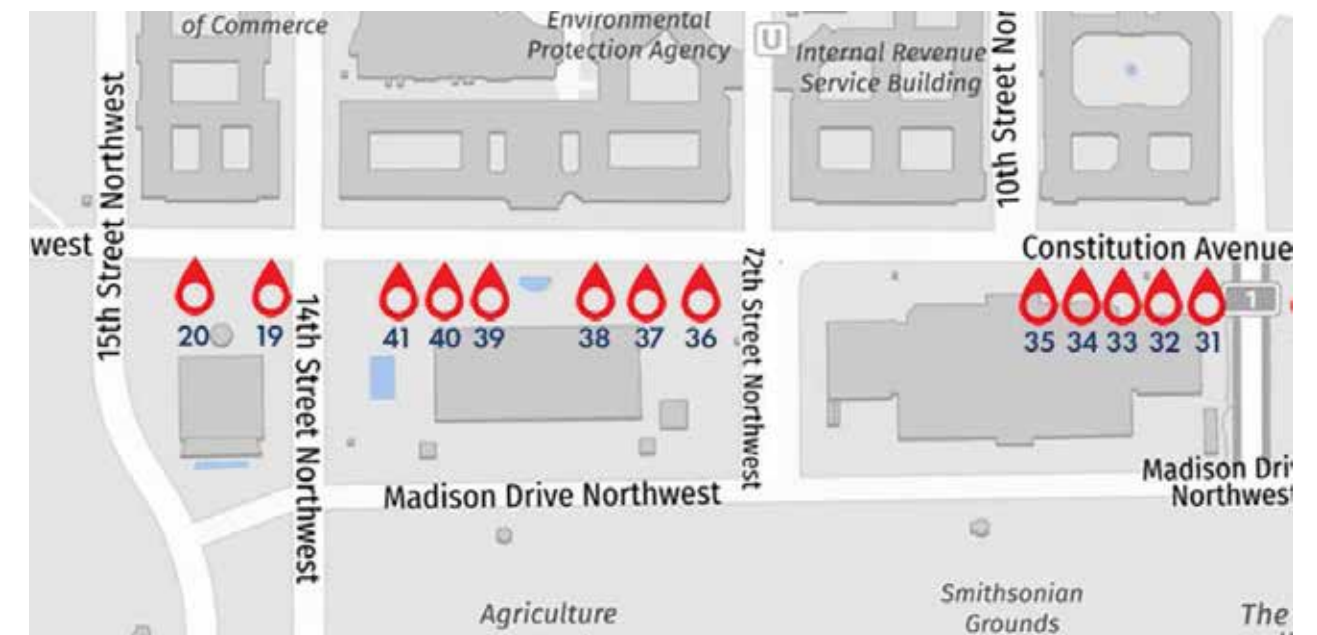
1994 MASTER PLAN - VENDING LOCATIONS



— Automobile

..... Vendors

2023 VENDING HANDBOOK - SINGLE TRUCK PERMIT LOCATIONS

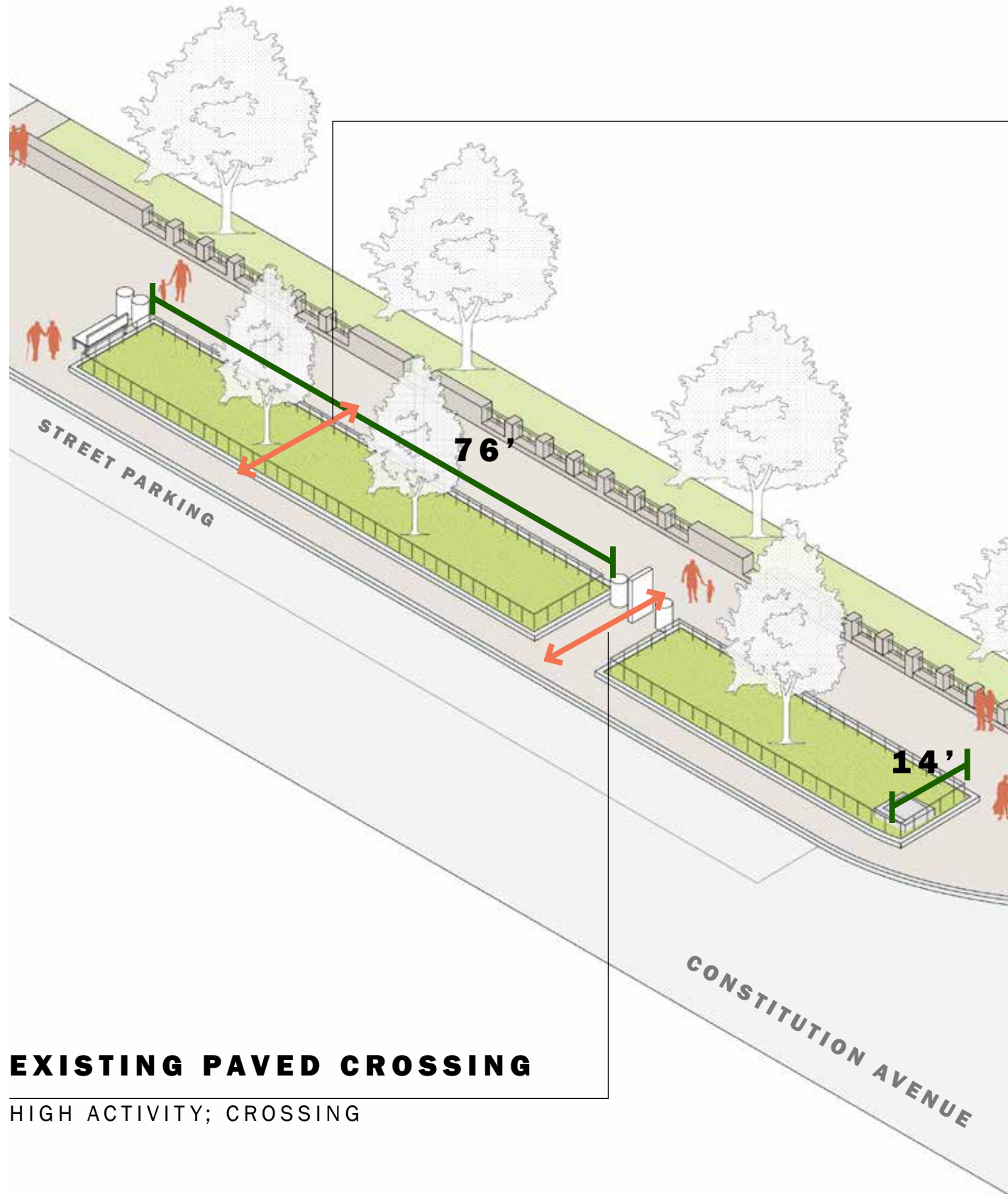




SITE CONTEXT / ANALYSIS

12TH STREET WEST OF NMNH, LOOKING SOUTH

PROPOSED MID BLOCK PLANTER CUT THROUGHS

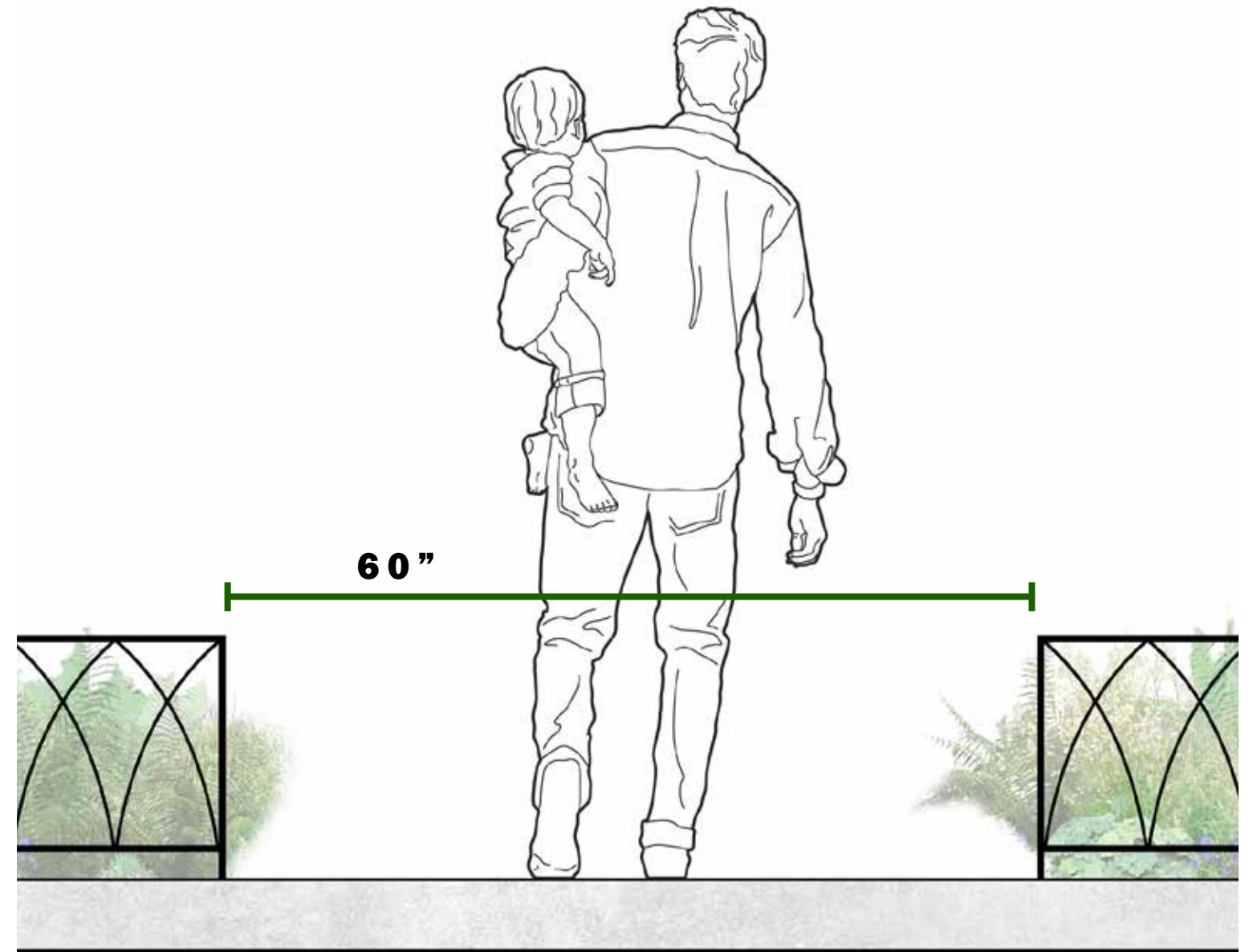


EXISTING PAVED CROSSING

HIGH ACTIVITY; CROSSING

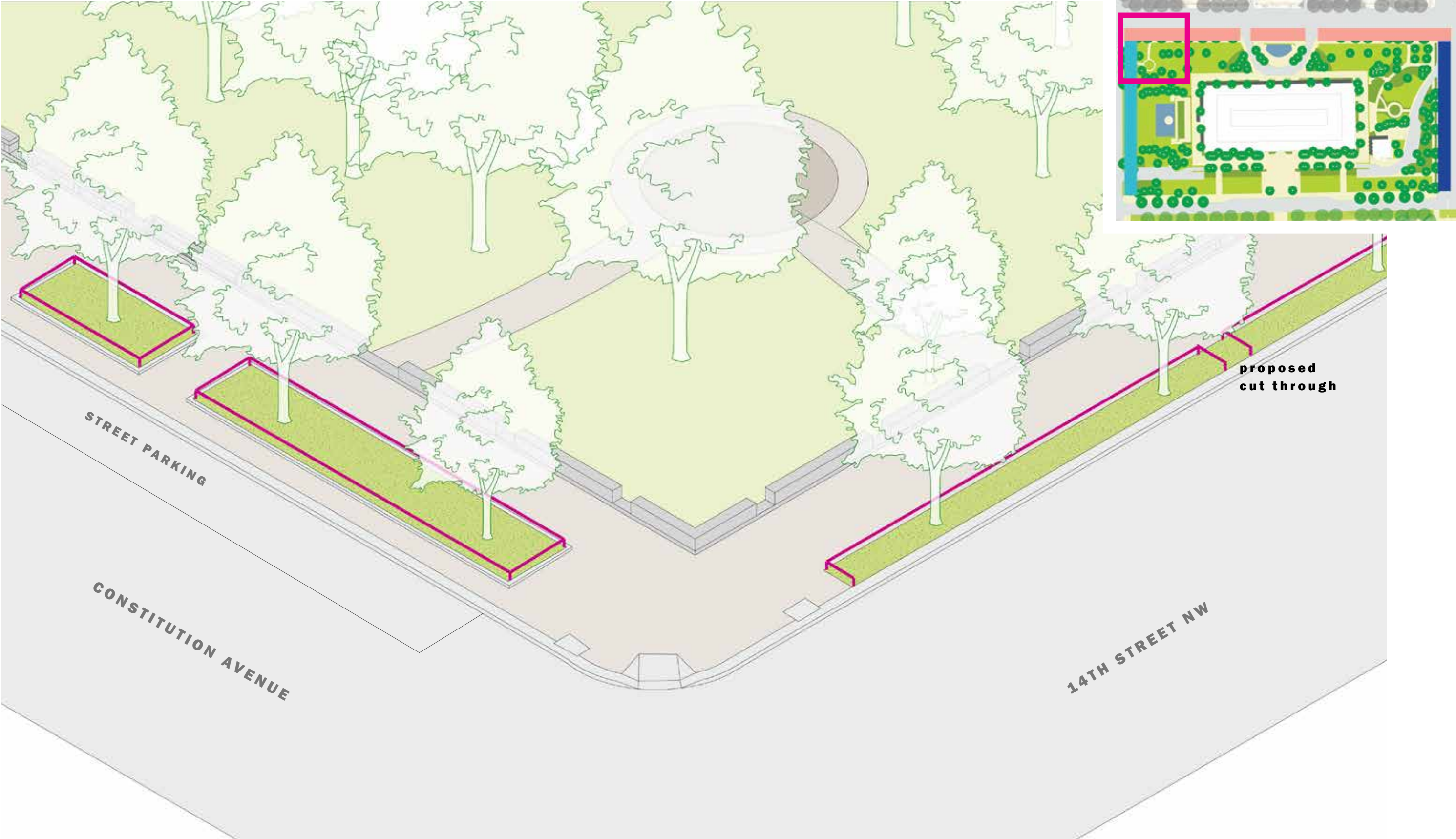
PROPOSED CUT THROUGH (BEDS > 75')

MEDIUM ACTIVITY; CROSSING

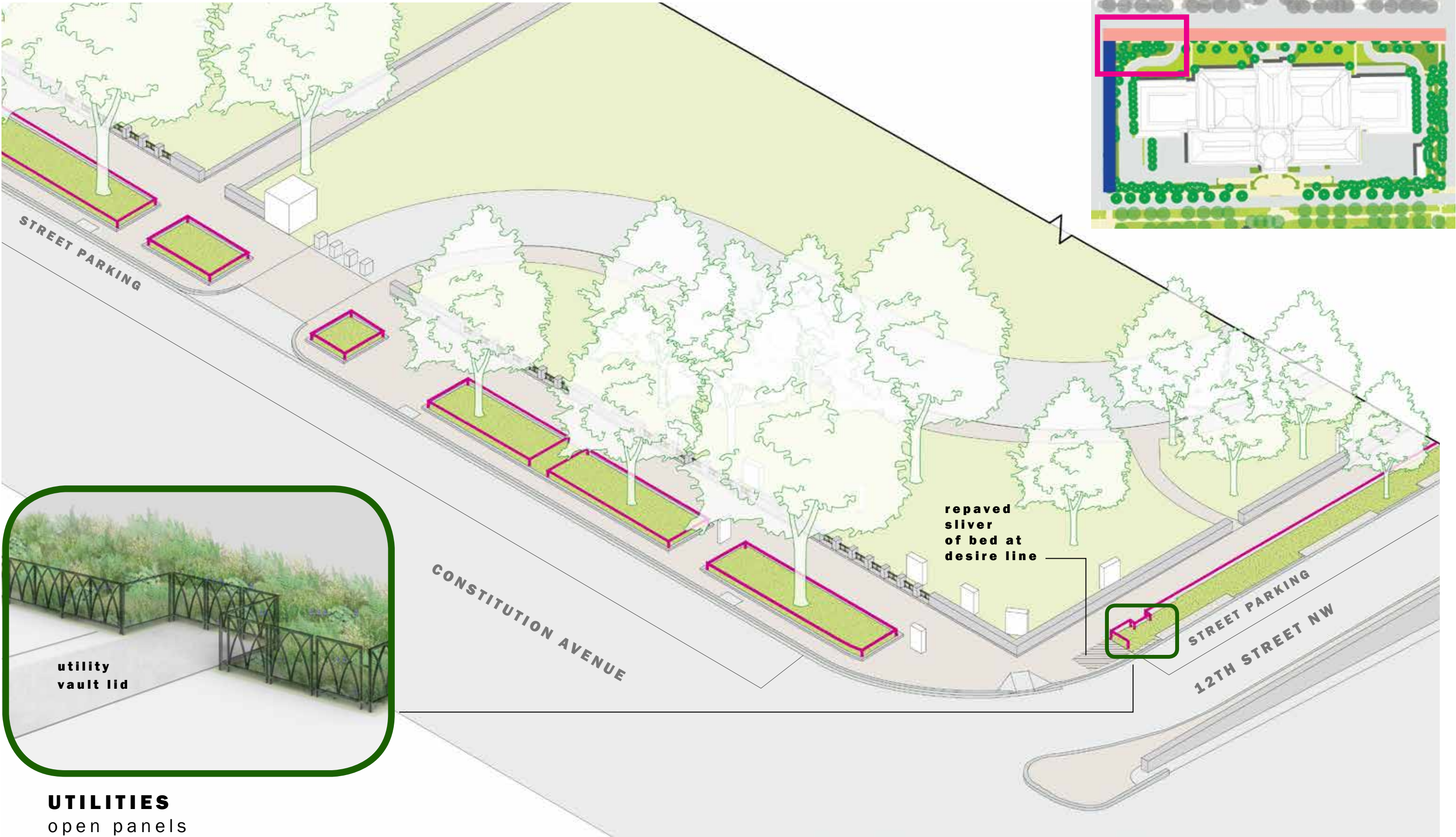


***no alterations to existing planter curbs**

MUSEUM CONTEXT: NMAH

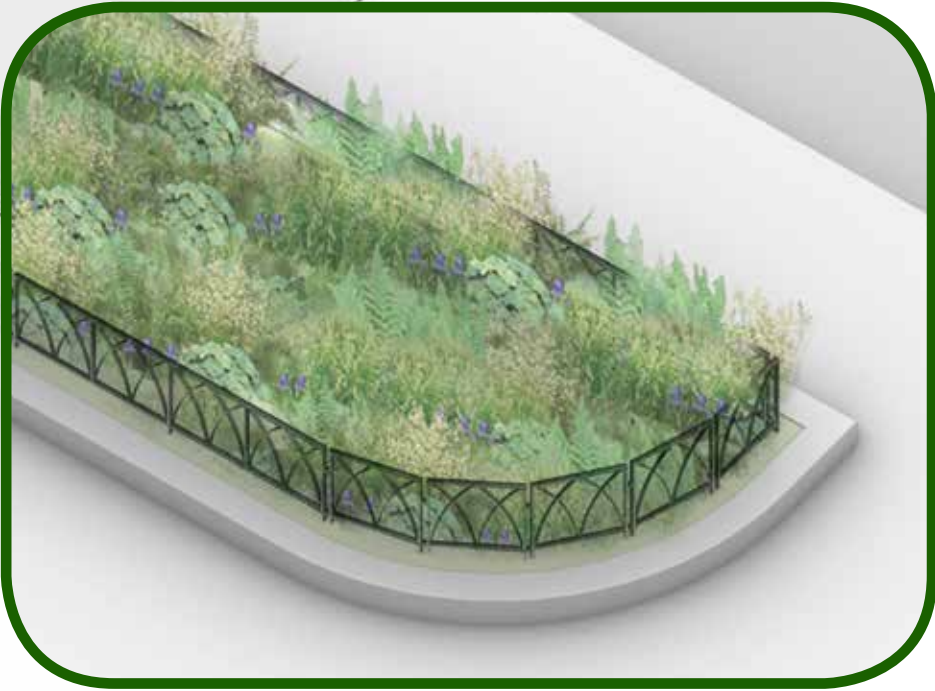
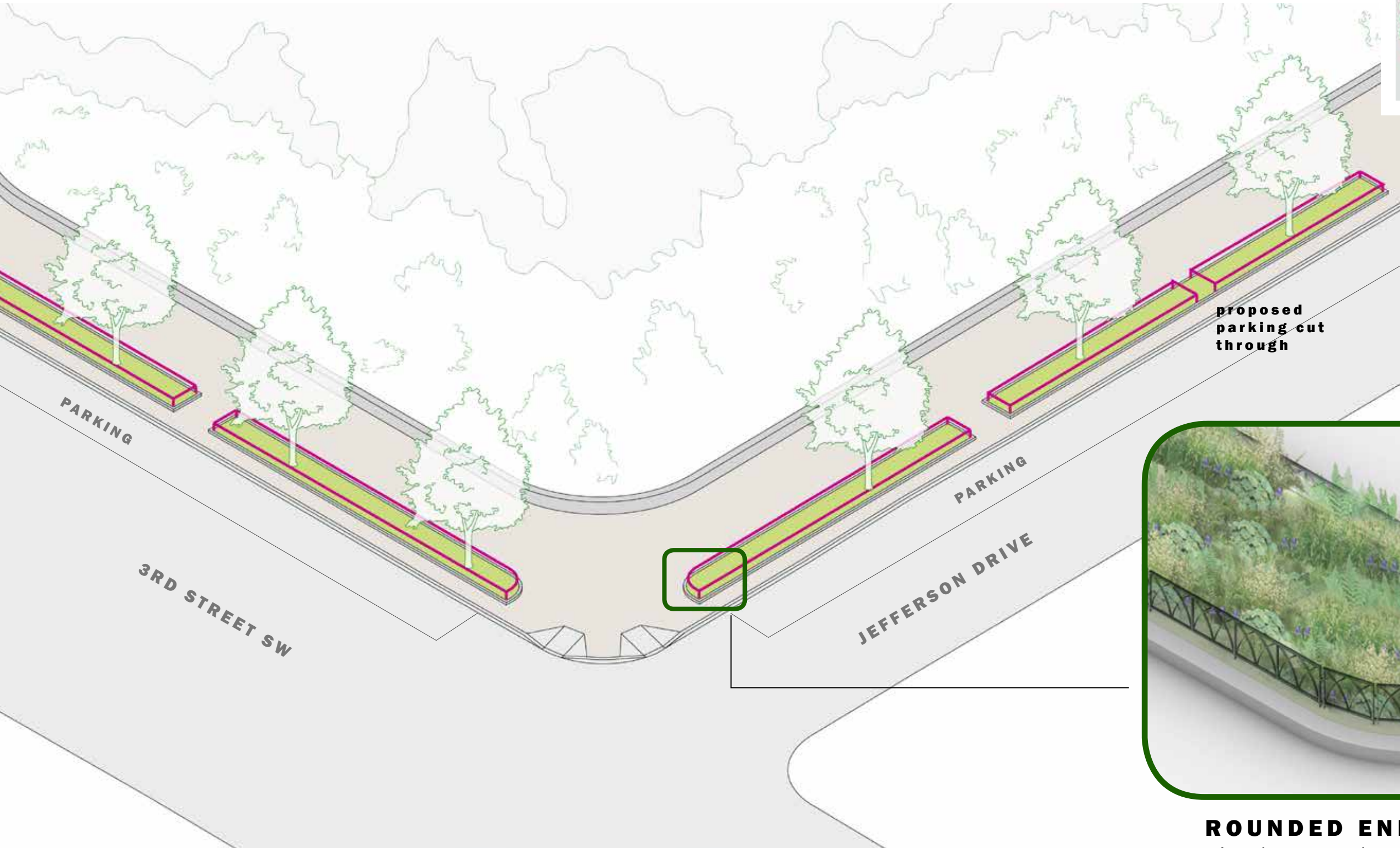


MUSEUM CONTEXT: NMNH



UTILITIES
open panels

MUSEUM CONTEXT: NMAI



ROUNDED ENDS
single panels

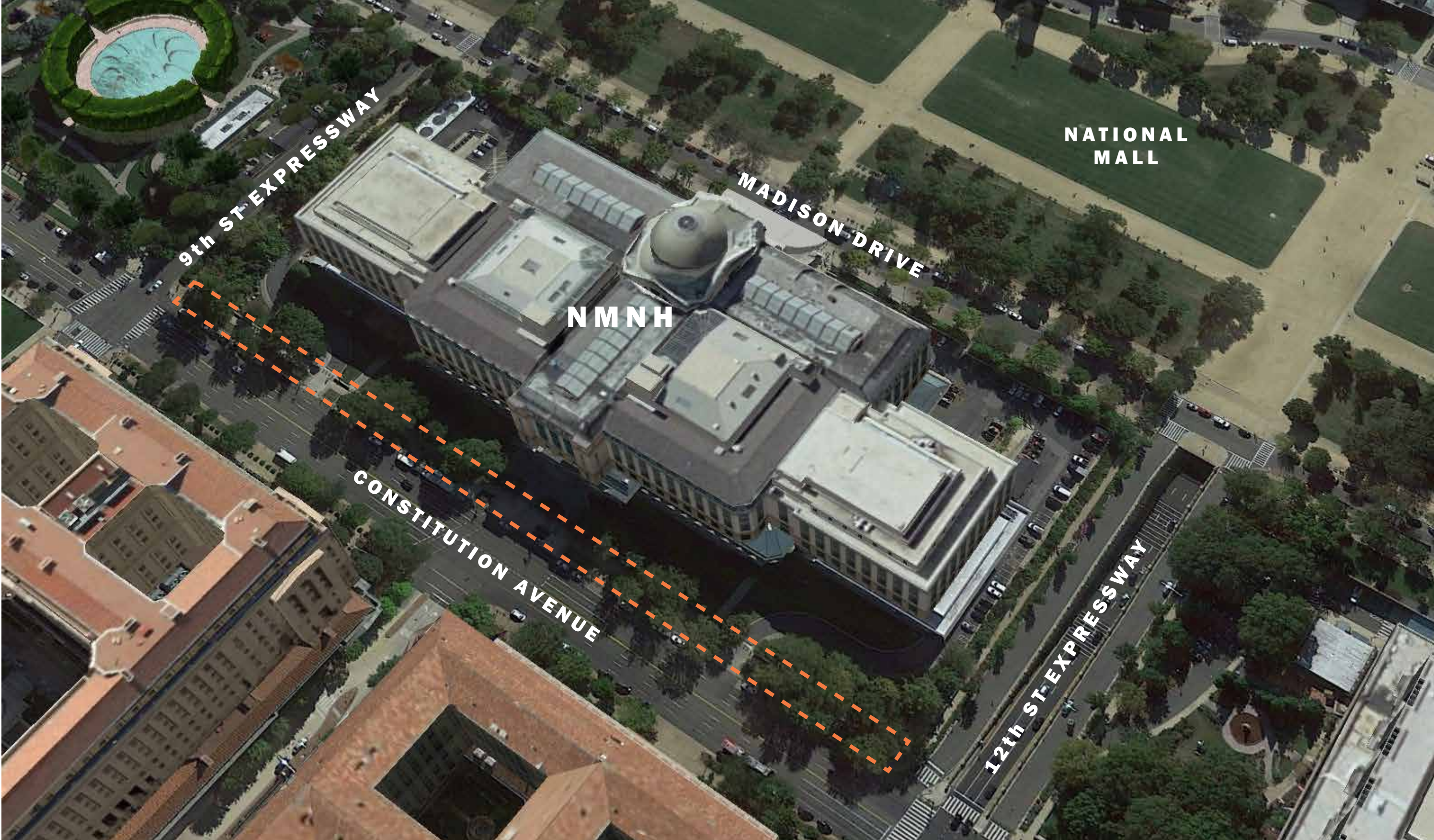


CONSTITUTION AVENUE PILOT PROJECT

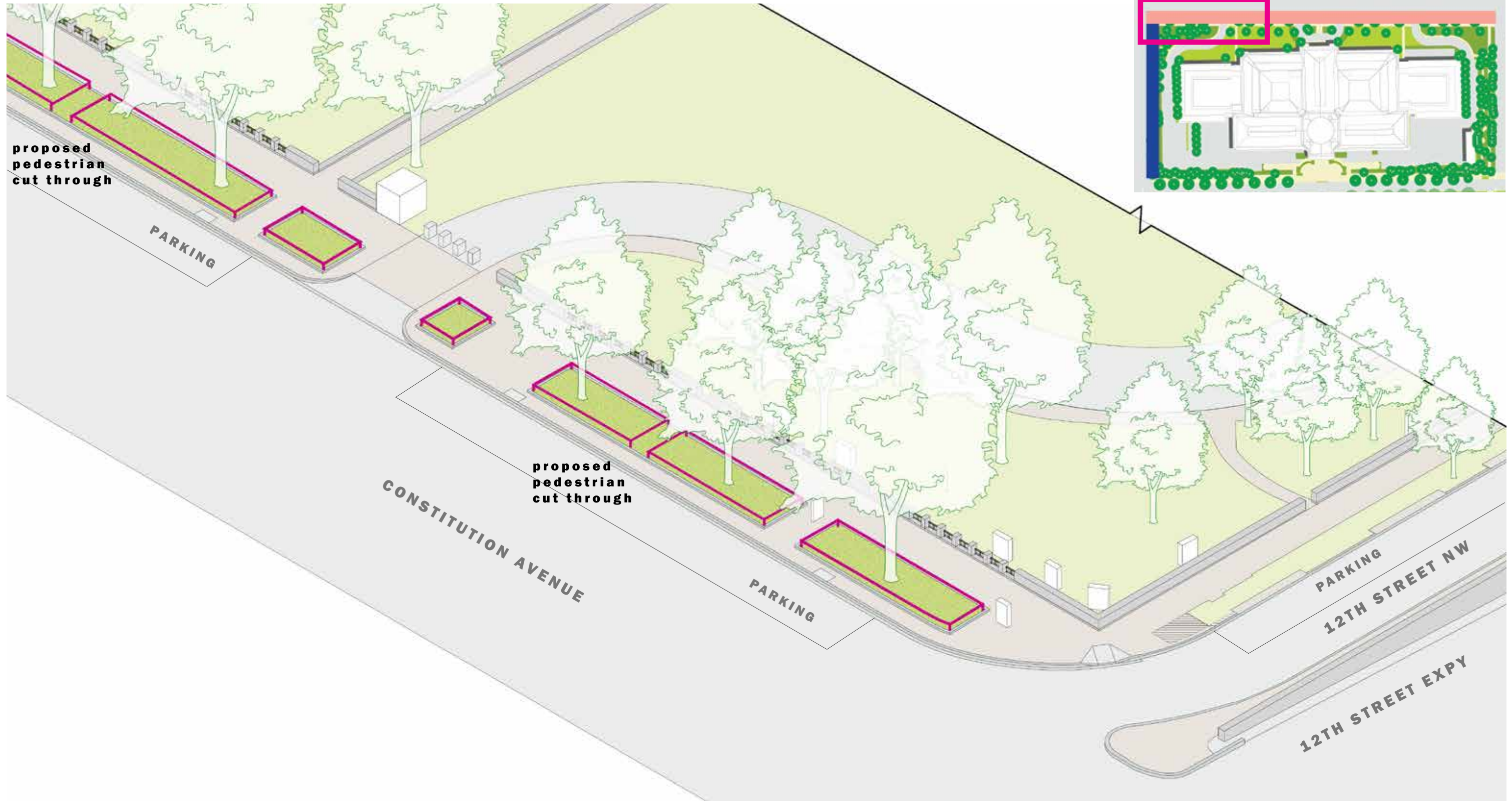
AT NMNH, LOOKING WEST



OVERALL SCOPE

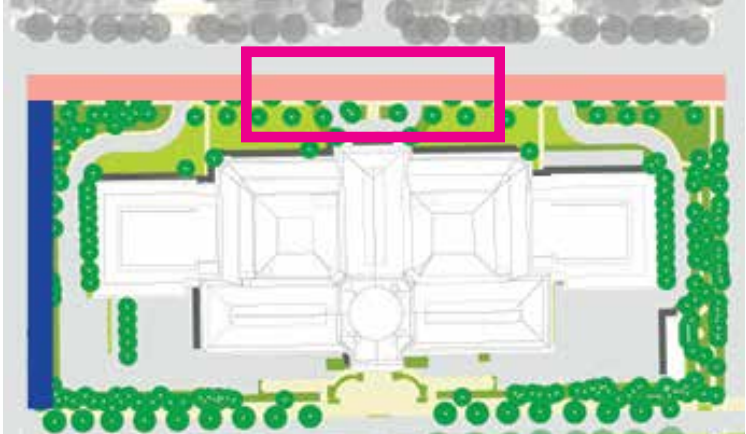


WEST



MID-BLOCK

proposed
pedestrian
cut through



NMNH CONSTITUTION
AVENUE ENTRANCE

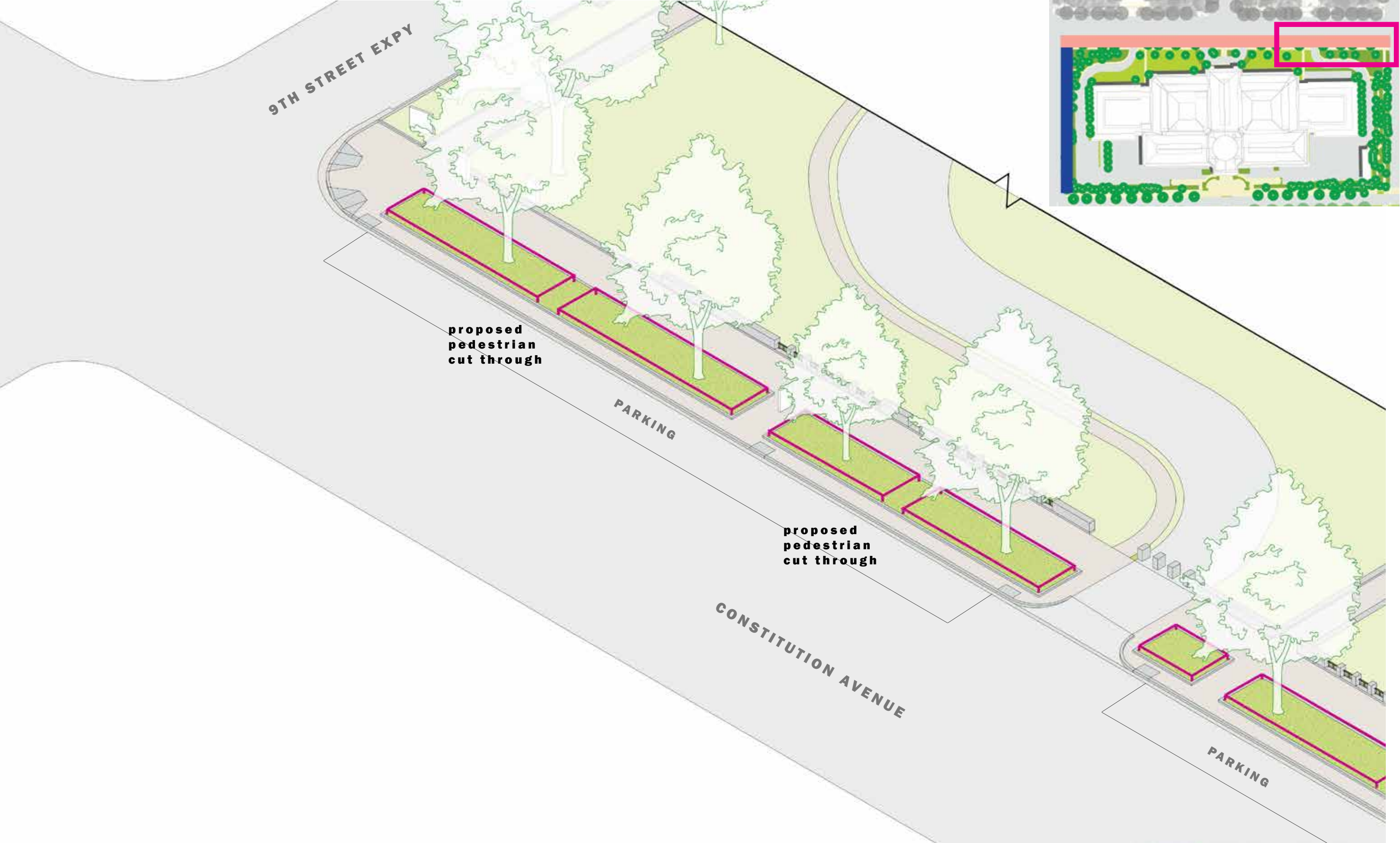
10TH STREET NW

CONSTITUTION AVENUE

PARKING

PARKING

EAST



PLANTING DESIGN



Oehme, van Sweden & Associates



Oehme, van Sweden & Associates



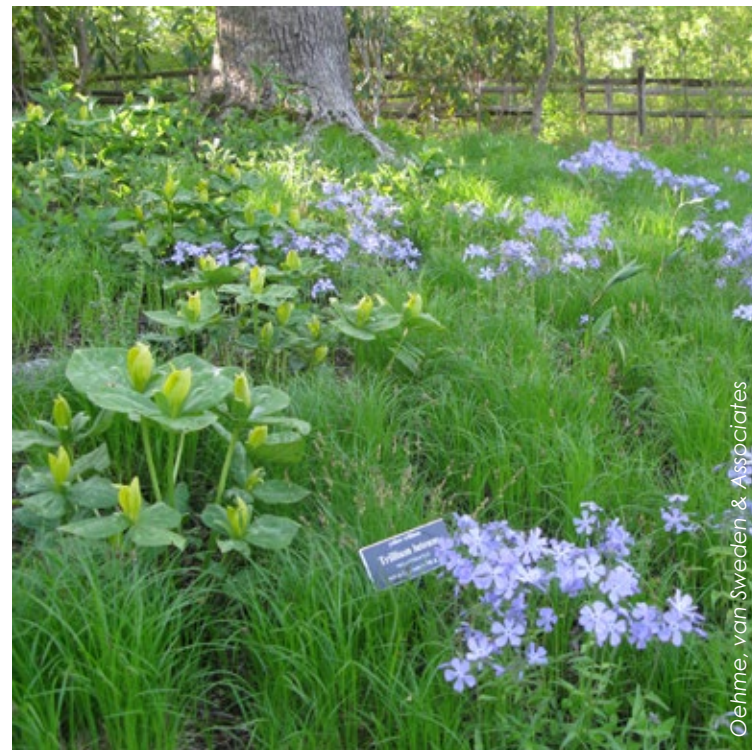
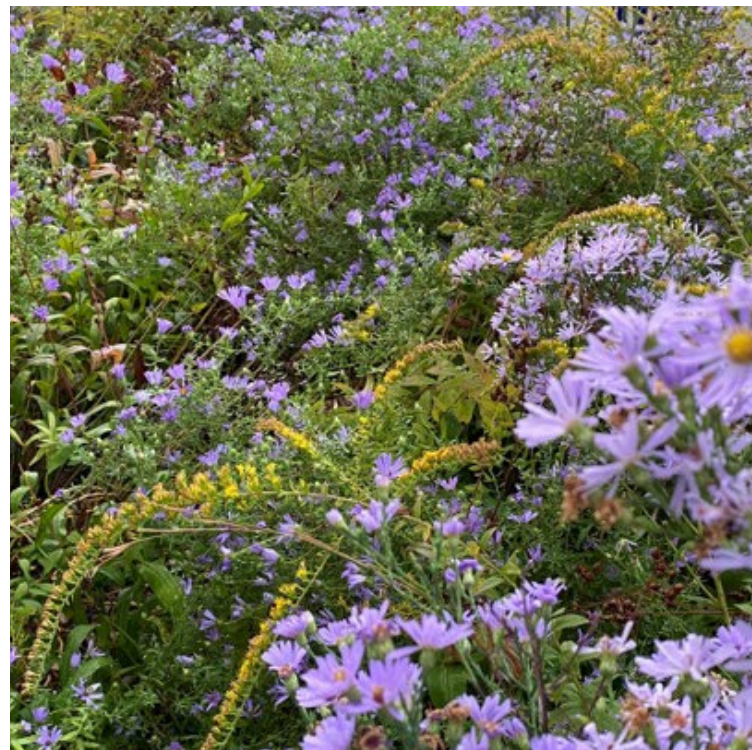
100% MID-ATLANTIC NATIVE SPECIES

65% matrix plants
35% accent plants

3-4 SEASON SPECIES

MATRIX PLANTS

Amsonia tabernaemontana 'Blue Ice'
Carex plantaginea
Carex sprengelii
Dryopteris marginalis
Polystichum acrostichoides



Oehme, van Sweden & Associates

ACCENT PLANTS

Aquilegia chrysantha
Asclepias quadrifolia
Aster ericoides
Camassia scilloides
Chelone glabra
Echinacea pallida
Erythronium americanum
Geranium maculatum
Heuchera villosa 'Autumn Bride'
Ionactis linarifolia
Iris verna
Iris virginica
Mertensia virginica
Monarda bradburiana

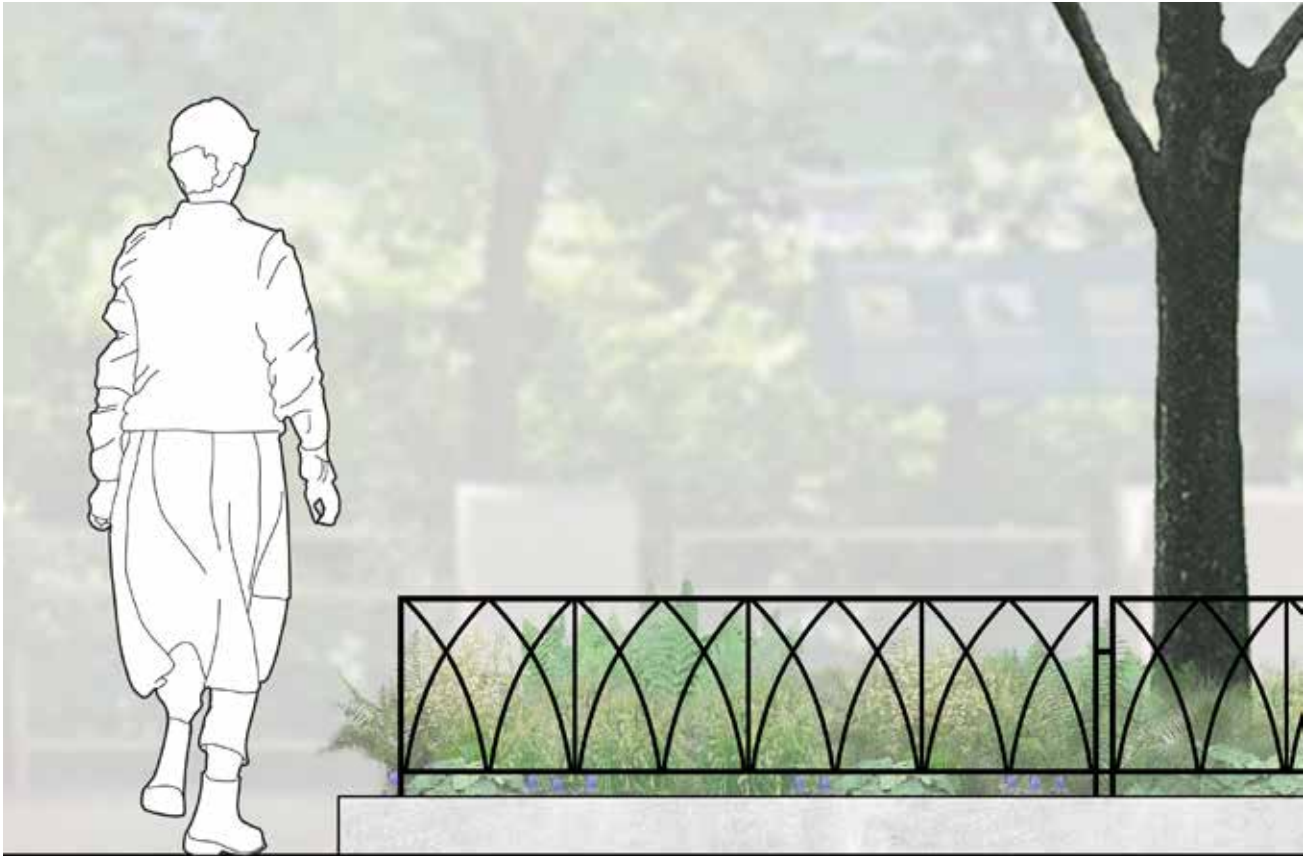
Phlox divaricata 'Blue Moon'
Podophyllum peltatum
Pycnanthemum flexuosum
Spigelia marilandica
Thalictrum thalictroides

Bulbs:

Crocus spp.
Narcissus 'Pheasant's Eye'

PLANTING CONTEXT

IN LEAF



IN DORMANCY



CONSTITUTION AVENUE: Proposed

NMNH AT CONSTITUTION AVE. & 12TH ST.





THANK YOU

12TH STREET WEST OF NMNH, LOOKING NORTH

