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REVITALIZE LOWER BEAR HABITAT

SI Project Number: 2433108

Smithsonian's National Zoo and Conservation Biology Institute
Washington DC

PRELIMINARY AND FINAL REVIEW SUBMISSION
National Capital Planning Commission
August 1, 2025

REVITALIZE LOWER BEAR HABITAT

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Figure 1
Andean Bears climbing in the trees

PROJECT OVERVIEW

LOCATION
Smithsonian's National Zoo and Conservation Biology Institute (NZCBI)
3001 Connecticut Ave. NW
Washington DC

OWNER/CONTACT
Smithsonian Institution
Office of Planning, Design, and Construction (OPDC)

Nancy Levan, Project Design Manager
Phone: 202-633-4405
Email: levann@si.edu

PROJECT BACKGROUND AND GOALS
The proposed project area is located on the southwest side of Smithsonian's National Zoo and Conservation Biology Institute (NZCBI) at the Lower Bear Habitat.

The Lower Bear Habitat consists of two existing exhibit spaces for Andean bears. The habitat is undergoing a revitalization effort to address deteriorating exterior conditions and enhance both animal welfare and the visitor experience. One focus point is the full replacement of aging faux rockwork with new, thematically appropriate rock features that reflect the natural Andean bear habitat. The upgrades also include the addition of artificial tree climbing structures, and the reworking of existing habitat pools.

Additionally, the project will improve upon the visitor experience around the habitat with new railings and landscaping that reflects the habitat.

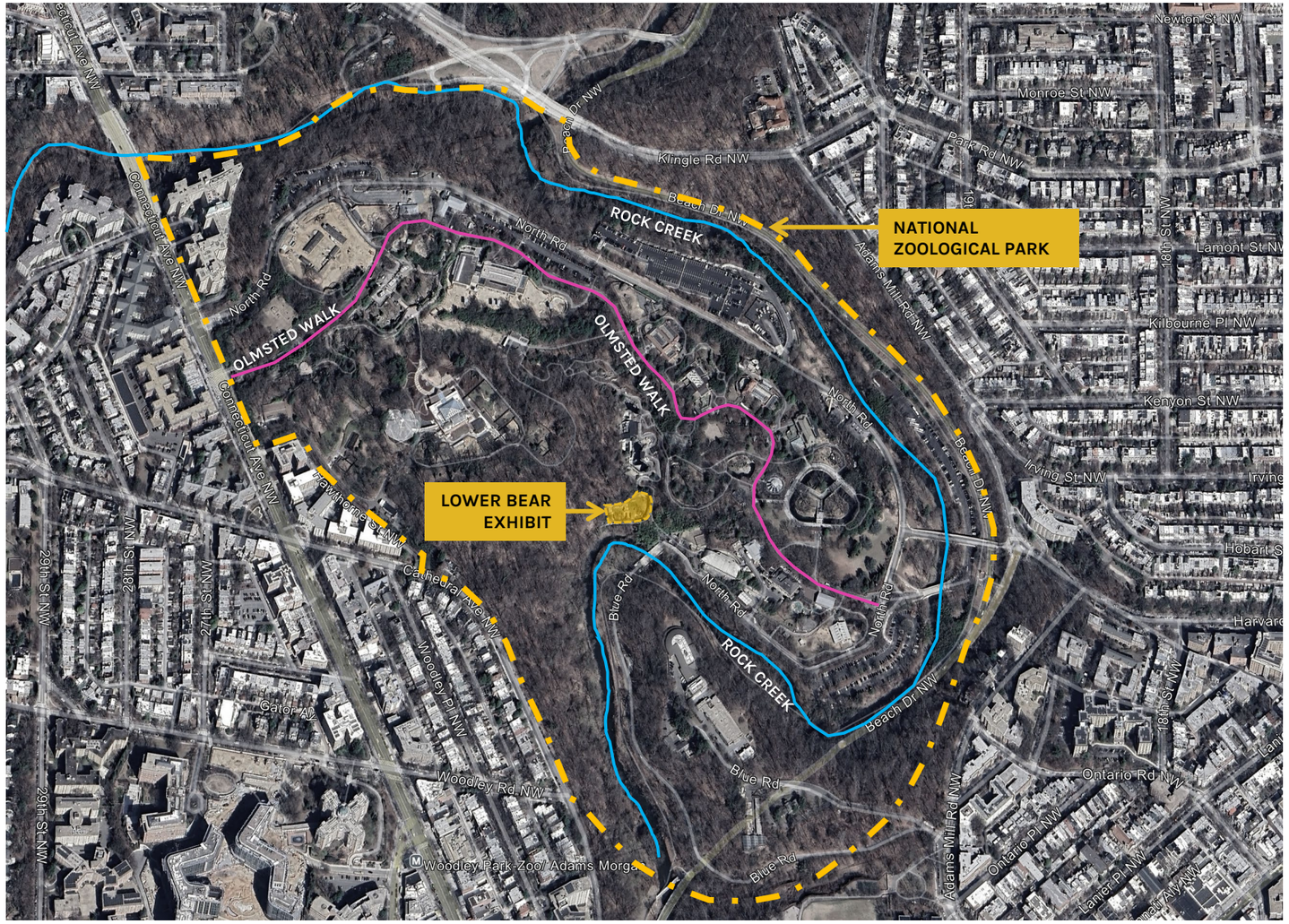

Figure 2
Overview map of the Smithsonian's National Zoo and Conservation Biology Institute showing project site

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PROJECT OVERVIEW

PUBLIC ENGAGEMENT AND OUTREACH

As the project is limited to internal exhibit infrastructure improvements, public consultation is being completed through Section 106 and external review agencies processes. The Smithsonian continues to coordinate internally to ensure the project aligns with its operational goals and visitor experience standards.

COORDINATION WITH FEDERAL, STATE, AND LOCAL JURISDICTIONS

The project team has been actively coordinating with the District of Columbia Department of Energy and Environment (DOEE) to ensure compliance with stormwater management requirements. This includes meetings to review site conditions, submission of preliminary documentation, and ongoing collaboration to meet permitting standards. Our initial pre-design review meeting indicated that Erosion and Sediment Control would be required, but Stormwater Management would not be required.

Coordination with the DC State Historic Preservation Office included the SI proposing a determination of No Adverse Effect. All required stormwater management plans will be reviewed and approved by DOEE in accordance with local environmental regulations.

PROJECT SCHEDULE

- January 2026: Final Construction Documentation
- FY 2026 – FY 2027: Construction Period

PROJECT SITE VICINITY MAP

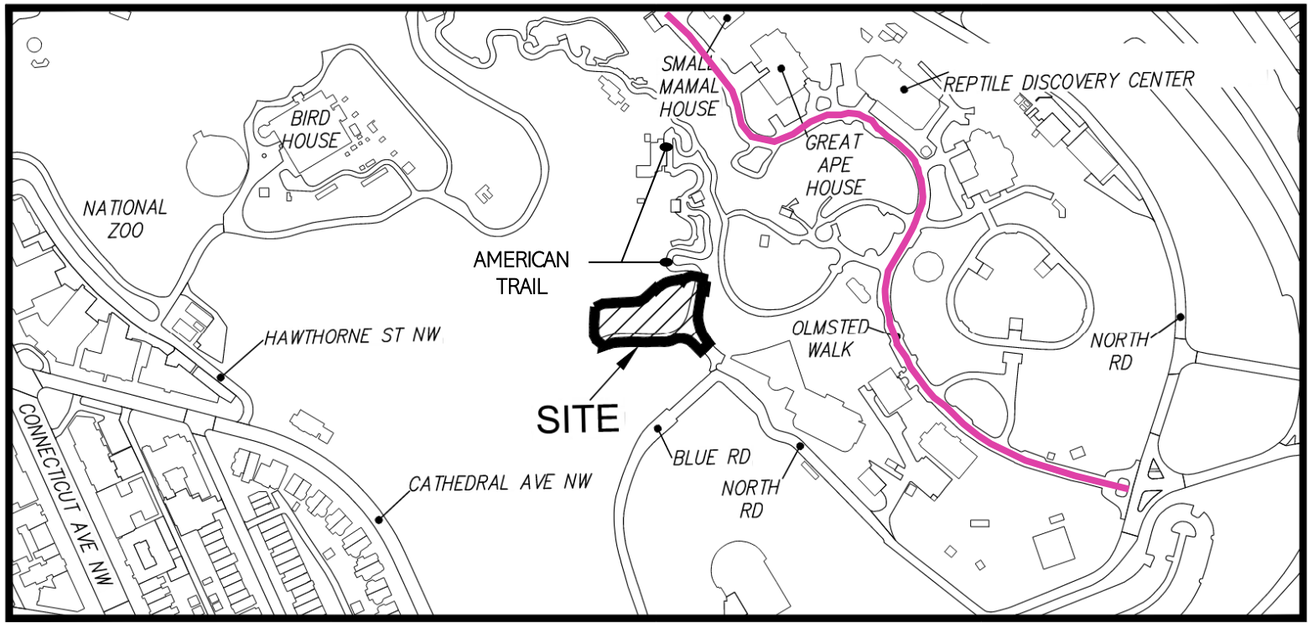

Figure 3
Project site vicinity map with proximity to other locations

The Lower Bear Habitat is located in a somewhat isolated southwest corner within Smithsonian's National Zoological Park. While the habitat is easily accessible, it is situated away from the main circulation routes and does not front directly onto the historic Olmsted Walk. The site's placement within the Zoo minimizes visual and physical disruption to major pedestrian corridors.

EXISTING CONDITIONS

The site aerial shows the habitat as it currently looks. The boundary line of the project lies just around the back northern perimeter and the southern perimeter of the pedestrian walkway. The habitat is fairly isolated from other Zoo habitats and visitor areas.

- Two habitat yards (east and west)
- Habitat and visitor path separated by a moat
- The southern edge along the visitor path is protected by a steel perimeter fence that won't be altered.
- .44 acres within the Limit of Work boundary

Limit of Work

Figure 4
Existing conditions aerial of Lower Bear Habitat showing locations of habitat views

VIEW 1 (looking west): East Habitat Yard
East habitat yard shows signs of deteriorating rockwork, dead trees, and the moat condition

VIEW 2 (looking east): West Habitat Yard - shows signs of deteriorating rockwork, dead trees, and the moat condition

VIEW 3 (looking east): Visitor Path - shows current pedestrian viewing experience around the habitat perimeter

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EXISTING CONDITIONS PLAN

TOPOGRAPHY

The Lower Bear Habitat is set into a hillside and takes advantage of the dramatic grade change to hide infrastructure and create a more realistic habitat. From the highest topographic point at 74.00 to the lowest topographic point at 49.00, the habitat sees about a 25 feet in grade change. Almost all this grade change is within the exhibit itself, as the visitor path in front of the exhibit is fully accessible.

BUILDINGS AND STRUCTURES

A single existing building is located below the exhibit yards and behind the rockwork. This structure serves as a support facility and houses the bear dens but is not included in the scope of this project. The building will remain untouched and unaffected by the proposed improvements. No physical alterations or utility modifications are planned for this structure as part of the renovation effort.

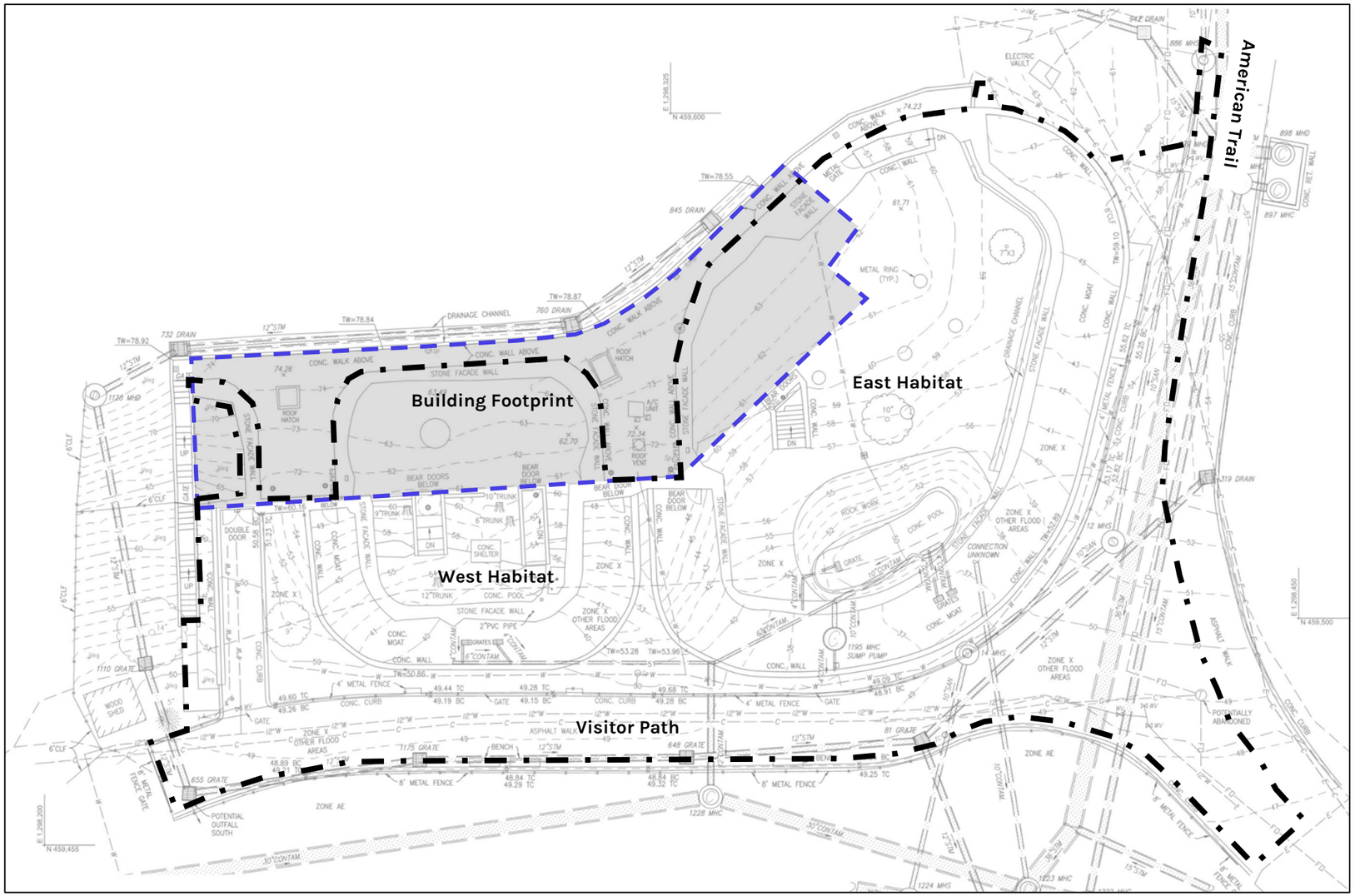

Figure 5
Existing conditions drawing of Lower Bear Habitat showing existing structures, topo, and utilities

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ENVIRONMENTAL AND HISTORICAL CONSIDERATIONS

FLOODPLAIN AND FLOODING IMPACTS STORMWATER MANAGEMENT

The existing site is classified by FEMA as an Area of Minimal Flood Hazard, Zone X (unshaded). This means that the proposed work is outside the 500-year food plain. Earthwork will be limited to the maximum extent possible.

STORMWATER MANAGEMENT

The Revitalize Lower Bear Habitat project does not qualify as a major land disturbing activity or a major substantial improvement activity. Per the preliminary meeting with DOEE on June 5, 2025, this project will require an erosion and sediment control plan but will not require stormwater management measures.

HISTORICAL CONSIDERATIONS

Today's Lower Bear Habitat site was originally known as the Wolf and Fox Yards. In 1909, ten fenced yards and dens were constructed at this location. Between 1976 and 1977, the area was reconstructed into its current form and served as home to grizzly and polar bears before transitioning to Andean bears. While the habitat reflects over a century of evolving use, it is non-contributing to the National Zoological Park Historic District. This project is proposed to have a determination of No Adverse Effect on historic resources.

The exhibit is accessed via American Trail; it is not in close proximity to Olmsted Walk and the proposed project will not affect the walk. There are no character-defining buildings, structures, or landscape features within or immediately adjacent to the project area. The improvements are contained within the existing footprint and avoid any impact to historically sensitive areas. The perimeter fence will not be altered.

Regarding viewsheds, the primary view toward the habitat is from the Olmsted Walk and the American Trail. These views will remain unchanged, as the project does not introduce any new vertical structures or visual obstructions. Additionally, views from the habitat out toward Rock Creek will not be affected—no new construction will interrupt or alter these existing view corridors.

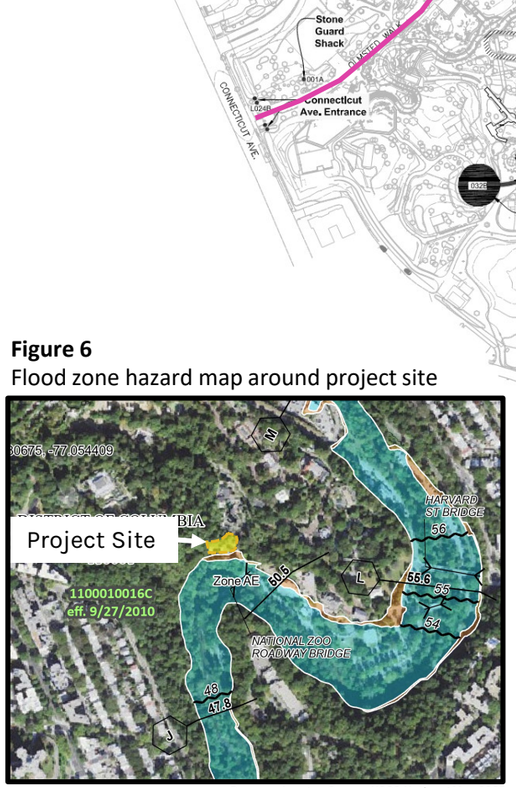

Figure 6
Flood zone hazard map around project site

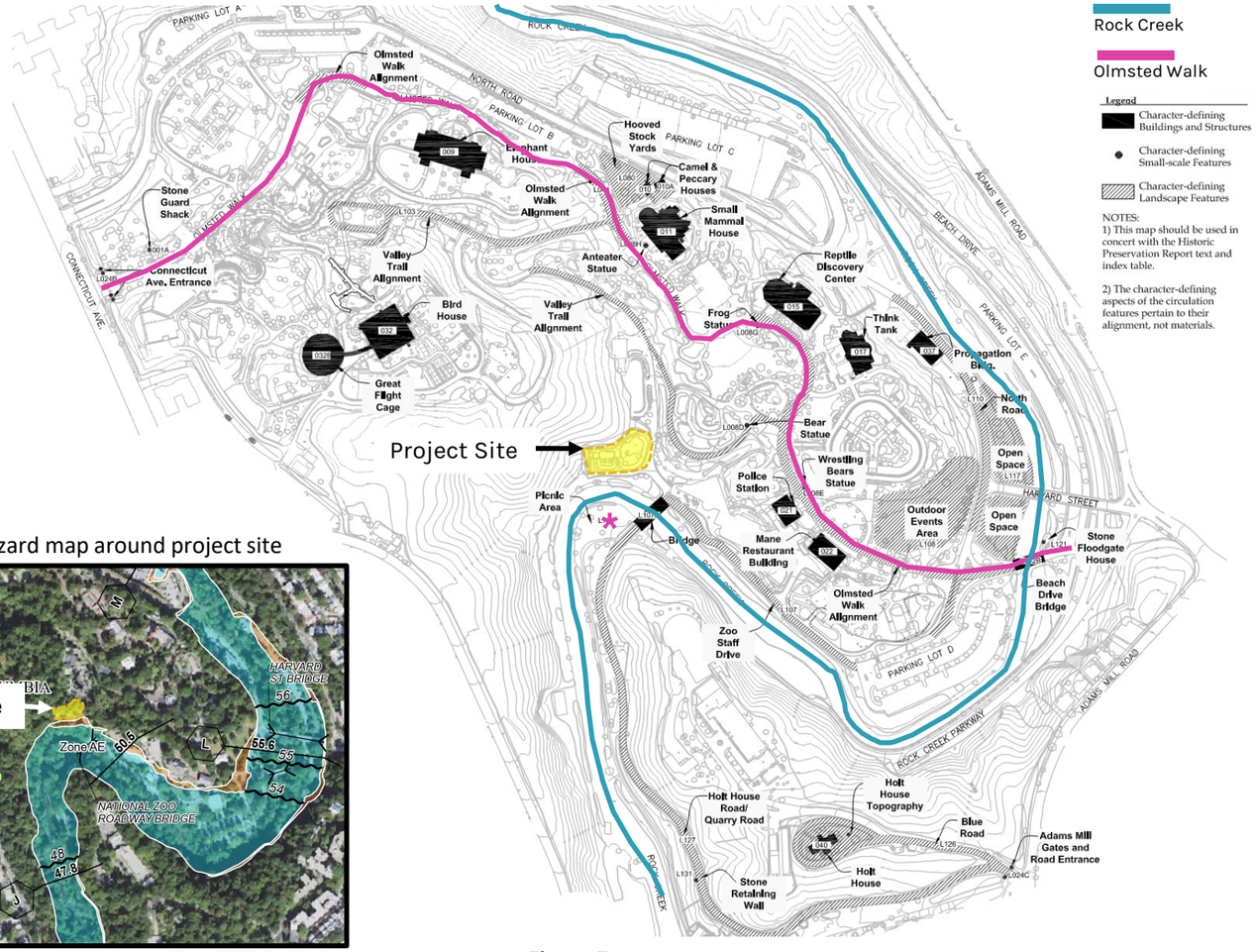

Figure 7
Map of character defining structures and landscapes around project site

* The location across Rock Creek from the project site was identified as a high-potential archeological site in the 2008 Campus Plan

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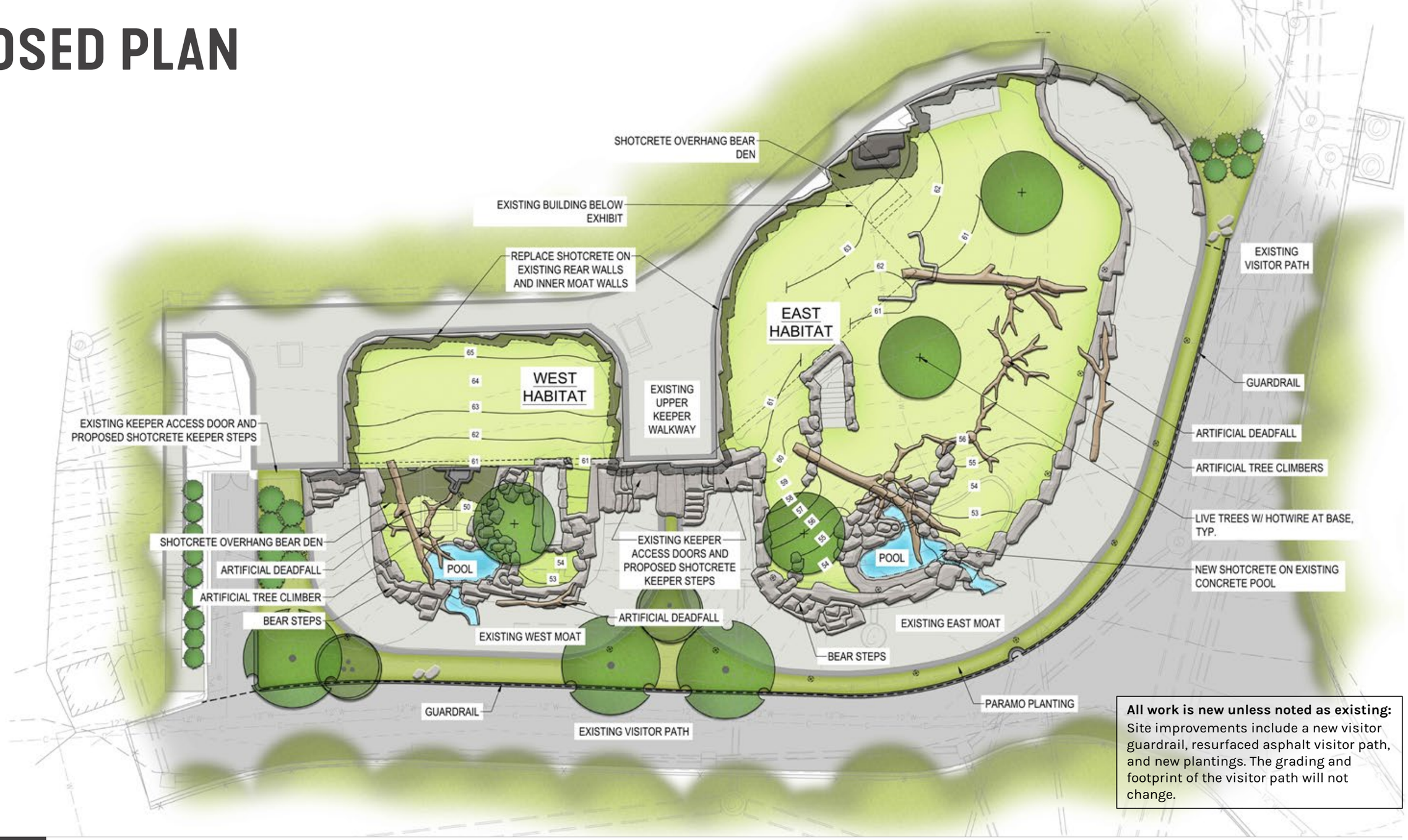
PROPOSED PLAN



All work is new unless noted as existing: Site improvements include a new visitor guardrail, resurfaced asphalt visitor path, and new plantings. The grading and footprint of the visitor path will not change.

Figure 8
Proposed project plan

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VISITOR PATH

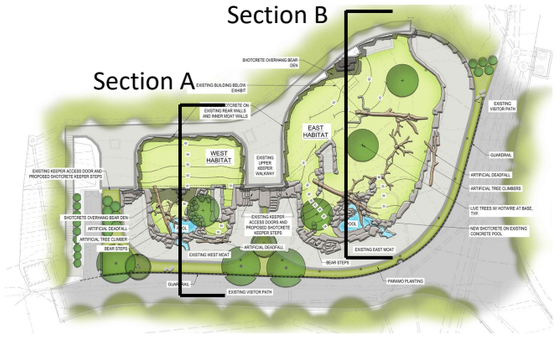
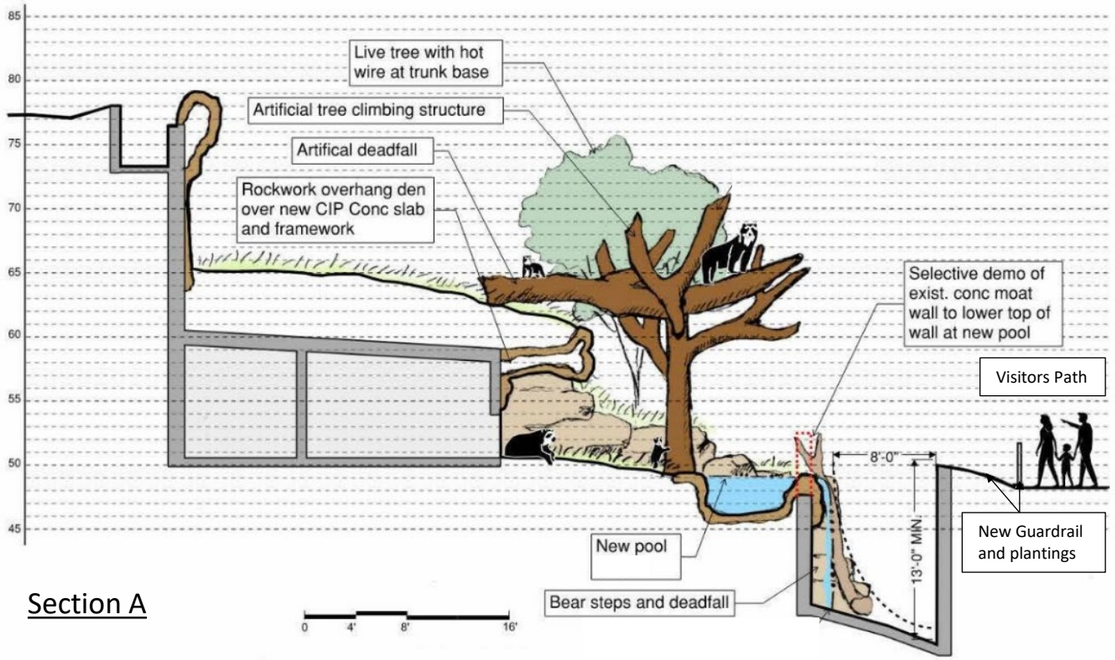


Figure 9 Section cut key map

LOOKING INTO THE WEST HABITAT

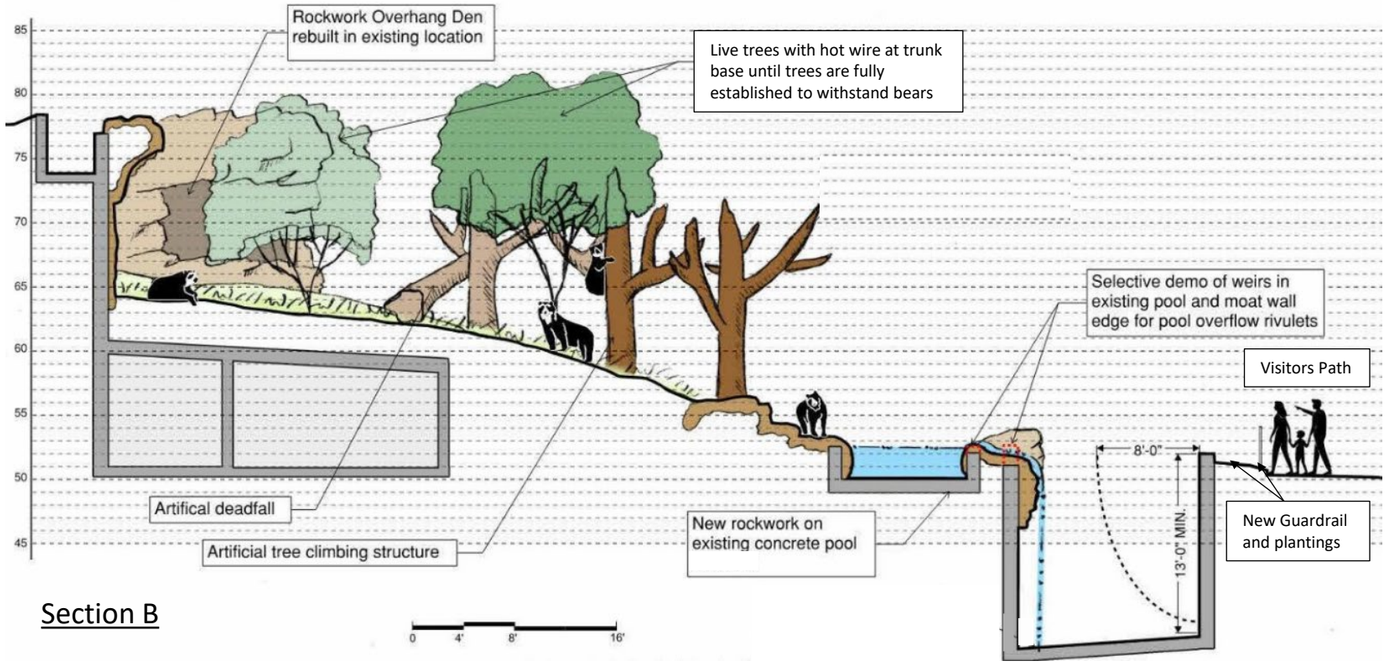
The west habitat visitor path provides a more intimate view into the lower portion of the exhibit details and vegetation, including a new close-up den, the pool and adjacent climbing structures.



Section A

LOOKING INTO THE EAST HABITAT

The east habitat visitor path offers a broad, elevated perspective into the exhibit, allowing visitors to overlook the central rockwork and main pool area.



Section B

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VISITOR PATH

STANDARD VISITOR GUARDRAIL

Existing guardrails are to be replaced with 43 in. height railing system consisting of woven wire mesh panels, posts, and top rails. Mesh panels with 2 in. mesh openings will be reinforced by steel mesh containment channel frames. 4 in. x 2 in. steel posts will be spaced 6 ft. on center, on either side of each mesh panel. Rails will be mounted behind the mesh.

Note: Post and rail finish will be black powder-coated steel. All guardrails shall have concrete footings and/or anchorings designed by structural engineer.

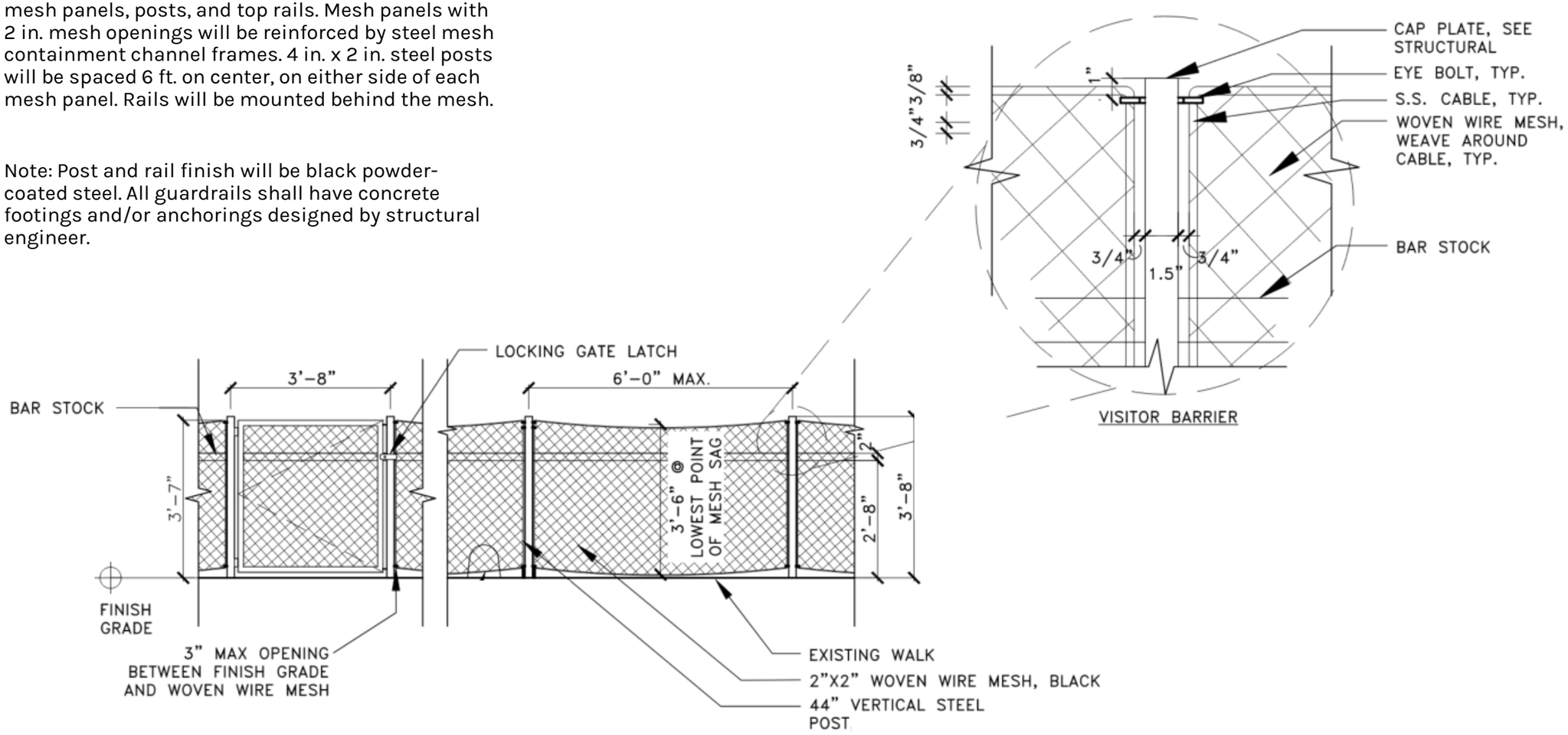

Figure 10
Proposed guardrail

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TREE REMOVAL AND PRESERVATION

Five trees are located within the project area. Four of these trees are dead and will be removed as part of the proposed work. One healthy tree remains in good condition and will be preserved in place. Trees within the habitats are dead or in poor condition due to bear usage.

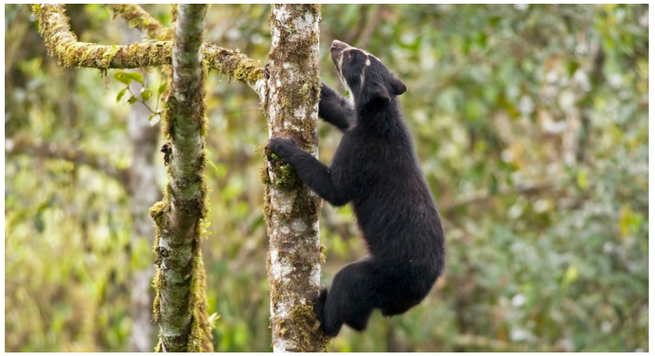

Figure 11
Andean Bear climbing tree

Tree #	Cal.	Condition	Remove/Remain
01	7 inch	Dead	Remove
02	10 inch	Dead	Remove
03	9 inch	Dead	Remove
04	7 inch	Poor Condition	Remove
05	14 inch	Good	Remain

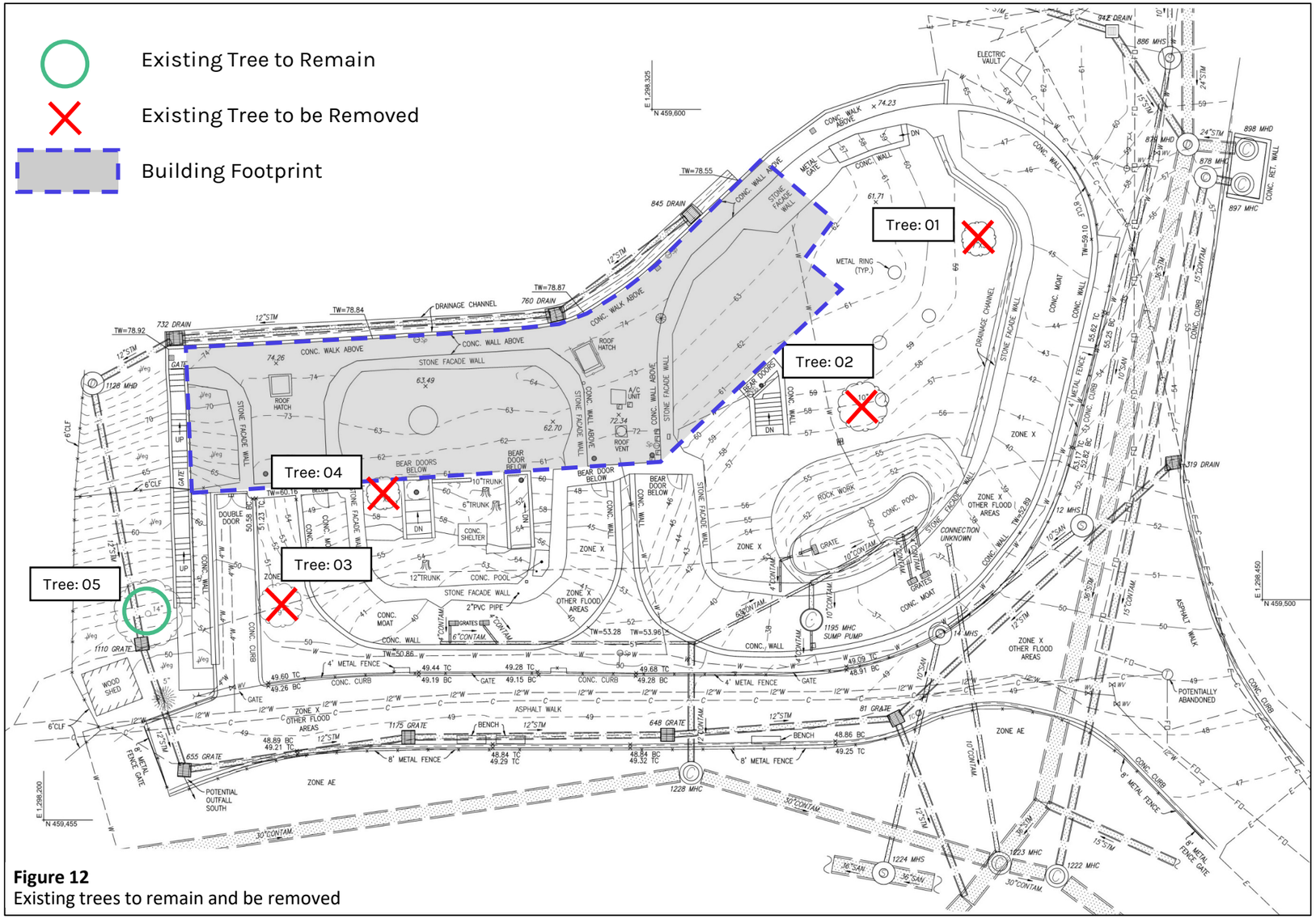

Figure 12
Existing trees to remain and be removed

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PROPOSED LANDSCAPE

PLANTING NARRATIVE

All plant material should adhere to American Standard for Nursery Stock standards (ANSI Z60.1)

New trees will be installed at a caliper of 3.5 in. for shade trees, and 2.5 in. caliper / 8 ft. height or above for multi-stem ornamental trees. Proposed tree planting meets NCPC tree replacement requirements.

Interpretive plant palettes that are deer resistant will introduce viewers to the bears' habitat. A 'Paramo Mix' of perennial species that reference the forms and colors of an Andean paramo meadow will be planted along the exhibit edge. Shrubs, perennials, ornamental grasses, and groundcovers will be installed in planting beds, and all planting beds will be covered in hardwood or stone mulch. Shrubs shall be 14.55-liter container size. Perennials and ornamental grasses should be 1-2 ft. in height and spread at time of installation.

TREE REPLACEMENT SCHEDULE

Tree Size	QTY. to be Removed	Required Replacement QTY.
<10"	3	**3** Replacement Ratio 1:1
>10"	1	**1** Replacement Ratio: 10x.50x.80=4 (1-4.9=one tree)

TREE PLANTING SCHEDULE

Tree Type	Cal.	Count
Shade Tree *Ulmus 'Morton' ACCOLADE*	3.5 in.	03
Shade Tree *Platanus x acerifolia*	3.5 in.	04
Multistem Ornamental *Amelanchier arborea*	8' ht.	02

VISITOR PATH
~70% Native Species
~50% Pollinator Friendly Species

Proposed planting meets NCPC Pollinator Best Practices Resource Guide for non-meadow and designed landscape best practices, including pollinator best practices.

LEGEND

PLANT SCHEDULE **VISITOR PATH**

SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	CONTAINER	
TREES					
	2	PLATANUS X ACERIFOLIA / LONDON PLANE TREE	3.5" CAL.	B&B	
	1	ULMUS X 'MORTON' / ACCOLADE™ ELM	3.5" CAL.	B&B	
ORNAMENTAL TREES					
	2	AMELANCHIER ARBOREA / DOWNY SERVICEBERRY	8` HT.	B&B	
SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	FORM	SPACING
SHRUBS					
	18	ILEX GLABRA 'SHAMROCK' / SHAMROCK INKBERRY HOLLY	---	NO. 5 CONT.	42" o.c.
	7	MORELLA CAROLINIENSIS / BAYBERRY	---	NO. 5 CONT.	60" o.c.

PERENNIALS					
	22	AGASTACHE X `KUDOS CORAL` / KUDOS CORAL ANISE HYSSOP	1` HT.	NO. 1 CONT.	24" o.c.
	24	PEROVSKIA ATRIPLICIFOLIA 'LITTLE SPIRE' / LITTLE SPIRE RUSSIAN SAGE	2` HT.	NO. 1 CONT.	24" o.c.
	25	YUCCA FLACCIDA / ADAM'S NEEDLE	2` HT.	NO. 1 CONT.	24" o.c.
GRASSES					
	62	FESTUCA GLAUCA 'ELIJAH BLUE' / ELIJAH BLUE FESCUE	1` HT.	NO. 1 CONT.	12" o.c.
	21	PANICUM VIRGATUM `GUNSMOKE` / GUNSMOKE SWITCH GRASS	2` HT.	NO. 1 CONT.	24" o.c.
	73	PENNISETUM ALOPECUROIDES 'HAMELN' / HAMELN FOUNTAIN GRASS	2` HT.	NO. 1 CONT.	24" o.c.
	44	SCHIZACHYRIUM SCOPARIUM 'CAROUSEL' / CAROUSEL LITTLE BLUESTEM	2` HT.	NO. 1 CONT.	24" o.c.
	70	SPOROBOLUS HETEROLEPIS 'TARA' / TARA PRAIRIE DROPSEED	2` HT.	NO. 1 CONT.	24" o.c.
GROUND COVERS					
	231	CAREX WOODII / PRETTY SEDGE	---	NO. 1 CONT.	18" o.c.

PLANT SCHEDULE EXHIBIT

SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	CONTAINER	
TREES					
	2	PLATANUS X ACERIFOLIA / LONDON PLANE TREE	3.5" CAL.	B&B	
	2	ULMUS X 'MORTON' / ACCOLADE™ ELM	3.5" CAL.	B&B	
SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	FORM	SPACING
SOD/SEED					
	5,499 SF	TURF SOD / ZOO MIX	---		

(no irrigation or chemicals)

Figure 13 Proposed trees and planting

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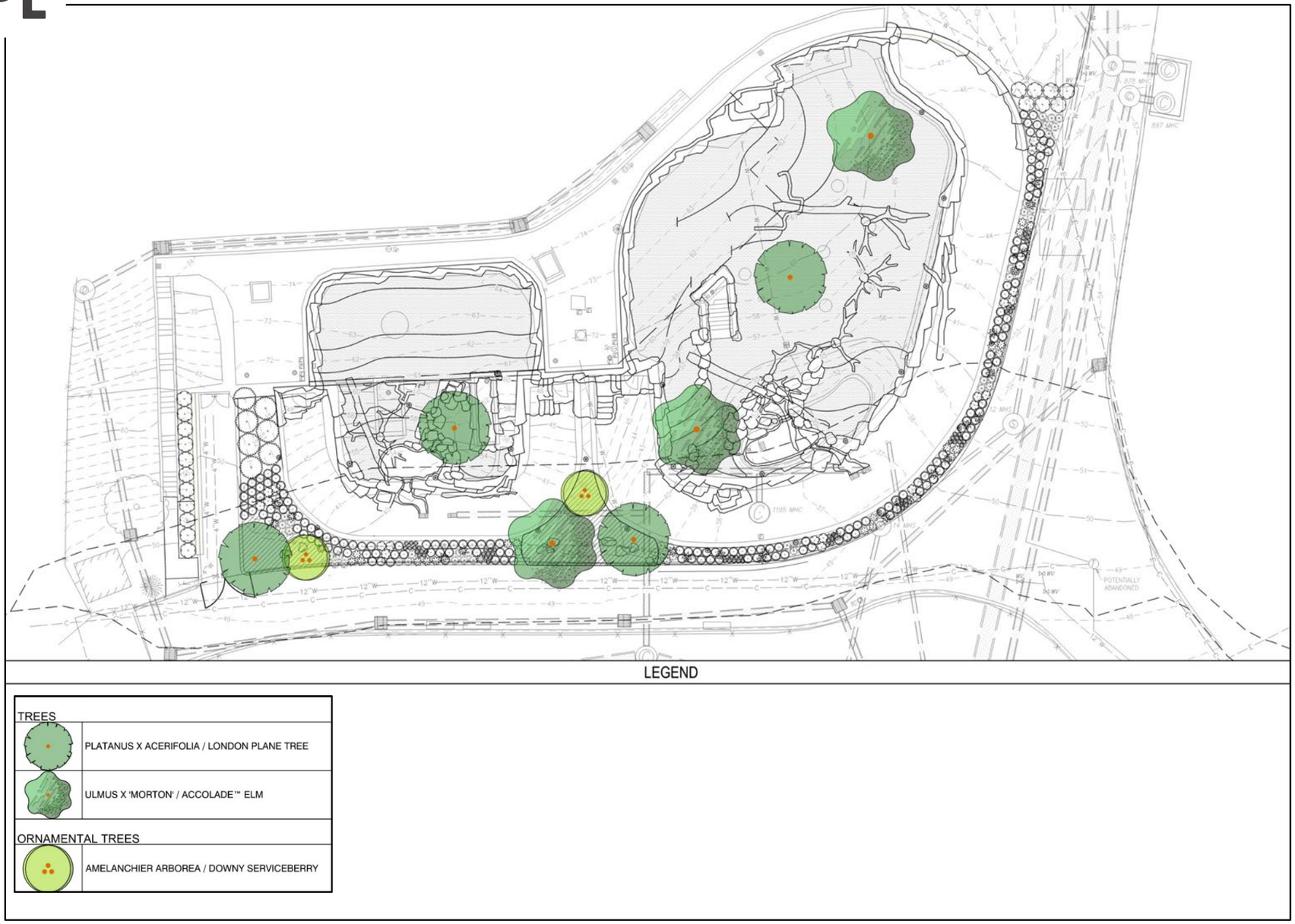
PROPOSED LANDSCAPE

London Planetree [3]
Platanus x acerifolia

Accolade Elm [3]
Ulmus 'Morton' ACCOLADE

Common Serviceberry [1] [2] [3]
Amelanchier arborea



[1] Native [2] Pollinator Friendly [3] Non-invasive

Figure 14 Proposed trees

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PROPOSED LANDSCAPE – PLANT PALETTE

PARAMO GRASSLAND

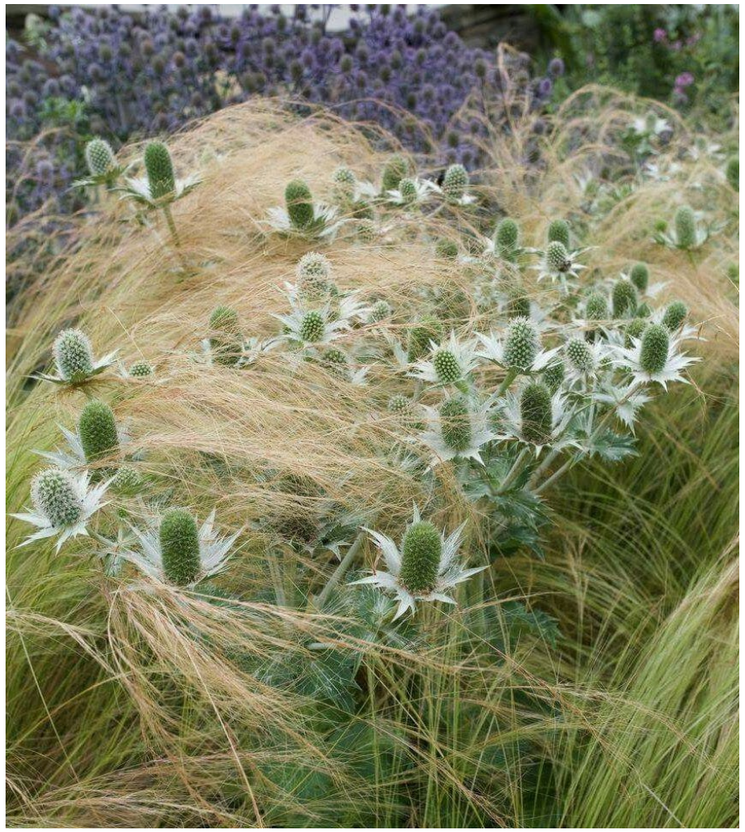
PLANTING NARRATIVE

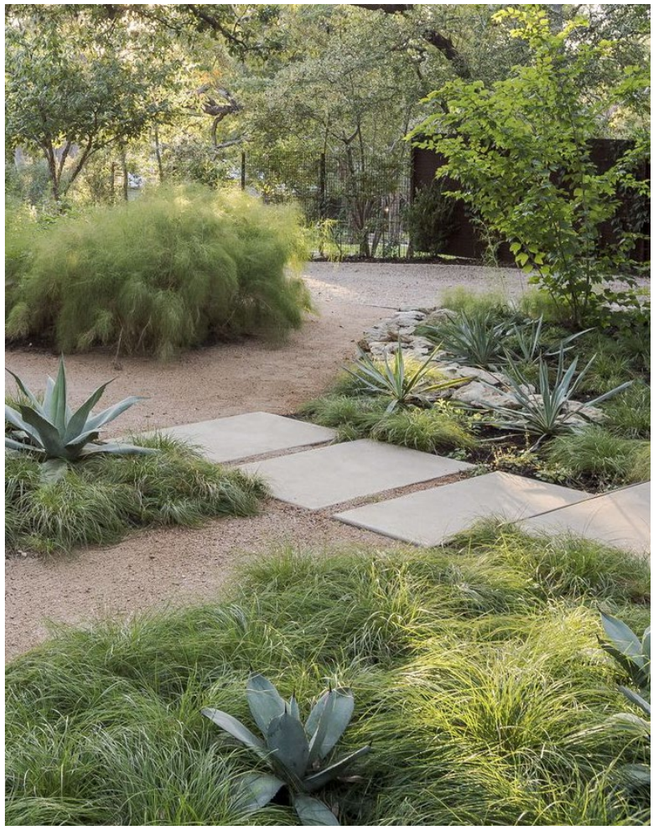
Interpretive 'Paramo Mix' plant palette of perennial species that reference the forms and colors of an Andean paramo meadow will be planted along the exhibit edge.

Tree species were selected for their fast growth rates and strong, structurally resilient branching habits. Shrub species were chosen for their native origin and their ability to support pollinators.

Perennial selections prioritize clumping forms and upright textures to evoke the character of páramo grasslands. Native grasses with proven pollinator value were also incorporated to enhance ecological function.

Flowering perennials are interplanted among the grasses to further support pollinator activity and biodiversity. Across all plant categories, selections were made with a focus on deer resistance to ensure long-term performance and durability.





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PROPOSED LANDSCAPE

Northern Bayberry [1] [2] [3]
Myrica pensylvanica

Shamrock Inkberry [1] [2] [3]
Ilex glabra 'Shamrock'

Gunsmoke Switchgrass [1] [2] [3]
Panicum virgatum 'Gunsmoke'

Tara Prairie dropseed [1] [2] [3]
Sporobulus heterolepis 'Tara'

Dwarf Fountain Grass [3]
pennisetum alopecuroides 'hameln'

Carousel Little Bluestem [1] [2] [3]
Schizachyrium scoparium 'Carousel'

Elijah Blue Fescue [3]
Festuca Glauca 'Elijah'

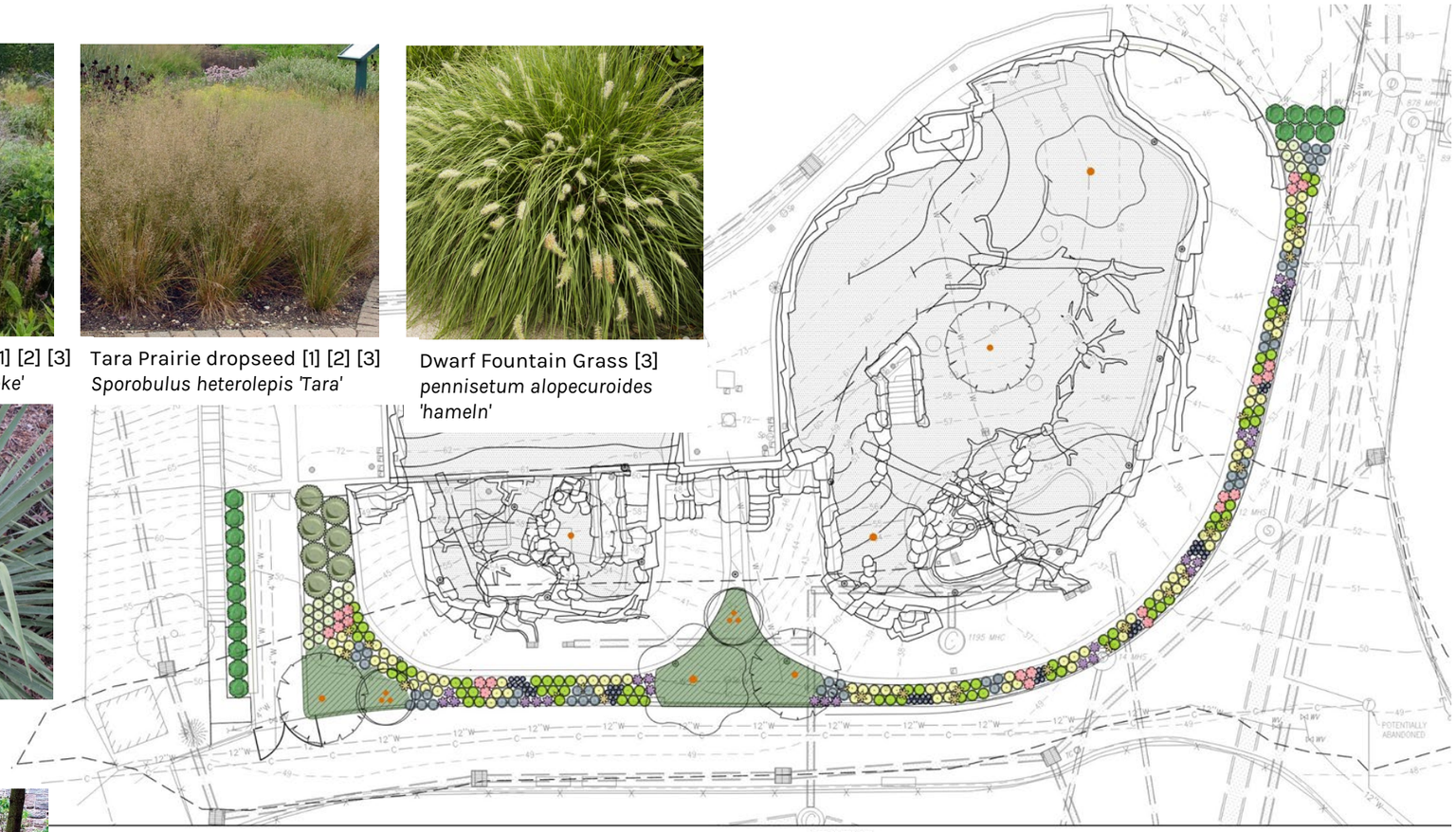
Weak Leaf Yucca [3]
Yucca flaccida

Little Spire Russian Sage [2] [3]
P. atriplicifolia 'Little Spire'

Hummingbird Mint [2] [3]
Agastache x Kudos Coral

Sedge mix [1] [3]
3-4 Carex sp.

[1] Native [2] Pollinator Friendly [3] Non-invasive



LEGEND

PLANT SCHEDULE - VISITOR PATH

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TREES					
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ORNAMENTAL TREES					
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GROUND COVERS					
	231	CAREX WOODII / PRETTY SEDGE	---	NO. 1 CONT.	18" o.c.

Figure 15 Proposed shrubs & perennials

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