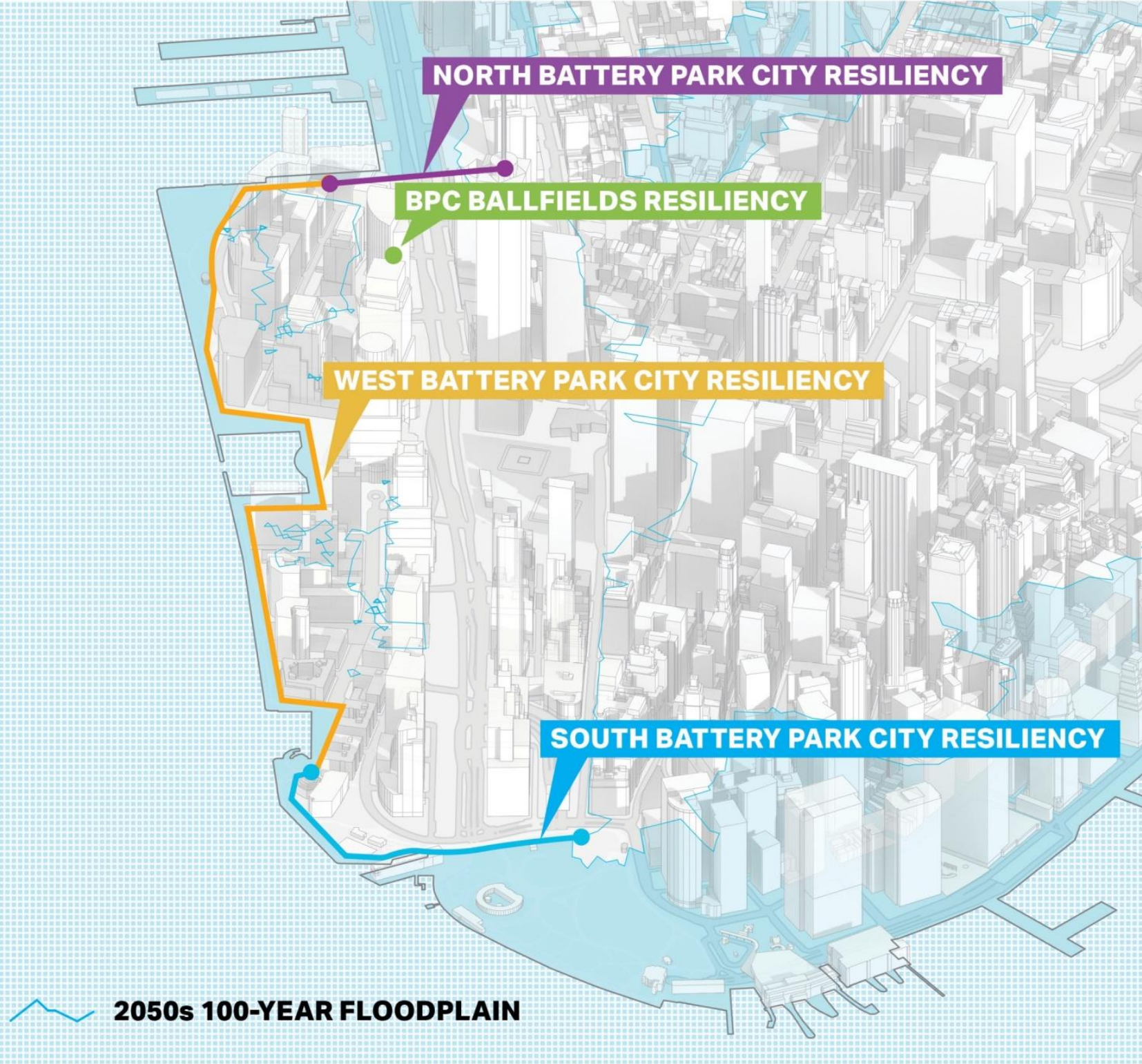


SOUTH BATTERY PARK CITY RESILIENCY PROJECT

Public Meeting 4

January 15th, 2020



AGENDA

How We Got Here: Evolution of the Design: 6:05 – 6:15pm

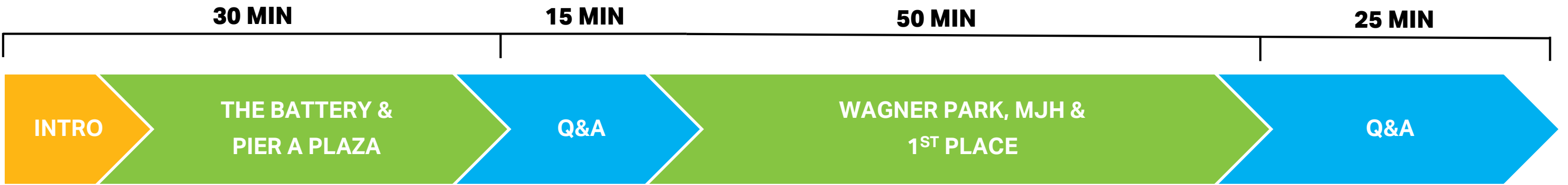
Overall Project Design Update:

The Battery and Pier A Plaza Presentation | 6:15 – 6:30pm

Part 1 Q&A | The Battery and Pier A Plaza | 6:30 – 6:45pm

Wagner Park, Museum of Jewish Heritage and 1st Place | 6:45 – 7:35pm

Part 2 Q&A | Wagner, MJH and 1st Place | 7:35 – 8:00pm



YOUR TEAM | PRESENTERS



PRESENTER
HEATHER MORGAN, RLA
AECOM
PROJECT MANAGER



PRESENTER
HOGAN EDELBERG, PLA
AECOM
LANDSCAPE
ARCHITECTURE + URBAN
DESIGN



PRESENTER
MATT JONES
MAGNUSSON KLEMENCIC
ASSOCIATES
CIVIL ENGINEERING

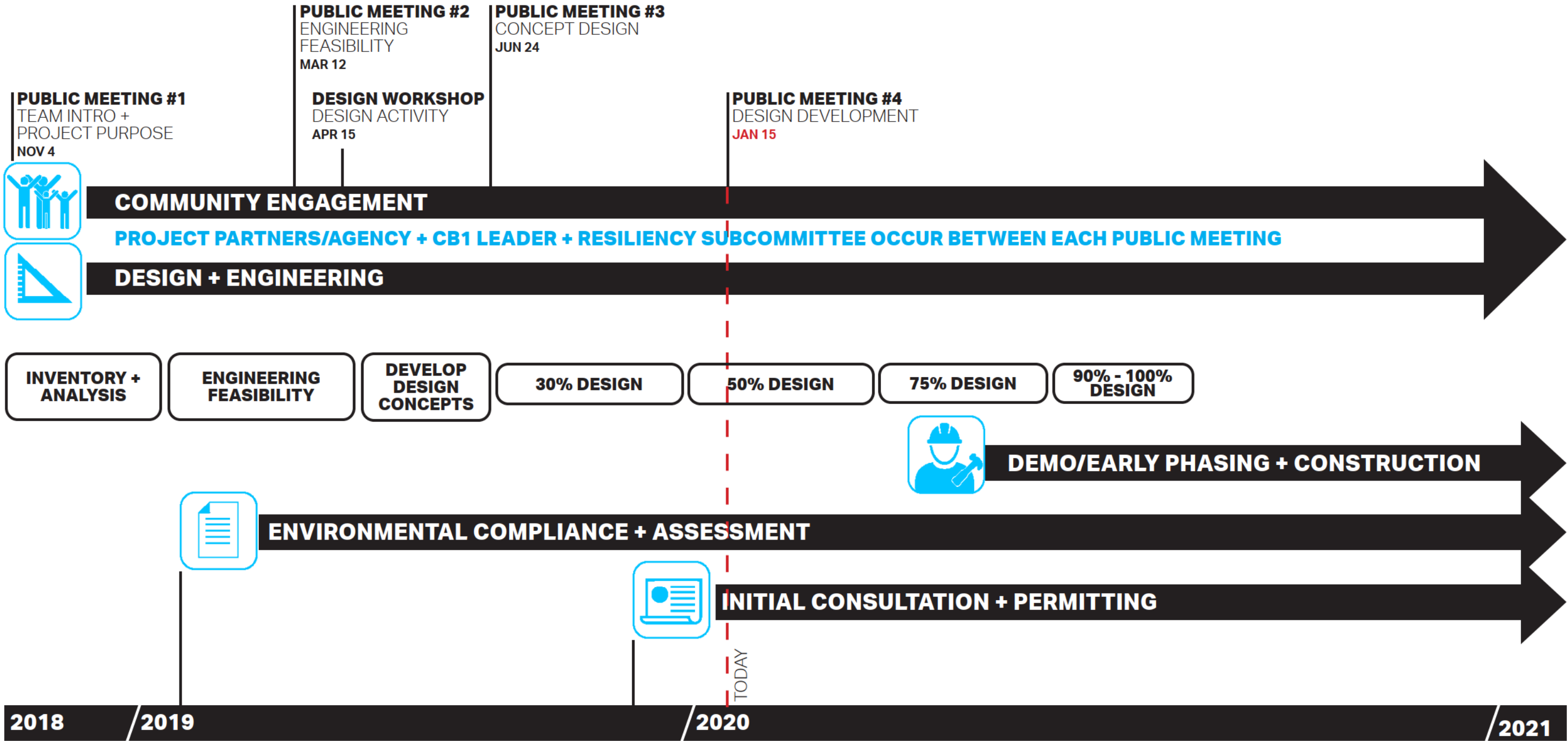


PRESENTER
GABRIEL SMITH
THOMAS PHIFER &
PARTNERS
ARCHITECTURE



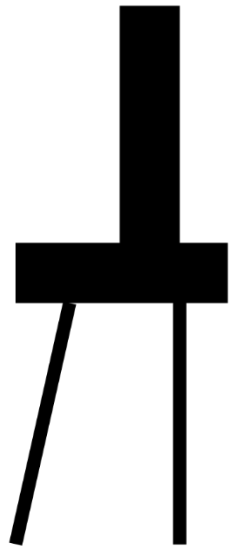
PRESENTER
LOUIS DIAZ
AECOM
STRUCTURAL ENGINEERING

PROJECT MILESTONES



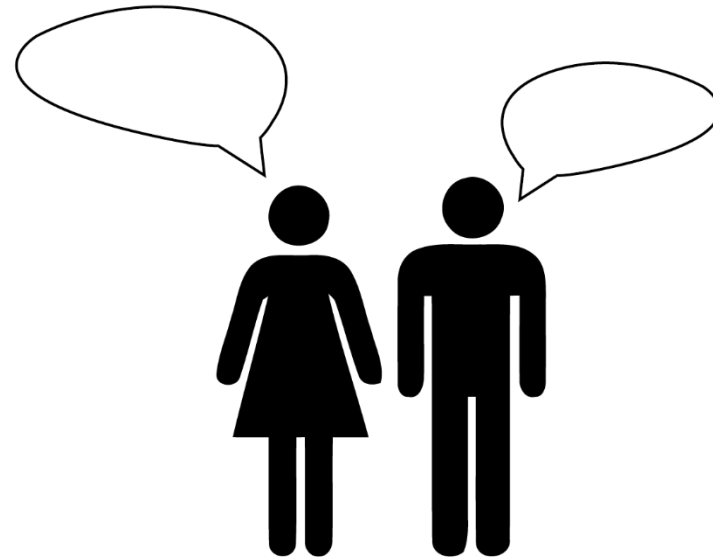
3 PUBLIC MEETINGS
1 PUBLIC ACTIVITY WORKSHOP
1 ONLINE ACTIVITY
1 CB1 MEETING

JUNE 24TH PRESENTATION | CONCEPTUAL DESIGN PROCESS



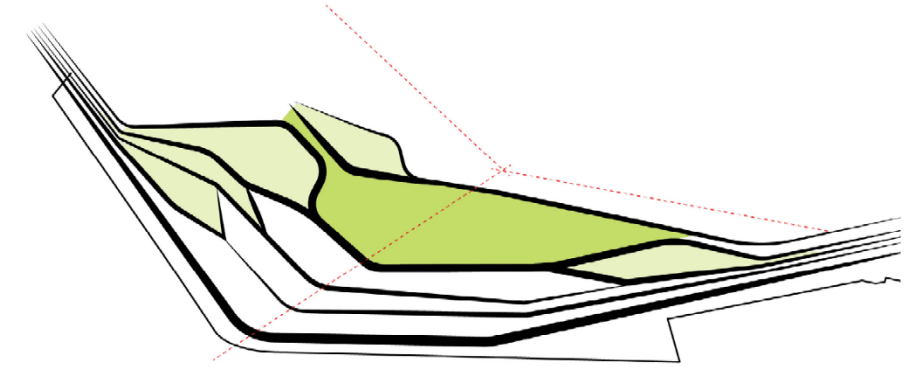
**ENGINEERING +
FEASIBILITY**

+



PUBLIC + USER GROUP INPUT

=



CONCEPTUAL DESIGN STUDIES

Last time we showed you :

- Concepts for MJH alignment
- Two conceptual designs for Wagner Park
- Preliminary layout for Pier A Plaza & The Battery

WHAT YOU TOLD US

JUNE 24 (PUBLIC MEETING)

VIEWS

UNIVERSAL ACCESSIBILITY

MAXIMIZE GREENSPACE

PARK RESTROOMS

OPEN LAWN

GARDEN ROOMS / INTIMATE SPACES

SUSTAINABILITY

FLEXIBLE PROGRAMMING

**COMMUNITY EVENTS/
OUTDOOR CLASSROOMS**

WHAT YOU TOLD US

OCT 3 (CB1 ENVIRONMENTAL)

**ALTERNATE OPTIONS FOR
PIER A PLAZA**

**FURTHER DEVELOPMENT OF
DEPLOYABLES**

**FURTHER DEVELOPMENT OF
POST/COLUMNS**

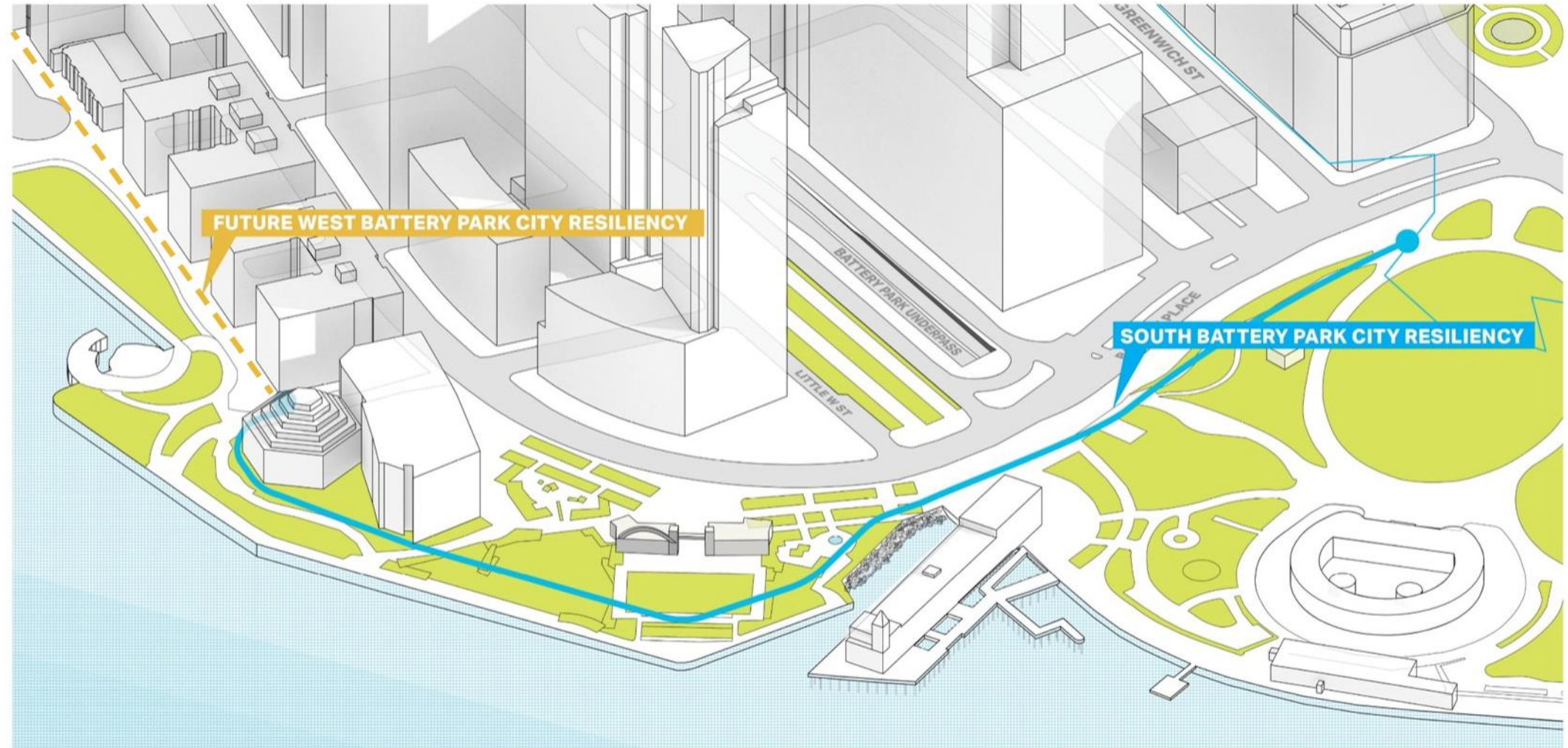
**REFINEMENT OF BERM FLOOD
WALL / PLANT PALETTE**

**ENHANCED CIRCULATION
CONSIDERATIONS**

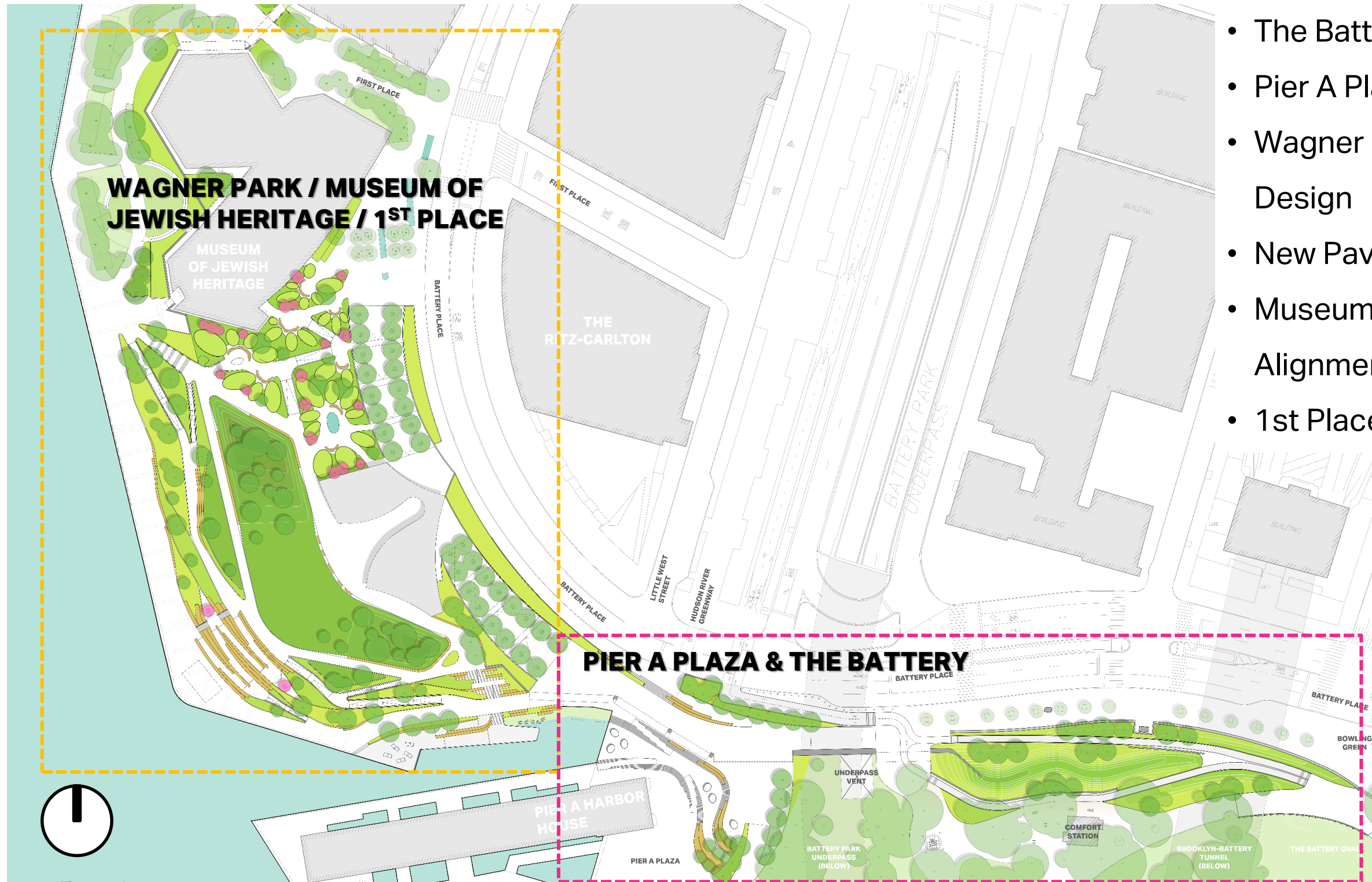
MATERIALITY & AESTHETICS

TODAY | LOTS OF DESIGN TO COVER

- Integrated Coastal Model
- Interior Drainage Analysis
- The Battery Alignment Design
- Pier A Plaza Alignment Design
- Wagner Park Alignment & Park Design
- New Pavilion Design
- Museum of Jewish Heritage Alignment Design
- 1st Place Alignment Design

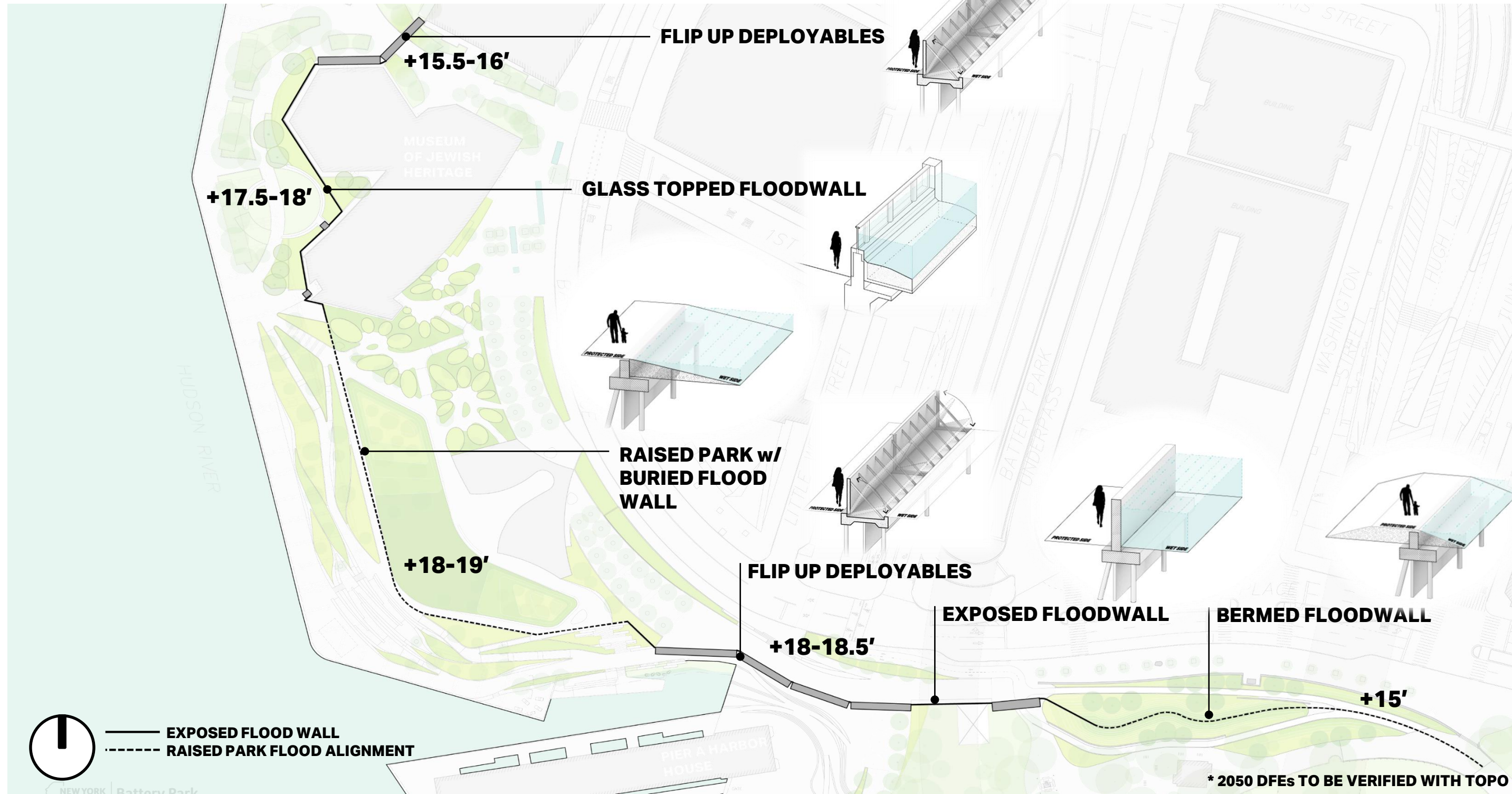


PROJECT DESIGN UPDATE I OVERALL SITE



- The Battery Alignment Design
- Pier A Plaza Alignment Design
- Wagner Park Alignment & Park Design
- New Pavilion Design
- Museum of Jewish Heritage Alignment Design
- 1st Place Alignment Design

THE SITE | FLOOD RISK MEASURES + DFE



NEW YORK
STATE OF
OPPORTUNITY

Battery Park
City Authority

AECOM

SUSTAINABILITY | OVERALL PROJECT PRIORITIES

PRINCIPAL TARGET AREAS:



NET-ZERO ENERGY



LOW CARBON DESIGN



WATER HARVESTING + WATER REUSE



HEAT ISLAND EFFECT REDUCTION



LOW IMPACT MATERIALS



INDOOR AIR QUALITY + GOOD THERMAL COMFORT



ENHANCED ECOLOGICAL HABITATS

ALIGNED W/ BROADER BPC PROJECTS:

- Energy efficiency
- Sustainability Resolution (signed in May 2019)
- SMART Cities Initiative
- Existing Sustainable Parks Management practices

SUSTAINABILITY | WAGNER PARK GOALS

WAGNER PARK CERTIFICATIONS:

- **ILFI Zero Carbon**

- Fully account for carbon emissions of the building energy use and materials.
- Building will use energy efficiency measures to reduce its energy
- Offset its remaining use with renewable energy
- Building will undergo life cycle assessment

- **Waterfront Edge Design Guidelines (WEDG) Certification**

- Administrated by Waterfront Alliance
- Addresses a variety of goals important to a sustainable, resilient, and community-valued waterfront space.
- Embraced by several major waterfront projects in the area.



UPDATED COASTAL MODELING

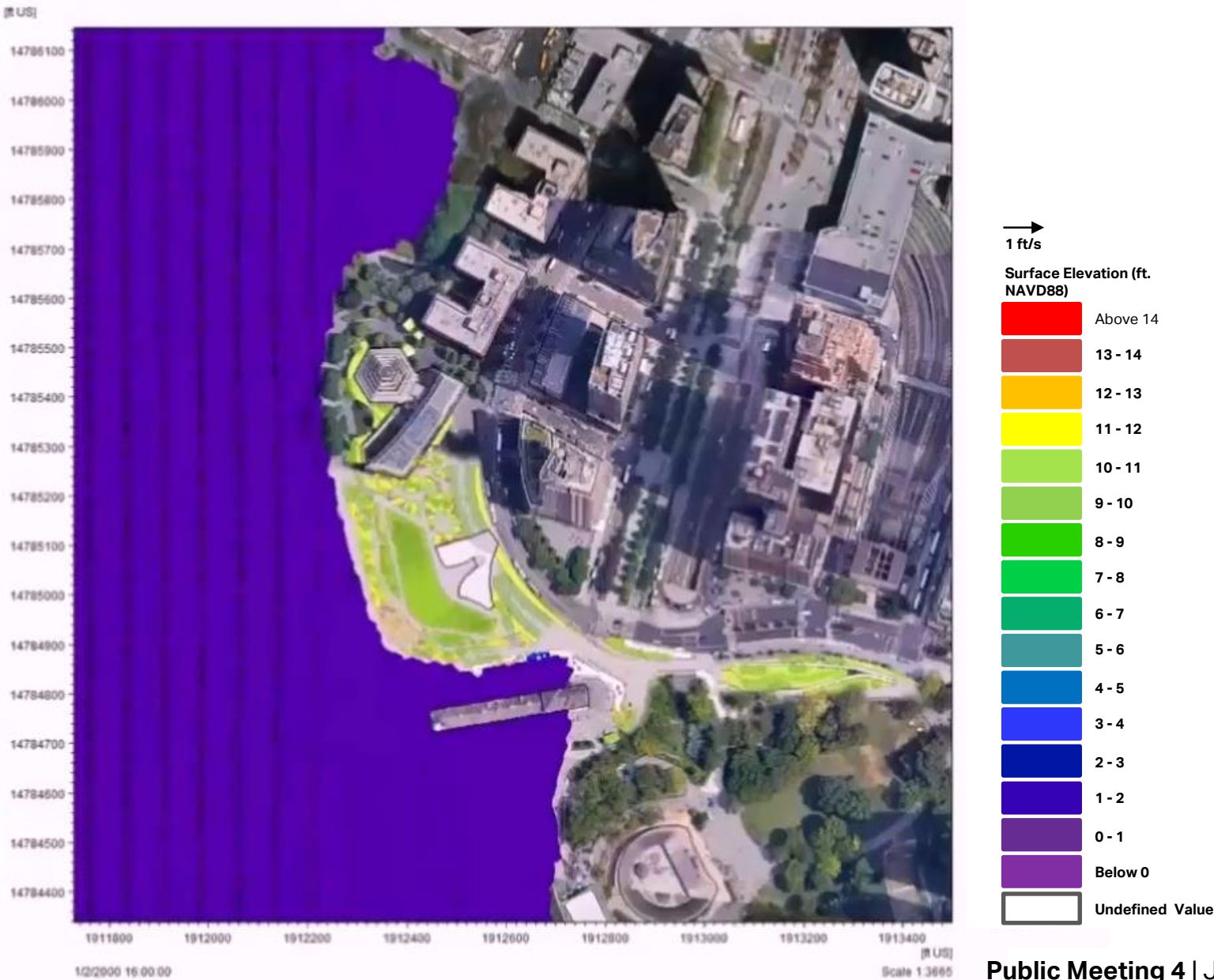
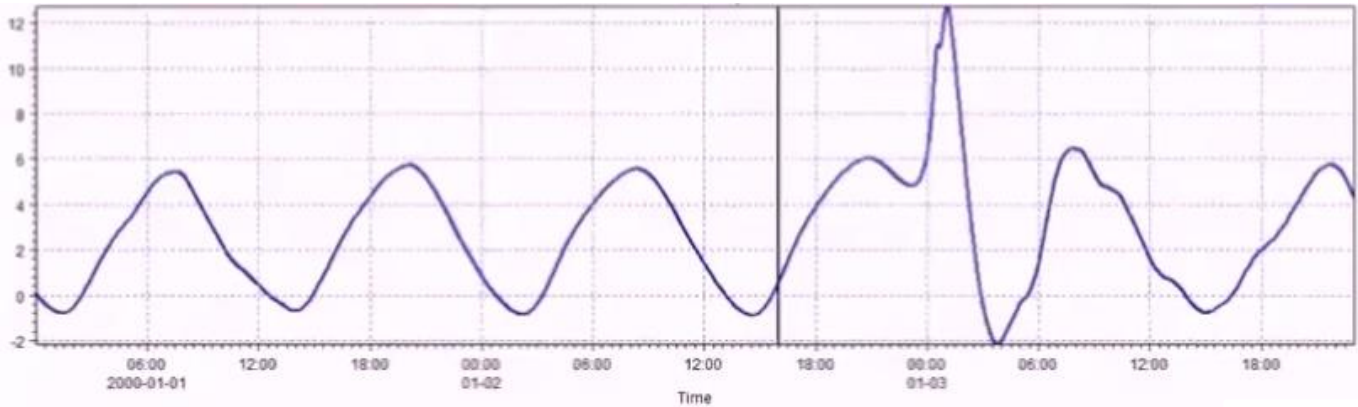
- 2050 100-Year Storm Event w/ Sea Level Rise (30")
- Flood inundation shown over proposed design conditions
- Depicts 1-2 tide cycles with storm surge added to the 2nd
- Precipitation storm event not included, but will be included
- FEMA certification / accreditation for 100yr in today

UPDATED COASTAL MODEL

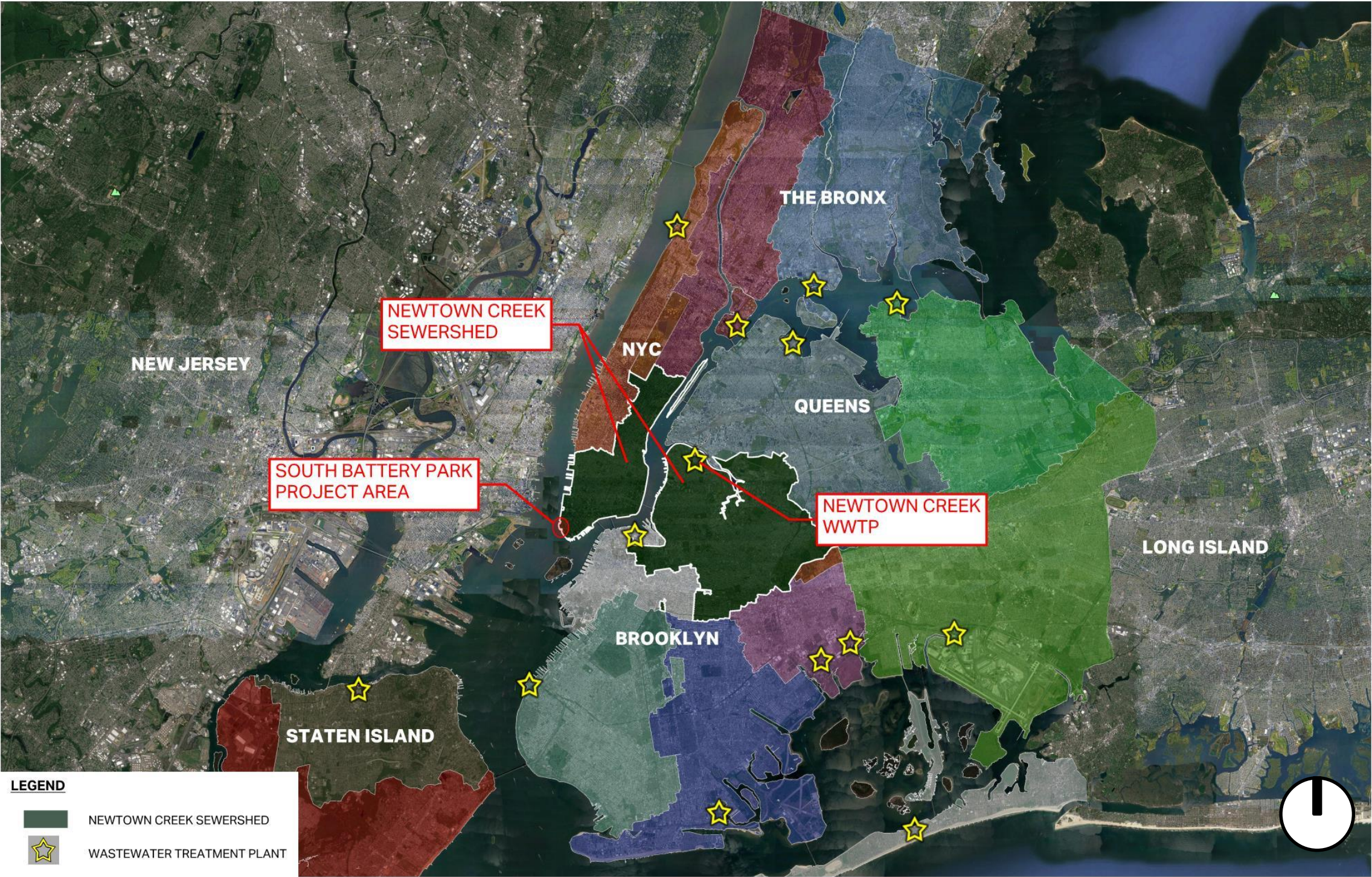
View the animation here:
<https://www.youtube.com/watch?v=NC3GzdO-UA4>

*Coastal Modeling animations in this presentation are preliminary. Models need to be refined with aspects such as the evolving design and furthered surveyed information.

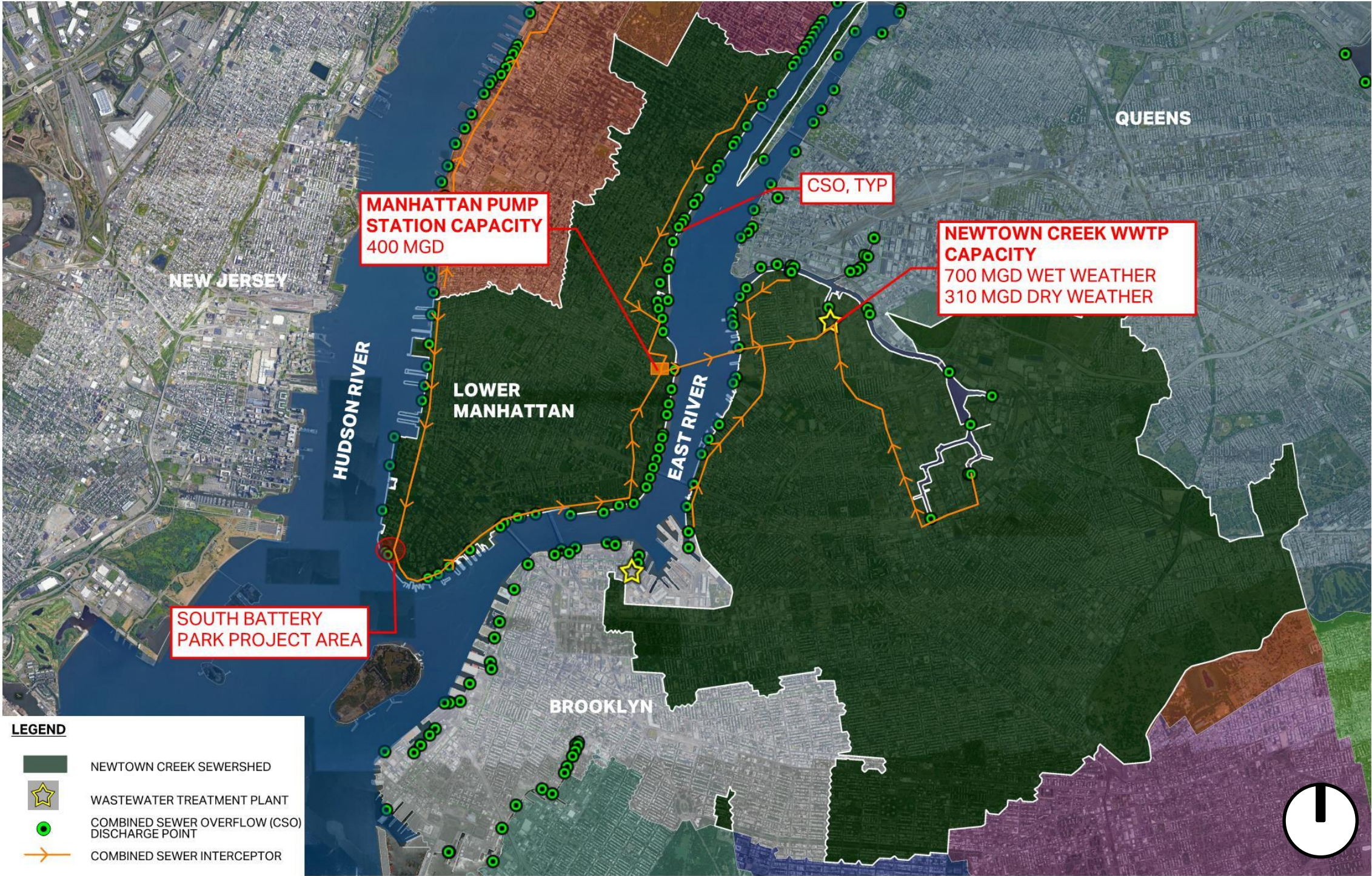
This animation showcases only a range of approximate coastal surge elevations on the most recent design.



INTERIOR DRAINAGE| EXISTING SYSTEM OVERVIEW



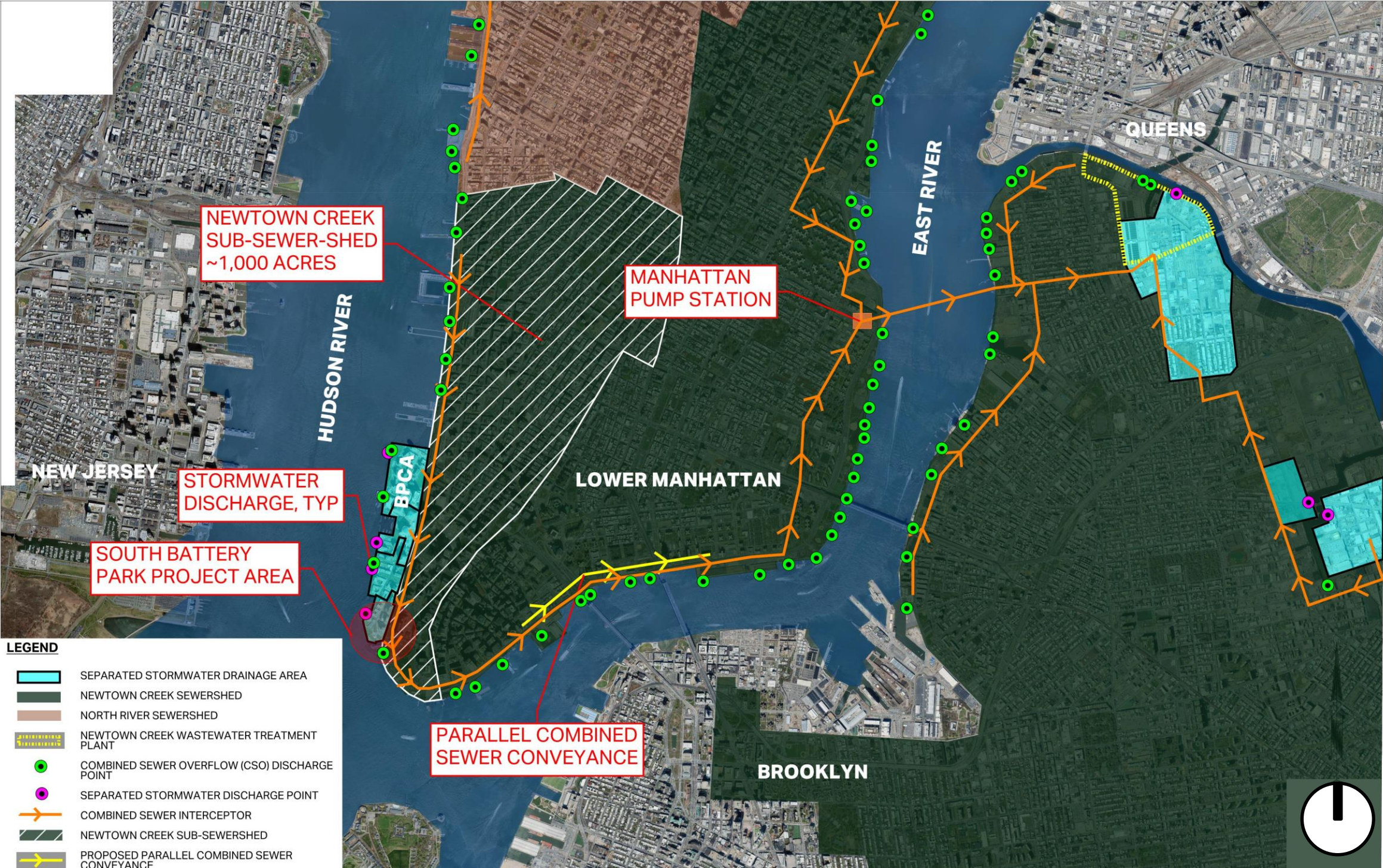
INTERIOR DRAINAGE| EXISTING SYSTEM OVERVIEW



INTERIOR DRAINAGE| EXISTING SYSTEM OVERVIEW



INTERIOR DRAINAGE| EXISTING SYSTEM OVERVIEW

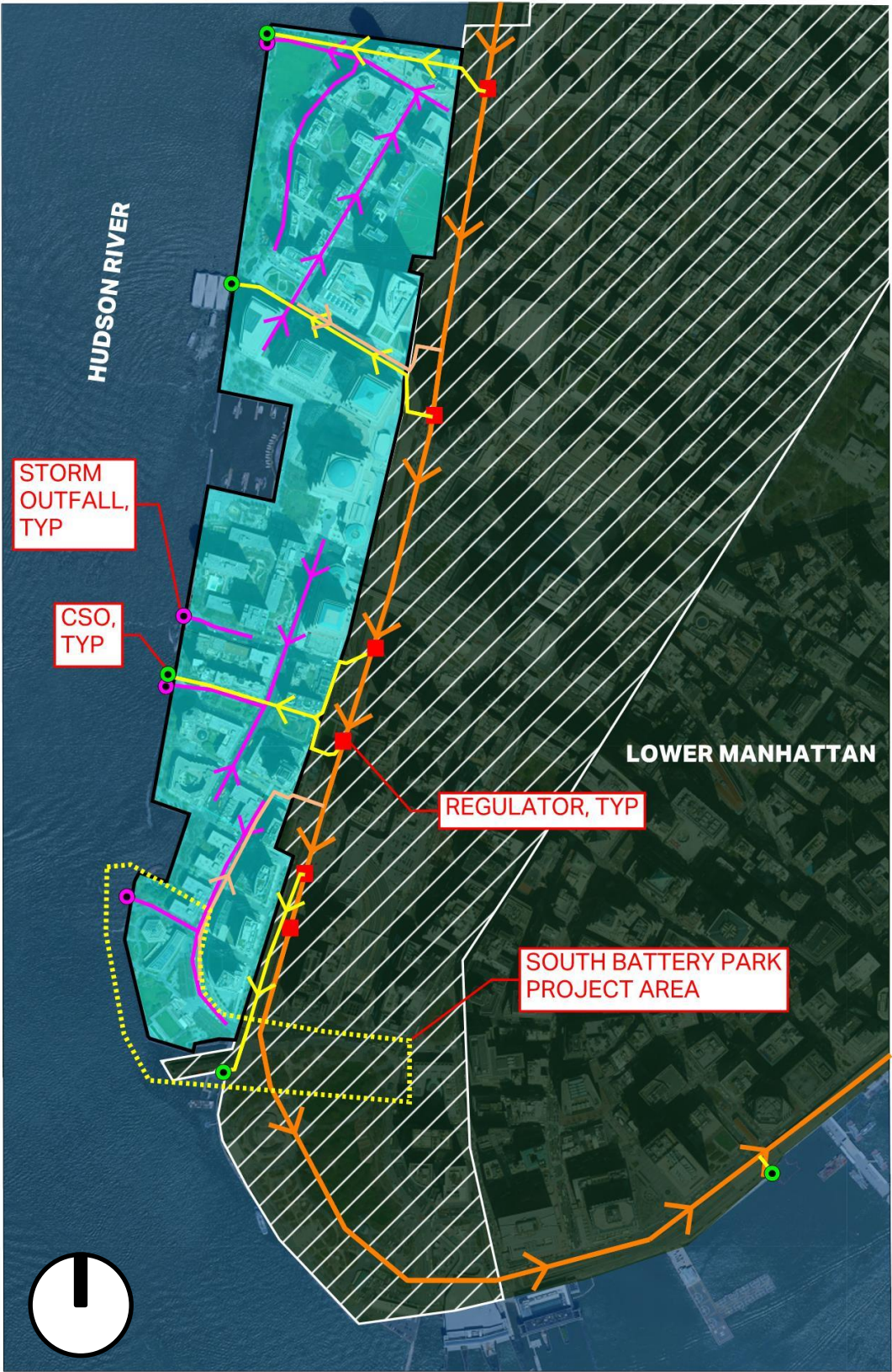


INTERIOR DRAINAGE|

EXISTING SYSTEM OVERVIEW

LEGEND

- SEPARATED STORMWATER DRAINAGE AREA
- NEWTOWN CREEK SEWERSHED
- COMBINED SEWER OVERFLOW (CSO) DISCHARGE POINT
- SEPARATED STORMWATER DISCHARGE POINT
- COMBINED SEWER INTERCEPTOR
- NEWTOWN CREEK SUB-SEWERSHED
- COMBINED SEWER OVERFLOW (CSO) OUTFALL PIPE
- SEPARATED STORMWATER SEWER
- SEPARATED SANITARY SEWER
- SOUTH BATTERY PARK COASTAL RESILIENCY PROJECT AREA
- EXISTING COMBINED SEWER REGULATOR

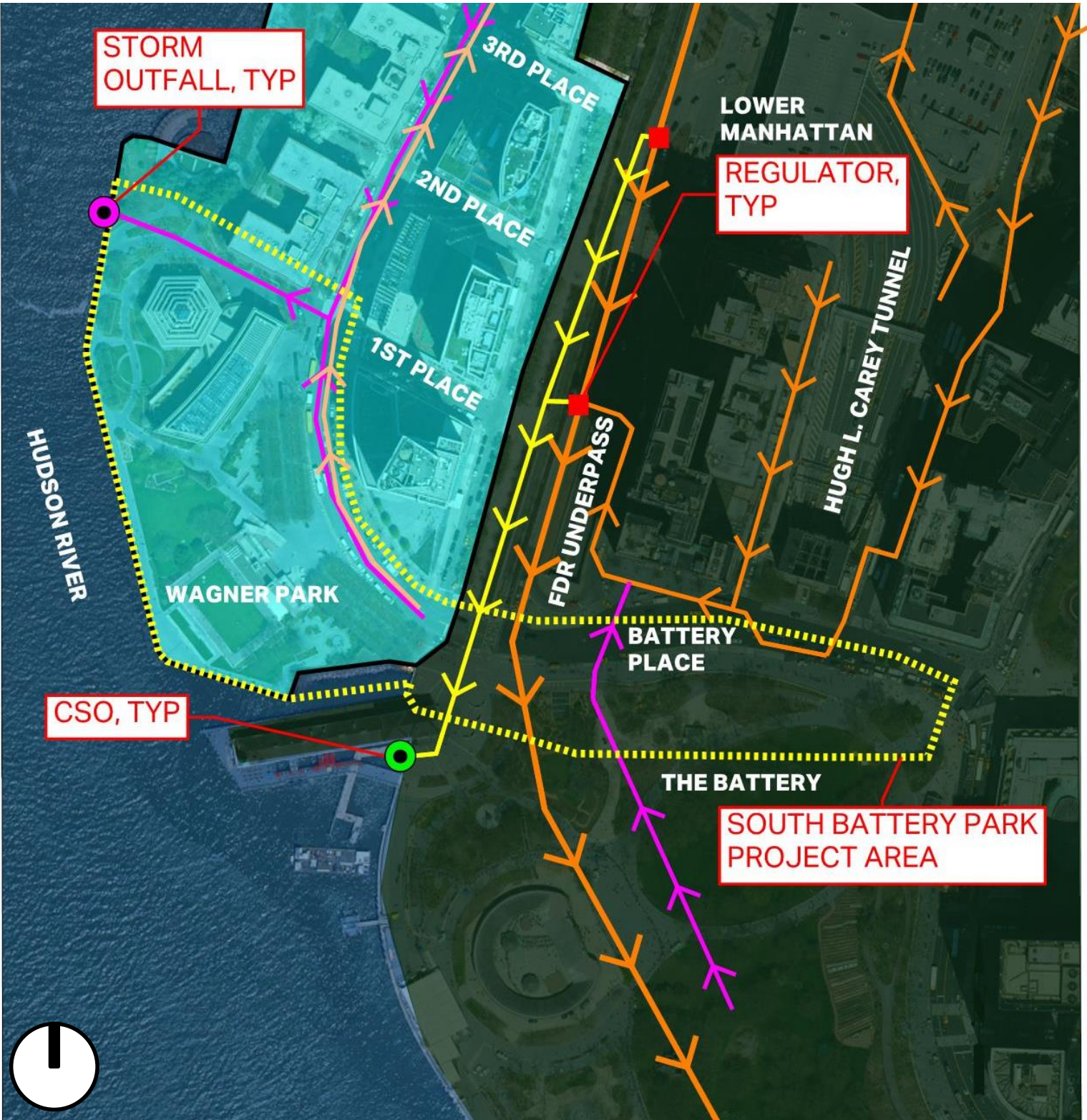


INTERIOR DRAINAGE|

EXISTING SYSTEM OVERVIEW

LEGEND

- SEPARATED STORMWATER DRAINAGE AREA
- NEWTOWN CREEK SEWERSHED
- COMBINED SEWER OVERFLOW (CSO) DISCHARGE POINT
- SEPARATED STORMWATER DISCHARGE POINT
- COMBINED SEWER INTERCEPTOR
- COMBINED SEWER OVERFLOW (CSO) OUTFALL PIPE
- SEPARATED STORMWATER SEWER
- SEPARATED SANITARY SEWER
- SOUTH BATTERY PARK COASTAL RESILIENCY PROJECT AREA
- EXISTING COMBINED SEWER REGULATOR

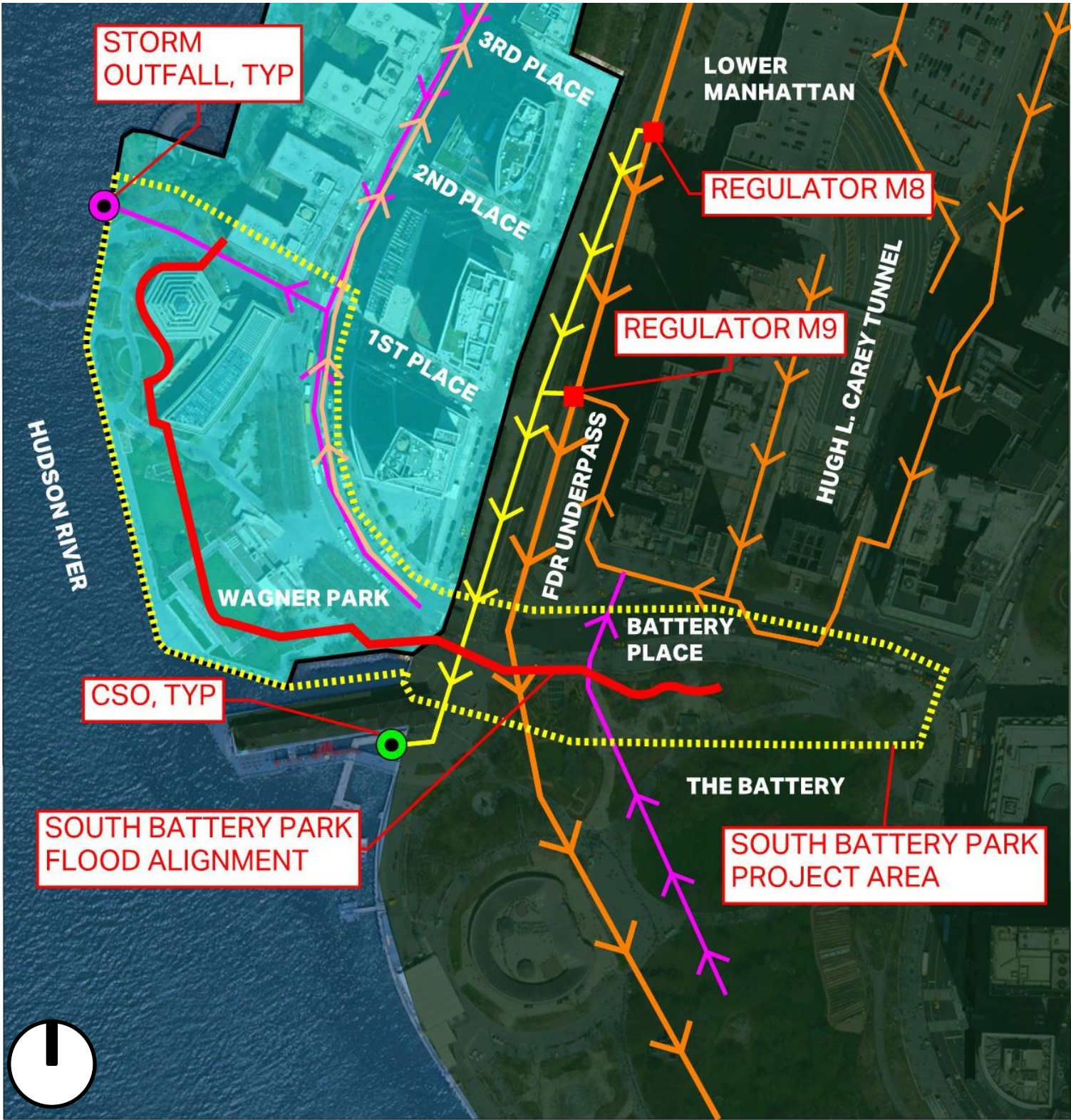


INTERIOR DRAINAGE|

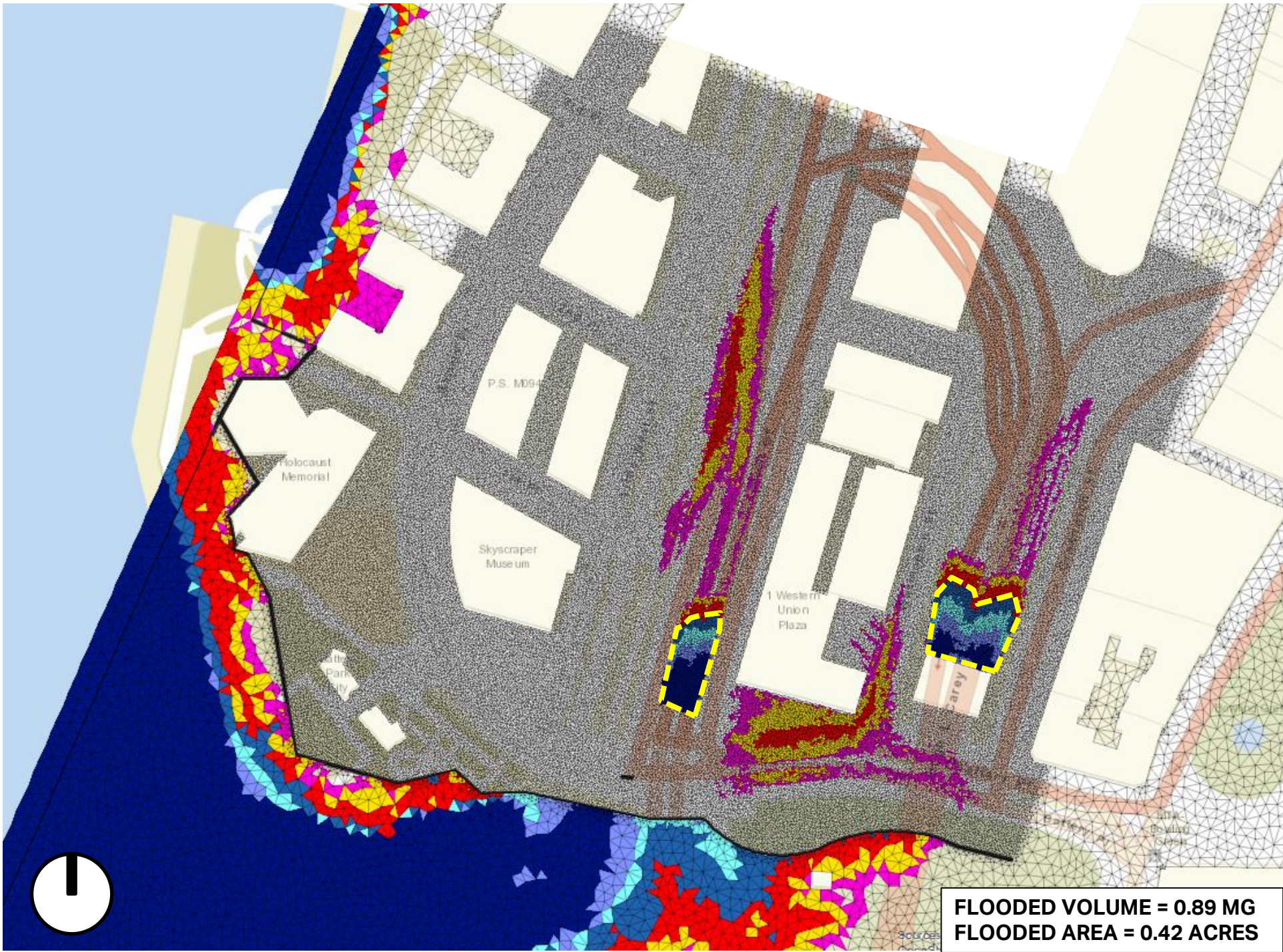
EXISTING SYSTEM OVERVIEW

LEGEND

- SEPARATED STORMWATER DRAINAGE AREA
- NEWTOWN CREEK SEWERSHED
- COMBINED SEWER OVERFLOW (CSO) DISCHARGE POINT
- SEPARATED STORMWATER DISCHARGE POINT
- COMBINED SEWER INTERCEPTOR
- COMBINED SEWER OVERFLOW (CSO) OUTFALL PIPE
- SEPARATED STORMWATER SEWER
- SEPARATED SANITARY SEWER
- SOUTH BATTERY PARK COASTAL RESILIENCY PROJECT AREA
- EXISTING COMBINED SEWER REGULATOR
- PROPOSED FLOOD ALIGNMENT



INTERIOR DRAINAGE| FEMA ACCREDITATION SIMULATION

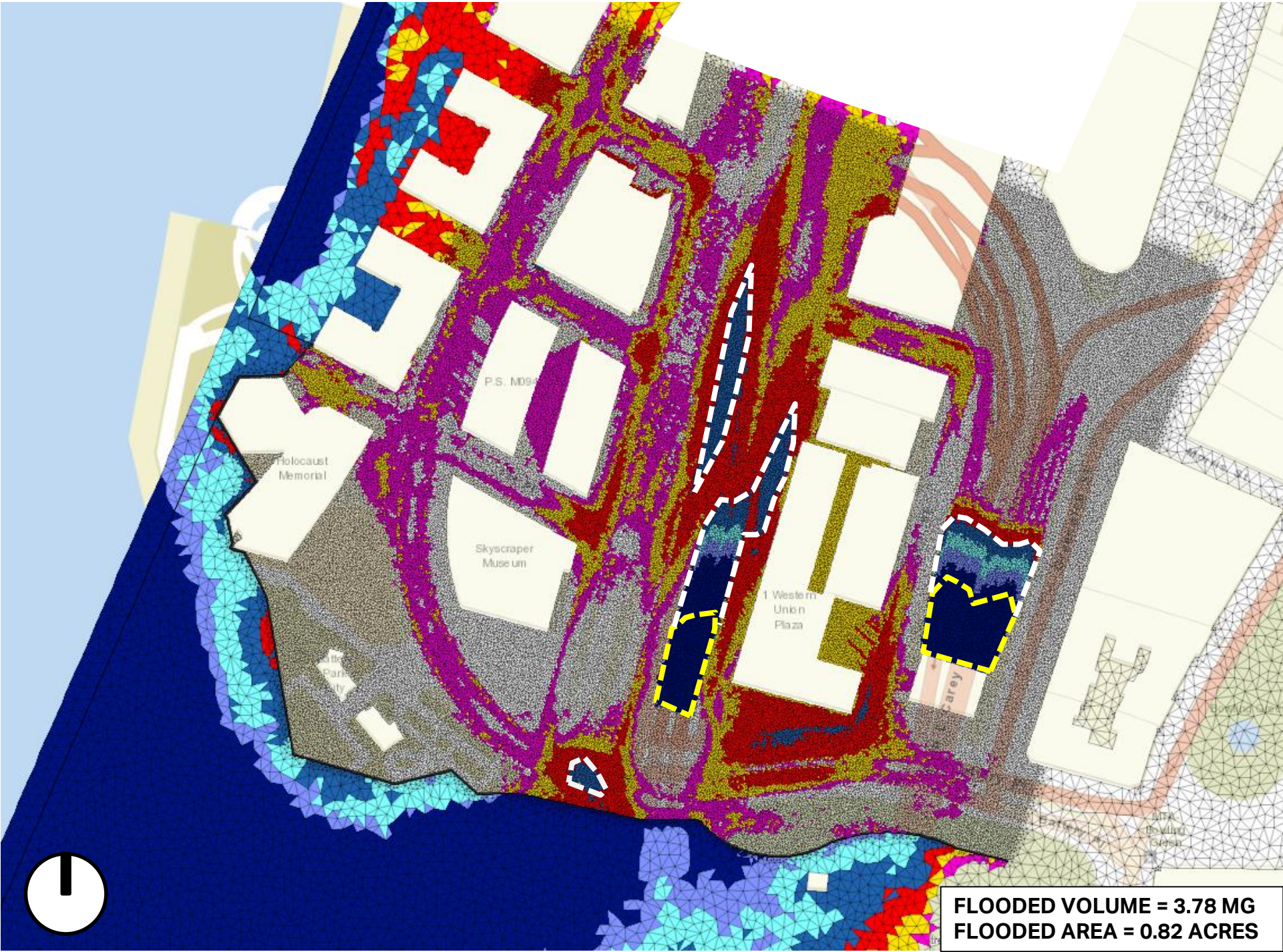


FLOODED DEPTH (FT.)	CORRESPONDING COLOR
0	
0.1	
0.5	
1	
2	
3	
4	
5+	

SIMULATION NOTES
+ PRELIMINARY RESULTS
+ ASSUMING INTERCEPTOR ISOLATION GATES NORTH OF REG-08 AND SOUTH OF REG-09
+ CSS FLOODING ONLY
+ NO WAVE OVERTOPPING

DESIGN CRITERIA
+ 100-YR SURGE
+ PRESENT DAY SEA LEVEL
+ 5YR NOAA RAIN

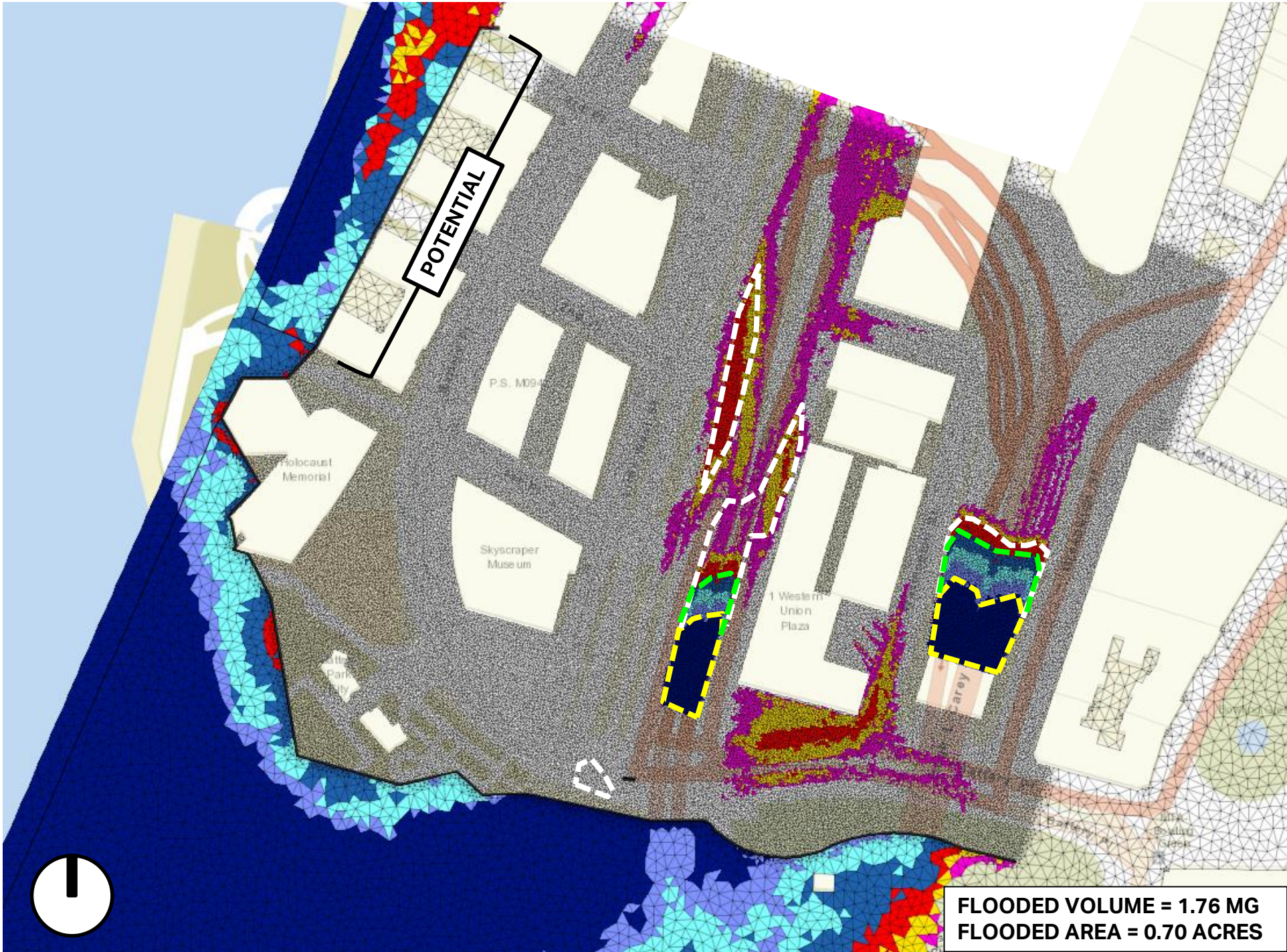
INTERIOR DRAINAGE| 2050 SIMULATION (SOUTH BATTERY ALIGNMENT)



FLOODED DEPTH (FT.)	CORRESPONDING COLOR
0	
0.1	
0.5	
1	
2	
3	
4	
5+	

- SIMULATION NOTES**
- + PRELIMINARY RESULTS
 - + ASSUMING INTERCEPTOR ISOLATION GATES NORTH OF REG-08 AND SOUTH OF REG-09
 - + CSS FLOODING AND COASTAL FLOODING
 - + NO WAVE OVERTOPPING
- DESIGN CRITERIA**
- + 100-YR SURGE
 - + 2050 SEA LEVEL
 - + 5YR NOAA RAIN

INTERIOR DRAINAGE| 2050 SIMULATION (FUTURE WEST ALIGNMENT ADDITIONS)



FLOODED DEPTH (FT.)	CORRESPONDING COLOR
0	
0.1	
0.5	
1	
2	
3	
4	
5+	

SIMULATION NOTES
+ PRELIMINARY RESULTS
+ ASSUMING INTERCEPTOR ISOLATION GATES NORTH OF REG-08 AND SOUTH OF REG-09
+ CSS FLOODING ONLY
+ NO WAVE OVERTOPPING

DESIGN CRITERIA
+ 100-YR SURGE
+ 2050 SEA LEVEL
+ 5YR NOAA RAIN

POTENTIAL MITIGATION STRATEGIES

LEGEND



EXISTING COMBINED SEWER OVERFLOW (CSO) DISCHARGE POINT



EXISTING SEPARATED STORMWATER
DISCHARGE POINT



EXISTING COMBINED SEWER INTERCEPTOR



EXISTING COMBINED SEWER OVERFLOW
(CSO) OUTFALL PIPE



EXISTING SEPARATED STORMWATER SEWER



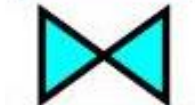
EXISTING COMBINED SEWER REGULATOR



PROPOSED RESIST STRUCTURE ALIGNMENT



POTENTIAL INTERCEPTOR GATE WITH CONTROL HOUSE



POTENTIAL BACKFLOW PREVENTION VALVE



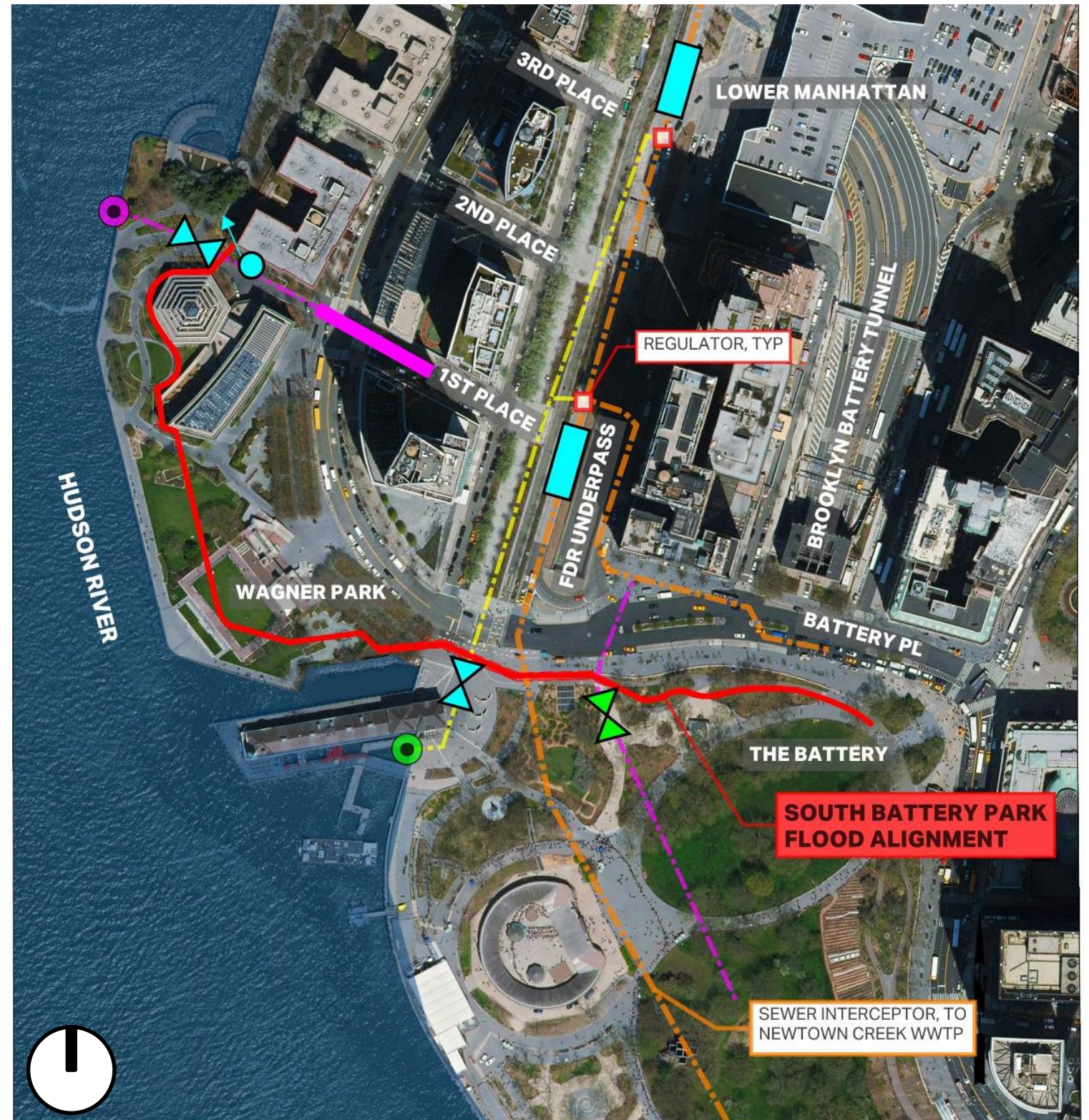
POTENTIAL PIPE UPSIZING



POTENTIAL PUMP STATION



POTENTIAL ISOLATION VALVE



THE BATTERY

PIER A

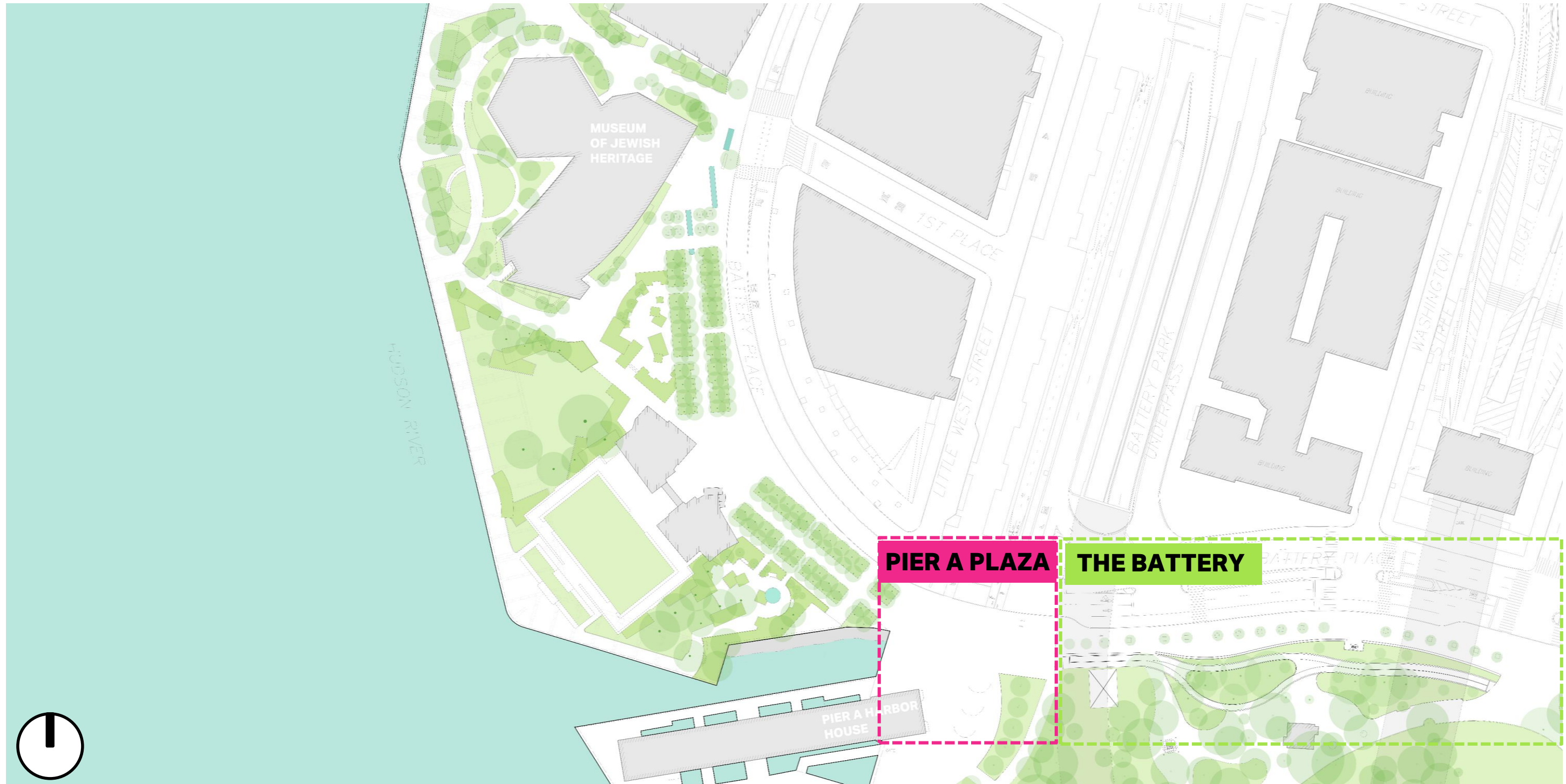
WAGNER PARK

MUSEUM OF JEWISH HERITAGE

THE BATTERY

PIER A PLAZA

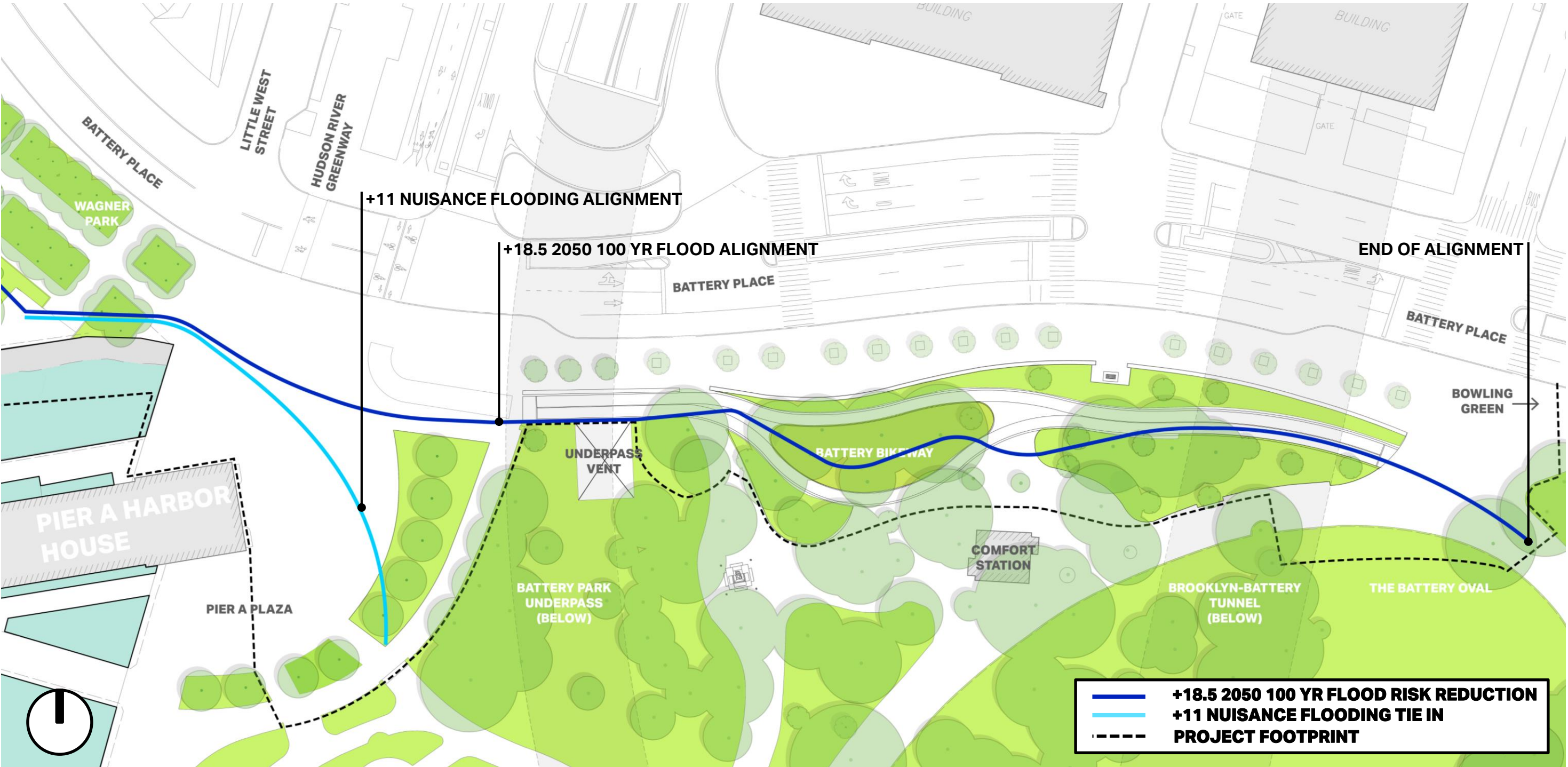
THE SITE



THE BATTERY + PIER A | EXISTING CONDITIONS



THE BATTERY + PIER A PLAZA| FLOOD ALIGNMENTS



THE BATTERY | EXISTING CONDITIONS



BIKEWAY

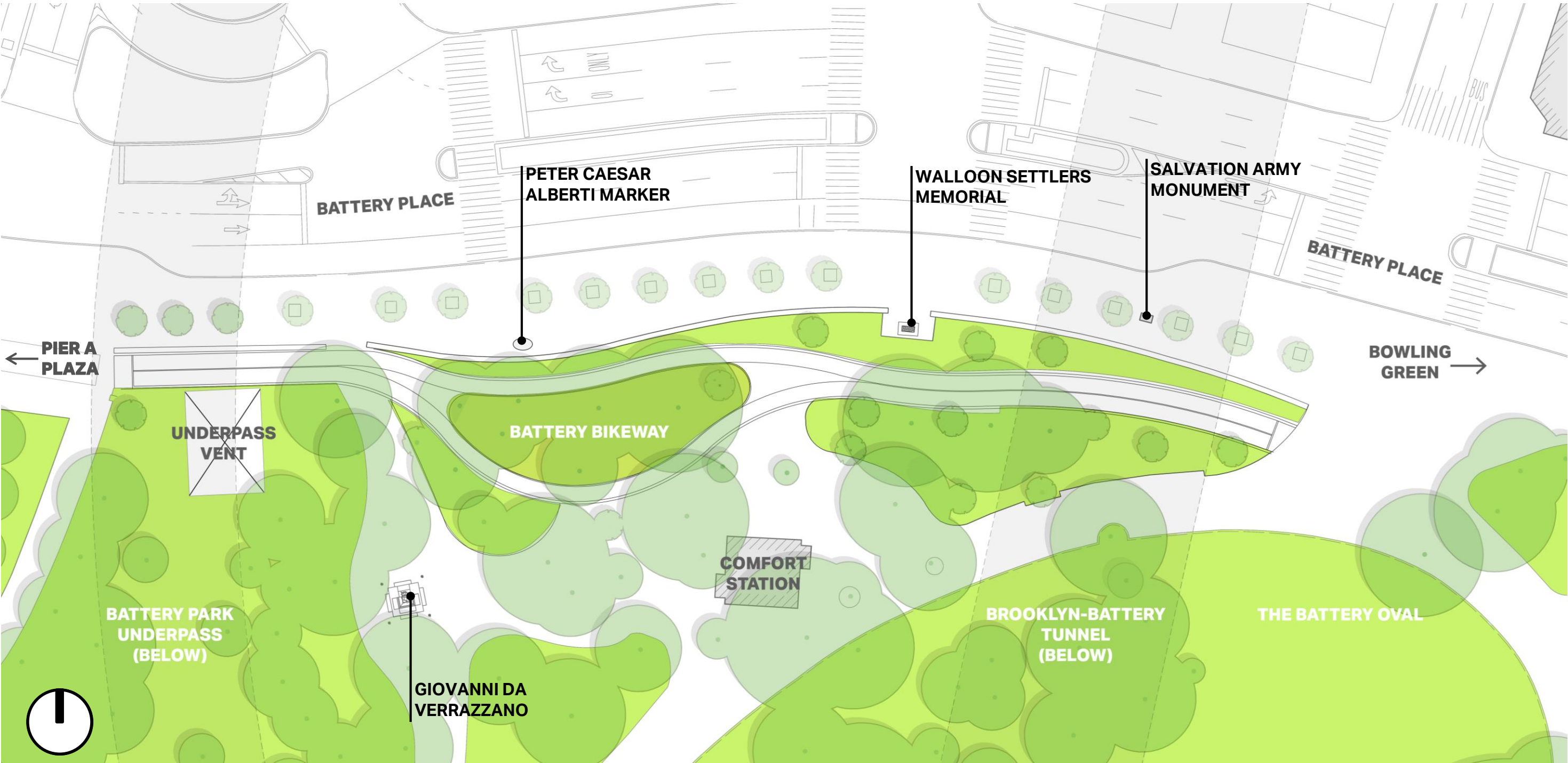


LUSH PLANTING



BIKE PARKING AROUND COMFORT STATION

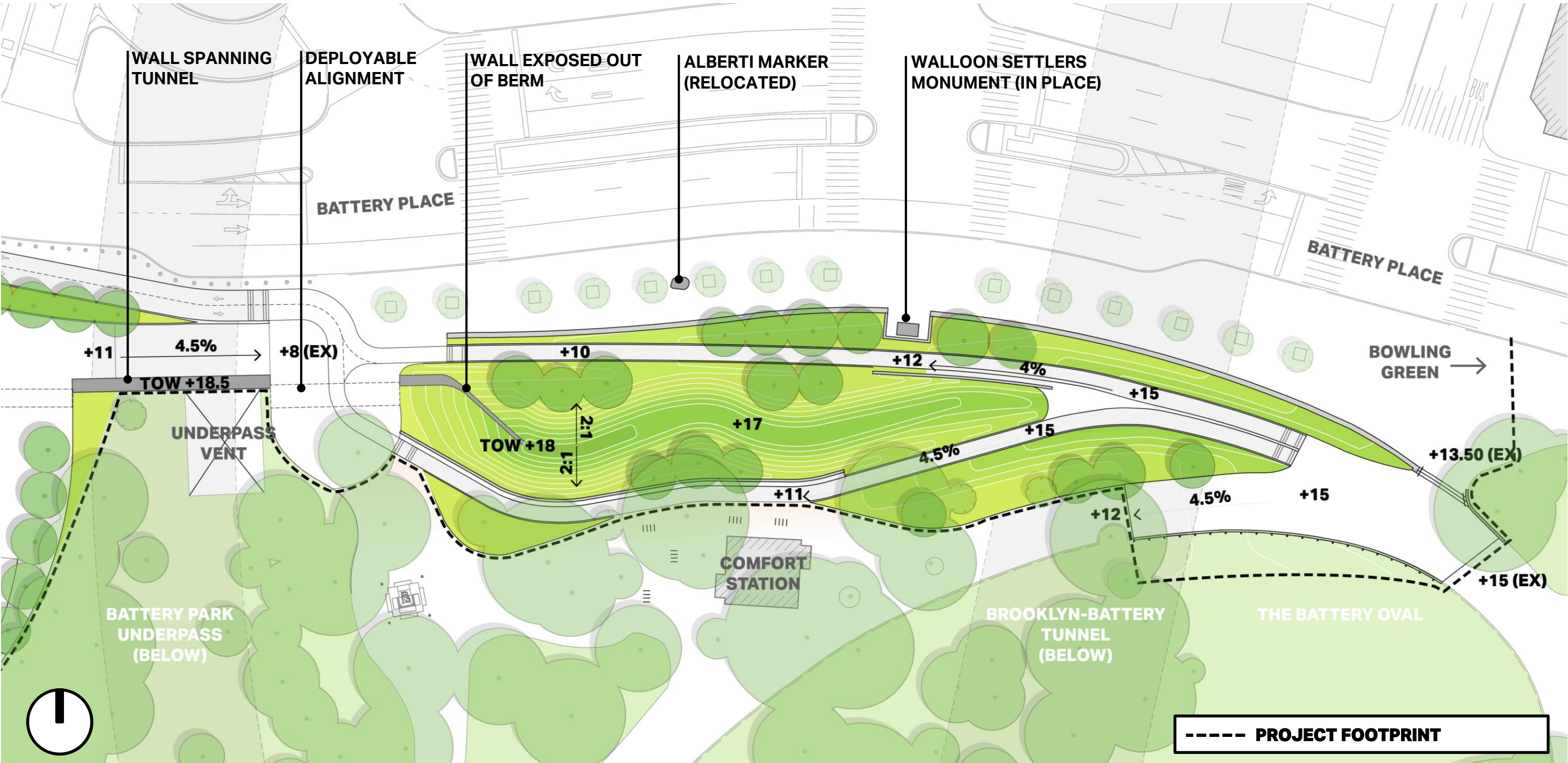
THE BATTERY | EXISTING CONDITIONS



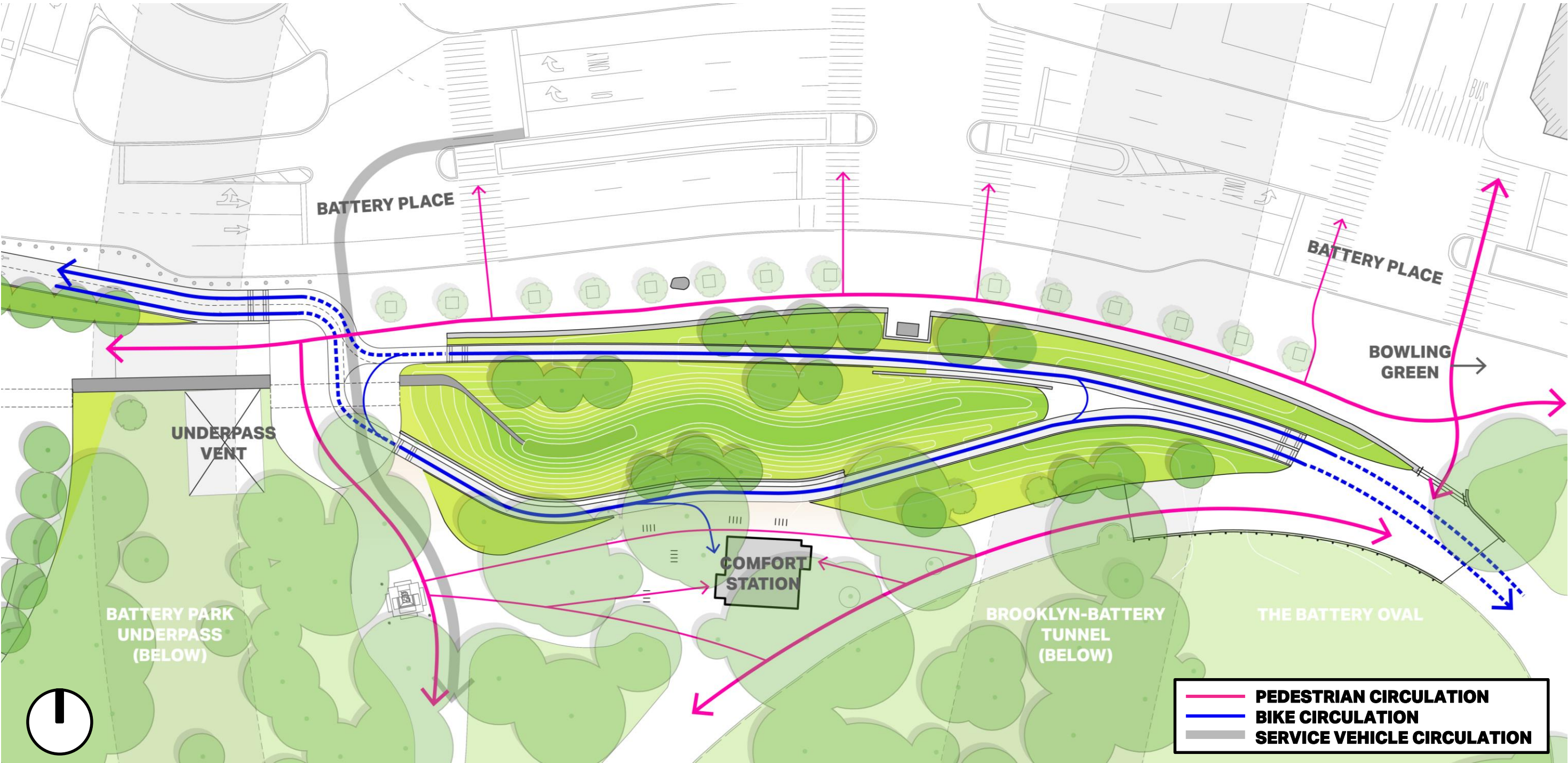
THE BATTERY | PROPOSED DESIGN

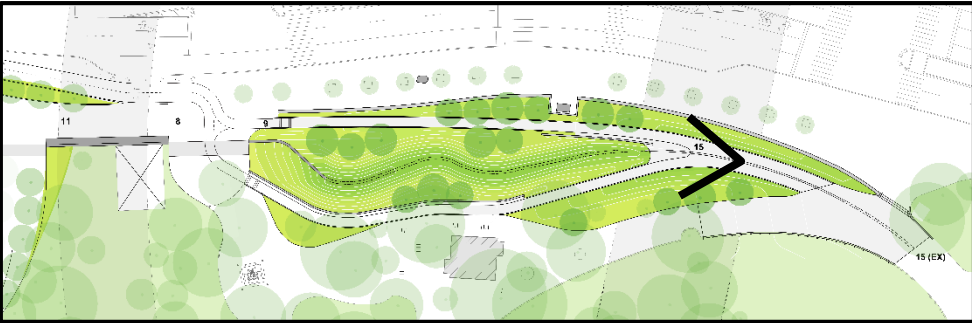


THE BATTERY | PROPOSED DESIGN



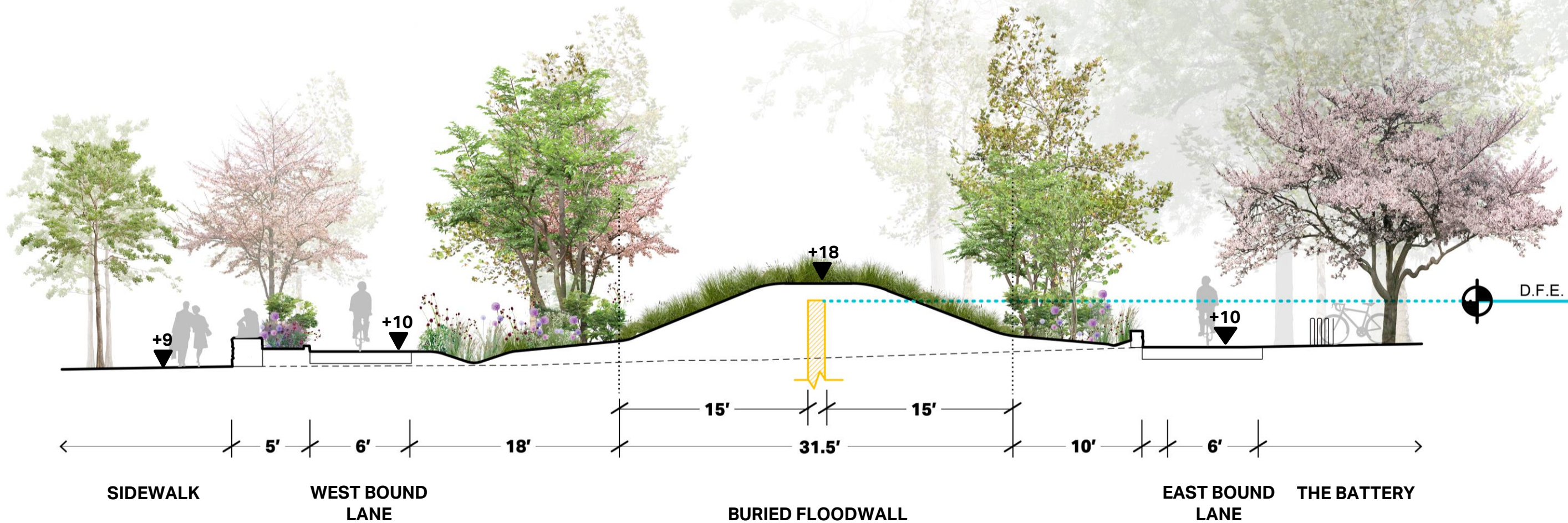
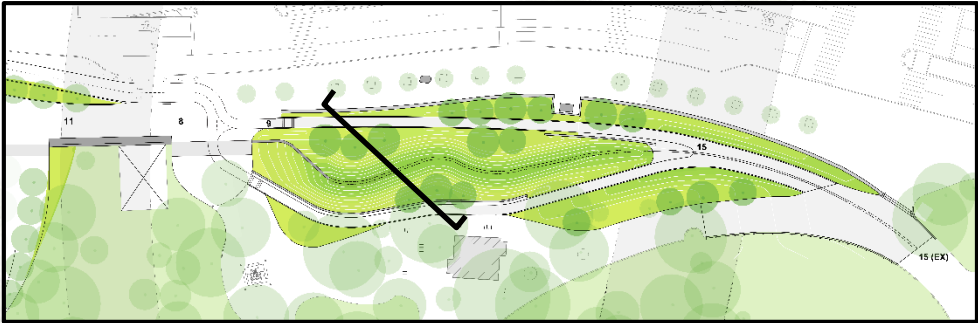
THE BATTERY | CIRCULATION



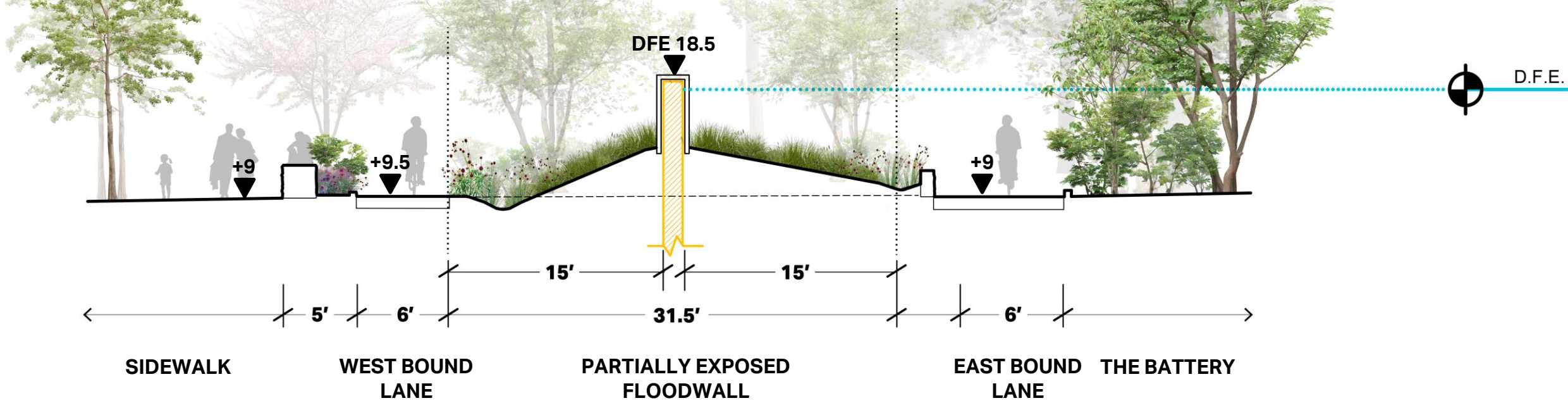
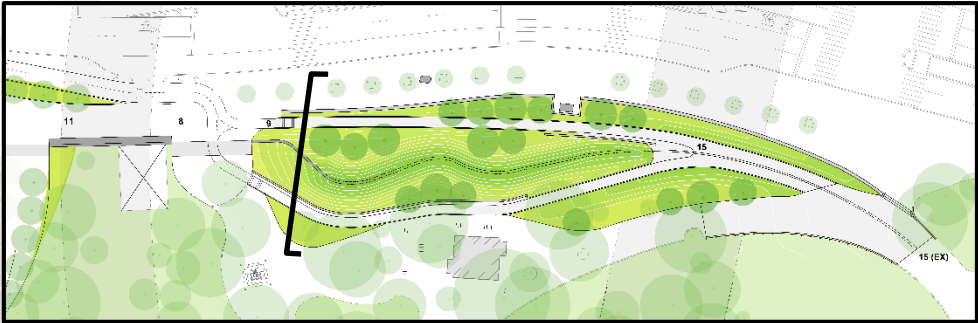




THE BATTERY | PROPOSED DESIGN



THE BATTERY | PROPOSED DESIGN



THE BATTERY | PLANTING

WITHIN 15' OFFSET 2:1 SLOPES

- **SALT TOLERANT**
 - **BLENDS IN WITH SURROUNDING PLANT PALETTE**
- **SHALLOW ROOTS**
 - **SEASONAL INTEREST**



HUDSONIA TOMENTOSA
FLASE HEATHER



IBERIS SEMPERVIRENS
EVERGREEN CANDYTUFT



ASCELIAS SYRIACA
COMMON MILKWEED



ARMERIA MARITIMA
SEA THRIFT



ARTOSTAPHYLOS UVA-URSI
BEARBERRY



CAREX VULPINOIDEA
FOX SEDGE



CHASMANTHIUM LATIFOLIUM
NORTHERN SEA OATS



CERASTIUM TOMENTOSUM
SNOW IN SUMMER

PIER A PLAZA | EXISTING CONDITIONS



HARBOR HOUSE

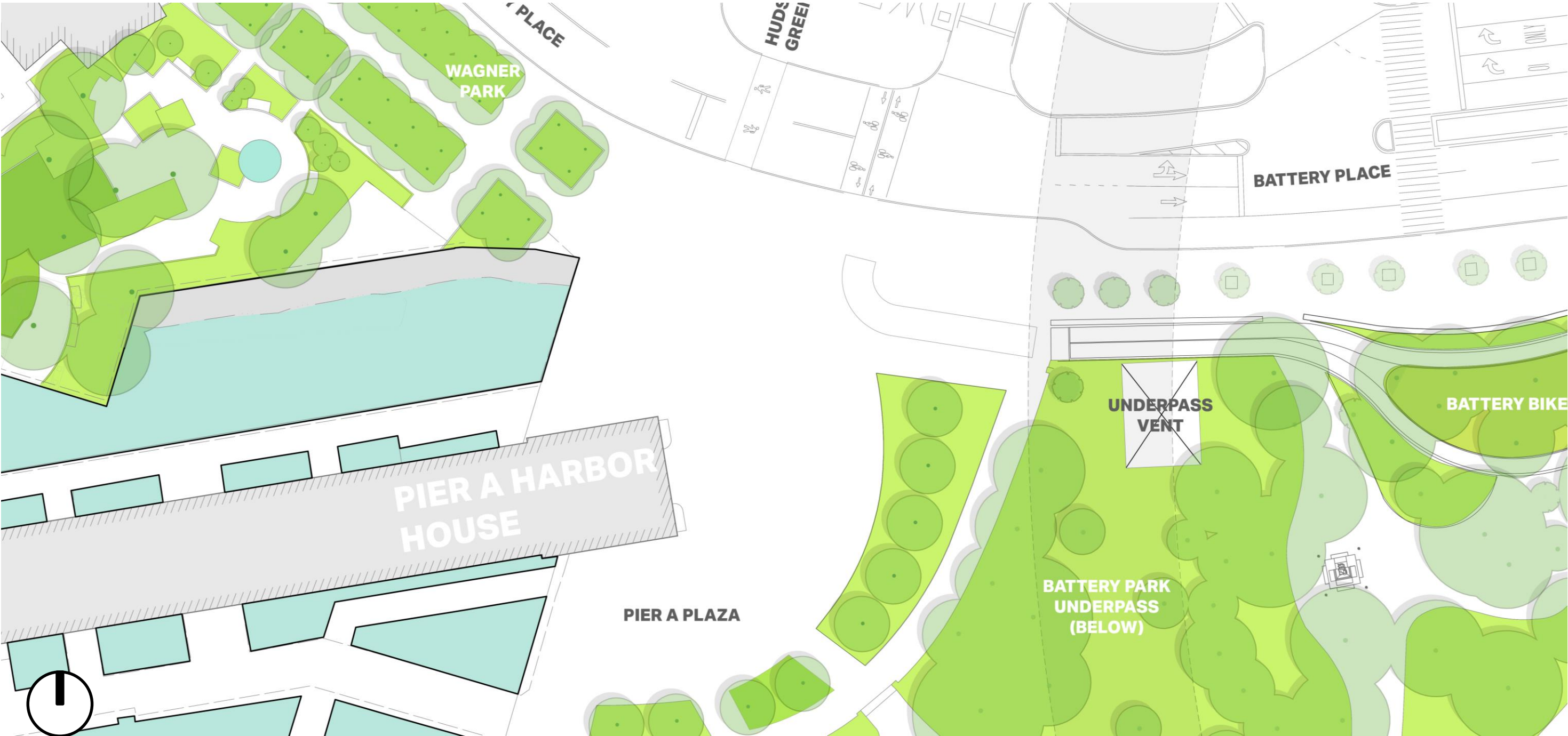


VIEW CORRIDORS



BIKEWAY

PIER A PLAZA | EXISTING CONDITIONS



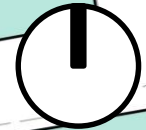
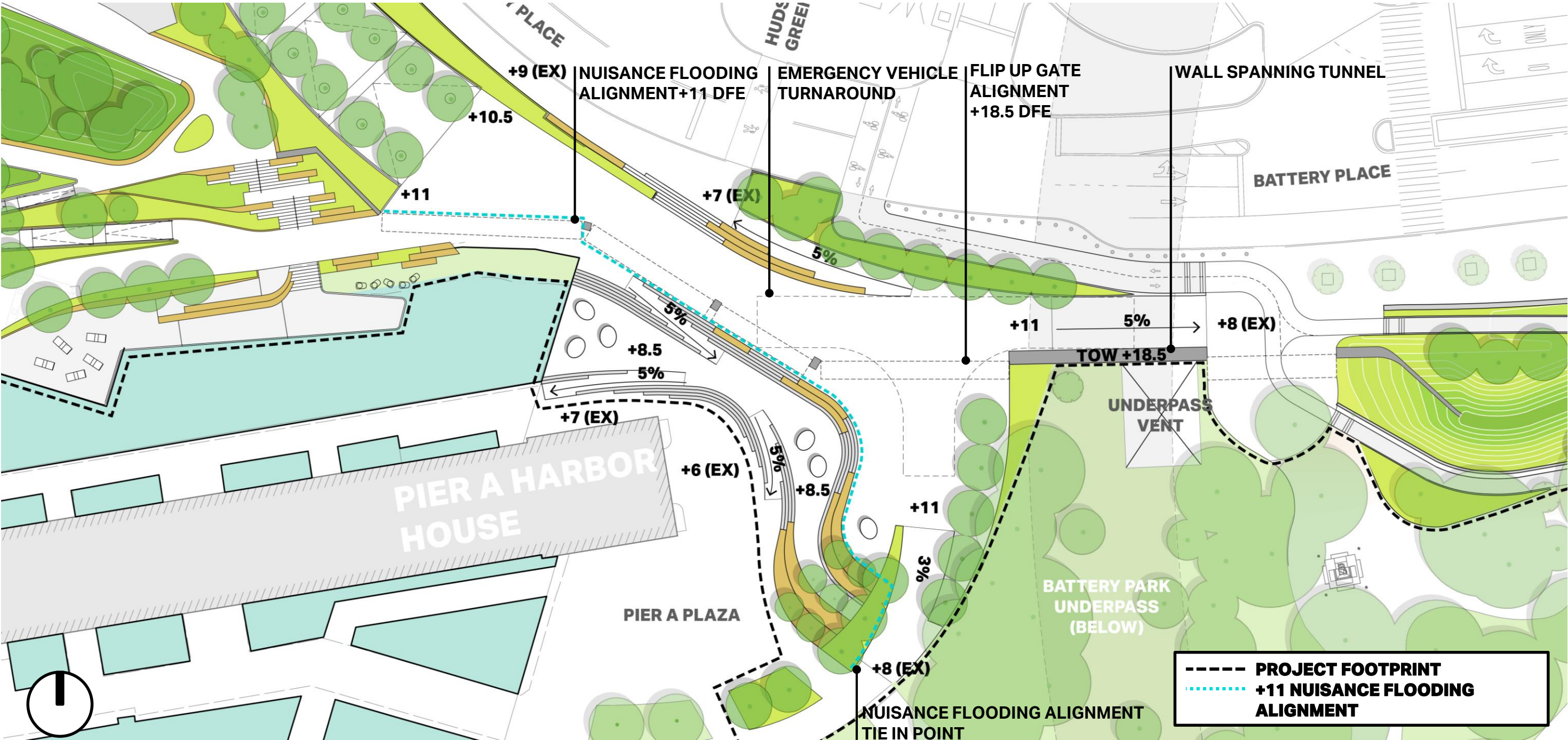
PIER A PLAZA | PREVIOUS DESIGN



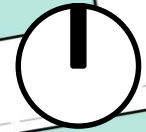
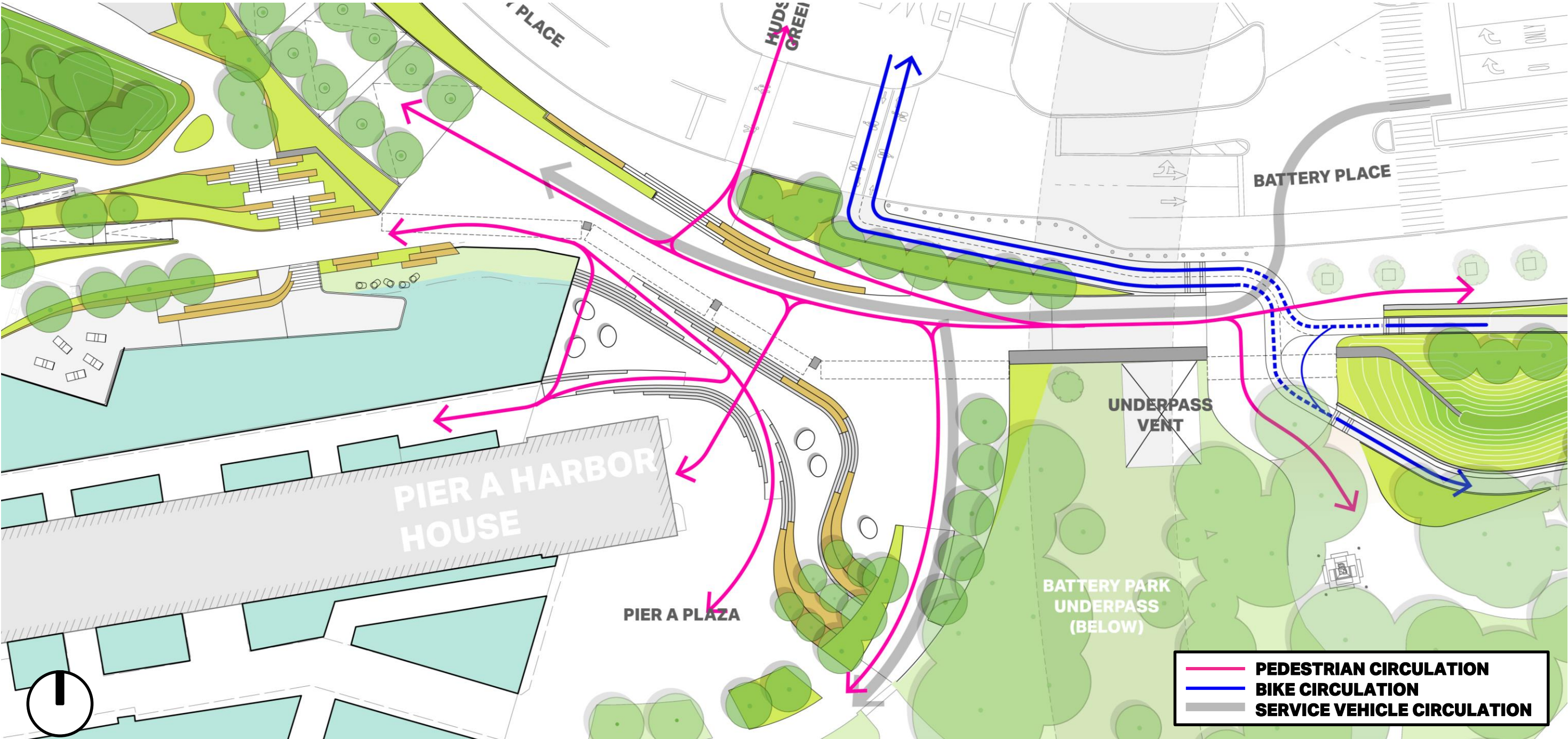
PIER A PLAZA | PROPOSED DESIGN



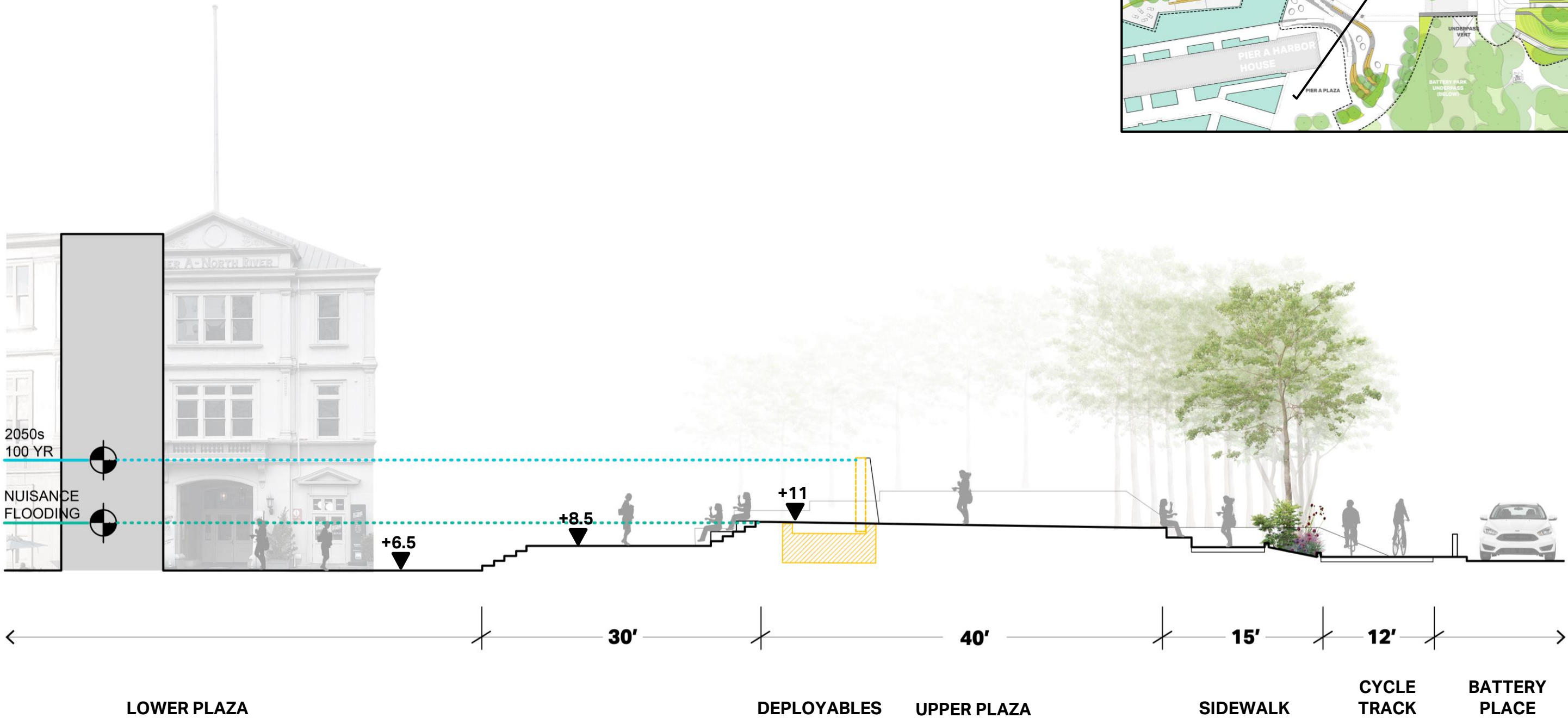
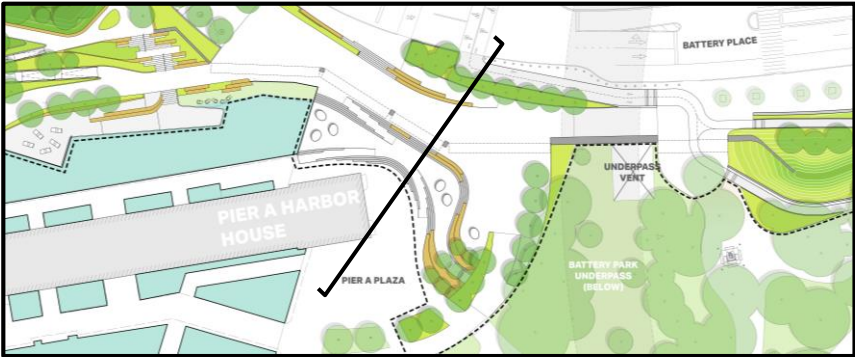
PIER A PLAZA | PROPOSED DESIGN

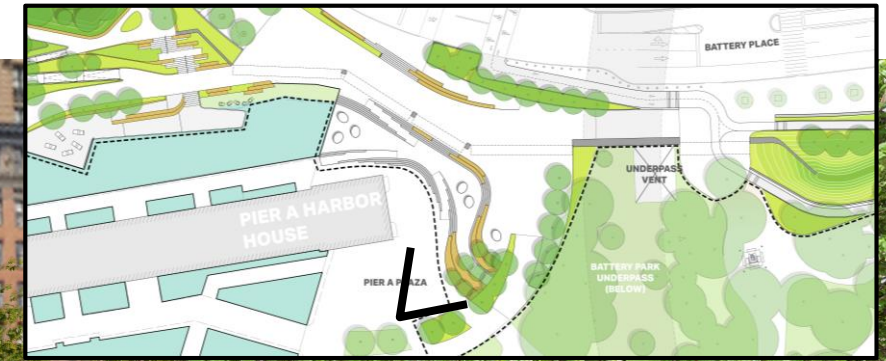


PIER A PLAZA | CIRCULATION



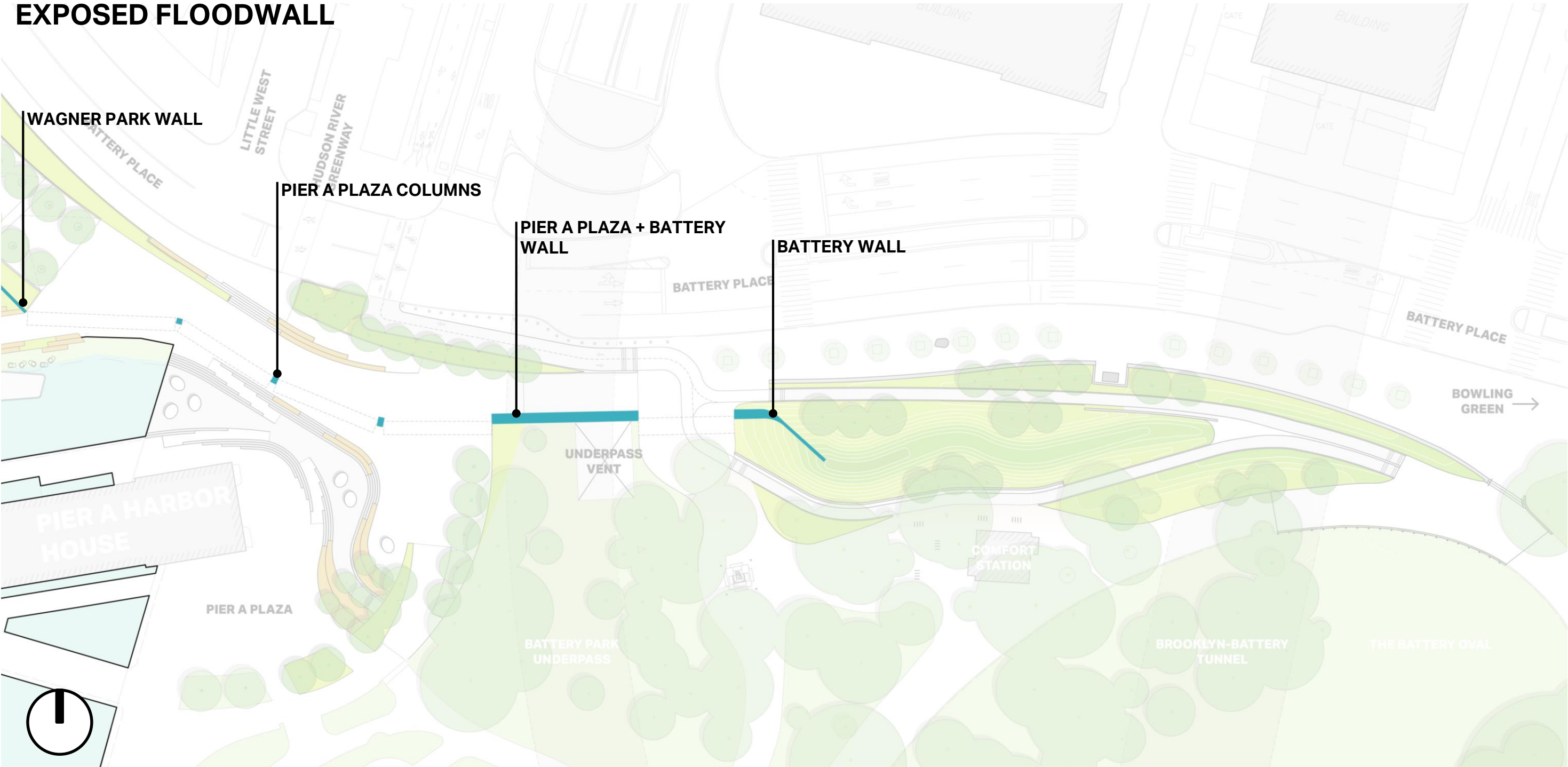
PIER A PLAZA | PROPOSED DESIGN





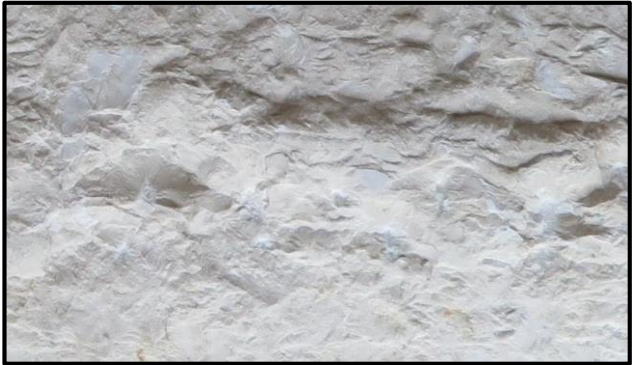
THE BATTERY + PIER A PLAZA | MATERIALS PALETTE

EXPOSED FLOODWALL



THE BATTERY + PIER A PLAZA | MATERIALS PALETTE

EXPOSED FLOODWALL

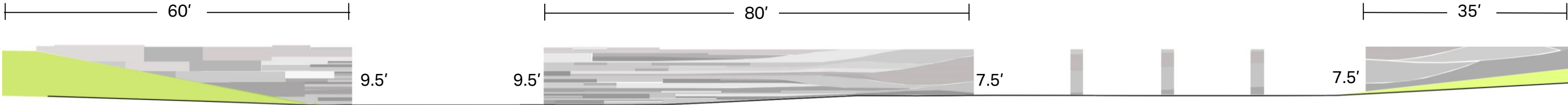


SPLIT FACE STONE



POLISHED STONE

BLEND OF SIZE, SHAPE, AND TEXTURE OF MATERIALS



THE BATTERY

PIER A PLAZA

WAGNER PARK

THE BATTERY + PIER A PLAZA | SIGNAGE + LIGHTING

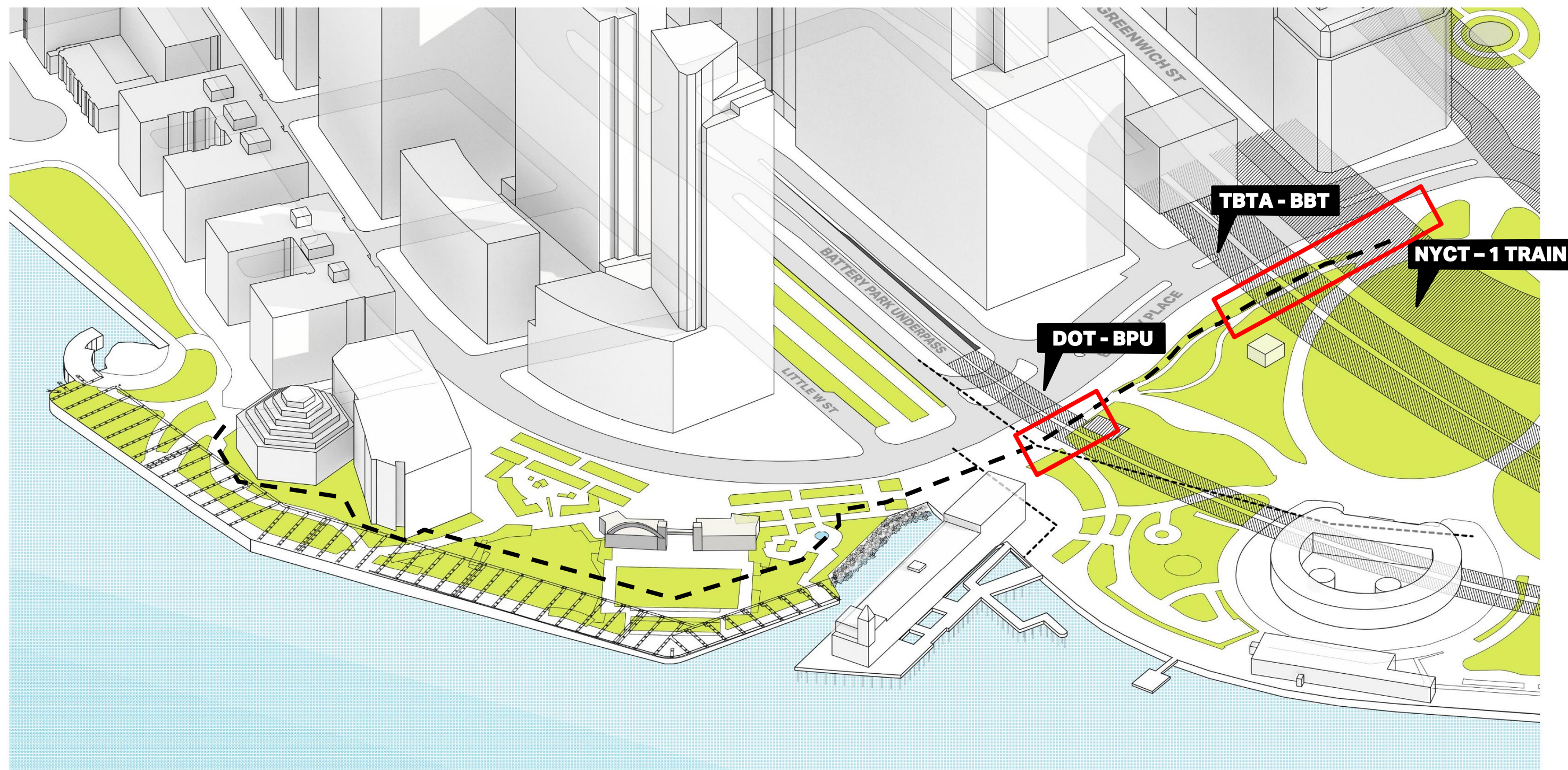
SIGNAGE



LIGHTING



THE BATTERY & PIER A PLAZA | STRUCTURAL ENGINEERING



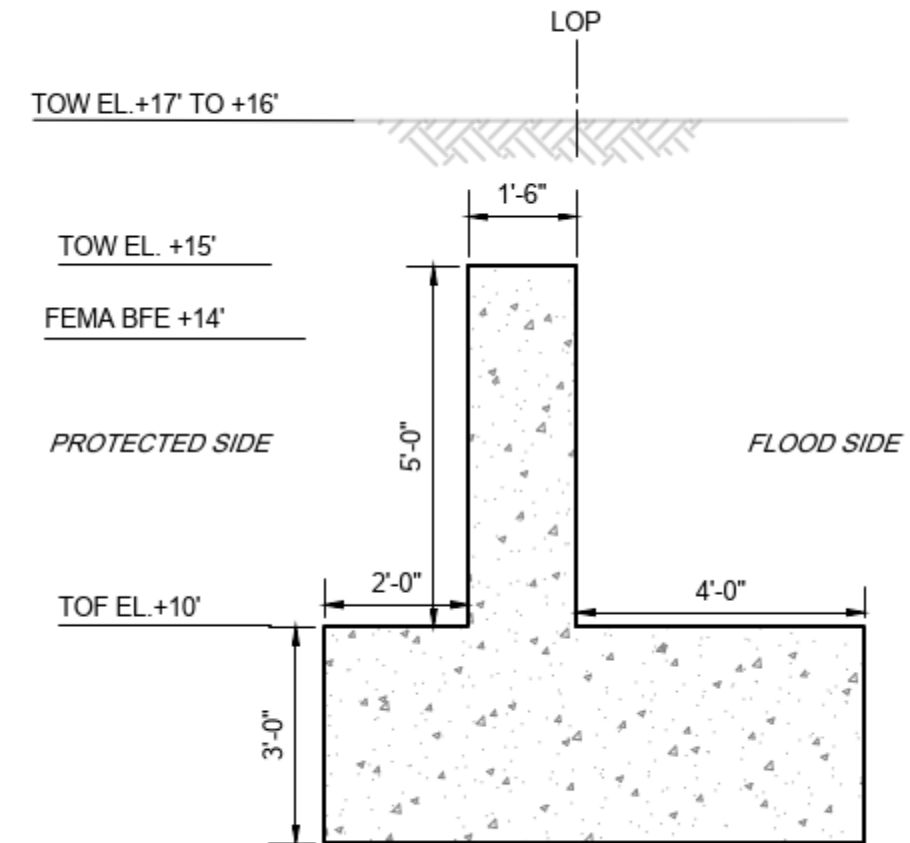
THE BATTERY | STRUCTURAL ENGINEERING

Challenge: Spanning the Brooklyn-Battery Tunnel and the 1 Subway Tunnel

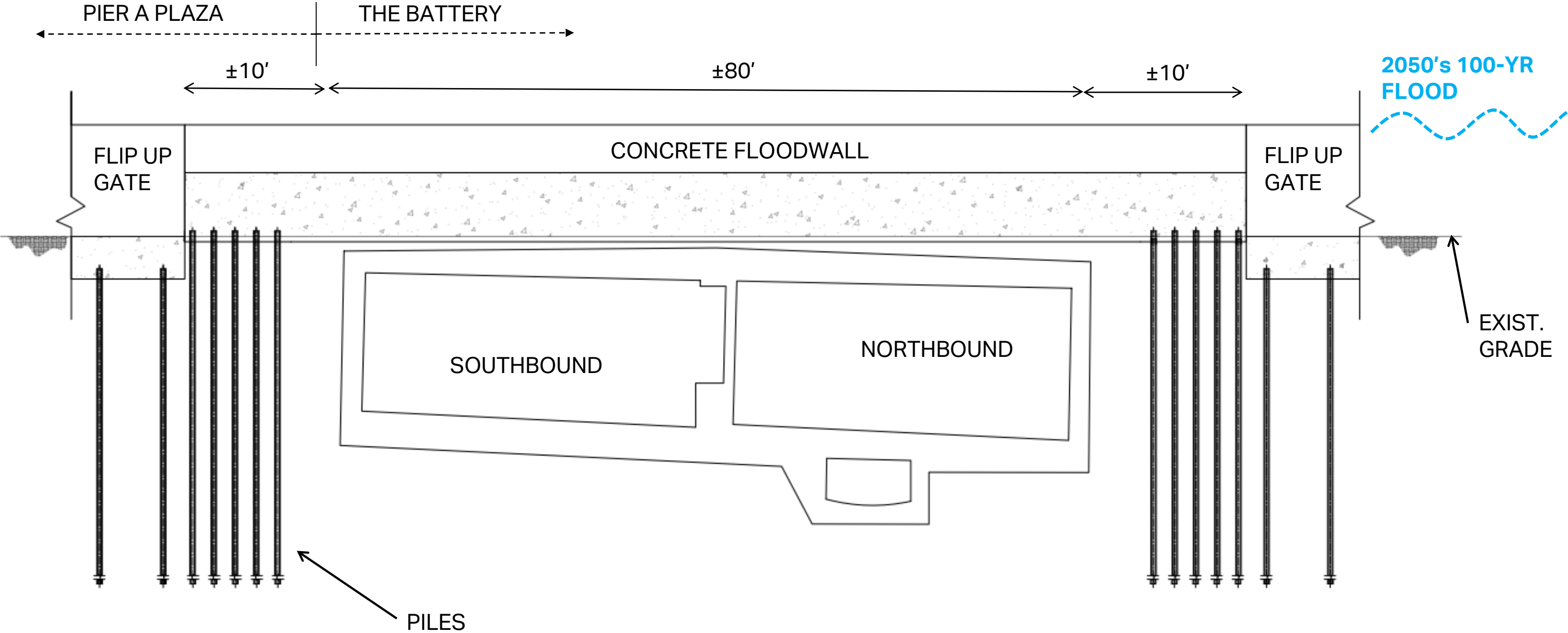
Solution: The lower HOI allows the use of a shallow footing and piles are not required

Challenge: Congestion of utilities through Battery Park and along Battery Place

Solution: Utilize a shallow foundation where possible and jet grouting as a seepage barrier around utilities

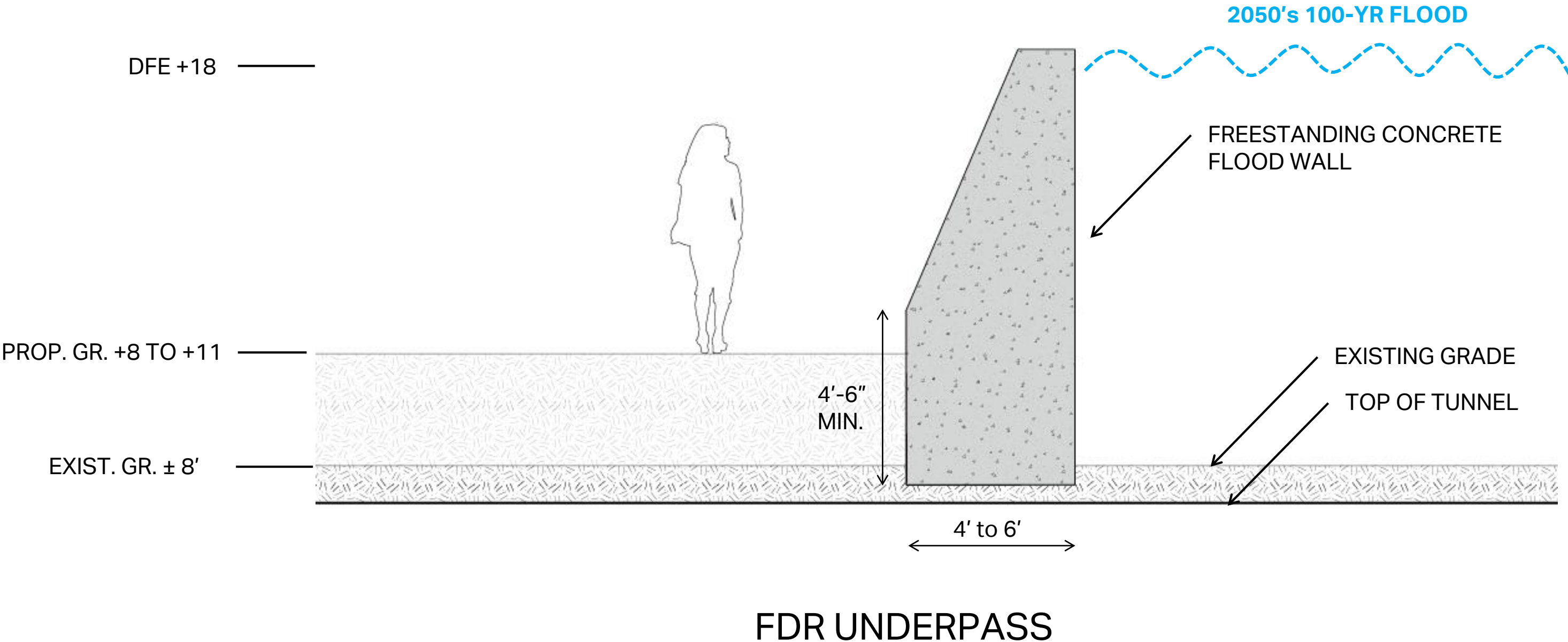


PIER A PLAZA| STRUCTURAL ENGINEERING

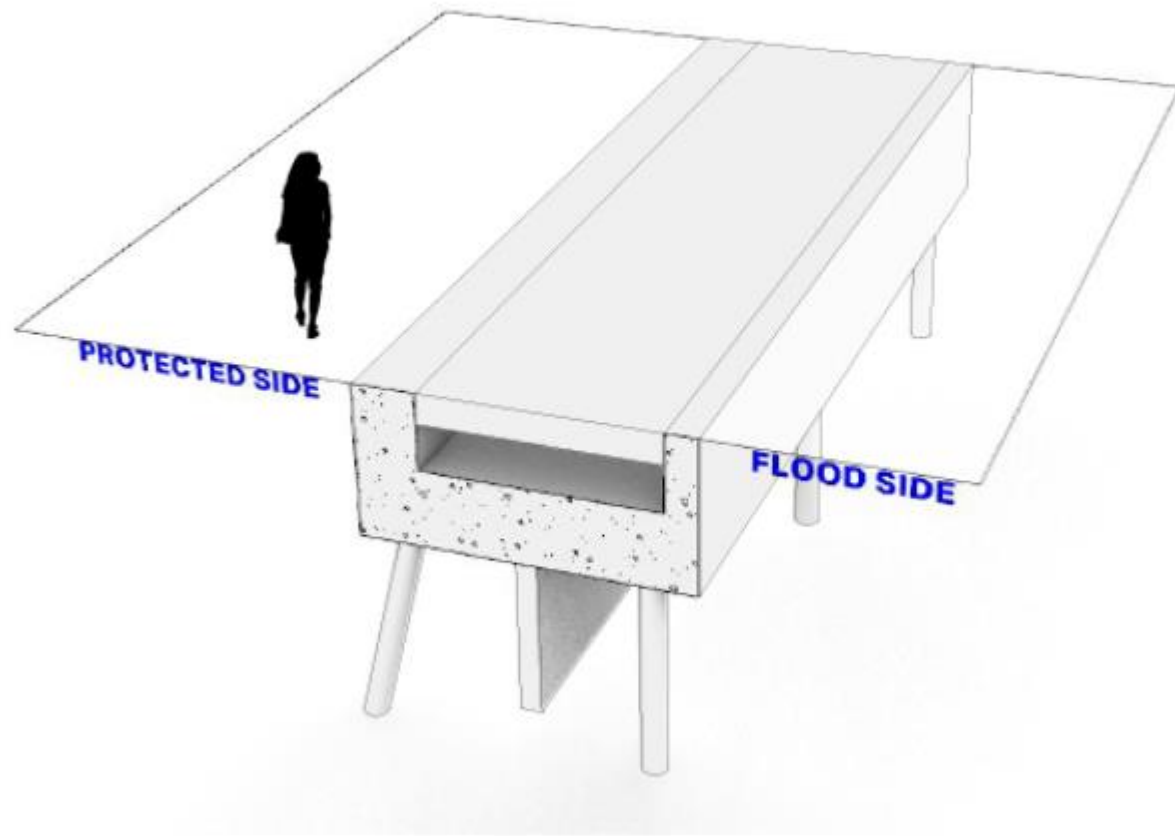


Section Looking North

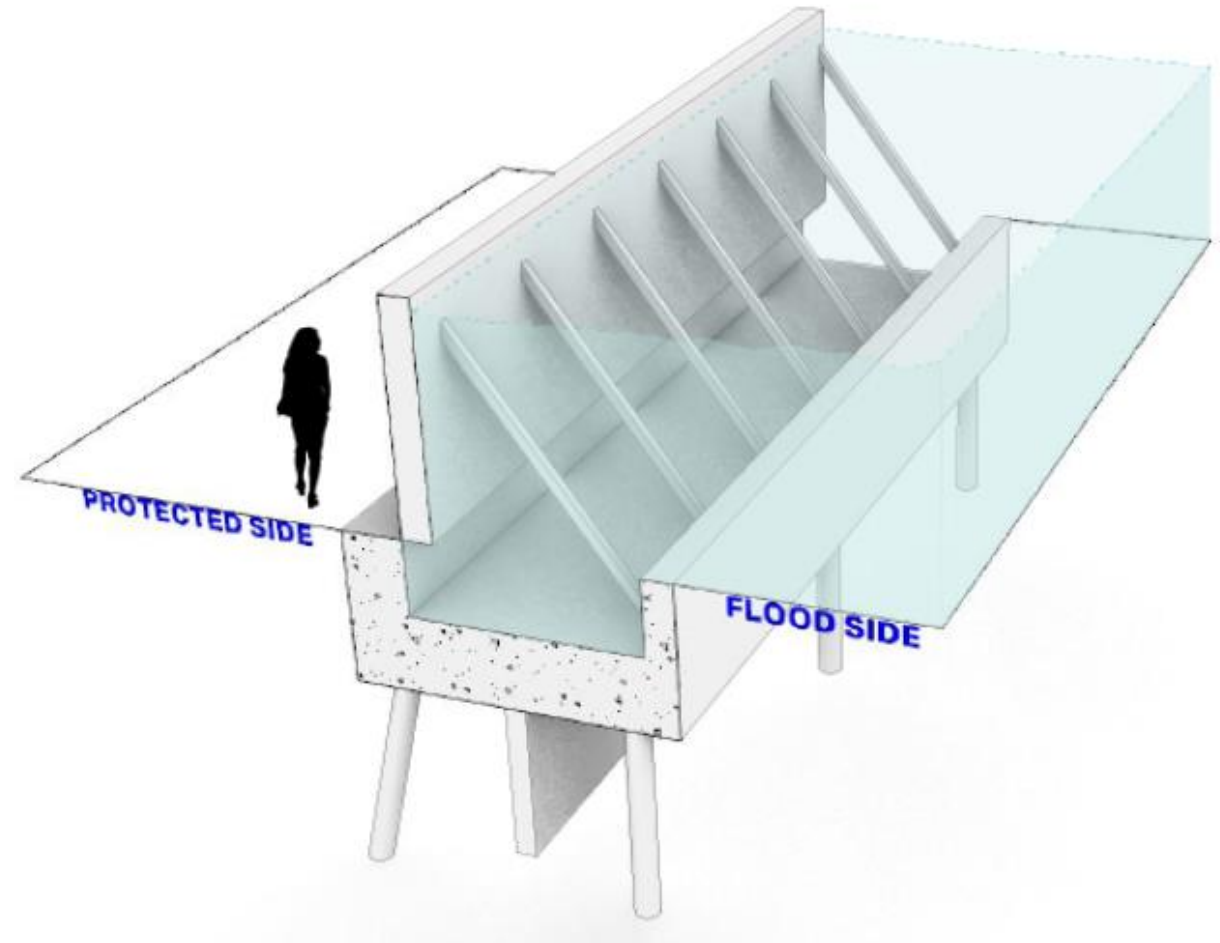
PIER A PLAZA| STRUCTURAL ENGINEERING



PIER A PLAZA| STRUCTURAL ENGINEERING



FLIP UP GATE – STOWED POSITION



FLIP UP GATE – DEPLOYED POSITION

The Battery and Pier A Plaza

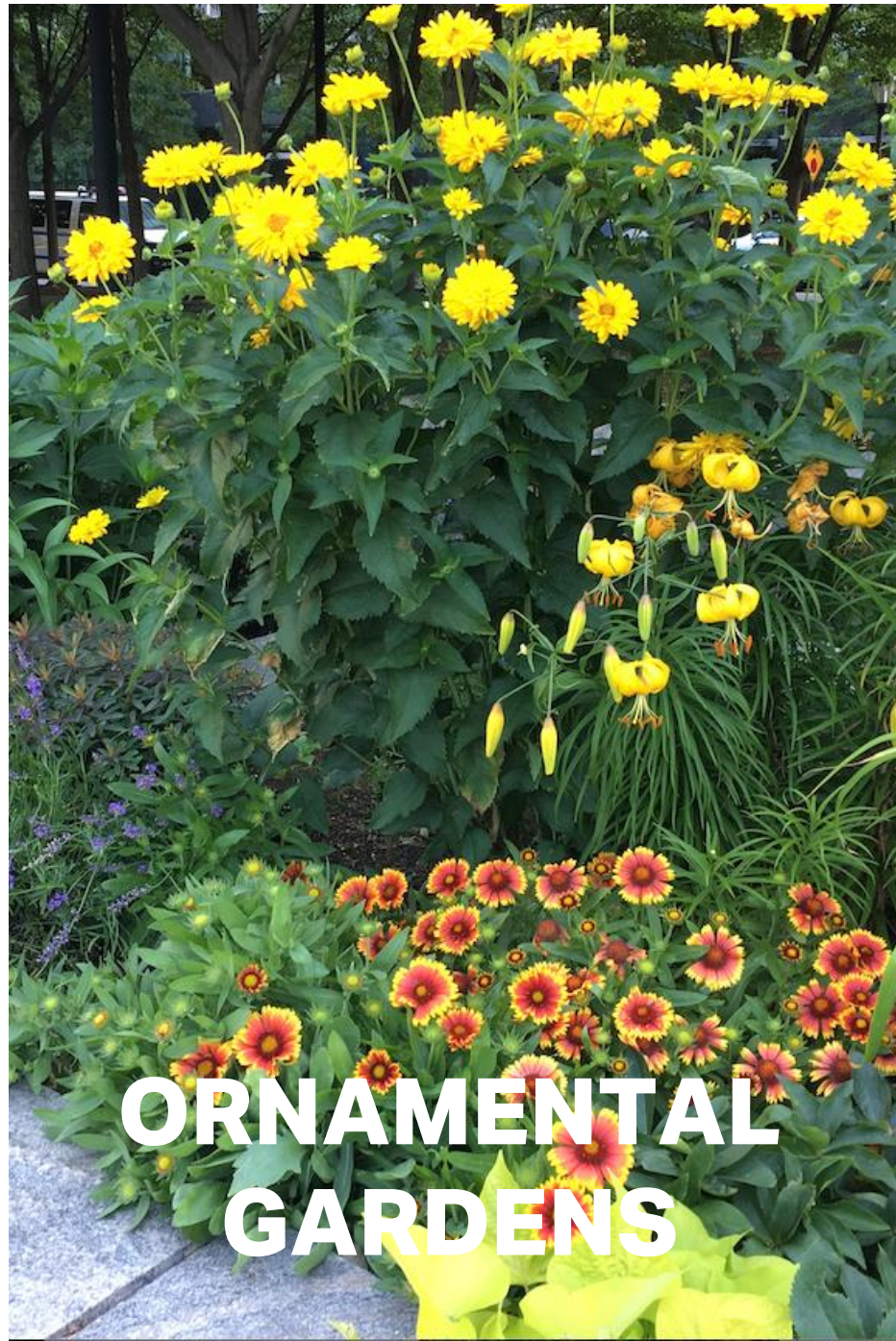
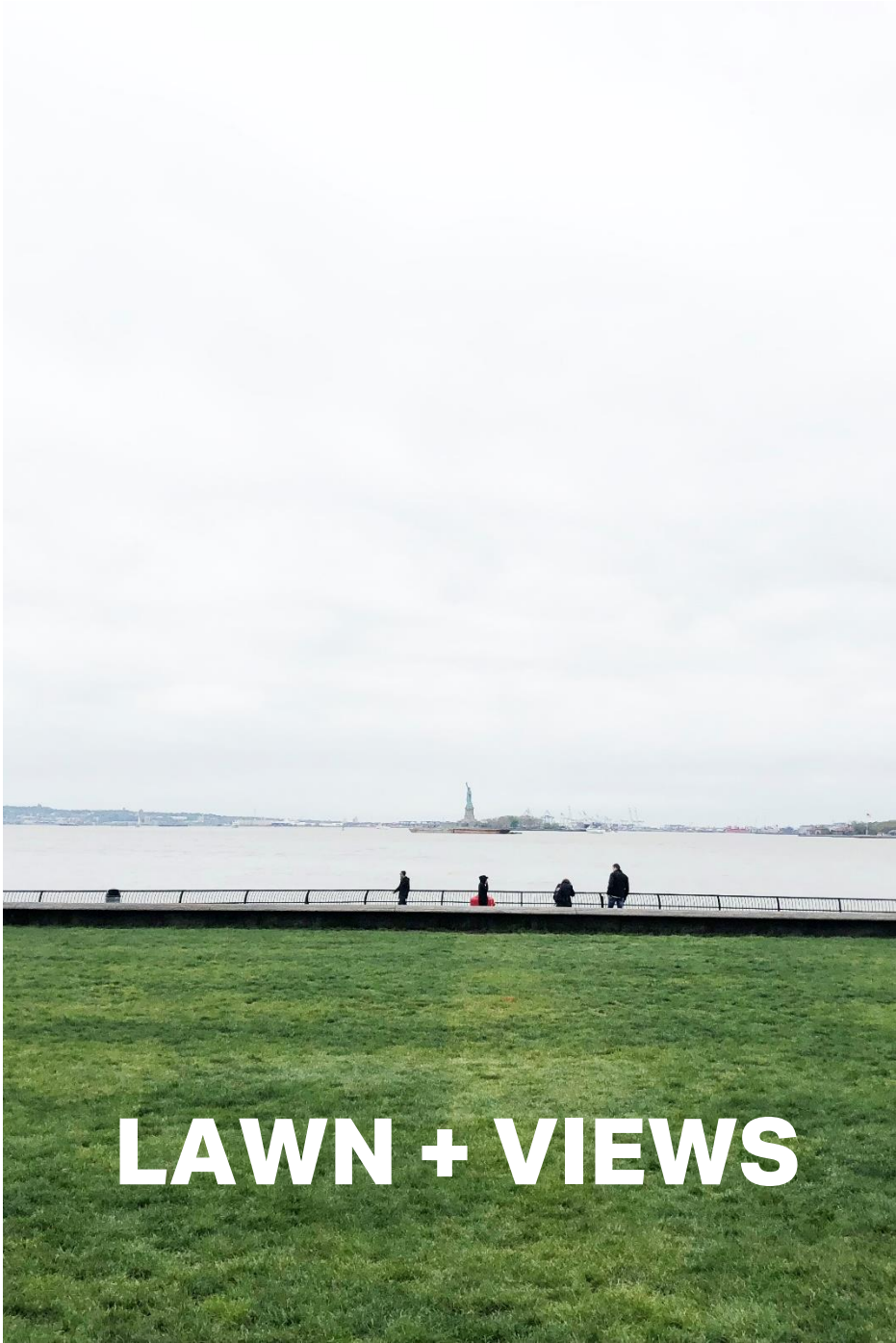
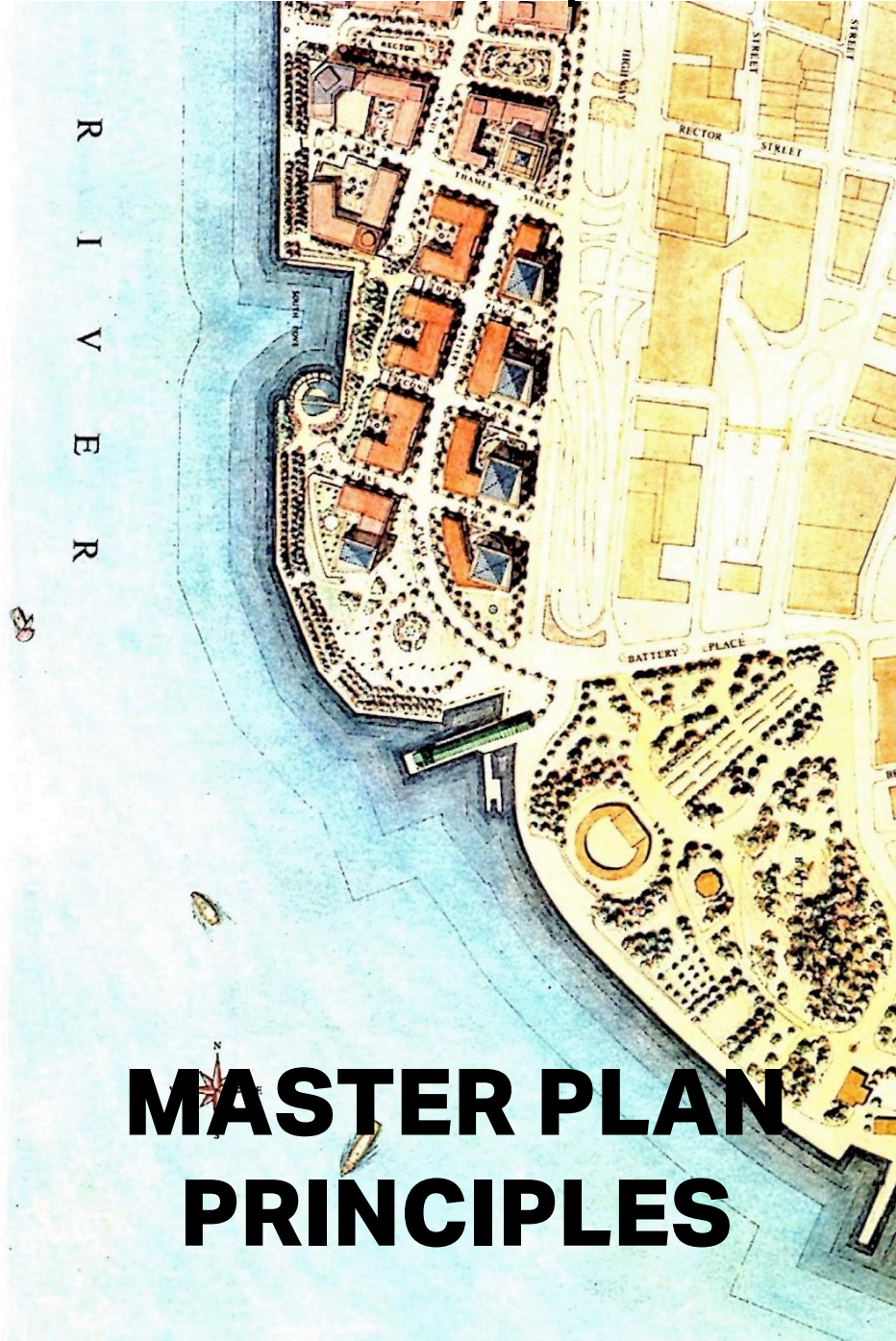
Q&A

WAGNER PARK

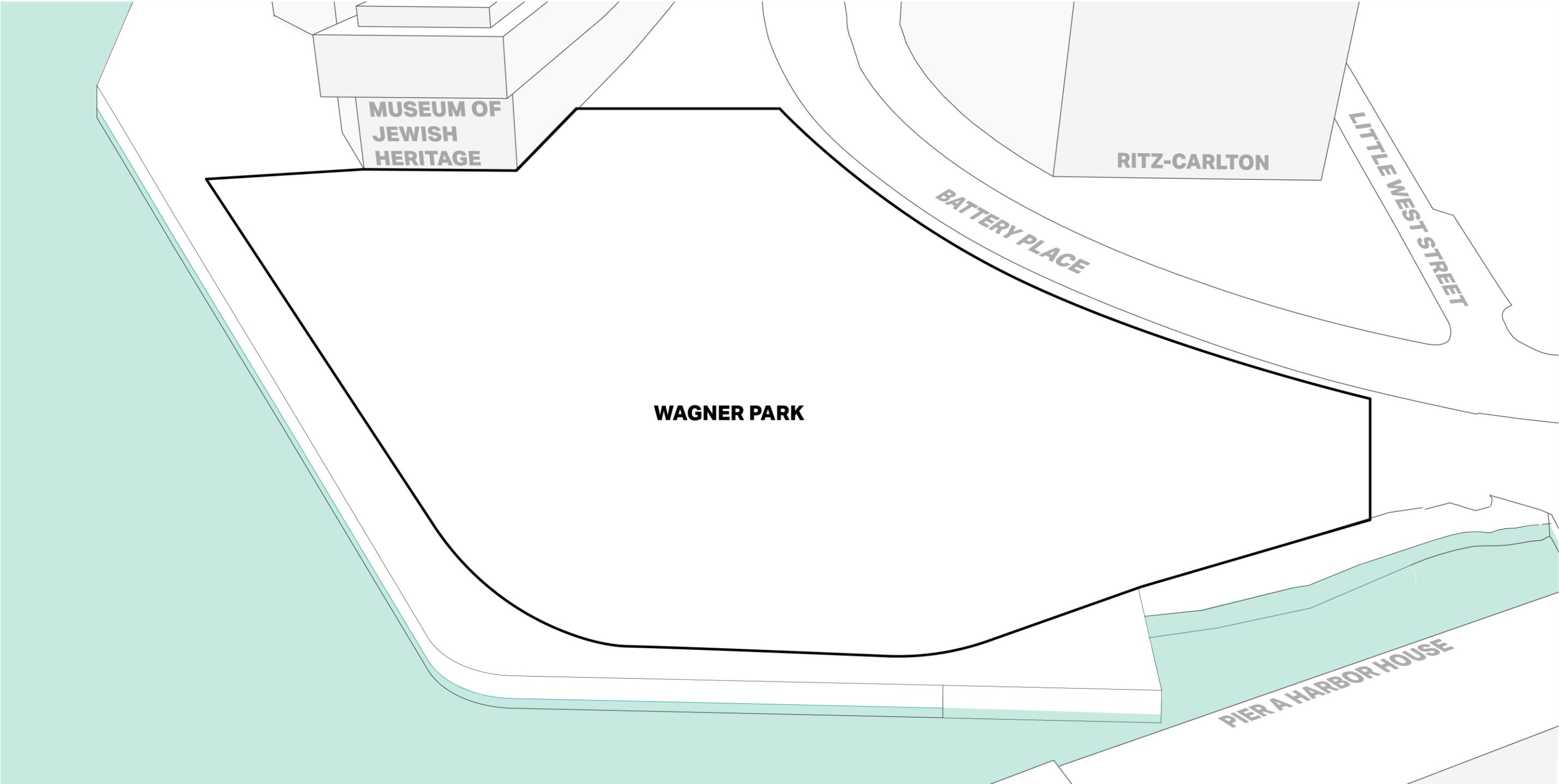
THE SITE



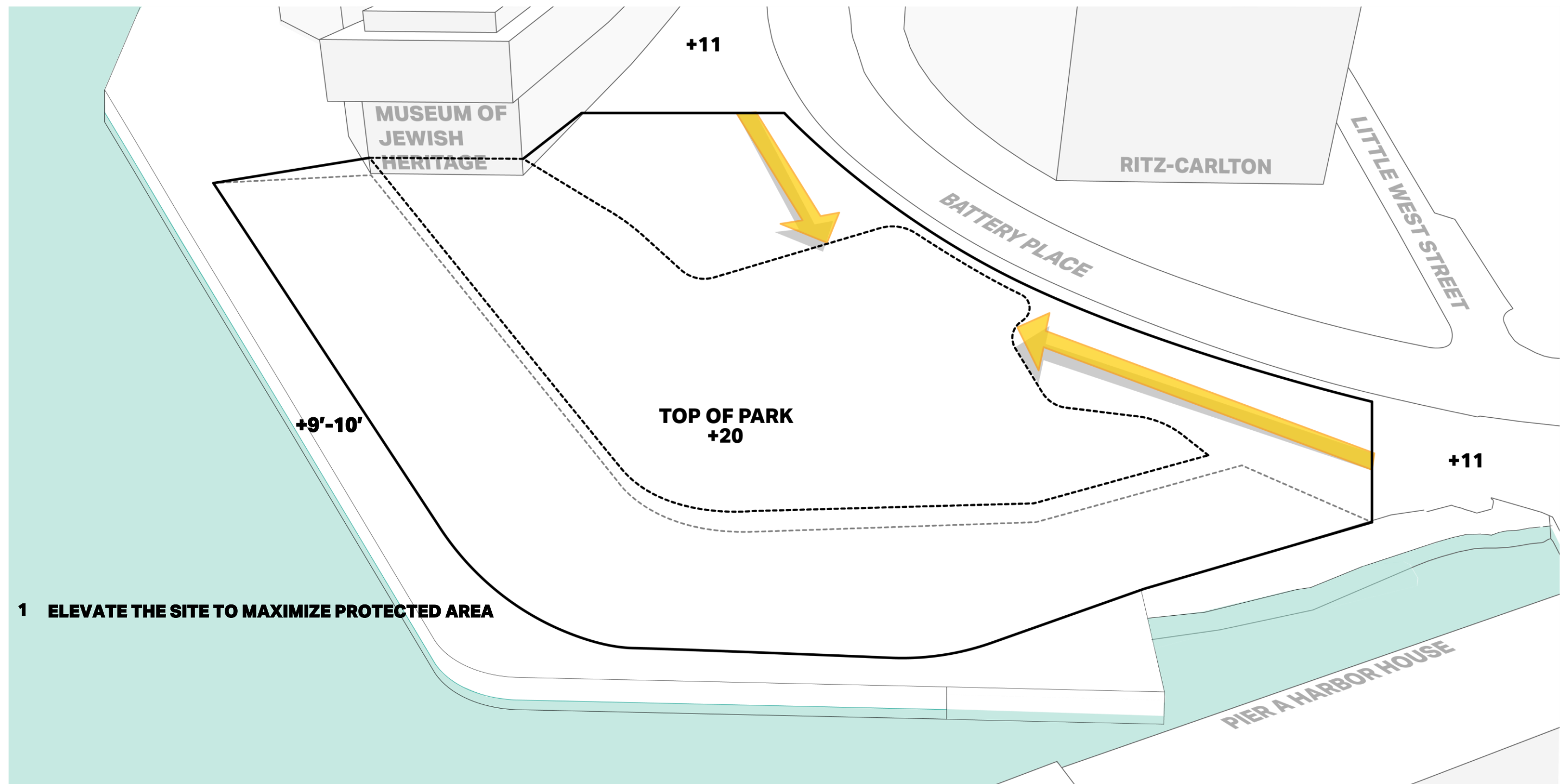
WAGNER PARK | DESIGN INSPIRATION



WAGNER PARK | DESIGN PRINCIPLES

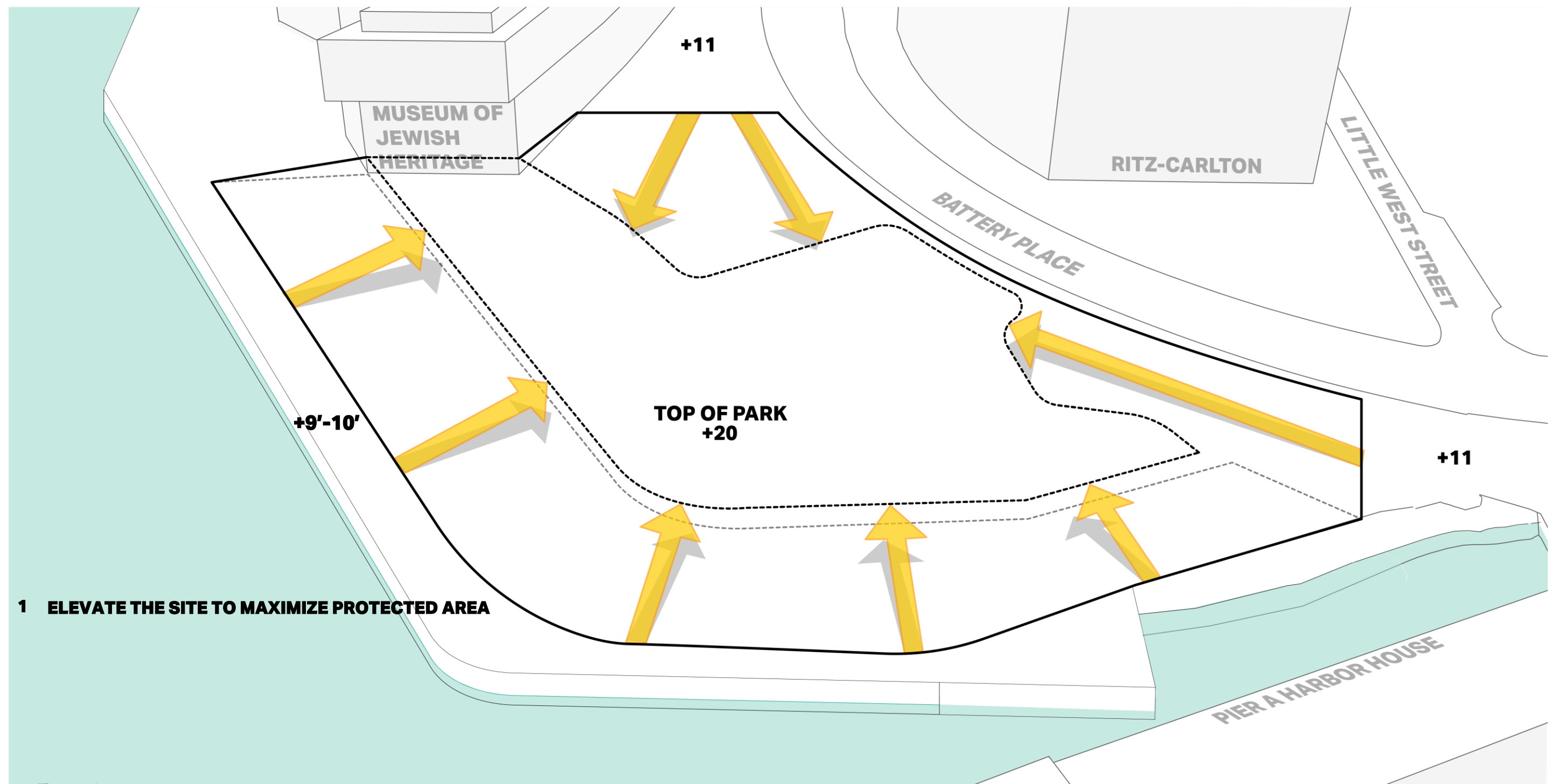


WAGNER PARK | DESIGN PRINCIPLES

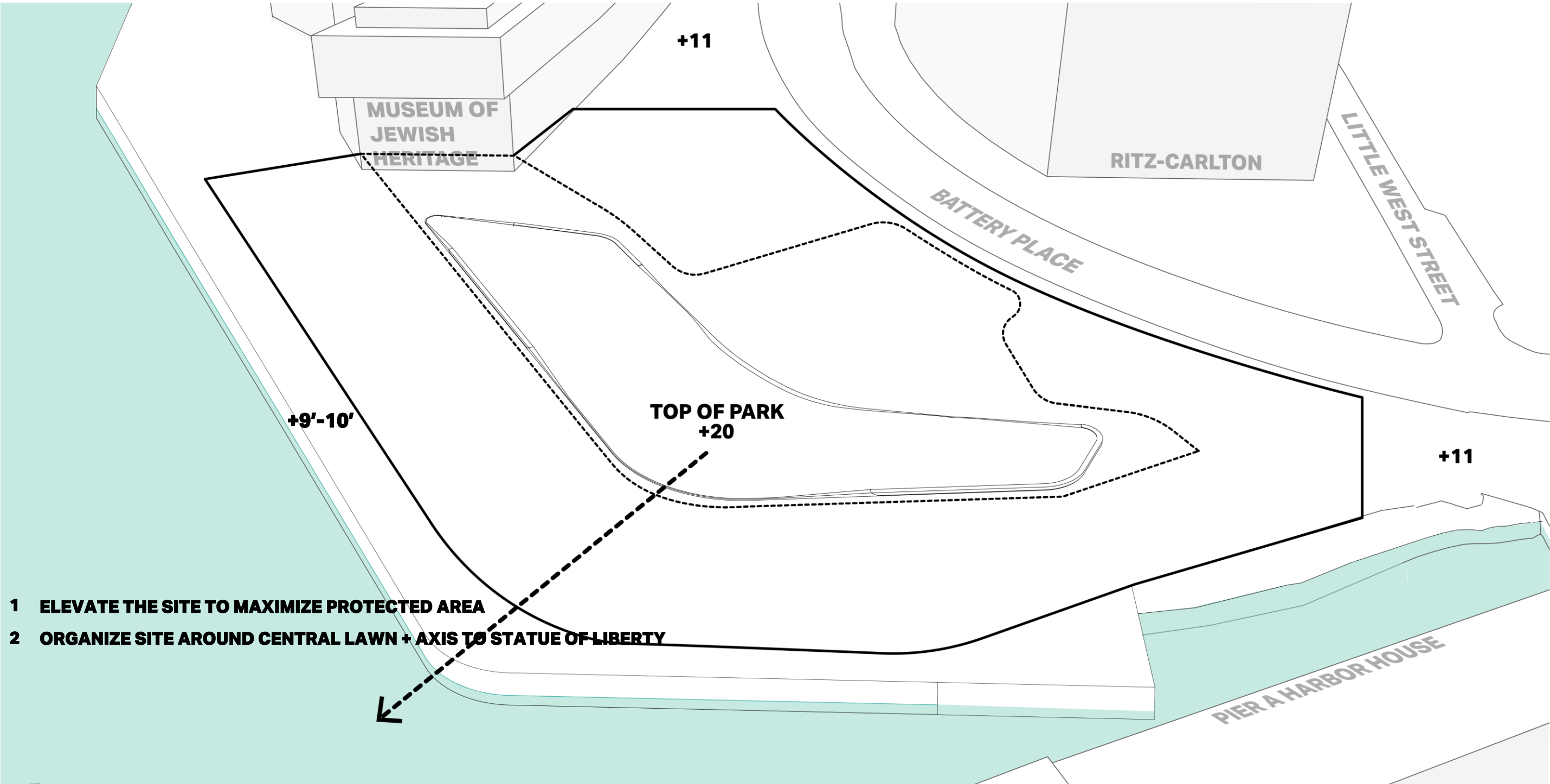


1 ELEVATE THE SITE TO MAXIMIZE PROTECTED AREA

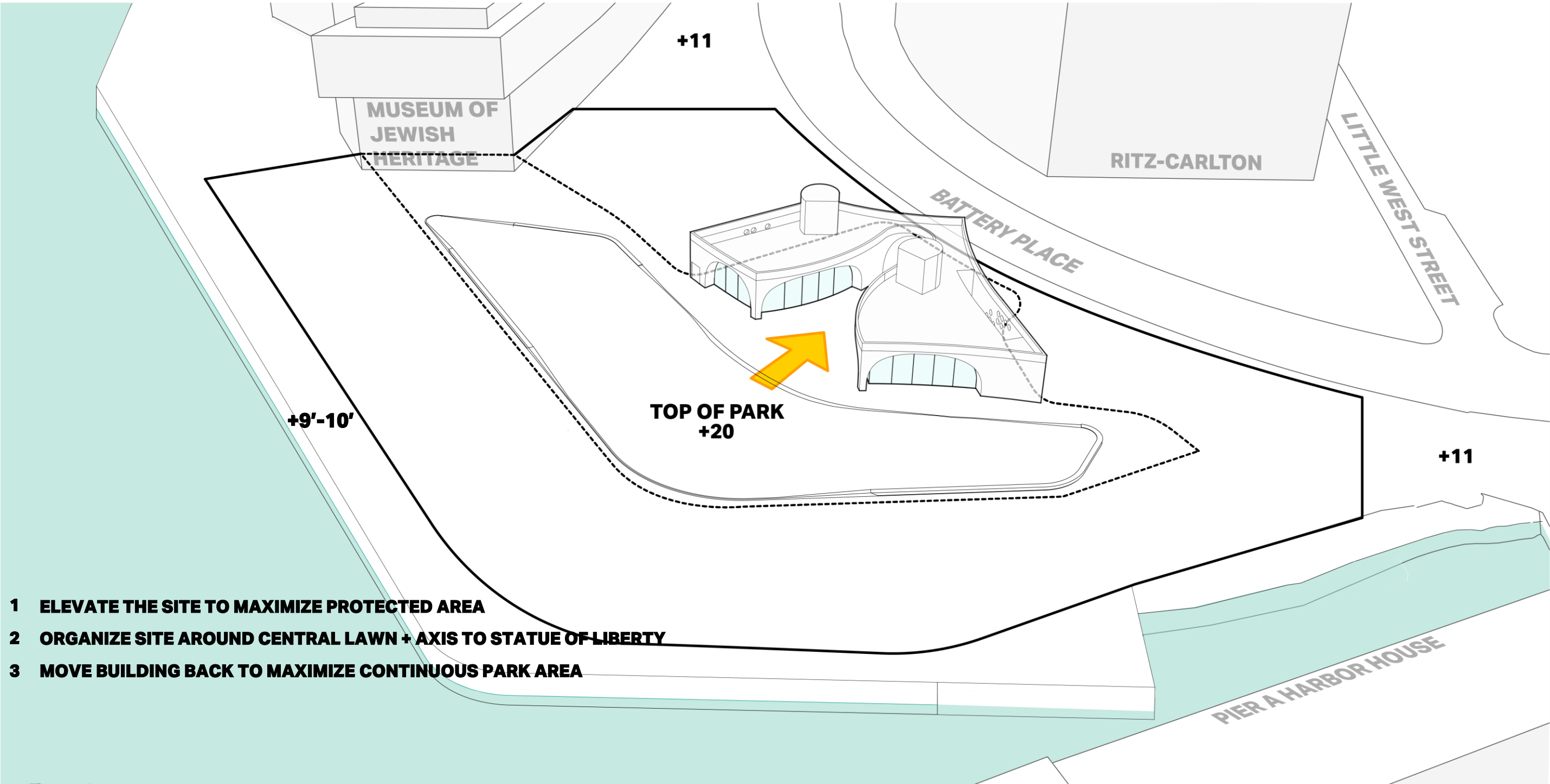
WAGNER PARK | DESIGN PRINCIPLES



WAGNER PARK | DESIGN PRINCIPLES

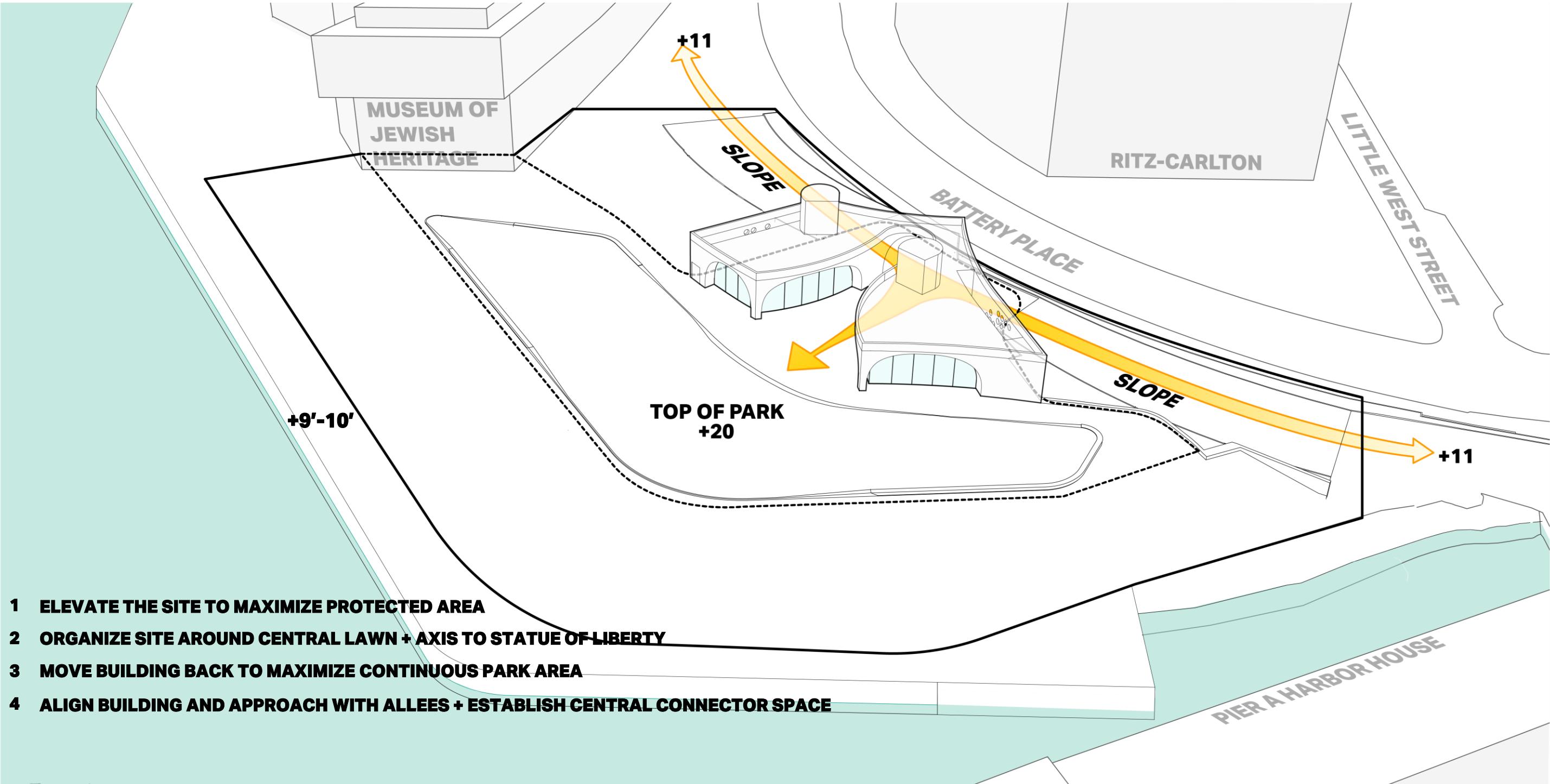


WAGNER PARK | DESIGN PRINCIPLES

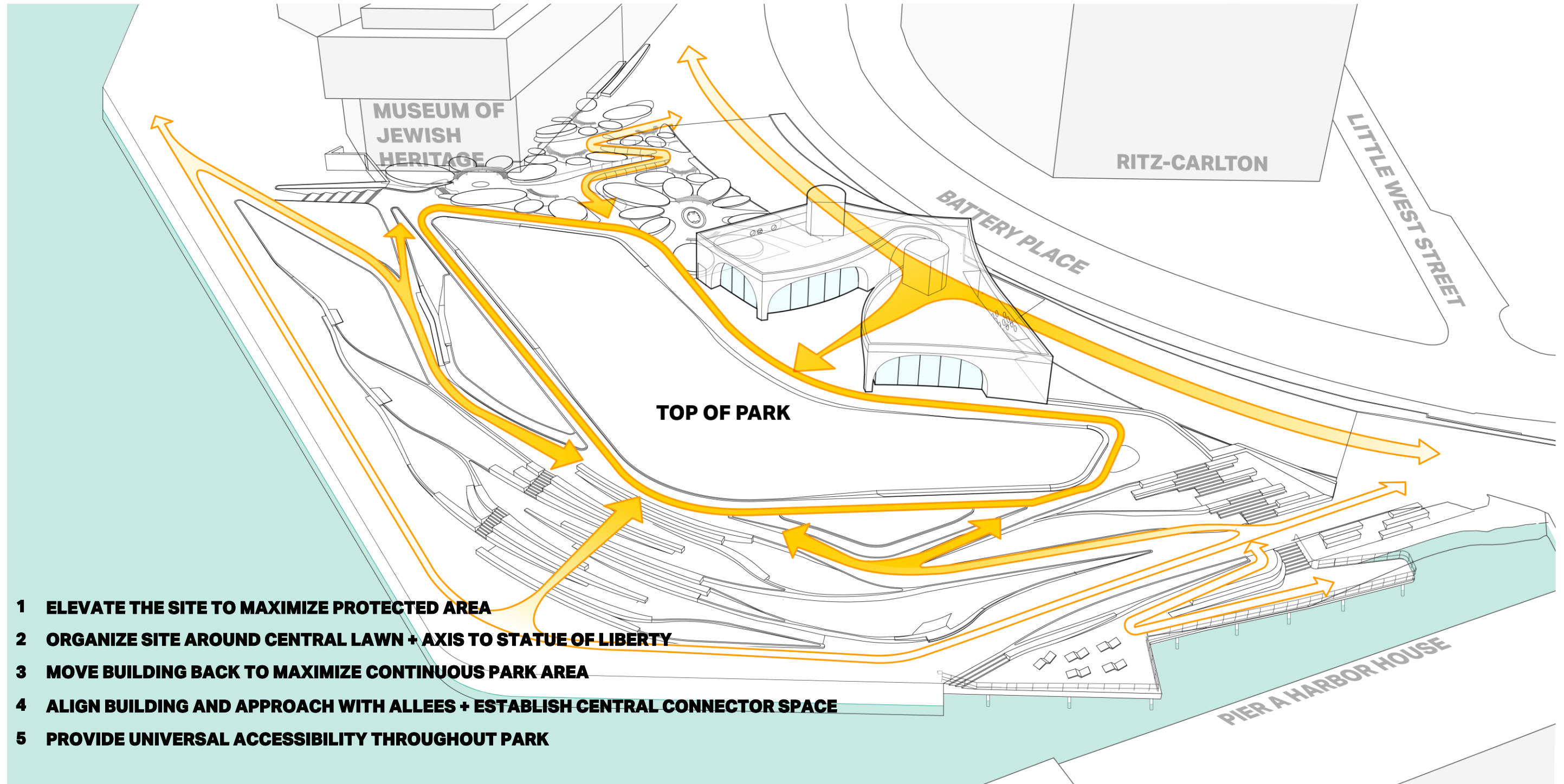


- 1 ELEVATE THE SITE TO MAXIMIZE PROTECTED AREA
- 2 ORGANIZE SITE AROUND CENTRAL LAWN + AXIS TO STATUE OF LIBERTY
- 3 MOVE BUILDING BACK TO MAXIMIZE CONTINUOUS PARK AREA

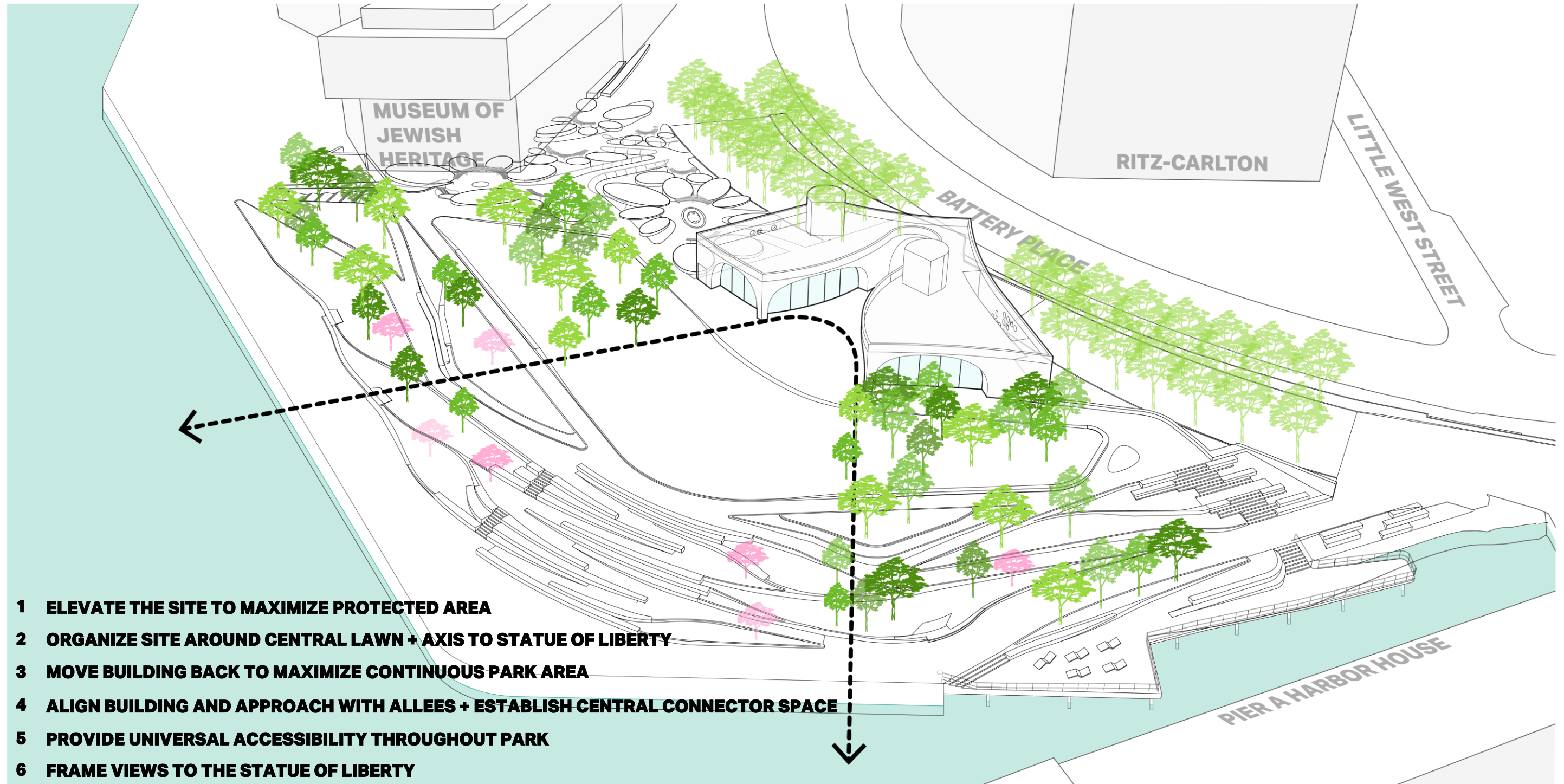
WAGNER PARK | DESIGN PRINCIPLES



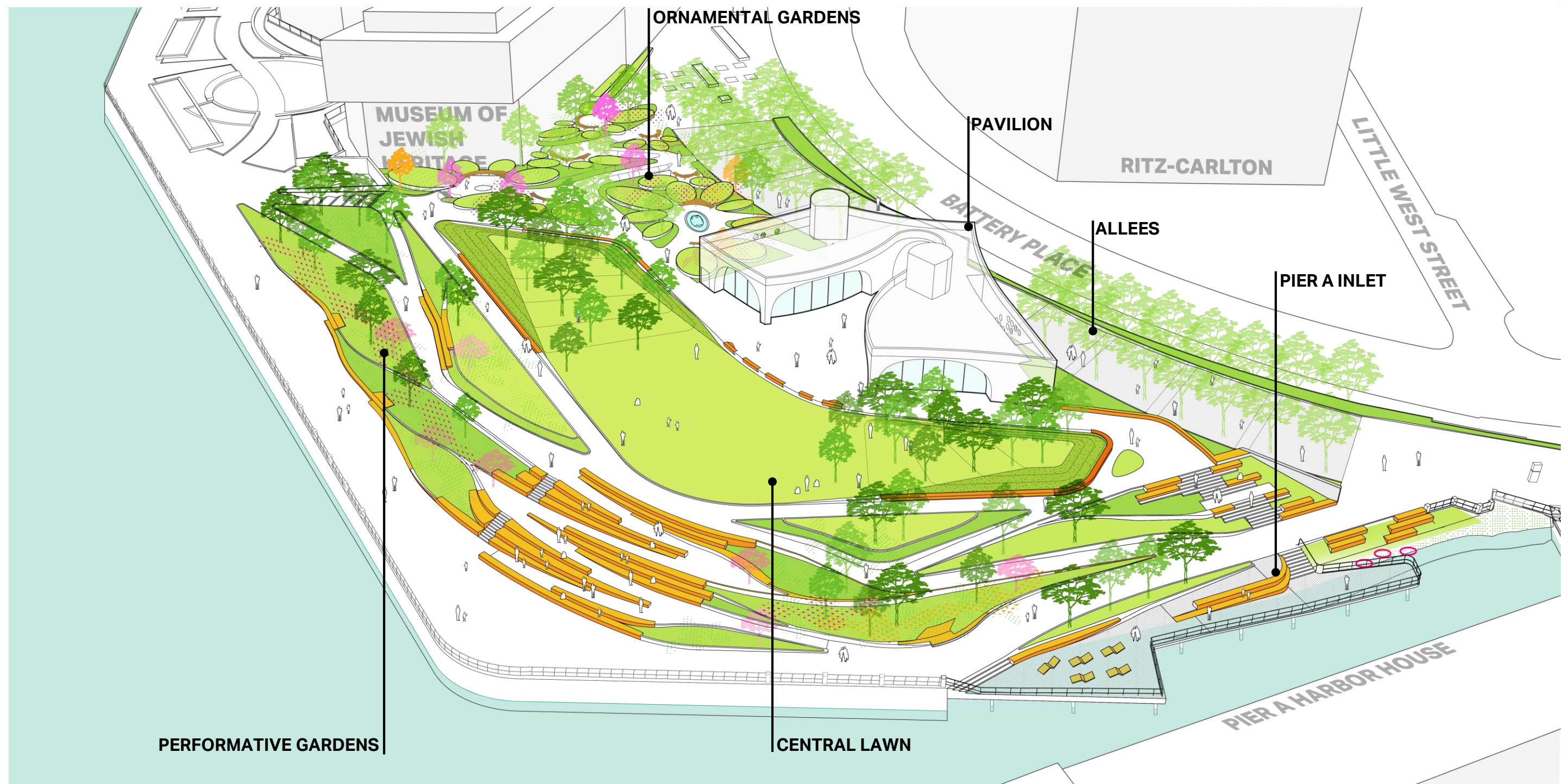
WAGNER PARK | DESIGN PRINCIPLES



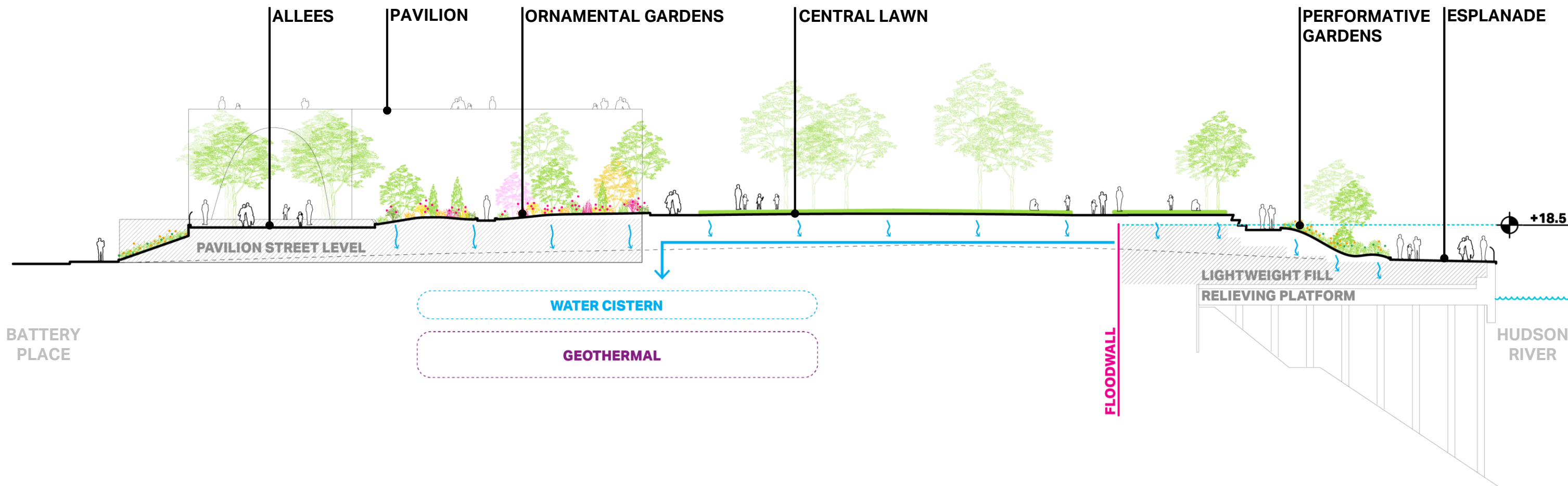
WAGNER PARK | DESIGN PRINCIPLES



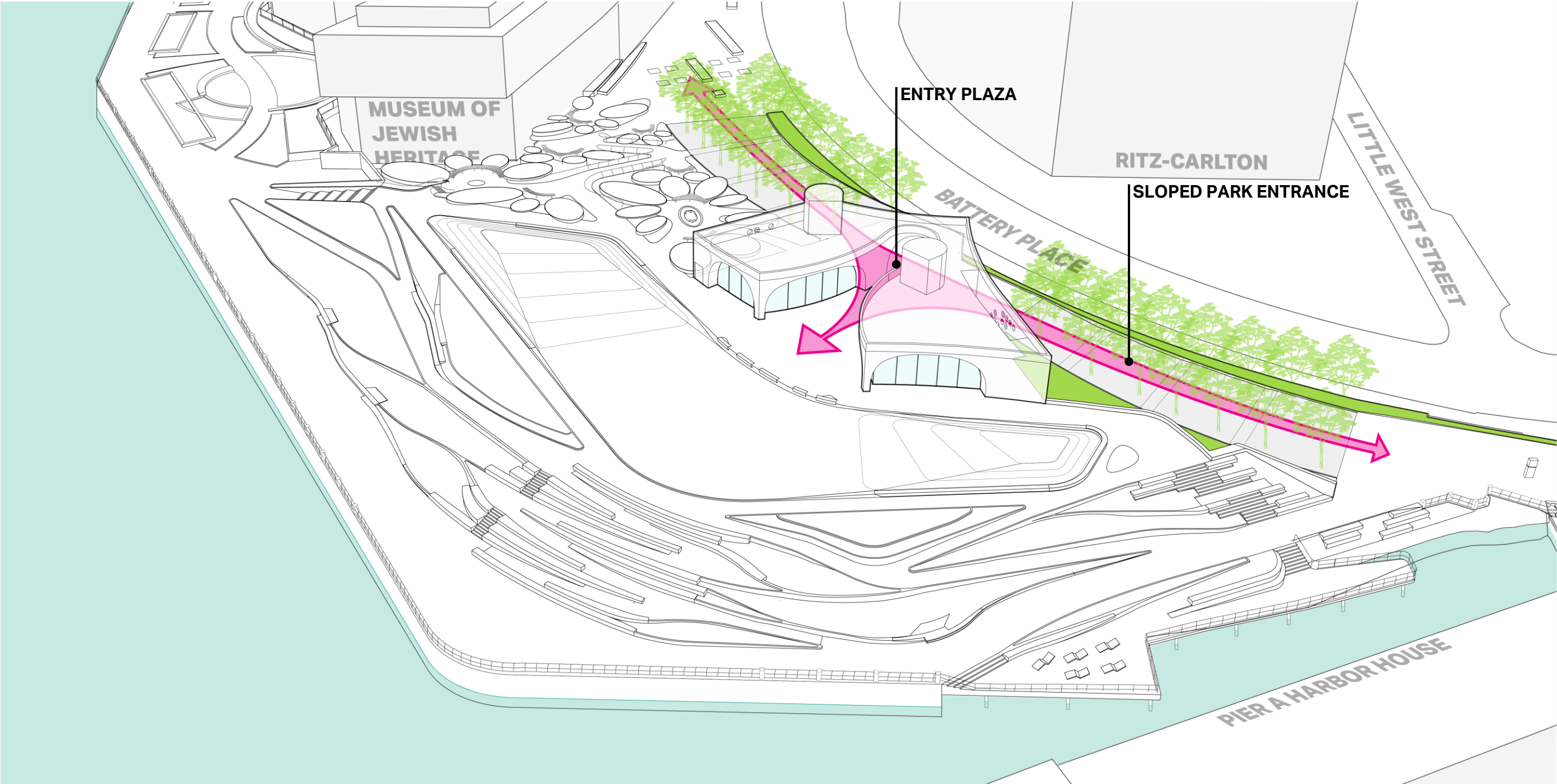
WAGNER PARK | PROPOSED DESIGN

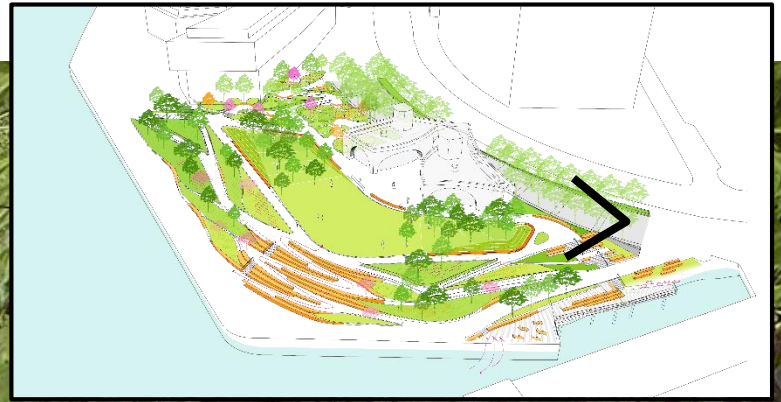


WAGNER PARK



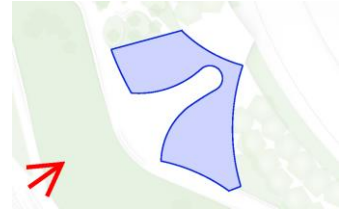
WAGNER PARK | ALLEES





PAVILION DESIGN PRINCIPLES

LANDSCAPE RESPONSIVE DESIGN



THE BATTERY| PAVILION

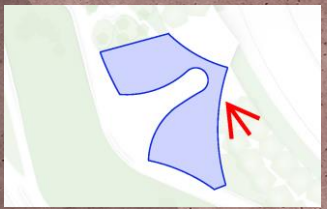


VIEW FROM BATTERY PLACE
ENHANCE PROCESSION - STREET TO PARK



APPROACHING THE PAVILION FROM NORTH ALLEE

ALIGN APPROACH WITH TREE ALLEES



LOOKING NORTH WEST FROM ENTRY COURT

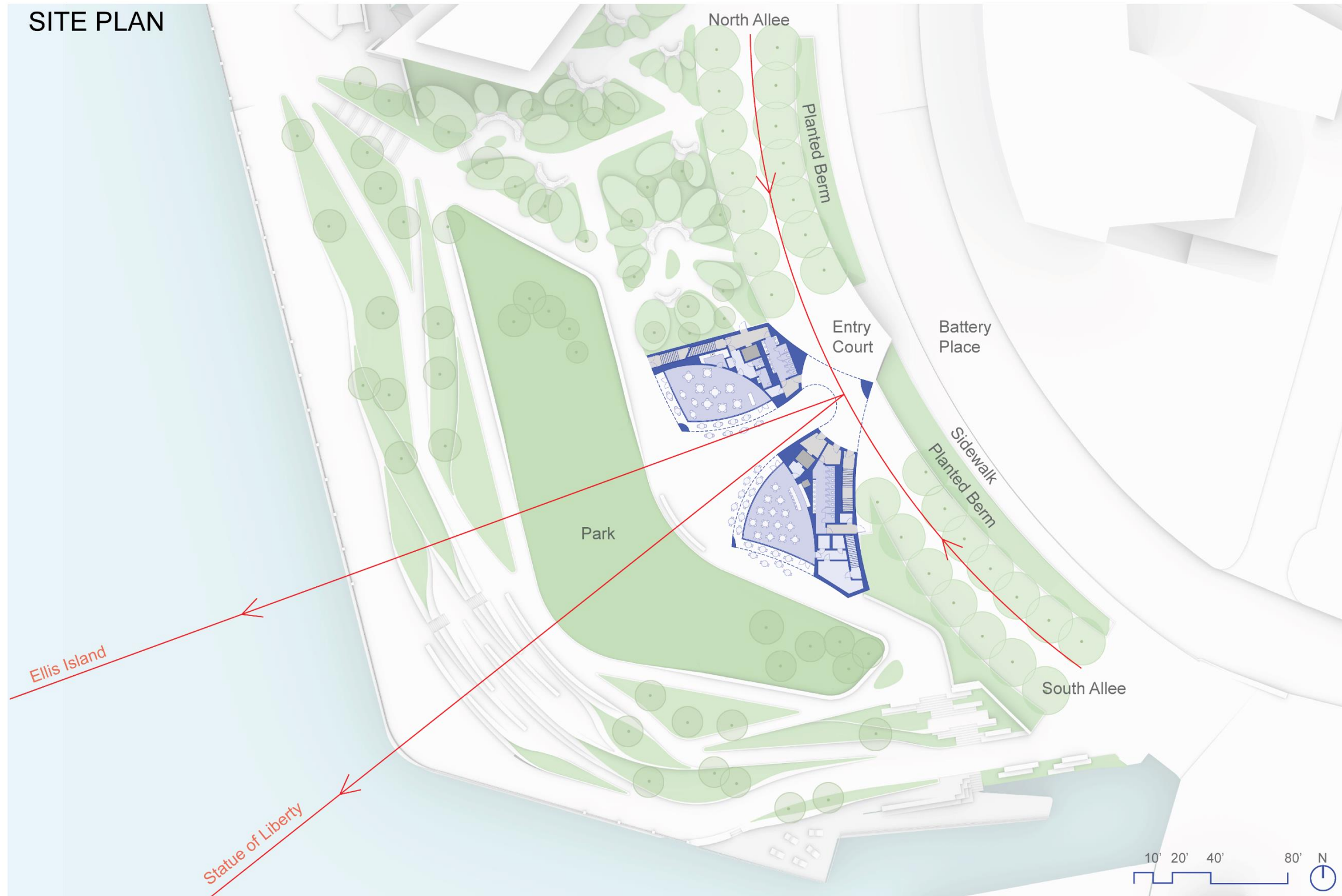
ESTABLISH ENTRY COURT



LOOKING OUT TOWARDS THE PARK

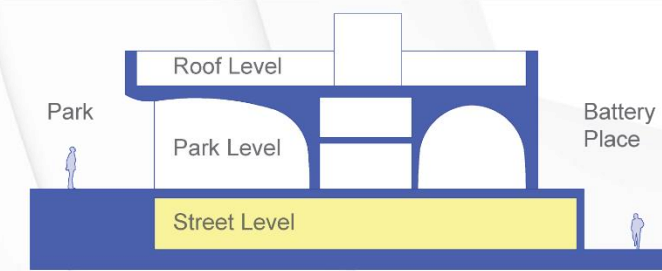
FRAME VIEW TO STATUE OF LIBERTY

SITE PLAN

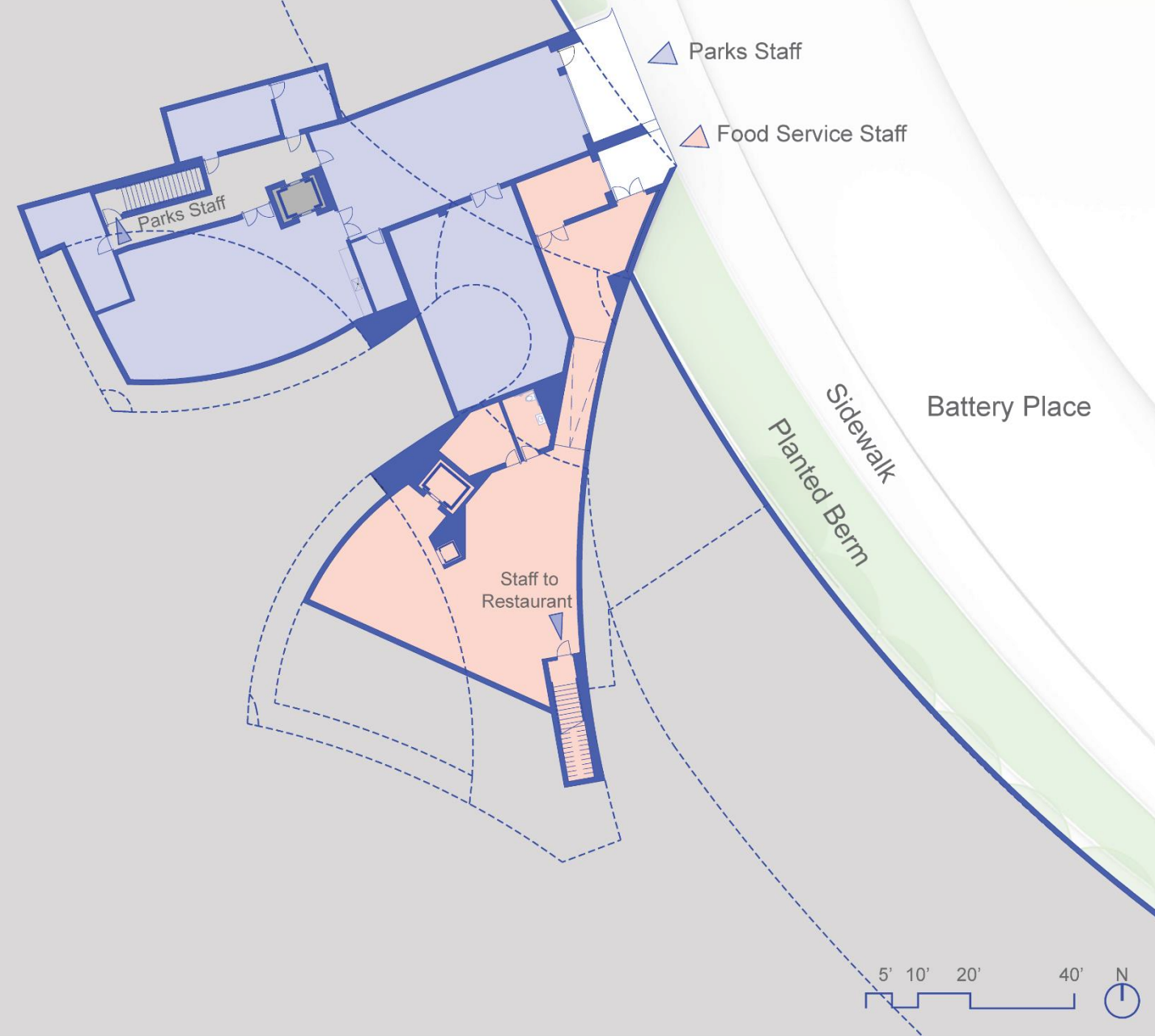


STREET LEVEL

-  Parks Support, Storage, Garage = 4,122 nsf
-  Food Service Kitchen, Trash = 2,308 nsf



-  Parks Staff
-  Food Service Staff

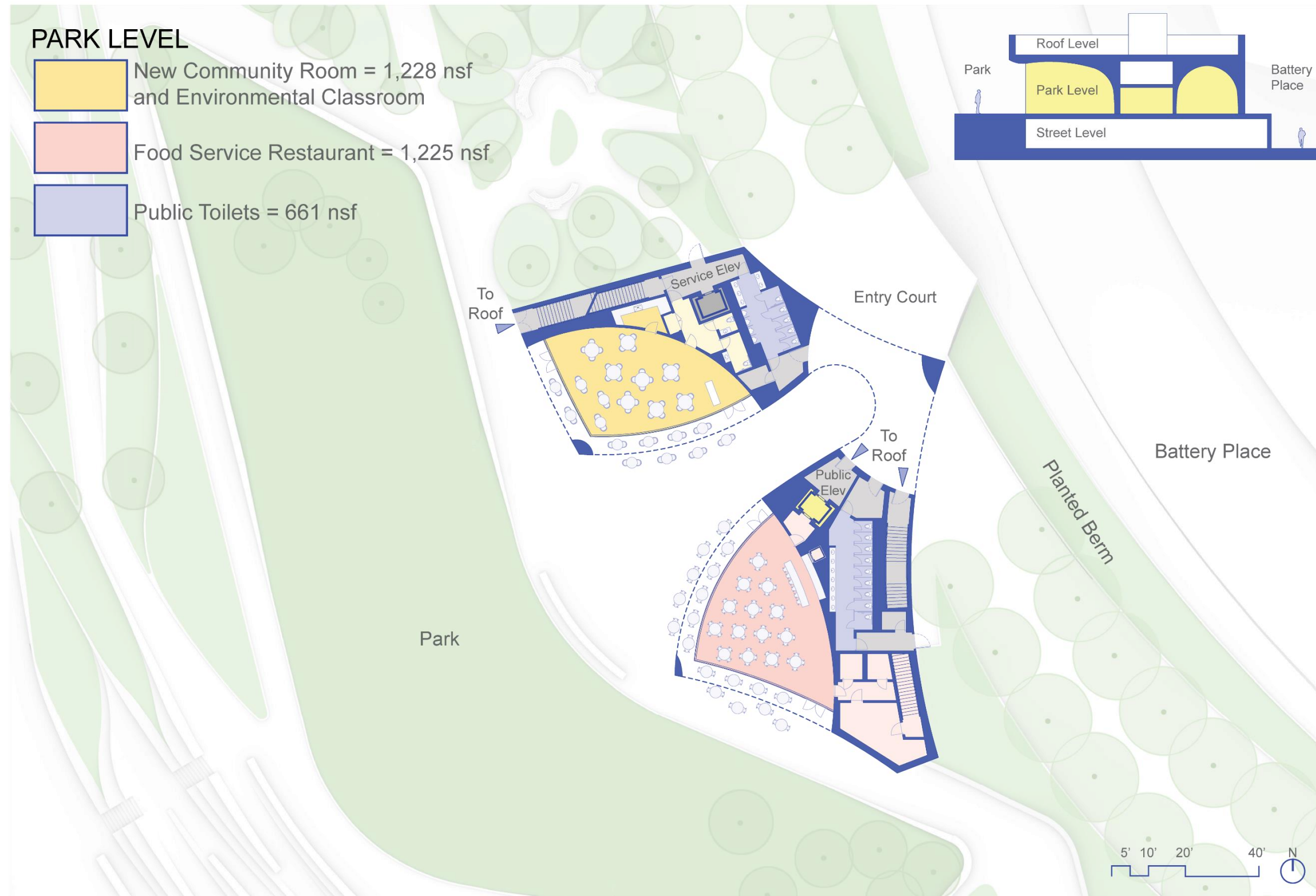
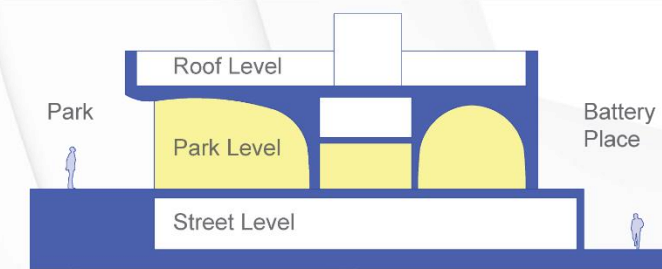


PARK LEVEL

 New Community Room = 1,228 nsf
and Environmental Classroom

 Food Service Restaurant = 1,225 nsf

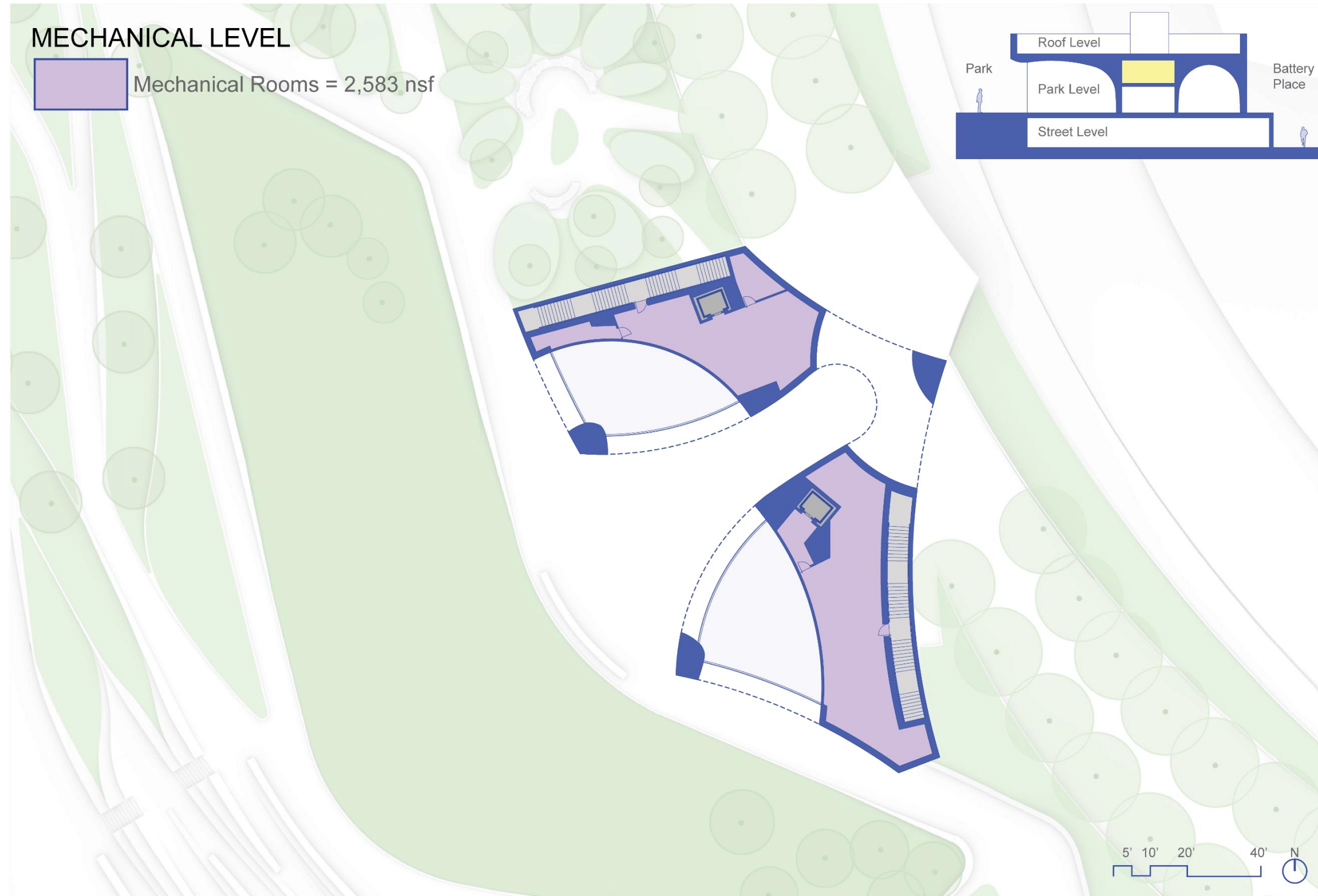
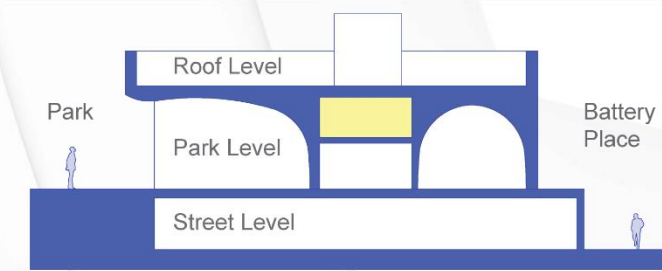
 Public Toilets = 661 nsf



MECHANICAL LEVEL



Mechanical Rooms = 2,583 nsf



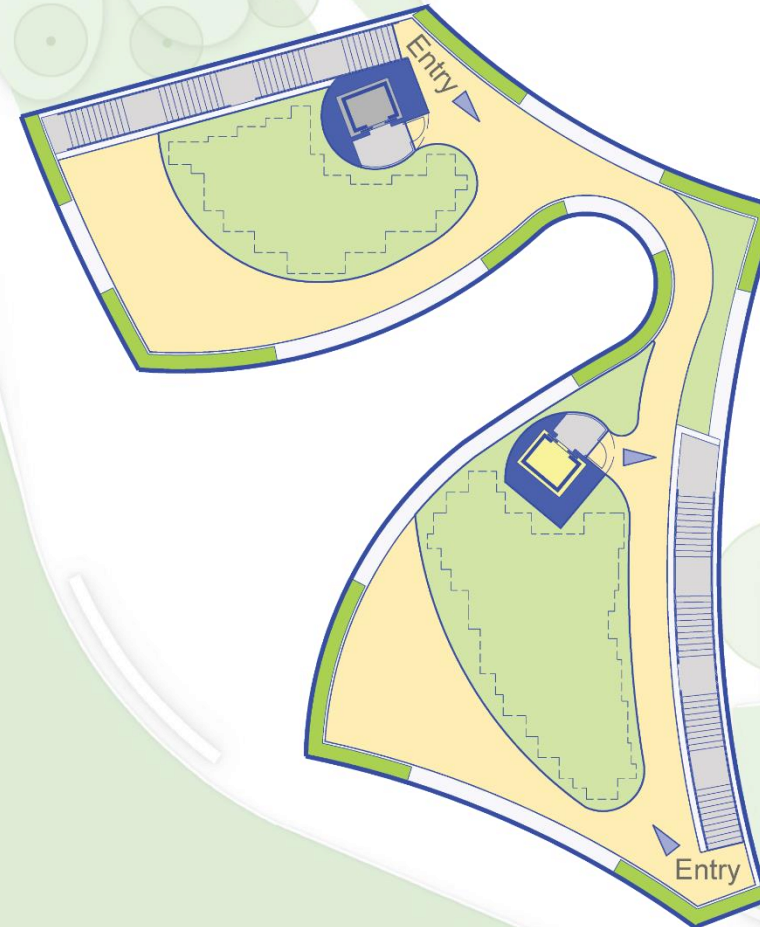
ROOF LEVEL

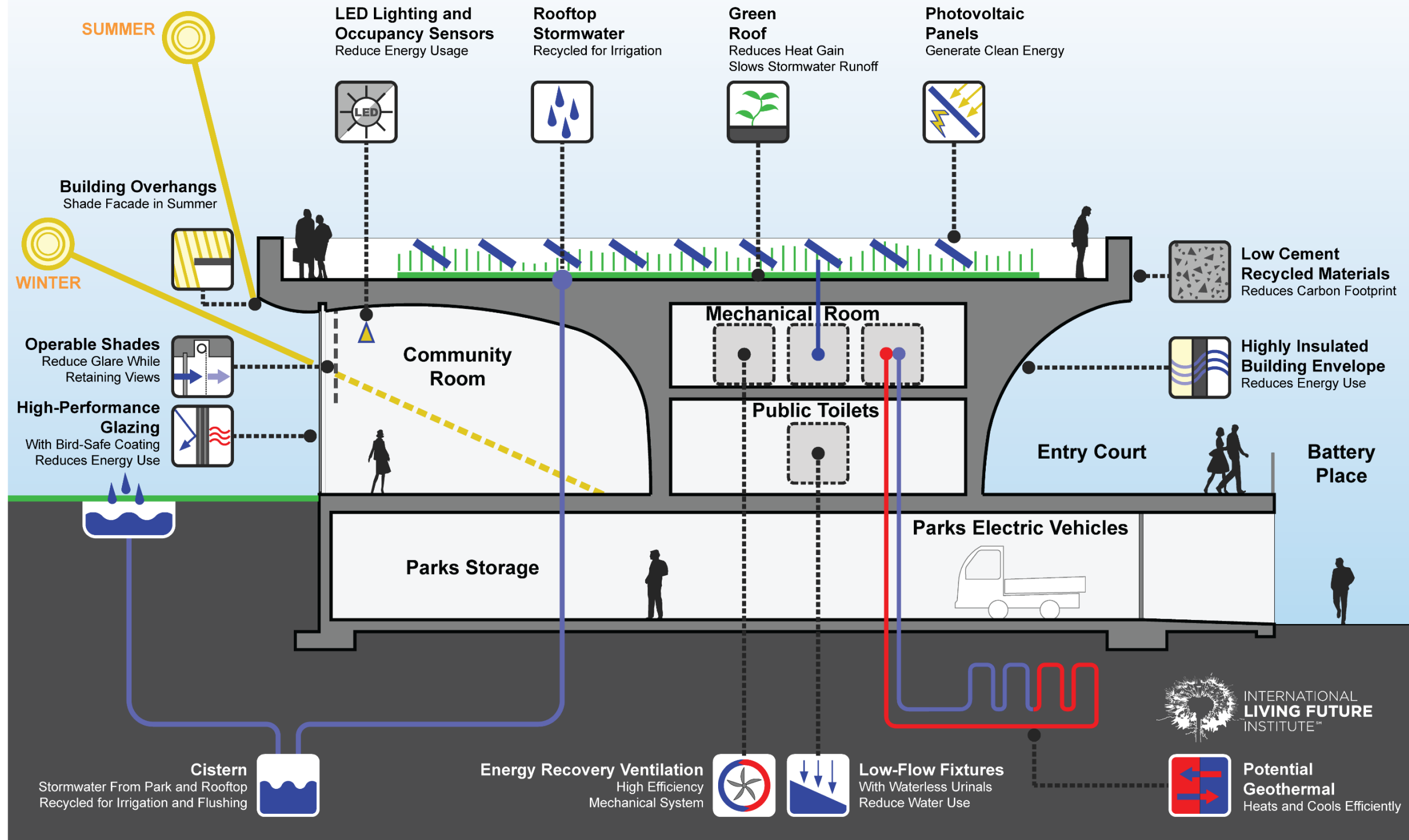


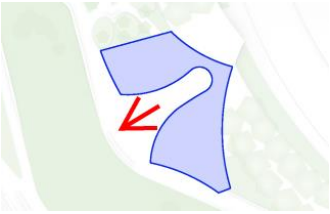
Green Roof With Photovoltaic Panels = 2,485 nsf



Public Roof Terrace = 2,960 nsf



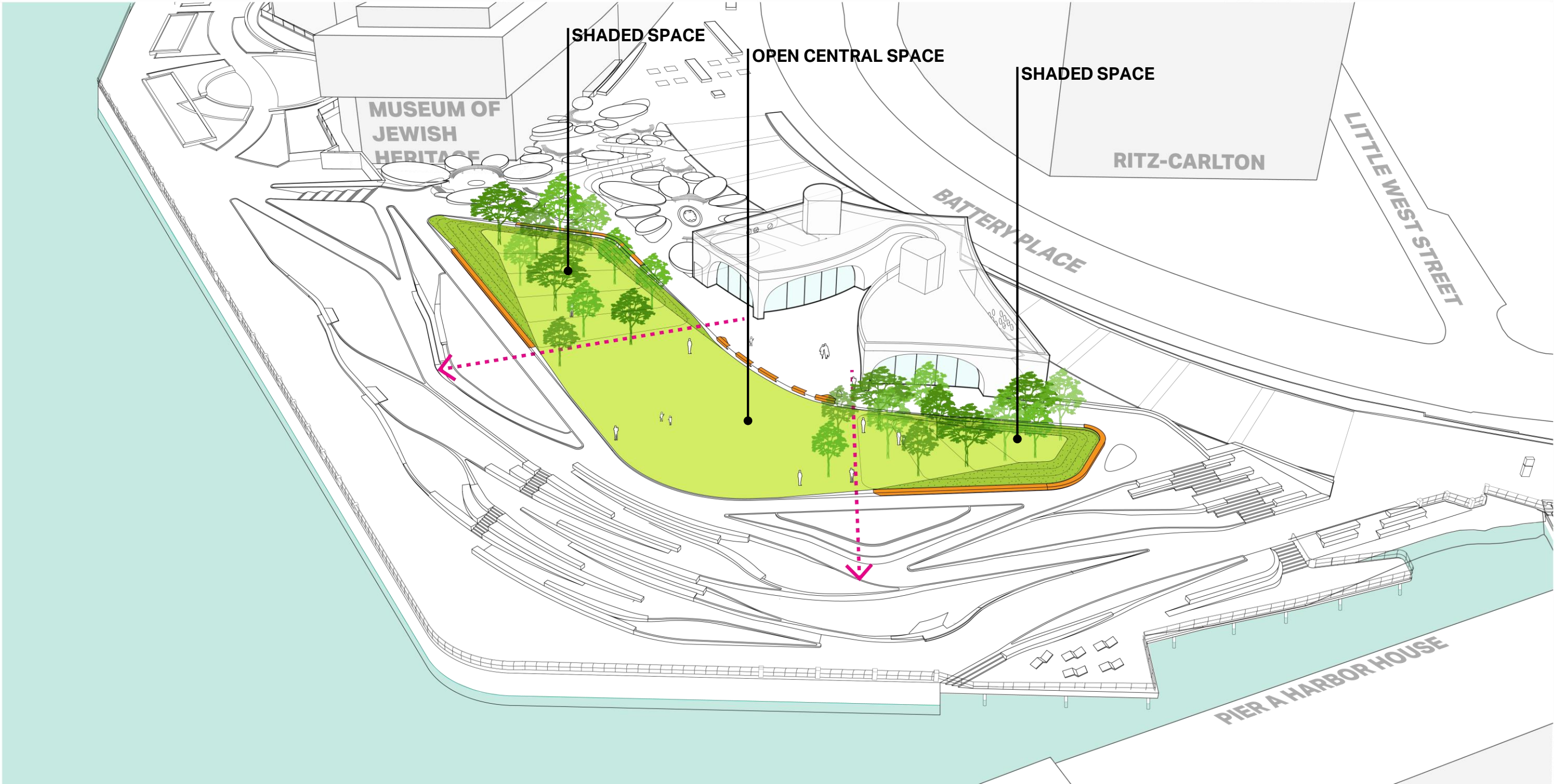




LOOKING OUT TOWARDS THE PARK

FRAME VIEW TO STATUE OF LIBERTY

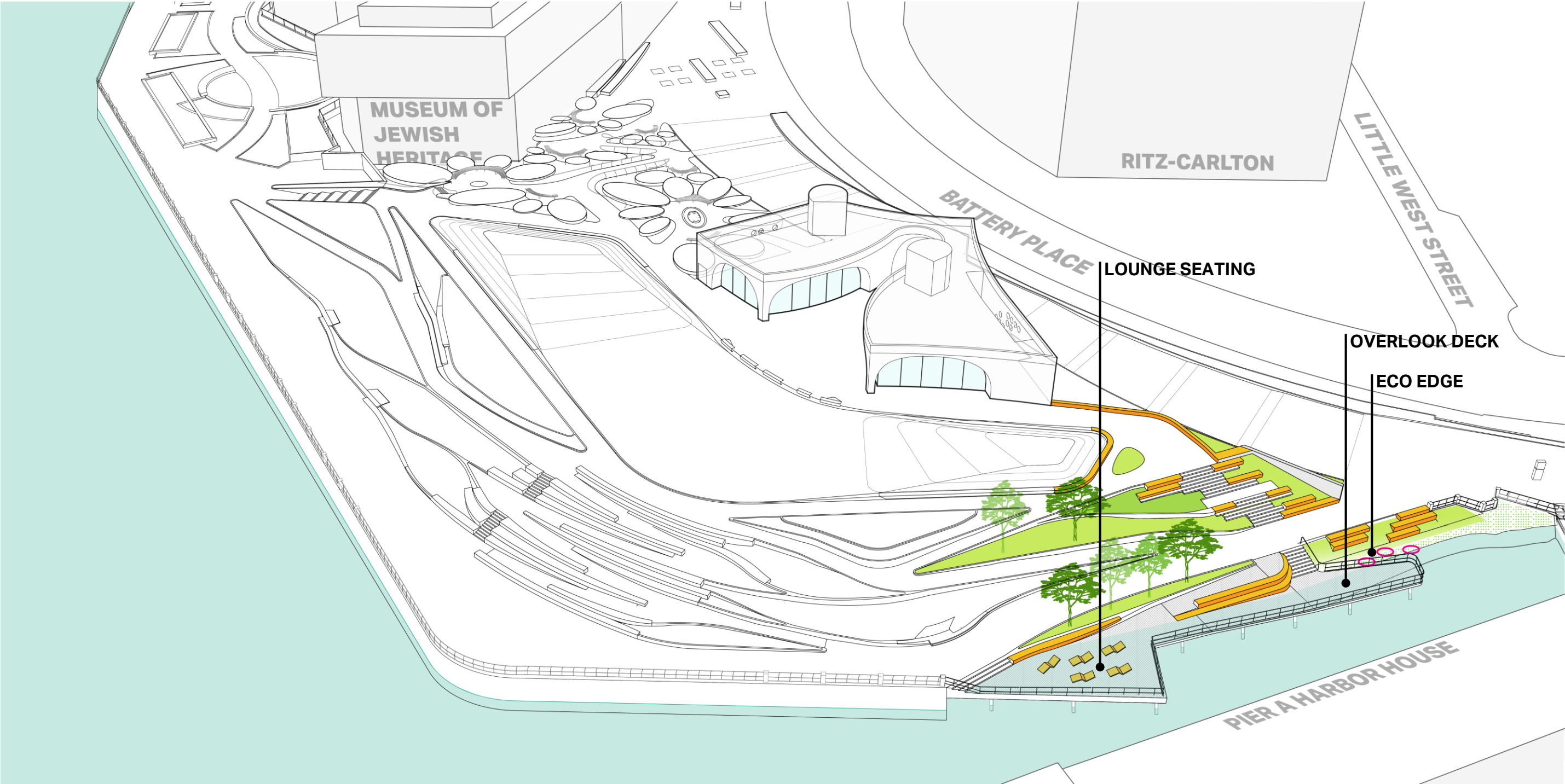
WAGNER PARK | CENTRAL LAWN







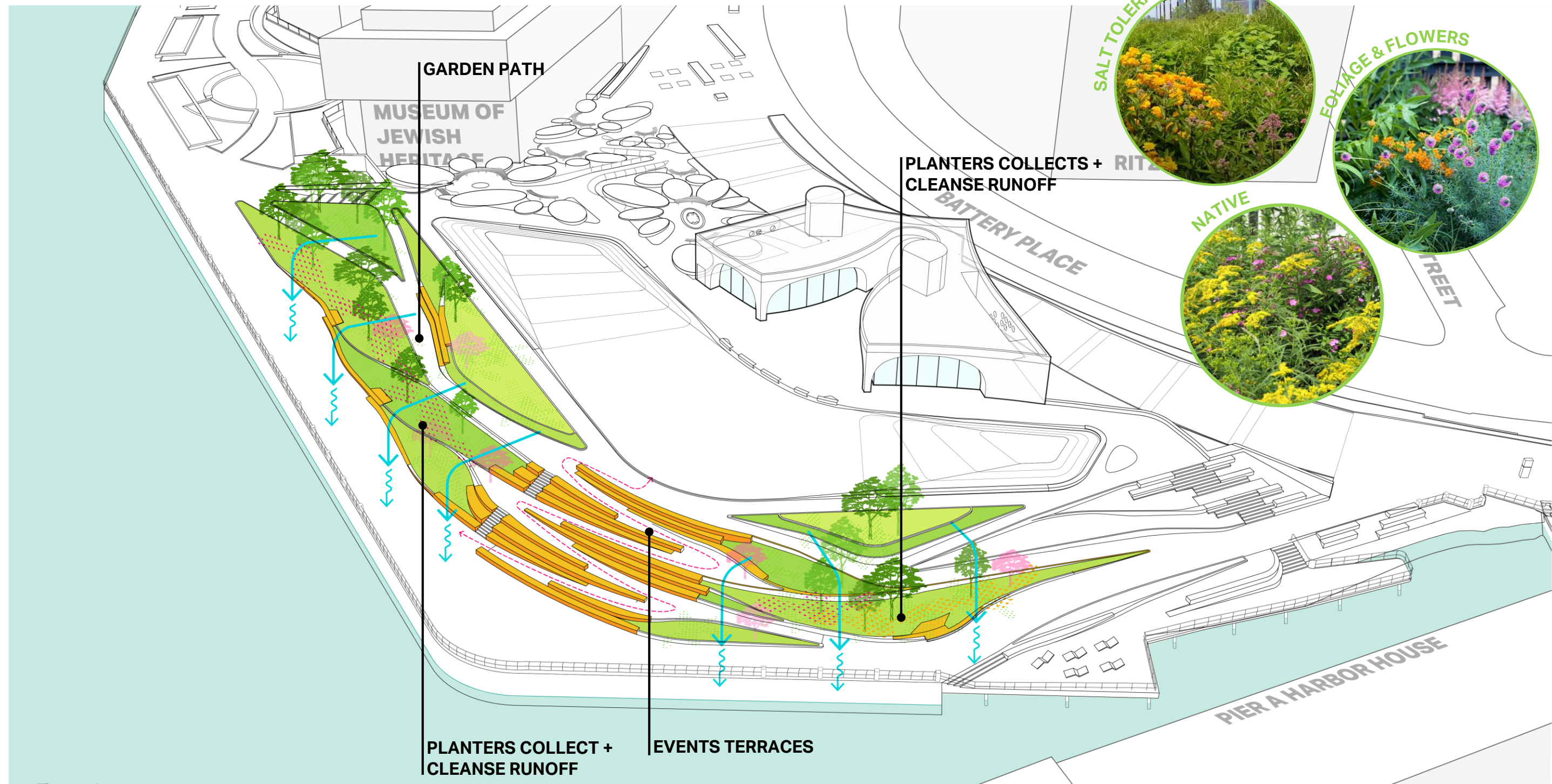
WAGNER PARK | PIER A INLET



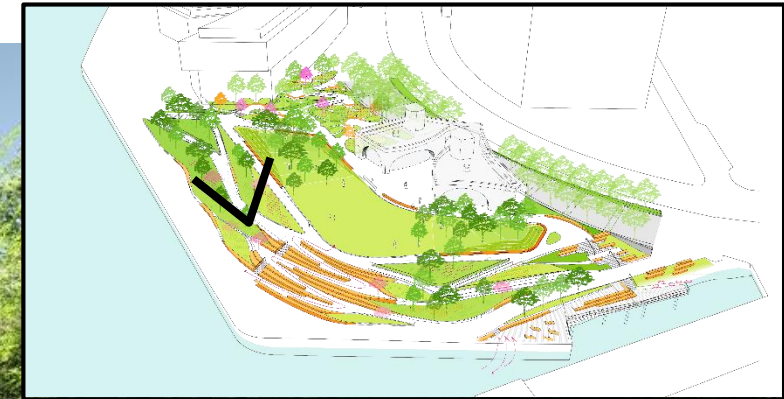




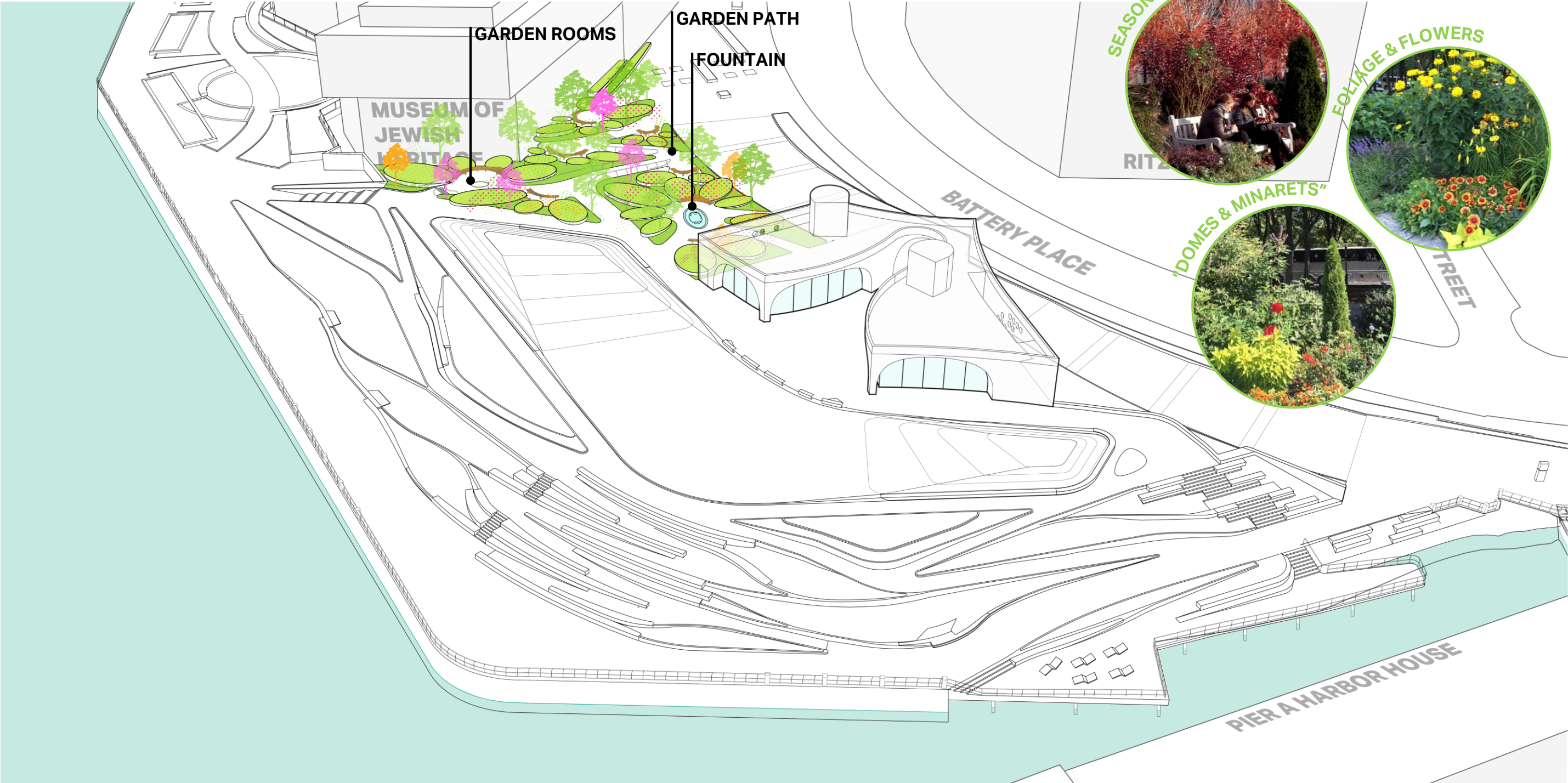
WAGNER PARK | PERFORMATIVE GARDENS







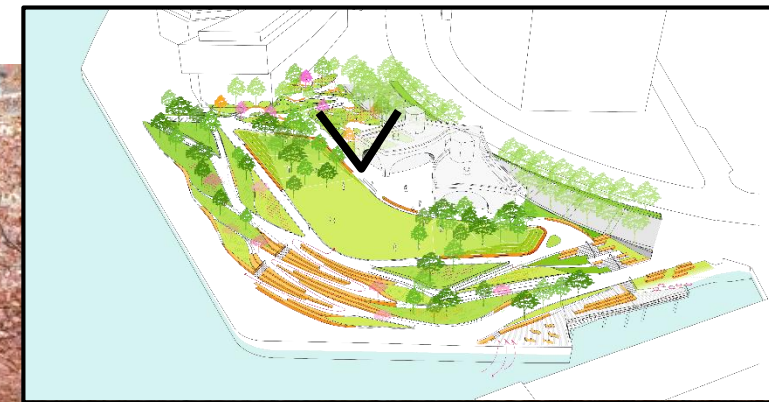
WAGNER PARK | NORTHERN GARDENS











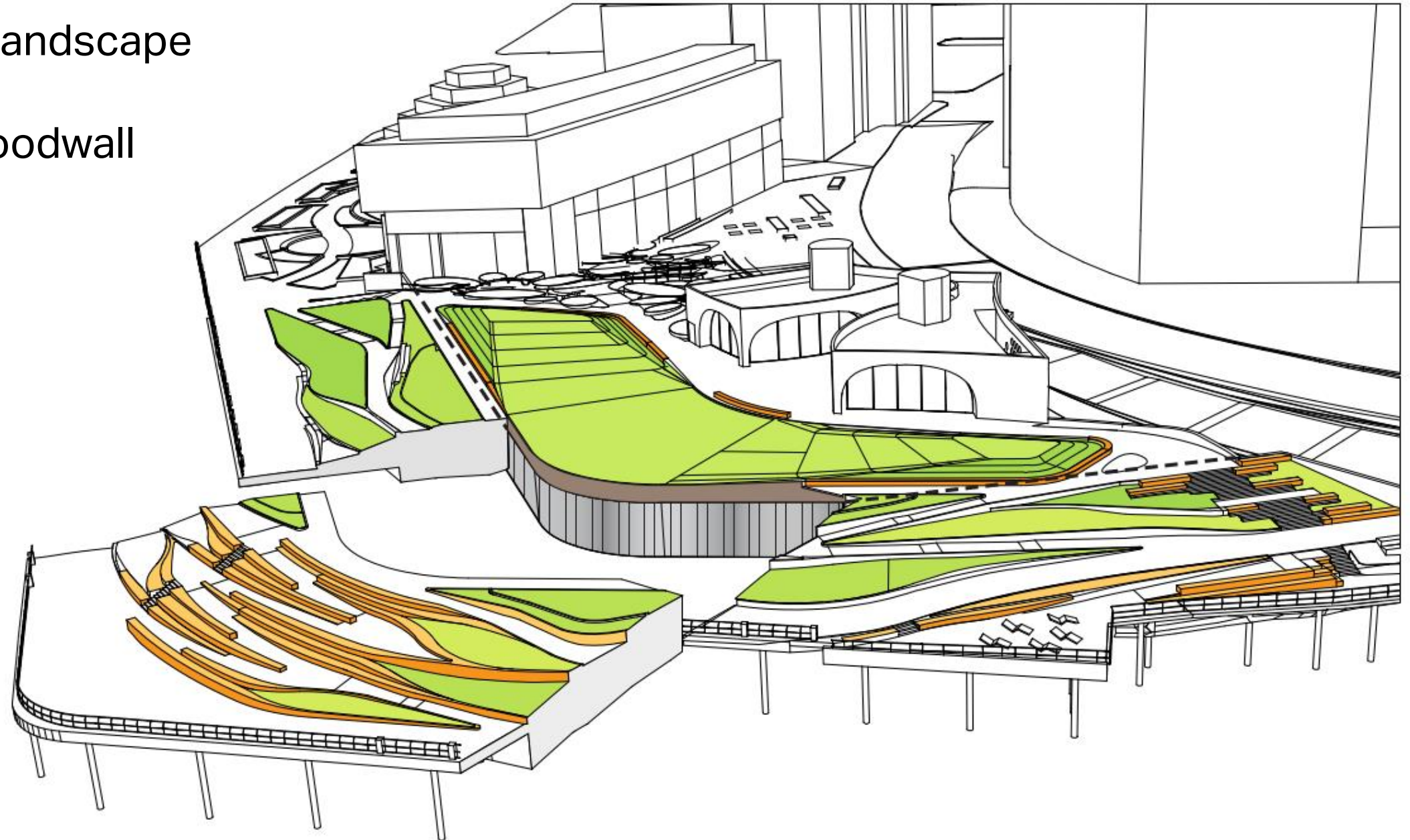
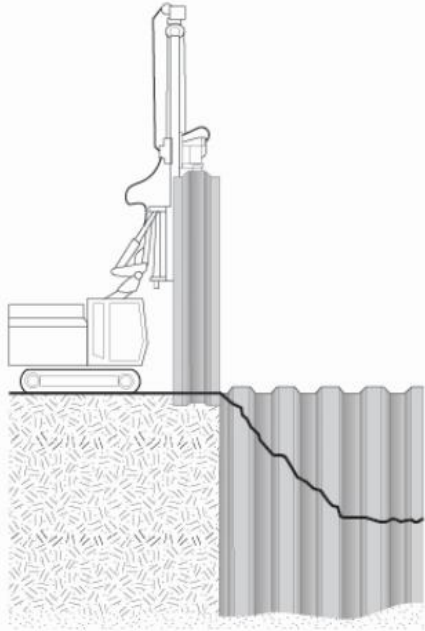


WAGNER PARK | STRUCTURAL ENGINEERING

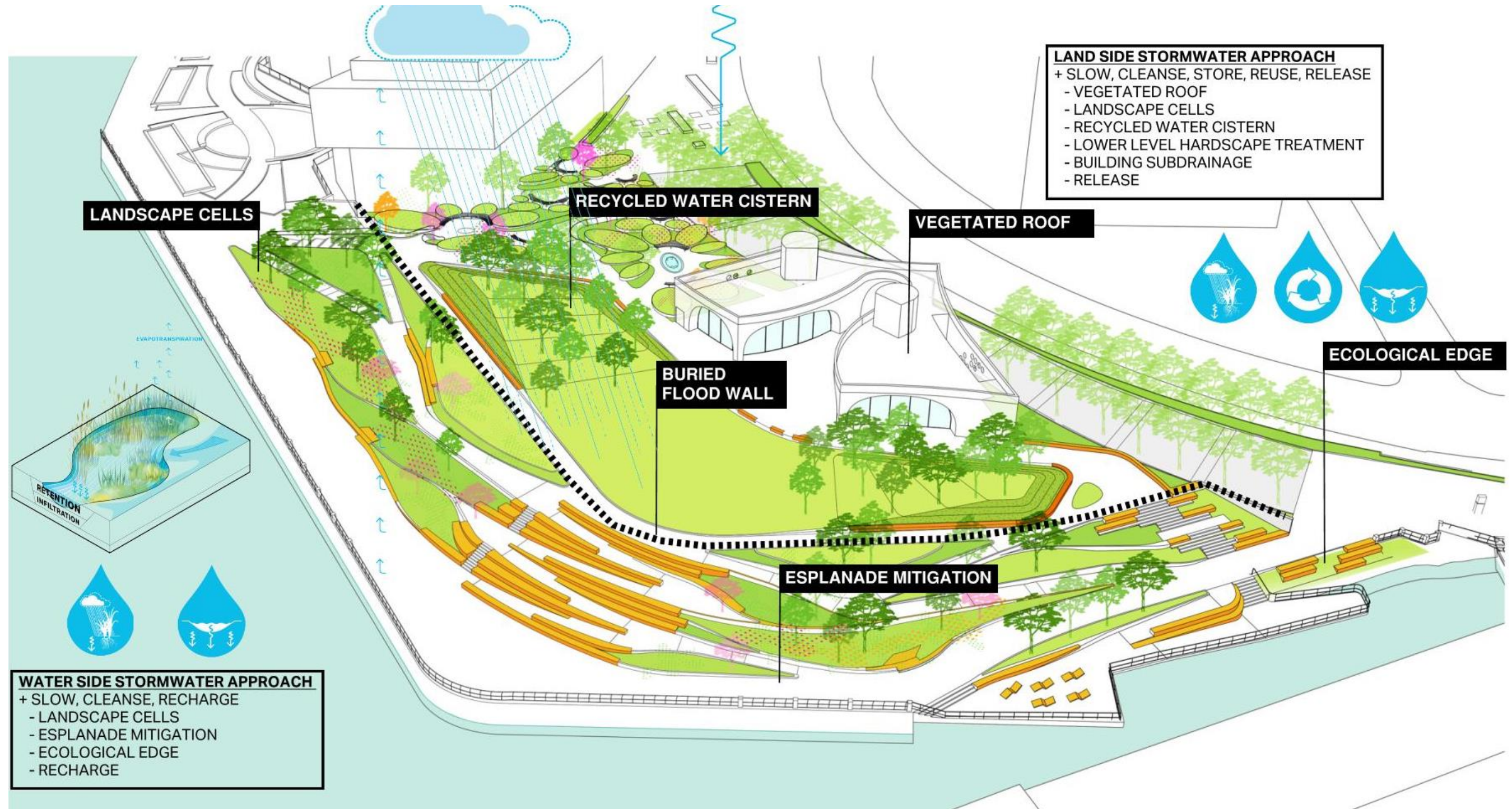
Challenge: Provide Passive Protection integrated into Landscape

Solution: Utilize a Buried Floodwall under the landscape

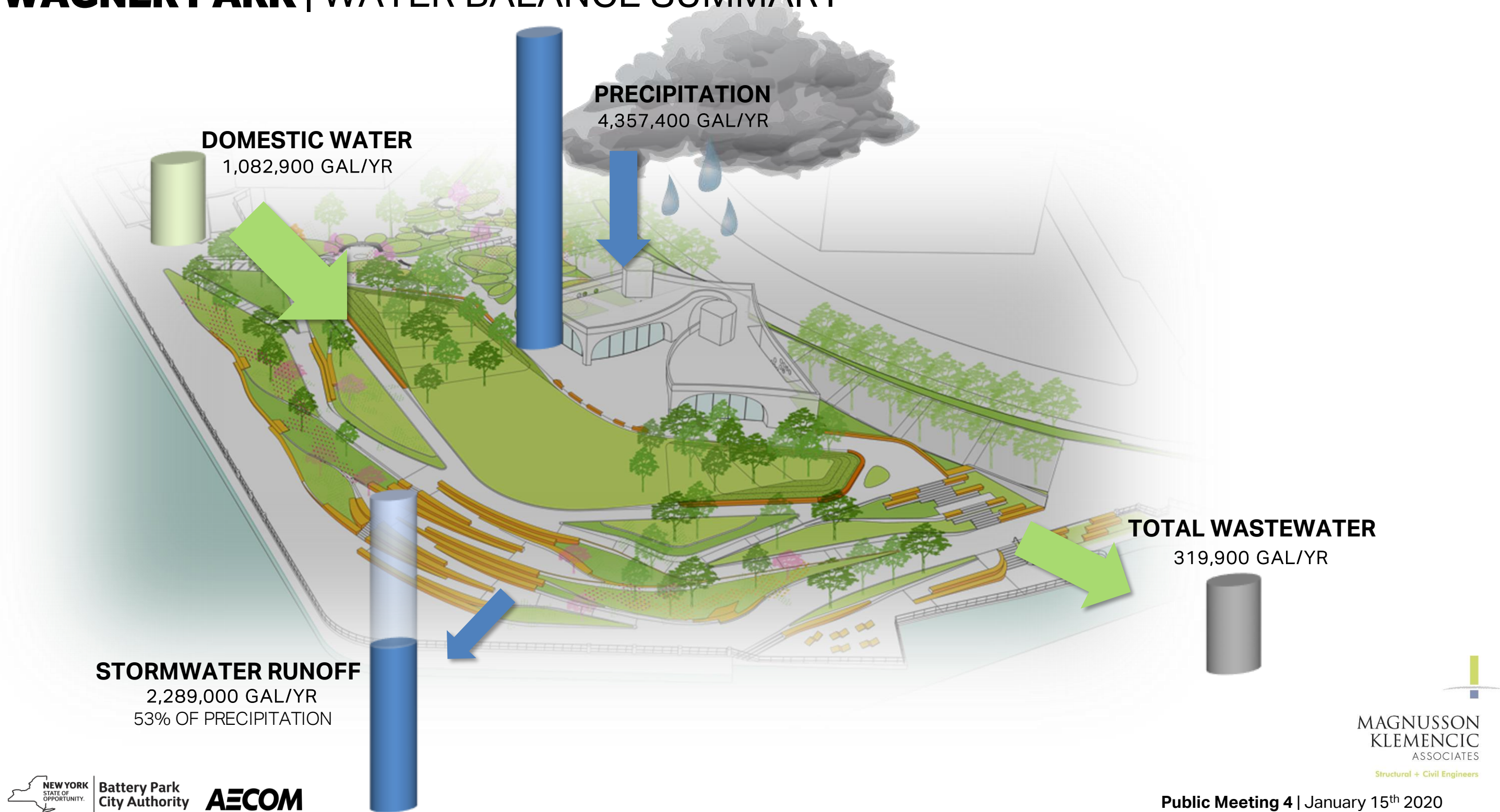
SHEET PILE



WAGNER PARK | STORMWATER MANAGEMENT APPROACH



WAGNER PARK | WATER BALANCE SUMMARY



WAGNER PARK | WATER BALANCE SPECIFICS

- WATER FEATURE 1%
- SITE WASH DOWN 0.2%
- POTABLE 12%
- FLUSH 9%
- MECHANICAL 9%
- IRRIGATION 68%

DOMESTIC WATER
1,082,900 GAL/YR

PRECIPITATION
4,357,400 GAL/YR

EVAPOTRANSPIRATION
23% OF PRECIPITATION

LOSSES & IRRIGATION
79% OF POTABLE WATER

CONDENSATE
87,600 GAL/YR

TOTAL WASTEWATER
319,900 GAL/YR

STORMWATER RUNOFF
2,289,000 GAL/YR
53% OF PRECIPITATION
57% OF RUNOFF UNCAPTURABLE
43% OF RUNOFF CAPTURABLE

INFILTRATION
25% OF PRECIPITATION

INITIAL WASTEWATER
21% OF POTABLE WATER

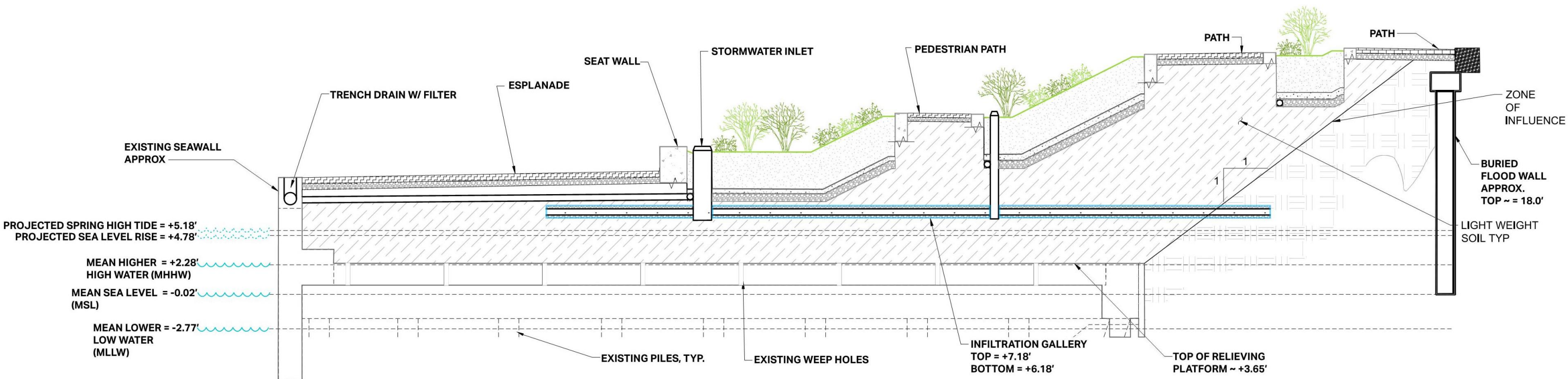
- BLACK WATER 65%
- GREYWATER 28%
- BLOWDOWN 7%

SUPPLIES	VOLUME (GAL/YR)
STORMWATER RUNOFF	987,800
CONDENSATE	87,600
GREYWATER	63,800
BLACK WATER	151,600
TOTAL	1,220,100

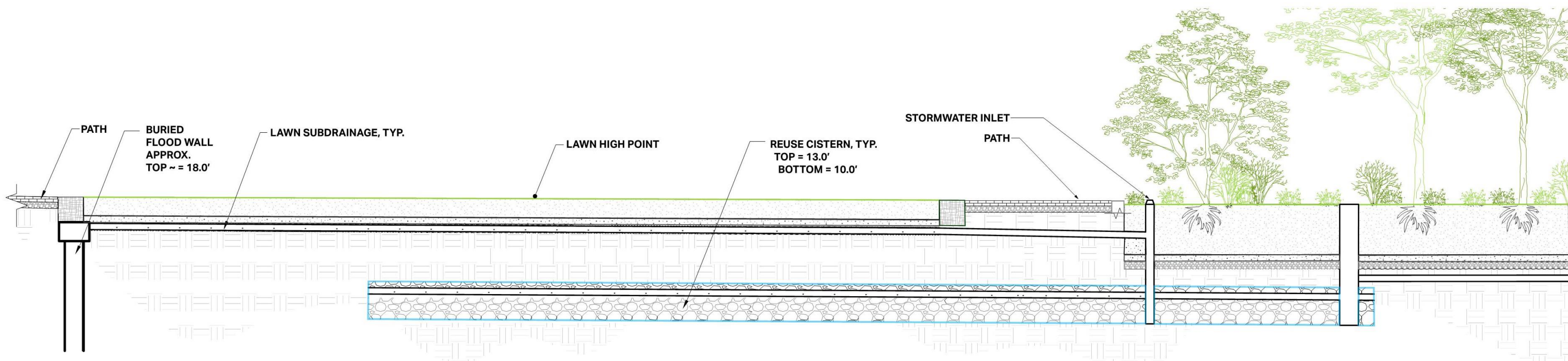
DEMANDS	VOLUME (GAL/YR)
SITE WASH DOWN	1,800
IRRIGATION	736,100
FLUSH	99,200
MECHANICAL	102,500
TOTAL	939,600



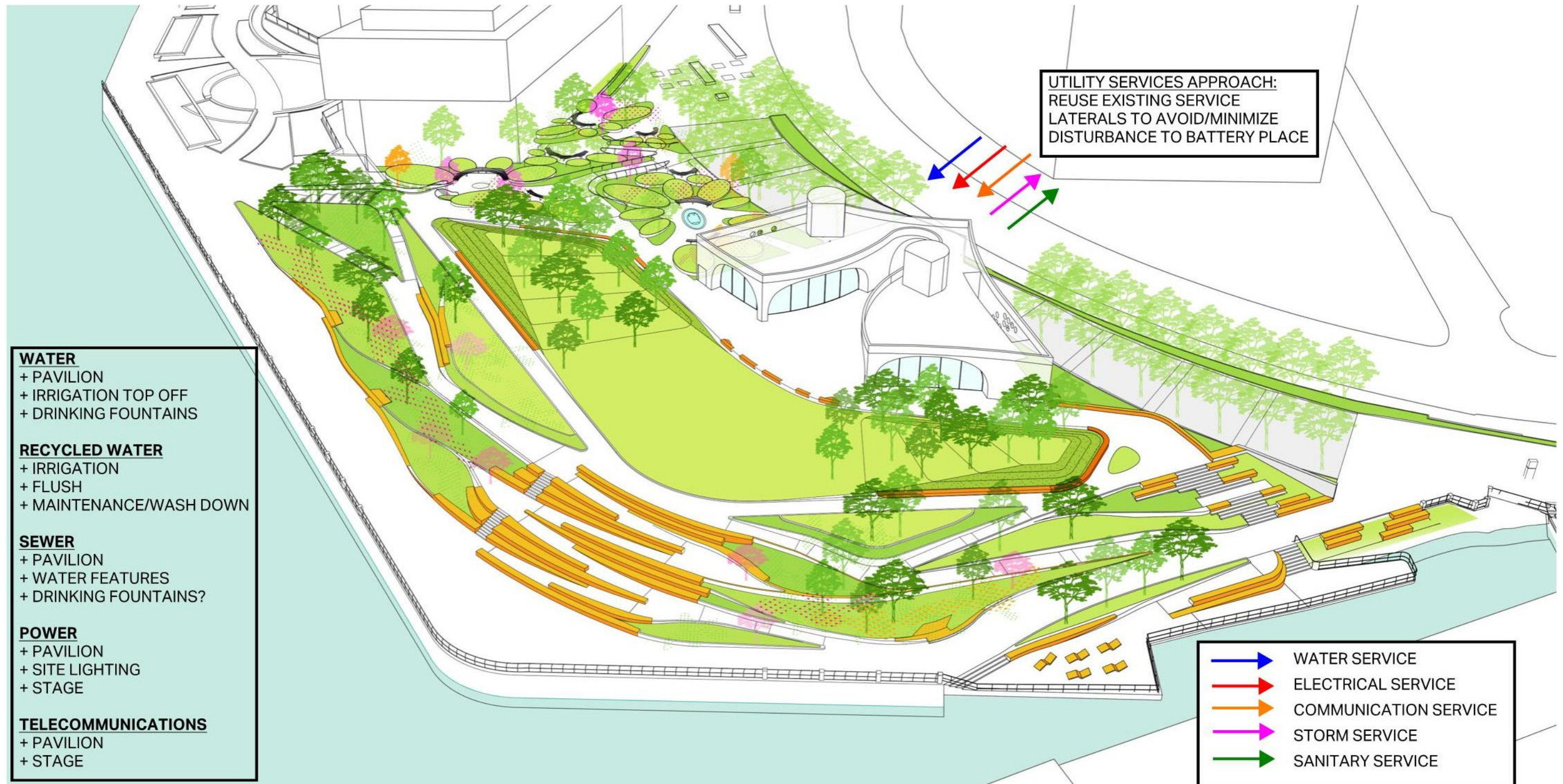
WAGNER PARK | WATER SIDE SECTION



WAGNER PARK | LAND SIDE SECTION



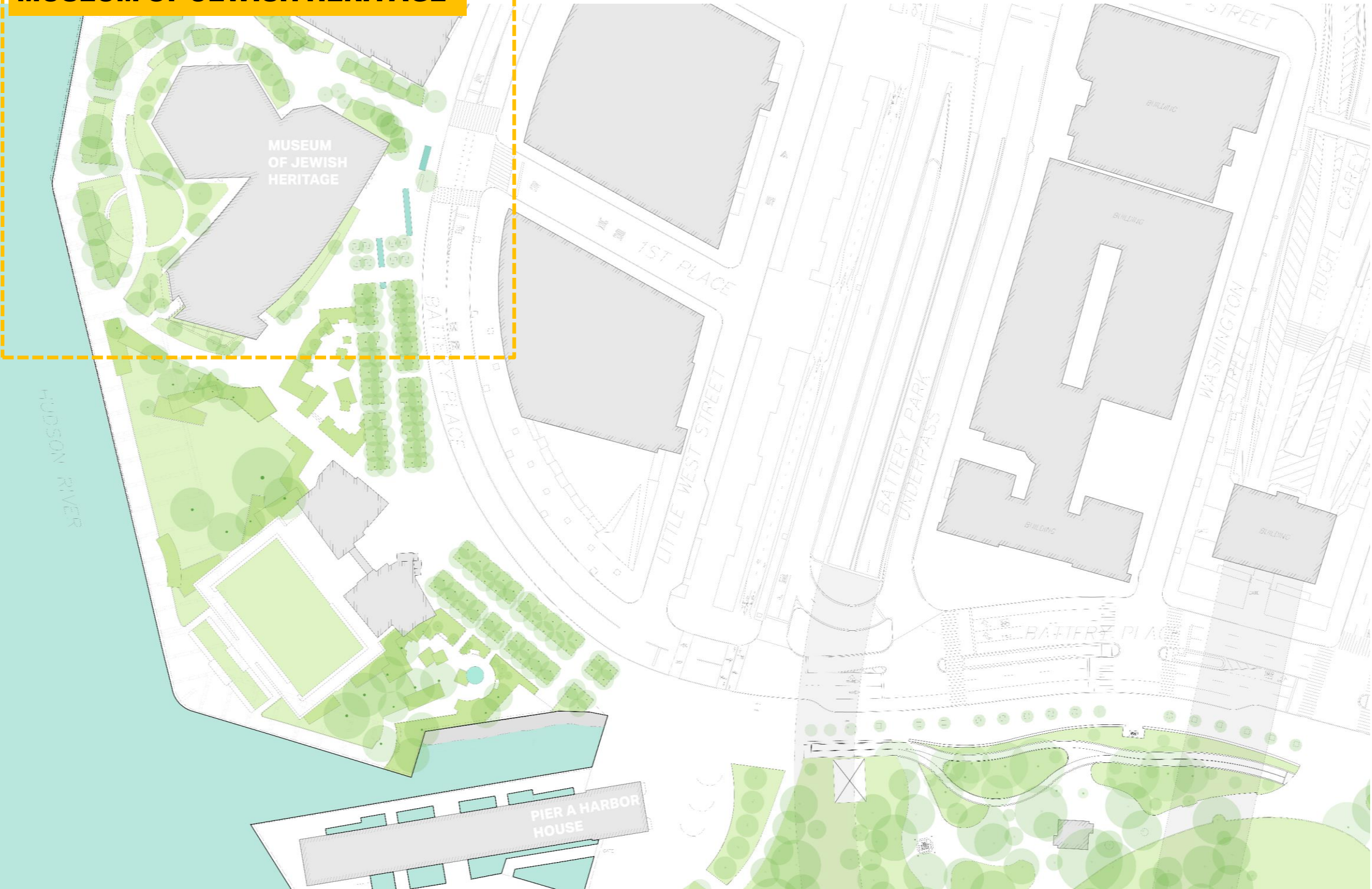
WAGNER PARK | UTILITY PROVISIONING



MUSEUM OF JEWISH HERITAGE

THE SITE

MUSEUM OF JEWISH HERITAGE



MUSEUM OF JEWISH HERITAGE | EXISTING CONDITIONS



PATHWAYS



LUSH PLANTING



ENTRANCE PLAZA

MUSEUM OF JEWISH HERITAGE | EXISTING CONDITIONS

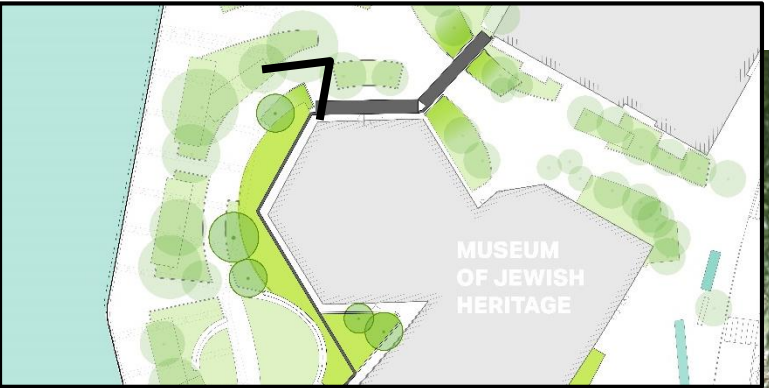


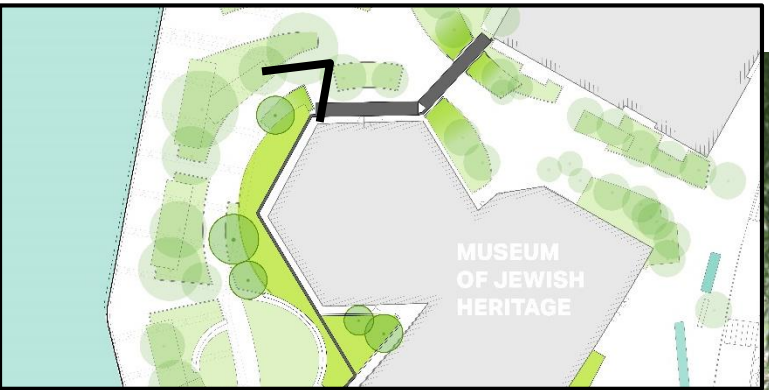
MUSEUM OF JEWISH HERITAGE | PROPOSED DESIGN

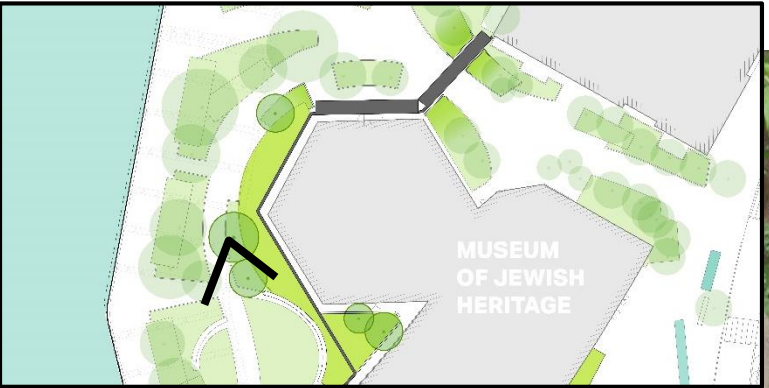


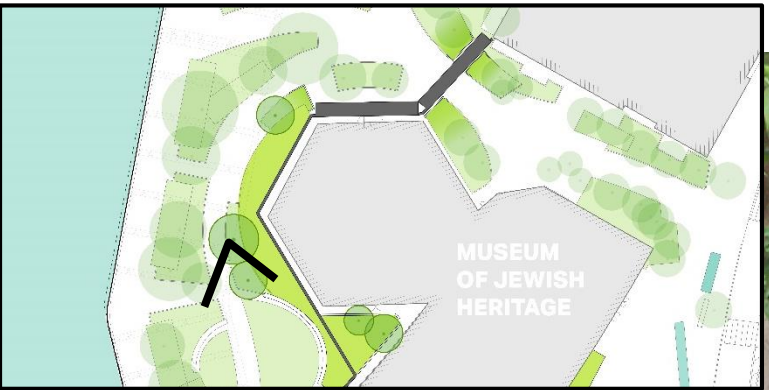
MUSEUM OF JEWISH HERITAGE | PROPOSED DESIGN





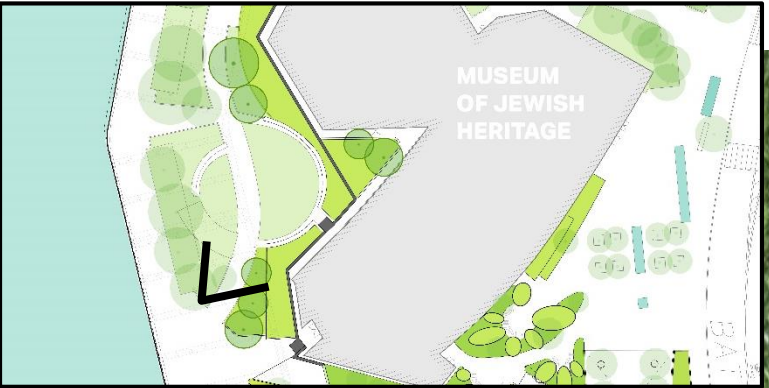










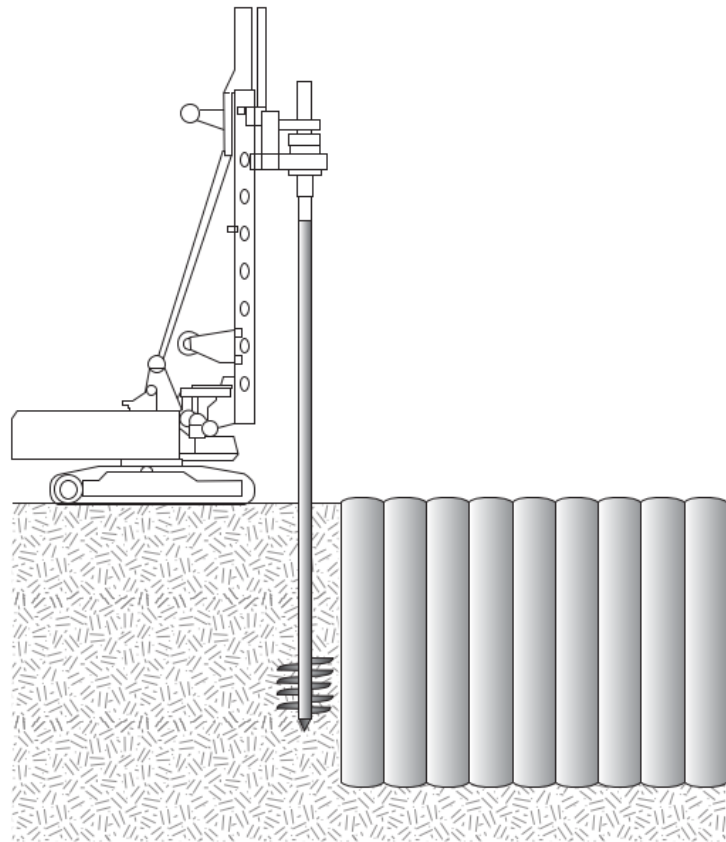




MUSEUM OF JEWISH HERITAGE | STRUCTURAL ENGINEERING

Challenge: Proximity to building and relieving platform

Solution: Utilize a foundation with a small footprint that can also serve as a seepage barrier



Challenge: Maintaining views to and from building

Solution: Utilizing Floodproof Glass where possible

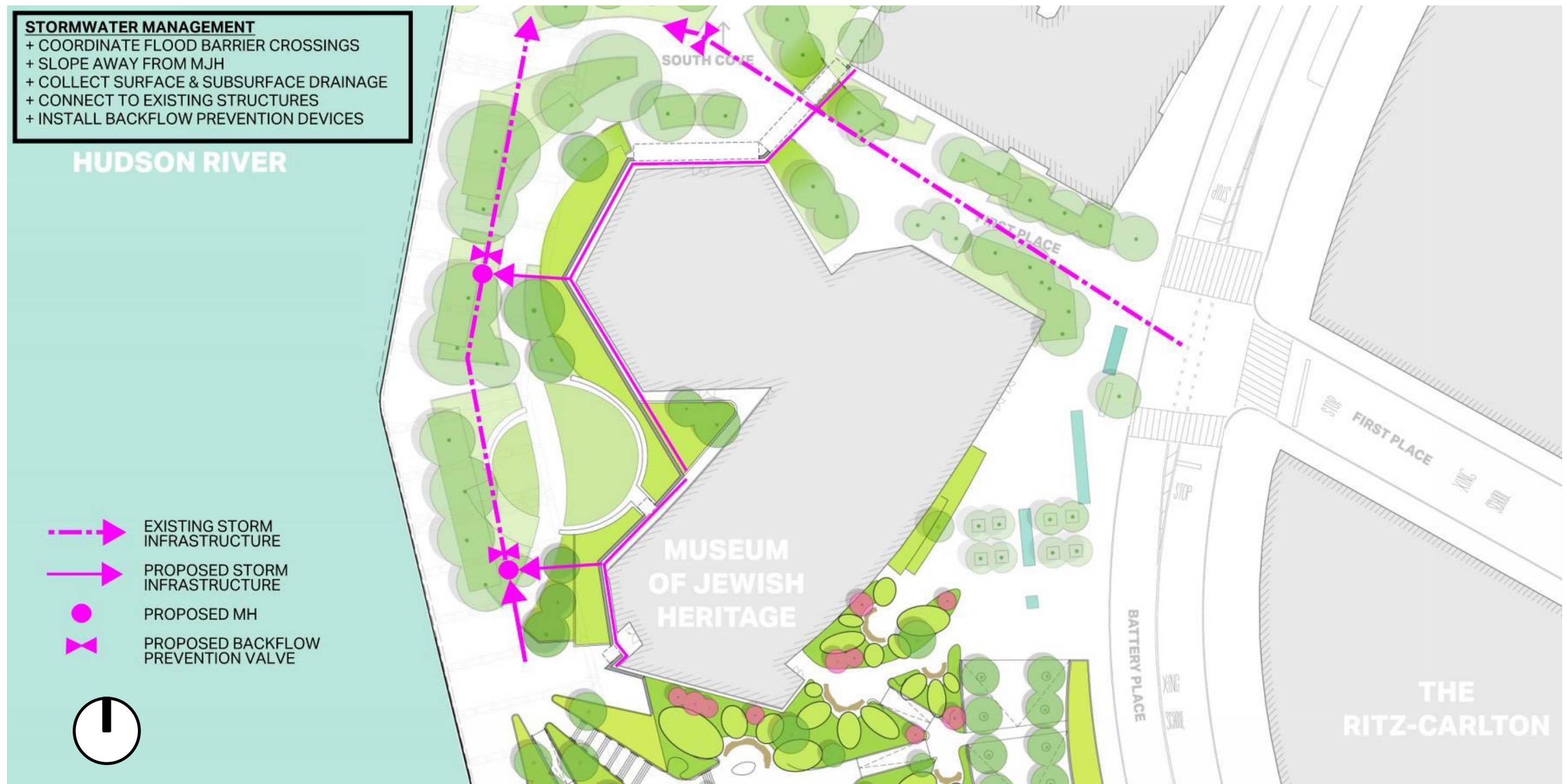


FIRST PLACE | STRUCTURAL ENGINEERING



FLIP UP GATE – DEPLOYED POSITION

MUSEUM OF JEWISH HERITAGE | STORMWATER MANAGEMENT APPROACH



MUSEUM OF JEWISH HERITAGE | UTILITY PROVISIONING





Wagner Park, Museum of Jewish Heritage, and 1st Place

Q&A

THANK YOU!

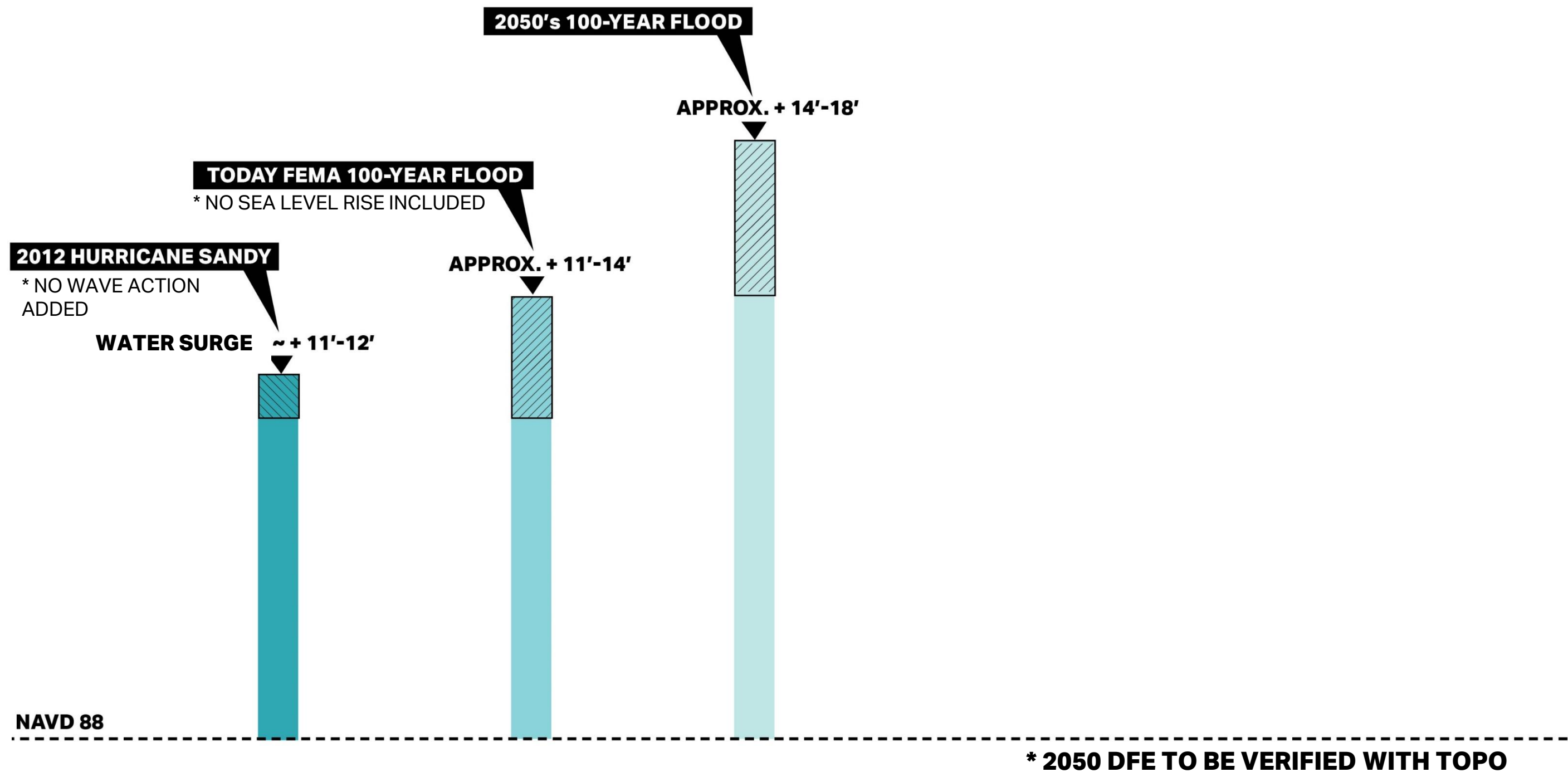
PLEASE ADDRESS COMMENTS BY **JANUARY 29**
TO

sbpcr@bpca.ny.gov

**** Presentation and video of presentation will be available
online post this meeting for reference**

BACKUP SLIDES

DESIGN FLOOD ELEVATION (DFE) COMPARISON



WAGNER PARK |

