

Union Pier

Planned Unit Development

Charleston, South Carolina

January 30, 2023

Applicant:

Barbara Melvin, CEO

South Carolina Ports Authority

200 Ports Authority Dr.

Mt Pleasant, SC 29464

Contact:

Randolph R. Lowell

Burr Forman, LLP

115 Fairchild St, Suite 300

Daniel Island, South Carolina 29492

Union Pier
Planned Unit Development
Charleston, South Carolina

1. Relationship to Zoning Ordinance
2. Introduction and Background Information
 - 2.1. Background and Ownership
 - 2.2. Current Zoning
 - 2.3. Development Goals
 - 2.4. Workforce Housing
3. Land Use
 - 3.1. Area Breakdown
 - 3.2. Net Density and Calculations
 - 3.3. Adequate Public Facilities
4. Zoning Criteria
 - 4.1. Development Standards
 - 4.2. Permitted Uses; Hours
 - 4.2.1 Excluded Uses
 - 4.3. Parking Standards
5. Open Space
 - 5.1. Open Space Requirements
 - 5.2. Open Space Types
6. Buffers
7. Tree Summary
8. Right-Of-Way
9. Drainage Basin Analysis
 - 9.1. Flood Zone
 - 9.2. Existing Topography and Drainage
 - 9.3. Wetlands Verification
 - 9.4. Preliminary Stormwater Techniques
10. *[RESERVED for Traffic Study consideration upon request by staff].*
11. Cultural Resources Study
12. Letters of Coordination
13. Additional Information
 - 13.1. Union Pier Conceptual Master Plan

Appendix

A. Figures

1. Master Plan in Context
2. Master Plan
3. Land Use Plan
4. Detailed Land Use Plan
5. Height District Plan
6. Open Space Plan
7. Green Infrastructure Plan
8. Resilient Infrastructure Plan
9. Pedestrian and Bicycle Circulation Plan
10. Street Types Plan
11. Street Type Sections

B. *[RESERVED for consideration of Traffic Models upon request by Staff]*.

C. Cultural Resources Study

D. Letters of Coordination

E. Survey

F. Additional Drawings

- Exhibit 1: Location Map
- Exhibit 2: Aerial
- Exhibit 3: Project Parcels
- Exhibit 4: Existing Conditions
- Exhibit 5: Regional Drainage Map
- Exhibit 6: Site Drainage Map
- Exhibit 7: Proposed Conditions
- Exhibit 8: FEMA Flood Maps
- Exhibit 9: Green Infrastructure Street Diagrams

Section 1: Relationship to Zoning Ordinance

The Development Guidelines and Land Use Plan for the Union Pier Planned Unit Development (PUD), attached hereto and made a part hereof, are part of the Union Pier PUD Master Plan application submitted in accordance with the Zoning Ordinance of the City of Charleston, Article 2, Part 7 Sections 54-250, *et seq.* The Zoning Ordinance of the City of Charleston and comprehensive plan for the Union Pier site, both in effect as of [DATE] are incorporated herein by reference, except as modified or amended herein, notwithstanding future amendments of the Zoning Ordinance. The Union Pier PUD is submitted in recognition and pursuit of the following land use conditions, objectives, and intents:

- a. As to consistency with the prevailing comprehensive plan for the subject site, the Charleston City Plan, the land included in the Union Pier PUD was identified as a “Future Planning Area” and reserved for consideration in a successive ordinance as permitted by Section 6-29-530. The property is currently zoned Light Industrial, which is not consistent with a City Center designation;
- b. Consistency with the goals of the Charleston City Plan and all adopted plans for the subject property than the current zoning and designated land use, as the PUD tailors the uses and plans to better meet the community’s input and serve its needs;
- c. Consistency with the City’s adopted master road plan, as modeled herein;
- d. Protection and preservation of natural and cultural resources, resulting in more open space, better urban connection to the Charleston waterfront, and more compatible uses with neighboring properties;
- e. Compatibility with the density and maximum building height of adjacent developed neighborhoods, by adjusting the height from the maximum currently allowed and considering the height of other nearby uses, heights, and densities;
- f. Creating connectivity with the existing network of public streets in adjacent neighborhoods and areas by including provisions for public and private connections;
- g. Providing for adequate parking for residents and users;
- h. Confirming accommodation by existing and planned public facilities including but not limited to, roads, sewer, water, schools, and parks as is evidenced by the coordination letters, newly proposed open space, and traffic study to the extent requested by the City;
- i. Providing for new public facilities, including open space and recreational amenities, as well as locations for other governmental services;
- j. Adequately providing for the continued maintenance of common areas, open space, and other public facilities both dedicated and not dedicated to the City by making the latter, non-dedicated areas, space, and facilities an obligation of future property owners; and
- k. Providing for a mixture of residential, commercial, open space, recreation, and other uses.

No person shall erect or alter any building, structure, or sign on any tract of land or use any tract of land within the Union Pier PUD except in conformance with these guidelines and regulations. Unless modified herein, definitions of terms used in the Union Pier PUD Development Guidelines shall follow definitions listed in the Zoning Ordinance of the City of Charleston, as of [DATE]. Administration and enforcement of the adopted Union Pier PUD Master Plan shall follow Article 9 of the Zoning Ordinance of the City of Charleston.

The Union Pier PUD Master Plan was approved by Charleston City Council on _____,
Ordinance Number _____.

Section 2: Introduction and Background Information

2.1 Background and Ownership

The South Carolina State Ports Authority (Ports Authority), established by the State’s General Assembly in 1942, owns and operates the Port of Charleston, which includes the Union Pier Terminal, where the Union Pier PUD is proposed to be located. In pursuit of its statutory mission to develop, improve, and operate the harbors and seaports within the State to increase water-borne commerce, the Ports Authority has successfully and significantly contributed to the State’s economy and workforce. For instance, as an economic development engine for the State, the Ports Authority’s operations facilitate 1 in 10 jobs across the State—and over \$63 billion in yearly economic activity—based on recent third party studies.

As it relates to the Union Pier site, the Ports Authority has owned portions of the land comprising Union Pier for decades. Collectively, this land includes ten (10) parcels totaling approximately 64.14 acres, which is comprised of approximately 36.33 acres of highland (56.64%), 7.31 acres of open water and marsh (11.40%), and 20.5 acres of docks and piers (31.96%).

As a part of the Peninsula of Charleston, the property at Union Pier represents a significant portion of the City’s varied and complex waterfront history that began long before it officially became Union Pier Terminal. Beginning in the late 1700s, the City of Charleston began filling the former creek beneath the current Market Street to create additional land to support dock and wharf space extending beyond East Bay Street toward the Cooper River. Pushing the Peninsula’s mainland closer to the harbor created a larger footprint for local industries, large and small, to utilize wharves and docks to move goods that included rice, indigo, tobacco, cotton, phosphate, and fresh seafood, among other items. The Bennett Rice Mill façade, which is located on the Union Pier site and is proposed to be incorporated into open space in the Union Pier PUD, is a testament to and reminder of the site’s historical industries and proximity to the water. That same proximity to the water also made Charleston a major port of entry for the international slave trade. Notably, a significant portion of all African-American enslaved persons that were transported to the United States were carried on ships that arrived at Gadsden’s Wharf, the current site of the International African American Museum, which is adjacent to and connects with the Union Pier property along the waterfront.

Furthermore, given the significant contemporary demand for residential and commercial uses of property on the Charleston Peninsula, coupled with the increase in the cost and lack of availability of both housing and commercial space throughout the City, it is submitted that the highest and best use of this site will be a mixed-use community, developed as an extension of the surrounding areas and waterfront on the Charleston peninsula. The current Light Industrial zoning on the majority of the site—which was appropriate based on the site’s existing use as a marine terminal—drastically restricts this use and provides for other incompatible uses, and, as such, the property is proposed to be re-zoned as a Planned Unit Development. To that end, it is contemplated that demolition will be sought for all existing structures within the Union Pier PUD, with the exception of the Bennett

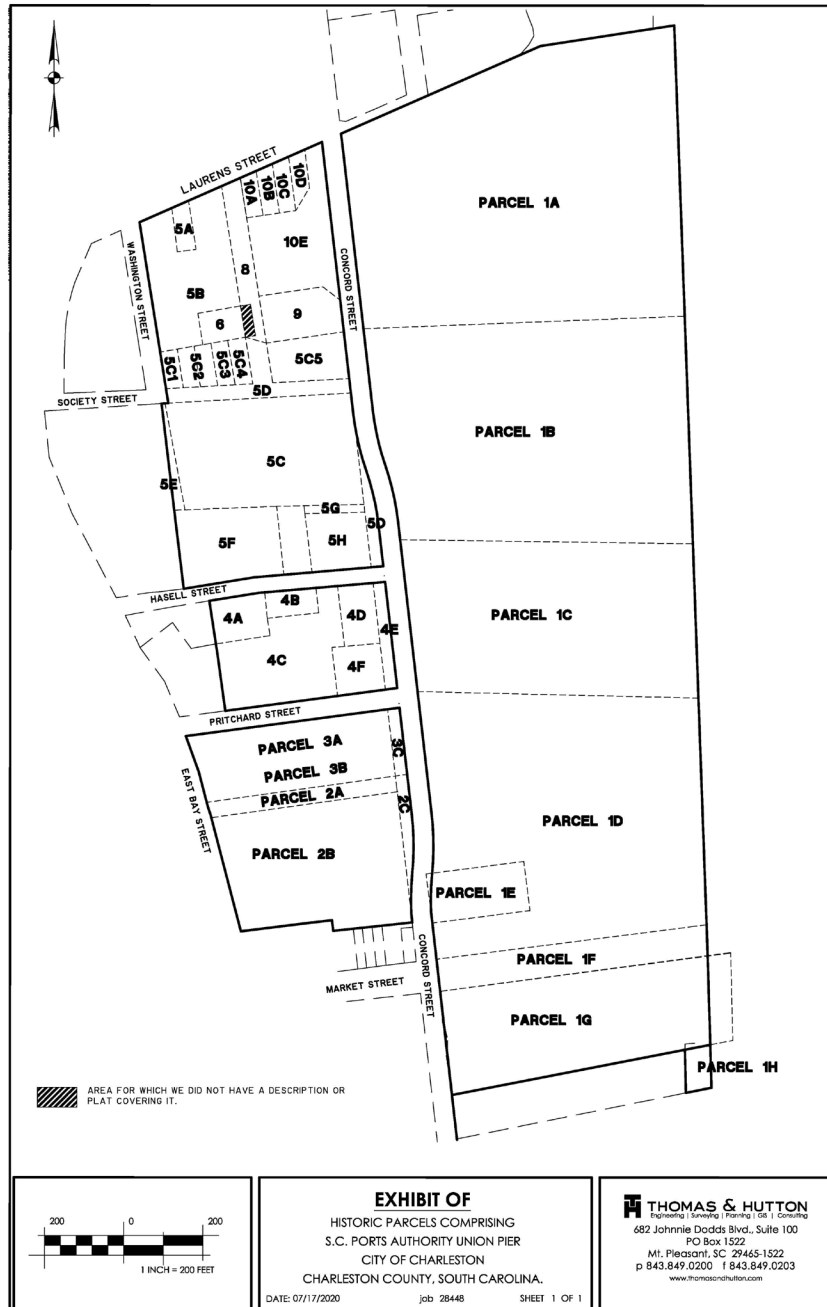
Rice Mill façade ruins, the cruise ship passenger terminal, and certain elements of the pier structures, as to be determined by the developer. New structures built to contemporary urban standards that achieve the purpose and intent of the proposed mixed-use development will then be constructed.

Development of the property pursuant to the proposed Union Pier PUD is intended to reflect the varied history of Union Pier, as outlined above, and honor it by unlocking its potential value as a mixed-use development that represents Charleston's history, as well as its current and future needs.

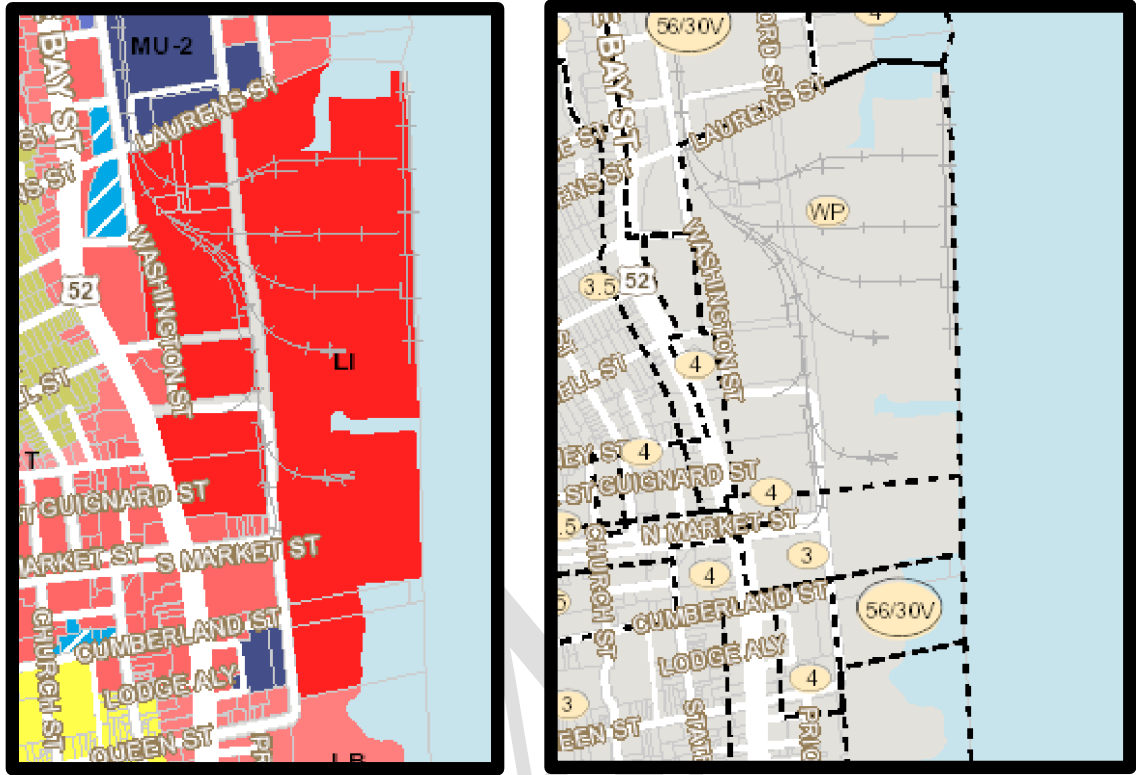
Current ownership of the property is as follows:

Union Pier PUD Parcels			
Parcel ID	TMS#	Owner	Acreage
1A, 1B, 1C, 1D, 1E, 1F, 1G, 1H	459-00-00-009	South Carolina State Ports Authority	42.87
2A, 2B, 2C	458-05-04-015	South Carolina State Ports Authority	3.00
3A, 3B, 3C	458-05-04-016	South Carolina State Ports Authority	3.00
4A, 4B, 4C, 4D, 4E, 4F	458-01-04-014	South Carolina State Ports Authority	2.83
5A, 5B, 5C, 5D, 5E, 5F, 5G, 5H	458-01-04-005	South Carolina State Ports Authority;	8.30
6	458-01-04-006	Charleston Edison Light and Power Company (Dominion Energy South Carolina, Inc.)	
7	458-01-04-025	City of Charleston*	
8	458-01-04-024	South Carolina State Ports Authority	0.40
9	458-01-04-009	South Carolina State Ports Authority	0.53
10A, 10B, 10C, 10D, 10E	458-01-04-007	South Carolina State Ports Authority	1.50

*[RESERVED FOR COORDINATION WITH STAFF re: ownership of Parcel 7.]



2.2 Current Zoning



The current Zoning for the parcels is set forth below, and allows a broad range of residential, commercial, and industrial uses and activities.

Union Pier PUD Parcels			
Parcel ID	TMS#	Current Zoning	Current Height Limits
1A, 1B, 1C, 1D, 1E, 1F, 1G, 1H	459-00-00-009	Light Industrial (LI)	56/30V, 3, & WP
2A, 2B, 2C	458-05-04-015	Light Industrial (LI)	4 & WP
3A, 3B, 3C	458-05-04-016	Light Industrial (LI)	4 & WP
4A, 4B, 4C, 4D, 4E, 4F	458-01-04-014	Light Industrial (LI)	WP
5A, 5B, 5C, 5D, 5E, 5F, 5G, 5H	458-01-04-005	Light Industrial (LI)	WP
6	458-01-04-006	Light Industrial (LI)	WP
7	458-01-04-025	Light Industrial (LI)	WP
8	458-01-04-024	Light Industrial (LI)	WP
9	458-01-04-009	Light Industrial (LI)	WP
10A, 10B, 10C, 10D, 10E	458-01-04-007	Light Industrial (LI)	WP

The Union Pier Site is generally bounded by parcels of land, roadways, or railways on northern, western, and southern sides of the site, with the eastern side being bounded by the Cooper River.

2.3 Development Goals

The Union Pier PUD is designed to establish a vibrant, mixed-use development area in a strategic, waterfront location on the Charleston Peninsula. To that end, development within the Union Pier PUD shall consider these goals and objectives:

- Connections.....Union Pier will improve mobility on the peninsula. People traveling on foot, bike, public transit, and in automobiles will experience improved streets, intersections, and views to the waterfront, and access to the same.
- Program / Uses.....Union Pier will create a new mixed-use neighborhood. This new neighborhood will blend with the surrounding city, complementing the skyline of Charleston.
- Open Spaces.....Union Pier will create new public parks that offer waterfront access and civic spaces.
- Stormwater.....Union Pier will provide solutions to reduce flooding through a comprehensive stormwater management system.
- Coastal Resiliency.....Union Pier will provide solutions to storm surge flooding that integrates with existing plans for the Charleston peninsula.

2.4 Workforce Housing

A combination of onsite housing units and financial commitments directed to near-site housing options shall be provided in support of the City of Charleston’s plan to address workforce housing.

a. Union Pier Housing Payment

Following the sale of the property within the Union Pier PUD site (“Property” or “Site”) by the Ports Authority to the developer(s), the Ports Authority and developer(s) of the Property shall make a financial contribution to the Charleston Housing Authority (or as directed by the Charleston Housing Authority) totaling Sixteen Million Dollars (\$16,000,000), with Eight Million Dollars (\$8,000,000) being due from the Ports Authority (“SCPA Housing Payment”) and Eight Million Dollars (\$8,000,000) being due from the developer(s) (“Developer Housing Payment”, and together with SCPA Housing Payment, “Union Pier Housing Payment”) no later than thirty days from the date of closing. To the extent there are multiple developers of the Property, the funding obligation for the Developer Housing Payment shall be divided between the developers on a pro-rata basis based on the total combined purchase price for the Property. The funds

generated by the Union Pier Housing Payment shall generally be used by the Charleston Housing Authority for construction and operation of the Huger Street Project and/or other project(s) in the general area, unless otherwise agreed to by the City and the Ports Authority.

b. Onsite Workforce Housing

There shall also be a minimum of fifty (50) workforce housing units located on the Property. Workforce housing units shall mean [RESERVED FOR COORDINATION WITH STAFF].

c. Union Pier Workforce Housing Trust Fund

There shall be established the Union Pier Workforce Housing Trust Fund (“UP Housing Trust Fund” or “Fund”), which shall be administered by the City of Charleston’s Department of Housing and Community Development and/or 501(c)(3) entity for purposes of collecting property transfer fees on all conveyances of any parcels or units at the Site (i.e., all residential, commercial, unimproved, rental, or other property). The UP Housing Trust Fund shall generally be funded and operated pursuant to the following procedure:

1. Transfer Fees

- a. Initial Transfer Fee. A transfer fee of One Percent (1%) of the total sales price of the initial conveyance of the Property by the Ports Authority, not to exceed One Million Dollars (\$1,000,000), shall be assessed and made payable by the developer to the UP Housing Trust Fund at the time of closing (“Initial Transfer Fee”).
 - i. To the extent there are multiple conveyances of portions of the Site by the Ports Authority, a transfer fee of One Percent (1%) shall be applicable to each transfer, not to exceed One Million Dollars (\$1,000,000) per transfer, and payable to the UP Housing Trust Fund at the time of closing.
- b. UPT Transfer Fee. All subsequent conveyances of property at the Site shall include a transfer fee of One Percent (1%) of the total purchase price of the property payable to the UP Housing Trust Fund (“UPT Transfer Fee”).
 - i. Exception: Where the total sales price for property subject to the UPT Transfer Fee exceeds Two Hundred Fifty Million Dollars (\$250,000,000.00) (“Reduction Threshold”), all portions of the purchase price for such property that exceed the Reduction Threshold shall be subject to a reduced transfer fee of One-Half Percent (0.5%).

2. Allocation of Transfer Fee Funds

- a. The funds within the UP Housing Trust Fund will be available for workforce housing at the Union Pier Site and for workforce housing properties within a

two (2) mile radius of the Union Pier PUD site and within the City of Charleston in the following manner:

- i. Funds will be used to subsidize property ownership for [teachers/first responders/service workers] making between 50% and 80% of the area median income (AMI) who reside in the designated onsite workforce housing units at the Property. Eligible persons may elect to receive up to [ten (10%)] of the purchase price of the home or up to [ten (10%)] of the cost of the monthly mortgage payment as a subsidy from the Fund.
- ii. [Teachers/first responders/service workers] who are unable to qualify for a mortgage, but make between fifty percent (50%) and eight percent (80%) of the AMI and are qualified to rent, may reside in the designated onsite workforce housing units at the Property. Eligible persons may receive up to [ten (10%)] of the cost of monthly rent as a subsidy from the fund.
- iii. In the event that there are vacancies within the designated workforce housing units at the Union Pier site based on the inability to satisfy the above criteria, the funds in the UP Housing Trust Fund shall award up to ten percent (10%) of the cost of monthly rent as a subsidy from the fund to [eligible persons working in any other industry] making between fifty percent (50%) and eight percent (80%) of the AMI and who are qualified to rent.
- iv. In the event that the designated workforce housing units at the Union Pier site are fully occupied, [__%] of the funds within the UP Housing Trust Fund during any calendar year may be used for workforce housing initiatives located within a two (2) mile radius of the Property for families or persons making 80% or less than the average median income, or in support of community initiatives in furtherance of the same, as approved by the City.

d. Miscellaneous

1. For purposes of this Section 2.4, “conveyance” shall mean a sale or conveyance by deed or any event under South Carolina Code of Laws Section 12-37-3150, as it exists as of the date hereof, which would require the appraisal of the applicable real property for property tax purposes, provided, however, that in all cases in which the conveyance is by deed, the term “conveyance” shall exclude transfers of property that are exempt from recording fees for value pursuant to South Carolina Code of Laws Section 12-24-10 et seq, or any amendment thereto. The term “conveyance” shall also exclude transfers of property to the holder of a mortgage on such property pursuant to a foreclosure sale or died in lieu of foreclosure.

2. This Section 2.4 and the rights and obligations hereunder shall continue, and shall remain binding from the date the Union Pier PUD is enacted until a written termination, executed by the City, is duly recorded in the Charleston County Register of Deeds Office.

Section 3: Land Use

3.1 Area Breakdown

Below is a breakdown of the Union Pier PUD's total project acreage, marsh/wetland/open water area, pier area, and remaining developable area.

Total Project Area	64.14 ac.	
Critical Area		
Total Pier/Marsh/Wetland/Open Water Area	27.81 ac.	43.36% of Total Area
Upland Area		
Total Blocks, Parks, and R/W	36.33 ac.	56.64% of Total Area
Sum =	64.14 ac.	100.0% of Total Area

The Union Pier PUD proposes open space and usable open space in excess of the required minimums. Further detail regarding open space allocations is provided in Section 5.1

3.2 Net Density and Calculations

The Union Pier PUD is a mixed-use development incorporating flexibility in proposed land uses to accommodate appropriate development over time. The Union Pier PUD is based on the Mixed-Use Zoning defined in Section 4.2. See Appendix A, Detailed Land Use Plan for the Master Plan as per Zoning Ordinance requirements. The table below summarizes the overall net density for the Union Pier PUD*:

Zoning	Land Use	Area	Units
Mixed Use	Retail/Commercial	270,000 sf (approx.)	-
Mixed Use	Office	270,000 sf (approx.)	-
Mixed Use	Park	19.24 acres (approx.)	
Mixed Use	Hotel/Accommodation		600 sleeping units
Mixed Use	Residential		1,600 dwelling units**

These densities/intensities represent the anticipated square footages or unit counts anticipated in the Union Pier PUD. Should it be desired for one or more land use densities or intensities to increase, a corresponding reduction in densities or intensities for other uses shall be required pursuant to the Land Intensity Conversion Matrix provided in **Appendix B, or if requested by the then-developer, and upon approval of the City, an updated traffic study addressing so much of Union Pier deemed relevant by the traffic engineer to determine. An updated traffic study shall be*

based on factors deemed relevant by such engineer to determine the amount permissible for such land use's density or intensity increase and corresponding decrease, if any. In addition, to enable flexibility over the duration of development, the net densities or intensities of a specific Land Use may be converted to a different specific Land Use utilizing the Institute of Transportation Engineer's (ITE) Traffic Engineering Handbook, 11th edition equivalence.

As an example of the flexibility of using the ITE equivalence, assume a land use change is proposed from 10,000 sf of retail space to residential dwelling units. Based on the ITE equivalence, 87 residential dwelling units (DU) could be substituted in exchange for the reduction of 10,000 sf of retail space. The calculations based on the ITE Conversion Matrix are shown below:

*10,000 sf/1,000 sf = 10; 10*8.659=87 residential DU substitution for 10,000 sf of retail space*

*** Approximately forty-four (44) dwelling units per acre, on average, across the entirety of the Union Pier PUD. Each acre within the Union Pier PUD may have more or less dwelling units. Workforce housing, as defined in Section 2.4, shall be exempt from overall dwelling unit density limitations and from the unit counts set forth above.*

Prior to a subdivided parcel being conveyed for vertical development, the City shall be notified of the specific land use density/intensity assigned or restricted under each conveyance. Unless restricted in such conveyance, density/intensity may, by default, be converted using the ITE Conversion Matrix by a licensed engineer.

Uses such as maritime, athletic, performance, special events, public assembly, and any other uses similar or related thereto, including the venues providing for such uses, shall not be deemed to create and shall be excluded from any calculations of new, external trips, and shall instead be subject to a traffic management plan.

3.3 Adequate Public Facilities

Sufficient infrastructure to support the intended uses of the Union Pier PUD is not currently present on the Union Pier site. Coordination with public facility providers is provided in **Appendix D**. New infrastructure shall be constructed in a timeframe such that adequate public facilities are provided for new development.

Section 4. Zoning Criteria

The development of the Union Pier Site and properties within the Union Pier PUD must maintain flexibility to accommodate constructability conditions, environmental concerns, physical constraints, market conditions, and design parameters. As such, the exact locations of boundary lines between development tracts, the locations and sizes of land uses in the development areas, and the preliminary planning concepts for the tracts and uses are not indicated on the Land Use Plan.

4.1 Development Standards

Below is a breakdown of development standards in the Union Pier PUD. All amenity areas, facilities, and public streets shall be subject to ADA requirements, as applicable.

Development Standards Summary	
Lot Requirements	
Lot Size	No minimum.
Accessory, Additions to, and Additional Buildings	Not differentiated from primary or principal building or structure.
Minimum Setbacks	
Setbacks and Frontage	Street Side: 0 feet Side Yard: 0 feet Rear Yard: 0 feet
Maximum Building Height	
Building Height District	<p>See PUD Height District Plan for building heights within PUD height districts. No building heights may exceed Height District 7, Section 54-306.H of the Zoning Ordinance, or the identified height district depicted in Appendix A, Exhibit 5. Reference to the following height districts depicted on Exhibit 5 shall, except as modified in this Section 4.1, generally mean the Old City Height Districts as defined by the following sections of the Zoning Ordinance, including :</p> <p>3 StoriesSec. 54-306.B. – Height District 3. 4 StoriesSec. 54-306.E. – Height District 4. 5 StoriesSec. 54-306.F. – Height District 5. 6 StoriesSec. 54-306.G. – Height District 6. 7 StoriesSec. 54-306.H. – Height District 7.</p>

See Appendix A, Exhibit 5 for the PUD Height District Plan, which shall control the maximum building heights within Union Pier. Union Pier PUD height districts shall not exceed Height District 7 (Section 54-306.H.) pursuant to Section 54-256.c.1.(a). Internal height district boundaries may be adjusted to abut the final location of constructed rights-of-way as generally depicted in Appendix A, Street Types Plan, whether inward or outward so as to achieve the height district boundaries depicted in the Height District Plan. Such district adjustments related to the final location of constructed rights-of-way and any references thereto in the Height District text of the Zoning Ordinance shall be deemed minor PUD amendments. Any requirement in the above height district sections that require structures to be abutted by sidewalks of no less than 10 feet in width shall only apply where such structure abuts a public right of way that: (i) is greater than 30 feet in width and (ii) the applicable Street Type Section for such public right of way includes a sidewalk of at least 10 feet in width. Heights shall be measured from the proposed finished elevation of the top of curb adjacent to the proposed structure.

4.2 Zoning Districts; Permitted Uses; Hours

The Union Pier PUD shall be located in the Old City Zoning District, and the following Overlay Zones: School Overlay, Tour Boat Overlay, Amusement & Recreation Overlay, and Residential Short Term Rental Overlay. Permitted uses in the Union Pier PUD (hereinafter, “Mixed-Use Zoning”), shall be all permitted, conditional, special exception, and overlay zone uses provided for in the General Business and Upper Peninsula base zoning districts and any overlay districts thereon, as set forth in the City of Charleston Zoning Ordinance Article 2, Part 3, as amended through approval date of _____, 2023, with the exception of the excluded uses listed below. For property within the Union Pier PUD owned by the Ports Authority, permitted uses shall also include those uses reasonably required to accomplish the purposes of the Ports Authority as set forth in South Carolina Code of Laws Section 54-3-130, to include cruise and passenger terminal port-of-call operations for any such property, with the exception of the specific excluded uses listed below. The Ports Authority further commits to evaluate operational and equipment options that are environmentally beneficial and fiscally feasible for implementation at renovated or existing port-of-call cruise terminal facilities at the Property, including the use of shore power. Except as provided for in this Section 4.2, no other zoning districts or overlay zones or regulations promulgated thereunder shall apply to the property within the Union Pier PUD. However, it is contemplated that additional restrictions may be established by a Union Pier Property Association (“UPPA”) established by the Ports Authority or developer. However, property owned by the Ports Authority shall be exempt from the UPPA or any other such property owners’ association. To the extent this PUD and the Zoning Ordinance conflict as to uses permitted in the Union Pier PUD, the Union Pier PUD shall control.

4.2.1 Excluded Uses

Excluded or prohibited uses in the Union Pier PUD shall be any and all: Cruise Home-Port Terminal Operations, Container Terminal Operations, Roll On-Roll Off Terminal Operations, Dairy farms, Mobile home dealers, Recreational and utility trailer dealers, Cemeteries, Stables, Crematories, Tattooing services, Mining/Quarrying of nonmetallic minerals, except fuels, Indoor shooting range, Firearm sales, and Adult Uses, as defined in the City of Charleston Zoning ordinance.

4.3 Parking Standards

In implementing the Union Pier development goals, specifically sustainable and resilient practices, there shall be no minimum or maximum parking standards for the properties included in the Union Pier PUD. These sustainable and resilient practices place an emphasis on the use of bicycles, busing, water ferries and taxis, and other alternatives to the automobile, each of which is anticipated to negatively impact (reduce the need for) traditional use-based minimum parking space requirements. Notwithstanding the foregoing, development in the Union Pier PUD shall consider the inclusion of automotive parking reasonably sufficient to accommodate market forces, including multistory parking decks. As Union Pier is more fully developed, it is anticipated that the mix of uses, sustainable and resilient practices, alternative means of transportation, and other influences will further reduce the need for automobiles and automobile parking. As depicted in Appendix A, Exhibit 11, Street Types Sections, on-street parallel parking shall be provided where not otherwise prohibited (for example, loading zones, fire hydrants, vision triangles, etc.).

4.4 Accommodations Use Conditions

Accommodations uses shall only be located in areas designated “Accommodations Area” on Appendix A, Exhibit 4.

[RESERVED FOR COORDINATION WITH STAFF RE: Meeting Space Requirements; Service Elements, and Bonus Density, Etc.]

Section 5. Open Space and Buffers

5.1 Open Space Requirements

The Union Pier PUD envisions a significant area of public open space throughout the site that is proposed to exceed the City’s minimum standards. A large portion of this acreage will be found along the waterfront, creating a continuous park with connections to the interior and adjacent properties, including cultural amenities, through a variety of docks, streets, and pedestrian walkways. Moreover, the proposed site design for the property will result in a significant portion of the Cooper River that is presently covered by dock and wharf space being uncovered and reclaimed for the public’s use in support of this park space and the remaining property within the Union Pier PUD.

[RESERVED FOR COORDINATION WITH CITY REGARDING TIF/DELIVERY/DEVELOPMENT TIMING/BONDING CAPACITY]

As per the Open Space plan presented in Appendix A, Exhibit 6, the Union Pier PUD will provide open space and usable open space in excess of the required minimums. The development of the Total Open Space Area and Total Usable Open Space Area may occur over the course of many years and in many phases and in differing proportions than the final developed proportions set forth in the Area Breakdown below.

Open Space and Usable Open Space, where reasonably necessary to access Maritime Use Areas as depicted on the Detailed Land Use Plan, shall allow for access to and from such Maritime Use Areas and public and private roads and rights of way.

Total Open Space Area:

Union Pier PUD fully developed expected Open Space Area	+/- 19.24 ac	29.99% of Total Area
<i>Minimum Zoning Ordinance required Open Space Area</i>	<i>+/- 12.83 ac</i>	<i>20% of Total Area</i>

Total Usable Open Space Area:

Union Pier PUD fully developed expected Usable Open Space Area	+/- 18.24 ac	94.80% of Open Space 28.44% of Total Area
---	---------------------	--

<i>Minimum Zoning Ordinance required Usable Open Space Area</i>	<i>4.81 ac 25% of Total Open Space</i>
---	---

Note: References to minimum zoning ordinance requirements, above, are for information only.

Neighborhood/pocket parks will be provided and are included in the usable open space area calculation, above.

Ownership and Maintenance: Open spaces and any other properties within the Union Pier PUD that are, in whole or in part, improved and/or maintained with Tax Increment Finance revenue, may be owned by and dedicated to the City of Charleston (as approved by the City), Ports Authority, or the master developer or others as permitted by law. Open spaces not dedicated to the City of Charleston may be owned by Ports Authority, the master developer, or others and are permitted to be open to the public.

5.2 Open Space Types

The open space on the property within the Union Pier PUD will include a public pedestrian path along the water's edge that connects with various contemporary and historical landmarks or areas of interest within and adjacent to the property, including the proposed Mosquito Fleet historical marker, Customs House, International African American Museum, and Historic Rice Mill Ruins. The proposed open space will also provide other direct public access to the water via paths, piers, and docks. Ferry service shall be permitted.

Additional open space types at Union Pier may be designed using the following definitions or as described in Section 54-284 of the Zoning Ordinance:

Historic Rice Mill Ruins—Open green space centered around the historic, to-be-restored Bennett Rice Mill façade, and which showcases the remnants of the post-1780 rice economy of Charleston, founded by Jonathan Lucas who shipwrecked along the Carolina coast and invented a mechanical water-driven rice mill process to separate the husk and bran layers from the rice kernel. Lucas' invention led to the construction, internationally, of rice mills that incorporated his invention, including the Bennett Rice Mill.

Neighborhood Greens—Open green spaces intended to serve as the social center of the community and provide a location for civic activities and outdoor community functions. Neighborhood greens shall:

- *Be predominantly planted areas, but may have some paved surfaces; and*

Plazas/Squares—Enclosed spaces that are urban in nature and designed to serve as meeting places for area residents and workers. Plazas and squares shall:

- *Be predominantly paved surfaces, but may have some planted areas;*
- *Include pedestrian lighting and pedestrian-level details, such as variations in paving types;*

- *Be landscaped and incorporate amenities such as benches, fountains, monuments, and formal or informal gardens; and*
- *Be located either at the intersection of streets or within a developed block.*

Neighborhood Parks—Large open areas designed to provide recreational facilities and spaces for the planned unit development, or smaller green spaces designed to serve smaller areas within the property. These parks may be designed as part of a Neighborhood Green, and shall:

- *Contain grassy fields, playground equipment, designated sports facilities, or picnic areas;*
- *Be landscaped throughout;*
- *Be designed for active and passive recreational purposes; and*
- *Be directly connected to any bicycle and pedestrian network*

Section 6. Buffers

Buffers, landscape or otherwise, are not required whether internal to or surrounding the Union Pier PUD or between land uses.

Properties within the Union Pier PUD shall be exempt from critical lien buffers pursuant to the Section 54-347.1.b.3. & 4. of the Zoning Ordinance, which exempt properties located within the Old City District ... and located on the peninsula south of Line Street extended from the Ashley River to the Cooper River.... and water-dependent maritime ... facilities or terminals.

Except as modified above and herein, Section 54-347 of the City of Charleston Zoning ordinance shall govern the landscape buffer adjacent to the critical line. Pedestrian amenities may be located within buffers and setbacks. Refer to **Appendix F, Exhibit 5**.

[RESERVED FOR COORDINATION RE: RESILIENCY]

Section 7. Tree Summary

There is minimal tree cover on the Union Pier Site – refer to **Appendix F, Exhibit 2: Aerial**. Tree protection shall be in compliance with the City of Charleston Zoning Ordinance. The planting of trees on Union Pier shall be determined by the requirements of the Zoning Ordinance.

Section 8. Right-Of-Way

Within the Union Pier Site there are plans to reconnect the surrounding roadway network with typical street types (see **Appendix A, Exhibit 10**). Roadways constructed to City standards shall be dedicated public streets unless the developer elects to privately maintain. Roadways whether or not dedicated as a public street shall be permitted to utilize pervious surfaces. No dedicated public streets in the Union Pier PUD shall be limited by gates (nothing herein shall prohibit gates on private property such as for a parking lot or garage).

As stated in Section 4.1, ADA compliance shall be provided, by providing, at a minimum, accessible routes between right-of-way, parking, public transportation, amenities, and entrances. Vehicles, public transportation, bicycles, and pedestrians will be accommodated by the new

roadway infrastructure (See Pedestrian & Bicycle Circulation Plan). Transit infrastructure will be required and shall be approved as part of site plan review based on requirements set forth in the Zoning Code.

Section 9. Drainage Basin Analysis

9.1 Flood Zone

A copy of the effective FEMA flood maps can be found in Appendix F. The effective Flood Insurance Rate Maps (FIRMs) for the Union Pier Site (Panels 4509C0516K and 4509C0518K) identifies the site entirely within a 100-year (1% annual chance flood) Special Flood Hazard Zone (SFHZ). The SFHZs on the site vary from Zone VE (EL15) at the edge of the existing piers along the Charleston Harbor, to Zone AE (EL12) inland from that, to Zone AE (EL 11) extending inland to roughly E. Bay Street. The elevations (EL) associated with each SFHZ represents the regulatory base flood elevation (BFE), in the NAVD88 datum. The effective FIRMs also depict the site mostly within the Limit of Moderate Wave Action (LiMWA) line. The LiMWA line denotes the Coastal A Zone, where wave heights may be between 3 feet closest to the harbor, to 1.5 feet inland at the LiMWA line. The existing elevations of the Union Pier Site ranges from roughly 4 feet (NAVD88) along the Charleston Harbor and in low areas along Washington Street and Laurens Street to 7 feet (NAVD88) on the southern end of the site near Pickney Street (see Appendix F, Exhibit 4).

In the event FEMA issues any flood map amendment, revision, or modification, this Section 9, shall be modified and amended to include such changes pursuant to Section 54-260.b., minor amendments.

9.2 Existing Topography and Drainage

The Union Pier Basin drains approximately 85 acres on the eastern side of the Charleston Peninsula. The basin is roughly bordered to the north by George Street, to the west by King Street, to the south by Pinckney Street, and to the east by the Charleston Harbor (see Appendix F, Exhibit 5). The basin outfalls through various pipe discharges to the Charleston Harbor. The Union Pier Basin is bordered on the north and south by basins that drain to the City of Charleston's Concord Street Pump Station. The Market/Concord Street Tunnel Basin (located south of the site) flows to the Concord Street Pump Station via a large diameter deep tunnel that crosses under the Site south to north in the Concord Street right-of-way. Drainage from the Market/Concord Street Tunnel Basin combines with drainage of the Meeting/Calhoun Street Tunnel Basin (also via a deep tunnel) at the Concord Street Pump Station and is discharged to the Charleston Harbor (see Appendix F, Exhibit 5).

Within the roughly 85-acre Union Pier Basin, there are two brick-arch stormwater pipes flowing west to east in Society and Hasell Streets (see Appendix F, Exhibit 6). These two pipe systems provide drainage for the existing Ansonborough Neighborhood located west of the site. These systems cross the site west to east as large diameter pipes and also drain small portions of the existing Union Pier site immediately adjacent the systems. These two large pipe systems discharge

to the Charleston Harbor at the upland edge under existing piers that extend into the Charleston Harbor. These outfalls are subject to tidal inflow as they have no tidal control devices installed.

Six (6) smaller, piped collection systems (with pipes varying from 12- to 30-inch diameter) drain the majority of the Union Pier Site east of the Ansonborough Neighborhood (see Appendix F, Exhibit 6). These pipes outfall to the Charleston Harbor at various location along the upland edge of the site. Some of these outfalls are outside of existing piers and some are under existing piers extending into Charleston Harbor. These smaller outfalls are also subject to tidal inflow as they have no tidal control devices installed.

A very small portion of the site along Laurens Street drains into an off-site pipe system (see Appendix F, Exhibit 6). This system appears to drain areas along Lauren Street, from Anson Street to Cannon Street, then north in Concord Street.

The upland portions of the Union Pier Site are entirely paved and are currently used as parking lots. Two large warehouses exist on the southern portion of the site along Washington Street and Concord Street. Four (4) railroad spurs enter the northwest corner (Lauren Street and Washington Street intersection) of the site. These railroad spurs arc across the upland portions of the site and extend over the Charleston Harbor on piers.

The existing elevations of the Union Pier Site ranges from roughly 4 feet (NAVD88) along the Charleston Harbor and in low areas along Washington Street and Laurens Street to 7 feet (NAVD88) on the southern end of the site near Pickney Street (see Appendix F, Exhibit 4). The Site's pavement has very low slopes that generally direct stormwater runoff to inlets associated with the piped systems discussed above.

The existing piers extending from the uplands into the Charleston Harbor generally have surface elevations ranging from 8 to 9 feet (NAVD88). Several warehouses exist on some of the piers extending over Charleston Harbor. Drainage from the existing piers and warehouses extending over Charleston Harbor appears to discharge to the harbor via sheet flow or through small roof drainage systems.

9.3 Wetlands Verification

The existing wetlands, critical line, and required buffers are identified on **Appendix F, Exhibit 5**. The Ocean Coastal Resource Management (ORCM) critical line and wetlands have been identified on a plat by a licensed surveyor, and approved by the appropriate regulatory agencies (see **Appendix E**).

9.4 Preliminary Stormwater Techniques

The proposed stormwater management system on the Union Pier Site will be developed following the guidelines and requirements of applicable agencies including the City of Charleston, South Carolina Department of Health and Environmental Control (SCDHEC) Bureau of Water (BOW), and OCRM. In general, the SCDHEC BOW and OCRM standards and regulations are encapsulated in the City's Stormwater Design Standards Manual (SWDSM). In all cases, the

City's SWDSM has equivalent or more stringent standards than those of the SCDHEC BOW and OCRM. Coordination with the City will be conducted before and during the design process to determine and clarify the City's design requirements.

The main components of the site's proposed stormwater management system are shown in Appendix F, Exhibit 7. The stormwater management design for the proposed site includes increasing the elevation of the area along the proposed Concord Street corridor to an increased elevation which will become the maximum elevation area of the site ("high point"). The grade within the site will slope from the high point east towards Charleston Harbor. Also,

from the high point along the Concord Street corridor, the site will slope west and tie into existing elevations generally along the Washington Street alignment. The proposed site will also slope from the high point (at the proposed Pritchard Street alignment) south and tie into existing elevations south of Pickney Street. Finally, the proposed site will also slope from the high point (at the proposed Society Street alignment) south and tie into existing elevations along Laurens Street.

In general, all of the existing stormwater management infrastructure on the site is to be enlarged in place or removed and replaced in a new alignment conforming to the proposed site's masterplan. The main components of the proposed stormwater management system include enlarging the two main systems (along Society Street and Hassel Street) draining the Ansonborough Neighborhood through the site. These two systems will continue to drain off-site areas (Ansonborough Neighborhood) and portions of the proposed site.

In addition to enlarging these two large systems, two new pipe systems and outfalls are proposed for the northern (adjacent to Lauren Street) and southern portions (along Pickney Street) of the site. Finally, various smaller pipe systems and outfalls will be provided to drain interior portions of the site. All retrofitted and proposed systems will outfall to the Charleston Harbor. As needed to control tidal flooding, some of the proposed system's outfalls will be fitted with tide control devices. All proposed grading and pipe system size and routing depicted herein are preliminary and subject to change as the design of the site progresses.

The project's stormwater management system will be designed to meet the requirements of the City's current SWDSM in effect as of January 2020. The design shall also adhere to the City's associated Technical Procedure Documents (TPDs) when applicable. Also, when appropriate, waivers from certain requirements as allowed under certain circumstances in the SWDSM may be sought.

Chapter 3 of the City's SWDSM includes numerous and specific design requirements related to stormwater management. The Union Pier site's stormwater management infrastructure will be designed to meet these requirements where applicable. Specific applicable requirements of note within the City's SWDSM that the project's system will be designed to include the following:

- 1) Redevelopment Standards

Section 3.5.1 of the City's SWDSM requires a proposed redevelopment site to meet one of three performance standards related to 1) 20-percent impervious cover reduction, 2) 10-percent

reduction in stormwater runoff volume associated with the 50-percent annual exceedance probability (AEP) storm event, or 3) reduction of stormwater runoff peak discharge by 20-percent and maintain existing stormwater runoff volumes for the 10- and 4-percent AEP storm events. These performance standards are generally required to mitigate potential effects (drainage and/or flooding) on adjacent (mostly downstream) properties.

The proposed development of the site envisions a vibrant mixed-use development in place of the existing, paved parking lot typical of the existing site. While some overall impervious cover reduction is anticipated as part of the project, the proposed design of the site will likely not meet the 20-percent impervious cover reduction target of this requirement. However, overall runoff volume and peak discharges are anticipated to be reduced by the change in land use. Ultimately, the change in topography and stormwater management infrastructure associated with the proposed project could affect runoff volumes and peak discharges in different manners by 1) eliminating some stormwater runoff storage (in the form of surface flooding during some events) and 2) enlarging certain existing drainage systems to improve drainage systems serving off-site areas (i.e., Ansonborough Neighborhood).

Given the lack of “downstream” properties (i.e., free discharge to Charleston Harbor) and the complicated change in stormwater management, a waiver from the City’s redevelopment requirements for volume control and peak flow will likely be sought. *(See also the 1-percent AEP Storm Event Analysis requirements, below.).*

2) Special Protection Areas (SPA) Redevelopment Standards

The Union Pier site is located within a SPA as identified by the City. Section 3.5.2 of the City’s SWDSM requires redevelopment projects within a SPA to achieve a 20-percent reduction for the 50-, 10-, and 4-percent AEP storm event peak flow for the 24-hour stormwater runoff discharge volume. This requirement is an additional requirement (above those discussed above) to address redevelopment in areas associated with known flooding.

Similar to the factors listed above, a waiver from the City’s SPA redevelopment requirements for volume control will likely be sought.

3) Areas Associated with Known Flooding

For any development or redevelopment within or discharging to a SPA, more stringent design criteria in addition to the minimum standards and level-of-service are required. As discussed above, the Union Pier site lies in a SPA (associated with known flooding), and is subject to more stringent design criteria (in addition to the requirements listed above).

Section 3.6.1 of the City’s SWDSM requires the following:

- The post-development, peak discharge rates are restricted to one-half the pre-development rates for the 50- and 10-percent AEP, 24-hour duration storm events or to the downstream system capacity, whichever is less.

- The post-development runoff volumes for the 50-, 10-, and 4-percent AEP, 24-hour duration storm events above the pre-development level shall be stored for 24 hours before release. The runoff volume excess between pre-development and post-development must be released steadily over a period of 48 hours after the initial 24 hours of storage.

Similar to the factors listed above, a waiver from the City's requirements for SPAs (Areas with Known Flooding) for peak discharge rates and volume control will likely be sought.

4) Stormwater Design Volumes for Water Quality

Section 3.9.2 of the City's SWDSM requires all post-construction stormwater runoff from development or redevelopment sites be managed for water quality control.

All existing and proposed stormwater discharge locations from the Union Pier site are not within 1,000 feet of shellfish beds and therefore SCDHEC and City requirements for permanent water quality associated with shellfish beds are not applicable. In addition, the Union Pier site is not located within a SPA associated with Areas Discharging to Total Maximum Daily Load (TMDL) and Impaired Waters, and therefore SCDHEC and City requirements for permanent water quality treatment associated with TMDLs and impaired waters are not applicable.

Four technology tiers are available in the City's SWDSM to meet the runoff management requirement for water quality, as follows:

- Tier 1 - Green Infrastructure
- Tier 2 - Green Infrastructure with an Underdrain
- Tier 3 - Detention Practices
- Tier 4 - Pass-Through Devices that provide the requisite water quality treatment through physical/mechanical, chemical, or biological processes.

Each tier prescribes a maximum amount of rainfall (rainfall depth) be applied to the area draining to each specific type of technology. The rainfall depths correspond to a runoff volume to be treated, and are as follows:

- Tier 1 – 1.0 inch
- Tier 2 – 2.0 inches
- Tier 3 – 2.8 inches
- Tier 4 – Peak flow from 2.8 inches

The proposed Union Pier site will be designed with a combination of these tiered technologies to address water quality treatment as site constraints and conditions warrant.

5) One-percent AEP Storm Event Analysis

Section 3.9.4 of the City's SWDSM requires a hydrologic/hydraulic analysis to determine the impacts of the proposed development during the 1-percent AEP, 24-hour storm event.

For the 1-percent AEP Storm Event Analysis, the proposed project should not:

- Increase the likelihood of dwelling flooding and property damage above current conditions.
- Increase water surface elevations or reduce system capacity in the stormwater system and facilities upstream or downstream of the project. An increase or reduction shall be based on a comparison with pre-development conditions (with more stringent requirements potentially applied in special protection areas).
- Increase erosion potential and pollutant loads that would adversely impact the quality of receiving waters.

The analysis shall be performed from the top of the watershed to a point down system of the site where the site makes up 10-percent of the basin. The evaluation should also continue downstream for the project to identify any likely choke points.

The proposed Union Piers project's stormwater management system will be designed and analyzing using a sophisticated hydrologic/hydraulic model of the entire 85-acre watershed (see Appendix F, Exhibits 4 and 7). This watershed includes all areas (including the Ansonborough Neighborhood to the west) that drain to and through the existing and proposed outfalls to the Charleston Harbor on the Union Pier site.

6) Maintenance Access and Easements

Section 3.16 of the City's SWDSM provides the specific requirements for various stormwater infrastructure including pipes, open conveyances, detention ponds, and other stormwater facilities and best management practices (BMPs). Easements, when required for stormwater management or wastewater management for the Union Pier site, shall be located in public rights-of-way and shall be no wider than the minimum width necessary to permit the construction and maintenance of the facilities while considering and providing sufficient width for all other utilities, including the use of non-exclusive easements.

7) Erosion Prevention and Sediment Control (EPSC)

Section 3.14 of the City's SWDSM provides for the planning, design, and implementation requirements for EPSC. Stormwater runoff controls (i.e. BMPs) during construction shall be designed to meet or exceed the requirements of this section of the SWDSM. Appropriate best management practices (BMPs) shall be installed and maintained to preserve water quality of adjacent water bodies as a part of the site's construction Stormwater Pollution Prevention Plan (SWPPP).

[RESERVED FOR: Section 10. Traffic Study]

[RESERVED FOR CONSIDERATION OF A TRAFFIC STUDY UPON REQUEST BY STAFF].

Section 11. Cultural Resources Study

A cultural resources survey of the Union Pier site has been conducted. Please refer to **Appendix C** for the full report.

Section 12. Letters of Coordination

Letters of coordination from Dominion (Natural Gas) and Comcast are included as **Appendix D**. Additional letters of coordination from Charleston Water System, Dominion, AT&T, and Charleston County School District shall be provided upon receipt. *Note: Ports Authority to request letter of coordination from Dominion for outline of elements necessary to provide shore power for cruise port-of-call passenger terminal operations at property owned by Ports Authority.*

Section 13. Additional Information

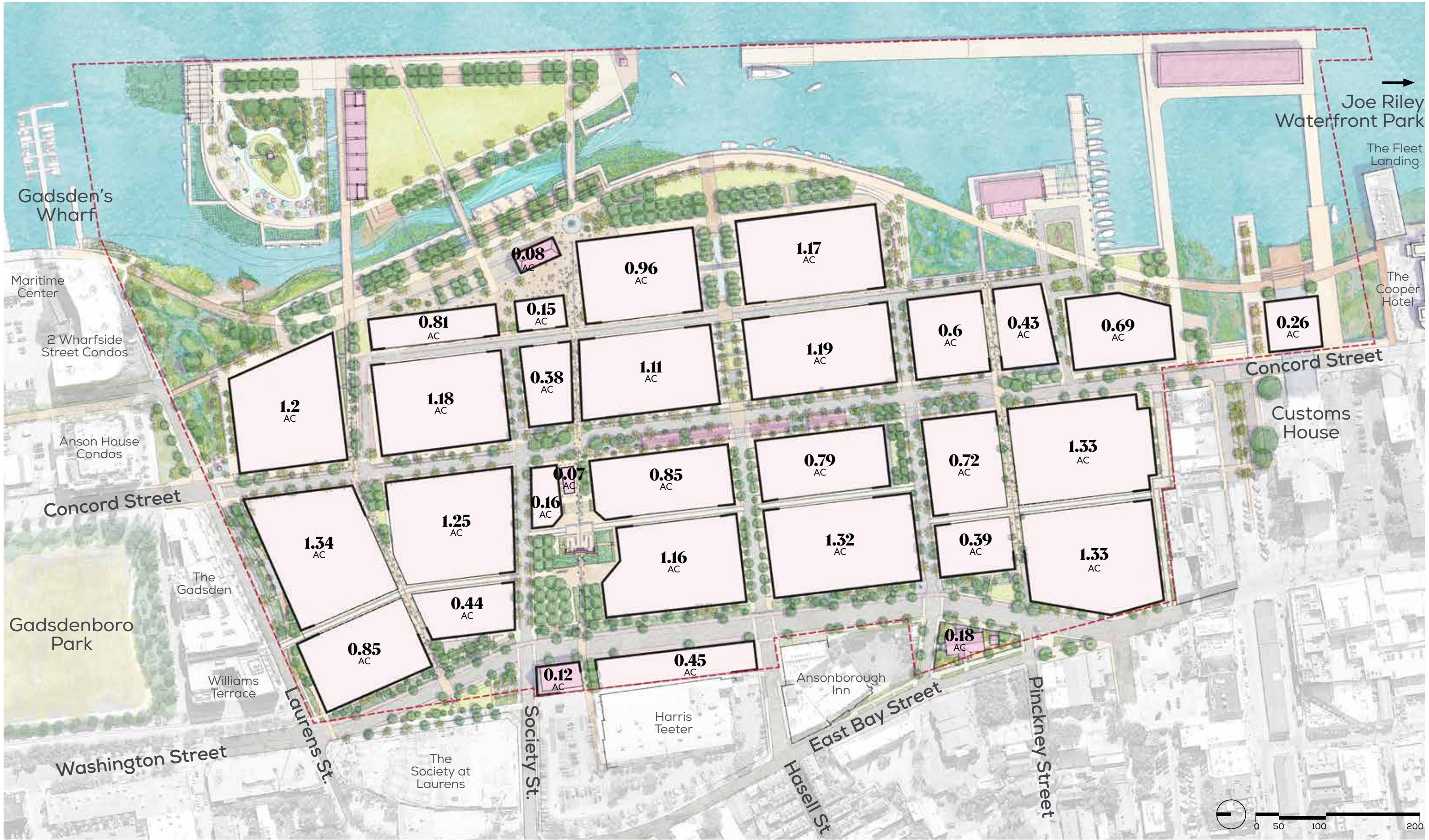
13.1 Union Pier Conceptual Master Plan

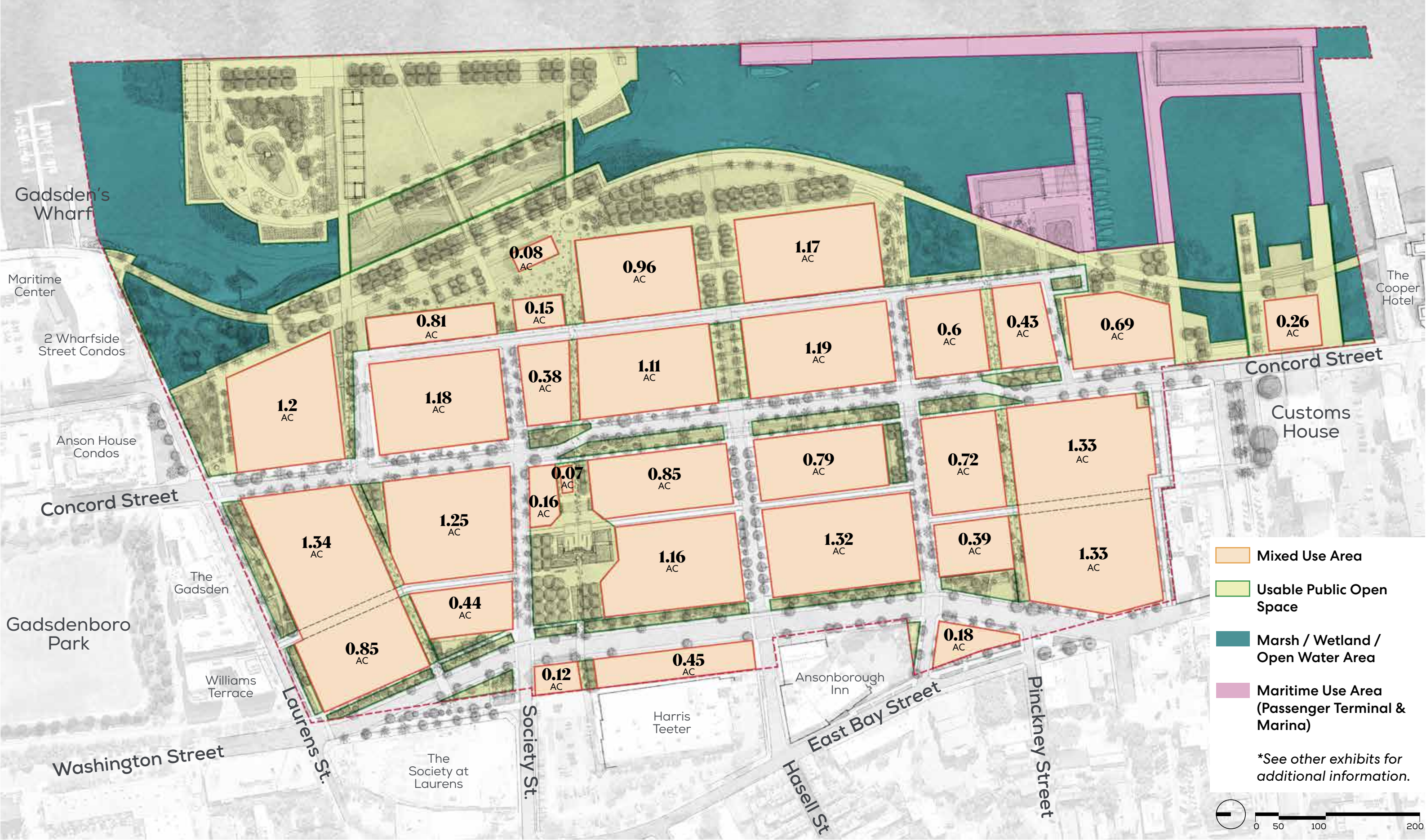
See **Appendix A, Exhibit 4** for Union Pier Detailed Land Use Plan.

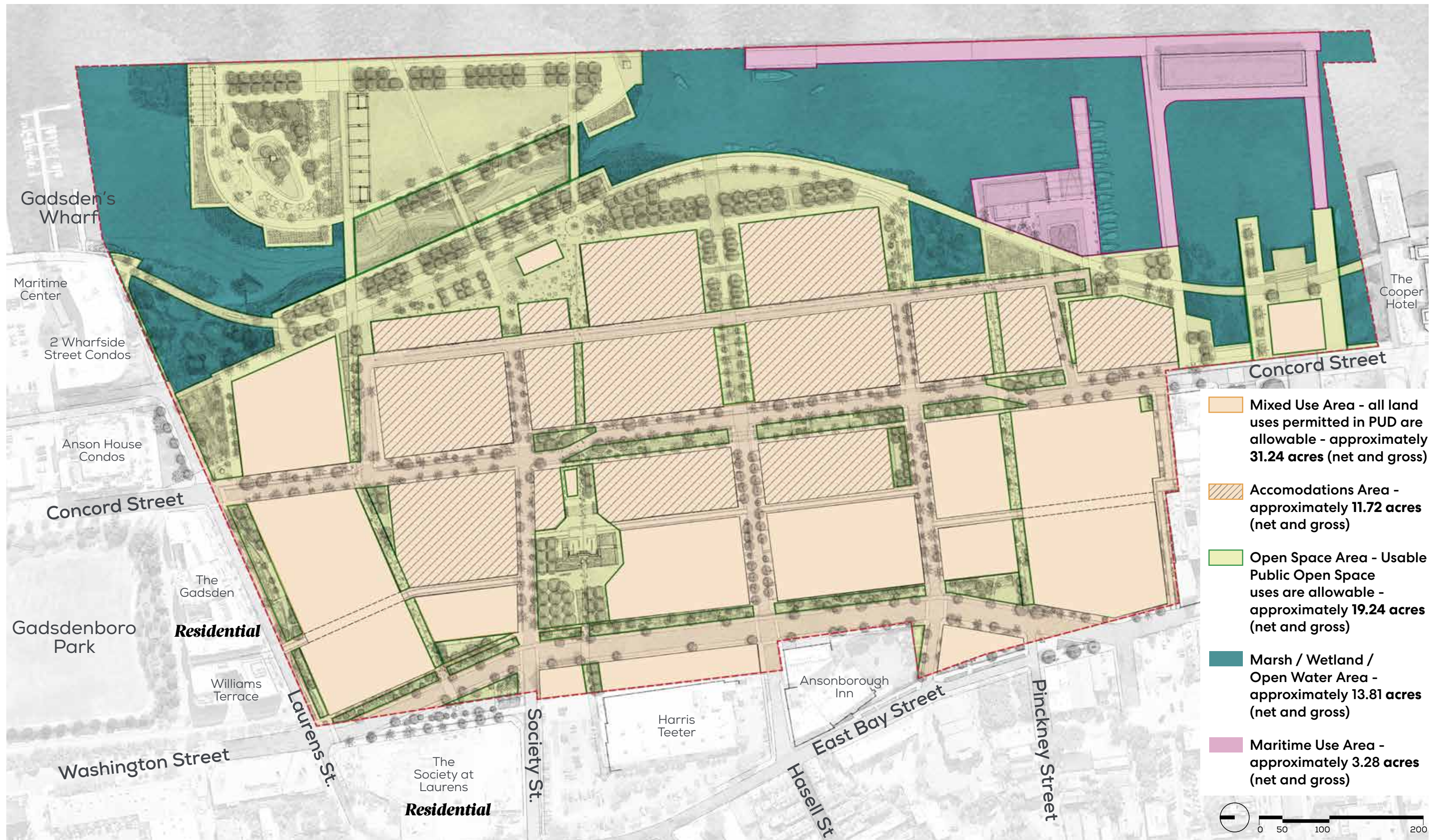
Appendix A

Figures







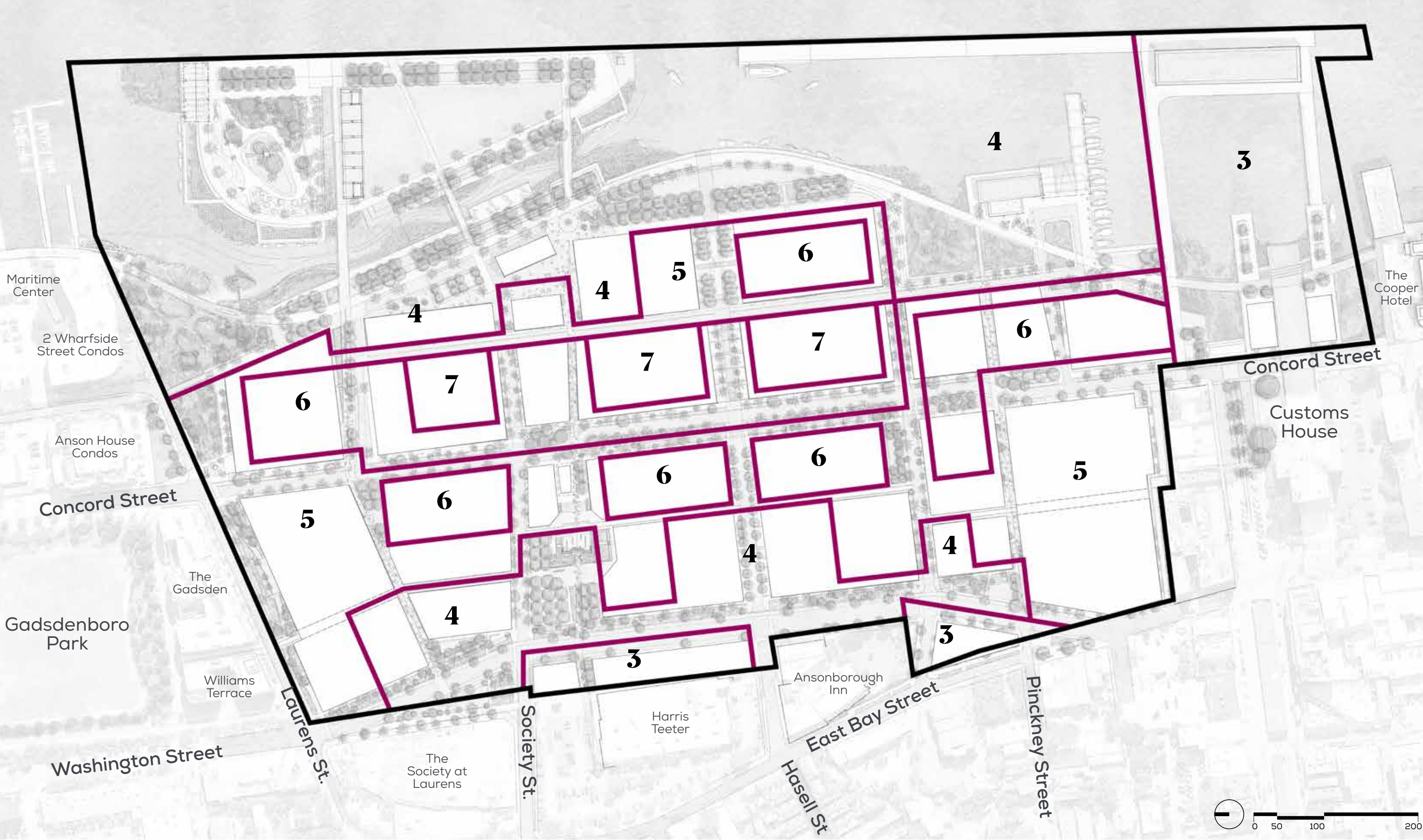


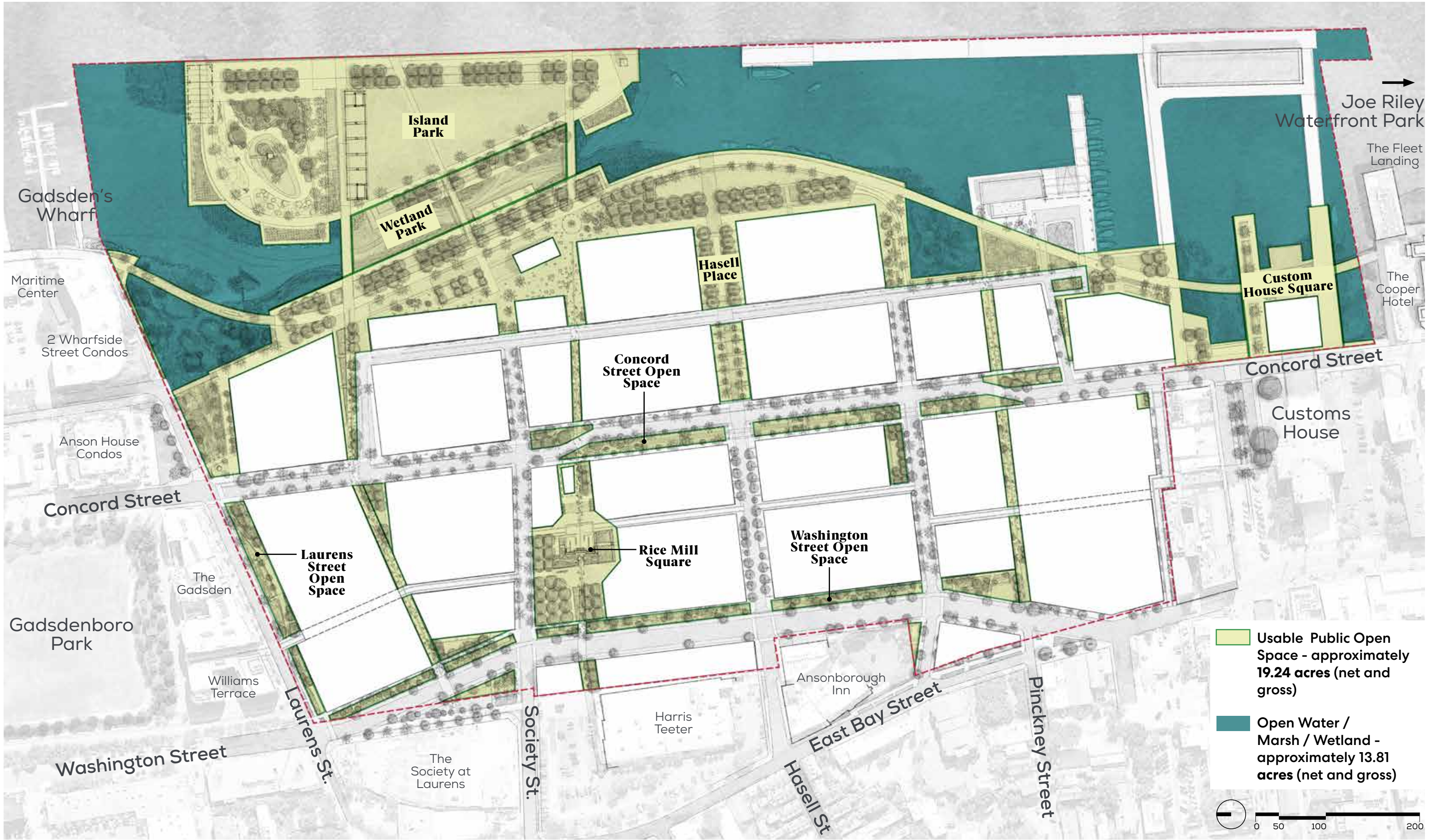
A.4 Detailed Land Use Plan

January 30, 2023

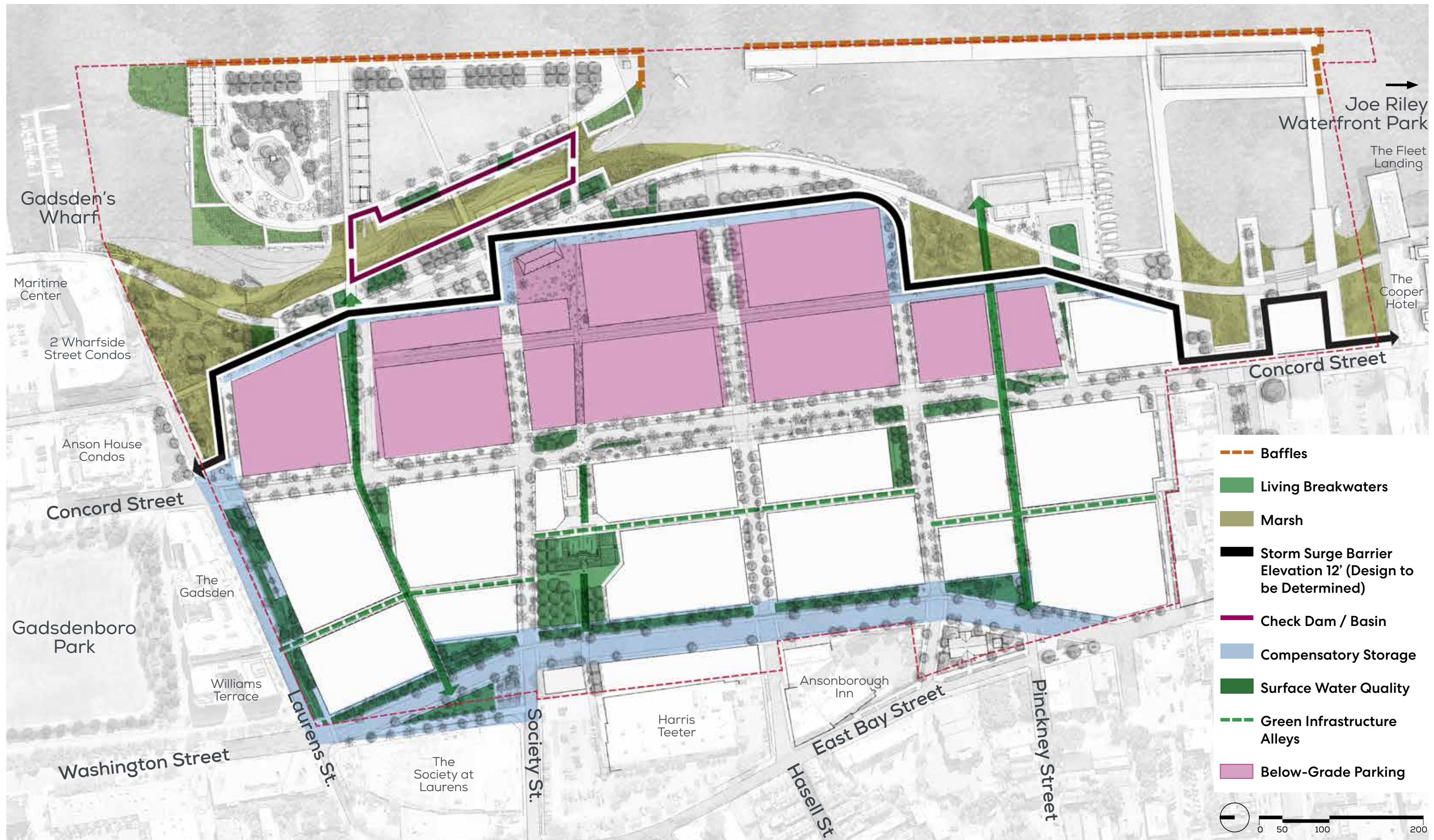
Master Plan for Union Pier

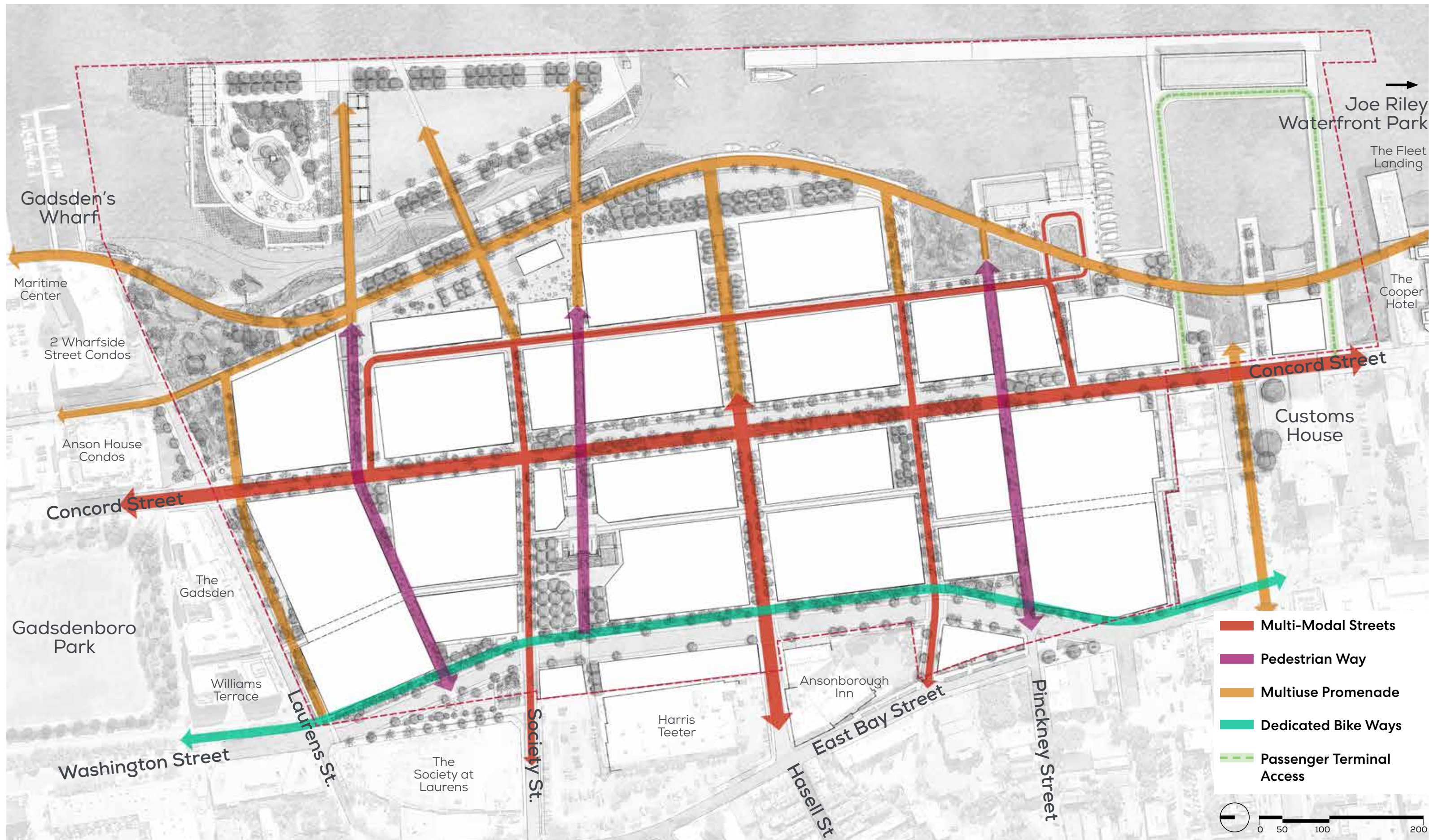
Perkins&Will

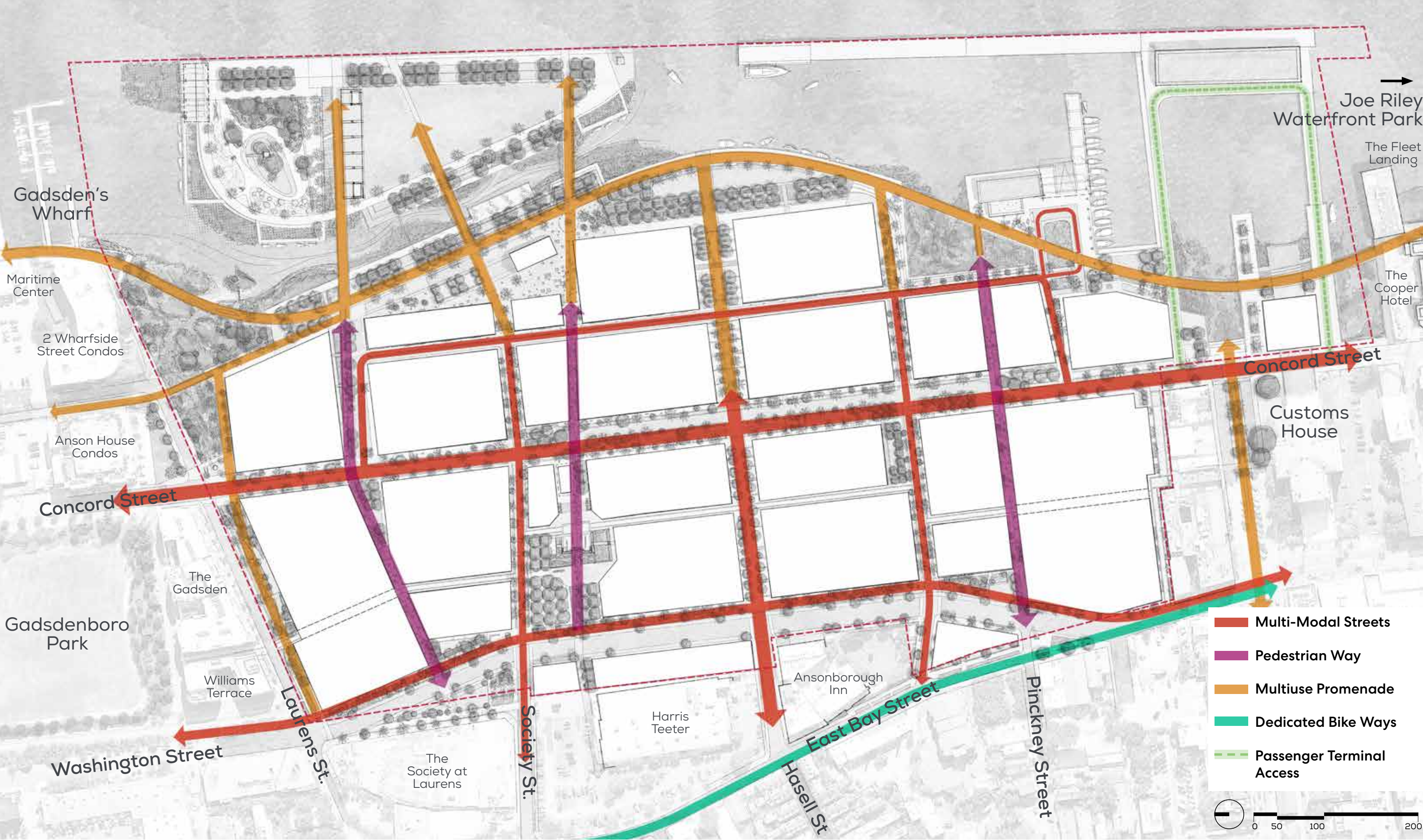


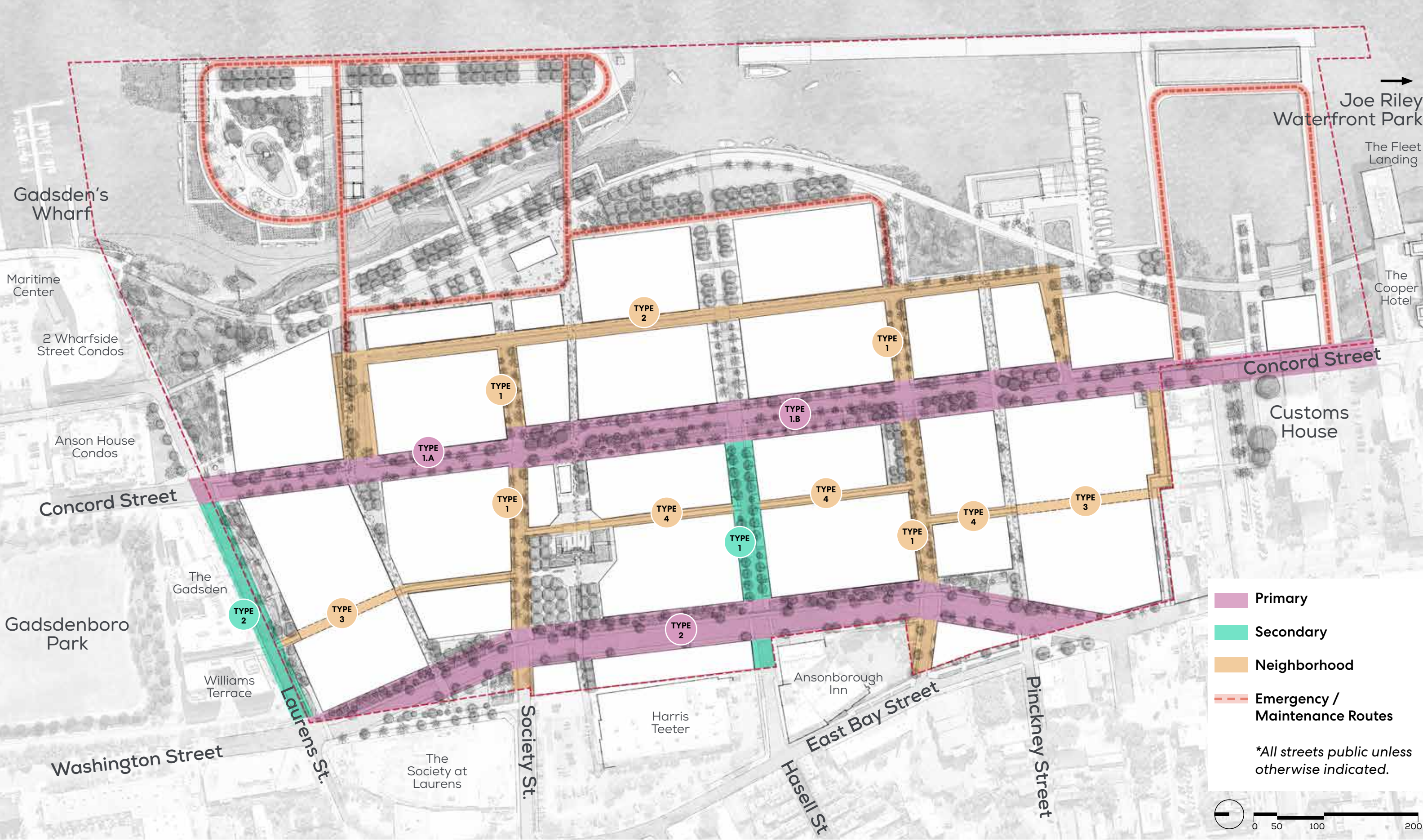


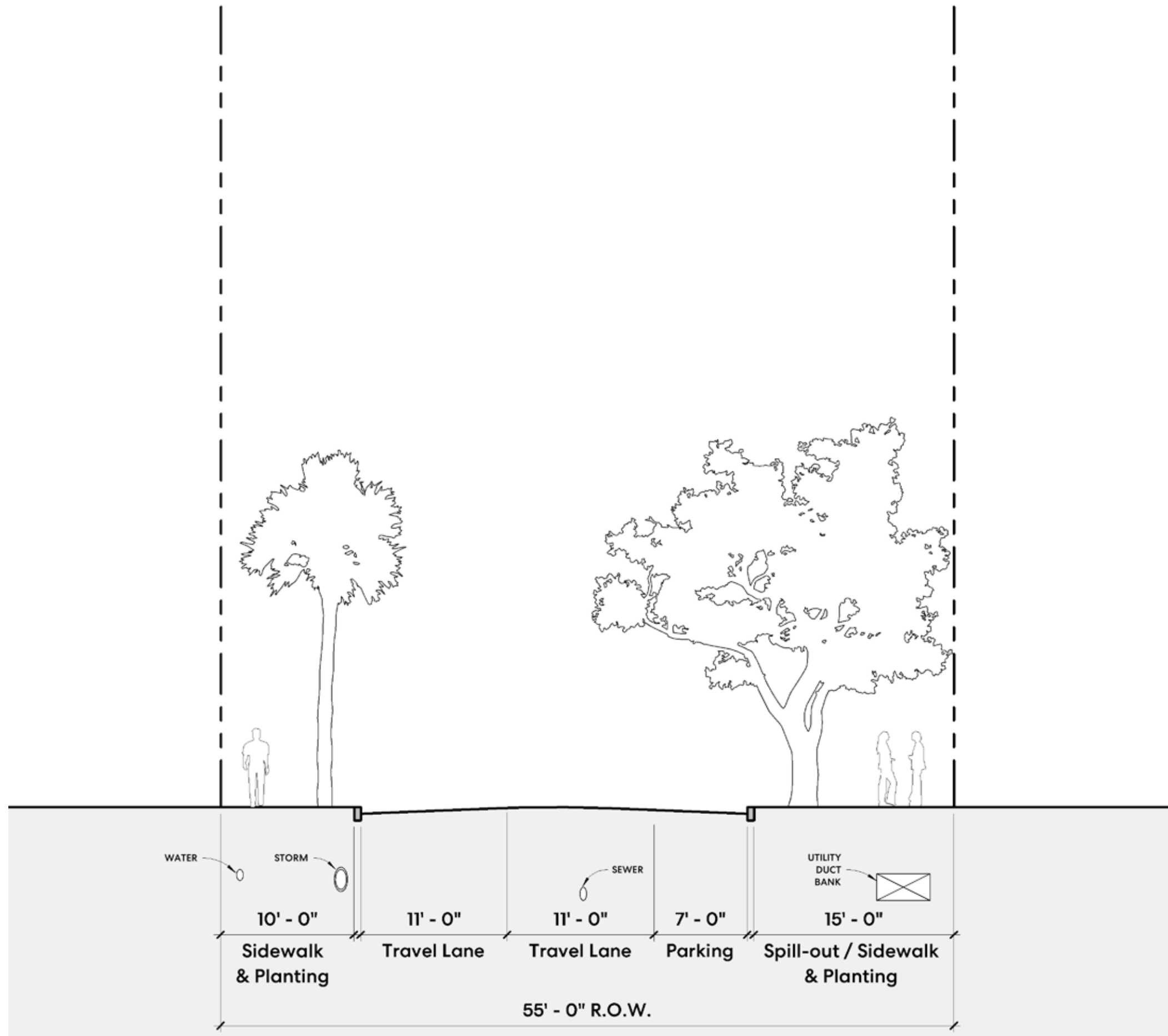


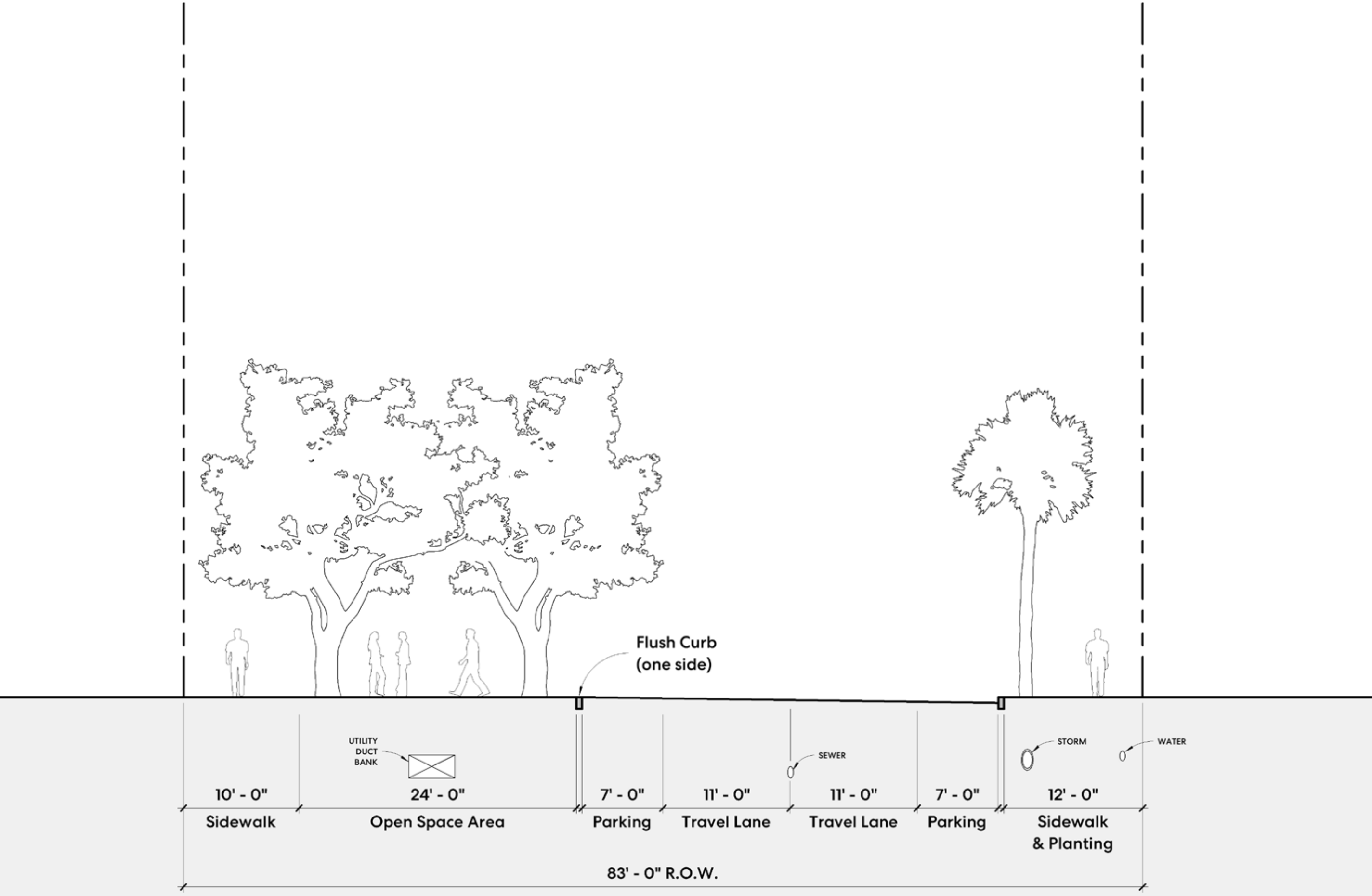








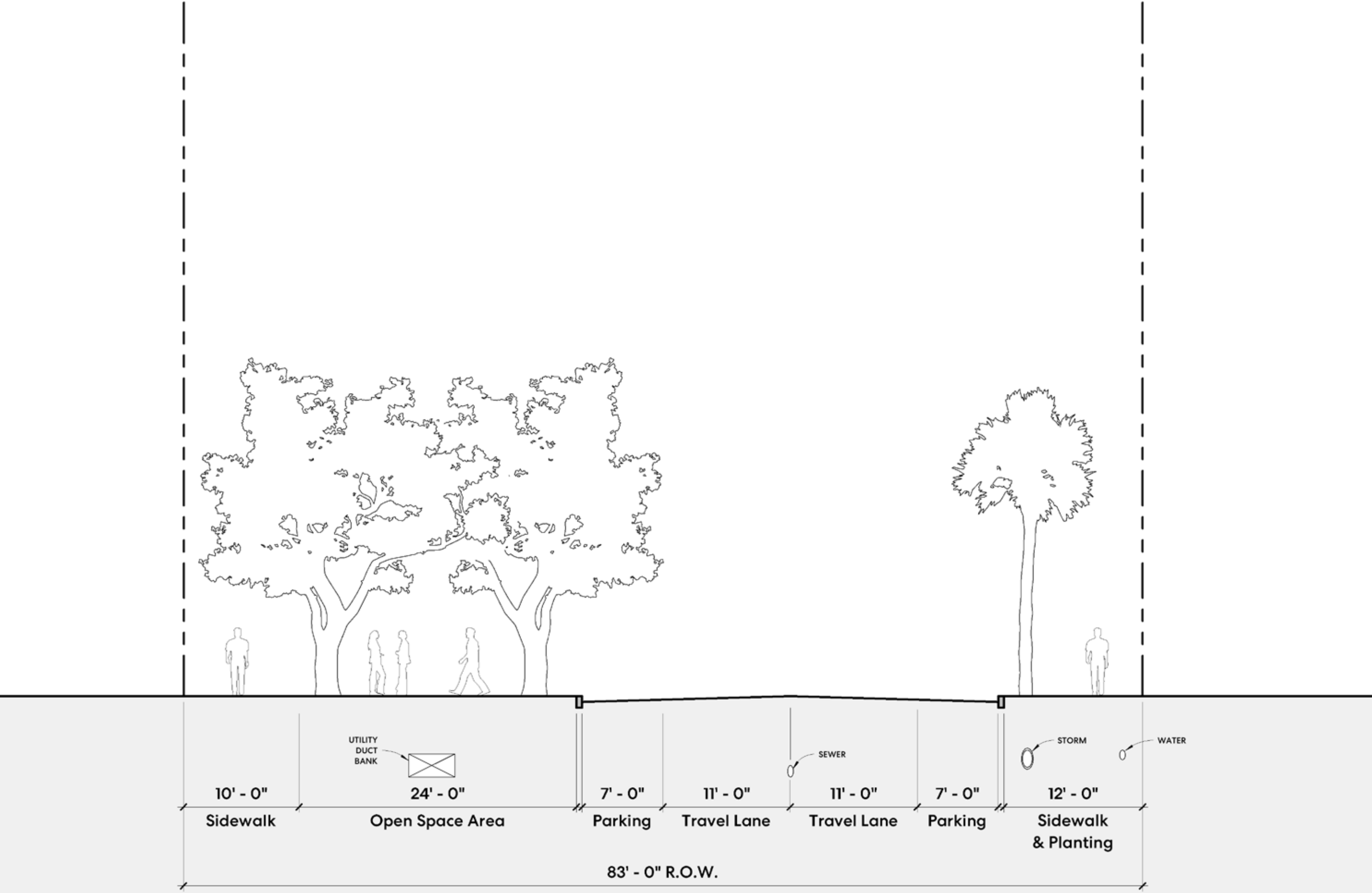


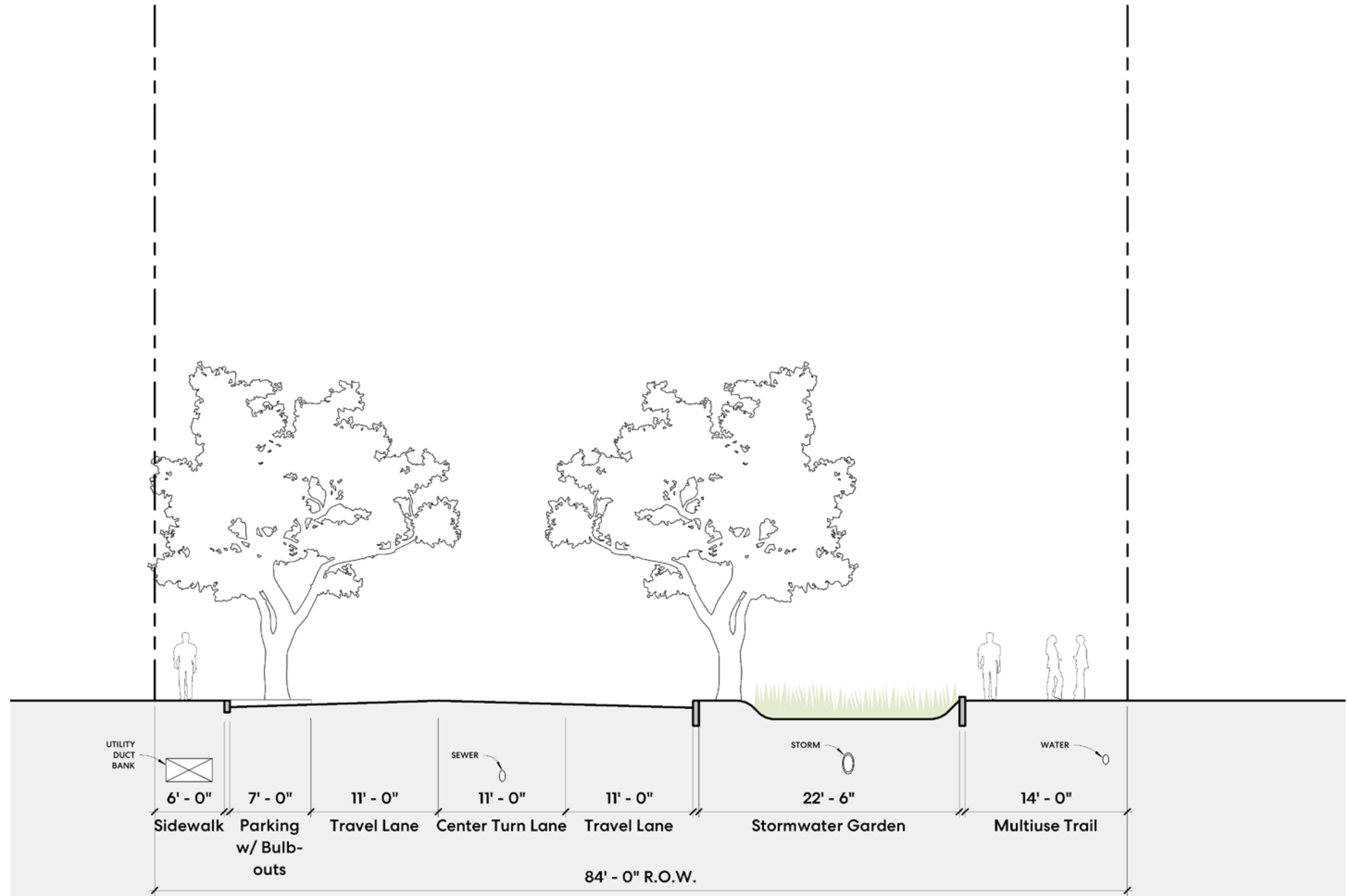


A.11 Primary Type 1.B (Concord Street)

January 30, 2023

**Master Plan for
Union Pier**



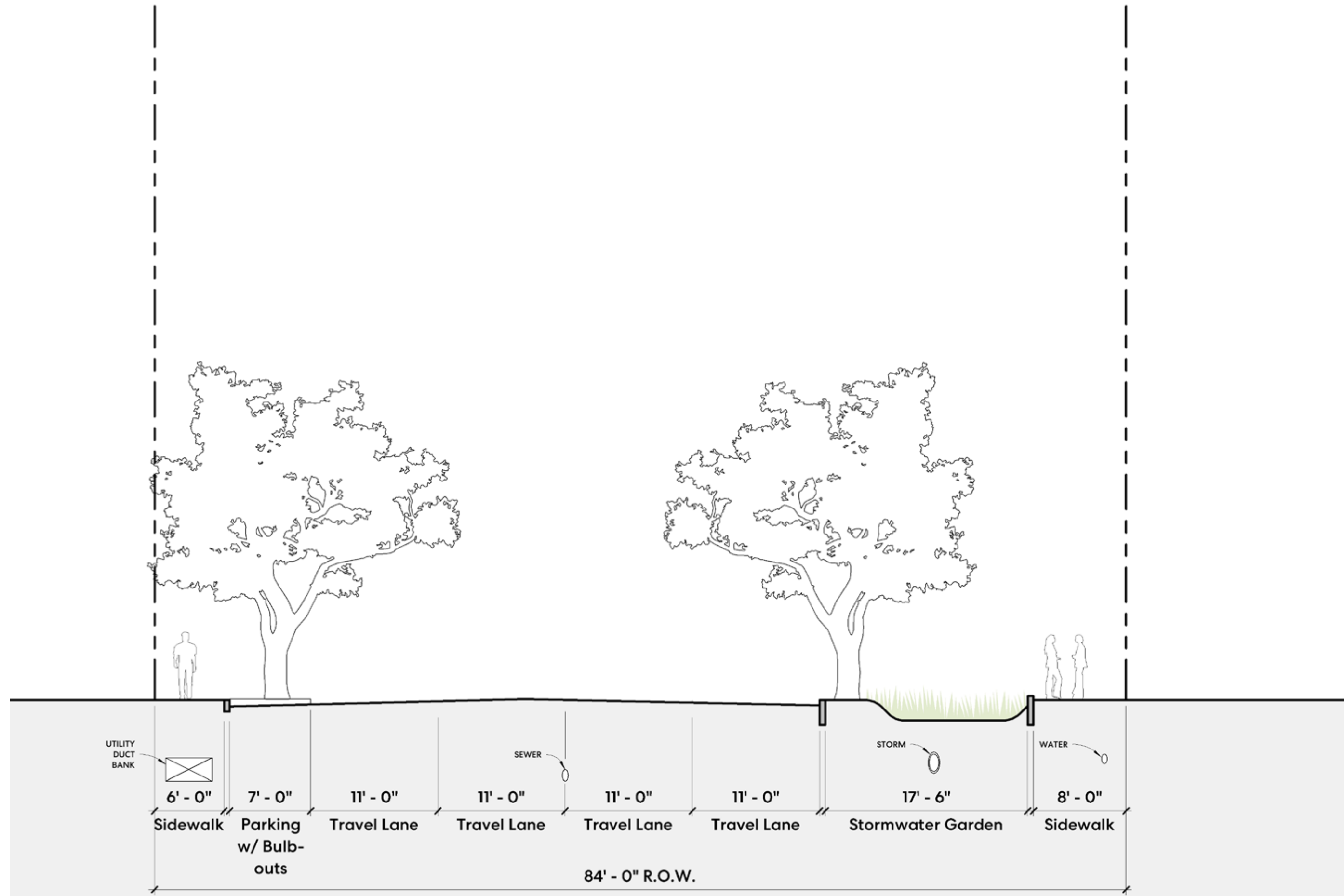


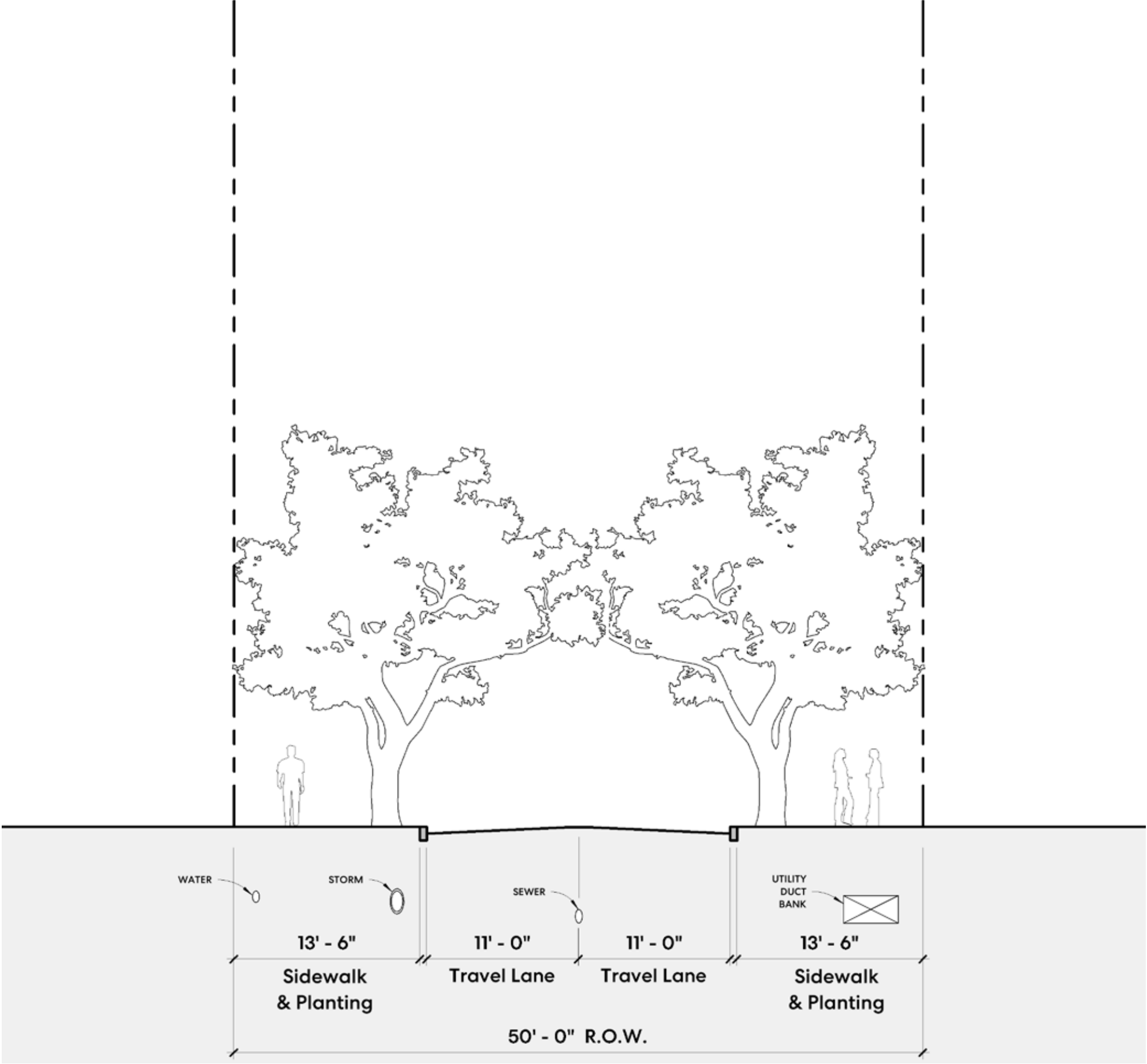
A.11 Primary Type 2 (Washington Street)

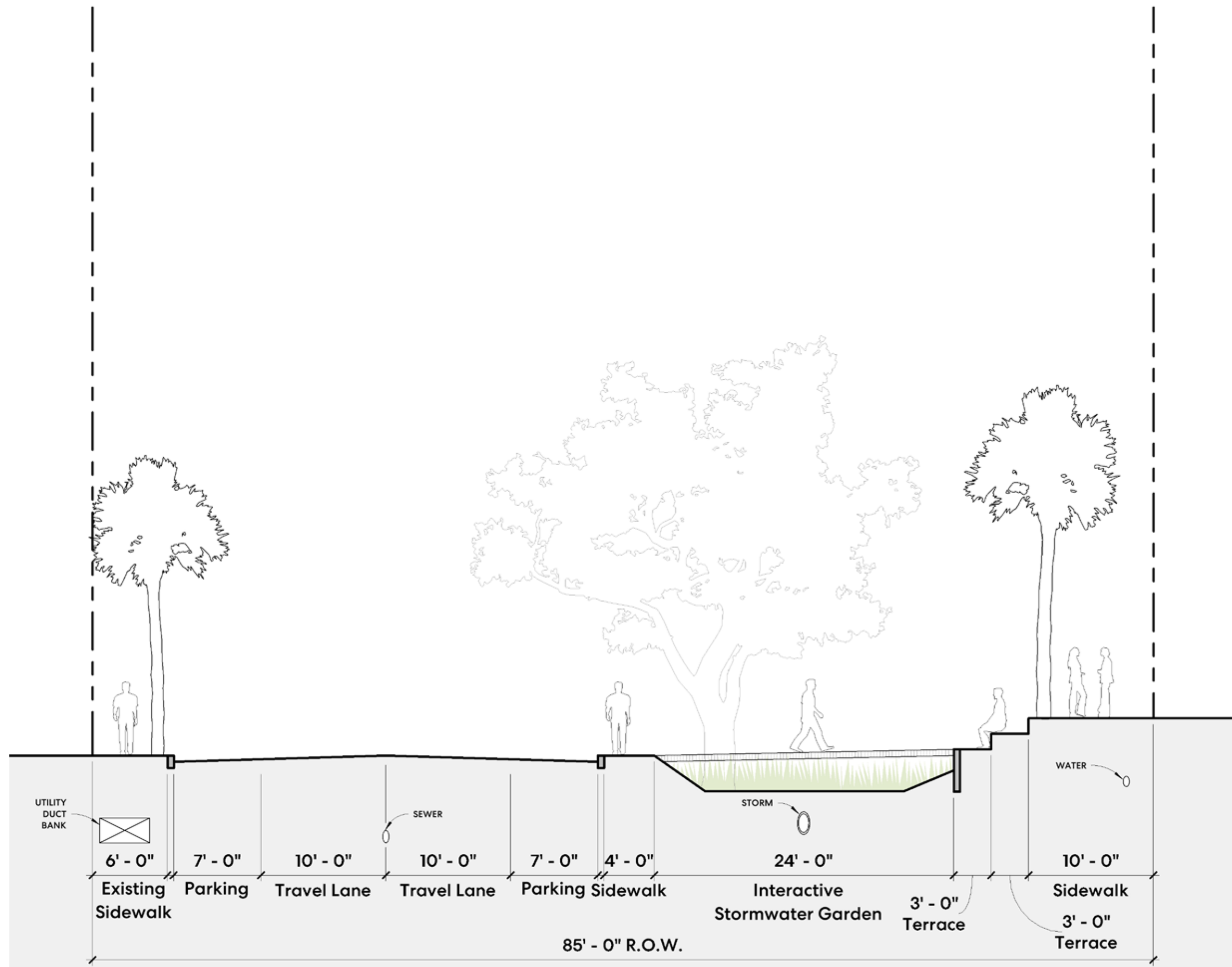
January 30, 2023

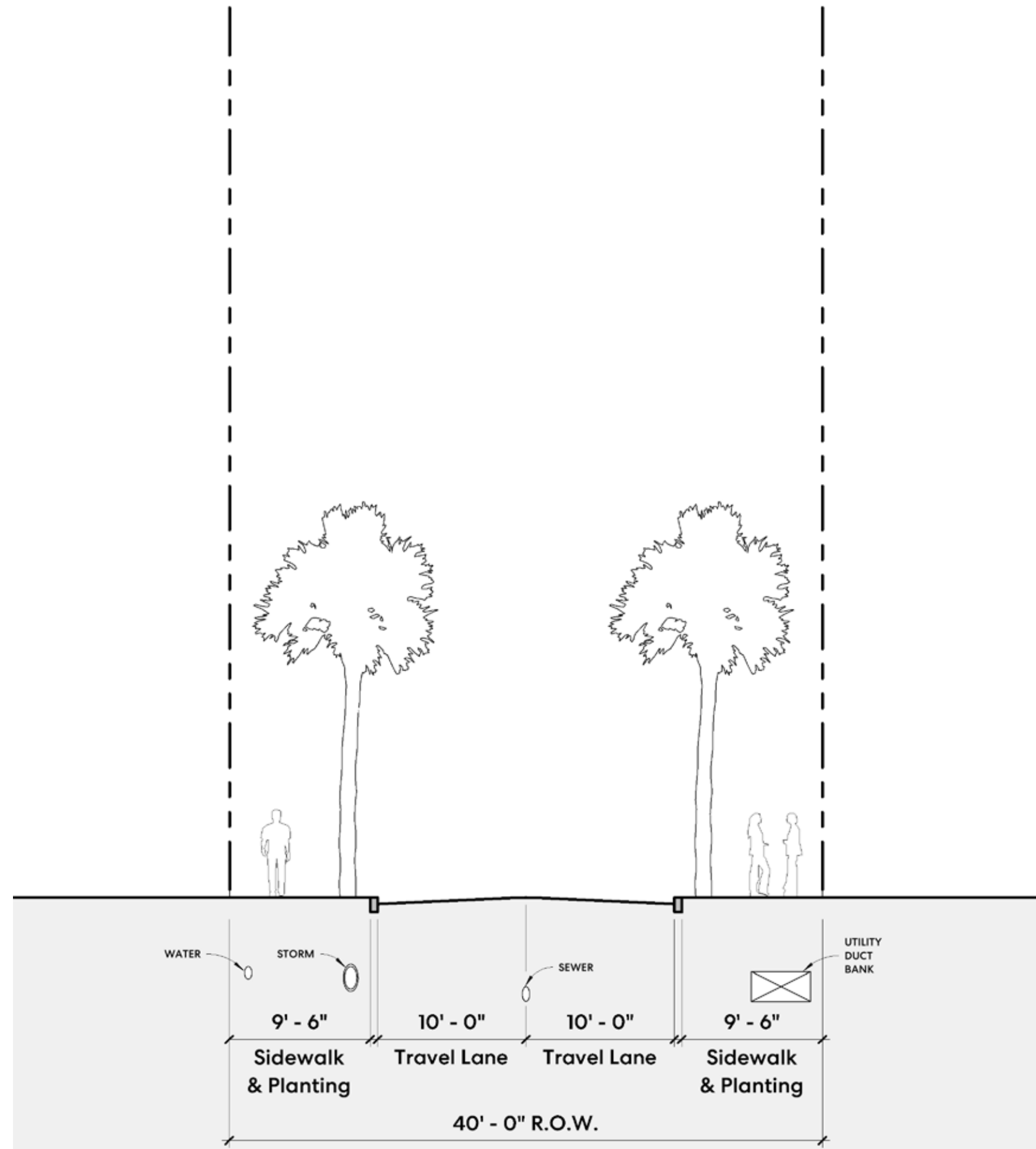
Master Plan for Union Pier

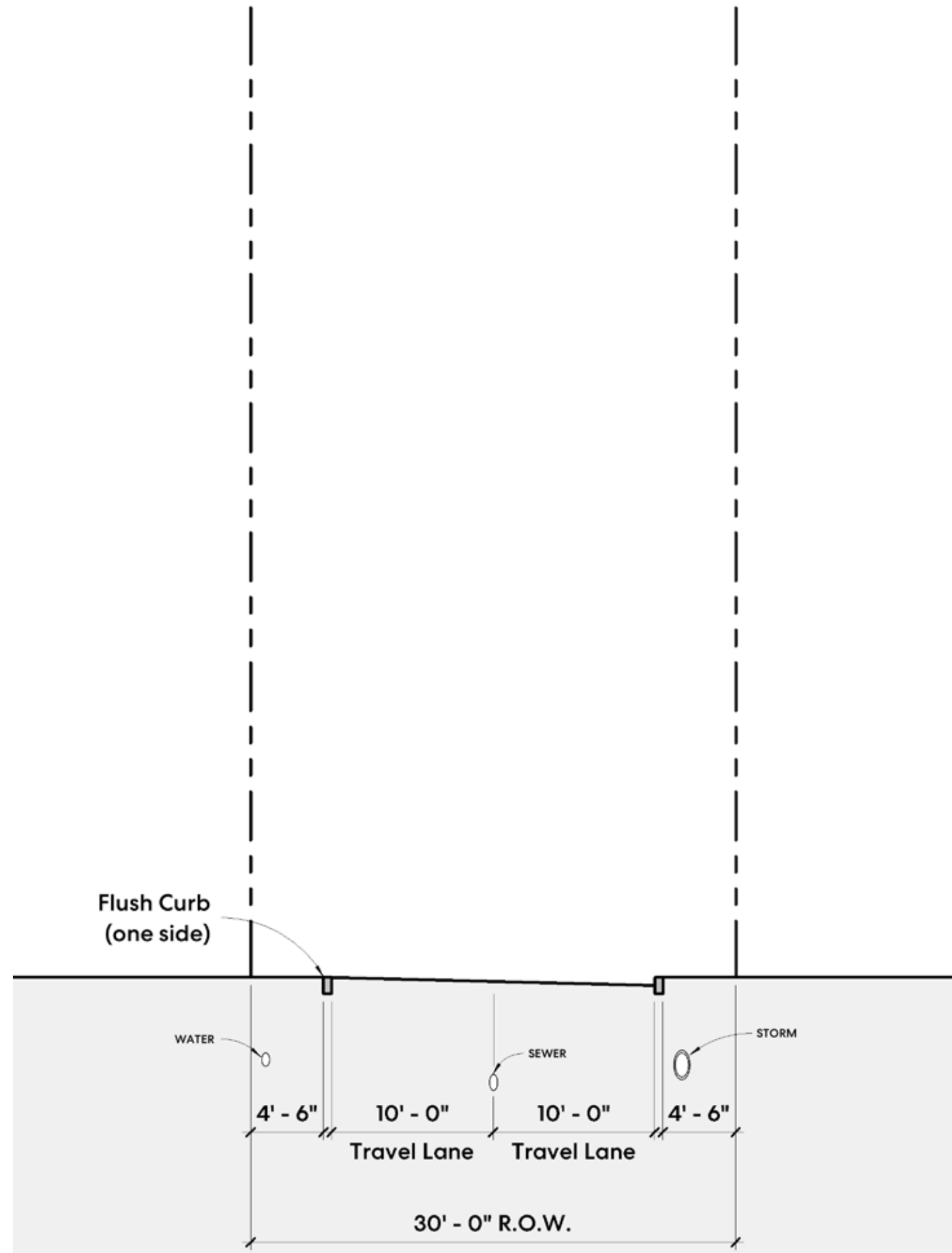
Perkins&Will

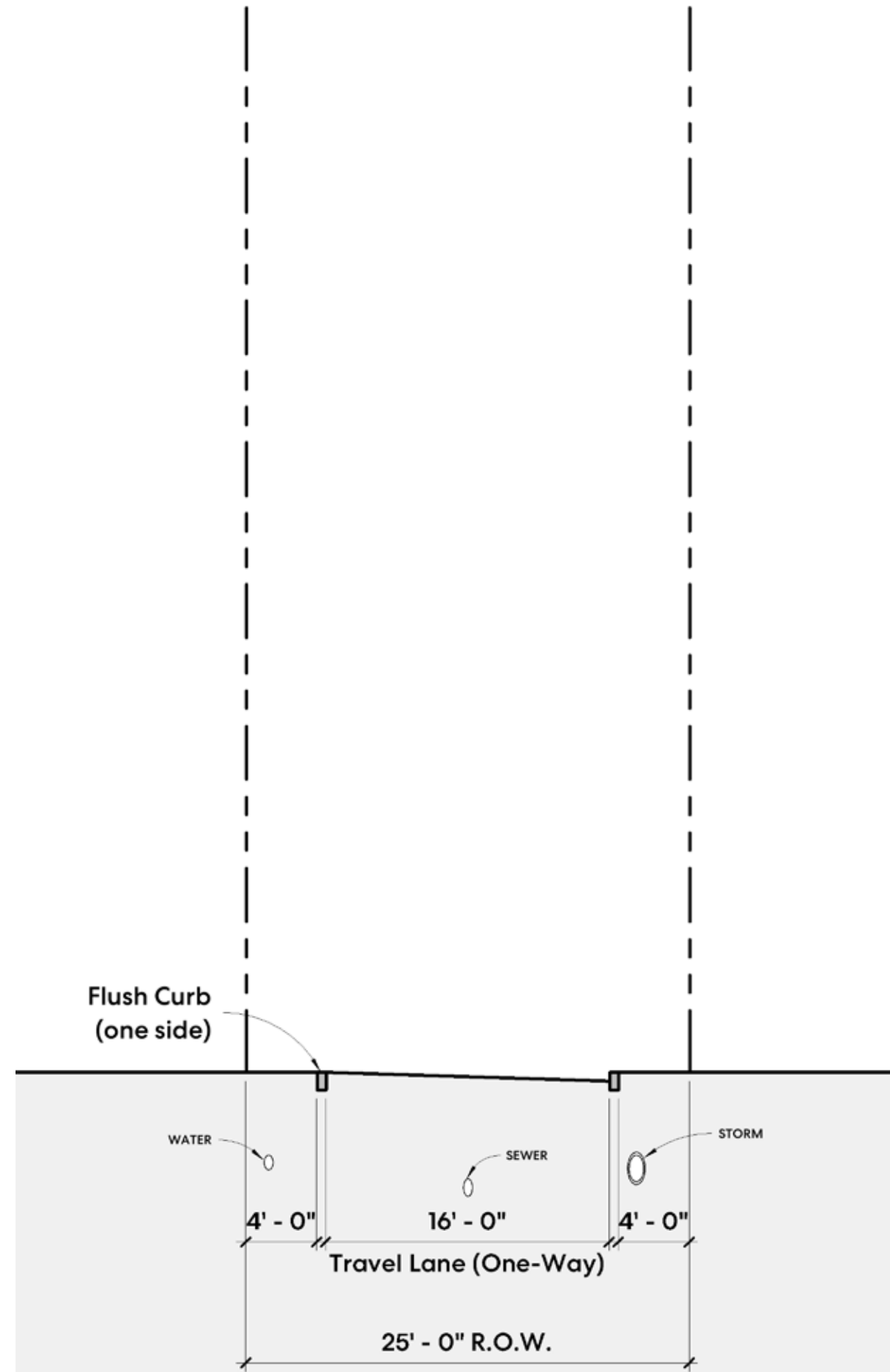




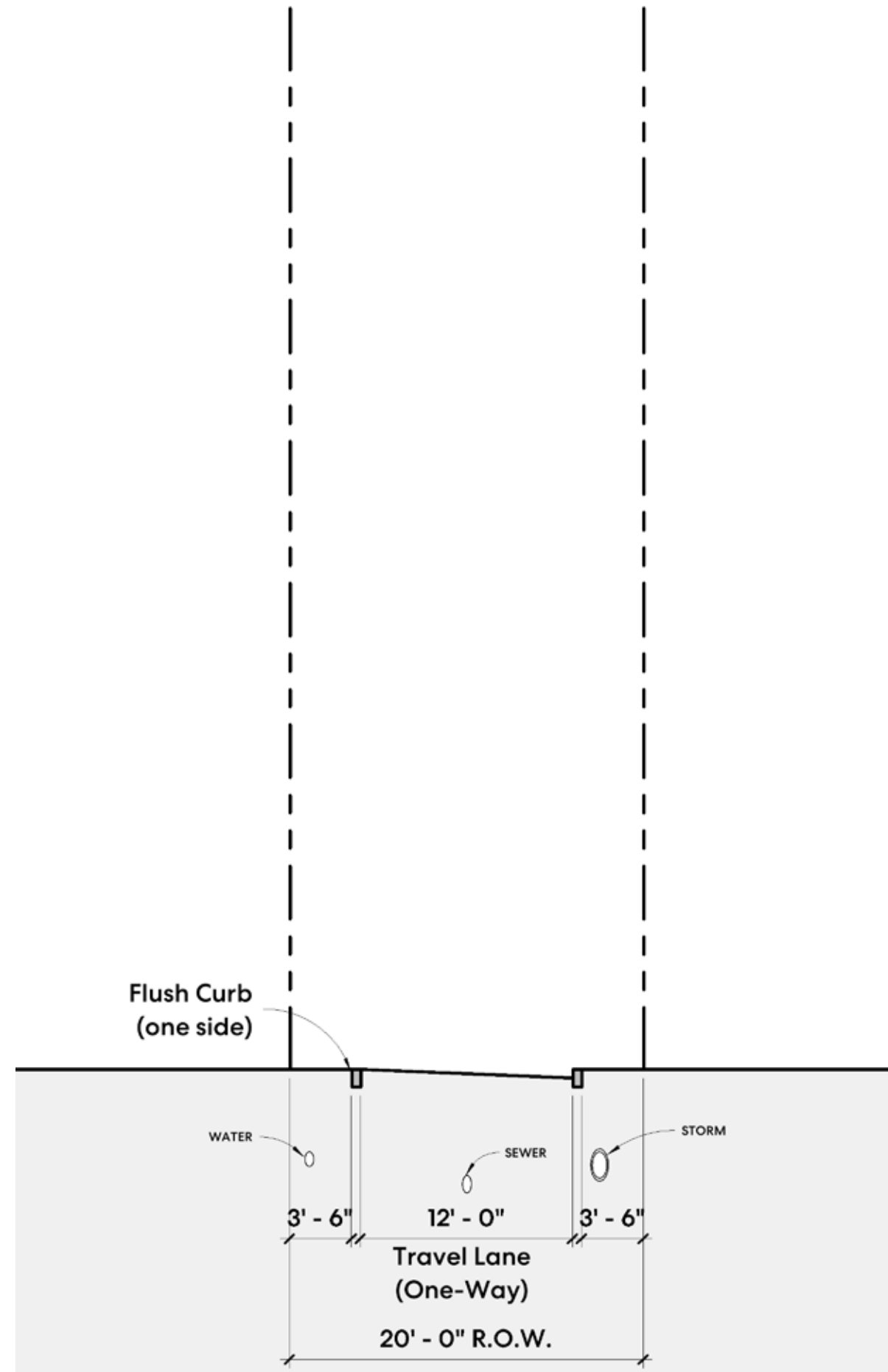




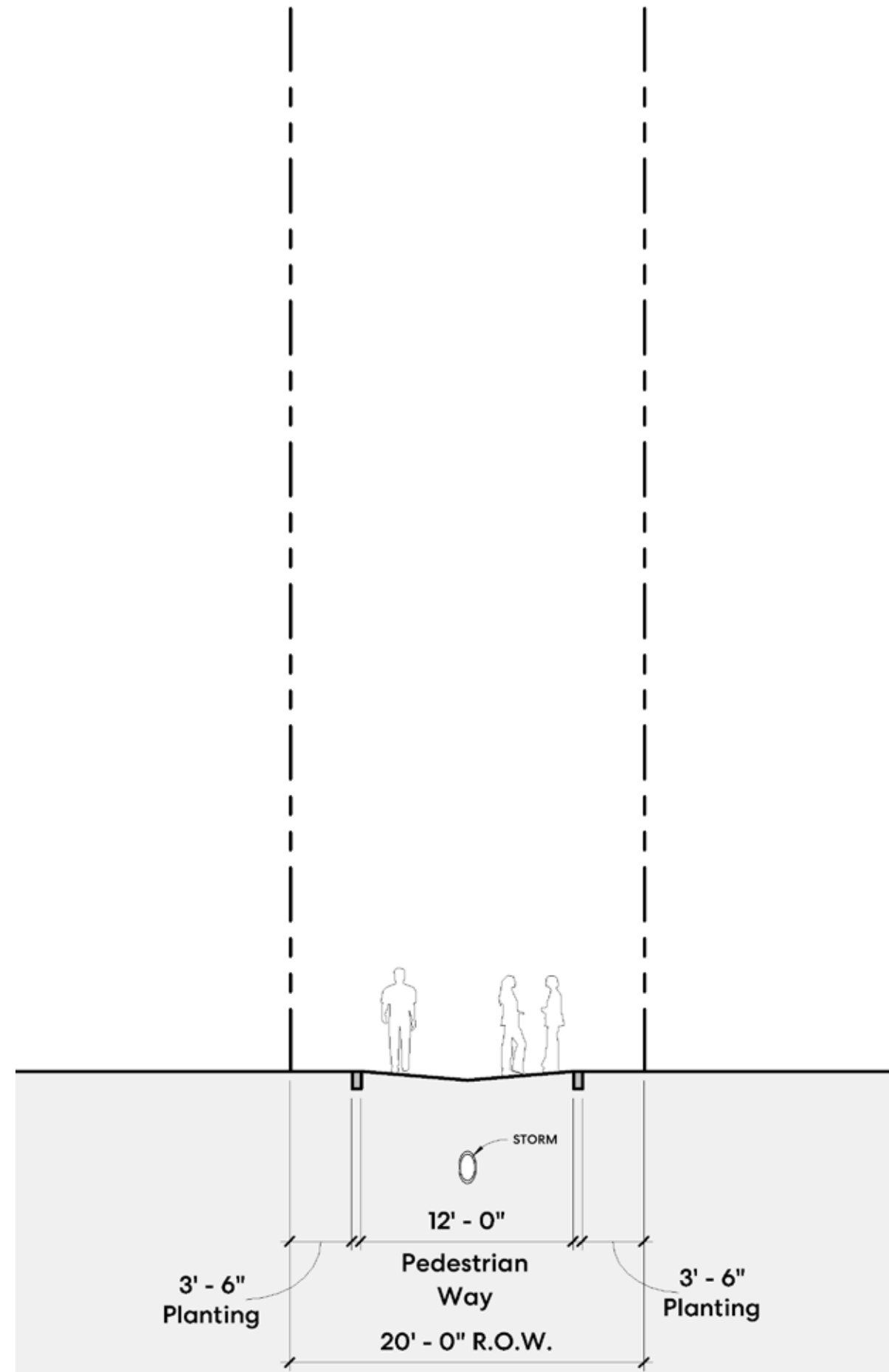




**To be public or private.*



**To be public or private.*



A.11 Pedestrian Way (Typical)

January 30, 2023

Master Plan for Union Pier

Perkins&Will

Appendix B

Traffic Models [reserved for
consideration upon request by staff]

Appendix C

Cultural Resources Study

Cultural Resources Assessment of The Union Pier Redevelopment

Charleston, South Carolina

May 2020

Prepared for:

Lowe

Prepared by:

Lannie Kittrell, MHP
Architectural Historian

Charles F. Philips
Historian

and

A handwritten signature in black ink, appearing to read "Ralph Bailey".

Ralph Bailey, RPA
Principal Investigator

Table of Contents

1.0 Introduction	1
2.0 Historical Overview.....	5
2.1 A Brief History of Union Pier.....	5
2.2 Previous Investigations.....	18
2.2.1 Union Pier Renovations	18
2.2.2 Gadsden’s Wharf and the Future International African American Museum Site.....	18
2.2.3 Waterfront Park Expansion	19
2.2.4 The Charleston Old and Historic District.....	19
2.2.5 The U.S. Customs House.....	20
2.2.6 Fleet Landing Building.....	21
3.0 Field Reconnaissance	23
3.1 Known Resources.....	23
3.1.1 Bennett Rice Mill Façade	23
3.1.2 Charleston Old and Historic District.....	28
3.2 Potential Resources	32
4.0 Summary and Recommendations	35
References Cited.....	37

List of Figures

Figure 1.1 Location of Union Pier, the redevelopment parcel, and previously recorded cultural resources (USGS <i>Charleston</i> quadrangle).	2
Figure 2.1 The location of the project tract on the 1788 Phoenix Fire Company Map of Charleston (Petrie 1788).	7
Figure 2.2 The location of the project tract on the 1852 Bridgens & Allen Map of Charleston (Bridgens and Allen 1852).....	8
Figure 2.3 The location of the project tract on the 1872 <i>Bird’s Eye View</i> of Charleston (Drie 1872).....	10
Figure 2.4 The location of the project tract on the 1884 Sanborn map of Charleston (Sanborn Fire Insurance Company of New York 1884).....	11
Figure 2.5 The location of the project tract on the 1902 Sanborn map of Charleston (Sanborn Fire Insurance Company of New York 1902).....	14
Figure 2.6 The project tract in 1939 (US Department of Agriculture 1939).....	15
Figure 2.7 The project tract in 1957 (US Department of Agriculture 1957).....	16
Figure 2.8 The project tract in 1973 (US Department of Agriculture 1973).....	17
Figure 3.1 Bennett’s Rice Mill facade, facing northeast.	24
Figure 3.2 Bennett’s Rice Mill facade, facing northwest.....	24

Figure 3.3 Bennett’s Rice Mill facade, facing east from East Bay Street.	25
Figure 3.4 Bennett’s Rice Mill, HABS photograph 1958, facing northeast.	25
Figure 3.5 Bennett’s Rice Mill complex on the 1884 Sanborn Fire Insurance Map.....	26
Figure 3.6 Modern residential development to the north of Union Pier property, facing north.	28
Figure 3.7 Modern residential development to the north of Union Pier property, facing northeast from Bennett Mill facade.....	29
Figure 3.8 Ansonborough Inn and Harris Teeter at East Bay and Hassell Streets, facing northeast towards the project tract.....	29
Figure 3.9 Ansonborough Inn, facing east towards the project tract at Washington Street.....	30
Figure 3.10 Ansonborough Inn parking lot/rear of Harris Teeter, facing northeast towards the project tract at Washington Street.....	30
Figure 3.11 East Bay Street, facing southwest at Society Street.....	31
Figure 3.12 East Bay Street, facing south between Laurens and Hassell Streets.....	31
Figure 3.13 East Bay Street, facing south between Hassell and North Market Streets.	32
Figure 3.14 Warehouses on the Union Pier project tract, facing southeast on East Bay Street, north of Pinckney Street.....	33
Figure 3.15 246 East Bay Street, facing east towards project tract.....	33

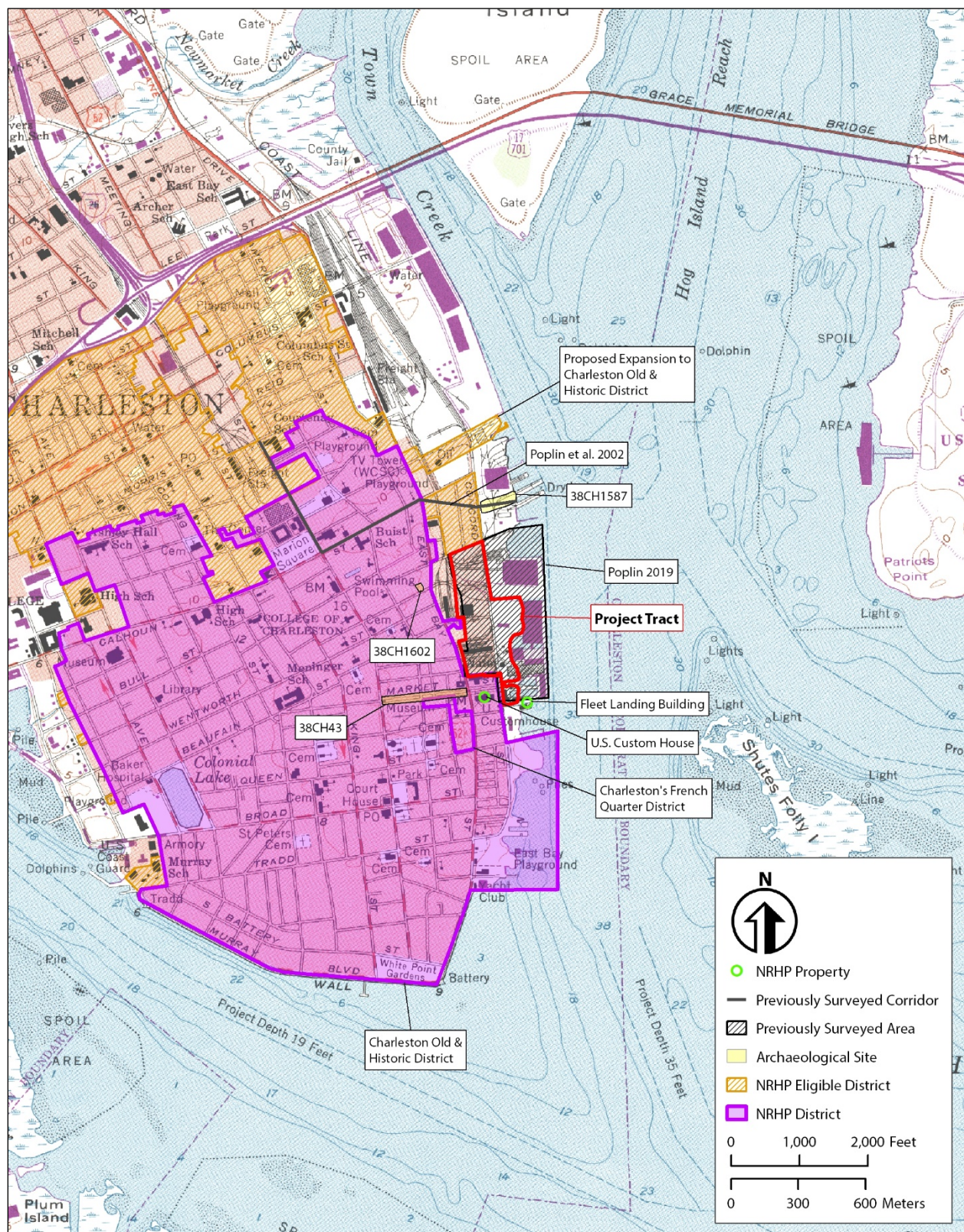
1.0 Introduction

Brockington and Associates, Inc. (Brockington) completed a cultural resources assessment of the Union Pier Redevelopment project in May 2020. The assessment was conducted for Lowe as part of the entitlement process for the non-maritime portion of Union Pier. The project tract includes 30.5 acres of the total 69.5-acre Union Pier property currently owned by the State Ports Authority (SPA). The location of the project is shown in Figure 1.1.

The goal of the assessment was to identify known and potential historic properties that may be impacted by the proposed project. There are no recorded historic properties on the project tract; however, there have been several recent projects in the immediate project area, including the Waterfront Park expansion, Union Pier renovations, and the International African American Museum (IAAM). These projects reflect the recent shift in land use along this section of the Charleston waterfront from a decidedly industrial and commercial character with limited public access to a much more tourism and recreational character focused on the public. The implications of this on the surrounding area, particularly the Charleston Old and Historic District and the quality of life of its residents, have been the focus of considerable debate. The proposed redevelopment project will undoubtedly add to this discussion. A well-planned project can add tremendously to this area without adversely affecting the character and setting of the Old and Historic District.

The Bennett Rice Mill is likely to be an additional historic property, although interestingly, it has not been formally recorded or assessed by the State Historic Preservation Office (SHPO). The rice mill site consists of the front façade and potential subsurface archaeological remains. Even if this resource is determined Not Eligible due to poor structural integrity, it is an iconic structure and a source of contention among the City, the preservation community, and the SPA. It is likely that this resource will need to be treated like a historic property regardless of its National Register status. If it is not practical to incorporate the façade into the project in some way, we recommend that the structure be documented, possibly by laser scanning, photography, and archival research, before being dismantled. We also recommend that Lowe engage with a local preservation college or university, such as the College of the Building Arts or Clemson University, to create a learning opportunity for students.

The potential for significant archaeological remains to be present within the project tract is low. While there are likely to be subsurface foundation remnants of large nineteenth-century buildings like the Bennett Rice Mill, the historical significance and archaeological research potential of these building remnants are minimal. Bennett Rice Mill has Historic American Building Survey (HABS) drawings of its footprint as well as photographs of the building. Other than documenting the size of the foundations and similar construction techniques, there is not much to be learned. There is limited potential for intact, artifact-bearing deposits in association with the foundation remnants. Each time the wharf was converted to another use, buildings were demolished, and debris was pushed across the wharf surface to raise it or level it. Additional fill was likely placed atop the rubble and earlier fills, disrupting refuse pits and middens. There may be a privy or two that survived, but finding those will be difficult. Thus, archaeological potential below Washington Street is low. Between Washington and East Bay, there is a little more likelihood that foundation remnants and associated artifact deposits may be present, but the placement of fills to create that land will make sorting out these associations archaeologically difficult.



We recommend a Phase 1 survey to record and assess the Bennett Rice Mill and any other undocumented resources within the project tract, including several warehouses and a small brick structure observed during the field reconnaissance. The warehouses and brick structure will likely be determined Not Eligible for the National Register of Historic Places (NRHP). The Phase I survey will include assessing these resources within the project tract and the previously recorded resources adjacent to the project tract with respect to the conceptual plans for the redevelopment project. The survey report may be submitted to United States Army Corps of Engineers (USACE), or other appropriate permitting agencies, and the SHPO for review and a formal Determination of Effect. Compliance with Section 106 of the Historic Preservation Act is typically completed with the establishment of a Memorandum of Agreement, followed by the implementation of preservation or mitigations plans, depending on the situation.

2.0 Historical Overview

2.1 A Brief History of Union Pier

With the establishment of Charles Towne on Oyster Point in 1680, the Cooper River waterfront became the eastern boundary of the new town. By the 1690s, fear of Spanish attacks on Carolina prompted the Lords Proprietors to provide for the construction of fortifications around the young town. The Cooper River waterfront witnessed the construction of three primary bastions connected by a curtain wall that also served as a seawall; the wall ran along the east side of East Bay Street. The southern Granville Bastion stood at what is currently the intersection of East Bay and Water Streets (remnants lie beneath the Misroon House at 40 East Bay Street); the Half-Moon Battery stood at the center of the town at the foot of Broad Street (currently beneath the Old Exchange Building); and the northern Craven Bastion stood at the foot of Market Street (currently beneath the U.S. Customs House).

After the Yamasee War (1715 to 1718), the threats of Spanish and Indian attacks diminished, and Charleston quickly expanded beyond the enclosing fortifications. This expansion included the extension of docks and wharves across or beyond the former curtain wall into Charleston Harbor. This allowed vessels to dock and unload directly into the city rather than having to transship cargos and move them in small vessels to the wall. At times, openings were cut through the wall to permit easier ingress and egress. Note that docks and piers are structures that stand in the water; wharves are more substantial constructions and usually consisted of timber bulwarks that were then filled with debris and soil to form causeways or segments of made-land that extend into the harbor. The project tract consists of wharves and docks.

During these early decades, Carolina colonists experimented with various agricultural pursuits and resource extractions to generate commerce and wealth for whites within the colony. Foodstuffs (especially cattle, sheep, and pigs), naval stores and timber, deerskins obtained through trade with the local Indians, and enslaved Indians also obtained from the local Indians all were produced or obtained and exported from Charleston via ships arriving from Britain and the Caribbean. Soon, rice and indigo became the principal export commodities of Carolina, moving by ship to other portions of the British colonial empire and the Atlantic World.

Once docks and wharves extended into the harbor, silt accumulated along the curtain wall, and the Cooper River shoreline began moving. This prompted Charleston landowners to fill the newly exposed lands east of the wall, and the city quickly grew to the east beyond East Bay Street, as well as to the west and north beyond the former fortifications. Throughout the first half of the eighteenth century, the center of maritime trade extended several blocks north and south of Broad Street. The original shoreside market, Exchange, and early Customs House stood at the foot of Tradd Street (within a redan of the City's seaward fortifications and under today's South Adgers Wharf). By the time of the Revolution, the new Exchange opened at the foot of Broad Street (atop the old Half-moon Battery, today's Old Exchange and Provost Dungeon). The City Market would also occupy this space (and more land immediately east of the old fortifications) by the 1760s and remain here until the early nineteenth century when the new market opened four blocks to the north.

Just before the Revolution, Christopher Gadsden built his wharf north of Laurens Street. This was the largest wharf on the East Coast at the time, extending from modern Calhoun Street to Laurens Street and from Washington Street to near the current edge of the harbor. All of this area was filled (pine timber cribs were constructed and then filled with oyster shell, sand, and other materials), moving the shoreline over 900 feet to the east. Portions of Gadsden's Wharf are today incorporated into the Charleston Old and

Historic District, with archaeological remnants existing beneath the modern surface in many areas. The project tract borders the former Gadsden's Wharf along its northern edge.

Most of the Union Pier Terminal Area of Potential Effect (APE) remained undeveloped during this period. The south-central area was partially filled by 1788 with three wharves and several buildings atop them. Figure 2.1 displays the Union Pier Terminal APE at that time. These wharves lay along the southwest corner of the project tract. Other lands of Union Pier lay vacant tidal flats and open water.

During the last two decades of the eighteenth century, the City of Charleston began filling the creek beneath today's Market Street, and in the late 1790s, built the new City Market atop this newly made land. Frequently, debris from city trash and construction sites were hauled to the east side to provide fill for the new market area and the wharves being built on the Cooper River. The specifics of this infilling are discussed in Christina Butler's book new book, *The Lowcountry at High Tide, A History of flooding, drainage, and reclamation in Charleston, South Carolina* (Butler 2020). The book will be released in the summer of 2020 and should be consulted as part of a future Phase 1 Survey or other study of the project area.

The new Market opened in 1800, with wharves and docks expanding along the Cooper River waterfront all to the east of East Bay Street. Prior to the extension of land into the harbor beyond East Bay Street, merchants were concentrated along that street due to their proximity to the source of goods and stores: the wharves in the harbor. As new land and wharves were built, some merchants moved their shops and residences onto the wharves. By the middle of the nineteenth century, numerous industries began to establish themselves on the waterfront, particularly those that relied on the movement of raw materials and finished products into and out of Charleston.

Rice mills were an important component of the rice culture and white economic prosperity in nineteenth-century Charleston. In 1822, Jonathan Lucas and John L. Norton built one of the first rice mills atop Gadsden's Wharf, just north of the project tract. In 1844, former South Carolina Governor Thomas Bennett and William Lucas partnered in the development of Bennett's Rice Mill. The partners erected a wharf and a substantial brick rice mill complex along the Cooper River (within the project tract). Remnants of the front façade of this mill are extent on the project tract. Based on Poplin 2019a, it is likely that there are intact archaeological deposits remaining around the front façade of the Bennett Rice Mill complex; however, there is limited potential that there are intact artifact-bearing deposits in association with the foundation remnants. Each time the wharf was converted to another use, buildings were demolished, and debris was pushed across the wharf surface to raise it or level it. Additional fill was likely placed atop the rubble and earlier fills, disrupting refuse pits and middens.

Other industrial companies were also located on the project tract during the mid-nineteenth century. In the 1830s, Marsh & Son had constructed a shipbuilding business on a wharf and dock in the east central portion of the APE. Charleston Iron Works erected their structures north of Pritchard Street, and the Charleston Rice Company built a smaller rice mill south of Bennett's on Hassell Street inside the project tract. Maps from the time show that there may be smaller blacksmiths and ironmongers and other trades that were often seen as nuisance industries by residents. Figure 2.2 displays the project tract in the 1850s with the industries inside the project tract. By this time, the Union Dock was present within the project tract between Pritchard and Pinckney Streets.

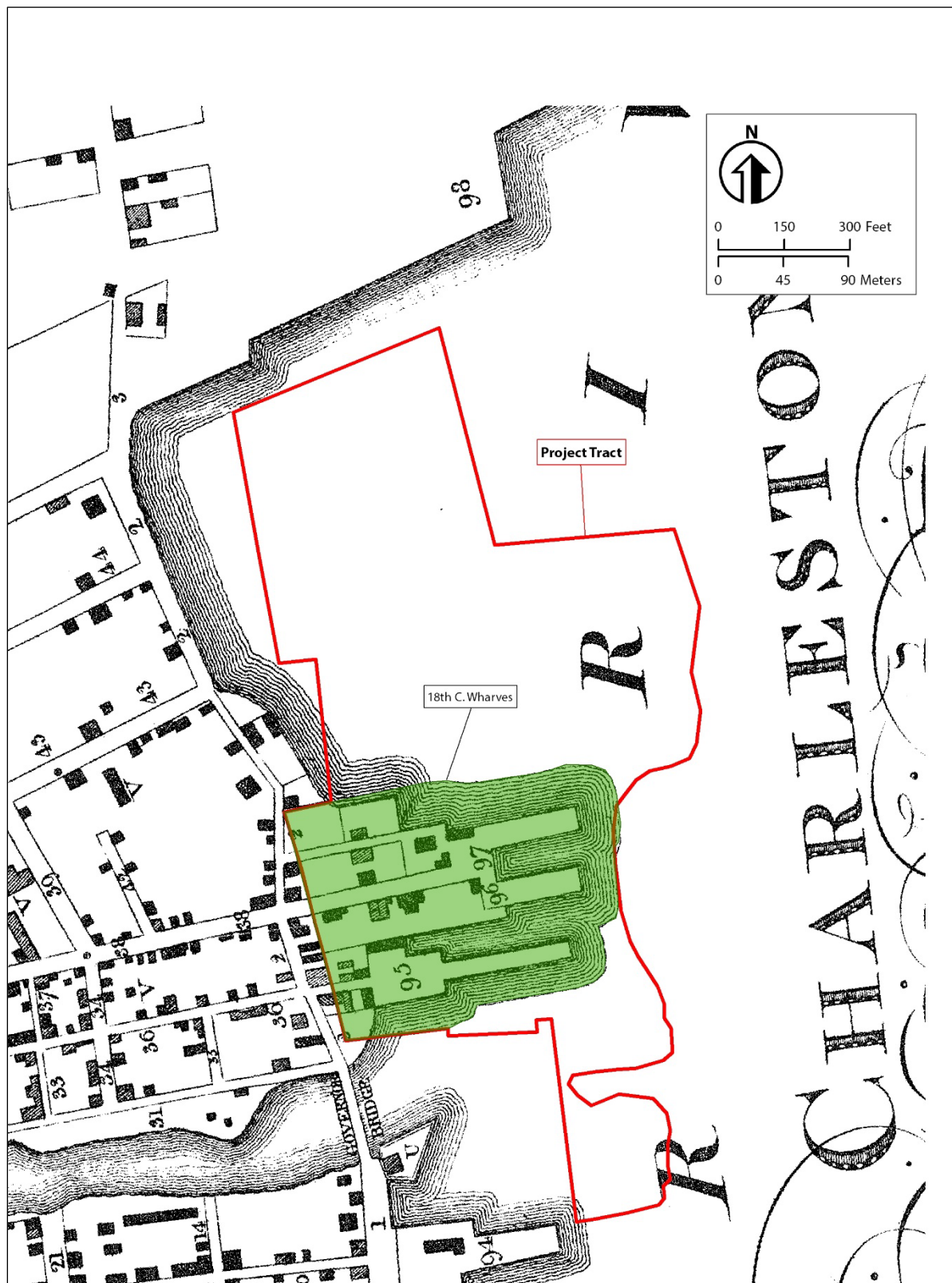


Figure 2.1 The location of the project tract on the 1788 Phoenix Fire Company Map of Charleston (Petrie 1788).

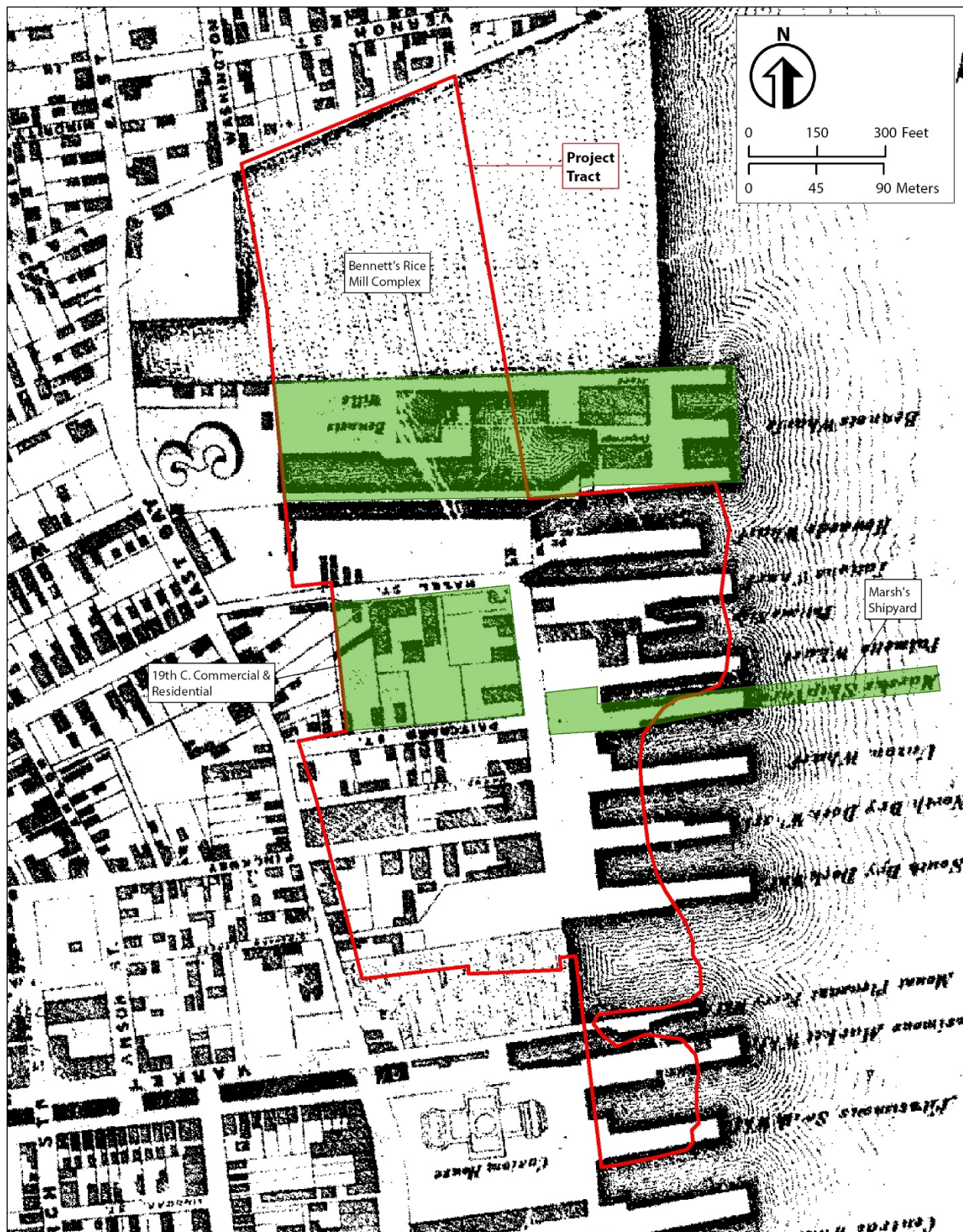


Figure 2.2 The location of the project tract on the 1852 Bridgens & Allen Map of Charleston (Bridgens and Allen 1852).

Also, during mid-nineteenth century, railroads began to carry goods and people into and out of the city. The Charleston to Hamburg Railroad was completed in the 1830s, providing ready access from the central Savannah River Valley to the port of Charleston. Cotton was the primary commodity moved in this fashion, but other goods and many people also began to travel by rail into and out of the city. However, the direct connection of rail service to the wharves would not be realized for several more decades.

Commerce was greatly reduced during the Civil War, primarily due to the Federal blockade of all Confederate ports. However, Charleston remained an active port, receiving and dispatching blockade runners, and it served as a hub of Confederate naval activities. In the decades following the Civil War, maritime commerce into and out of Charleston declined as the economy of South Carolina and other southern states began to shift from the plantation-supported agricultural exports to other commodities and agricultural products produced in other manners. By 1872, at least one new wharf (Fairchild's Wharf) and dock (Hunter's Dock) had been built within the northern portion of the Union Pier Terminal but outside the APE. At the north end of the APE on the south side of Laurens Street, a string of residences was located. Figure 2.3 displays the project tract in the 1872.

By this time, another important business was located within the project tract. The Union Cotton Press Company was present in the southwest corner along East Bay Street where they controlled three wharves. The company dominated the southern portion of the pier with their large cotton facility, storage warehouses, and a dock. Eventually, Union Pier took its name from the Union Cotton Press Company.

The Charleston Mosquito Fleet also operated along the docks in the project tract for decades. Beginning before the Civil War, this African American-led fleet of small wooden boats left each morning from the Charleston docks to catch fish in the harbor and on the open sea, and they returned in the afternoons to market their fish to residents. Most of the fresh fish sold directly to homes and at the Market Street stalls were supplied by this enterprising group of fishermen. Each day they brought in thousands of pounds of Black Bass, Porgy, Snapper, Grouper, Flounder, and many other varieties to the docks. Most of the fleet left from a dock near Laurens Street, slightly north of the project tract. In 2016, Samuel Joyner, one of the last of the Mosquito Fleet fisherman, explained that it was "guided by a ritual of sorts. A century's worth of accumulated wisdom and experience on the ocean had been passed down and distilled into a daily routine" (Bjur in *Charleston Grit*, February 19, 2016) In addition to supplying fresh fish to the city, the Mosquito Fleet became an endeared part of Charleston life and culture for more than 150 years. The last boat stopped fishing in 1989.

By the mid-1880s, a phosphate processing and storage facility, along with several other industries, were located inside the project tract. In the 1860s, phosphates were discovered near the surface in the lower portions of South Carolina, and mines and processing plants were opened throughout the Charleston Neck and the surrounding areas. This material was essential for fertilizer and was shipped out from Charleston to areas throughout the United States and beyond. The Pacific Guano Company, a guano importer and phosphate processing business, located their processing and storage facility on a wharf between Hassell and Pritchard Streets inside the project tract. Former fertilizer plants may retain environmental concerns today due to soil contamination.

Additionally, wharves and freight sheds used by the Baltimore Steam Ship Company and the Market and Customs House wharves all stood within the project tract. On the west side of the tract, Valk & Murdoch built their iron works, the second company of its kind located on the Union Pier Terminal. Figure 2.4 displays the project tract in 1884. These facilities remained in the tract following the earthquake of 1886



Figure 2.3 The location of the project tract on the 1872 *Bird's Eye View of Charleston* (Drie 1872).

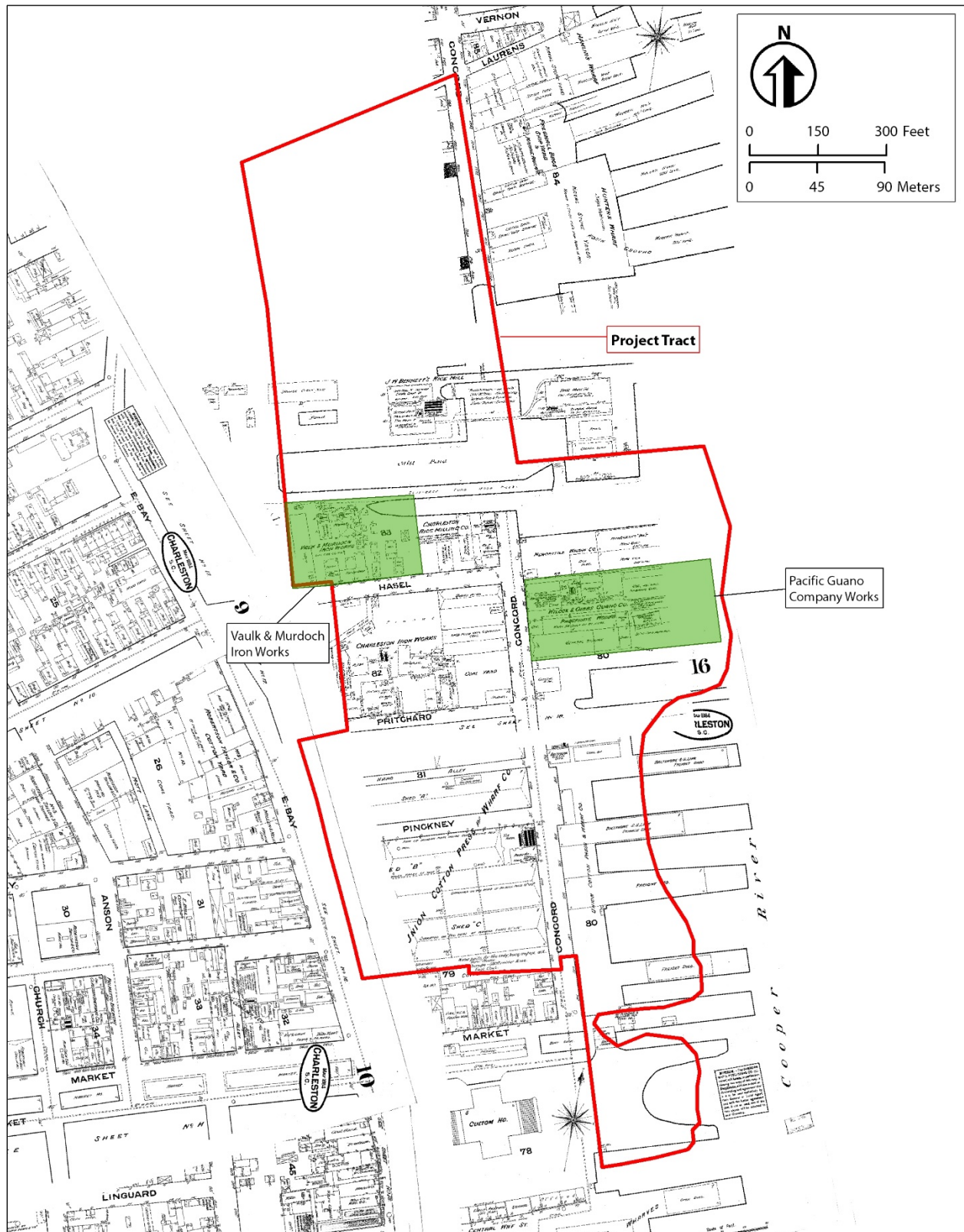


Figure 2.4 The location of the project tract on the 1884 Sanborn map of Charleston (Sanborn Fire Insurance Company of New York 1884).

that destroyed or damaged most of the buildings within the City of Charleston. As stated earlier, substantial subsurface archaeological deposits for these manufacturing facilities are likely nonexistent.

The City of Charleston witnessed expansion of industrial facilities during the late nineteenth and early twentieth centuries. Phosphate factories dominated the land north of the city. The city also looked for other industries to support its economy. In the 1880s, the USACE dug a new entrance into the Charleston Harbor, permitting steam ships to bring in larger cargos to the port. As a direct consequence, in 1903, the U.S. Navy established an installation on the Cooper River north of the City of Charleston. The Navy installation soon included a shipyard (for repair and construction) and service facilities for smaller naval ships home-berthed in Charleston. The presence of the Navy base encouraged other industrial development such as the General Asbestos and Rubber Plant off Montague Avenue near the Navy Base.

Industrial facilities and the movement of freight and cargo to and from ships continued within the APE into and throughout the early twentieth century. By 1902, the Southern Railroad Company acquired the wharves at the northern end of Union Pier and connected their wharves and freight sheds to rail lines that extended down the eastern side of the Charleston peninsula. These lines continue to serve the Port of Charleston and Union Pier Terminal today. The lines of the Southern Railroad in the north and the Seaboard Air Line in the central portion of the project tract are seen in Figure 2.5.

By the early 1920s, most of the wharves along the east side of Charleston were owned by railroads, the Union Cotton Press Company, or the Port Utilities Commission. The end of rice production in South Carolina after 1911, the destruction of the cotton crop by the boll weevil after 1920, and the collapse of the South Carolina phosphate industry after World War I caused a severe decline in use and business along the docks and wharves. Docks inside the APE began to fall into disrepair with insufficient capacity to fill the many warehouses. In 1921, Charleston's Mayor John Grace created the Ports Utility Commission (PUC) to own and manage the many wharves along the city's east side that were being abandoned (Port Utilities Commission Records, 1921-1943: Summary of Port Utilities Commission). The agency began to promote the use of the waterfront facilities, and in 1942, it became part of the newly created South Carolina Ports Authority (SCSPA).

The PUC assumed control of the former Union Cotton Compress Plant and wharves in the southern part of the project tract. Meanwhile, the Seaboard Air Line purchased ownership of the former Bennett Rice Mill and wharf in the central part of the project tract. The Union Pier was expanded as the commission sought to market the port. The railroads reconfigured their docks, removing unnecessary structures and docks. Figure 2.6 displays an aerial photograph of the Union Pier area in 1939; note that the northernmost wharf has been demolished or has collapsed. Also, wharves in the central section were demolished or altered.

As the twentieth century progressed, so did the maritime traffic into and out of the City of Charleston. The U.S. Navy increased its warship production during World War II. Local businesses grew with activities associated with a growing military presence, and during and immediately after the war, the area experienced explosive growth of residential and service facilities north of Charleston, proper for the increasing number of workers at the Naval Base. Eventually, this led to the formation of the City of North Charleston, a separate municipality around Navy Base Charleston. Most of this activity resulted in growth to the north of the project tract.

Despite the SCSPA's efforts to market the Port of Charleston after World War II, the area around the Union Pier Terminal continued to decline. By the late 1950s, most of the northern wharves were no longer in use and had collapsed or been demolished. The east end of the Seaboard Air Line Wharf was also

destroyed, and most of the western part of the project tract was either vacant or populated with storage facilities. Figure 2.7 displays the project tract in 1957.

In the late 1960s, recreational cruise vessels began to call at the Port of Charleston with some regularity. To meet the growing passenger traffic, the SCSPA erected Building 325 at the south end of the existing Union Pier. The building was completed as a passenger facility and has remained the center of cruise operations at the port since. The remainder of Union Pier Terminal continued to be used (and continues to be used) for cargo operations, but with various kinds of vessels using the berths to discharge and load cargos. Figure 2.8 shows the project tract in 1973 with the passenger terminal buildings.

In the waning decades of the twentieth century, the pier was reconfigured to support containerized freight. The SCSPA also opened terminals on the Wando River in Mt. Pleasant and in North Charleston. The Union Pier Terminal (as it exists today) was altered in the late 1970s by the SCSPA to support increased containerized maritime commerce. By the 1990s, Charleston was the fourth busiest container port in the United States. However, container operations moved farther up the Cooper River to the Cumberland Street Terminal and to the Wando and North Charleston facilities. The twenty-first century witnessed a growth in the cargo facilities of the Port of Charleston. The SCSPA is currently constructing another container facility on the southern end of the former U.S. Navy Base Charleston. The move of the containerized facilities further north has resulted in the SCSPA selling the western portion of their wharves for future development.

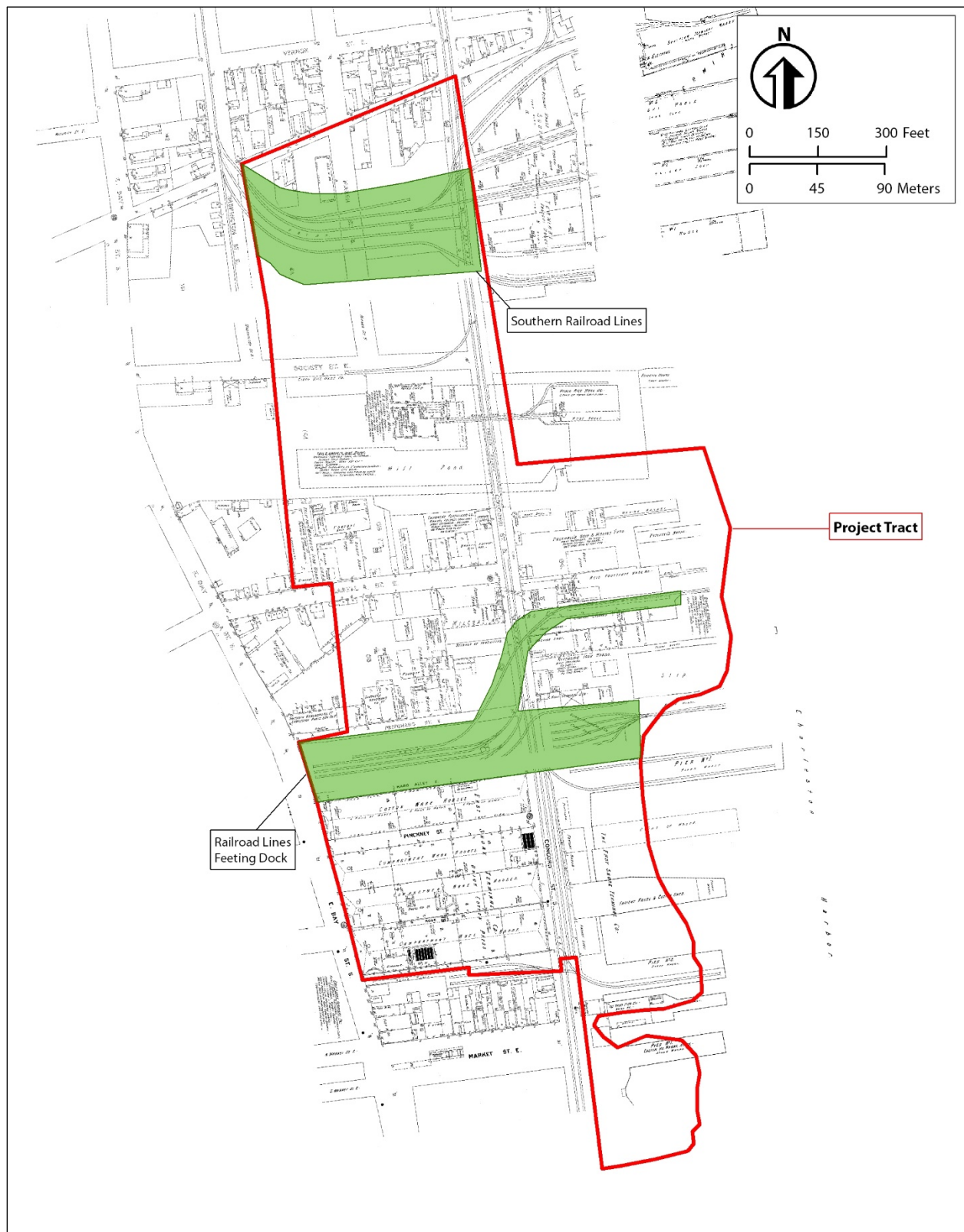


Figure 2.5 The location of the project tract on the 1902 Sanborn map of Charleston (Sanborn Fire Insurance Company of New York 1902).

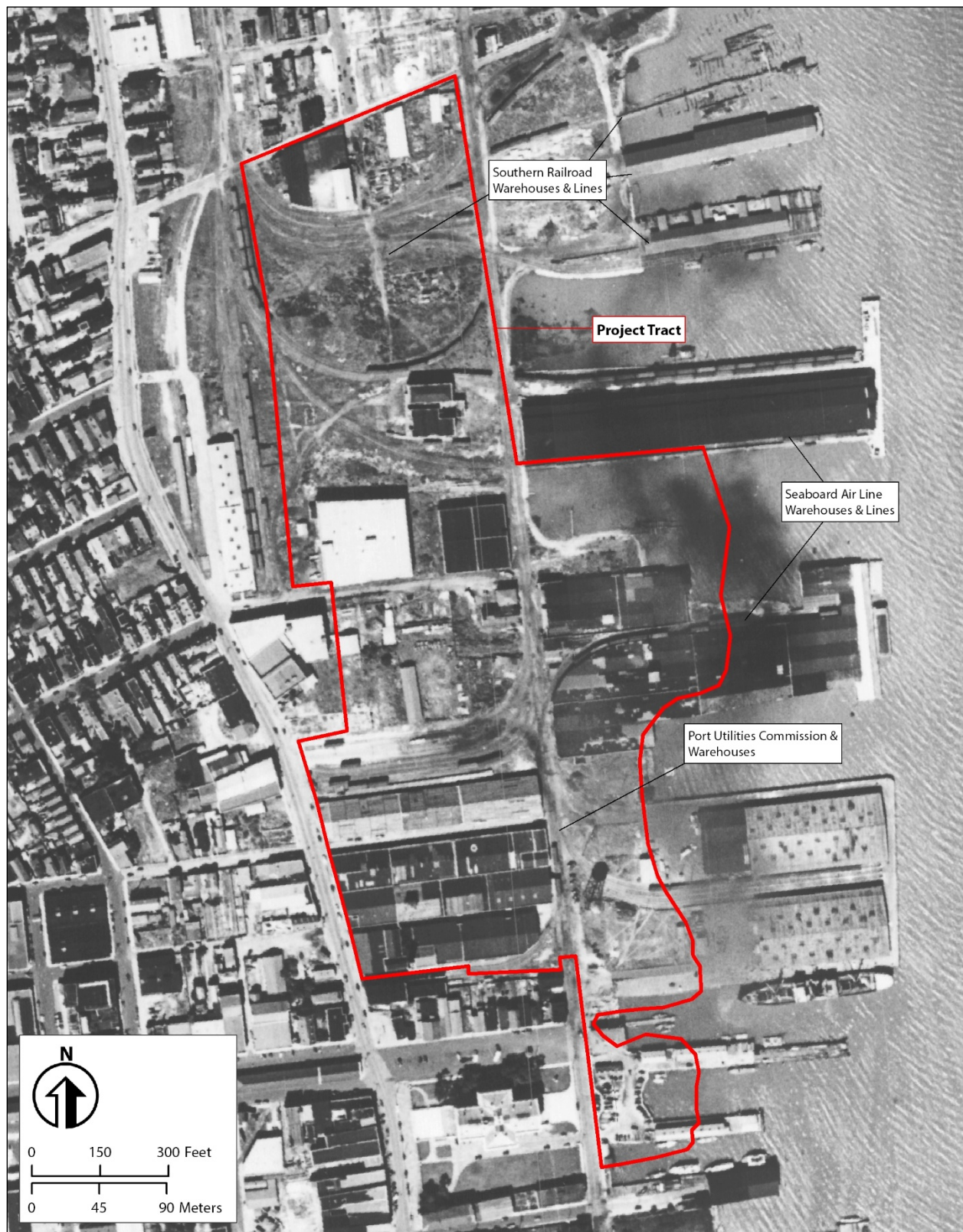


Figure 2.6 The project tract in 1939 (US Department of Agriculture 1939).



Figure 2.7 The project tract in 1957 (US Department of Agriculture 1957).



Figure 2.8 The project tract in 1973 (US Department of Agriculture 1973).

2.2 Previous Investigations

There have been three recent cultural resources investigations in the immediate project area, including the Union Pier Terminal Renovations project (Poplin 2019a), the IAAM project (Poplin 2019b), and the Waterfront Park Expansion project (Bailey 2017). These projects reflect the shift in land use along this section of the Charleston waterfront from a decidedly industrial and commercial character with limited public access to a much more tourism and recreational character focused on the public. The implications of this on the surrounding area, particularly the Charleston Old and Historic District, have been the focus of considerable debate. That debate is likely to continue for the foreseeable future. A summary of these previous studies and previously recorded historic districts and individual resources follows.

2.2.1 Union Pier Renovations

Brockington conducted a historical assessment of proposed renovations to the northern end of the Union Pier Terminal (UPT) and Building 322 along the waterfront portion of Union Pier for use as a cruise ship terminal (Poplin 2019a).

This assessment reviewed the potential effects of the undertaking on historic properties in the APE through the consideration of the defined aspects of integrity necessary for NRHP eligibility. We evaluated how the relocation of cruise operations to the northern end of UPT and the continuation of cruise operations on the southern end of UPT might alter aspects of integrity to such an extent that the NRHP eligibility of the nearby historic properties would be compromised. There are no historic properties within the USACE permit area, and we concluded that the proposed renovations will not affect any historic properties directly. With respect to potential indirect effects, we concluded that the proposed renovations and cruise operations at UPT will have no adverse effect on any historic properties in and around Charleston Harbor.

2.2.2 Gadsden's Wharf and the Future International African American Museum Site

The IAAM plans to construct an exhibit and research center at the foot of Inspection Street just north of the current project. Archaeological Site 38CH1587 covers the IAAM Site and has been determined eligible for the NRHP as an element of the Charleston Old and Historic District. This was the location of Gadsden's Wharf between 1770 and 1810. Gadsden's Wharf served as the entrepot for the majority of Africans brought to South Carolina to be sold into slavery during the last years of the Transatlantic African Slave Trade. Storehouses that stood on the wharf served as barracks for captives awaiting sale. The IAAM selected the proposed site due to its location on or near Gadsden's Wharf.

The IAAM plans to incorporate remnants of Gadsden's Wharf into the design and interpretive programs of the museum. Poplin 2019b encountered the remnants of the cribbing used to construct the eighteenth-century wharf, possible remnants of a storehouse that once stood on the wharf, and the foundations of Robb's or the East Point Rice Mill that stood on the wharf throughout much of the nineteenth century.

The archaeological deposits of these structures provide excellent connections between the past uses of Gadsden's Wharf and the modern cityscape including the IAAM. Unfortunately, most of the soils and fills in the IAAM Site are contaminated with various chemical residues related to past uses of the site and nearby industrial activities. Environmental specialists who are licensed to handle these kinds of materials need to conduct any excavations in the IAAM Site. Work at the IAAM Site is ongoing.

2.2.3 Waterfront Park Expansion

The City of Charleston and Leucadia Coast Properties LLC are expanding Waterfront Park to the south of the current project from Waterfront Park's current northern terminus at the pier north of and including the Fleet Landing Restaurant building (1942) and the former SPA headquarters building (1972). The project was outside of the Charleston Old and Historic District. Fleet Landing is eligible for the NRHP (see below). The SPA headquarters building was determined not eligible for the NRHP. Plans called for replacing the SPA building with a modern hotel and the redesign of the parking area for the restaurant to serve as a main vehicular approach to the future hotel. The SHPO and USACE determined that these changes will have No Adverse Effect on this historic property.

This tract has witnessed multiple episodes of filling, wharf construction, and modern development. The potential for significant, intact archaeological deposits to be present on the site was determined to be low, and subsequently, archaeological investigations on the tract were not required as part of the permit (Bailey and Philips 2017).

2.2.4 The Charleston Old and Historic District

The NRHP-listed and National Historic Landmark Charleston Old and Historic District occupies most of the Charleston peninsular south of U.S. Highway 17/Septima P. Clark Expressway, west of Interstate Highway (I-) 26, and south of Lee Street east of I-26. Notable exceptions along the east (Cooper River) side of the peninsula are the wharves and railroads of the Port of Charleston's Columbus Street Marine Container Terminal, the area between the South Carolina Aquarium and Laurens Street, and Union Pier Terminal. On the west side, the Medical University of South Carolina (MUSC) campus and the MUSC/Veterans' Administration/Roper St. Francis Hospitals areas, located roughly west of President Street, north of Calhoun Street, and west of Gadsden Street south of Calhoun, lie between the Charleston Old and Historic District and the Ashley River.

The historic district surrounds the Union Pier Terminal on the north, west, and south (see Figure 1.1); although it is separated by a few buildings and East Bay and Washington Streets to the west, Laurens Street to the north, and North Market and Concord to the south, the historic district is visible from much of the project tract. Current development north of Laurens Street includes several modern condominium projects and Concord Park where the Ansonborough Homes public housing stood until the mid-1990s. The historic district west of East Bay Street is largely residential between Laurens and Hassell Streets and residential and commercial between Hassell and North Market Streets. South of the Union Pier Terminal, the historic district includes commercial buildings along North and South Market Streets, the U.S. Customs House, and the Fleet Landing building as well as Waterfront Park.

The boundaries of the Charleston Old and Historic District were extended on several occasions to include most of the area north of Calhoun Street and east of East Bay Street, along with individual buildings or sites outside the original district boundaries and the many commercial buildings of the late nineteenth and early twentieth centuries that line King and Meeting Streets (Edmunds 1970; Edmonds 1988; Stockton 1977). The SHPO notes that buildings associated with commercial activities (including warehouses along the Cooper River waterfront), tourism (hotels, automobile service stations, etc.), and various other non-residential functions built during the first half of the twentieth century contribute to the NRHP eligibility of the historic district because of their role in making Charleston the city that it is today. The period of significance also was expanded from 1700 to 1899 to 1700 to 1941.

The Charleston Old and Historic District contains a collection of buildings (originally more than 650 and many more today) that reflect the eighteenth, nineteenth, and early twentieth-century development of

the City of Charleston and the United States; 59 buildings within the Charleston Old and Historic District are listed on the NRHP. A 1974 inventory of the historic district identified 24 buildings with exceptional architectural merit, 82 buildings with excellent architectural merit, and 292 with significant architectural merit. Forty-six district buildings are listed in the HABS due to their historical significance or their outstanding representation of the architectural heritage of the United States. All contributing resources of the Charleston Old and Historic District have not been recorded as such; there has been no comprehensive survey of the district that identifies which buildings and structures within its boundaries actually contribute to its NRHP eligibility. The SHPO often makes individual Determinations of Effect (DOE) for structures as they come up for review for tax credit applications and/or individual NRHP eligibility. It is important to check in frequently with the SHPO about these DOEs because there can often be important information that has not yet been added to ArchSite.

The majority of the contributing buildings within the Charleston Old and Historic District are residences and public buildings from the eighteenth and nineteenth centuries. Late nineteenth and twentieth-century commercial, service, and industrial buildings were added when the historic district was expanded. The ability of visitors to see individual buildings and their relationship to neighboring buildings, as well as the relationship of these buildings to significant historic themes and events, is vital to the historical significance of the Charleston Old and Historic District and its eligibility for the NRHP.

The Charleston Old and Historic District is not a static representation of a single historical era; its elements convey associations with multiple historical periods and associated themes that reflect the history and development of the City of Charleston and the United States between 1700 and 1941 within a vibrant, living city. The historic district is an active and vital part of the City of Charleston. Its residents, workers, and visitors all conduct their daily routines within the mélange of historic settings that constitute the historic district.

Numerous intrusions, both modern and historical, exist within the district. Not every building contributes to the historic district. Some buildings were designed to mimic or reflect older architectural styles and complement the historically significant buildings as much as possible. Some of these intrusions detract from the historical feeling of past eras.

The Charleston Old and Historic District retains its integrity of location, design, setting, feeling, and association, with individual elements retaining their integrity of materials and workmanship. One of the aspects of the Charleston Historic District is the integration of contributing and non-contributing elements. There are large and small clusters of contributing elements intermingled with large and small clusters of non-contributing elements, all dating from one or more of the periods of development of the City. This diversity reflects the living nature and continued growth of the City of Charleston.

2.2.5 The U.S. Customs House

The U.S. Customs House stands at the corner of East Bay Street and South Market Street, adjacent to the project tract's southern boundary. This historic resource is visible from the southern end of the project APE (see Chapter 3.0 below).

The U.S. Government constructed this Roman-Corinthian-style building between 1853 and 1879. Since 1879, it served as the primary offices of the U.S. Customs Service (today Immigration and Customs Enforcement) in Charleston. "Both architecturally and historically, the United States Custom House in Charleston, South Carolina is an outstanding public building, even in a city which has one of the most complete historic districts in the country, and one which contains a multitude of architecturally significant

structures. Its existence and its continual use as a custom house, completes the commercial history of one of the country's busiest early ports" (Beasley 1973). The building was restored in 1968. During its original construction, the builders encountered the remnants of the Craven Bastion, the northeast corner of the original walled City of Charles Towne.

The U.S. Customs House retains its integrity of location, design, materials, workmanship, and feeling. Its setting and association are degraded. Once the center of maritime commercial activities on the Cooper River waterfront, these activities now occur farther upriver. The abandonment and conversion of former wharves along the waterfront to the south of the U.S. Customs House also degrades its setting and its association. The U.S. Customs House is an individually listed NRHP property and a contributing resource to the Charleston Old and Historic District.

2.2.6 Fleet Landing Building

This historic property is immediately adjacent to the south of the project tract. Like the U.S. Customs House and the Charleston Historic District, the Fleet Landing building is visible from much of the southern portion of the project tract.

This building served as a clearinghouse for debarking U.S. Navy personnel in Charleston during World War II. After the war, the U.S. Navy discontinued use of the building, and in the 1960s, the Navy sold it to the SCSPA. Since 2004, the building has housed the Fleet Landing restaurant.

The building retains its exterior appearance and its original construction materials. It remains at the location where it served its historic purpose and retains its geographic relationships with the City of Charleston and Charleston Harbor. The U.S. Navy was a major contributor to the economic growth of the City of Charleston and its associated expansion during the first half of the twentieth century. The Fleet Landing building is one of the few highly visible and accessible remnants of U.S. Navy activities within the City of Charleston today. The Fleet Landing building currently retains its integrity of location, design, setting, materials, workmanship, and feeling. The building was determined eligible for the NRHP in 2004.

3.0 Field Reconnaissance

On May 5, 2020, Brockington visited the Union Pier Terminal property and met with Sean S. Johnson, OPS Team Leader/Yard Planner. The site was almost completely empty at the time of the site visit. The 69.2-acre Union Pier Terminal property currently contains multiple warehouse buildings that appear to date from at least the mid-twentieth century, a mid-century building fronting East Bay Street, the ca. 1970 cruise ship passenger terminal, large sections of paved open lots for vehicle traffic and operations that support the passenger cruise terminal at Union Pier, and the Bennett Mill façade. The 69.2-acre Union Pier Terminal property is fenced off with a high security presence, and it is inaccessible to the public.

3.1 Known Resources

3.1.1 Bennett Rice Mill Façade

The ruins of the once grand 1844 four-story, brick Bennett Rice Mill stand on the Union Pier Redevelopment project tract (on TMS Parcel 4580104005), outside of the NRHP-listed Charleston Old and Historic District boundary (see Figure 1.1). The west façade of the Bennett Rice Mill building stands between Washington Street and the former course of Concord Street. Today, it is within an open area used for the marshalling of vehicles associated with operations on the Union Pier Terminal property. The Bennett Rice Mill façade is currently visible from portions of the Charleston Old and Historic District (see Figures 3.1 through 3.3).

Governor Thomas Bennett, Jr. built the Bennett Rice Mill in 1844 on the Cooper River adjacent to his 1830 three-story, brick lumber mill. The massive, industrial rice mill building was designed with sophisticated elaborate Classical Revival design elements (see Figure 3.4). The steam-powered mill building was constructed of brick laid in common bond with four floors and a slate roof. A one-story brick boiler room building stood at the east elevation. Bennett's Rice Mill was on the wharf/pier that extended into/over the Charleston Harbor. The rice mill complex included several associated mill buildings on the west and east/river side of the mill, while a mill pond was located directly south of the building. A three-story brick rice warehouse with slate roof was located east of the mill on the Cooper River (see Figures 3.5 and 2.3).

Bennett's Mill was one of Charleston's three antebellum rice mills, in operation from 1845 through the early twentieth century. The mill operated throughout the Civil War and survived the great cyclone of 1885 and the devastating 1886 Charleston earthquake. The Bennett family closed the rice mill in the early twentieth century. By 1921, the rice mill was used as a storage warehouse, and the "clean rice warehouse" to the west of the mill and the "rough rice warehouse" east of the mill were no longer extant. Also, by 1921, a newly constructed Seaboard Air Line Railroad Warehouse building replaced the three-story brick rice warehouse building and Bennett's Wharf. Seaboard Air Line Railroad, the new owner of the mill building by the mid-1930s threatened to demolish the building due to high maintenance costs. By 1944, the rice mill building was used as a commercial warehouse.



Figure 3.1 Bennett's Rice Mill facade, facing northeast.



Figure 3.2 Bennett's Rice Mill facade, facing northwest.



Figure 3.3 Bennett's Rice Mill facade, facing east from East Bay Street.



Figure 3.4 Bennett's Rice Mill, HABS photograph 1958, facing northeast.

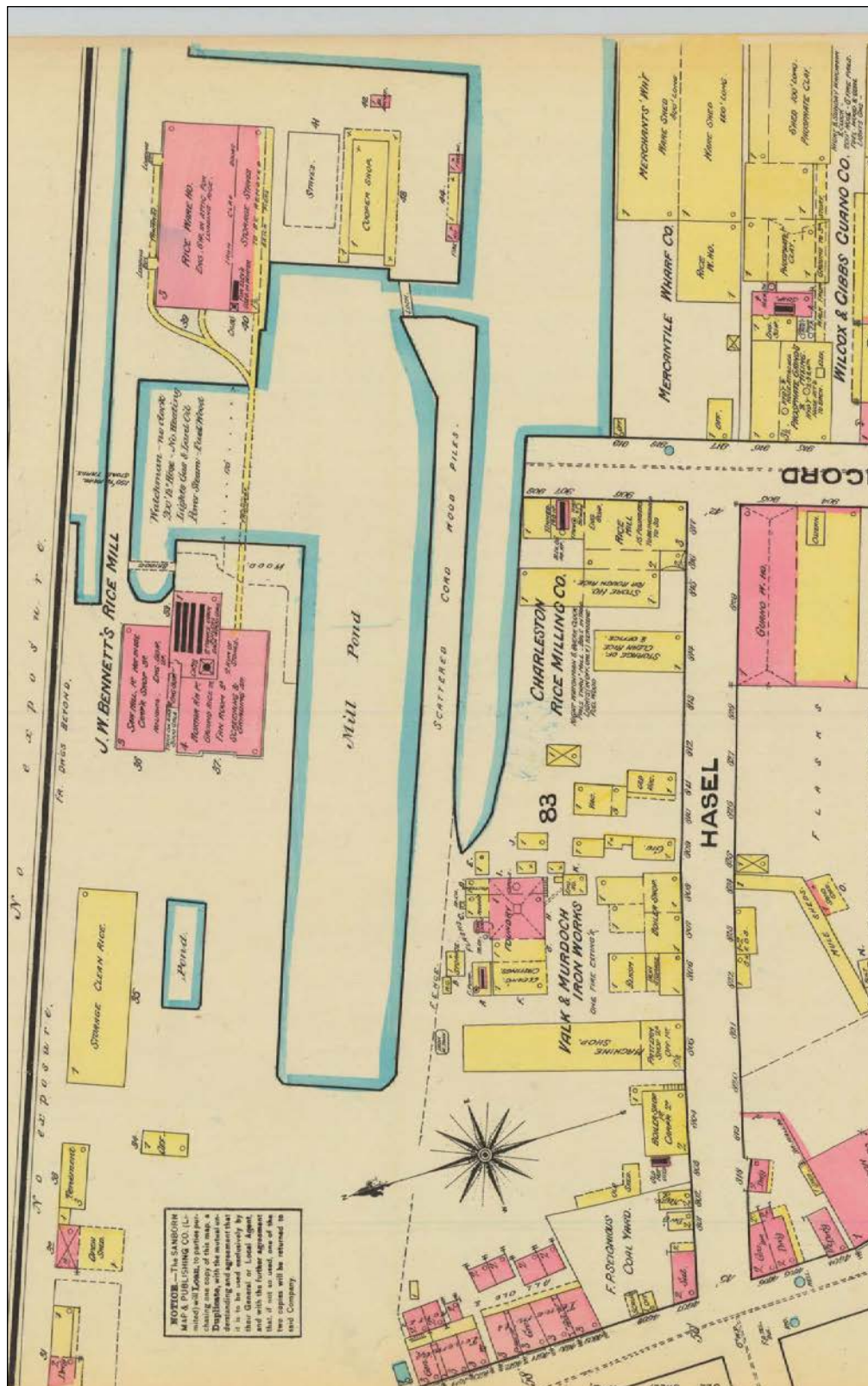


Figure 3.5 Bennett's Rice Mill complex on the 1884 Sanborn Fire Insurance Map.

In the early 1950s, the City of Charleston declared the building unsafe and required it to be torn down. The Preservation Society of Charleston (PSC), recognizing the architectural and historical significance of Bennett's Rice Mill, leased the vacant structure from Seaboard Air Line Railroad while it tried to raise funds needed to restore the building. In 1953, the three-story lumber mill building was demolished, and by 1955, the boiler room building was razed. In 1958, the PSC relinquished their five-year lease to the Seaboard Air Line Railroad. The Seaboard Air Line Railroad transferred ownership to the State Ports Authority that same year. The City requested that the vacant rice mill building be fireproofed; beams and timber from the interior were removed, while heavy steel pipes and beams were installed to brace the structure. The PSC, with the Historic Charleston Foundation, again tried to find funds for the restoration of the Bennett Rice Mill, but Hurricane Donna damaged the structure in 1960 and the City ordered all but the west façade to be demolished ("Bennett Rice Mill Façade, Saved (Again?)," Preservation Progress, PSC, Summer 2011).

The façade of the mill is all that remains of this once grand rice mill complex. The façade is only a ruin/remnant of the original 1844 building and lacks a level of integrity. Although the Bennett Mill Façade may not be eligible for listing according to National Register criteria standards, the vestige wall exemplifies the elaborate Classical Revival design, extensive workmanship, and original building materials evident in the iconic industrial mill building. Constructed by Gov. Thomas Bennett, Jr. as one of Charleston's three antebellum rice mills, this façade stands as a testament to the importance of rice cultivation for the region's growth and success leading up to and following the Civil War, as well as an emblem of the local historic preservation movement. It remains at the location where it served its historic purpose and retains its geographic relationships with the City of Charleston and the Charleston Harbor.

The Bennett Mill façade, if stabilized and accessible to the public, would be one of only two visible and accessible rice mill resources within the City of Charleston today. The Bennett Mill façade is not included within the Charleston Old and Historic District and has not been formerly assessed for the NRHP; however, the Bennett Rice Mill is a HABS-recorded resource. The Bennett Rice Mill HABS record includes a set of measured drawings from 1937, photographs from 1958, and a brief written historic narrative with building description.

During Phase I Survey of the project tract, an architectural historian will survey and record the façade on a South Carolina Statewide Survey of Historic Properties Survey Form and request a site number from the SHPO, along with their formal documentation effort. It is in our opinion that the façade should be stabilized and retained. If plans include removal of the façade, it is Brockington's recommendation that the resource be treated as an NRHP-eligible historic resource, and the owner should, in consultation with the SHPO, mitigate any adverse effects to the rice mill façade.

3.1.2 Charleston Old and Historic District

As previously discussed, the NRHP-listed Charleston Old and Historic District surrounds the SPA Union Pier property on the north, west, and south (see Figure 1.1). The 69.2-acre Union Pier property is separated from the historic district on the north by Laurens Street and modern infill condominium developments (see Figures 3.6 and 3.7); on the west by Washington and East Bay Streets and SPA-owned warehouse buildings, the Harris Teeter and Ansonborough Inn; and on the south by North Market Street, the U.S. Customs House, and the Fleet Landing building. Although it is separated by a few buildings and major streets, the historic district is visible from much of the project tract. Current development north of Laurens Street includes several modern condominium projects and Concord Park where the Ansonborough Homes public housing stood until the mid-1990s. The historic district west of East Bay Street is largely residential between Laurens and Hassell Streets and residential and commercial between Hassell and North Market Streets. South of the Union Pier Terminal, the historic district includes commercial buildings along North and South Market Streets, the U.S. Customs House, and Fleet Landing building along with Waterfront Park.

There is a concentration of historic resources and contributing resources to the Charleston Old and Historic District to the west and south of the project tract. The Harris Teeter (outside of the historic district) and Ansonborough Inn (inside the historic district) are at the intersection of East Bay and Hassell Streets (see Figure 3.8). These buildings are historic buildings (Harris Teeter is a sensitive adaptive reuse project that includes a portion of a historic railroad building) that help define the edge of the historic district. Figures 3.8 through 3.11 and 3.14 exhibit portions of the western boundary of the project tract.

The Charleston Old and Historic District is mostly residential west of East Bay Street. See Figures 3.11 through 3.13 for current views of the historic district along East Bay Street. Washington and East Bay Streets separate the project tract from the historic district. This mostly residential area of the historic district has a mixture of historic and modern residential and commercial buildings along East Bay Street.



Figure 3.6 Modern residential development to the north of Union Pier property, facing north.



Figure 3.7 Modern residential development to the north of Union Pier property, facing northeast from Bennett Mill facade.



Figure 3.8 Ansonborough Inn and Harris Teeter at East Bay and Hassell Streets, facing northeast towards the project tract.



Figure 3.9 Ansonborough Inn, facing east towards the project tract at Washington Street



Figure 3.10 Ansonborough Inn parking lot/rear of Harris Teeter, facing northeast towards the project tract at Washington Street.



Figure 3.11 East Bay Street, facing southwest at Society Street.



Figure 3.12 East Bay Street, facing south between Laurens and Hassell Streets.



Figure 3.13 East Bay Street, facing south between Hassell and North Market Streets.

The U.S. Customs House (individually NRHP-listed as well as a contributing resource to the historic district) and the NRHP-eligible Fleet Landing building are within the viewshed from the southern portion of the project tract. These resources have been featured in several recent reports pertaining to projects in the vicinity of the Union Pier Terminal, including Waterfront Park Expansion (Bailey and Philips 2017) and Union Pier Renovations (Poplin 2019a). Currently the SPA Headquarters building is being demolished and replaced with a hotel. The southern half of the project tract may be more visible with its proximity to the historic district than the northern half.

3.2 Potential Resources

The proposed redevelopment project tract contains several warehouses that are likely 50 years of age or older, but it is unlikely that any of these are eligible for listing on the NRHP. Figure 3.14 presents examples of these potential resources.

The warehouses do not appear to be architecturally significant or have significant historical associations. Their use has also changed with the shift from cargo focused operations to cruise ship terminal operations. In our brief reconnaissance, we discovered that the brick building at 246 East Bay Street was leased to a company that made chemicals in the mid-twentieth century (see Figure 3.15).



Figure 3.14 Warehouses on the Union Pier project tract, facing southeast on East Bay Street, north of Pinckney Street.



Figure 3.15 246 East Bay Street, facing east towards project tract.

4.0 Summary and Recommendations

The Union Pier redevelopment project is located in a dynamic part of the city. This area has witnessed seemingly countless development and redevelopment projects over the past three hundred years as the connection of the city to the waterfront changes. Proposed redevelopment of this part of Union Pier fits well into this story and is in-keeping with a larger ongoing redevelopment of the area as we can see with projects like Waterfront Park and the IAAM project. While any large project in this area will certainly be highly scrutinized, as it should be, we recommend that a thoughtful, well-planned project can be done with No Adverse Effect to surrounding historic properties, including the Old and Historic District.

There are several structures on the property that have not been recorded. The Bennett Rice Mill façade should be recorded, and a Determination of Eligibility should be made by the SHPO. It is likely that this resource will be determined eligible, simply because it is so well known and visible. Regardless of its eligibility, the structure is iconic, and any future project will likely need to treat it accordingly. If the façade cannot be safely and practically incorporated into a new structure, we recommend that a plan be devised and implemented for it to be documented, removed, studied, and commemorated. Other structures on the property include several warehouses and a small brick building that appear to be at least 50 years old. These structures should be recorded and assessed, although they are likely to be determined not eligible for the NRHP.

We recommend a Phase 1 Survey to record the aboveground resources mentioned above. Research should be conducted about the function and history of the structures, not simply their architectural merit. The potential for significant archaeological deposits to be present is low; however, additional research should be conducted during the Phase 1 survey to gather more information about specific filling and previous redevelopment episodes within the project tract.

References Cited

Bailey, Ralph, and Charles Philips

2017 Cultural Resources Assessment of the Proposed Waterfront Park Expansion and Hotel, Charleston, South Carolina. Prepared for Lowe Enterprises.

Beasley, Ellen

1973 NRHP nomination form for the United States Custom House. On file at South Carolina Department of Archives and History, Columbia.
(<https://schpr.sc.gov/index.php/Detail/properties/11931>)

Bridgens, Richard P. and Robert Allen

1852 *An Original Map of Charleston, South Carolina*. A copy is at The Charleston Archive, South Carolina Room, Charleston Public Library, Charleston.

Bjur, Zach

2016 The Story of the Charleston Mosquito Fleet. *The Charleston Grit*. An online publication of Gulfstream Communications, Charleston. Webpage at: <https://charlestongrit.com/story-charleston-mosquito-fleet> [accessed May 2020].

Butler, Christina Rae

2020 *Lowcountry at High Tide, A History of flooding, drainage, and reclamation in Charleston, South Carolina*. University of South Carolina Press, Columbia [presently at the press for printing and not available until Summer 2020].

Code of Federal Regulations (CFR)

36 CFR Part 60.4: National Register of Historic Places.

Drie, C. N.

1872 *Bird's Eye View of Charleston, South Carolina*. Original in the Library of Congress. A copy was obtained online at: www.loc.org [accessed April 2020].

Edmonds, Mary W.

1988 NRHP nomination for the extension of the Charleston Old and Historic District. On file at South Carolina Department of Archives and History, Columbia.
(<http://www.nationalregister.sc.gov/charleston/S10817710004/S10817710004BI2.pdf>).

Edmunds, Mrs. Henry S.

1970 NRHP nomination form for the Charleston Old and Historic District. On file at South Carolina Department of Archives and History, Columbia
(<http://www.nationalregister.sc.gov/charleston/S10817710004/S10817710004.pdf>).

Historic American Buildings Survey, Creator

1933-1938 *Bennett's Rice Mill, Between East Bay, Hasell, Concord & Laurens Streets, Charleston, Charleston County, SC*. Documentation Compiled. Photograph. Retrieved from the Library of Congress, <www.loc.gov/item/sc0061/>.

Petrie, Edmund

1788 *Iconography of Charleston South Carolina*. An original copy is located at the Library of Congress, Washington. A copy was obtained online at www.loc.org [accessed April 2020].

Poplin, Eric, C.

2019a *Historic Assessment of Proposed Renovations to Union Pier Terminal*. A report prepared by Brockington and Associates for the South Carolina State Ports Authority, Charleston.

Poplin, Eric, C.

2019b *Treatment Plan for the IAAM Site (38CH1587), Charleston, South Carolina*.

Port Utilities Commission Records

1921-1943 Summary of the Port Utilities Commission. Originals in the Charleston Archive, South Carolina Room, Charleston County Public Library.

Preservation Society of Charleston

2011 “*Bennett Rice Mill Façade, Saved (Again?)*,” Preservation Progress, Summer 2011.

Sanborn Fire Insurance Company

1884-1902 Fire Insurance Maps of Charleston County, City of Charleston, South Carolina. A copy of the originals at the Charleston County Public Library, South Carolina Room. A copy was obtained online through the Charleston County Public Library webpage: www.ccpl.org [accessed April 2020].

Stockton, Robert P.

1977 NRHP nomination form for the extension of the Charleston Old and Historic District. On file at South Carolina Department of Archives and History, Columbia (<http://www.nationalregister.sc.gov/charleston/S10817710004/S10817710004BI2.pdf>)

United States Department of Agriculture

1939-1973 Aerial photographs of Charleston County, City of Charleston, South Carolina. Originals in the National Archives and Records Administration, Atlanta Office. Copies are available in the Thomas Cooper Library, University of South Carolina.

Appendix D

Letters of Coordination



Daniel O. Duggan, MBA
Senior Account Manager
2390 W. Aviation Ave
Charleston, SC 29406 Mail Code CH 61
Phone: (843) 834-1016

CHRIS MAGALDI, PE | Principal/ Regional Director

THOMAS & HUTTON

682 Johnnie Dodds Blvd.; Suite 100 | Mt. Pleasant, SC 29464

Re: Union Pier

December 13, 2022

Dear Chris:

I am pleased to inform you that Dominion Energy will be able to provide natural gas service to the above referenced parcel, however a short gas main extension will be required and there may be a cost. Gas service will be provided in accordance with Dominion Energy General Terms and Conditions, other documents on file with the South Carolina Public Service Commission, and the company's standard operating policies and procedures. In order to begin engineering work for the project, the following information will need to be provided:

- 1.) Detailed utility site plan (AutoCAD format preferred) showing water, sewer, and storm drainage as well as requested service point/transformer location.
- 2.) Additional drawings that indicate wetlands boundaries, tree survey with barricade plan and buffer zones (if required), as well as any existing or additional easements will also be needed.
- 3.) Gas load breakdown by type with riser diagrams and desired metering specifications.
- 4.) Signed copy of this letter acknowledging its receipt and responsibility for its contents and authorization to begin engineering work with the understanding that Dominion Energy intends to serve the referenced project.

Dominion Energy construction standards and specifications are available upon request. Please note that for multi-occupancy residential developments per SC Public Service Commission Regulation 103-327(A): *All service delivered to new multi-occupancy residential premises at which units of such premises are separately rented, leased or owned shall be delivered by an electric utility on the basis of individual meter measurement for each dwelling.* For more information or questions, contact me by phone at (843-576-8931) or at Daniel.Duggan@DominionEnergy.com.

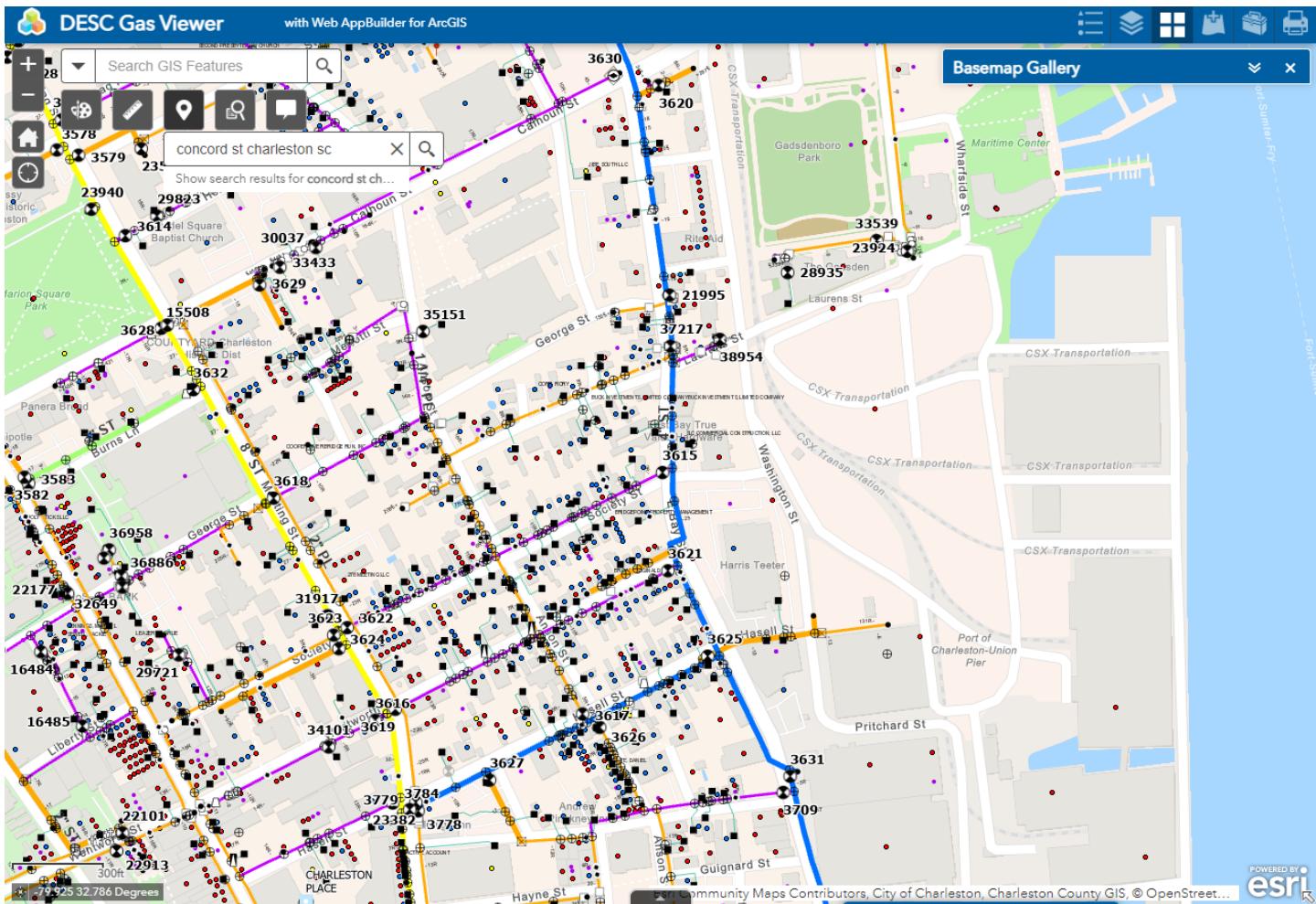
Sincerely,

A handwritten signature in black ink, appearing to read "D. Duggan", written in a cursive style.

Daniel O. Duggan
Senior Account Manager

AUTHORIZED SIGNATURE: Daniel O. Duggan DATE: 12/13/2022

TITLE: Senior Account Manager PHONE: 843-834-1016





Comcast Business

2925 Courtyards Drive Norcross GA 30071

J. Michael Mansanger
Lowe
8 North Market Street
Charleston, SC 29401

RE: Will Serve request for availability of Comcast communication services

Property Address: East Bay St & Concord St,

Date of Issue: 12/16/20

Attention J Michael Mansanger,

In response to your request for service, we have determined that based on our initial investigation, Comcast Cable Communication Management LLC has the ability to construct and install certain wires, cables and other equipment over, under, across and along the property located at TMS #: 4590000009, 4580101007, 4580104024, 4580104005, 4580104014, 015 & 016

A preliminary plan, if available, may be provided with this "Will Serve," letter. Notwithstanding the determination that Comcast may provide services at the Property, this letter does not represent any binding agreement for service. Additionally, this letter is non-transferrable and expires one hundred and eighty (180) days from issue date.

If you have any questions or need more information, feel free to contact us.

DocuSigned by:

Paula Bielicki

A00577F067DD460...

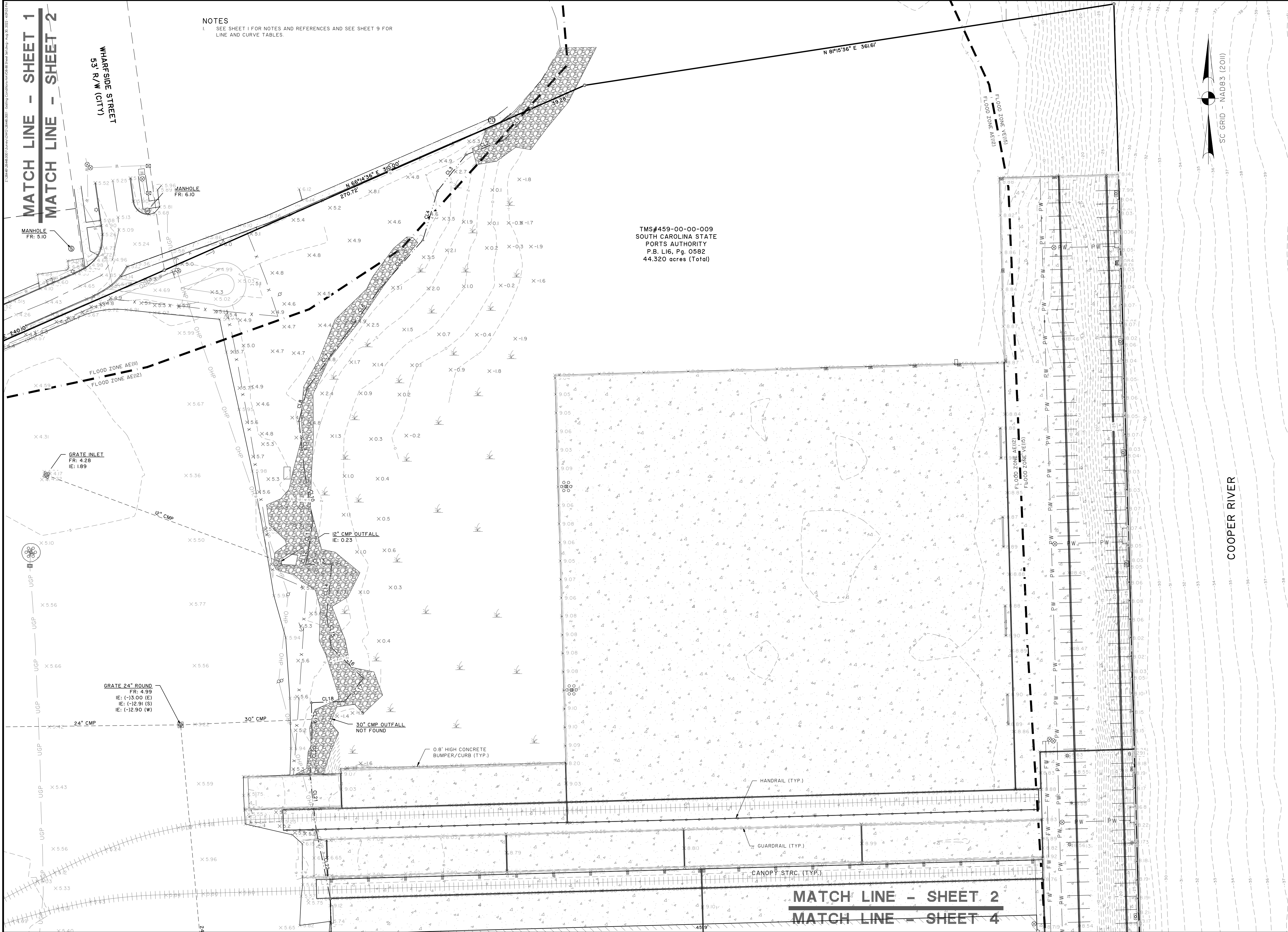
By:

Name: Paula Bielicki

Title: Market Development Manager

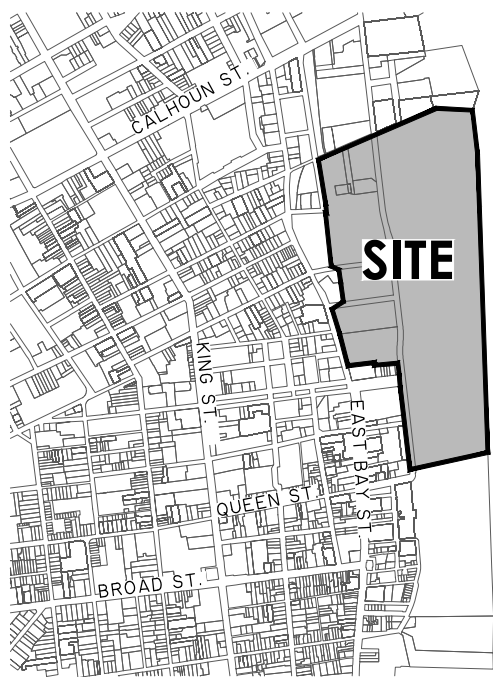
Appendix E

Survey



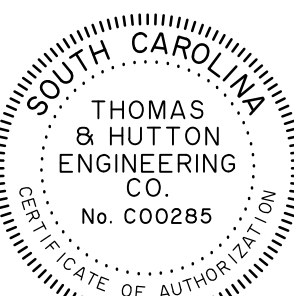
NOTES
I. SEE SHEET 1 FOR NOTES AND REFERENCES AND SEE SHEET 9 FOR LINE AND CURVE TABLES.

TMS#459-00-00-009
SOUTH CAROLINA STATE
PORTS AUTHORITY
P.B. LI6, Pg. 0582
44.320 acres (Total)



VICINITY MAP not to scale

This document and all reproducible copies of this document are the property of Thomas & Hutton. Reproduction of this document is not permitted without written consent of Thomas & Hutton unless this document becomes a matter of public record. ALTERATIONS TO THIS DOCUMENT ARE NOT PERMITTED.



I HEREBY STATE THAT TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREON WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARDS OF PRACTICE MANUAL FOR SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS "A" SURVEY AS SPECIFIED THEREIN.

F. ELLIOTTE QUINN III
SOUTH CAROLINA PROFESSIONAL LAND SURVEYOR
LICENSE NO. 10292

EXISTING CONDITIONS
SURVEY OF
VARIOUS PARCELS
OWNED BY
**SOUTH CAROLINA
STATE PORTS
AUTHORITY**

CITY OF CHARLESTON
CHARLESTON COUNTY, SOUTH CAROLINA

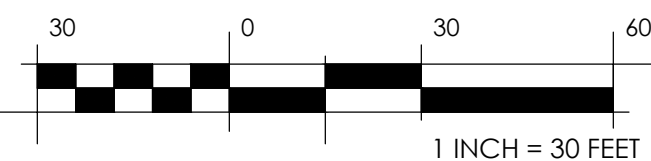
prepared for
LOWE ENTERPRISES

I	Converted to NAD83 & NAVD88	cww	8/22/22
No	Revision	By	Date



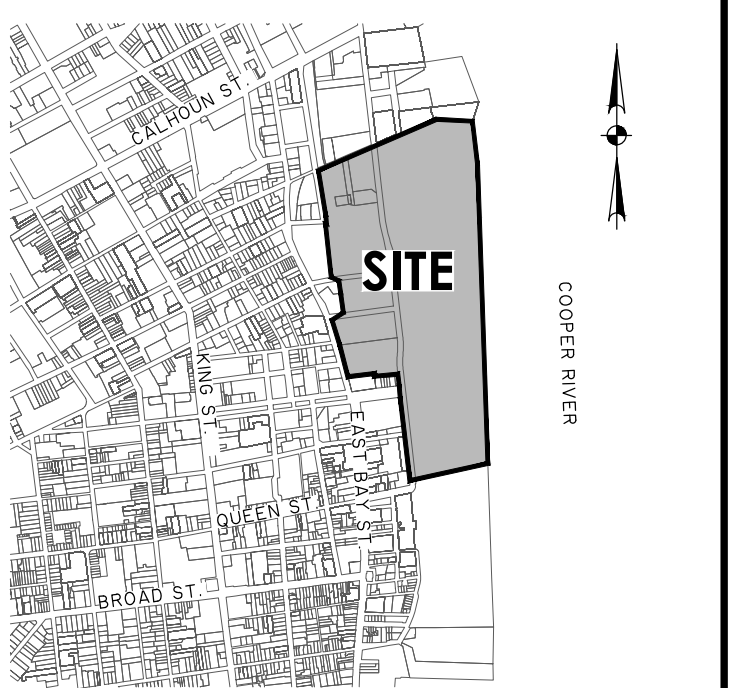
682 Johnnie Dodds Boulevard • Suite 100
Mt. Pleasant, SC 29464 • 843.849.0200

www.thomasandhutton.com



plat	drawn	reviewed	field	crew
05/28/2020	ppg/cww	req	05/2020	mb/tb/jg

MATCH LINE - SHEET 1
MATCH LINE - SHEET 3



VICINITY MAP not to scale

This document and all reproducible copies of this document are the property of Thomas & Hutton. Reproduction of this document is not permitted without written consent of Thomas & Hutton unless this document becomes a matter of public record. ALTERATIONS TO THIS DOCUMENT ARE NOT PERMITTED.



HEREBY STATE THAT TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREON WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARDS OF PRACTICE MANUAL FOR SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS "A" SURVEY AS SPECIFIED THEREIN.

F. ELLIOTTE QUINN III
SOUTH CAROLINA PROFESSIONAL LAND SURVEYOR
LICENSE NO. 10292

EXISTING CONDITIONS
SURVEY OF
VARIOUS PARCELS
OWNED BY
SOUTH CAROLINA
STATE PORTS
AUTHORITY

CITY OF CHARLESTON
CHARLESTON COUNTY, SOUTH CAROLINA

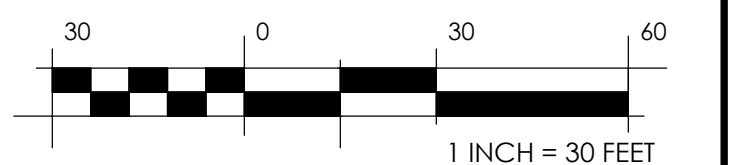
prepared for
LOWE ENTERPRISES

I	Converted to NAD83 & NAVD88	cww	8/22/22
No.	Revision	By	Date



682 Johnnie Dodds Boulevard • Suite 100
Mt. Pleasant, SC 29464 • 843.849.0200

www.thomasandhutton.com



plat	drawn	reviewed	field	crew
05/28/2020	ppg/cww	feq	05/2020	mb/tb/jg

job 28448.0000 SHEET 3 OF 9

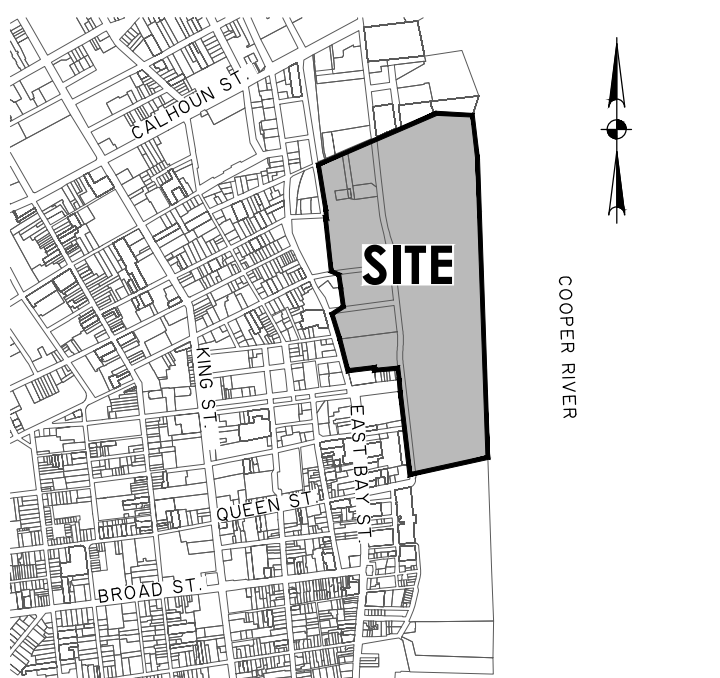
NOTES

I. SEE SHEET I FOR NOTES AND REFERENCES AND SEE SHEET 9 FOR LINE AND CURVE TABLES.

MATCH LINE - SHEET 3
MATCH LINE - SHEET 5

TMS#458-01-04-005
SOUTH CAROLINA STATE
PORTS AUTHORITY
P.B. W, Pg. 172
8.298 acres

MATCH LINE - SHEET 3
MATCH LINE - SHEET 5



VICINITY MAP not to scale

This document and all reproducible copies of this document are the property of Thomas & Hutton. Reproduction of this document is not permitted without written consent of Thomas & Hutton unless this document becomes a matter of public record. ALTERATIONS TO THIS DOCUMENT ARE NOT PERMITTED.



I HEREBY STATE THAT TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREON WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARDS OF PRACTICE MANUAL FOR SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS "A" SURVEY AS SPECIFIED THEREIN.

F. ELLIOTT QUINN III
SOUTH CAROLINA PROFESSIONAL LAND SURVEYOR
LICENSE NO. 10292

EXISTING CONDITIONS
SURVEY OF
VARIOUS PARCELS
OWNED BY
SOUTH CAROLINA
STATE PORTS
AUTHORITY

CITY OF CHARLESTON
CHARLESTON COUNTY, SOUTH CAROLINA

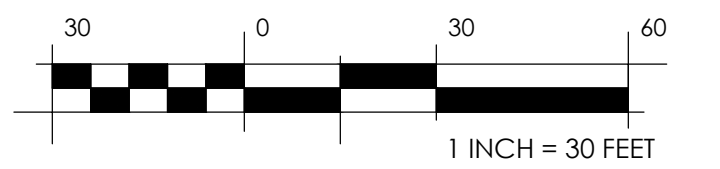
prepared for
LOWE ENTERPRISES

1	Converted to NAD83 & NAVD88	cww	8/22/22
No	Revision	By	Date



682 Johnnie Dodds Boulevard • Suite 100
Mt. Pleasant, SC 29464 • 843.849.0200

www.thomasandhutton.com



plat drawn reviewed field crew
05/28/2020 ppg/cww feq 05/2020 mbj/tb/jg

SC GRID - NAD83 (2011)

EAST BAY STREET (CITY) R/W VARIES

HASELL STREET
R/W VARIES (CITY)

STORM MANHOLE
FR: 4.18
IE: 1.58 (SW)
IE: 1.58 (N)
IE: (-)1.52 (BOX)

GRATE INLET
FR: 3.94
IE: 1.24 (S)
IE: 1.23 (NE)
IE: 0.44 (BOX)

GRATE INLET
FR: 4.70
IE: 0.70 (BOX)

GRATE INLET
FR: 3.72
IE: 1.46 (SW)

GRATE INLET
FR: 4.62
IE: 0.23 (NE)
IE: 0.41 (S)
IE: 0.51 (SE)

GRATE INLET
FR: 4.06
IE: 0.59 (N)

GRATE INLET
FR: 4.33
IE: 1.79 (S)

GRATE INLET
FR: 4.06
IE: 1.96 (NE)

GRATE INLET
FR: 4.62
IE: (-)12.10 (W)
IE: (-)12.10 (E)
IE: (-)10.17 (S)

GRATE INLET
FR: 5.15
IE: (-)12.10 (W)
IE: (-)12.10 (E)
IE: (-)10.17 (S)

GRATE INLET
FR: 4.62
IE: (-)13.25 (E)
IE: (-)13.23 (W)
IE: 0.57 (N)

GRATE INLET
FR: 4.85
IE: 1.46 (N)

GRATE INLET
FR: 5.26
IE: (-)11.03 (N)
IE: (-)11.09 (S)

GRATE INLET
FR: 5.49
IE: (-)0.01 (E)
IE: 0.20 (W)
IE: 3.14 (S)

GRATE INLET
FR: 6.03
IE: 3.25 (N)(S)
IE: 2.39 (BOX)

GRATE INLET
FR: 5.83
IE: 3.66 (N)
IE: 3.89 (S)
IE: 3.21 (BOX)

GRATE INLET
FR: 6.04
IE: 6.04
IE: INACCESS

GRATE INLET
FR: 6.13
IE: 3.23 (N)
IE: 1.83 (BOX)

GRATE INLET
FR: 6.37
IE: 4.07 (NW)
IE: 3.07 (S)
IE: 2.27 (BOX)

GRATE INLET
FR: 6.05
IE: 3.35 (S)
IE: 2.20 (BOX)

GRATE INLET
FR: 6.37
IE: 4.24 (W)
IE: 4.24 (SE)
IE: 3.44 (BOX)

GRATE INLET
FR: 6.94
IE: 4.24 (W)
IE: 4.24 (SE)
IE: 3.44 (BOX)

GRATE INLET
FR: 6.37
IE: 4.07 (NW)
IE: 3.07 (S)
IE: 2.27 (BOX)

GRATE INLET
FR: 6.05
IE: 3.35 (S)
IE: 2.20 (BOX)

GRATE INLET
FR: 6.37
IE: 4.24 (W)
IE: 4.24 (SE)
IE: 3.44 (BOX)

GRATE INLET
FR: 6.94
IE: 4.24 (W)
IE: 4.24 (SE)
IE: 3.44 (BOX)

GRATE INLET
FR: 6.37
IE: 4.07 (NW)
IE: 3.07 (S)
IE: 2.27 (BOX)

GRATE INLET
FR: 6.05
IE: 3.35 (S)
IE: 2.20 (BOX)

GRATE INLET
FR: 6.37
IE: 4.24 (W)
IE: 4.24 (SE)
IE: 3.44 (BOX)

GRATE INLET
FR: 6.94
IE: 4.24 (W)
IE: 4.24 (SE)
IE: 3.44 (BOX)

GRATE INLET
FR: 6.37
IE: 4.07 (NW)
IE: 3.07 (S)
IE: 2.27 (BOX)

GRATE INLET
FR: 6.05
IE: 3.35 (S)
IE: 2.20 (BOX)

GRATE INLET
FR: 6.37
IE: 4.24 (W)
IE: 4.24 (SE)
IE: 3.44 (BOX)

GRATE INLET
FR: 6.94
IE: 4.24 (W)
IE: 4.24 (SE)
IE: 3.44 (BOX)

GRATE INLET
FR: 6.37
IE: 4.07 (NW)
IE: 3.07 (S)
IE: 2.27 (BOX)

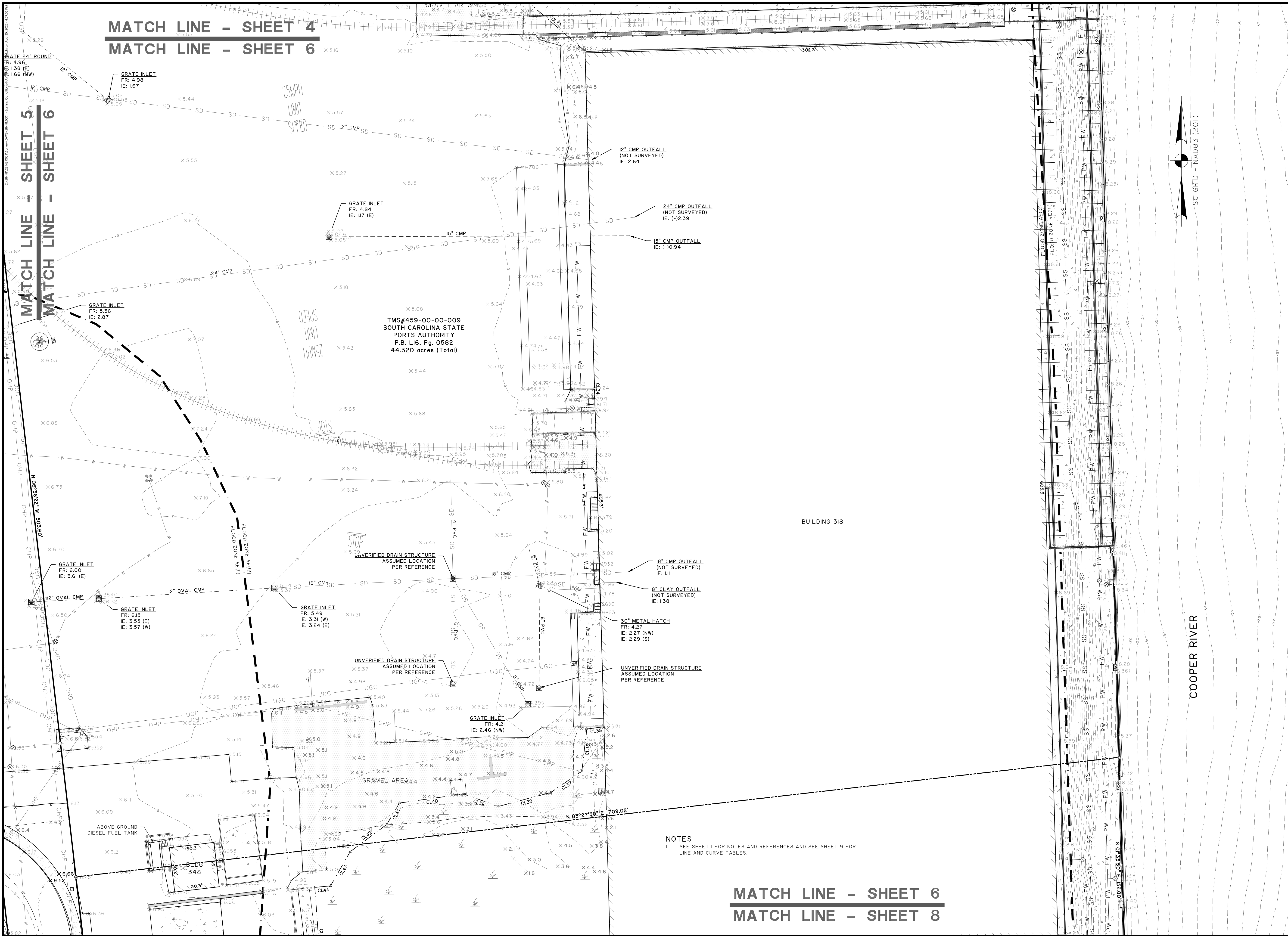
GRATE INLET
FR: 6.05
IE: 3.35 (S)
IE: 2.20 (BOX)

GRATE INLET
FR: 6.37
IE: 4.24 (W)
IE: 4.24 (SE)
IE: 3.44 (BOX)

GRATE INLET
FR: 6.94
IE: 4.24 (W)
IE: 4.24 (SE)
IE: 3.44 (BOX)

NOTES
1. SEE SHEET 1 FOR NOTES AND REFERENCES AND SEE SHEET 9 FOR LINE AND CURVE TABLES.

MATCH LINE - SHEET 5
MATCH LINE - SHEET 7



VICINITY MAP not to scale

This document and all reproducible copies of this document are the property of Thomas & Hutton. Reproduction of this document is not permitted without written consent of Thomas & Hutton unless this document becomes a matter of public record. ALTERATIONS TO THIS DOCUMENT ARE NOT PERMITTED.

I HEREBY STATE THAT TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREON WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARDS OF PRACTICE MANUAL FOR SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS "A" SURVEY AS SPECIFIED THEREIN.

F. ELLIOTTE QUINN III
SOUTH CAROLINA PROFESSIONAL LAND SURVEYOR
LICENSE NO. 10292

**EXISTING CONDITIONS
SURVEY OF
VARIOUS PARCELS
OWNED BY
SOUTH CAROLINA
STATE PORTS
AUTHORITY**

CITY OF CHARLESTON
CHARLESTON COUNTY, SOUTH CAROLINA

prepared for
LOWE ENTERPRISES

1	Converted to NAD83 & NAVD88	cww	8/22/22
No	Revision	By	Date

THOMAS & HUTTON

682 Johnnie Dodds Boulevard • Suite 100
Mt. Pleasant, SC 29464 • 843.849.0200

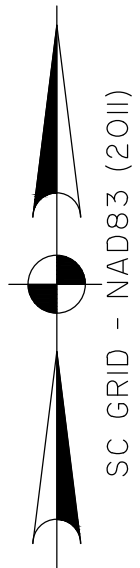
www.thomasandhutton.com

1 INCH = 30 FEET

plat	drawn	reviewed	field	crew
05/28/2020	ppg/cww	feq	05/2020	mb/tb/jg

job 28448.0000 SHEET 6 OF 9

MATCH LINE - SHEET 5
MATCH LINE - SHEET 7



LEGEND

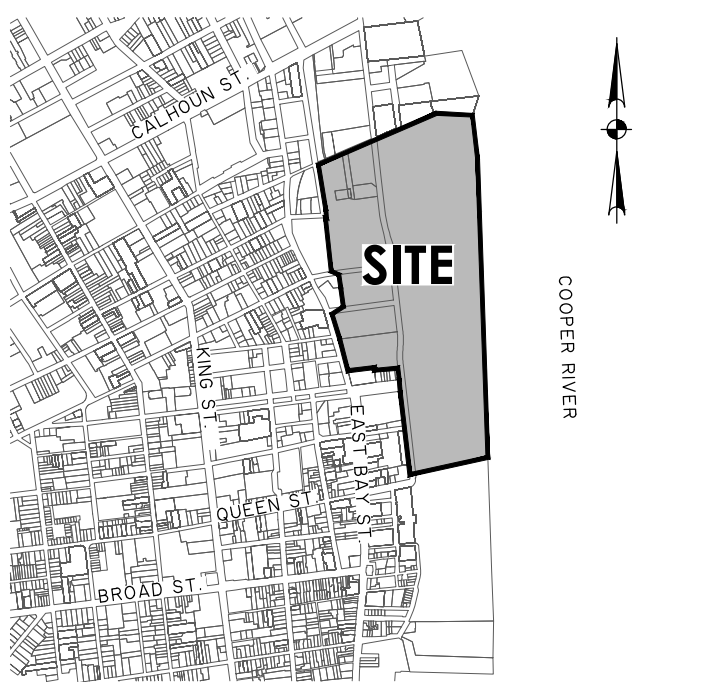
- BOLLARD
- ⊙ STORM DRAIN MANHOLE
- ⊗ GAS VALVE
- ⊕ IRRIGATION CONTROL VALVE
- ⊞ ELECTRIC BOX
- ⊟ SWITCH BOX
- ⊠ GUY WIRE
- ⊡ ELECTRIC METER
- ⊢ SIGN (SEE SIGN SCHEDULE)
- CURB MANHOLE
- ⊘ POWER POLE
- ⊙ FIRE HYDRANT
- ⊙ WATER VALVE
- ⊙ COMMUNICATIONS MANHOLE
- ⊙ WATER METER
- ⊙ BACKFLOW PREVENTER
- ⊙ MOORING POST
- ⊙ CATCH BASIN or CURB INLET
- ⊙ SEWER MANHOLE
- ⊙ CLEANOUT
- ⊙ TELECOMMUNICATION BOX
- ⊙ HIGH-MAST LIGHT POLE
- ⊙ STANDARD LIGHT POLE
- ⊙ CLEAT
- ⊙ PARKING METER
- ⊙ GUY POLE
- ⊙ RAILROAD CROSSING ARM

STANDARD LINETYPES

- | | |
|-------------|------------------------------|
| — X — X — | PROPERTY LINE |
| — SS — SS — | FENCE |
| — SD — SD — | RAILROAD TRACK |
| — FW — FW — | SANITARY SEWER LINE |
| — W — W — | STORM DRAIN LINE (SURVEYED) |
| — OHP — | STORM DRAIN LINE (PER PLANS) |
| — UGP — | FIRE WATER LINE |
| — OHG — | POTABLE WATER LINE |
| — UGC — | OVERHEAD ELECTRICAL |
| | UNDERGROUND ELECTRICAL |
| | OVERHEAD COMMUNICATIONS |
| | UNDERGROUND COMMUNICATIONS |

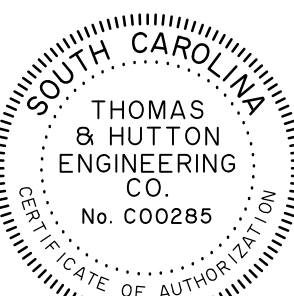
NOTES

1. SEE SHEET 1 FOR NOTES AND REFERENCES AND SEE SHEET 9 FOR LINE AND CURVE TABLES.



VICINITY MAP not to scale

This document and all reproducible copies of this document are the property of Thomas & Hutton. Reproduction of this document is not permitted without written consent of Thomas & Hutton unless this document becomes a matter of public record. ALTERATIONS TO THIS DOCUMENT ARE NOT PERMITTED.



I HEREBY STATE THAT TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREON WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARDS OF PRACTICE MANUAL FOR SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS "A" SURVEY AS SPECIFIED THEREIN.

F. ELLIOTTE QUINN III
SOUTH CAROLINA PROFESSIONAL LAND SURVEYOR
LICENSE NO. 10292

EXISTING CONDITIONS
SURVEY OF
VARIOUS PARCELS
OWNED BY
SOUTH CAROLINA
STATE PORTS
AUTHORITY

CITY OF CHARLESTON
CHARLESTON COUNTY, SOUTH CAROLINA

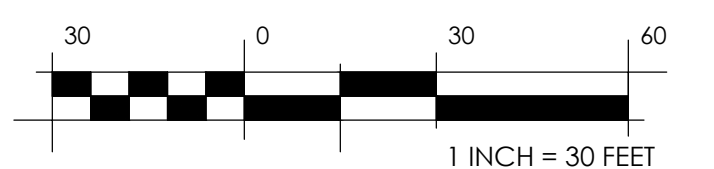
prepared for
LOWE ENTERPRISES

1	Converted to NAD83 & NAVD88	cww	8/22/22
No	Revision	By	Date



682 Johnnie Dodds Boulevard • Suite 100
Mt. Pleasant, SC 29464 • 843.849.0200

www.thomasandhutton.com

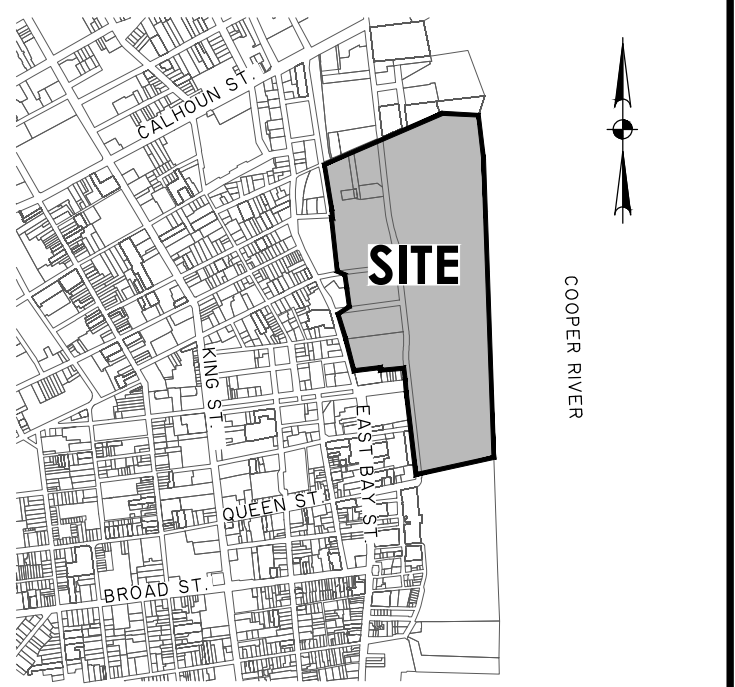


plat	drawn	reviewed	field	crew
05/28/2020	ppg/cww	req	05/2020	mb/tb/jg

job 28448.0000

SHEET 7 OF 9

MATCH LINE - SHEET 8



VICINITY MAP not to scale

This document and all reproducible copies of this document are the property of Thomas & Hutton. Reproduction of this document is not permitted without written consent of Thomas & Hutton unless this document becomes a matter of public record. ALTERATIONS TO THIS DOCUMENT ARE NOT PERMITTED.



I HEREBY STATE THAT TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREON WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARDS OF PRACTICE MANUAL FOR SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS "A" SURVEY AS SPECIFIED THEREIN.

F. ELLIOTTE QUINN III
SOUTH CAROLINA PROFESSIONAL LAND SURVEYOR
LICENSE NO. 10292

EXISTING CONDITIONS
SURVEY OF
VARIOUS PARCELS
OWNED BY
**SOUTH CAROLINA
STATE PORTS
AUTHORITY**

CITY OF CHARLESTON
CHARLESTON COUNTY, SOUTH CAROLINA

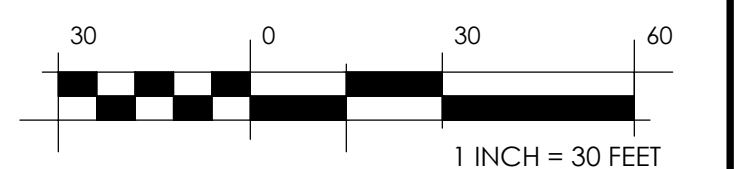
prepared for
LOWE ENTERPRISES

I	Converted to NAD83 & NAVD88	cww	8/22/22
No.	Revision	By	Date



682 Johnnie Dodds Boulevard • Suite 100
Mt. Pleasant, SC 29464 • 843.849.0200

www.thomasandhutton.com



plat	drawn	reviewed	field	crew
05/28/2020	ppg/cww	feq	05/2020	mb/tb/jg

job 28448.0000 SHEET 8 OF 9

NOTES

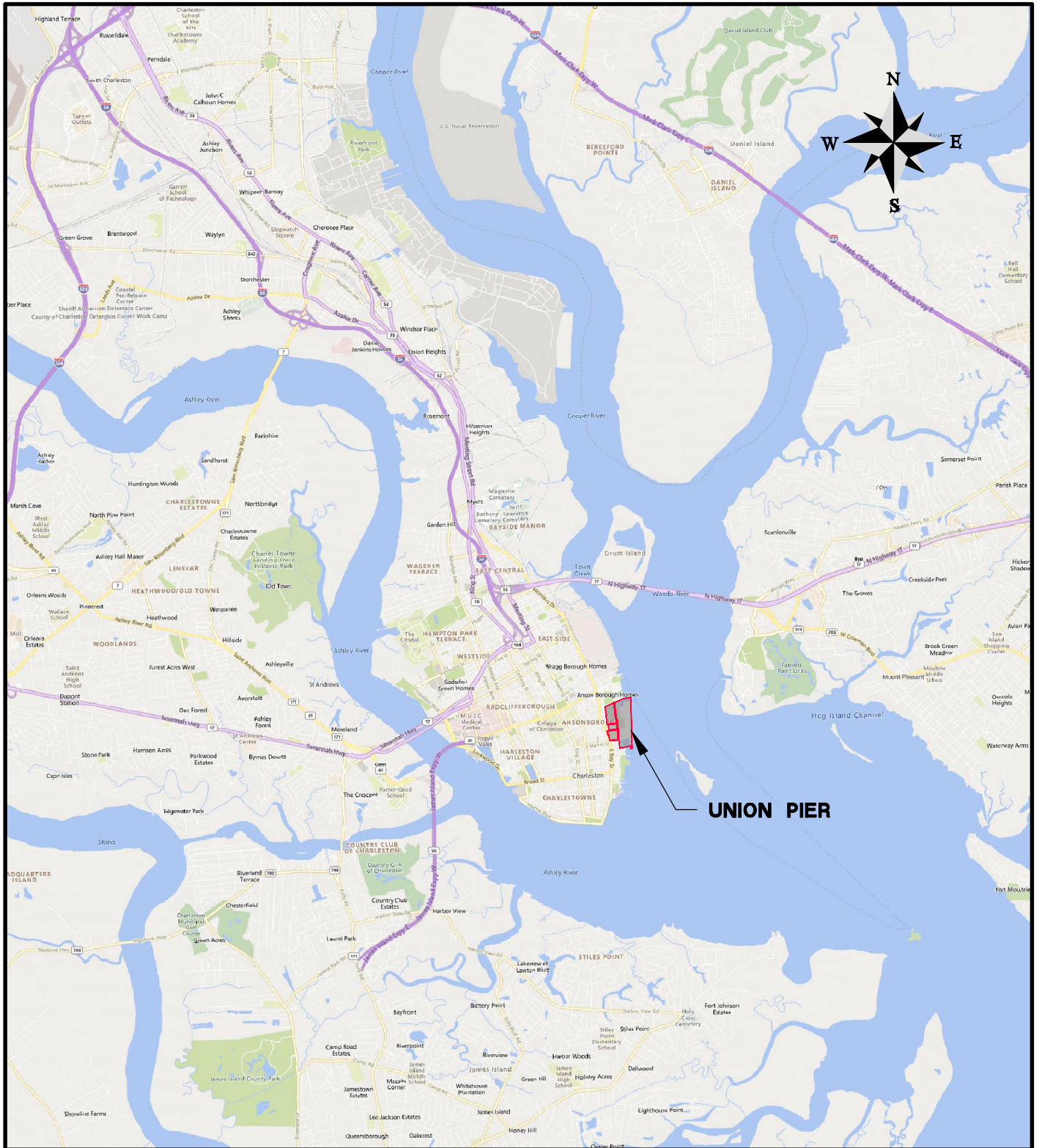
1. SEE SHEET 1 FOR NOTES AND REFERENCES AND SEE SHEET 9 FOR LINE AND CURVE TABLES.

MATCH LINE - SHEET 8
MATCH LINE - SHEET 9

PARCEL 17
PORTION OF
TMS#459-00-00-009
SOUTH CAROLINA STATE
PORTS AUTHORITY
P.B. EA, Pg. 025
1.188 acres

Appendix F

Additional Drawings



UNION PIER

EXHIBIT 1
LOCATION MAP

CLIENT:
SCPA

LOCATION: City of Charleston, SC

DATE: January 2023

JOB NUMBER: J-28448.0001

DRAWN BY: CFM

REVIEWED BY: CFM

SHEET: EX-1

SCALE: 1" = 7,500'



682 Johnnie Dodds Blvd. • Suite 100
Mt. Pleasant, SC 29464 • 843.849.0200

www.thomasandhutton.com

J:\28448\28448-0001\UNION PIER\Aerial Map\Aerial Map.dwg, 12/17/2021, 1:52:17 PM



EXHIBIT 2 - AERIAL MAP

UNION PIER

City of Charleston, SC

PREPARED FOR:

SCPA

PREPARED BY:



682 Johnnie Dodds Blvd. • Suite 100
Mt. Pleasant, SC 29464 • 843.849.0200

www.thomasandhutton.com

JOB NO:	J-28448.0001	DATE:	December 17, 2021
DRAWN:	CFM	SCALE:	1" = 100'
REVIEWED:	CFM	SHEET:	EX-1



UNION PIER

EXHIBIT 3

PARCEL MAP

CLIENT:

SCPA

LOCATION: City of Charleston, SC

DATE: January 2023

JOB NUMBER: J-28448.0001

DRAWN BY: CFM

REVIEWED BY: CFM

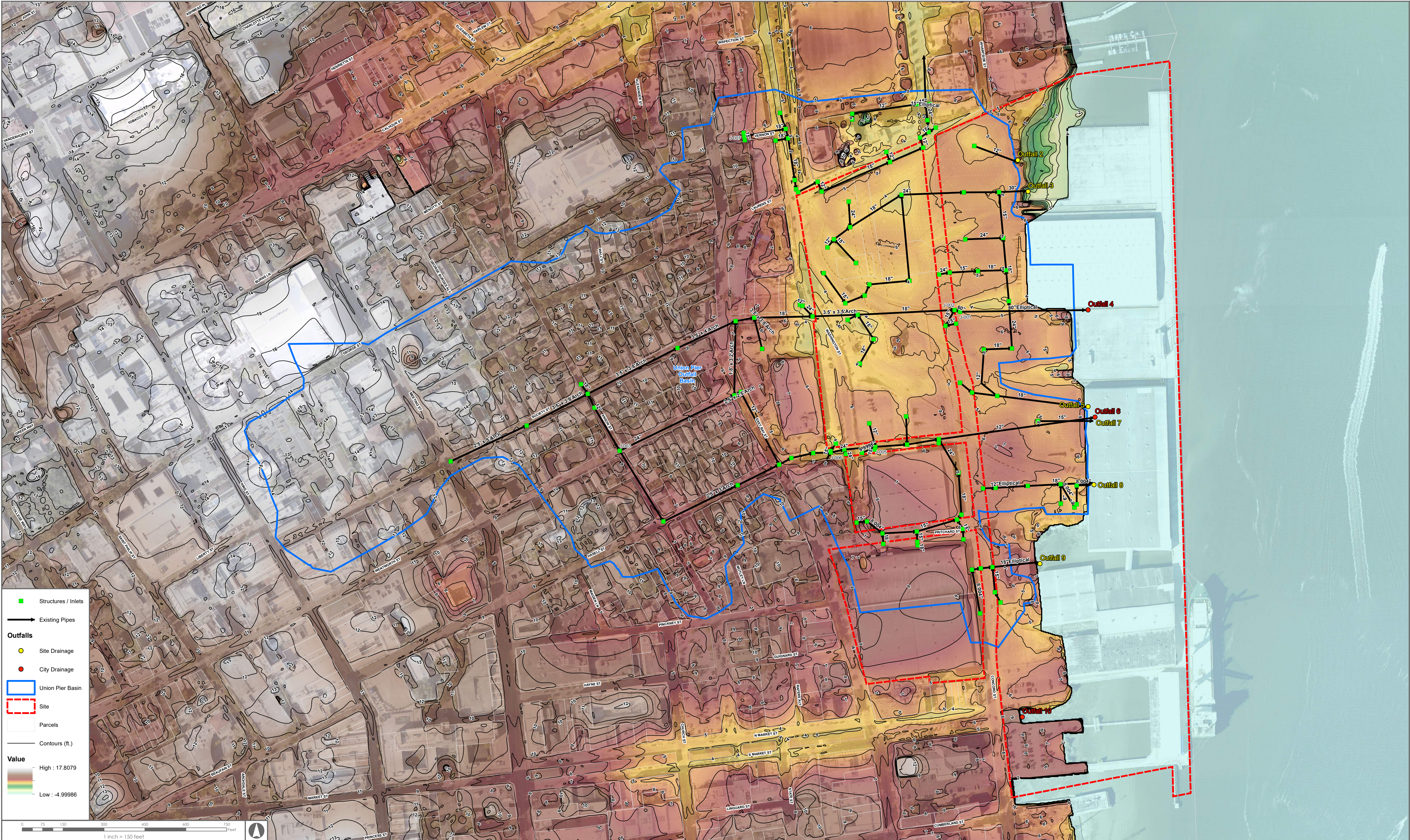
SHEET: EX-3

SCALE: 1" = 500'

THOMAS & HUTTON

682 Johnnie Dodds Blvd. • Suite 100
Mt. Pleasant, SC 29464 • 843.849.0200

www.thomasandhutton.com



Structures / Inlets

Existing Pipes

Outfalls

Site Drainage

City Drainage

Union Pier Basin

Site

Parcels

Contours (ft.)

Value

High : 17.8079

Low : -4.99986

075150300450750

1 inch = 150 feet

Job Number: 28448.0001

Produced: 01/04/2023

Produced By: WTH

Modified: 1/25/2023

Modified By:

File: Z:\28448\28448.0001\GIS\Mxd\Exhibits\Union Pier - Existing Conditions Exhibit.mxd

Vertical Datum:

Thomas & Hutton compiled the map information from the following sources:

Data	Source	Date
Topography	Charleston County	
Basin	T&H	
Pipes	City of CHS/T&H	
Nodes	City of CHS/T&H	
Parcels	Charleston County	

DISCLAIMER

Where Thomas & Hutton is cited as the data source, the firm has created or verified the data. For all other sources cited, Thomas & Hutton used the data "as is," has made no independent investigation of the data, and makes no representation as to the accuracy or completeness of the data. Please see each source for available documentation of its respective datasets.

Copyright © 2018 by Thomas & Hutton

No part of this document may be reproduced without written permission from an officer of Thomas & Hutton.

Union Pier

City of Charleston, SC

Existing Conditions Drainage Exhibit



682 JOHNNIE DODDS BLVD • SUITE 100
MT. PLEASANT, SC 29464 • 843.849.0200
WWW.THOMASANDHUTTON.COM

GEOGRAPHIC INFORMATION SYSTEMS

COPYRIGHT © 2020 THOMAS & HUTTON



Concord St. Pump Station

Tunnel Shafts

Storm Pipes

Concord/Market Street Tunnel

Calhoun/Meeting Street Tunnel

Parcels

Site

Major Basins

0200400800120016002000

1 inch = 400 feet

Job Number: 28448.0001

Produced: 12/16/2021

Modified: 1/25/2023

Modified By:

File: Z:\28448\28448.0001\GIS\Mapx\28448.0001_Union Pier (room_out).mxd

Vertical Datum: NAVD83

Thomas & Hutton compiled the map information from the following sources:

Data	Source	Date
Subbasins	Charleston County and T&H	2021
Storm Pipes/Open Channels	Charleston County and T&H	2021
Parcels	Charleston County	2018
DEM	Charleston County	2017
Imagery	Charleston County	2021

DISCLAIMER

Where Thomas & Hutton is cited as the data source, the firm has created or verified the data. For all other sources cited, Thomas & Hutton used the data "as is," has made no independent investigation of the data, and makes no representation as to the accuracy or completeness of the data. Please see each source for available documentation of its respective datasets.

Copyright © 2018 by Thomas & Hutton

No part of this document may be reproduced without written permission from an officer of Thomas & Hutton.

Union Pier

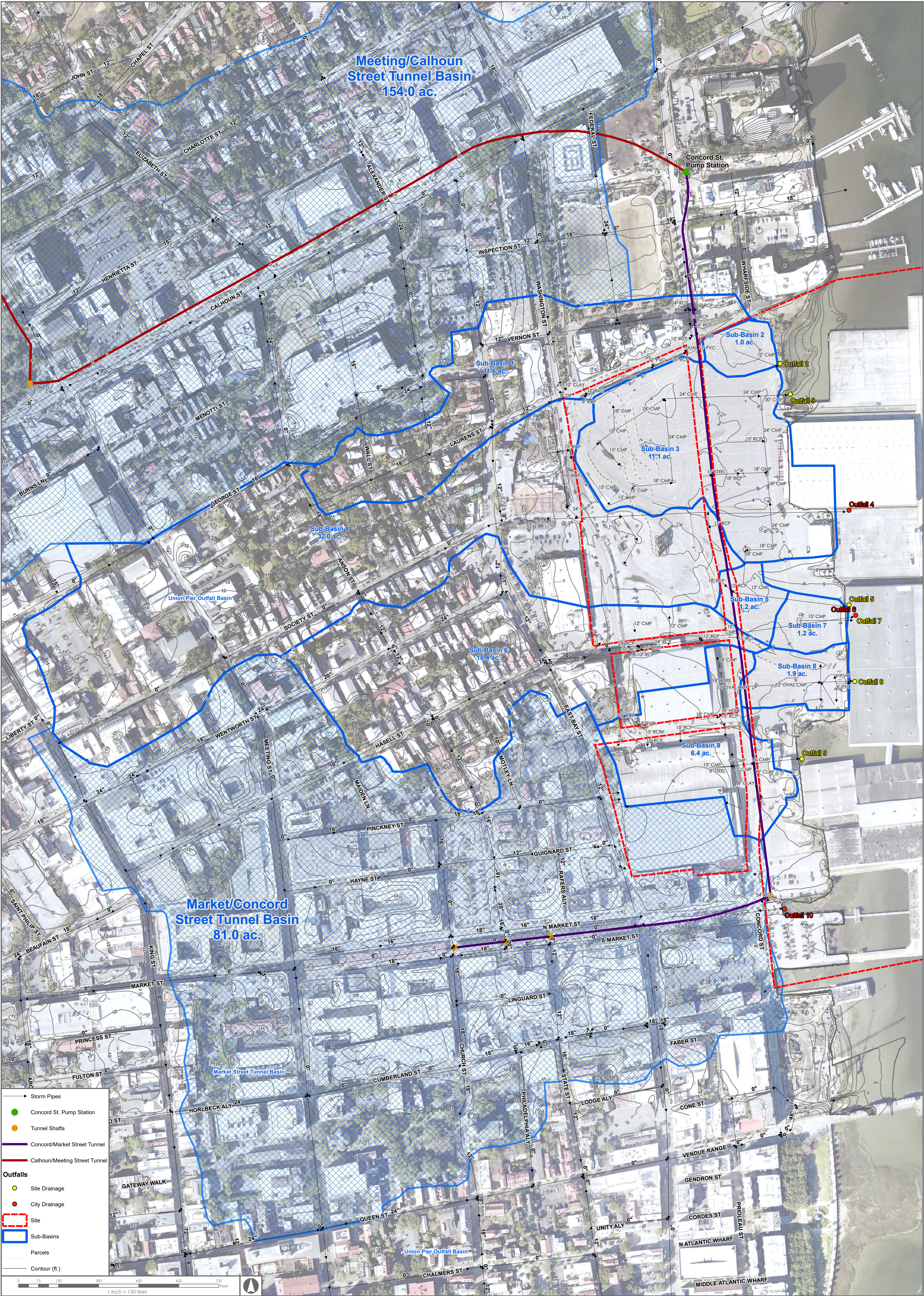
City of Charleston, SC

Regional Drainage Map

682 JOHNNIE DODDS BLVD • SUITE 100
MT. PLEASANT, SC 29464 • 843.849.0200
WWW.THOMASANDHUTTON.COM

GEOGRAPHIC INFORMATION SYSTEMS

COPYRIGHT © 2020 THOMAS & HUTTON



Job Number: 28448.0001	Produced: 12/16/2021	Produced By: ACS	Modified: 1/25/2023	Modified By:
File: Z:\28448\28448.0001\GIS\Map\28448.0001_Union Pier (room in).mxd				Vertical Datum: NAVD83
Thomas & Hutton compiled the map information from the following sources:				
Data	Source			Date
Subbasins	Charleston County and T&H			2021
Storm Pipes/Open Channels	Charleston County and T&H			2021
Parcels	Charleston County			2018
DEM	Charleston County			2017
Imagery	Charleston County			2021
DISCLAIMER				
Where Thomas & Hutton is cited as the data source, the firm has created or verified the data. For all other sources cited, Thomas & Hutton used the data "as is," has made no independent investigation of the data, and makes no representation as to the accuracy or completeness of the data. Please see each source for available documentation of its respective datasets.				
Copyright © 2018 by Thomas & Hutton				
No part of this document may be reproduced without written permission from an officer of Thomas & Hutton.				

Union Pier
City of Charleston, SC
Site Drainage Map



682 JOHNNIE DODDS BLVD • SUITE 100
MT. PLEASANT, SC 29464 • 843.849.0200
WWW.THOMASANDHUTTON.COM

GEOGRAPHIC INFORMATION SYSTEMS

COPYRIGHT © 2020 THOMAS & HUTTON



Job Number: 28448.0001 | Produced: 01/04/2023 | Produced By: WTH | Modified: 1/25/2023 | Modified By:
File: Z:\28448\28448.0001\GIS\Mxd\Exhibits\Union Pier - Proposed Conditions Exhibit.mxd | Vertical Datum:
Thomas & Hutton compiled the map information from the following sources:
Data | Source | Date
Topography | Charleston County
Nodes | City of Charleston/T&H
Pipes | City of Charleston/T&H
Site Basins | T&H
Union Pier Basin | T&H
Parcels | Charleston County

DISCLAIMER

Where Thomas & Hutton is cited as the data source, the firm has created or verified the data. For all other sources cited, Thomas & Hutton used the data "as is," has made no independent investigation of the data, and makes no representation as to the accuracy or completeness of the data. Please see each source for available documentation of its respective datasets.

Copyright © 2018 by Thomas & Hutton

No part of this document may be reproduced without written permission from an officer of Thomas & Hutton.

Union Pier

City of Charleston, SC

Proposed Conditions Drainage Exhibit

TH

THOMAS
&
HUTTON

682 JOHNNIE DODDS BLVD • SUITE 100
MT. PLEASANT, SC 29464 • 843.849.0200
WWW.THOMASANDHUTTON.COM

GEOGRAPHIC INFORMATION SYSTEMS

COPYRIGHT © 2020 THOMAS & HUTTON

Union Pier : Proposed Conditions Drainage Exhibit

www.thomasandhutton.com

Appendix F, Section 9

STREETSCAPE

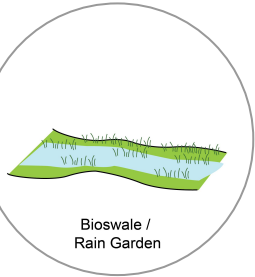
GREEN INFRASTRUCTURE
STRATEGIES

STREETSCAPE DESIGN INTENT:

The streetscape designs for Union Pier were developed in order to allow for flexibility to integrate sustainable landscape and hardscape components that provide greater water quality improvement, heat island benefits and stormwater volume reductions. These designs are conceptual in nature and may be applied throughout the project site, but shall not be required, and may change.

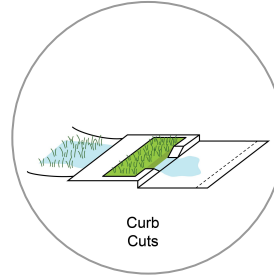
Bioswale

Vegetated open channels that are designed to capture and convey stormwater runoff downstream, while also filtering stormwater through engineered soils for treatment.



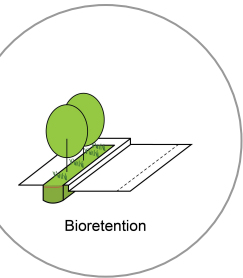
Curb Cuts

A depression or gap in a roadside curb that is intentionally placed next to stormwater management infrastructure to allow for an opening where road stormwater can convey towards for capture, conveyance, and treatment.



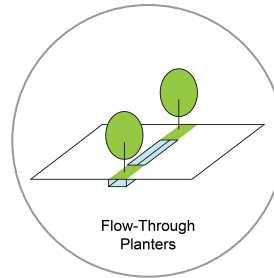
Bioretention

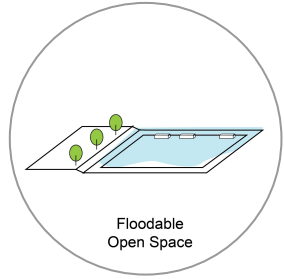
Shallow stormwater basins or landscaped areas that utilize vegetation and engineered soils to capture and treat stormwater runoff through filtration. May be designed with perforated pipes that convey runoff downstream from bioretention.



Flow-Through Planters

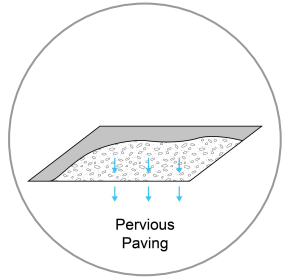
Hard-edged stormwater quality facilities with an impermeable base, typically appropriate for infiltration-preclusive or high-density urban areas. Designed to treat water by allowing runoff to soak through its soil matrix and filter into an underdrain system





Floodable Open Space

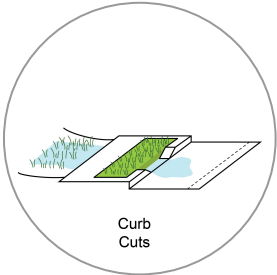
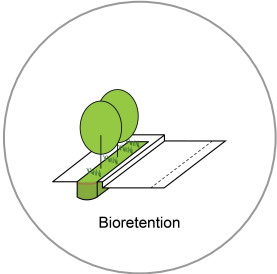
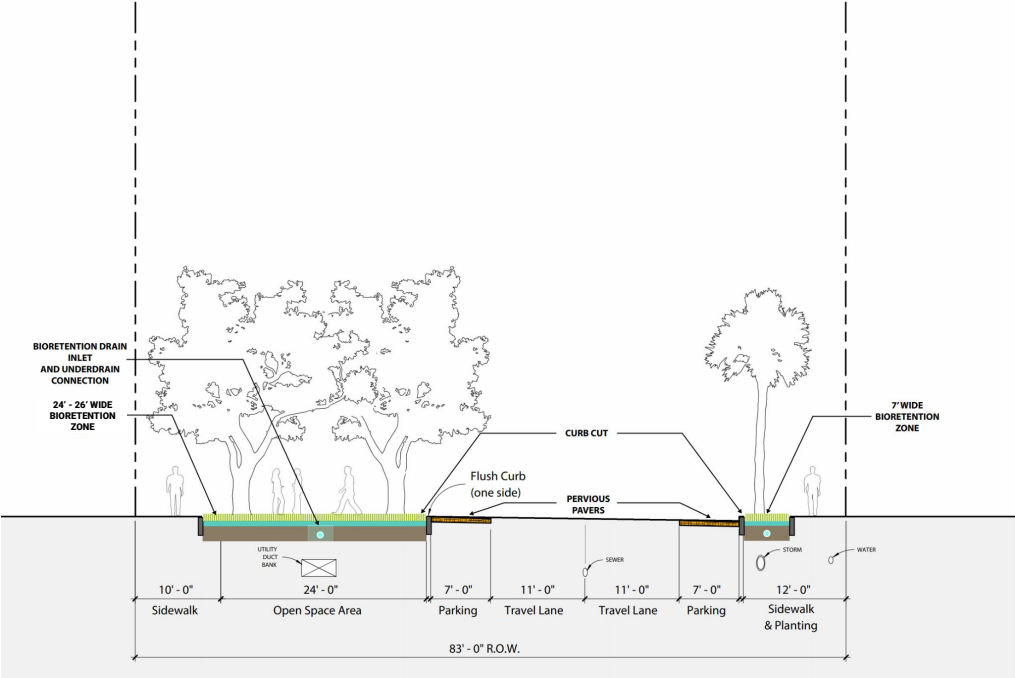
Open space areas that are sunken in elevation to be used for programming space in dry conditions, but additional flooding storage during large storm events.



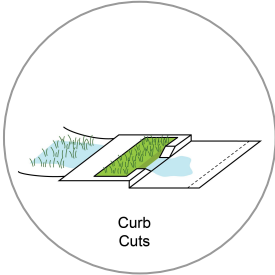
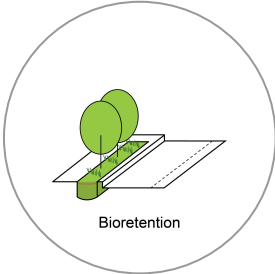
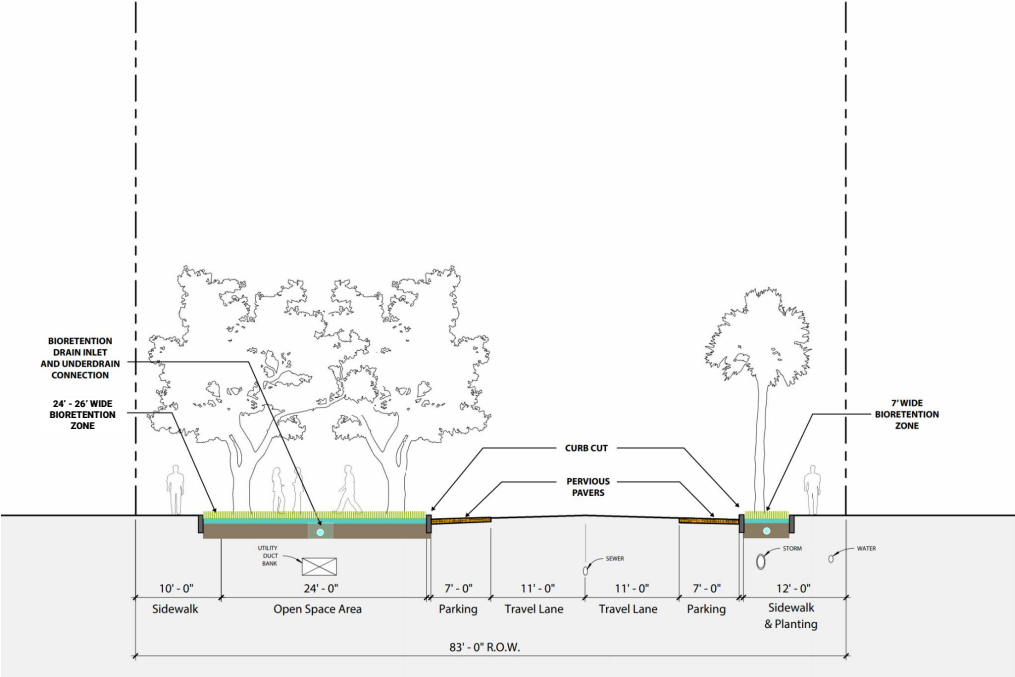
Pervious Pavers

Pavement surfaces composed of structural units with void areas filled with materials such as gravel or sand that can absorb stormwater runoff and infiltrate the runoff through the materials to the underlying soils beneath the pavers.

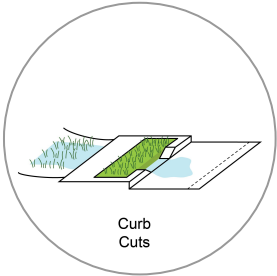
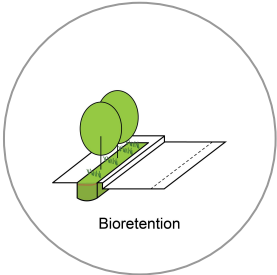
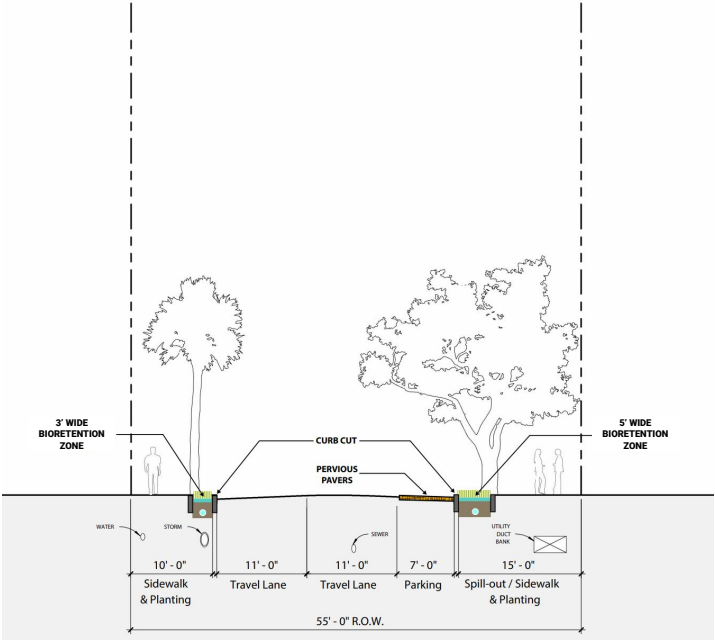
PRIMARY TYPE 1A (CONCORD STREET)



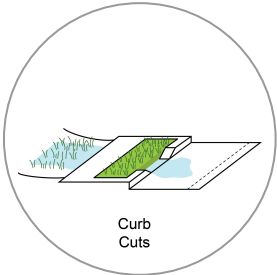
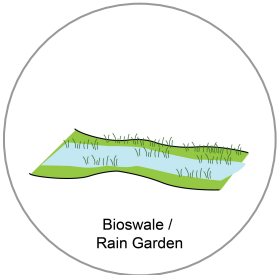
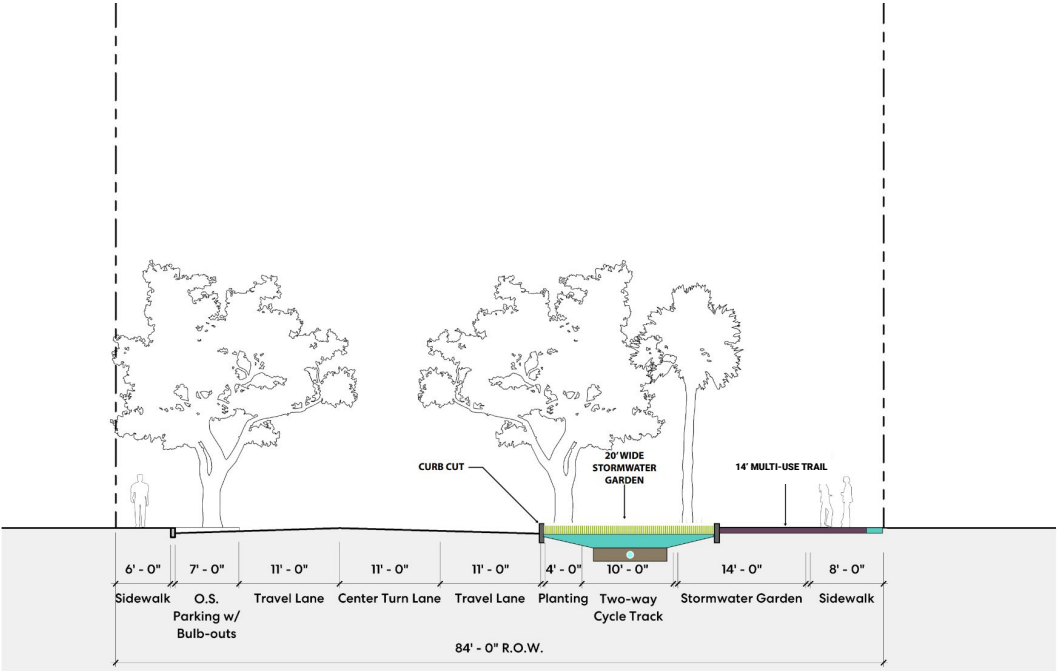
PRIMARY TYPE 1A - ALTERNATE (CONCORD STREET)



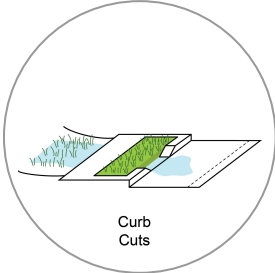
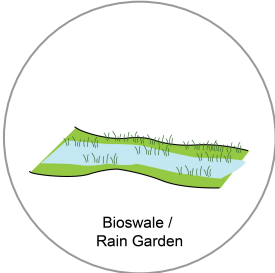
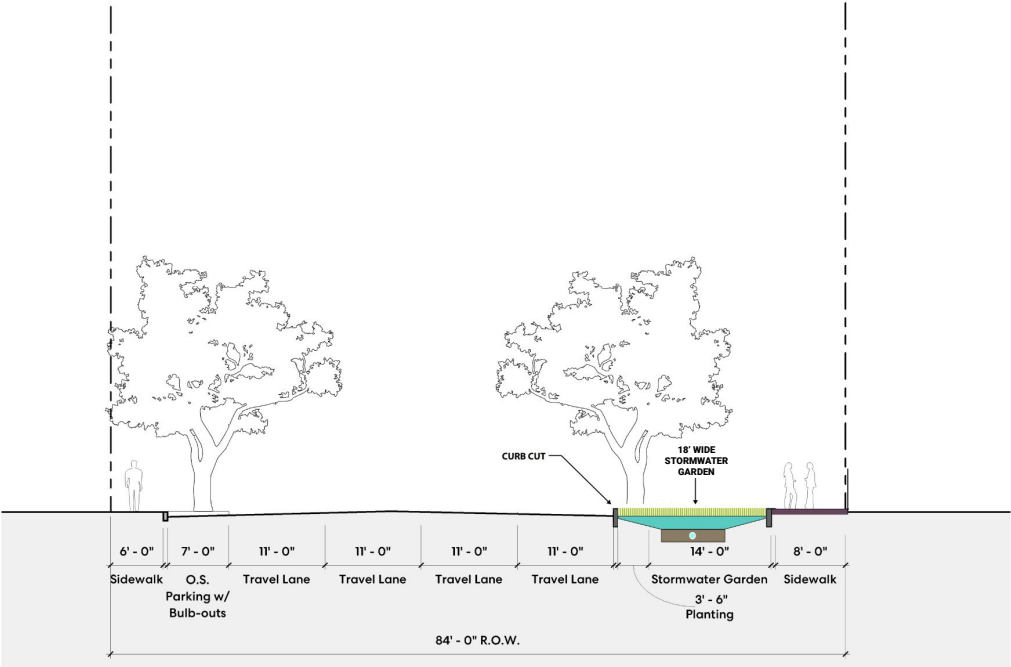
PRIMARY TYPE 1B (CONCORD STREET)



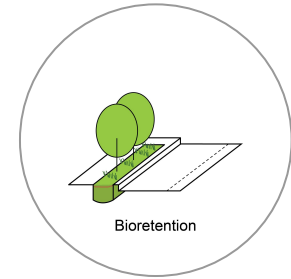
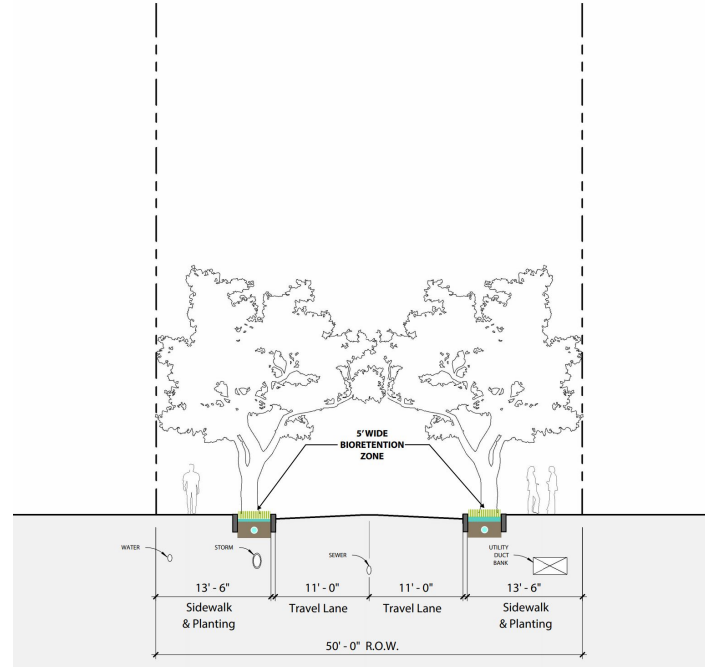
PRIMARY TYPE 2 (WASHINGTON STREET)



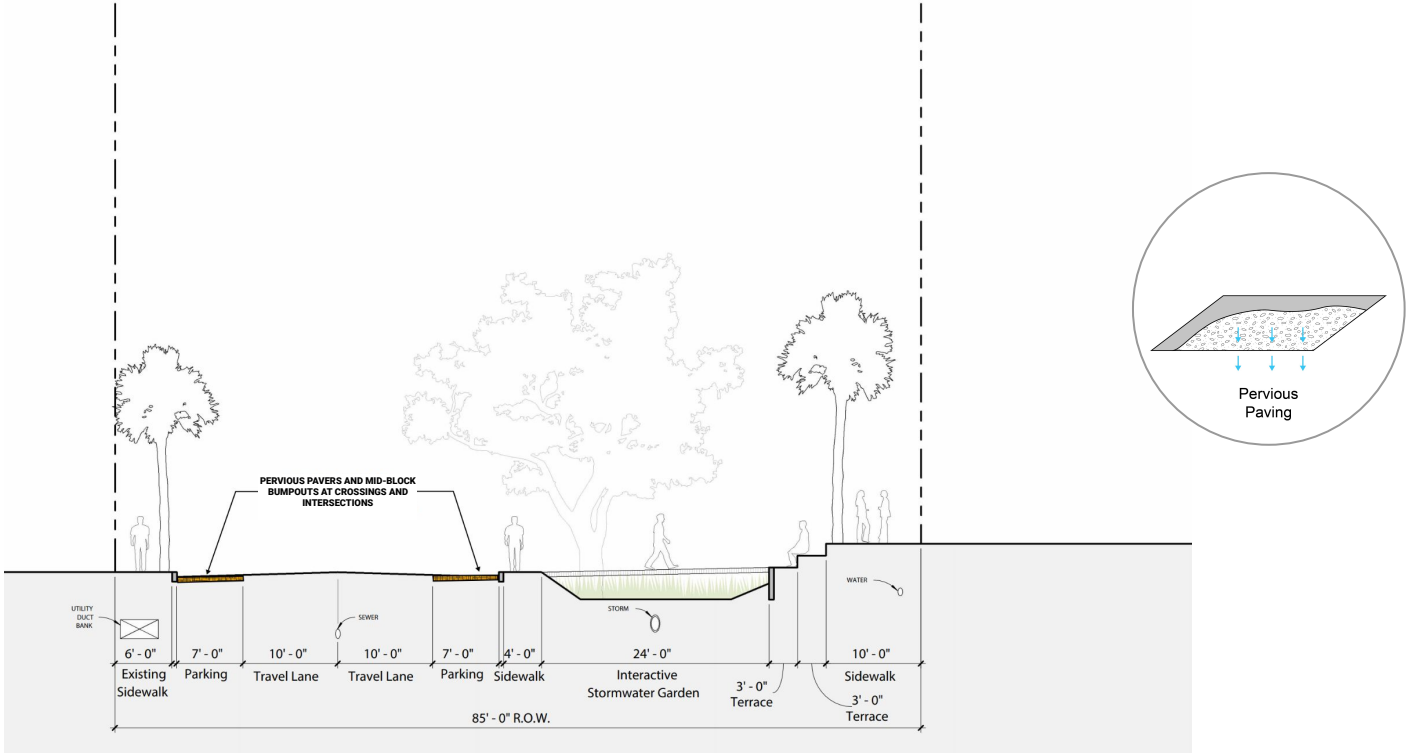
PRIMARY TYPE 2 - ALTERNATE (WASHINGTON STREET)



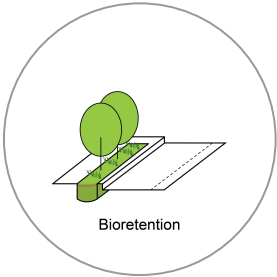
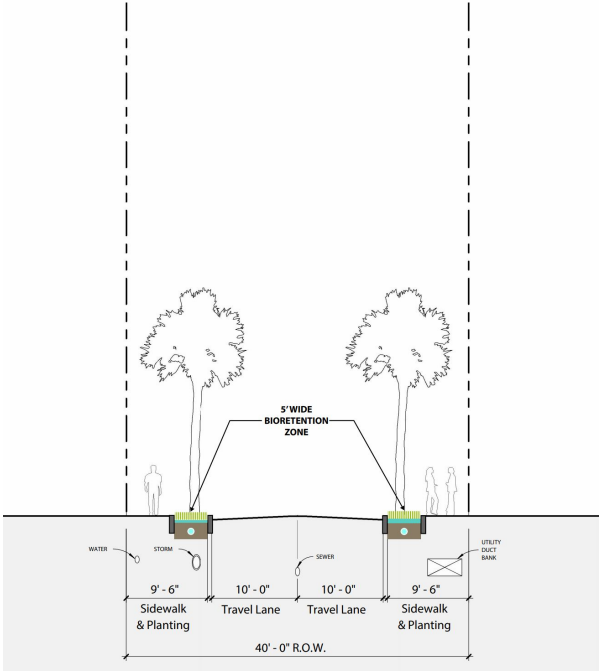
SECONDARY TYPE 1 (HASSELL STREET))



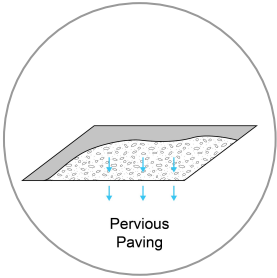
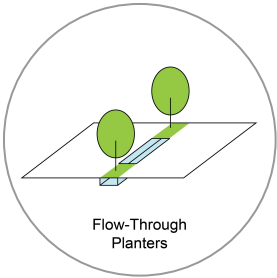
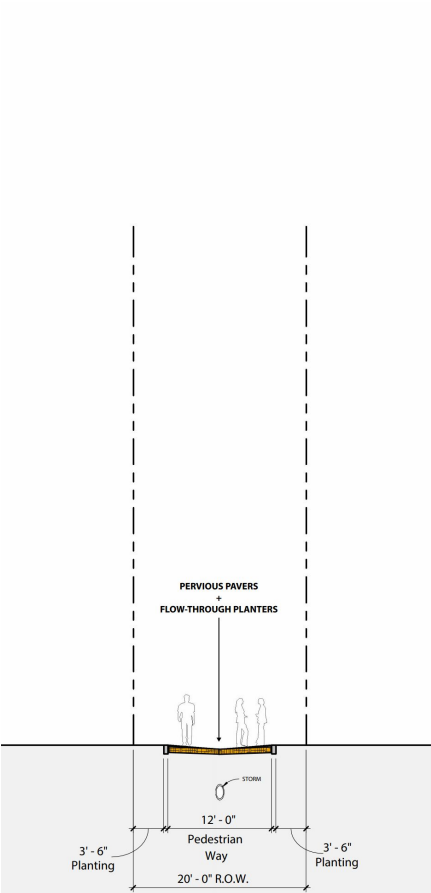
SECONDARY TYPE 2 (LAURENS STREET)



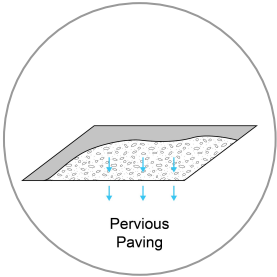
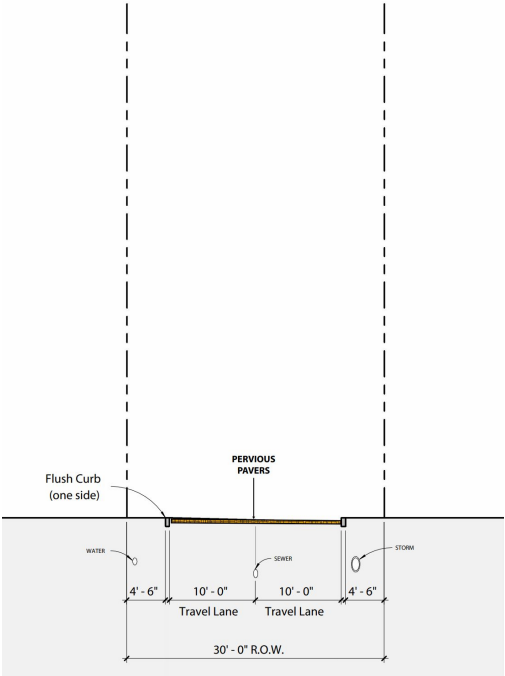
NEIGHBORHOOD TYPE 1 (SOCIETY AND PRITCHARD STREET)



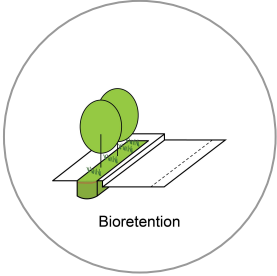
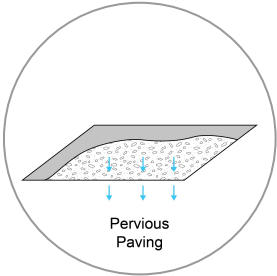
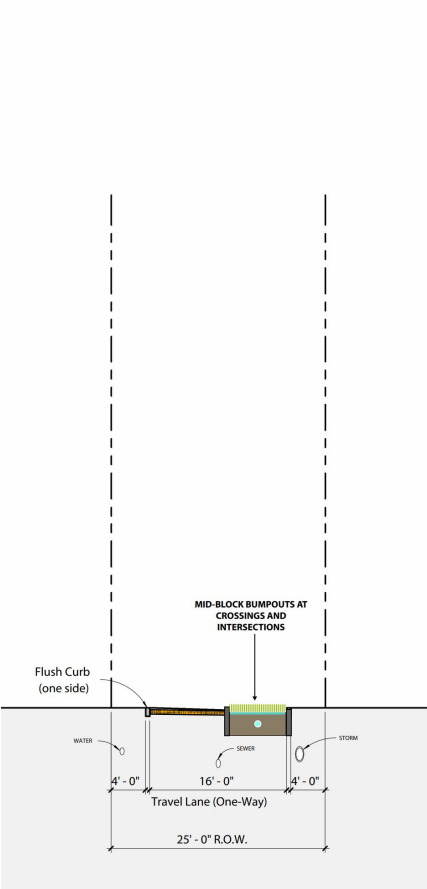
PEDESTRIAN ALLEY (TYPICAL)



NEIGHBORHOOD TYPE 1 (30' ALLEY)



NEIGHBORHOOD TYPE 2 (25' ALLEY)



NEIGHBORHOOD TYPE 3 (20' ALLEY)

