

# PETTY'S ISLAND / CULTURAL AND EDUCATION CENTER

FINAL REPORT

DPMC : W01920-00 / Work Order 8

Proj #: 11180.08

3 OCTOBER 2013

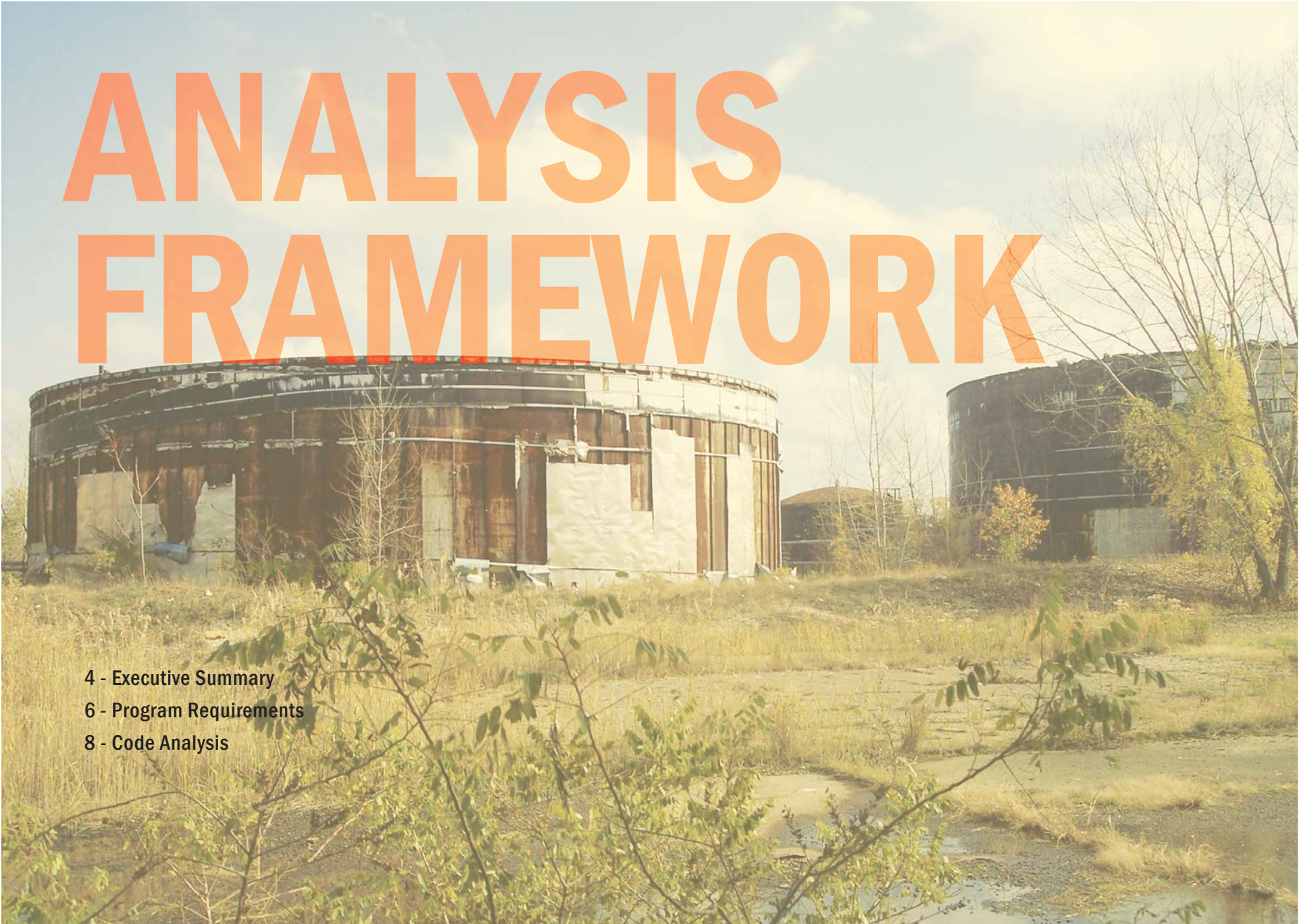
State of New Jersey | Natural Lands Trust

**Lammey  
&Giorgio**  
Architecture • Planning • Project Management

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# ANALYSIS FRAMEWORK



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# Executive Summary

The New Jersey Natural Lands Trust intends to convert Petty’s Island into an Urban Nature Preserve. The Trust’s intention is to locate the Center in such a way that general vehicular traffic could be minimized or prohibited altogether (except for emergency and service vehicles), while providing parking on the mainland. They requested a feasibility study to initially evaluate four (4) potential sites for construction of a Cultural and Education Center:

1 - Mainland site; 2 -“Fork-in the road” site; 3 - Existing Citgo Office Building; and 4 - Existing Warehouse Building

At the conclusion of the feasibility analysis of the four sites, Lammey & Giorgio was asked to investigate conceptual building organization diagrams and prepare renderings that communicated the design concepts.

The Trust envisions the Center as an orientation center. Petty’s Island will be primarily interpreted via wayside kiosks that will be located on trails. The Center, itself, would include an exhibit area, classroom, office space, storage areas, and staff kitchenette. Located undercover or outside would be a sheltered space where groups could assemble prior to tours.

The Center should be a “green” building of approximately 10,000 square feet in total area, with a second floor or raised observation area that will afford views to the river and surroundings. Consideration should be given to minimizing the impact upon wetlands, critical wildlife and rare

plant habitats, maximizing views of the Philadelphia skyline and the Delaware River, and, if cost efficient, utilizing non-traditional building materials such as recycled shipping containers that recognize the past heritage of Petty’s Island.

Impact to the site should be minimized to the greatest extent possible, but provisions for maintenance vehicles, handicapped parking, school buses or other access vehicles must be considered.

The impact of regulatory agency approvals, and the relative ease or difficulty of providing utilities (water, sewer, electrical, telephone, and internet service) to the Center at each location should be identified.

## Purpose

- 1 - In addition to siting the building, the study investigates 4 sites for the new Center.
- 2 - The study analyzes the use of the existing Citgo Office and Warehouse buildings.
- 3 - The study analyzes the use of existing paving / slabs for vehicular parking.
- 5 - The study includes a building program that itemizes required spaces.
- 6 - A review of the NJ Uniform Construction Code with respect to a new structure and adaptive re-use of the existing structures is included.
- 7 - The study researches the use of recycled shipping containers in the building design and how the NJ Uniform Construction Code will impact their use.

## Executive Summary

It is our understanding that site/environmental remediation will be the responsibility of Citgo. It should be noted that Citgo is required to implement and remediate a five acre area in proximity surrounding the Center, to DEP's unrestricted standards. This study does not include any environmental analysis.

Citgo is responsible for removing existing structures, other than any structure(s) that the Trust might ask be retained. The existing vehicular bridge is slated to remain unless the Trust requests it be removed by Citgo.

Two program design concepts are represented in this report. Configuration 1, utilizes shipping container construction. For Configuration 1, the total Budget Construction Costs are estimated at approximately \$3.6 Million. Total Project Costs, including fees, contingencies, permits and furnishings are estimated at approximately, \$5.0 Million.

In Configuration 2, we proposed traditional building methods with steel column and beam construction on concrete piles with grade beams. For Configuration 2, the total Budget Construction Costs are estimated at approximately \$3.0 Million. Total Project Costs, including fees, contingencies, permits and furnishings are estimated at approximately, \$4.3 Million.

Although shipping containers are less expensive to purchase, delivery to the site, modifications to adapt to the building program, and difficulties associated with construction approvals drive the higher costs for configuration 1.



# Program Requirements

## / INTERIOR BUILDING

	SF	UNITS	TOTAL SF
<b>1 - Indoor Classroom</b>			
a. Accomodate 40 Occupants			
b. Wet Lab / Demonstrations			
c. Access to Exterior Classroom			
<b>Net Area Required</b>	1400	1	<b>1,400</b>
<b>2 - Exhibit Hall</b>			
a. Accomodate 40 Occupants			
b. Static & Interactive Exhibits			
c. Views to Exterior			
<b>Net Area Required</b>	2500	1	<b>2,500</b>
<b>3 - Administrative</b>			
a. Reception Area / Counter / "Hang-Out"	400	1	400
b. Vestibule	100	1	100
c. Offices ( 2 People Each)	160	2	320
d. Staff Kitchenette	120	1	120
e. Administrative Equipment	100	1	100
f. Administrative Storage	50	1	50
<b>Net Area Required</b>			<b>1,090</b>
<b>4 - Common Areas</b>			
a. Interior Observation Deck	400	1	400
b. Toilet Rooms	190	2	380
c. Janitor's Closet	50	1	50
d. Mechanical / Utility Room	150	1	150
e. Tools & Equipment Storage	500	1	500
<b>Net Area Required</b>			<b>1,480</b>

1 - Indoor Classroom	1,400
2 - Exhibit Hall	2,500
3 - Administrative	1,090
4 - Common Areas	1,480
<b>Total Net Area</b>	<b>6,470 SF</b>
Corridors, Elevators, Etc. 45%	2,912 SF
<b>Total Gross Building Area Required</b>	<b>9,382 SF</b>

# Program Requirements

## / EXTERIOR SPACE

	SF	UNITS	TOTAL SF
<b>1 - Exterior Classroom</b>			
a. Accomodate 40 Occupants			
b. Under roof or awning			
c. Paved			
d. Views to river or other natural features			
<b>Net Area Required</b>	<b>1200</b>	<b>1</b>	<b>1,200</b>
<b>2 - Observation Deck</b>			
a. Accomodate 40 Occupants			
b. Views across site to City & River			
<b>Net Area Required</b>	<b>800</b>	<b>1</b>	<b>800</b>
<b>3 - Entry Courtyard / Gathering Space</b>			
a. Accomodate 40 Occupants			
b. Under roof or awning			
c. Paved			
d. Low walls or benches for seating			
<b>Net Area Required</b>	<b>800</b>	<b>1</b>	<b>800</b>
<b>4 - Parking &amp; Service</b>			
a. Bus / jitney drop-off	3000	1	3000
b. Handicapped parking & driveway	2250	1	2250
c. Service Vehicle parking & driveway	1500	1	1500
d. Trash / Recycling conctainers	500	1	500
<b>Net Area Required</b>			<b>7,250</b>

1 - Exterior Classroom	1,200
2 - Observation Deck	800
3 - Entry Courtyard / Gathering Space	800
4 - Parking & Service	7,250
<b>Total Exterior Building Area Required</b>	<b>10,050 SF</b>

# Code Analysis

CODE / ITEM <i>Building + Rehabilitation Subcodes</i>	NEW BUILDING	EXISTING OFFICE / CHANGE OF USE "B" to "A-3"	EXISTING WAREHOUSE / CHANGE OF USE "S-1" to "A-3"
<b>1</b> - Construction Type, Area & Height	IIIB or greater 9,500 SF/Floor 2-Stories / 55 ft.	.....▶	.....▶
<b>2</b> - Interior Finish Requirements <i>(without sprinklers)</i>	Exit Encl - "A" Corridor - "A" Rooms - "C"	.....▶	.....▶
<b>3</b> - Automatic Sprinkler System	Required if >12,000 SF or >300 Occupants	.....▶	.....▶
<b>4</b> - Fire Alarm & Detection Systems	Manual System required if >300; recommend automatic system	Not required; recommend automatic sprinklers	.....▶
<b>5</b> - Occupancy by Square Footage	359 Occupants <i>*Triggers Sprinklers</i>	.....▶	.....▶



# Code Analysis

CODE / ITEM

*Building + Rehabilitation Subcodes*

NEW BUILDING

EXISTING OFFICE / CHANGE OF USE  
"B" to "A-3"

EXISTING WAREHOUSE / CHANGE OF USE  
"S-1" to "A-3"

**6 - Exit & Emergency Lighting**

Required



**7 - Stairs**

2 Required; 44-  
inches wide

1 if floor or  
mezzanine has  
<50 Occupants



**8 - Structural Requirements**

Comply with code

May be used  
without modification  
if in good structural  
repair

*\*not in good  
structural repair*



**9 - Plumbing Requirements**

Comply with code

3 water closets  
/ urinals & 3  
lavatories per  
gender



**10 - Electrical Requirements**

Comply with code

Comply with  
Chapter 5 of  
electrical subcode



# Code Analysis

CODE / ITEM

*Building + Rehabilitation Subcodes*

NEW BUILDING

EXISTING OFFICE / CHANGE OF USE  
"B" to "A-3"

EXISTING WAREHOUSE / CHANGE OF USE  
"S-1" to "A-3"

**11 - Mechanical Requirements**

Comply with code .....▶

**12 - Accessibility Requirements**

Comply with code .....◀      Accessible entrance & features required .....▶

**Code Sources:**

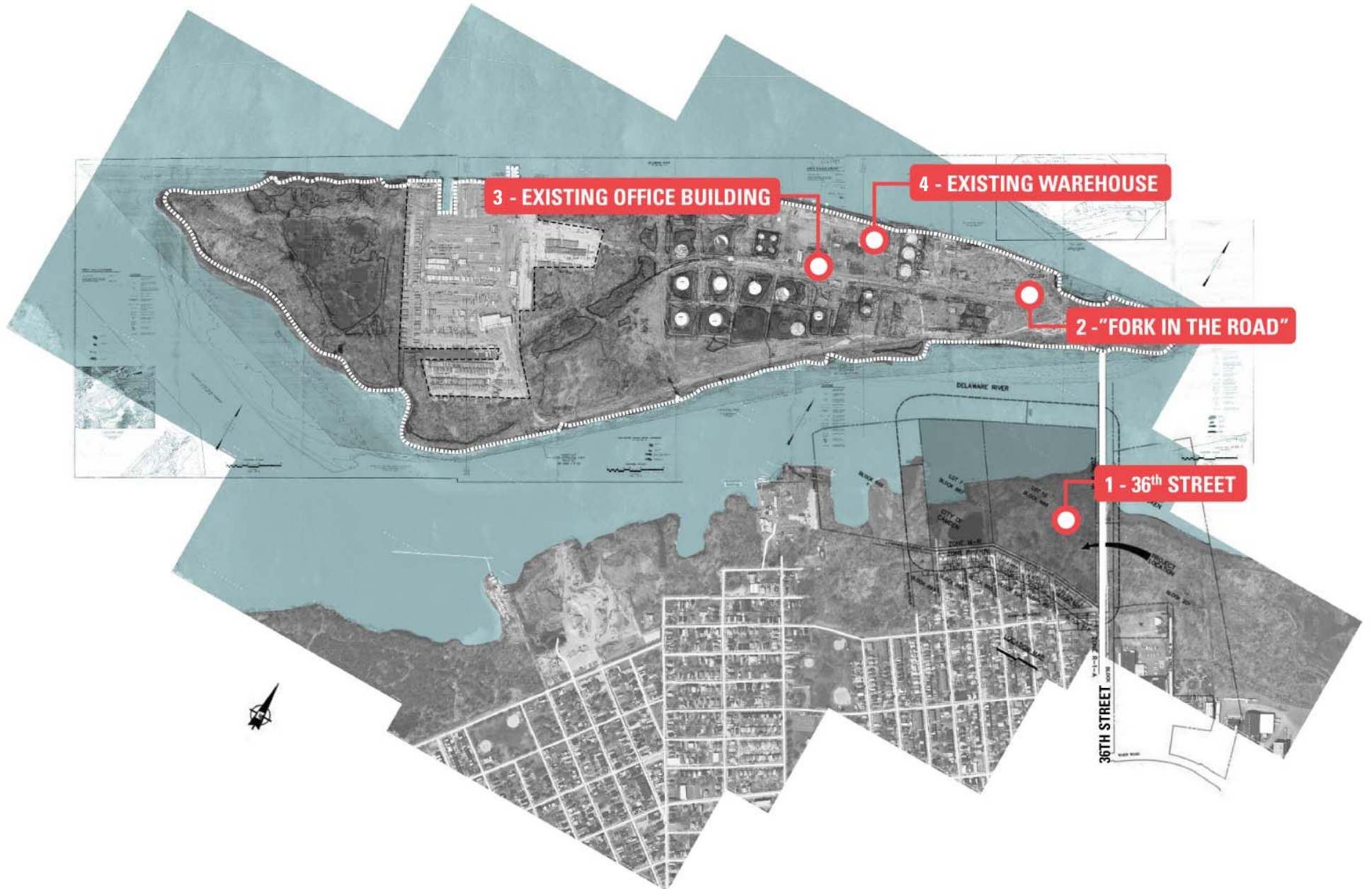
- New Jersey Uniform Construction Code
- New Jersey Rehabilitation Subcode (change of use analysis)
- International Building Code 2009, New Jersey Edition
- 2009 National Standard Plumbing Code
- 2009 International Mechanical Code
- 2008 National Electric Code



# EXISTING CONDITIONS ANALYSIS

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- 13 - Site 1 - *36th Street*
- 14 - Site 2 - *"Fork-in the road"*
- 15 - Site 3 - *Existing Warehouse Building*
- 16 - Site 4 - *Existing Citgo Office Building*

# Site Locations Map



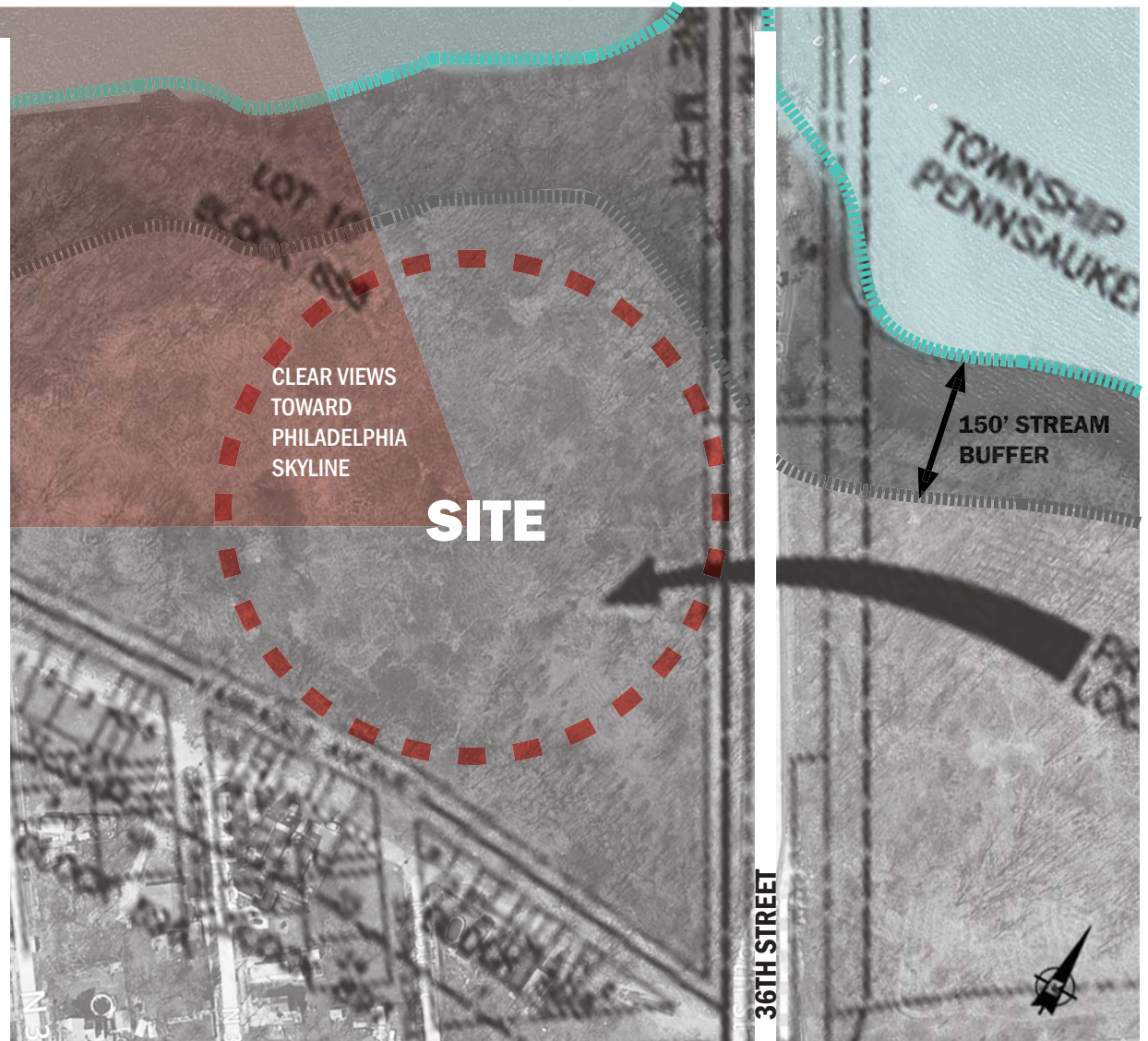
## Site 1 - 36th Street - "Mainland"

### + Pros

- Usable land with no existing structures
- Reduces development on Island's natural environment
- Integration with Cramer Hill area

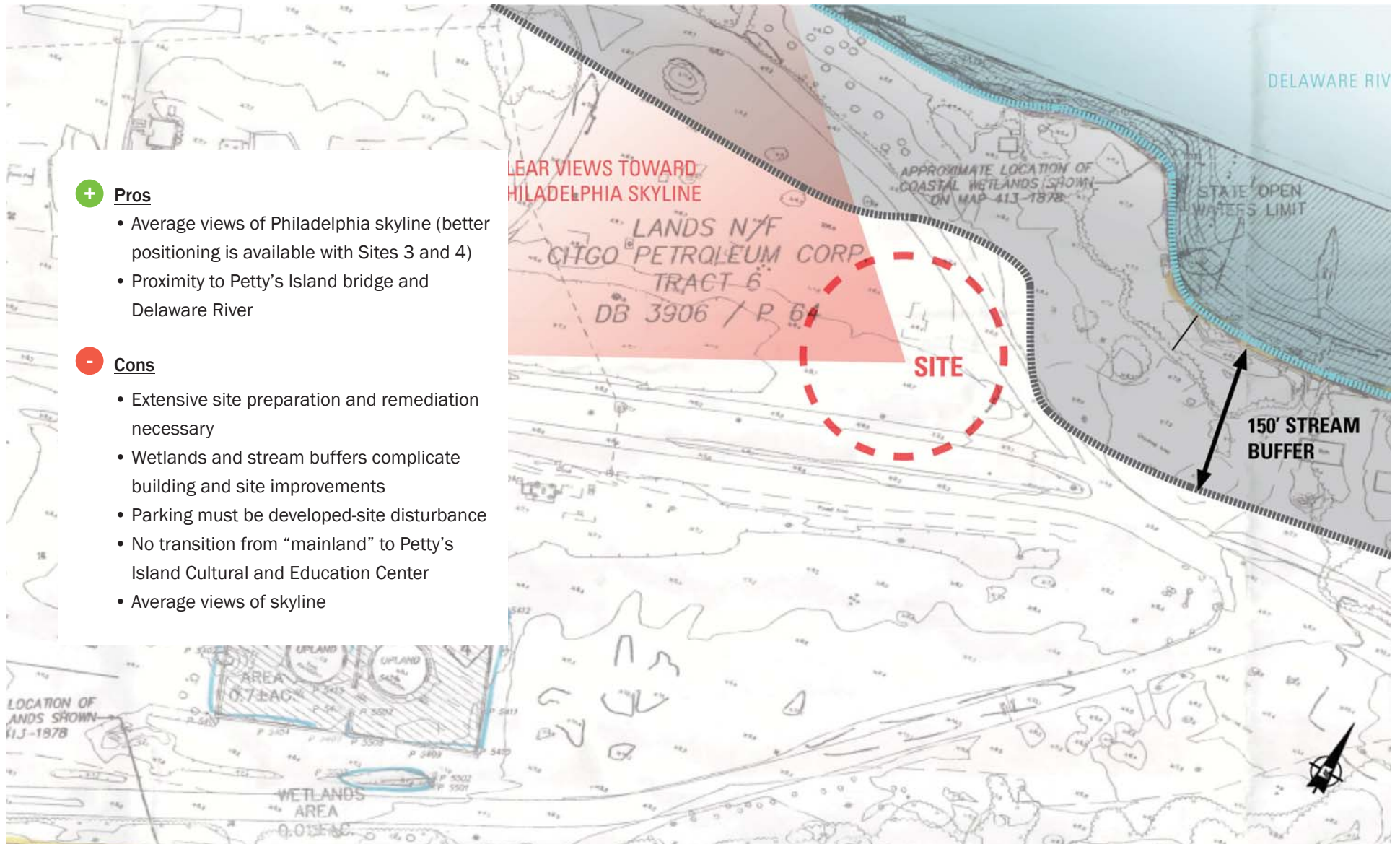
### - Cons

- One million dollars from CITGO only if Center is built on Petty's Island
- Remediation issues have prevented fee transfer of this property from the Camden County Municipal Utilities Authority (CCMUA) to the Trust.
- Building envelope with greatest potential actually on property owned by City of Camden and Pennsauken Township (old road bed).
- Less desirable views of the Philadelphia skyline
- No available existing parking
- Extensive site preparation necessary
- Wetlands interference/buffer/high tide boundary inhibits developable area.
- Topographic changes could prove costly
- Location does not provide a good introduction to the island.



← CAMDEN PENNSAUKEN →

## Site 2 - "Fork-in-the-Road"



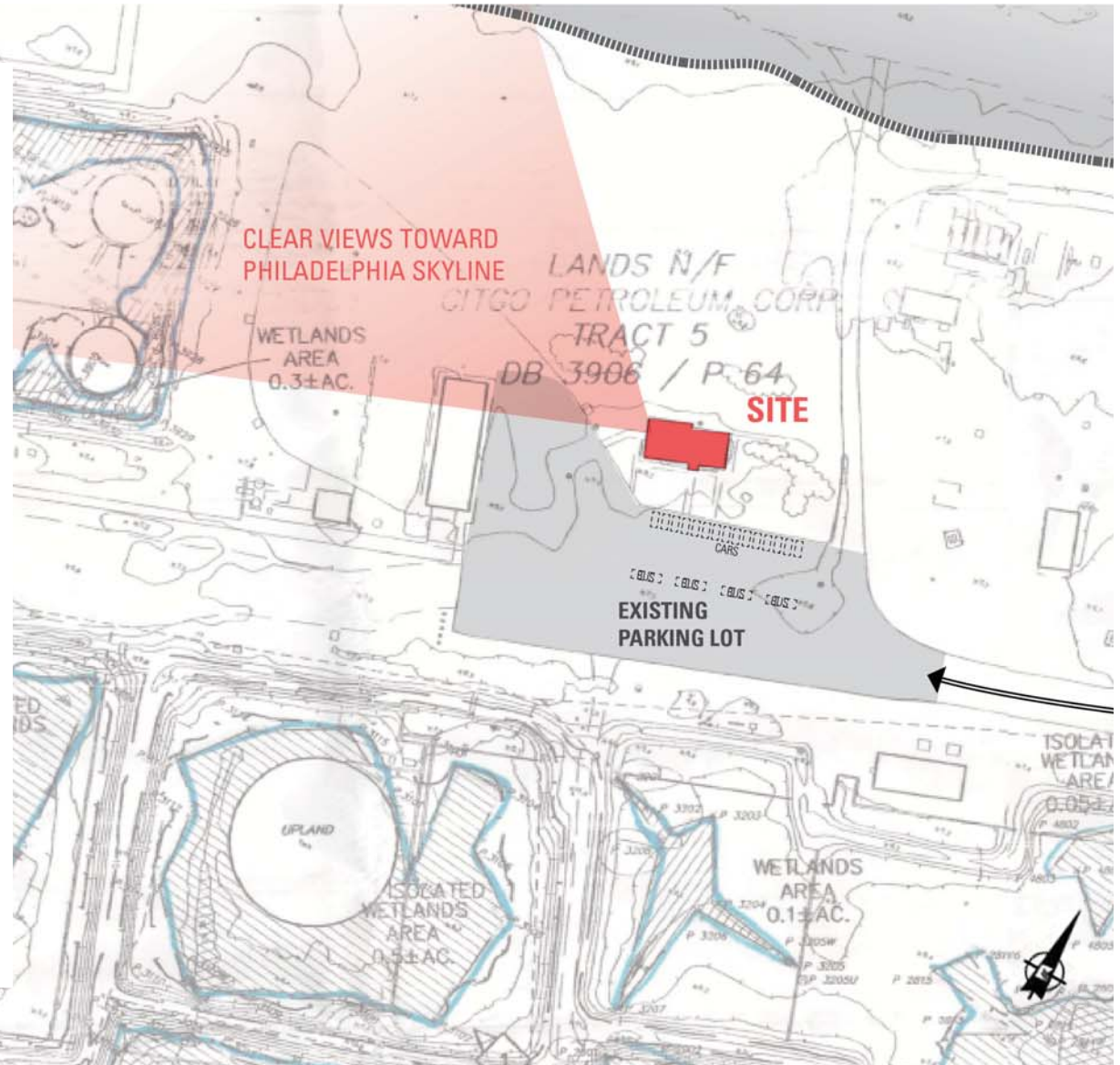
### Site 3 - Existing Citgo Office

#### + Pros

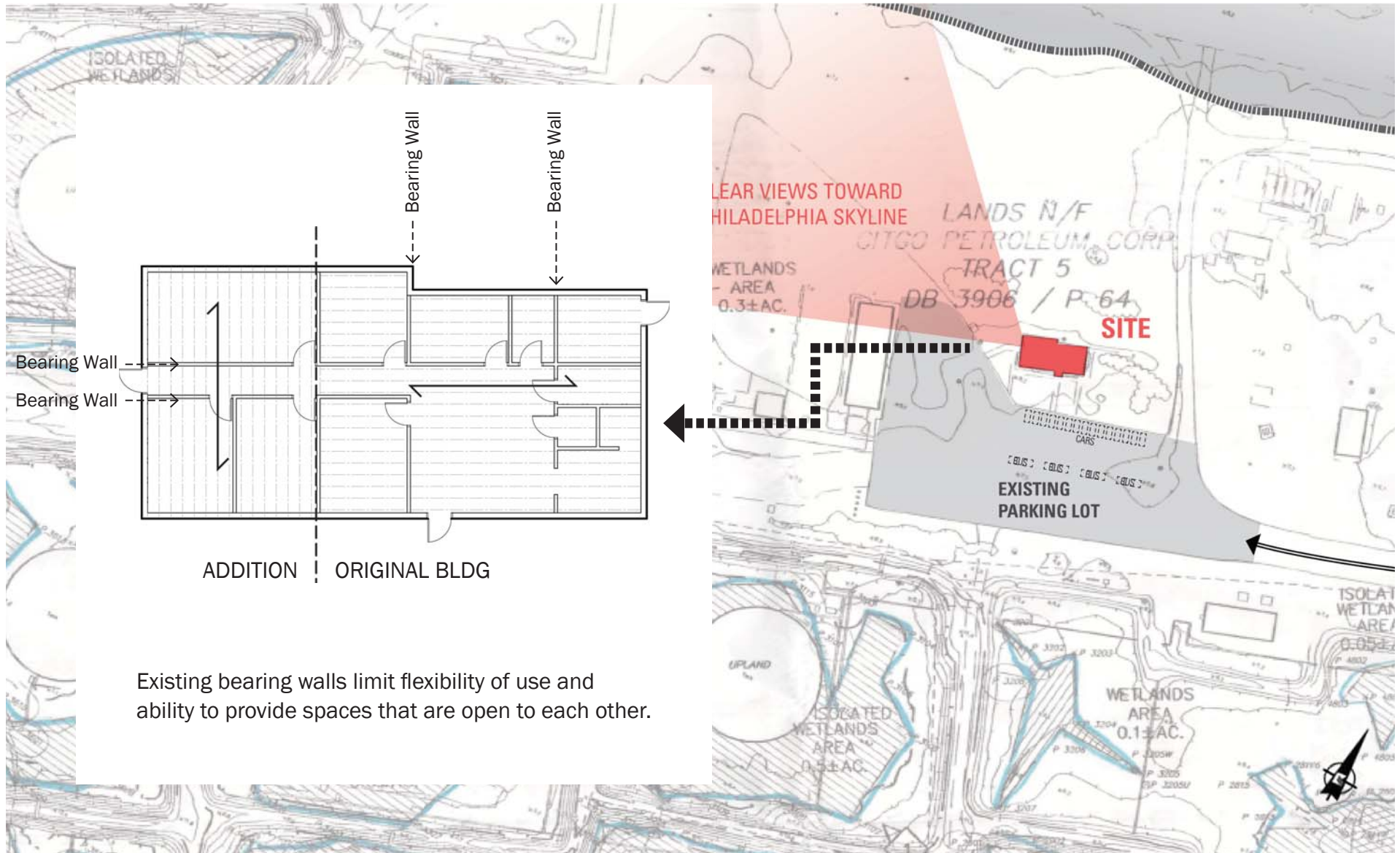
- No wetlands issues
- Fantastic views of the Philadelphia skyline
- Proximity to Delaware River and dolphin piers
- Site allows for transition from “mainland” to Petty’s Island Cultural and Education Center
- Existing parking for 4 buses and 15 cars; existing paving area can be reduced

#### - Cons

- Existing structural system and necessary alterations and repairs are in conflict with required program
- Existing building measures 1,675 SF and an addition would be required
- Roof structure will not support a second floor
- Existing building needs to be demolished – is not ideal for required program
- Site clearing will be necessary before construction of new building
- CITGO has right to occupy existing building through December 31, 2024



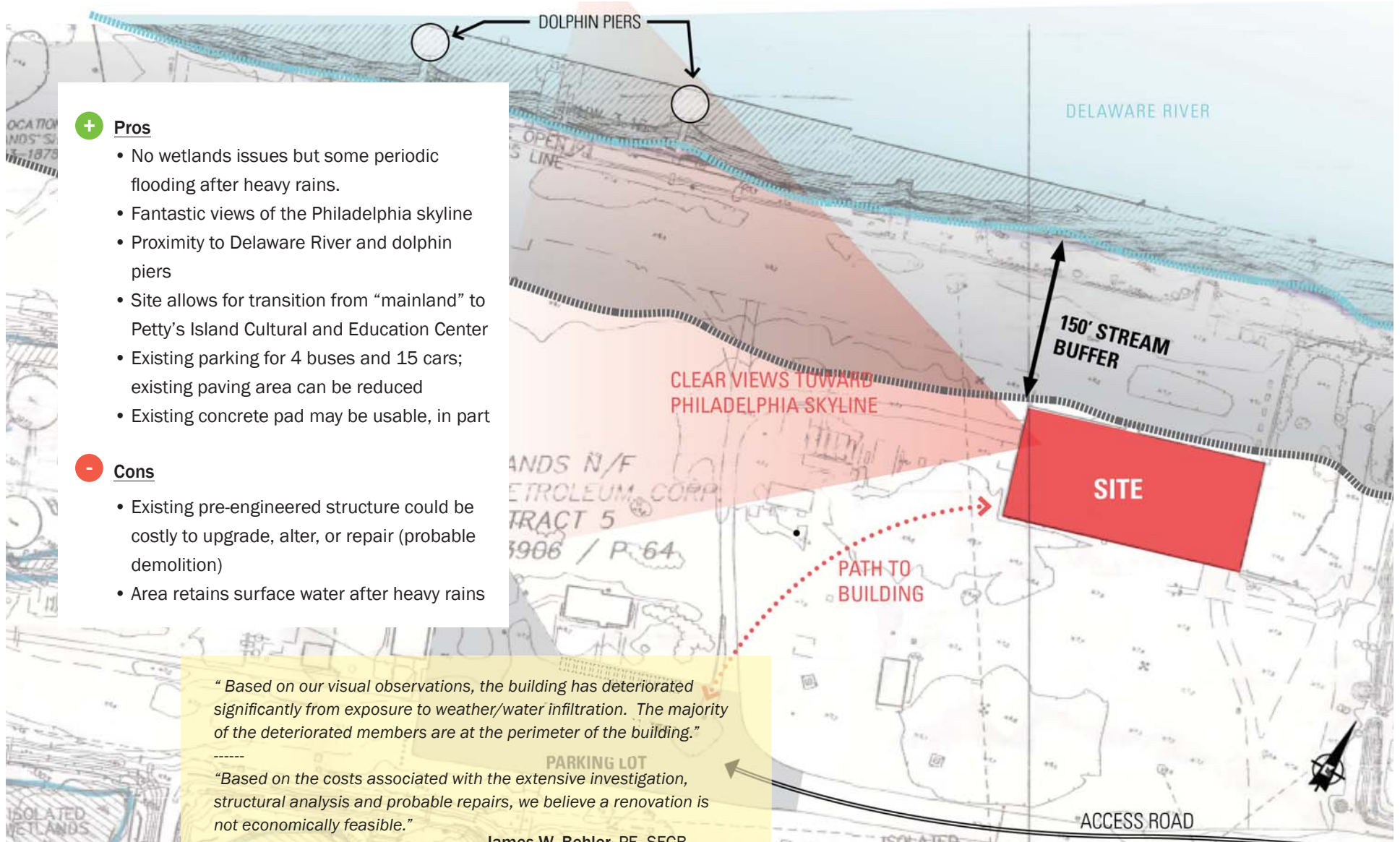
### Site 3 - Existing Citgo Office



Existing bearing walls limit flexibility of use and ability to provide spaces that are open to each other.



## Site 4 - Existing Warehouse Building



### + Pros

- No wetlands issues but some periodic flooding after heavy rains.
- Fantastic views of the Philadelphia skyline
- Proximity to Delaware River and dolphin piers
- Site allows for transition from “mainland” to Petty’s Island Cultural and Education Center
- Existing parking for 4 buses and 15 cars; existing paving area can be reduced
- Existing concrete pad may be usable, in part

### - Cons

- Existing pre-engineered structure could be costly to upgrade, alter, or repair (probable demolition)
- Area retains surface water after heavy rains

“Based on our visual observations, the building has deteriorated significantly from exposure to weather/water infiltration. The majority of the deteriorated members are at the perimeter of the building.”

-----  
 “Based on the costs associated with the extensive investigation, structural analysis and probable repairs, we believe a renovation is not economically feasible.”

James W. Behler, PE, SECB  
 O’Donnell & Naccarato, Inc.

# SHIPPING CONTAINER STATS

- 19 - Standard Sizing
- 20 - Structural Information
- 21 - Pros + Cons



## Standard Sizing

Shipping containers come in standardized sizes. Other sizes are available but may be less available or more expensive.

### Lengths

10' (9' 3")

20' (19' 3")

40' (39' 5")

45' (44' 5")

48' (47' 5")

53' (52' 5")

### Widths

8' (7' 8")



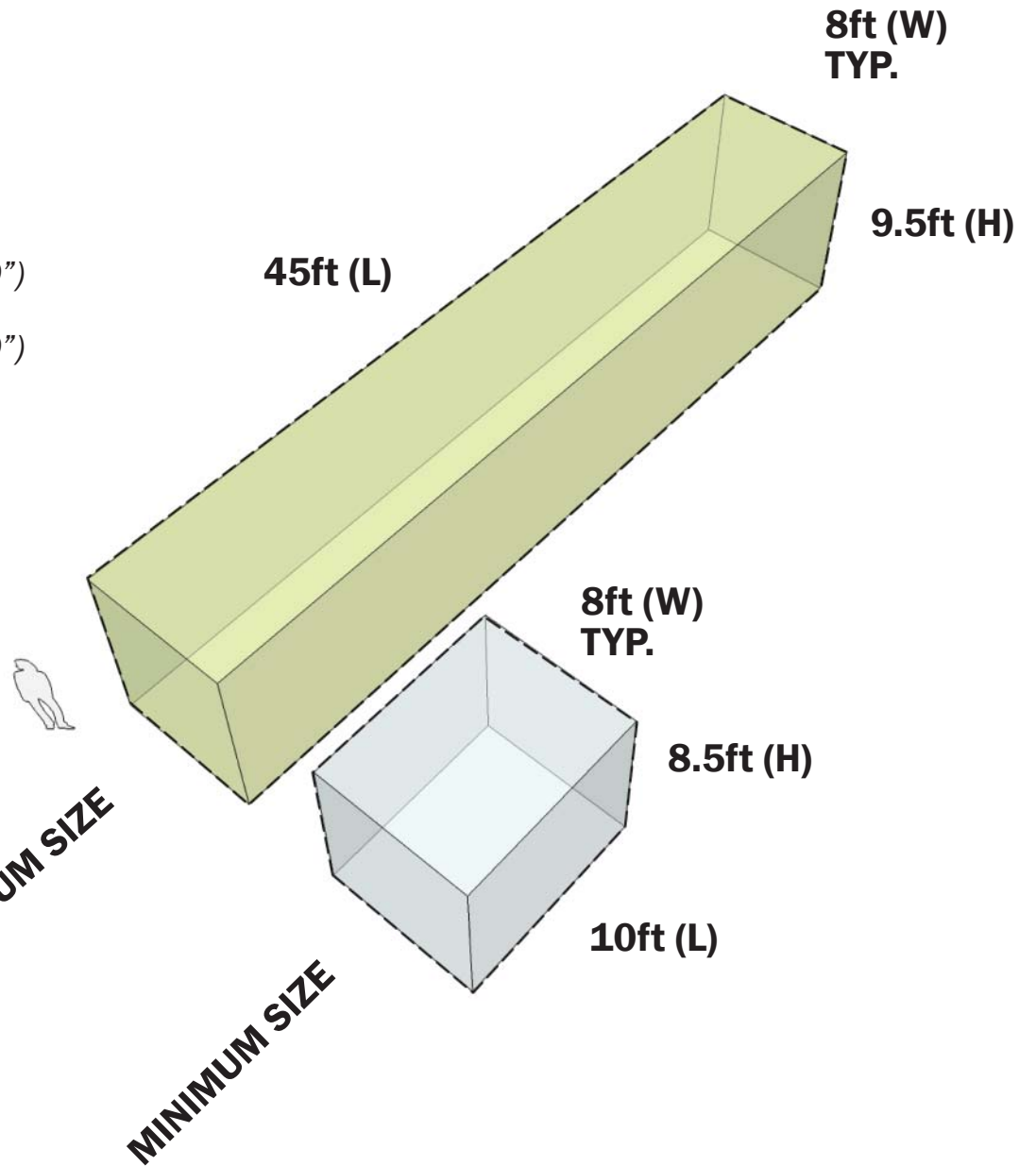
### Heights

8' 6" (7' 10")

9' 6" (8' 10")

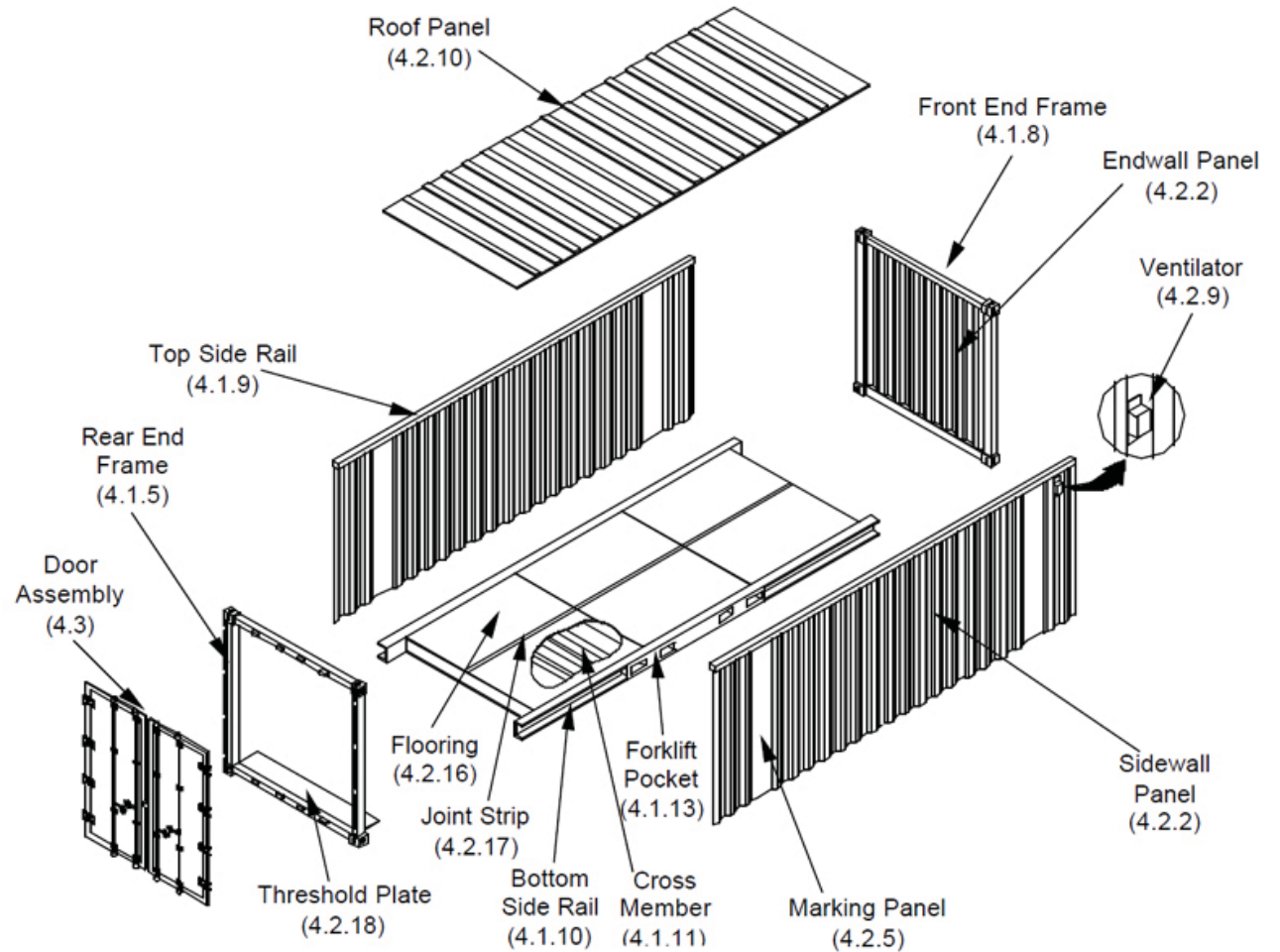
**MAXIMUM SIZE**

**MINIMUM SIZE**



## Structural Information

- ISO shipping cargo containers are tested in accordance with the requirements of International Standard ISO 1496/1 which stipulates they comply with static and dynamic design load factors.
- The roof load test is 660 lbs over an area of 2'x1' applied to the weakest part of the roof.
- The floor is designed to pass a concentrated test of 16,000 lbs over a footprint of 44 sq inches.
- Boxes are suitable for earthquake areas of seismic rating of up to the California standards.



## Pros vs. Cons


### + Pros

- Industrial appearance connects to history of island and serves as a counterpoint to the natural setting
- Inexpensive building components (~\$1500 to ~\$3000 per container)
- Constructed out of Cor-Ten – a tough weathering steel
- Reduced build time with much of the work being done off-site.
- Sides and tops can be removed and sizes can be reduced and/or extended

### - Cons

- NJUCC requires third party design and inspection of “industrialized or modular buildings or their components.”
- Limited headroom . Framing and insulating walls will reduce the overall dimensions by approximately 6 inches in width and 3 inches in height.
- Plan review will require structural calculations for component and modifications for openings, etc
- Shipping containers have high durability and fire resistant materials. However, there is not a technical UL listing for this specific type of construction





# PROGRAM DESIGN CONCEPTS

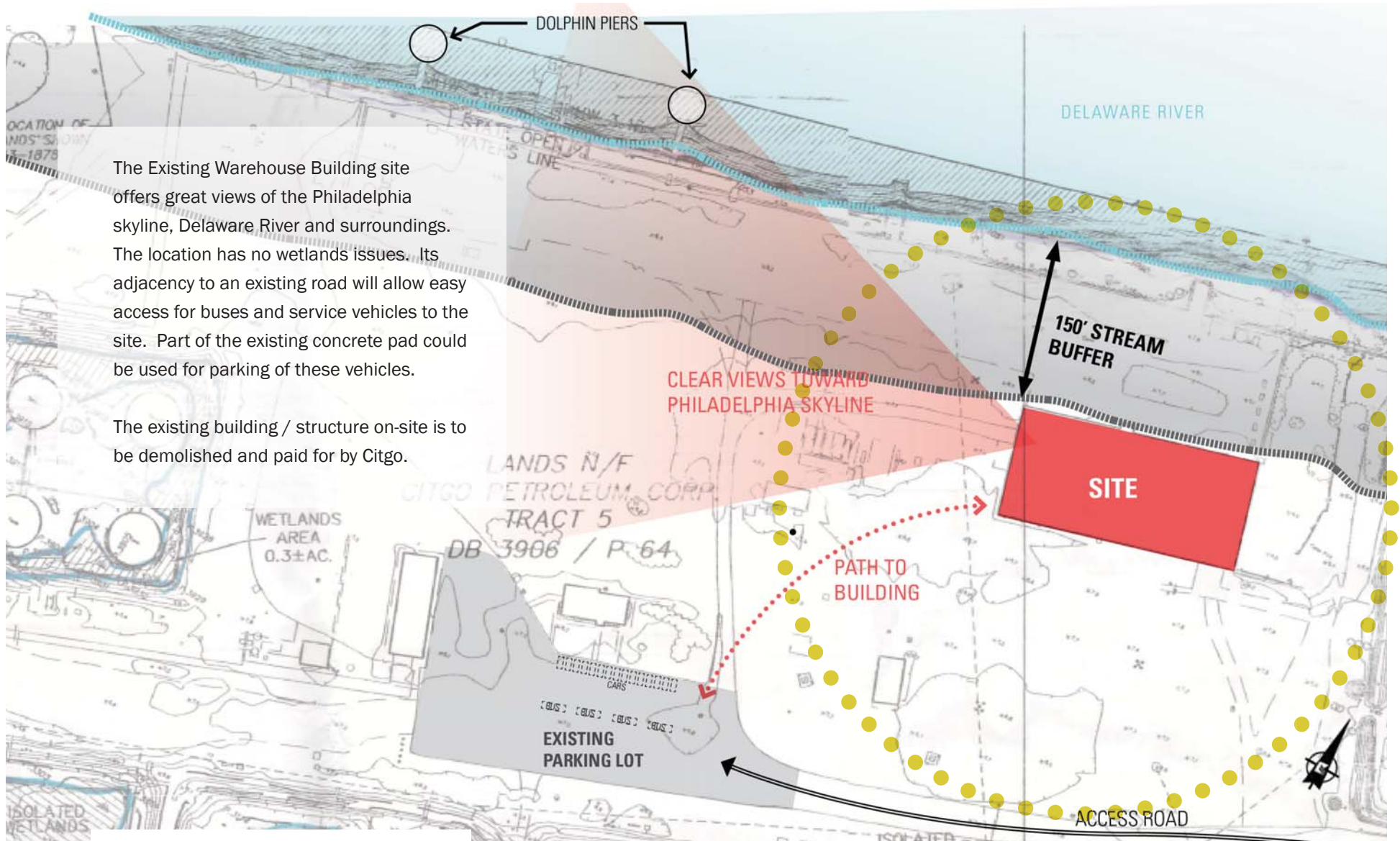
23 - Recommended Site

24 - Program Configuration 1

28 - Program Configuration 2

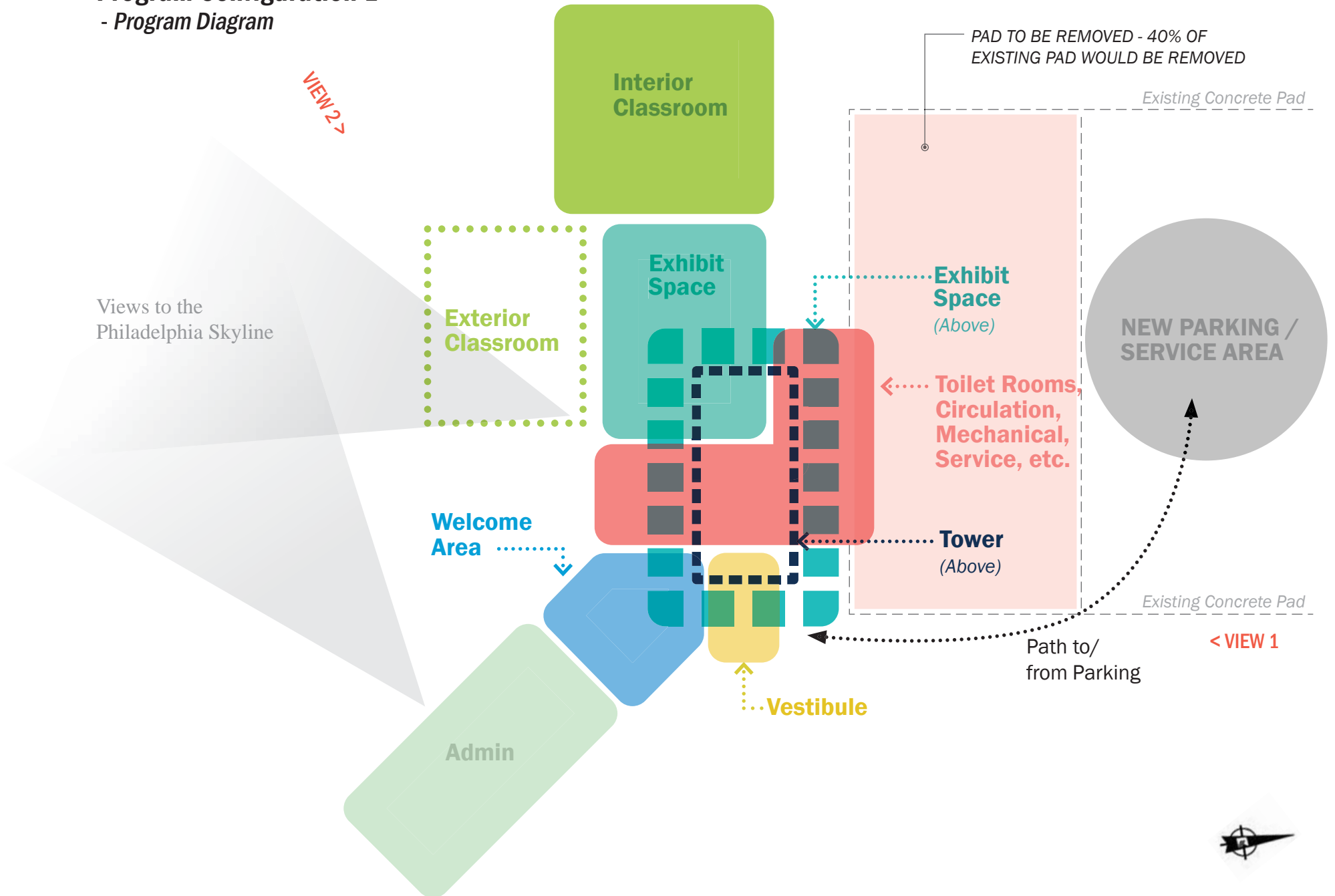
## Recommended Site

- Why Here?



Building Site Location as selected by:  
State of New Jersey | Natural Lands Trust

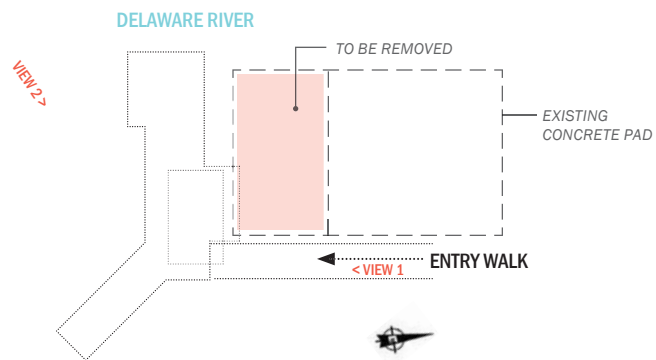
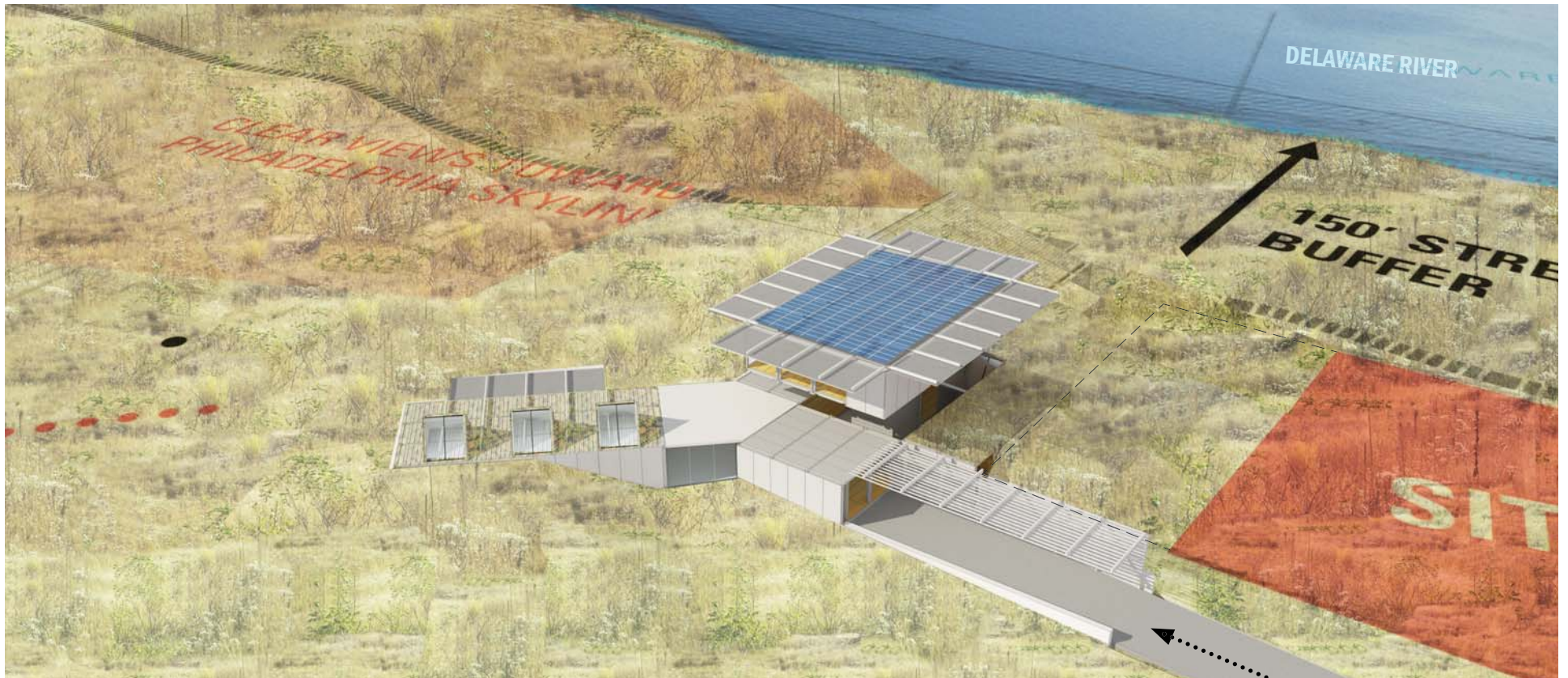
# Program Configuration 1 - Program Diagram





# Program Configuration 1

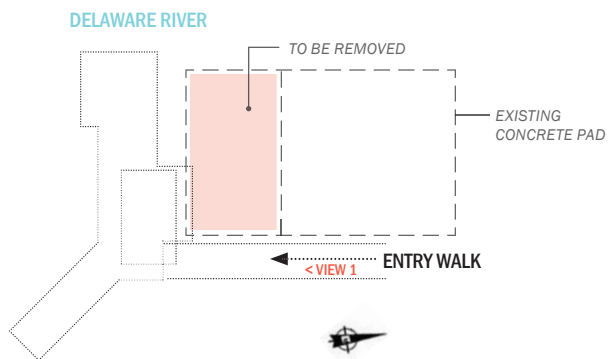
- Aerial View



ENTRY WALK

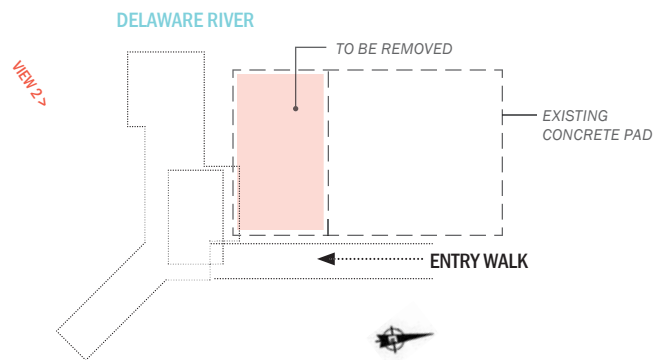
# Program Configuration 1

- View 1 - Entrance Walk



# Program Configuration 1

- View 2 - Exterior West



# Program Configuration 2 - Program Diagram

Views to the Philadelphia Skyline

DELAWARE RIVER

EXISTING CONCRETE PAD TO BE REMOVED

Existing Concrete Pad

< VIEW 1

Exterior Classroom

Interior Classroom

Tower (Above)

Welcome Area

Exhibit Space

Existing Concrete Pad

VIEW 2 >

Admin

Exhibit Space (Above)

Vestibule

Core: Toilet Rooms, Circulation, Mechanical, Service, etc.



Entry

Path to/from Existing Parking

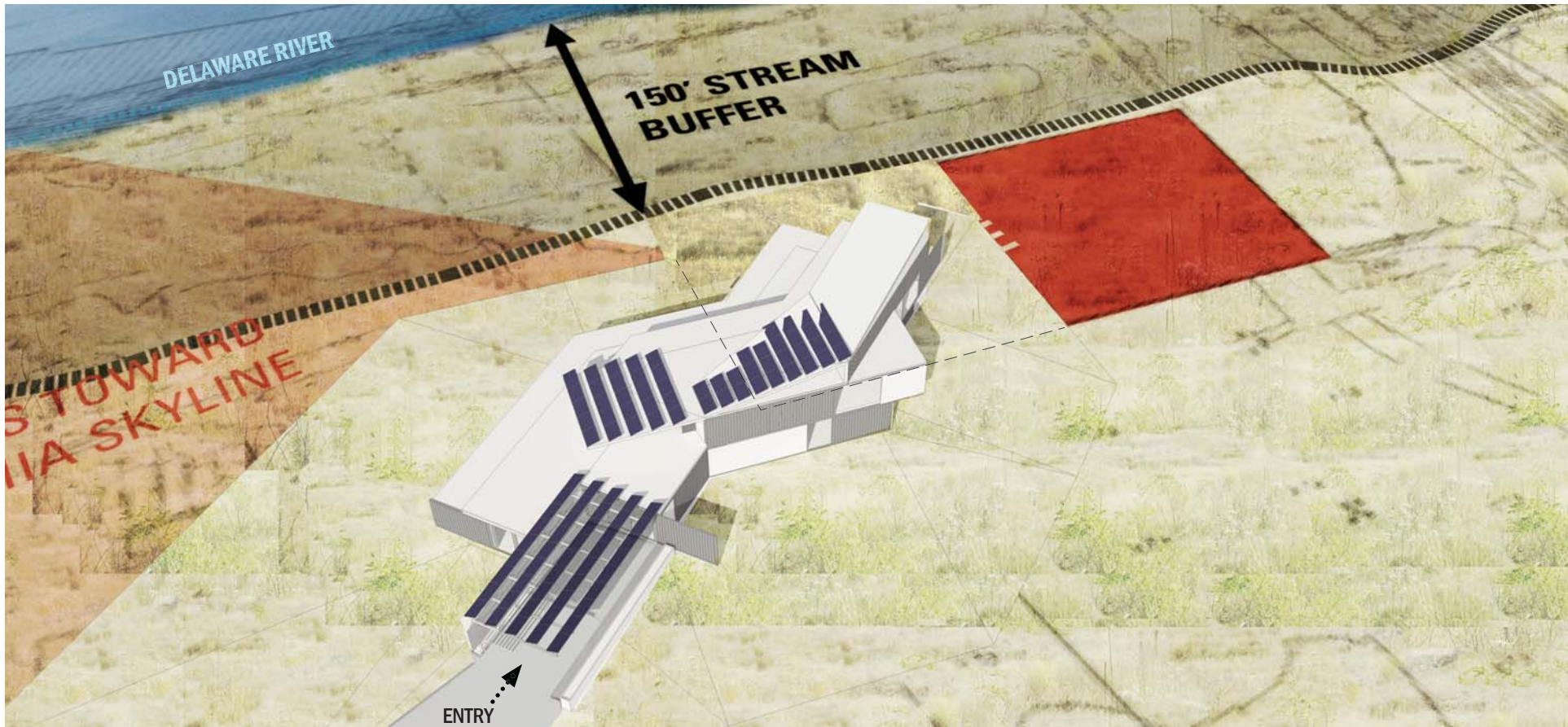
Existing Parking

VIEW 1 >

PROGRAM DESIGN CONCEPTS

# Program Configuration 2

- Aerial View



DELAWARE RIVER

ENTRY WALK

< VIEW 3

VIEW 2 >

VIEW 1 >

EXISTING CONCRETE PAD TO BE REMOVED

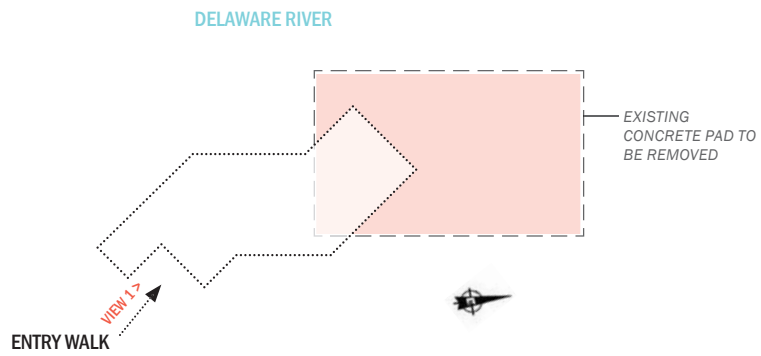


ENTRY WALK

PROGRAM DESIGN CONCEPTS

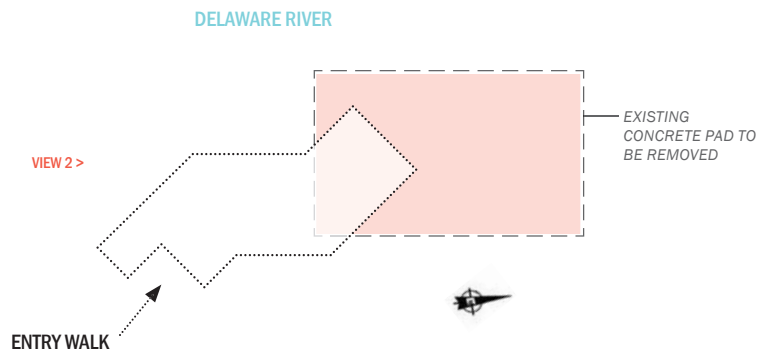
# Program Configuration 2

- View 1 - Entrance Walk



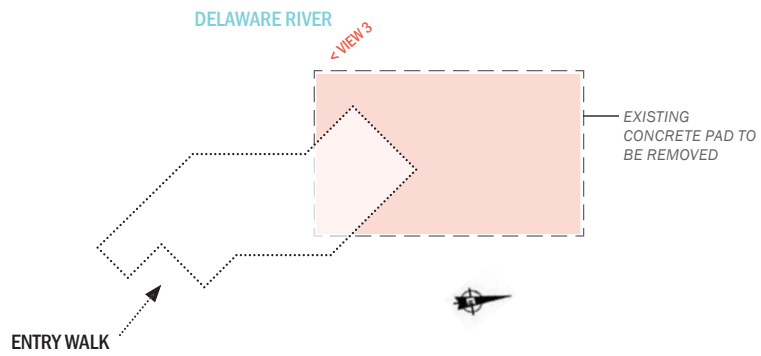
# Program Configuration 2

- View 2 - Exterior East



# Program Configuration 2

- View 3 - Exterior West



PROGRAM DESIGN CONCEPTS





# BUDGET COST ESTIMATES

34 - Budget Construction Costs - Configuration 1

37 - Budget Project Costs - Configuration 1

38 - Budget Construction Costs - Configuration 2

41 - Budget Project Costs - Configuration 2

**CULTURAL & EDUCATION CENTER-CONFIGURATION 1**  
**PETTY'S ISLAND**  
**PENNSAUKEN & CAMDEN, NJ**

DPMC: W0192-00  
 L&G: 11180.08  
 Prep: wpl  
 Date: 3-Oct-13  
 Rev.

**BUDGET CONSTRUCTION COST ESTIMATE**

Page: 1 of 3

Group	Description	Subtotal	Total Cost	\$/s/SF
<b>A</b>	<b>SUBSTRUCTURE</b>		<b>\$ 220,900</b>	<b>\$ 23.50</b>
	A10 Wood Piles & Concrete Grade Beams	\$ 172,020		
	A20 Concrete Slabs & Perimeter Insulation	\$ 48,880		
<b>B</b>	<b>SHELL</b>		<b>\$ 1,167,920</b>	<b>\$ 124.25</b>
	B10 Steel Frame, Elevated Slab, Sloped Roof & Trellis	\$ 289,520		
	B20 Shipping Containers	\$ 462,600		
	B30 Doors & Windows	\$ 166,400		
	B40 Roof Coverings	\$ 161,000		
	B50 Green Roof	\$ 88,400		
<b>C</b>	<b>INTERIORS</b>		<b>\$ 331,920</b>	<b>\$ 35.31</b>
	C10 Interior Partitions, Doors & Stairs	\$ 188,100		
	C20 Interior Finishes	\$ 143,820		
<b>D</b>	<b>SERVICES</b>		<b>\$ 633,410</b>	<b>\$ 67.38</b>
	D10 Conveying	\$ 75,000		
	D20 Plumbing	\$ 107,060		
	D30 Mechanical	\$ 206,800		
	D40 Electrical & Alarm Systems	\$ 124,550		
	D50 Solar Array	\$ 120,000		
<b>E</b>	<b>SITENWORK</b>		<b>\$ 309,600</b>	<b>\$ 32.94</b>
	E10 Demolition & Removals	\$ 51,250		
	E20 Utilities	\$ 203,350		
	E30 Site Improvements	\$ 55,000		
	<b>SUBTOTAL</b>		<b>\$ 2,663,750</b>	<b>\$ 283.38</b>
	General Requirements	10%	\$ 266,375	28.34
	Overhead & Profit	15%	\$ 399,563	42.51
	Escalation @ 4% per year to 2016	12%	\$ 319,650	34.01
	<b>TOTAL CONSTRUCTION COST ESTIMATE (CCE)</b>		<b>\$ 3,649,338</b>	<b>\$ 388.23</b>
	<b>Enclosed Building Area</b>			
	First Floor	7,950		
	Second Floor	1,450		
	Total Building Area	9,400		
	<b>Covered Building Area</b>			
	Entry Courtyard	800		
	Exterior Classroom	1,200		
	Exterior Observation Deck	800		
	Total Covered Building Area	2,800		

**Limitations**

- Costs are based on building and exterior program requirements, and sitework.
- Costs assume that building removal is completed by others.
- Costs include removal of 50% of the existing warehouse slab.
- Environmental remediation, exhibits, furnishings, fixtures, and equipment are not included.
- Costs assume that shipping containers can be utilized for the majority of the building enclosure. Costs for additional structural systems, insulation, roofing, finishes, etc. are included.
- It is assumed that potable water is not available and costs assume that a separate source for potable water will be required.
- The costs are based on current market prices and are escalated for construction in 2016. Escalation at 4% per year should be considered for future work.
- The costs do not include A/E or DPMC fees, project contingencies or other soft costs. Please refer to DPMC-38 for the Current Working Estimate.

**CULTURAL & EDUCATION CENTER-CONFIGURATION 1**  
**PETTY'S ISLAND**  
**PENNSAUKEN & CAMDEN, NJ**

DPMC: W0192-00  
 L&G #: 11180.08  
 Prep: wpl  
 Date: 3-Oct-13  
 Rev.

**BUDGET CONSTRUCTION COST ESTIMATE**

Page: 2 of 3

Group	Description	Subtotal	Unit Cost	Total Cost
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**A SUBSTRUCTURE**

A10	Wood piles & concrete grade beams	9,400 SF	18.30	<u>172,020</u>
				172,020
Subtotal - A10				
A20	Concrete slabs & perimeter insulation	9,400 SF	5.20	<u>48,880</u>
				48,880
Subtotal - A20				
<b>TOTAL - A - Substructure</b>				<b>\$ 220,900</b>

**B SHELL**

B10	Steel Frame, Elevated Slab & Trellis	9,400 SF	17.00	159,800
	- Steel frame & elevated slab	9,400 SF	7.70	72,380
	- Sloped roof system	9,400 SF	6.10	57,340
	- Aluminum trellis system			
Subtotal - B10				<u>289,520</u>

**B20 Shipping Containers**

	- Purchase shipping containers	9 EA	5,500.00	49,500
	8 x 20 x 9.5	7 EA	6,500.00	45,500
	8 x 40 x 9.5	12 EA	8,500.00	102,000
	8 x 50 x 9.5	9,400 SF	16.00	150,400
	- Modify shipping containers	24 EA	3,500.00	84,000
	- Deliver shipping containers	3 Days	3,500.00	10,500
	- Unload shipping containers - crane	4,720 SF	1.00	4,720
	- Insulate exterior walls - 6-inch batt	9,400 SF	1.70	15,980
	- Insulate floors/roof - 6-inch batt			
Subtotal - B20				<u>462,600</u>

**B30 Exterior Windows & Doors**

	- Aluminum & glass windows	1,800 SF	52.00	93,600
	- Aluminum & glass doors (pairs)	6 EA	10,000.00	60,000
	- Steel, hinged doors	4 EA	1,950.00	7,800
	- Overhead doors	1 EA	5,000.00	5,000
Subtotal - B30				<u>166,400</u>

**B40 Roof Coverings**

	Exterior Observation Deck	9,400 SF	15.00	141,000
		1,000 SF	20.00	20,000
Subtotal - B40				<u>161,000</u>

**B50 Green Roof**

Subtotal - B40				
		6,800 SF	13.00	<u>88,400</u>
Subtotal - B50				<u>88,400</u>

**TOTAL - B - Shell \$ 1,167,920**

**C INTERIORS**

C10	Interior Partitions, Doors & Stairs	9,400 SF	5.00	47,000
	- Stud/GWB partitions	3,000 SF	12.00	36,000
	- Concrete block partitions	640 SF	35.00	22,400
	- Full height glass partitions	13 EA	1,500.00	19,500
	- Hollow metal/wood doors	2 EA	1,600.00	3,200
	- Hollow metal/metal doors	2 EA	30,000.00	60,000
	- Steel stairs			
Subtotal - C10				<u>188,100</u>

**CULTURAL & EDUCATION CENTER-CONFIGURATION 1**  
**PETTY'S ISLAND**  
**PENNSAUKEN & CAMDEN, NJ**

DPMC: W0192-00  
 L&G #: 11180.08  
 Prep: wpl

Date: 3-Oct-13  
 Rev.

**BUDGET CONSTRUCTION COST ESTIMATE**

Page: 3 of 3

Group	Description		Subtotal	Total Cost	\$/s/SF
C20	Interior Finishes				
	- Resilient flooring (35%)	3,290 SF	12.00	39,480	
	- Carpet flooring (45%)	4,230 SF	5.00	21,150	
	- Ceramic tile flooring (10%)	940 SF	12.00	11,280	
	- Polished concrete flooring (10%)	940 SF	6.50	6,110	
	- Painted wall finish	9,400 SF	3.00	28,200	
	- Acoustical treatment (50% ceiling area)	4,700 SF	8.00	37,600	
	Subtotal - C20			143,820	
	<b>TOTAL - C - Interiors</b>			<b>\$ 143,820</b>	<b>331,920</b>
D	<b>SERVICES</b>				
D10	Conveying - 3500 pound capacity elevator	1 EA		75,000.00	
	Subtotal - D10			75,000	
D20	Plumbing				
	- Plumbing fixtures	10 EA		4,000.00	
	- Domestic water distribution	9,400 SF	6.40	60,160	
	- Rain water drainage	11,500 SF	0.60	6,900	
	Subtotal - D20			107,060	
D30	Mechanical				
	- HVAC system	9,400 SF	22.00	206,800	
	Subtotal - D30			206,800	
D40	Electrical & Alarm Systems				
	- Electrical services/distribution	9,400 SF	1.50	14,100	
	- Solar electric arrays	SF		-	
	- Lighting & branch wiring	9,400 SF	10.00	94,000	
	- Communications & security systems	9,400 SF	1.75	16,450	
	- Fire & Burglar Alarm System	9,400 SF	2.00	18,800	
	Subtotal - D40			124,550	
D50	Solar Array				
	Subtotal - D50	100 EA		1,200.00	
	<b>TOTAL - D - Services</b>			<b>120,000</b>	<b>\$ 633,410</b>
E	<b>SITework</b>				
E10	Demolition & removals				
	- Remove slab at Warehouse Building	205 CY		250.00	
	Subtotal - E10			51,250	
E20	Site Improvements				
	- Strip, fill, compact & grade - at slab & walks (12")	12,000 SF	3.85	46,200	
	- Slab repairs	1 LS		10,000	
	- Parking lot striping	15 EA	250.00	3,750	
	- Retaining walls	3,600 SF	25.00	90,000	
	- Landscape at sloped areas	12,000 SF	1.50	18,000	
	- Paved walks	2,040 SF	10.00	20,400	
	- Site lighting	1 LS		15,000	
	Subtotal - E20			203,350	
E30	Site Utilities				
	- Water (well); non-potable			20,000	
	- Sanitary			15,000	
	- Electrical			20,000	
	Subtotal - E30			55,000	
	<b>TOTAL - E - Sitework</b>			<b>\$ 55,000</b>	<b>\$ 309,600</b>

**PROJECT COST ANALYSIS**

**DPMC NUMBER: W0192-00 / WO 08**

Date: 10/3/2013

Project Name: CULTURAL & EDUCATIONAL CENTER - Configuration 1

Project Phase: Program

Location: Pennsauken & Camden, Camden County, NJ

**Cost Phase "C" - Construction**

1	General Construction	2,487,674
2	Structural Steel	396,642
3	Plumbing	146,672
4	HVAC	283,316
5	Electrical	335,034
6	Other Trades (specify):	

**7 TOTAL CONSTRUCTION COST ESTIMATE (CCE) (Lines 1 thru 6)**

3,649,338

**Cost Phase "D" - Design**

8	Consultant Design Fee	220,000
9	Consultant Construction Administration Fee	162,200
10	Asbestos Remediation Design Fee	0
11	Asbestos Monitoring Fees	0
12	Survey Services	0
13	Testing Services	0
14	Roofing Inspection	0
15	Other (specify):	

**16 TOTAL DESIGN SERVICES (Lines 8 thru 15)**

382,200

**Cost Phase "K" - Affirmative Action**

17 Affirmative Action (1/2 % of Line 7)

0

**Cost Phase "M" - Management Fees**

18 DPMC Management Fee (8% of Line 7)

291,947

**Cost Phase "N" - Construction Management**

19 Construction Management Services (CM/CPM)

0

**Cost Phase "O" - Contingency**

20 Construction (10% of Line 7)

364,934

21 Design (10% of Line 16)

38,220

**22 TOTAL PROJECT CONTINGENCY (Lines 20 & 21)**

403,154

**Cost Phase "P" - Permits**

23 U.C.C. (DCA or DPMC) Plan Review Fee

54,740

24 U.C.C. Permit/Field Inspection/C.O. Fee

54,740

25 Soil Conservation

0

26 Other (specify):

0

**27 TOTAL PERMIT FEES (Lines 23 thru 26)**

109,480

**Cost Phase "R" - Arts Inclusion**

28 Arts Inclusion Allowance

0

**Cost Phase "B" - Other Costs**

29 Other (specify):

50,000

30 Other (specify):

150,000

**31 TOTAL OTHER COSTS (Lines 29 & 30)**

200,000

**32 CURRENT WORKING ESTIMATE (CWE) (Lines 7+16+17+18+19+22+27+28+31)**

\$5,036,119

**CULTURAL & EDUCATION CENTER - CONFIGURATION 2**  
**PETTY'S ISLAND**  
**PENNSAUKEN & CAMDEN, NJ**

DPMC: W0192-00  
 L&G: 11180.08  
 Prep: wpl  
 Date: 3-Oct-13  
 Rev.

**BUDGET CONSTRUCTION COST ESTIMATE**

Page: 1 of 3

Group	Description	Subtotal	Total Cost	\$/s/SF
<b>A</b>	<b>SUBSTRUCTURE</b>		<b>\$ 220,900</b>	<b>\$ 23.50</b>
	A10 Wood Piles & Concrete Grade Beams	\$ 172,020		
	A20 Concrete Slabs & Perimeter Insulation	\$ 48,880		
<b>B</b>	<b>SHELL</b>		<b>\$ 856,058</b>	<b>\$ 91.07</b>
	B10 Steel Frame, Elevated Slab, Sloped Roof & Trellis	\$ 289,520		
	B20 Exterior Enclosure	\$ 185,838		
	B30 Doors & Windows	\$ 187,200		
	B40 Roof Coverings	\$ 161,000		
	B50 Green Roof	\$ 32,500		
<b>C</b>	<b>INTERIORS</b>		<b>\$ 331,920</b>	<b>\$ 35.31</b>
	C10 Interior Partitions, Doors & Stairs	\$ 188,100		
	C20 Interior Finishes	\$ 143,820		
<b>D</b>	<b>SERVICES</b>		<b>\$ 621,410</b>	<b>\$ 66.11</b>
	D10 Conveying	\$ 75,000		
	D20 Plumbing	\$ 107,060		
	D30 Mechanical	\$ 206,800		
	D40 Electrical & Alarm Systems	\$ 124,550		
	D50 Solar Array	\$ 108,000		
<b>E</b>	<b>SITENWORK</b>		<b>\$ 201,600</b>	<b>\$ 21.45</b>
	E10 Demolition & Removals	\$ 51,250		
	E20 Utilities	\$ 95,350		
	E30 Site Improvements	\$ 55,000		
	<b>SUBTOTAL</b>		<b>\$ 2,231,888</b>	<b>\$ 237.43</b>
	General Requirements		\$ 223,189	23.74
	Overhead & Profit		\$ 334,783	35.62
	Escalation @ 4% per year to 2016		\$ 267,827	28.49
	<b>TOTAL CONSTRUCTION COST ESTIMATE (CCE)</b>		<b>\$ 3,057,687</b>	<b>\$ 325.29</b>
	<b>Enclosed Building Area</b>			
	First Floor	7,950		
	Second Floor	1,450		
	Total Building Area	9,400		
	<b>Covered Building Area</b>			
	Entry Courtyard	800		
	Exterior Classroom	1,200		
	Exterior Observation Deck	800		
	Total Covered Building Area	2,800		

**Limitations**

- Costs are based on building and exterior program requirements, and sitework.
- Costs assume that building removal is completed by others.
- Costs include removal of 50% of the existing warehouse slab.
- Environmental remediation, exhibits, furnishings, fixtures, and equipment are not included.
- Costs assume that shipping containers can be utilized for the majority of the building enclosure. Costs for additional structural systems, insulation, roofing, finishes, etc. are included.
- It is assumed that potable water is not available and costs assume that a separate source for potable water will be required.
- The costs are based on current market prices and are escalated for construction in 2016. Escalation at 4% per year should be considered for future work.
- The costs do not include A/E or DPMC fees, project contingencies or other soft costs. Please refer to DPMC-38 for the Current Working Estimate.

**CULTURAL & EDUCATION CENTER - CONFIGURATION 2**  
**PETTY'S ISLAND**  
**PENNSAUKEN & CAMDEN, NJ**

DPMC: W0192-00  
 L&G #: 11180.08  
 Prep: wpl  
 Date: 3-Oct-13  
 Rev.

**BUDGET CONSTRUCTION COST ESTIMATE**

Page: 2 of 3

Group	Description	Subtotal	Unit Cost	Total Cost
<b>A SUBSTRUCTURE</b>				
A10	Wood piles & concrete grade beams	9,400 SF	18.30	172,020
				172,020
A20	Concrete slabs & perimeter insulation	9,400 SF	5.20	48,880
				48,880
	<b>TOTAL - A - Substructure</b>			<b>\$ 220,900</b>
<b>B SHELL</b>				
B10	Steel Frame, Elevated Slab & Trellis			
	- Steel frame & elevated slab	9,400 SF	17.00	159,800
	- Sloped roof system	9,400 SF	7.70	72,380
	- Aluminum trellis system	9,400 SF	6.10	57,340
				289,520
	<b>Subtotal - B10</b>			
B20	Exterior Enclosure			
	- Steel studs	9,400 EA	17.07	160,458
	- Insulate exterior walls - 6-inch batt	9,400 SF	1.00	9,400
	- Insulate floors/roof - 6-inch batt	9,400 SF	1.70	15,980
				185,838
	<b>Subtotal - B20</b>			
B30	Exterior Windows & Doors			
	- Aluminum & glass windows	2,200 SF	52.00	114,400
	- Aluminum & glass doors (pairs)	6 EA	10,000.00	60,000
	- Steel, hinged doors	4 EA	1,950.00	7,800
	- Overhead doors	1 EA	5,000.00	5,000
				187,200
	<b>Subtotal - B30</b>			
B40	Roof Coverings	9,400 SF	15.00	141,000
	Exterior Observation Deck	1,000 SF	20.00	20,000
				161,000
	<b>Subtotal - B40</b>			
B50	Green Roof	2,500 SF	13.00	32,500
				32,500
	<b>Subtotal - B50</b>			
	<b>TOTAL - B - Shell</b>			<b>\$ 856,058</b>
<b>C INTERIORS</b>				
C10	Interior Partitions, Doors & Stairs			
	- Stud/GWB partitions	9,400 SF	5.00	47,000
	- Concrete block partitions	3,000 SF	12.00	36,000
	- Full height glass partitions	640 SF	35.00	22,400
	- Hollow metal/wood doors	13 EA	1,500.00	19,500
	- Hollow metal/metal doors	2 EA	1,600.00	3,200
	- Steel stairs	2 EA	30,000.00	60,000
				188,100
	<b>Subtotal - C10</b>			

**CULTURAL & EDUCATION CENTER - CONFIGURATION 2**  
**PETTY'S ISLAND**  
**PENNSAUKEN & CAMDEN, NJ**

DPMC: W0192-00  
 L&G #: 11180.08  
 Prep: wpl  
 Date: 3-Oct-13  
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**BUDGET CONSTRUCTION COST ESTIMATE**

Page: 3 of 3

Group	Description		Subtotal	Total Cost	\$/s/SF
C20	Interior Finishes				
	- Resilient flooring (35%)	3,290 SF	12.00	39,480	
	- Carpet flooring (45%)	4,230 SF	5.00	21,150	
	- Ceramic tile flooring (10%)	940 SF	12.00	11,280	
	- Polished concrete flooring (10%)	940 SF	6.50	6,110	
	- Painted wall finish	9,400 SF	3.00	28,200	
	- Acoustical treatment (50% ceiling area)	4,700 SF	8.00	37,600	
	Subtotal - C20			143,820	
	<b>TOTAL - C - Interiors</b>			<b>\$ 331,920</b>	
D	<b>SERVICES</b>				
D10	Conveying - 3500 pound capacity elevator	1 EA		75,000.00	
	Subtotal - D10			75,000	
D20	Plumbing				
	- Plumbing fixtures	10 EA		4,000.00	
	- Domestic water distribution	9,400 SF	6.40	60,160	
	- Rain water drainage	11,500 SF	0.60	6,900	
	Subtotal - D20			107,060	
D30	Mechanical				
	- HVAC system	9,400 SF	22.00	206,800	
	Subtotal - D30			206,800	
D40	Electrical & Alarm Systems				
	- Electrical services/distribution	9,400 SF	1.50	14,100	
	- Solar electric arrays	SF		-	
	- Lighting & branch wiring	9,400 SF	10.00	94,000	
	- Communications & security systems	9,400 SF	1.75	16,450	
	- Fire & Burglar Alarm System	9,400 SF	2.00	18,800	
	Subtotal - D40			124,550	
D50	Solar Array	90 EA		1,200.00	
	Subtotal - D50			108,000	
	<b>TOTAL - D - Services</b>			<b>\$ 621,410</b>	
E	<b>SITework</b>				
E10	Demolition & removals				
	- Remove slab at Warehouse Building	205 CY		250.00	
	Subtotal - E10			51,250	
E20	Site Improvements				
	- Strip, fill, compact & grade - at slab & walks (12")	12,000 SF	3.85	46,200	
	- Slab repairs	1 LS		10,000	
	- Parking lot striping	15 EA		3,750	
	- Paved walks	2,040 SF	10.00	20,400	
	- Site lighting	1 LS		15,000	
	Subtotal - E20			95,350	
E30	Site Utilities				
	- Water (well); non-potable			20,000	
	- Sanitary			15,000	
	- Electrical			20,000	
	Subtotal - E30			55,000	
	<b>TOTAL - E - Sitework</b>			<b>\$ 201,600</b>	



**PROJECT COST ANALYSIS**

**DPMC NUMBER: W0192-00 / WO 08**

Date: 10/3/2013

Project Name: CULTURAL & EDUCATIONAL CENTER - Configuration 2

Project Phase: Program

Location: Pennsauken & Camden, Camden County, NJ

<b>Cost Phase "C" - Construction</b>		
1	General Construction	1,912,462.9
2	Structural Steel	396,642
3	Plumbing	146,672
4	HVAC	283,316
5	Electrical	318,594
6	Other Trades (specify):	
<b>7</b>	<b>TOTAL CONSTRUCTION COST ESTIMATE (CCE) (Lines 1 thru 6)</b>	<b>3,057,687</b>

<b>Cost Phase "D" - Design</b>		
8	Consultant Design Fee	220,000
9	Consultant Construction Administration Fee	162,200
10	Asbestos Remediation Design Fee	0
11	Asbestos Monitoring Fees	0
12	Survey Services	0
13	Testing Services	0
14	Roofing Inspection	0
15	Other (specify):	
<b>16</b>	<b>TOTAL DESIGN SERVICES (Lines 8 thru 15)</b>	<b>382,200</b>

<b>Cost Phase "K" - Affirmative Action</b>		
17	Affirmative Action (1/2 % of Line 7)	0

<b>Cost Phase "M" - Management Fees</b>		
18	DPMC Management Fee (8% of Line 7)	244,615

<b>Cost Phase "N" - Construction Management</b>		
19	Construction Management Services (CM/CPM)	0

<b>Cost Phase "O" - Contingency</b>		
20	Construction (10% of Line 7)	305,769
21	Design (10% of Line 16)	38,220
<b>22</b>	<b>TOTAL PROJECT CONTINGENCY (Lines 20 &amp; 21)</b>	<b>343,989</b>

<b>Cost Phase "P" - Permits</b>		
23	U.C.C. (DCA or DPMC) Plan Review Fee	45,865
24	U.C.C. Permit/Field Inspection/C.O. Fee	45,865
25	Soil Conservation	0
26	Other (specify):	0
<b>27</b>	<b>TOTAL PERMIT FEES (Lines 23 thru 26)</b>	<b>91,731</b>

<b>Cost Phase "R" - Arts Inclusion</b>		
28	Arts Inclusion Allowance	0

<b>Cost Phase "B" - Other Costs</b>		
29	Other (specify): Furnishings	50,000
30	Other (specify): Exhibits	150,000
<b>31</b>	<b>TOTAL OTHER COSTS (Lines 29 &amp; 30)</b>	<b>200,000</b>

<b>32</b>	<b>CURRENT WORKING ESTIMATE (CWE) (Lines 7+16+17+18+19+22+27+28+31)</b>	<b>\$4,320,221</b>
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