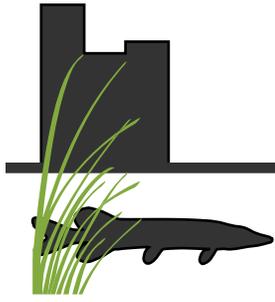


4. VISITOR EXPERIENCE



The evolution of the Bay View Wetland site, since the founding of the City of Milwaukee, is one from marsh land to industrial land.

The restoration of this small parcel - an effort to retain a Lake Michigan wetland remnant - has focused primarily on the ecological aspects of land and habitat reclamation.

This portion of the project will, instead, focus upon the social aspects of land and habitat reclamation.

What does it mean to reintroduce a human aspect into the landscape?

How does physical design influence the personal experience?

Ideas of context, exploration, discovery, and the ephemeral experience are maintained - even heightened - through the simple, very human act of walking in the landscape.

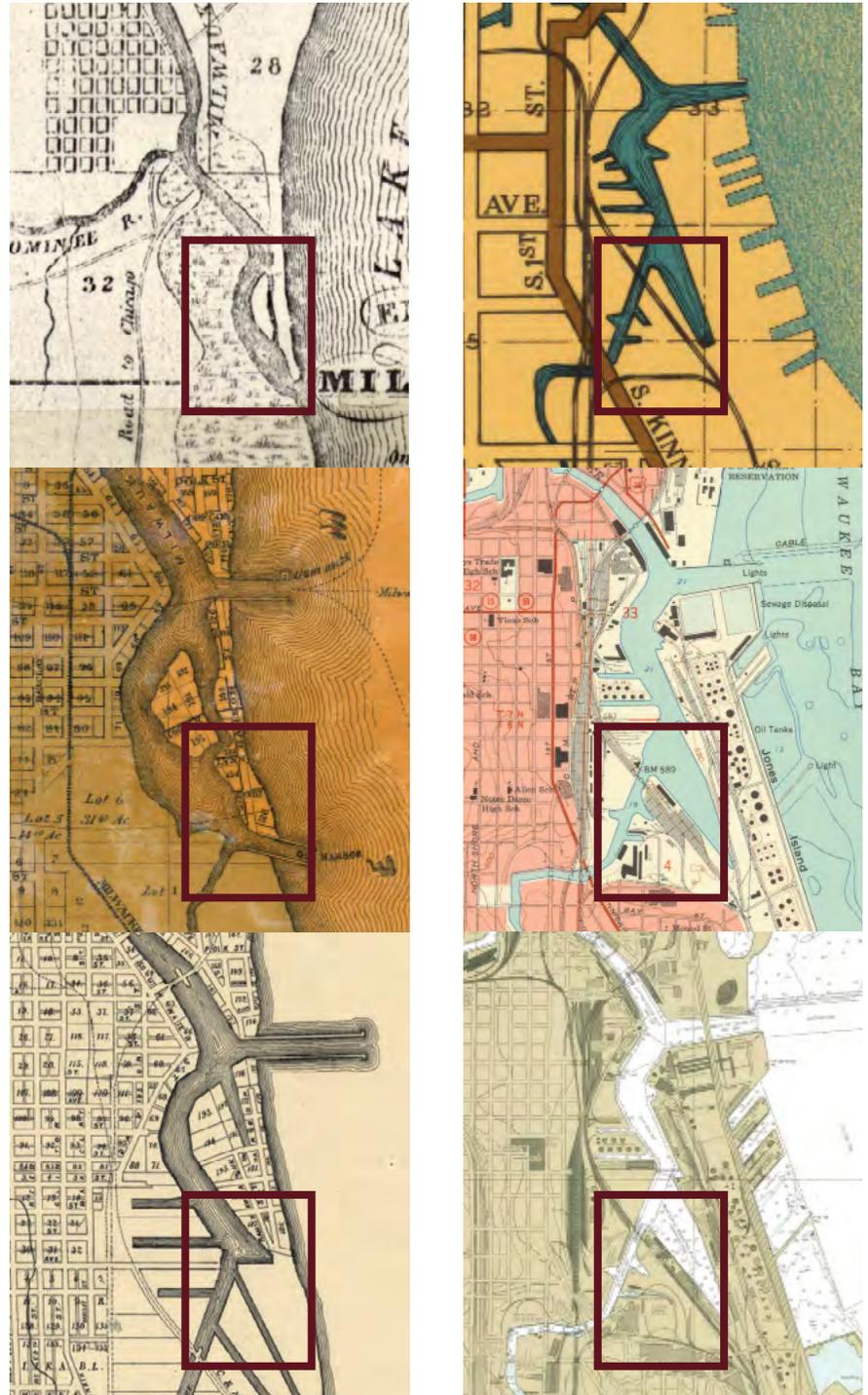
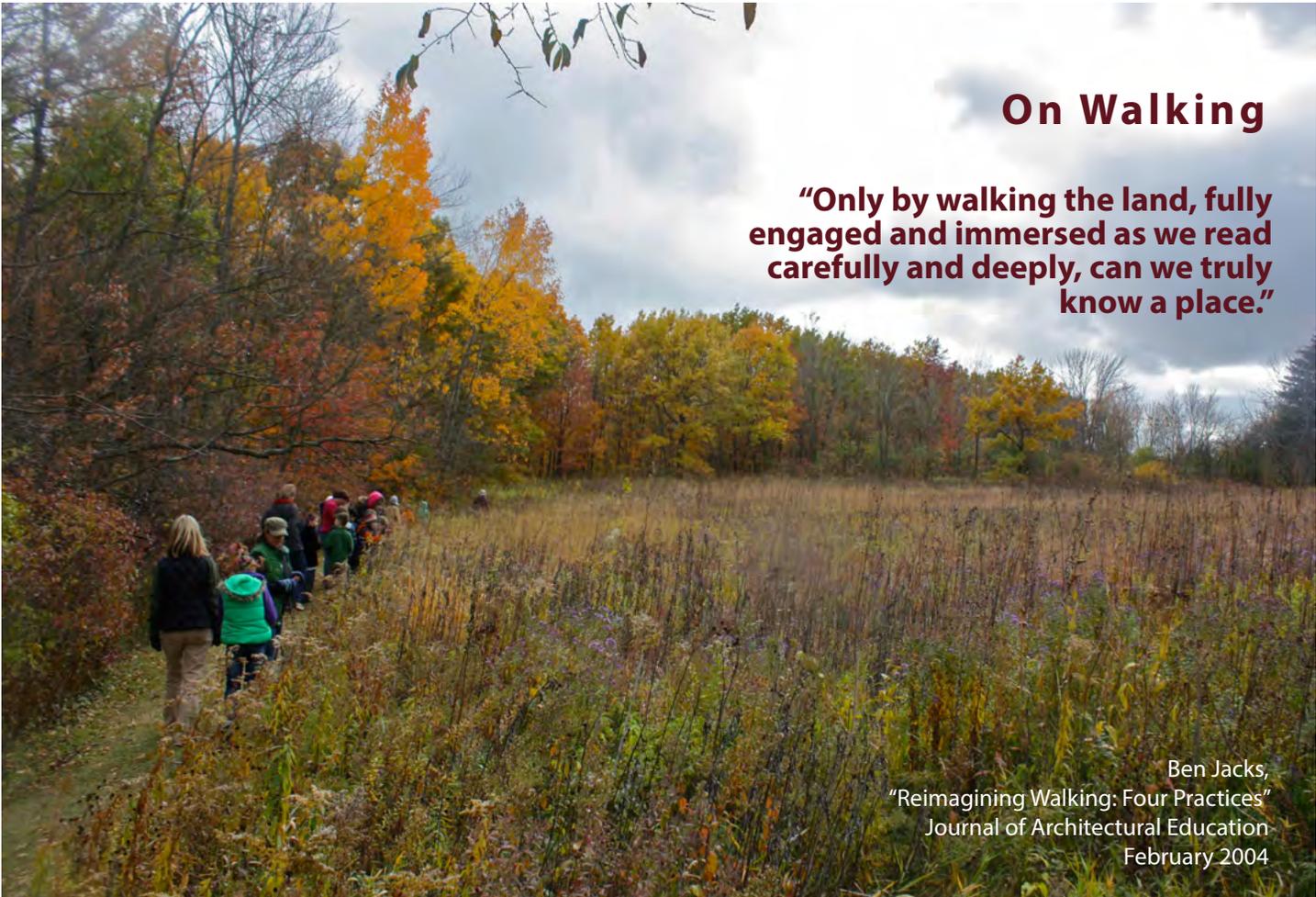


Figure 4.1: Historic Views of the Bay View Wetland region

| | |
|------|------|
| 1836 | 1935 |
| 1870 | 1962 |
| 1900 | 1984 |



On Walking

“Only by walking the land, fully engaged and immersed as we read carefully and deeply, can we truly know a place.”

Ben Jacks,
“Reimagining Walking: Four Practices”
Journal of Architectural Education
February 2004

The Views

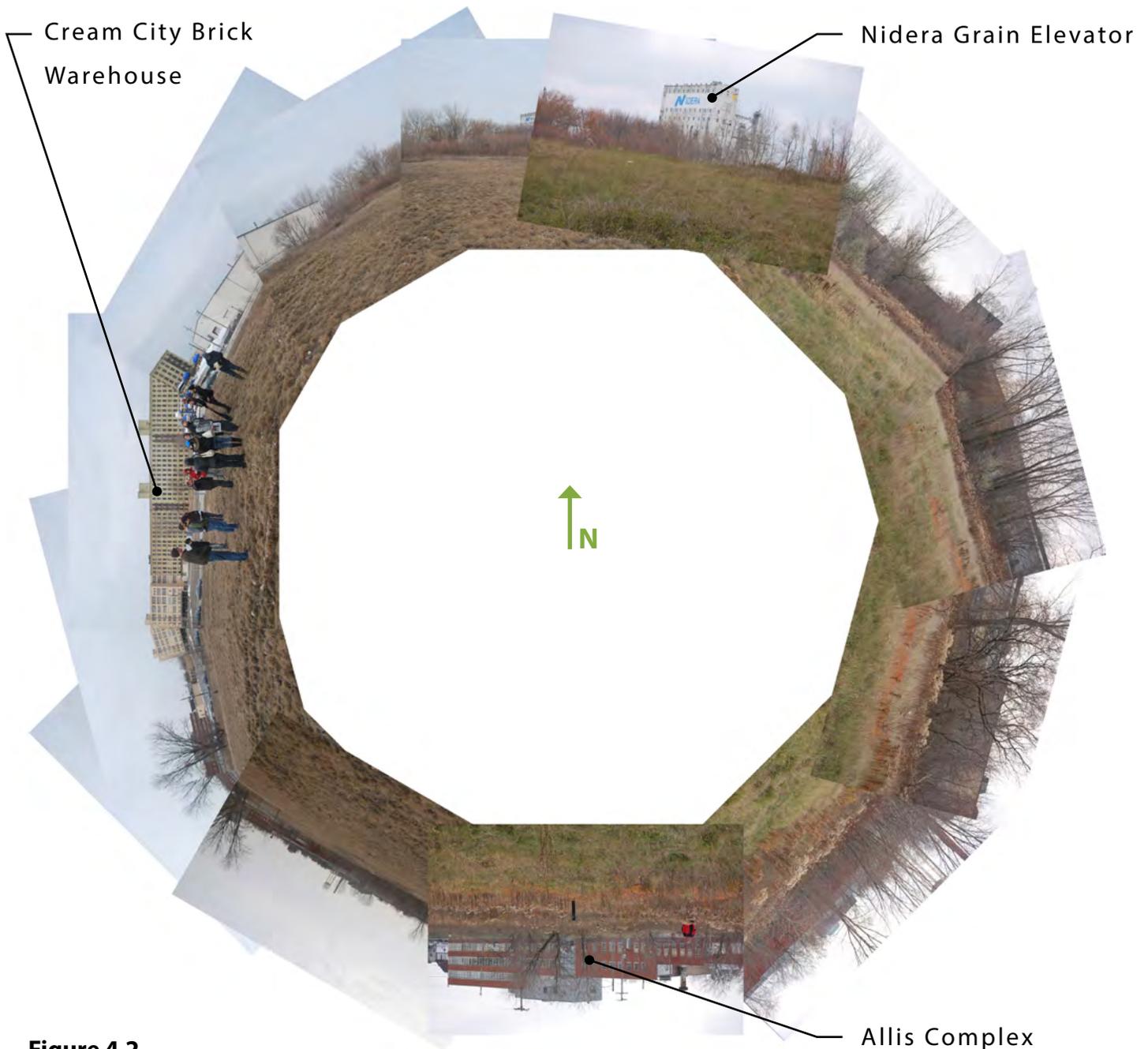


Figure 4.2

To emphasize the industrial context of the Bay View Wetland site, views to 3 important industrial complexes will be highlighted from the top of the mounds - the **Nidera grain elevators** to the northeast, the **cream city brick warehouse** to the west, and the **Allis complex** to the southwest.

The Ephemeral Experience

Another aspect that makes the Bay View Wetland site unique is the ephemeral quality of much of the landscape.

Seasonality coupled with low human use, has, in the past, allowed for fluctuations of the vegetation and terrain that may last only briefly.

This sense of fleetingness, unique to an environment that is essentially unbuilt, shall be maintained, specifically through the very careful creation of trail networks traversing the site.

Some linkages within the network will be subject to seasonal highs and lows and temporary inundations.

The ephemeral experience.



Exploration and Discovery

The experience of wandering through dense vegetation in an environment which seems almost untrodden is part of what makes the Bay View Wetland site experience so unique.

A sense of exploration and the excitement of discovery...of a slightly worn path, a sudden opening onto an industrial relic, a hidden pond...this is what defines the experience today. And this is what should define the experience in the future as well.

This design will aim to maintain areas of enclosure juxtaposed with sudden exposure.

Maintaining the ability of the visitor to be lost in a nature that is delicately folded into the urban surroundings.

Exploration and discovery.



The Context of (Industrial) Enclosure

One very distinct feature of the Bay View Wetland site is its highly industrial context.

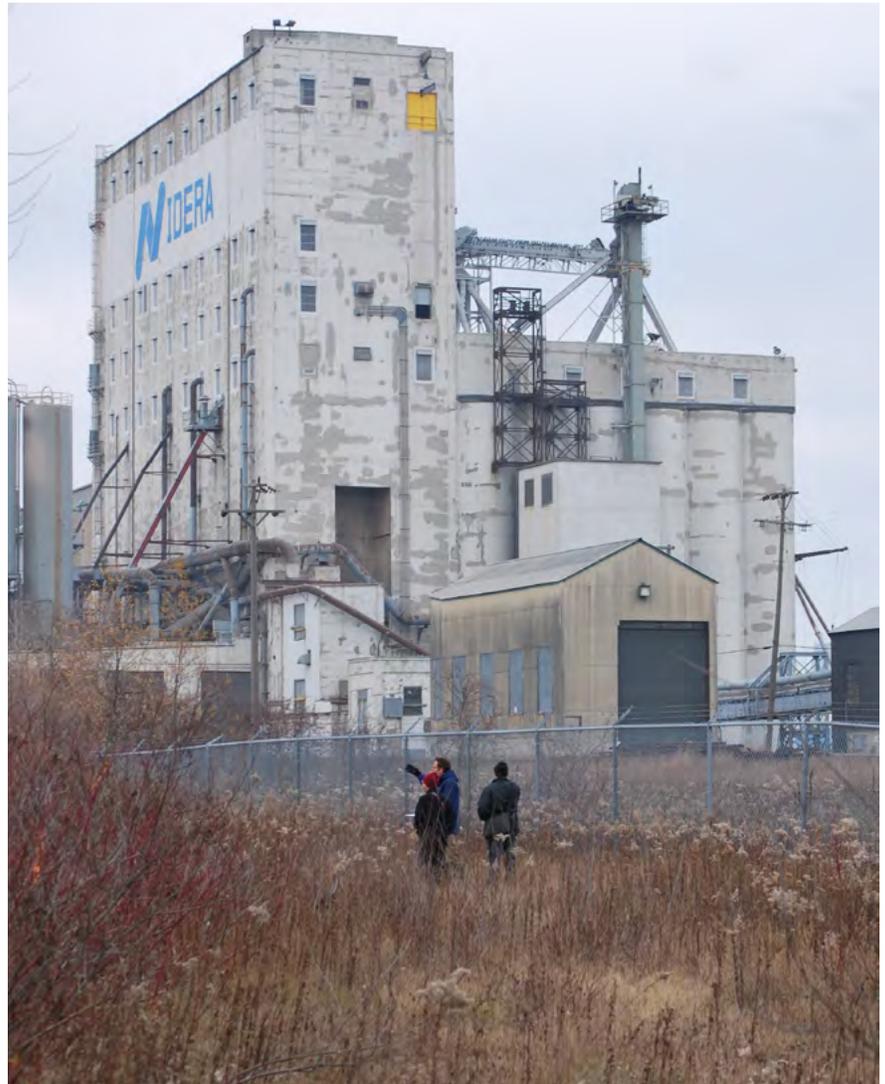
As discussed earlier, views from the mound will highlight important built industrial complexes which give the site its specific and unique sense of place.

Industry encloses the site - both active and remnant - and creates a truly unique frame for an ecological restoration.

The pedestrian network will pass through the site, delving deep into the nature and resurfacing at pivotal moments to expose the urban and built boundaries.

A secret garden of sorts.

The context of (industrial) enclosure.



Site Design

Option A (Recommended)



Figure 4.3

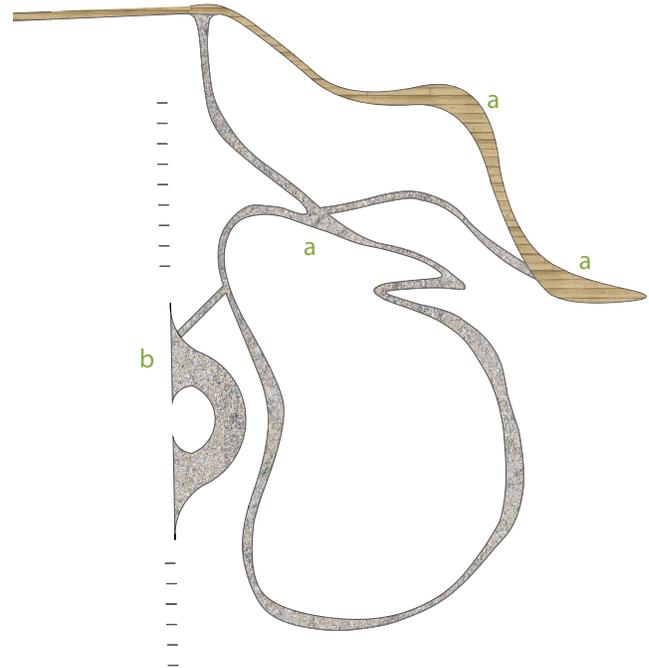
The Trail Network

Option A (Recommended)

The main trail, constructed of compacted gravel, provides an accessible route from the bus turn around and street parking up to the visitor pavilion. The trail widens at specific points, offering vantage points and gathering spaces. The main trail culminates at the northern edge of the mounds where the visitor pavilion sits overlooking the seiche wetland complex. This main trail offers a variety of overlooks toward the existing industrial context while still submerging the visitor into a nature experience dominated by the upland prairie and savanna vegetation that covers the hillside.

From the main trail, an accessible switchback and spur connect to the boardwalk which weaves around the southern edge of the wetland habitat area. The boardwalk has a sinuous design with 2 enlarged areas for groups to stop and for people to sit yet still be a part of the boardwalk. The boardwalk is also easily accessed from the on-street parking and is linked over the culvert to the urban open space along the south edge of the channel. This small piece of boardwalk offers the visitor a chance to be surrounded by the lowland seiche habitat, however the impact is slight enough that the majority of the delicate seiche and amphibian habitats are left viewable though untouched.

This trail network option illustrates a minimal trail development while still allowing for varied and interesting user experiences.



-  Accessible boardwalk loop around wetlands (.1 mile)
-  Accessible compacted gravel main trail (.3 mile total)
-  Gathering space
-  Gravel bus turn around parking on street

Figure 4.4: Option A Trails

Site Design

Option B



Figure 4.5

The Trail Network

Option B

The main trail, again constructed of compacted gravel, provides an accessible route from the bus turn-around and street parking up to the visitor pavilion and continues on through an enlarged loop which carries the user deeper into the natural habitats and through the lowland floodplain forest restoration area. The trail widens at specific points, offering vantage points and gathering spaces. The main trail culminates at the northern edge of the mounds where the visitor pavilion sits overlooking the seiche wetland complex. An accessible spur offers quick connection to the boardwalk in the north while an accessible switchback at the south allows users to traverse down the hillside into the forest thicket, again connecting to the boardwalk on the eastern edge of the wetland area.

The boardwalk has a sinuous design with 2 enlarged areas for groups to stop and for people to sit yet still be a part of the boardwalk. The boardwalk is also easily accessed from the on-street parking and is linked over the culvert to the urban open space along the south edge of the channel. This stretch of boardwalk offers the visitor a chance to be surrounded by the lowland seiche habitat as well as the unique opportunity to view the amphibian pond habitat more closely. The northern edge of the wetland as well as the dune complex are viewable from a distance though still remain untouched.

Trail alignments may be modified in the next phase of design to respond to refinements in final grading design and site programming.



-  Accessible boardwalk loop around wetlands (.15 mile)
-  Accessible compacted gravel main trail (.4 mile total)
-  Gathering space
-  Gravel bus turn around
Parking on street

Figure 4.6: Option B Trails

Site Design

Option C



Figure 4.7

The Trail Network

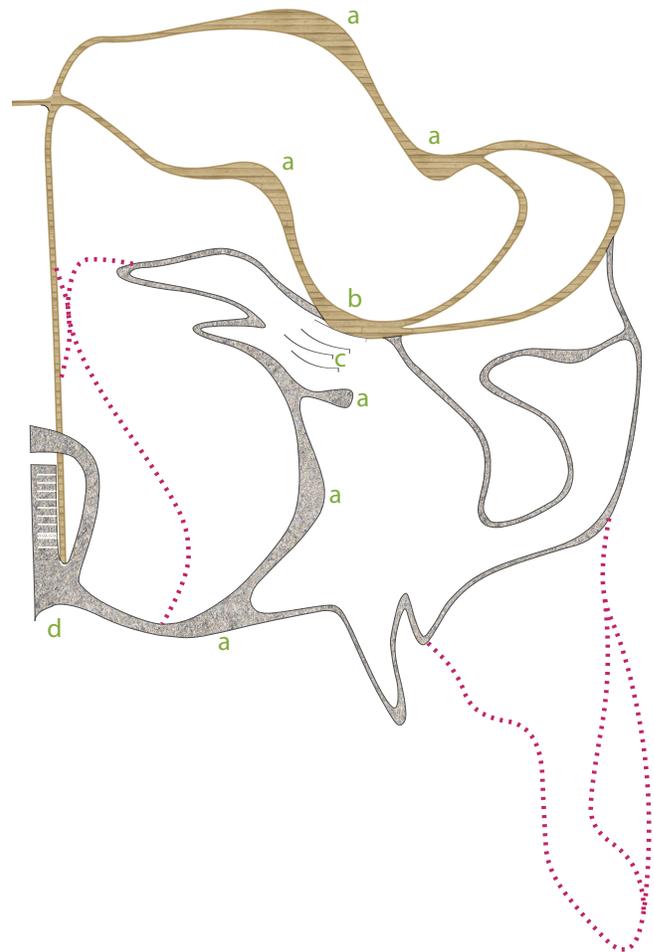
Option C

The main compacted gravel trail provides an accessible route from on site parking up to the visitor pavilion. The trail widens at specific points, offering vantage points and gathering spaces. In this option, the visitor pavilion is shown at the southern edge of the site acting as a gateway to the main trail. A gathering space under the trees at the northern edge of the trail offers the same vantage point over the wetlands as the pavilion in previous options. Informal seating stairs, which blend into the hillside, offer vistas down towards the wetlands.

From the main trail, an accessible switchback connects to the boardwalk loop which snakes around and through the wetland habitat areas. The boardwalk has a sinuous design with 3 enlarged areas for groups to stop and for people to sit yet still be a part of the boardwalk as well as one large program space which acts as backdrop for the informal seating stairs. The loop is also easily accessed from the parking area and is linked over the culvert to the urban open space along the south edge of the channel.

Another switchback to the south provides views to the Allis complex and access down through the floodplain forest with potential ephemeral trail connections (dotted) further into the southern part of the site. These ephemeral trails, constructed of bound gravel, maintain the aesthetic of the design while offering a durability able to withstand periodic inundation.

Option C demonstrates a more extensive trail network, circling through and around most of the restored habitats across the site which allows for varied uses and captures the atmosphere of the site with the ability for very private and contemplative experiences.



-  Accessible boardwalk loop around wetlands (.25 mile main loop + .1 mile outer spur)
-  Accessible compacted gravel main trail (.47 mile total)
-  Accessible bound gravel ephemeral trail (.33 mile total (as shown))
- a** Gathering space
- b** Program space
- c** Informal seating stairs in hillside
- d** Gravel parking and bus turn around 6 spaces + 2 accessible

Figure 4.8: Option C Trails

THE MAIN TRAIL



THE EPHEMERAL TRAILS



THE BOARDWALK



THE INFORMAL SEATING / THE PARKING AREA



Guidelines for Trails and Walkways

ADA

Trails and paths for this project will be expected to meet the 2010 American's with Disabilities Act (ADA). The essential guidance of which is as follows:

- Each facility or part of a facility constructed by, on behalf of, or for the use of a public entity shall be designed and constructed in such manner that the facility or part of the facility is readily accessible to and usable by individuals with disabilities, if the construction was commenced after January 26, 1992.
- All trails and walks shall provide curb ramps where they meet or intersect with curbs on public and private roads, streets, or parking lots with the following characteristics:
- Newly constructed or altered streets, roads, and highways must contain curb ramps or other sloped areas at any intersection having curbs or other barriers to entry from a street level pedestrian walkway.
- Walk surfaces shall meet the following guidance:
 - Access shall be provided to all spaces considered to be special or unique unless demonstrated to be impractical.
 - Shall be stable, firm, and slip resistant.
 - The running slope of walking surfaces shall not be steeper than 1:20.
 - The cross slope of walking surfaces shall not be steeper than 1:48.
 - Where changes in level are permitted in floor or ground surfaces, they shall not exceed ¼ inch (6.4 mm) high maximum (this does not include areas of sport activity or animal containment areas).
 - The clear width of walking surfaces shall be 36 inches (915 mm) minimum.

The clear width shall be permitted to be reduced to 32 inches (815 mm) minimum for a length

of 24 inches (610 mm) maximum provided that reduced width segments are separated by segments that are 48 inches (1220 mm) long minimum and 36 inches (915 mm) wide minimum.

- An accessible route with a clear width less than 60 inches (1525 mm) shall provide passing spaces at intervals of 200 feet (61 m) maximum

Passing spaces shall be either: a space 60 inches (1525 mm) minimum by 60 inches (1525 mm) minimum; or, an intersection of two walking surfaces providing a T-shaped space where the base and arms of the T-shaped space extend 48 inches (1220 mm) minimum beyond the intersection.

- Handrails shall be provided along walking surfaces with running slopes not steeper than 1:20.

The following edited content from the Nation Trails Training Partnership (www.americantrails.org) provides additional notes regarding the development of trails for recreational areas under the current ADA requirements:

A trail is "a route that is designed, designated, or constructed for recreational pedestrian use or provided as a pedestrian alternative to vehicular routes within a transportation system."

The accessibility guidelines apply to those trails which are designed and constructed for pedestrian use. These guidelines are not applicable to trails primarily designed and constructed for recreational use by equestrians, mountain bicyclists, snowmobile users, or off-highway vehicle users, even if pedestrians may occasionally use the same trails. However, a multi-use trail specifically designed and designated for hiking and bicycling would be considered a pedestrian trail.

Accessibility guidelines apply to trails used as non-motorized transportation facilities for bicyclists and skaters as well as pedestrians. However, bicyclists and skaters have design needs which exceed the minimum guidelines for trails. In some cases, the AASHTO Guide (1999) may require a greater level of accessibility than the ADA trail guidelines. The appendix of the Access Board report compares the AASHTO guide with the ADA trail guidelines.

Paving is not required, as long as the surface is “firm and stable.” While handrails and edge protection are not required, they may be provided and should meet appropriate standards.

The proposed guidelines apply only to trails that “connect to an accessible trail” or “designated trailhead.”

- Tread Obstacles: 2” high maximum (up to 3” high where running and cross slopes are 5% or less)
- Cross Slope: 5% max.
- Running slope (trail grade) meets one or more of the following:
 - 5% or less for any distance.
 - up to 8.33% for 200’ max. Resting intervals no more than 200’ apart.
 - up to 10% for 30’ max. Resting intervals 30’.
 - up to 12.5% for 10’ max. Resting intervals 10’.
- No more than 30% of the total trail length may exceed a running slope of 8.33%.
- Signs shall be provided indicating the length of the accessible trail segment.

While the proposed accessibility guidelines address the special circumstances where designers and operators may not be able to achieve accessibility, they are encouraged to always provide access to the greatest extent possible. Departures from specific accessibility guidelines are permitted for any portion of the trail where compliance would:

- Cause substantial harm to cultural, historic, religious, or significant natural features or characteristics;
- Substantially alter the nature of the setting or the purpose;
- Require construction methods or materials that are prohibited by Federal, State, or local regulations or statutes; or
- Not be feasible due to terrain or the prevailing construction practices.

An unedited version of this content can be found at the American Trails website (www.americantrails.org/resources/accessible/ADASummFeb00.html).

Lastly, the following guidance from the 2011 Virginia Greenways and Trails Toolbox provides additional recommendations we believe are appropriate for this project. The content has been edited:

| | Easy | Moderate |
|--|---|---|
| Width | 48 inches | 36 inches |
| Passing Spaces | 200-foot maximum interval | 300-foot maximum interval |
| Maximum grade | 8 percent (1:12 slope) | 10 percent (1:10 slope) |
| Sustained running slope | 5 percent (1:20) maximum | 5 percent (1:20) maximum |
| Distance allowed at maximum grade | 30 feet maximum | 50 feet maximum |
| Cross slope | 3 percent (1:33) maximum | 3 percent (1:33) maximum |
| Clear head space | 80 inches | 80 inches |
| Rest areas/ Landings | 400-foot maximum interval | 900-foot maximum interval |
| Edge Protection and Curbs | Provide 4-in. curb on downhill trail landings | Provide 4-in. curb at difficult locations & at landings |
| Handrails | Provide 34"-38" railings at difficult locations | Provide 34"-38" railings at dangerous or difficult locations & at bridges |
| Level Changes | 2 inch maximum | 2 inch maximum |
| Surface | Hard, skid resistant surface | Very firm, compacted, skid-resistant surface |

Access treatments at this project may include boardwalks, trails, benches or other such overlooks for viewing or respite.

Site Design

Views



Figure 4.9: Prairie Trails

View from the accessible trail looking north over the upland savanna



Figure 4.10: Wetland Boardwalk

View from the accessible boardwalk looking south over the wetlands toward the pavilion and savanna hillside

These artist's impressions of the site design are for illustrative purposes and are not intended to represent the exact size or placement of design elements.

Design Components

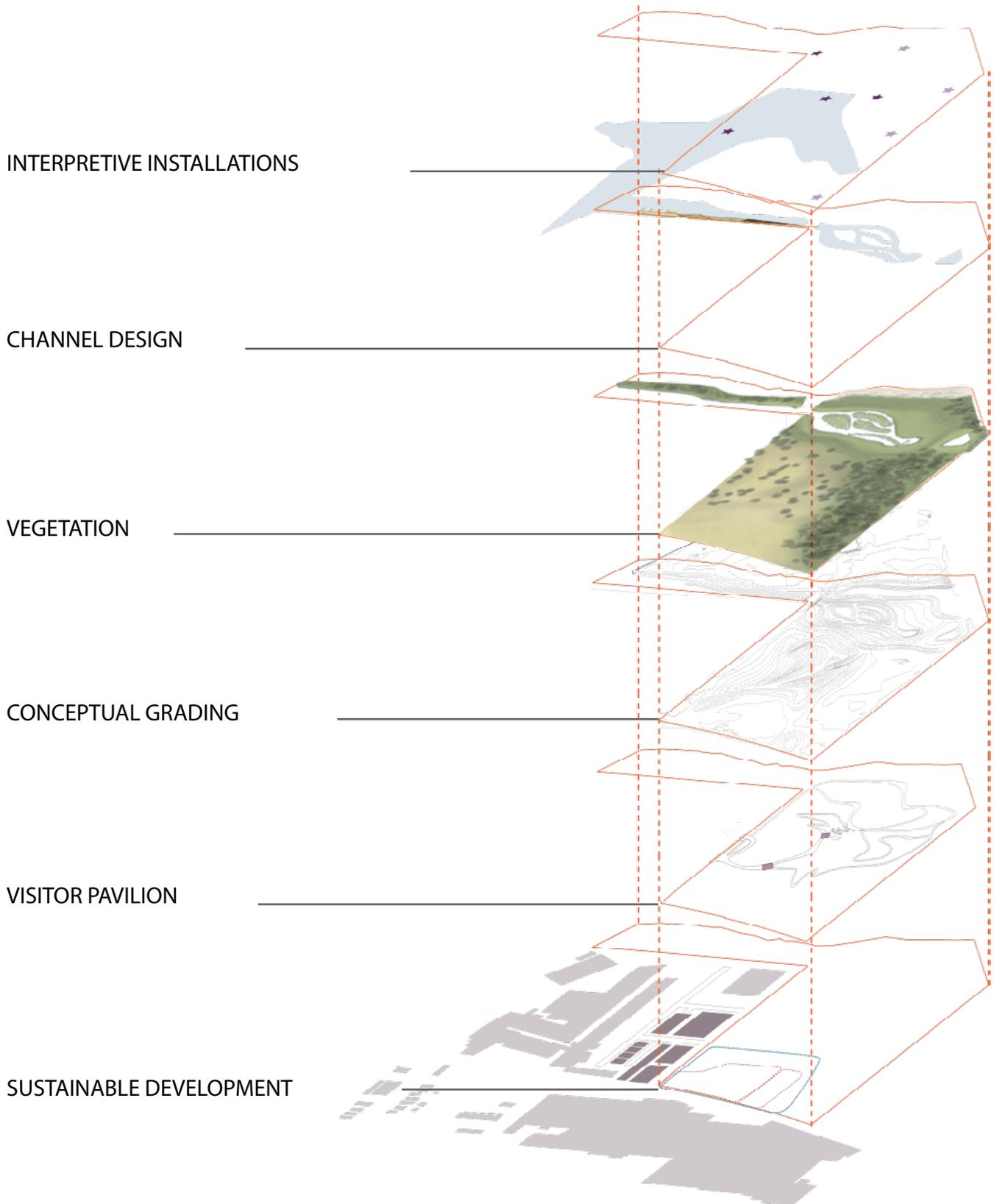


Figure 4.11: Layers of the Bay View Wetland Site Design

Sustainable Development

1.5-2 acre

The development site sits at the southwest corner of the Bay View Wetland site. It is nestled to the north by a mound of prairie and is separated from the parking and entrance area by a shallow depression that would act as a stormwater barrier between the development site and the park system.

100 feet of frontage along Marina Drive and 325 feet of frontage along the future rail corridor (or street continuation) provide a hold at the southwest corner of the site.

The total area (as shown) is approximately 1.5 acres dedicated development land with an additional 0.5 acre adjunct parcel. This parcel is considered 'flex space' and would be granted development authority or not as determined by the Port of Milwaukee based on the type of development proposed.

Regulations should be developed governing the specifics of any potential development in accordance with Port of Milwaukee ideals that reflect the delicate nature of the protected wetland environment.

As a starting point, regulations regarding percent hardscape (developed area) versus percent softscape (green area) should be established.

It is recommended that, within the 1.5 acre development parcel, no more than 1 acre be allotted to hardscape or developed/built land use. This includes all building footprints, driveways and access roads, parking facilities, outdoor storage areas, walkways and any other paved surfaces.

It is also recommended that all paved areas should be constructed to the highest standards allowing for maximum stormwater infiltration and minimum runoff. This is of particular impor-

tance to ensure environmental integrity of the wetlands.

The 0.5 acre softscape should be designed in accordance with the aesthetic of the restored wetland complex. The integration of native vegetation is recommended. Stormwater management techniques such as rain gardens and bio-swales should be utilized where appropriate to maintain all stormwater within the development parcel. More specific guidelines would be developed to guide the design process.

It is recommended that the 0.5 acre adjunct parcel, the 'flex space', if utilized, may contain the majority of the stormwater management areas or greenspaces as long as the total hardscape or developed area does not exceed 1.3 acres.

The architecture of any buildings should be subject to the approval of the Port of Milwaukee and/or any other operational partners. It is recommended that building regulations be developed which encourage the aesthetic of the area without overwhelming the ecosystem restorations. A clear sight line should also be maintained from the corner of Marina Drive and E Stewart Street to the visitor pavilion or trail head as the function of the site beyond the development area shall not be obscured.

It is also recommended that walkways within the development parcel interact, in some way, with the trail network to encourage intermingling of business and recreational uses.

Sustainable Development

4 acre

Situated in the same location as the 1.5-2 acre site, a 4 acre development parcel is shown.

310 feet of frontage along Marina Drive and 545 feet of frontage along the future rail corridor (or street continuation) provide an even stronger at the southwest corner of the site.

As with the 1.5-2 acre development, regulations should be developed governing the specifics of any potential development in accordance with Port of Milwaukee and ideals that reflect the delicate nature of the protected wetland environment.

As a starting point, regulations regarding percent hardscape (developed area) versus percent softscape (green area) should be established.

It is recommended that, within the 4 acre development parcel, no more than 3 acres be allotted to hardscape or developed/built land use. This includes all building footprints, driveways and access roads, parking facilities, outdoor storage areas, walkways and any other paved surfaces.

It is also recommended that all paved areas are constructed to the highest standards allowing for maximum stormwater infiltration and minimum runoff. This is of particular importance to ensure environmental integrity of the wetlands.

The 1 acre softscape should be designed in accordance with the aesthetic of the restored wetland complex. The integration of native vegetation is recommended. Stormwater management techniques such as rain gardens and bio-swales should be utilized where appropriate to maintain all stormwater within the development parcel. More specific guidelines would be developed to guide the design process.

The architecture of any buildings should be subject to the approval of the Port of Milwaukee and/or any other operational partners. It is recommended that building regulations be developed which encourage the aesthetic of the area without overwhelming the ecosystem restoration. A clear sight line should also be maintained from the corner of Marina Drive and E Stewart Street to the visitor pavilion or trail head as the function of the site beyond the development area shall not be obscured.

It is also recommended that walkways within the development parcel interact in some way with the trail network to encourage intermingling of business and recreational uses.

Sustainable Development Comparison

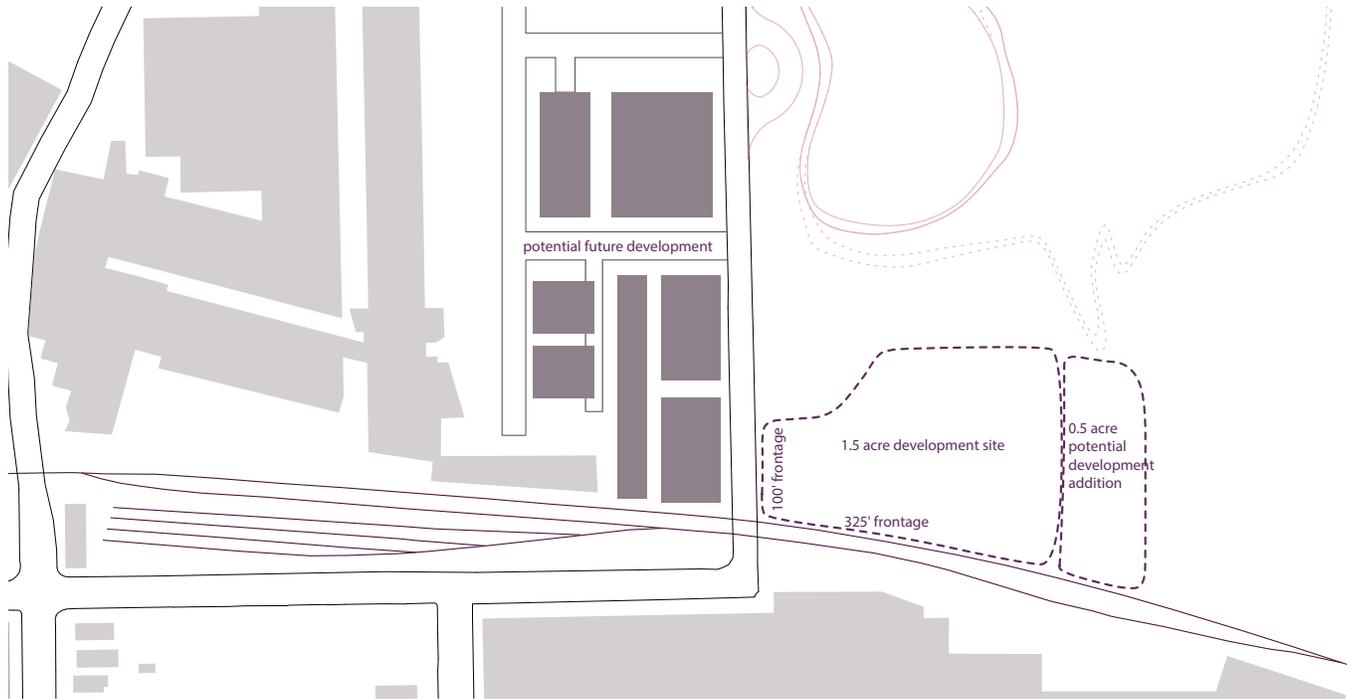


Figure 4.12: 1.5-2 Acre Development Site



Figure 4.13: 4 Acre Development Site

Sustainable Development

Concept 1

1.5 acre development

Concept 1 is an example of how this site might be developed. As shown, the single building development occupies 1.5 acres of the development area including all access roads, walkways, and parking areas as well as the recommended minimum .5 acre green space.

A small wetland complex on the north side of the building acts to collect and hold stormwater which may be harvested for irrigation or green

building uses. The minimal building footprint is offset by a green roof and ample outdoor program space.

A boardwalk linkage over the stormwater wetland connects to the trails across the site.



Figure 4.14: 1.5 Acre Conceptual Development Plan Example

Sustainable Development

Concept 2

2 Acre Development

Concept 2 is another example of how this site might be developed with a slightly larger footprint. As shown, the multiple building development occupies 2 acres of the development area including all access roads, walkways, and parking areas as well as the minimum recommended .7 acre green space.

A small wetland complex in the center of this small campus acts to collect and hold storm-

water and runoff which may be harvested for irrigation or green building uses.

The building footprints are offset by a green roof and ample outdoor program spaces which are linked via a trail system.

A proposed connection to the larger trail system in the public space is shown.



Figure 4.15: 2 Acre Conceptual Development Plan Example

Sustainable Development

Concept 3

4 Acre Development

Concept 3 is an example of how a 4 Acre development site could be developed. As shown, the 2 building development occupies 4 acres of the development area including all access roads, walkways, and parking areas as well as the minimum recommended 1 acre green space. A large wetland complex in the center of this campus acts to collect and hold stormwater and runoff which may be harvested for irrigation or

green building uses. The large size and location allows for management of any water not held by green roofs and permeable paving.

The large building footprints demonstrate the ability to house larger scale green manufacturing or a large corporate headquarters. A small break-out space is located across the ponds, linked via a trail network which is connected to the trails in the public space as well.



Sustainable Development

Student Architectural Work

Design Inspiration

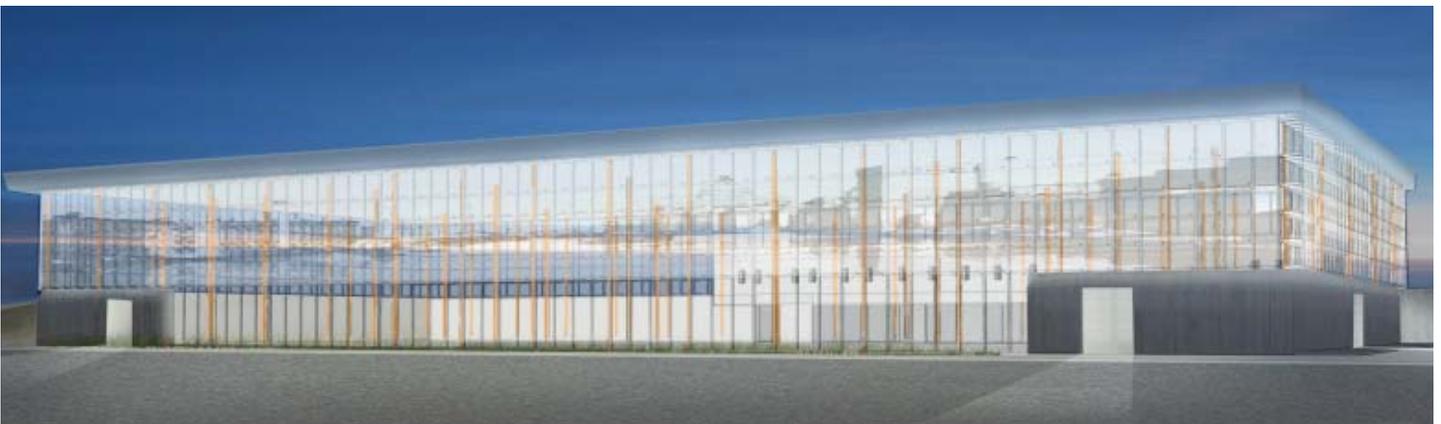
Students at the University of Wisconsin-Milwaukee School of Architecture and Urban Planning explored conceptual designs for industrial buildings at the Bay View Wetland site as part of their academic studies during the Spring of 2013.

Many of the student concepts experimented with ways that a building could interact with its surroundings and blur the line between indoor and outdoor space for the site's visitors.



Joel Koeppen, Student

Spring 2013 Architecture 825: Comprehensive Studio
Adjunct Professor Ash Lettow



Kelly Yuen, Student

Spring 2013 Architecture 825: Comprehensive Studio
Adjunct Professor Ash Lettow



Jimmy Sequenz, Student

Spring 2013 Architecture 825: Comprehensive Studio
Adjunct Professor Ash Lettow

DRAFT January 2, 2014

Sustainable Development

Precedent 1

Center for Global Conservation

Bronx, New York

The Center for Global Conservation is nestled into the northwest corner of the Bronx Zoo's New York City Parkland.

The LEED Gold building was sited to respect existing natural elements on the site such as rock outcroppings and significant vegetation. The delicate placement of the building allowed for much of the existing habitat, and the animal populations that inhabited the landscape, to remain intact. It is not uncommon for employees to see wild turkeys and muskrats from the building terraces. The building is situated to maximize daylighting and cross-ventilation. Ramped ground planes allow each floor of the building to open onto the native vegetation green roof system. The building site interacts with the rest of the parkland as well. Park visitors pass close by the building which appears tucked into the woods. Gentle topography guides visitors to the entrance and the public is welcome to use outdoor dining spaces and explore the property.



Sustainable Development

Precedent 2

Rio Salado Audubon Center

Phoenix, Arizona

The Audubon Center building sits at the heart of a massive restoration effort along the Rio Salado River. The siting of the building allows the visitor to be immersed in the river restoration while focusing on education and experience.

The site, a former sand and gravel operation, was designated a brownfield. The LEED Platinum facility is powered by solar and utilizes on-site water recycling providing all that is needed to irrigate the 110,000 square feet of native vegetation. The water system also treats 420,000 gallons of stormwater annually, completely eliminating the connection to the city sewer system.

Over 75% of the site underwent extensive restoration. Many volunteers contributed to the planting efforts and the site now boasts over 200 bird species.



Sustainable Development

Precedent 3

Hocking College Energy Institute

Nelsonville, Ohio

This LEED Platinum Energy Center is part of the Logan Campus at Hocking College.

To take advantage of it's location, the building is sited north-south to allow for maximum daylight harvesting. The building has a green roof, building integrated photovoltaics and solar thermal units. It is estimated that the unique design will cost just half as much to operate annually when compared to a standard building. Wind generators add to this energy saving mission.

The surrounding landscape is native grasslands wetlands, and sunflower fields.



The Visitor Pavilion

The visitor pavilion is situated on the level plateau of the main trail system. In Options A and B, the pavilion is nestled between the 2 hill peaks creating a sense of enclosure while at the same time framing the vistas onto the seiche wetlands. This location heightens the exploration and discovery atmosphere of the site as all is not immediately revealed from arrival at the main traffic intersection. In Option C, the location, elevated slightly above Marina Drive and the development site, allows for easy visual access from the main vehicle paths. This location gives the structure a beacon-like status, allowing the functionality of the wetland park complex to be seen apart from and above the future development area. In essence, both functions are visible from the corner allowing both to benefit from the valuable real estate.

The following pages demonstrate examples of pavilion or shelter structures across a range of styles and functions, from open air shelters to semi-enclosed shelters to enclosed shelters or buildings to semi-subsurface buildings (which could include earth structures or buildings set into the hillside).



Figure 4.18: As shown with site design Option A and Option B



Figure 4.19: As shown with site design Option C

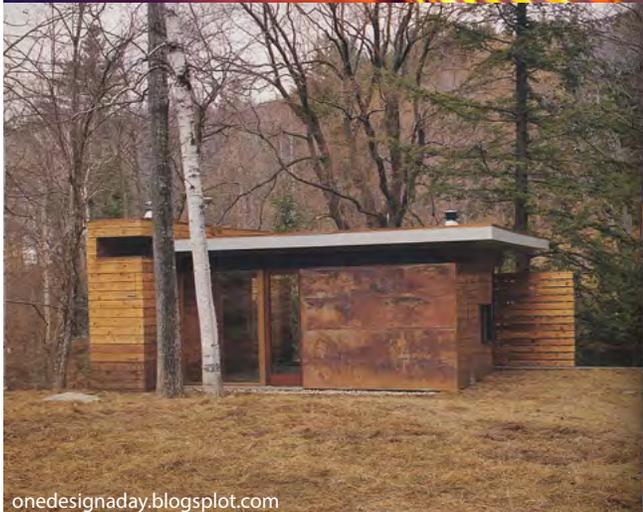
OPEN-AIR SHELTER



SEMI-ENCLOSED SHELTER



ENCLOSED SHELTER or BUILDING



SEMI-SUBSURFACE BUILDING



Conceptual Grading

The grading of the site utilizes the clean fill that is currently mounded on site to create a 1-2' clean cap atop the dredge material removed during the creation of the wetland habitats.

Remaining clean fill will be used to create the mound system seen in the schematic grading plan at left. The current mound placement is generally maintained as it is a valuable feature of the site and allows for unique vantage points to the industrial context.

The mound essentially levels off at 10' (above average lake water level). This plateau is the main platform of activity including gathering spaces with direct views toward the specific industrial complexes and the entrance to and groundfloor level of the visitor pavilion.

The mound is broken into an eastern and western ascent on either side of the main pathway. These steep hillsides, which will sometimes take the form of walls (as pictured under the Trail Network section) provide a unique sense of traversing through an excavated space which further enhances the feeling of exploration and discovery already so prevalent throughout the site. While no direct trails are created to top the mounds, access would be free.

Two swales are cut into the mounds to allow for stormwater to travel down the mounds towards the interceptors separating the hillside from the seiche wetlands.

The shape of the mounds coupled with the smaller and lower mound in the southeast corner of the site help to create a sense of enclosure around the development area. A shallow depression just northwest of the development site will act as a stormwater buffer between the development and

the park lands.

The conceptual grading does not impact the DNR designated wetland area or the seiche wetland restoration area.

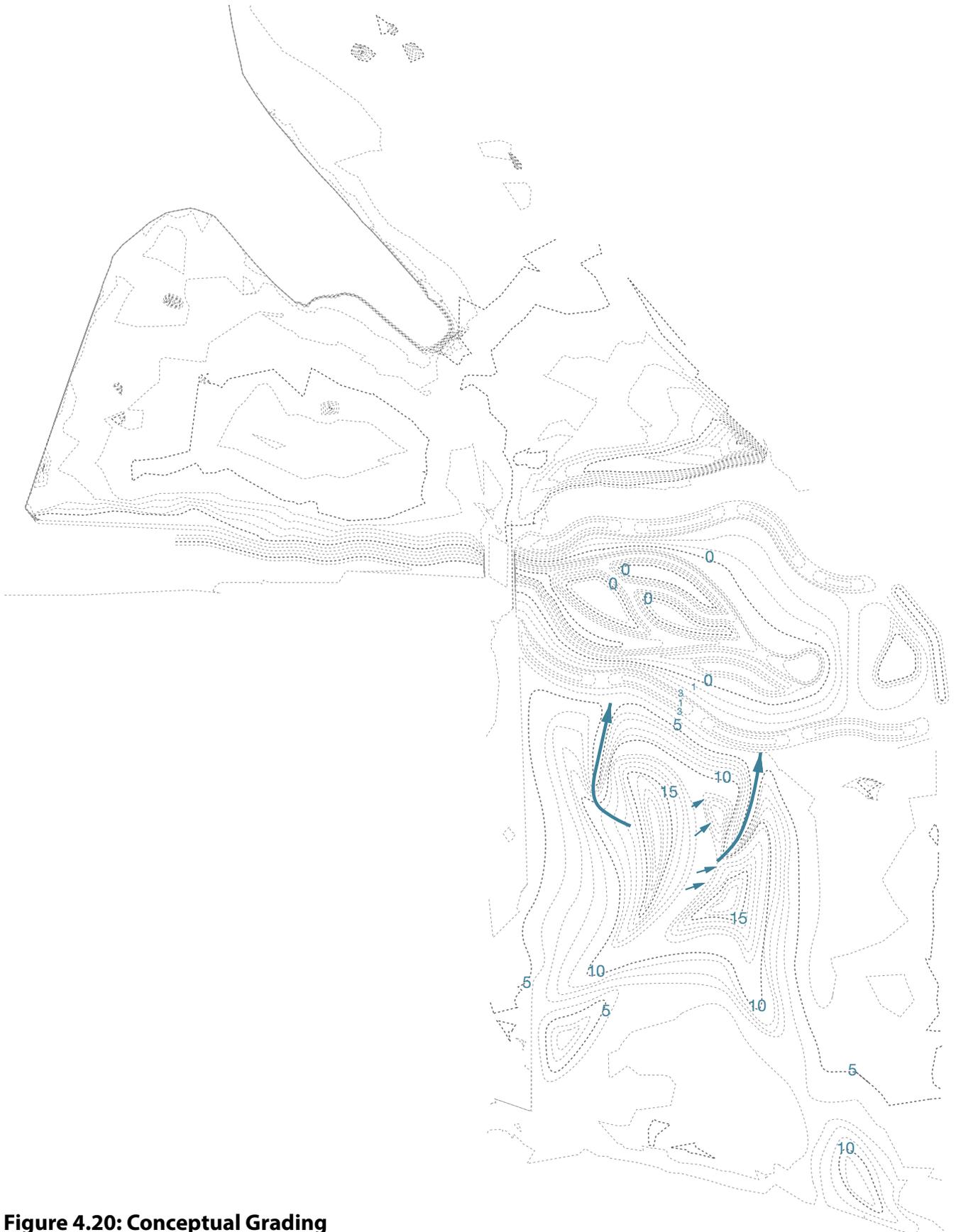


Figure 4.20: Conceptual Grading

The Channel

Existing

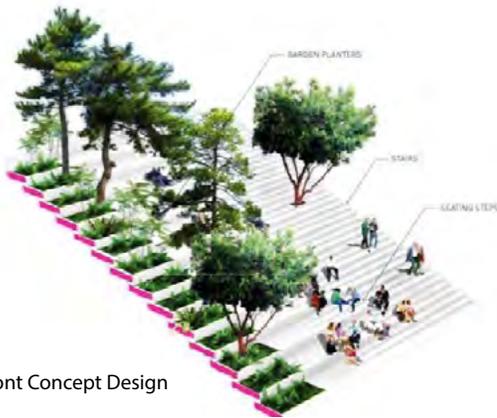
The existing channel functions primarily for Barnacle Buds and Skipper Buds with limited boat slips as pictured at left. Below, the image depicts the nature of the rest of the channel - a clogged artery which barely keeps water moving onto the site. Even as the channel is full of debris, some wildlife still make a home here, although some key species in the Lake Michigan system cannot. The project widens the culvert between the channel and the rest of the wetland project.



The Channel

Precedents

The precedents for the urban open space along the southern edge of the channel demonstrate ideas for the material composition, general functions and overall social atmosphere of the proposed design.



Seattle Waterfront Concept Design
James Horner



The Channel

Option A (Recommended)

The most minimal channel design shows a simple accessible boardwalk link between the existing boat slips at Barnacle Buds to the large public open space and seiche wetland restoration in the east.

The boardwalk connects via an accessible ramp down to the boat slips (approximately 2 feet above average water level) where additional slips along with accessible kayak and canoe launches were added.

The boardwalk follows a soft, vegetated channel edge and connects over the culvert to the public boardwalk which traverses along the seiche wetland area and connects to the larger trail system.

The final channel concept may be modified in the next phase of design.

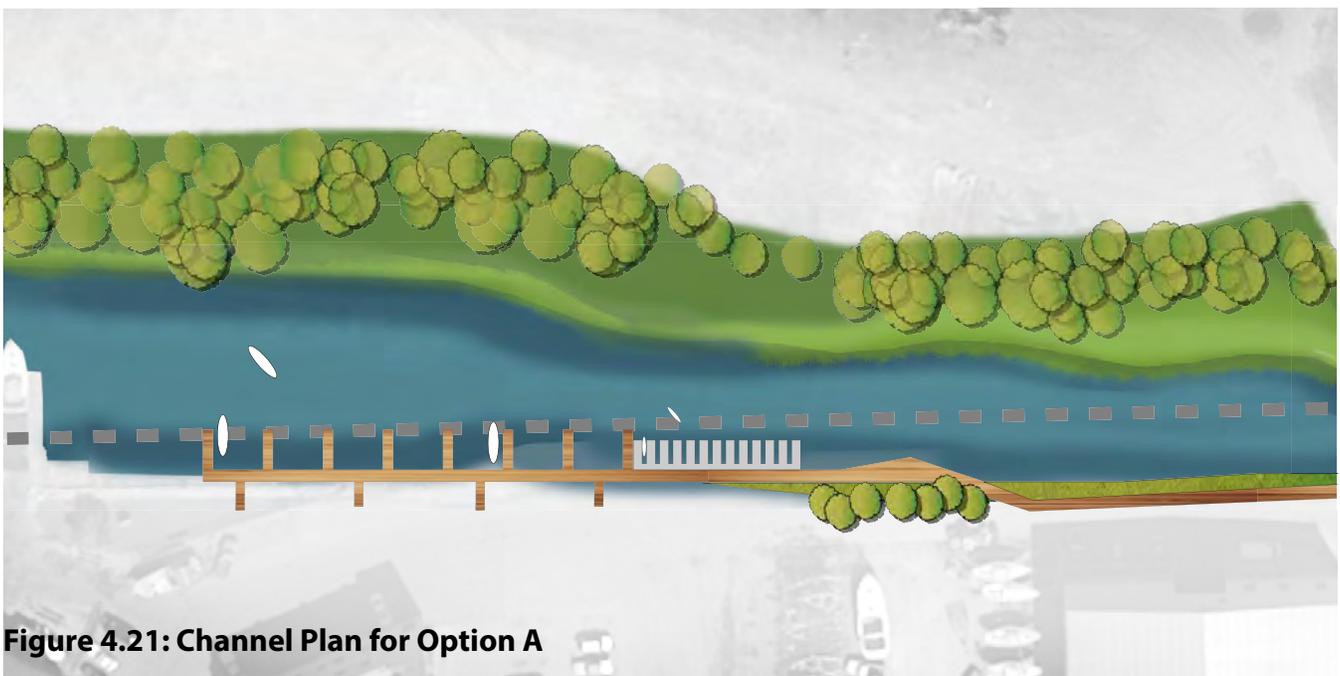


Figure 4.21: Channel Plan for Option A

The Channel

Option B

As an alternate to Option A, Option B shows a slightly more built boardwalk edge. A simple accessible boardwalk link between the existing boat slips at Barnacle Buds to the large public open space and seiche wetland restoration in the east is complimented by a boardwalk connection along the water's edge and a second ramp up (to approximately 4 feet above average water level) connecting the seiche boardwalk and trails once over the culvert.

Additional slips along with accessible kayak and canoe launches were added.

The boardwalk encircles an area of emergent vegetation and continues along the vegetated channel edge toward the east.

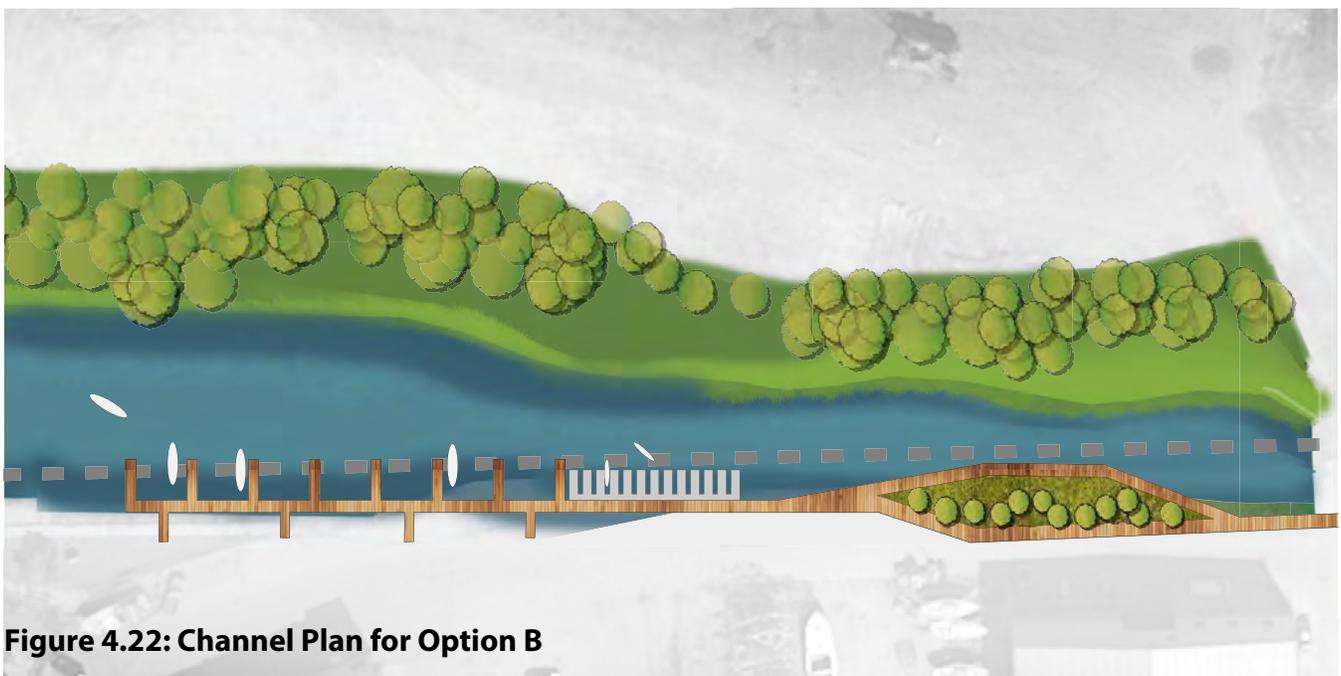


Figure 4.22: Channel Plan for Option B

The Channel

Option C1: Vegetated

This channel design proposal focuses on creating an urban open space along the southern edge of the widened waterway. The open space aims to link the existing boat slips and waterfront activity of Barnacle Buds through to the new seiche wetland complex.

Building off of the existing boat slips, additional kayak/canoe tie-ups are added making the area friendly to both motorized and non-motorized craft.

These areas are connected to the upper plaza via 2 accessible boardwalk paths - one which travels directly up from the water's edge and another which allows for accessible water level access before ascending to the open space.

The boardwalk pathways connect to the large open space on the eastern edge of the channel. This space hovers approximately 4 feet above average water level. This space, open and flexible, is built of the same wood as the board-

walks and the surface peels back in areas to reveal swathes of water tolerant plantings and scattered small trees (Betula sp.).

Between the ramps and along the channel edge, emergent vegetation fills the space and creates a soft edge all the way to the culvert in the east.



Figure 4.23: Channel Plan for Option C1

The Channel

Option C2: Stairs

This channel design follows the same built form as the previous, with 2 ramps connecting the boat and kayak slips up to the public open space.

Instead of emergent vegetation, at the center of the urban space sits a large concrete seating stair area. The stairs, selectively covered with wooden seating slabs, also recede periodically into areas planted with water tolerant vegetation (similar to species found in the seiche wetland) and small trees (*Betula* sp.)

The combination of these designed spaces is complex enough to handle programmed events yet open and flexible enough to offer a variety of unprogrammed use options. The scales of these spaces also can accommodate potential future development.



Figure 4.24: Channel Plan for Option C2

The Channel

Views



Figure 4.25: Channel Boardwalk

View from the urban open space looking west toward the kayak and boat slips and the KK River



Figure 4.26: Channel Edges

View from the seating stairs looking east toward the culvert and bridge

These artist's impressions of the site design are for illustrative purposes and are not intended to represent the exact size or placement of design elements.

Interpretive Installations

Design/build studios

To maintain an ongoing relationship with the UWM School of Architecture and Urban Planning, it is recommended that Architecture students undertake the task of developing interpretive installations on site as part of a studio design/build curriculum (with guidelines to be developed).

These installations will be designed and fabricated in studio then constructed on site. The installations shall serve as informative kiosks, small shelters and/or benches with the primary focus being that of public education and awareness.

The plan shows areas that are available for installations based upon all of the trail systems discussed as well as potential locations dependent upon the final extent of the built trail network. These locations are specifically designated as areas of special interest on site, particularly areas where the transition is made between restored habitats which provides the best opportunity for public education and engagement.



- ★ Available placement for a design/build interpretive installation minimum 3 locations
- ★ Potential placement for a design/build interpretive installation dependant upon final trail layout

Figure 4.27: Possible locations for interpretive installation

Education and Outreach

Possibilities for Exploration

Site History

A number of educational activities and programs could be developed for the Bay View Wetland. The site is rich with natural and cultural history stories for young and old. It has many development and settlement stories, Native American use stories, Underground Railroad and emancipation stories in addition to natural history that can be told in many different ways. Some suggested methods for conveying the uniqueness of the Bay View Wetland are discussed below.

Community Partnerships

One avenue for developing programs quickly would be to leverage existing education programs that have strong recognition within the City of Milwaukee and local community such as the Urban Ecology Center or Discovery World education coursework programs.

Programs coordinated with the UWM's Great Lakes Center Water Institute would also be appropriate. Located in Milwaukee's Inner Harbor, UWM's Great Lakes Center Water Institute (GLWI) is the only major aquatic research institution located on Lake



Settlers Logging Milwaukee in 1890

Milwaukee Public Library

Michigan and the largest of its kind in the Great Lakes region. It became the main component of UWM's School of Freshwater Sciences in 2009 in an effort to turn Milwaukee into a freshwater research hub. The Great Lakes Center Water Institute is expected to become an international freshwater institute where researchers from around the globe will study the changes and seek solutions to protect and enhance fresh water habitats and resources.

Connections to the local community could also be heightened by hiring a local artist or including community school projects in the design of interpretive signage.

The public art group In:Site Milwaukee is one example of an organization which specializes in curating temporary art exhibits in public space.

Interpretive Signs

The use of interpretative signage can be an effective way of providing depth to the user experiences at the Bay View Wetland site. Signage could interpret the cultural and natural history of the site including the seiche wetland's uniqueness as a Great Lakes habitat and the importance of this site in the urban ecosystem of Milwaukee.



Public Art by Jesse Graves in Milwaukee

www.radiomilwaukee.org/initiatives/neighborhood-project/insite-brings-temporary-public-art-city-jesse-gravesneighborhood



Moontide Garden in Portland, ME
Illustrates tidal processes

http://legacy.artnewengland.com/issues/June_July_2009/public-art.html

Smart Phones

Smart phone applications could also be employed to enhance the interpretation of cultural and natural histories at the site. Interactive smart phone or tablet apps could be developed that convey the many stories of the site, as well as provide digital field guides or scavenger hunts, bird song recognition and even contribute to citizen science opportunities. Existing apps available in the iPhone and Android phone markets include: iBird Explorer Pro, a field guide and bird song identifier; Peterson's Birds of North America, field guide; Sibley eGuide to the Birds of North America; Botany Buddy, field guide; Audubon Wildflowers, field guide; and Journey North, educational app, to name a few.



Citizen Science

Citizen scientist programs could be developed to monitor physical and ecological conditions on site. These programs have been used to monitor site phenology, water quality, participate in aquatic invertebrate sampling, and bird, frog, snake, and turtle monitoring and counting.

Lastly, digital remote and cellular technology can also be used to monitor the physical conditions at the wetland. Equipment exists to collect data such as bat and bird calls, water level, velocity, and temperature. Remote motion sensor cameras above and below the water surface can be used to capture the movements of organisms through the site. All of this data can be collected, monitored, and presented for research or public interest.

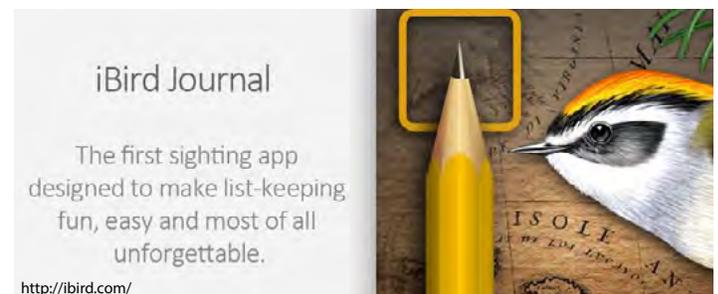
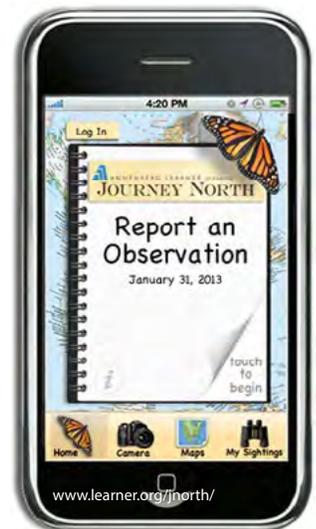


Figure 4.28: QR codes and smart phone apps can be used to enhance the interpretive experience