

MEMORANDUM

To: MCWD Board of Managers
From: Darren Lochner, Education Program Manager
Date: January 12, 2015
Re: Minnehaha Creek Signage and Landings Master Plan

Purpose:

MCWD staff is providing the completed Minnehaha Creek Signage and Landings Master Plan. The Master Plan, which includes signage templates and recommended canoe landing improvements, will be used as a foundation and guide for discussions with local partners.

Background:

On January 23, 2014 the Board of Managers authorized staff to execute a contract with Barr Engineering Company to develop the Minnehaha Creek sign and landing Master Plan (RBA 14-003). One of the District's goals outlined in the 2007 MCWD Comprehensive Plan is to promote use of the creek by providing recreation opportunities for citizens to enhance livability and quality of life. To this end, the Citizens for the Minnehaha Creek Corridor (CMCC) proposed a comprehensive interpretive/directional signage and creek landing improvement program along the entire stretch of Minnehaha Creek. Implementation of the plan was designed to enhance the visibility and recreational value of the creek, create consistent expectations for creek users, and foster partnerships between the CMCC, the MCWD, and the Cities of Minnetonka, Hopkins, St. Louis Park, Edina, and the Minneapolis Park and Recreation Board.

Staff proposed the development a Minnehaha Creek Signage and Landings Master Plan that includes conceptual plans for signs and landing structures as well as landing amenities for each landing on the creek. This Master Plan includes construction costs for implementing all sign and landing upgrades. As the Master Plan was developed, staff coordinated with the CMCC, MCWD's Citizen Advisory Committee as well as local stakeholders to develop consensus on elements of the Master Plan.

Next Steps:

MCWD staff will coordinate with local partners to implement the Minnehaha Creek Signage and Landings Master plan. Following a kickoff meeting with the affected communities along the creek, the Master Plan will be phased in according to the needs and resources of the respective partners. Board approval will be sought prior to implementation of each phase of the Master Plan.

If there are questions in advance of the meeting, please contact:

Darren Lochner, Education Program Manager, dlochner@minnehahacreek.org; 952-641-4524

Minnehaha Creek

Signage and Landings Master Plan

This Master Plan proposes a unified system of canoe landings and signage to improve the boating experience. The plan contains recommendations for seventeen landings along the length of Minnehaha Creek. Recommendations are focused on improving the user experience by upgrading elements of wayfinding, safety, access, and overall usability while exemplifying the timeless character of Minnehaha Creek across boundaries.



MINNEHAHA CREEK
WATERSHED DISTRICT

Prepared for The Minnehaha Creek Watershed District
by Barr Engineering Co.





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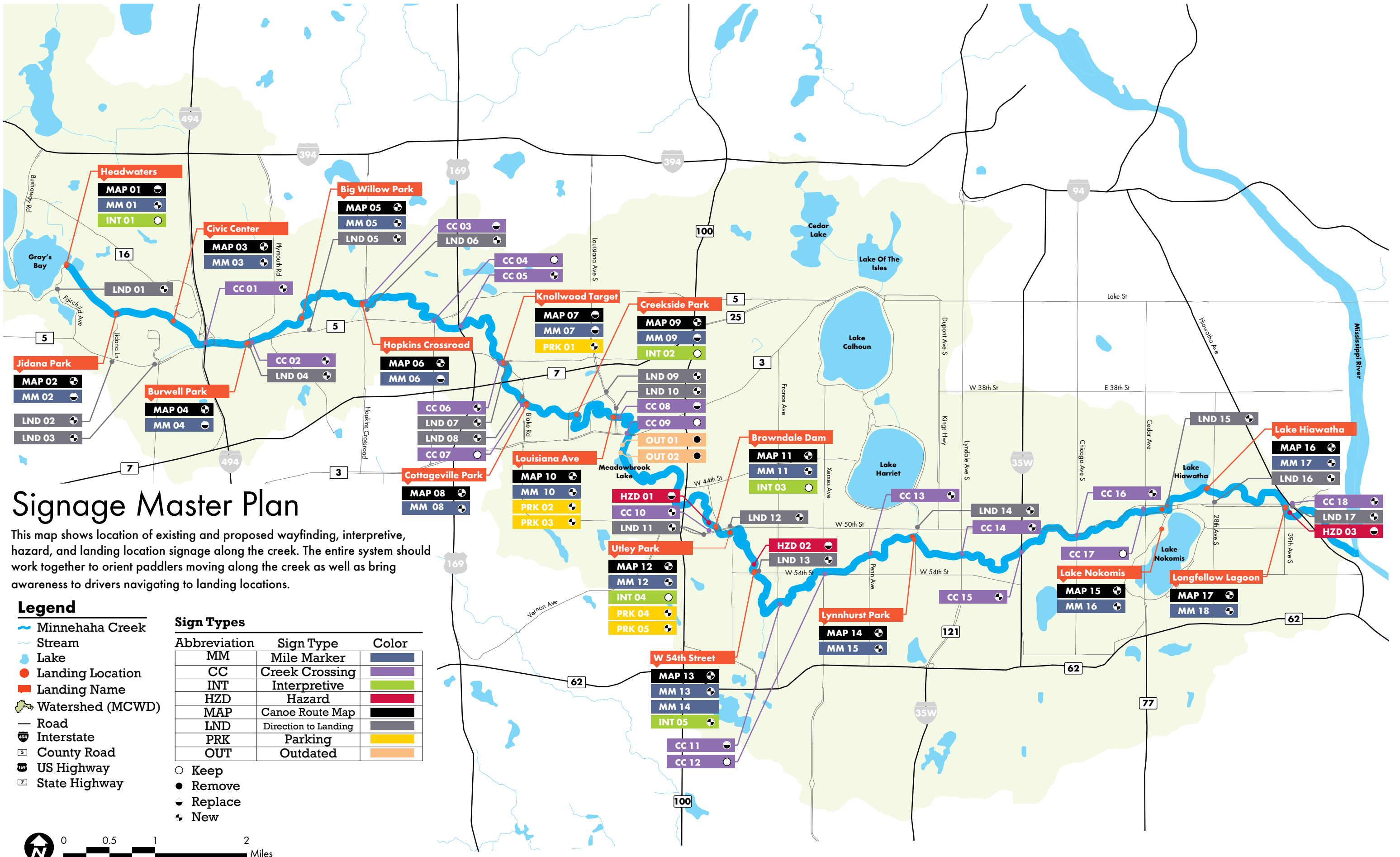
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Signage Master Plan

This map shows location of existing and proposed wayfinding, interpretive, hazard, and landing location signage along the creek. The entire system should work together to orient paddlers moving along the creek as well as bring awareness to drivers navigating to landing locations.

Legend

- Minnehaha Creek
- Stream
- Lake
- Landing Location
- Landing Name
- Watershed (MCWD)
- Road
- Interstate
- County Road
- US Highway
- State Highway

Sign Types

Abbreviation	Sign Type	Color
MM	Mile Marker	Blue
CC	Creek Crossing	Purple
INT	Interpretive	Green
HZD	Hazard	Red
MAP	Canoe Route Map	Black
LND	Direction to Landing	Grey
PRK	Parking	Yellow
OUT	Outdated	Orange

- Keep
- Remove
- Replace
- New



Sign Types

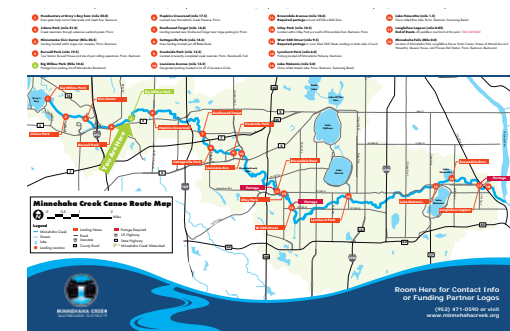
Creating a Cohesive Network

This unified signage system will provide consistency and simplify the boater's experience. The strong, clean visual language will make it clear where you are on the creek, what bridge is overhead, how far you are from the next landing, what amenities are available nearby, and support existing interpretive elements.



Interpretive Signage

With its rich ecology and history, Minnehaha Creek has numerous sites along its banks that deserve interpretation to help educate creek users. Although highly varied in content, these interpretive signs will all have a unified graphical look.



Minnehaha Creek Canoe Route Map

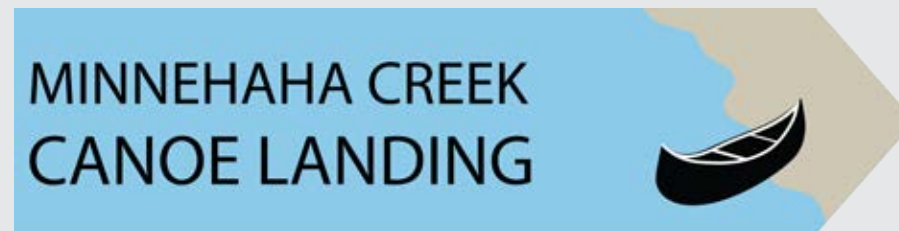
Maps at each landing will help paddlers reference where they are (You-Are-Here), have been, and where they are going.

Signage Designs Provided By MCWD:



Mile Markers

Signs that mark remaining miles to Minnehaha Falls will help boaters track their progress. Signs will include the name of each landing, icons showing what amenities are at that particular landing, and the boater's distance to Longfellow Lagoon.



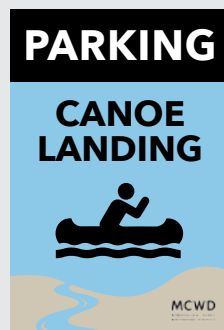
Directional Signage to Landings

Signage will be located at key street intersections to help paddlers find the landing they are looking for and indicate to passers-by that a landing is available to them.



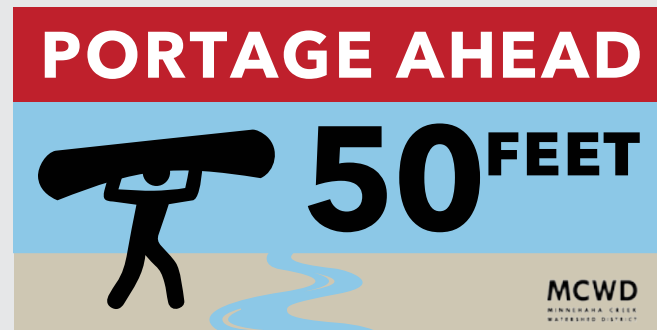
Creek Crossings

Signs on all bridges will identify overhead creek crossings. Consistent placement will help orient boaters to their location along the creek.



Parking

Reserved parking will be located at select landings



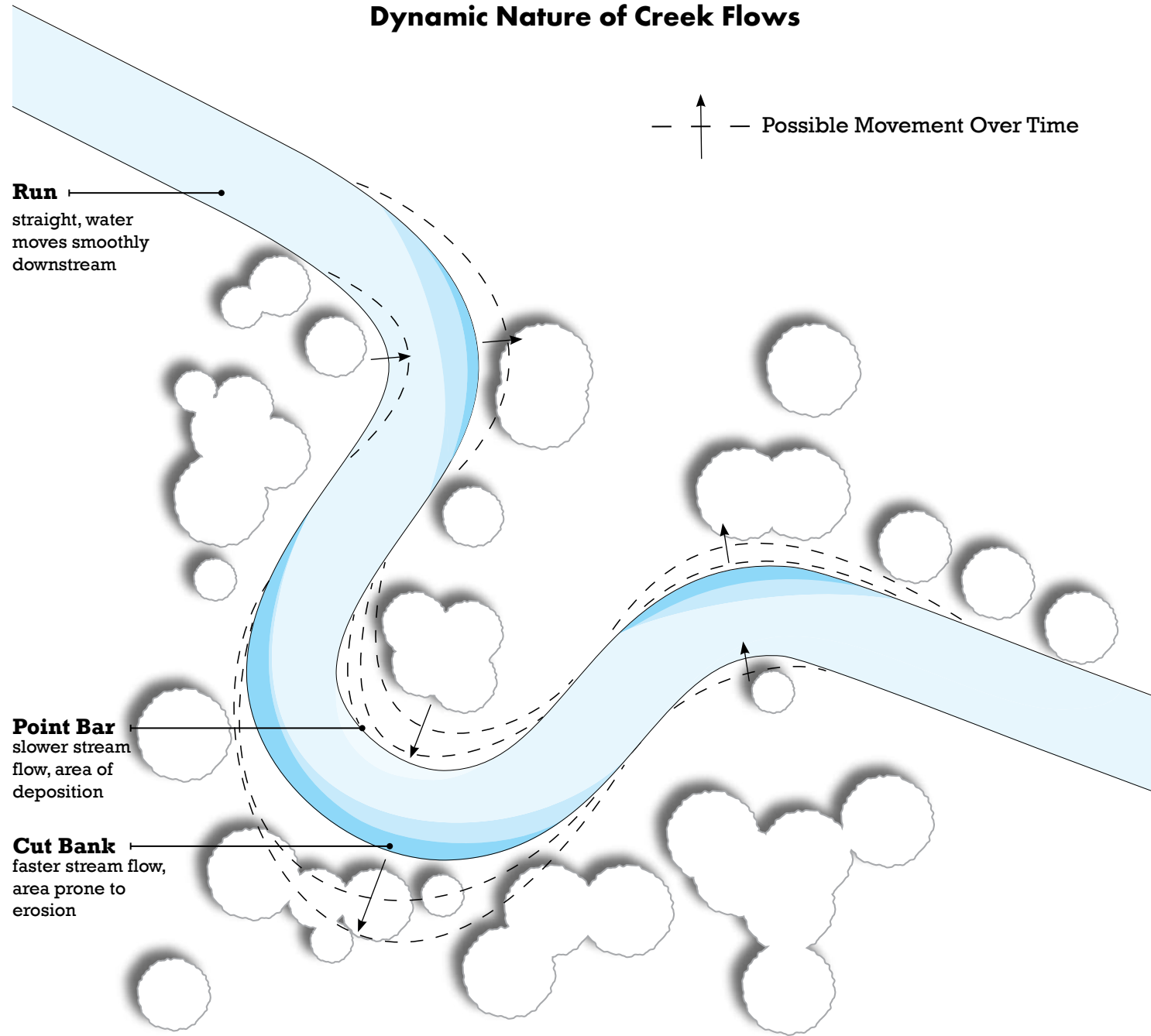
Hazards

Special signs will be placed near creek hazards such as required portages and unnavigable creek passages.

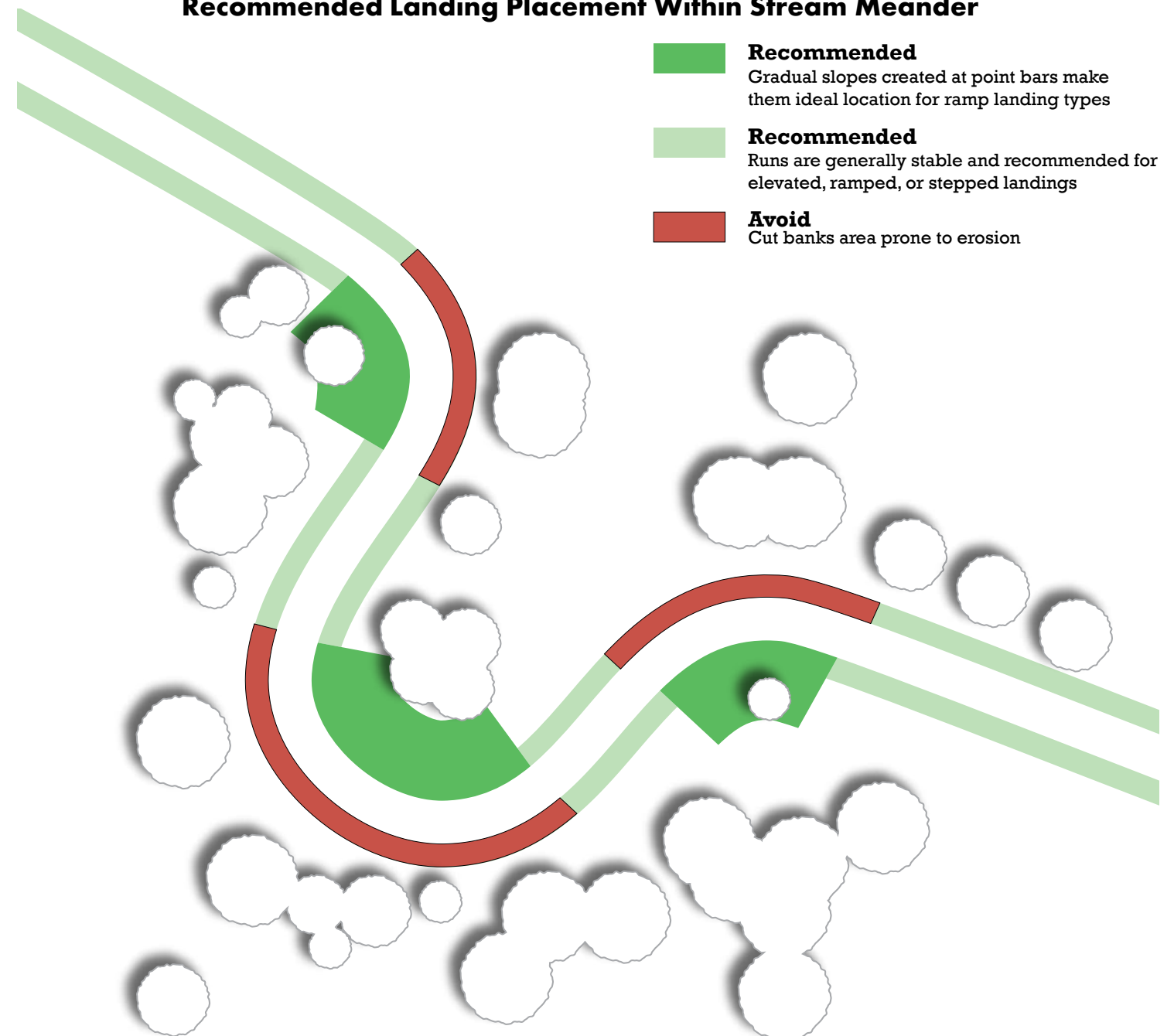
Landing Location Considerations

For landing longevity, careful placement and design is paramount to withstand the creek's dynamic changes in height and flow. Landing design will take into consideration extreme flows and account for possible channel migration over time. Historical and future water levels on the creek should be analyzed and referenced before placing and constructing any landing.

Dynamic Nature of Creek Flows



Recommended Landing Placement Within Stream Meander

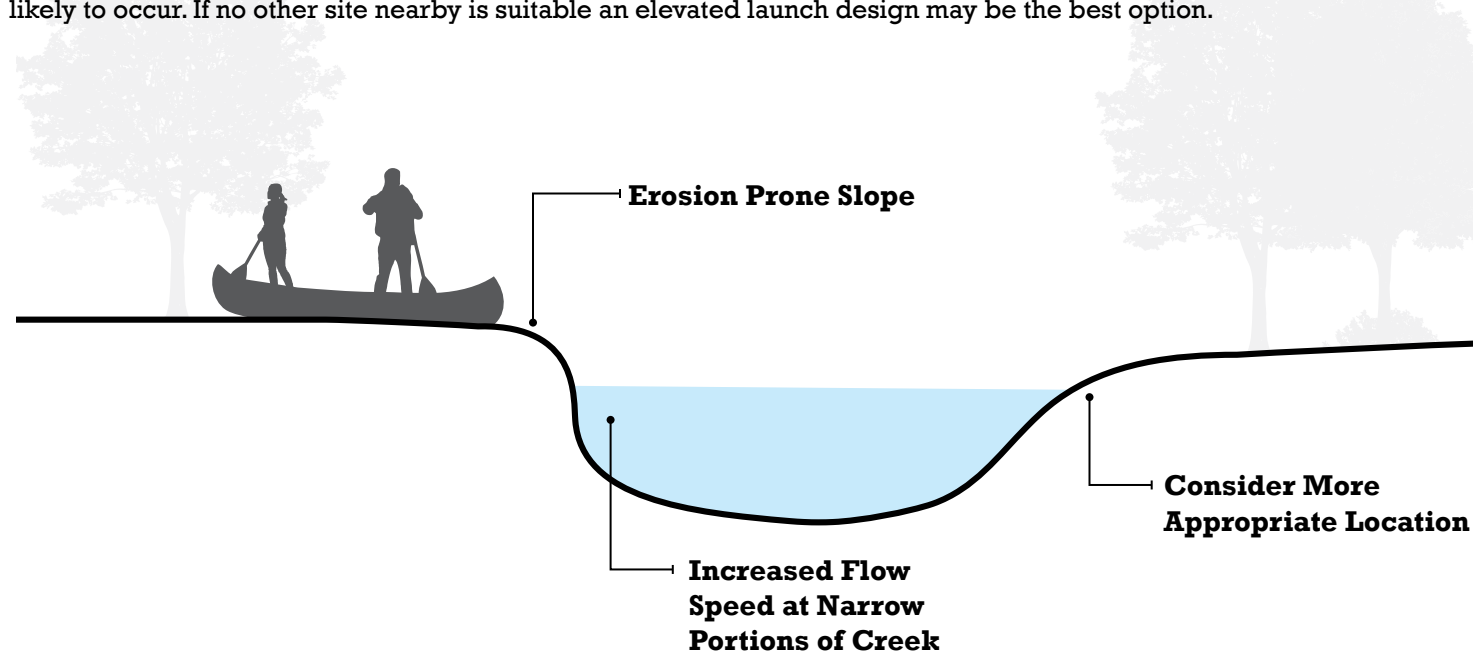


Note: Big Willow Park and Jidana Park landings are not ideally located within stream meanders. Once replacement is necessary consider relocating these landings to generally calmer water areas shown above in green.

Landing Location Considerations

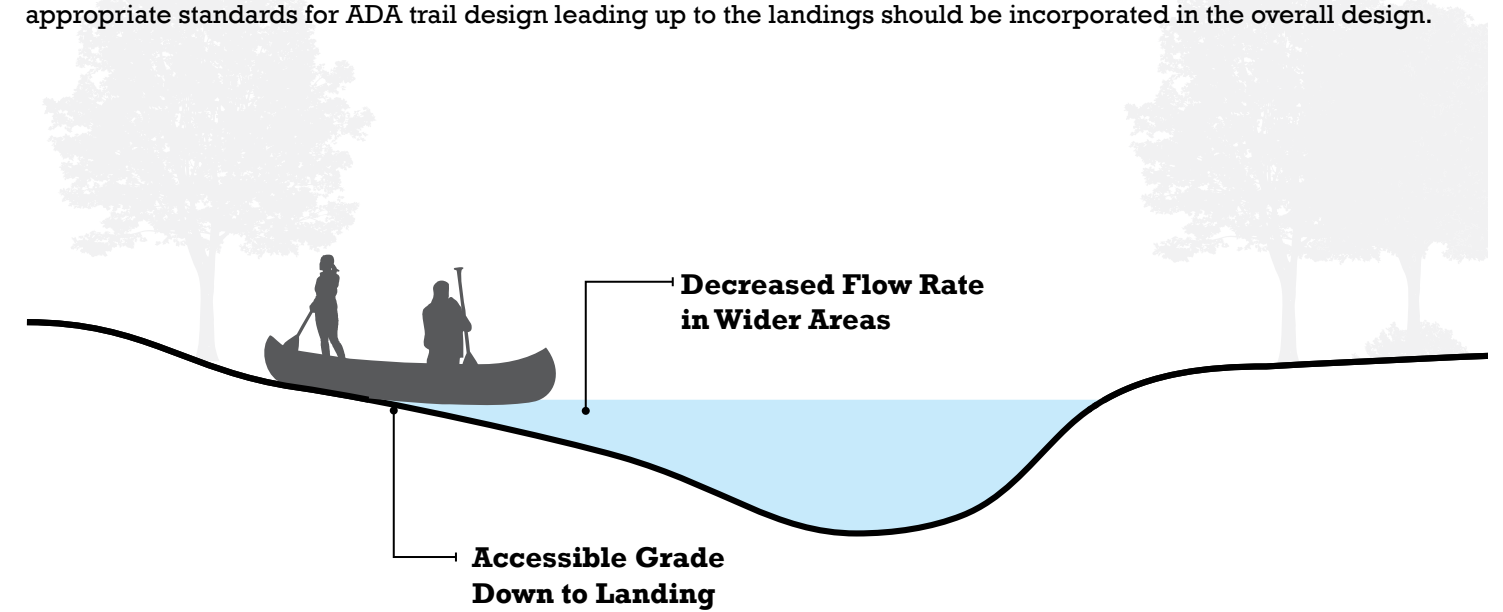
Least Suitable Landing Site

Narrow parts of the creek with steep banks are not ideal for landing placement. Increased flow rates within these areas increase difficulty for launching or landing a canoe or kayak. In addition, these may be areas where erosion is more likely to occur. If no other site nearby is suitable an elevated launch design may be the best option.



Ideal Landing Site

Gradual slopes along the creek bank provides safe and easy access for launching and landing during various water levels. In addition, accessibility for persons with disabilities is more feasible at these locations. Where possible, universal design practices (see page 26) should be used to construct landings for users of varying abilities. Where appropriate standards for ADA trail design leading up to the landings should be incorporated in the overall design.



Landing Types

Currently an array of canoe landings of varying age, types, and conditions provide public access to the creek. In time, as landings degrade and are replaced one of the recommended designs should be implemented based on site context and user requirements.

Elevated: Elevated docks are ideal in locations where space is limited. Fixed elevation docks are suitable when a paved pathway is used for landing access. Floating amendments to fixed docks have been proposed for numerous landings along the creek.

Stepped: Stepped landings can be created from a wide range of materials. Stepped landings allow for use throughout seasonal water level fluctuations. Because these types of landings are difficult to use they are not recommended.

Ramp: Sloped ramps are ideal for the fluctuating flow levels experienced on Minnehaha Creek. Ideal type of landing for open areas along the creek where a gradual slope from top to bottom of bank can be achieved.

Reinforced Ramp - **RECOMMENDED**

Using a proprietary cellular reinforcement mat, the landing also has a dock for loading and unloading. Several erosion control geo-cell options exist and can be filled with a variety of materials such as pea gravel or soil and vegetated.



U-Dock Retrofit - **RECOMMENDED**

At Big Willow Park the U-dock has been retrofitted with a floating platform that can rise or sink with the changing water levels. This type of amendment could be used at numerous landings.



U-Dock

The most common landing along the creek, the wooden U-dock, has advantages and drawbacks. In various states of condition, some should be removed as soon as possible while others can be retrofitted.



Timber Reinforced Landing

Located at Creekside Park, this landing is constructed of wooden timbers anchored into the ground and backfilled with gravel. This landing functions at various water levels. The Creekside Park landing has been designed to meet ADA accessibility standards



Stepped Boulder

Large boulders placed at Burwell Park's Landing allow users to dock beside and walk up. Natural materials blend into surrounding landscape.



Natural Ramp

A natural landing has formed to the side of many non-functioning u-dock landings. A gradual slope makes these easy places to land and launch boats. without reinforcement slopes may be prone to erosion

Landing Conceptual Plans

Landing Assessment

The entire creek was canoed and each landing assessed to create individual landing conceptual plans and a signage master plan. The landing conceptual plans addresses the following:

1. Strategy for placing landing types in relation to each other and the site context
2. Recommendation for landing structures
3. Recommendation of amenities such as restroom and picnic tables
4. Parking strategy
5. Proposed removal or replacement of dilapidated, redundant or outdated signage
6. Locations for new signage

Landing Amenities Icons



Landing Name
Mile Landing Is Located on Creek
Conceptual Landing Plan

Landing Amenities

Existing Proposed Remove

Site Photo

Context Map

Headwaters at Gray's Bay Dam Mile 22.0

Profile
Headwaters Landing is the first point along the 22 mile creek stretch. Located at the end of Gray's Bay Boulevard. Restroom and parking spaces are located 160 feet from an existing canoe/kayak landing.

Context Plan

Scale 1:100

Landing Plan

Scale 1:10

Summary Of Site Recommendations

- Place landing location sign at intersection of County Road 101 and Gray's Bay Boulevard
- Add accessible landing amendment to existing articulated dock
- Remove unused portion of outdated U-dock and re-grade landing with a reinforced slope to the creek
- Remove ash tree to regrade 3:1 slope for reinforced slope landing
- Add a picnic table and non-reservable canoe rack for enhanced user experience
- Maintain articulated dock so that it floats evenly in water

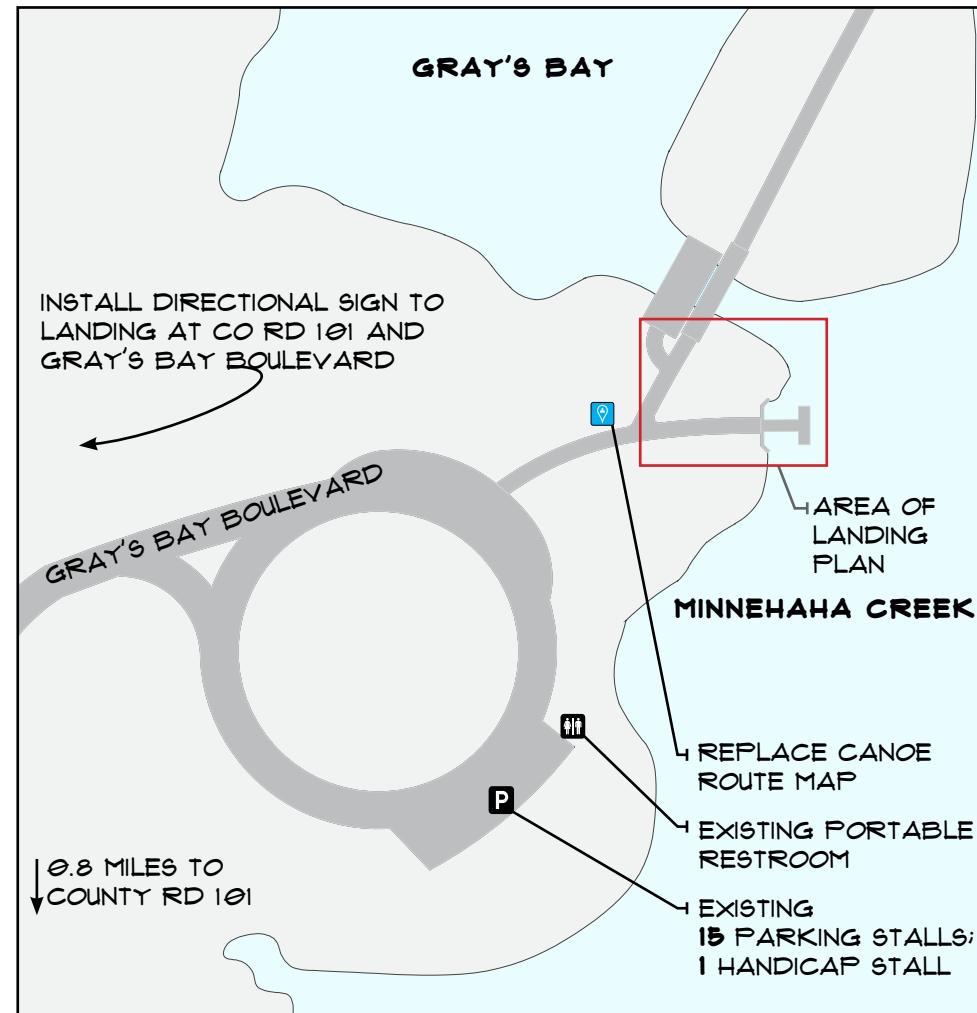
Page Number
Page Contents
Primary Recommendations

Headwaters at Gray's Bay Dam Mile 22.0



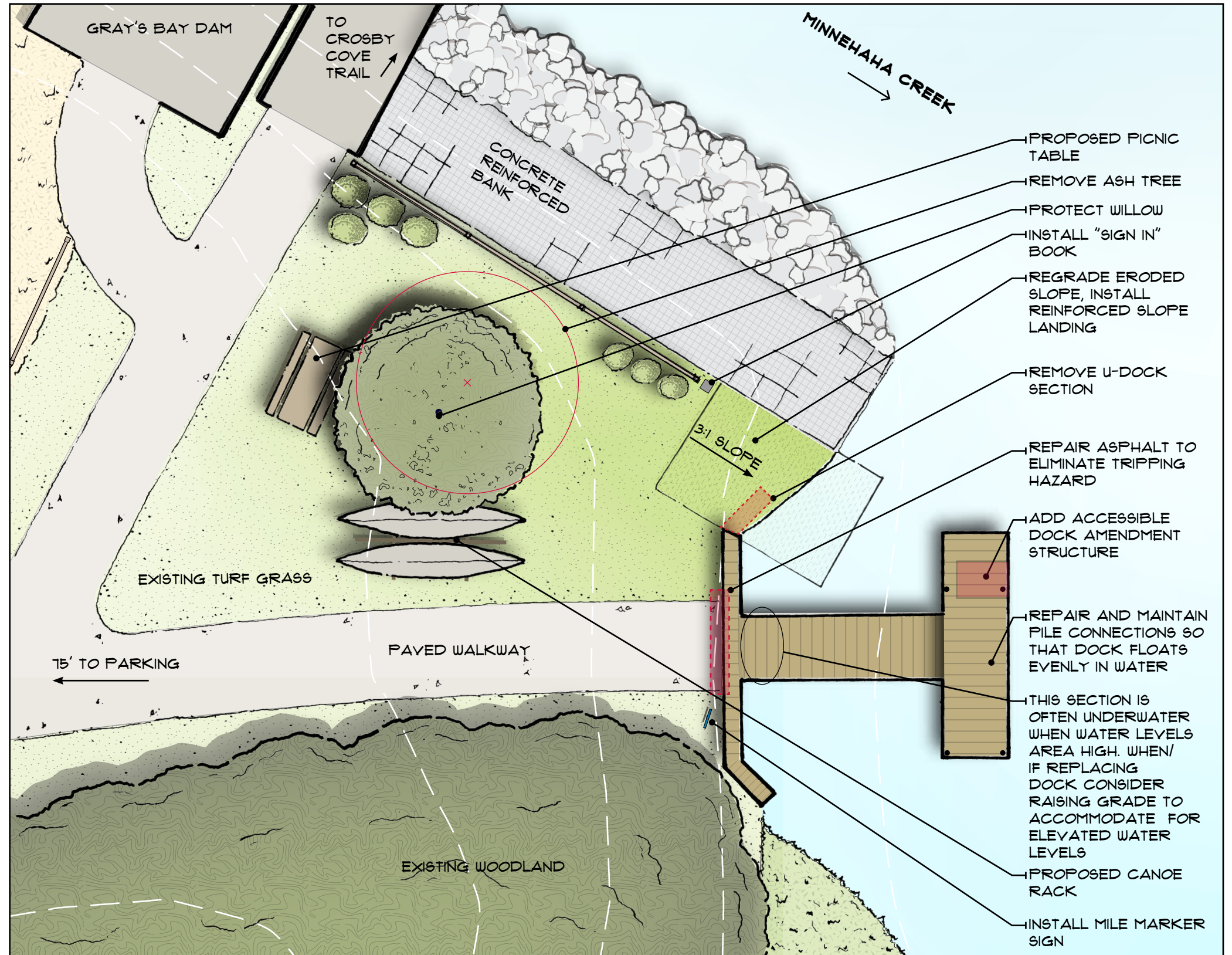
Profile

Headwaters Landing is the first landing along the 22 mile creek stretch. The parking lot is located at the end of Gray's Bay Boulevard. Restroom and parking spaces are located 160 feet from an existing canoe/kayak landing.



Context Plan

Scale 1:100



Landing Plan

Scale 1:10

Summary Of Site Recommendations

- Install a directional sign to landing at intersection of County Road 101 and Gray's Bay Boulevard
- Add accessible landing amendment to existing articulated dock
- Remove unused portion of u-dock and re-grade slope for installation of reinforced slope landing

- Remove ash tree to allow willow thrive
- Add a picnic table and non-reservable canoe rack
- Repair and maintain articulated dock so that it floats evenly in the water
- Replace the existing canoe route map with an updated route map

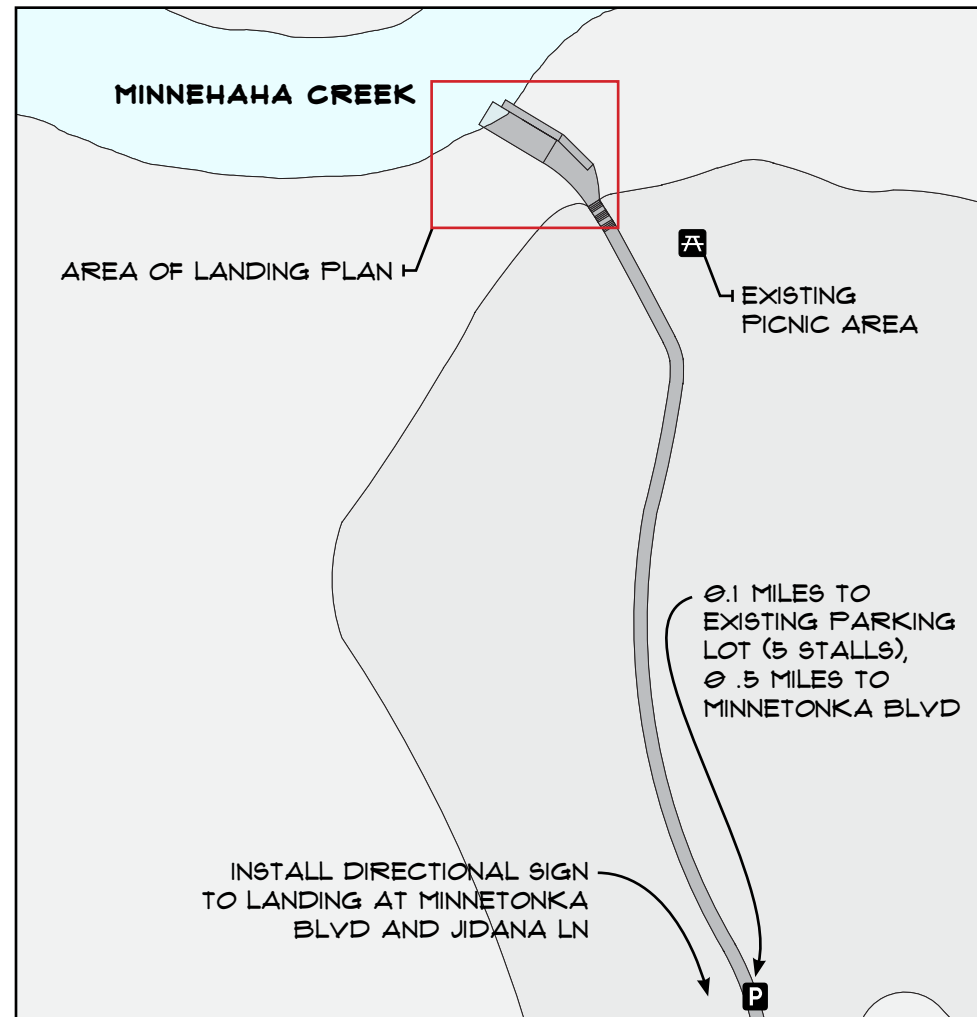
Jidana Park

Mile 21.0



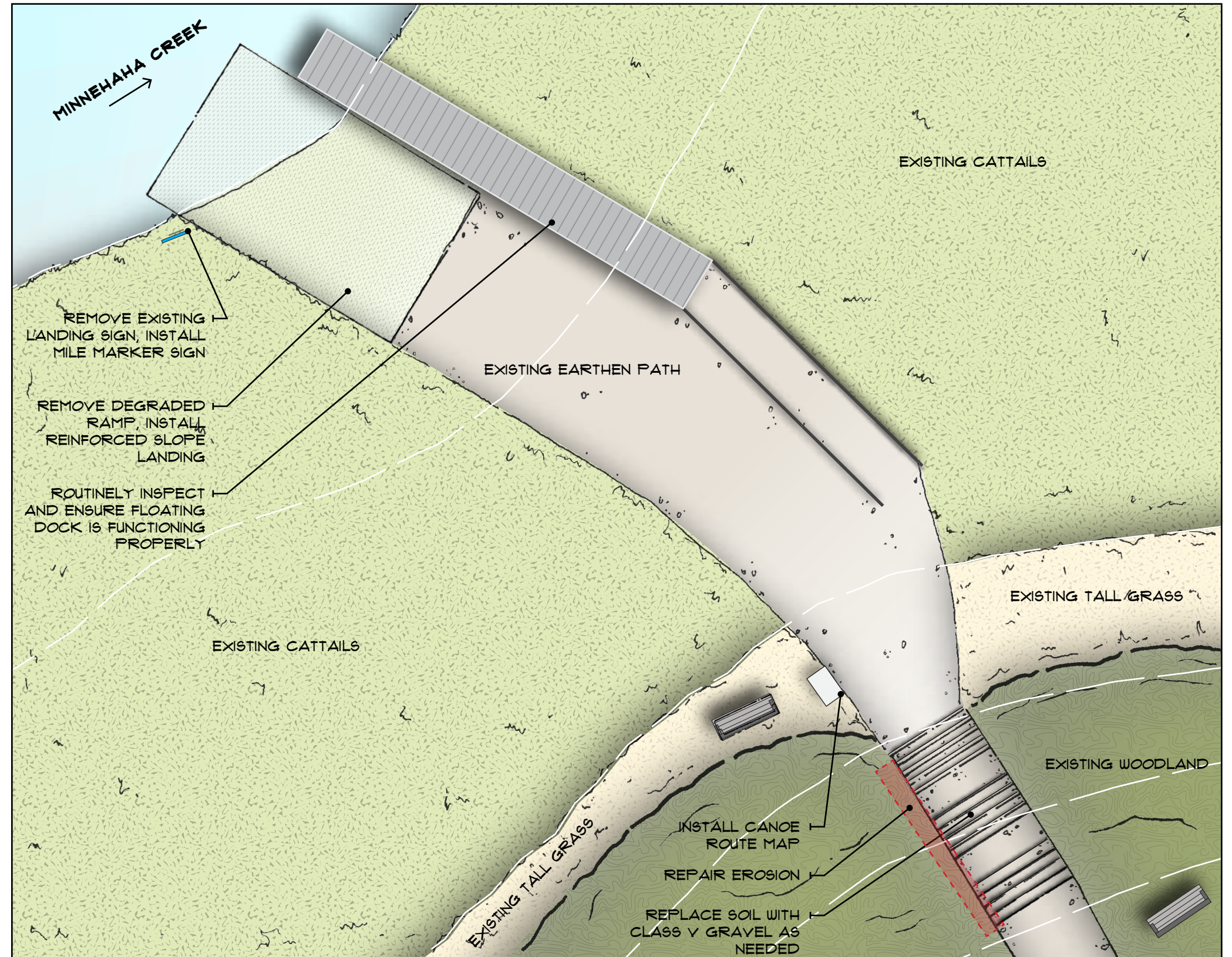
Profile

Jidana Park is a 60 acre park with walking paths, picnic tables, dock, and sloped canoe landing. Visitors access the landing via a small parking lot at the north end of Jidana Lane (0.1 mile walk to landing from lot).



Context Plan

Scale 1:100



Landing Plan

Scale 1:10

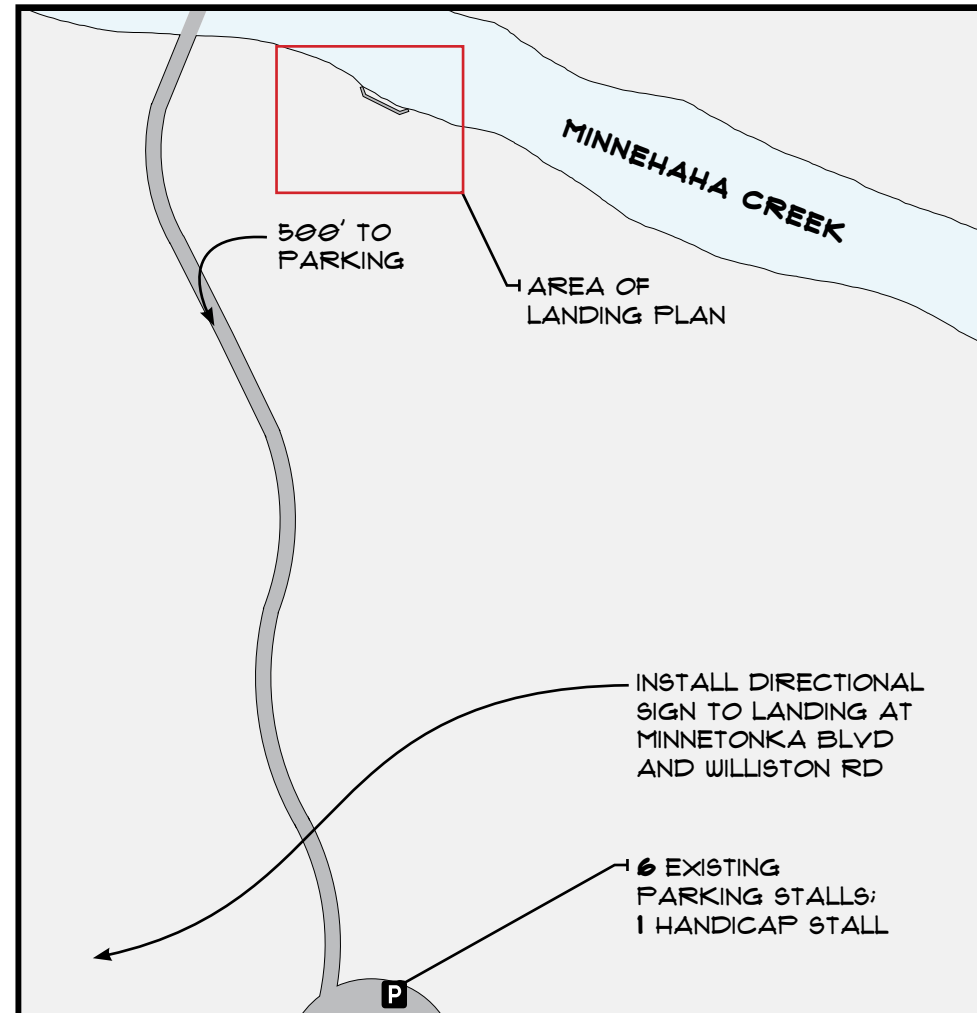
Summary Of Site Recommendations

- Replace the existing ramp with reinforced slope landing
- Install a mile marker near the landing
- Remove outdated wooden landing sign
- Install a canoe route map near landing
- Replace soil on steps with gravel to improve staircase longevity
- Regrade and reinforce sides of stairs to eliminate erosion
- Install a directional sign to landing at Minnetonka Blvd and Jidana Ln
- Current landing location within stream meander is not ideal; consider relocating to calmer waters (see page 3 for placement suggestion)



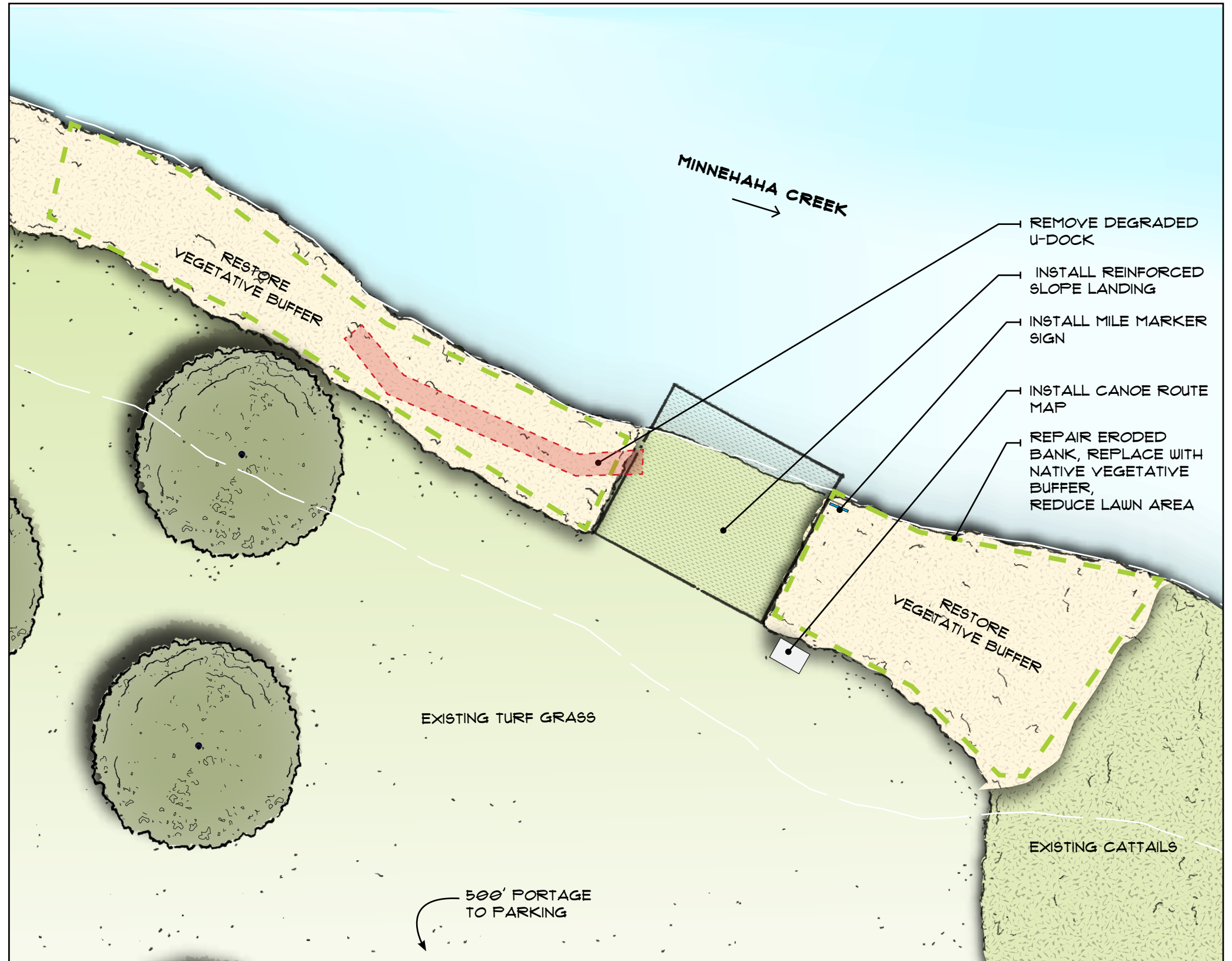
Profile

Paddlers must drive through the civic center parking lot to reach the landing parking area. Numerous parking spaces, picnic areas and restrooms are available within civic complex.



Context Plan

Scale 1:100



Landing Plan

Scale 1:10

Summary Of Site Recommendations

- Remove eroded u-dock landing and replace with reinforced slope landing
- Install a mile marker sign near the landing
- Install a canoe route map near the landing
- Repair erosion and plant a native vegetative buffer
- Install a directional sign to landing at Minnetonka Boulevard and Civic Center

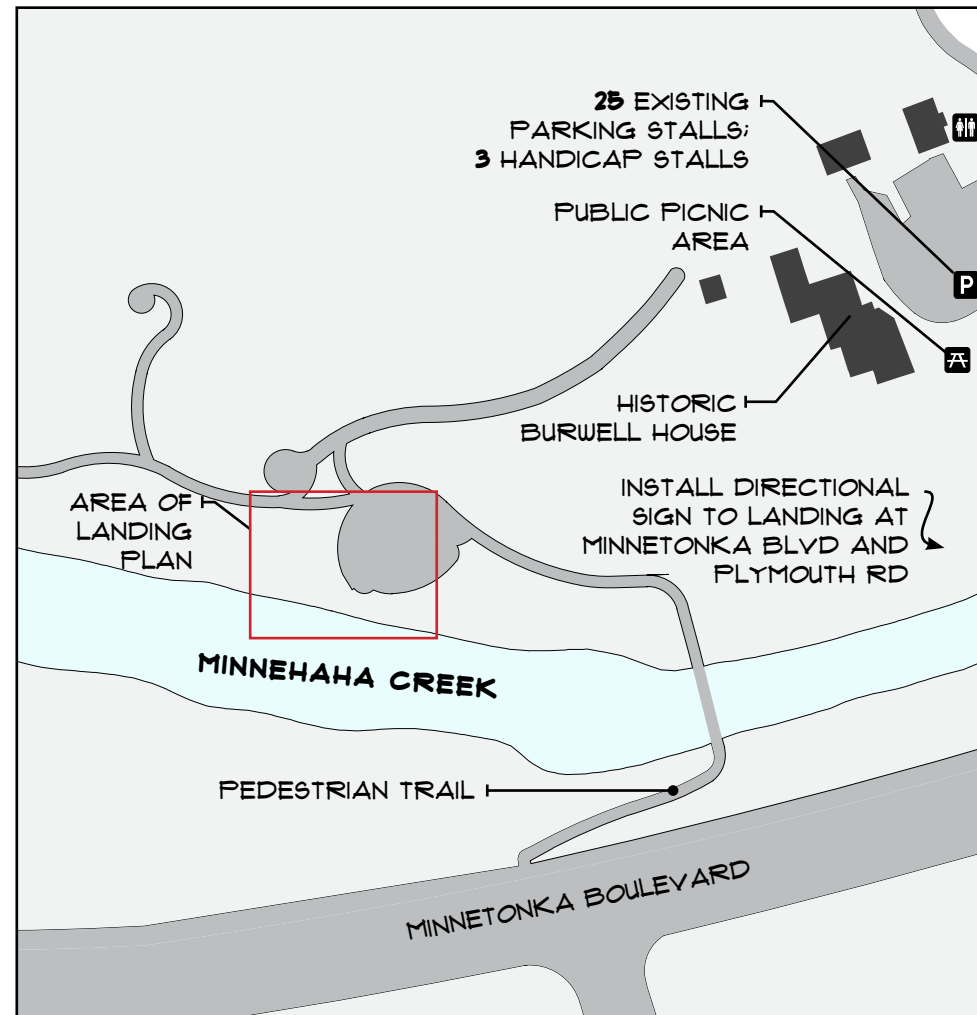
Burwell Park

Mile 19.5



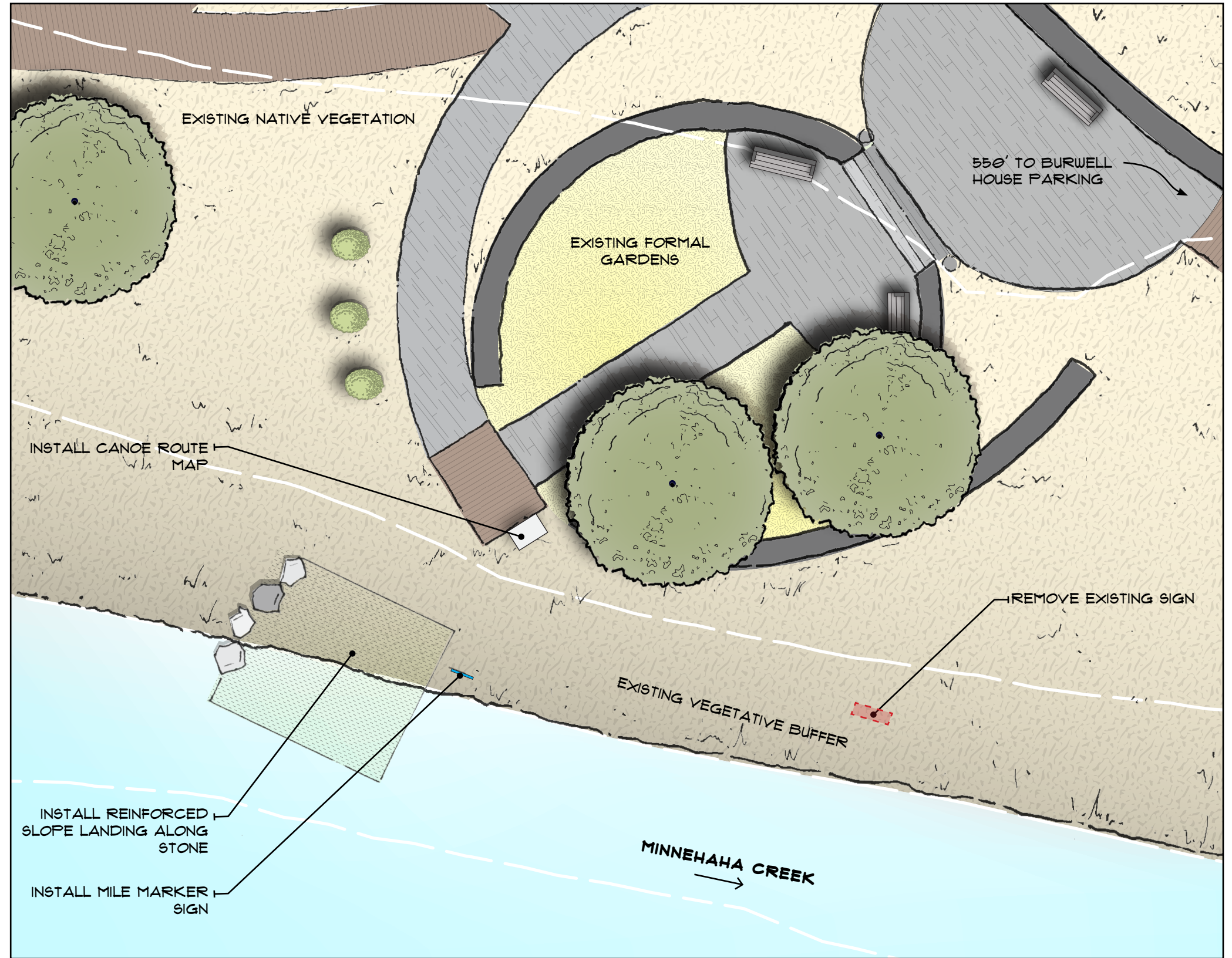
Profile

This is the only site in Minnetonka on the National Register of Historical Places. The park is five acres in size and contains picnic benches and restroom facilities. Parking is located off of McGinty Road.



Context Plan

Scale 1:100



Landing Plan

Scale 1:10

Summary Of Site Recommendations

- Install reinforced slope landing
- Install a mile marker sign near the landing
- Install a canoe route map near the landing
- Install a directional sign to landing at Plymouth Road and Minnetonka Boulevard

Content Created By Barr Engineering Company

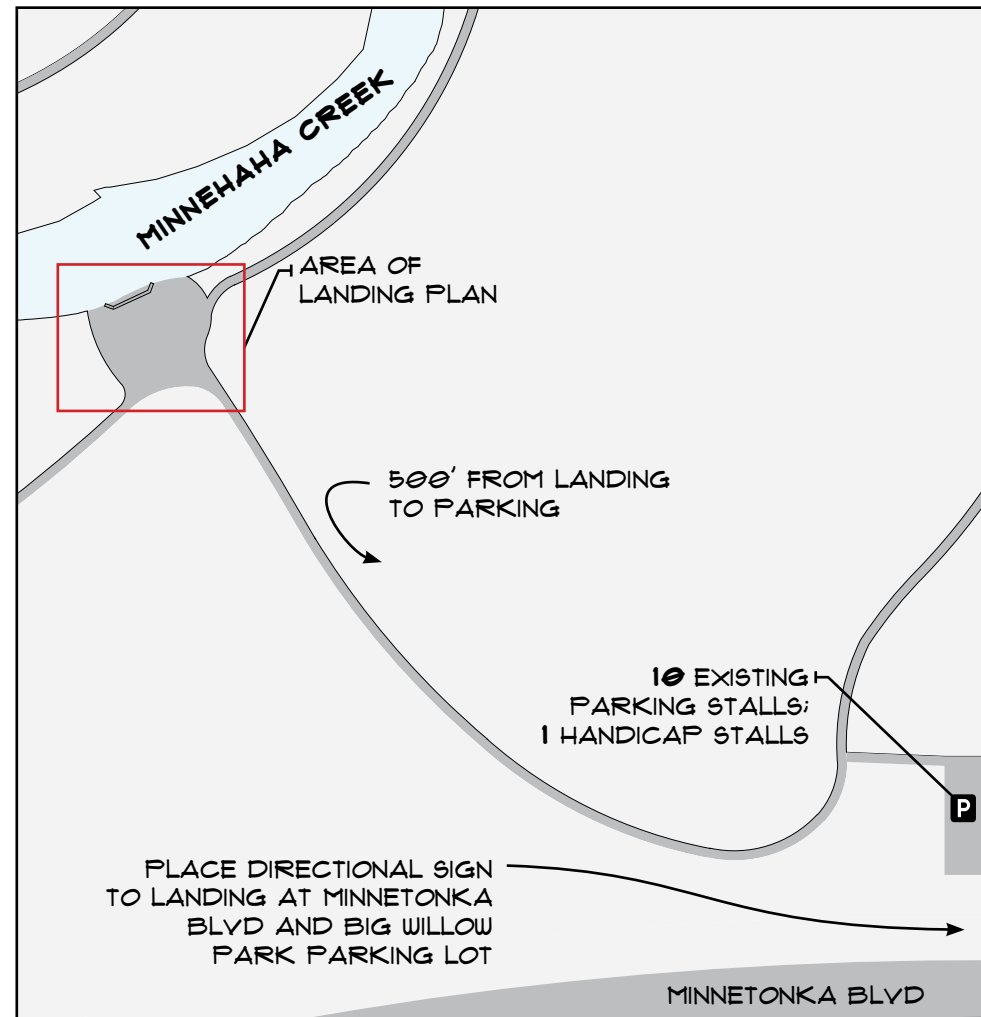
Big Willow Park

Mile 19.0



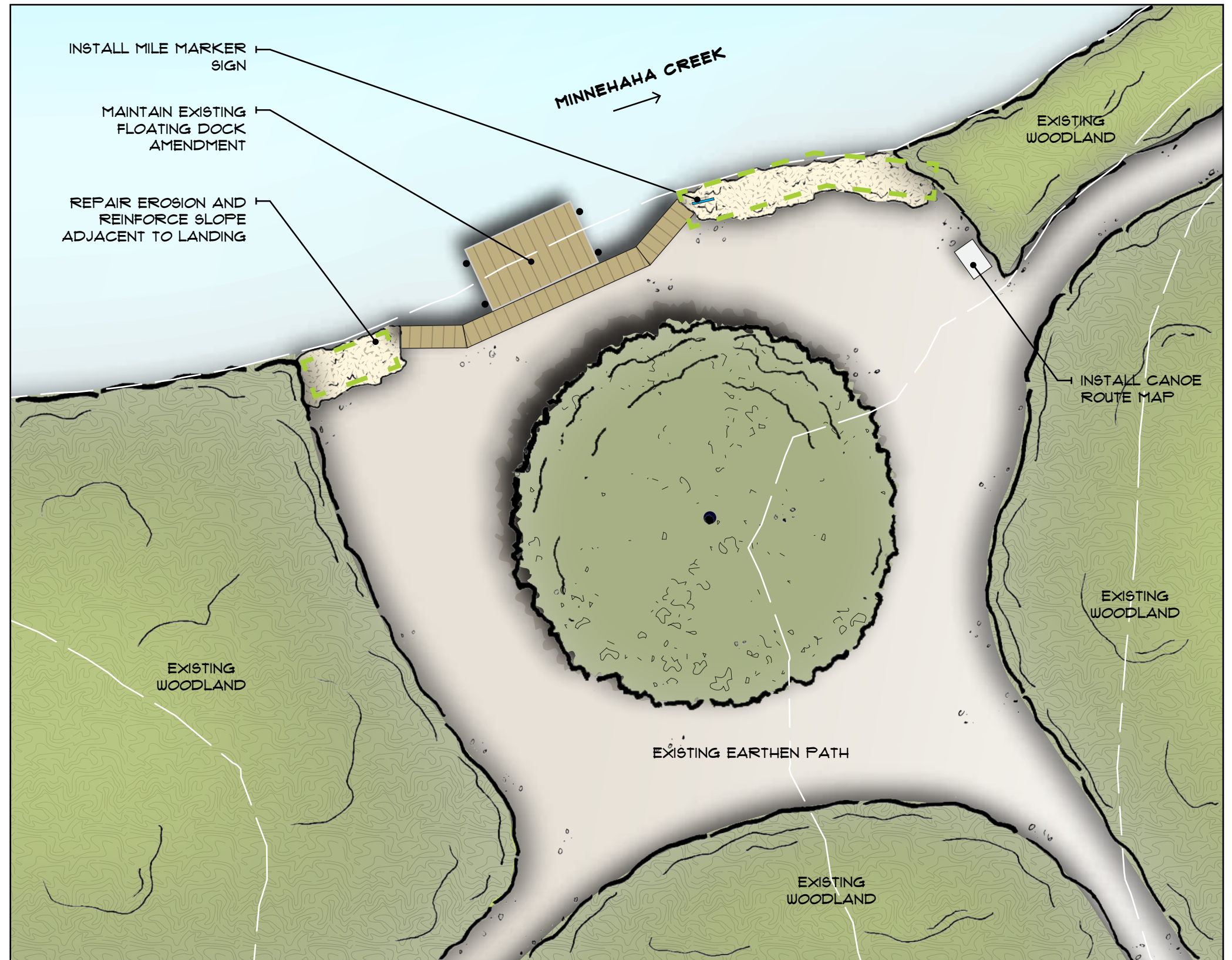
Profile

Parking lot is located right off of Minnetonka Boulevard, east of Shady Oak Road. About 500' north of the parking lot look for the group of willow trees for which the park is named.



Context Plan

Scale 1:100



Landing Plan

Scale 1:10

Summary Of Site Recommendations

- Repair existing erosion adjacent to the dock
- This articulating dock is in good condition and should be maintained to allow for dock movement during creek level fluctuations
- Install a canoe route map near the landing
- Install a directional sign to landing at parking lot and Minnetonka Blvd
- Install a mile marker sign near the landing
- Current landing location within stream meander is not ideal; consider relocating to an area less prone to creek bank erosion (see page 3 for placement suggestion)

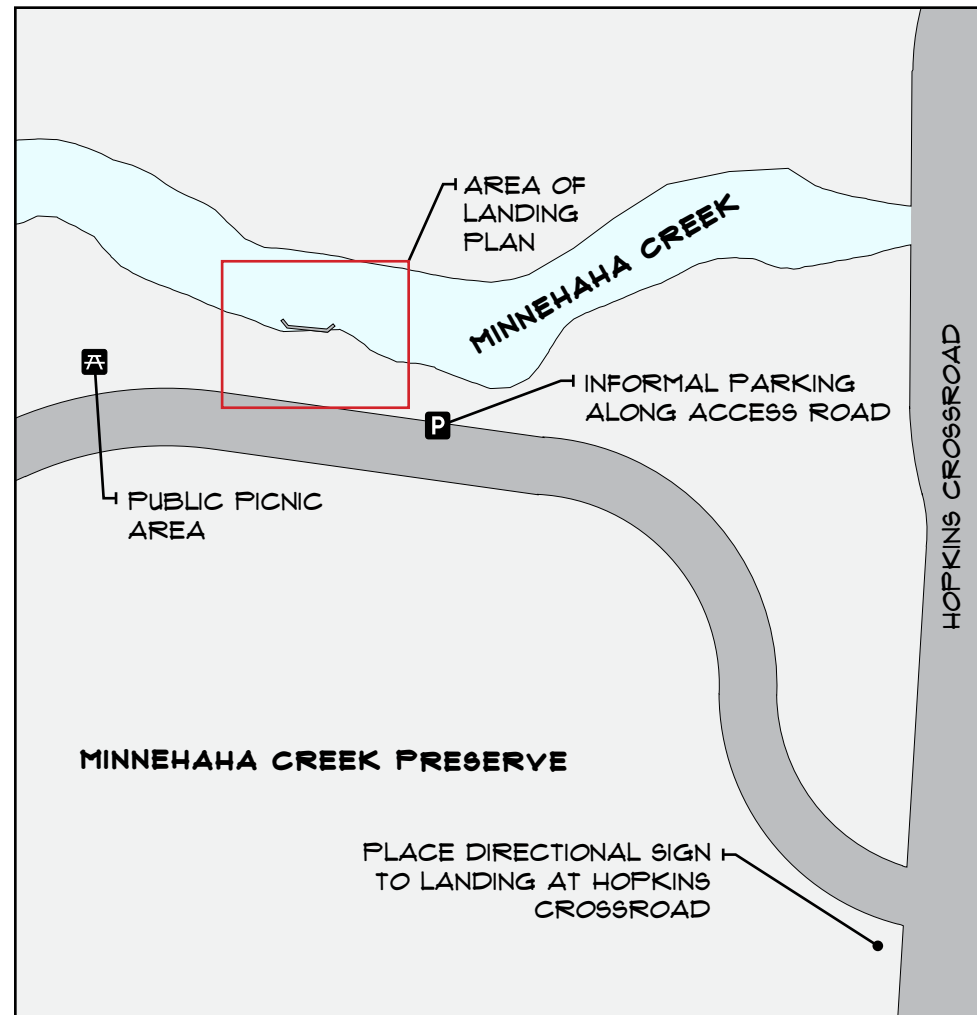
Hopkins Crossroad

Mile 17.5



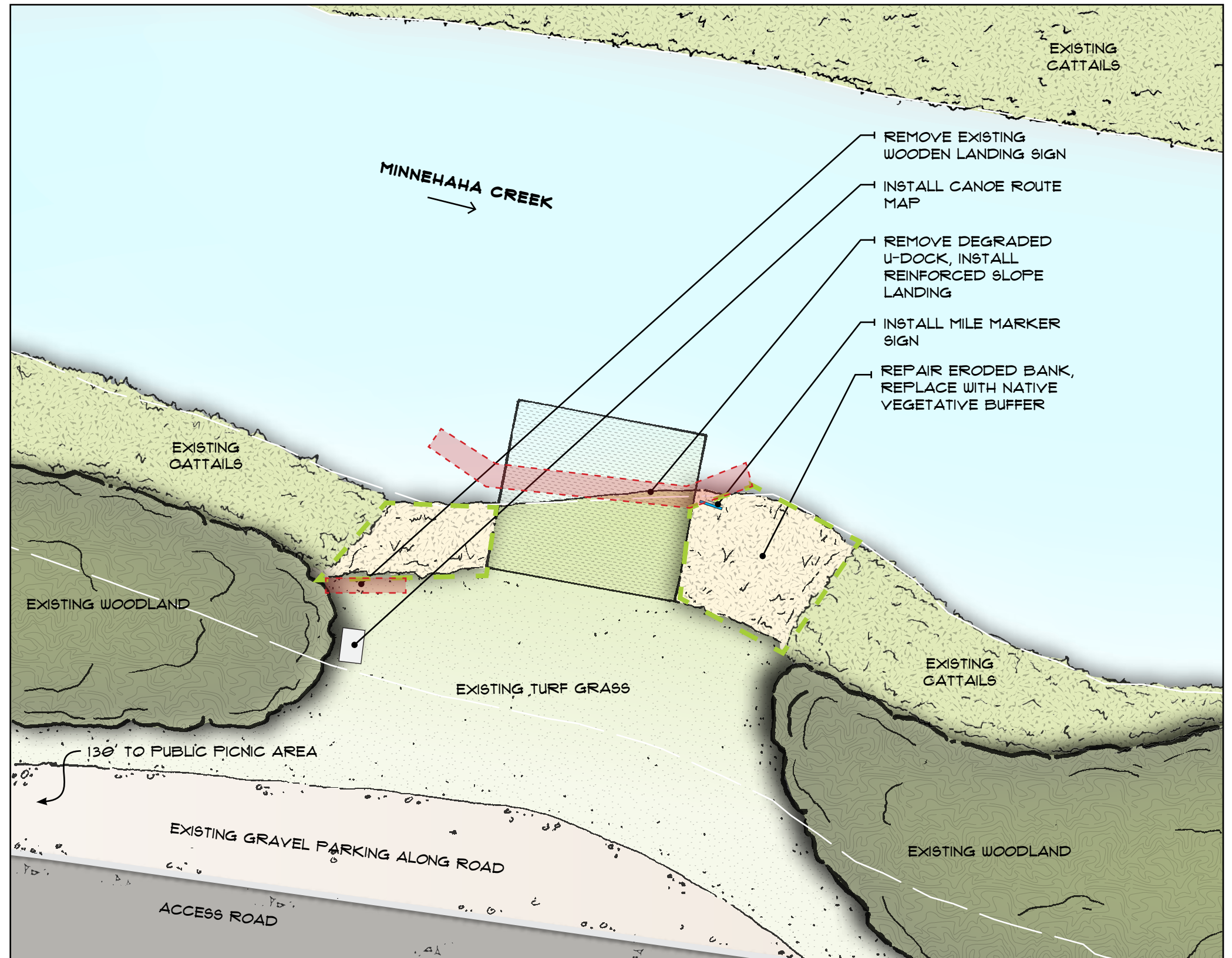
Profile

Landing is located just off Hopkins Crossroad within Minnehaha Creek Preserve. The close proximity of the landing to the parking make this one of the most accessible landings along the creek.



Context Plan

Scale 1:100



Landing Plan

Scale 1:10

Summary Of Site Recommendations

- Remove eroded u-dock landing and replace with reinforced slope landing
- Install a mile marker sign near the landing
- Repair erosion and plant a native vegetative buffer
- Install a canoe route map near the landing
- Install a directional sign to landing at Hopkins Crossroad

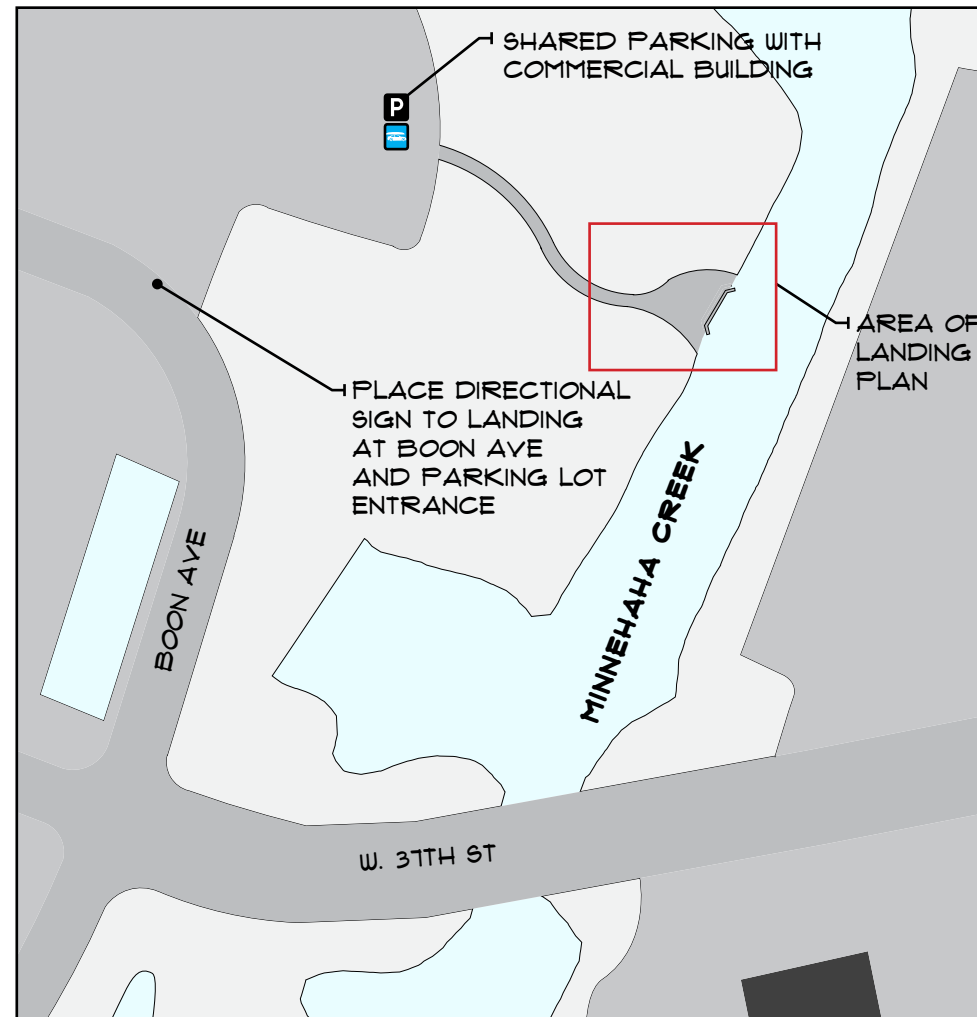
Target/Knollwood Mall

Mile 14.8



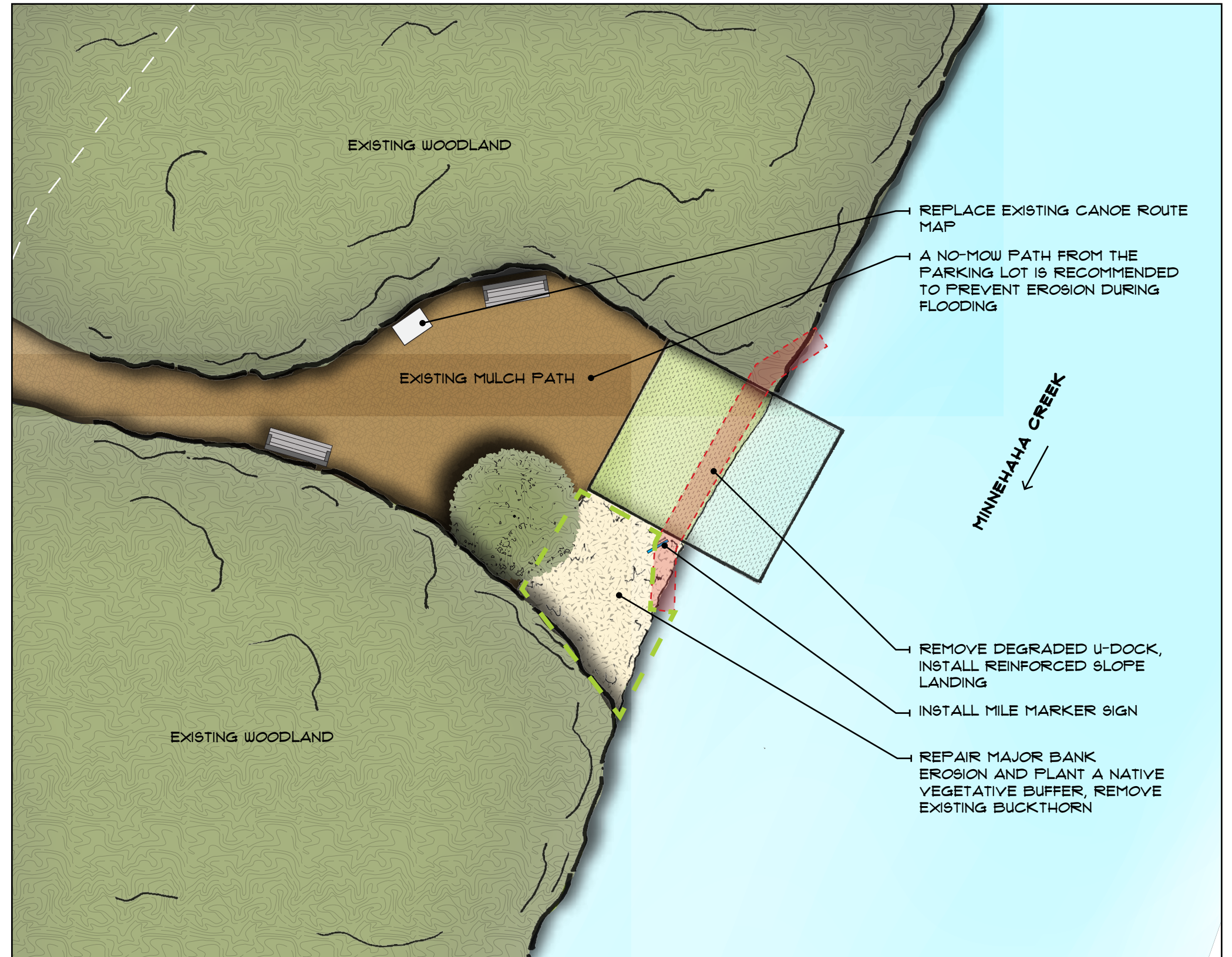
Profile

This landing is located behind Knollwood Target. Parking is available in the Bremer Bank parking lot on the west side of the creek. The landing is surrounded by floodplain forest.



Context Plan

Scale 1:100



Landing Plan

Scale 1:10

Summary Of Site Recommendations

- Remove eroded u-dock landing and replace with reinforced slope landing
- Install mile marker sign near the landing
- Replace existing canoe route map and install the new version near the landing
- Repair erosion and plant a native vegetative buffer around landing
- Install a directional sign to landing at Boon Ave and parking lot entrance
- Install a dedicated canoe parking sign at nearest parking stall to landing

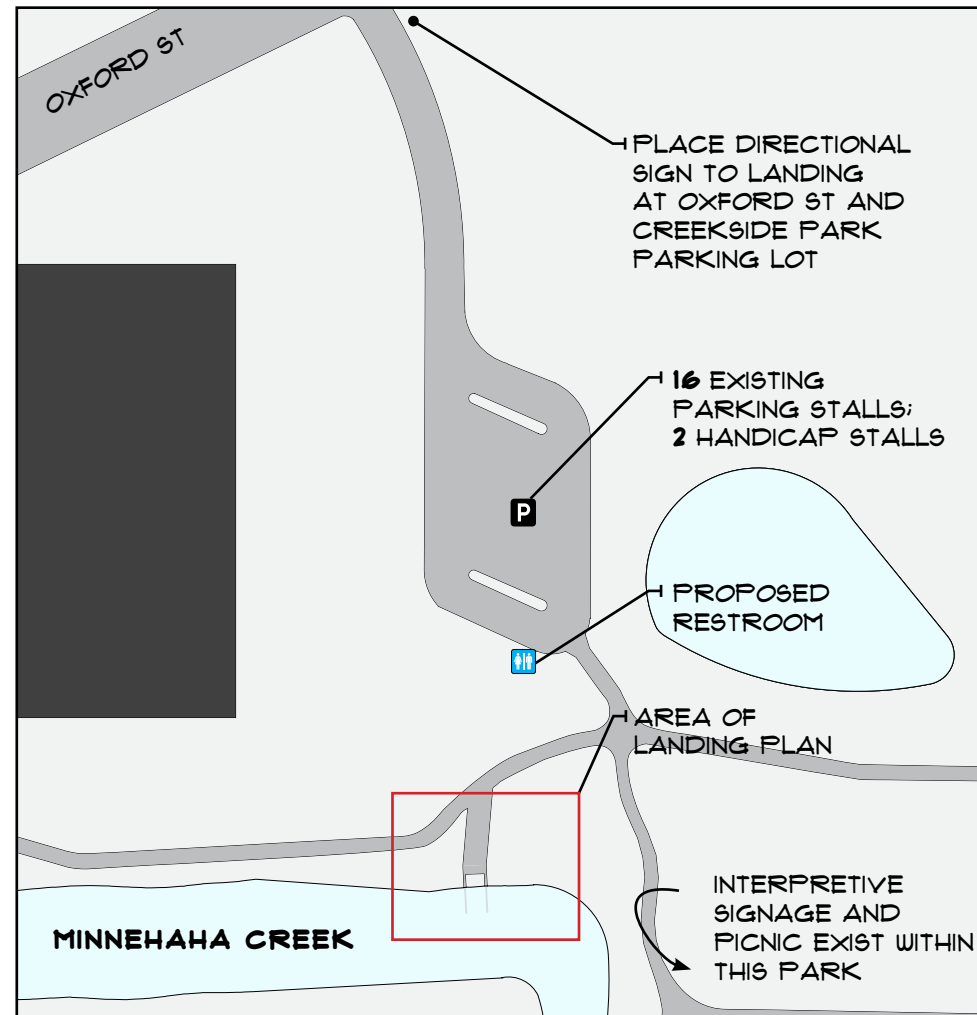
Creekside Park

Mile 13.5



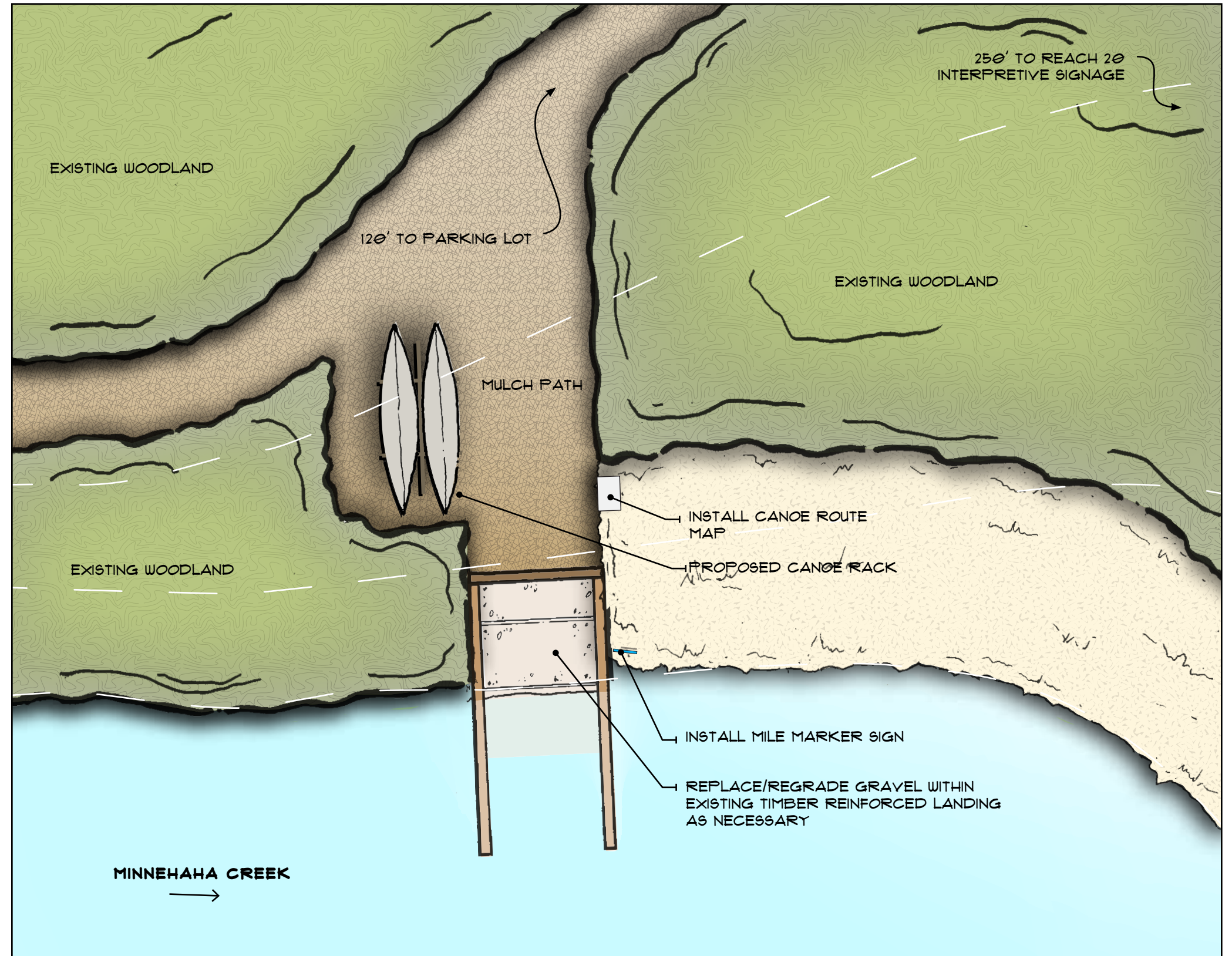
Profile

Creekside Park parking lot is located just off Oxford Street behind Saint Louis Park Municipal Service Center. Interpretive signage and a picnic area exists within the park and boardwalk complex.



Context Plan

Scale 1:100



Landing Plan

Scale 1:10

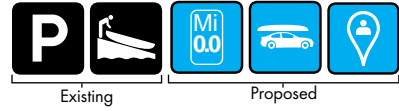
Summary Of Site Recommendations

- Replace landing's gravel fill as necessary to keep landing functional
- Install non-reservable canoe/kayak rack
- Install a directional sign to landing at Oxford St and parking lot entrance
- Install a mile marker sign near the landing
- Install a canoe route map near the landing

Content Created By Barr Engineering Company

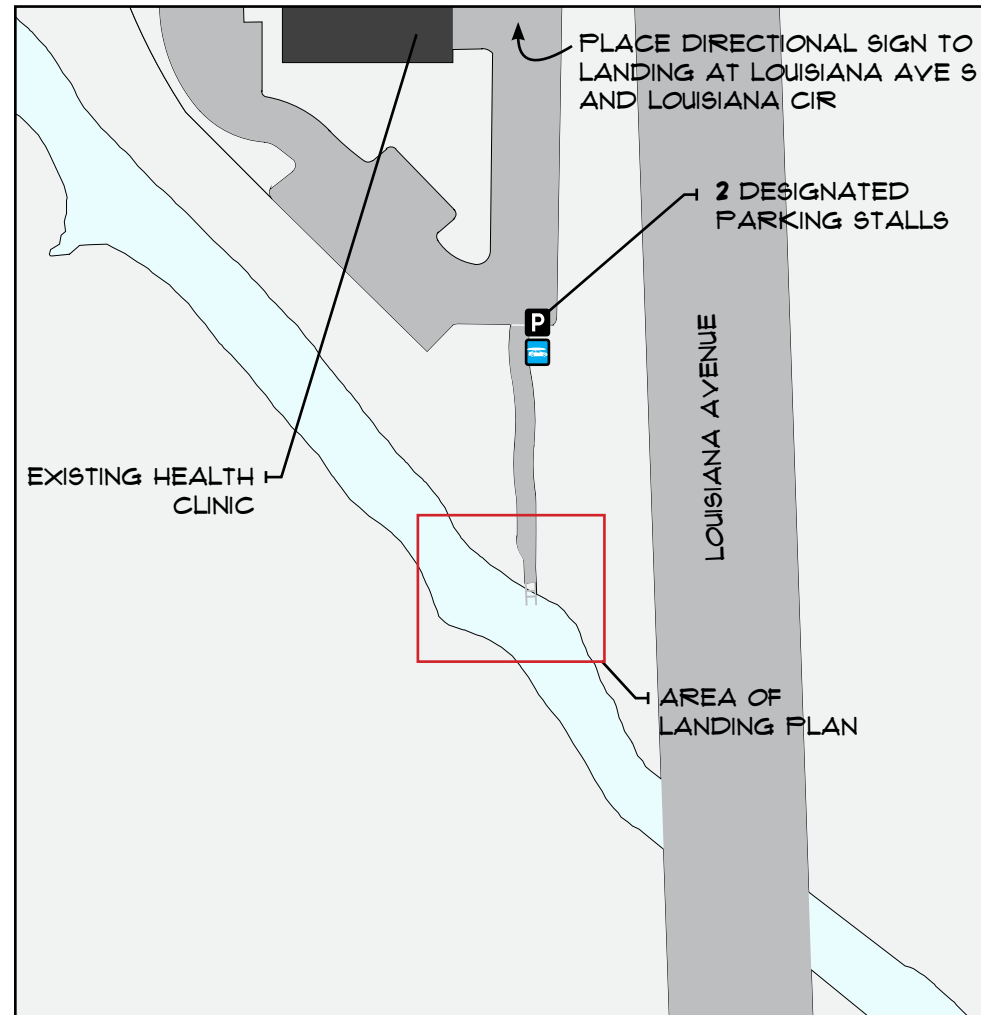
Louisiana Avenue

Mile 13.2



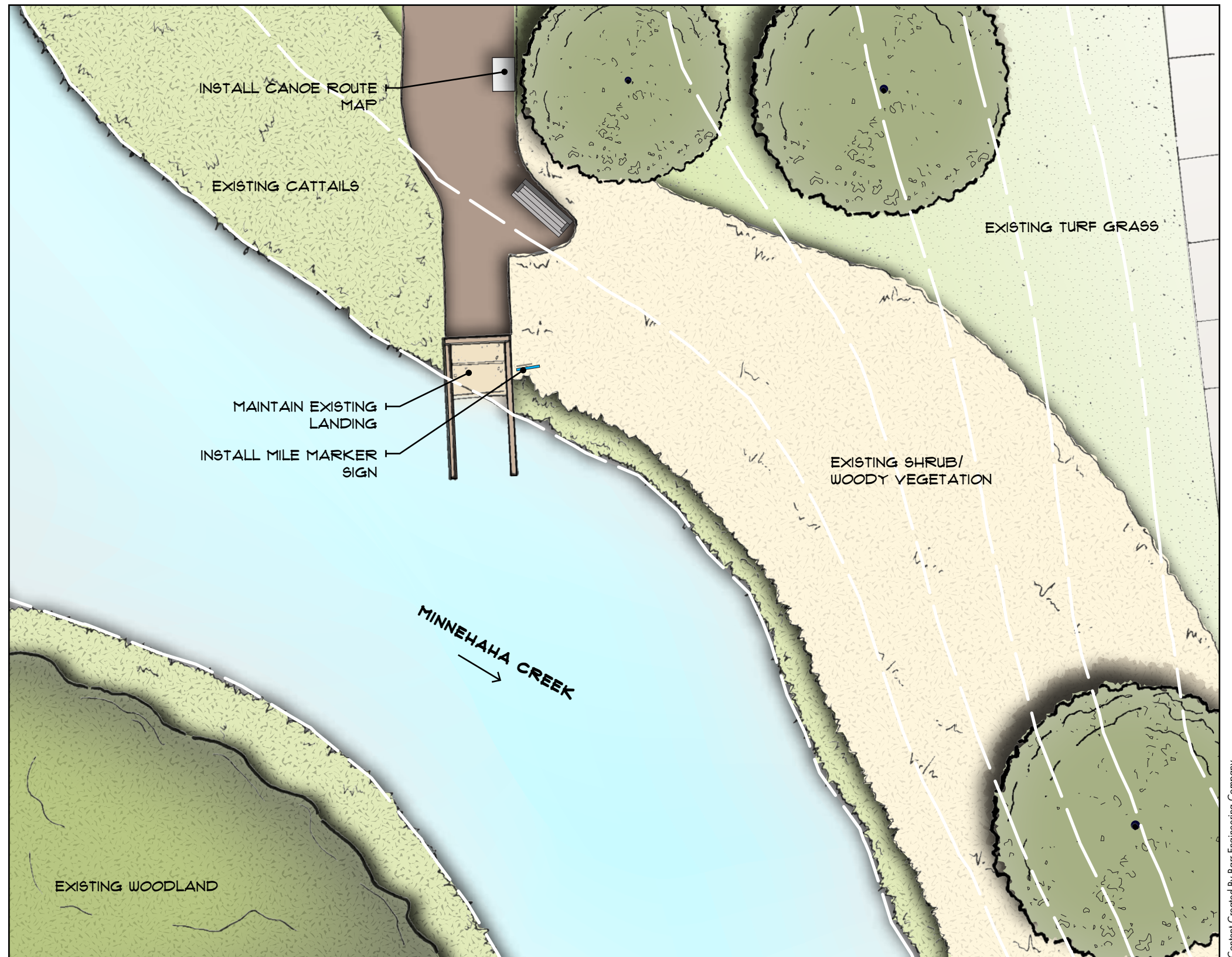
Profile

This landing constructed in 2013 is timber with gravel pads extending down into the water. Two parking spots designated for paddlers are located at the end of the health clinic's parking lot off of Louisiana Circle.



Context Plan

Scale 1:100



Landing Plan

Scale 1:10

Summary Of Site Recommendations

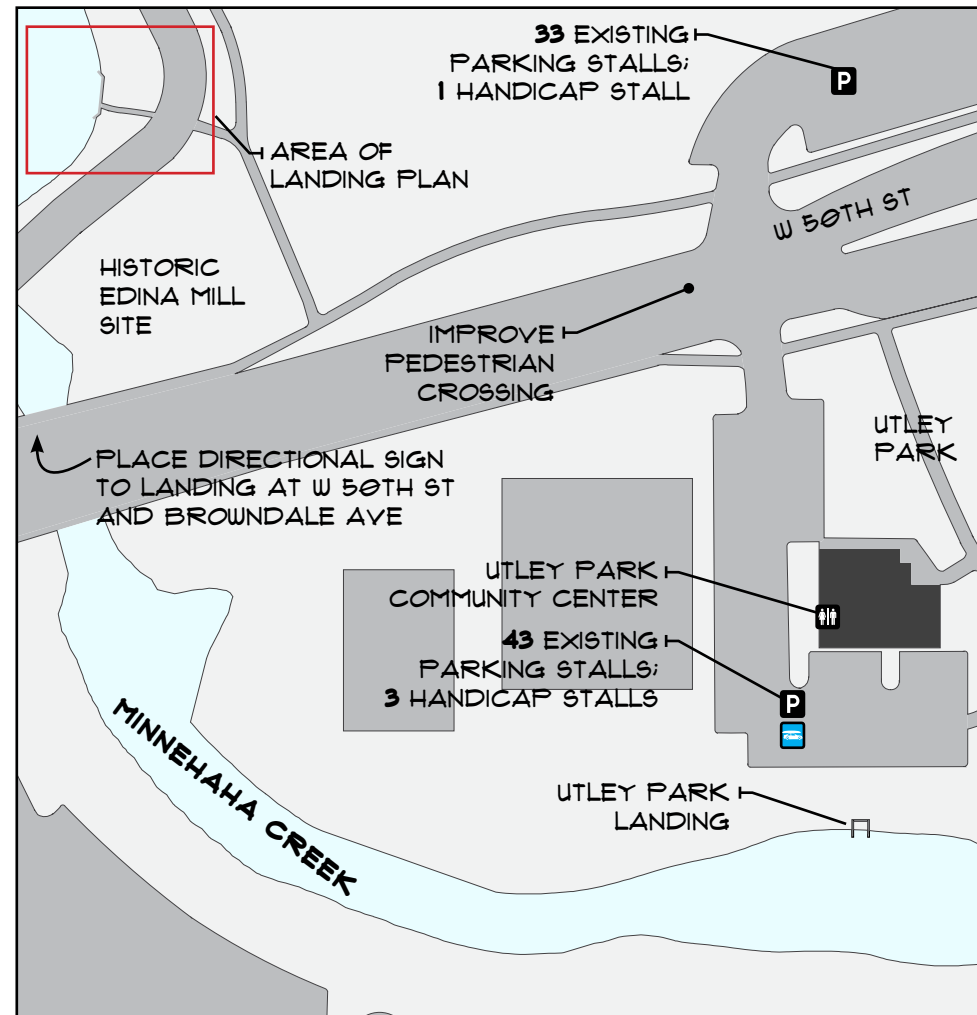
- Install a mile marker sign near the landing
- Install a canoe route map near the landing
- Replace two existing designated canoe parking signs with new version at nearest parking stalls
- Install a directional sign to landing at Louisiana Ave and Louisiana Cir

Browndale Avenue/ Edina Mills Mile 10.6



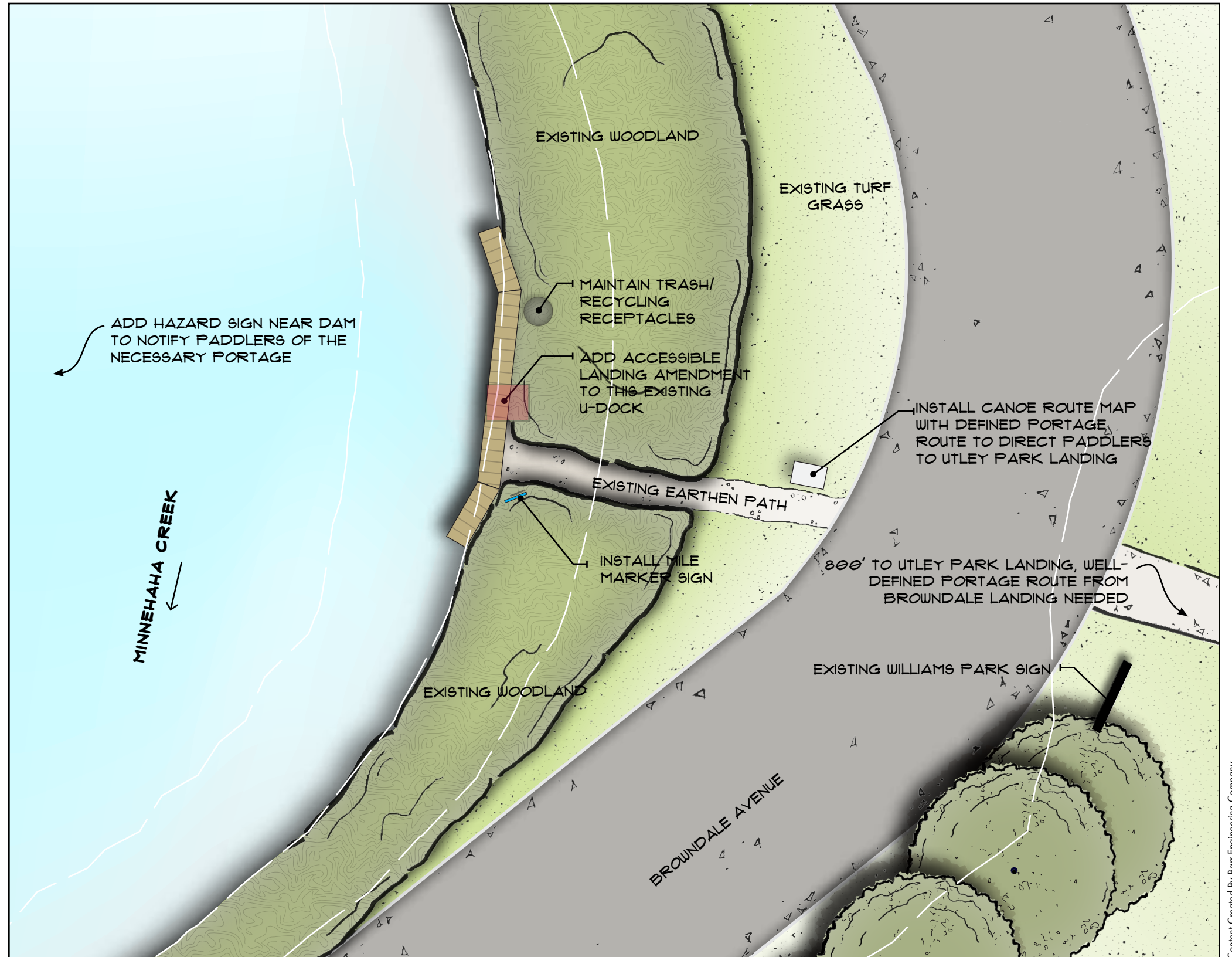
Profile

This landing is required in order to portage the Browndale Dam. The existing u-dock is located along a wooded slope at the end of a lagoon-like ponded area. Space is limited by nearby Browndale Avenue.



Context Plan

Scale 1:100



Landing Plan

Scale 1:10

Summary Of Site Recommendations

- Install accessible landing amendment to the existing u-dock
- Maintain existing trash/recycling receptacles
- Install warning/portage sign prior to dam
- Install a canoe route map that clearly defines the portage route from the Browndale landing to Utley Park

- Install a mile marker sign near the landing
- Install a directional sign to landing at W 50th St and Browndale Ave
- It is currently difficult to safely cross W 50th Street, work with City of Edina to designate a pedestrian crossing for park users and paddlers

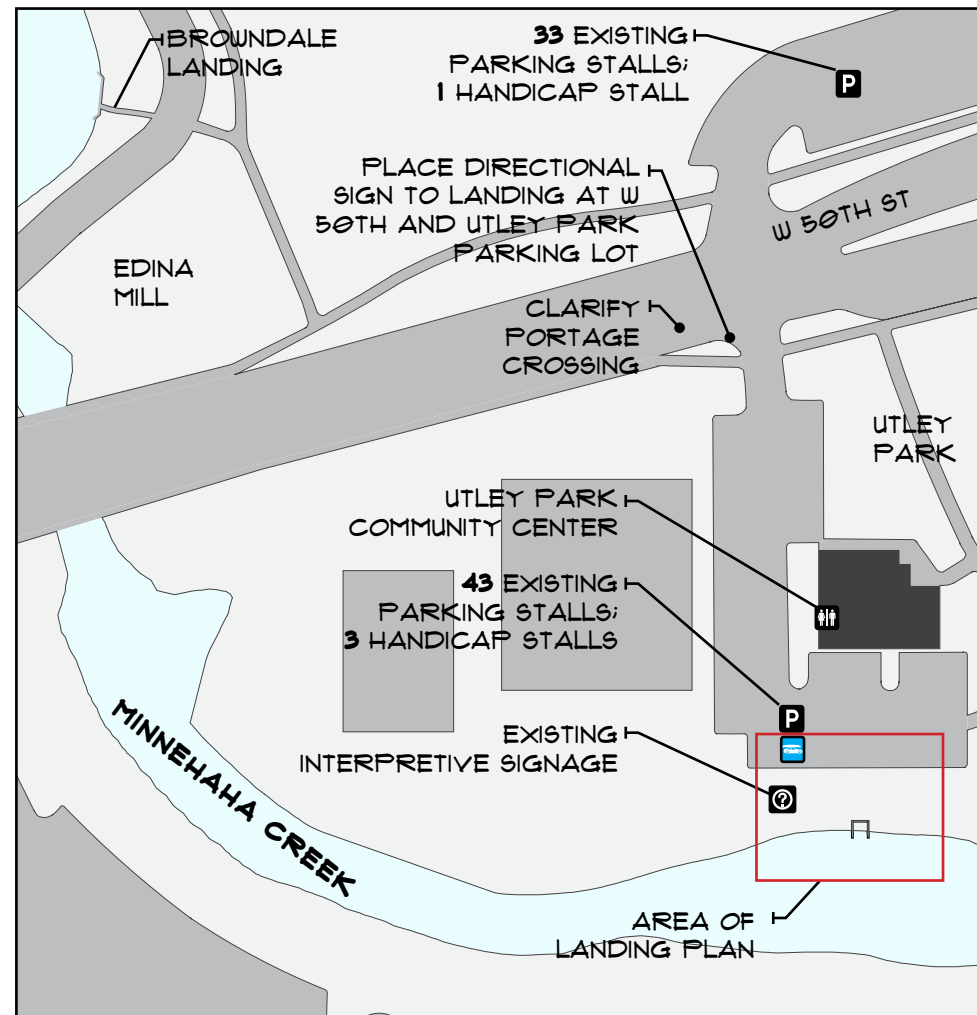
Utley Park

Mile 10.5



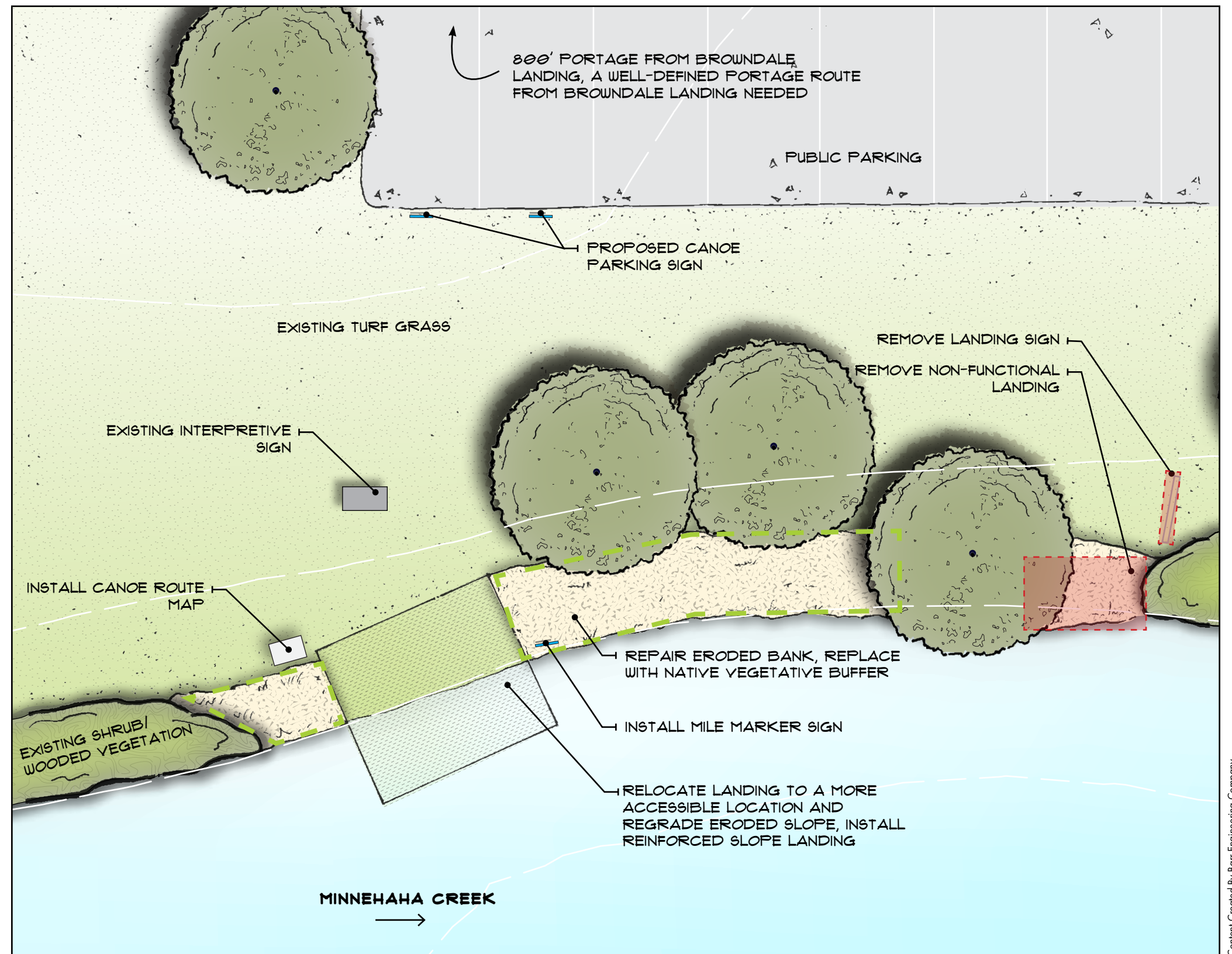
Profile

The landing site is located in Utley park west of Wooddale Avenue on 50th Street. Picnic and restroom are available at the nearby Utley Park Community Center. Utley Park is the site of the historic Edina Mill.



Context Plan

Scale 1:100



Landing Plan

Scale 1:10

Summary Of Site Recommendations

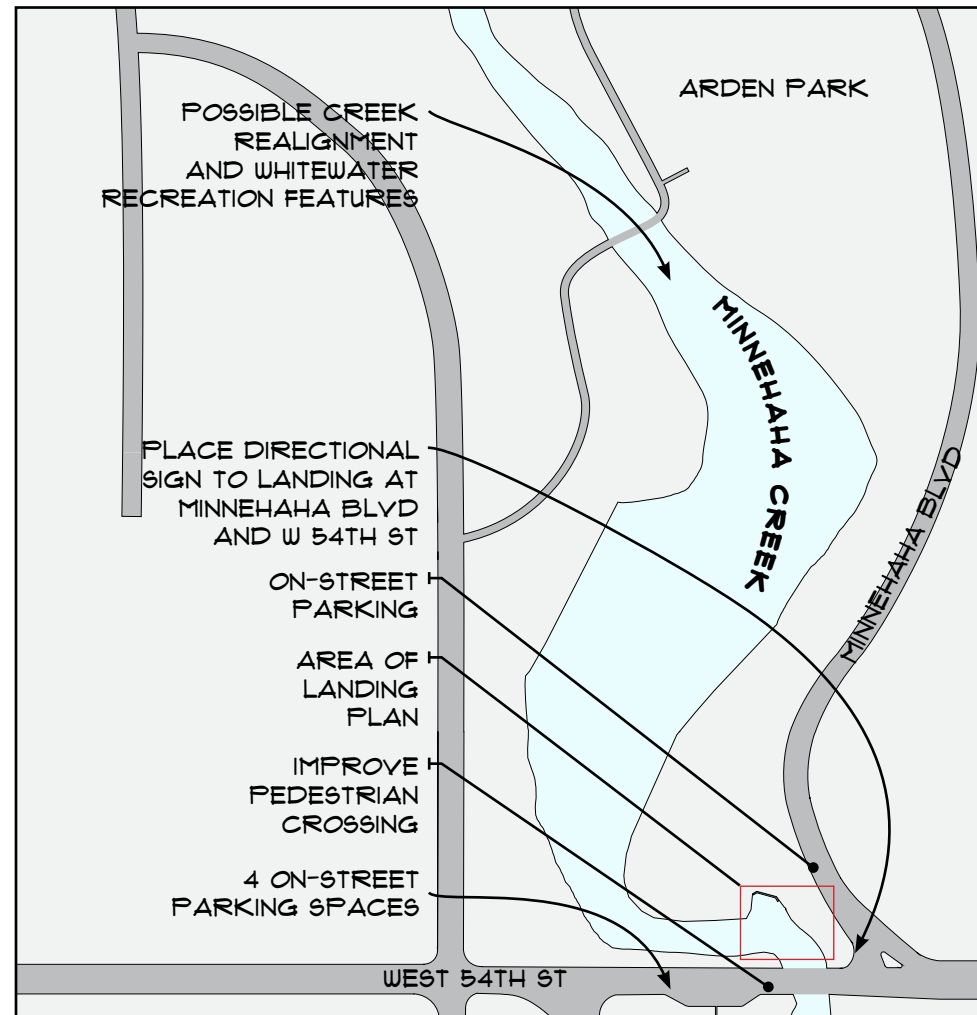
- Remove eroded landing and replace with slope reinforced landing
- Repair bank erosion and plant a native vegetative buffer
- Remove all outdated landing signage and replace with mile marker sign
- Install a canoe route map near the landing
- Install two designated canoe parking signs at nearest parking stalls
- Install a directional sign to landing at W 50th St and Utley Park Parking lot
- Improve physical and visual connection between Browndale Avenue landing and Creekside park, work with City of Edina to designate a pedestrian crossing for park users and paddlers

West 54th Street: North Landing Mile 9.5



Profile

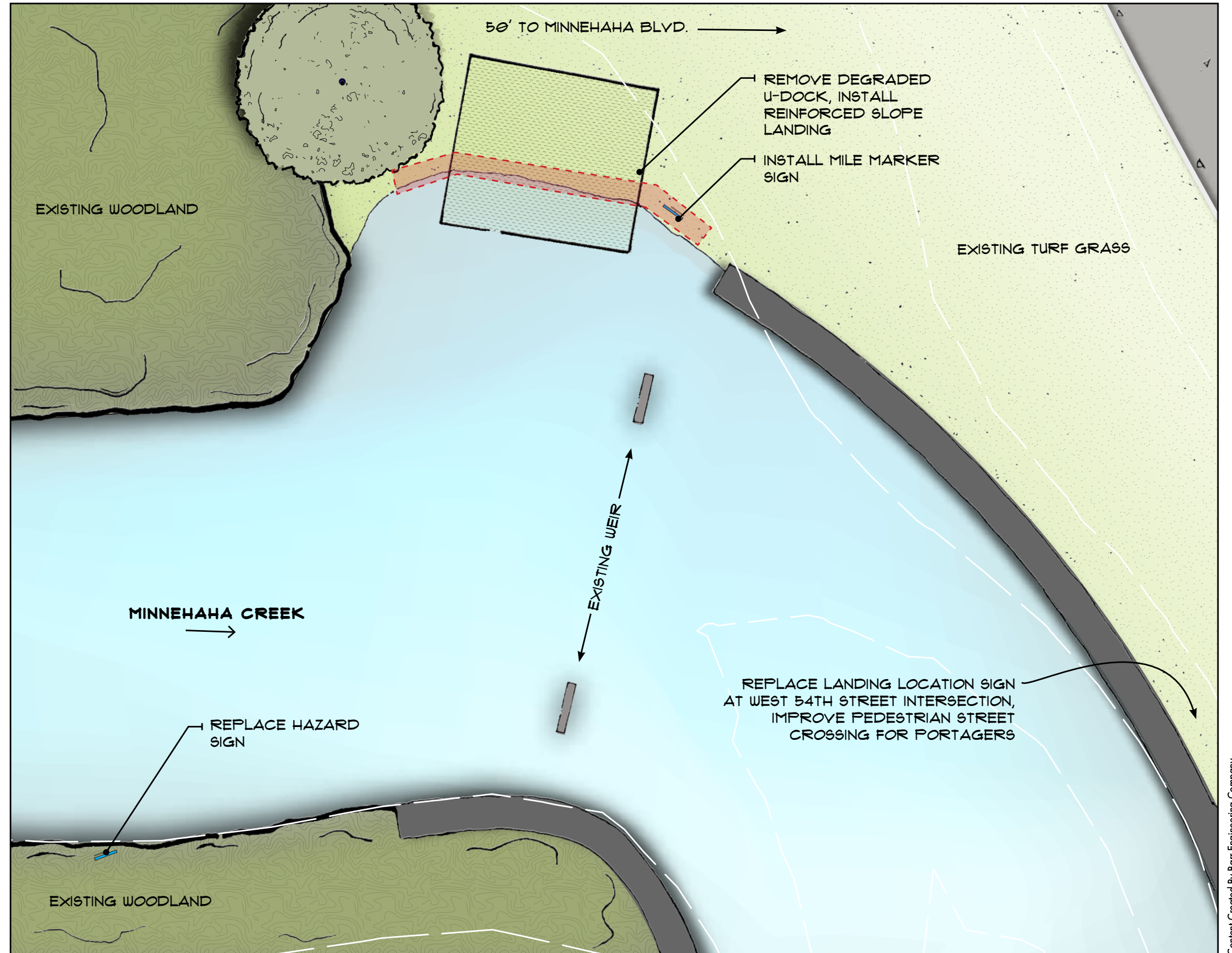
This landing is required to portage around a dangerous concrete weir in the channel. The portage requires paddlers to cross W 54th St. See note below regarding potential redesign of Arden Park.



Context Plan

Scale 1:200

* The District is working with the City of Edina to evaluate the possibility of eliminating the 54th St. dam and restoring the stream throughout Arden Park. If this moves forward, there would no longer be a need for landings on both sides of W 54th St, and it may make sense to add or relocate a landing upstream depending on the location of the new whitewater features. If the W 54th St dam is to remain use plan and recommendations shown here.



Landing Plan

Scale 1:10

Summary Of Site Recommendations

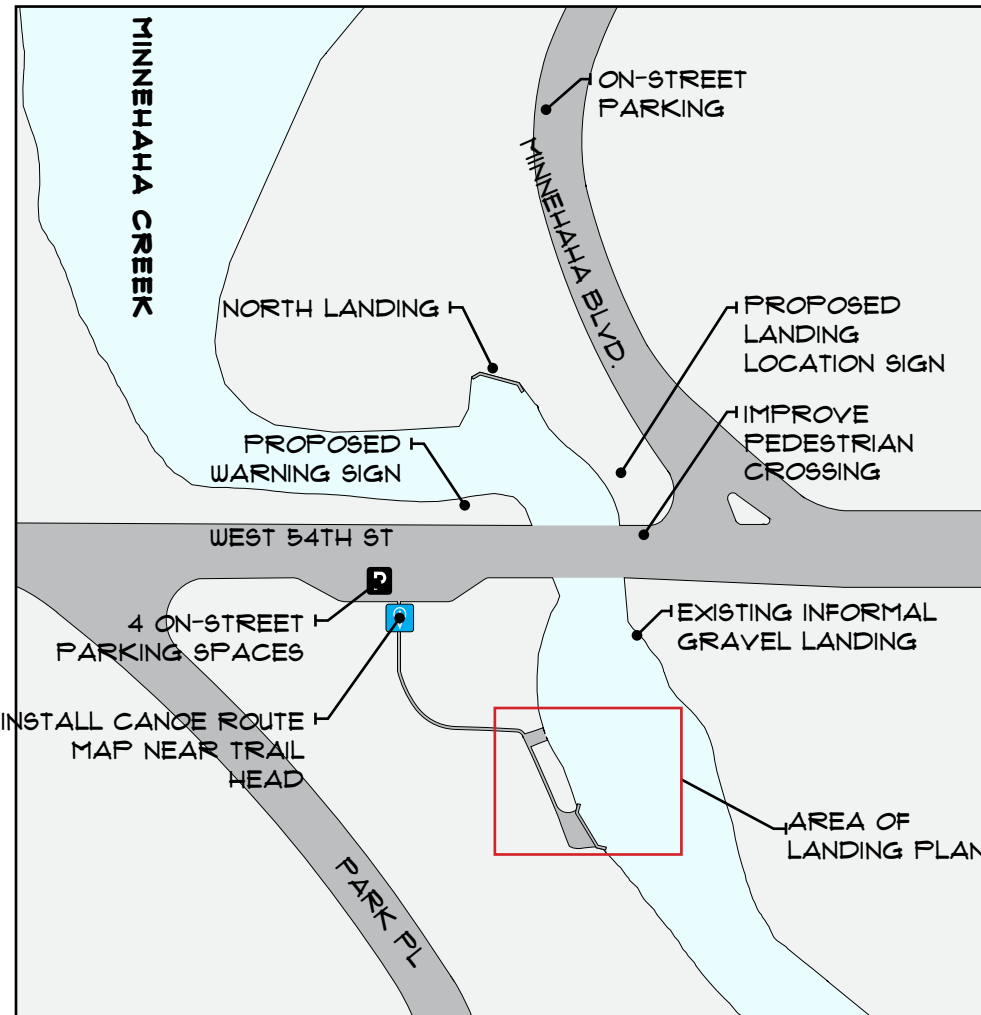
- Replace existing degraded u-dock with reinforced slope ramp
- Install a mile marker sign near the landing
- Replace the existing outdated hazard signage and replace with a new hazard sign in conspicuous location
- Replace directional sign to landing at West 54th street intersection
- Add portage/pedestrian crossing sign at intersection to improve safety for paddlers crossing West 54th Street

West 54th Street: South Landing Mile 9.5



Profile

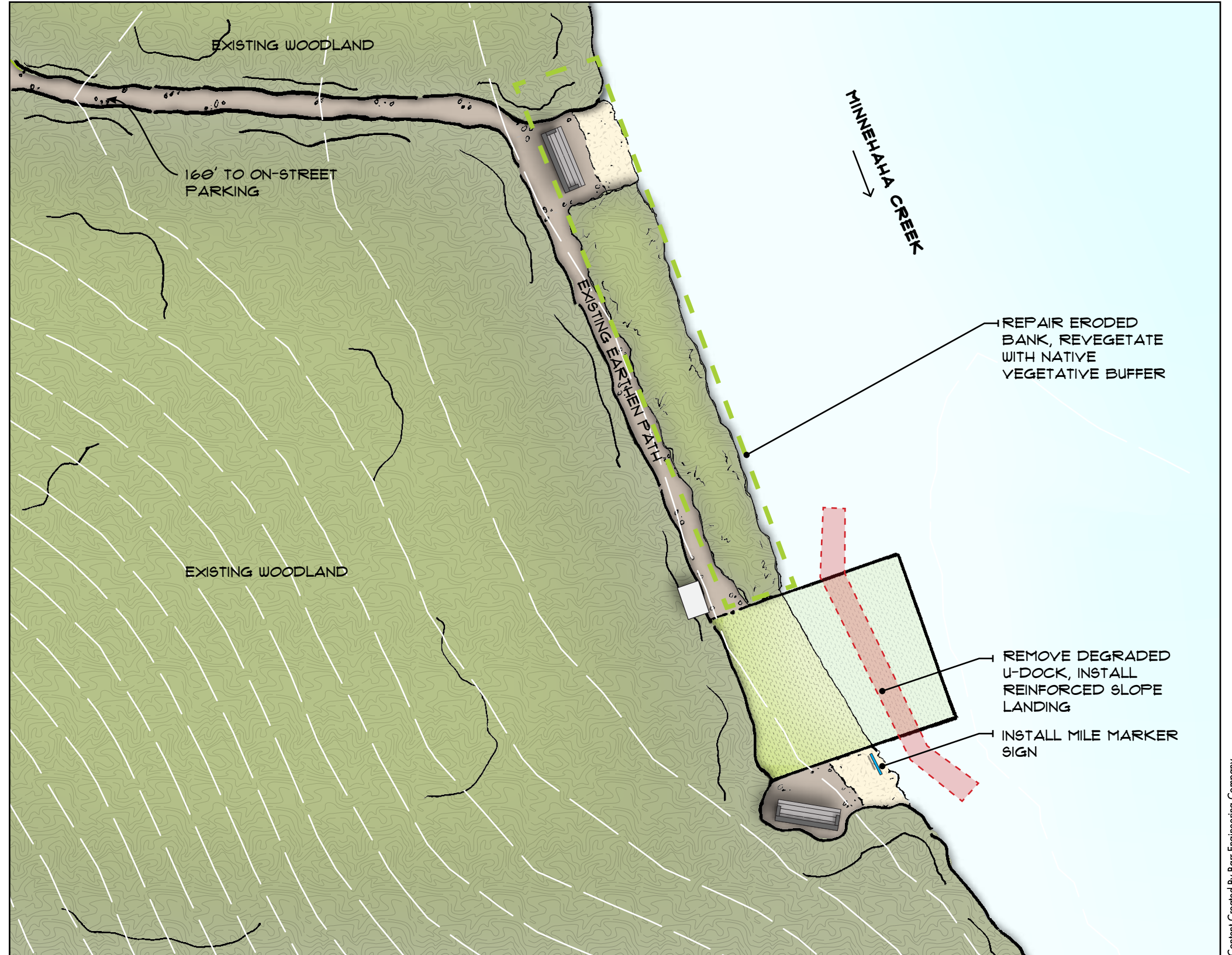
This landing is located on the south side of West 54th street and is required for paddlers following an upstream hazard. See note below regarding potential redesign of Arden Park.



Context Plan

Scale 1:100

* The District is working with the City of Edina to evaluate the possibility of eliminating the 54th St. dam and restoring the stream throughout Arden Park. If this moves forward, there would no longer be a need for landings on both sides of W 54th St, and it may make sense to add or relocate a landing upstream depending on the location of the new whitewater features. If the W 54th St dam is to remain use plan and recommendations shown here.



Landing Plan

Scale 1:10

Summary Of Site Recommendations

- Erosion behind the landing makes the current dock unusable
- Remove eroded u-dock landing and replace with reinforced slope landing
- Install a mile marker sign near the landing
- Install a canoe route map on open lawn area near the trail head

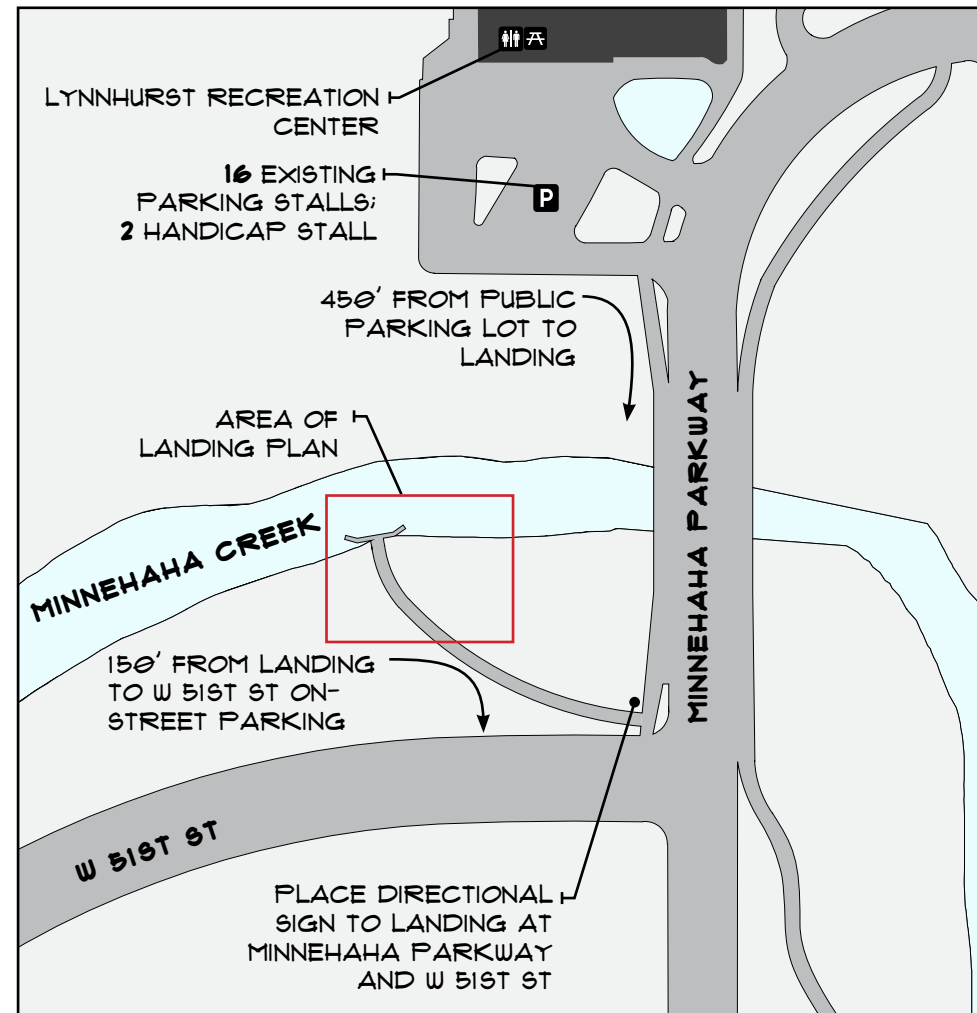
Lynnhurst Park

Mile 6.0



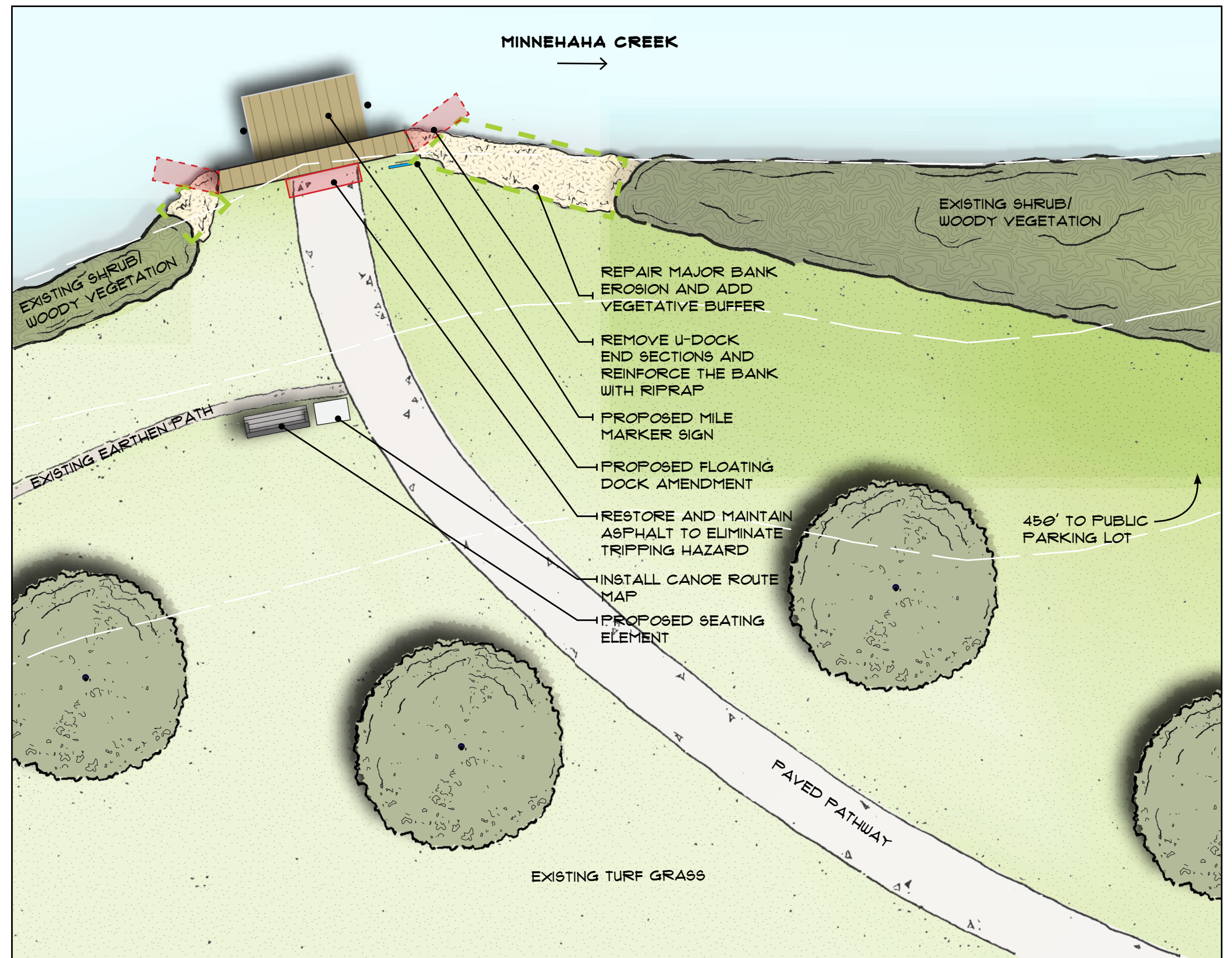
Profile

Parking is located at Lynnhurst Recreation Center located just north of W 51st St on Minnehaha Parkway. Lynnhurst Park offers numerous recreation activities including tennis, basketball, baseball, and soccer.



Context Plan

Scale 1:100



Landing Plan

Scale 1:10

Summary Of Site Recommendations

- Eddies (reversed current flow) formed behind protruding sections of the u-dock are causing bank erosion. In order to prevent further erosion remove unnecessary portions of u-dock and reinforce sides of remaining dock with rip-rap
- Repair paved asphalt at the landing
- Add floating dock amendment to function during seasonal changes in water flow levels
- Place seating element along heavily worn path
- Install a mile marker sign near the landing
- Install a canoe route map near the landing

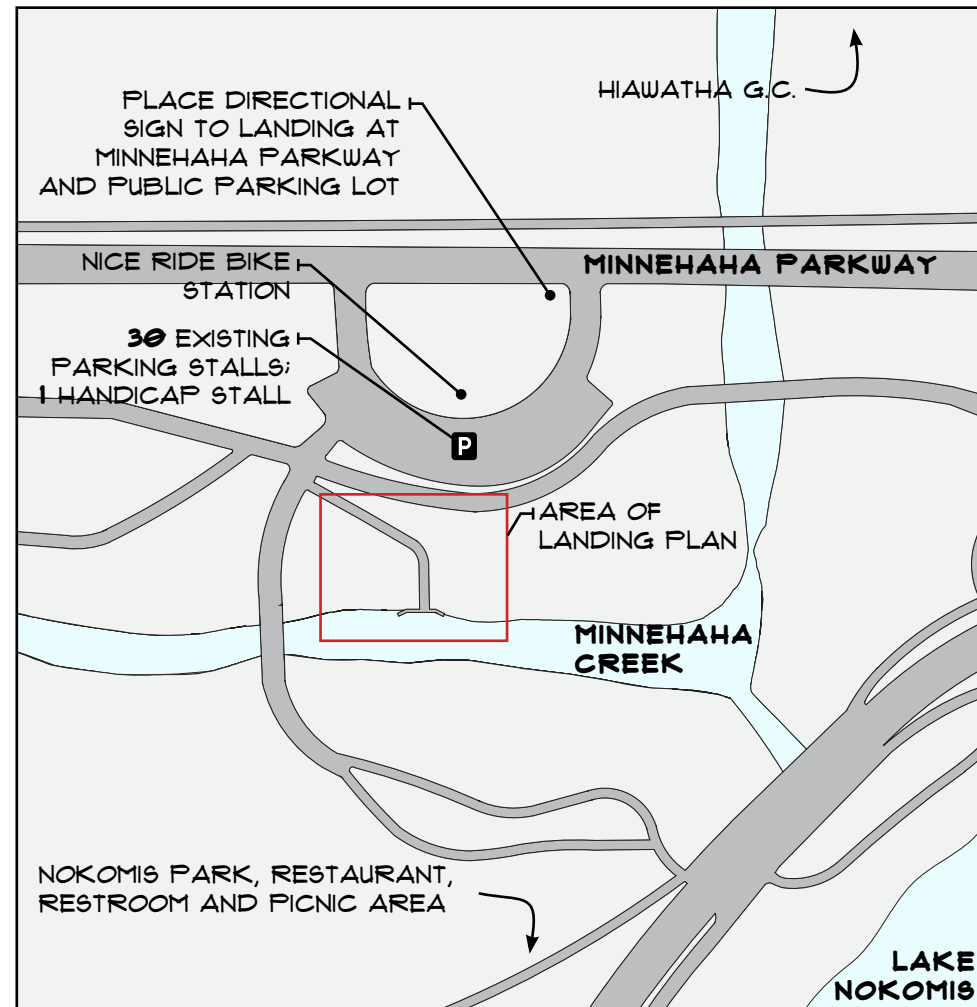
Lake Nokomis

Mile 2.0



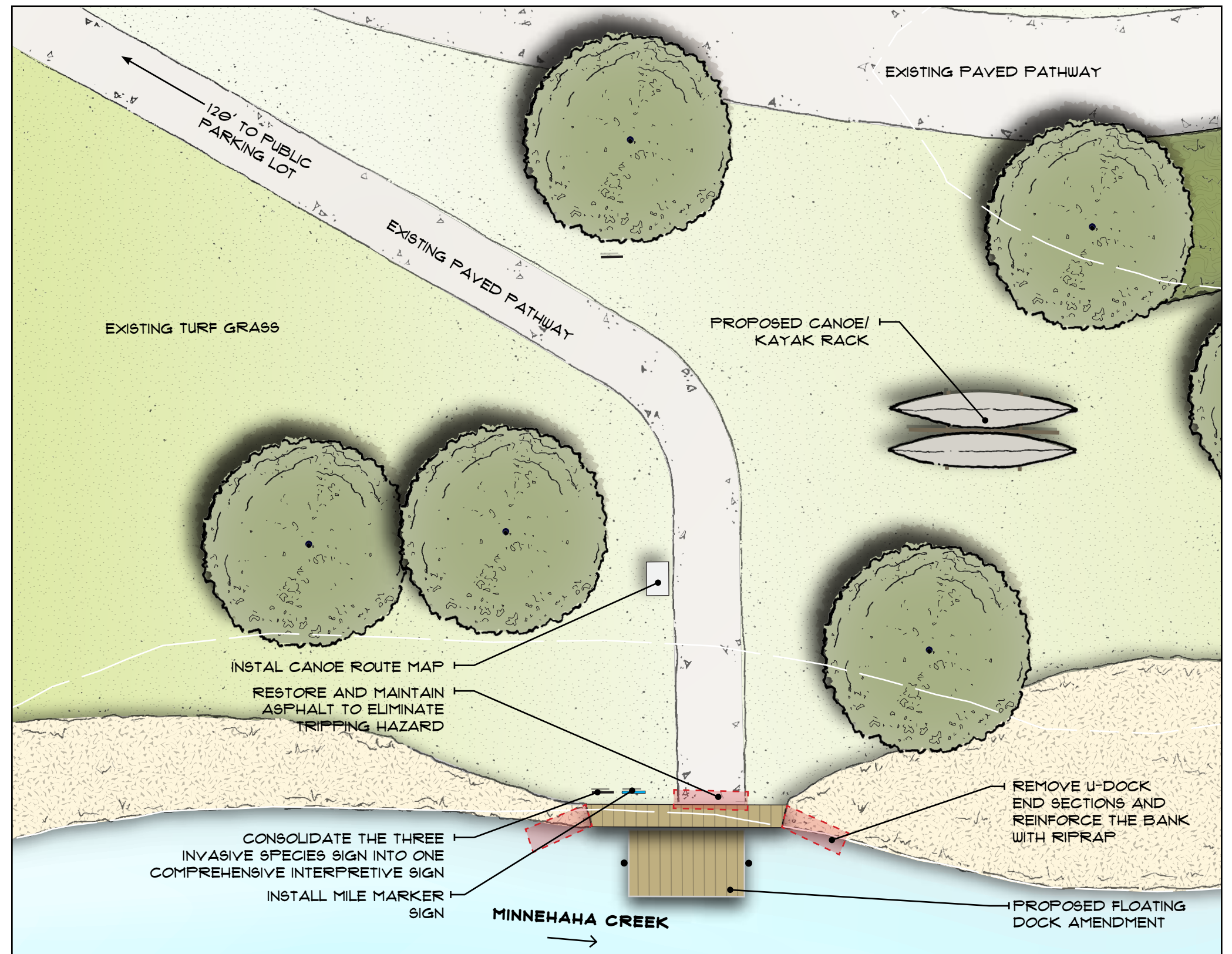
Profile

Bike rental, swimming beaches, picnic areas, and fishing piers are located near the Lake Nokomis canoe landing. Parking for the landing is available off of E Minnehaha Parkway.



Context Plan

Scale 1:100



Landing Plan

Scale 1:10

Summary Of Site Recommendations

- Eddies (reversed current flow) formed behind protruding sections of the u-dock are causing bank erosion. In order to prevent further erosion remove unnecessary portions of u-dock and reinforce sides of remaining dock with rip-rap
- Install non-reservable canoe/kayak rack
- Add floating dock amendment to function during seasonal changes in water flow levels
- Repair paved asphalt at the landing
- Install a mile marker sign near the landing
- Enhance and Maintain vegetative buffer surrounding the landing and creek to improve bank stability
- Install a canoe route map near the landing

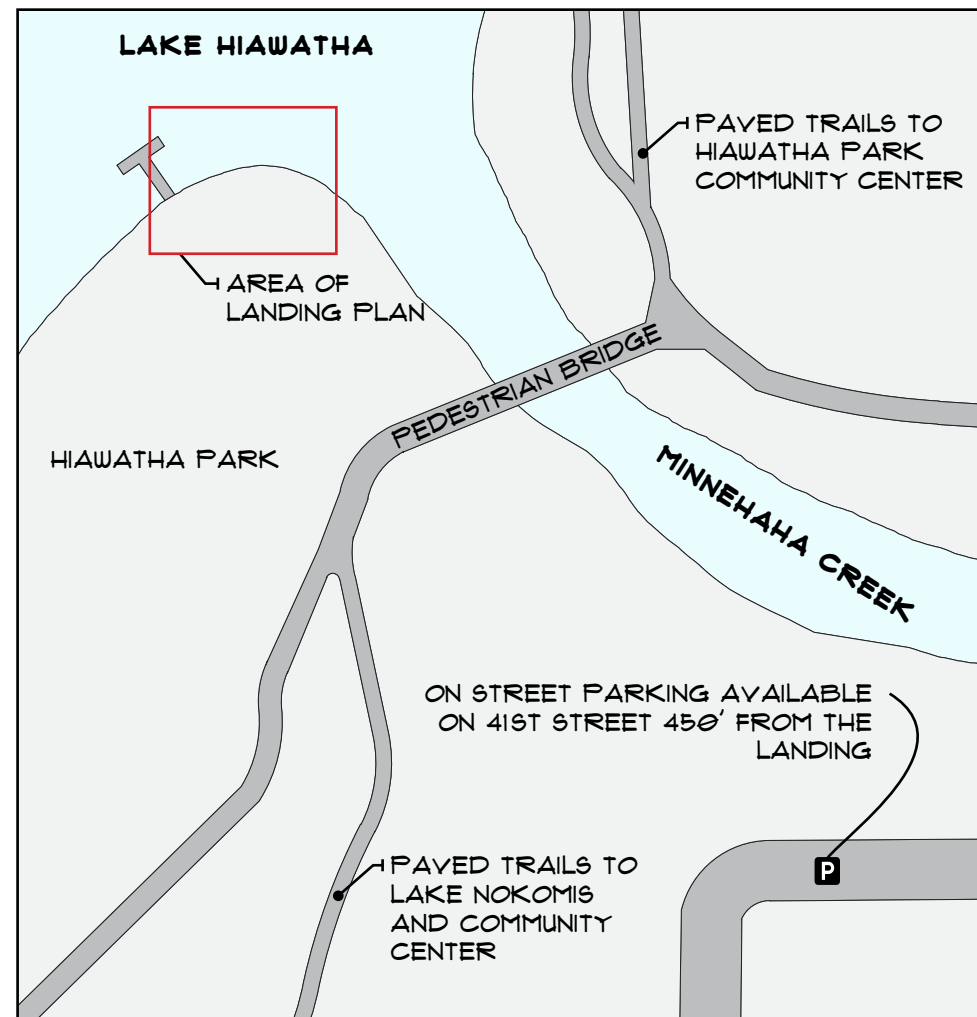
Lake Hiawatha

Mile 1.5



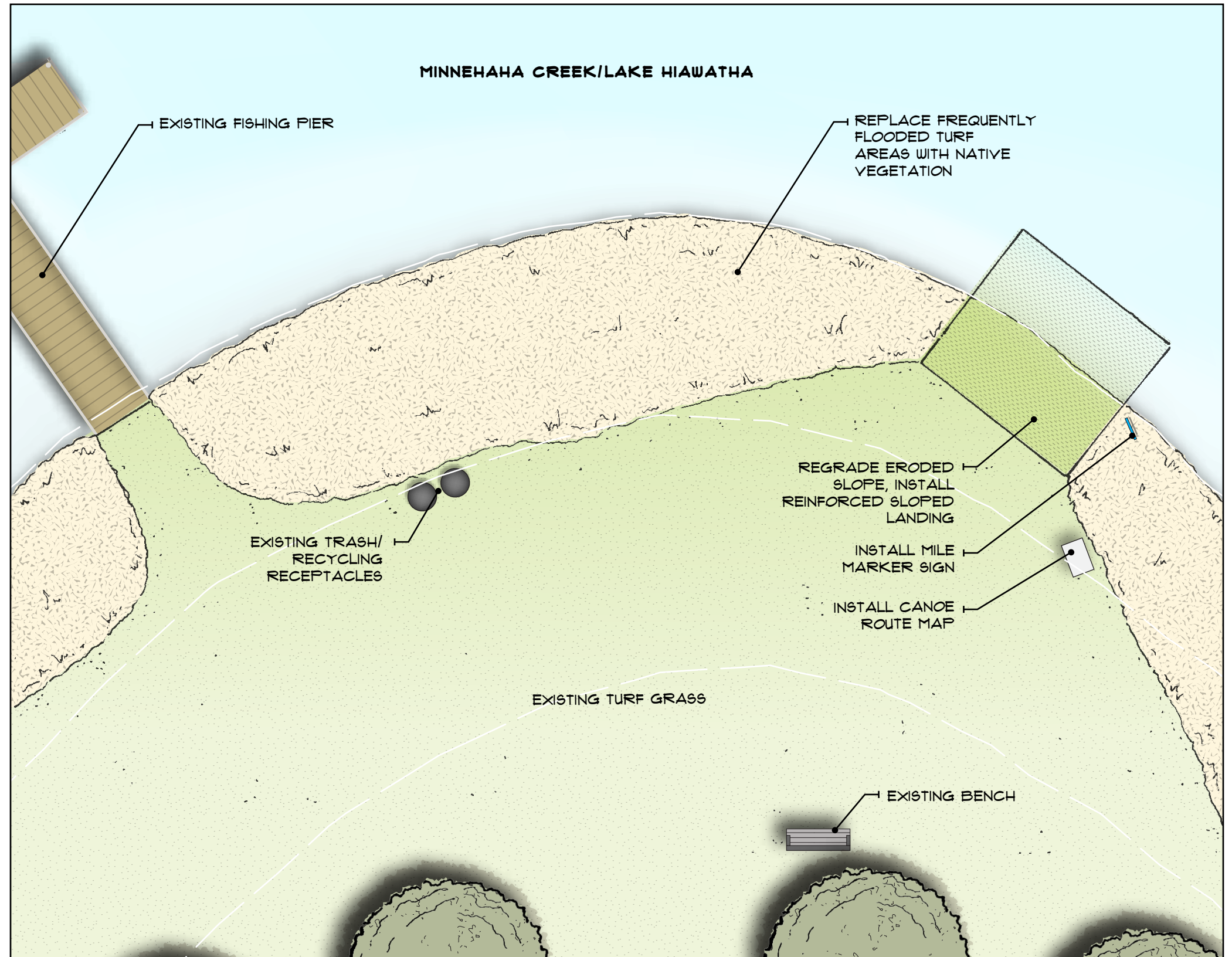
Profile

The creek flows across the south end of Lake Hiawatha. An informal craft landing and lake approach is located west of the fishing pier.



Context Plan

Scale 1:100



Landing Plan

Scale 1:10

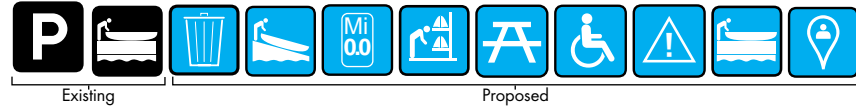
Summary Of Site Recommendations

- Repair eroded slope and install reinforced vegetative ramp
- Plant a native vegetative buffer to replace turf areas where erosion and frequent flooding occurs
- Maintain trash and seating elements for paddlers and fishing pier users
- Install a mile marker near the landing
- Install a canoe route map near the landing

Content Created By Barr Engineering Company

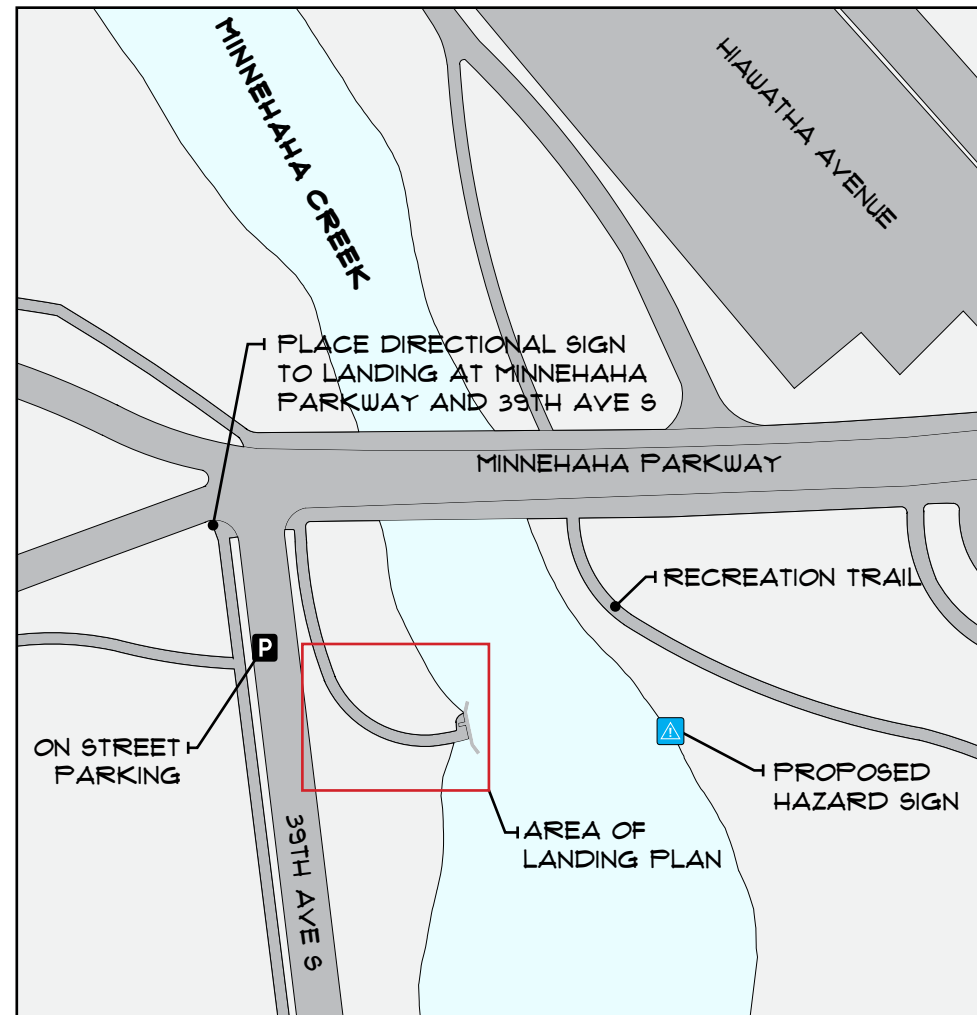
Longfellow Lagoon

Mile 0.0



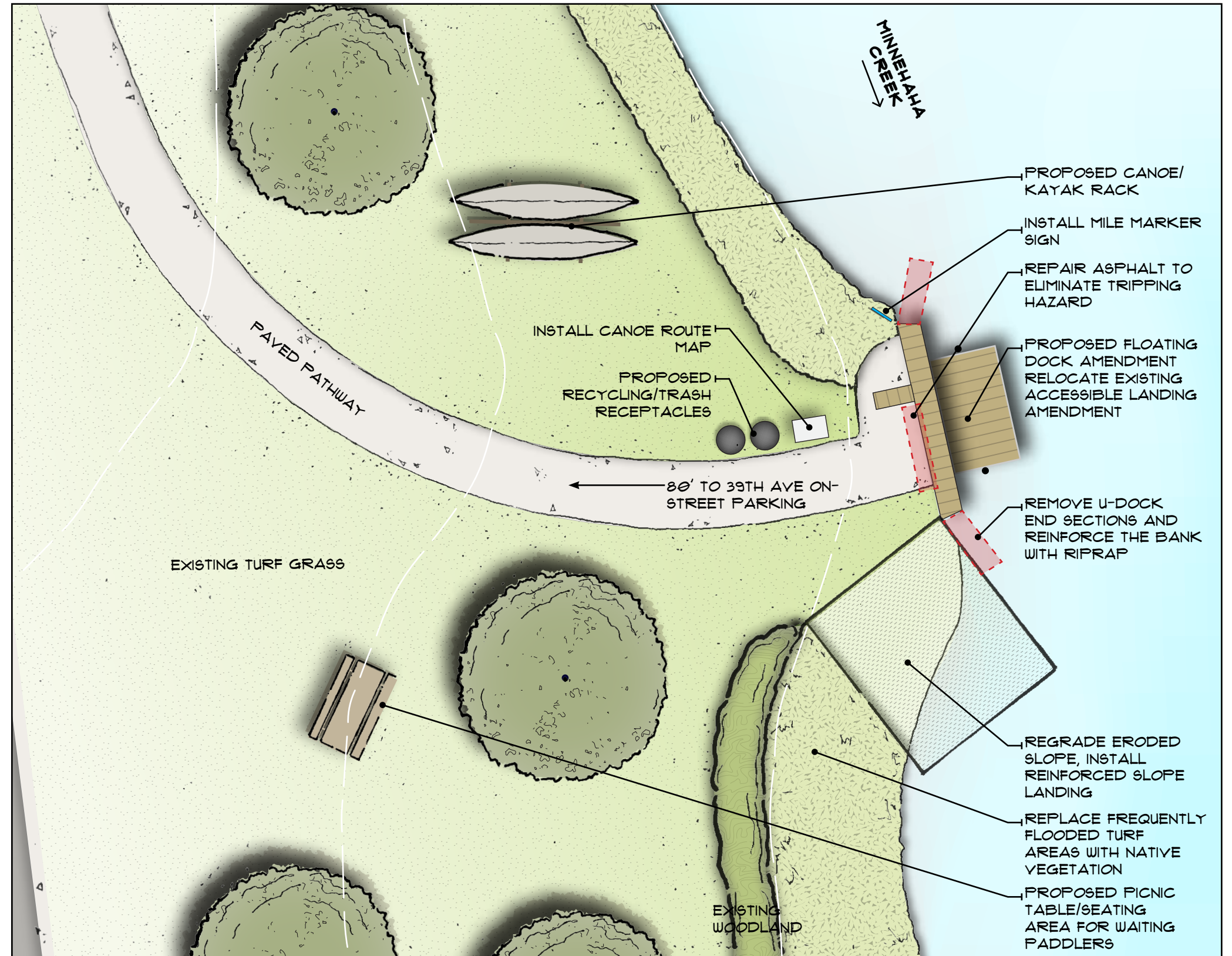
Profile

All paddlers must land at this end point of the canoe route. On-street parking is available.



Context Plan

Scale 1:100



Landing Plan

Scale 1:10

Summary Of Site Recommendations

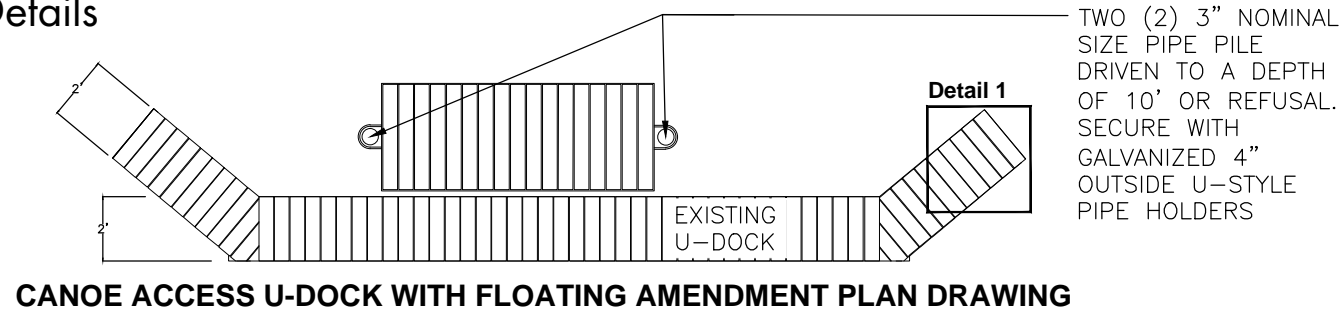
- Convert eroded slope south of U-dock and instal reinforced sloped landing
- Eddies (reversed current flow) formed behind protruding sections of the u-dock are causing bank erosion. In order to prevent further erosion remove unnecessary portions of u-dock and reinforce sides of remaining dock with rip-rap
- Add a picnic/seating area for enhanced user experience
- Install non-reservable canoe/kayak rack
- Add floating dock amendment with accessible amendment to function during seasonal changes in water flow levels
- Install hazard sign in conspicuous location
- Install final mile marker sign and canoe route map near the landing

Appendix

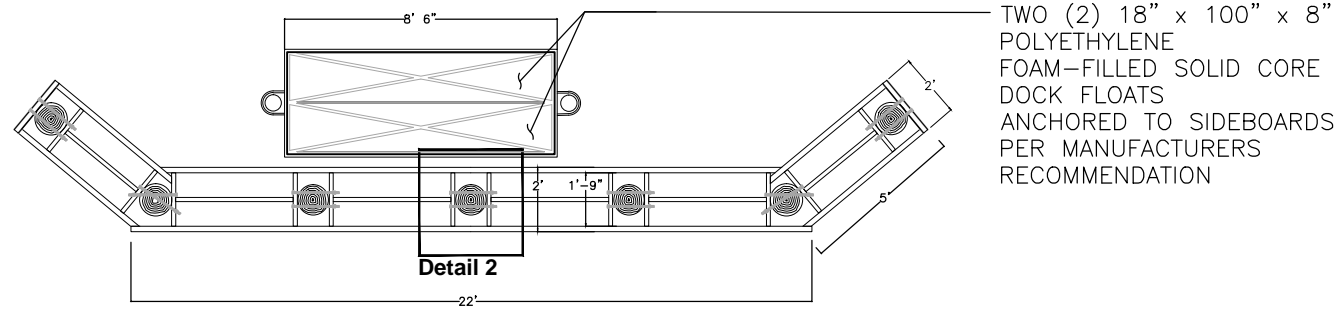


Modified U-Dock

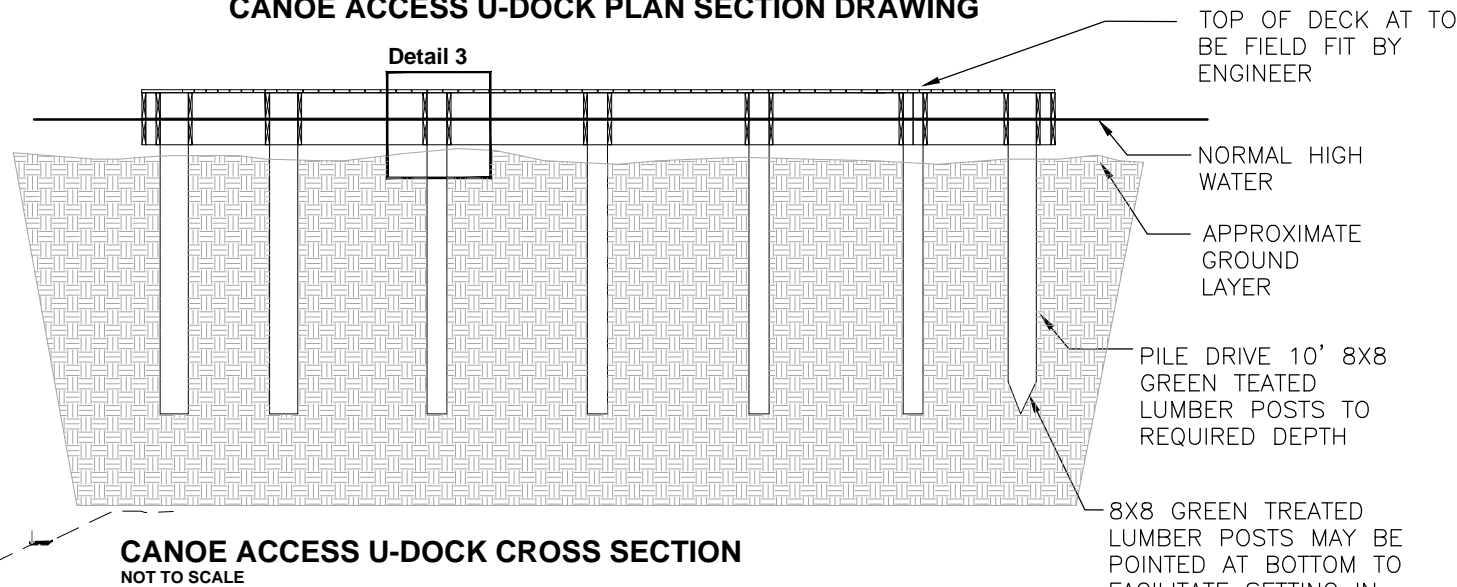
Landing Details



TWO (2) 3" NOMINAL SIZE PIPE PILE DRIVEN TO A DEPTH OF 10' OR REFUSAL. SECURE WITH GALVANIZED 4" OUTSIDE U-STYLE PIPE HOLDERS



TWO (2) 18" x 100" x 8" POLYETHYLENE FOAM-FILLED SOLID CORE DOCK FLOATS ANCHORED TO SIDEBOARDS PER MANUFACTURERS RECOMMENDATION



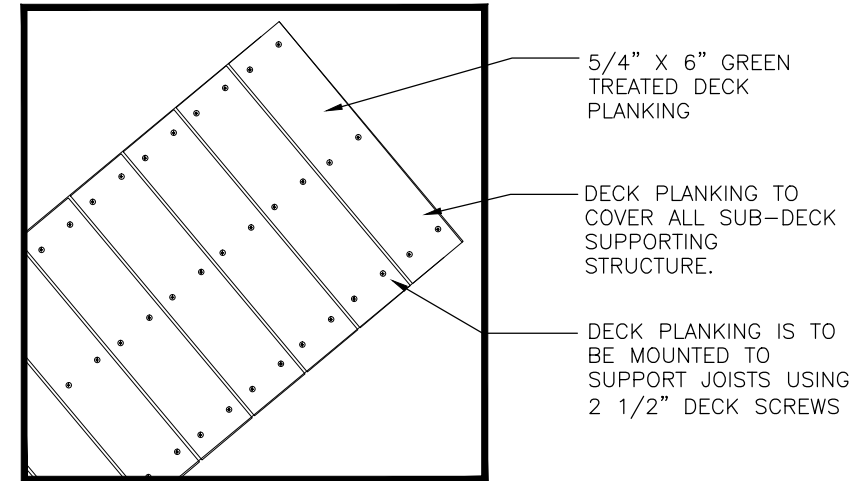
TOP OF DECK AT TO BE FIELD FIT BY ENGINEER
NORMAL HIGH WATER
APPROXIMATE GROUND LAYER
PILE DRIVE 10' 8X8 GREEN TEATED LUMBER POSTS TO REQUIRED DEPTH
8X8 GREEN TREATED LUMBER POSTS MAY BE POINTED AT BOTTOM TO FACILITATE SETTING IN GROUND. RETAIN 10' LENGTH

GENERAL NOTES:

1. Planking is to be Green Treated 5/4"X6" Nominal Lumber, attached to support members with exterior grade, rust resistant 2 1/2" Deck Screws.
2. External Face Plate / Support to be 2"X10" Green Treated Lumber fastened with 6" Deck Screws.
3. Internal Cross Support members to be 2"X10" Green Treated Lumber fastened to center 8"X8" posts with 12" Galvanized or Stainless Steel 1/2" Through Bolt with Washers and Lock Nuts. Each Cross support is to be supported by four bolt assemblies.
4. Center Planking Supports are to be 2"X6" Nominal Green Treated Lumber mounted to center Cross Supports with Galvanized Joist Hangers and Deck Screws.
5. Posts are to be 12' X 8"X8" Nominal Green Treated Lumber, pile driven to depth required for above ground elevations. Bottom of Posts may be cut to form a point in order to facilitate setting in place.

Detail 1 - Plan

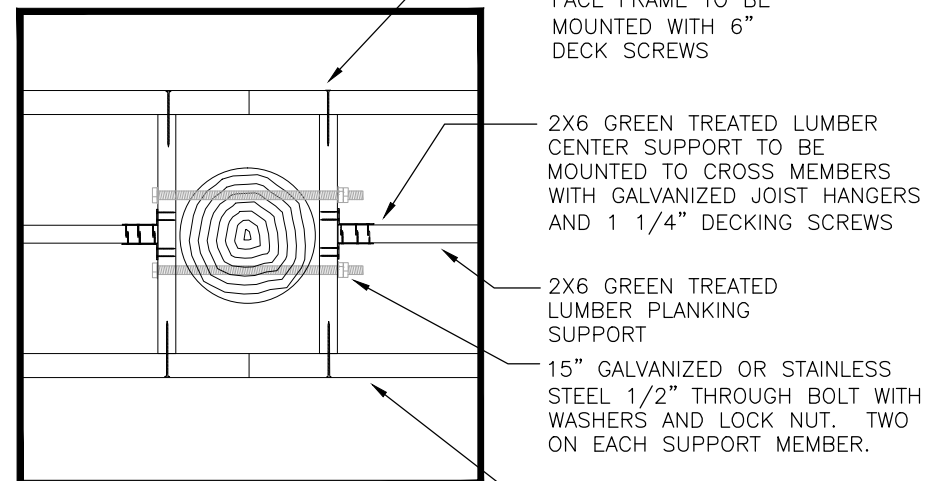
(Not To Scale)



5/4" X 6" GREEN TREATED DECK PLANKING
DECK PLANKING TO COVER ALL SUB-DECK SUPPORTING STRUCTURE.
DECK PLANKING IS TO BE MOUNTED TO SUPPORT JOISTS USING 2 1/2" DECK SCREWS

Detail 2 - Plan Section

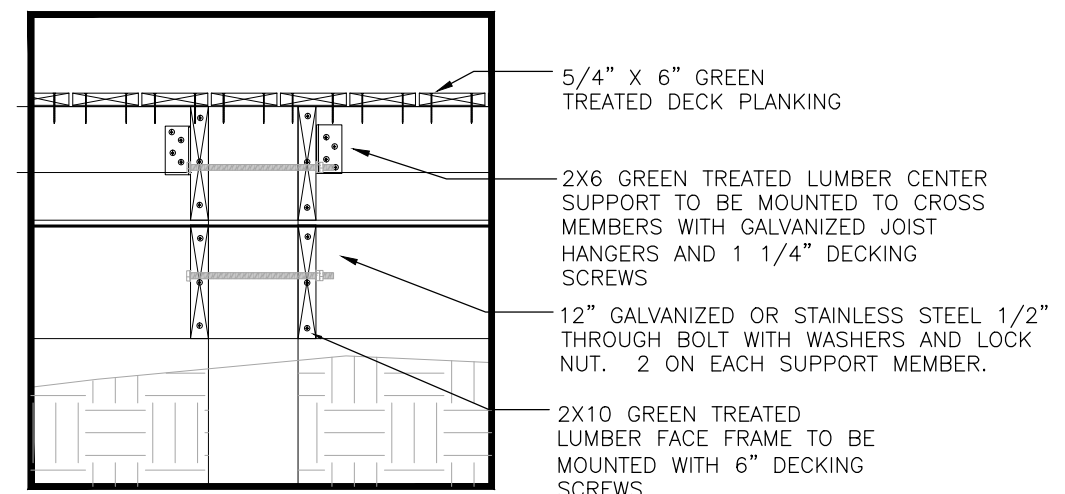
(Not To Scale)



2X10 GREEN TREATED LUMBER FACE FRAME TO BE MOUNTED WITH 6" DECK SCREWS
2X6 GREEN TREATED LUMBER CENTER SUPPORT TO BE MOUNTED TO CROSS MEMBERS WITH GALVANIZED JOIST HANGERS AND 1 1/4" DECKING SCREWS
2X6 GREEN TREATED LUMBER PLANKING SUPPORT
15" GALVANIZED OR STAINLESS STEEL 1/2" THROUGH BOLT WITH WASHERS AND LOCK NUT. TWO ON EACH SUPPORT MEMBER.

Detail 3 - Cross Section

(Not To Scale)



5/4" X 6" GREEN TREATED DECK PLANKING
2X6 GREEN TREATED LUMBER CENTER SUPPORT TO BE MOUNTED TO CROSS MEMBERS WITH GALVANIZED JOIST HANGERS AND 1 1/4" DECKING SCREWS
12" GALVANIZED OR STAINLESS STEEL 1/2" THROUGH BOLT WITH WASHERS AND LOCK NUT. 2 ON EACH SUPPORT MEMBER.
2X10 GREEN TREATED LUMBER FACE FRAME TO BE MOUNTED WITH 6" DECKING SCREWS

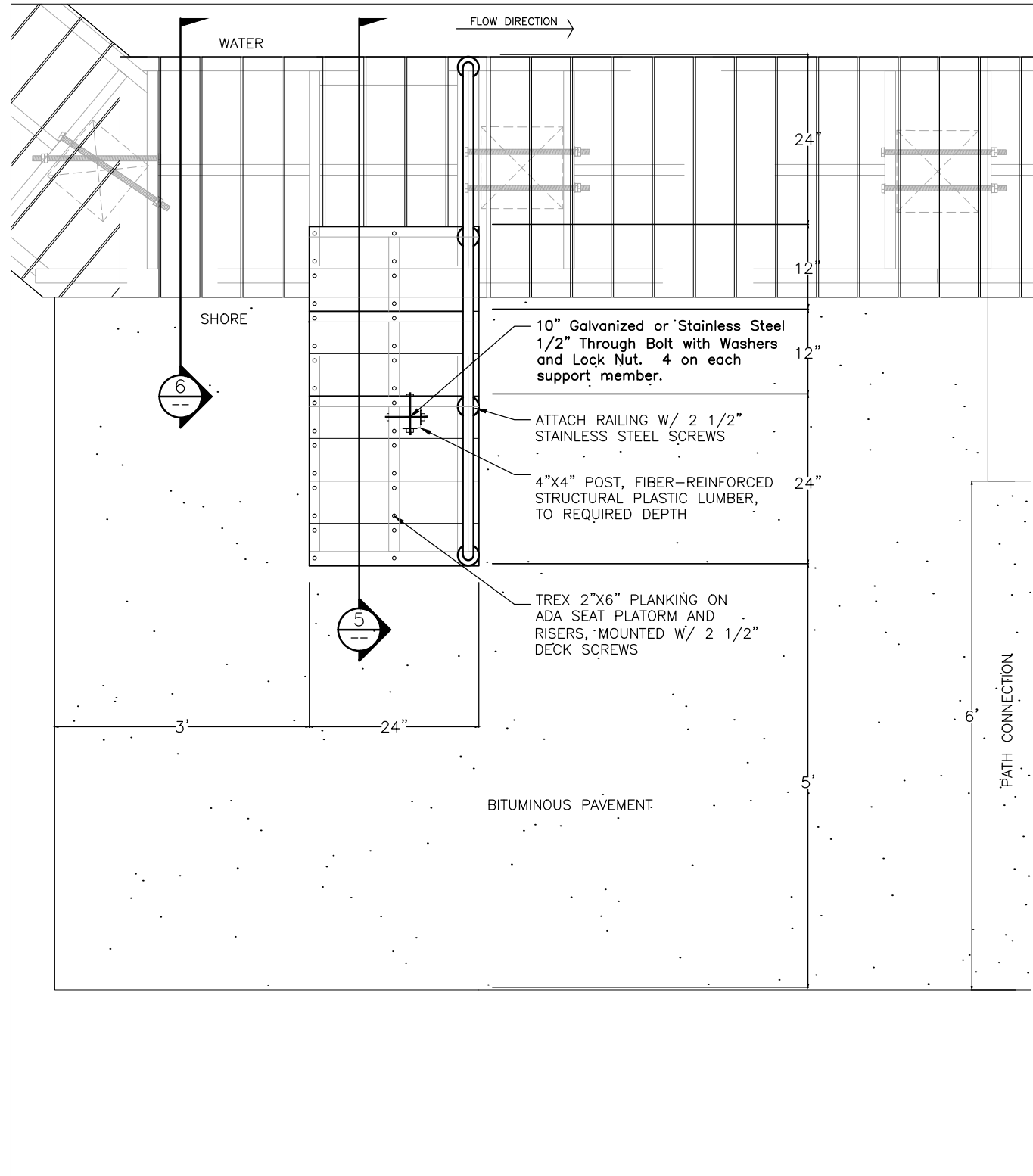
PRELIMINARY
DRAFT

Modified Accessible Dock

Landing Details

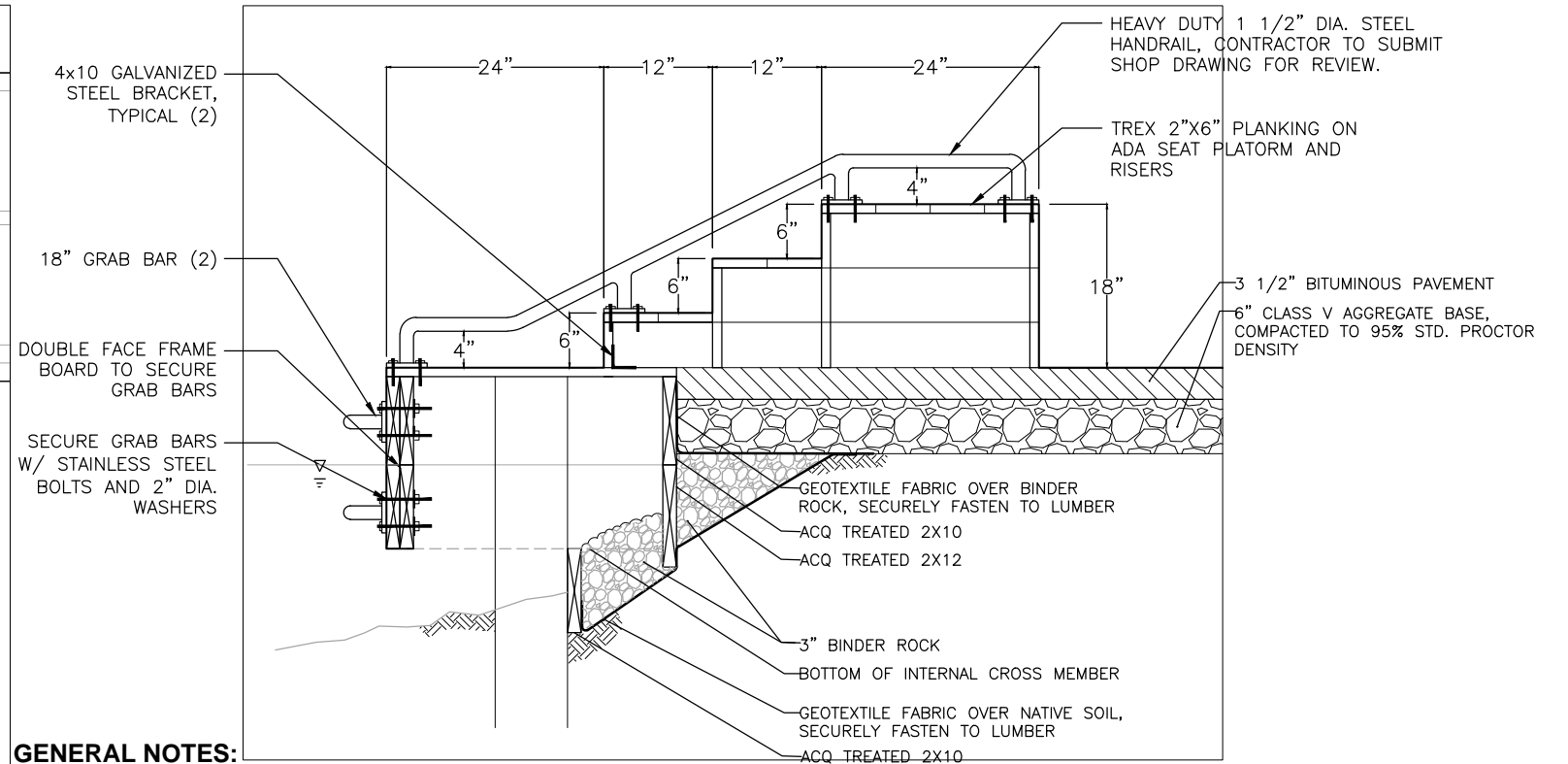
Detail 4 - ADA Transfer Platform Plan

(Not To Scale)



Detail 5 - ADA Transfer Platform Section

(Not To Scale)

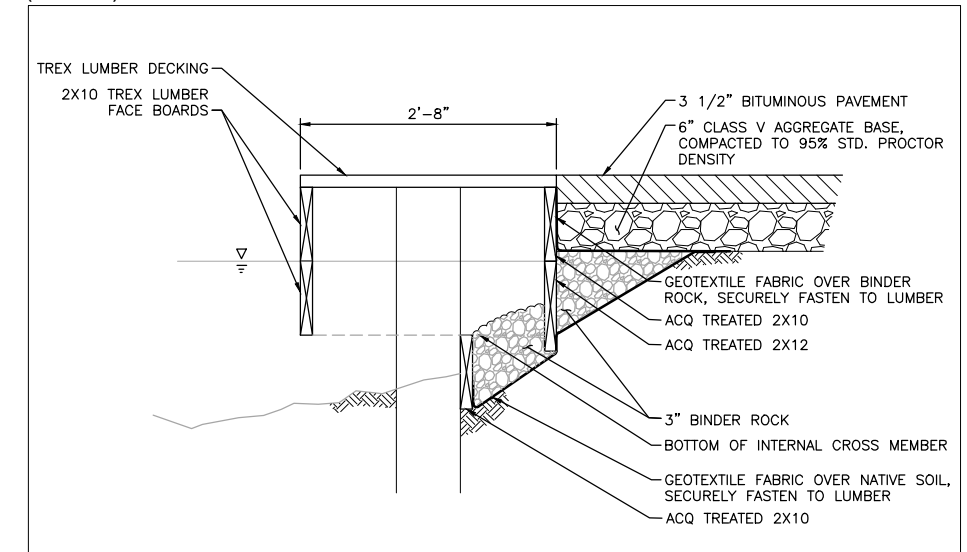


GENERAL NOTES:

1. Planking is to be Trex 2" X 6" Nominal Lumber, attached to support members with exterior grade, rust resistant 2 1/2" composite screws.
2. Install Trex Lumber per manufacture's instructions, minimum gap between Trex boards 1/4".
3. External Face Plate / Support to be 2"x10" ACQ Treated Lumber fastened with 6" Deck Screws.
4. Internal Cross Support members to be 2"x10" ACQ Treated Lumber fastened to center 8"x8" posts with 12" Galvanized or Stainless Steel 1/2" Through Bolt with Washers and Lock Nuts. Each Cross support is to be supported by four bolt assemblies.
5. Center Planking Supports are to be 2"x6" ACQ Treated Lumber mounted to center Cross Supports with Galvanized Joist Hangers and Deck Screws.
6. Posts are to be 12' X 8"x8" Nominal Fiber Reinforced Structural Plastic Lumber, pile driven to depth required for above ground elevations. Bottom of Posts may be cut to form a point in order to facilitate setting in place.
7. Potential recycled plastic supplier: EPS Plastics; <http://epsplasticlumber.com>; 847-462-9001.
8. Color to be approved by Project Engineer.
9. Backfill shore side of dock w/ granular fill to match existing shore grade.

Detail 6 - Cross Section: Dock Adjoining Bituminous Pavement

(Not To Scale)



PRELIMINARY DRAFT

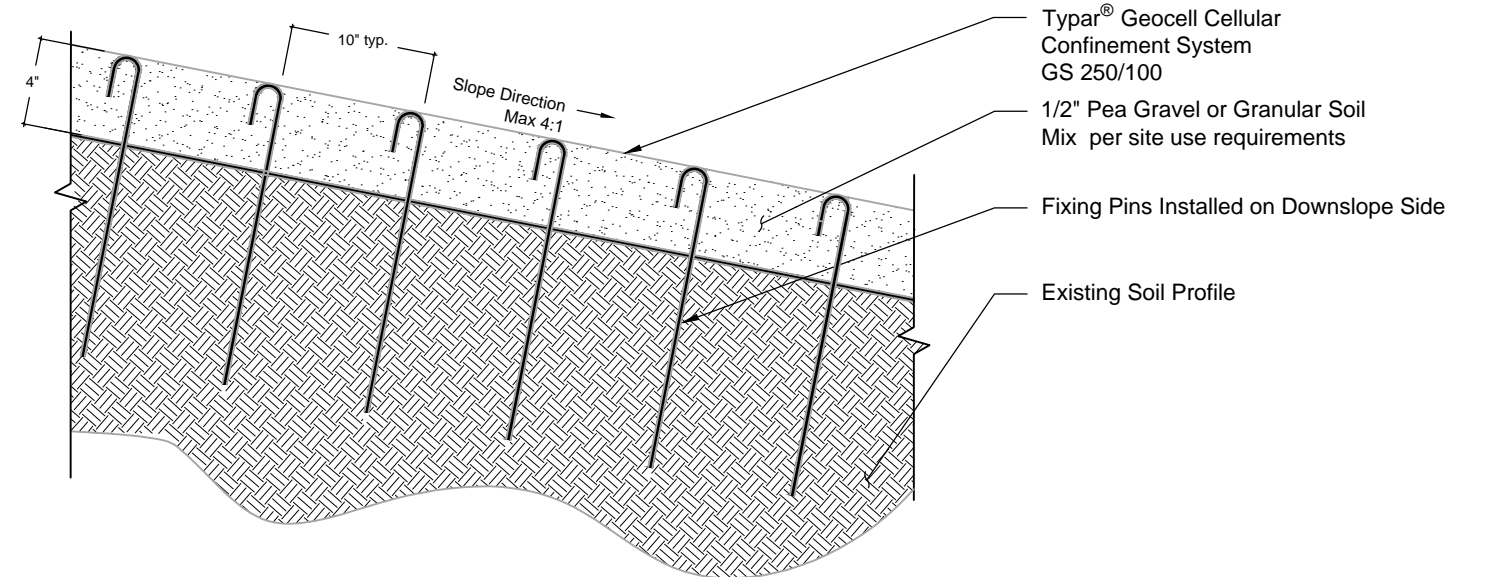
Reinforced Slope Landing

Landing Details

REINFORCED SLOPE LANDING GENERAL NOTES

1. THE DETAILS INCLUDED MUST BE ADJUSTED FOR EACH LANDING'S CONDITIONS. EACH SITE SHALL BE DESIGNED BY A LANDSCAPE ARCHITECT OR ENGINEER PRIOR TO INSTALLATION.
2. ALL PRECAUTIONS SHALL BE TAKEN TO PROTECT SURROUNDING VEGETATION INCLUDING THE USE OF LOW GROUND PRESSURE EQUIPMENT, LIMITING STOCKPILING OR TRAVEL WITHIN TREE ROOT ZONES, AND GRADING NO FURTHER THAN REQUIRED TO ACHIEVE THE APPROPRIATE WIDE AND DEPTH FOR THE REINFORCED SLOPE LANDING.
3. GRADE SURROUNDING SLOPES TO CREATE A MINIMUM 10' WIDE BY 20' LONG CRAFT LANDING AREA TO BE OF SLOPE NO GREATER THAN 3:1.
4. INSTALL TYPAR GEOWEB CELLULAR CONFINEMENT SYSTEM GS 250/100 PER MANUFACTURERS RECOMMENDATIONS. IN LOCATION THAT RECEIVE HIGHER NUMBERS OF SEASONAL BOATERS, INSTALL PEA GRAVEL BACKFILL. AT LANDINGS THAT ARE USED LESS FREQUENTLY, INSTALL SOIL MIXTURE AND SEED WITH SPECIFIED SEED MIX WITH ESTABLISHMENT PERIOD.
5. INSTALL MN/DOT TYPE 2 ALL NATURAL WEBBING AND NETTING COIR FIBER EROSION CONTROL BLANKET PER MANUFACTURERS RECOMMENDATIONS AT ANY DISTURBED SOIL AREAS SURROUNDING GEOWEB. EROSION CONTROL BLANKET MUST EXTEND BEYOND EDGE OF DISTURBED AREA (CLEAR AND GRUB LIMIT)
6. RESTORATION SEED MIXES SHALL BE DEVELOPED FOR EACH SITE IN ORDER TO APPROPRIATELY MATCH SITE CONDITIONS.

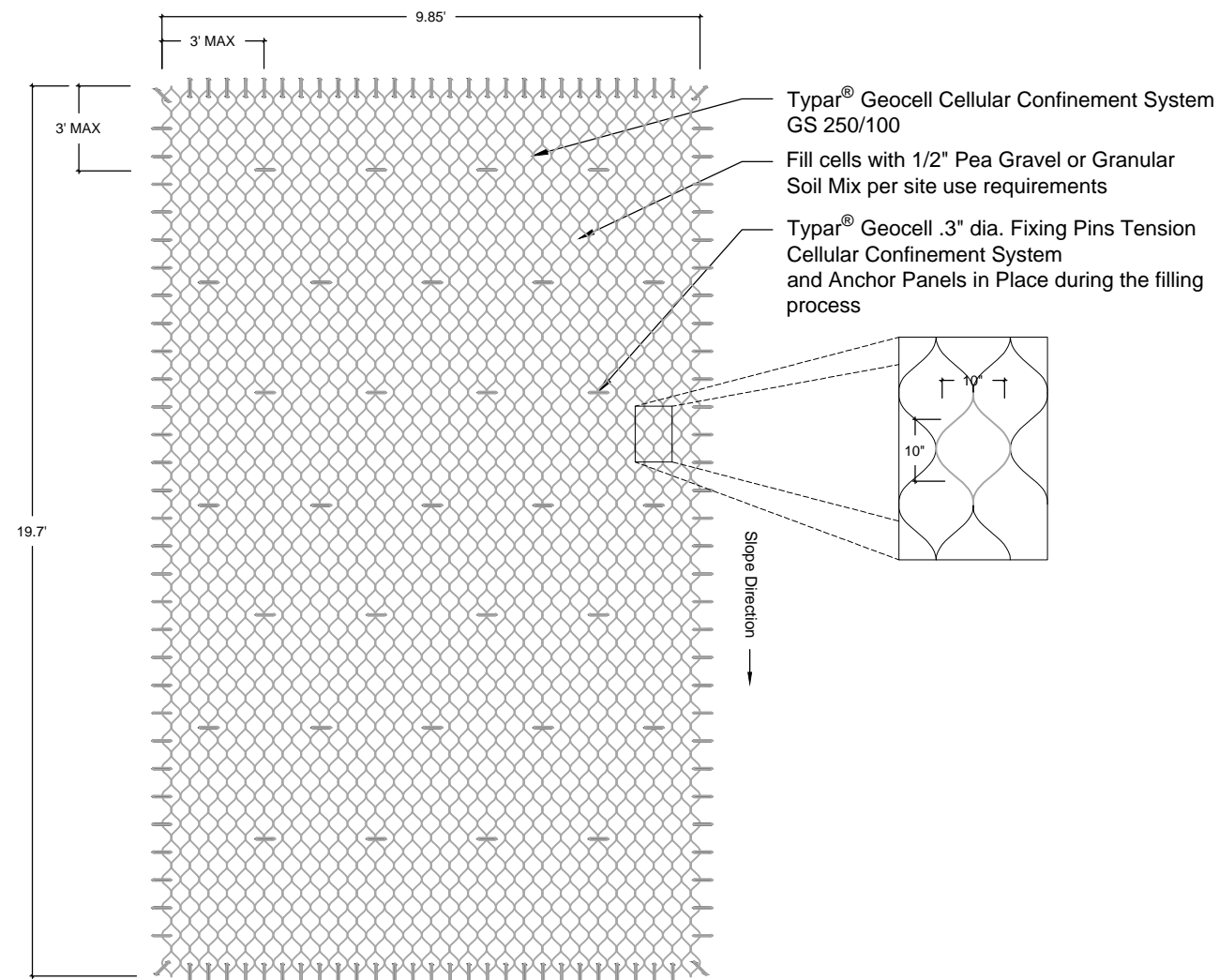
Detail 1 - Typar GS 250/100
Not to Scale



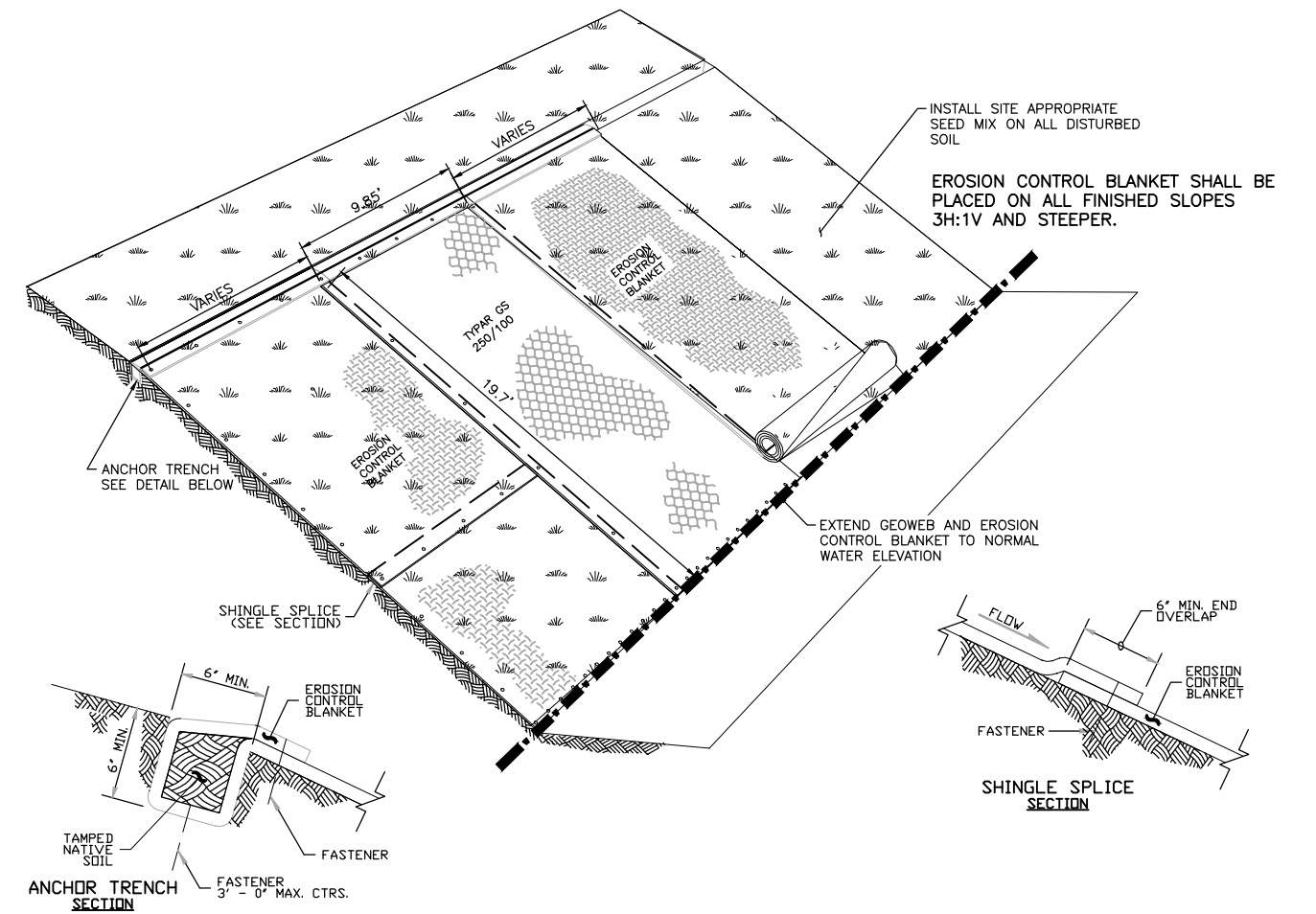
Reinforced Slope Landing

Landing Details

Detail 2 - Typar GS 250/100 Anchor Layout
Not to Scale



Detail 3 - Erosion Control Blanket Adjacent to Geoweb
Not to Scale

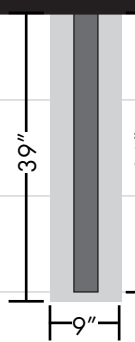
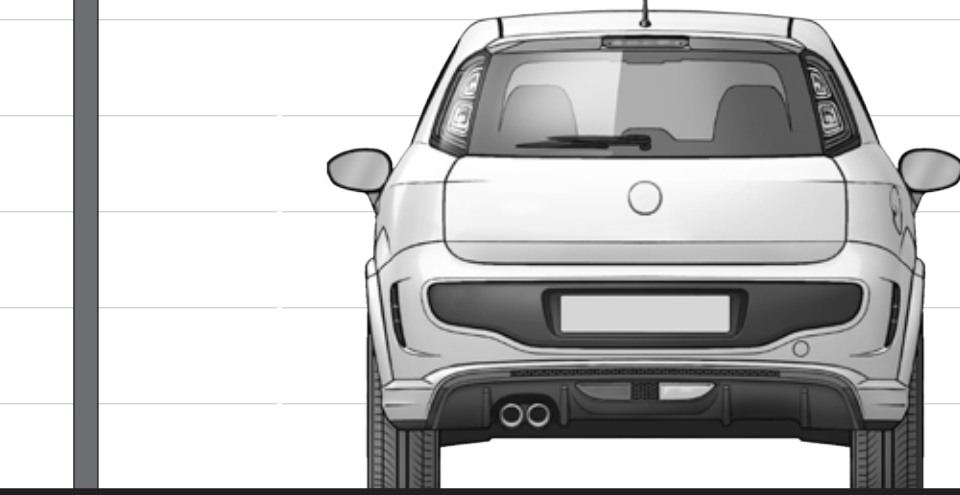
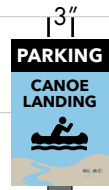


Signage Design Standards

Scale: 1/2" = 1'

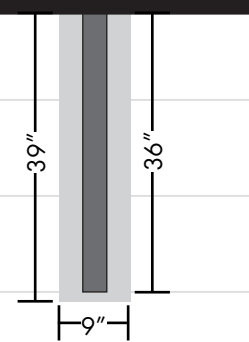
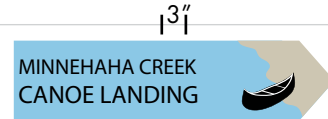
Canoe Parking

Qty = 5
Dim: 12" x 18"



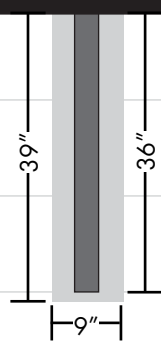
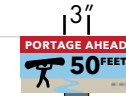
Directional Signage to Landing

Qty = 17
Dim: 40" x 10"



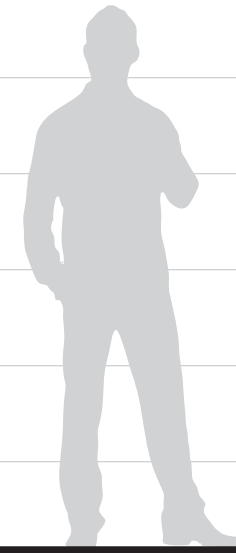
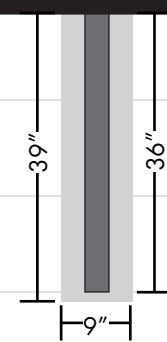
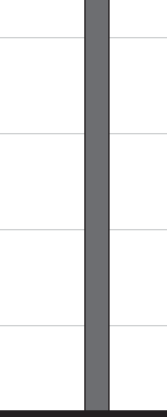
Hazard

Qty = 3
Dim: 14" x 7"



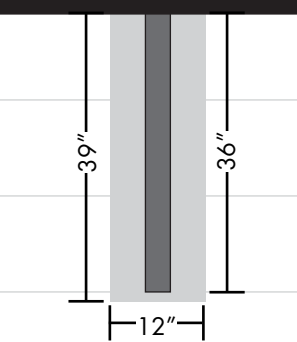
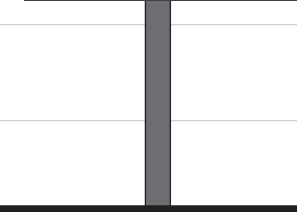
Mile Marker

Qty = 18
Dim: 11" x 7"



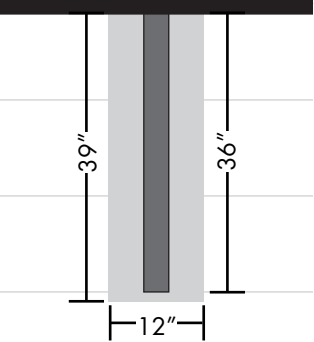
Interpretive

Qty = TBD
Dim: 36" x 24"



Canoe Route Map

Qty = 16
Dim: 36" x 24"



Creek Crossing

Qty = 18
Dim: 18" x 7"



Signage Designs Provided By MCWD

Post

Embed post 36" into the ground

Footing

Pour concrete at least 6" wider and 3" deeper than post and embed

Interpretive/You-Are-Here Sign

Sign Construction Standards

Size:

Typically 36" x 24"

Sign Face:

.125" thick ImageLoc panel with blind mount

Hardware:

Stainless steel

Pedestal:

30 or 45 degree angle mount

Post:

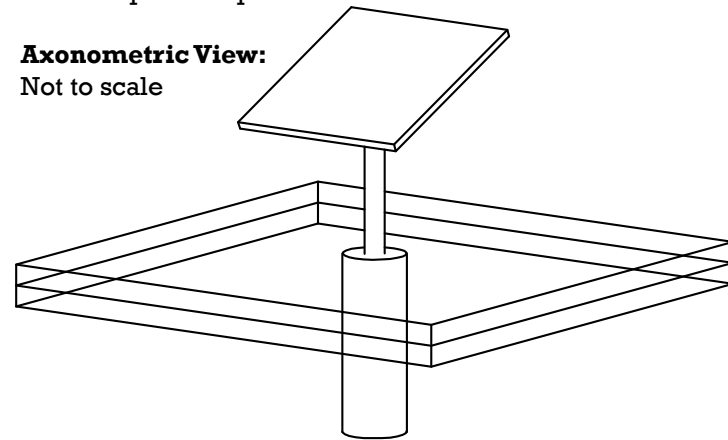
4" Timber or 2" x 4" aluminum

Footing:

In ground installation should be installed per manufacturer's recommendations. Typically a minimum of 36" depth is required

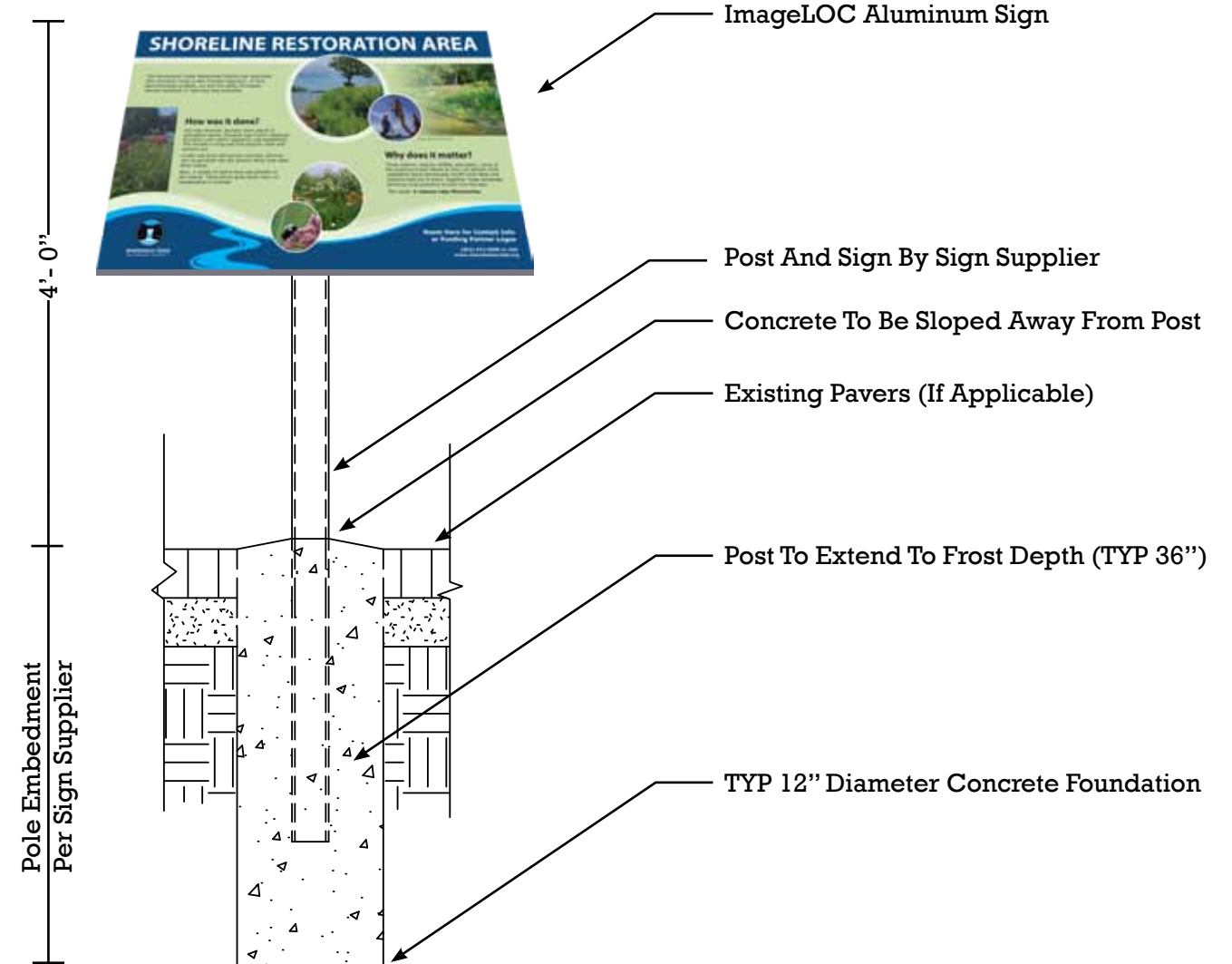
Axonometric View:

Not to scale



Typical Section:

Not to scale



Applicable Sign Types

You-Are-Here
Interpretive/Informative



Creek Crossing Sign

Sign Construction Standards

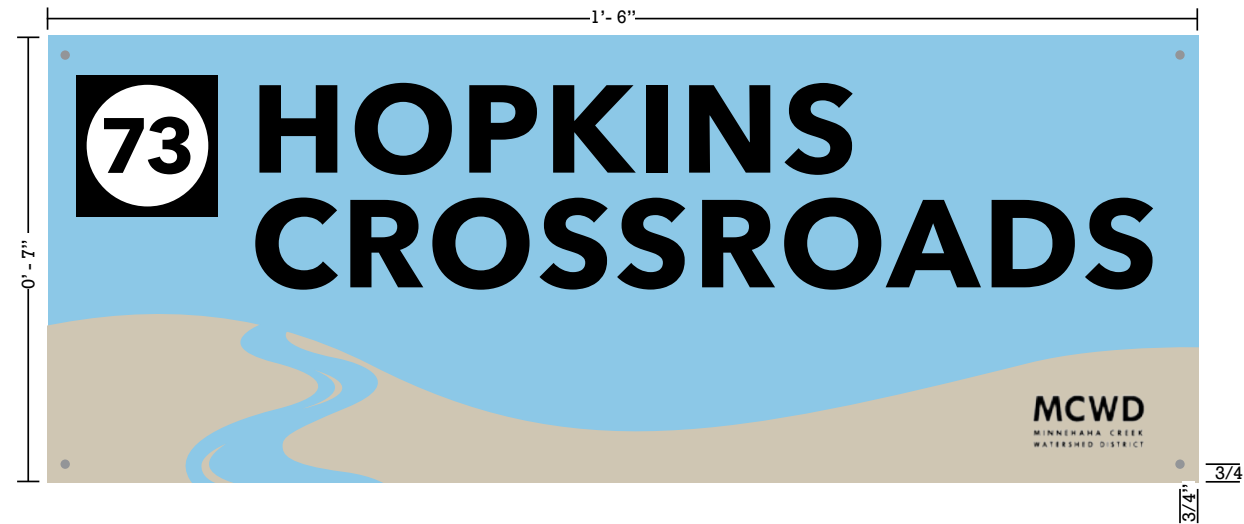
Size:
18" x 7"

Sign Face:
.125" thick ImageLoc panel

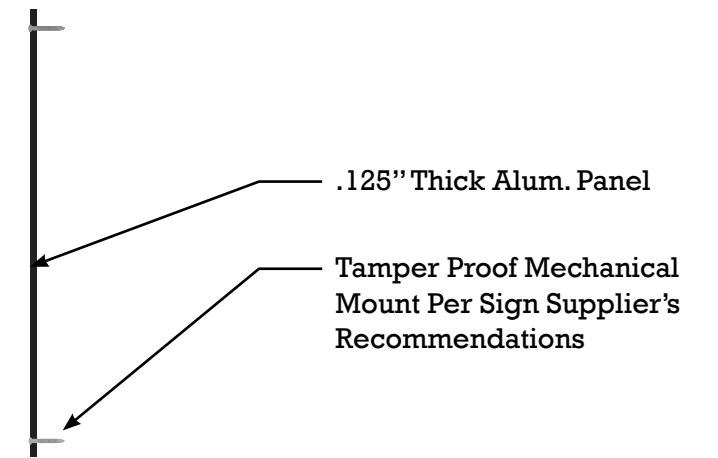
Mounting:
Mechanical mount to existing overhead bridge structure along creek. Installation will vary depending on overhead structure.

Hardware:
Typically tamper proof stainless steel pan head screws per manufacturer's recommendations

Front View:
Scale: 1" = 3"



Side View:
Scale: 1" = 3"



Signage Designs Provided By MCWD

Applicable Sign Types
Creek Crossing



Directional Signage

Sign Construction Standards

Size:
Varies

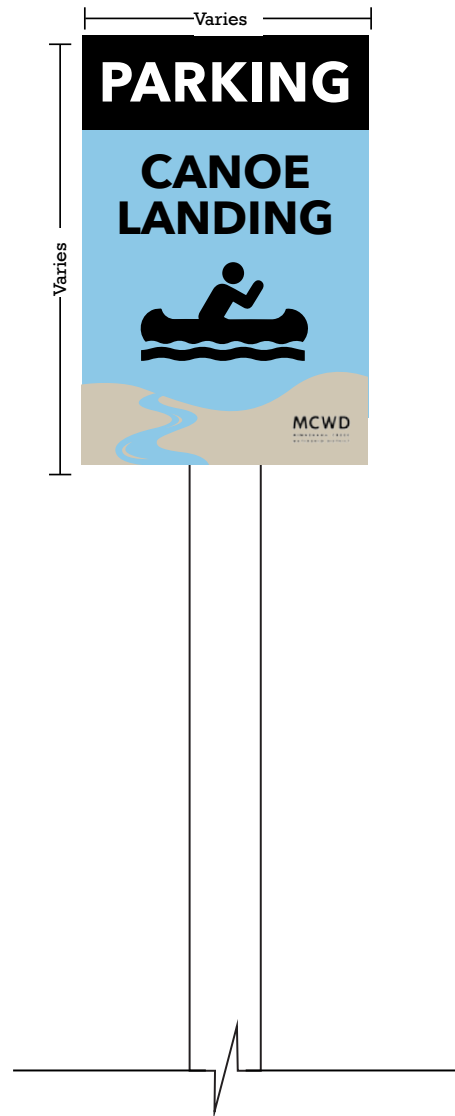
Sign Face:
.125" thick ImageLoc panel

Hardware:
Stainless steel

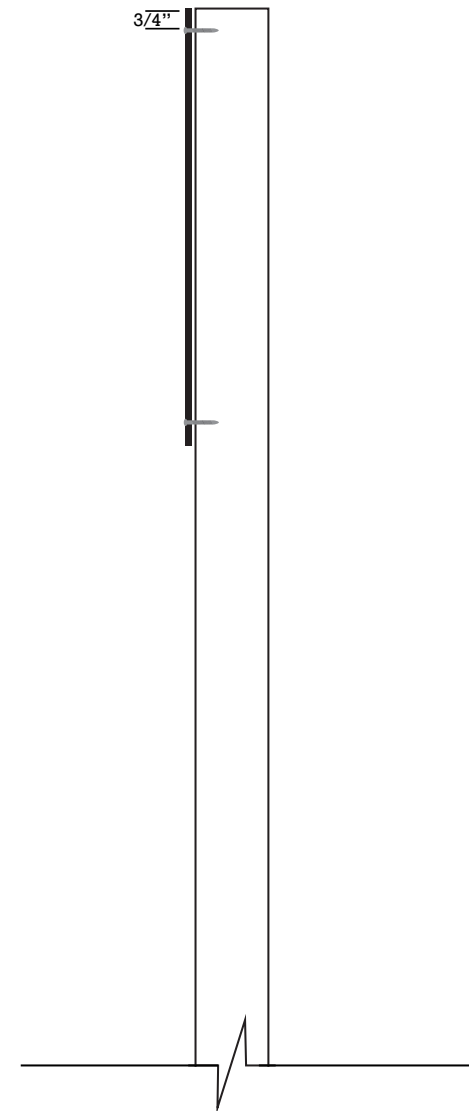
Post:
4" Timber or 3" aluminum tube

Footings:
In ground installation should be installed per manufacturer's recommendations. Typically a minimum of 36" depth is required

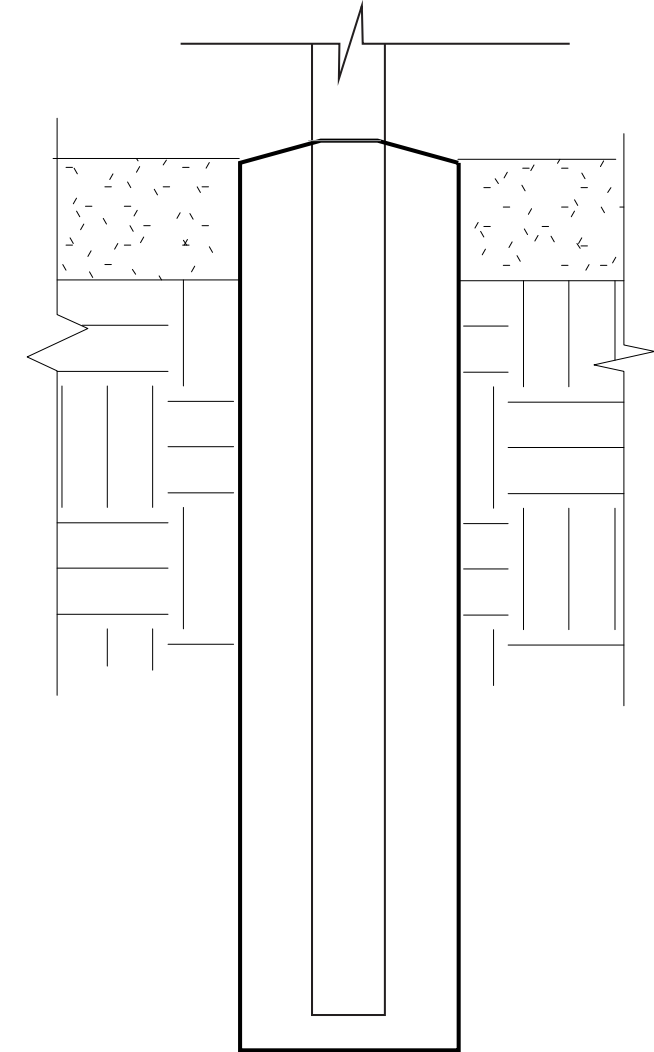
Front View:
Scale: 1.5" = 1'



Side View:
Scale: 1.5" = 1'



Footings:
Scale: 1.5" = 1'



Signage Designs Provided By MCWD

Applicable Sign Types

- Canoe Parking
- Hazard
- Mile Marker
- Landing Location



Creek Signage Inventory Table

Mile Marker - MM

ID	Site Name	Assessment	Recommendation
MM 01	Headwaters	Proposed	
MM 02	Jidana Park	Proposed	replace existing outdated wooden landing sign
MM 03	Minnetonka Civic Center	Proposed	
MM 04	Burwell Park	Proposed	replace existing outdated wooden landing sign
MM 05	Big Willow Park	Proposed	
MM 06	Hopkins Crossroad	Proposed	replace two existing outdated wooden landing signs
MM 07	Knollwood Target	Proposed	replace existing outdated wooden landing sign
MM 08	Cottageville Park	Proposed	
MM 09	Creekside Park	Proposed	replace existing outdated wooden landing sign
MM 10	Louisiana Ave	Proposed	
MM 11	Browndale Dam	Proposed	replace two existing outdated wooden landing signs
MM12	Utley Park	Proposed	replace two existing outdated wooden landing signs
MM 13	W 54th Street N	Proposed	replace three existing outdated wooden landing signs
MM 14	W 54th Street S	Proposed	
MM 15	Lynnhurst Park	Proposed	
MM 16	Lake Nokomis	Proposed	
MM 17	Lake Hiawatha	Proposed	
MM 18	Longfellow Lagoon	Proposed	replace existing outdated landing sign

Interpretive - INT

ID	Site Name	Assessment	Recommendation
INT 01	Headwaters Shoreline	Keep	maintain 9 district maps at headwaters
INT 02	Creekside Park	Keep	maintain interpretive signage at Reach 20
INT 03	Browndale Dam	Keep	maintain interpretive Edina Mill signage
INT 04	Utley Park	Keep	maintain interpretive sign
INT 05	W 54th Street	Proposed	if dam is removed, install signage related to dam removal and additional recreation features

Canoe Route Map - MAP

ID	Site Name	Assessment	Recommendation
MAP 01	Headwaters	Proposed	replace existing
MAP 02	Jidana Park	Proposed	
MAP 03	Minnetonka Civic Center	Proposed	
MAP 04	Burwell Park	Proposed	
MAP 05	Big Willow Park	Proposed	
MAP 06	Hopkins Crossroad	Proposed	
MAP 07	Knollwood Target	Proposed	replace existing
MAP 08	Cottageville Park	Proposed	
MAP 09	Creekside Park	Proposed	
MAP 10	Louisiana Ave	Proposed	
MAP 11	Browndale Dam	Proposed	direct users to Utley Park landing
MAP 12	Utley Park	Proposed	
MAP 13	W 54th Street	Proposed	
MAP 14	Lynnhurst Park	Proposed	
MAP 15	Lake Nokomis	Proposed	
MAP 16	Lake Hiawatha	Proposed	

Parking - PRK

ID	Site Name	Assessment	Recommendation
PRK 01	Knollwood Target	Proposed	place at closest parking stall to landing
PRK 02	Louisiana Ave	Proposed	replace two existing canoe parking signs
PRK 03	Louisiana Ave	Proposed	replace two existing canoe parking signs
PRK 04	Utley Park	Proposed	place at closest parking stall to landing
PRK 05	Utley Park	Proposed	place at closest parking stall to landing

Outdated - OUT

ID	Site Name	Assessment	Recommendation
OUT 01	Meadowbrook Golf Course	Remove	remove outdated wooden landing sign
OUT 02	Meadowbrook Golf Course	Remove	remove dilapidated wooden Meadowbrook Lake sign

Directional Sign to Landing - LND

ID	Site Name	Assessment	Recommendation
LND 01	Headwaters	Proposed	place at: Hwy101 & Gray's Bay Blvd
LND 02	Jidana Park	Proposed	place at: Minnetonka BLVD & Jidana Ln
LND 03	Minnetonka Civic Center	Proposed	place at: Minnetonka Blvd & Williston Rd
LND 04	Burwell Park	Proposed	place at: McGinty Rd E & Plymouth Rd
LND 05	Big Willow Park	Proposed	place at: Minnetonka Blvd & Big Willow parking lot
LND 06	Hopkins Crossroad	Proposed	place at: Hopkins Crossroad
LND 07	Knollwood Target	Proposed	place at: Boon Ave & parking lot entrance
LND 08	Cottageville Park	Proposed	place at: Lake St NE & Cottageville park
LND 09	Creekside Park	Proposed	place at: Oxford St & Creekside Park parking lot
LND 10	Louisiana Ave	Proposed	place at: Louisiana Ave S & Louisiana Cir
LND 11	Browndale Dam	Proposed	place at: W 50th St & Browndale Ave
LND 12	Utlely Park	Proposed	place at: W 50th St & Utlely Park
LND 13	W 54th Street	Proposed	place at: W 54th St & Minnehaha Creek
LND 14	Lynnhurst Park	Proposed	place at: W 51st St & Minnehaha Pkwy
LND 15	Lake Nokomis	Proposed	place at: E Minnehaha Pkwy & parking lot
LND 16	Lake Hiawatha	Proposed	place at: S 28th Ave & E 47th St
LND 17	Longfellow Lagoon	Proposed	place at: 39th Ave & E Minnehaha Pkwy

Hazard - HZD

ID	Site Name	Assessment	Recommendation
HZD 01	Browndale Dam	Proposed	place before existing waterfall sign at W 50th St, replace existing outdated wooden sign
HZD 02	W 54th Street	Proposed	replace two existing outdated wooden signs
HZD 03	Longfellow Lagoon	Proposed	replace existing sign


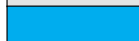

Minnehaha Creek Crossing

ID	Site Name	Assessment	Recommendation
CC 01	Interstate 494	Proposed	
CC 02	Plymouth Rd	Proposed	
CC 03	Hopkins Crossroad	Proposed	remove existing CO 73 wooden sign at landing
CC 04	Minnetonka Blvd	Keep	maintain existing
CC 05	Hwy 169	Proposed	
CC 06	Co 7	Proposed	
CC 07	Blake Rd	Keep	remove one of two signs on bridge
CC 08	Louisiana Ave	Keep	maintain existing
CC 09	Excelsior Blvd	Keep	
CC 10	Browndale Ave	Proposed	
CC 11	France Ave	Proposed	remove existing sign currently obscured by vegetation
CC 12	Xerxes Ave	Keep	maintain existing
CC 13	Penn Ave	Proposed	
CC 14	Lyndale Ave	Proposed	
CC 15	Interstate 35 W	Proposed	
CC 16	Chicago Ave	Proposed	
CC 17	Cedar Ave	Keep	maintain existing
CC 18	Minnehaha Ave	Proposed	

Landing Inventory Summary Table

City	Landing Name and Location	Signage				Landings			Amenities			
		Mile Marker	Canoe Route Map	Signage at Street	Other Signage	Dock Landing	Ramp Landing	Accessible Landing	Parking	Restroom	Picnic Table or Bench	Canoe Rack
Minnetonka	Headwaters	22.0			Interpretive	Floating			Dedicated			
	Jidana Park	21.0				Floating			Shared			
	Minnetonka City Center	20.5							Shared			
	Burwell Park	19.5			Interpretive				Shared			
	Big Willow Park	19.0				Floating			Shared			
Hopkins	Hopkins Crossroads	17.5							Street			
	Minnetonka Blvd (remove from landing list)*											
St. Louis Park	Target/Knollwood Mall	14.8			Interpretive				Dedicated			
	Cottageville Park**											
	Creekside Park (Isaak Walton Park)	13.5			Interpretive				Shared			
	Louisiana Avenue	13.2							Dedicated			
Edina	Browndale Avenue/Edina Mills	10.6			Hazard				Shared			
	Utley Park	10.5			Interpretive				Dedicated			
	West 54th St- North Landing***	9.5			Shared On-Street Signage				Street			
	West 54th St- South Landing	9.5							Street			
Minneapolis	Lynnhurst Park	6.0				Modified Floating			Shared			
	Lake Nokomis	2.0			Interpretive	Modified Floating			Shared			
	Lake Hiawatha	1.5							Street			
	Longfellow Lagoon	0			Hazard	Modified Floating			Street			

Key:

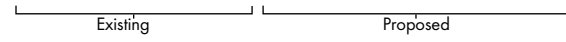
Existing:	
Recommended:	
Remove:	

Notes:

- * It is recommended that this location is removed from the list of landings due to redundant landings nearby, improper landing placement per stream meander guidelines, and lack of amenities.
- ** Cottageville Park has yet to be designed.
- *** MCWD and City of Edina are currently evaluating the removal of dam and stream restoration at West 54th St and Arden Park. Landing designs at West 54th St may potentially be altered as a result.

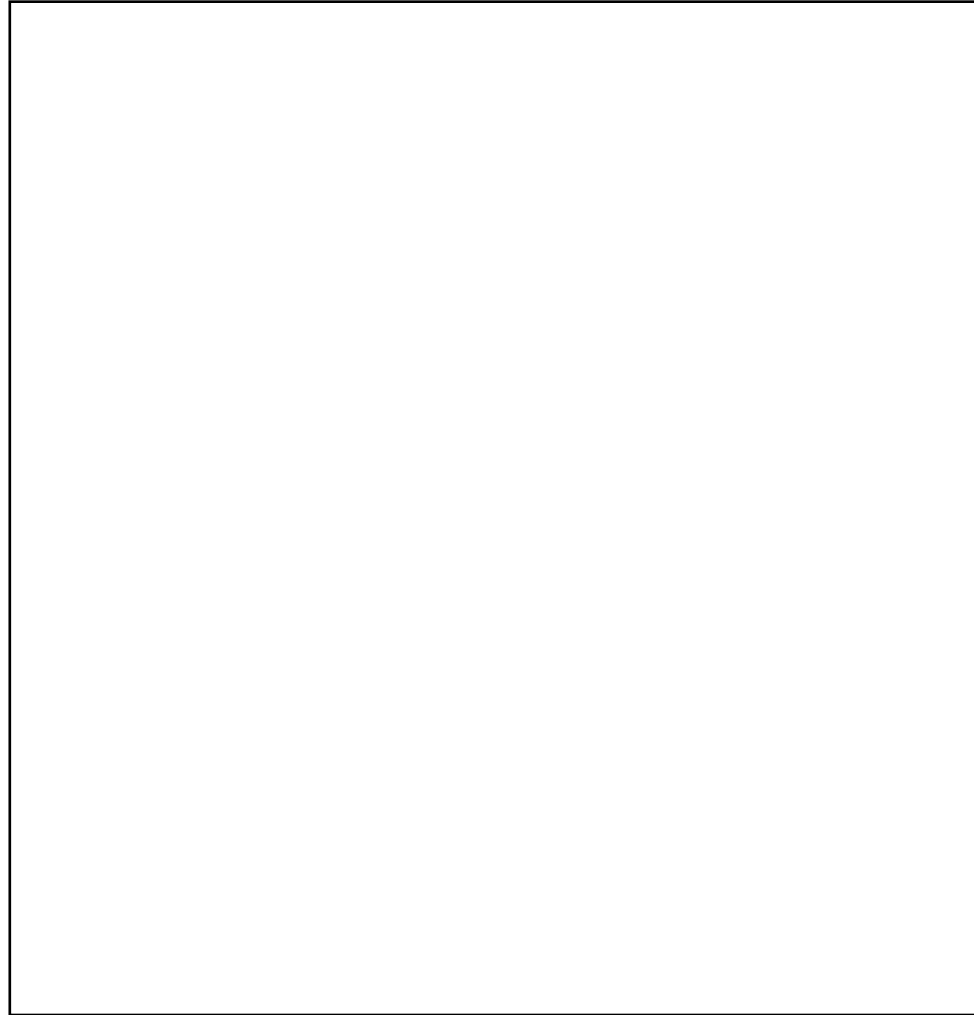







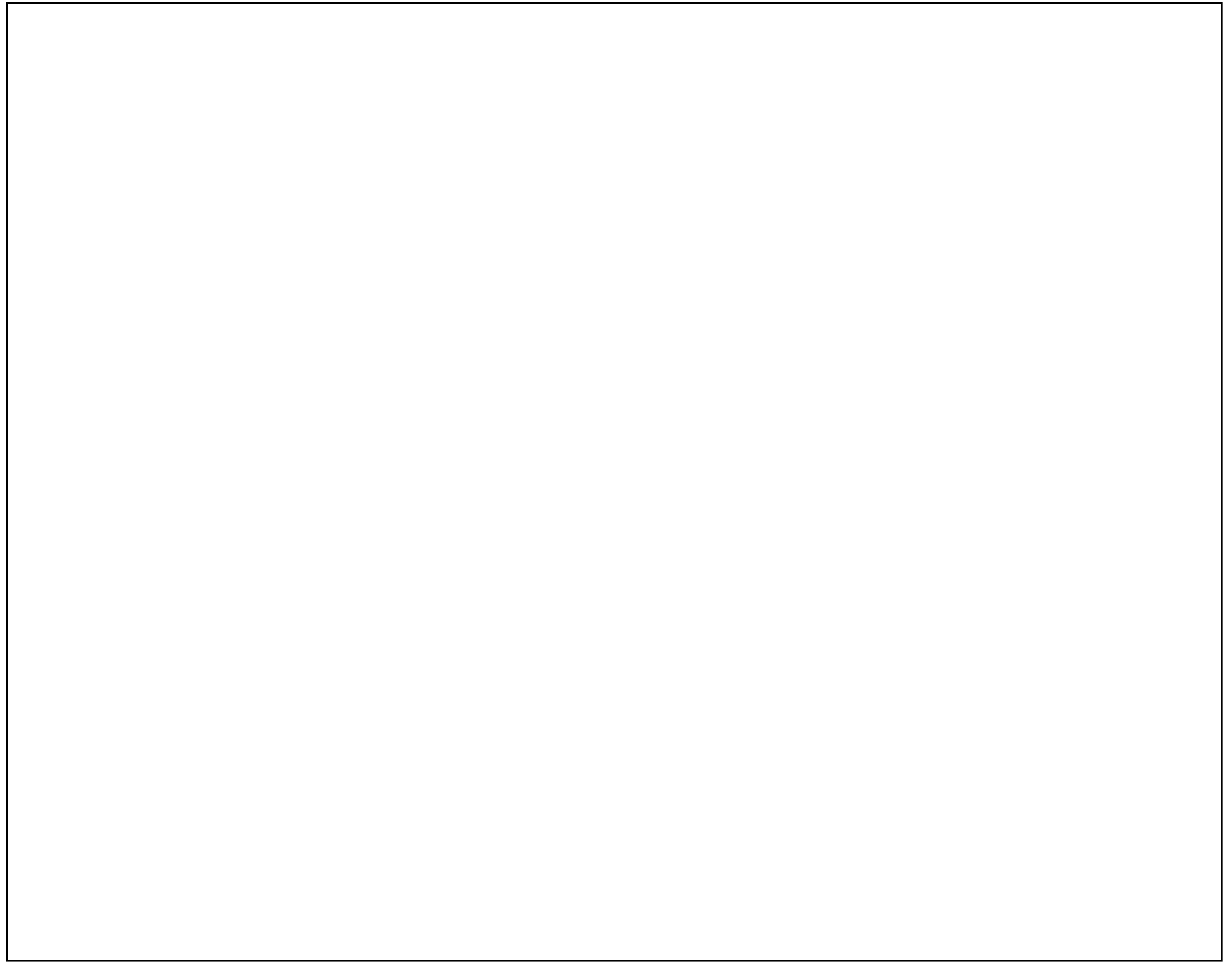
Profile

Park has yet to be designed.




Context Plan

Scale 1:100 



Landing Plan
Summary Of Site Recommendations

Scale 1:10 

Sign Types

Creating a Cohesive Network

This unified signage system will provide consistency and simplify the boater's experience. The strong, clean visual language will make it clear where you are on the creek, what bridge is overhead, how far you are from the next landing, what amenities are available nearby, and support existing interpretive elements.



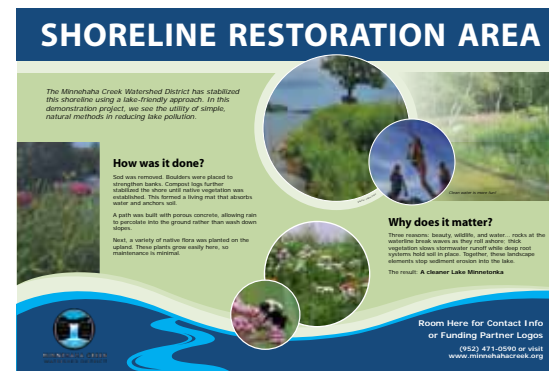
Directional Signage to Landings

Signage will be located at key street intersections to help paddlers find the landing they are looking for and indicate to passers-by that a landing is available to them.



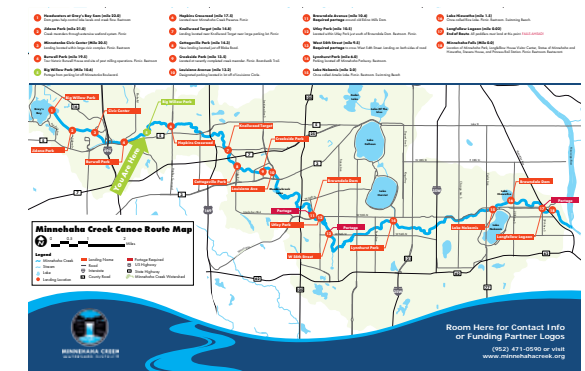
Parking

Reserved parking will be located at select landings



Interpretive Signage

With its rich ecology and history, Minnehaha Creek has numerous sites along its banks that deserve interpretation to help educate creek users. Although highly varied in content, these interpretive signs will all have a unified graphical look.



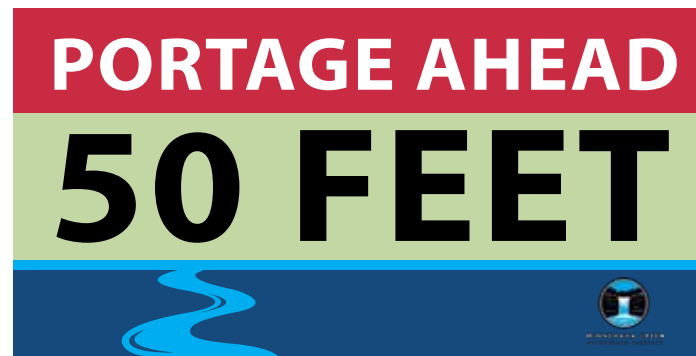
Minnehaha Creek Canoe Route Map

Maps at each landing will help paddlers reference where they are (You-Are-Here), have been, and where they are going.



Creek Crossings

Signs on all bridges will identify overhead creek crossings. Consistent placement will help orient boaters to their location along the creek.



Hazards

Special signs will be placed near creek hazards such as required portages and unnavigable creek passages.



Mile Markers

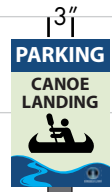
Signs that mark remaining miles to Minnehaha Falls will help boaters track their progress. Signs will include the name of each landing, icons showing what amenities are at that particular landing, and the boater's distance to Longfellow Lagoon.

Signage Design Standards

Scale: 1/2" = 1'

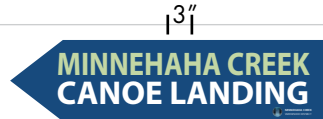
Canoe Parking

Qty = 5
Dim: 12" x 18"



Directional Signage to Landing

Qty = 17
Dim: 40" x 10"



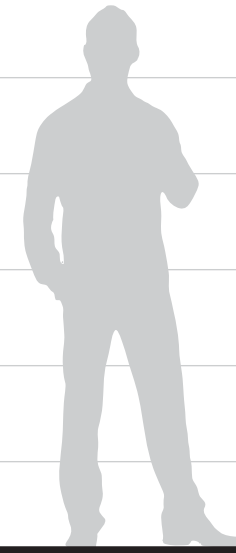
Hazard

Qty = 3
Dim: 14" x 7"



Mile Marker

Qty = 18
Dim: 11" x 7"



Interpretive

Qty = TBD
Dim: 36" x 24"



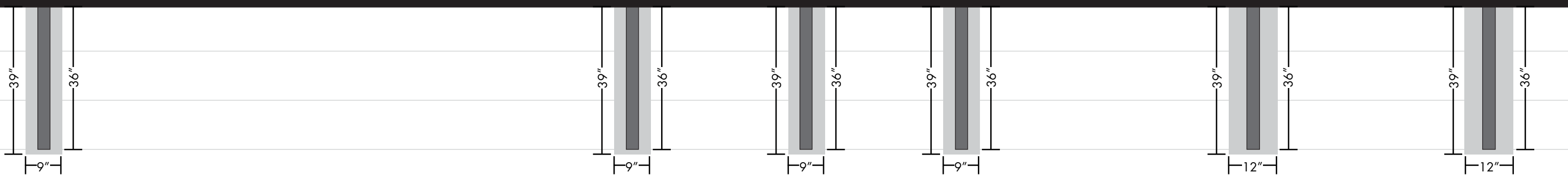
Canoe Route Map

Qty = 16
Dim: 36" x 24"



Creek Crossing

Qty = 18
Dim: 18" x 7"



Signage Designs Provided By MCWD

Post

Embed post 36" into the ground

Footing

Pour concrete at least 6" wider and 3" deeper than post and embed

Interpretive/You-Are-Here Sign

Sign Construction Standards

Size:

Typically 36" x 24"

Sign Face:

.125" thick ImageLoc panel with blind mount

Hardware:

Stainless steel

Pedestal:

30 or 45 degree angle mount

Post:

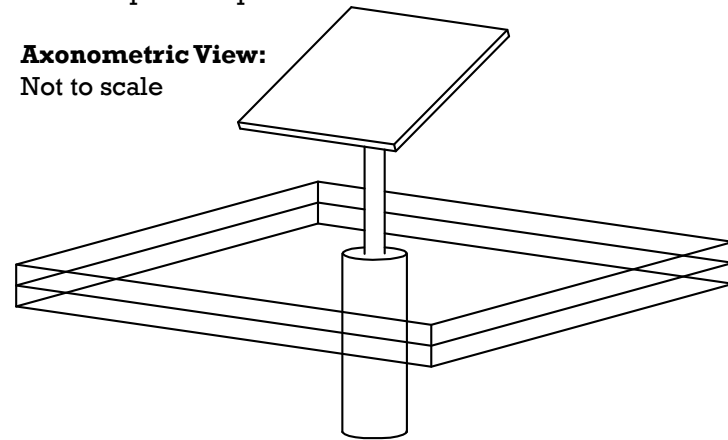
4" Timber or 2" x 4" aluminum

Footing:

In ground installation should be installed per manufacturer's recommendations. Typically a minimum of 36" depth is required

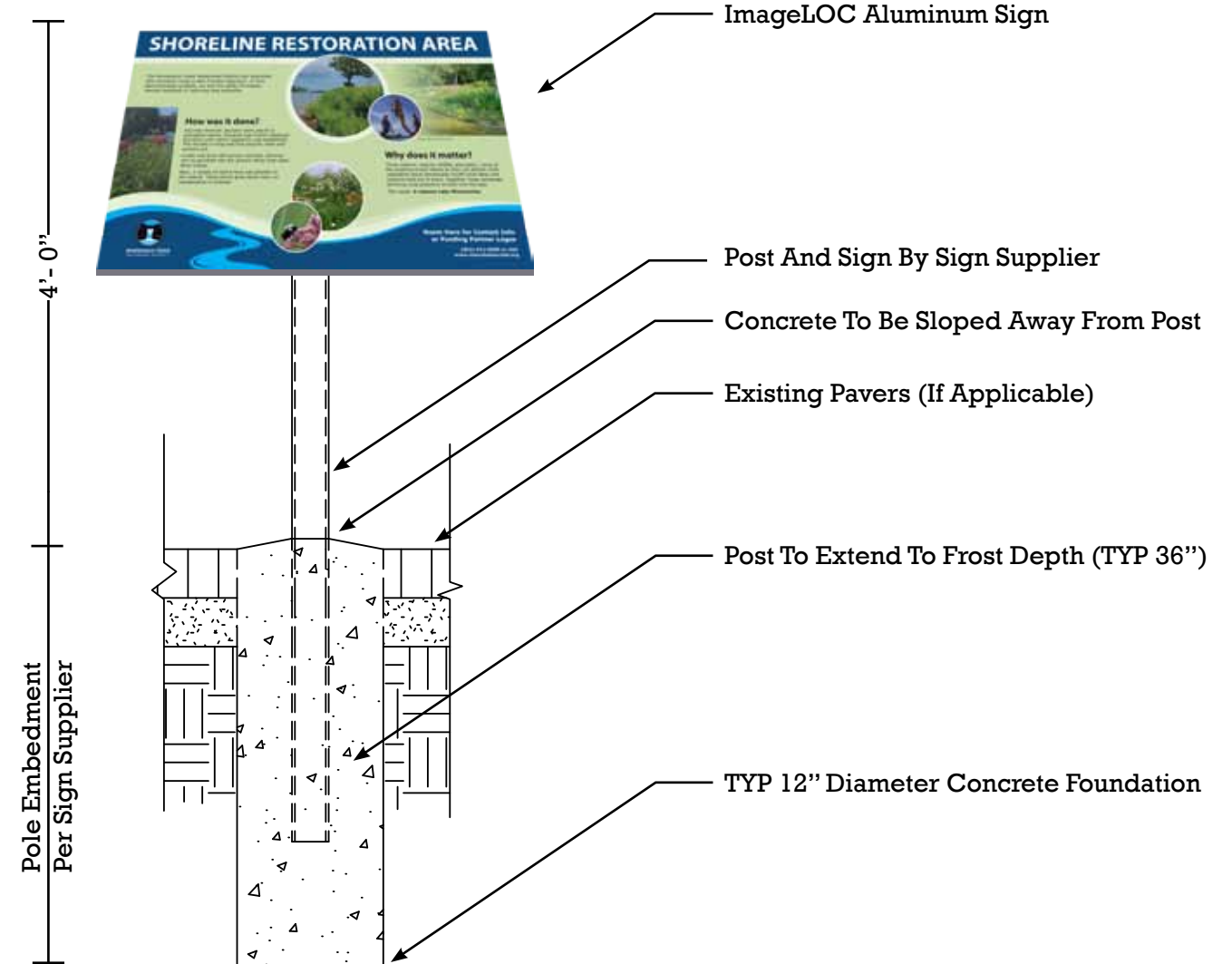
Axonometric View:

Not to scale



Typical Section:

Not to scale



Applicable Sign Types

You-Are-Here
Interpretive/Informative



Creek Crossing Sign

Sign Construction Standards

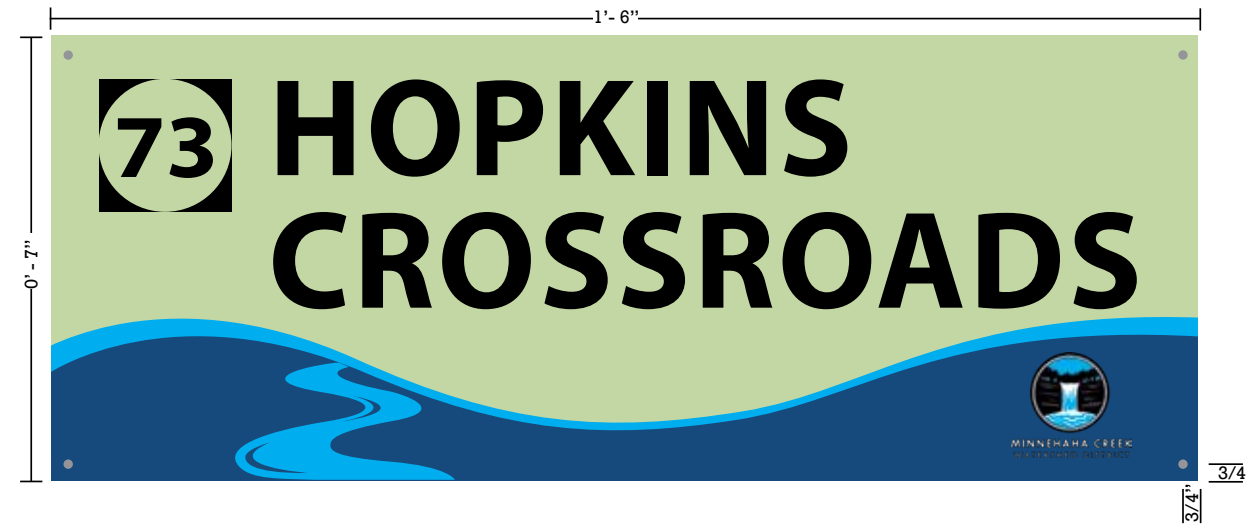
Size:
18" x 7"

Sign Face:
.125" thick ImageLoc panel

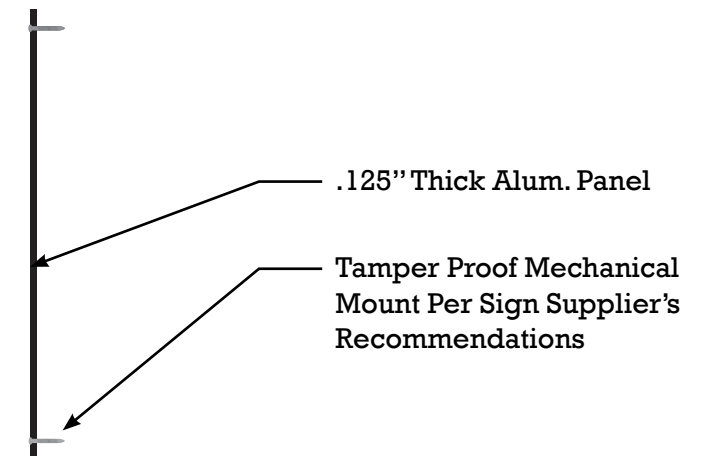
Mounting:
Mechanical mount to existing overhead bridge structure along creek. Installation will vary depending on overhead structure.

Hardware:
Typically tamper proof stainless steel pan head screws per manufacturer's recommendations

Front View:
Scale: 1" = 3"



Side View:
Scale: 1" = 3"



Signage Designs Provided By MCWD

Applicable Sign Types
Creek Crossing



Directional Signage

Sign Construction Standards

Size:
Varies

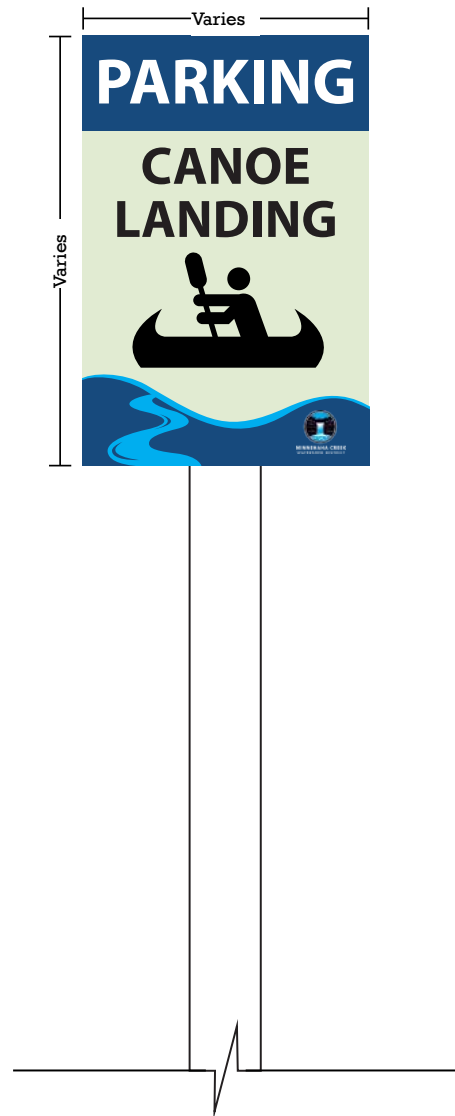
Sign Face:
.125" thick ImageLoc panel

Hardware:
Stainless steel

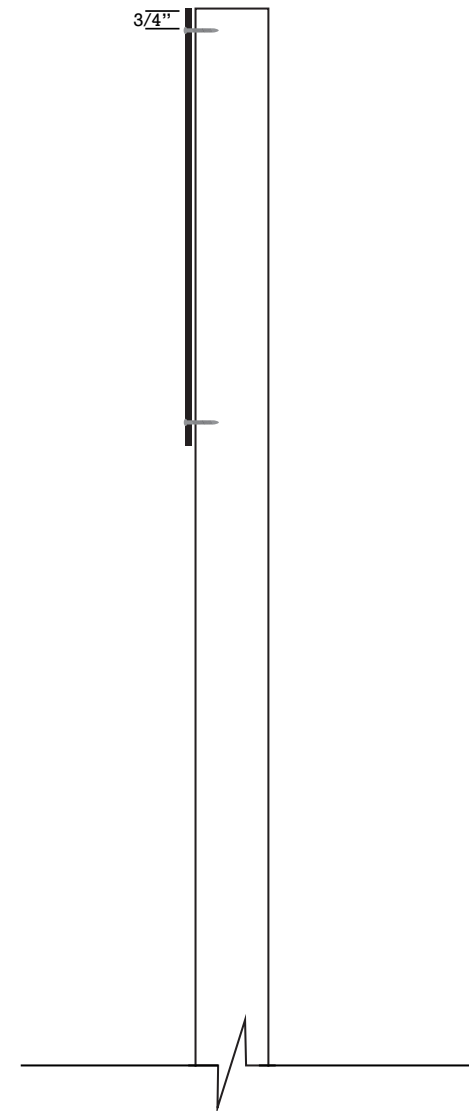
Post:
4" Timber or 3" aluminum tube

Footings:
In ground installation should be installed per manufacturer's recommendations. Typically a minimum of 36" depth is required

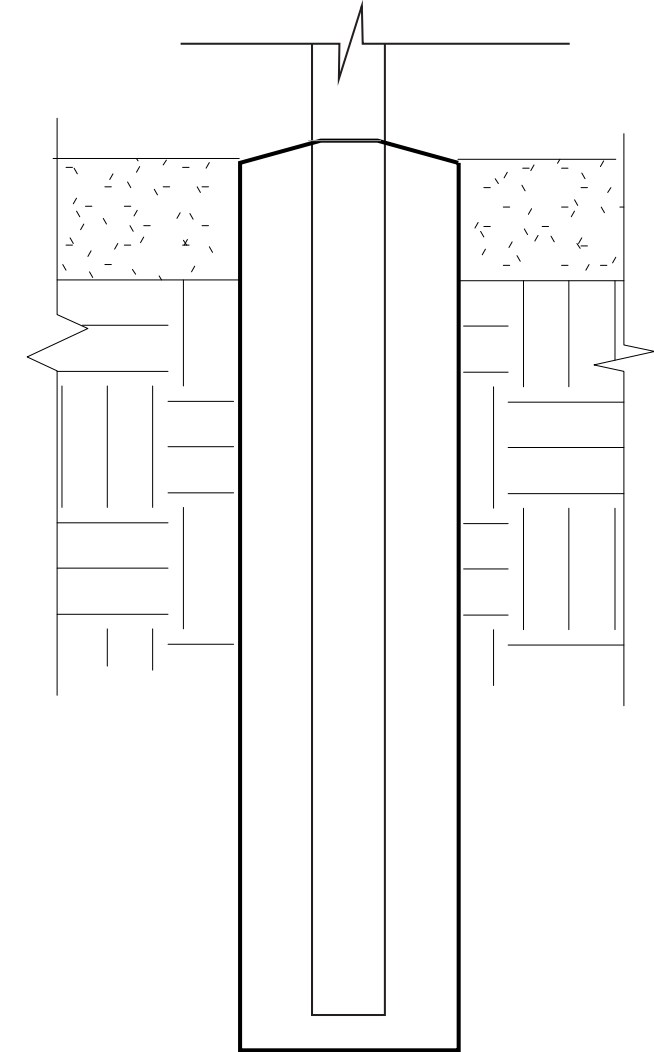
Front View:
Scale: 1.5" = 1'



Side View:
Scale: 1.5" = 1'



Footings:
Scale: 1.5" = 1'



Signage Designs Provided By MCWD

Applicable Sign Types

- Canoe Parking
- Hazard
- Mile Marker
- Landing Location



**MINNEHAHA CREEK WATERSHED DISTRICT CREEK SIGNAGE AND LANDINGS
PRELIMINARY COST ESTIMATE
12/11/2014**

Estimate of Cost - Signage and Landings Master Plan - DECEMBER 2014						
Item	Description	Unit	Est Quant	Unit Price	Extension	
SIGNAGE SYSTEM						
	Signage Fabrication, Furnishment and Installation (Canoe Route Map, Interpretive)	Each	20	\$1,200	\$24,000	
	Sign Fabrication, Furnishment and Installation (Mile Marker, Hazard, Direction to Landing, Creek Crossings)	Each	61	\$700	\$42,700	
	Existing Sign Removal and Disposal	Each	15	\$250	\$3,750	
Sub-Total =					\$70,450	
LANDINGS						
Item	Description	Unit	Est Quant	Unit Price	Extension	
	U-Dock Retrofit (Floating Dock Amendment)	Each	3	\$4,500	\$13,500	
	U-Dock Retrofit (Accessibility Amendment)	Each	1	\$1,500	\$1,500	
	U-Dock Removal and Disposal (Complete)	Each	5	\$1,200	\$6,000	
	U-Dock Removal and Disposal (Partial)	Each	4	\$600	\$2,400	
	Vegetated Ramp Landing	Each	10	\$4,500	\$45,000	
	Tree Removal	LS	1	\$300	\$300	
	Vegetative Creek Buffer	LF	400	\$75	\$30,000	
	Misc. Erosion Repair	LS	17	\$1,000	\$17,000	
Sub-Total =					\$115,700.00	
ADD. AMENITIES						
	6-Craft Storage Rack (Furnish and Install)	Each	3	\$4,200	\$12,600	
Sub-Total =					\$12,600	
Total =					\$198,750.00	

Individual Landings - Preliminary Cost Estimate						
Gray's Bay Headwaters						
Item	Description	Unit	Est Quant	Unit Price	Extension	
	Vegetated Ramp Landing	Each	1	\$4,500	\$4,500	
	U-Dock Portion Removal and Disposal (Partial)	LS	1	\$600	\$600	
	Tree Removal	LS	1	\$300	\$300	
	Canoe Route Map Sign	Each	1	\$1,200	\$1,200	
	Interpretive Sign	Each	1	\$1,200	\$1,200	
	Mile Marker Sign	Each	1	\$700	\$700	
	Direction to Landing Sign	Each	1	\$700	\$700	
	6-Craft Storage Rack (Furnish and Install)	Each	1	\$4,200	\$4,200	
Sub-Total =					\$13,400	
Jidana Park						
Item	Description	Unit	Est Quant	Unit Price	Extension	
	Vegetated Ramp Landing (Removal of portion of existing ramp landing)	Each	1	\$4,500	\$4,500	
	Grading and Misc. Erosion Repair	LS	1	\$1,500	\$1,500	
	Canoe Route Map Sign	Each	1	\$1,200	\$1,200	
	Mile Marker Sign	Each	1	\$700	\$700	
	Direction to Landing Sign	Each	1	\$700	\$700	
Sub-Total =					\$8,600	
Minnetonka Civic Center						
Item	Description	Unit	Est Quant	Unit Price	Extension	
	Vegetated Ramp Landing	Each	1	\$4,500	\$4,500	
	U-Dock Removal and Disposal (Complete)	Each	1	\$1,200	\$1,200	

	Creek Buffer Restoration	LF	80	\$75	\$6,000
	Canoe Route Map Sign	Each	1	\$1,200	\$1,200
	Interpretive Sign	Each	1	\$1,200	\$1,200
	Mile Marker Sign	Each	1	\$700	\$700
	Direction to Landing Sign	Each	1	\$700	\$700

Sub-Total = \$15,500

Burwell Park

Item	Description	Unit	Est Quant	Unit Price	Extension
	Vegetated Ramp Landing	Each	1	\$4,500	\$4,500
	Creek Buffer Restoration	LF	30	\$75	\$2,250
	Canoe Route Map Sign	Each	1	\$1,200	\$1,200
	Mile Marker Sign	Each	1	\$700	\$700
	Direction to Landing Sign	Each	1	\$700	\$700

Sub-Total = \$9,350

Big Willow Park

Item	Description	Unit	Est Quant	Unit Price	Extension
	Creek Buffer Restoration	LF	30	\$75	\$2,250
	Canoe Route Map Sign	Each	1	\$1,200	\$1,200
	Mile Marker Sign	Each	1	\$700	\$700
	Direction to Landing Sign	Each	1	\$700	\$700

Sub-Total = \$4,850

Hopkins Crossroads

Item	Description	Unit	Est Quant	Unit Price	Extension
	U-Dock Removal and Disposal (Complete)	Each	1	\$1,200	\$1,200
	Vegetated Ramp Landing	Each	1	\$3,500	\$3,500
	Creek Buffer Restoration	LF	20	\$75	\$1,500
	Canoe Route Map Sign	Each	1	\$1,200	\$1,200
	Mile Marker Sign	Each	1	\$700	\$700
	Existing Sign Removal and Disposal	Each	1	\$250	\$250
	Direction to Landing Sign	Each	1	\$700	\$700

Sub-Total = \$9,050

Knollwood Target

Item	Description	Unit	Est Quant	Unit Price	Extension
	Vegetated Ramp Landing	Each	1	\$4,500	\$4,500
	U-Dock Removal and Disposal (Complete)	Each	1	\$1,200	\$1,200
	Creek Buffer Restoration	LF	20	\$75	\$1,500
	Canoe Route Map Sign	Each	1	\$1,200	\$1,200
	Mile Marker Sign	Each	1	\$700	\$700
	Parking Sign	Each	1	\$700	\$700
	Direction to Landing Sign	Each	1	\$700	\$700

Sub-Total = \$10,500

Cottageville Park

Item	Description	Unit	Est Quant	Unit Price	Extension
	Vegetated Ramp Landing	Each	1	\$4,500	\$4,500
	Canoe Route Map Sign	Each	1	\$1,200	\$1,200
	Mile Marker Sign	Each	1	\$700	\$700
	Direction to Landing Sign	Each	1	\$700	\$700

Sub-Total = \$7,100

Creekside Park

Item	Description	Unit	Est Quant	Unit Price	Extension
	Creek Buffer Restoration	LF	10	\$75	\$750
	Canoe Route Map Sign	Each	1	\$1,200	\$1,200
	Interpretive Sign	Each	1	\$1,200	\$1,200
	Mile Marker Sign	Each	1	\$700	\$700

	Direction to Landing Sign	Each	1	\$700	\$700
	6-Craft Storage Rack (Furnish and Install)	Each	1	\$4,200	\$4,200
Sub-Total =					\$8,750
Louisiana Avenue					
Item	Description	Unit	Est Quant	Unit Price	Extension
	Canoe Route Map Sign	Each	1	\$1,200	\$1,200
	Mile Marker Sign	Each	1	\$700	\$700
	Direction to Landing Sign	Each	1	\$700	\$700
Sub-Total =					\$2,600
Browndale Dam					
Item	Description	Unit	Est Quant	Unit Price	Extension
	U-Dock Retrofit (Accessibility Amendment)	Each	1	\$1,500	\$1,500
	Canoe Route Map Sign	Each	1	\$1,200	\$1,200
	Hazard Sign	Each	1	\$700	\$700
	Interpretive Sign	Each	1	\$1,200	\$1,200
	Mile Marker Sign	Each	1	\$700	\$700
	Direction to Landing Sign	Each	1	\$700	\$700
Sub-Total =					\$6,000
Utley Park					
Item	Description	Unit	Est Quant	Unit Price	Extension
	U-Dock Removal and Disposal (Complete)	Each	1	\$1,200	\$1,200
	Vegetated Ramp Landing	Each	1	\$4,500	\$4,500
	Creek Buffer Restoration	LF	70	\$75	\$5,250
	Canoe Route Map Sign	Each	1	\$1,200	\$1,200
	Interpretive Sign	Each	1	\$1,200	\$1,200
	Mile Marker Sign	Each	1	\$700	\$700
	Parking Sign	Each	2	\$700	\$1,400
	Direction to Landing Sign	Each	1	\$700	\$700
Sub-Total =					\$16,150
West 54th Street (North and South)					
Item	Description	Unit	Est Quant	Unit Price	Extension
	U-Dock Removal and Disposal (Complete)	Each	2	\$1,200	\$2,400
	Vegetated Ramp Landing	Each	2	\$4,500	\$9,000
	Creek Buffer Restoration	LF	80	\$75	\$6,000
	Hazard Sign	Each	1	\$700	\$700
	Canoe Route Map Sign	Each	2	\$1,200	\$2,400
	Mile Marker Sign	Each	2	\$700	\$1,400
	Direction to Landing Sign	Each	1	\$700	\$700
Sub-Total =					\$22,600
Lynnhurst Park					
Item	Description	Unit	Est Quant	Unit Price	Extension
	U-Dock Removal and Disposal (Partial)	Each	1	\$600	\$600
	U-Dock Retrofit (Floating Dock Amendment)	Each	1	\$4,500	\$4,500
	Creek Buffer Restoration	LF	60	\$75	\$4,500
	Canoe Route Map Sign	Each	1	\$1,200	\$1,200
	Mile Marker Sign	Each	1	\$700	\$700
	Direction to Landing Sign	Each	1	\$700	\$700
Sub-Total =					\$12,200
Lake Nokomis					
Item	Description	Unit	Est Quant	Unit Price	Extension
	U-Dock Removal and Disposal (Partial)	Each	1	\$600	\$600
	U-Dock Retrofit (Floating Dock Amendment)	Each	1	\$4,500	\$4,500
	Canoe Route Map Sign	Each	1	\$1,200	\$1,200
	Mile Marker Sign	Each	1	\$700	\$700

	Direction to Landing Sign	Each	1	\$700	\$700
Sub-Total =					\$7,700
Lake Hiawatha					
Item	Description	Unit	Est Quant	Unit Price	Extension
	Vegetated Ramp Landing	Each	1	\$4,500	\$4,500
	Canoe Route Map Sign	Each	1	\$1,200	\$1,200
	Mile Marker Sign	Each	1	\$700	\$700
	Direction to Landing Sign	Each	1	\$700	\$700
Sub-Total =					\$7,100
Longfellow Lagoon					
Item	Description	Unit	Est Quant	Unit Price	Extension
	U-Dock Removal and Disposal (Partial)	Each	1	\$600	\$600
	U-Dock Retrofit (Floating Dock Amendment)	Each	1	\$4,500	\$4,500
	Canoe Route Map Sign	Each	1	\$1,200	\$1,200
	Interpretive Sign	Each	1	\$1,200	\$1,200
	Mile Marker Sign	Each	1	\$700	\$700
	Hazard Sign	Each	1	\$700	\$700
	Direction to Landing Sign	Each	1	\$700	\$700
	6-Craft Storage Rack (Furnish and Install)	Each	1	\$4,200	\$4,200
Sub-Total =					\$13,800