600 NE Grand Ave.
Portland, OR 97232-2736

Metro | *Agenda*

Meeting: **Metro Council Work Session**
Date: Tuesday, September 29, 2015
Time: 2:00 p.m.
Place: Metro Regional Center, Council Chamber

CALL TO ORDER AND ROLL CALL

2:00 PM	**1.**	**CHIEF OPERATING OFFICER COMMUNICATION**	
2:10 PM	**2.**	**NATURAL AREA PLANNING AND PUBLIC ENGAGEMENT PROCESS**	**Justin Patterson, Metro** **Rod Wojtanik, Metro**
2:30 PM	**3.**	**KILLIN WETLANDS ACCESS MASTER PLAN**	**Alex Perove, Metro** **Rod Wojtanik, Metro**
3:30 PM	**4.**	**COUNCIL CREEK REGIONAL TRAIL MASTER PLAN**	**Robert Spurlock, Metro**
4:00 PM	**5.**	**COUNCILOR LIAISON UPDATES AND COUNCIL COMMUNICATION**	

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ការគោរពសិទ្ធិពលរដ្ឋរបស់ ។ សំរាប់ព័ត៌មានអំពីកម្មវិធីសិទ្ធិពលរដ្ឋរបស់ Metro ឬដើម្បីទទួលពាក្យបណ្តឹងរើសអើងសូមចូលទស្សនាគេហទំព័រ www.oregonmetro.gov/civilrights។
បើលោកអ្នកត្រូវការអ្នកបកប្រែភាសានៅពេលអង្គប្រជុំសាធារណៈ សូមទូរស័ព្ទមកលេខ 503-797-1890 (ម៉ោង 8 ព្រឹកដល់ម៉ោង 5 ល្ងាច ថ្ងៃធ្វើការ) ប្រាំពីរថ្ងៃថ្ងៃធ្វើការ មុនថ្ងៃប្រជុំដើម្បីអាចឲ្យគេសម្រួលតាមសំណើរបស់លោកអ្នក ។

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November 2014

Agenda Item No. 2.0

NATURAL AREA PLANNING AND PUBLIC ENGAGEMENT PROCESS

Metro Council Work Session
Tuesday, September 29, 2015
Metro Regional Center, Council Chamber

METRO COUNCIL

Work Session Worksheet

PRESENTATION DATE: September 29, 2015 **LENGTH:** 10 minutes

PRESENTATION TITLE: Natural Area Planning and Public Engagement Process

DEPARTMENT: Planning & Development, Parks and Nature

PRESENTER(S): Justin Patterson, ext. 1886; justin.patterson@oregon metro.gov
Rod Wojtanik; ext. 1846; rod.wojtanik@oregonmetro.gov

WORK SESSION PURPOSE & DESIRED OUTCOMES

- Purpose: To inform Council of the comprehensive planning process for natural area lands that have been slated for public access improvements as a result of 2013 Operating Levy investment. The purpose is to inform, not receive policy direction.
- Outcome: Council has an understanding of the process by which Parks and Nature Planning staff analyze each of the sites and engage the public and prepare recommendations for access improvements.

TOPIC BACKGROUND & FRAMING THE WORK SESSION DISCUSSION

The Parks and Nature Planning Division has, through a standardized public engagement process, begun to develop master plans for some of the publicly owned natural areas in Metro's portfolio. Over the next three years staff, working with regional stakeholders and the public, will prepare more than a half dozen comprehensive master plans for properties including the Killin Wetlands, Newell Creek Canyon, North Tualatin Mountains, and others. In advance of many of the master plans coming before Council, staff would like to review the overall park planning process so Council can be comfortable with what to expect in the future and how they and others will be involved.

The focus of this presentation is informational for Council. No direction will be requested.

QUESTIONS FOR COUNCIL CONSIDERATION

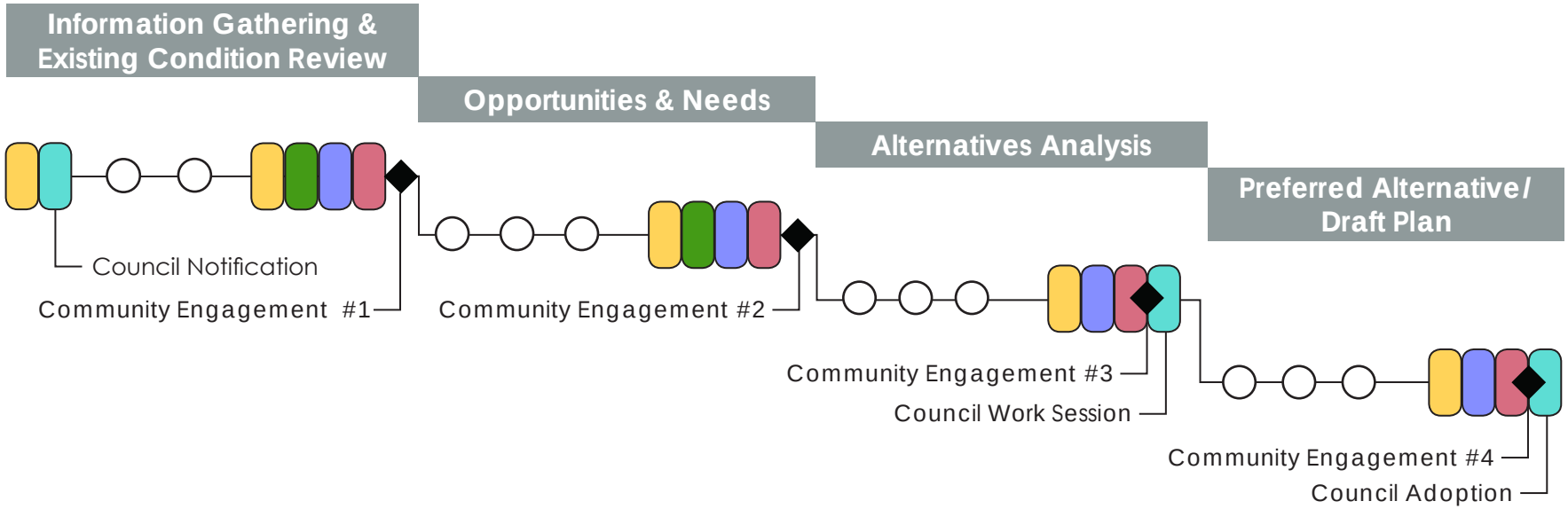
List questions for Council's consideration that will help/guide the Council in providing policy direction.

- No questions at this time.

PACKET MATERIALS

- Would legislation be required for Council action ☐ Yes ☒ No
- If yes, is draft legislation attached? ☐ Yes ☒ No
- What other materials are you presenting today?
  Included is a general overview of the park planning process in Powerpoint form

PARKS AND NATURE
Planning Process



Parks and Nature Project Team

Internal working meetings as needed

Other Key Groups

- OMA
- Risk management
- Procurement
- Land use

Stakeholder Advisory

- Local agencies
- Recreation groups
- Conservation/ Natural resource groups
- Farming groups
- Education groups
- Equity groups
- Neighborhood associations
- Volunteer groups/ Site stewards
- Local tribes

Community at large

Councilor

Metro Council

Draft

09.17.2015

Agenda Item No. 3.0

KILLIN WETLANDS ACCESS MASTER PLAN

Metro Council Work Session
Tuesday, September 29, 2015
Metro Regional Center, Council Chamber

METRO COUNCIL

Work Session Worksheet

PRESENTATION DATE: 9/29/2015 **LENGTH:** 30 min

PRESENTATION TITLE: KILLIN WETLANDS ACCESS MASTER PLAN

DEPARTMENT: PARKS AND NATURE

PRESENTER(S): ALEX PEROVE alex.perove@oregonmetro.gov x1583
ROD WOJTANIK rod.wojtanik@oregonmetro.gov x1846

WORK SESSION PURPOSE & DESIRED OUTCOMES

- Purpose: To provide the members of Council with a detailed overview of the planning process for Killin Wetlands Access Master Plan.
- Outcome: To gain approval of the Killin Wetlands Access Master Plan and the naming of the facility to "Killin Wetlands".

TOPIC BACKGROUND & FRAMING THE WORK SESSION DISCUSSION

For years, devoted birders in the Portland metro region have headed to an area about two miles west of Banks in search of the prized American bitterns and soras. But with no formal public access to Metro's Killin Wetlands Natural Area, birders often park on the side of NW Cedar Canyon Road and set up their scopes on the roadway. A project soon entering the design phase aims to improve safety by opening up public access of a portion of the 590-acre site, while also restoring habitat and allowing farming to continue on another portion of the property.

Killin Wetlands Natural Area was purchased with money from the 1995 and 2006 natural areas bond measures and was identified as one of the 2013 levy access improvement projects in the five-year work-plan.

The planning process for the Killin Wetlands Access Master Plan project began in November of 2014. The plan has been developed with oversight from Parks and Nature Department staff, project stakeholders, members of the community and the input from Councilor Kathryn Harrington acting as project liaison from the Metro Council.

Key stakeholders on the project have included members of the community, the Audubon Society, the City of Banks, Tualatin Watershed Council, Bicycle Transportation Alliance and neighbors. Two open houses were held to give project partners a chance to provide input, review alternatives and comment on preferred designs. The two workshops were held in February and May of 2015.

On July 9th, the project was presented to Council at an off-site meeting in Cornelius. During that presentation, a brief update was given on the Killin Wetlands planning project. As a follow-up, this presentation will go into more detail. The intent of this work session is for Council to provide staff with feedback on the draft access master plan product. Formal adoption of the Killin Wetlands Access Master Plan would occur at a future Council meeting.

QUESTIONS FOR COUNCIL CONSIDERATION

List questions for Council's consideration that will help/guide the Council in providing policy direction.

- Does Council have any feedback about the draft access master plan?

PACKET MATERIALS

- Would legislation be required for Council action ☒Yes ☐No
- If yes, is draft legislation attached? ☒Yes ☐No
- What other materials are you presenting today? Killin Wetlands Access Master Plan: Planning Process Summary (June 2015 – Draft, Version 1).

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF COUNCIL APPROVAL OF THE KILLIN WETLANDS ACCESS MASTER PLAN	)))	RESOLUTION NO. 15-4651 Introduced by [insert Councilor name here **OR** "Chief Operating Officer Martha Bennett in concurrence with Council President Tom Hughes"]

WHEREAS, in May 2013, the voters of the Metro region approved a five-year local option measure for the purpose of preserving water quality, fish and wildlife habitat and maintaining Metro's parks and natural areas for the public; and

WHEREAS, as part of implementing the operating levy, Metro's Parks and Nature's five-year work plan includes projects for natural area restoration and maintenance, improvements for visitors, park maintenance, volunteer programs, conservation education and community grants; and

WHEREAS, Killin Wetlands Natural Area is a 589.6-acres site, purchased with money from the 1995 and 2006 natural areas bond measures. Killin Wetlands Natural Area was identified as one of the 2013 levy access improvement projects in the five-year work plan; and

WHEREAS, in 2014, the Access Master Plan was developed by the oversight, input and review of the Metro Parks and Nature team, project stakeholders, members of the community, and periodic meetings with Councilor Kathryn Harrington. The stakeholder advisory committee included staff and citizens from the City of Banks, the Audubon Society of Portland, the Tualatin Watershed Council, the Bicycle Transportation Alliance and property neighbors; and

WHEREAS, Metro and its partners conducted extensive public outreach, stakeholder interviews, including two open houses which over 65 persons attended during the access planning process in order to identify visitor improvements; and

WHEREAS, the Killin Wetlands Access Master Plan identifies improvements that includes protecting and enhancing the natural, scenic and cultural resources while providing safe access for visitors to experience the natural area; and

WHEREAS, the Metro Council's approval of the Access Master Plan via this Resolution does not establish final design improvements and is not intended to be a final land use decision that creates biding requirements on local governments, but rather provides a set of recommendations to guide Metro staff and partner jurisdictions as they continue design work; and

WHEREAS, in 2014, via Metro Code Section 2.16.020 ("Naming of Facilities"), Metro authorized a policy for naming of facilities; now therefore,

BE IT RESOLVED that the Metro Council hereby approves the Killin Wetlands Access Master Plan and appended hereto as Exhibit X and adopts Killin Wetlands as the name for the site.

ADOPTED by the Metro Council this _____ day of _____ 2015.

_____
Tom Hughes, Council President

Approved as to Form:

_____
Alison R. Kean, Metro Attorney

Killin Wetlands Access Master Plan:

Planning Process Summary

June, 2015 - **DRAFT, VERSION 1**

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Killin Wetlands Access Master Plan:
Planning Process Summary

June, 2015

Metro Project Staff

Alex Perove, Project Manager
Rod Wojtanik, Interim Planning Manager

Consultant Team

Nevue Ngan Associates
Henneberry Eddy Architects
KPFF Consulting Engineers
MLC Engineering
Winterbrook Planning

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Appendix

1. Background / Summary

NW Cedar Canyon Road

The Killin Wetlands Natural Area is a 589.6-acre parcel near the town of Banks in Washington County. The land provides a rare example of a peat wetland in Oregon and supports significant wildlife populations. Historically, from between the 1850s and the 1980s, the land was used as a dairy farm. Some upland portions of the property continue to be leased for cropland. The wetland has long been known to birders as a destination to observe wildlife. Because there are no public improvements, visitors sometimes park in the adjacent road right of way and set-up cameras on the road's shoulder.

Project kick-off meeting

Recognizing the lands unique habitat value, Metro Regional Government, acquired 373 acres in 2002 and 212 acres in 2012. Since acquisition, some farm buildings have been removed, land has been re-vegetated, and hydrology patterns in the pasture restored. Currently, some buildings from the farm remain, including the iconic barn and a single family residence. Parts of the natural area will remain in the cultivation of wheat and other crops, maintaining the land's agricultural legacy.

Looking south over the wetlands

2. Purpose of Plan

In 2013, voters across the Portland metropolitan area approved a five-year levy to help care for regional parks and natural areas. The major areas of focus of the levy include:

- **Natural area restoration and maintenance**
- **Natural area improvements for visitors**
- **Park maintenance**
- **Volunteer programs**
- **Conservation education**
- **Community grants**

Barn from wetland

This Access Master Plan identifies improvements that will provide safe public access for visitors to view wildlife with minimum impact on the natural resources. The study area is primarily the uplands area around the existing development and the upland areas between the road and the wetland. These areas provide the best opportunity for access, parking, trails, and viewing. This report summarizes general site conditions, the planning process and resulting proposed Access Master Plan. A number of figures used in project presentations are included in the appendix.

Wetland view

General goals for development of the site:

- **Protect and enhance the natural, scenic and cultural resources**
- **Identify the best destinations for wildlife viewing**
- **Provide safe automobile access from NW Cedar Canyon Road**
- **Design simple durable forms consistent with farm vernacular**
- **Provide facilities for education programs and groups**
- **Determine a strategy to preserve the old dairy barn**
- **Improve maintenance operations and natural area management**
- **Develop in a scale and character that the community supports**

Looking west through farmstead

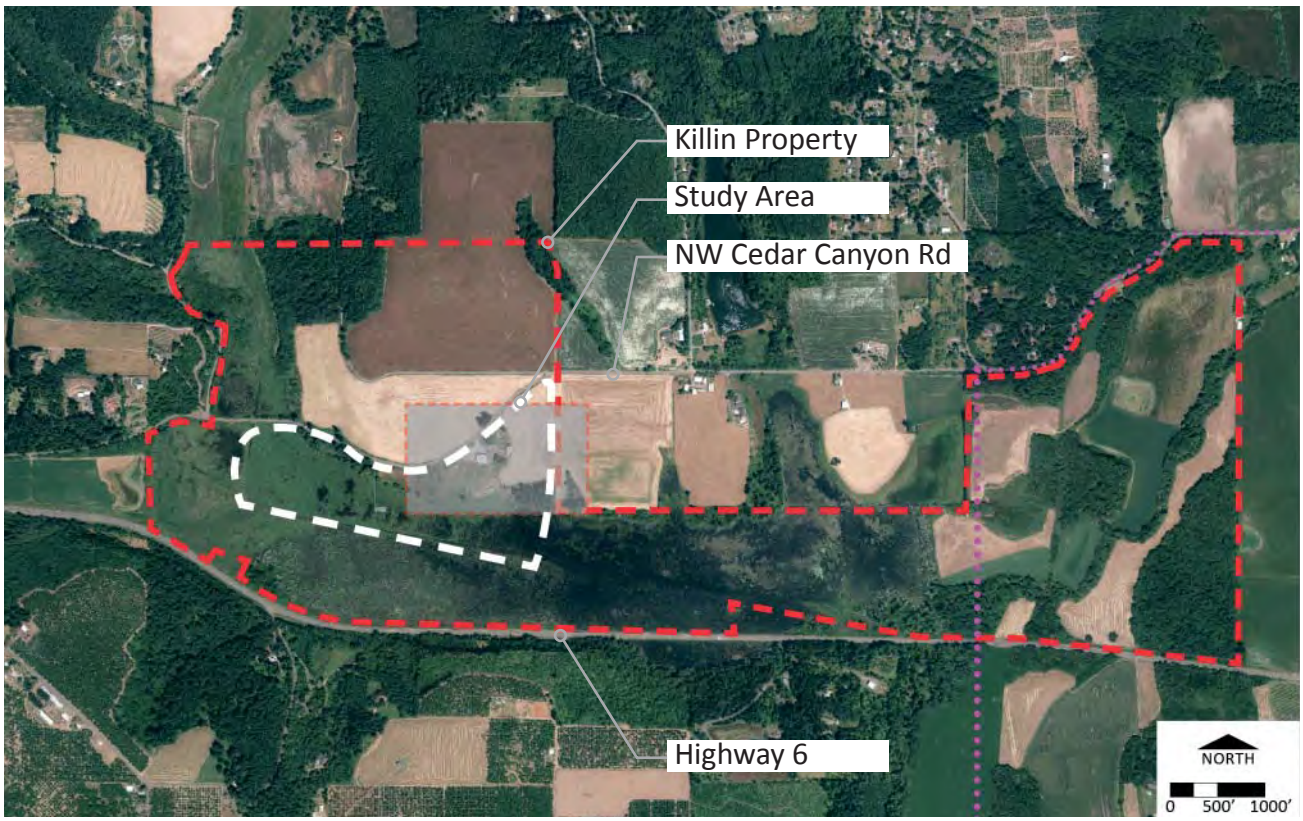
3. Setting / Location

The site is located approximately two miles from the city of Banks in Washington County jurisdiction. The site is located outside of the Banks urban growth boundary and is surrounded by land zoned for farm and forest.

Access to the site is from NW Cedar Canyon Road which connects to State Highway 6, one mile west of the farm site. NW Cedar Canyon Road is a narrow (approximately 22'), two-lane road that primarily provides access to farms and residences. Traffic counts on the road tally approximately 64 vehicles daily (see Appendix G).

Facts:

Property:	46280 NW Cedar Canyon Road
Jurisdiction:	Washington County
Acres:	589.6
Zoning:	Exclusive Farm Use (EFU)/Agriculture and Forest - 20 (AF-20)
Upland area:	AF20
Wetland:	EFU
Tax lots:	T:2N, R:4W, Sec:25, TL:900



4. Site Resources

The planning and design focus centered on the farm site and wetland areas near the old dairy barn. Where at one time the farm site provided a good prospect for the farming families to look over their dairy herd, now that same site provides future visitors views of the open water and wildlife.

Wetland matrix

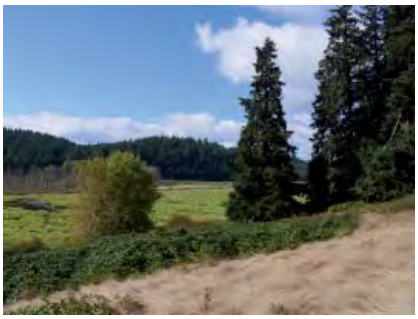
A number of site conditions and the historic development affect the use and development of the site and informed the basis for design. These include soils, topography hydrology, vegetation, views and existing improvements. For maps of these conditions, see Appendix A.

Soils

At Killin, wetlands are largely underlain with Labish soils - a type of organic "beaver soil" with areas of Wapato soil on the higher western regions of the wetlands. The site's upper wetland soil layer, comprised largely of peat, has become severely damaged since it was dewatered beginning in the 1870s (or 1890s) for grazing purposes. These soils are rare in the Willamette Valley and have been mostly destroyed. This wetland remains the best example of a peat wetland in the Willamette Valley.

Upland slope

From the 1870s, the stream was channelized and the wetlands were drained. The exposure to air while being grazed oxidized the upper soil layer causing the soil elevation to fall an estimated three to six feet. The full recovery of the wetalnds will happen only after the organic soil layer has re-accumulated; a process that will take decades, or perhaps centuries.



View from upland to wetland

Topography

Site topography varies from flat on the wetland areas to gradually sloping between the road and the wetland and moderate at the farm site. Grounds near these buildings provides the most suitable area for day use development.

The elevation change from the wetland to the barn is approximately 30 feet. This grade change provides an excellent prospect to view wildlife from both the barn area and upland areas below the barn. The sloping site also provides some vertical separation from NW Cedar Canyon Road which helps to buffer the proposed day use area.

Emergent wetland/open water

Barn Owl Pellets

Birds in the wetland

Killin Wetlands support wildlife from insects to large mammals. Killin's wildlife diversity includes:

- *Northern red-legged frogs*
- *Willow flycatcher*
- *Ducks*
- *Other water fowl*
- *Shore birds*
- *Wading birds*
- *Bittern*
- *Rail*
- *Bald eagles*
- *Cutthroat trout and other juvenile salmonids*
- *Beaver*
- *Deer*
- *Elk*
- *Black bear (possibly)*
- *Nutrias and bullfrogs, two non-native species are present.*

Hydrology

The Killin Wetland Site Conservation Plan, produced by Metro, states that from the 1870s to 2000, creeks at the site were ditched and periodically dredged to support cultivation and grazing. Most agricultural practices within the floodplain stopped during the mid-1990s, a few years prior to Metro's acquisition. Abundant beaver activity at the site has influenced the development of a perennially flooded wetland. Water levels have risen in recent years but are not expected to rise significantly higher. Open water may decrease in the coming decades as peat soil levels rebuild and hold more of the runoff.

Vegetation and Wildlife

A small collection of Willamette Valley peat-laden wetlands, such as Killin, support several typically montane or coastal plants not found elsewhere in the Willamette Valley. These plants include Geyer Willow (*Salix geyeriana*), bogbean (*Menyanthes trifoliata*), Oregon bentgrass (*Agrostis oregonensis*) and narrowleaf cattail (*Typha augustifolia*). Vegetation on the site consists of upland forest, shrub wetlands, emergent wetlands (open water), and riparian forest. Reed Canarygrass, an invasive species, was introduced to the site in the 1930s as cattle fodder. The "graveyard" of dead and dying ash and willow trees around the wetland's edge, killed by persistent inundation when the flooding returned after agricultural practices ceased, now stand as a visible testament to the wetland bottom's degradation. Since acquisition, Metro's approach to wetland management focuses on habitat restoration; however, wetland revegetation has limited success due to perennial flooding and the established Reed Canarygrass. In some higher elevations along the perimeter of the wetland, Geyer Willow has been successfully re-established.

Adjacent uplands have been managed to suppress pasture grasses and Himalayan Blackberry and to establish fir, cedar, ash, Oregon Grape and other native species. Some of the upland fields are farmed and will continue to be farmed.

At the old dairy barn, the grounds include a few trees, shrubs and extensive lawn. The most distinctive tree is a mature black walnut with a wide drip line. Future development should respect the dripline of the tree.

Aspect/Views

From the proposed day use areas and trails, views into the wetland are primarily to the south looking into the sun. This can be problematic for wildlife viewing at certain times of the day.

Development of areas where visitors can take advantage of east and west views and areas beneath the shade of trees will provide viewing options that are not directed into the sun.

Improvements
A variety of buildings remain on the property. The old dairybarn has a dominant presence on the site. It can be seen in the distance from Highway 6 and provides an orientation and reference for visitors. The second floor of the barn is a large open wood structure that is architecturally distinctive. Structurally the barn is in good condition. On the exterior, a number of improvements need to be made to secure the structure. These include improvements to the windows, doors and siding. On the south side of the barn, two later shed additions/accessory units to the barn have been constructed. They were used for equipment storage and other farm use. The shed additions have structural problems that need to be addressed if they are to remain on the site. As part of this plan, an architectural assessment was completed, see Appendix E.

Chicken Coop
A small chicken coop remains from the farm operation. The coop is generally of the era of the barn and contributes visually to the farm scene. The coop is on a block foundation and if necessary could be easily moved. The interior of the building is in rough condition but could be salvaged.

Residence
The existing ranch-style residence was constructed about late 1960s. According to Metro real estate managers, the house is in average condition. Consistent with many homes of this era, a number of improvements would need to be made to make it serviceable for continued occupancy.

Equipment shed
An open wood structure and metal roofed shed is on the east side of the barn. Historically it has been used for equipment storage. It is in usable condition.

Utilities
The site is not served by municipal sewer and water. A well and pump house is located between the barn and the house. The well provides approximately 10 gallons per minute water supply. Sanitary sewer is accommodated by a septic system. The location of the drainfield is on the southeast side of the house.


Barn and Accessory Shed Additions


Inside of Hayloft in Barn


Chicken Coop


Residence


Equipment Shed

5. Process

Design Team site visit

The planning process for the Killin Wetlands Access Master Plan began in November 2014. The plan has been developed with oversight from Metro Parks and Nature Department staff, project stakeholders, members of the community and input from Councilor Kathryn Harrington acting as project liaison from the Metro Council.

The Metro team of reviewers was comprised of managers, scientists, land and property managers, planners, and naturalists. Key stakeholders have included members of the community, the Audubon Society, the City of Banks, Tualatin Watershed Council, Bicycle Transportation Alliance, and neighbors.

Community input at the first open house

Two open houses were held to give community members the opportunity to view alternatives and the preferred design. The meetings were held at the community room at the Banks Fire Station. Approximately 45 community members attended the first meeting on February 18, 2015. Site features, site history and preliminary alternatives were presented. Comments from these meetings were collected and incorporated into the plans. Generally people were enthusiastic about the approach to provide day use access.

A second meeting was held on May 19, 2015 to review the refined concept plan. About 20 community members attended the meeting. Generally, consensus of the program and design was expressed.

Second open house

Following minor tweaks based on feedback, a final preferred design was developed and received approval from Metro's Parks and Nature Department staff.

In addition to meetings, public open houses and stakeholder outreach, the analysis and alternatives were posted on the Metro website.

6. Development Program

This project seeks to provide safe visitor access without impacting neighbors or natural resources. The site limitations that will limit development include: limited flat upland area situated between the wetland and NW Cedar Canyon Road, existing trees and vegetation, existing grades, and proximity to adjacent farmland.

Early Idea: Overlook

To accommodate the anticipated visitors, the site development program will include the following items:

- Entry drive and parking for 20 vehicles and 1 school bus
- Potential future overflow for 10 cars
- Flexible space to accommodate classes and small events
- Blinds and a shelter for viewing
- Trails
- Restroom
- Benches and picnic tables
- Signs / information kiosk
- Security gates
- Incorporation of art

7. Concept Alternatives

The design team produced a number of preliminary design concepts. Each concept balanced habitat restoration, created public access, buffered farming and provided opportunities to view wildlife.

Early Idea: Typical Trail

Initially, seven alternatives were reviewed by Metro staff. The concepts varied in number and location of entries; removal of the residence; circulation and parking location. Each design was tested using the development program to determine how well the scheme respected the barn area, the views of the wetland and surrounding area, provided adequate buffer between the road and farm, as well as an appropriate entry for a day use facility. A zone diagram was developed to give a general method to determine how alternatives met project goals.

Design Goals

Barn Zone

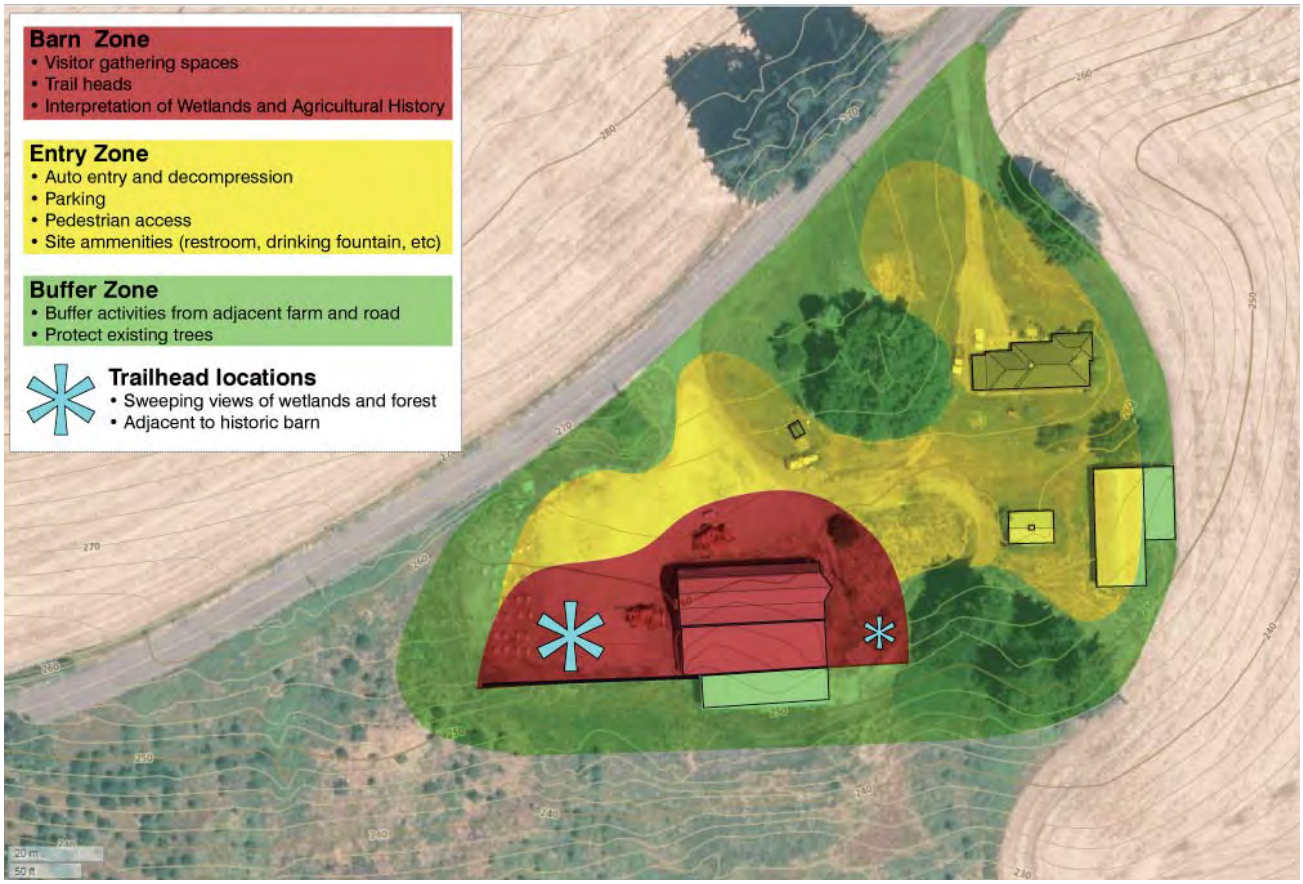
- Provide visitor gathering spaces
- Organize trail heads
- Provide space for interpretation of wildlife and site history

Buffer Zone

- Provide buffer from development from Cedar Canyon Road
- Provide space from development and adjacent farms
- Protect significant existing trees

Entry Zone

- Provide safe entry and visitor orientation to site character
- Organize parking for simple and easy circulation
- Provide direct pedestrian access from parking to entry
- Provide space for site amenities (restroom, benches, picnic tables, bike racks, drinking fountain, information signs, art)



Refined Alternatives

Four refined alternatives that best met the development goals were shown at the first public meeting and reviewed by Metro staff. Two of the alternatives retain the existing residence and two remove the residence. All of the alternatives use existing property driveways.

Alternative 1: One Way Loop

- Maintains the existing residence
- Loop road gets fairly close to home
- Need to relocate chicken coop
- Potentially impacts fir trees on the south side of the parking lot
- Limited opportunities for expansion of parking

Alternative 2: Entry Road adjacent to field

- Opportunity to maintain the existing residence
- Entry road may require cultivated field area to be adjusted
- Limited opportunities for expansion of parking

Alternative 3: Loop Entry Road

- Removes the existing residence
- Pedestrians circulation along the edge of parking area
- Provides narrower drive aisle

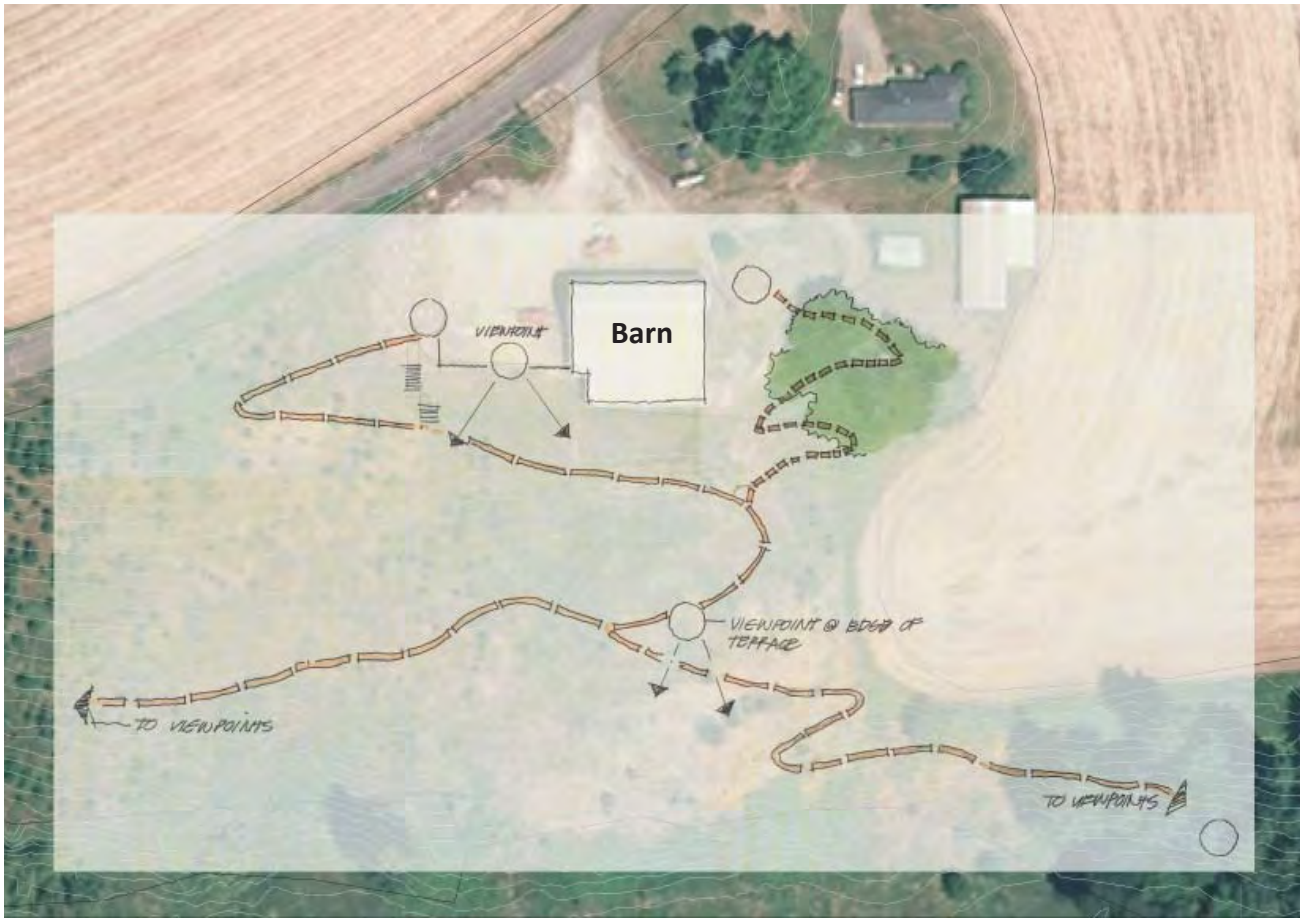
Alternative 4: Maximizes open space by the barn

- Removes the existing residence
- Moves parking to the east, adjacent to the farm
- Relocates the coop building
- Limited opportunities for expansion of parking

Trail /Destinations Alternatives

Trail route alternatives are limited because of the narrow nature of the site. Grade change between the barn and the viewing areas did offer the opportunity to analyze different trail routes based on grade.

- Routes using both 8% and 5% grades were reviewed.
- Three primary thoughts in the location of the trails are:
  - 1] Provide reasonable and universally accessible access
  - 2] Provide a more direct route to the west side of the site to some of the more desirable viewing areas
  - 3] Provide spurs to viewing destinations off the main trail
- Provide some seating opportunities off the trail
- Screen the trail to minimize impact of humans on the wildlife

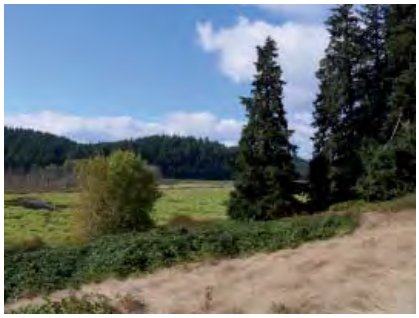


Preliminary 5% trail option

8. Refined Site Design

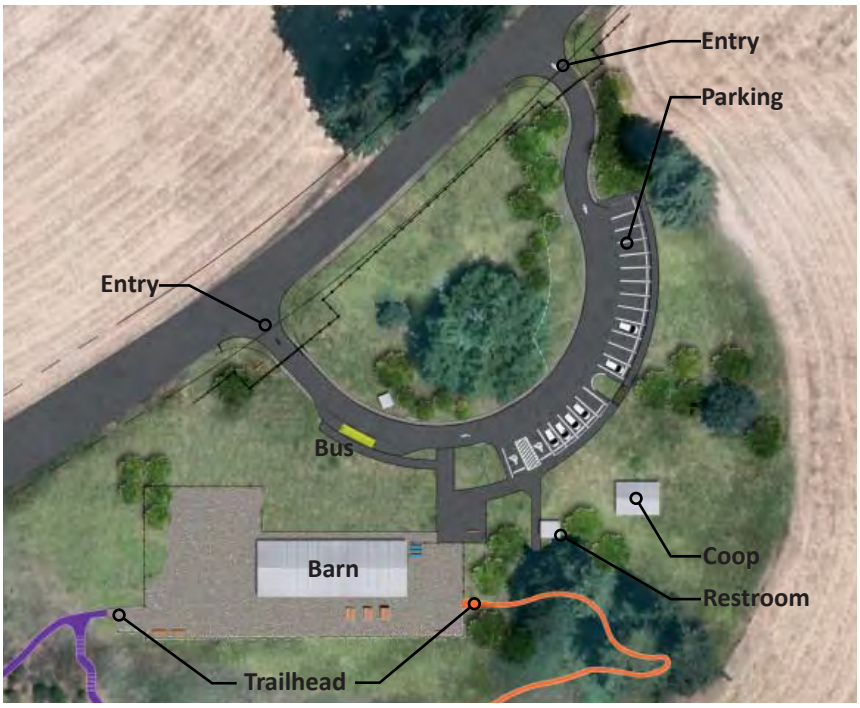
View to west from the wetland edge

The preferred alternative is the loop entry road. This alternative was reviewed and selected by Metro's Parks and Nature Department staff because it is simple, easy to expand as demand increases, provides visitors clear orientation to the entry, improves visibility and safety, and protects site resources. The barn naturally becomes a favorable location for day-use facilities, trailheads, and a small parking lot. The goal is to keep most improvements within the area that already houses the barn in order to maintain a "light touch" on the landscape and habitat. Natural resources and habitat restoration efforts will be focused on sensitive areas, such as the unique wetland and surrounding upland areas (see Appendix C).



Wetland from below the barn

Entry to the site is marked by an agricultural style wood fence and the Metro entry monument sign. The one-way drive gives visitors clear orientation to the pedestrian entry on the east side of the barn. A path is provided directly from the parking area to the site entry. Parking is located and graded so that the visibility of the cars and asphalt from the overlook and trails is minimized. Parking lot stormwater is accommodated by sheet flow to moderately graded swales in the grass area on the south side of the parking area. The intent is to minimize or eliminate the need for catch basins and piping. Parking in this location will require removal of the residence and carport. The existing steel shed will also be removed to open up the views from the day use area to the adjacent agricultural field.



From the site entry, pedestrians are directed to the overlook at the south side of the barn. This overlook utilizes the existing 6-foot retaining wall to give the visitor an immediate panorama of the wetland. The close proximity of the overlook to accessible parking is valuable.

Wetland from below the barn

The barn is in relatively good condition. It will require some cosmetic upgrades (while maintaining access for the resident barn owl), but will serve as a natural gathering space and an iconic nod to the area's agricultural and cultural history. The refined site design shows removal of the two shed additions, or accessory units, on the south side of the barn that have structural stability issues. Removal of the sheds also reveals the south side of the barn, enhances the gathering space, and opens up the terrace for wetland viewing.

North side of barn

Agricultural fencing defines the area around the barn by marking the flexible gathering space, organizing site use, and identifying trailheads. The grounds provide space for picnic tables, benches, art and potential exhibits or small educational events. Opportunities to view inside the barn may be provided in the future.

Trailheads are located at the east and west sides of the barn. Trails lead to viewing destinations which are sited on spurs off the main trails. The destinations are intended to have casual seating, and natural or structured blinds. The destinations are located to disperse visitors and give the best access to some of the more desirable viewing areas. Future planting along the trails will be grouped to accent views and screen visitors from the overlook. Additional vegetation between the trails and the wetland may help prevent birds from flushing from the wetland due to visitor use.

East side of barn

Trail and blind illustration

Trails are designed to reasonably accommodate visitors that may have limited mobility. Because of the topography, there may be some higher challenge trail lengths with steeper grades. Overall the intent is to keep the trail tread at or below 5%. Most of the trails are soft surface and are between 3 and 4 feet wide.

A shelter is shown at the edge of the lower terrace. The shelter is sited to the east of the barn out of direct line of site from the barn overlook. Planting on the back side of the shelter will diminish its view from the barn overlook. The shelter could provide an opportunity for groups or classes to gather in a place away from the main entry.

Shelter on terrace illustration

A boardwalk is shown on the west end of the site. The boardwalk is shown as a way for visitors to get closer to open water. Because of the nature of the peat soils and the fluctuating water, the boardwalk may need to be designed as a tethered floating system. Specific engineering and feasibility was not completed as part of this work.

Boardwalk illustration

Architecture

Public access will require that some improvements to secure the barn are completed. Generally this will involve securing the doors, fixing siding and windows and determining a way to secure the open hay racks on the south side of the barn. Additional concepts for phased barn improvements access and interpretation are included in the architectural study in the Appendix.

Barn modification concept illustration

Material Recycling Reuse

Materials on buildings scheduled to be removed include posts, timber siding and galvanized roofing. Design sketches were produced with the idea that some of these materials could be utilized for blinds, the shelter, and fencing. A list of the materials is included on the design development drawings (see Appendix D).

Wood and roofing for salvage

9. Costs

A cost estimate was prepared based on elements shown in the refined concept plan. The estimate is based on the diagrammatic plan, and assumptions have been made for materials, quality, and construction. The construction estimate is based on 2015 unit costs for each specific work item.

The estimates include a 20% contingency to cover unforeseen costs. As plans are refined, estimates should be updated to reflect the level of completion. Soft costs for permitting, additional studies, and engineering were not included.

Item of work	**Approximate Cost**
Site Protection	$5,200
Demolition / Recycling	$6,900
Salvage and Recycling Buildings	$26,500
Dairy Barn Stabilization	$91,000
Buildings (Restroom, shelter)	$160,000
Roads and Parking	$124,000
Paths @ day use area (Asphalt, gravel, concrete)	$87,850
Paths (Boardwalk, stairs, soft trails)	$152,700
Miscellaneous Items (Blinds)	$30,000
Site furnishings (Bike racks, signs etc)	$100,200
Fencing and Gates	$48,500
Planting / Landscape	$30,985
Utilities (Water)	$6,000
Stormwater	$3,000
Electrical (Security lighting)	$10,000
Construction Total	**$882,835**
Mobilization @ 10%	**$88,284**
OH&P @ 09%	**$87,401**
Contingency @ 20%	**$176,567**
Total Cost	**$1,235,086**

10. Phasing

The goal of the project is to provide safe public access to the property. At a minimum a phase one construction project would provide the following:

- Main barn stabilization and deconstruction of accessory buildings
- Removal of residence, steel shed, carport
- Parking and access and automatic entry gates (2)
- Gathering area around the barn
- Railings at the overlook
- Trails
- Bird blind (1 of 3)
- Stormwater
- Wayfinding signage
- Art (Quilt block)

Future phases of the project could include:

- Fencing
- Interpretive information
- Restroom (vault toilet)
- Shelter
- Boardwalk
- Remaining bird blinds (2 of 3)
- Security lighting
- Improvements and access to the barn
- % for Art

11. Permitting

- Land Use: The project will need to obtain a Type II land use from Washington County. As part of the application, a public meeting will need to be held, site posted describing the land use action, and adjacent properties contacted by mail. The process, not including preparation of the application, takes 5-6 months. Additional information on the application requirements can be obtained from the Washington County website.

- Construction Permits: The permits for construction will need to be obtained from Washington County. Permits for park construction generally include a grading permit, building permit, and possibly a public facilities permit.

- Grading: A grading and drainage permit from Washington County will most likely be necessary. The threshold for obtaining a grading permit is 150 cubic yards. Preliminary plans indicate that this threshold will be exceeded. Along with the grading permit, a NPDES 1200-C permit will be necessary from the State Department of Environmental Quality. This permit is triggered when more than one acre of land is disturbed. The project should meet that threshold. The project is not in the jurisdiction of Clean Water Services and won't be subject to CWS permitting.

- Building Permit: The preliminary plans show construction of walls at the barn overlook. These walls are necessary to resolve grades at the trail head locations. Because of the height of the walls, review will be necessary by Washington County building department. The walls will need to be reviewed and designed by a structural engineer. A geotechnical review of soil conditions will need to be completed for the footing design. Depending on the type and extent of improvements to the barn, building permits will also be necessary for components of the barn construction.

- Public Facilities Permit: A Washington County Public Facilities permit may be required if road / right of way improvements are necessary. Detailed plans have not been reviewed by the County and at this time it is not known if improvements will be required. If roadway improvements are required, the county would most likely require a geotechnical study to determine the proper pavement section.

- End of Report -

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Site Analysis Presentation

Appendix A

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CONTEXT AND CONNECTIVITY

Summary: This rural site could potentially connect with proposed regional trails

Sunset Park Facilities:
Picnic Areas
Restrooms
Baseball Fields
Concessions
Restrooms
Race Track
Shooting Range
Playground
Meeting Hall

Banks / Vernonia Trail:
6 Trailheads
Restrooms
Picnic Facilities
Shelters
Multi-Use Trails with Equestrian Facilities
Interpretive Exhibits

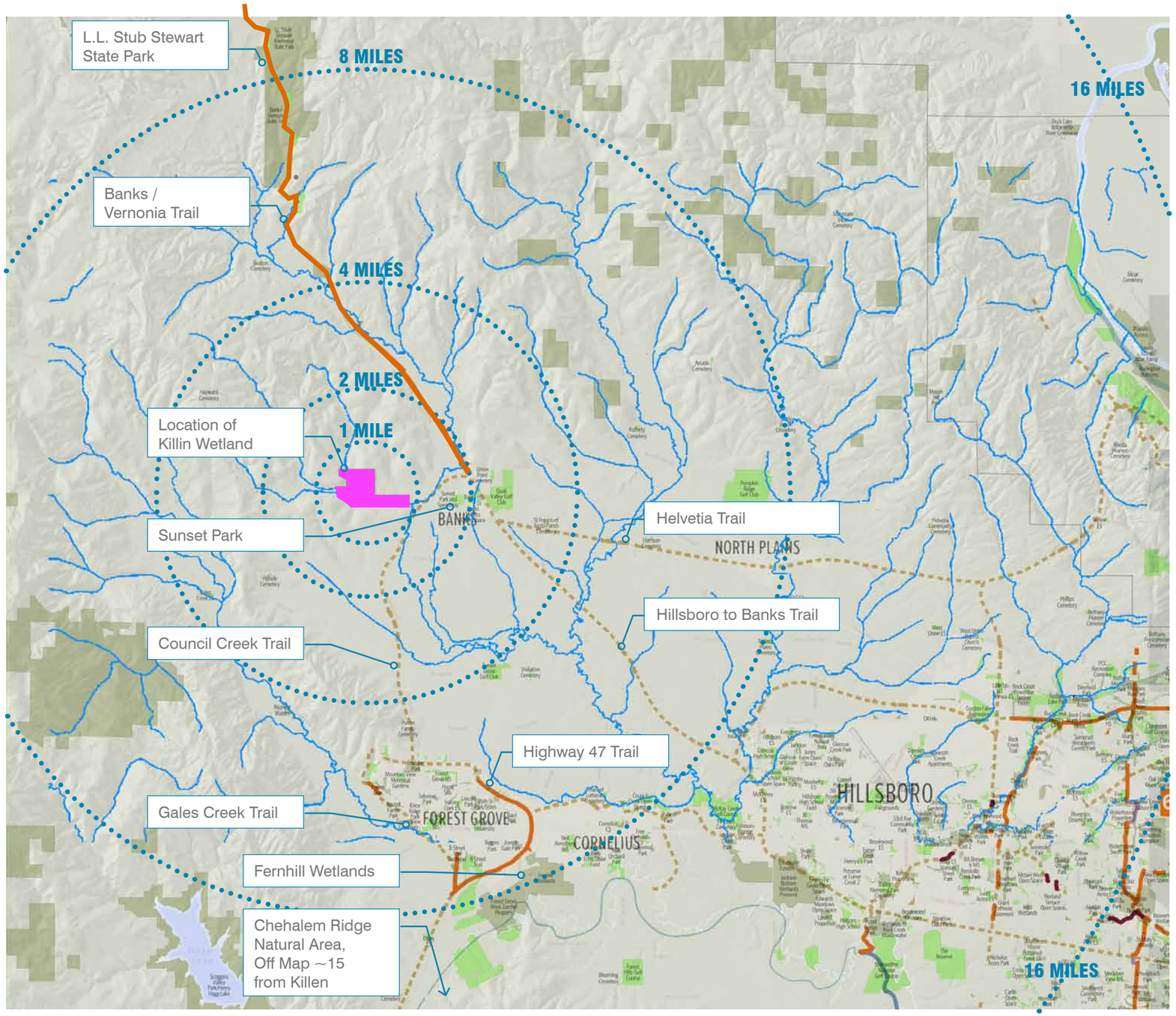
L.L. Stub Stewart State Park Facilities:
1600 Acres
Camping
Cabins
Day Use
Hiking
Picnic Area
Restrooms
Showers
Interpretive Exhibits
Scenic Viewpoints
Pet Friendly
Bike Path
Ampitheater
Disc Golf Course

Fernhill Wetlands:
Ponds with Birding Sites
Restrooms
Pedestrian Trails

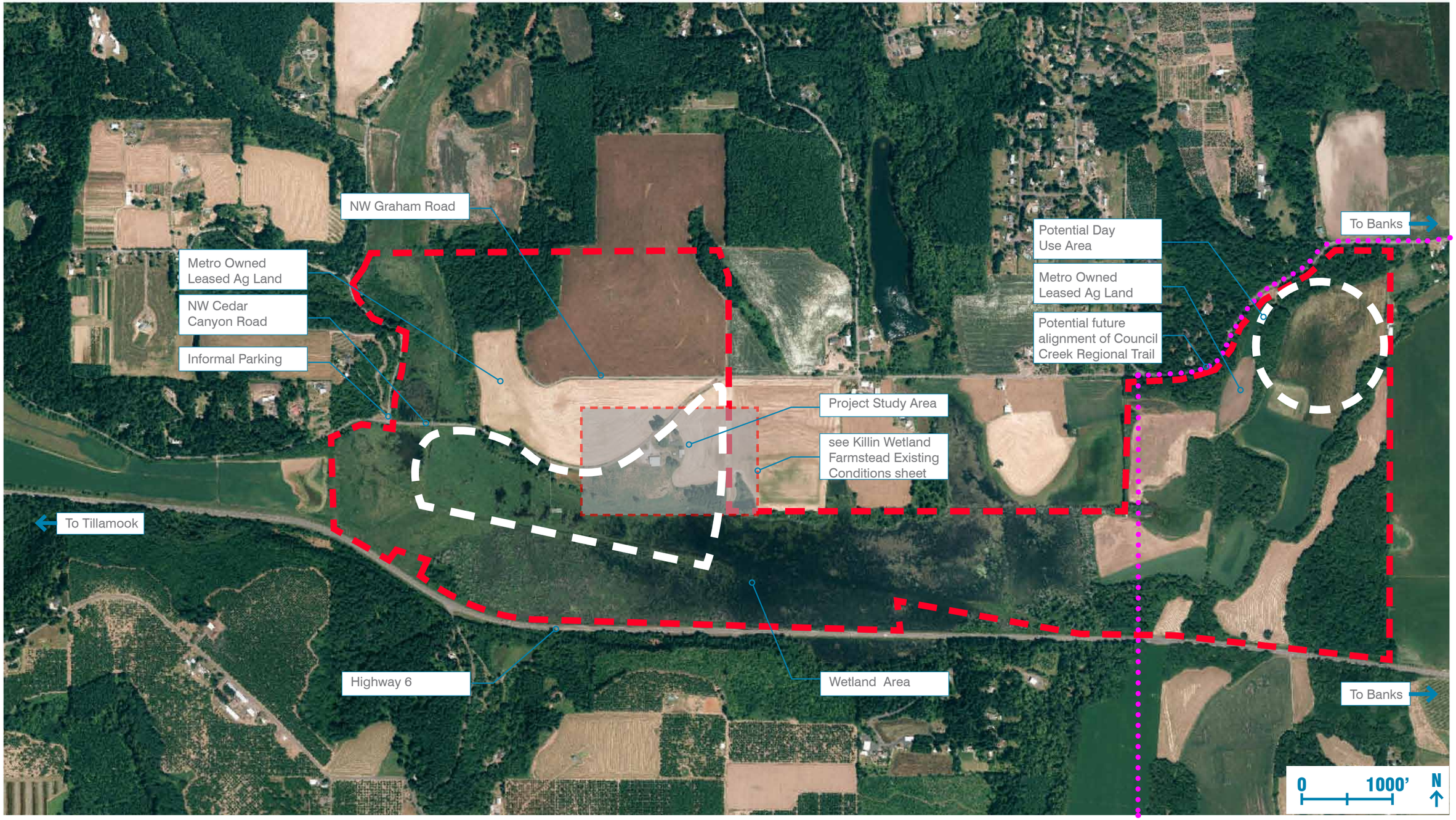
LEGEND

- Existing Multi-Use Trail
- Proposed Trails
- Parks and Natural Areas

N



KILLIN WETLAND PROPERTY EXISTING CONDITIONS

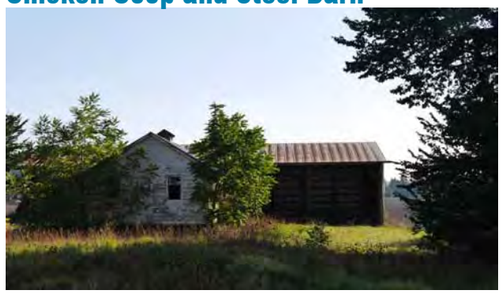


KILLIN WETLAND FARMSTEAD EXISTING CONDITIONS

Summary: a historic farmstead featuring an iconic dairy barn with deferred maintenance. The site also includes a chicken coop, and pumphouse that match the barn's character. A newer residence and pole barns are also present. A large Walnut tree marks the center of the farmstead.

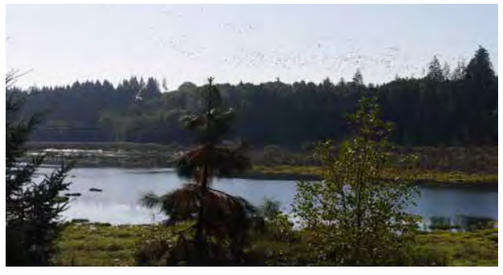
Dairy Barn

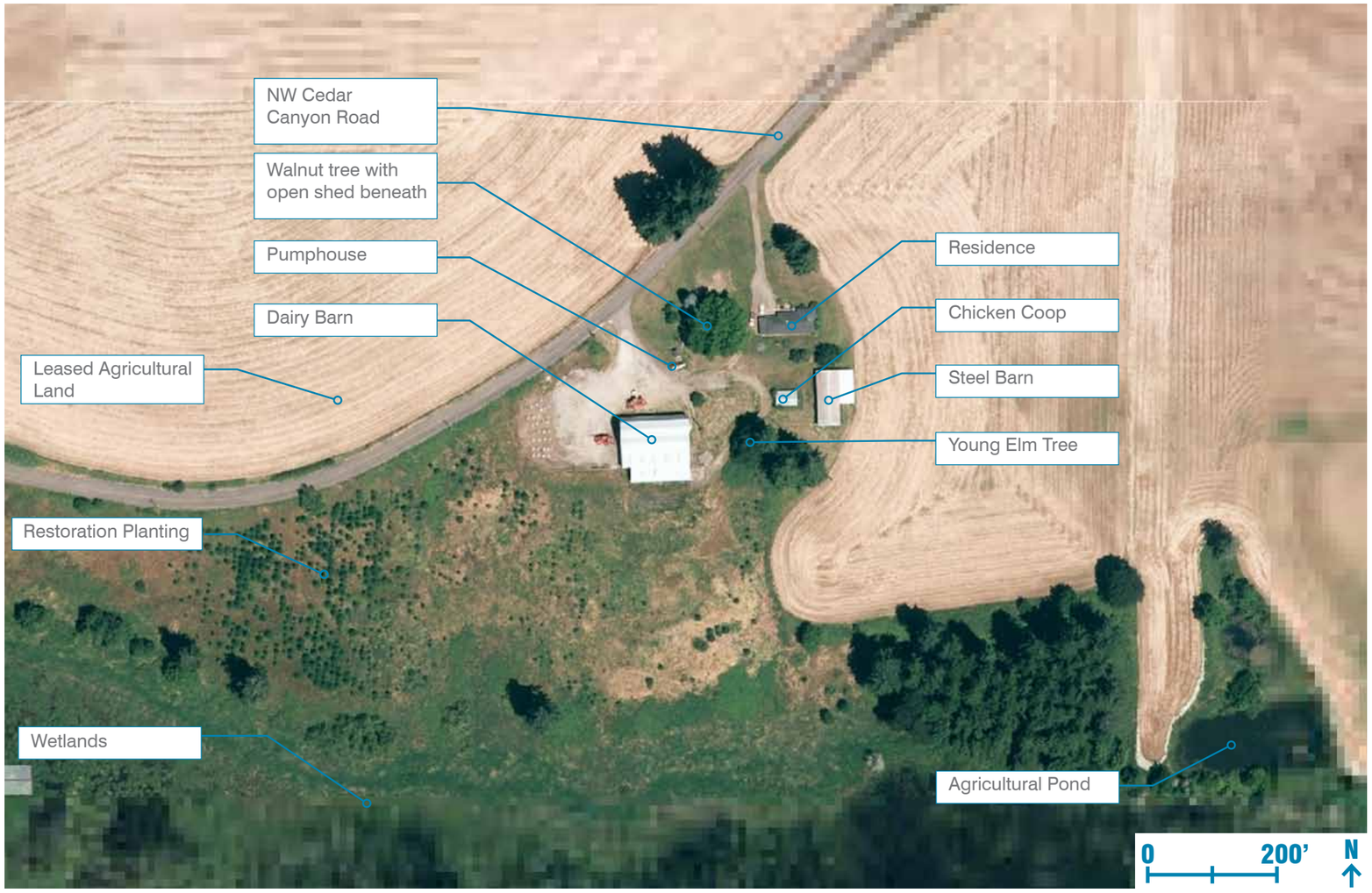
Chicken Coop and Steel Barn



Walnut Tree and Pumphouse

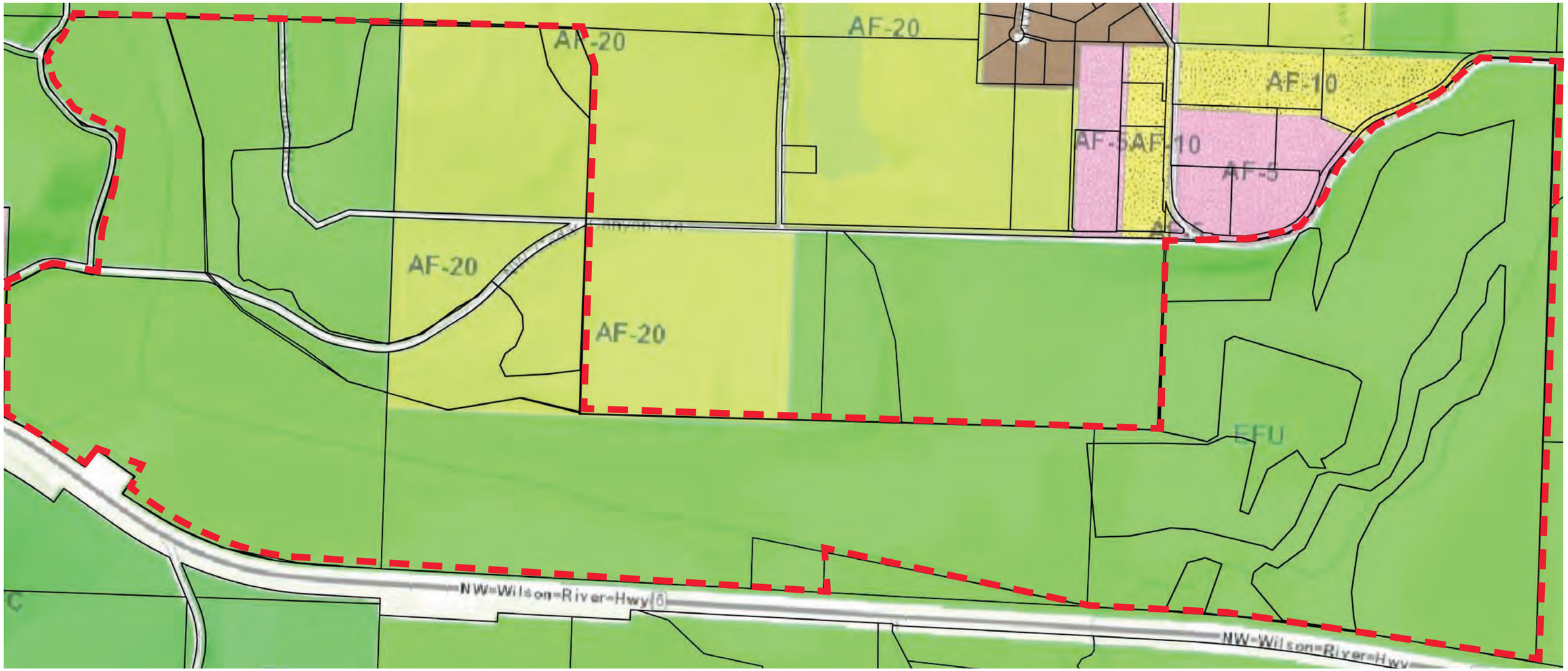
Wetland from Barn





- The remnant of a working dairy farm provides the location within the study area best suited recreational programming. According to documents provided by Metro the dairy farm ceased production sometime in the 1990's.
- Many of the dairy facilities remain on site and provide space for minimal storage, but are otherwise unused.
- The residence is occupied by a rental tenant.
- A portion of the dairy barn stores farm implements, but the main portion of the barn goes unused and has fallen into disrepair. The open and unused condition provides nesting habitat by barn owls.
- The small chicken coop appears to have been moved from elsewhere on site. It sits on blocks and is unused and falling into disrepair.
- The smallest building, the pumphouse, appears to hold some type of utility equipment but has not been inspected closely.
- The steel barn is a standard agricultural pole barn with corrugated steel siding. It is open on the west facing side and was not housing any equipment during the site visit.

SITE FACTS



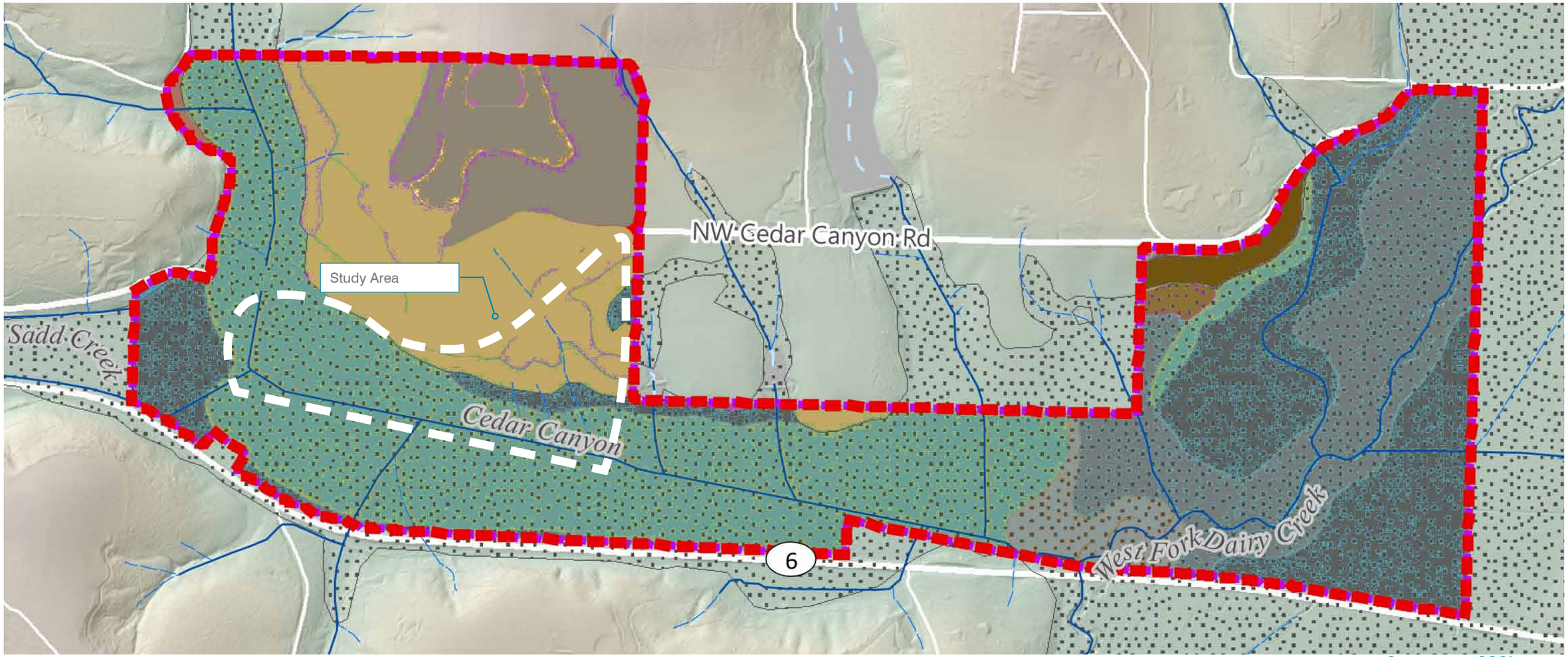
Project Area	~ 596 Acres	The majority of the site is zoned EFU with the portion around the Dairy Barn zoned as AF-20.
Upland Area	~ 145 Acres	
Lowland Area	~ 449 Acres	
Farmable Area	~ 277 Acres	

EFU is Exclusive Farm Use with 80 acre lot minimums.

AF-20 is Agriculture and Forestry with 80 acre lot minimums.

NTS N

SOILS



Labish Mucky Clay soils support the Killin Wetlands. Comprised primarily of peat built up over centuries of beaver-directed flooding. These productive soils are rare in the Willamette Valley, and have mostly been destroyed. Killin Wetlands remains the best example of a peat-based wetland in the Willamette Valley. Starting in the 1870's, the wetlands were drained with channels. The exposure to air while being grazed oxidized the upper soil layer causing the soil level to fall an estimated one to two meters. Estimates predict that it will take decades, possibly centuries for soil levels to build back up. The higher elevation wetlands on the western side of the site contain Wapato Silty Clay Loam Soils. The upland locations contain Cornelius and Kinton Silt Loams and Laurelwood Silt Loam. These soils are moderately well-drained to well-drained. Much of it is under cultivation, but a few areas of forest remain intact.

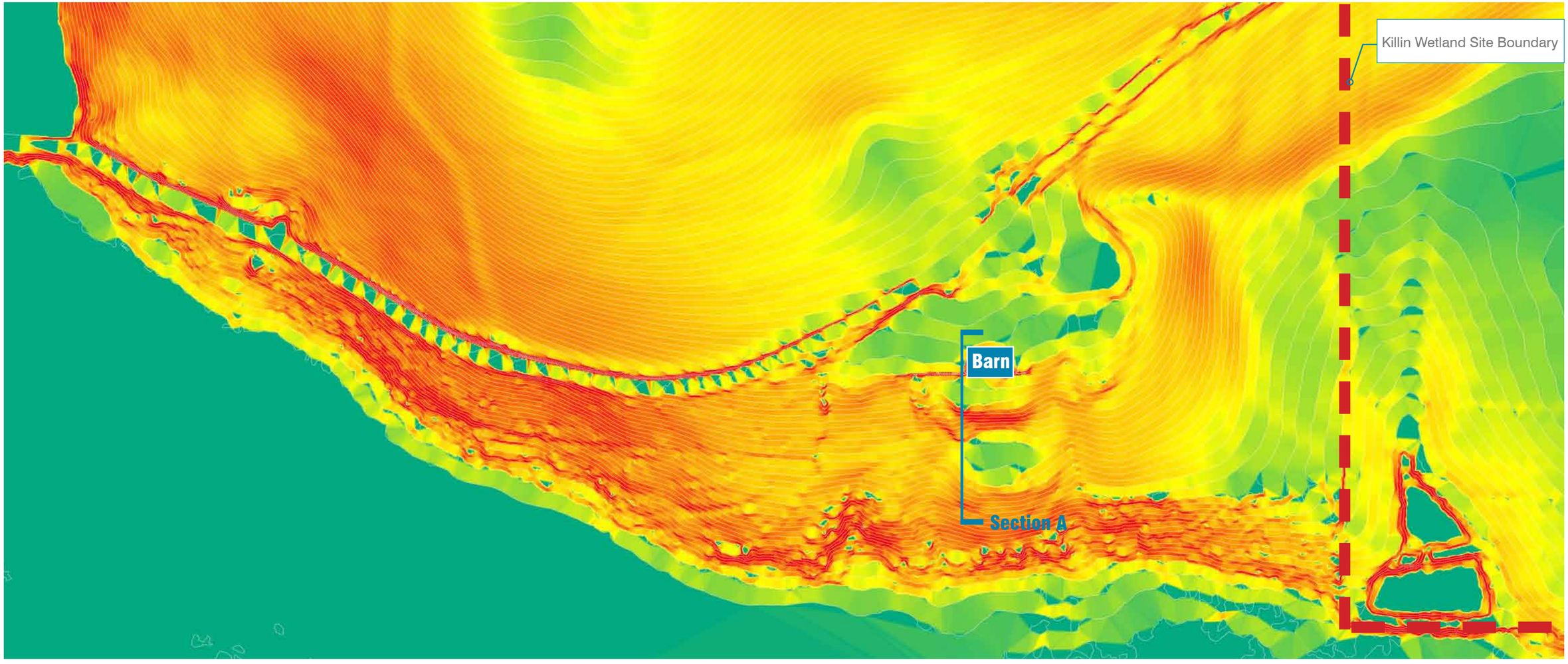
LEGEND

- **Labish Mucky Clay**: Poorly drained soils at form in mixed alluvial or lacustrine material that is high in organic matter and is stratified with lenses of peat or muck. Where these soils are not cultivated, the vegetation is sedges, willow and cottonwood.
- **Chehalis Silty Clay Loam**
- **McBee Silty Clay Loam**
- **Wapato Silty Clay Loam**: Poorly drained soils that formed in recent alluvium on floodplains. Where these soils are not cultivated, the vegetation is ash, willow, rushes and grass.
- Hydric Soils
- **Cornelius and Kinton Silt Loam:** Moderately well drained soils that formed in loesslike material over fine-silty, old silt loams alluvium of mixed origin on uplands. Where these soils are not cultivated, the vegetation is Douglas-fir, bigleaf maple, shrubs and grasses.
- **Cove Silty Clay Loam**
- **Helvetia Silty Clay Loam**
- **Laurelwood Silt Loam**: Well-drained soils formed in silty, eolian material overlaying fine textured materials on uplands. Where not cultivated, the vegetation is Douglas-fir, bigleaf maple, Oregon grape and hazelbrush.

0 200' N

SLOPE

Summary: The site of the original farmstead has gentle, buildable slopes suitable for a small day use area with a parking lot. A natural terrace below the barn provides opportunity.



Observations

- The area surrounding the barn and residence has shallow slopes, this will allow grading to be more minimal in this area. It is a good location for gathering and parking areas.
- Majority of the site away from the barn is on areas of significant slope. This will impact trail slopes and accessibility when approaching the water.
- The area descending from the barn has a terraced character, this may be useful as a gathering space or other amenity.
- Several locations near the waterline have areas of slope between 5 and 10%. These are potential viewing areas, but will need to be examined to see how they relate to existing trees. If large existing trees are present, regrading may be tricky.

Section A at barn showing terraces

Key Map

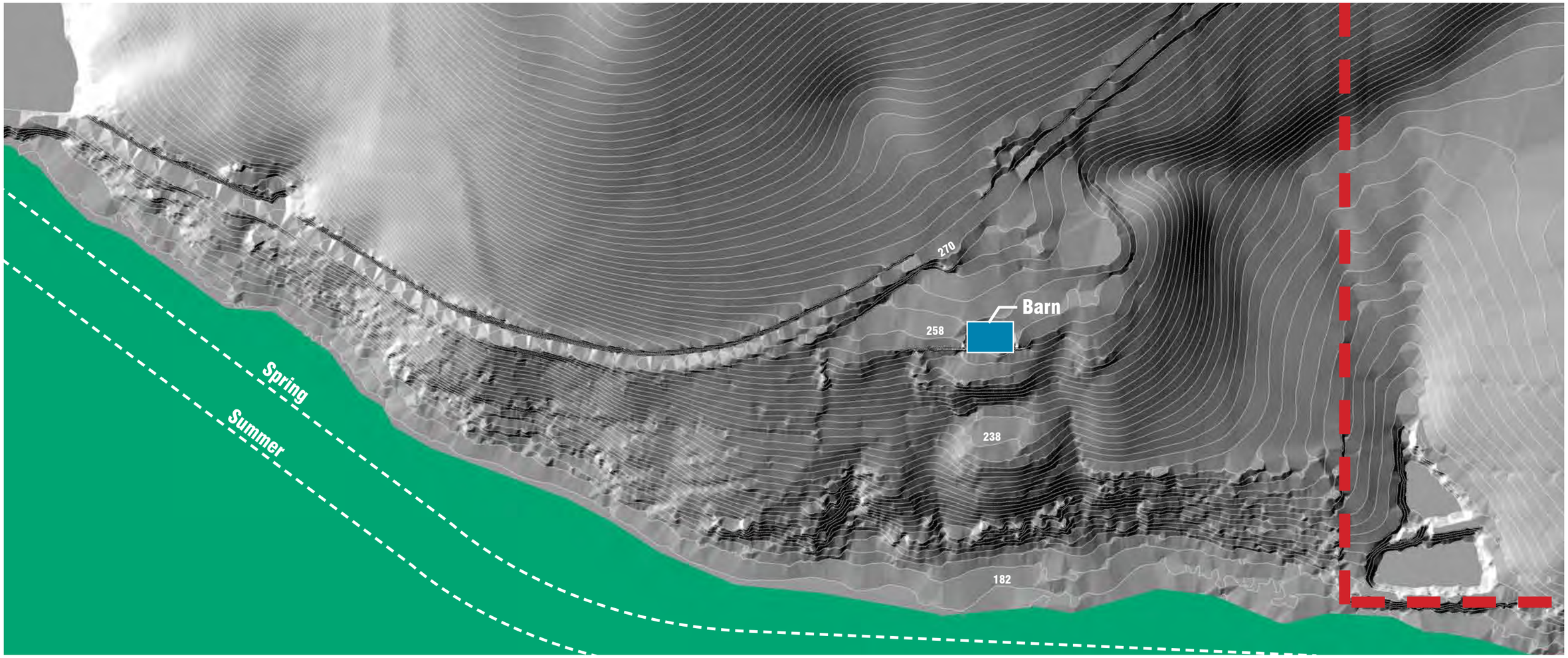
0 200’ N

LEGEND

- 0 - 5%
- 5 - 10%
- 10 - 20%
- Over 20%

TOPOGRAPHY

Summary: The site's topography consists of a a fairly level terrace at the farmstead and another smaller terrace below that with moderate to steep slopes down to the wetland. This provides multiple viewing opportunities. Trails can be sited below the road elevation to screen vehicles.



Observations

- High point within the project boundary is at 528' (Outside of area shown)
- Low point / Wetland level is approximately 182'
- Road elevation at the entrance to the barn is at 270'
- The barn elevation is at 258'
- There is a grade difference of 86' between the road and wetland near the barn area.
- There is a grade difference of 74' between the barn and the wetland.
- To get a 5% trail from the barn to the wetland we need a trail length of approximately 1480'. If you walked straight from the barn to the wetland it is approximately 410'.
- There is a grade change of ~8' from the finish grade of the barn to the area directly below the retaining wall. A 5% path will need 160', an 8% path will need 100'.

Key Map

LEGEND

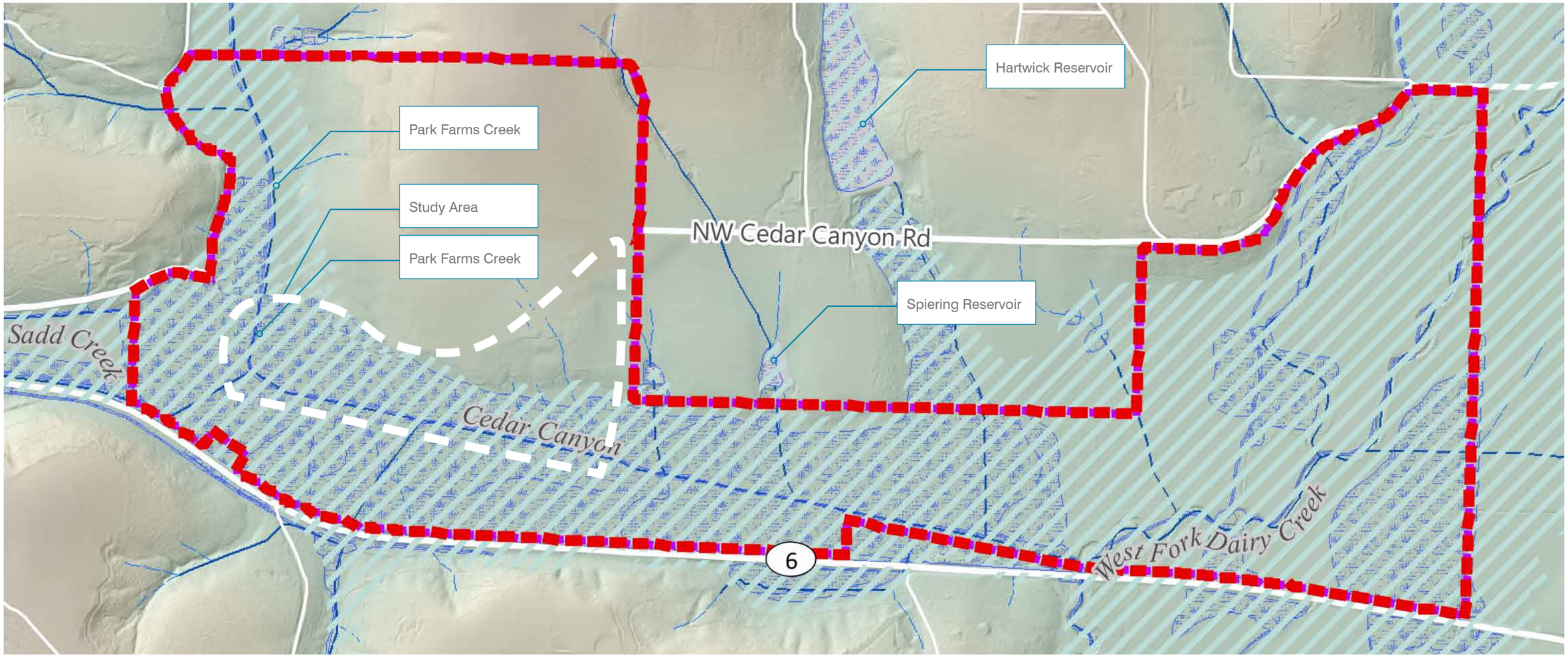
0 — 200' N

Killin Wetland Site Boundary

NOTE: 2' Contour Interval

HYDROLOGY

Summary: Hydric soils dominate the site. As drainage ditches are not maintained and beavers return, the hydrology will stabilize. Water levels have risen in recent years but are not expected to rise significantly. Open water may decrease over time (decades) as soil levels build back up.



The site lies in a narrow floodplain depression that receives runoff from an encompassing perimeter of partially-forested uplands. Beaver activity at the site is abundant, and their influence on the site has helped create a large, perennially-flooded wetland that has developed a deep, high organic/peat soil layer over centuries of flooding. Cedar Canyon Creek is the primary tributary to Dairy Creek that passes through the heart of the wetlands and receives water upstream from Sadd Creek and Park Farms Creek. Historically, Cedar Canyon Creek was heavily impeded by beavers and sediment accretion, forming the wetlands.

The site was markedly dewatered in the late 1800s. From ~1870 to 2000, creeks at the site were ditched and periodically dredged to support cultivation and grazing. Most of the agricultural practices at the site stopped in the lower floodplain during the mid-1990s, a few years prior to Metro acquisition. Cultivation of the upland fields and in the floodplain at the recently acquired eastern addition continues via agricultural leases under Metro management. Metro has taken no steps to alter the hydrology due to the effects it would have on neighboring landowners fields.

* Text taken from Killin Wetland Site Conservation Plan - May 2014 - Published by Metro

NTS

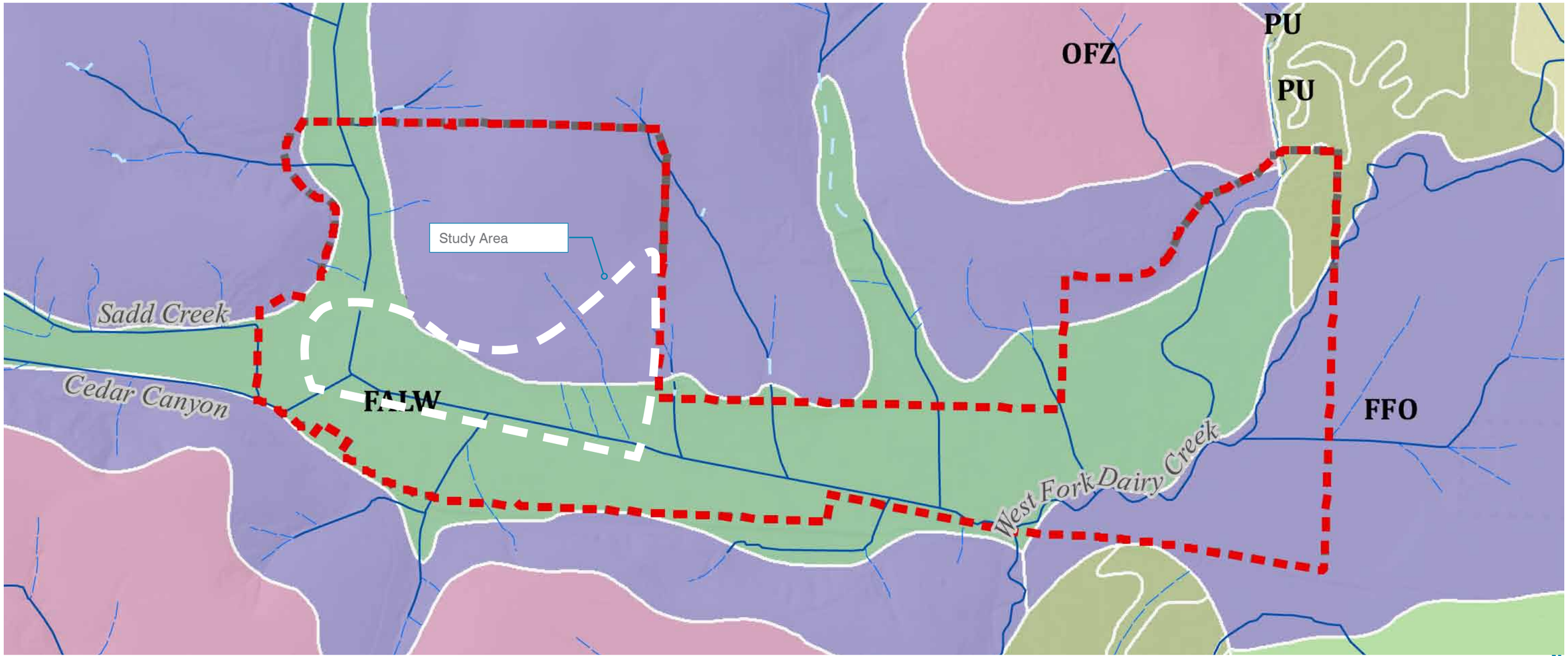
N

LEGEND

- 100 Year Floodplain
- Wetlands
- Intermittent Stream
- Perennial Stream

HISTORIC VEGETATION

Summary: The Wetland was historically a matrix of shrub and herbaceous plants surrounded by a mix of deciduous and coniferous woodlands.



Observations

Based on Government Land office surveys from the 1850's, the lower wetlands are thought to have been a mix of shrub and herbaceous wetlands with surrounding uplands of coniferous and deciduous forest. The wetlands were heavily influenced by beavers. "Notes on the FLora of Lake Labish, Oregon" by J.C. Nelson provides a more detailed botanical study of an analogous site further south in the Willamette Valley. Lake Labish was a beaver-influenced wetland with similar soils. He describes a unique collection of species, many not generally found in the Willamette Valley but may be present on the coast or in the mountains. Remnants of this vegetation persist at Killin Wetlands. Salix geyeriana / Geyer's Willow, Juncus nevadensis / Sierra Sedge, and Carex amplifolia / Bigleaf Sedge are all considered rare species.

LEGEND

Closed Forest: Riparian and Wetland FALW class includes Ash-Alder-Willow swamp, sometimes with Bigleaf Maple. May include Vine Maple, Crabapple, Gooseberry, Salmonberry, Ninebark, Hardhack, Cattail, coarse grass and briars. Ground is "very soft," miry," or "muddy," usually with extensive beaver dams.

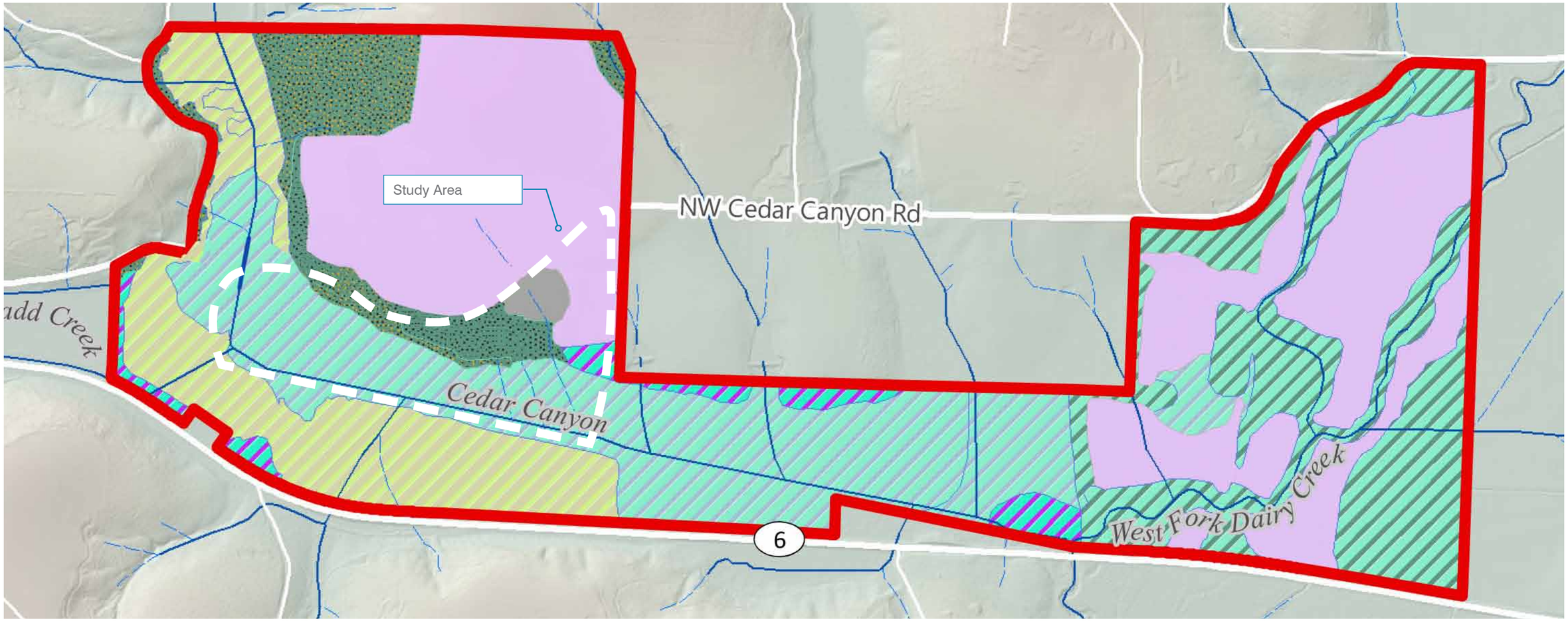
Closed Forest: Upland FFO class includes Douglas Fir-White Oak (or unspecified oak sp.) Forest often with Bigleaf Maple. Brushy understory of Hazel, young oaks, oak brush, oak stump sprouts,young Douglas Firs, bracken, briars, willows. May include Redcedar, Western Hemlock, Ash, Alder, Vine Maple. Yew.

Woodland OFZ class is Douglas Fir Woodland, often with Bigleaf Maple, Alder or Dogwood (no other conifers, no Oak). Brushy understory may include Hazel, Vine Maple, young Douglas Fir, Bracken, or "ferns." Fern Openings lacking entrance and exit points may be present

Prairie PU class is Upland Prairie, xeric upland prairie on steep or gentle slopes or tops of ridges. May have scatterings of trees and inclusions of woodland or savanna.

CURRENT COVER

Summary: As the hydrology stabilizes, the plant communities are adjusting. Rising water has increased the amount of open water and killed the Oregon Ash at the edges of the swamp. Reed Canary grass in the wetlands and Blackberry in the upland will need to be removed prior to revegetation. Much of the original forest has been converted to farmland.



Observations

In the 1990's maintenance on the drainage ditches in the Killin Wetlands was discontinued allowing hydrology to begin stabilizing and altering the plant communities. The increased water levels killed off some stands Oregon Ash and remaining Geyer's Willows. Subsequent management of the wetlands and uplands has focused on habitat restoration. Wetland revegetation has had limited success due to perennial flooding and the established Reed Canarygrass. Some higher elevation wetland edges have successfully established Geyer's Willows.The adjacent uplands have been managed to supress pasture grasses and Himalayan Blackberry and to establish Douglas Firs, Western Redcedar, Oregon Ash, Pacific Ninebark. Oregon Grape, Snowberry, etc. The upland fields continue to be farmed through annual easements.

Emergent Wetlands - Open Water: The emergent wetland - aquatic wetland - open water spectrum throughout most of the site's large swamp critical provides critical habitat for many of the site's less common species. Water levels fluctuate with beaver dam activity changing the habitat boundaries.

Shrub Wetlands: This habitat occupies the higher (drier) wetland areas on the site's west side and the fringe of large swamp. Shrubs wetland restoration of dense Reed Canarygrass has begun in the western wetland.

Riparian Forest: A good condition, relatively narrow band on the northeastern edge of the site

Upland - Closed Forest: Generally good habitat structure of mature conifer and deciduous trees that provide a dense mixed canopy suppressing non-natives while supporting a dense, diverse native understory community.

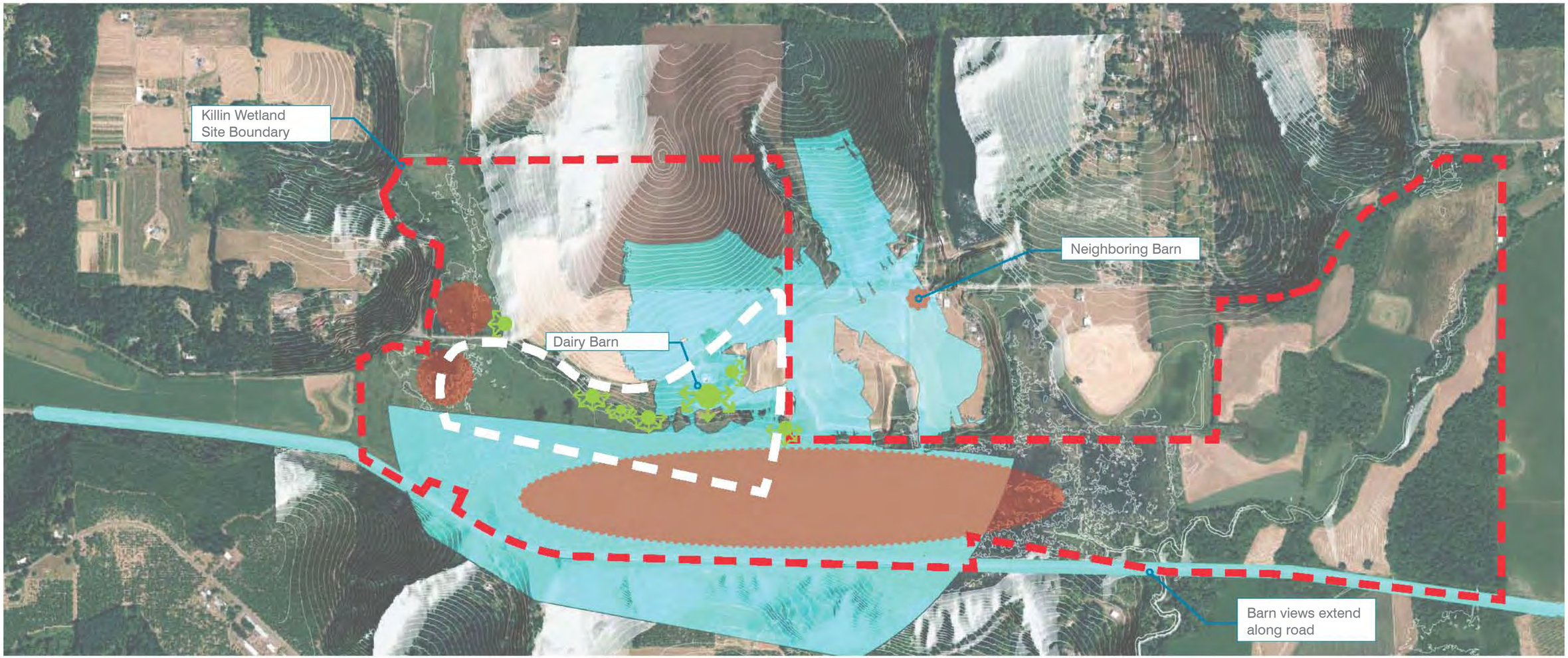
LEGEND

0 2000' N

- Agriculture
- Developed
- Upland Forest - Coniferous
- Upland Forest - Mixed
- Wetland - Bottomland Hardwood
- Wetland - Emergent
- Wetland - Forested
- Wetland - Shrub

VIEWS

Summary: The property and perimeter roads offer dramatic views of wetlands and adjacent forests and farms. The hill above the farm offers increased views down the valley.



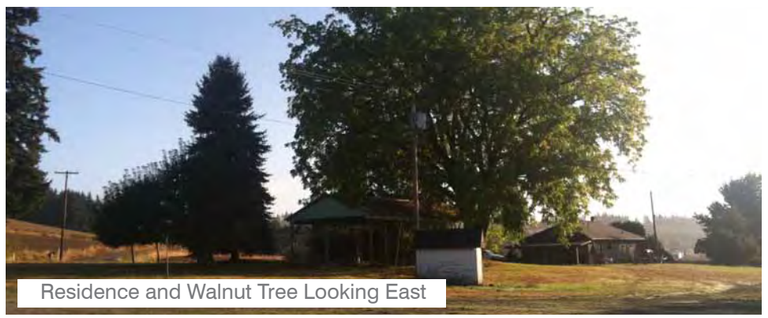
Observations

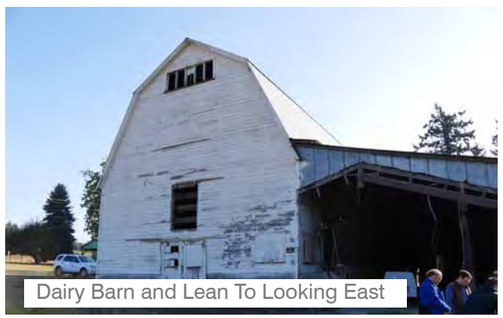
- The site has an abundance of great views and easily accessible viewpoints.
- Site topography affords viewers a prospect over the wetland areas.
- Viewing locations in upland areas offer better vistas across the wetland while being relatively accessible. This allows users to take good viewing positions, while reducing disturbance to the wildlife.
- Viewing locations closer to the waterline may be more difficult to reach, may have more sensitive habitat areas and may have more topographic constraints. These areas may require structures or decks to create properly functioning viewing areas.
- An off-site barn, viewable from some locations near the Dairy Barn, contributes to the rural farm setting.
- The topography at the farmstead allows visitors specific views and vistas from potential vehicular areas. Since some visitors may have reduced mobility or might just want to do a “drive by” of the site, these should be considered when planning for vehicular circulation and parking.

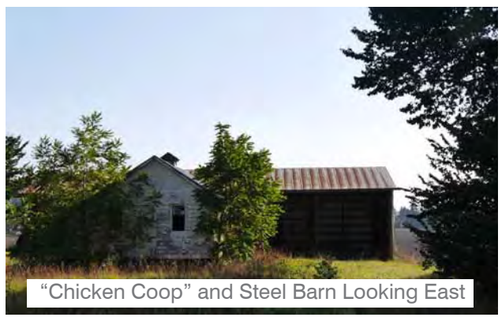
LEGEND

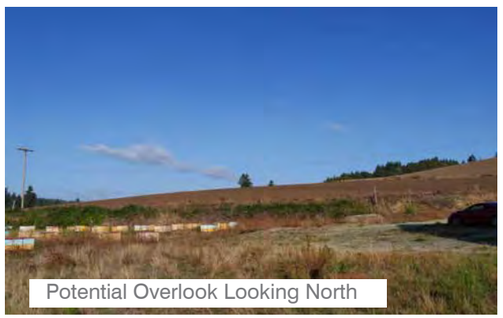
- Viewpoints
- Primary area of interest for wildlife viewing
- Areas visible from farmstead

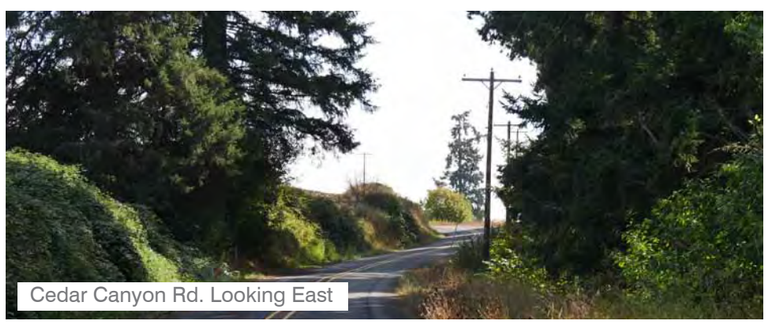
SITE IMAGES


Residence and Walnut Tree Looking East

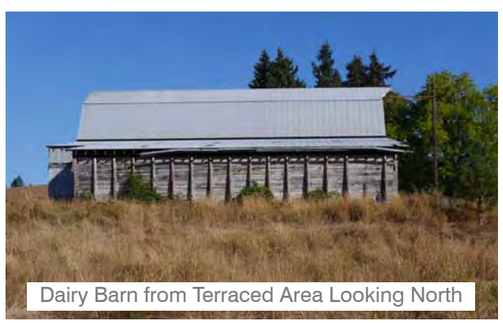

Dairy Barn and Lean To Looking East


“Chicken Coop” and Steel Barn Looking East


Potential Overlook Looking North


Cedar Canyon Rd. Looking East


Barn Owl Pellets


Dairy Barn from Terraced Area Looking North


Plowed Fields Near Residence Looking East

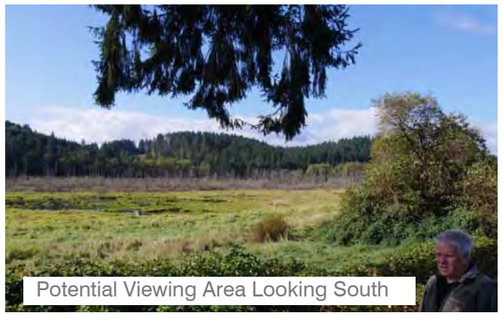

Wetlands near Barn Looking South

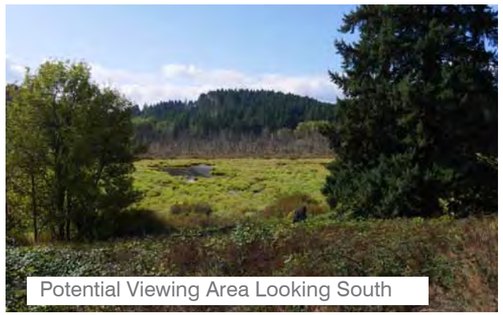

Wetlands near Barn Looking South


Wetlands near Barn Looking South


Wetlands near Barn Looking South


Wetlands at Culvert Looking North


Potential Viewing Area Looking South


Potential Viewing Area Looking South


Wetlands at Culvert Looking North

RECREATION DEVELOPMENT SUITABILITY

Summary: The general suitability of the land areas are described in the following categories that represent areas with similar characteristics and suitability for recreation use.

Legend

HIGH DEVELOPMENT POTENTIAL
Suitable for parking, buildings, trails and park entry. Reasonably flat land with minimal natural resource conflicts, few large trees, and site of historic farm development. Area served by utilities.

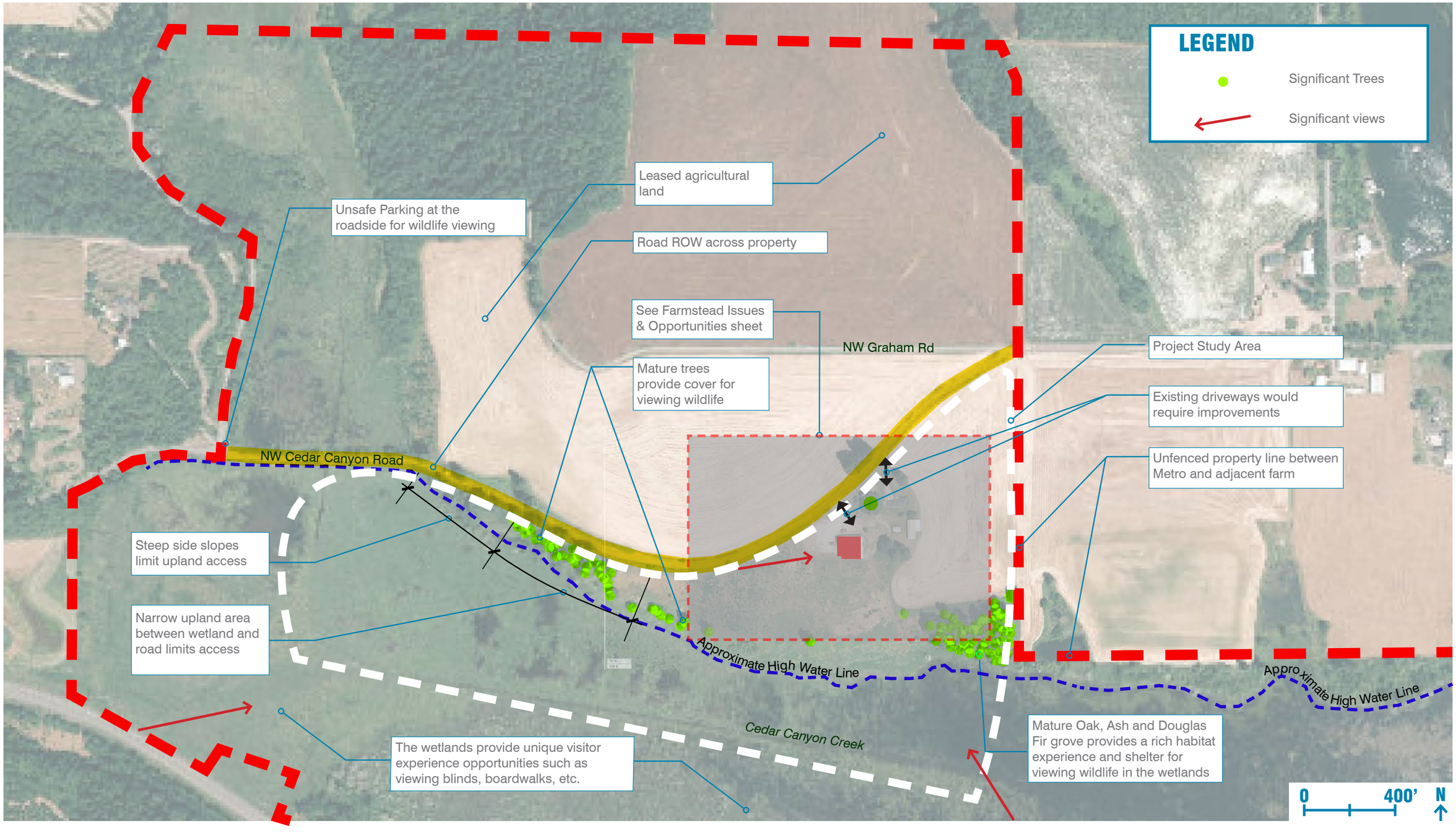
MODERATE DEVELOPMENT POTENTIAL
Suitable for trails, blinds and interpretation. Mostly moderate slopes with scattered mature trees, some understory, and some revegetation. In some areas, Slopes, vegetation, and proximity to roads or adjacent properties limits development

LIMITED DEVELOPMENT POTENTIAL
Suitable for boardwalks and informal use. Wetland area has hydric soils and is a jurisdictional wetland

AGRICULTURAL LAND, NO DEVELOPMENT POTENTIAL
Leased farmland

SITE ISSUES AND OPPORTUNITIES

Summary: Farmland and Wetland landscapes dominate the site. The slopes above the wetland provide diverse habitats and excellent views that get more expansive yet less detailed with higher elevations. Cedar Canyon Road creates a barrier to recreational development on the north side



FARMSTEAD AREA ISSUES & OPPORTUNITIES

Summary: A rural site with historic farmstead elements overlooking a large wetland and high value bird habitat. The site supports a number of locally unusual species and attracts bird watching enthusiasts.

Barn

Wetland

Wetland

Barn

Mature Douglas Fir grove provides landmark near the entrance

Existing Shed / Carport

Mature Walnut: iconic farmyard tree, not native.

Relatively flat

Existing Residence, currently leased

Existing Pumphouse: contains machinery not easily relocated while residence is leased.

Existing Pole Barn: appears to be in good condition, could be used for storage, screening or shelter; not aesthetically consistent with older farm structures

Existing Chicken Coop: Contributes to farm aesthetic, could be relocated to screen parking, needs to be evaluated for suitability for use

Flat area somewhat removed from roadside view

Steep Slopes pose challenge for creating accessible route to wetland viewing areas

Existing hillside terrace

Existing Dairy Barn is a local icon with potential to be secured, maintained and restored; will be evaluated for structural, historic and aesthetic value

Existing retaining wall: provides clear views, requires guardrail and creates challenge to accessible route

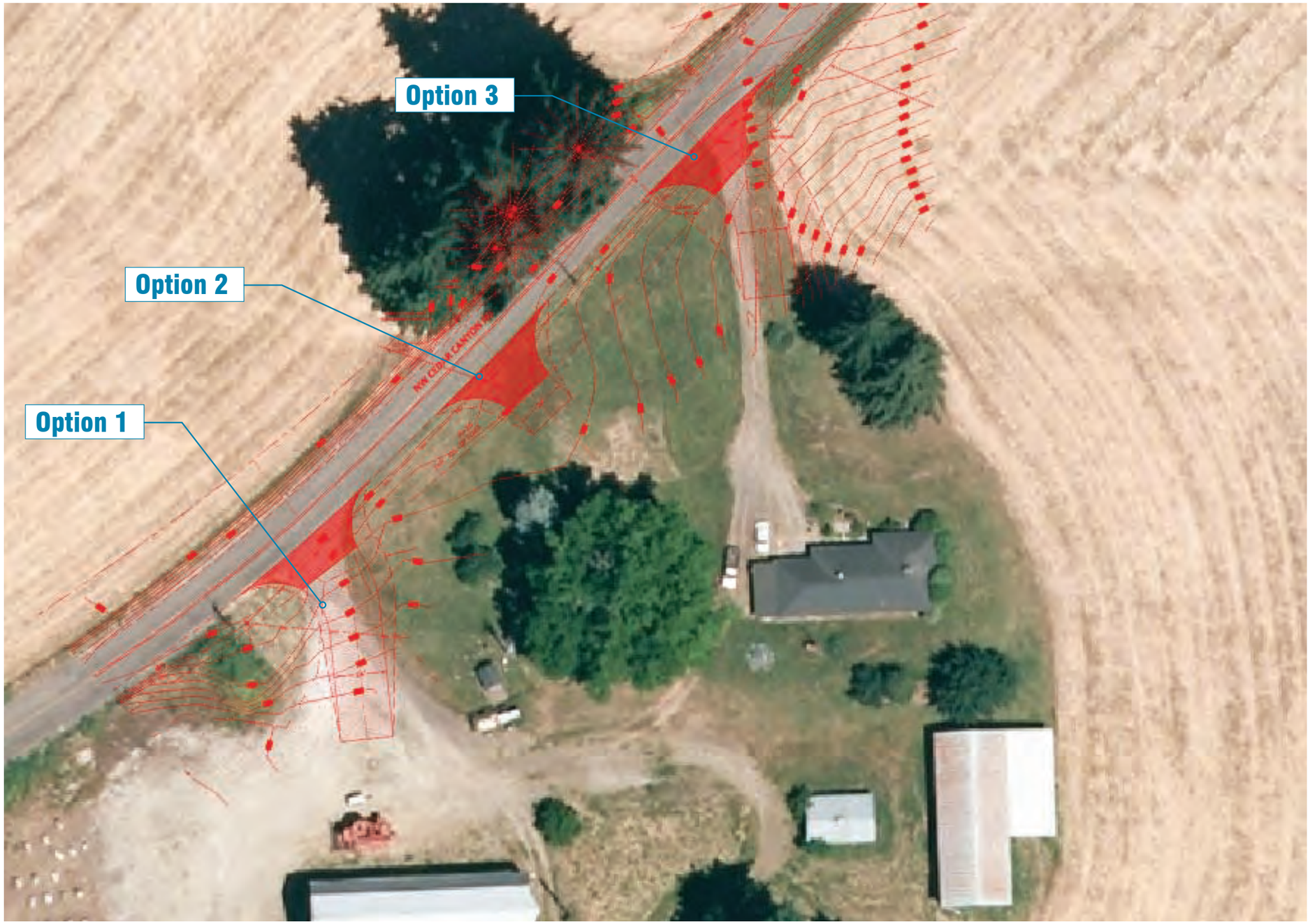
LEGEND

- High value farm structure
- Residence
- Lower value structure
- Steep slopes
- Significant views

0 100’ N

ENTRY OPTIONS

Summary: Three locations reviewed in KPFF Study.
All three work but some improvements are necessary for each location.



Option 1:
West Drive
- Directs vehicles to barn
- Existing site entrance
- Least expensive option
- Places vehicle drive nearest to the barn.

Option 2:
Central Drive
- Directs to center of site
- Probable impact to large existing walnut tree.

Option 3:
East Drive
- Directs to residence

Key Map

ENTRY CHARACTER

Summary: A successful entrance provides wayfinding cues prepares a visitor for the site's experiences.

1. A visusal cue that something is ahead

2. A marker at the entry

3. A drive that provides some decompression

4. An introduction to the place's character through change in width, material, detailing, speed, etc.

5. An entry and drive oriented to the visitor destination

6. A place to park safely, and a parking lot that minimizes its impact on the site

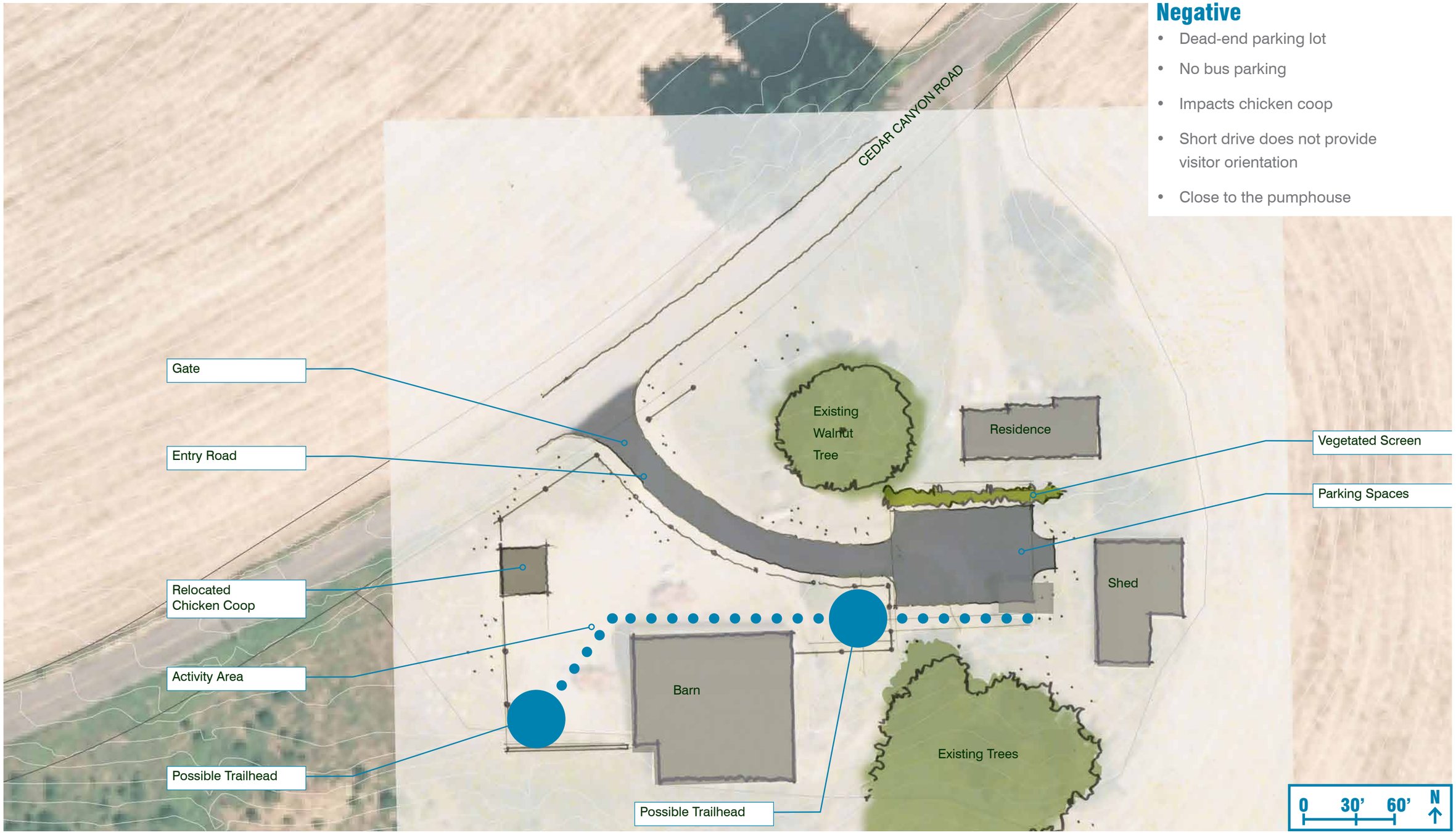
ENTRY 1: Parking Location A

Positive

- Compact and hidden development
- Preserves Walnut Tree

Negative

- Dead-end parking lot
- No bus parking
- Impacts chicken coop
- Short drive does not provide visitor orientation
- Close to the pumphouse



ENTRY 1: Parking Location B

Positive

- Compact Development
- Uses existing gravel farm yard
- Minimizes impact to residence

Negative

- Locates cars close to barn
- Cars impact view of park / barn from road
- No room to expand without developing a second parking location
- No bus parking
- Reduces space for gathering

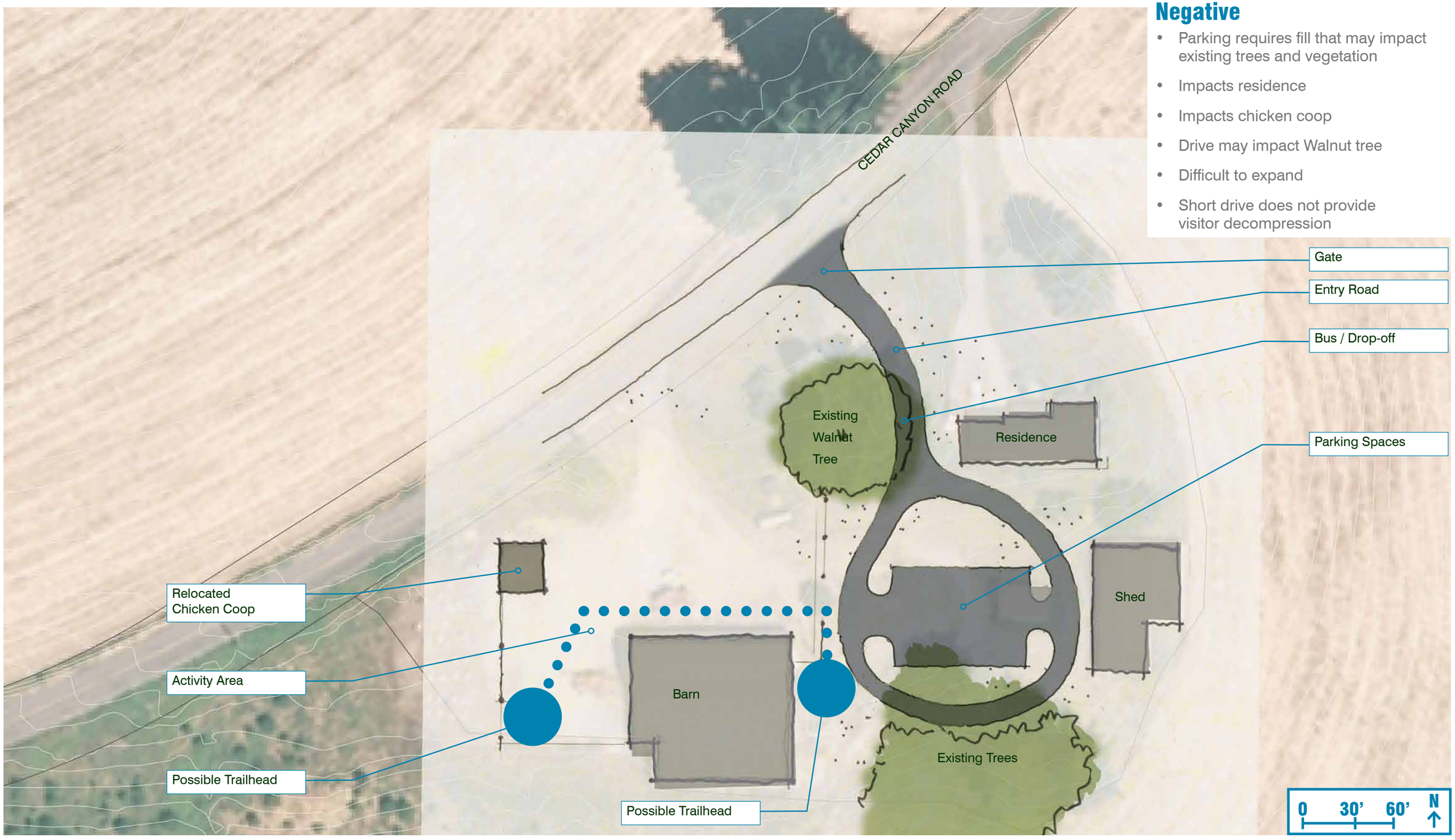
ENTRY 2: Parking Location A

Positive

- Relatively compact/efficient
- Accommodates bus

Negative

- Parking requires fill that may impact existing trees and vegetation
- Impacts residence
- Impacts chicken coop
- Drive may impact Walnut tree
- Difficult to expand
- Short drive does not provide visitor decompression



ENTRY 2: Parking Location B

Positive

- Compact / efficient
- Parking is screened by shed
- Easy to expand

Negative

- Dead end parking lot
- No bus parking
- Impacts the chicken coop
- Short drive does not provide visitor decompression
- Limited gathering space on the east side of the barn

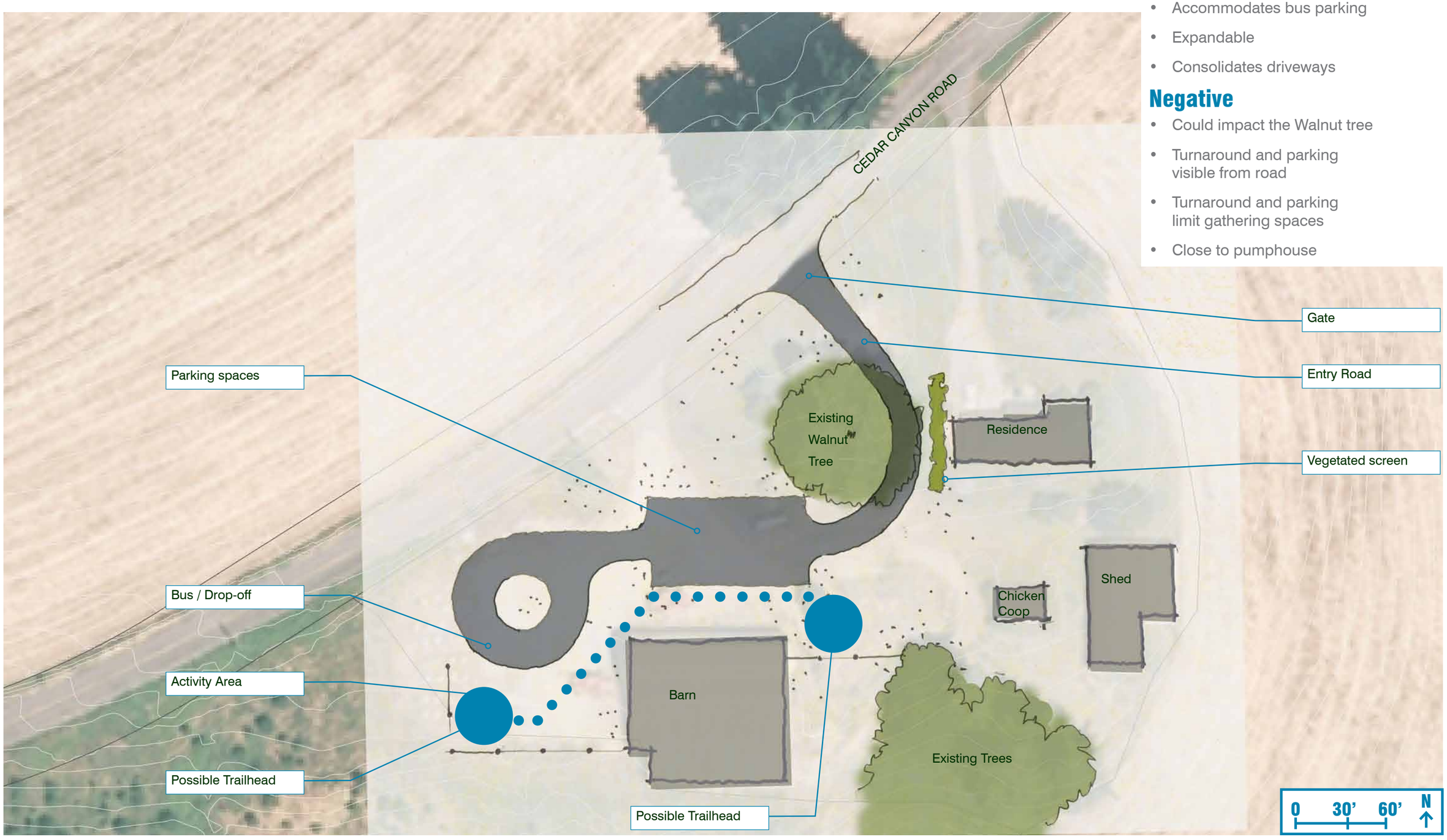
ENTRY 2: Parking Location C

Positive

- Longer drive provides some visitor decompression
- Accommodates bus parking
- Expandable
- Consolidates driveways

Negative

- Could impact the Walnut tree
- Turnaround and parking visible from road
- Turnaround and parking limit gathering spaces
- Close to pumphouse



ENTRY 3: Parking Location A

Positive

- Longer drive provides some visitor decompression
- Bus Parking
- Parking screened from barn and trailhead
- Keeps cars away from barn

Negative

- More pavement
- Impacts the residence and agricultural field
- Impacts the chicken coop
- Parking and turnaround construction may impact trees and vegetation

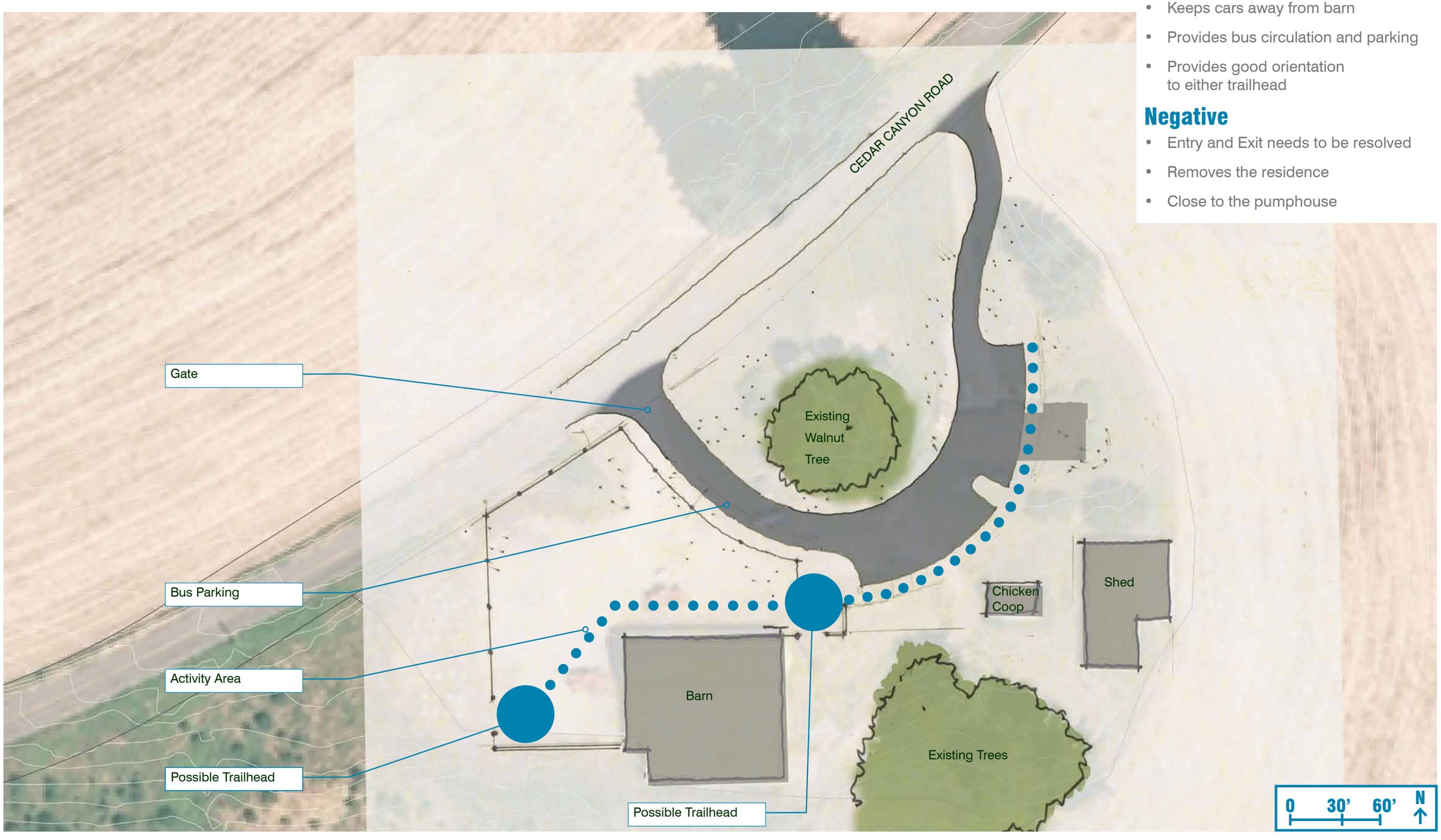
ENTRY 1&3

Positive

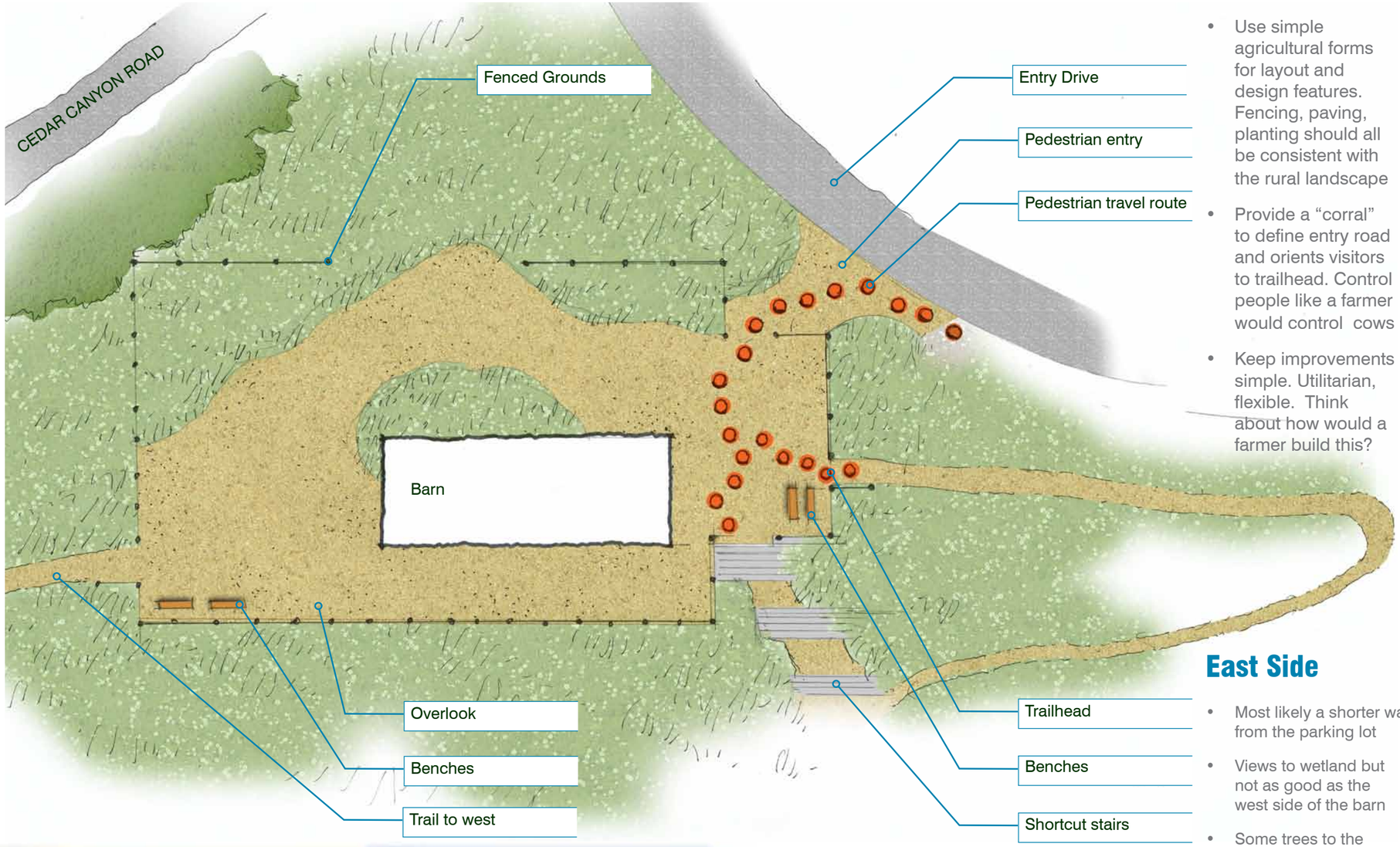
- Parking on one side creates safe pedestrian environment
- Keeps cars away from barn
- Provides bus circulation and parking
- Provides good orientation to either trailhead

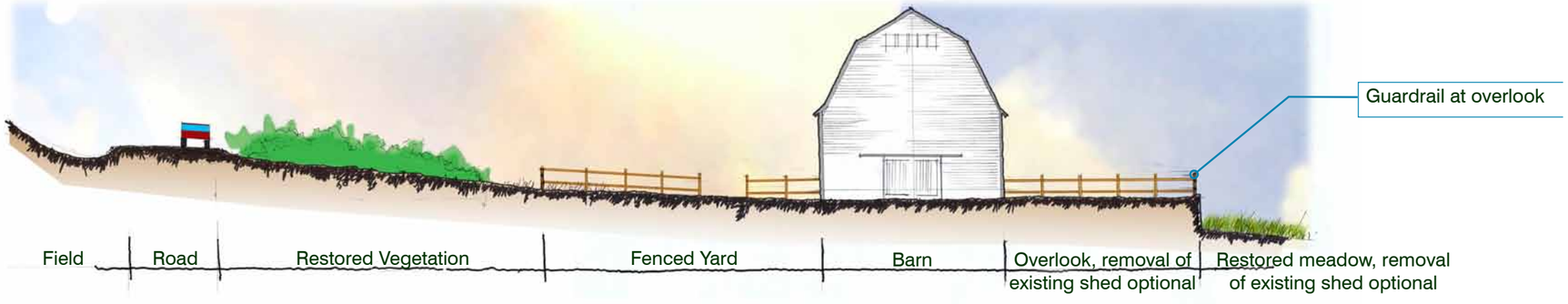
Negative

- Entry and Exit needs to be resolved
- Removes the residence
- Close to the pumphouse



BARN AREA: EAST SIDE TRAILHEAD





Design Thoughts

- Use simple agricultural forms for layout and design features. Fencing, paving, planting should all be consistent with the rural landscape
- Provide a “corral” to define entry road and orients visitors to trailhead. Control people like a farmer would control cows
- Keep improvements simple. Utilitarian, flexible. Think about how would a farmer build this?

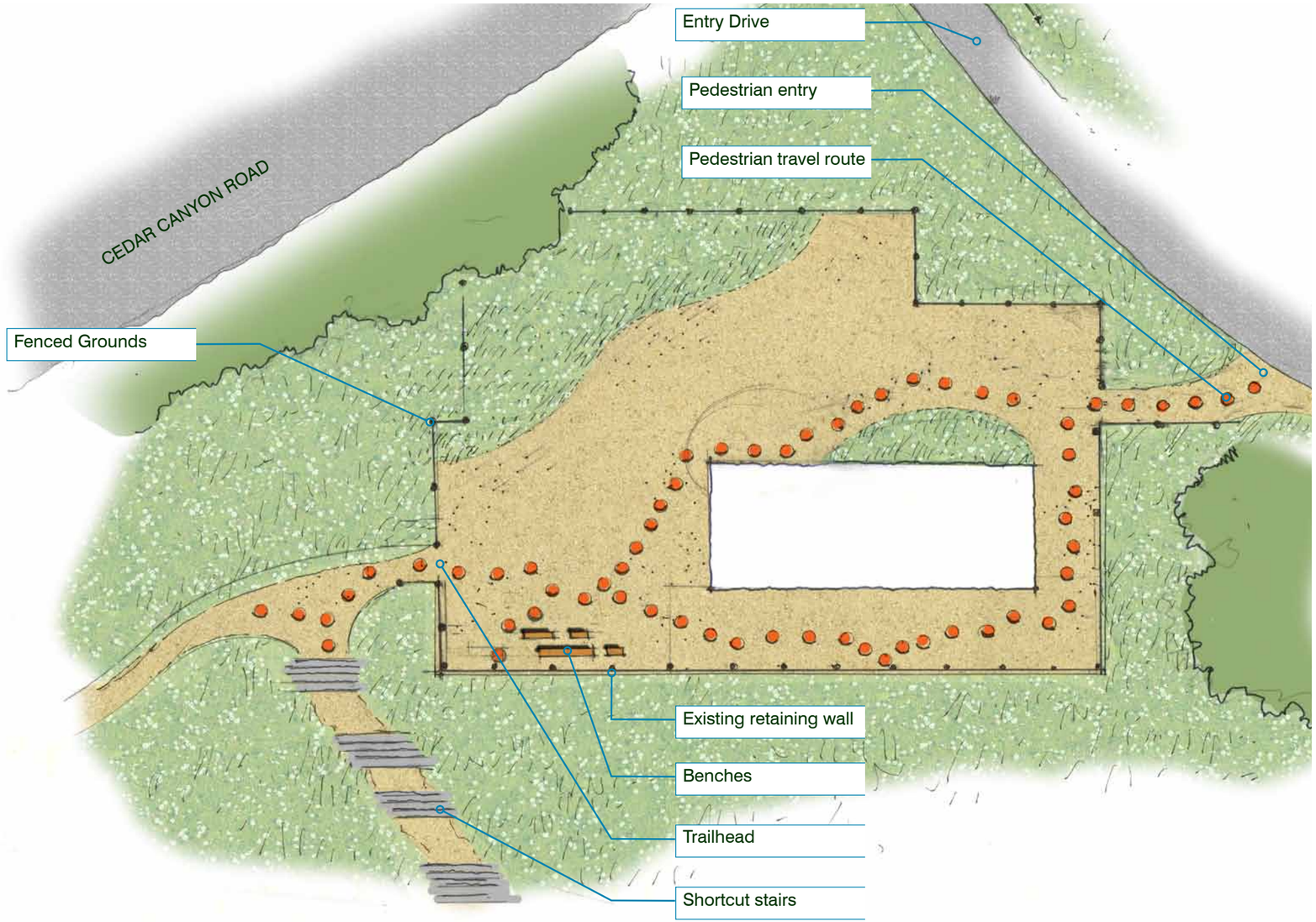
NOTE:

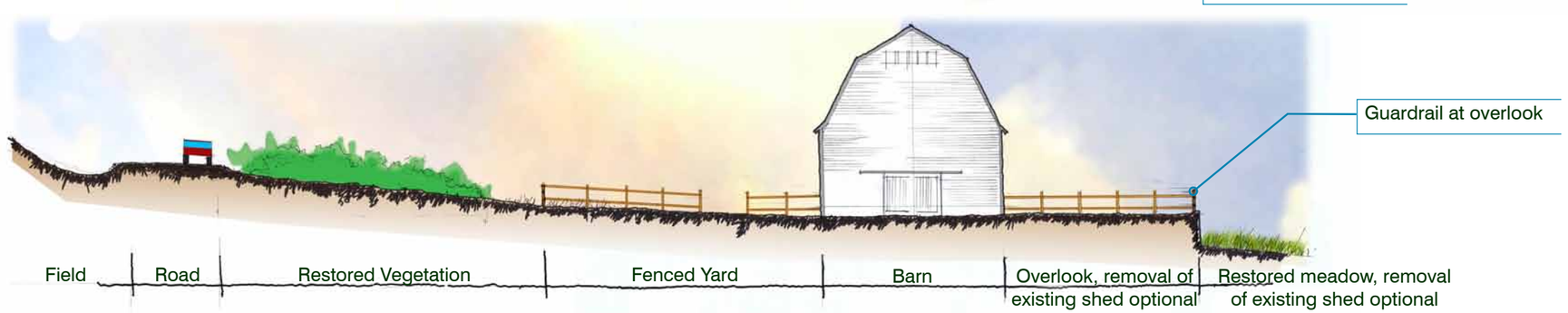
Intended to be a general diagram to evaluate trailhead locations at either side of the barn. Concepts will need adjustment based on the parking scheme selected

East Side

- Most likely a shorter walk from the parking lot
- Views to wetland but not as good as the west side of the barn
- Some trees to the east of the barn. Trail construction may impact trees
- Short walk is convenient but not a great introduction to the site with limited walk around the barn
- Slightly steeper slope on east side to construct trails

BARN AREA: WEST SIDE TRAILHEAD





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West Side

- Most likely a longer walk from the parking lot
- Longer walk provides the opportunity to see more of the barn and engage the visitor with the historic farm
- Trail head on the west provides a more dramatic view
- Gathering space/ trail head separated from parking
- Probably easier to screen parking from trail head area

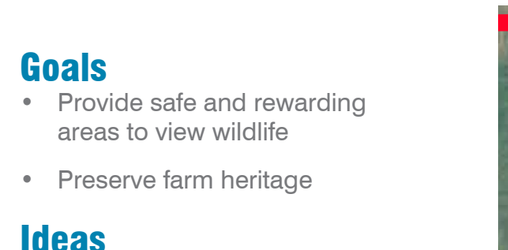
POSSIBLE DESTINATIONS AND VIEWPOINTS

Goals

- Provide safe and rewarding areas to view wildlife
- Preserve farm heritage

Ideas

- Keep improvements on the edges so improvements are less visible and visitors are in the shade.
- Use structured or natural viewing blinds to guide visitor behavior.
- Maintain the barn and possibly other structures and all new improvements to preserve the farm character.



Highway 6 Pull-off

- Could service bicyclists

Trail along wetland edge for wildlife viewing

Edge of Woodland

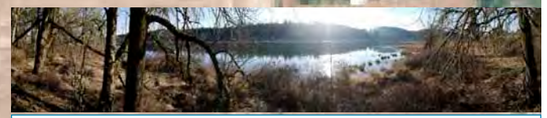
- Fir Forest on the slopes above with Ash and roses at the wetland edge
- Views of grass/Shrub matrix, open water and to the hills to the west

Farmstead

- Park Facilities
- Wetland and Agricultural Interpretation

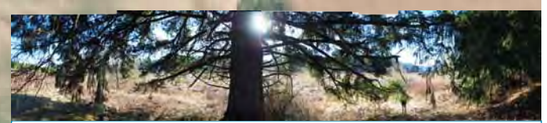
Terrace

- Easily accessed from Farmstead
- Panoramic views, distant from wetland



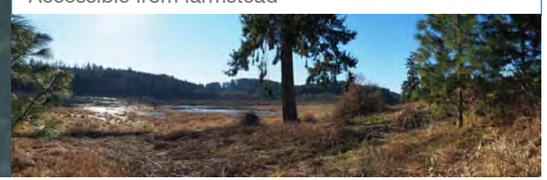
Mixed Forest Viewpoint

- Mature Oak and Ash with young Doug Fir
- Good open water views



Mature Fir Viewpoints

- View contains Shrub-grass-open water matrix for excellent wildlife diversity.
- Large trees shade view
- Accessible from farmstead



NW Graham Rd

NW Cedar Canyon Rd

Cedar Canyon Creek

Hwy 6 / NW Wilson River Hwy

0 400’ N

VISITOR DESTINATIONS / EXPERIENCES

General Park Visitors

- Casual visitors
- School groups / educational tour groups
- Persons with limited mobility
- Birdwatchers / photographers/ wildlife enthusiasts

Western Woods: The accessible trail would lead to a viewing area at the edge of this grove of conifers. Distance and narrow trail width would present challenges for some visitors. As the most remote site, this may be most appealing for bird watchers or photographers. The location is advantageous for early morning viewing. Some bushwacking opportunities further west or down to the water's edge are available for the dedicated enthusiast.

Bird Blind Two: This could be cluster of 2 to 4 smaller blinds off the trail. An informal trail could lead to the wetland edge for enthusiasts or educational groups. The blind(s) would use the large Douglas Fir trees and understory for natural or smaller constructed bird blinds. Some seating and gathering space would accommodate small groups or serve as a rest stop.

The Farmstead: The entrance, parking lot, and gathering area near the barn will be welcoming and easy to navigate. Accessible surfaces and routes and a comfortable overlook will be provided. A gathering space will allow groups to assemble and get introduced to the wetlands before starting down a trail. Agriculture-inspired amenities like fences and gates reinforce the site history while signs and overlooks focus on the wetlands. Visitors will have a direct, intuitive path from the parking lot to the trail head where the options will be clearly presented.

The Terrace: A single accessible route will connect the Farmstead to the Terrace. A smaller gathering place will allow groups to reconvene, receive information and perhaps break into smaller groups. Some seating options will accommodate those who want to enjoy the wetlands from here. Information about the wetlands, and about the further destinations will be provided.

Boardwalk: a floating boardwalk could bring visitors into the wetland to observe the unique vegetation and wildlife there and get near to some of the site's open water. The structured walk would be accessible and could be built to accommodate a range of group sizes.

Big Fir Bird Blind: Located under one or more of the large Douglas Fir, using the shade and understory as a natural bird blind. An accessible route will lead here, but the path may be smaller, and the distance will be an obstacle for some. The smaller trail and smaller gathering area would work best for small groups.

The Tree Walk: One option for wildlife viewing in this location would an elevated bird blind. This structure could extend from near the top of the bank through the trees to the edge of wetland showcasing mature Oaks, Ash and Douglas Firs and providing views of shrub/ grassy wetland and open water. If built large enough, it could accommodate groups. People could be screened from wildlife, and the existing trees would provide shade for better viewing.

NW Graham Rd

NW Cedar Canyon Road

0 200' N

TRAIL OPTIONS

Summary of Trail Development Guidelines

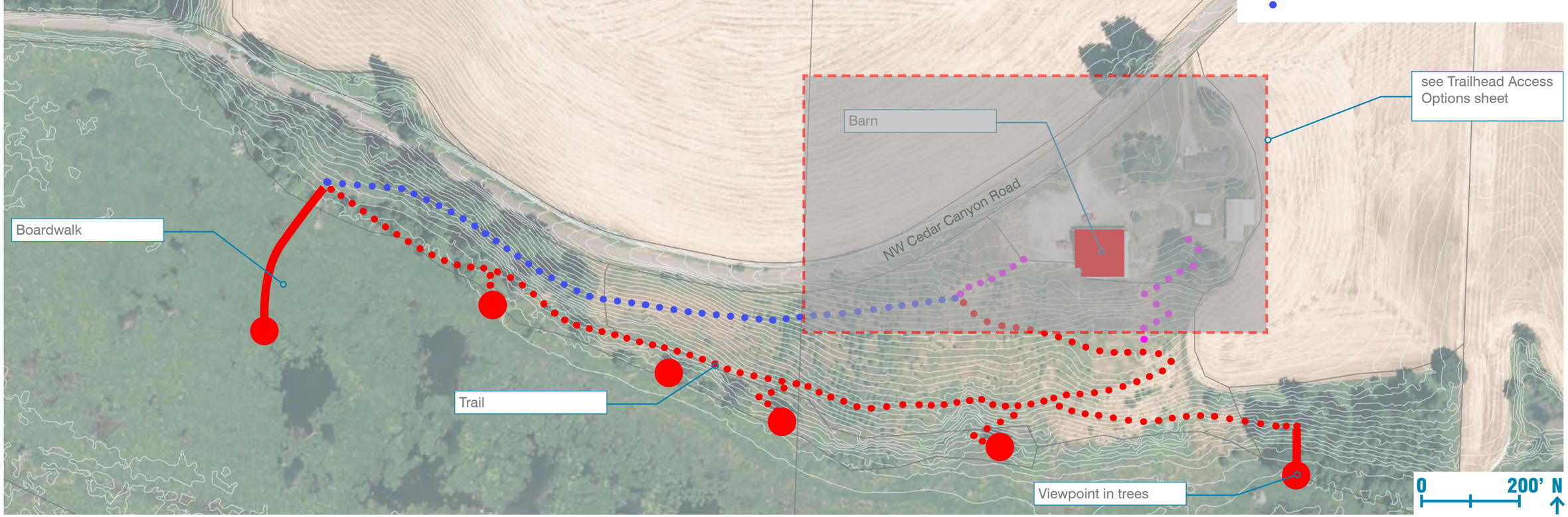
Outdoor Accessible Route: Parking to Trails	**Accessible Trail: Soft surface trail**
Firm and stable footing, 5% or less running slope with 50’ long segments at 8.3% maximum, and 30’ long segments at 10% maximum.	Firm and stable footing, 5% or less running slope with 50’ long segments at 8.3% maximum, 30’ long segments at 10% maximum, and 10’ long segments at 12.5% maximum.
36” wide, 3% maximum cross slope	36” wide, 5% maximum cross slope
Passing space every 200 feet and frequent resting spaces	Passing space every 1000 feet and frequent resting spaces

Trail Ideas:

- Mid-slope trail with spurs to viewpoints
- All trails south of Cedar Canyon Road
- May include a boardwalk to access the wetland
- An optional loop trail could provide an upper route, but may be redundant

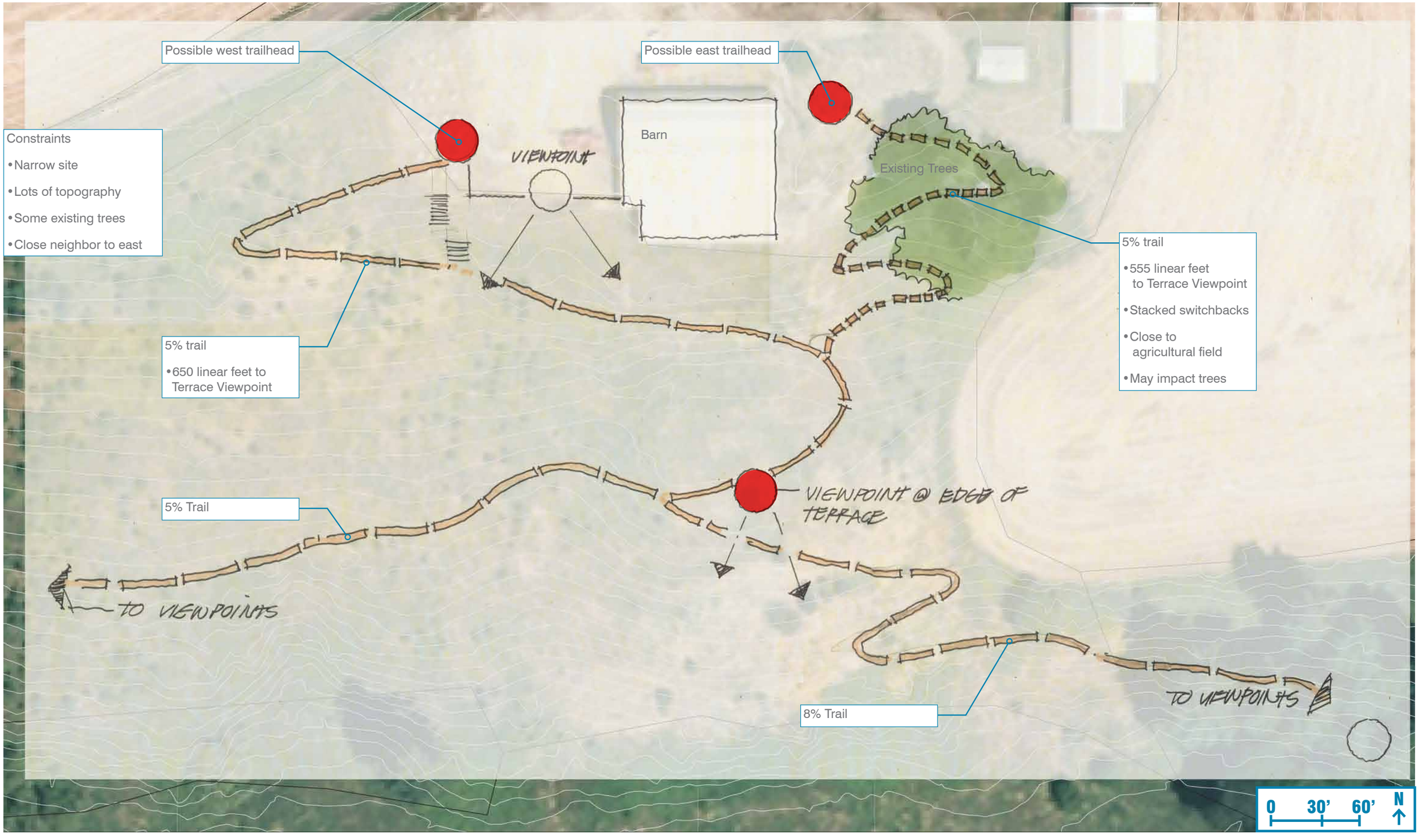
Legend

- Blind or Viewing Destination
- Structured Trail
- Primary Trail
- Trailhead Access Options
- Upper Loop Option



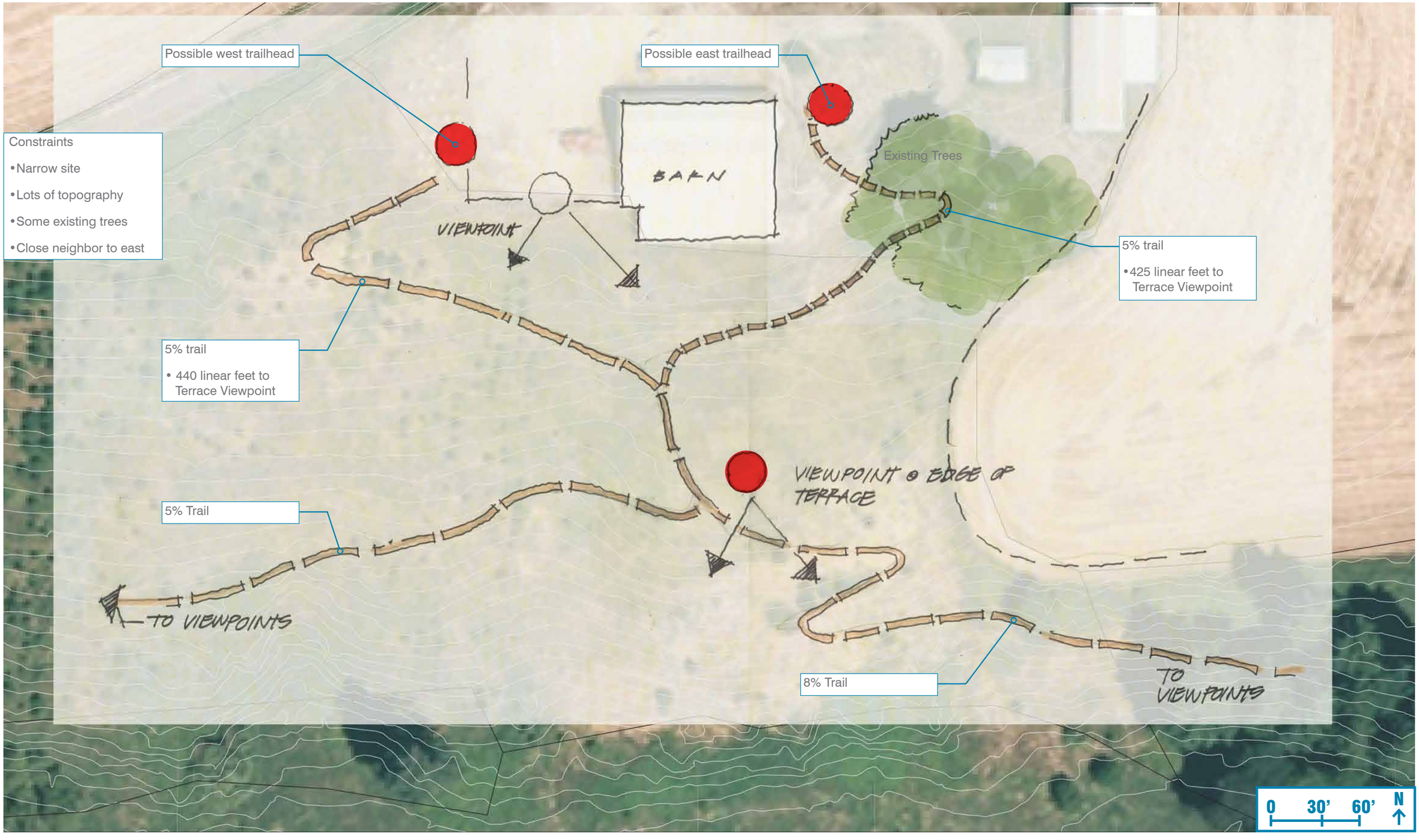
ACCESSIBILITY OPTION 5% Grade

Trail graded at 5% maximum to Terrace Viewpoint



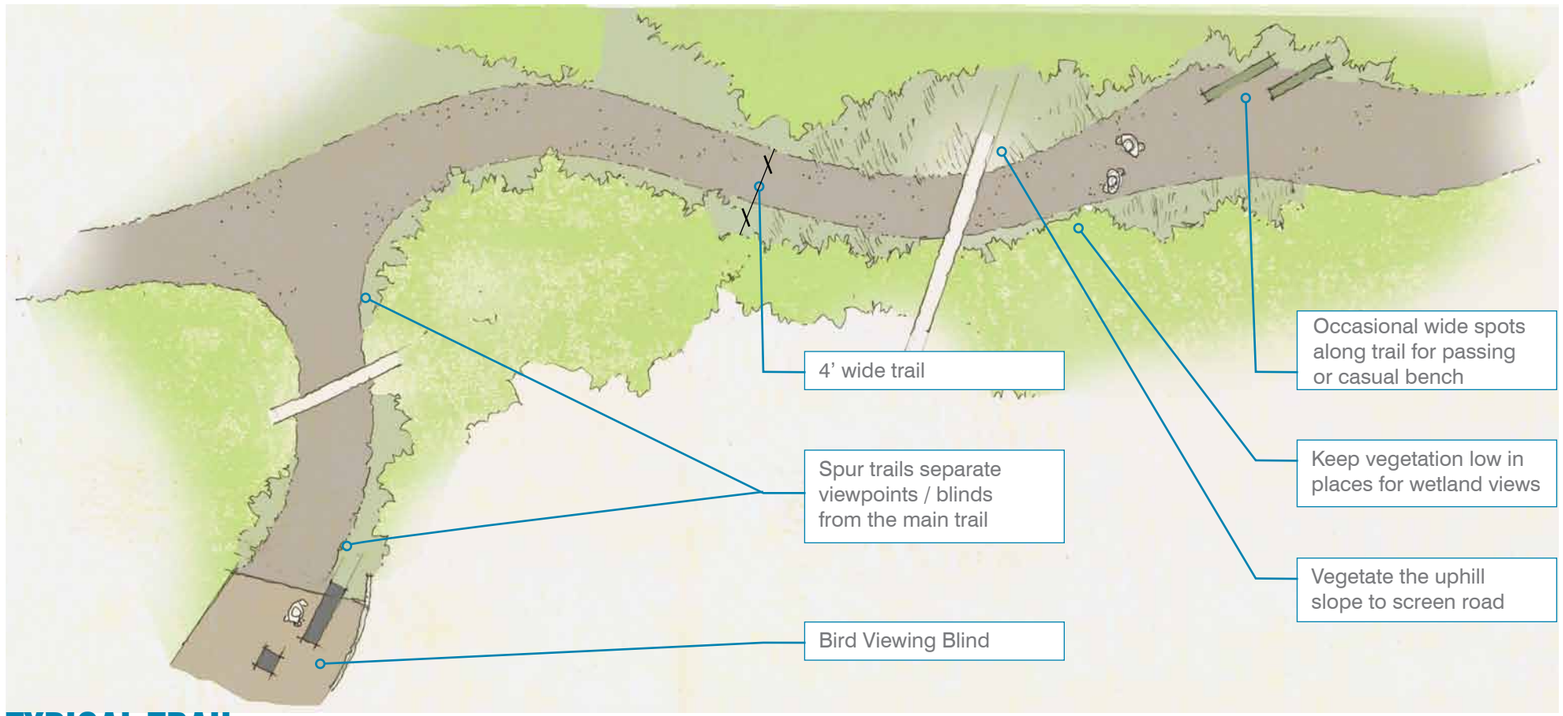
ACCESSIBILITY OPTION 8% Grade

Trail graded at 8% maximum to Terrace Viewpoint

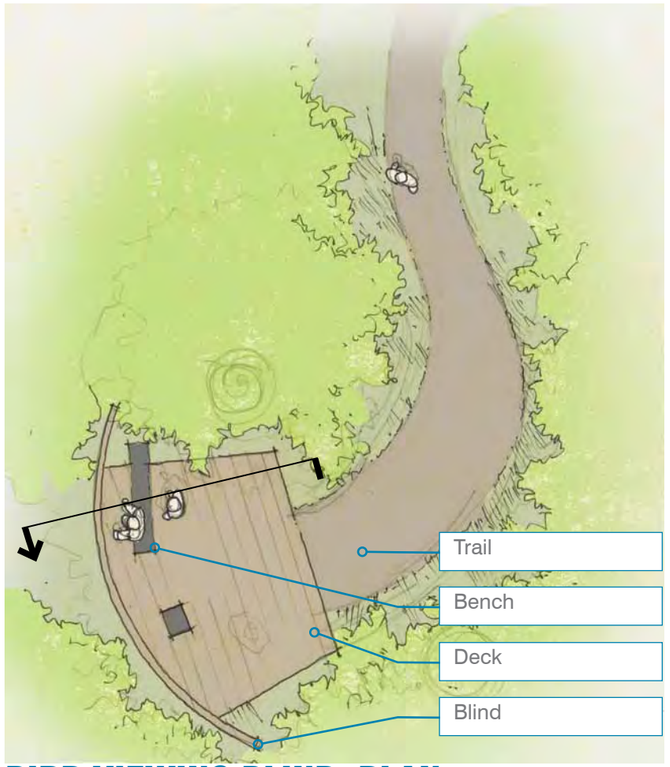


TRAIL DEVELOPMENT

Summary: A trail system connecting a series of viewpoints, the trail is screened by vegetation from the wetlands to prevent startling wildlife. Observation blinds could be either constructed or vegetated screens, and elevated decks could enhance viewing opportunities.

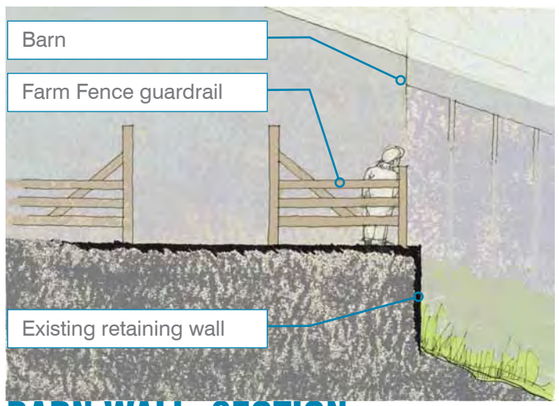


TYPICAL TRAIL

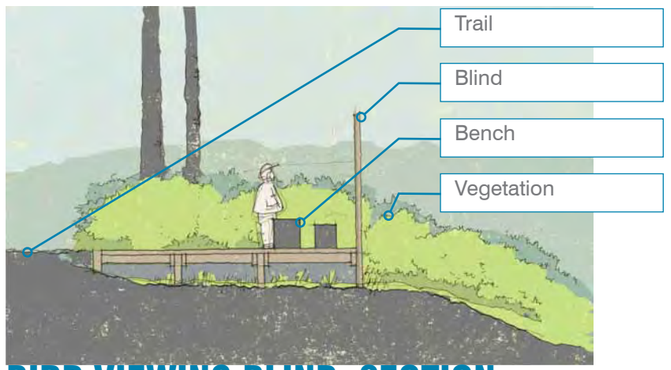


BIRD VIEWING BLIND: PLAN

CANOPY WALK: SECTION

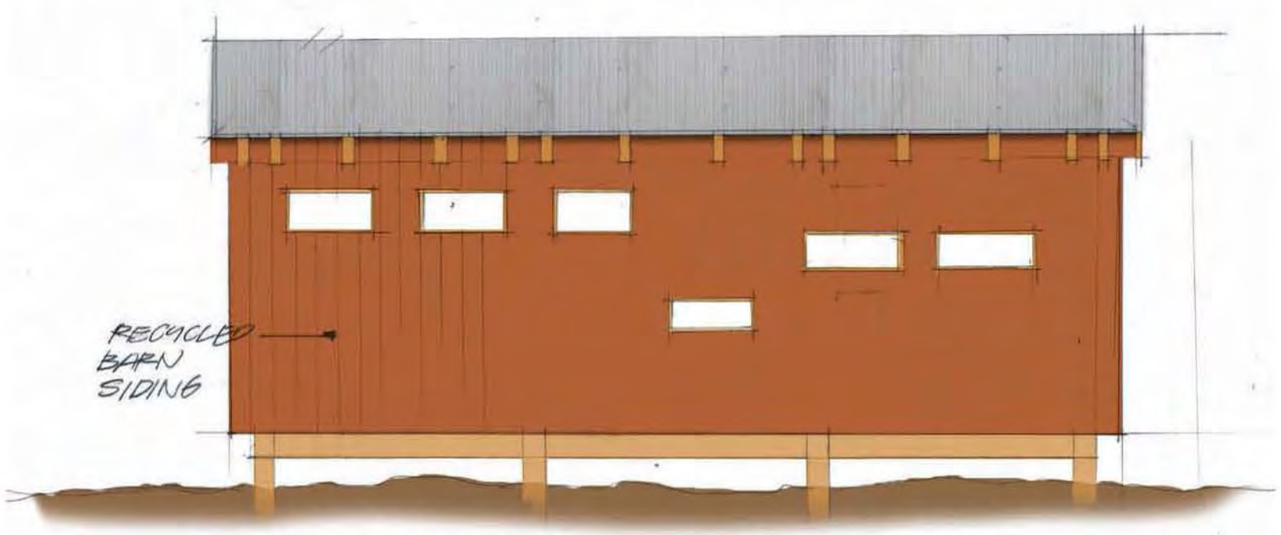


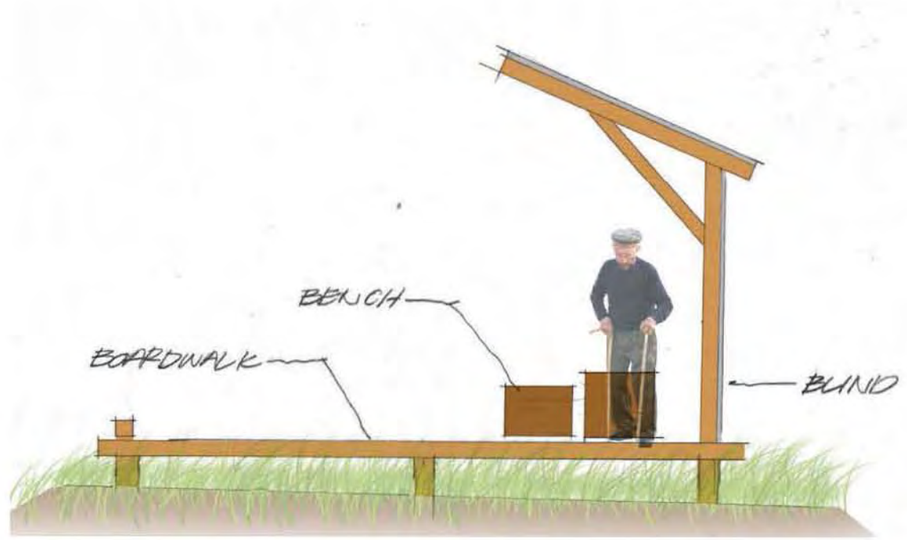
BARN WALL: SECTION

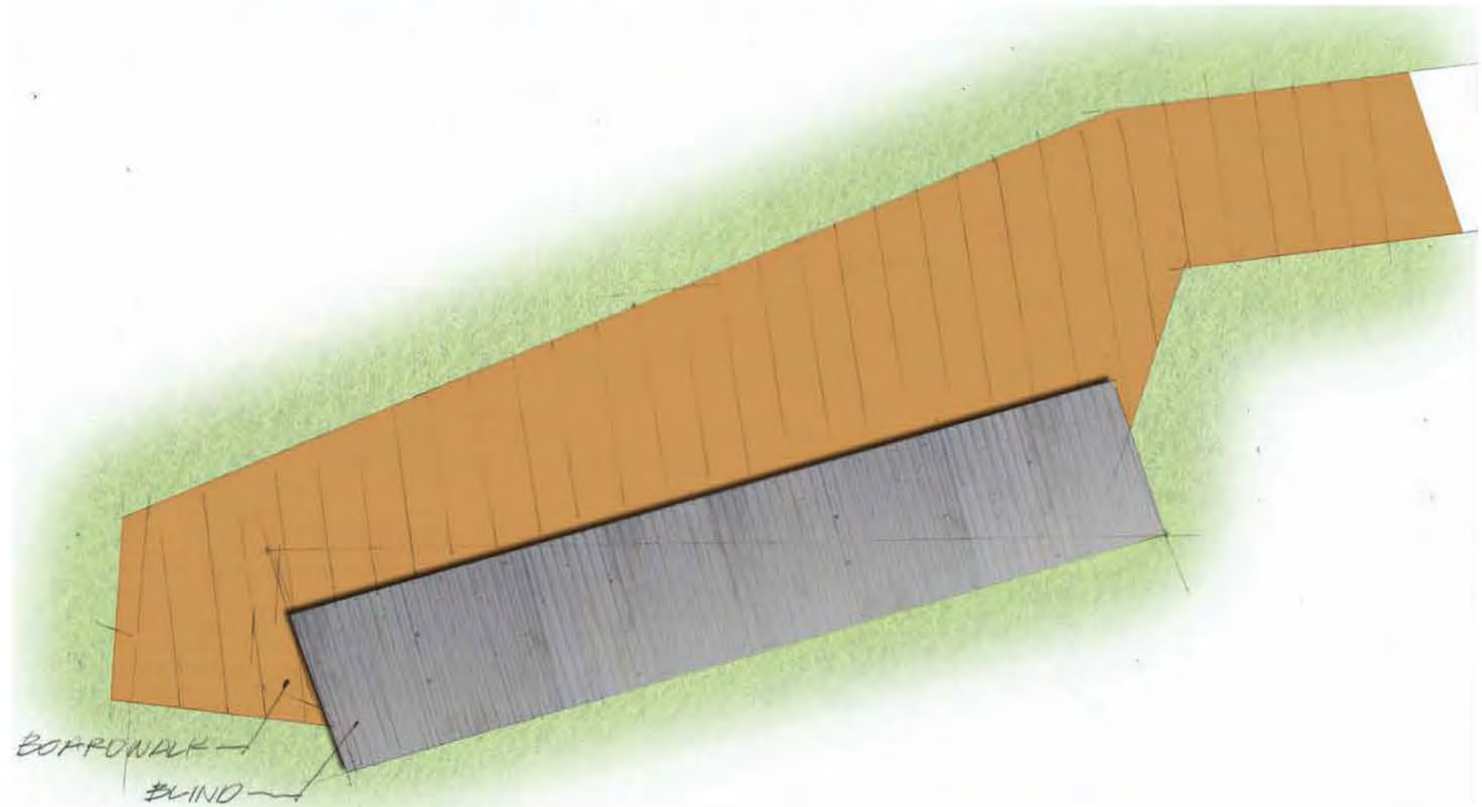


BIRD VIEWING BLIND: SECTION

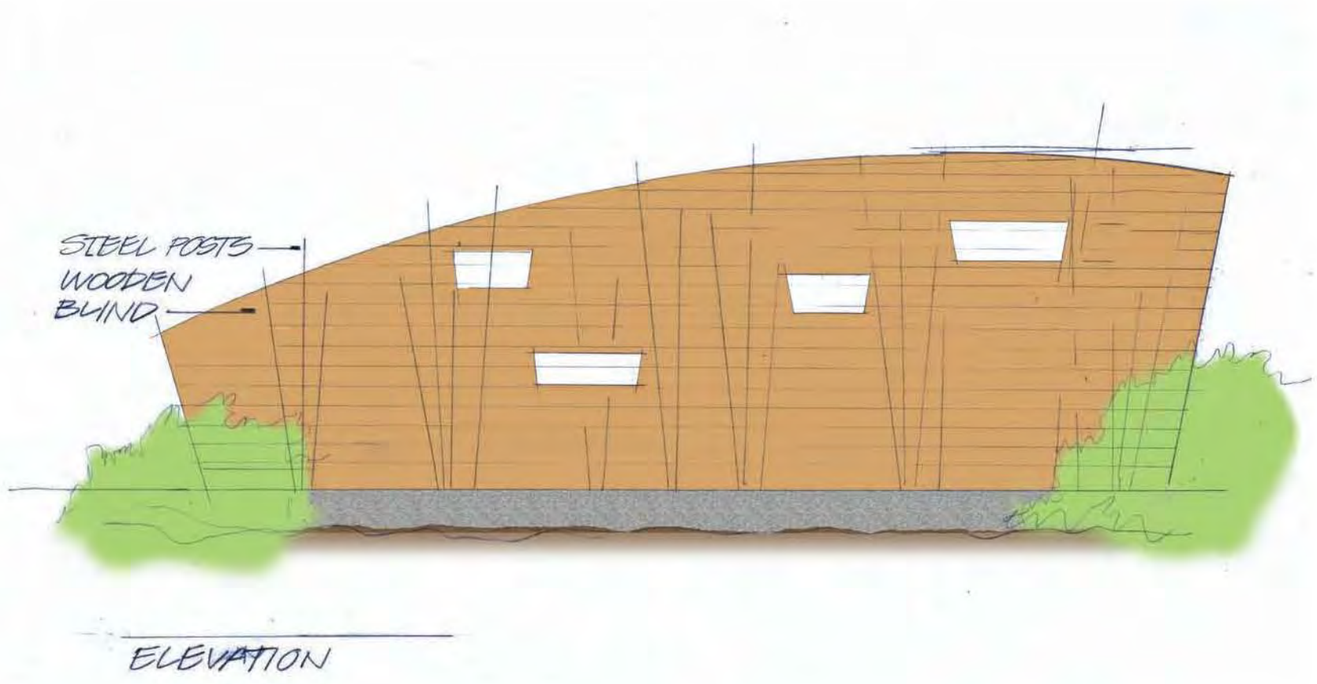
BIRD BLIND CONCEPT 1

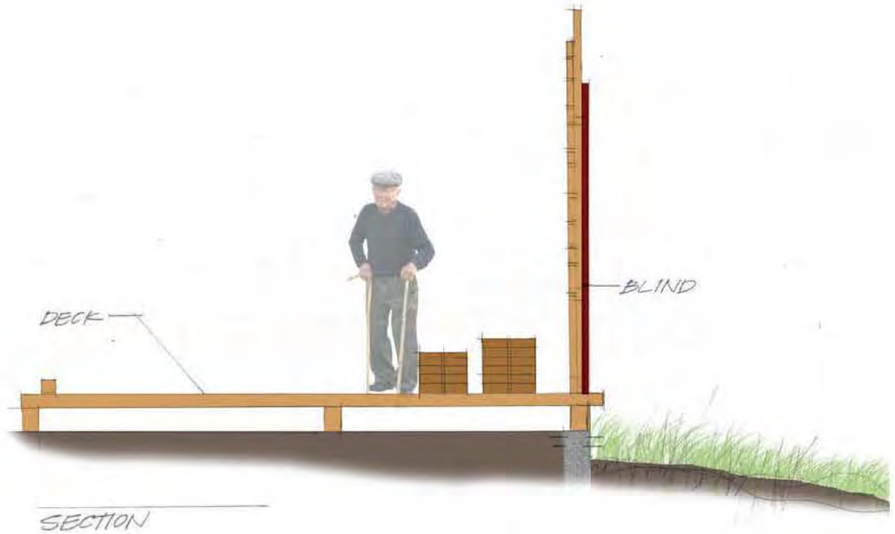


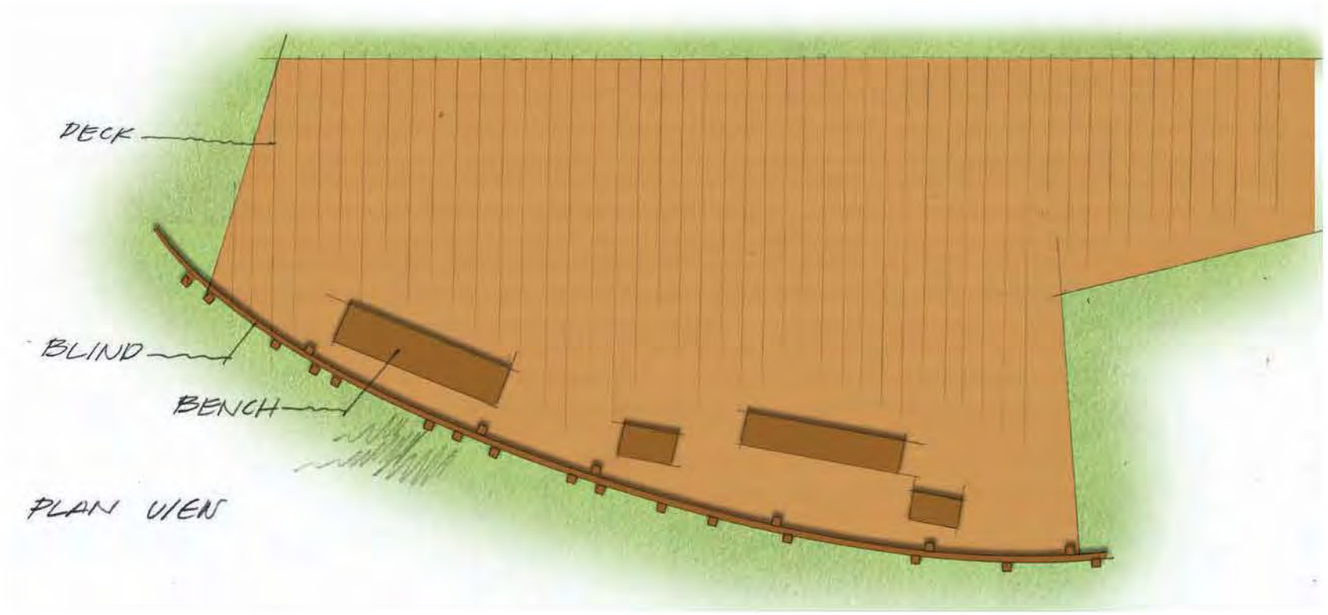




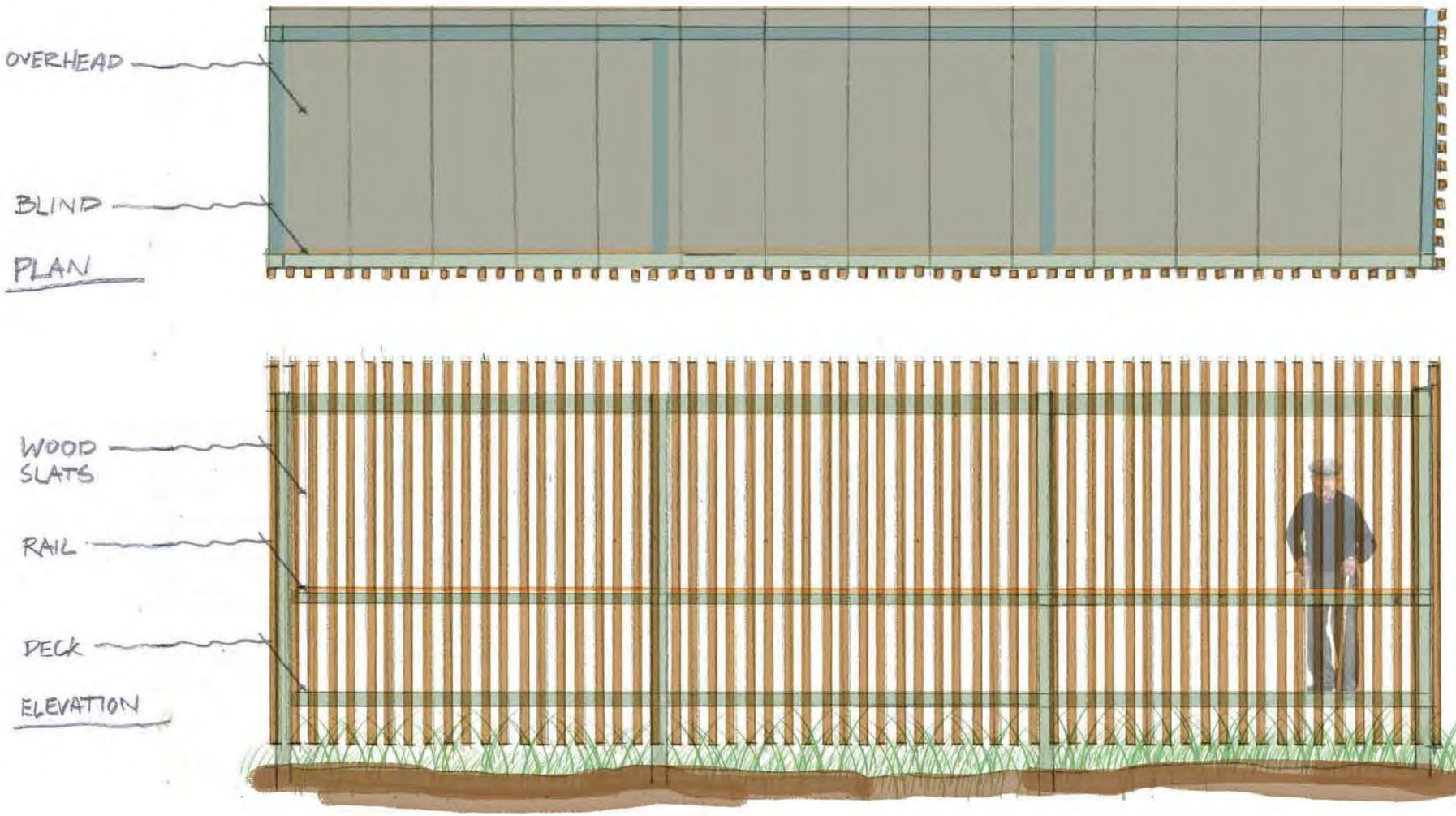
BIRD BLIND CONCEPT 2



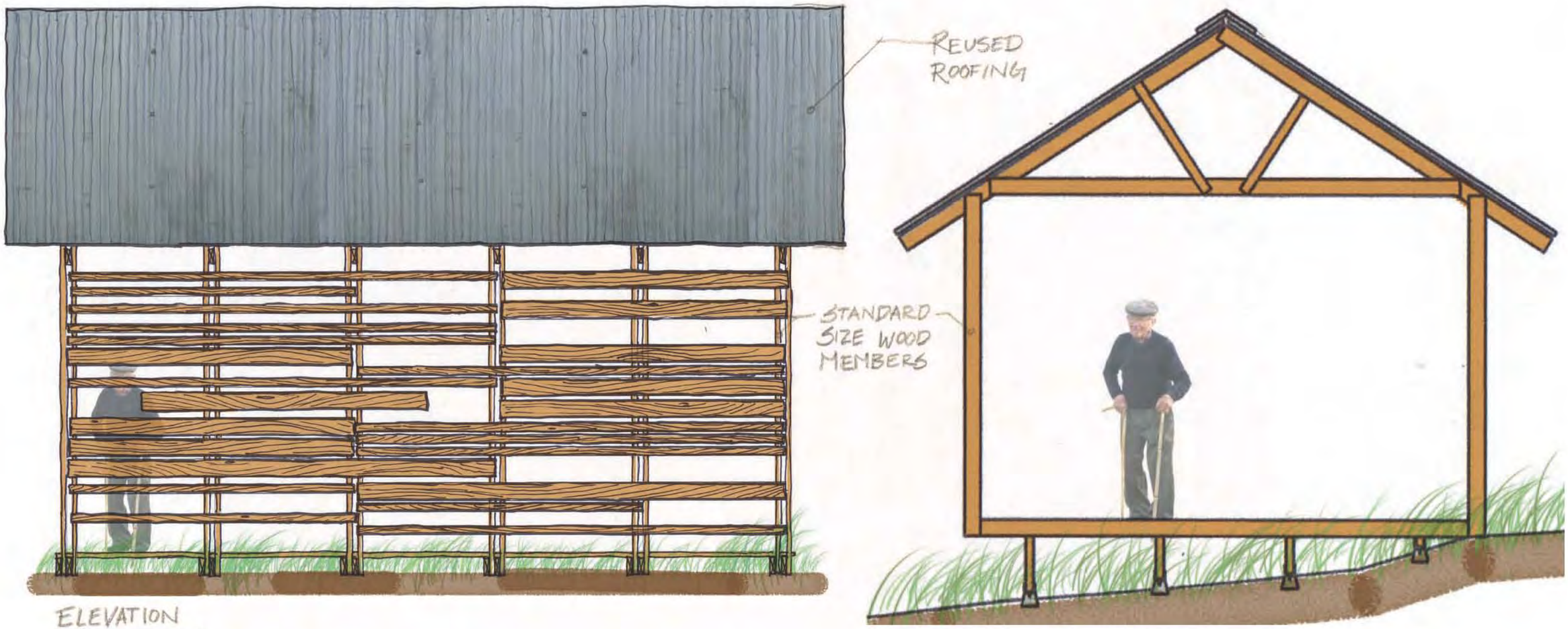




BIRD BLIND CONCEPT 3



BIRD BLIND CONCEPT 4



FENCES AND GATES


Wood rails with square wood posts

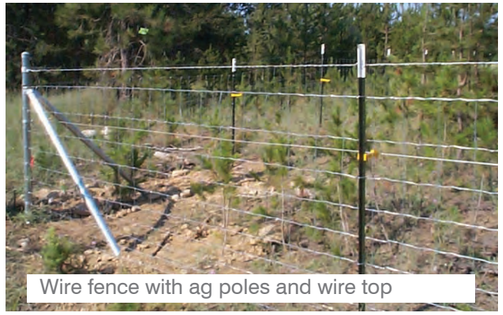

Unfinished wood fence


Asymmetric wood gate with bracing


Wood gate with bracing


Aluminum farm gate


Wire fence with wood and steel gate


Wire fence with ag poles and wire top


Barbed wire fence with wood poles


Steel tubing and mesh gate


Custom built steel gate with embellishments


2 rail split rail fence with square posts


Classic horse / dairy fence

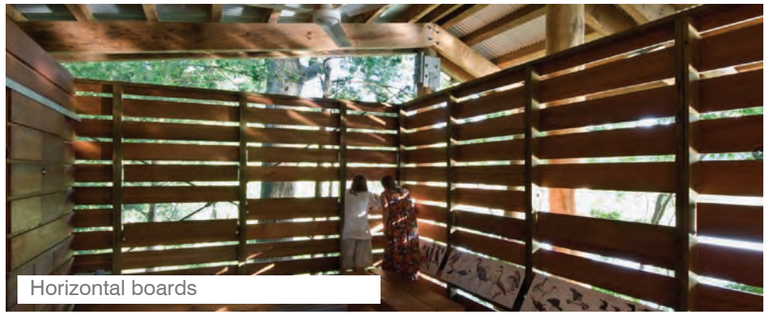

Split rails and posts with bracing at gate

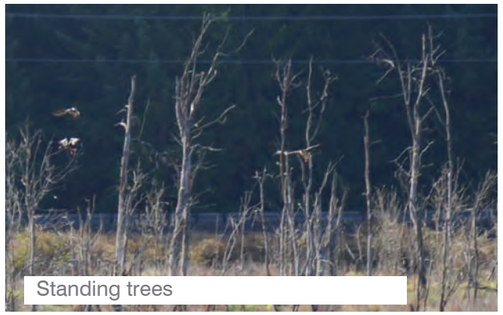

Wire fence with wood posts


Wire mesh fence with steel posts and beams


Cable fence with steel posts and top beam

BIRD BLINDS


Horizontal boards


Standing trees


Cattle feeder with repetitive wood members

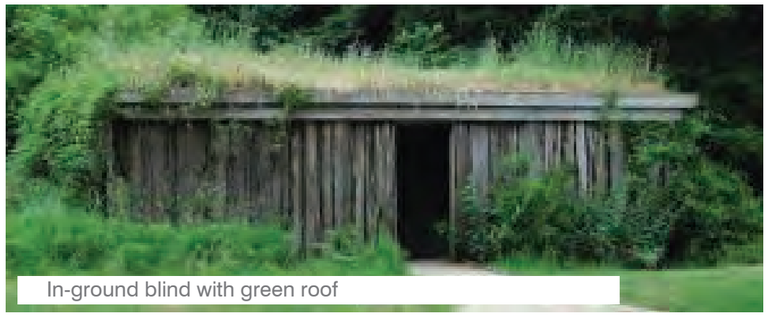

Vertical wood siding


Vertical wood slats


Barn style blind w/ foundation


In-ground blind


Ag silo repurposed as blind


In-ground blind with green roof

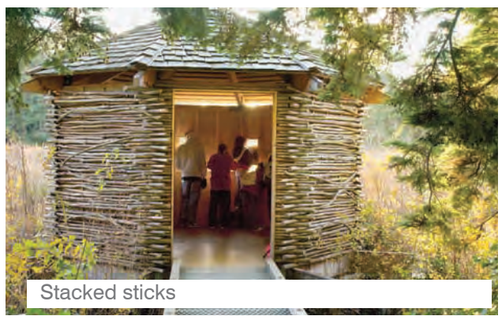

Wood wall style blind


Lightweight timbers


Branches / trunks buried to create blinds

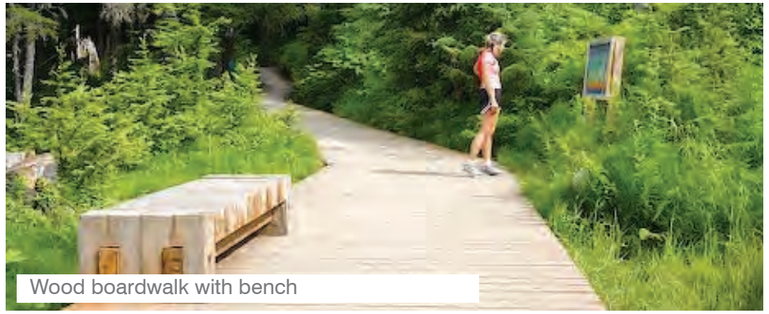

Buried timbers arranged to create blinds


Cabin style blind elevated above wetland


Stacked sticks


Logpile type blind

BOARDWALKS

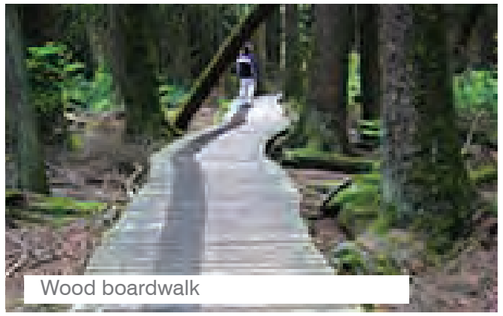

Wood boardwalk with bench


Wood boardwalk


Integrated seating


Plastic decking with mesh panel rails

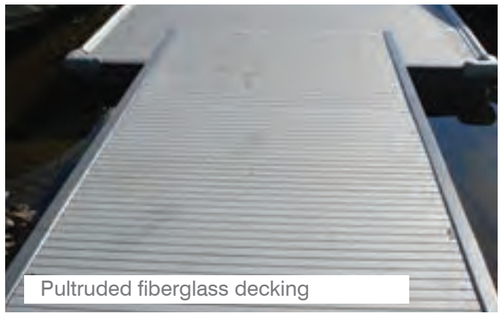

Fiberglass decking

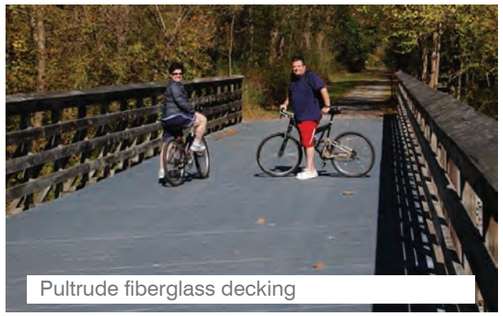

Wood boardwalk


Plastic decking with cable rails


Plastic decking


Steel Grating


Pultruded fiberglass decking


Pultrude fiberglass decking

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Preliminary Options Presentation

Appendix B

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MAKING A GREAT PLACE

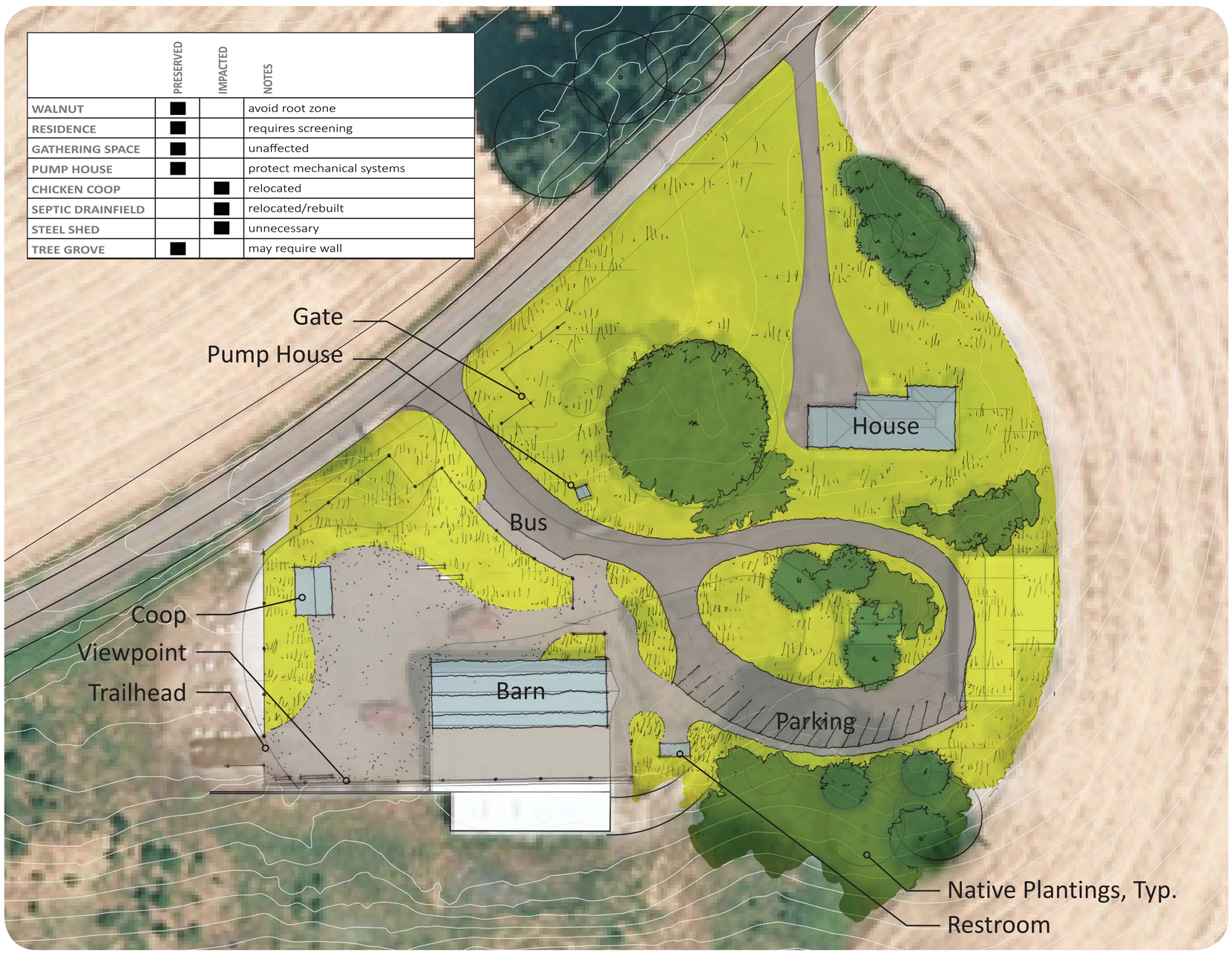
Metro

KILLIN WETLANDS NATURAL AREA

DAY USE

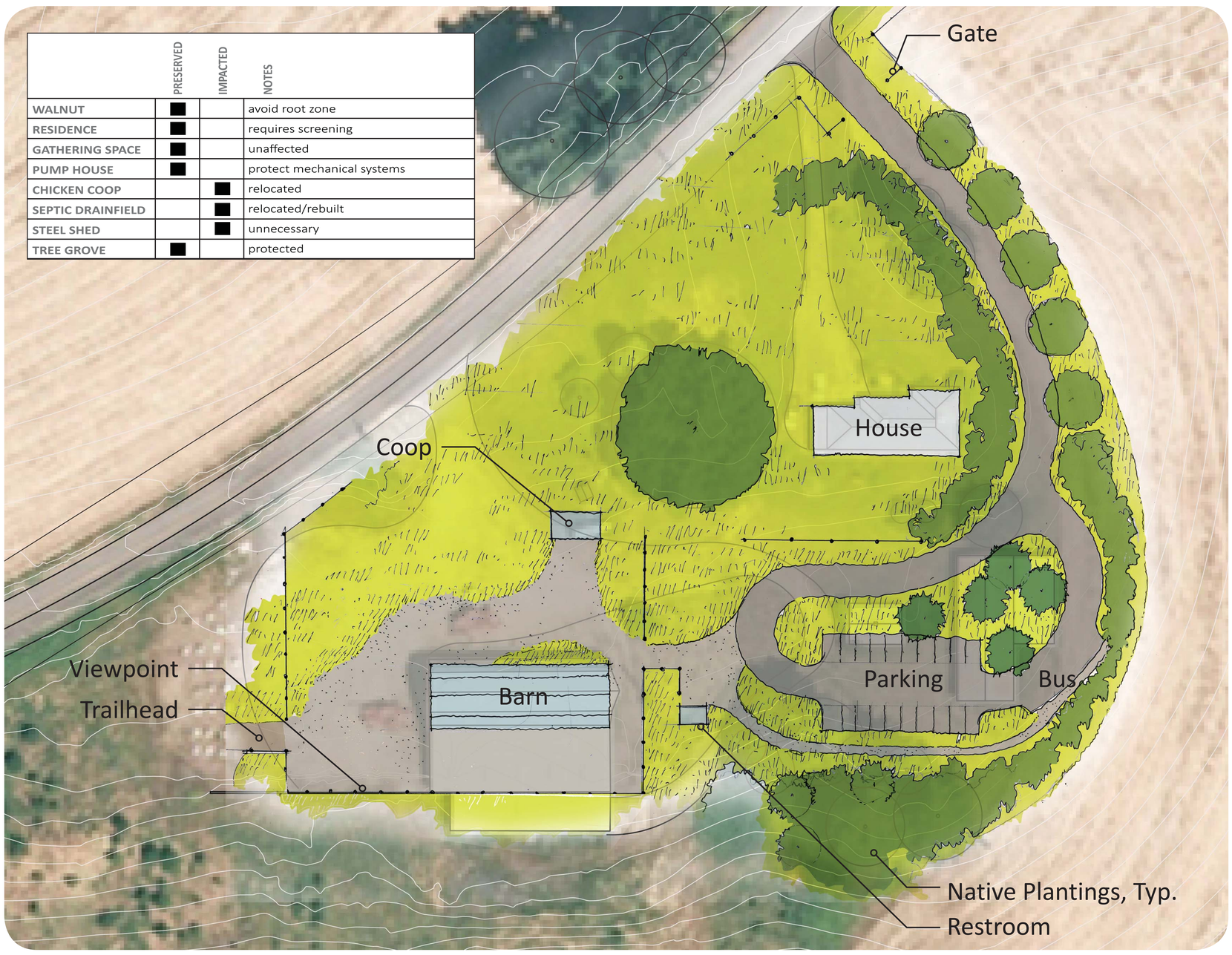
Idea One: One-way Loop

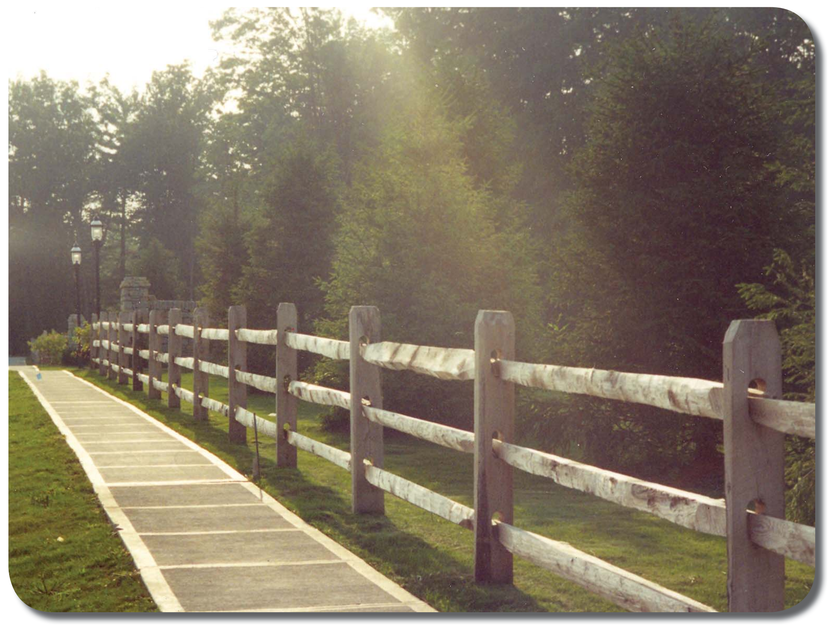
	PRESERVED	IMPACTED	NOTES
WALNUT	■		avoid root zone
RESIDENCE	■		requires screening
GATHERING SPACE	■		unaffected
PUMP HOUSE	■		protect mechanical systems
CHICKEN COOP		■	relocated
SEPTIC DRAINFIELD		■	relocated/rebuilt
STEEL SHED		■	unnecessary
TREE GROVE	■		may require wall



Idea Two: Entry Road Adjacent to Field

	PRESERVED	IMPACTED	NOTES
WALNUT	■		avoid root zone
RESIDENCE	■		requires screening
GATHERING SPACE	■		unaffected
PUMP HOUSE	■		protect mechanical systems
CHICKEN COOP		■	relocated
SEPTIC DRAINFIELD		■	relocated/rebuilt
STEEL SHED		■	unnecessary
TREE GROVE	■		protected





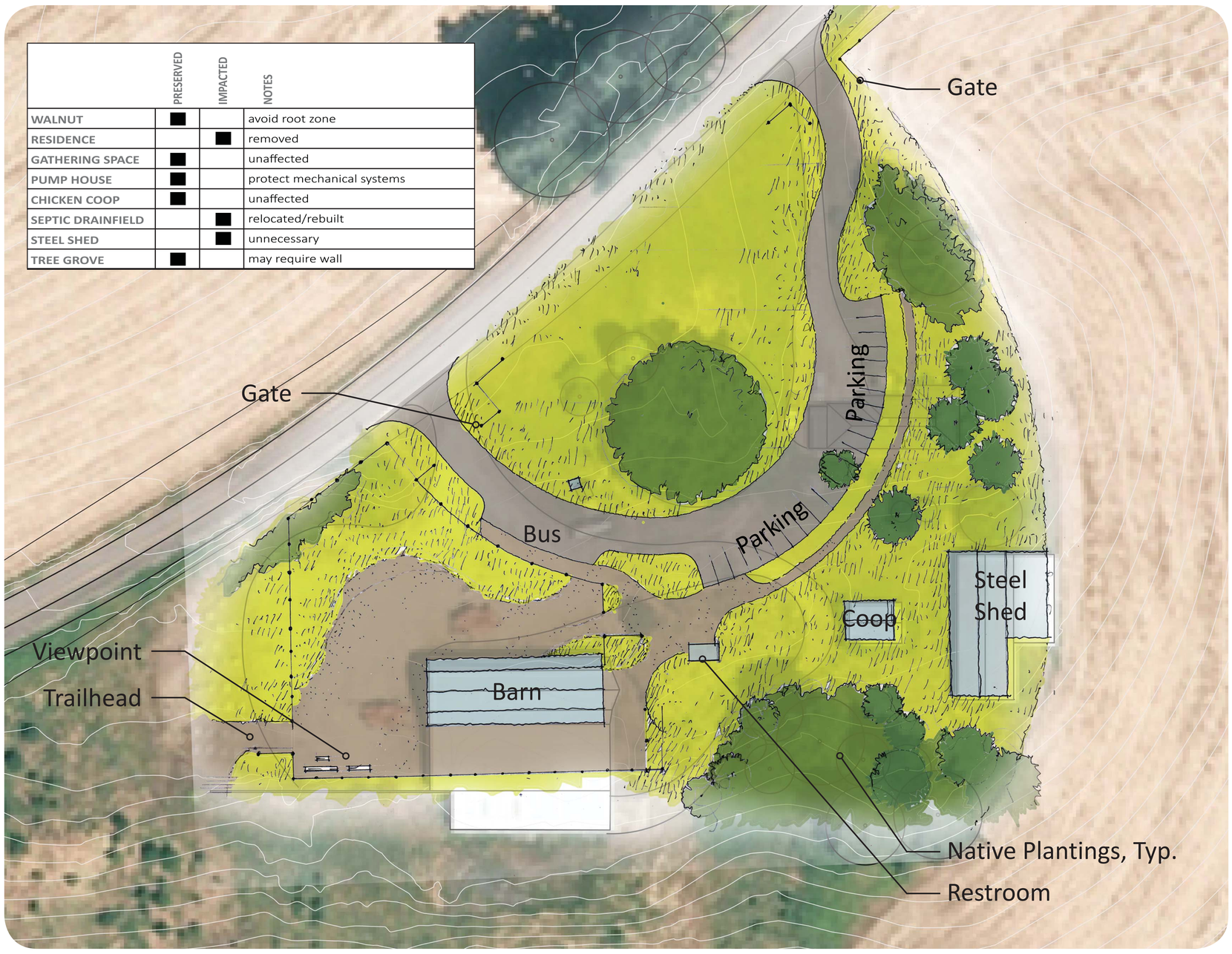
MAKING A GREAT PLACE

Metro

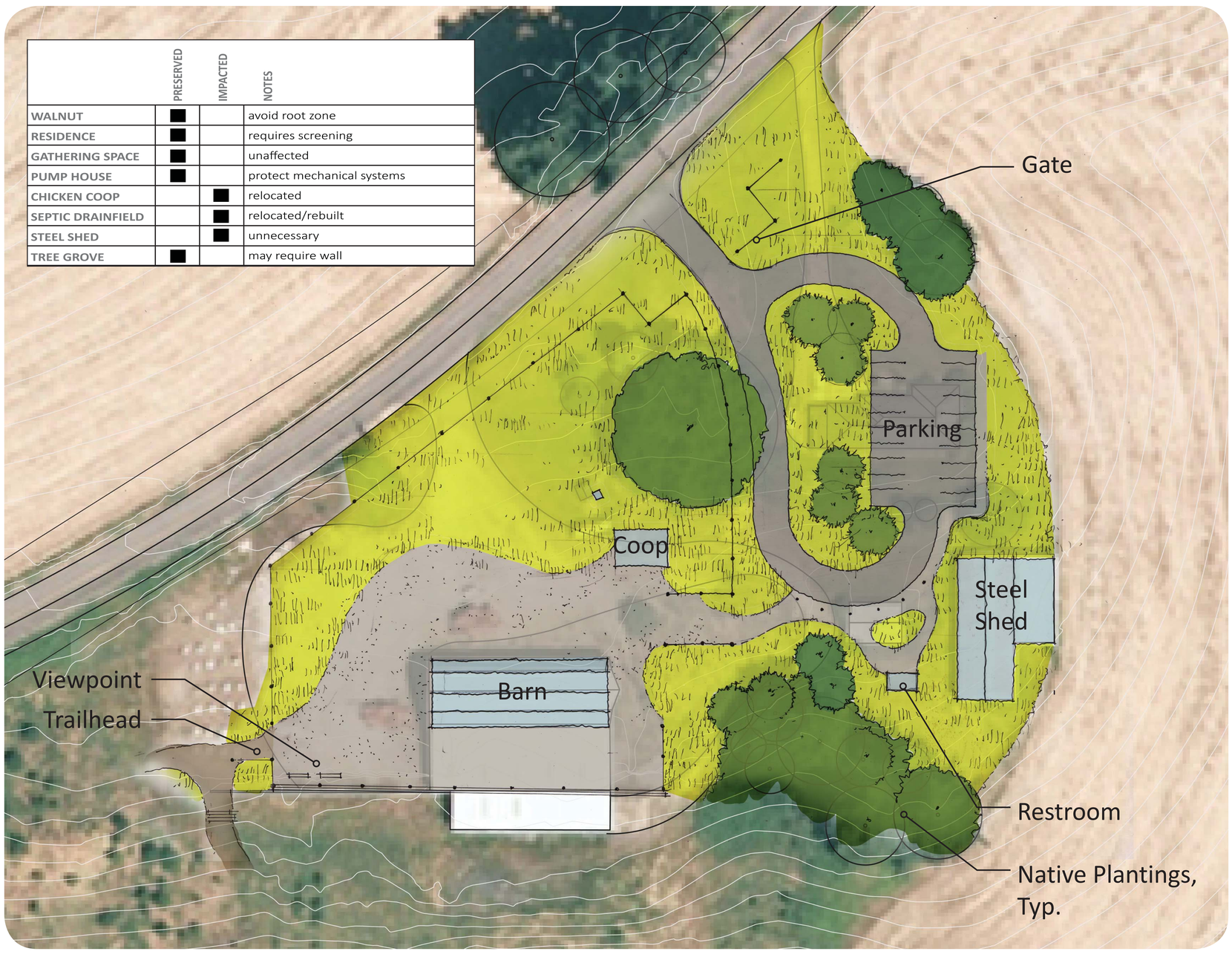
KILLIN WETLANDS NATURAL AREA

DAY USE

Idea Three: Loop Entry Road



Idea Four: Maximize Openspace by Barn



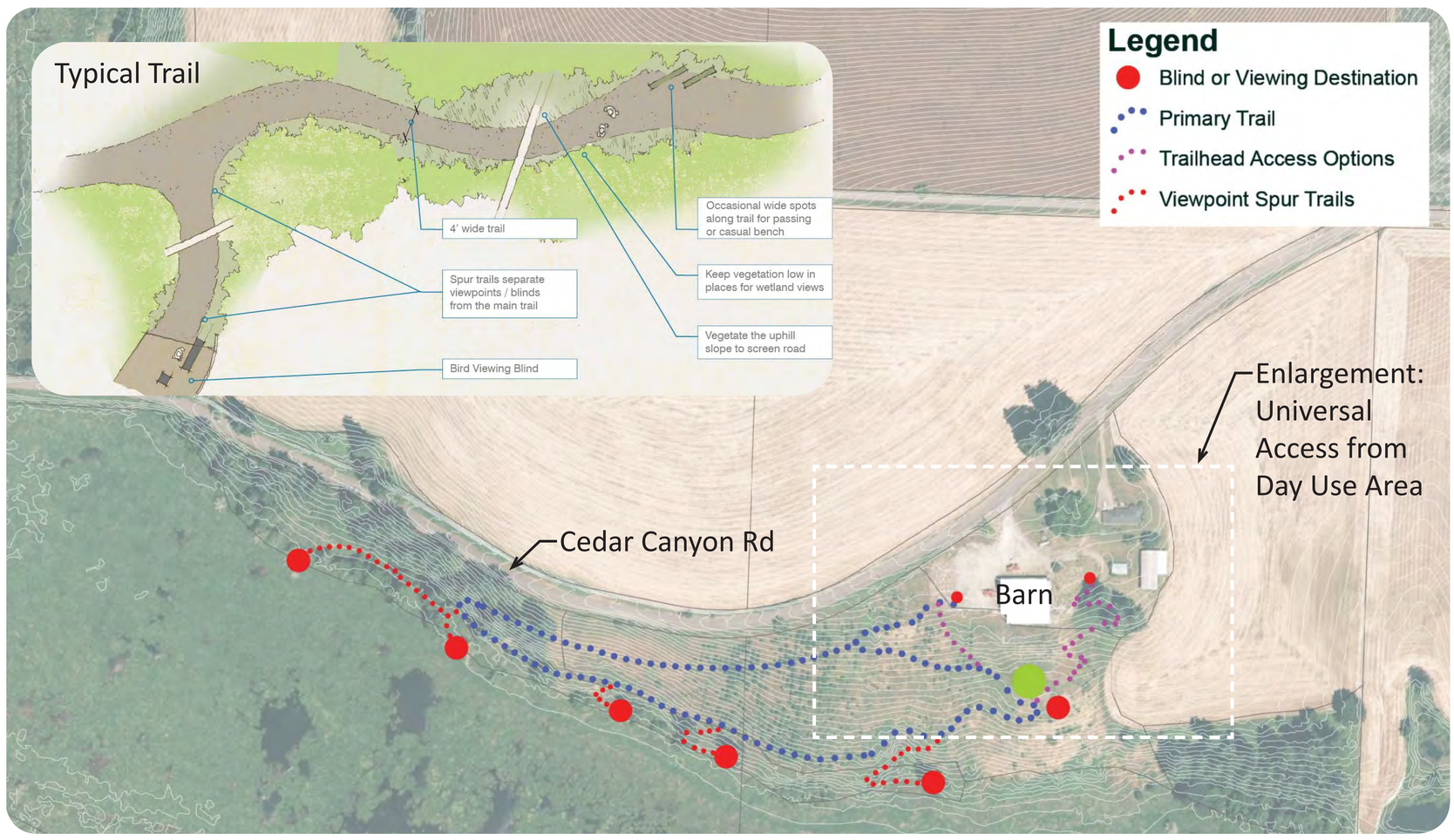
MAKING A GREAT PLACE

Metro

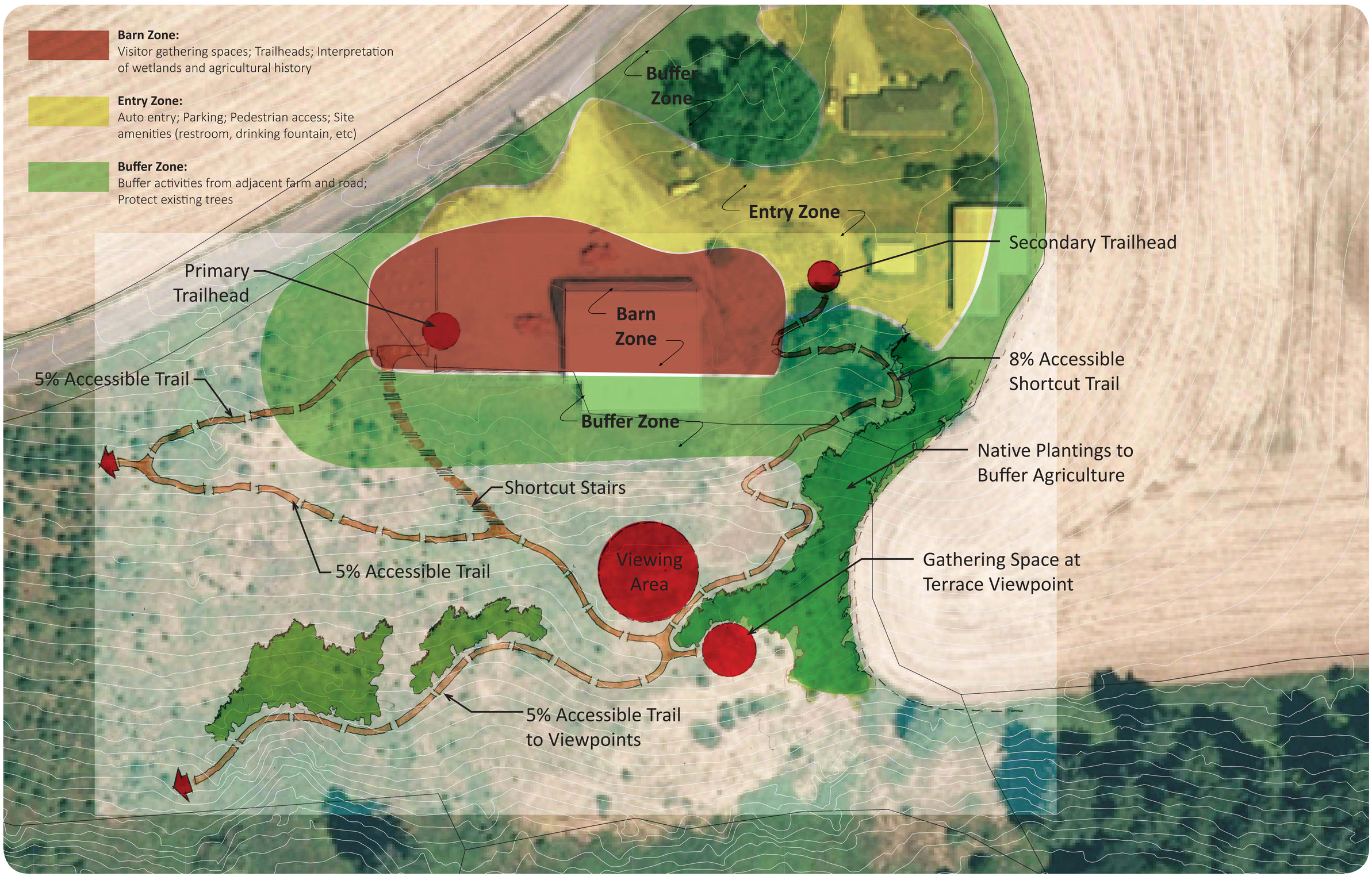
KILLIN WETLANDS NATURAL AREA

TRAILS

Trail Destinations / Routes



Universal Access from Day Use Area



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Final Design Presentation

Appendix C

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MAKING A GREAT PLACE

Metro

KILLIN WETLANDS NATURAL AREA
DAY USE AREA SITE PLAN

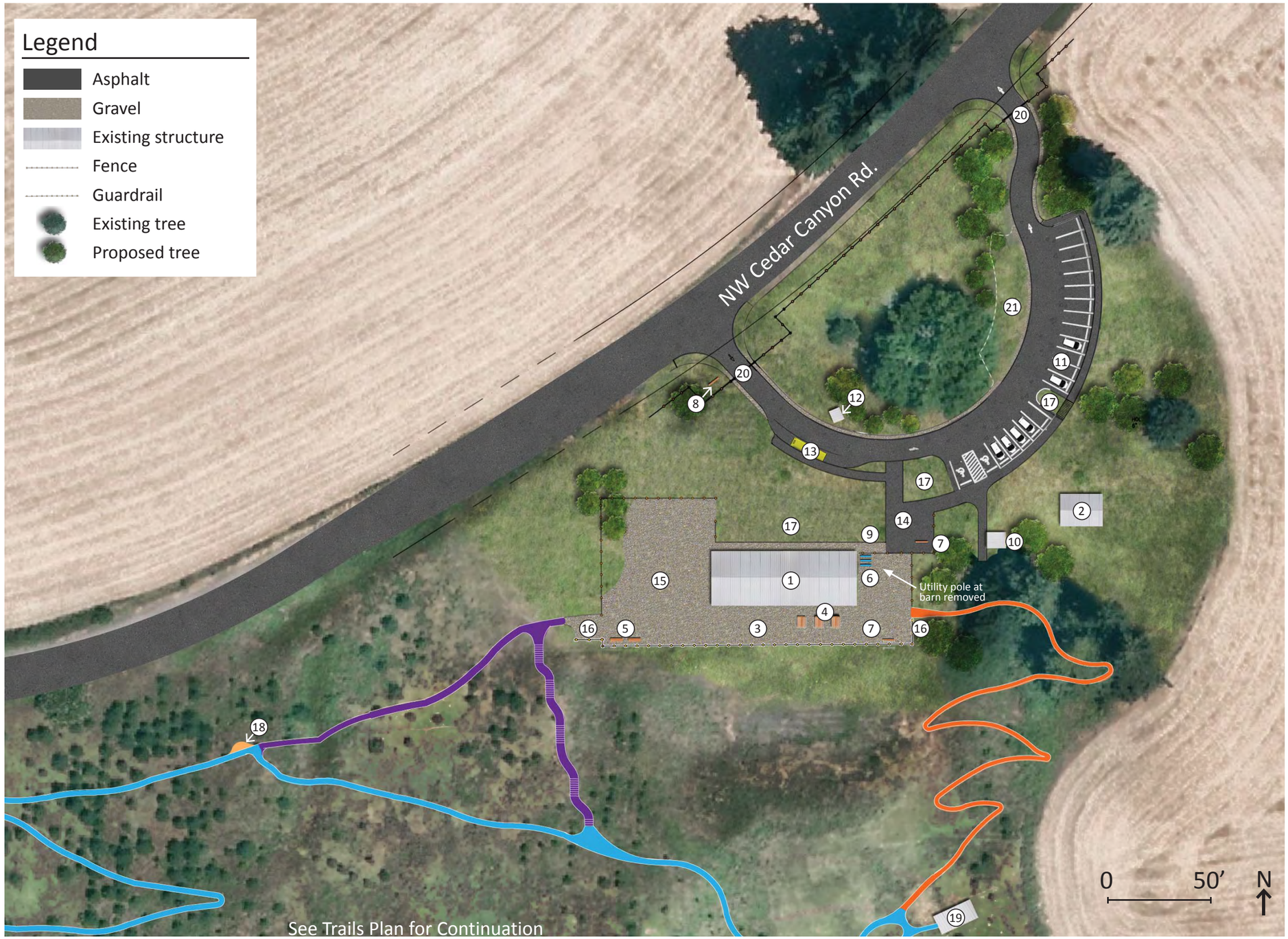
Refined Concept Design
May 19, 2015

Activities

- Volunteer Work
- Light Hiking
- Conservation Education
- Learning about place through art
- Gathering + Viewing
- Birding
- Picnicking

Facilities

1. Existing barn, stabilized. Existing accessory structures removed.
2. Existing chicken coop
3. Viewing gallery
4. Picnic tables
5. Benches
6. Bike rack
7. Information / kiosk
8. Monument sign
9. Drinking fountain
10. Restroom
11. Parking; 18 standard; 2 ADA
12. Existing pump house
13. Bus drop-off
14. Entry area
15. Gathering area / flexible event space
16. Trailhead
17. Stormwater
18. Trail seating
19. Learning shelter - Crow's Nest
20. Automatic gate
21. Overflow parking - 10 additional spaces (future phase)



MAKING A GREAT PLACE

Metro

KILLIN WETLANDS NATURAL AREA
TRAILS SITE PLAN

Refined Concept Design
May 19, 2015

Facilities

1. Existing barn
2. Trail seating
3. Trail steps
4. Learning shelter - Crow’s Nest
5. Blind 1
6. Blind 2
7. Blind 3
8. Boardwalk

Activities

- Volunteer Work
- Light Hiking
- Conservation Education
- Learning about place through art
- Walking on a boardwalk
- Gathering + Viewing
- Birding
- Picnicking

Typical trail layout with seating

Proposed viewing blind screened with natural vegetation

MAKING A GREAT PLACE

Metro

KILLIN WETLANDS NATURAL AREA
PHOTOREALISTIC RENDERINGS

Refined Concept Design
May 19, 2015

1 Dairy Barn Overlook, looking west

2 Dairy Barn Overlook, looking east

3 Boardwalk

4 Boardwalk

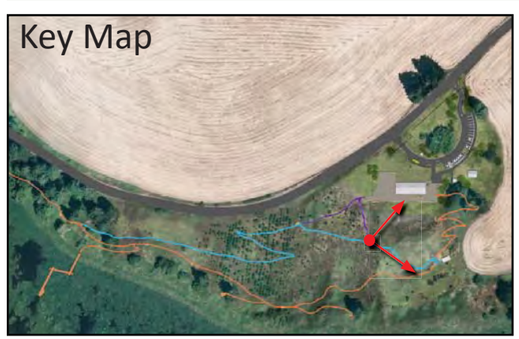
MAKING A GREAT PLACE

Metro

KILLIN WETLANDS NATURAL AREA
CROW'S NEST LEARNING SHELTER

Refined Concept Design
May 19, 2015

- Sheltered gathering for approximately 30 people
- Viewers screened from wetland
- Built from lumber reclaimed on-site using truss-framing reminiscent of dairy barn
- Translucent roof panels offer views into shelter from dairy barn overlook for security



MAKING A GREAT PLACE

Metro

KILLIN WETLANDS NATURAL AREA
BIRD BLINDS AND WILDLIFE VIEWING

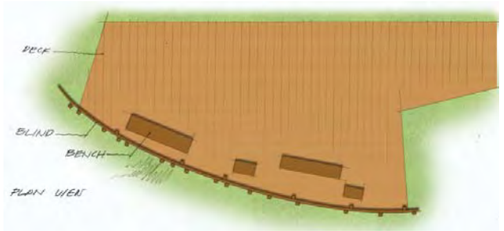
Refined Concept Design
May 19, 2015

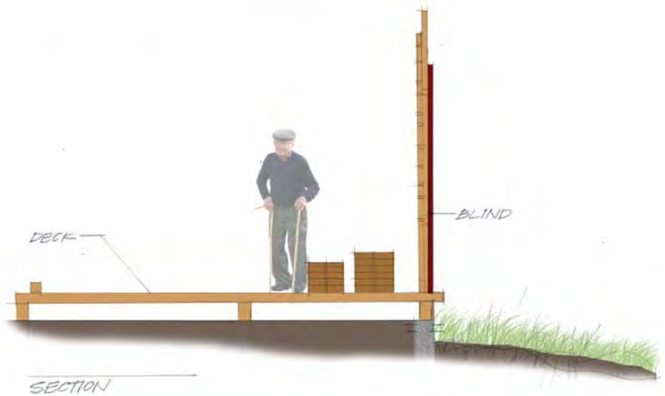
Precedent viewing blind

Precedent viewing blind

Viewing blind at terminus of boardwalk

Conceptual viewing blind sketch





Conceptual viewing blind sketch

Wetland boardwalk precedent

Killin dairy barn hayrack

MAKING A GREAT PLACE

Metro

KILLIN WETLANDS NATURAL AREA
QUILT BARN TRAIL OF WASHINGTON COUNTY

Refined Concept Design
May 19, 2015

What is a Quilt Barn?

- A Quilt Barn is a barn or other farm building that displays a quilt square. Often these barns are very old and have historical or landmark significance in the area.
- Usually the quilt squares are hand-painted to resemble traditional quilt blocks (or patterns) that have been used by generations of quilters.

Quilt Barn Trail of Washington County

- The Westside Quilters Guild has embarked on a multi-year project to create a quilt barn trail in Washington County.
- Quilt blocks will be mounted on non-residential buildings outside the Washington County Urban Growth Boundary.
- This trail will highlight the county's agricultural and historical heritage, promote area tourism, create public art, and showcase the art of quilting.
- The three blocks are installed:
  - 31535 SW Simpson Road, Cornelius
  - 32720 NW Hornecker Road, Hillsboro
  - 30975 NW Hillcrest St, North Plains


Barker Farm north of Tillamook


Turkey Tracks quilt block for The Kinton Grange


Hovering Hawks quilt block at Simpson Century Farm in Cornelius


Family fan quilt block created at Gates Century Farm in Hillsboro

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Design Development Drawings

Appendix D

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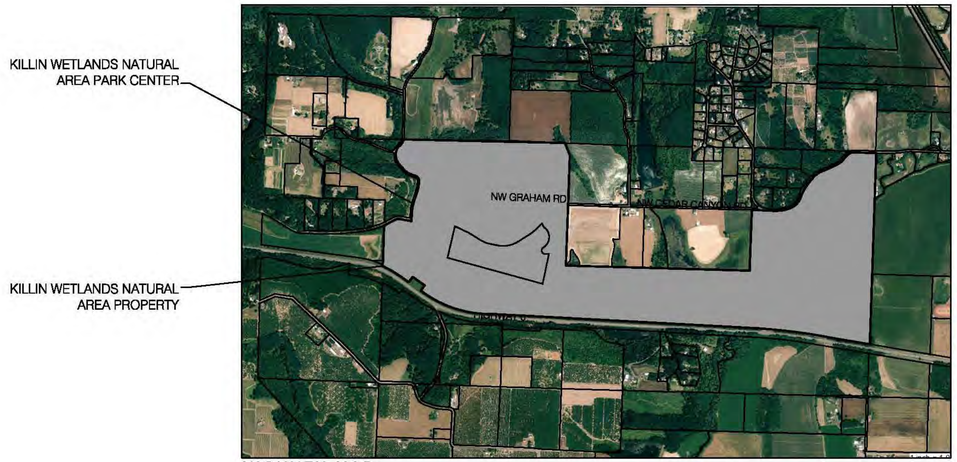
Killin Wetlands Natural Area
Banks, Oregon

PROJECT LOCATION

46280 NW CEDAR CANYON RD
BANKS, OR
97106



VICINITY MAP
NOT TO SCALE

DRAFT

PROJECT TEAM

OWNER:	METRO 600 NE Grand Avenue Portland, Oregon 97232 Phone: (503) 629-6305 ext. 2737 FAX: (503) 797 1583 Contact: Alex Perove email: Alex.Perove@oregonmetro.gov
LANDSCAPE ARCHITECT:	NEVUE NGAN ASSOCIATES 537 SE Ash St, Suite 207 Portland, Oregon 97214 Phone: (503) 239-0600 FAX: (503) 239-0605 Contact: Bo Nevue email: bo@nevuengan.com
CIVIL ENGINEER:	KPFF 111 SW 5th Ave #2500 Portland, OR 97204 Phone: (503) 542-3805 Contact: Curt Vanderzanden email: curt.vanderzanden@kpffcivilpdx.com
ELECTRICAL ENGINEER:	MLC Engineering 1515 Southwest 5th Avenue #1028 Portland, Oregon 97201 Phone: (503) 220-0168 Contact: Lun Chau email: lun.chau@mlc-engineering.com

DRAWING INDEX

Metro

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Portland, Oregon 97214
phone 503.239.0600
fax 503.239.0605

KILLIN WETLAND NATURAL AREA

DRAFT DESIGN DEVELOPMENT

REVISIONS:

DELTA	DATE	TITLE

SHEET TITLE:

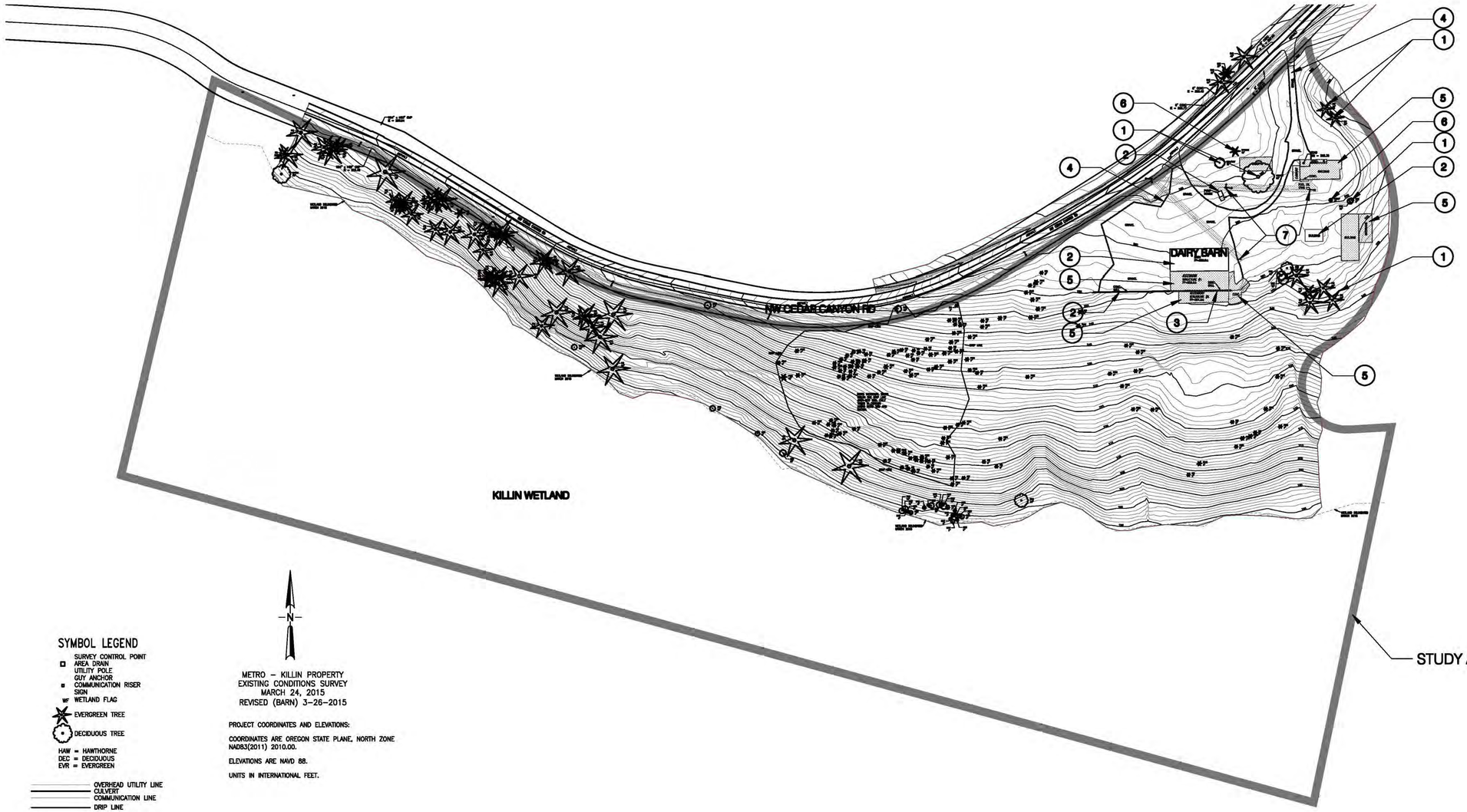
TITLE SHEET

SCALE:
DRAWN BY: D.G.
CHECKED BY: R.N.

SHEET

T1.0

DATE: 05/29/15
JOB NO. NNA 1410



SYMBOL LEGEND

- SURVEY CONTROL POINT
- AREA DRAIN
- UTILITY POLE
- GUY ANCHOR
- COMMUNICATION RISER
- SIGN
- WETLAND FLAG
- EVERGREEN TREE
- DECIDUOUS TREE

HAW = HAWTHORNE
DEC = DECIDUOUS
EVR = EVERGREEN

- OVERHEAD UTILITY LINE
- CULVERT
- COMMUNICATION LINE
- DRIP LINE

N

METRO – KILLIN PROPERTY
EXISTING CONDITIONS SURVEY
MARCH 24, 2015
REVISED (BARN) 3–26–2015

PROJECT COORDINATES AND ELEVATIONS:

COORDINATES ARE OREGON STATE PLANE, NORTH ZONE NAD83(2011) 2010.00.

ELEVATIONS ARE NAVD 88.

UNITS IN INTERNATIONAL FEET.

1 SURVEY PLAN - OVERALL SITE

0 25' 50' 100 NORTH

LAYOUT LEGEND

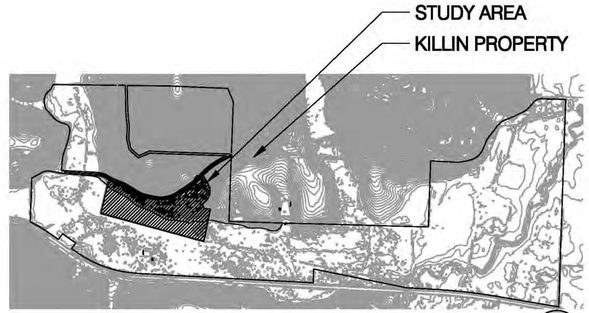
- 1-FOOT CONTOUR INTERVALS
- ESTIMATED HIGH WATER
- DEMOLISH STRUCTURE OR PAVING

BUILDING MATERIALS INVENTORY FOR POTENTIAL RE-USE. (PRELIMINARY)

ITEM	UNITS	BARN SHEDS	STEEL SHED	CARPORT	TOTAL
6 X 6 POST	LF	420	170	96	686
2 X 12	LF	200			200
2 X 10	LF	1000		300	1300
2 X 6	LF	1200	480	300	1980
8" DIA POST	LF	380			380
GALV ROOF	SF	3600	1200	500	5300

KEYED NOTES

1. PROTECT AND PRESERVE TREE(S)
2. PROTECT AND PRESERVE EXISTING STRUCTURE
3. PRESERVE EXISTING CONCRETE WALL BETWEEN ACCESSORY STRUCTURES
4. REMOVE AND STOCKPILE CLEAN GRAVEL FOR REUSE
5. DEMOLISH; SALVAGE TIMBERS AND ROOFING FROM STRUCTURES FOR RE-USE
6. REMOVE TREE
7. EXISTING UTILITY POLE TO BE RELOCATED. FINAL LOCATION TO BE DETERMINED BY OWNER.



KEY MAP
NTS

Metro

CONSULTANT:

Landscape Architectu

[nev-ū-non]
Nevue | Ngan | Associates

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Portland, Oregon 97214
phone 503.239.0600
fax 503.239.0605

KILLIN WETLAND NATURAL AREA
DRAFT DESIGN DEVELOPMENT

REVISIONS:

DELTA	DATE	TITLE

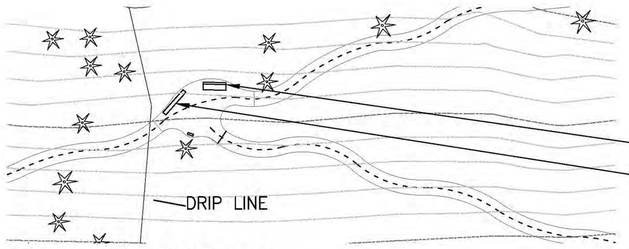
SHEET TITLE:

SURVEY SHEET
OVERALL SITE

SCALE:
DRAWN BY: D.G.
CHECKED BY: R.N.

SHEET
S1.0

DATE: 05/29/15
JOB NO. NNA 1410



2 TRAIL JUNCTION

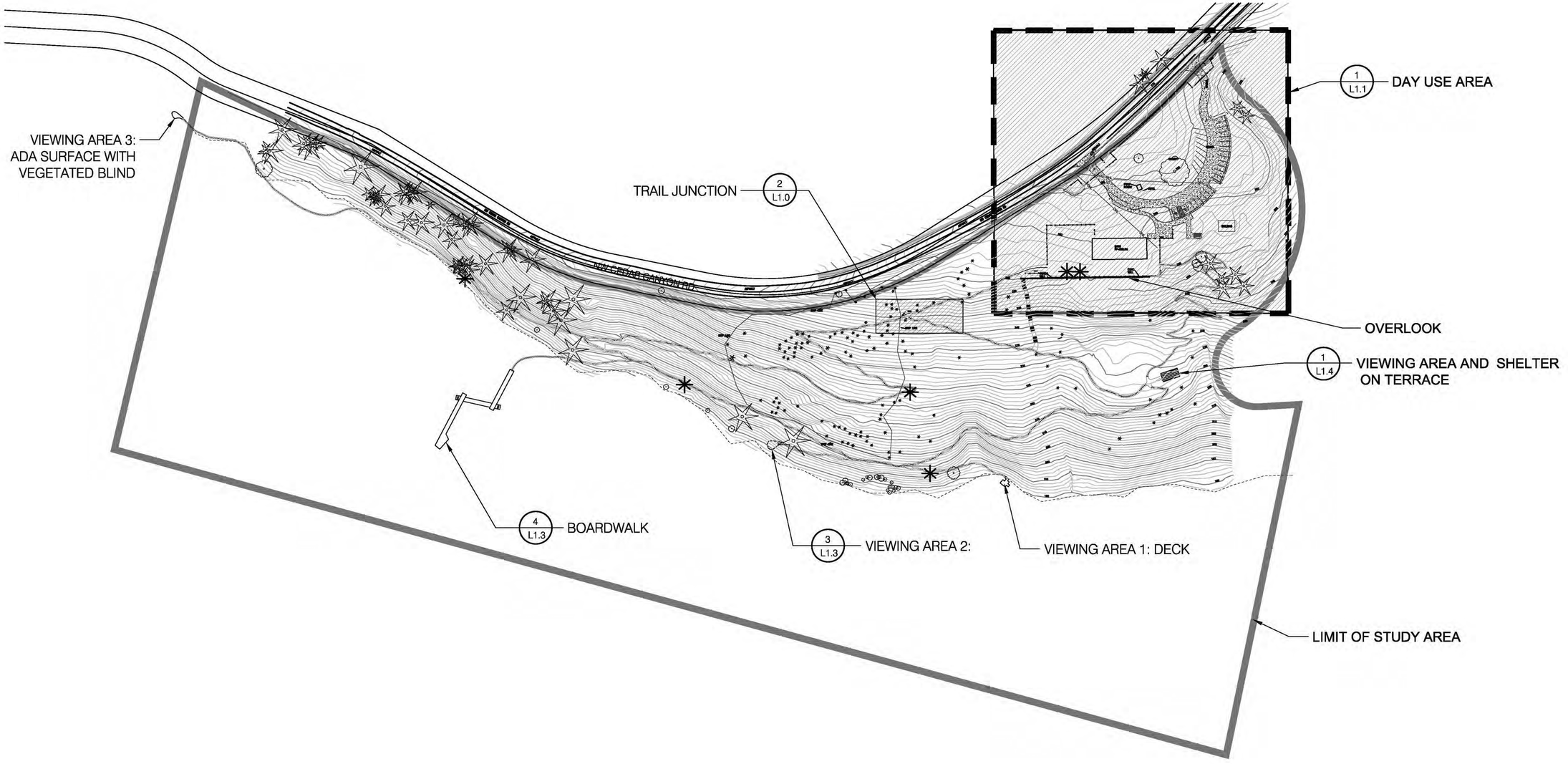
0 10' 20' 40' NORTH

GENERAL NOTES

1. TRAIL ALIGNMENTS AND BENCH LOCATIONS SHALL BE FIELD-STAKED AND REVIEWED WITH THE OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION

LAYOUT LEGEND

- PROPOSED BENCH LOCATION
- 4-FOOT WIDE TRAIL
- 3-FOOT WIDE TRAIL
- STAIRS
- EXISTING CONTOUR INTERVALS
- ESTIMATED HIGH WATER
- X / LX.X — DETAIL CALLOUT



1 LAYOUT PLAN - PARK CENTER

0 25' 50' 100 NORTH

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KILLIN WETLAND NATURAL AREA

DRAFT DESIGN DEVELOPMENT

REVISIONS:

DELTA	DATE	TITLE

SHEET TITLE:

LAYOUT
OVERALL SITE

SCALE:

DRAWN BY: D.G.

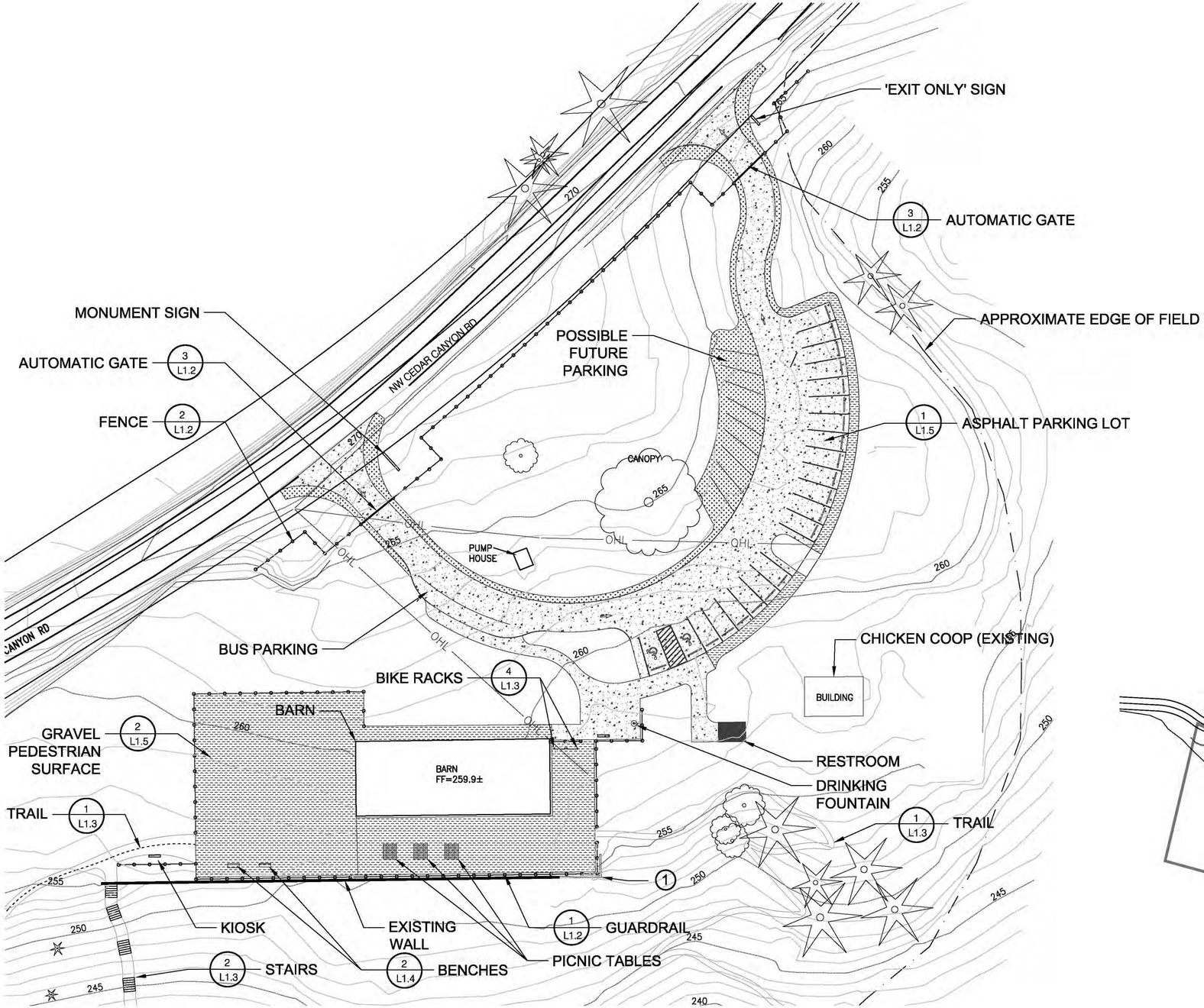
CHECKED BY: R.N.

SHEET

L1.0

DATE: 05/29/15

JOB NO. NNA 1410



1 LAYOUT PLAN - PARK CENTER

0 15' 30' 60' NORTH

LAYOUT LEGEND

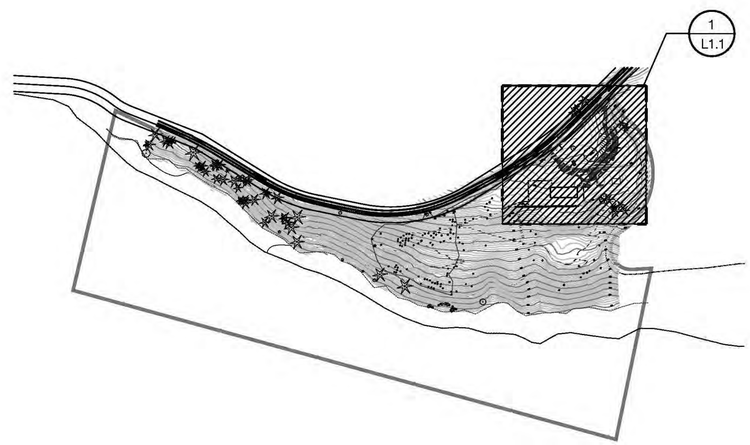
- PROPOSED BENCH LOCATION
- 4-FOOT WIDE TRAIL
- 3-FOOT WIDE TRAIL
- STAIRS
- EXISTING CONTOUR INTERVALS
- ESTIMATED HIGH WATER
- FENCE
- ASPHALT PAVING
- GRAVEL (3/4 MINUS)
- ADA GRAVEL SURFACE (1/4 MINUS)
- BENCH
- PICNIC TABLE
- DETAIL SYMBOL (X / LXX)

KEYED NOTES

1. ADD TO CONCRETE WALL TO ACCOMMODATE TRAILHEADS

GENERAL NOTES

1. TRAIL ALIGNMENTS AND BENCH LOCATIONS SHALL BE FIELD-STAKED AND REVIEWED WITH THE OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION



KEY MAP

NTS

NORTH

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KILLIN WETLAND NATURAL AREA

DRAFT DESIGN DEVELOPMENT

REVISIONS:

DELTA	DATE	TITLE

SHEET TITLE:

LAYOUT
PARK CENTER

SCALE:

DRAWN BY: D.G.

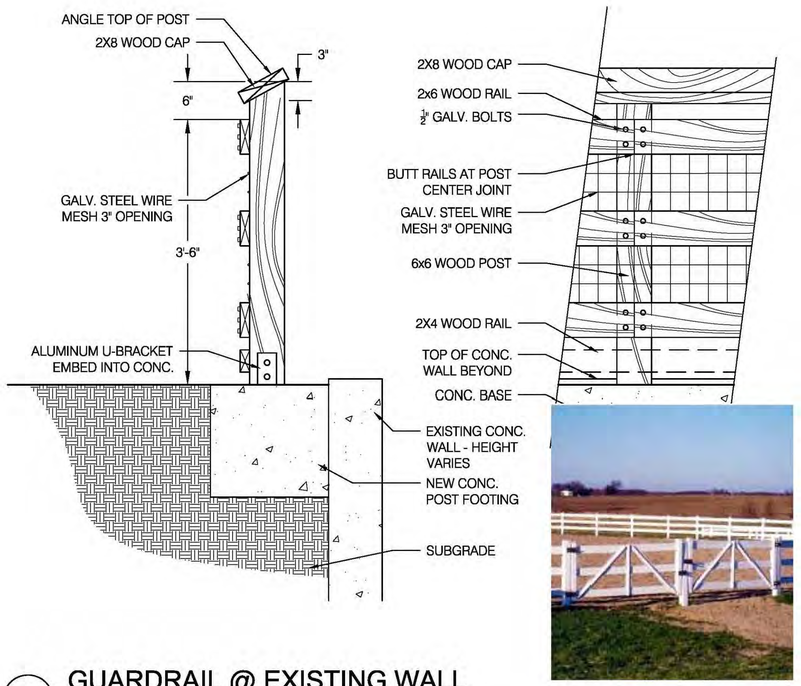
CHECKED BY: R.N.

SHEET

L1.1

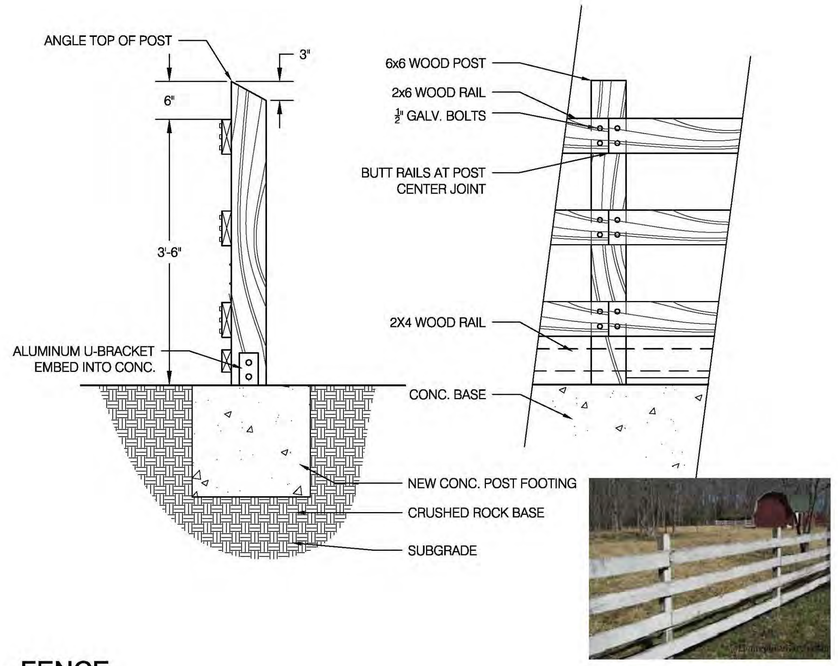
DATE: 05/29/15

JOB NO. NNA 1410



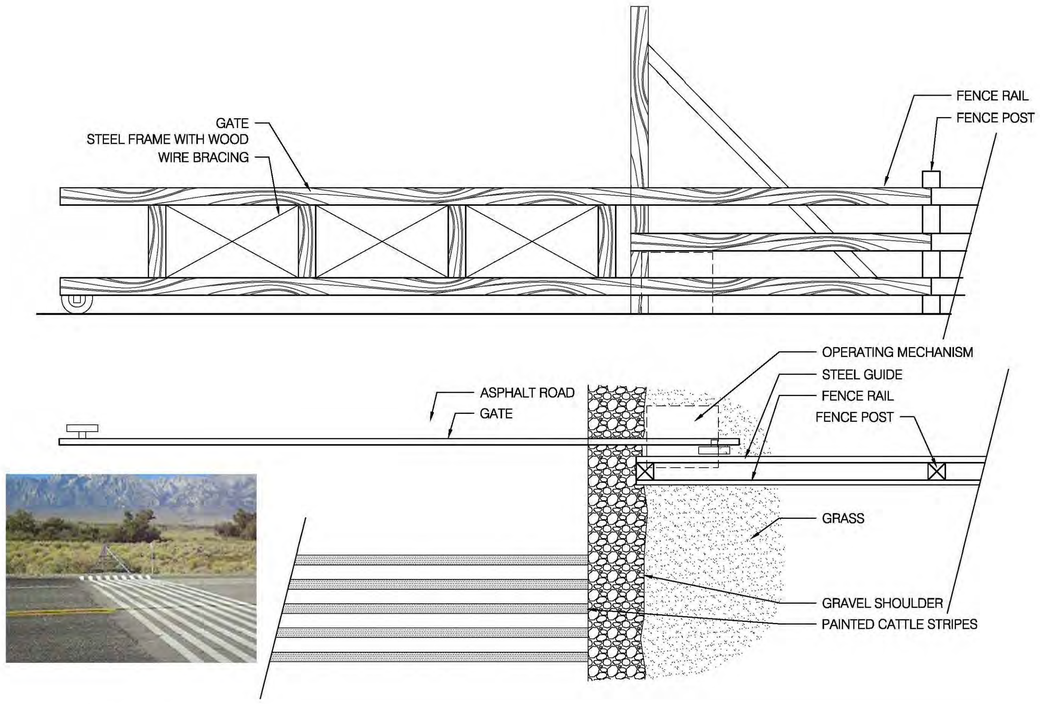
1 GUARDRAIL @ EXISTING WALL

SCALE: 1" = 1' - 0"



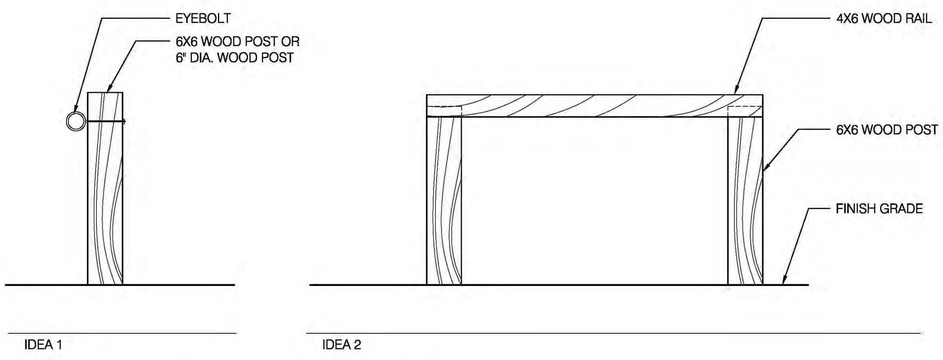
2 FENCE

SCALE: 1" = 1' - 0"



3 AUTOMATIC GATE

SCALE: 1/2" = 1' - 0"



4 BIKE RACK / HITCHING POST

SCALE: 1" = 1' - 0"

Metro

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KILLIN WETLAND NATURAL AREA

DRAFT DESIGN DEVELOPMENT

REVISIONS:

DELTA	DATE	TITLE

SHEET TITLE:

DETAILS

SCALE:

DRAWN BY: D.G.

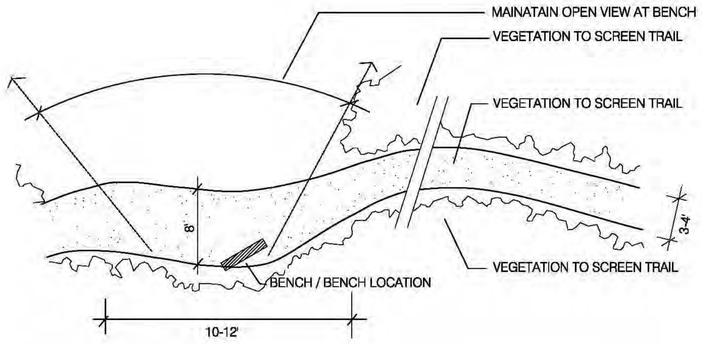
CHECKED BY: R.N.

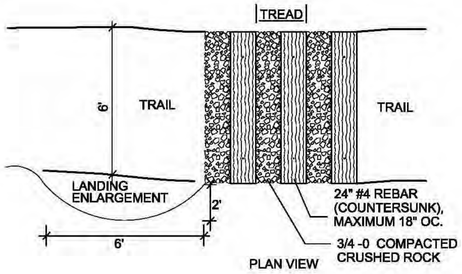
SHEET

L1.2

DATE: 05/29/15

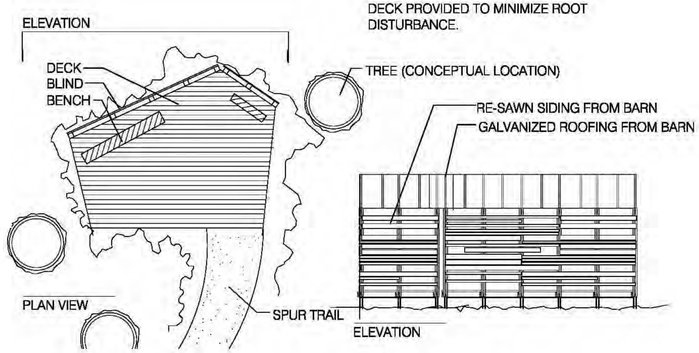
JOB NO. NNA 1410

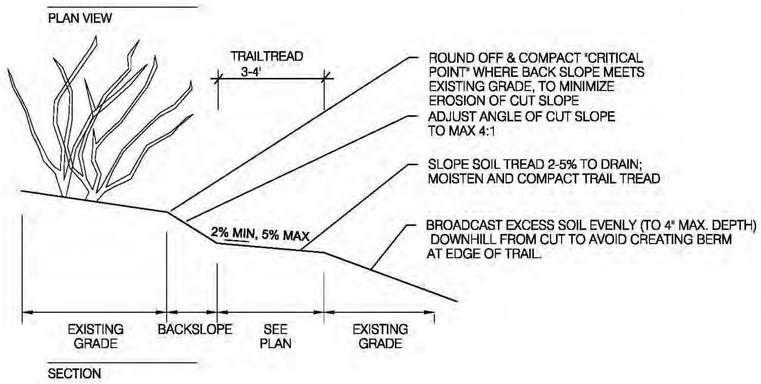


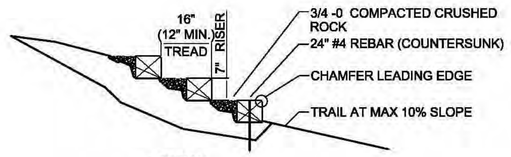


NOTES:
DECK SIZE AND CONFIGURATION SHOWN IS APPROXIMATE AND NEEDS TO BE DETERMINED WITH SURVEY AND IN THE FIELD. DECKS IS SIZED TO ACCOMMODATE +/- 10 PEOPLE.

DECK PROVIDED TO MINIMIZE ROOT DISTURBANCE.



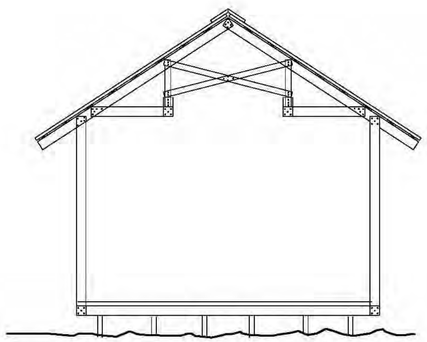


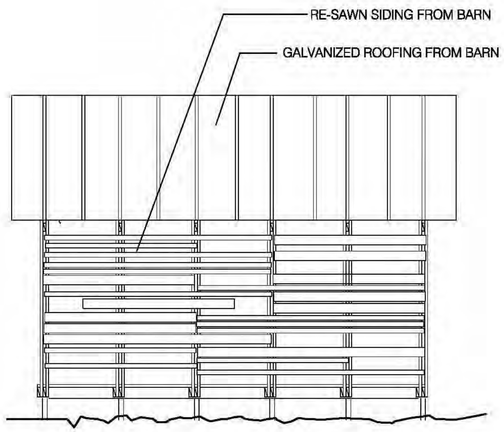


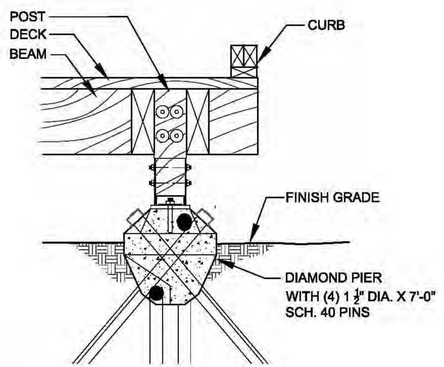
1 TRAIL
SCALE: 1/8" = 1' - 0"

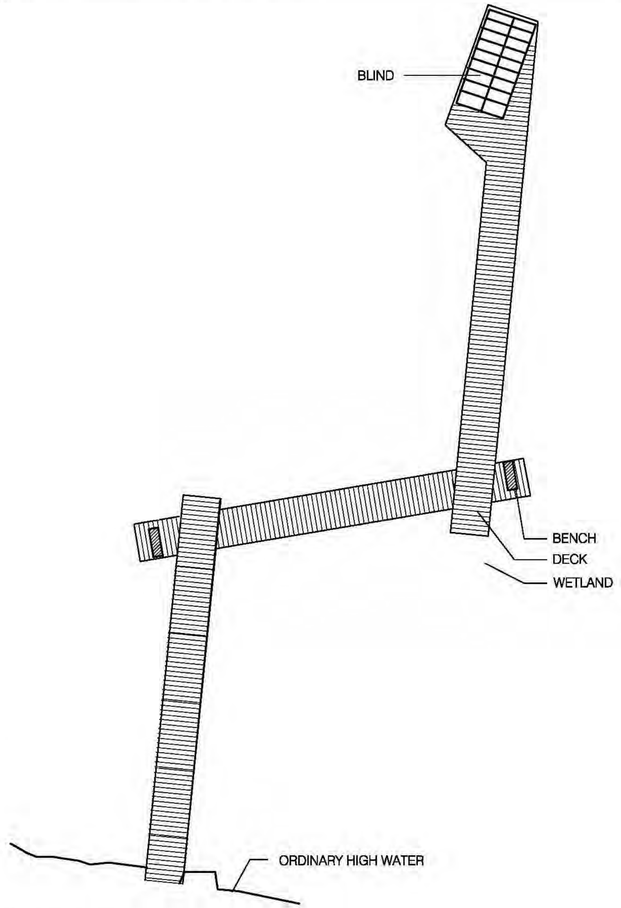
2 STAIRS
SCALE: 1/2" = 1' - 0"

3 BLIND / VIEWING PLATFORM
SCALE: NTS









4 BOARDWALK
SCALE: 1/4" = 1' - 0"

Metro

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KILLIN WETLAND NATURAL AREA

DRAFT DESIGN DEVELOPMENT

REVISIONS:

DELTA	DATE	TITLE

SHEET TITLE:

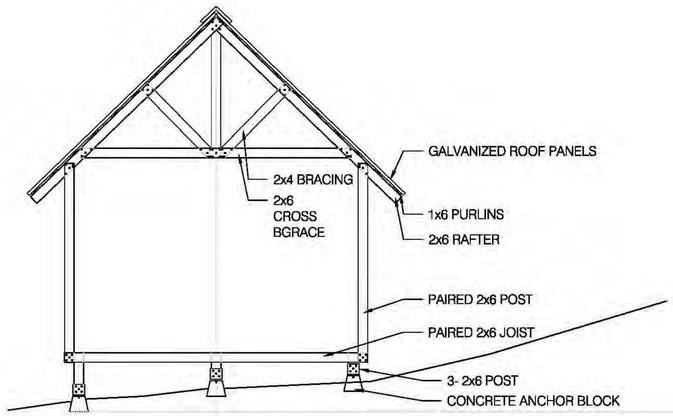
DETAILS

SCALE:
DRAWN BY: D.G.
CHECKED BY: R.N.

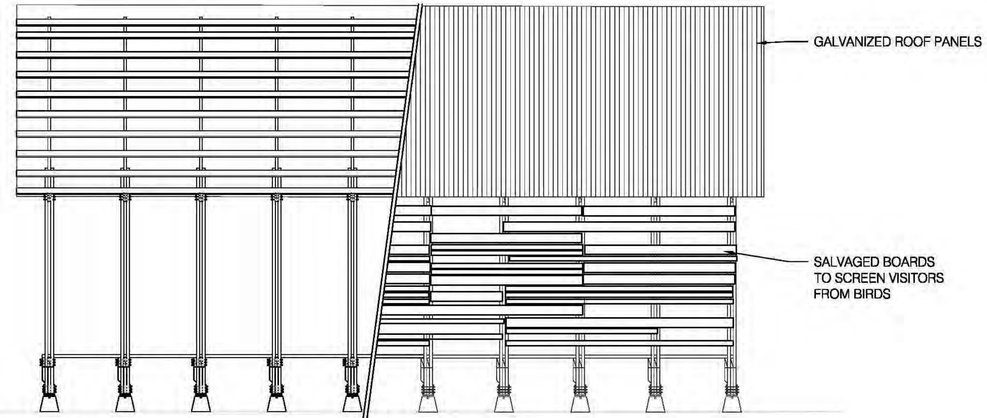
SHEET

L1.3

DATE: 05/29/15
JOB NO. NNA 1410

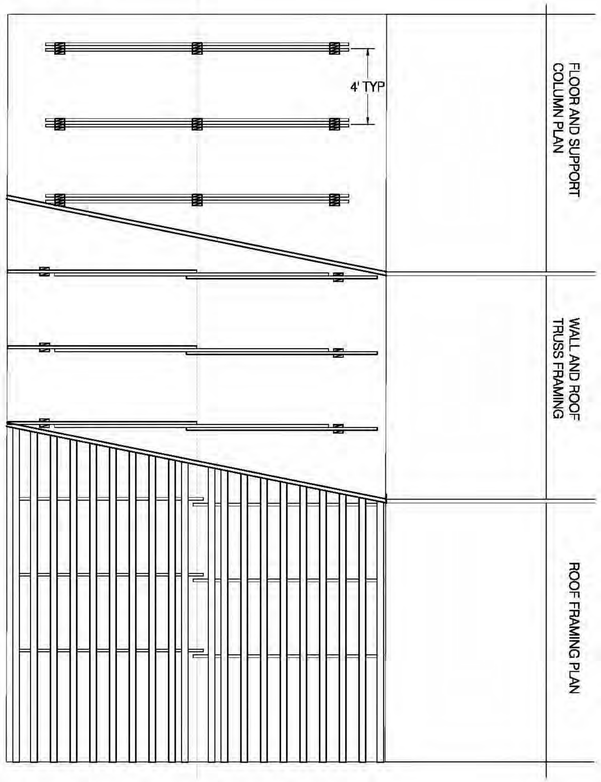


CROSS SECTION



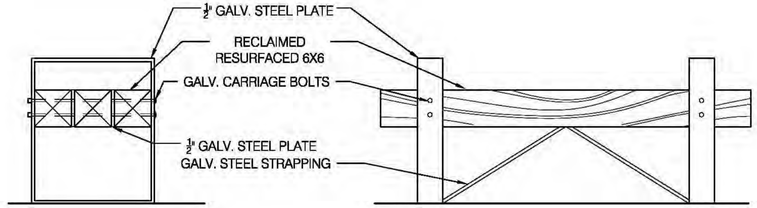
FRAMING ELEVATION

BLIND SCREEN ELEVATION



PLAN

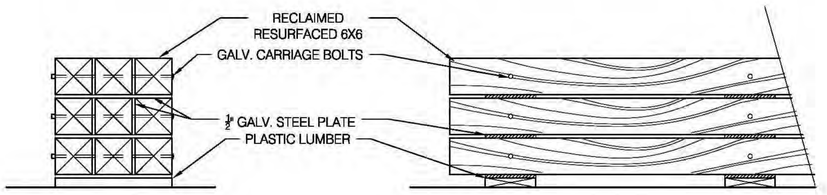
NOTE:
THIS DIAGRAM ILLUSTRATES THE CONCEPT OF USING SMALL DIMENSION, REPURPOSED LUMBER AND ROOFING IN REPEATED SERIES TO BE EASILY CONSTRUCTED IN THE FIELD. CONSULT STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION.



SECTION

ELEVATION

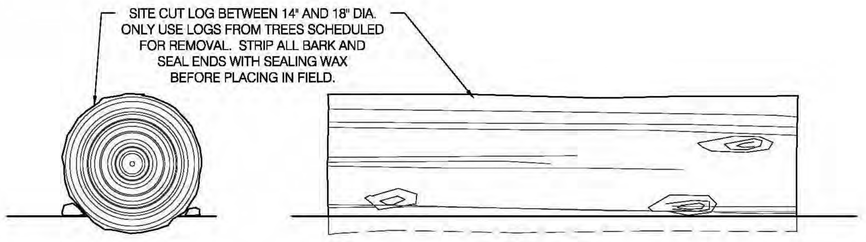
IDEA 1



SECTION

ELEVATION

IDEA 2



SECTION

ELEVATION

IDEA 3

1 SHELTER ON TERRACE

SCALE: 1" = 4' - 0"

2 BENCH

SCALE: 1" = 1' - 0"

Metro

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KILLIN WETLAND NATURAL AREA

DRAFT DESIGN DEVELOPMENT

REVISIONS:

DELTA	DATE	TITLE

SHEET TITLE:

DETAILS

SCALE:

DRAWN BY: D.G.

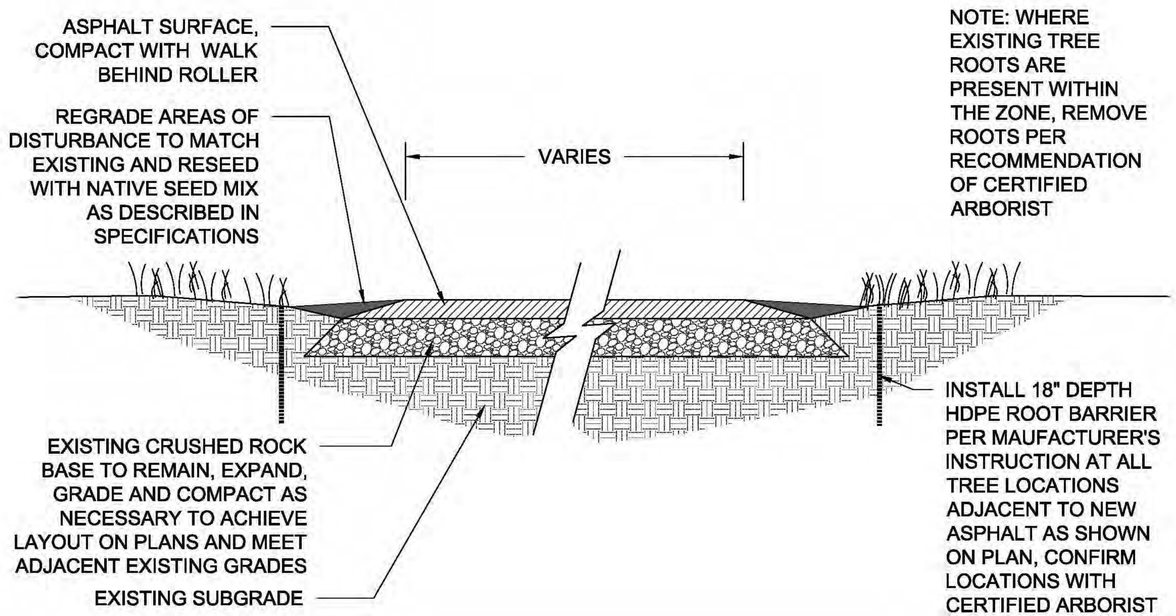
CHECKED BY: R.N.

SHEET

L1.4

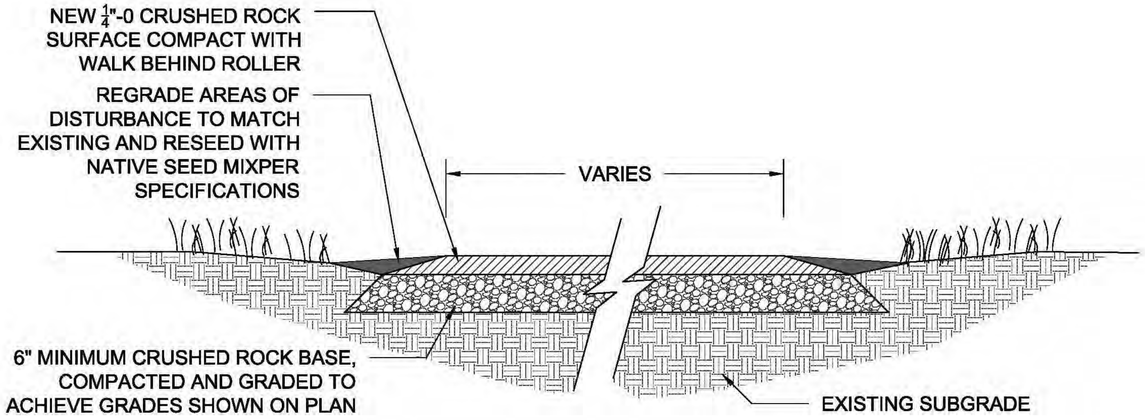
DATE: 05/29/15

JOB NO. NNA 1410



1 ASPHALT SURFACE

SCALE:NTS



NOTES:
1. WHERE EXISTING TREE ROOTS ARE PRESENT WITHIN THE WORK ZONE, REMOVE ROOTS PER RECOMMENDATION OF CERTIFIED ARBORIST.
2. ADAPT ADA COMPLIANT GRAVEL AND DIRT* PATHWAYS:

- RUNNING SLOPE FOR PATHWAYS SHOULD NOT BE STEEPER THAN 1:20 (5%)
- CROSS-SLOPE SHOULD BE STEEPER THAN 1:48 (2.08%)

* IF SURFACE IS NATIVE DIRT OR SOILS, MIX WITH STABILIZING AGENTS TO MINIMIZE THE IMPACT OF HUMAN TRAFFIC

2 GRAVEL PEDESTRIAN SURFACE

SCALE: 1" = 1' - 0"

Metro

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KILLIN WETLAND NATURAL AREA

DRAFT DESIGN DEVELOPMENT

REVISIONS:

DELTA	DATE	TITLE

SHEET TITLE:

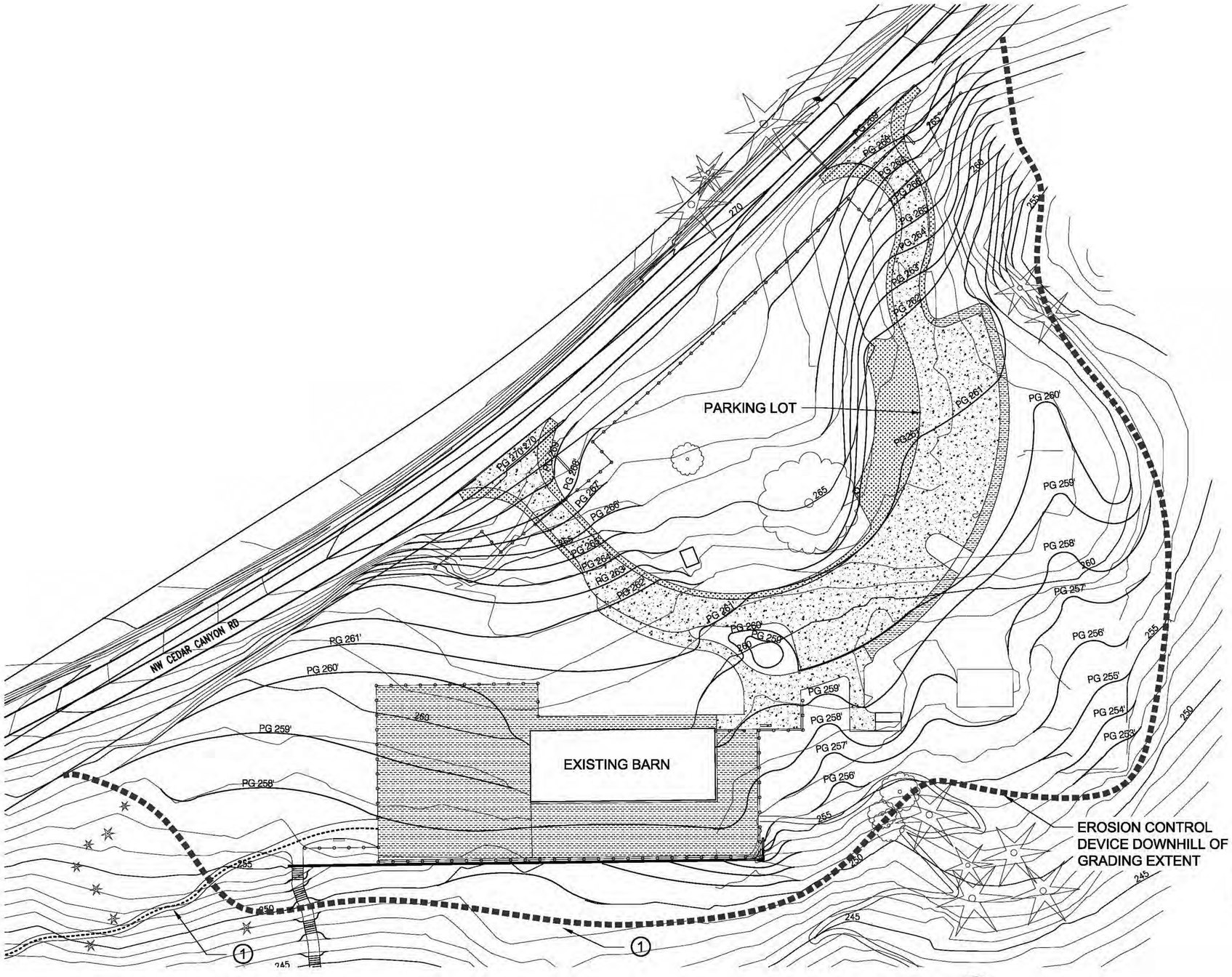
DETAILS

SCALE:
DRAWN BY: D.G.
CHECKED BY: R.N.

SHEET

L1.5

DATE: 05/29/15
JOB NO. NNA 1410



1 GRADING PLAN - PARK CENTER

0 15' 30' 60' NORTH

LAYOUT LEGEND

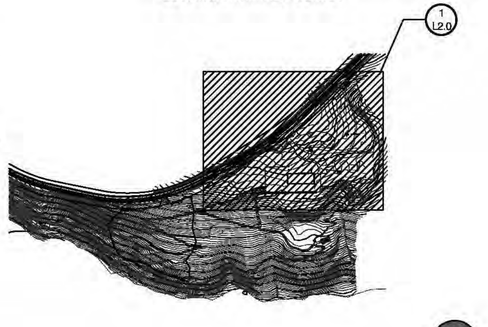
- PROPOSED 1-FOOT CONTOUR INTERVALS (PG 263')
- EXISTING 1-FOOT CONTOUR INTERVALS
- STAIRS
- FENCE
- ASPHALT PAVING
- GRAVEL (3/4 MINUS)
- ADA GRAVEL SURFACE (1/4 MINUS)
- EROSION CONTROL DEVICE SEE GENERAL NOTE 2

GENERAL NOTES

1. DRAINAGE STRATEGY MAY CHANGE DEPENDING ON FINAL PAVEMENT SELECTION.
2. PLACE APPROVED EROSION CONTROL DEVICE DOWNHILL FROM MAXIMUM EXTENT OF GRADING IN ALL LOCATIONS.
3. EROSION CONTROL DEVICES AND MEASURES IN ADDITION TO DEVICE DOWNHILL FROM GRADING EXTENT WILL BE REQUIRED. LOCATION AND INSTALLATION SHALL MEET THE DESIGN AND CONSTRUCTION STANDARDS SET BY CLEAN WATER SERVICES (CWS) AND OTHER AGENCIES WHO REQUIRE PERMITS. REFER TO CWS EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL FOR GUIDANCE ON FINAL LOCATION AND INSTALLATION OF DETAILS.
4. SEE CWS EROSION CONTROL DETAILS ON PAGE L2.1 FOR COMMONLY USED EROSION CONTROL DEVICES. THIS COLLECTION IS FOR EASE OF REFERENCE AND MAY NOT INCLUDE ALL DEVICES NEEDED.

KEYED NOTES

1. ADD TO CONCRETE WALL AS NECESSARY TO ACCOMMODATE TRAILHEADS, CONFIRM EXTENT AND LOCATION WITH NEW SURVEY



KEY MAP

NTS

NORTH

Metro

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KILLIN WETLAND NATURAL AREA

DRAFT DESIGN DEVELOPMENT

REVISIONS:

DELTA	DATE	TITLE

SHEET TITLE:

GRADING PLAN
PARK CENTER

SCALE:

DRAWN BY: D.G.

CHECKED BY: R.N.

SHEET

L2.0

DATE: 05/29/15

JOB NO. NNA 1410

STANDARD EROSION AND SEDIMENT CONTROL PLAN DRAWING NOTES:

1. All permit registrants must implement the ESCP. Failure to implement any of the control measures or practices described in the ESCP is a violation of the permit. (Schedule A 8.a)
2. The ESCP measures shown on this plan are minimum requirements for anticipated site conditions. During the construction period, upgrade these measures as needed to comply with all applicable local, state, and federal erosion and sediment control regulations. (Schedule A.8.c.ii.(1)(c))
3. Submission of all ESCP revisions is not required. Submittal of the ESCP revisions is only under specific conditions. Submit all necessary revision to DEQ or Agent. (Schedule A.12.c.iii)
4. Phase clearing and grading to the maximum extent practical to prevent exposed inactive areas from becoming a source of erosion. (Schedule A 8.c.ii.(1)(d))
5. Identify, mark, and protect (by fencing off or other means) critical riparian areas and vegetation including important trees and associated rooting zones, and vegetation areas to be preserved. Identify vegetative buffer zones between the site and sensitive areas (e.g., wetlands), and other areas to be preserved, especially in perimeter areas. (Schedule A.8.c.i.(1) & (2))
6. Preserve existing vegetation when practical and re-vegetate open areas. Re-vegetate open areas when practicable before and after grading or construction. Identify the type of vegetative seed mix used. (Schedule A.7.b.iii(1) and A.7.b.iii(3))
7. Erosion and sediment control measures including perimeter sediment control must be in place before vegetation is disturbed and must remain in place and be maintained, repaired, and promptly implemented following procedures established for the duration of construction, including protection for active storm drain inlets and catch basins and appropriate non-stormwater pollution controls. (Schedule A.7.d.i and A.8.c)
8. Establish concrete truck and other concrete equipment washout areas before beginning concrete work. (Schedule A.8.c.i.(6))
9. Apply temporary and/or permanent soil stabilization measures immediately on all disturbed areas as grading progresses and for all roadways including gravel roadways. (Schedule A.8.c.ii.(2))
10. Establish material and waste storage areas, and other non-stormwater controls. (Schedule A.8.c.i.(7))
11. Prevent tracking of sediment onto public or private roads using BMPs such as: graveled (or paved) exits and parking areas, gravel all unpaved roads located onsite, or use an exit tire wash. These BMPs must be in place prior to land-disturbing activities. (Schedule A 7.d.ii.(1) and A.8.c.i(4))
12. When trucking saturated soils from the site, either use water-tight trucks or drain loads on site. (Schedule A.7.d.ii.(3))
13. Use BMPs to prevent or minimize stormwater exposure to pollutants from spills; vehicle and equipment fueling, maintenance, and storage; other cleaning and maintenance activities; and waste handling activities. These pollutants include fuel, hydraulic fluid, and other oils from vehicles and machinery, as well as debris, leftover paints, solvents, and glues from construction operations. (Schedule A.7.e.i.(2))
14. Implement the following BMPs when applicable: written spill prevention and response procedures, employee training on spill prevention and proper disposal procedures, spill kits in all vehicles, regular maintenance schedule for vehicles and machinery, material delivery and storage controls, training and signage, and covered storage areas for waste and supplies. (Sch A 7.e.iii.)
15. Use water, soil-binding agent or other dust control technique as needed to avoid wind-blown soil. (Schedule A 7.b.ii)
16. The application rate of fertilizers used to reestablish vegetation must follow manufacturer's recommendations to minimize nutrient releases to surface waters. Exercise caution when using time-release fertilizers within any waterway riparian zone. (Schedule A.9.b.iii)
17. If a stormwater treatment system (for example, electro-coagulation, flocculation, filtration, etc.) for sediment or other pollutant removal is employed, submit an operation and maintenance plan (including system schematic, location of system, location of inlet, location of discharge, discharge dispersion device design, and a sampling plan and frequency) before operating the treatment system. Obtain plan approval before operating the treatment system. Operate and maintain the treatment system according to manufacturer's specifications. (Schedule A.9.d)
18. Temporarily stabilize soils at the end of the shift before holidays and weekends, if needed. The registrant is responsible for ensuring that soils are stable during rain events at all times of the year. (Schedule A 7.b)
19. At the end of each workday soil stockpiles must be stabilized or covered, or other BMPs must be implemented to prevent discharges to surface waters or conveyance systems leading to surface waters. (Schedule A 7.e.ii.(2))
20. Construction activities must avoid or minimize excavation and creation of bare ground during wet weather. (Schedule A.7.a.i)
21. Sediment fence: remove trapped sediment before it reaches one third of the above ground fence height and before fence removal. (Schedule A.9.c.i)
22. Other sediment barriers (such as biobags): remove sediment before it reaches two inches depth above ground height. and before BMP removal. (Schedule A.9.c.ii)
23. Catch basins: clean before retention capacity has been reduced by fifty percent. Sediment basins and sediment traps: remove trapped sediments before design capacity has been reduced by fifty percent and at completion of project. (Schedule A.9.c.iii & iv)
24. Within 24 hours, significant sediment that has left the construction site, must be remediated. Investigate the cause of the sediment release and implement steps to prevent a recurrence of the discharge within the same 24 hours. Any in-stream clean up of sediment shall be performed according to the Oregon Division of State Lands required timeframe. (Schedule A.9.b.i)
25. The intentional washing of sediment into storm sewers or drainage ways must not occur. Vacuuming or dry sweeping and material pickup must be used to cleanup released sediments. (Schedule A.9.b.ii)
26. The entire site must be temporarily stabilized using vegetation or a heavy mulch layer, temporary seeding, or other method should all construction activities cease for 30 days or more. (Schedule A.7.f.i)
27. Provide temporary stabilization for that portion of the site where construction activities cease for 14 days or more with a covering of blown straw and a tackifier, loose straw, or an adequate covering of compost mulch until work resumes on that portion of the site. (Schedule A.7.f.ii)
28. Provide permanent erosion control measures on all exposed areas. Do not remove temporary sediment control practices until permanent vegetation or other cover of exposed areas is established. However, do remove all temporary erosion control measures as exposed areas become stabilized, unless doing so conflicts with local requirements. Properly dispose of construction materials and waste, including sediment retained by temporary BMPs. (Schedule A.7.b.iii(2) and A.8.c.iii)

1 CWS EROSION CONTROL NOTES

GRADING, STREET AND UTILITY EROSION AND SEDIMENT CONSTRUCTION NOTES:

1. SEED USED FOR TEMPORARY OR PERMANENT SEEDING SHALL BE COMPOSED OF ONE OF THE FOLLOWING MIXTURES, UNLESS OTHERWISE AUTHORIZED:
   - A. VEGETATED CORRIDOR AREAS REQUIRE NATIVE SEED MIXES. SEE RESTORATION PLAN FOR APPROPRIATE SEED MIX.
   - B. DWARF GRASS MIX (MIN. 100 LB./AC.)
     1. DWARF PERENNIAL RYEGRASS (80% BY WEIGHT)
     2. CREEPING RED FESCUE (20% BY WEIGHT)
   - C. STANDARD HEIGHT GRASS MIX (MIN. 100LB./AC.)
     1. ANNUAL RYEGRASS (40% BY WEIGHT)
     2. TURF-TYPE FESCUE (60% BY WEIGHT)

2. SLOPE TO RECEIVE TEMPORARY OR PERMANENT SEEDING SHALL HAVE THE SURFACE ROUGHENED BY MEANS OF TRACK-WALKING OR THE USE OF OTHER APPROVED IMPLEMENTS. SURFACE ROUGHENING IMPROVES SEED BEDDING AND REDUCES RUN-OFF VELOCITY.

3. LONG TERM SLOPE STABILIZATION MEASURES SHALL INCLUDE THE ESTABLISHMENT OF PERMANENT VEGETATIVE COVER VIA SEEDING WITH APPROVED MIX AND APPLICATION RATE.

4. TEMPORARY SLOPE STABILIZATION MEASURES SHALL INCLUDE: COVERING EXPOSED SOIL WITH PLASTIC SHEETING, STRAW MULCHING, WOOD CHIPS, OR OTHER APPROVED MEASURES.

5. STOCKPILED SOIL OR STRIPPINGS SHALL BE PLACED IN A STABLE LOCATION AND CONFIGURATION. DURING "WET WEATHER" PERIODS, STOCKPILES SHALL BE COVERED WITH PLASTIC SHEETING OR STRAW MULCH. SEDIMENT FENCE IS REQUIRED AROUND THE PERIMETER OF THE STOCKPILE.

6. EXPOSED CUT OR FILL AREAS SHALL BE STABILIZED THROUGH THE USE OF TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS OR MATS, MID-SLOPE SEDIMENT FENCES OR WATTLES, OR OTHER APPROPRIATE MEASURES. SLOPES EXCEEDING 25% MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES.

7. AREAS SUBJECT TO WIND EROSION SHALL USE APPROPRIATE DUST CONTROL MEASURES INCLUDING THE APPLICATION OF A FINE SPRAY OF WATER, PLASTIC SHEETING, STRAW MULCHING, OR OTHER APPROVED MEASURES.

8. CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES INCLUDING, BUT NOT LIMITED TO, TIRE WASHES, STREET SWEEPING, AND VACUUMING MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

9. ACTIVE INLETS TO STORM WATER SYSTEMS SHALL BE PROTECTED THROUGH THE USE OF APPROVED INLET PROTECTION MEASURES. ALL INLET PROTECTION MEASURES ARE TO BE REGULARLY INSPECTED AND MAINTAINED AS NEEDED.

10. SATURATED MATERIALS THAT ARE HAULED OFF-SITE MUST BE TRANSPORTED IN WATER-TIGHT TRUCKS TO ELIMINATE SPILLAGE OF SEDIMENT AND SEDIMENT-LADEN WATER.

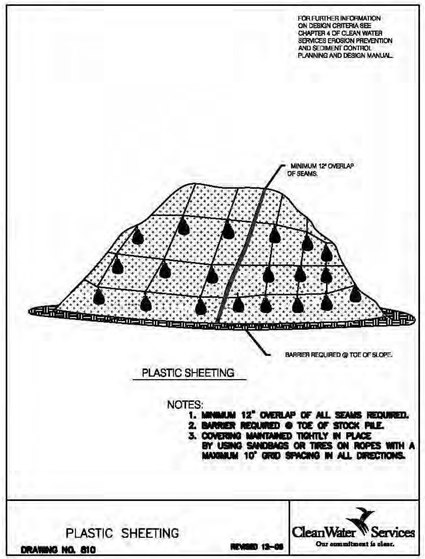
11. AN AREA SHALL BE PROVIDED FOR THE WASHING OUT OF CONCRETE TRUCKS IN A LOCATION THAT DOES NOT PROVIDE RUN-OFF THAT CAN ENTER THE STORM WATER SYSTEM. IF THE CONCRETE WASH-OUT AREA CAN NOT BE CONSTRUCTED GREATER THAN 50' FROM ANY DISCHARGE POINT, SECONDARY MEASURES SUCH AS BERMS OR TEMPORARY SETTLING PITS MAY BE REQUIRED. THE WASH-OUT SHALL BE LOCATED WITHIN SIX FEET OF TRUCK ACCESS AND BE CLEANED WHEN IT REACHES 50% OF THE CAPACITY.

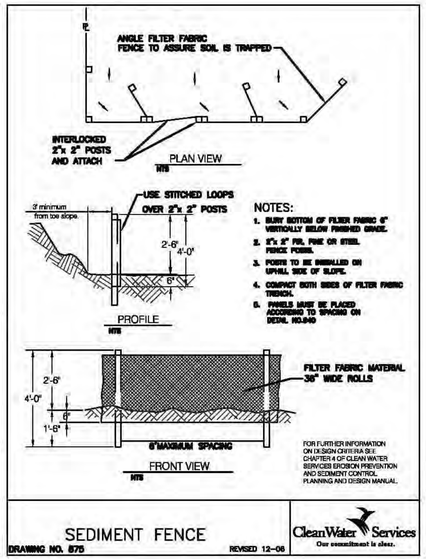
12. SWEEPINGS FROM EXPOSED AGGREGATE CONCRETE SHALL NOT BE TRANSFERRED TO THE STORM WATER SYSTEM. SWEEPINGS SHALL BE PICKED UP AND DISPOSED IN THE TRASH.

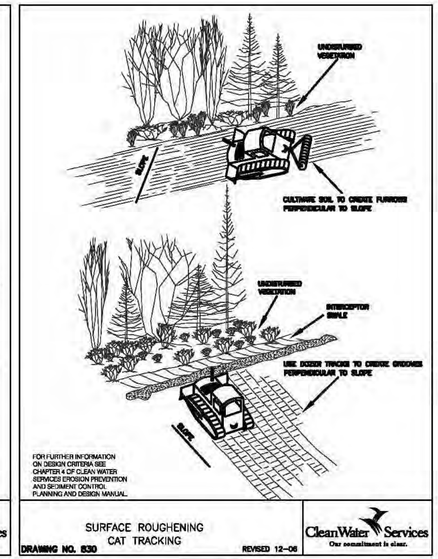
13. AVOID PAVING IN WET WEATHER WHEN PAVING CHEMICALS CAN RUN-OFF INTO THE STORM WATER SYSTEM.

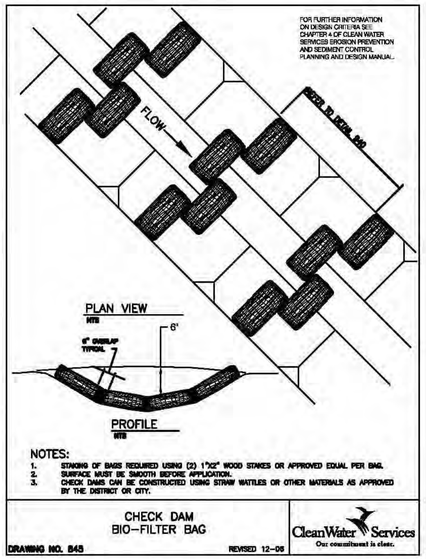
14. USE BMPs SUCH AS CHECK-DAMS, BERMS, AND INLET PROTECTION TO PREVENT RUN-OFF FROM REACHING DISCHARGE POINTS.

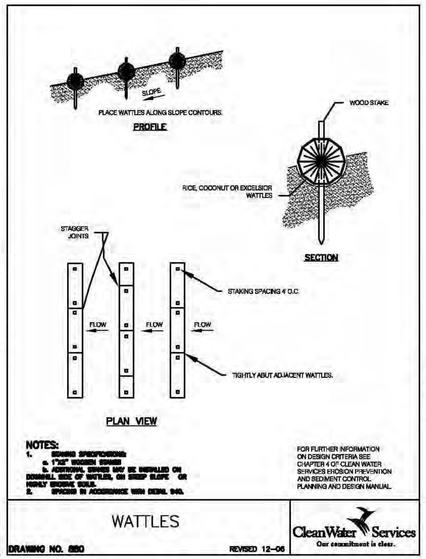
15. COVER CATCH BASINS, MANHOLES, AND OTHER DISCHARGE POINTS WHEN APPLYING SEAL COAT, TACK COAT, ETC. TO PREVENT INTRODUCING THESE MATERIALS TO THE STORM WATER SYSTEM.

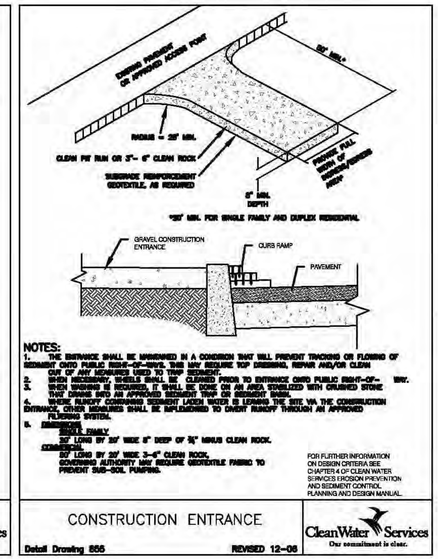












2 CWS EROSION CONTROL STANDARD DETAILS

Metro

CONSULTANT:

Landscape Architecture

[nev-u- non]

Nevue | Ngan | Associates

537 SE Ash St, Suite 207
Portland, Oregon 97214
phone 503.239.0600
fax 503.239.0605

KILLIN WETLAND NATURAL AREA

DRAFT DESIGN DEVELOPMENT

REVISIONS:

DELTA	DATE	TITLE

SHEET TITLE:

EROSION CONTROL DETAILS

SCALE:

DRAWN BY: D.G.

CHECKED BY: R.N.

SHEET

L2.1

DATE: 05/29/15

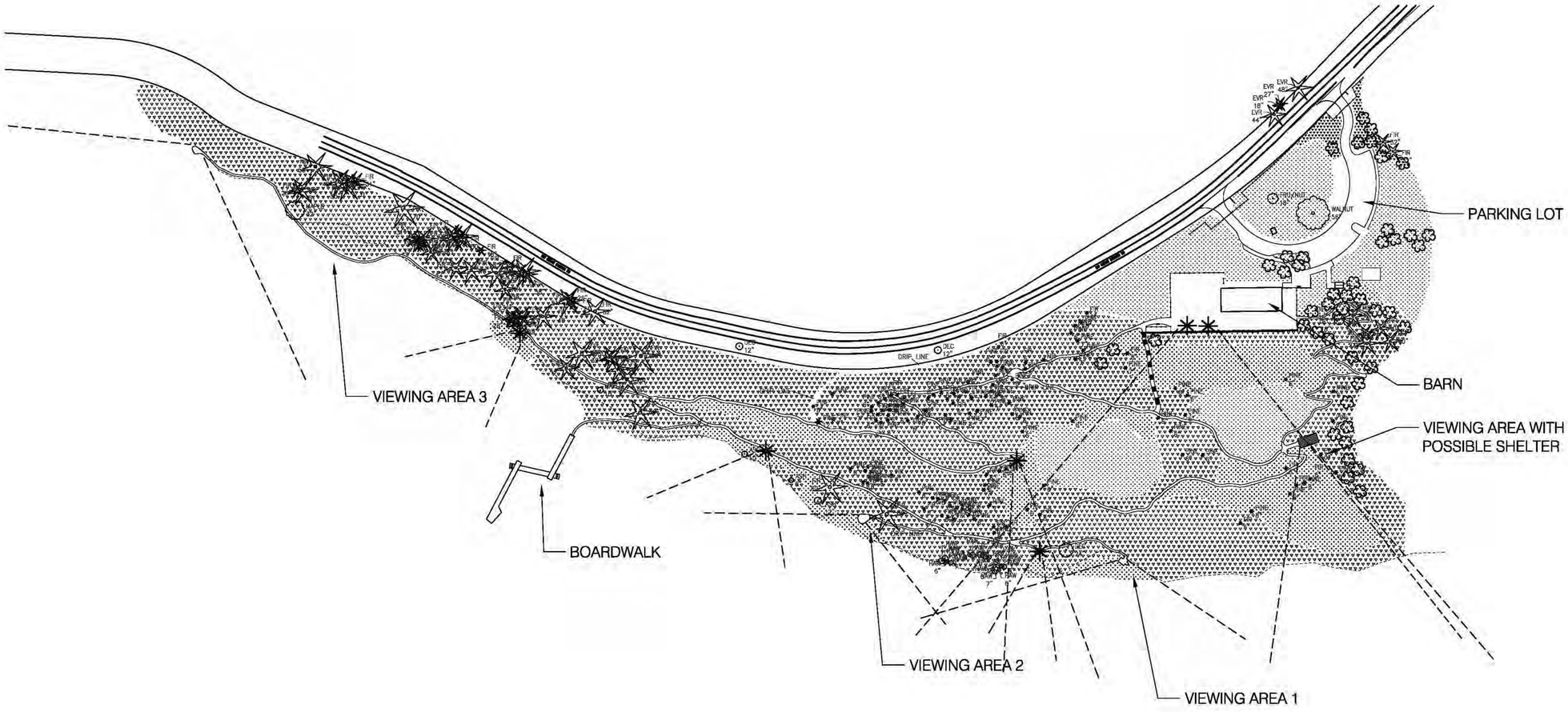
JOB NO. NNA 1410

GENERAL NOTES

1. SCREEN TRAIL USERS FROM VIEW OF PEOPLE ON BARN TERRACE WITH LOW VEGETATION
2. MAINTAIN VIEW OF WETLAND FROM TERRACE AT THE BARN
3. KEEP VIEWS OF BARN FROM NW CEDAR CANYON RD AND HIGHWAY 6 FOR ORIENTATION
4. SCREEN TRAILS WITH LOW VEGETATION FROM THE WETLAND AND WILDLIFE. MAINTAIN OPEN VIEWS OF WETLAND FROM SELECTED VIEWPOINTS.
5. MAINTAIN OPEN AREA (GRASSES) ON TERRACE SOUTH OF BARN
6. PRESERVE TREES UNLESS NOTED FOR REMOVAL ON SHEET S1.0. REMOVE DEAD OR DANGEROUS LIMBS OVERHANGING ALL IMPROVEMENTS INCLUDING PATHS, BENCHES AND VIEWING AREAS. REMOVE OR PRUNE TREES TO MAINTAIN VIEWS PER INSTRUCTIONS FROM OWNER'S REPRESENTATIVE.

LAYOUT LEGEND

- TALL SHRUBS AND UNDERSTORY
- LOW VEGETATION 4-FEET MAX
- NATIVE GRASS AND FORB MIX (MOWABLE)
- VIEWSHED TO MAINTAIN
- EXISTING TREE (LOCATION BASED ON AIR PHOTO)
- PROPOSED TREE LOCATION
- PROPOSED BENCH LOCATION
- STAIRS
- EXISTING CONTOUR INTERVALS
- ESTIMATED HIGH WATER



1 VEGETATION MANAGEMENT PLAN

NORTH

0 25' 50' 100

Metro

CONSULTANT:
Landscape Architecture
[nev-ū- non]
Nevue | Ngan | Associates
537 SE Ash St, Suite 207
Portland, Oregon 97214
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KILLIN WETLAND NATURAL AREA

DRAFT DESIGN DEVELOPMENT

REVISIONS:

DELTA	DATE	TITLE

SHEET TITLE:

GENERAL VEGETATION MANAGEMENT

SCALE:

DRAWN BY: D.G.

CHECKED BY: R.N.

SHEET

L3.0

DATE: 03/23/15

JOB NO. NNA 1410

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Architectural Study for Barn

Appendix E

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Killin Natural Area

METRO

December 2014

Killin Barn and Dairy Farm

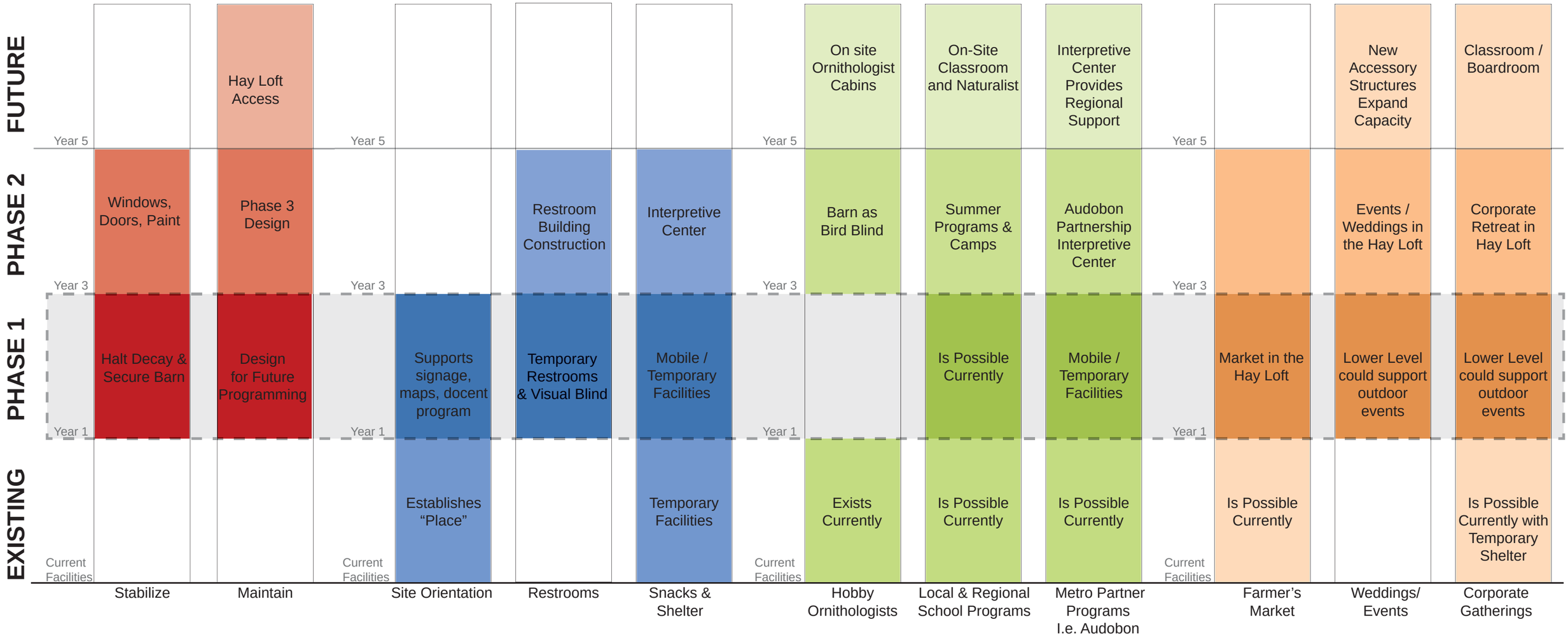
METRO is committed to serving the region by providing an engaging, high quality experience at Killin Natural Area for all of its users. The barn is the signature physical artifact for the Killin Natural Area and could support near and long term programming.

Phasing Strategy

The included programming matrix is intended to suggest possibilities for the barn and surrounding structures. The matrix is organized by grouped programming as it evolves over time. In the near term “Phase I” and for longer term in “Phase II and Future Phase” as funding and programming evolves on the site overall.

Existing barn context

PROGRAMMING MATRIX



IMMEDIATE NEEDS

Overall the Killin Dairy Barn appears to be in reasonably good condition. However, there are some items, that if left unresolved, will weaken the structure relatively quickly. What follows are a list of conclusions based on a limited site observation visit. Further investigation is warranted to develop a comprehensive list.

Water Management

The most immediate concern is water management, i.e. roof, gutters, and downspouts. The metal roof appears to be in serviceable condition with the exception of a section on the upper, northwest portion. Rain water is entering the hayloft at this location. Some water damage to the hayloft floor is visible, though it seems that the joists and beams in this area have not yet been compromised.

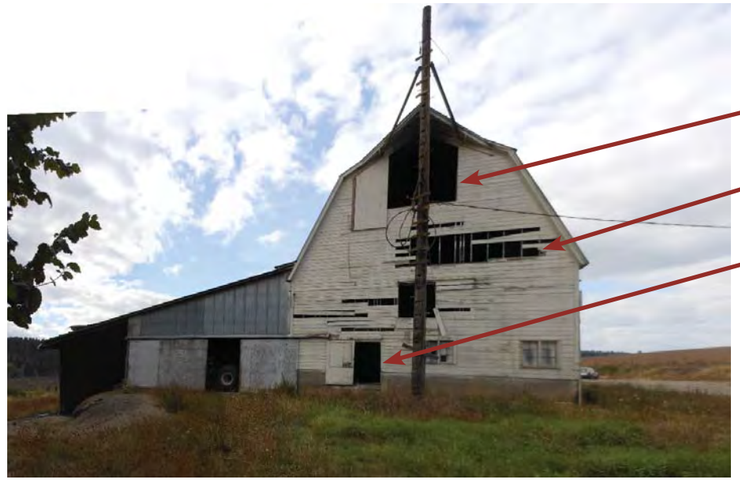
The gutters and downspouts on the north side of the barn require immediate attention. At the northeast corner of the eave, the gutter is hanging and no longer attached. The middle downspout at the north elevation is discontinuous and is causing rainwater to splash, directly onto the siding. Siding at this location is already compromised.

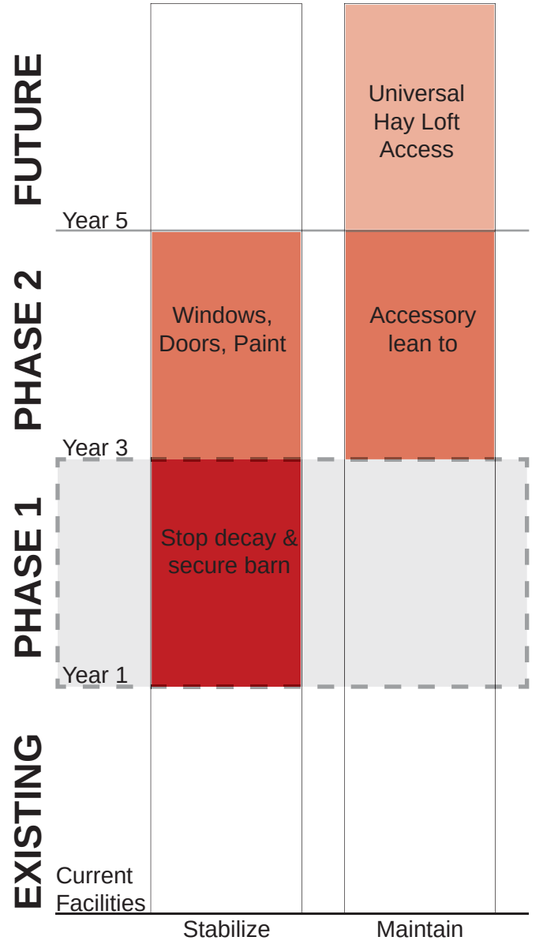
Conditions at the south roof of the main barn were not visually examined. Due to the dry weather during the site assessment and the elevated location of the connection with the main barn roof and the accessory structure, it was not possible to determine the condition of the south roof. At the interior, there were no visible leaks observed.

Siding

It is immediately apparent that there are gaps in siding, especially at the east elevation. At these locations the siding should be replaced or a temporary solution using exterior grade plywood should be implemented to close the gaps.

Elsewhere on the main barn, some of the siding is being damaged by lack of water management and general exposure. At the windows especially, some of the trim has become detached or is missing entirely.





Immediate Needs

STABILIZE BARN
PHASE I

STABILIZE OR DEMO
PHASE I

DEMO &
SALVAGE
PHASE I

REATTACH LOOSE
SIDING

SECURE WINDOWS

Repair & Replace Windows

Clear out lower dairy level

IMMEDIATE NEEDS

Windows

Most of the windows at the lower level have glazing that is missing. In order to secure the barn, these openings will have to be closed. In the long term, these windows should be restored with similar wood framed, divided light glazing as part of a larger exterior restoration of the main barn. In the short term, we suggest securing these openings with clear acrylic panels or similar material. This method will improve the appearance and help secure the barn at a relatively low cost.

Doors

The doors at the main barn are in poor condition or are missing altogether. In order to secure the barn, they should be replaced or restored where possible. We suggest using simple sliding doors of a style appropriate for the agricultural context.

Lower Dairy Level

The lower level should be cleared of debris, old equipment, and accumulated dirt. Artifacts relating to the history of the Killin farm or the area's agricultural history should be inventoried and stored for future display. Cleaning up the lower level will reduce the temptation for would be curious trespassers and collectors.

Hayloft Upper Level

The main level of the hayloft is largely free of debris and equipment. The space could use a good sweeping, especially below the barn owl's nest, which has become a small rodent graveyard.

The floor boards of the loft are not completely safe. Though it appears that the joists supporting the floor are largely in good shape, a number of the lightweight boards supported by the joists are broken or missing in places. There is water damage to some of the boards though it appears to be localized under the area where the roof requires repair. We suggest laying exterior grade plywood in these areas during Phase I to insure the safety of anyone who may be required to enter the hayloft.

IMMEDIATE NEEDS

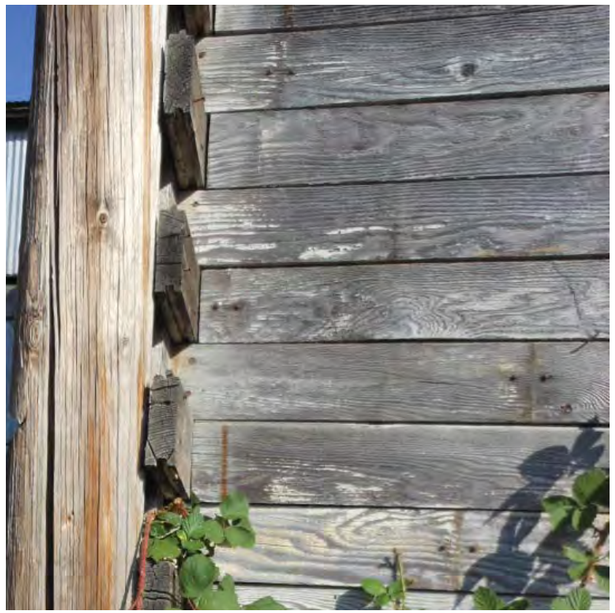
Accessory Barns

The accessory structures at the south side of the barn are in poor shape and should be removed. There is an immediate need to stabilize the shed structure directly to the south and connected to the main barn (Accessory #1).

The mid-span columns of Accessory Shed #1 are very badly rotted and are falling or have fallen off of the column bases. Though this space is only being sublet for farm equipment storage, our concern is that the movement of equipment in and out of the space could eventually result in a collision with one of the weakened columns and cause a partial collapse of the structure. If nothing else is done, reinforcement of these columns by “sistering on” new timber or pouring new concrete footings should be taken if the structure is to remain as equipment storage.

The south side of the main barn has had some siding removed and the windows have been boarded up at the lower level to facilitate the movement of hay into the hayrack at Accessory #1. When this structure is removed, this portion of the barn will need to be resided or closed by some other means. The windows should be restored as well. Additionally, where the shed structure meets the main roof of the barn, there will likely need to be some restoration to the metal roofing material at this location .

STABILIZE OR REPLACE ACCESSORY #1. CURRENT CONDITION IS POTENTIALLY HAZARDOUS.

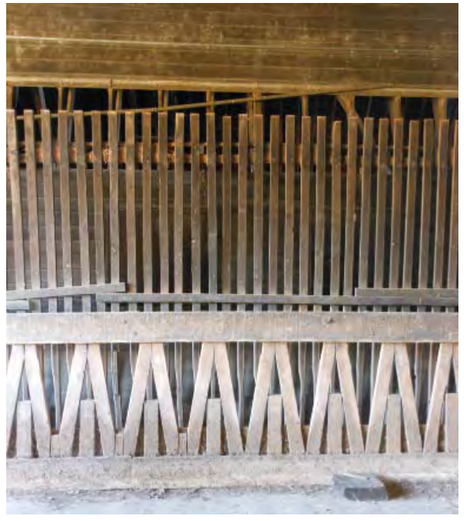


DEMOLISH AND SALVAGE WOOD FROM ACCESSORY #2

SIDING REMOVED AT SOUTH SIDE OF MAIN BARN

BOARDED WINDOWS AT SOUTH SIDE OF MAIN BARN

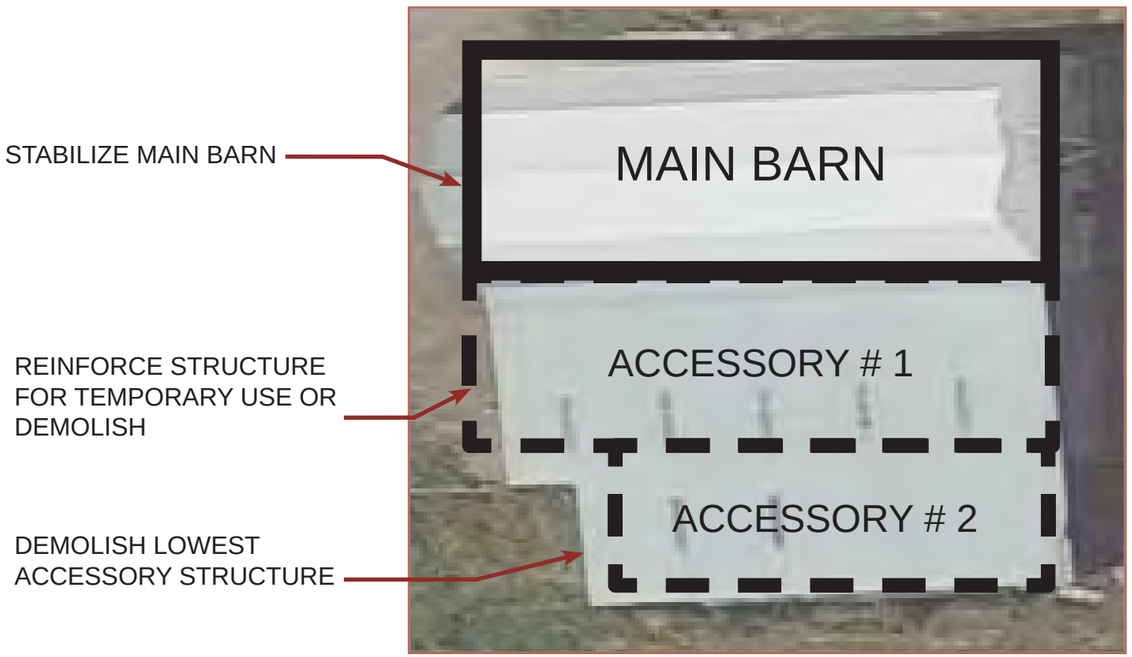
HAY RACK AT SOUTH SIDE OF MAIN BARN



HAY RACK AT MAIN BARN

IMMEDIATE NEEDS

Column Bases at Accessory Barn #1. These columns could be a safety hazard and should be suitably reinforced or replaced.



SITE SUPPORT

What is Currently Possible?

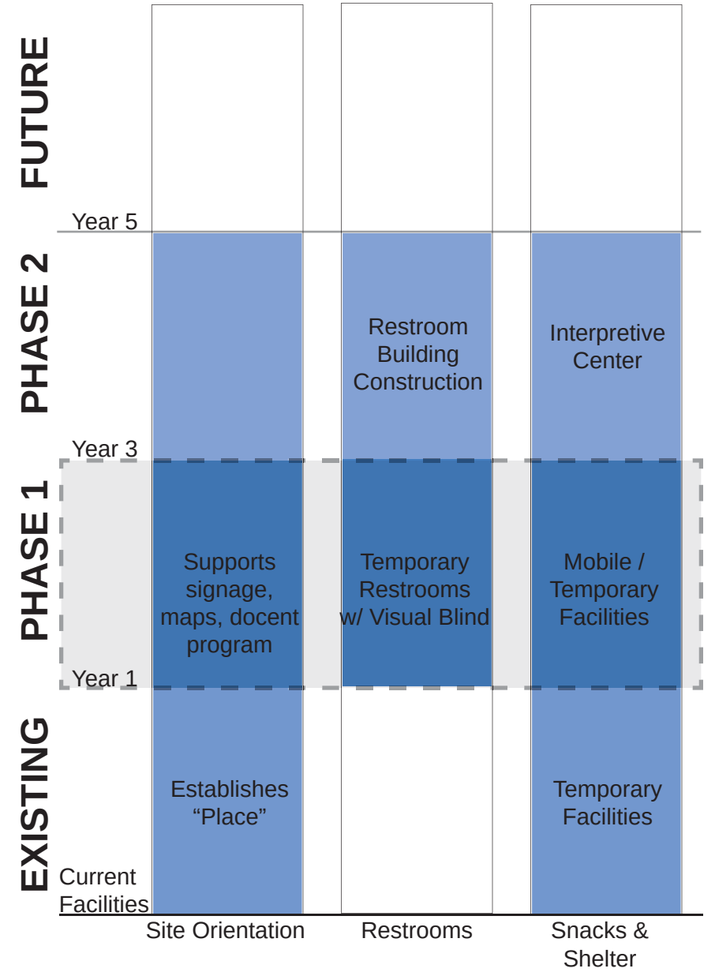
The barn as it stands, is a natural meeting place for users at Killin Farm Natural Area and is an important symbol of the agricultural heritage of the immediate site and the greater community. The barn will provide important program support for Killin Farm Natural Area even if users can not actually enter into the main barn and hayloft in the near term.

How can the Barn Support the Site & Programs?

We believe that replacing the two accessory structures at the south side of the main barn with a single pavilion will provide the best value for providing program and site support for capital invested and low long term maintenance. A simple agricultural pavilion, roughly in a similar location of Accessory Structure #1, could provide a natural shelter and location under which much of the programming and site support would occur. Plan and section sketches included here illustrate the pavilion as a simple agricultural structure, detached from the main barn and pulled in from the ends of the main barn. The space in between the pavilion and the main barn would restore the elevations and form of the barn as a whole and provide room for a future stair and accessible lift to the hay loft. A stair and lift at this location is best suited for providing access to the hayloft and preserving the north elevation.

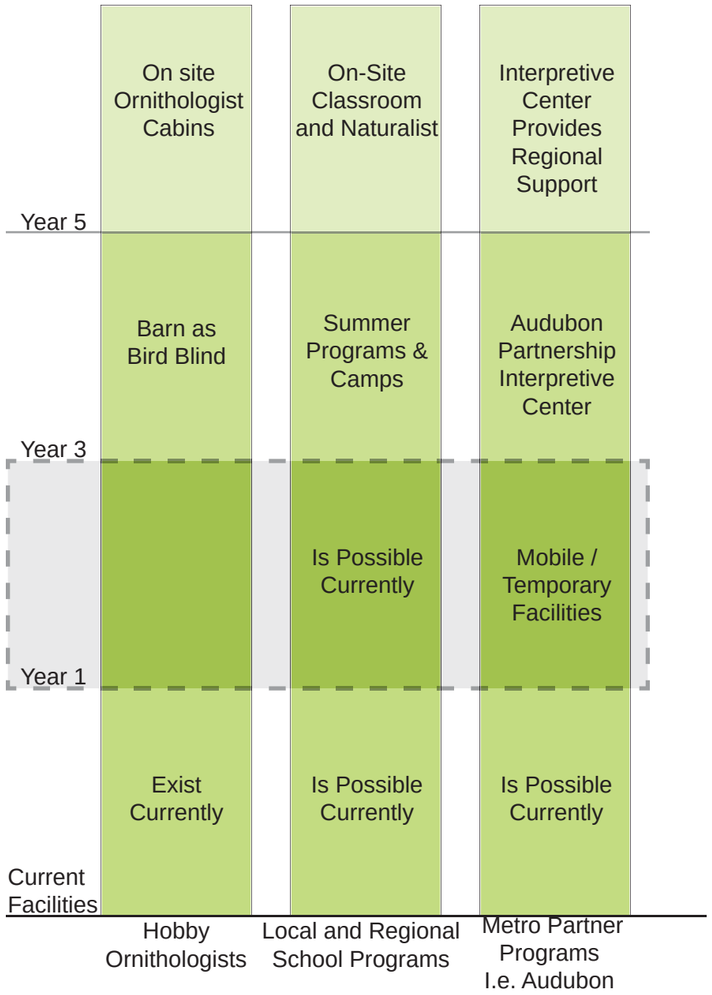
Finding ways to utilize Accessory Structure #1 would be less ideal, but may be possible if the structure could be restored to a safe condition. This would entail stabilizing and reinforcing the columns, replacing the corrugated roof, replacing rotted roof purlins, reinforcing existing roof purlins that are over spanned, providing some diagonal bracing, and re-flashing the problematic connection where the structure connects to the roof of the main barn. Additionally, the east and west end bays should be removed to the first interior column to allow the form of the main barn to complete itself. If this alternative were chosen, providing a stair and lift at the south side of the barn may be difficult or not possible.

CHICKEN HOUSE COULD BE MOVED TO PROVIDE SITE SUPPORT



Barn as Site Icon & Program Support

NATURALIST PROGRAMS



Educational / Naturalist Programs

Pavilion as 'Bird Blind'

School Programs

Hobby Ornithologist

How would it work?

We believe that the pavilion on the south side of the barn is ideal for program support for these reasons:

- Views from pavilion over and into the wetlands are unobstructed. This is because of the way in which the existing concrete slab at this location drops off steeply at the existing retaining wall.
- The pavilion is on a level that at a nearly flat existing grade, which is nearly flat. Combined with the unobstructed views, this will provide an uncompromising, accessible experience of the site for all users.
- During rainy months or hot summer days, the pavilion will provide shelter and shade for birders and other users.
- The pavilion would provide an ideal location for an outdoor classroom to provide an overview of the ecology of the site and explain the agricultural and natural interface.
- Temporary facilities, such as a mobile Audubon trailer could find a seasonal home under the pavilion to support naturalist programs and events.
- The pavilion could also support income generating rentals such as community events, weddings, wine festivals, etc.

We see a simple agricultural pavilion as a very flexible structure for diverse programming, with great views and benefit to users. The pavilion would allow METRO to defer the difficulty and expense of addressing the considerable accessibility and life-safety hurdles associated with having program directly in the main barn.

PHASE II

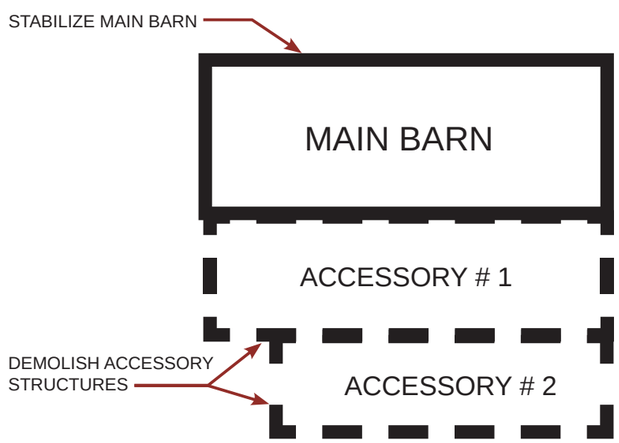
What is Currently Possible?

The barn as it stands, is a natural meeting place for users at Killin Farm Natural Area and is an important symbol of the agricultural heritage of the immediate site and the greater community. The barn will provide important program support for Killin Farm Natural Area even if users can not actually enter into the main barn and hayloft in the near term.

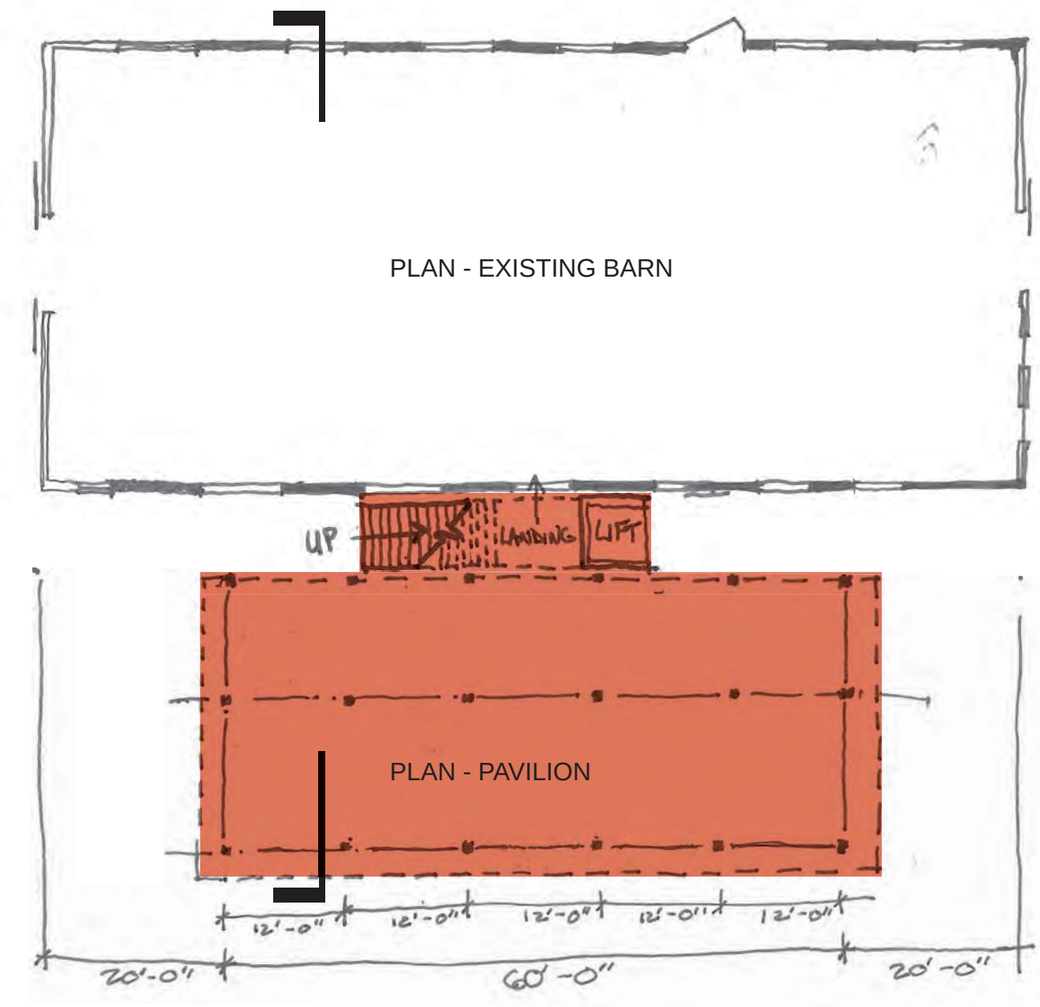
How can the Barn Support the Site & Programs?

We believe that the two accessory structures at the south side of the main barn, which are in poor condition, should be replaced with a single pavillion roughly in a similar location to that of Accessory Structure #1. This will provide the best value for providing program and site support for capital invested and low long term maintenance. A simple agricultural pavilion would provide a natural shelter and location under which much of the programming and site support could occur. Plan and section sketches included here illustrate the pavilion as a simple agricultural structure, detached from the main barn 8-10 feet and pulled in from the main barn ends. The space inbetween the pavilion and the main barn would restore the form of the barn as a whole and provide room for a future stair and accessible lift to the hay loft, the best place for this to happen in our opinion.

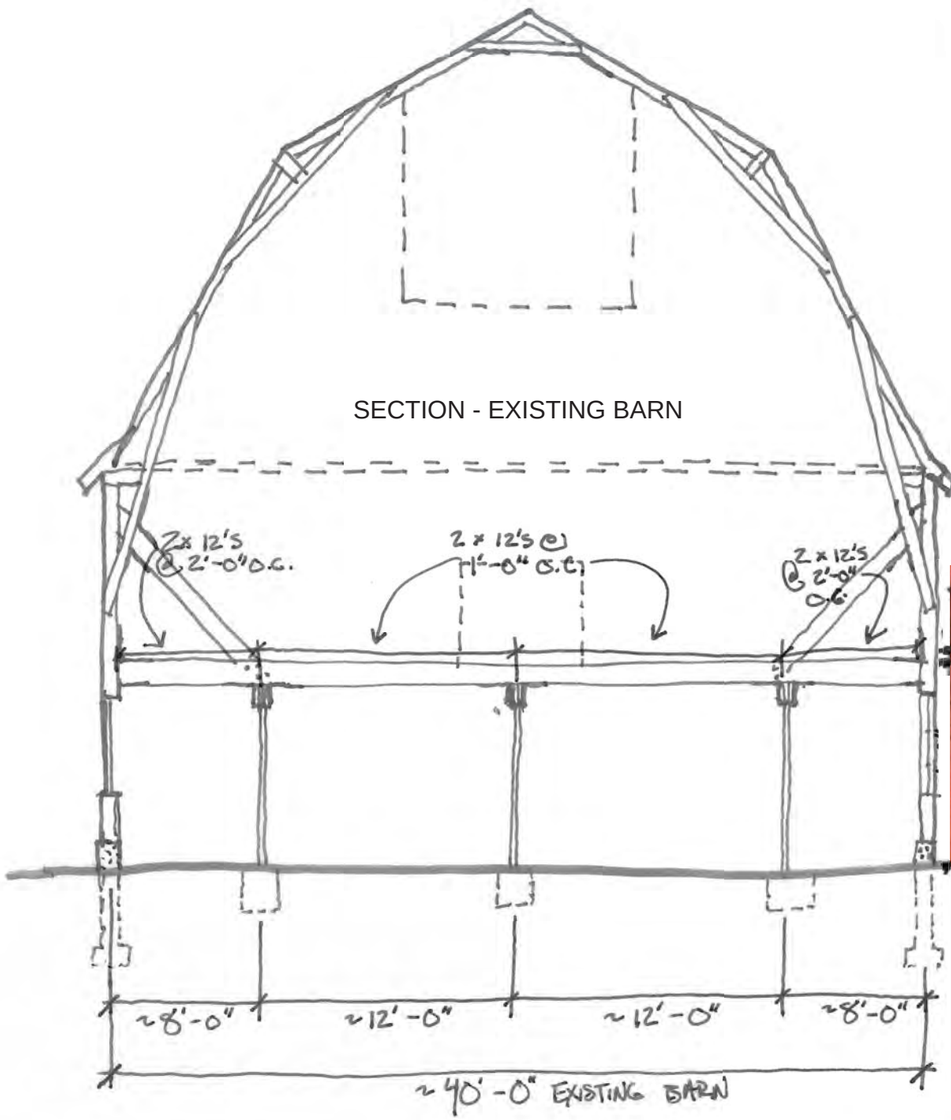
Finding ways to utilize Accessory Structure #1 without demolishing it will be difficult and not ideal, but may be possible if the structure could be restored to a safe condition. This would at a minimum entail stabilization or replacement of the columns, replacing the corrugated roof, replacing rotted roof purlins, reinforcing existing roof purlins that are over spanned, providing diagonal bracing, and re-flashing the problematic connection at the roof of the main barn. Additionally, the east and west end bays should be removed to the first interior column to allow the form of the main barn to complete itself. Keeping the Accessory #1 structure may preclude providing a stair and lift at the south side of the barn where we believe it would be best placed.



NORTH ELEVATION / SECTION, EXISTING BARN

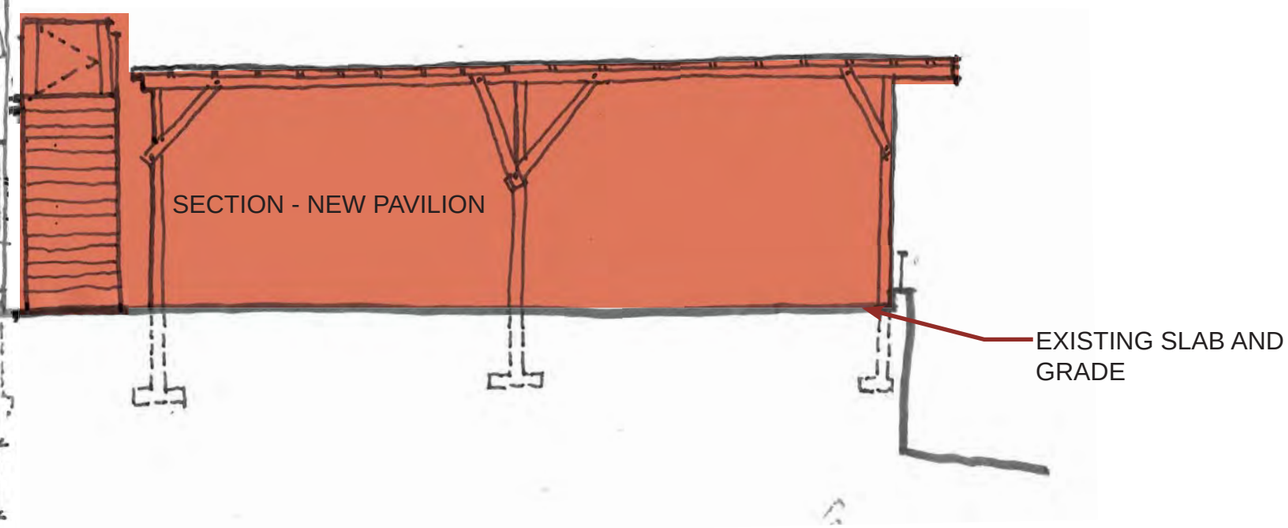


PHASE II



SECTION - EXISTING BARN

Sketch for simple farmer's market and event structure(s) informed by agricultural structures. They are to be located at to the west of the main barn.



SECTION - NEW PAVILION

RENTAL OPPORTUNITIES

What is Currently Possible?

We believe there are a number of possibilities to begin reconnecting the local community and connecting new users with the Killin Farm Natural Area. This could happen in somewhat informal ways in the very near term. Seasonal farmer's markets, and other informal festivals could help build interest and develop users sense of equity for the site. Initially this could occur using the ubiquitous 10' x 10' tents seen at local farmer's markets. In later development phases we imagine a limited number of simple structures, informed by local farm based design vernacular (see sketch), which could support farmer's market stalls, smaller group gatherings, picnics and community based festivals.

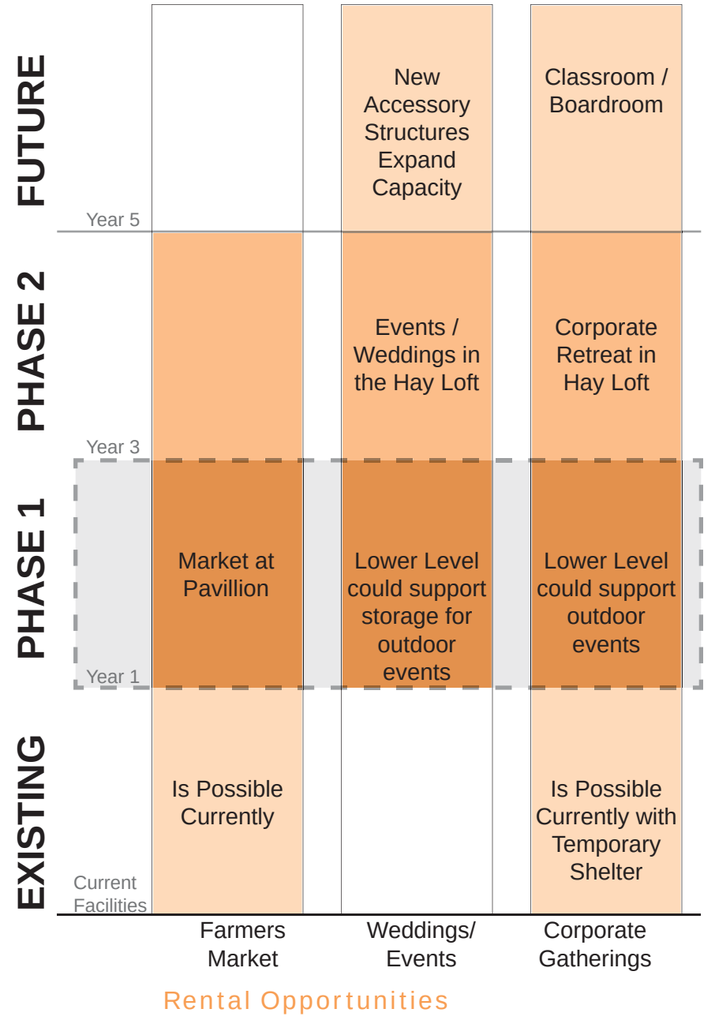
Accessing the Main Barn?

Unfortunately the very low head height of the lower "dairy" level would limit the use of this area to storage or secondary uses. Ultimately, access to the hayloft for special events and rentals would provide an exceptional experience in itself. However, the hayloft floor level is considerably elevated more than 10' -0" off of the existing grade.

Access to the hayloft will present considerable architectural and financial challenges to meet accessibility and the life-safety requirements. Ultimately the success of a project to provide access to the hayloft may depend, on sympathetic code officials and negotiation on what would be allowed. A seismic upgrade of the main barn for instance, would almost certainly be prohibitively expensive and architecturally invasive. We feel that stabilizing the barn and deferring full barn access to a future development phase at Killin would best align with the METRO project goals for the site.

Hayloft

Precedent Image

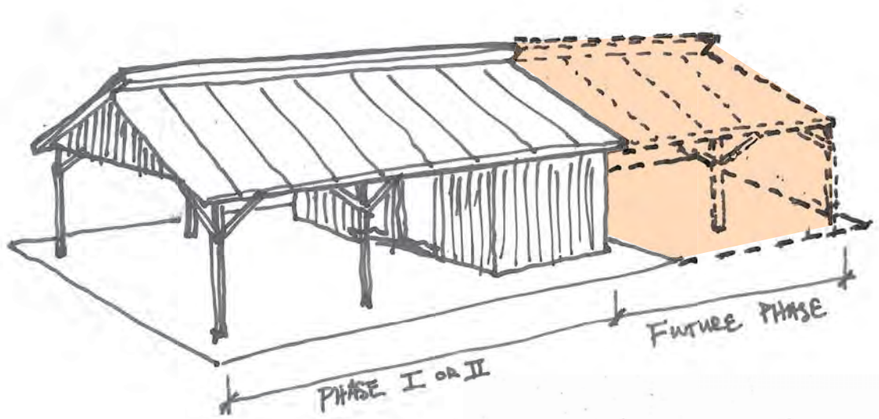


Rental Opportunities

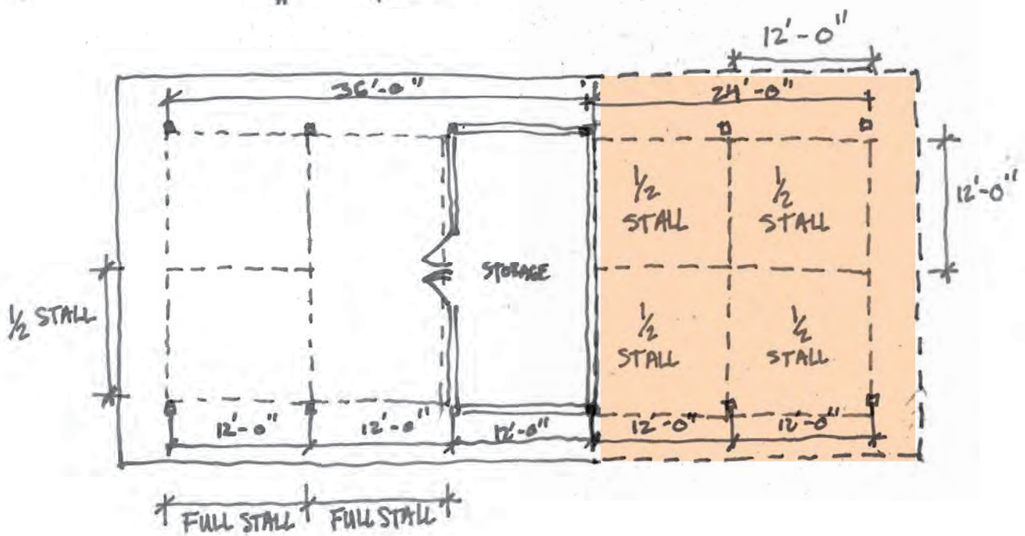
DESIGN VERNACULAR

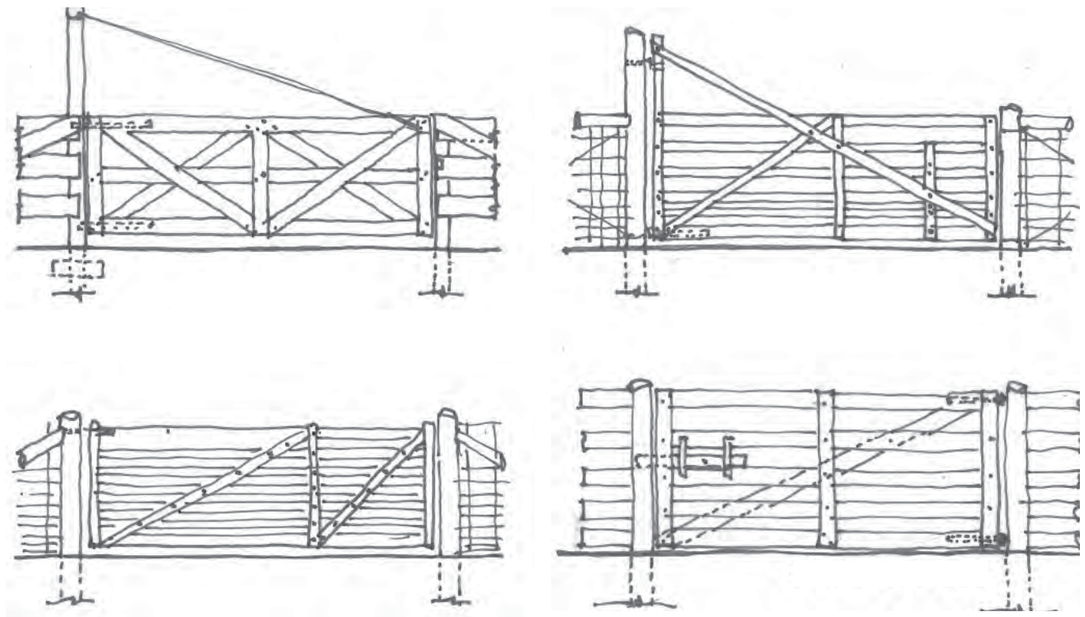
How would the local building culture continue?

The vernacular of farm structures is informed by simple materiality, appropriate forms and efficient detailing. The forms of these structures directly follow the function required of the structure. At Killin, the efficiency and materiality of the vernacular farm buildings should inform new structures constructed at the site without mimicry. The series of sketches and photos included here illustrate trussed forms, simple and appropriate materials for the task and straightforward detailing and assembly. If these qualities inform new structures such as bird blinds, and shelters, the forms will resolve themselves and they will be appropriate to the site.



Sketch for simple farmer's market and event structure(s) informed by agricultural structures. They are to be located at to the west of the main barn.



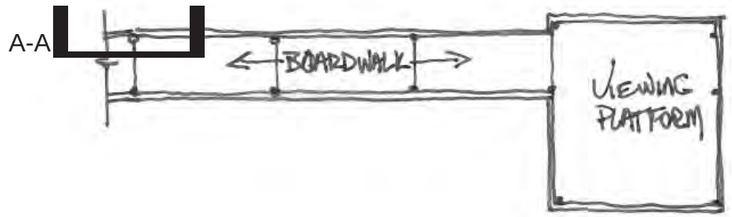


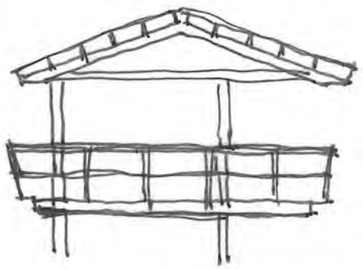
Common agricultural fence gates could inform bird blinds and other structures at the site.

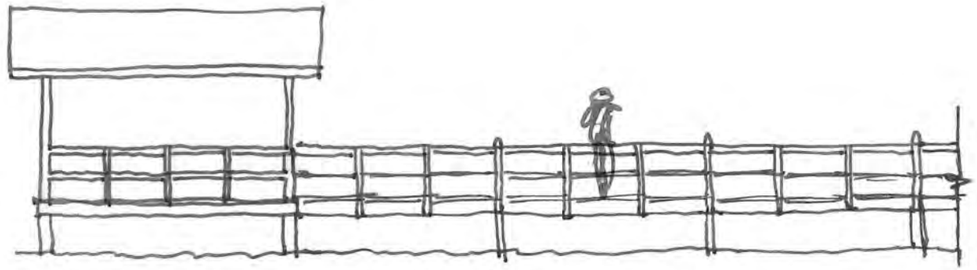
DESIGN VERNACULAR

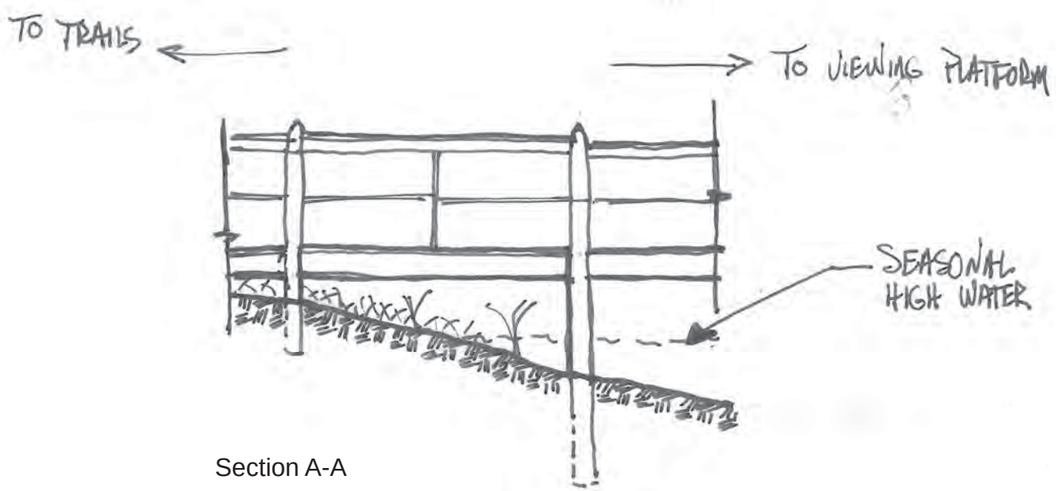
How could the vernacular be incorporated in the site?

These sketches illustrate how a boardwalk and viewing platform may extend into areas of the site with high seasonal water.









Section A-A

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Electrical Memorandum

Appendix F

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mlc

engineering, llc December 5, 2014

ELECTRICAL REPORT

Project:	Killins Natural Area	Job No.:	20140806a
By:	Lun Chau		
Distribution:	Ben Ngan - Nevue Ngan Associates	Email:	Ben@NevueNgan.com

This report summarizes the assessment of the electrical and communication utilities and needs for future site development of the Killins Nature Area located along NW Cedar Canyon Road near Banks, Oregon.

ELECTRICAL SERVICE

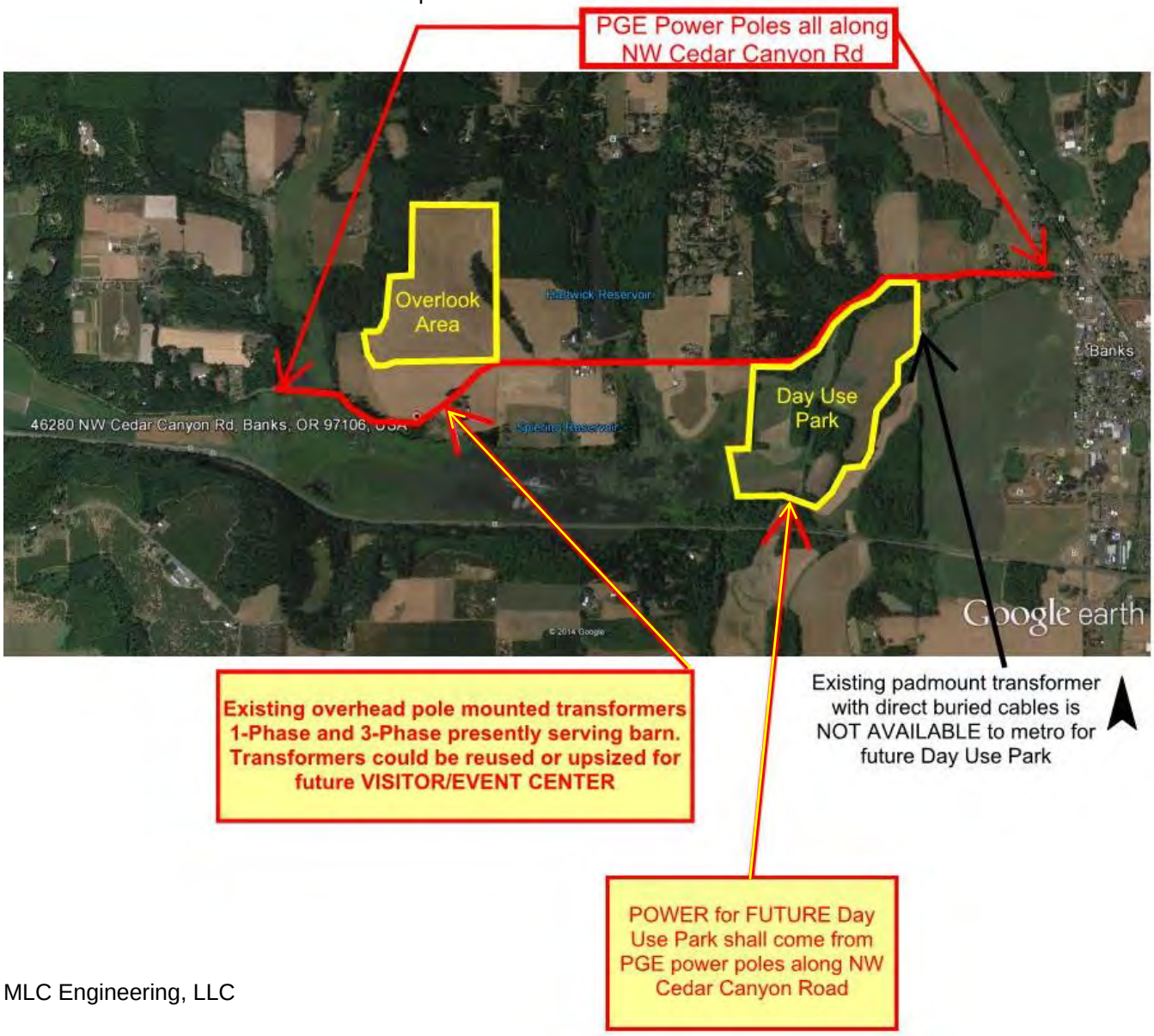
1. Power Company: Portland General Electrical (PGE) is the local utility company serving the area. The utility company has power poles located along the entire NW Cedar Canyon Road. See map on page 2.
2. Existing Electrical Service: The only power presently available on the entire Killins Nature Area site are two pole mounted transformers at the rented farm house property.
3. Future Visitor/Event Center: Existing pole mount transformers with single-phase and three-phase power are available for future building needs. The transformers can be easily upsized if the new building requires more power.
4. Future Day Use Park: Presently there isn't any power available on the site. There is a utility padmount transformer at the nearby house on the southeast side of the site however the electrical service is direct buried and unavailable for use. Any future needs for electrical service will need to be derived from PGE's power poles along NW Cedar Canyon Road.
5. Overlook Area: Presently there isn't any power on this site. Any future needs for electrical service will be derived from a power pole on the southwest corner of the area.
6. Electrical Services: Utility power poles are available at the property lines for future development needs. Owner will need to provide underground raceways, concrete pads/vaults, meter sockets and cabling for future electrical services. Costs will be dependent on size of service and distance from power poles.
7. Utility Fees: Portland General Electrical may or may not charge "Line Extension Cost" dependent on the calculated service load, location, projected revenue and project allowance.
8. Energy Saving Options:
   a. Photovoltaic Solar Panels Net Metering System: Owner may consider provide PV solar panels with utility net metering to offset utility costs.
   b. Solar Powered Lighting: Owner may consider solar powered parking and pathway lighting to save costs of initial wiring and electrical energy costs.

COMMUNICATION SERVICES

1. Numerous communication providers are available for future development needs and more options may be available in the future. Communication providers normally charge very minimal fees for new service and sometimes offer free installation including installation of interior devices and wiring. Some of the utilities partner with other companies to offer bundle packages of phone, internet and television. Due to the constant reinvention of communication companies, it is highly recommended that communication services be revisited at time of future development. The following services are available:
2. Telephone Service Providers: Comcast Xfinity and Frontier Communication
3. Cable Television Service Providers: Comcast Xfinity, DirecTV Satellite and Dish Network Satellite
4. Internet Service Providers: Comcast Xfinity, Frontier Communications

1515 SW Fifth Ave #1028, Portland, OR 97201 www.MLC-Engineering.com
T: 503-220-0168

Killins Natural Area Electrical Service Map:



MLC Engineering, LLC

Sincerely,

Lun Chau, PE, LEED®AP

mlc20140806a KillinsNatureArea ElectricalReport

1515 SW Fifth Ave #1028, Portland, OR 97201
T: 503-220-0168
www.MLC-Engineering.com

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Site Entry and Site Infrastructure Memorandum

Appendix G

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DATE: April 24, 2014

PROJECT: 312064.40-Metro Killin Wetland Access

SUBJECT: Access Alternatives Analysis

TO: Tim Richard
Metro
PHONE: (503)813-7542
EMAIL: Tim.Richard@oregonmetro.gov

FROM: Curt Vanderzanden, PE, Principal
KPFF Consulting Engineers
PHONE: 503-542-3808
EMAIL: curt.vanderzanden@kpffcivil.com

At the request of Metro, KPFF has completed a topographic survey and conducted a site visit to evaluate existing and proposed access points. Intersection site distance measurements were taken at the two existing access points to verify the Sight Distance Evaluation completed by Washington County staff on November 5th, 2010. In addition, intersection site distance measurements were taken for a third access point located between the two existing ones. See Exhibit A for access locations.

The purpose of this evaluation is to determine what improvements and costs are required at each access point to provide a safe approach and meet Washington County standards. Washington County Community Development Code (CDC) Section 501-8.5F(4) establishes that the required sight distance for an access to a County road is equal to ten times the vehicular speeds of the road. As determined by a Speed Study completed by Kittelson and Associates, Inc. on March 24, 2011, the 85th percentile travel speed in all directions at both existing access points is 44 mph. Therefore the required intersection sight distance is 440 feet.

Washington County Requirements for Access

In addition to the CDC Sight Distance requirements previously discussed, the following access design criteria applies to this project:

1. Upon review of the Washington County Transportation Plan, Figure 4A, Cedar Canyon Road adjacent to the project site is not shown and can therefore be assumed to be classified as a Rural Local Road.
2. Per CDC 501-8.5B(1) there are no minimum spacing requirements between driveways on local streets.
3. Per Washington County Road Design and Construction Standards:
   a. 130.020, a Right-Of-Way permit is required to establish the location or to construct an access within the road right-of-way.
   b. 340.070, driveways shall conform to Standard Drawings 1010, 1080, 1081, and 1082.
   c. 340.070, on roads without curbs, the driveway shall be of the same material as the roadway from the edge of the roadway to the right of way line or 15 feet from the edge of the roadway, whichever is greater.

Site Distance Evaluation and Alternatives Analysis

Tables 1 to 3 provide a summary of the intersection sight distances measured by KPFF staff at the three alternative sites and the minimum requirements based on the speed study by Kittelson. Concept level drawings (Exhibit A) and construction cost estimates (Exhibit B) have been developed for 3 alternative access points as described below.

Option 1: (Existing Western Access)

Table 1 provides a summary of the intersection sight distances measured by KPFF staff along with the minimum requirements based on the speed study by Kittelson and Associates.

Table 1: Measured Sight Distances – Existing Western Access Alternative (Option 1)

Location	Direction	85th Percentile Speed	Intersection Site Distance		
			Measured	Required	Adequate? (Yes/No)
West Access (Extg. Grade)	*West	44 mph	*430 ft	440 ft	No
	East	44 mph	>500 ft	440 ft	Yes
West Access (Raised 1.5 feet)	West	44 mph	>480 ft	440 ft	Yes
	East	44 mph	>500 ft	440 ft	Yes

*Previously, Washington County staff measured the west direction of the west access to be 155 feet due to sight-obstructing vegetation. At the time of the KPFF measurements, the vegetation was not evident which allowed a clear line of sight for 430 feet until obstructed by the vertical curvature of the roadway.

As shown in Table 1, by raising the grade of the access 1.5 feet above the existing grade at the point 15 feet from the edge of existing pavement, meeting the County's preferred driveway grading standards, the obstruction to the required 440 foot westerly intersection sight distance will be easily overcome. Any sight-obstructing vegetation appears to be located within the NW Cedar Canyon Road right-of-way. The estimated cost of construction for the proposed access driveway is approximately **$18,900**. This cost includes grading, aggregate base, asphalt paving and other miscellaneous items required to meet Washington County standard drawing 1080. The cost does not include extension of the driveway to any future development beyond where it daylights to existing ground, nor does it include removal of the existing eastern access.

West access looking west

Option 2: (Central Access)

There are no sight distance obstructions at this location. As shown in Table 2, to comply with the County's preferred driveway grading standards, the access will have to be raised approximately 0.8 feet above the existing grade at the point 15 feet from the edge of existing pavement. However, constructing the access in the middle of the site will require constructing a long extension to the existing gravel staging area to the west as well as removing the existing driveways and restoring the roadway shoulder. The estimated cost of construction for the proposed access driveway is approximately **$14,500**. This cost includes grading, aggregate base, asphalt paving and other miscellaneous items required to meet Washington County standard drawing 1080. The cost does not include extension of the driveway to any future development beyond where it daylights to existing ground nor does it include removal of the existing western and eastern accesses.

Table 2: Measured Sight Distances – Proposed Central Access Alternative (Option 2)

Location	Direction	85th Percentile Speed	Intersection Site Distance		
			Measured	Required	Adequate? (Yes/No)
Central Access (Raised 0.8 feet)	West	44 mph	>480 ft	440 ft	Yes
	East	44 mph	>500 ft	440 ft	Yes

Central access looking west

Option 3: (Existing Eastern Access)

To comply with the County's preferred driveway grading standards, the access will have to be raised approximately 2.9 feet above the existing grade at the point 15 feet from the edge of existing pavement. This improvement alone will raise the sight-line high enough to be able to see above the sight-obstructing vegetation which appears to be located within the NW Cedar Canyon Road right-of-way. However, it will be important to coordinate with Washington County to ensure the grass is cut frequently near the telephone pole so sight lines are not obstructed. The estimated cost of construction for the proposed access driveway is approximately **$25,400**. This cost includes grading, aggregate base, asphalt paving and other miscellaneous items required to meet Washington County standard drawing 1080. The cost does not include extension of the driveway to any future development beyond where it daylights to existing ground nor does it include removal of the existing western access.

Table 3: Measured Sight Distances – Existing Eastern Access Alternative (Option 3)

Location	Direction	85th Percentile Speed	Intersection Site Distance		
			Measured	Required	Adequate? (Yes/No)
East Access (Extg. Grade)	West	44 mph	>460 ft	440 ft	Yes
	*East	44 mph	*365 ft	440 ft	No
East Access (Raised 2.9 ft)	West	44 mph	>500 ft	440 ft	Yes
	East	44 mph	>500 ft	440 ft	No

*Sight distance to the east is currently restricted to 365 feet due to sight-obstructing vegetation. Coordination with Washington County will be required to ensure grass is cut frequently near the telephone pole so sight lines are not obstructed.

East access looking east

Comparison of Alternatives

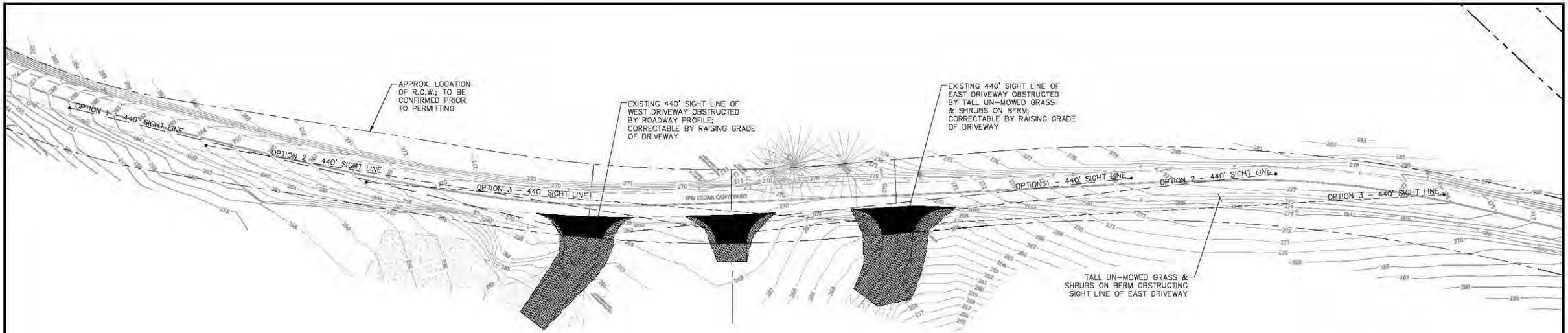
While all three sites appear to be feasible, Option 1 may be preferred due to its proximity to the large existing gravel staging area which will likely be the location of future development of the site. Option 2 will require a long extension to the staging area and extra costs for removing the existing two driveways to the east and west. Option 3 is least desirable due the amount of fill and associated cost to construct the approach. Also it is located much farther away from the existing gravel staging area than both Options 1 and 2.

Please do not hesitate to contact us if you have any questions regarding the information provided here.

Sincerely,
KPFF Consulting Engineers

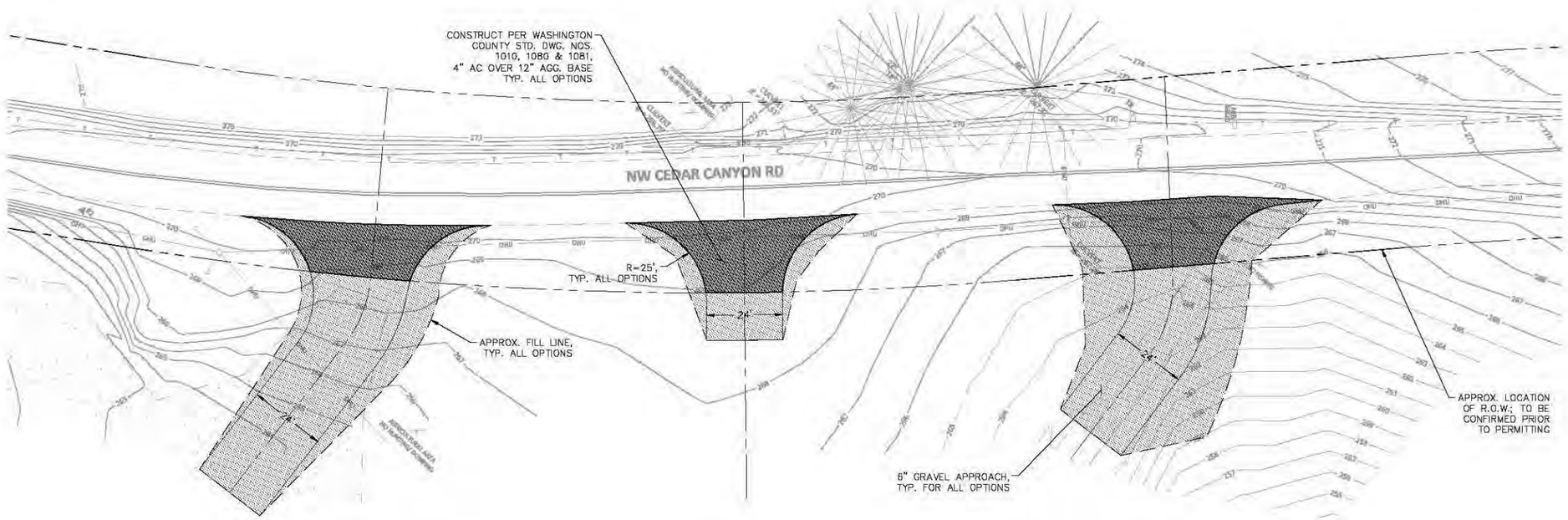
Curtis C. Vanderzanden, PE, Principal

Attachments: *Exhibit A – Sight Distance and Alternatives Plan*
Exhibit B – Summary of Construction Costs



SIGHT DISTANCE PLAN

SCALE: 1" = 80'



OPTION 1
(WEST DRIVEWAY)

OPTION 2
(CENTRAL DRIVEWAY)

OPTION 3
(EAST DRIVEWAY)

ALTERNATIVES ANALYSIS PLAN

SCALE: 1" = 40'

REVISION	DATE	DESCRIPTION	BY

SCALE NONE

kpff Consulting Engineers
111 SW Fifth Avenue, Suite 2400 Portland, OR 97204-3626
(503) 227-3251 Civil Fax (503) 274-4681
Denver Eugene Los Angeles Pasadena Phoenix Portland St. Louis
Sacramento San Diego San Francisco Seattle Tacoma

FOR INFORMATION ONLY

JOB No.:	3006000.00
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DRAWN BY:	XXX
CHECKED BY:	XXX
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PLOTTED BY:	fredm
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TAB NAME:	EXH-A

Client Address

KILLIN WETLANDS
ACCESS STUDY

SIGHT DISTANCE AND
ALTERNATIVE ANALYSIS PLAN

SHEET NO.
EXH-A
SHEET 1 OF 1
RECORD NO.
XXXXX-XX

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kpff Consulting Engineers

SUMMARY OF CONSTRUCTION COSTS
for
Options 1, 2 and 3

EXHIBIT B
PRELIMINARY Estimate: 4/24/14
METRO: Killin Wetland Access Study

ITEM NUMBER	ITEM DESCRIPTION	OPTION 1 COST	OPTION 2 COST	OPTION 3 COST
PART 00200 - TEMPORARY FEATURES AND APPURTENANCES				
0210-0100000A	MOBILIZATION	$ 1,300.00	$ 1,000.00	$ 1,800.00
0225-0101000A	TEMPORARY WORK ZONE TRAFFIC CONTROL, COMPLETE	$ 700.00	$ 500.00	$ 900.00
0280-0100000A	EROSION CONTROL	$ 300.00	$ 200.00	$ 400.00
		$ 2,300.00	**$ 1,700.00**	**$ 3,100.00**
PART 00300 - ROADWORK				
0305-0100000A	CONSTRUCTION SURVEY WORK	$ 700.00	$ 500.00	$ 900.00
0320-0100000A	CLEARING AND GRUBBING	$ 2,000.00	$ 2,000.00	$ 2,000.00
0330-0105000K	GENERAL EXCAVATION	$ 600.00	$ 800.00	$ 400.00
0330-0123000K	EMBANKMENT IN PLACE	$ 1,400.00	$ 200.00	$ 4,600.00
		$ 4,700.00	**$ 3,500.00**	**$ 7,900.00**
PART 00600 - BASES				
0641-0102000M	AGGREGATE BASE	$ 3,200.00	$ 1,800.00	$ 3,600.00
		$ 3,200.00	**$ 1,800.00**	**$ 3,600.00**
PART 00700 - WEARING SURFACES				
0744-0302000M	LEVEL 3, 1/2 INCH DENSE MHMAC MIXTURE	$ 1,600.00	$ 1,680.00	$ 1,840.00
		$ 1,600.00	**$ 1,680.00**	**$ 1,840.00**
PART 00900 - PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS				
0910-0100000K	WOOD SIGN POSTS	$ 176.00	$ 176.00	$ 176.00
0940-0121000J	TYPE "R" SIGNS IN PLACE	$ 320.00	$ 320.00	$ 320.00
		$ 496.00	**$ 496.00**	**$ 496.00**
PART 01000 - RIGHT OF WAY DEVELOPMENT AND CONTROL				
1030-0102000E	SEEDING MOBILIZATION	$ 700.00	$ 700.00	$ 700.00
1030-0108000R	PERMANENT SEEDING	$ 500.00	$ 500.00	$ 500.00
		$ 1,200.00	**$ 1,200.00**	**$ 1,200.00**
	CONSTRUCTION SUBTOTAL	**$ 13,496.00**	**$ 10,376.00**	**$ 18,136.00**
	CONTINGENCY (40.0%)	**$ 5,398.40**	**$ 4,150.40**	**$ 7,254.40**
	ESTIMATE TOTAL	**$ 18,894.40**	**$ 14,526.40**	**$ 25,390.40**

Notes:

1. Estimate based on standard measurement and payment practices as specified in the 2008 Oregon Standard Specificaitons for Construction
2. Unit costs based on ODOT Weighted Average Item Prices - Calendar Year 2013;

DATE: November 6, 2014

PROJECT: 314198-Kilin Nature Area Planning

SUBJECT: Site Infrastructure Memorandum

TO: Ben Ngan
Nevue Ngan Associates
PHONE: 503-239-0600
EMAIL: ben@nevuengan.com

FROM: Ryan Milkowski
KPFF Consulting Engineers
PHONE: 503-542-3867
EMAIL: Ryan.milkowski@kpff.com

KPFF has reviewed the available information regarding the site infrastructure from a planning level and has prepared the following feasibility memorandum that identifies existing utility conditions and potential regulatory issues that may need to be addressed prior to design.

Existing Utilities
Existing site utilities that have been identified and potential issues related to them include the following:

Sanitary Sewer
Sanitary service to the existing site is provided by an on-site septic system. An existing septic tank and drain field are located behind the existing farm house. The exact location and limits of the drain field is unknown at this point. Metro's records indicate that the septic system is still functioning correctly and only annual maintenance has been required.

We recommend that the limits of the existing drain field be identified in the field prior to detailed design of the site commences in order to verify any potential conflicts with proposed improvements. Furthermore given the age of the system and the potential for adding additional fixtures and loading to the system, it is our opinion that a new septic system will need to be installed to handle the new development. An allowance for this work should be included in estimating the cost of proposed improvements.

Regulatory issues with new septic system will involve applying for an installation permit from the County. This permit process will involve evaluating the native soils, obtaining a Land Use Compatibility Statement (LUCS), and designing a septic system that meetings DEQ requirements. The size of the drain field will depend on the estimated usage and existing soil type, while the location will be dependent on meeting the minimum separation distances from site features such as wells, streams, and property lines. A licensed installer will need to construct the system.

Water Supply
Domestic water to the site is provided from on-site wells. Records provided by Metro identify two wells (western well and eastern well) located on site but it is not known if both wells are still functioning. Well logs were obtained for two wells that were installed for the original owner, Roy Tankersley. There is no indication which record corresponds to which of the two identified wells. One was installed in 1967 and the other in 1968. In general they indicate that the static water level is approximately 60 feet below the surface with well depths ranging from 97 feet to 150 feet. The original well tests show only minimal flow

rates with one test documenting 20 gallons per minute with a 3 feet draw down and the other listing 7 gallons per minute with 70 foot draw down. One of the wells is identified as domestic use only which the other is listed as both domestic and irrigation. Metro has also recently (Sept. 2, 2014) made some repairs to one of the wells to address damage from a failed corroded pipe. The work included installing a new well pump with control box and motor saver, new piping and wire, and charging the pressure tank to 37 psi.

Based on Metro's records, there is no existing irrigation system on site.

Given the limited flow rates listed for these wells, a storage tank may be required depending on the number of plumbing fixtures that will be provided on site and their estimated usage. This will need to be evaluated by an MEP consultant during the design phase.

We are assuming that Metro does not have specific water rights to this property and that it operates under the exempted use for single or group domestic purposes, which is limited to 15,000 gallons per day. A call into the Oregon Health Authority Drinking Water Division has confirmed that the system will become a "State regulated water system" if it becomes available to the general public. The exact classification will be depend on the number of users but in general we can assume that the proposed domestic system will need to be reviewed by the local county drinking water service contact during the design phase. Water quality testing will be required and depending on the results, a treatment system might be required.

Storm Sewer

There is no existing drainage system on site or public system within the roadway.

Franchise Utilities

Power to the site is provided by overhead power poles owned by PGE that run along the south side of NW Cedar Canyon Road. A buried Frontier telephone line is located along the north side of the NW Cedar Canyon Road. No other utilities have been identified within the street right of way.

Regulatory Requirements

The project site is currently zoned as EFU (Exclusive Farm Use, 80-acre minimum lot size. It is not listed on the Washington County website as being within any historic or cultural resources inventory areas or ground water resource areas. Public parks that include the uses specified under OAR 660-034-0035 such as day use areas, recreational trails, and natural and cultural resource interpretative facilities are allowed in this zoning.

The existing wetland will require a buffer along it according to Clean Water Service requirements. This buffer will range from 50-feet (if the slope of the land is less than 25%) to up to 200-feet (slope is greater than 25%). Some development such as paths are allowed with this sensitive area but conditions on the design will need to be met.

Potential work within the existing wetland will have to address the requirements of both the Department of State Lands (DSL) and the United States Army Corp of Engineers (USACE). These regulations would be addressed through a joint Removal-Fill Permit application. Other agencies such as the Oregon Department of Environmental Quality (DEQ) and the Oregon Department of Fish and Wildlife (ODFW) would be

contacted as part of the removal-fill application but would not require separate permitting. Disturbances to the wetland will need to be mitigated.

COPIES:
Curt Vanderzanden, KPFF

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Bibliography of Technical Documents

Appendix H

Review of Metro Standards and Methods

Prior to the kick-off meeting, consultant obtained Metro's available existing information about the site and structures, Metro recreation programs, planning and park facility design, standard details and resource management approaches.

Information from Metro obtained before and after the kick-off meeting and other information we gathered has been reviewed, the documents include the following:

- Summary of Speed Study and Sight Distance Requirements, memorandum by Kittelson & Associates, March 24, 2011
- Access Alternatives Analysis, memorandum by KPFF, April 24, 2014
- Killin Wetlands Natural Area, study by Metro, May 2014
- Wildlife Crossings, study by Metro, August 2009 edition
- Green Trails, Guideline for Environmentally Friendly Trails', study by Metro, no date
- Killin Wetlands Bird Surveys, report by Metro, May – June 2014
- Regional Trails and Greenways, map by Metro, June 2014
- Parks & Natural Areas, Portland Metropolitan Region, map by Metro and The Intertwine, July 11, 2011
- Site Furnishing Standards, design standard by Metro, December 2013
- A Guide to Wildlife Viewing and Photography Blinds, Creating Facilities to Connect People with Nature, publication by Colorado Division of Wildlife and Virginia Dept. of Game and Inland Fisheries, no date
- Notes on the Flora of Lake Labish, Oregon, by J.C. Nelson, early 20th century
- Trail Design Guidelines for Portland's Park System, by Portland Parks & Recreation, May 2009

Agenda Item No. 4.0

COUNCIL CREEK REGIONAL TRAIL MASTER PLAN

Metro Council Work Session
Tuesday, September 29, 2015
Metro Regional Center, Council Chamber

METRO COUNCIL

Work Session Worksheet

PRESENTATION DATE: Sept. 29, 2015 **LENGTH:** 20 minutes

PRESENTATION TITLE: Council Creek Regional Trail Master Plan

DEPARTMENT: Parks & Nature

PRESENTER(S): Robert Spurlock, x7560, Robert.spurlock@oregonmetro.gov;

WORK SESSION PURPOSE & DESIRED OUTCOMES

- Purpose: The purpose of the work session is to update the Council on the proposed Council Creek Regional Trail Master Plan process, recommended alignment, cost, and phasing in preparation for an early winter vote on a resolution supporting the master plan.
- Outcome: The desired outcome of the work session is to obtain consensus from Council supporting consideration of a resolution this winter adopting the Council Creek Regional Trail Master Plan.

TOPIC BACKGROUND & FRAMING THE WORK SESSION DISCUSSION

The Council Creek Regional Trail will be a multiuse pathway for pedestrians, bicyclists, and other non-motorized travelers for both recreational and transportation purposes. The trail will extend almost 15 miles from the Banks-Vernonia Trail in Banks to the TriMet Blue Line MAX station in downtown Hillsboro. The regional trail will connect the cities of Banks, Forest Grove, Cornelius and Hillsboro, as well as six other existing or planned regional trails and greenways.

The Council Creek Regional Trail Master Plan is the culmination of a community vision that stretches back almost a decade. Work on the master plan began over 2 years ago. The master plan will provide implementation guidance as local and regional partners embark on efforts to fund, design and build the trail.

The master plan is the product of a combined effort by local, regional, and state governments, a local stakeholder advisory committee, and the many individuals and groups that contributed their ideas. The active government partners are the Cities of Banks, Forest Grove, Cornelius, and Hillsboro, as well as Washington County, Metro and ODOT. Some or all of these jurisdictions may be responsible for the final design, engineering and building of sections of the trail, as well as long term maintenance and operation.

In the course of master plan development, trail sections were adjusted or eliminated; trail alignments were decreased, altered or added; and some underlying assumptions were modified, all to reflect partner, public, and stakeholder comments and recommendations. All illustrated trail alignments and trail types in the master plan are plan level, meaning that they have not been subject to survey, final design, or engineering.

Prior to the master plan, Metro has supported the Council Creek Trail in concept by including preliminary alignments in the Regional Trails and Greenways Plan and the Regional Active

Transportation Plan, both adopted by Council in 2014. In 2009, Metro and JPACT awarded a $218,000 Regional Flexible Funds grant for the completion of this master plan.

Cost estimates for engineering, permitting and construction of the trail are broken out by three different trail segments. The north-south segment from Banks to Forest Grove, which would be built along the sides of rural roads, is estimated to cost $27.1 million. The east-west segment from Hillsboro to Forest Grove would be built in a lightly-used rail corridor, and is estimated to cost $22.2 million. A third segment would provide a spur connection to the Tualatin River, near Cornelius, and is estimated to cost $2.6 million.

The city councils of Forest Grove, Cornelius, and Hillsboro, and the Washington County Board of County Commissioners will be voting to approve the plan this fall. After each of these local agencies has approved the plan, Metro staff would like to bring a resolution to Metro Council adopting the plan. This would likely occur at a February 2016 Council meeting.

QUESTIONS FOR COUNCIL CONSIDERATION

List questions for Council's consideration that will help/guide the Council in providing policy direction.

- Does Council have any feedback on the proposed plan?

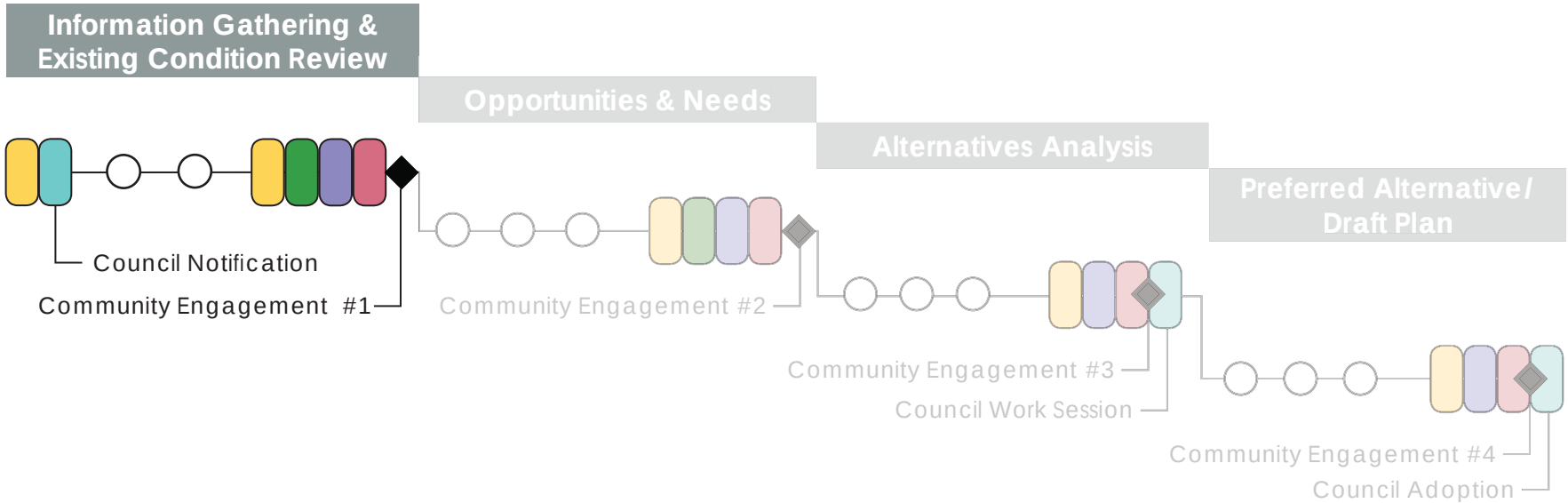
PACKET MATERIALS

- Would legislation be required for Council action ■ Yes ☐ No
- If yes, is draft legislation attached? ☐ Yes ■ No
- What other materials are you presenting today?

Materials following this page were distributed at the meeting.

PLANNING PROCESS

PARKS AND NATURE
Planning Process



Parks and Nature Project Team

Internal working meetings as needed

Other Key Groups

- OMA
- Risk management
- Procurement
- Land use

Stakeholder Advisory

- Local elected
- Local agencies
- Recreation groups
- Conservation/ Natural resource groups
- Farming groups
- Education groups
- Equity groups
- Neighborhood associations
- Volunteer groups/ Site stewards
- Local tribes

Councilor

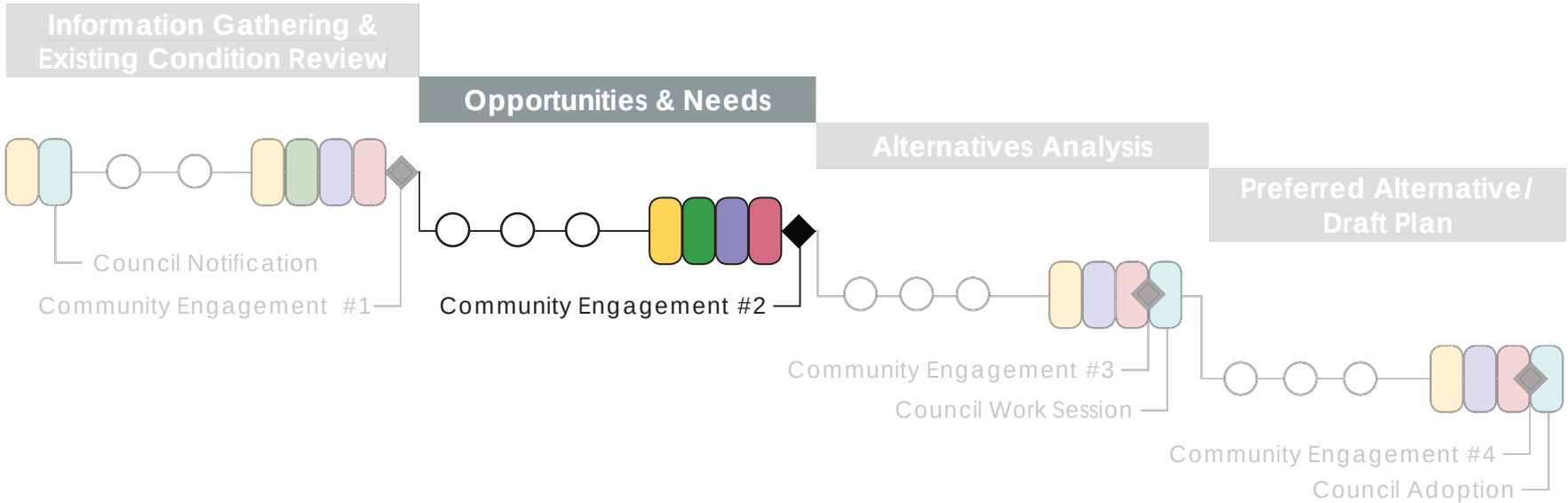
Community at large

Metro Council

Draft

09.29.2015

PARKS AND NATURE
Planning Process



Parks and Nature Project Team

Internal working meetings as needed

Other Key Groups

- OMA
- Risk management
- Procurement
- Land use

Stakeholder Advisory

- Local elected
- Local agencies
- Recreation groups
- Conservation/ Natural resource groups
- Farming groups
- Education groups
- Equity groups
- Neighborhood associations
- Volunteer groups/ Site stewards
- Local tribes

Councilor

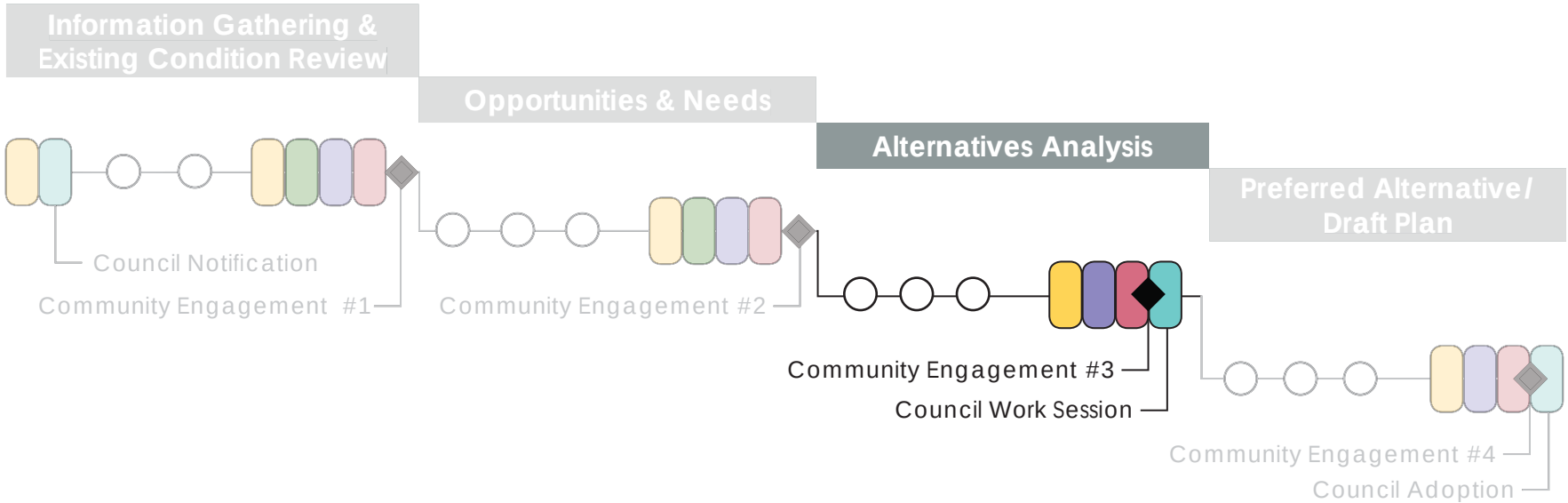
Community at large

Metro Council

Draft

09.29.2015

PARKS AND NATURE
Planning Process



Parks and Nature Project Team

- Internal working meetings as needed

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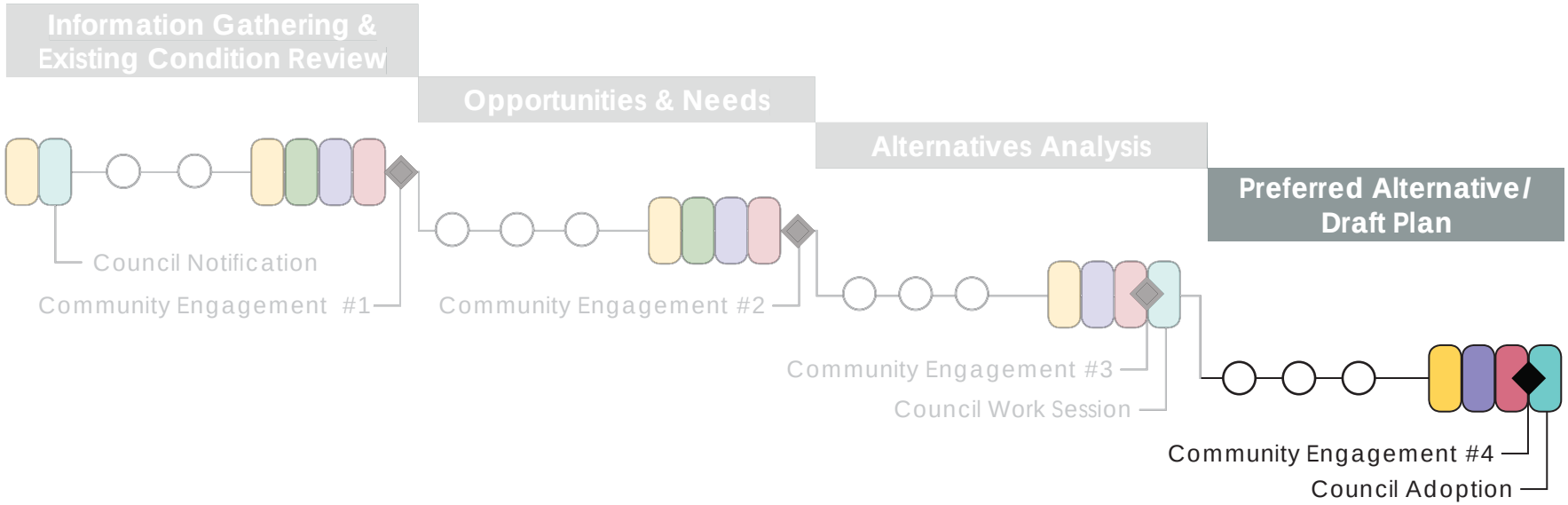

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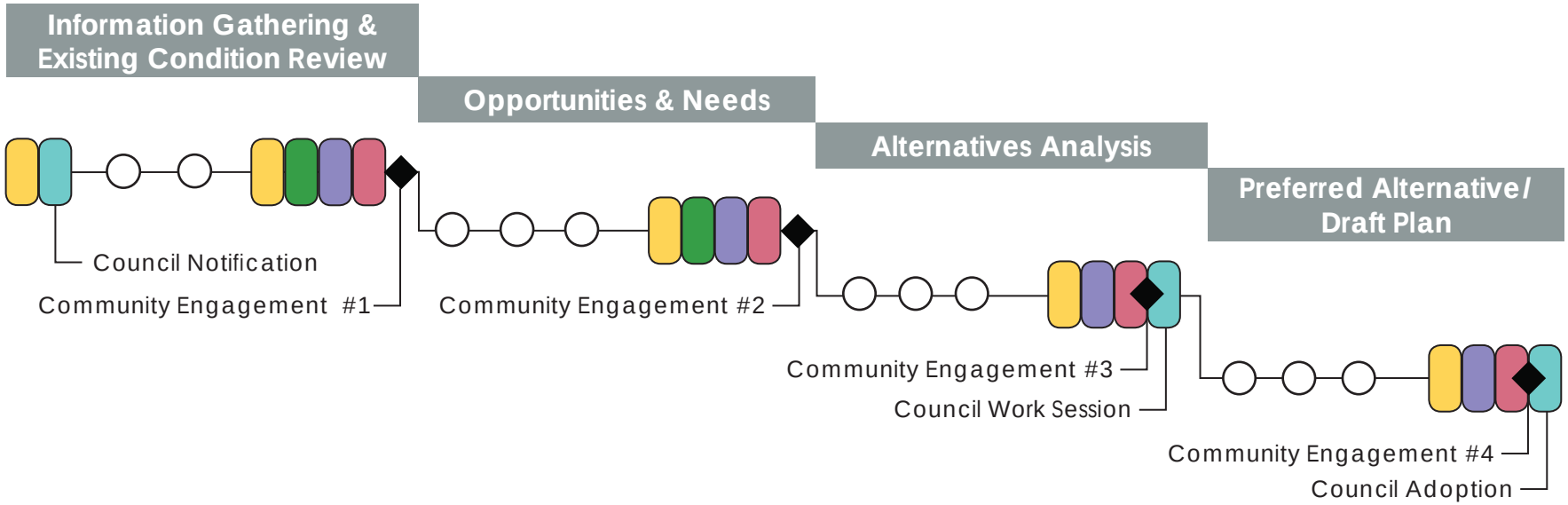

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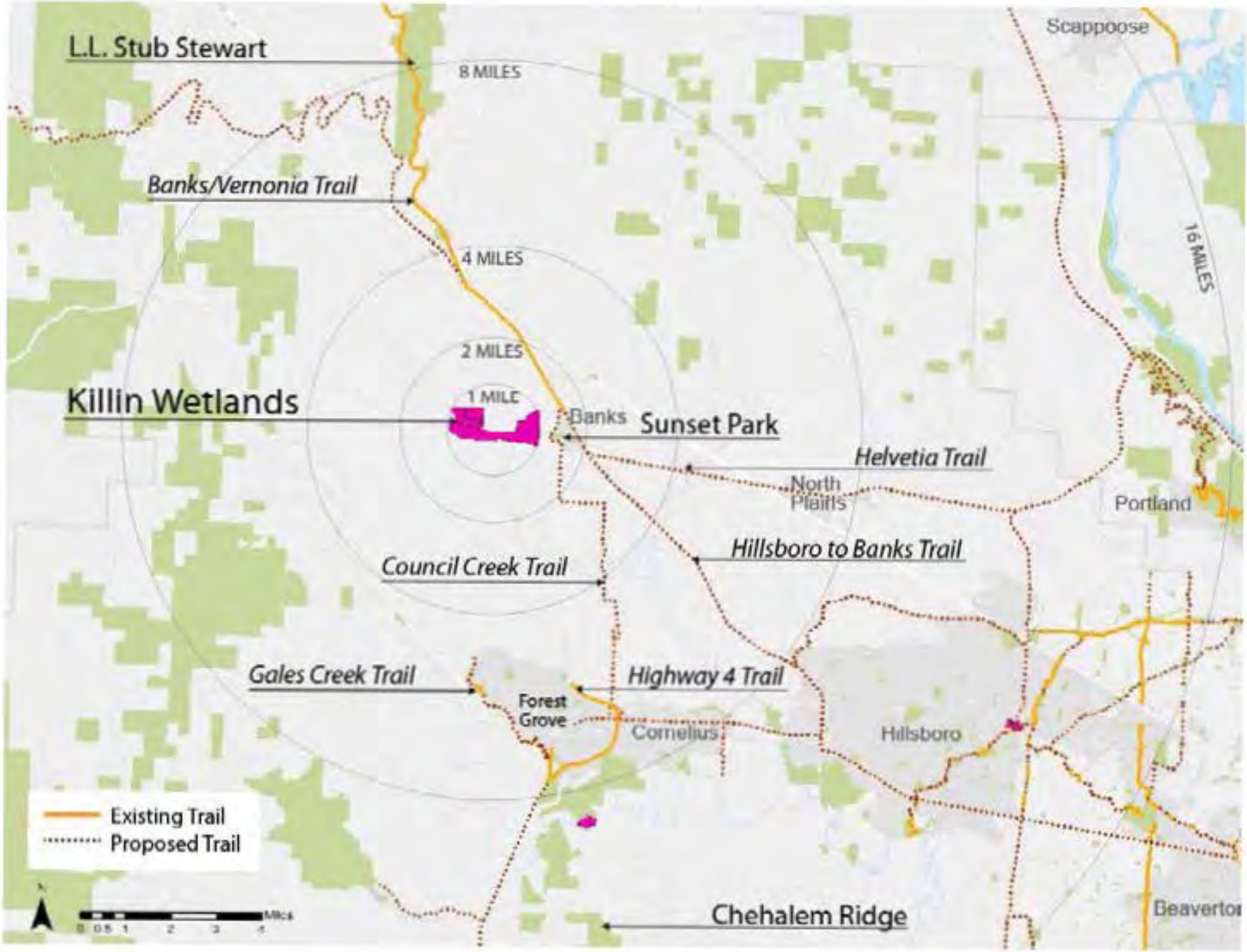
09.29.2015

KILLIN WETLANDS ACCESS MASTER PLAN

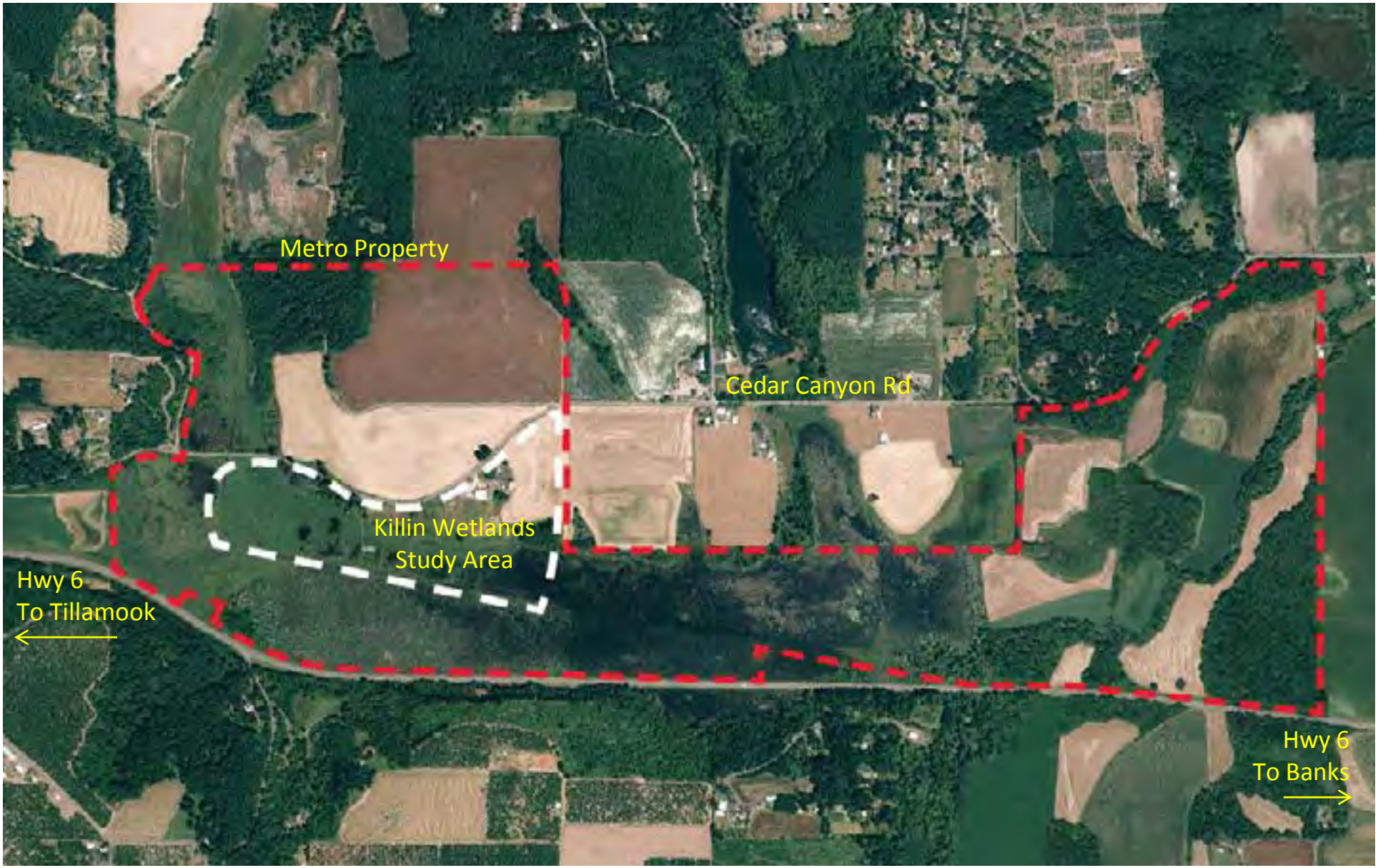
PURPOSE OF ACCESS PLAN

PURPOSE OF ACCESS PLAN


Killin Wetlands
Banks
North Plains
Forest Grove
Cornelius
Hillsboro
Orenco Woods
Maroon Ponds
Tualatin River Canoe and Kayak Launch
Gaston
Vancouver
Portland
Beaverton
Tigard
King City
Durham
Tualatin
Rivergrove
Lake Oswego
West Linn
N
0 0.5 1 2 3 4 Miles


L.L. Stub Stewart
8 MILES
Banks/Vernonia Trail
4 MILES
2 MILES
1 MILE
Killin Wetlands
Banks
Sunset Park
Helvetia Trail
North Plains
Portland
Hillsboro to Banks Trail
Council Creek Trail
Gales Creek Trail
Highway 4 Trail
Forest Grove
Cornelius
Hillsboro
Scappoose
16 MILES
Existing Trail
Proposed Trail
Chehalem Ridge
Beaverton

KILLIN WETLANDS PROPERTY



PROCESS

WHAT WE HEARD

Top Three Activities

Birding

Walking on a Boardwalk

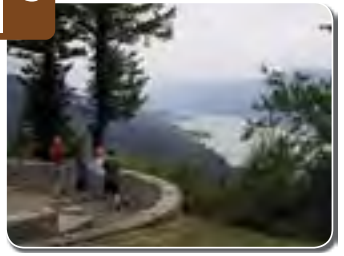
Light Hiking

Other Activities

Conservation Education

Volunteer Work

Gathering + Viewing



Picnicking

Art

DEVELOPMENT PROGRAM

EARLY CONCEPTS

DAY USE PLAN


Legend
Asphalt
Gravel
Existing structure
Fence
Guardrail
Existing tree
Proposed tree
NW Cedar Canyon Rd.
Utility pole at Sun removed
See Trails Plan for Continuation
0
50'
N

DAY USE PLAN (TRAILS)

DAIRY BARN OVERLOOK

DAIRY BARN OVERLOOK

CROW'S NEST LEARNING SHELTER

BOARDWALK

ART


Gates Century Farm, Hillsboro


Kinton Grange, Beaverton


Simpson Century Farm, Cornelius


Jossy Farm, Hillsboro

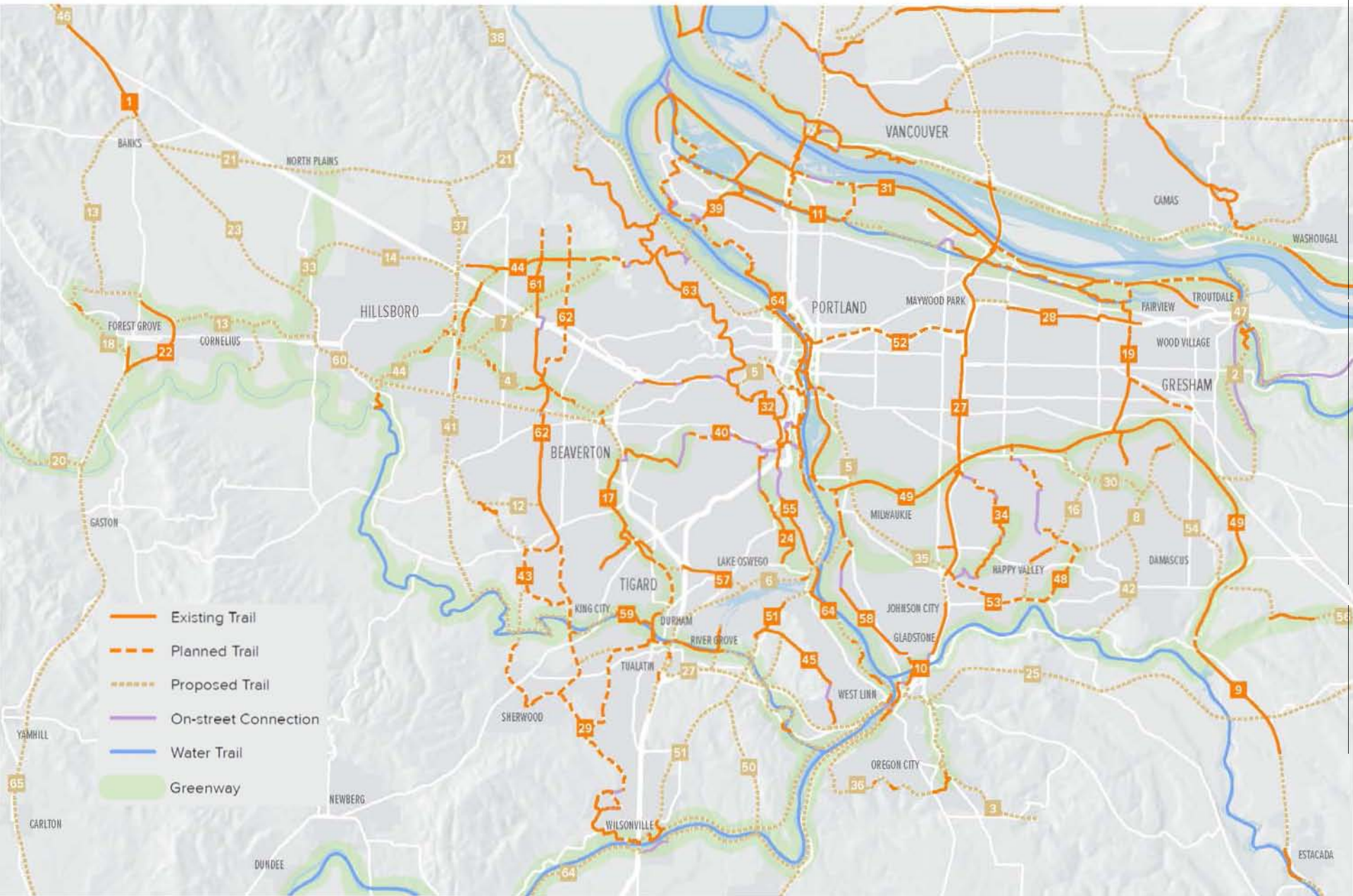
PHASING PLAN

NEXT STEPS

1. The intent of today's work session is for Council to provide **feedback on the Draft Access Master Plan**
2. **Final approval and adoption of Access Master Plan** Metro Council (December 10, 2015).
3. **Design and permitting complete** in 2016
4. **Construction** 2016/2017
5. **Opening** 2017

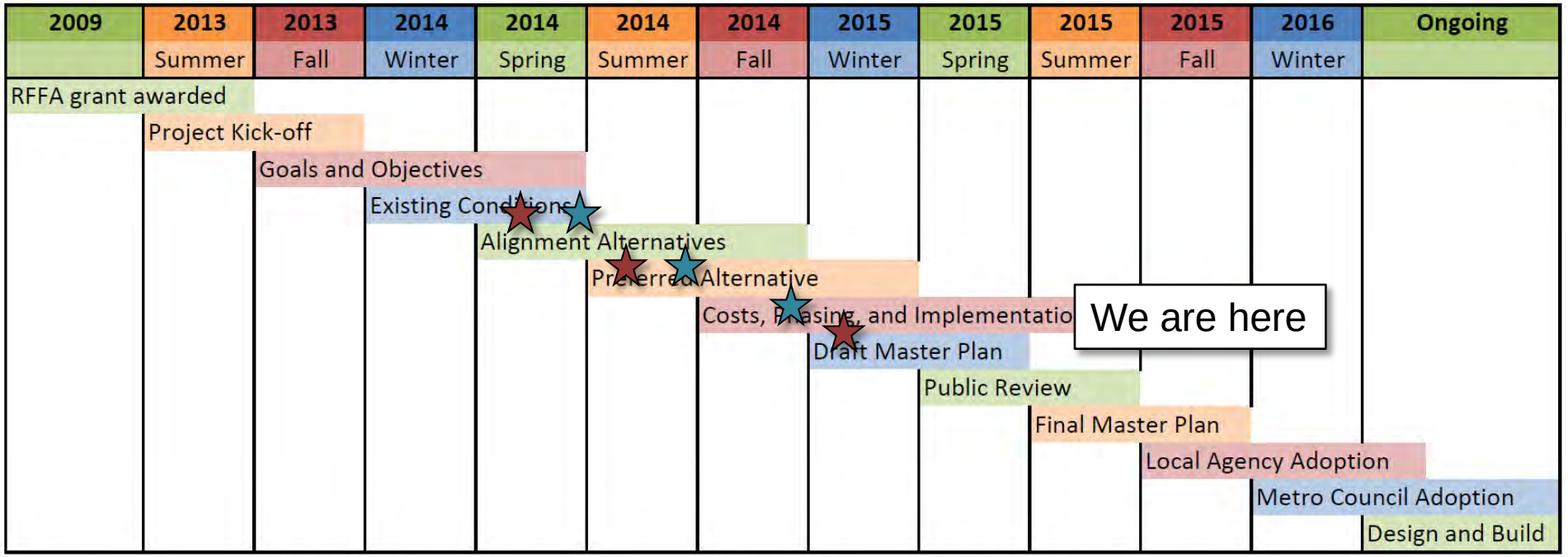
COUNCIL CREEK REGIONAL TRAIL MASTER PLAN

REGIONAL TRAILS PLAN



PROJECT LOCATION

TIMELINE



= Stakeholder Advisory Committee

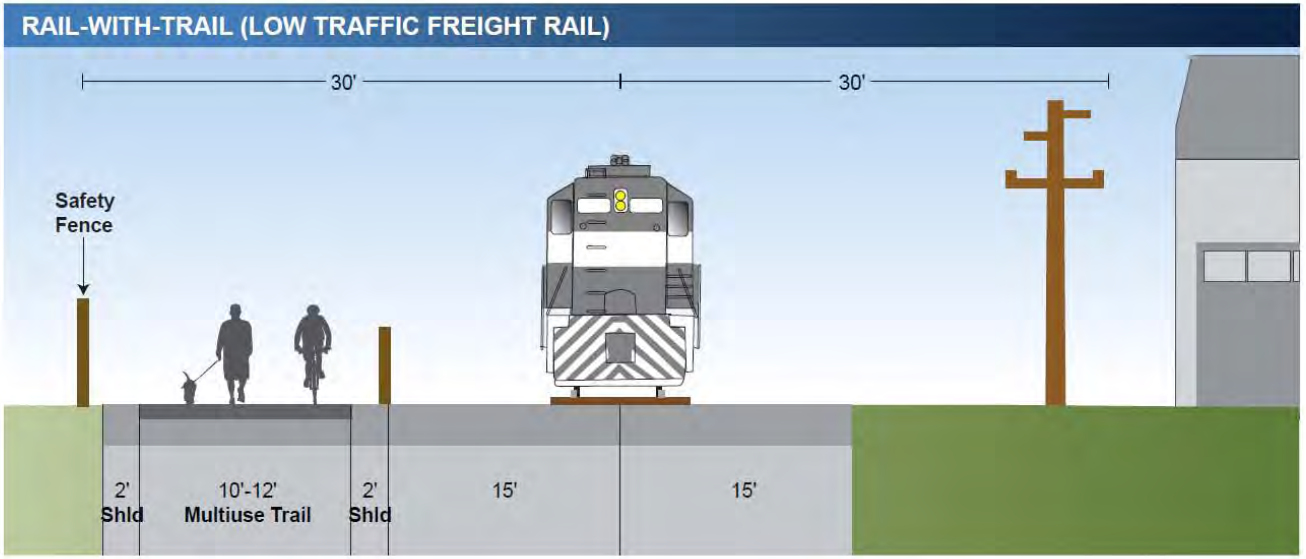
= Public Open House

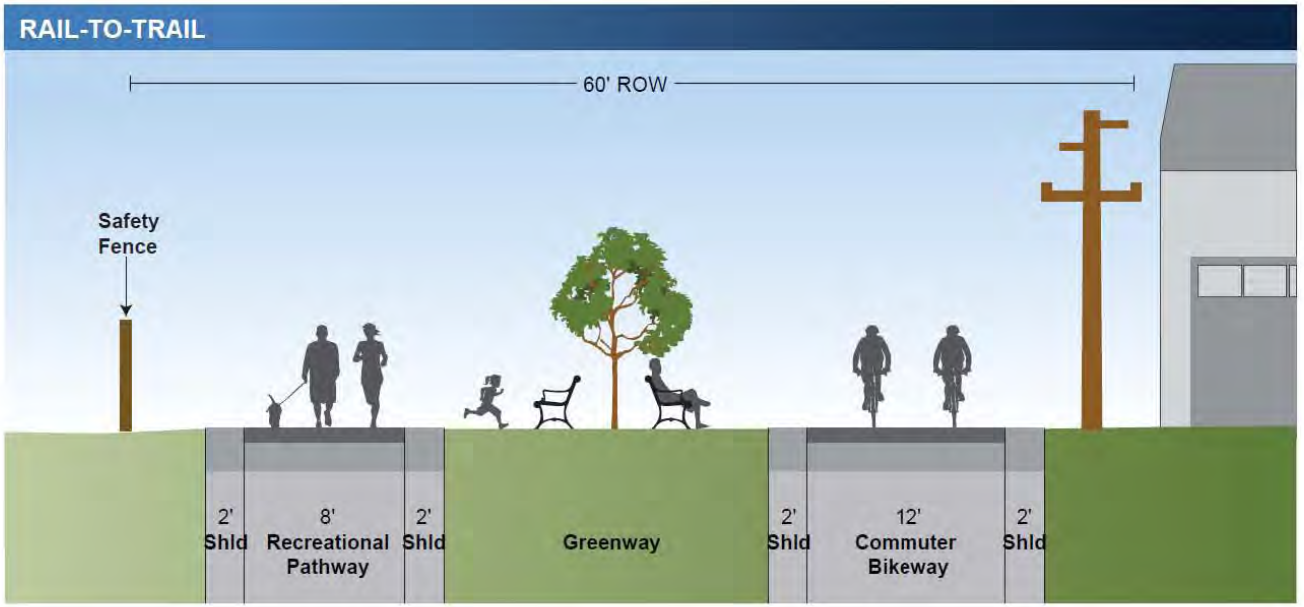
PUBLIC ENGAGEMENT

HISPANIC OUTREACH


FINAL ALIGNMENT
Banks
Forest Grove
Cornelius
Hillsboro
City of Forest Grove
Trail Type
Multiuse Trail
Street-adjacent Multiuse
On-Street
Multiuse Rail-with-Trail
Multiuse Boardwalk
Bridge or Undercrossing
Community Trail
Connector Trail (Approximate)
Conceptual Trailhead Location
Crossing Type
Collector/Arterial Road Crossing
Major Stream Crossing
Minor Stream Crossing
New Railroad Crossing
Trail Segment Boundary
Railroad
Taxlot Boundary
Park
Natural Area
Private Recreation Area
Cemetery
Public Land
Streams
Waterbody
Wetland Area
FEMA 100 Yr. Flood Plain

TYPICAL SECTIONS





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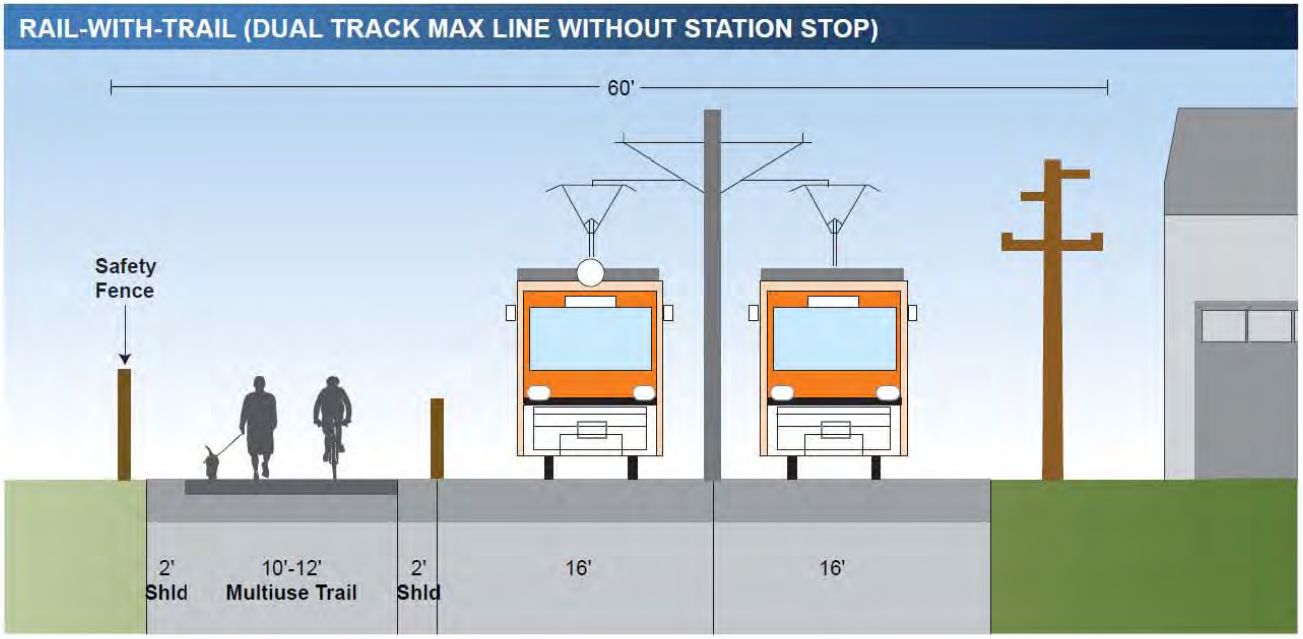

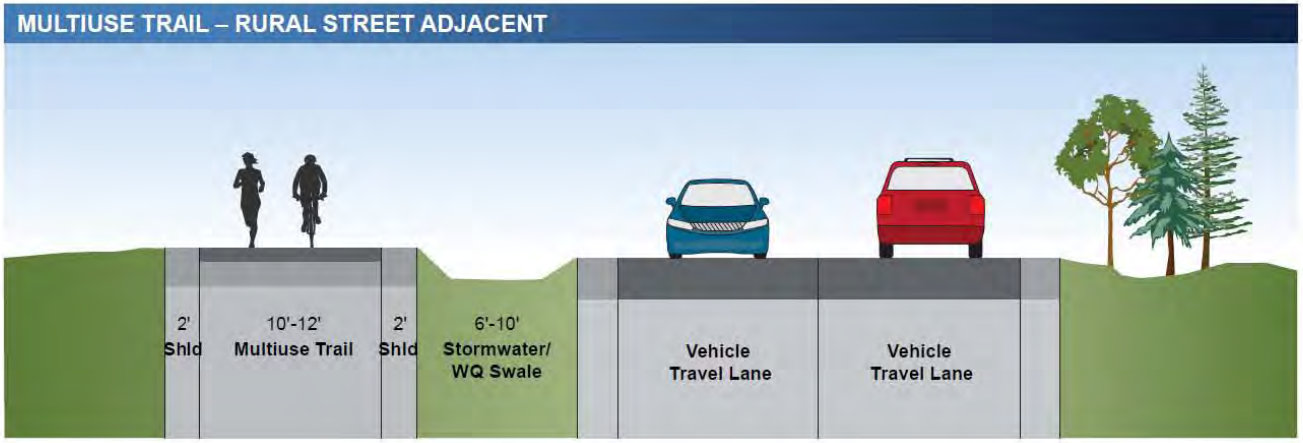

COST ESTIMATE

Segment	Length	Cost*
Banks to Forest Grove	8.9 miles	$27.1 million
Forest Grove to Hillsboro	5.4 miles	$22.2 million
Tualatin River Spur Trail	1.4 miles	$2.6 million
**costs are in 2015 dollars and are subject to inflation.*		

QUESTIONS

Photo: Bicyclist on the Hwy 47 Trail where it will intersect the future Council Creek Trail.