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Lewis River

Recreational Facilities Master Plan

Acknowledgements

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PART 1: INTRODUCTION

Background

This master plan seeks to develop a series of interrelated conceptual site solutions for nine reservoir-based recreational facilities at the Lewis River Hydroelectric Projects (see map on following page). The impetus for the plan is to meet the requirements of the Federal Energy Regulatory Commission (FERC) terms and conditions for new operating licenses for the PacifiCorp Lewis River hydroelectric projects.

A Recreation Resources Management Plan (RRMP) outlined these recreational conditions and has served as the basis for this master plan. Issuance of the new FERC licenses occurred in 2008 and sets forth a schedule of required improvements addressed in the RRMP and this master plan. All of the nine facilities covered in this master plan have access to Lewis River Project waters and are developed to provide a diverse set of recreational activities and opportunities. The primary recreational uses are camping, picnicking, sightseeing, hiking, boating, and fishing.

Scope of Master Plan

This master plan is intended to serve as a guide to the ongoing development and improvement of the nine recreational facilities covered herein. It lays the groundwork for further detailed design, permitting, and construction of the recreation facilities identified in the RRMP as capital improvements. The site plans in Part 3 will serve as a basis for producing technical drawings for permitting and construction.

This master plan only provides schematic design guidance for proposed recreation improvements. Additional detailed design and construction drawings will need to be developed for each site prior to implementation.

The site plans in Part 3 are considered preliminary conceptual site plans. During the implementation phase, there will be further evaluation of the proposed improvements, and potentially revisions to the site plans. Where conceptual site plans direct development on Wildlife Habitat Management Plan (WHMP) lands, further consultation will occur with the appropriate parties.

STUDY AREA

The master plan study area spans two counties and is tied directly to PacifiCorp's three hydroelectric projects on the North Fork of the Lewis River. The majority of the recreational facilities are located in Cowlitz County along the shores of Lake Merwin and Yale Lake. Two of the projects are located in Skamania County and are associated with Swift Reservoir.

Included in the master plan study area are diverse recreational and natural resources, plus timber production, agriculture, hydroelectric operations, small commercial businesses, and residential housing. Within the surrounding area there is a mixture of public and private ownerships including the USDA Forest Service, Washington Department of Natural Resources, Weyerhaeuser, Longview Fiber, Clark County, Cowlitz PUD, PacifiCorp Energy, and private residents. The recreational facilities are owned by PacifiCorp, with the exception of Swift Forest Camp which is leased from the DNR. The majority of shoreline on Lake Merwin and Yale Lake, and a small portion on Swift Reservoir is also owned by PacifiCorp.

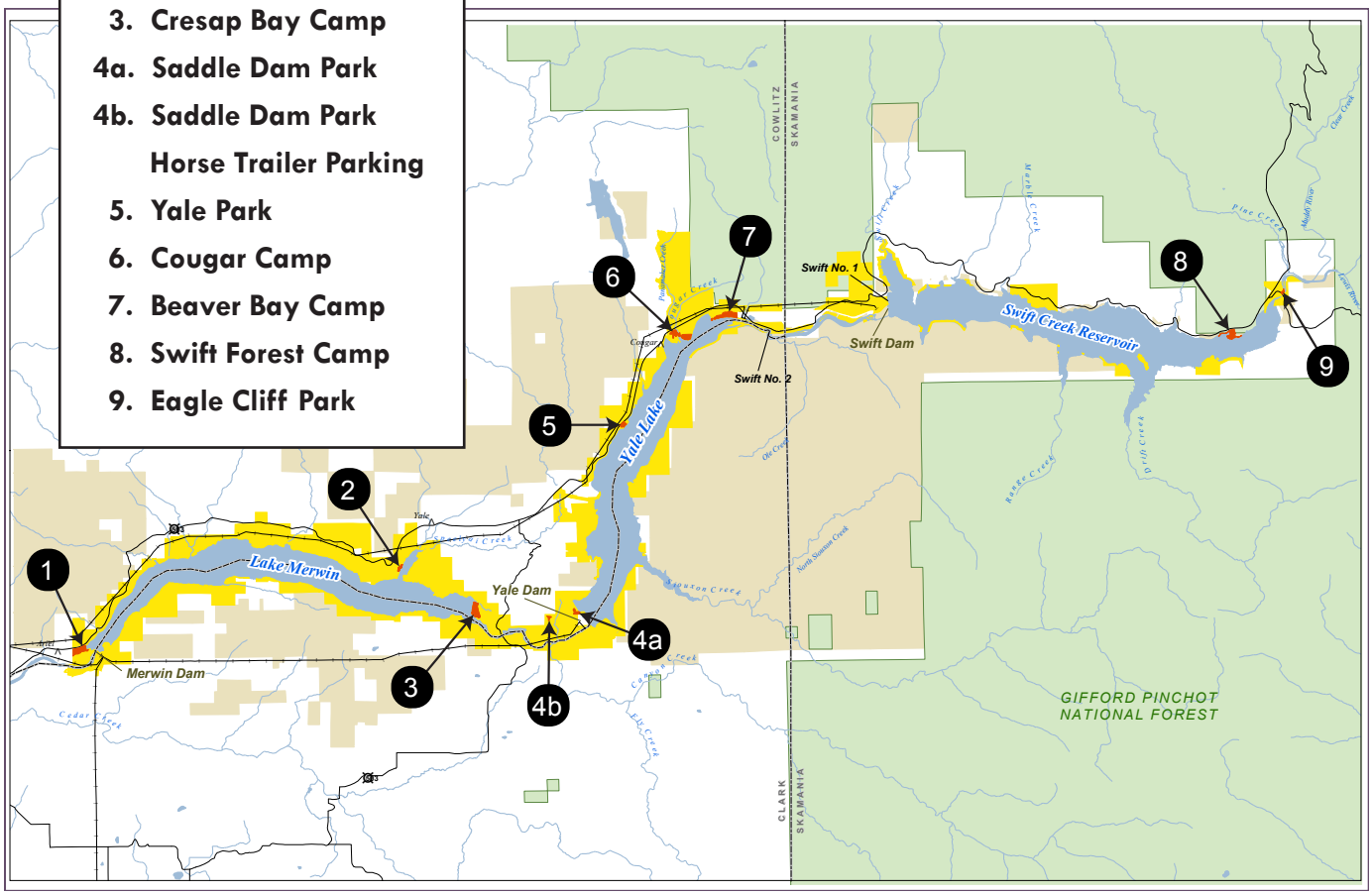
Lewis River Recreational Facilities

1. Merwin Dam Park
2. Speelyai Bay Park
3. Cresap Bay Camp

4a. Saddle Dam Park

4b. Saddle Dam Park
Horse Trailer Parking

5. Yale Park
6. Cougar Camp
7. Beaver Bay Camp
8. Swift Forest Camp
9. Eagle Cliff Park



Master Plan Goals

This master plan strives to maintain and expand recreation opportunities and adheres to the following goals:

- Provide safe and enjoyable recreation amenities
- Maintain a balance between natural resources, recreation, and hydroelectric operations
- Provide universally accessible upgrades to existing facilities, and add new accessible opportunities
- Provide an enhanced diversity of recreation opportunities in the study area
- Provide the opportunity for a high quality visitor experience
- Enhance visitor convenience
- Create and maintain design continuity between facilities
- Retain the successful elements of existing facilities
- Provide upgrades, modernization, and expansion of existing recreation facilities to meet current codes, standards, and patterns of use.
- Protect the natural and cultural environment.
- Minimize on-going maintenance costs

Design Requirements

The following documents establish the primary parameters for the conceptual design and master planning of the Lewis River recreation facilities:

- New FERC Project Licenses/ Lewis River Settlement Agreement (SA)
- Recreation Resource Master Plan (RRMP)
- ADA Site Evaluation
- Wildlife Habitat Management Plan (WHMP)

In some cases, the recommended site improvements go beyond the requirements of these documents. These recommendations are based on our evaluation of the sites and consultation with PacifiCorp representatives.

The RRMP lays out five implementation programs to assist in the establishment of the recreation enhancements:

- Recreation Facility Capital Improvements
- Recreation Facility Operations and Maintenance Program
- Recreation Dispersed Shoreline Use Program
- Recreation Monitoring Program
- Interpretation and Education (I&E) Program

This master plan is focused on addressing PacifiCorp's responsibilities for implementing the Recreation Facility Capital Improvements, while taking into consideration the other four programs.

ACRONYMS AND ABBREVIATIONS

2.5H:1V	Ratio of a slope, in this example, 2.5 horizontal unit of distance to 1 vertical unit of distance.
ADA	Americans with Disabilities Act
ADA Evaluation	Draft of Americans with Disabilities Act Site Evaluation for Lewis River Recreation Sites (PacifiCorp internal publication, preliminary draft)
ADAAG	American with Disabilities Act Accessibility Guidelines
ANSI	American National Standards Institute
CAA	Critical Area Assessment
Corps	United States Army Corps of Engineers
DDS	Drip disposal system
DNR	Washington Department of Natural Resources
DOE	Washington Department of Ecology
DOH	Washington Department of Health
EIS	Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
gpd	Gallons per day
gpcd	Gallons per capita per day
HCC	PacifiCorp Regional Hydroelectric Control Center
HTSS	Holding tank sewage system
JARPA	Joint Aquatic Resource Permits Application
OHW	Ordinary high water
OSS	On-site sewage system
PUD	Public utility district
RRMP	Recreation Resources Management Plan (PacifiCorp internal publication)
RV	Recreational vehicle, motor home
SA	Lewis River Settlement Agreement
SEPA	State Environmental Policy Act
TCC	Terrestrial Coordination Committee (PacifiCorp internal group)
UOAR	Universal Access to Outdoor Recreation: A Design Guide
USDA	United States Department of Agriculture
USFS	USDA Forest Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WHMP	Wildlife Habitat Management Plan (PacifiCorp internal publication)

Acronyms, Abbreviations, and Glossary

GLOSSARY

Accessible - in compliance with ADAAG or UOAR.

Allée - a straight walkway or promenade lined with trees on both sides

As-built drawings - architectural drawings that reflect changes made during the construction process, recording differences between the original design and the completed structure; record drawings

Bathymetry - an underwater topographic map

Black water - waste water from toilets and urinals

Critical Area - county designation of the following areas and ecosystems: wetlands, aquifer recharge areas, fish and wildlife habitat conservation areas, frequently flooded areas, and geologically hazardous areas

Cross-slope - slope that is perpendicular to the direction of travel

Drain field - an open area that receives the liquid effluent from a septic tank, where it is discharged through subsurface pipes and allowed to percolate into the soil

Gray water - waste water collected from sinks, showers, and laundry

Hazard tree - a tree that poses a danger to people due to its age, health, and/or location

Impervious surface - surface material that blocks the passage of water and keeps it from infiltrating into the soil; results in greater surface runoff

Native plants - species that occur within a specific habitat or biogeographical region prior to significant human impacts

Ordinary high water (OHW) - the highest level of the river bank that is marked by typical water flows, or the reservoir level of normal summer operations.

Pervious surface - surface material that allows water to percolate into the ground, allowing for the recharging of groundwater, and reduction of surface runoff

Project - refers to the Lewis River Hydroelectric Project

Reservoirs - refers to Lake Merwin, Yale Lake, and Swift Reservoir

Riparian - relating to, or living or located on the bank of a natural watercourse (such as a river) or sometimes of a lake or a tidewater

Rip-Rap - rock or other material used to armor shorelines, streambeds, bridge abutments, pilings and other shoreline structures against erosion

Septic System - an on-site system designed to safely dispose of biological sanitary waste

Stormwater - excess precipitation that is not retained by vegetation, surface depressions, or infiltration, and thereby collects on the ground surface and drains into a water body

Sump - a pit into which waste liquid is disposed, to be infiltrated into the soil

Swale - a shallow ditch used for conveyance and treatment of stormwater, usually vegetated

Top of bank - the break in slope between the bank of a watercourse and the adjacent dry land

Vault toilet - a toilet that collects waste in an underground vault or tank, which is pumped out periodically

Wetland delineation - a jurisdictionally binding determination conducted by a qualified professional of the extent and quality of a wetland

PART 2: PROJECT OVERVIEW

Overall Master Plan Program

Two documents generated the majority of the master plan program elements: the Lewis River Settlement Agreement, and the ADA Evaluation. Additional elements and the guiding principles were developed in coordination with PacifiCorp.

The following program includes overarching principles which guided the development of the site master plans, as well as specific requirements that apply to multiple sites or the project as a whole. The specific program elements for each site are detailed in Part 3 - Site Master Plans.

Guiding Principles:

1. Make pedestrian safety a priority.

2. Protect habitat for fish and wildlife such as bull trout, salmon, bald eagle, and elk. Maintain any designated buffer areas.

3. Preserve and enhance the integrity of shoreline and riparian areas.

4. Provide high quality recreational opportunities.

5. Provide efficient and clear vehicular circulation and parking, with an emphasis on safety.

6. Accommodate the current trend for larger vehicles and trailers, and larger tents.

7. Establish a continuity of style for structures and furnishings, which builds on the best of the existing PacifiCorp structures.

8. Use a consistent approach and methodology between sites. To the greatest extent practical, maintain similarity in the design of site elements such as parking, paths, campground drives, and shoreline work.

FERC New Project License Requirements:

9. Interpretation and Education Program:
   (By 5-year license anniversary)
   A. Coordinate the site plans with the interpretive program, currently in development by Sea Reach, Inc.
   B. Locate interpretive signage within each site.

10. Picnic Shelter:
    (By 7-year license anniversary)
    A. Provide one new day use group picnic shelter for use by boat-in users.
    B. The shelter shall be located at Yale Park, Cougar Park, or Beaver Bay Camp.

       (This master plan locates the shelter at Saddle Dam Park)
    C. The shelter must be placed where users can access the shoreline to beach boats.

ADA Evaluation Recommendations:

11. Evaluate each site for accessibility issues and opportunities, and make recommendations for improvements to bring each site into conformance with the Americans with Disabilities Act, using PacifiCorp's ADA Evaluation as a baseline.

Planning Process

Program Verification

The first major task in the process of developing this master plan was to determine the programmatic requirements. We organized these into two categories: program elements relating to the whole master plan or multiple sites, and program elements which are specific to a particular site.

The primary source documents for the programmatic requirements were the Lewis River Settlement Agreement (SA) and the ADA Site Evaluation. Lists of the program elements were compiled, then refined and clarified through direct consultation with PacifiCorp representatives. In some cases where options to fulfill the requirements were given in the source documents, we worked with PacifiCorp to establish a preference. PacifiCorp also provided additional program elements based on known needs that were not covered in the SA or the ADA Site Evaluation.

This task occurred primarily at the beginning of the master planning process, but coordination and refinement of some elements continued up until the end of the study. The final program is shown on the Overall Master Plan Program page in Part 2, and on the Program page for each site in Part 3.

Site Analysis

Information on the existing site conditions was gathered from several sources: site visits, topographic surveys, aerial photos, utility as-built drawings, and PacifiCorp visitor maps. Each source provided a piece of the overall picture which became the starting point for the conceptual site plans.

Site Visits

We walked each site multiple times throughout the design process, and established a thorough photographic record of the spaces and features to be addressed in the master plan. This on-the-ground investigation allowed us to gather information on vegetation, views, landform and slopes, and the condition of structures and amenities, which would not be available from any other source. We also took measurements of features such as campsites and the Saddle Dam horse trailer parking area, which we knew would not be included in the surveys.

The other main function of the site visits was to test various concept design options in the field, to see if what we put on paper made sense on the ground or felt right in the actual space. These field sessions provided many insights which improved the designs, and in a few cases, major design moves were conceived in the field and later confirmed on paper.

Topographic Surveys

The Woodland, Washington firm Spurlock and Associates produced new topographic surveys for each site except Swift Forest Camp. Because of the large areas covered by this master plan and limited budget for the surveys, we carefully defined the areas within each site where the topographic survey would be of most use based on that site's program. The level of detail to be shown was also calibrated to maximize the surveyed area, while providing the information relevant for this study.

Some of the smaller sites, with planned improvements covering the whole site, were surveyed completely. At other sites, large areas were omitted where survey information would be of limited use. An example of this is the new trail connection area along the base of Saddle Dam. Some large areas with significant improvements were not surveyed if other information such as aerial photos or as-built drawings would suffice for the purposes of this study. For example, the campground area of Beaver Bay Camp and the entire Swift Forest Camp site were not surveyed.

PacifiCorp provided rough bathymetry contours for all three reservoirs. The surveyor inserted the contours into the surveys in the immediate vicinity of each

site. The bathymetry contours are useful for general information about the slope of the banks and depth of the water; however they are not to be considered an accurate survey. Any in-water work should be based on a topographic survey at drawn down and not rely on the bathymetry contours.

Aerial photos provided by PacifiCorp were also inserted into the surveys. They provide a valuable context and a clear picture to back up the information in the surveys.

The surveyor left permanent benchmark monuments on each site, usually a rebar dowel cast in concrete. The surveys provide the spatial coordinates and elevation of each monument. These monuments will provide a direct spatial reference during construction, and will allow the surveys to be readily expanded, where needed, for the implementation phase.

The surveys are presented in Appendix B: Site Surveys.

Aerial Photos
PacifiCorp provided high-resolution color aerial photos for the larger area around each site, at resolutions between one-half foot per pixel and two feet per pixel. The detail visible in these photos makes them valuable tools; however they are of limited use in tree-covered areas or for analyzing landforms. The aerial photos are in the same map projection the surveys use, to allow a seamless alignment of the two.

The aerial photos are presented with overlays of the proposed site plans in Appendix C: Aerial Photos.

As-Built Drawings
PacifiCorp provided utility as-built drawings for previous utility work where available. Additional utility information was found in the County Environmental Health archives. However there are no records for many of the existing systems. Any of these that will be affected by future improvements will need to be surveyed during the implementation phase. Some non-utility information was gleaned from the as-built drawings, such as the layout of the campground drive network at Beaver Bay Camp.

PacifiCorp Visitor Maps
The visitor maps provided at each of the campgrounds and at Merwin Dam Park filled in information not available elsewhere, for example the number of campsites and reservable picnic tables, and the location of host campsites.

The visitor maps are presented in Appendix A: PacifiCorp Visitor Maps. Please note that the Merwin Park map was drawn in 1979 and does not show some current features such as the lower restrooms.

Code and Regulatory Review

Research into the codes, regulations, and standards relevant to the proposed improvements began in the early stages of this study. As the designs became more detailed and specific, they were reviewed in more detail for compliance with the applicable codes and regulations. The site plans presented in this document are developed to the master plan level; that is they are not intended to show compliance with every requirement contained with the various codes and regulations. Instead they were designed within those parameters to serve as a defensible base from which to produce the final construction and permit submittal drawings.

Further information on applicable regulations is contained in Part 2 in the Planning and Permitting, Accessibility, and Proposed Site Features sections.

Develop Site Plans

The site plans progressed through distinct phases of development, in a deliberate process which started with the main ideas, and then narrowed the focus down through multiple iterations down to the numerous details which support the main ideas.

Bubble Diagrams

The iterative process for developing the site plans started with generalized diagrams addressing the main programmatic elements for each site. For some sites several variations on these "bubble diagrams" were produced. The diagrams were presented to PacifiCorp representatives and collaboratively refined, often through reviewing the diagrams on-site.

Preliminary Site Plans

Based on feedback from PacifiCorp and our own observations in the field, we advanced the diagrams into more detailed preliminary site plans. These were intended to address all decision points for the site designs, but not to show all of the final detail. For most of the sites multiple options were developed, from which preferred options were chosen through several rounds of consultation with PacifiCorp representatives.

During the development of the preliminary site plans we also conducted an in-house design review session with senior members of our firm. The sites with the greatest design challenges were presented to these experienced designers, who, upon seeing the designs for the first time, were able to offer unbiased feedback and valuable insight. Their advice ranged from specific revisions of particular features, to establishing overarching principles which apply to all sites.

We produced a bound set of drawings which summarized the design decisions up until that point. Those drawings were circulated among PacifiCorp staff for review and comment.

Final Site Plans

Based on comments received from PacifiCorp staff, we solidified the remaining details of the site plans and began production of the final site plans which are presented in this document. We provided nearly-final versions of the site plans to PacifiCorp for informal review, and coordination with PacifiCorp on some of the final details continued until the drawings were complete.

Drawing Formats

Each site plan started as hand drawings on trace paper, using a topographic survey as an underlay, or in some cases using the PacifiCorp Visitor Maps while waiting for certain surveys to be completed. Once the designs progressed to a level of detail where more spatial accuracy was needed, we began drafting the designs as AutoCAD drawings, using the topographic surveys and aerial photos as digital underlays. We also drafted many of the existing site features which are outside of the surveyed areas, but relevant to the study, by tracing from the aerial photos. All of the major proposed improvements and most of the smaller details are represented in the AutoCAD drawings. The final site plans were drawn by hand, tracing over the AutoCAD drawings. The drawings were scanned and then annotated using Adobe InDesign software.

Draft Master Plan Document

The content for the master plan narrative was developed in tandem with the site plans. After completing the site plans, we organized the supporting information and composed the narrative. We designed the layout of the document to be easy to navigate and clear to read. Multiple copies of the complete draft master plan document were provided to PacifiCorp for review.

Final Master Plan Document

This final document incorporates the review comments received from PacifiCorp.

Planning and Permitting

PLANNING OVERVIEW

This master plan was developed with the understanding that future improvements will need to comply with the following codes and ordinances where applicable:

- Cowlitz County Critical Areas Ordinance – Chapter 19.15
- Cowlitz County Shorelines Management Master Program
- Cowlitz County Campground and Recreational Facilities Ordinance – Chapter 18.56
- Cowlitz County Private Roadways Ordinance – Chapter 11.36
- Skamania County Mobile Home and Recreational Vehicle Parks Ordinance – Chapter 18
- Skamania County Critical Areas Ordinance – Chapter 21A
- Skamania County Shoreline Management – Title 20
- International Building Code
- International Plumbing Code
- International Fire Code
- US Army Corps of Engineers Section 10 and Section 404
- Washington State Department of Ecology 401 Certification
- Washington On-site Sewage Systems 246-272A
- Washington Department of Health, Recommended Standards and Guidance (RS&G) (various documents)

PERMITTING OVERVIEW

Obtaining permits for PacifiCorp's parks and campgrounds along the Lewis River will require the approval of numerous departments and agencies across all levels of government: county, state, and federal. The proximity of these sites to protected natural features such as shorelines, wetlands, and streams means that the sites are subject to greater regulatory oversight. This section summarizes key regulations that shape the master plan and the permits needed to complete the improvements.

Throughout the permit review process, additional information, design changes or modifications may be required by a reviewing agency. These changes may conflict with project purpose, need, and other agency requirements: It will be the applicant's responsibility to resolve them.

County Permitting

Improvements to each park and campground will require building permits from the county in which it is located. Each application will provide key information including, but not limited to, plan drawings, utility plan, estimate of the amount of on-site grading, any required engineering data, evidence of a potable water supply, environmental checklist (SEPA), and fees. Permit review begins once a complete permit application has been submitted. The county will review permit applications for compliance to planning, environmental, environmental health, fire, and building codes. The processing time of permits varies depending on agency workload and the complexity of the project. The permit review may last several months; and if additional information is requested, such as an environmental impact statement (EIS) or a critical area assessment (CAA), the process may take a year or more. Sites where planned work may impact wetlands or wetland buffers such as Beaver Bay Camp, Speelyai Park, and Yale Park, could trigger county requests for additional information. Permit review time should be factored into project planning and scheduling.

Minor improvements, such as adding a short asphalt path to improve accessibility, may or may not require a building permit. The applicant may also request an exemption. The counties will make these determinations on a case-by-case basis. Coordinating with county staff during project development is recommended.

Depending on the specifics of the project, additional approvals and permits may be required. These may include, but are not necessarily limited to:

- Floodplain Permit
- Critical Area Permit
- Fill and Grade Permit
- Private Roadway Permit
- Shoreline Permits
- Wetlands Permit
- Systems Plan Review Permit
- Approval by Washington State Department of Transportation for new intersection with State SR 503
- County Environmental Health approvals for septic work
- Washington Department of Fish and Wildlife – HPA
- US Army Corps of Engineers (Corps) Permit
- Department of Ecology 401 Certification

State and Federal Permitting

All proposed improvements below the top of bank or high reservoir level, or near a wetland will require additional permits. These permits include local, state, and federal approvals and coordination. The process is generally initiated with a Joint Aquatic Resources Permit Application (JARPA), which is sent to Washington Department of Fish and Wildlife (WDFW), US Army Corps of Engineers (Corps), and Washington Department of Ecology (DOE). Each of these agencies reviews the application based on their specific regulations and requirements. The Corps and WDFW also coordinate comments and input from peer review agencies and the public.

The application will include key information summarizing impacts of proposed improvements, such as site area disturbed, volumes of earth, rock, and soil imported or excavated, structures and pilings installed, and floating dock area and materials. Information detailing construction methodology and temporary impacts will also be required. An overall permit strategy for each site, including impact avoidance, impact minimization and impact mitigation should be developed during the formulation of the final site design development.

It is possible that permit restrictions will limit or change the composition of the various site designs. Measures can be incorporated that comply with these restrictions such as grated dock surfaces, limited use of treated wood, and separation of curing concrete from the reservoir. New measures may become available by the time of implimentation; coordinate with agency staff to determine the best solutions.

The timeline to secure the various permits varies and is based on agency work load and project complexity. To reduce impacts on key fish species, work is limited to specific in-water periods. These time windows need to be factored into project planning and schedules.

Accessibility

Providing barrier-free recreation opportunities for people of all abilities is a priority of this master plan. Each site covered in this master plan will provide barrier-free access to that site's major recreational features and facilities.

The Americans with Disabilities Act of 1990 (ADA) requires that all new construction and alterations to existing facilities provide universal accessibility. The Lewis River Settlement Agreement (SA) expands on this by requiring that the existing recreational facilities also be renovated to comply with ADA requirements within seven years of issuing the new license, even when no other renovation is planned or anticipated during that first seven year period. Some future site improvements described herein such as campground expansions are scheduled for up to 14 years after issuing the new license. At these sites, the renovation of existing facilities for accessibility will precede the future site improvements.

The SA also requires PacifiCorp to first conduct an evaluation of accessibility needs at each recreation facility. Prior to this master plan, each site was studied, and the existing accessibility issues at each site and the specific recommendations to address them were compiled as the Draft Americans with Disabilities Act Site Evaluation for Lewis River Recreation Sites (ADA Evaluation).

This master plan contains the final accessibility evaluation and proposed accessibility improvements, which are intended to satisfy the ADA-related requirements of the SA.

PacifiCorp's draft of the ADA Evaluation served as the basis for all accessibility-related improvements proposed by this master plan. The surveys produced for this master plan provided valuable objective data for reference, and brought some new issues to light. We also used our own observations of the sites to expand on, and in some cases slightly modify, the ADA Evaluation's recommendations. In all cases this master plan proposes an equivalent or enhanced level of accessibility compared to the ADA Evaluation.

The proposed accessibility improvements in this master plan are shown and described at a conceptual level, without the detail needed for building permits or construction. However, this master plan was developed with an understanding of the ADA, and allows for full compliance with all requirements of the ADA when implemented.

The technical standards of accessibility for ADA compliance are set by the Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG), published in 1991. In any instance where the Washington State Building Code provides a stricter standard, that standard is applied. Some recreational facilities such as boat ramps and children's play areas are covered in the ADAAG, but it does not include guidelines for other facilities such as campsites and hiking trails. For recreational elements outside the scope of ADAAG, we used guidelines from Universal Access to Outdoor Recreation: A Design Guide (UAOR), which was developed as a public/private partnership between the USDA Forest Service and Project Play and Learning in Adaptable Environments.

Throughout this master plan, the terms "barrier-free," "universal access," and "accessible" are used as reference for compliance with the ADAAG and UAOR.

The identified accessibility issues are described in Part 3 in the Existing Condition section for each site. The proposed accessibility improvements are described in Part 3 in the Proposed Improvements section for each site.

The table on the following pages summarizes all proposed accessibility improvements, and also identifies the improvements to existing facilities that are required by the SA to be implemented in the next seven years, versus improvements related to future facility expansions.

Proposed Accessibility Improvement by Site (page 1 of 3)	Accessibility Standard	Existing Facility	Future Expansion	Pages in Master Plan
Merwin Dam Park				
Re-stripe existing accessible parking stalls to create 2 van accessible stalls and new access aisle (8 total accessible stalls)	ADAAG	X		25, 62
Replace gravel loop path with accessible asphalt path to connect accessible amenities throughout site	ADAAG	X		27, 62
Accessible asphalt paths down to beach and into water	ADAAG	X		27, 29, 62
Accessible gravel path to connect paved loop path to Marble Creek trailhead	ADAAG	X		27, 62
Improve Marble Creek Trail to Moderate Difficulty standard for recreation trails	UAOR	X		27, 62
Replace restroom signage and modify showers to remove barriers	ADAAG, ANSI	X		33, 63
2 picnic shelters with accessible picnic tables (12 total) and amenities	ADAAG		X	52, 63
4 accessible picnic tables on asphalt pads	ADAAG	X		53, 63
New play structure with accessible play features	ADAAG		X	53, 64
Speelyai Bay Park				
1 boat trailer accessible parking stall and access aisle near top of boat ramp	ADAAG	X		25, 69
2 van accessible parking stalls adjacent to day use area	ADAAG	X		25, 69
Accessible route to connect all accessible amenities	ADAAG	X		27, 69
Raised accessible crossing at top of boat ramp to replace existing curb ramps	ADAAG	X		27, 67, 69
At boarding floats, add handrails at transition ramp and modify bull rails	ADAAG	X		28, 69
Replace existing restroom with fully accessible restroom including drinking fountain	ADAAG	X		33, 70
Accessible vault toilet near top of boat ramp	ADAAG		X	33, 70
Replace 2 picnic tables in existing shelter with one accessible picnic table	ADAAG	X		53, 68, 70
Accessible picnic table on asphalt pad	ADAAG	X		53, 70
Cresap Bay Camp				
Re-stripe existing paving to create 1 boat trailer accessible stall near top of boat ramp	ADAAG	X		25, 74
Add signage to 2 existing accessible parking stalls to designate as van accessible	ADAAG	X		25, 74
Accessible path to connect accessible parking, restrooms, and boat launch	ADAAG	X		27, 74
Accessible path and painted crossings to connect campsites to day use area and boat launch	ADAAG	X		27, 74
Accessible paths at group camp to connect campsites, restroom, and shelter	ADAAG	X		27, 74
Replace or upgrade boarding floats to meet accessibility requirements	ADAAG	X		28, 74
Replace all restroom signage and modify showers at group camp to remove barriers	ADAAG, ANSI	X		33, 74
Upgrade two existing campsites in main campground and 1 existing campsite in group camp to accessible standards	UAOR	X		46, 74
Replace picnic tables in group picnic shelter with accessible picnic tables	ADAAG	X		53, 75
1 accessible picnic table on asphalt pad	ADAAG	X		53, 75
Move message center sign to accessible location	master plan recommendation	X		73, 75
Saddle Dam Park				
1 van accessible parking stall and 1 boat trailer accessible stall near top of boat ramp	ADAAG	X		25, 80
Add signage to 3 existing accessible parking stalls to designate as van accessible	ADAAG	X		25, 80
Stripe existing boat trailer turnaround to designate accessible connections	ADAAG	X		27, 80
Accessible path from boat trailer turnaround down to picnic area, picnic shelter, and boat launch	ADAAG	X		27, 80
Accessible path from new accessible parking to new accessible picnic table	ADAAG		X	27, 80
Gravel path to viewpoint, meeting Moderate Difficulty standard for recreation trails	UAOR		X	27, 80
Add bull rails to boarding float	master plan recommendation	X		28, 81
Replace restroom signage	ANSI	X		33, 81
Accessible vault toilet near top of boat ramp	ADAAG		X	33, 81
Picnic shelter with 3 accessible picnic tables	ADAAG		X	52, 81
2 accessible picnic tables on asphalt pads	ADAAG	X		53, 82

Proposed Accessibility Improvement by Site (page 2 of 3)	Accessibility Standard	Existing Facility	Future Expansion	Pages in Master Plan
Yale Park				
1 boat trailer accessible parking stall and access aisle near top of boat ramp	ADAAG	X		25, 86
4 accessible parking stalls adjacent to day use area, including 2 van accessible stalls	ADAAG	X		25, 86
Accessible route to connect accessible amenities near boat launch	ADAAG	X		27, 86
Accessible route to connect accessible amenities at day use area	ADAAG	X		27, 86
Accessible path down to beach and into water	ADAAG	X		27, 29, 86
Replace boarding floats with 3 new accessible boarding floats	ADAAG	X		28, 86
Replace restroom signage	ANSI	X		33, 87
Accessible vault toilet near top of boat ramp	ADAAG		X	33, 87
Accessible drinking fountain near restroom	ADAAG	X		85, 87
Replace 1 picnic table in shelter with accessible picnic table, and expand concrete pad	ADAAG	X		53, 88
3 accessible picnic tables on asphalt pads	ADAAG	X		53, 88
Cougar Camp				
1 van accessible parking stall and 1 boat trailer accessible stall near top of boat ramp	ADAAG	X		25, 93
Add signage to 4 existing accessible parking stalls at day use area to designate as van accessible	ADAAG	X		25, 93
Re-stripe existing accessible parking at east camp loop and add signage to designate as van accessible	ADAAG	X		25, 93
2 van accessible parking stalls at existing group picnic area, and 1 at existing group camp	ADAAG	X		25, 93
1 van accessible parking stall at new group camp, and 1 each at the two new restroom buildings in the east side campground expansion	ADAAG		X	25, 93
Extend accessible path at day use area to connect all accessible amenities in day use area	ADAAG	X		27, 93
Accessible path to connect existing group camp and group picnic area to day use area and restroom	ADAAG	X		27, 93
Accessible path in existing east side camp loop to connect accessible campsite, dishwashing station, and restroom	ADAAG	X		27, 93
Accessible path to connect boat launch with accessible parking	ADAAG	X		27, 93
Upgrade boarding float with transition plates and continuous bull rails	ADAAG, master plan recommend.	X		28, 93
Replace day use restroom with fully accessible restroom building	ADAAG	X		33, 94
At existing east side camp loop restroom, adjust shower shelves and door pressure	ADAAG	X		33, 94
Three accessible vault toilets, two of which will be connected by accessible routes: at boat launch and at new group camp	ADAAG		X	33, 94
Replace gray water sumps at existing east side camp loop with two accessible dishwashing stations	ADAAG, Cowlitz County code	X		34, 95
Upgrade 1 campsite at the existing group camp and 1 existing campsite in the east side camp loop to accessible standards	UAOR	X		46, 95
4 accessible campsites: 1 at the new group camp and 1 at each of the 3 new east side camp loops	UAOR		X	46, 96
1 accessible picnic shelter and fire pit at the new group camp	ADAAG		X	52, 96
4 accessible picnic tables on asphalt pads: 2 at the day use area, and 2 at the group picnic area	ADAAG	X		53, 96
Replace play structure with accessible play structure	ADAAG	X		53, 96

Proposed Accessibility Improvement by Site (page 3 of 3)	**Accessibility Standard**	**Existing Facility**	**Future Expansion**	**Pages in Master Plan**
Beaver Bay Camp	ADAAG			
Boat trailer accessible parking stall and access aisle near top of boat ramp	ADAAG	X		25, 100
Re-stripe existing accessible parking to designate 4 van accessible stalls: 1 each at the day use area, near the elevated wetland walk, the existing group camp shelter, and the existing restroom in the middle of the campground	ADAAG	X		25, 100
3 van accessible parking stalls: 1 near each new group camp shelter	ADAAG		X	25, 100
Accessible route to connect accessible amenities at day use area and boat launch	ADAAG	X		27, 100
Accessible path to connect the existing accessible elevated wetland walk with accessible parking	ADAAG	X		27, 100
Accessible path to connect accessible amenities at the existing group camp	ADAAG	X		27, 100
Modify boarding float bull rails	ADAAG	X		28, 101
Fully accessible restroom building in east campground	ADAAG		X	33, 101
3 accessible vault toilets, 1 connected to accessible route near day use area	ADAAG		X	33, 101
Add accessible dishwashing station to exterior of existing restroom	ADAAG, Cowlitz County code	X		34, 102
Upgrade 1 campsite at the existing group camp and 1 existing campsite in the west campground to accessible standards	UAOR	X		46, 102
Upgrade 3 existing campsites in the east campground to accessible standards for use until the campground redesign/renovation	UAOR	X		46, 103
3 accessible campsites: 1 at each of the 3 new group camps	UAOR		X	46, 103
Replace picnic tables in existing group camp picnic shelter with accessible picnic tables	ADAAG	X		52, 53, 103
Replace fire pit at existing group camp with accessible fire pit	ADAAG	X		103
3 accessible picnic shelters and fire pits: 1 at each of the 3 new group camps	ADAAG		X	52, 103
2 accessible picnic tables on asphalt pads at the day use area	ADAAG	X		53, 103
Swift Forest Camp				
1 van accessible parking stall and 1 boat trailer accessible stall near top of boat ramp	ADAAG	X		25, 108
1 van accessible parking stall at the day use area	ADAAG	X		25, 108
Accessible path to connect accessible amenities at day use area and restroom	ADAAG	X		27, 108
Striped accessible route connecting boat launch to accessible parking and vault toilet	ADAAG	X		27, 108
Add bull rails to boarding float	master plan recommendation	X		28, 108
At existing restrooms, upgrade signs to ANSI standard and modify sinks	ADAAG, ANSI	X		33, 109
Fully accessible restroom building in campground expansion	ADAAG		X	33, 109
Accessible vault toilet near top of boat ramp	ADAAG		X	33, 109
2 accessible campsites, one at each new campground loop	UAOR		X	46, 110
Upgrade 4 existing campsites to accessible standards, including accessible connection to nearest restroom	UAOR	X		46, 110
Accessible picnic shelter at day use area	ADAAG		X	52, 110
1 accessible picnic table on asphalt pad at day use area	ADAAG	X		53, 110
Accessible play structure at day use area	ADAAG	X		53, 110
Eagle Cliff Park				
1 van accessible parking stall	ADAAG	X		25, 113
Accessible path to connect accessible amenities	ADAAG	X		27, 113
Accessible vault toilet	ADAAG		X	33, 113
2 accessible picnic tables on asphalt pads	ADAAG	X		53, 113
All Sites				
Accessible interpretive kiosks	ADAAG		X	53

Schedule for Implementation

FERC Task by Location	Completion Target (Anniversary Year of FERC New Project License)								
	4	5	6	7	11	12	13	14	When Needed
Merwin Dam Park									
Day Use Facilites	X								
Picnic Shelters	X								
Marble Creek Trail	X								
ADA Improvements to Existing Facilities	X								
Speelyai Bay Park									
Restroom Replacement			X						
Day Use Parking at Quarry Area						X			
ADA Improvements to Existing Facilities			X						
Cresap Bay Camp									
ADA Improvements	X								
Saddle Dam Park									
Trail Connection		X							
Horse Trailer Parking		X							
Picnic Shelter				X					
ADA Improvements to Existing Facilities				X					
Yale Park									
Boat Ramp	X								
Parking Lot	X								
ADA Improvements to Existing Facilities	X								
Cougar Camp									
Day Use Restroom			X						
Existing Campsites								X	
Campground Expansion									X
ADA Improvements to Existing Facilities			X						
Beaver Bay Camp									
Separation of Parking from Wetland	X								
Campground Redesign							X		
ADA Improvements to Existing Facilities				X					
Swift Forest Camp									
Picnic Shelter		X							
Campground Expansion									X
ADA Improvements to Existing Facilities		X							
Eagle Cliff Park									
Park Improvements					X				
Remove Old Facilities South of Road					X				
ADA Improvements to Existing Facilities		X							

Proposed Site Features

PARKING AND VEHICLE CIRCULATION

The design of drives and parking, whether new or upgrades, prioritizes safety and clarity of circulation. The safety concerns include vehicle conflicts with pedestrians as well as vehicle-only incidents. Every practical opportunity has been taken to separate pedestrian circulation from main drive aisles, and maneuvering space for vehicles has been increased to more generous modern standards. Clarity is achieved first through simplifying the circulation as much as possible, and second by establishing a clear hierarchy of drive types. The benchmark of clarity for these designs is when a visitor is able to easily navigate the entire site with minimal assistance from signage.

This section describes the materials and approaches proposed throughout this master plan; specific applications for each site are found in Part 3 – Site Master Plans.

Parking Lots

Parking for boat or horse trailers is the most challenging design problem for a parking lot, and it drives the design for each lot where it occurs. Wherever practical and possible, stalls for trailers will be pull-through stalls. Because they don't require any reversing, the pull-through stalls are easier and safer to use than head-in stalls, and allow for more efficient circulation on busy days.

Asphalt Paved Parking
The parking stalls, no-parking zones, travel direction arrows, end islands, and parking stall designations will be marked with paint striping. Precast concrete wheel-stops will be used for head-in parking stalls along the edges of the lots. Boulders will provide a barrier at all edges where topography or other objects would not prevent vehicles from leaving the designated vehicular area.

Gravel Paved Parking
Individual stalls will not be marked in gravel lots; instead the drive aisles and rows of parking will be defined using boulders and logs. The boulders will describe islands at the ends of parking rows, and outline parking rows at the edge of the lot. Logs will define the angle for longer boat trailer stalls, and help delineate the edges of the drive aisles. Both boulders and logs will be embedded to approximately 1/3 of their total depth to ensure a permanent installation. Signage will be provided to indicate travel direction, special parking stall designations, and no-parking zones.

Accessible Parking
Accessible parking stalls and access aisles must be asphalt paved; the slope of the paving must not exceed 2% in any direction. Stall dimensions, striping, and signage must follow ADAAG standards.

Dimensions
Boat trailer stalls will be 10' wide, and vary between 35' and 60' in length.

Horse trailer parking stalls will be 55' long. The individual stalls will not be marked, so the width will vary from 12' to 20', depending on the needs of the users on a given day.

Head-in parking stalls for passenger vehicles will be 9' wide by 20' deep with 24' wide two-way drive aisles. In a few locations where available space is limited stalls will be 18' deep.

At head-in parking areas adjacent to a main campground drive, the front of the stall will be 30' away from the edge of the road. This leaves a 12' buffer zone from traffic for backing up and for loading and unloading.

Vehicle Circulation

Internal vehicular routes for use by visitors will range from two-way main access drives to one-way camp loop drives. In sites with a network of circulation, the drives are designed on a simple hierarchy: the main access

drive acts as an arterial leading straight from the entry to the main parking lot and boat ramp, while secondary drives lead to campsites and other features, and always loop back to the main drive.

A summary of the road design criteria used in the development of this master plan is provided below. All vehicular circulation has been designed in accordance with Cowlitz and Skamania County standards. All internal drives must be constructed to county fire apparatus standards.

Paving
All new and upgraded internal drives will be surfaced with asphalt. The load design must be constructed to meet current specifications for county public roadways. Routes dedicated only for maintenance vehicles are sometimes gravel paved or unimproved, depending on what conditions allow.

Dimensions
The minimum roadway width is 22' for two-way drives and 16' for one-way drives. Turns must have a minimum outside radius of 50'. A 13'-6" minimum vertical clearance is required for all drives.

Intersections
One-way camp loop drives are designed for traffic to flow in the clockwise direction, to allow safe backing of RV's into angled campsite parking stalls while looking out the driver's side window. This requires the intersection between the one-way camp loop and the two-way entry drive to clearly direct entering traffic to the left. These intersections are designed as a 'T' where the top bar leads entering traffic to the left, and exiting traffic faces a stop sign before turning left to exit. The new two-way camp loops at Swift Forest Camp are designed in a similar way, to encourage all entering traffic to drive clockwise, even though some of the exiting traffic will need to travel counter-clockwise.

Intersections with county or state roads will need to be designed and built to standards specified by the corresponding agency.

Road Grade
The road grade must not exceed 12%. All filling and grading must be conducted in accordance with current standards of the Washington State Department of Transportation for roads and bridges.

Drainage
The surface of the road must be graded to drain. Drainage facilities are required to be designed and engineered to provide no measurable increase in the rate of stormwater runoff into the receiving drainage for a 25-year storm event.

Signage
A sign stating the name of the road is required on all roads; sign design is specified in the Cowlitz County Private Roadways Ordinance. Each intersection must be signed to identify traffic directions and the camping space numbers served by the loop.

Removable Bollards
Locking removable bollards will be used to control vehicular access onto pedestrian paths which also occasionally serve as access for maintenance vehicles. Removable bollards allow unobstructed movement for pedestrians, while providing periodic access for vehicles.

PEDESTRIAN CIRCULATION

In recreation facilities much of the pedestrian traffic occurs informally without needing designated paths; this is intrinsic to the natural character of a recreation site, as opposed to the regimented sidewalk network of an urban area. This master plan makes pedestrian safety a priority by directing that informal pedestrian circulation through careful positioning of the destinations. For example, most of the passenger vehicle parking at Speelyai Bay Park is relocated adjacent to the day use area, so that visitors no longer have to cross the boat trailer parking lot.

Designated paved paths will be provided where they are needed because of concentrated foot traffic or to provide universal accessibility, as described below.

Asphalt Paths

Paved pedestrian paths will primarily be provided to serve as accessible routes for people of all abilities. These paths are designed to ADAAG standards, and will connect accessible parking stalls to the major amenities offered by each site. A secondary benefit of these paths is that they reduce or eliminate the wear and tear and accelerated erosion of many of the most heavily used routes.

Asphalt paved paths will be typically 5' wide. The loop path around the central lawn at Merwin Park will accommodate larger volumes of foot traffic, plus occasional maintenance vehicle use, so it will be 10' wide. The slope of the paths will not exceed 5% in order to conform with the ADAAG, and they will have a maximum 2% cross-slope for drainage.

Natural Surface Paths

Secondary paths that do not need to meet ADAAG guidelines will consist of a variety of natural surfaces. Even though these paths will not meet ADAAG guidelines, they will conform to the UAOR standard for "Moderate" access routes wherever practical. The "Moderate" standard includes parameters such as a minimum width of 36", maximum slope of 10%, and maximum cross-slope of 3%.

Gravel
Trail connections, such as the link along the base of Saddle Dam, will be gravel surfaced. The paths leading to walk-in campsites will be gravel surfaced, 5' wide for the main path and 4' wide for the branch to each site. The gravel will be ¾" and smaller, angular, and compacted for a firm, low-maintenance surface.

Wood Chip
A wood chip path leads visitors onto the hillside at Merwin Park, and defines the upper edge of a picnic area.

Earth
Informal trails indicated by dashed lines on the plans meander throughout campgrounds; these are intended to be bare earth surface with gravel or wood chips added only where drainage is an issue.

Defining Pedestrian Areas

Wood split rail fences can be used to define the limits of public access, or to divide programmed areas within the site. The rustic look of the wood fence will fit with the character of the parks and campgrounds - see page 31 for an example photograph.

The split rail fence will serve as a clear signal that access beyond is not allowed, but will not serve as a significant barrier. For securing sensitive areas, chain link fence or a similar barrier is recommended. Split rail fence also should not be relied on for control of vehicle traffic; boulders or other solid objects should be used instead. The exception would be that in highly monitored sites such as Merwin Park, split rail fences could be used to define parking areas or form the border between vehicular and pedestrian areas.

BOAT LAUNCH

The boat launch facilities throughout the PacifiCorp Lewis River system provide key access points for public water-dependent recreation needs. The facilities range in size, age and associated amenities. One key factor in the ramp design is the seasonal reservoir level variation which affects when boat access is feasible. Some ramps may be readily extended to allow a longer season of boat access. This can generally be accomplished by extending ramp surfaces down slope and protecting the exposed ends with rock. The work would require State and Federal permits, and would require special reservoir draw down during construction periods.

The boat launch facilities also include boarding floats to allow short term tie-up and loading. These are in various states of repair, from new to "end-of-their-service" life. Many of the boarding floats are exposed to a high energy wave environment which prematurely ages them. However, the cost of replacement floats is minor when compared with effective and elaborate breakwater solutions.

New docks are subject to environmental regulations which require grated deck surfaces, limits the use of treated wood, and closely scrutinizes size and location. Alternatively, docks can be replaced in-kind and in the same location with only minor additional requirements.

Modern boat launch design guidelines recommend that each has a restroom located near the top of ramp as well as an overhead light to assist with early departure or late return of boaters. A large trash receptacle, while not required, will reduce litter and debris potential at the boat launch and in the water.

Adequate parking and maneuvering area for boat trailers is critical to the success of a boat launch facility. Most facilities are oversized for a week day, and undersized for peak summer weekends. A successful model to meet demand while avoiding large paved areas is to provide a reasonably sized paved lot with curbs, landscape plantings, and pedestrian areas, and provide a separate overflow grass or gravel parking area.

Stormwater treatment for impermeable surfaces related to the boat launch can be integrated into the hardscape parking within the site and along the perimeter zone. Stormwater treatment of the ramp surface and adjacent docks is generally not required and of limited feasibility.

Accessibility

All boat launches will be brought into conformance with the accessibility guidelines of the ADAAG. An accessible route is required to connect terrestrial facilities such as parking to all accessible boat slips on the boarding float. However the ADAAG contains a number of exceptions regarding slope, landings, and handrails, which make building accessible routes more practical at boat launches.

The number of accessible boat slips required is determined as a proportion of total length of dock used as boat slips. Each boat launch covered in this master plan is required to provide only one accessible boat slip. However the special conditions required to make a boat slip accessible are so minimal that we recommend making the whole length of each boarding float conform to ADAAG.

We recommend that each boarding float feature continuous low bull rails to serve as edge protection. These are not required by ADAAG, but they will enhance safety by preventing wheelchairs and other wheeled devices from rolling off the edge of the dock. They also allow greater flexibility of location for boat tie-up than standard eye cleats. ADAAG requires 5' wide clear openings in the edge protection at accessible boat slips, but it also makes an exception for edge protection that is no more than 4" high and 2" wide. Therefore all new bull rails will fall within those size parameters. Some existing boat launches already feature continuous bull rails that are somewhat larger than allowed by that exception. These bull rails will be modified with sections of smaller edge protection to bring them into conformance with ADAAG.

WATER ACCESS AND SWIM AREAS

Water is a main attraction in PacifiCorp parks and campgrounds on the Lewis River. Currently all PacifiCorp sites provide designated areas for people to recreate along the water's edge. These occur where the slope of the bank is gradual enough to allow people to safely access the water. Informal trails and erosion give evidence that users approach the shore even where it is not convenient, over the tall steep banks.

All sites except Eagle Cliff Park provide a designated swim area. These are generally located off gently sloping sandy banks. As a safety precaution, swim areas are demarcated by floating booms to alert boaters to keep clear of the area.

This master plan proposes improvements to water access at the Lewis River sites. These include adding new shoreline access points by re-grading the tall, steep banks to create a more gentle slope down to the water, and expanding one of the swim areas.

In the interest of universal accessibility, one accessible path connecting accessible parking stalls to the edge of water in a swim area will be provided at Lake Merwin, and one at Yale Lake. Multiple options were evaluated for each reservoir, and the ideal sites for locating these paths to the edge of the water were determined to be Merwin Dam Park and Yale Park.

SHORELINE STABILIZATION

The shorelines along the reservoirs of the Lewis River are dynamically adjusting to the reservoir elevations as controlled by the dams. The reservoirs are relatively recent introductions on the geologic time scale, and the water is causing the loose volcanic soil that was once far from water to actively erode inland. This erosion will not stop until it has formed a stable, low-angle slope.

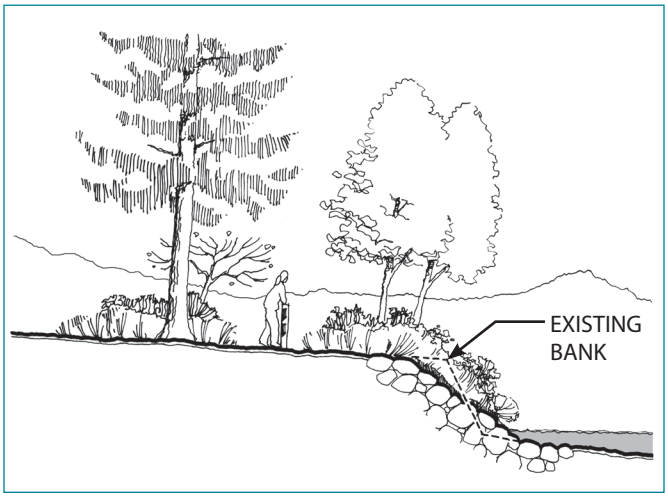
Currently the majority of the banks are steep and unstable, and often tall and overhanging. These steep banks pose safety hazards where they can be easily reached by the public, and in some places the ongoing erosion has actually cut into recreation areas, reducing their usable size.

The surface elevation of each reservoir varies within a range of operation, with a maximum level established by dam constraints. The bank below maximum reservoir elevation has established generally stable slopes. Generally, wind waves and current at high reservoir levels are the principal causes of erosion. Some of these erosion issues are caused or accelerated by human access in the campground areas.

Over the years, shoreline stabilization has been addressed with varying degrees of success within the PacifiCorp properties. Due to the steep bathymetry, highly erodible gravels and close proximity of improvements, many typical solutions are not available or workable. There is also a general recommendation from regulatory permitting agencies to reduce the amount of rip-rap within the river system. Rip-rap has historically been effective at controlling erosion in similar situations.

Given the regulatory constraints associated with rip-rap, and the opportunity to address upland planning in the master plan, three stabilization options have been developed. These solutions only address stabilization in recreation areas where public access is allowed. The fourth option is proposed for publicly accessed areas where the first three options are not practical.

Option A – 1.5H:1V Slope

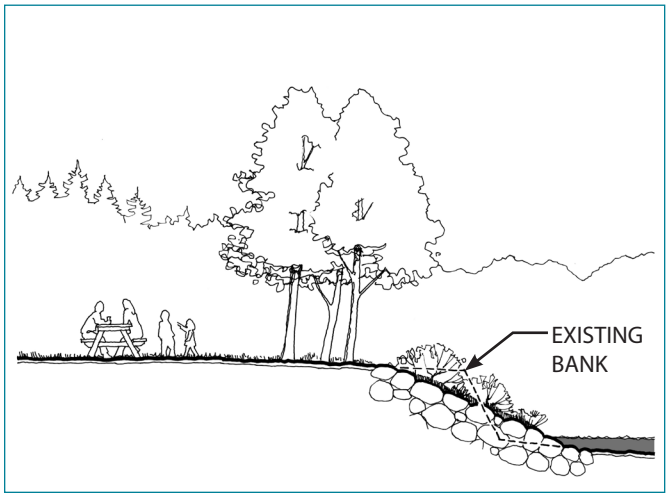


This approach will generally be used for taller banks, and where horizontal space is limited. The eroded and unstable bank will be re-graded to a 1.5H:1V slope. A layer of round native stone/boulders salvaged from avulsions along roads or project excavations will be placed on the graded slope, over a geotextile fabric. In contrast to a rough rip-rap slope, the large round stones will be carefully placed, to have a relatively even surface. The finished grade will represent a balance of cut and fill.

The voids between the larger stone/boulders will be filled with native gravels and soil, and planted with native shrubs. The slope near the water will be planted with riparian species, and higher up the slope more drought tolerant upland species will be planted.

To discourage visitors from approaching the steep edge, a split rail wooden fence will be installed six or more feet behind the new top of slope.

Option B – 2.5H:1V Slope



This approach will generally be used for lower banks, and where an uninterrupted view over the bank is desired, such as at a picnic area. The approach is similar to Option A, however this shallower slope will be graded at a 2.5H:1V slope. This will allow for the use of smaller rock, and the more gradual slope will not be a safety hazard, thus negating the need for a split rail fence along the top of slope.

Split rail fence

Option C – Sloped Water Access

This approach will be used at strategic locations at Speelyai Bay Park and Beaver Bay Camp to allow visitors access to the water's edge. Options A and B however, are intended to discourage visitors from descending to the water. The steep banks at the above locations will be graded back to form a bowl-shaped area between 8H:1V and 10H:1V slope. This gentle slope is naturally more stable and will resist further erosion.

Options A, B, and C will impact upland area and directly eliminate some large trees. Cut trees, complete with branching, should be retained where possible and placed below the water line to provide habitat in mitigation for potential impacts of the work. Options A, B, and C will require permits from local, state and federal regulators.

Option D – Minimal Intervention

In some cases, the height of the eroded bank may drive the cost of stabilization high enough to outweigh the benefit of protecting the upland area. Where this is determined, the bank can be allowed to erode over time and form a lower angle, stable slope on its own. A wood split rail fence should be installed behind the bank to discourage visitors from approaching the unstable edge.

Eroded bank at Beaver Bay Campground

NATURAL RESOURCES

All recreation facilities covered in this master plan are located in close proximity to protected natural resources such as fish and wildlife habitat conservation areas, shorelines, and wetlands. These natural resources are regulated by numerous local, state, and federal agencies – each with different requirements and restrictions. Current (2009) regulations guided the development of this master plan. However in some cases proposed improvements overlap required buffers or setbacks, based on direction from PacifiCorp. During the permitting phase, mitigation or other creative solutions will be needed to work out these conflicts with the regulatory authorities.

This master plan was developed using approximate boundaries of probable protected wetlands provided by PacifiCorp. Prior to implementation of proposed improvements, PacifiCorp will need to perform wetland delineations to confirm the presence, location, and quality of protected wetlands that may be impacted by project development. The delineated limits of the wetlands, as well as their quality classification will determine the location and width of required buffers. Other critical area determinations may be required by the two counties during the permitting process. As more information becomes available, changes to the site plans may be required.

For any area where this master plan proposes development on Wildlife Habitat Management Plan (WHMP) lands, further consultation will occur with the appropriate parties.

VEGETATION

Healthy native vegetation contributes greatly to the overall experience of day use visitors and campers who may have traveled great distances to recreate and relax in the scenic and natural setting of the Lewis River system. Disturbance to the existing native vegetation should be minimized in the course of making project improvements. The final layout of roads, campsites, structures, and parking should be done in the field. Where practical, adjustments should be made to preserve significant trees, as they are important natural assets to the site and new plantings will take many decades to mature.

A hazard tree assessment should be conducted for each site. While declining or dead trees provide important habitats in a forest ecosystem, they pose a safety hazard in areas regularly trafficked by park and campground users. Hazard trees in these areas should be removed.

New native trees should be planted to replace those that have been removed. Selection of the tree species should be evaluated on a case-by-case basis. In general, long-lived species such as big-leaf maple, Douglas fir, western red cedar, and western hemlock should be planted rather than short-lived species such as alder. In all new plantings, species should be selected carefully for their ability to thrive in the specific conditions of that site.

Grove of native trees and shrubs at Cougar Camp

RESTROOMS

The existing restrooms at the PacifiCorp recreation facilities vary in age, size, and amenity. The older restrooms do not meet modern accessibility standards and are sometimes sited in impractical locations. These older restrooms are being gradually phased out, and replaced with larger modern restrooms. Most remaining restrooms will be upgraded to meet current accessibility standards.

The restrooms built since 1992 typically have architectural features similar to other newer buildings, which have contributed to the distinctive identity of the PacifiCorp parks and campgrounds. The most conspicuous of these features are the reddish-orange standing-seam metal roofs. The exposed wood rafters, low gable roof profile, and broad roof overhangs also express this identity. The detailing of the concrete masonry is consistent between the newer restrooms, featuring a reddish band at shoulder height. This detail is also reflected in the low masonry walls of the Cresap Bay group camp picnic shelter. A successful element of the larger restrooms, including the one at the Cresap Bay Camp day use area, is the use of a monitor roof to allow natural light into the interior.

Existing restroom building with monitor roof at Cresap Bay Camp Day Use Area

Flush Restrooms

To reinforce the continuity of design, the architectural features described above will be incorporated into new flush restroom buildings. In most cases it will be most economical to build pre-engineered restrooms if they can be adapted to include the desired architectural features and restroom amenities. Depending on the level of expected use, new flush restrooms may also include showers and dishwashing stations.

Vault Toilets

Vault toilets will be installed where usage is expected to be relatively low, and where the area required for septic treatment is not available. They are proposed to be installed near each boat ramp; this has recently become a common feature and their presence is expected to decrease water pollution.

The vault toilets will be pre-manufactured units. We recommend the Cascadian model by CXT, Inc., which is available in single and double stall versions. They are accessible, the concrete construction is extremely durable, and the architectural style is unobtrusive and fits with the regional vernacular. A roof can be selected with the texture and color to match the other PacifiCorp buildings.

The black exhaust pipes on CXT vault toilets use solar heat to create a convective current, which keeps sewage odors out of the restroom interior. For this reason, the vault toilets should always be positioned to provide as much sunlight on the exhaust pipe as possible.

CXT, Inc. Cascadian vault toilet

Siting Restrooms

The locations of new restrooms are partially driven by Cowlitz County Code, which requires that all campsites accommodating an RV be within 300' of a restroom building. All proposed universal campsites will fall within that required radius from a flush restroom. No similar requirement is given for car-only or walk-in campsites. Some will be near flush restrooms, but vault toilets will be provided for non-RV campsites that are more distant. Some existing campsites are nearly 600' from the nearest restroom: New non-RV campsites will be no more than 400' from the nearest vault toilet or flush restroom.

Dishwashing Stations

Cowlitz County Code requires all campsites to be within 300' of a sanitary facility for disposal of gray water, such as used dishwashing water. To partially fulfill this requirement, dishwashing stations with sinks, potable water faucets, and small counters will be provided on the outside of every flush restroom building serving a campground, under the building's roof overhang. To serve campsites which are distant from a flush restroom, similar standalone dishwashing stations will be provided with a simple roof structure for weather protection.

The dishwashing stations will conform to relevant ADAAG standards for sinks, counters, and controls, and will be connected by an accessible route where applicable.

See Part 3 – Site Master Plans for details on the proposed restrooms and dishwashing stations at each site. See also Part 2 – Utilities and Sewage Disposal for discussion of septic treatment systems associated with these facilities.

UTILITIES AND SEWAGE DISPOSAL

The existing facilities covered in this master plan range in age, design, and jurisdiction. Current sanitary sewer treatment strategies include a mix of contained vaults, traditional gravity fed septic, and pumped septic systems. The facilities are seasonal and in general are closed during winter. Information on existing facilities is incomplete; what is presented in this master plan has been drawn from PacifiCorp archives, and both Cowlitz and Skamania Counties' Environmental Health archives.

This section is a general discussion of regulation and available options for septic systems proposed by this master plan. Recommendations specific to each site are contained in Part 3 – Site Master Plans. The current and proposed facilities are also summarized in the Sewage Treatment and Disposal Matrix on the following pages.

Regulation

All sewage treatment and disposal systems are regulated by the Washington Administrative Code (WAC), which prescribes acceptable system types, design assumptions and required parameters. In addition to new facilities, existing facilities are required to meet current code if they are modified.

The regulatory authority for approval of On-site Sewage Systems (OSS) is established by daily flow volume and type of system. Smaller volume systems are controlled by the county Environmental Health Specialist; medium sized systems are controlled by the Washington State Department of Health (DOH). Large systems are controlled by the Washington State Department of Ecology (DOE).

The jurisdiction limits are listed below:

Flow Volume	Authority
3,500 gallons and less	County
Between 3,501 and 14,500 gallons	DOH
Greater than 14,500 gallons	DOE
Greater than 3,500 gallons with mechanical treatment	DOE
Lagoon systems	DOE
Public sewer systems	DOE

When planning for a new facility or upgrades to an existing facility, the first step is to establish the regulatory authority. Generally, a facility is interpreted as being the individual building providing water and sanitary disposal, rather than all buildings on a site being considered together. Specifically, the regulatory authority is determined by the flow from an individual restroom, not the total flow for all restrooms within a campground.

With the exception of Cresap Bay Camp, all the facilities are under the 3,500 gallon threshold and are regulated by the County Environmental Health Specialist. Swift and Eagle are within Skamania County, and the remaining sites are in Cowlitz County, which requires consultation with the appropriate contact. While the guidelines and regulations are generally set up for single family septic systems, provisions do exist for more complex systems. Special conditions and unique applications do require some interpretation; however guidance provided by the counties has been consistent. The local interpretation of the State Code was consistently applied throughout the preparation of this plan.

Establishing a flow volume for each building or system is the foundation of determining what rules apply and with which agency to coordinate. Determination of flow volume is based on a balance of published values, rules of thumb, knowledge of the site-specific conditions, input from Environmental Health Specialist, and prior experience. Site domestic water usage can be used to establish sewer flows with 80% as a common value for water-to-sewer conversion. In most cases, accurate volume usage data is not available at the smaller campgrounds. The table on the following page was prepared based on published information, discussion with operators, and information provided by the DOH on past projects. These guidelines govern both black water and gray water. Black water is from toilets and urinals, whereas gray water is collected from sinks, showers, and laundry.

Typical use volumes:

Use	Flow Rates
Restroom: toilet/sink	5 gpcd
Restroom: toilet/sink/shower	10 gpcd
Campsite	50 gpd/site
RV campsite, no sewer	75 gpd/site
RV campsite, with sewer	100 gpd/site

Gray Water
If a sink is provided for dishwashing with piped water, the drain must be directed to either a discrete gray water treatment system or combined with a black water system from a nearby restroom. A grease trap must be provided as pre-treatment for any dishwashing sink.

At the time of writing, if there is no sink to encourage washing, then drinking water may be provided at a water standpipe source with a simple gravel splash pad, rather than a gray water disposal system. Drinking water standpipes will be provided at an approximate interval of 150' throughout campgrounds where drinking water is not already provided by a dishwashing station or other source.

Because drinking fountains typically include a basin, they may be interpreted to be the same as a sink by the local authority. If this is the case, gray water disposal would be required, although the code does not specify treatment for drinking fountain waste.

Vault Toilets
Vault toilet facilities are generally allowed if designed according to code and located per required setback requirements. If running water is provided near a vault toilet, a gray water disposal system is required, which could consist of a septic tank and drain field, or another approved system.

Setbacks
One key WAC parameter for master planning is the setback requirement from water bodies and wells. Layout options were limited in the master plan by these parameters at some sites. Introduction of nitrogen into nearby water bodies is a recent concern and at some locations in Washington State, special nitrogen removal systems are required. Specific setbacks that apply to this master plan are as follows: septic tanks and vault toilets must be at least 50' from ordinary high water (OHW), and 100' from a drinking water well. Septic disposal fields must be located at least 100' from OHW or drinking water wells.

Sewage Disposal Options

New OSS facilities will require a process, including digging infiltration test pits, to establish soil absorption capacity, selection of appropriate treatment and disposal systems, final design, and permit approvals.

Traditional Septic System
Traditional septic systems start with a two-chambered tank fed by gravity flow. Black water enters the tank where solids and floating matter are separated in the first chamber, and the remaining fluid flows into the second chamber. In this larger chamber, bacteriological decay of the waste occurs in a septic (oxygen free) environment. Clear fluids flow from the septic tank by gravity into a disposal pipe below the surface, and continue into the soil for final treatment.

To reduce vertical separation in the drain field, post septic tank treatment may be required by using an intermittent sand filter or recirculating gravel filter system. These systems are less reliant on the soil for treatment, but are still dependent on the native soils for final disposal of wastewater.

Locating the drain field is the primary challenge. For the traditional subsurface disposal systems, the drain field must be undisturbed, unpaved, and protected from future vehicle traffic. In addition to the new

field, an area must be designated and protected for a replacement field as a reserve, effectively doubling the required area. Disposal can either utilize gravity, in which the field must follow grade from dispersing point, or utilize pressurized distribution. Since the project sites are typically within existing campgrounds, or are heavily wooded, there are few if any opportunities for new traditional drain fields.

Proprietary Treatment Systems

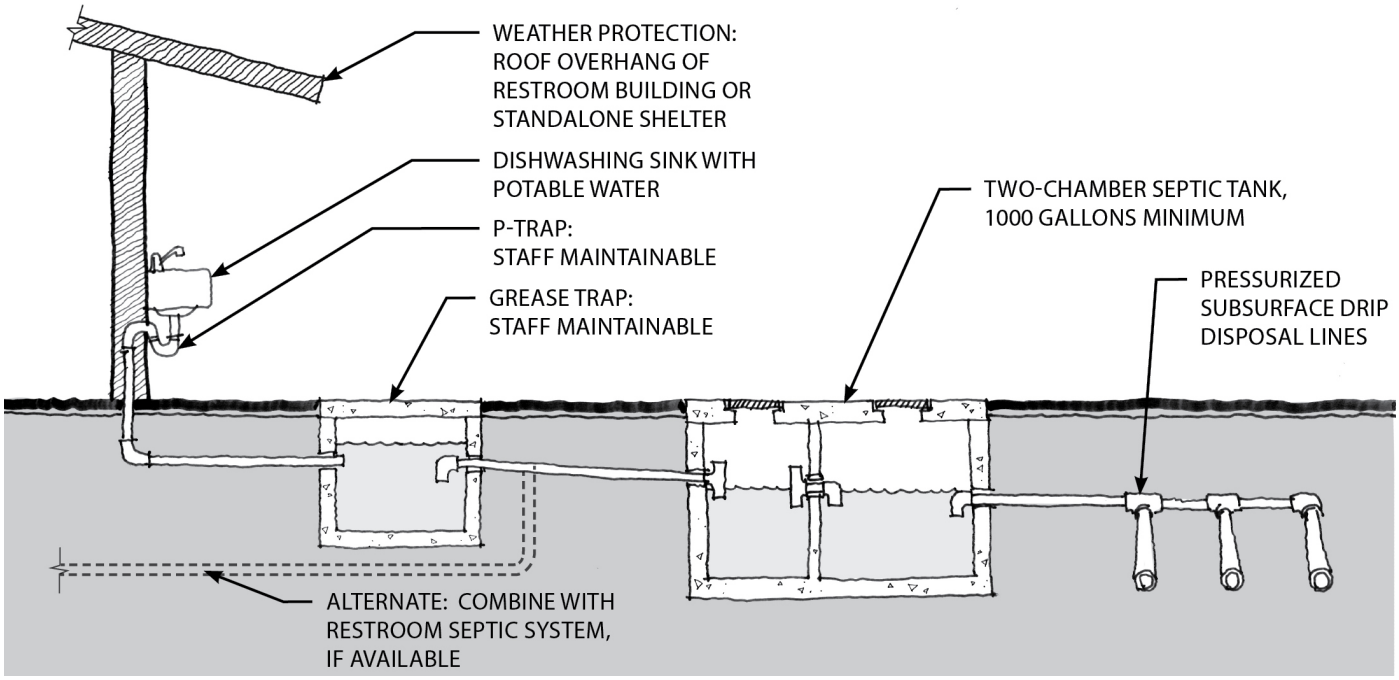
Proprietary on-site wastewater treatment products are permitted for treating influent using aerobic processes or advanced filtration. These systems are less reliant on existing soil for treatment, but treated waste water is still dispersed into the native soil. Seasonal operation of the campground may increase the complexity of these types of systems, as they may need to be winterized due to lack of influent. The bacteriological process would have to be restarted in the spring.

Drip Disposal System

The challenges to septic disposal design presented by most of the sites include high water tables, poor soil conditions, and limited or awkwardly shaped available space. For drain fields, the one option that appears best suited to meet these challenges is the subsurface drip disposal system (DDS).

In a DDS system, treated effluent is delivered via narrow, flexible, pressurized pipes to drip emitters located below the soil surface. This allows installation by hand in narrow, shallow trenches around existing trees and on hill slopes with minimal disturbance. This type of system can be located a reasonable distance from existing septic tanks and upslope of the restroom area.

The primary concern is plugged emitters caused by system overloading and poor maintenance of filtration systems. Because of the shallow burial, accidental damage is also a concern, which can be mitigated



Dishwashing Station and Gray Water Disposal

by careful location of the system. Modern systems allow for remote operation and monitoring and can be integrated into an existing telemetry system.

Reuse Existing Systems
Several of the site master plans include new facilities which are intended to add to the load on, or the reuse of an existing septic field. Any change to the load on a septic system will require verification of the existing system size, function and condition. Generally a licensed on-site designer or Professional Engineer would evaluate the entire system, have the system cleaned and sized, dig test pits and be present for an inspection by the County Environmental Health Specialist. Working with the Specialist, an existing capacity and loading rate would be established and the capacity would be agreed upon. In some cases the existing septic system may not be able to handle the additional load, so a new, separate disposal system would need to be installed.

RV Waste Disposal

As RV use increases in popularity, providing a convenient RV dump station is important to meet demand. A dump station will be added or relocated at two campgrounds to meet this need. RV dump stations may connect to a city sewer system, utilize a septic tank and drain field for treatment or be a simple holding tank sewage system (HTSS).

Modern RV's have two holding tanks: one for gray water and one for black water, and sizes for these tanks can range from 50 gallons to 80 gallons. Typically, both black and gray water are drained at the same time, and a 50 gallon volume per dump is reasonable to assume. A holding tank stabilizer is placed in the black water tank by a majority of RV users. Some of this 'blue powder' stabilizer contains chemicals that slow bacteriological action as well as a strong deodorant. This waste is very high strength and the chemicals can impact septic tank operations.

It is generally good practice to combine a dump station with a high flow restroom including showers and laundry to dilute the RV waste strength. If this is not feasible, a simple holding tank, frequently pumped and delivered to an advanced treatment facility is the best solution.

DRAINAGE

Parking Lots

The primary concern for drainage is polluted stormwater runoff from parking lots entering water bodies. Many of the existing parking lots in the Lewis River recreational facilities are positioned very close to the edge of a reservoir, river, or wetland, and the runoff drains directly into the water. That runoff contains numerous pollutants from parked vehicles.

Cowlitz and Skamania Counties do not currently regulate stormwater runoff from parking lots, but they are in the process of developing regulations which may be in effect by the time most improvements are implemented. This master plan uses typical rural stormwater standards as an assumed baseline, and in some cases recommends measures beyond those standards where significant benefit can be achieved for minimal cost.

Typically, runoff from all new parking lots with an impervious surface (including asphalt and gravel) is required to be collected and treated to remove pollutants prior to being released off the site. When existing parking lots are upgraded, treatment is typically required for the runoff created by any increase in the impervious area.

All parking lot improvements proposed by this master plan do not increase the impervious area; thus the runoff is not required to be treated. However, we recommend that runoff from all parking lots be collected and treated as a matter of stewardship for the land and for protection of the water quality in the Lewis River system.

See Part 3 – Site Master Plans for specific recommendations for each site. The typical method proposed for treating runoff is to grade the parking lot to drain into a vegetated swale. Native wetland plants in the swale filter pollutants from the runoff before it is either released into the reservoir or infiltrates into the soil. This method is highly effective while being relatively inexpensive to construct and low maintenance over time. Swales for sites where impervious surface is not increased will not be regulated and can be designed to balance desired pollution control with the cost of construction.

Private Roads

Cowlitz County code does cover runoff from private roads. Drainage facilities are required to prevent a measurable increase in the rate of stormwater runoff from new roads into the receiving drainage for a 25-year storm. The new drives proposed in this master plan are unlikely to create runoff which leaves the site. Cougar Camp is the only site with significant amounts of new road on previously undeveloped area, but runoff from these new camp loop drives is unlikely to reach the reservoir. The final design of each site will need to be evaluated by a civil engineer, and small stormwater detention ponds may be required in limited circumstances.

SEWAGE TREATMENT AND DISPOSAL MATRIX

Site	Existing Site Facility	County	Existing Disposal System	Appox. Year
Merwin Dam Park		Cowlitz		
	Lower/primary flush restroom		3400 gallon single cell primary 3200 gallon 2-cell septic, with pump chamber 2 pod gravel-less drain field - 4 x 150 ft lines per pod	1995
	Upper restroom		No Information on File at County	Unknown
Speelyai Bay Park		Cowlitz		
	Existing flush restroom at day use area		No information on file at County	Unknown
	Two drinking fountains and one water faucet		Unknown	Unknown
New Facility				
New Facility				
Cresap Bay Camp		Cowlitz		
	Four flush restrooms, three with showers		DOH - LOSS Permit COW-003, 14,000 GPD system	1992
	Group shelter with sink		Unknown	1992
Saddle Dam Park		Cowlitz		
	Flush restroom at parking lot		Single tank septic - size unknown Four line disposal drainfield	1978, 1994
	Drinking fountain at picnic area		Unknown	Unknown
New Facility				
New Facility				
Yale Park		Cowlitz		
	Flush restroom		No Information on File at County	1994
	Two drinking fountains and one water faucet		Unknown	Unknown
New Facility				
New Facility				
Cougar Camp		Cowlitz		
	Flush restroom with showers at day use area		No Information on File at County	Unknown
New Facility				
	Flush restroom with showers at east side camp loop		No Information on File at County	Unknown
	Sink in existing group camp shelter		Unknown	Unknown
New Facility				
New Facility				
New Facility				
New Facility				
New Facility				
New Facility				
New Facility				
New Facility				
Beaver Bay Camp		Cowlitz		
	Flush restroom with showers, by RV dump		Single compartment 2700 gallon primary tank Single compartment 1500 gallon tank with screened outlet Three 2700 gallon single comp. dose tanks Dual zone drain field, with reserve allowance	1994, with 2006 upgrades
New Facility				
	RV dump station - (design 600 gpd 1994)		Two 1500 gallon serial tanks, pumped Drain field- existing -810 sqft - 270 lf, 36" deep	1994
	Flush restroom by parking lot		No Information on File at County	Unknown
	Flush restroom in east campground		No Information on File at County	Unknown
	Sink in existing group camp shelter		Unknown	Unknown
New Facility				
New Facility				
New Facility				
New Facility				
New Facility				
New Facility				
New Facility				
Swift Forest Camp		Skamania		
	3 flush restrooms		No Information on File at County	
	RV dump station in open gravel lot		No Information on File at County	
New Facility				
New Facility				
New Facility				
New Facility				
Eagle Cliff Park		Skamania		
	Vault toilet south of road		Not currently in use	Unknown
New Facility				

	Proposed Improvement	Treatment	Disposal Strategy
			Merwin Dam Park
	(No proposed changes to disposal system)		
	Remove restroom and abandon disposal system		
			Speelyai Bay Park
	Remove restroom; recertify existing drain field for possible reuse		
	(No proposed changes to disposal system)		
New	Flush restroom without showers	Septic tank/grease trap	Recertify and reuse existing drain field, or install new drip disposal system
New	2-stall vault toilet near top of boat ramp	None	Contained vault - pump as needed
			Cresap Bay Camp
	(No proposed changes to disposal system)		
	(No proposed changes to disposal system)		
			Saddle Dam Park
	(No proposed changes to disposal system)		
	Relocate drinking fountain		Gravel sump, or drip disposal system if required by County Environmental Health
New	2-stall vault toilet near top of boat ramp	None	Contained vault - pump as needed
New	1-stall vault toilet at Horse Trailer Parking	None	Contained vault - pump as needed
			Yale Park
	Recertify existing drain field for added load from drinking fountain		
	(No proposed changes to disposal system)		
New	Drinking fountain near restroom		Recertify and reuse existing drain field, or install new drip disposal system
New	2-stall vault toilet near top of boat ramp	None	Contained vault - pump as needed
			Cougar Camp
	Remove restroom; recertify existing drain field for reuse		
New	Flush restroom with showers to replace existing		Reuse existing drain field
	Recertify existing drain field for added load from dishwashing stations		
	(No proposed changes to disposal system)		
New	RV dump station	Holding tank	Contained vault - pump as needed
New	2-stall vault toilet near top of boat ramp	None	Contained vault - pump as needed
New	1-stall vault toilet at new walk-in campsite loop	None	Contained vault - pump as needed
New	1-stall vault toilet at new group camp	None	Contained vault - pump as needed
New	Two flush restrooms with showers and dishwashing stations	Septic tank/grease trap	Drip disposal system
New	Picnic shelter at new group camp with dishwashing sink	Septic tank/grease trap	Drip disposal system - or combine with day use restroom drain field
New	Two standalone dishwashing stations at existing/renovated campsites	Septic tank/grease trap	Drip disposal system - or combine with existing restroom drain field
New	Standalone dishwashing station at new walk-in campsite loop	Septic tank/grease trap	Drip disposal system
			Beaver Bay Camp
	(No proposed changes to disposal system)		
New	Add dishwashing station to outside of existing restroom		Recertify system for added dishwashing station flow
	(No proposed changes to disposal system)		
	Remove restroom; recertify existing drain field for possible reuse		
	Remove restroom and abandon disposal system		
	(No proposed changes to disposal system)		
New	Flush restrooms with showers and dishwashing station in east campgd.	Septic tank/grease trap	Drip disposal system
New	2-stall vault toilet near boat ramp and day use area	None	Contained vault - pump as needed
New	1-stall vault toilet at west campground	None	Contained vault - pump as needed
New	1-stall vault toilet at new walk-in campsite area	None	Contained vault - pump as needed
New	Standalone dishwashing station at west campground	Septic tank/grease trap	Connect to existing drain field previously used for removed restroom
New	Standalone dishwashing station at new walk-in campsite area	Septic tank/grease trap	Drip disposal system
New	Three picnic shelters with dishwashing sinks at new group camps	Septic tank/grease trap	Combine flows - connect to new restroom drip disposal system
			Swift Forest Camp
	(No proposed changes to disposal system)		
	Relocate RV dump station to main entry drive	Holding tank	Pumper truck
New	Flush restroom with dishwashing station, without showers	Septic tank/grease trap	Drip disposal system
New	2-stall vault toilet near boat ramp	None	Contained vault - pump as needed
New	Standalone dishwashing station at new walk-in campsite area	Septic tank/grease trap	Combine flow with picnic shelter and connect to new flush restroom system
New	Picnic shelter with dishwashing sink	Septic tank/grease trap	Combine flow with dishwashing station and connect to new flush restroom system
			Eagle Cliff Park
	Remove		
New	1-stall vault toilet at new picnic area	None	Contained vault - pump as needed

Site Amenities

CAMPSITES

This master plan document proposes five different prototypical campsites to suit an array of conditions present in the different project sites and to provide diverse camping options and experiences for campers. These prototypes all share the same basic amenities; a place to park, a fire ring, a picnic table, and space for two tents. The amenities found in the various prototypes may differ in size, layout, construction method, and materials used. These prototypes have been developed to comply with Cowlitz County Code (Title 18, Chapter 18.56) for campground and recreational facilities. Skamania County Code does not regulate campsites.

The prototypes shown on the following pages depict ideal conditions and do not take into account existing grade or natural features. Actual campsites will need to be laid out and adjusted as necessary in the field to fit existing grade, preserve natural features such as rock outcrops and significant trees, account for prevailing wind direction, and take advantage of views.

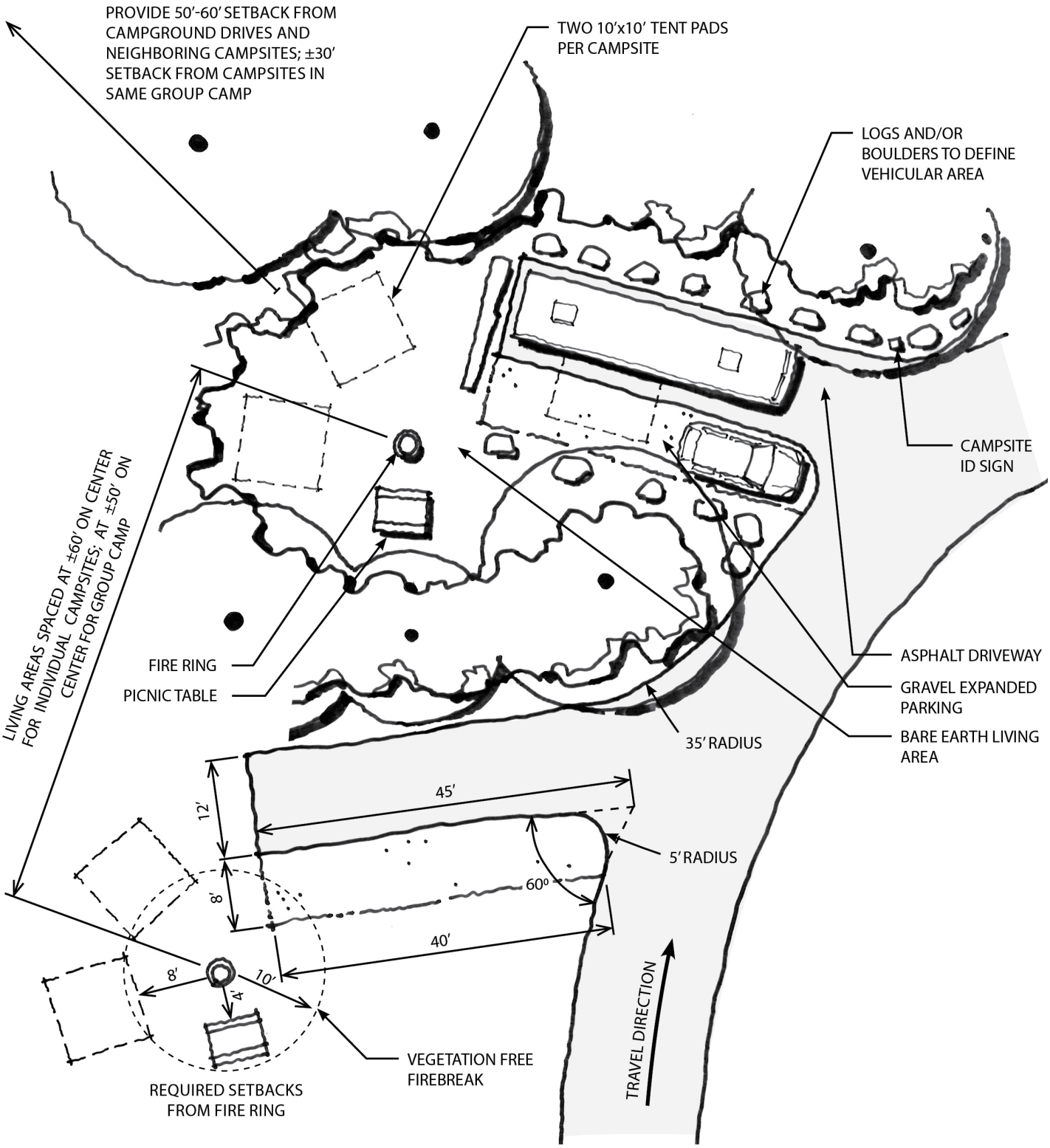
The proposed campsites are envisioned as clearings inside a forest. All campsites are required to maintain a 10' vegetation-free zone around each fire ring for fire protection. In order to meet this requirement and minimize the amount of vegetation clearing, the layout of amenities at each campsite is centered around the fire ring. Whenever possible the picnic table should be located upwind of the fire ring and oriented toward views.

The ground surface of the campsite living area, unless otherwise noted, is to be bare earth that is relatively smooth and level. Vehicular circulation and parking areas are separated from the living areas by logs and/or boulders, except in areas where natural features can serve as barriers. To prevent dust, a soil stabilizer made of natural ingredients should be added to the living area and the gravel parking area. For campsites that have poor drainage, the tent pads should be raised slightly on a pad of fine compacted gravel.

Universal Campsite

This is the most common type of proposed campsite in this master plan. The design intent of the universal campsite is to provide a versatile campsite that can accommodate a range of different vehicles, including passenger cars, trucks pulling trailers, RVs, and combinations of the above. This is accomplished by providing a generous parking zone that includes a 12' wide by 45' long asphalt driveway with an additional 8' wide gravel expanded parking area beside it. The length of each campsite's parking area may vary based on conditions on the site. Where opportunity exists, some parking areas should be made longer to accommodate large vehicle/trailer combinations.

For safety and ease of parking, universal campsite driveways are angled relative to the direction of travel, so that the driver is able to back into the driveway while looking out the driver's side of the vehicle. This discourages head-in parking, which can create a safety hazard when large vehicles back out into the drive aisle.



UNIVERSAL CAMPSITE

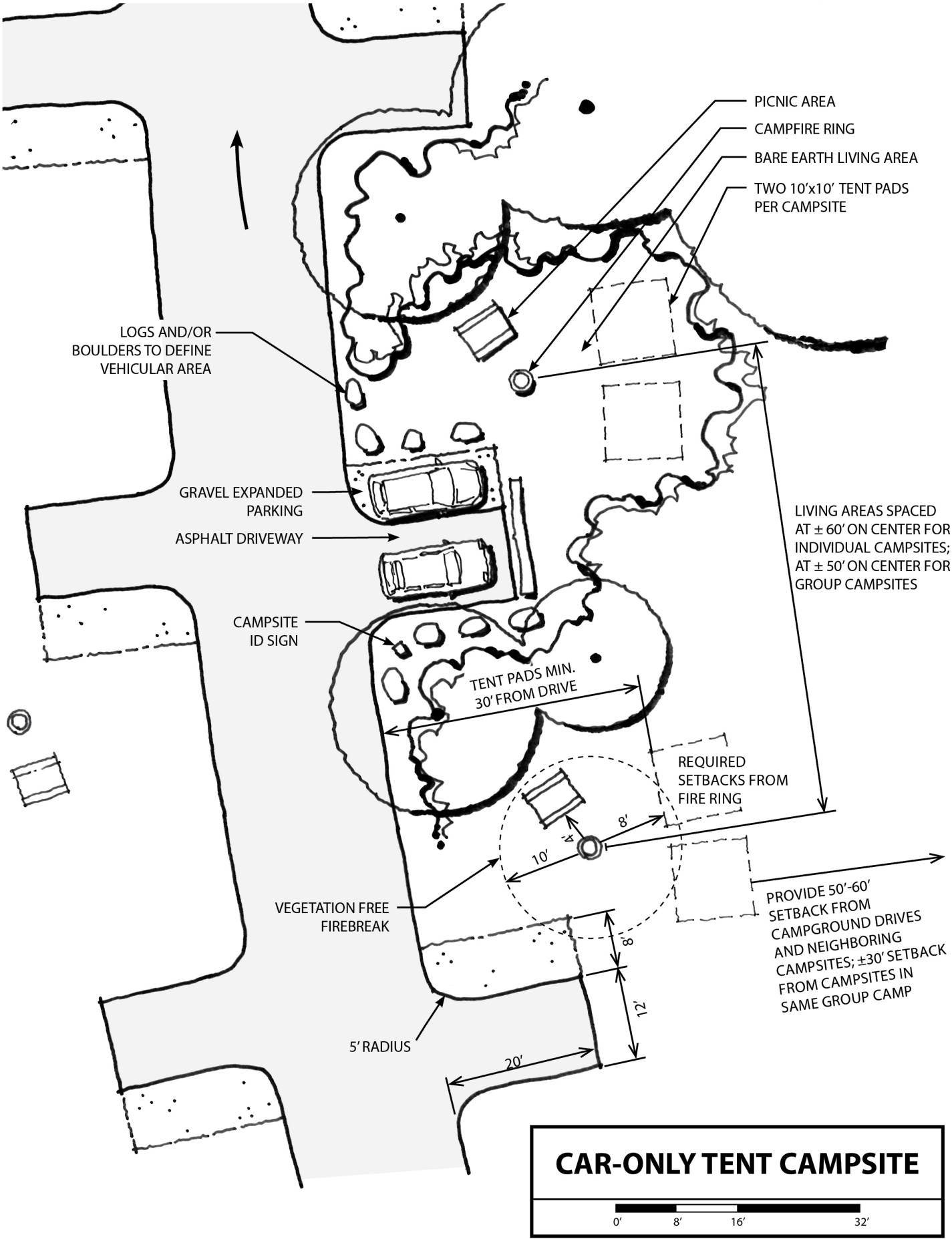
0' 8' 16' 32'

Car-Only Tent Campsite

Car-only tent campsites are used where space is limited, or to limit the amount of disturbance to the surrounding forest. They also provide a more rustic camping experience than universal sites as they have less room for vehicles and gear. At 20' deep, the parking stalls are roughly half as deep as those at the universal campsites, providing parking for two passenger vehicles. The living area in this campsite is the same as in the universal campsite.

Group Campsite

Group campsites are modified versions of either universal campsites or car-only tent campsites; the only difference is the spacing between sites. Individual sites are spaced further apart to allow room for a vegetated buffer between sites and to create a sense of privacy, while group camp sites are closer together to facilitate the social function of group camps. The layout of parking and site amenities should follow those shown in either the prototypical diagram for the universal campsite or the car-only tent campsite, whichever is more applicable.


PICNIC AREA
CAMPFIRE RING
BARE EARTH LIVING AREA
TWO 10'x10' TENT PADS PER CAMPSITE
LOGS AND/OR BOULDERS TO DEFINE VEHICULAR AREA
GRAVEL EXPANDED PARKING
ASPHALT DRIVEWAY
CAMPSITE ID SIGN
LIVING AREAS SPACED AT ± 60' ON CENTER FOR INDIVIDUAL CAMPSITES; AT ± 50' ON CENTER FOR GROUP CAMPSITES
TENT PADS MIN. 30' FROM DRIVE
REQUIRED SETBACKS FROM FIRE RING
8'
4'
10'
VEGETATION FREE FIREBREAK
PROVIDE 50'-60' SETBACK FROM CAMPGROUND DRIVES AND NEIGHBORING CAMPSITES; ±30' SETBACK FROM CAMPSITES IN SAME GROUP CAMP
8'
12'
5' RADIUS
20'
CAR-ONLY TENT CAMPSITE
0'
8'
16'
32'

Accessible Campsite

Campsites that are designated as 'accessible' are modified, barrier-free versions of either universal or car-only tent campsites. The prototypical accessible campsite has been adapted from guidelines found in "Universal Access to Outdoor Recreation: A Design Guide" (UAOR). The layout of parking and site amenities follows those shown in either the prototypical diagram for the universal campsite or the car-only tent campsite, whichever applies. Exceptions to these standard diagrams are noted in the paragraphs below as well as shown on the accessible campsite drawing. Accessible campsites are required to be connected to restroom facilities by an accessible route.

Surface and Slope

The ground surface of the accessible campsite is composed of compacted fine gravel and must be stable, firm, slip-resistant, and evenly graded. The maximum slope shall be 3% in any direction, and 2% in any direction within a 4' zone around the picnic table and fire ring.

Clear Ground Space

A 4' minimum clearance is required between all site amenities, such as picnic tables, fire rings, and tent pads to allow unobstructed maneuvering room for a person in a wheelchair.

Accessible Fire Rings

An accessible fire ring shall be provided for each accessible campsite. The fire building surface for an accessible fire ring must be elevated at least 9" above the ground. Fire rings with fixed grills must have cooking surfaces that are between 17" and 19" above the ground. Fire rings with adjustable grills must have cooking surfaces between 19" and 24" above the ground. The operating mechanisms for adjusting the cooking surface must be operable with only one hand and must not require tight grasping, pinching, or twisting of the wrist.

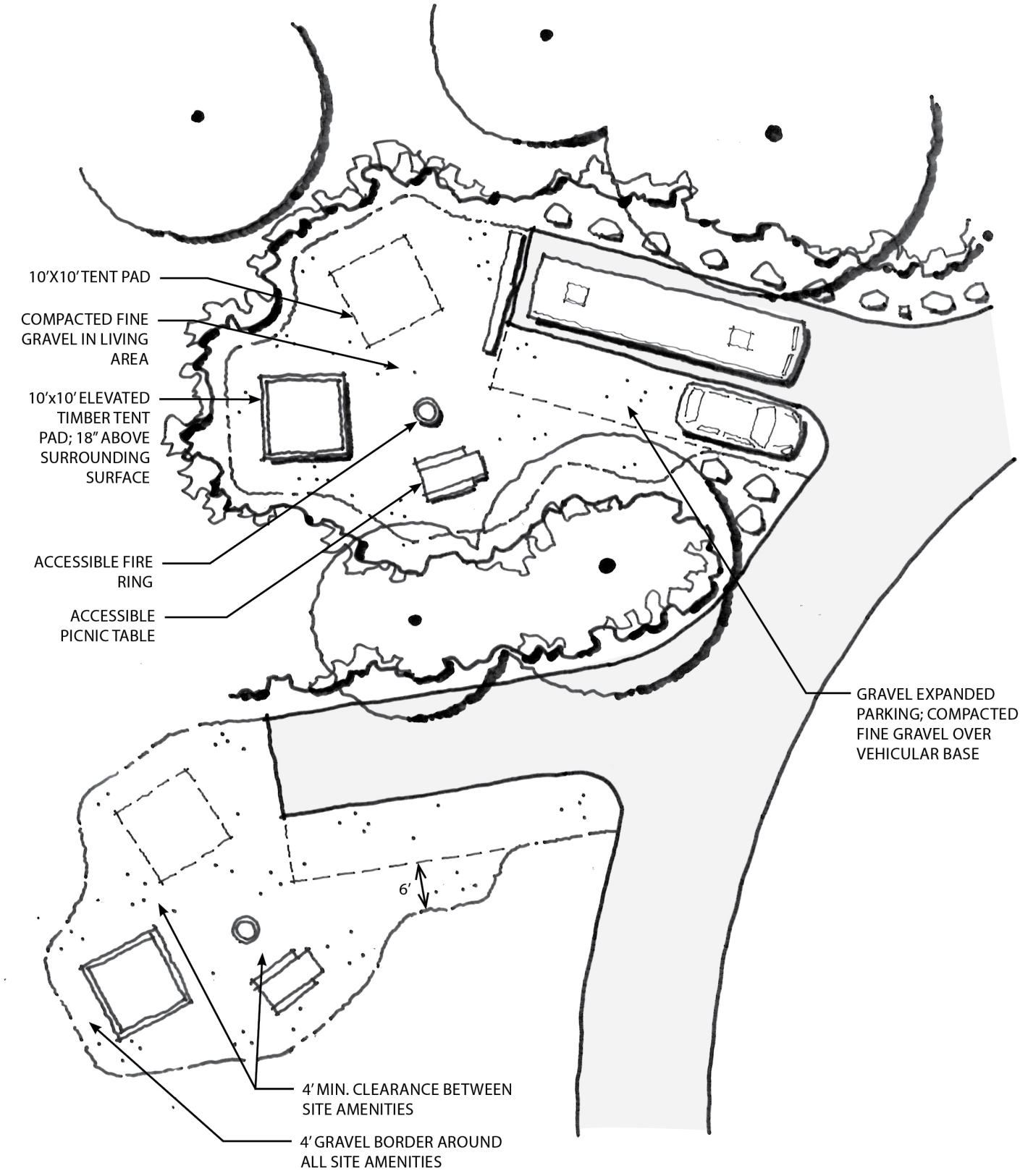
Accessible Picnic Tables

One accessible picnic table shall be provided for each accessible campsite. Refer to UAOR for drawings of accessible picnic tables with key dimensions labeled.

The top of an accessible picnic table must not be greater than 32" above the ground. To accommodate a person in a wheelchair there must be clear space 30" wide by 48" deep at the designated wheelchair position. There must also be adequate knee space under the table to accommodate a person in a wheelchair, measuring at least 28" high, 30" wide, and 24" deep. The clear space for the wheelchair cannot overlap with the required knee space below the tabletop by more than 19". The accessible position at the table should be oriented toward key views.

Elevated Timber Tent Pad

Each accessible campsite shall have one elevated tent pad in addition to the standard tent pad. This amenity allows a person to transfer from his or her wheelchair to the tent pad more easily. The surface of an accessible tent pad should be compacted earth to allow tent staking, and must be stable and evenly graded with a maximum of 3% slope in any direction. The surface of an accessible tent pad must be elevated 18" above the surrounding ground. Considering the surrounding natural setting, the walls should be constructed of timber.



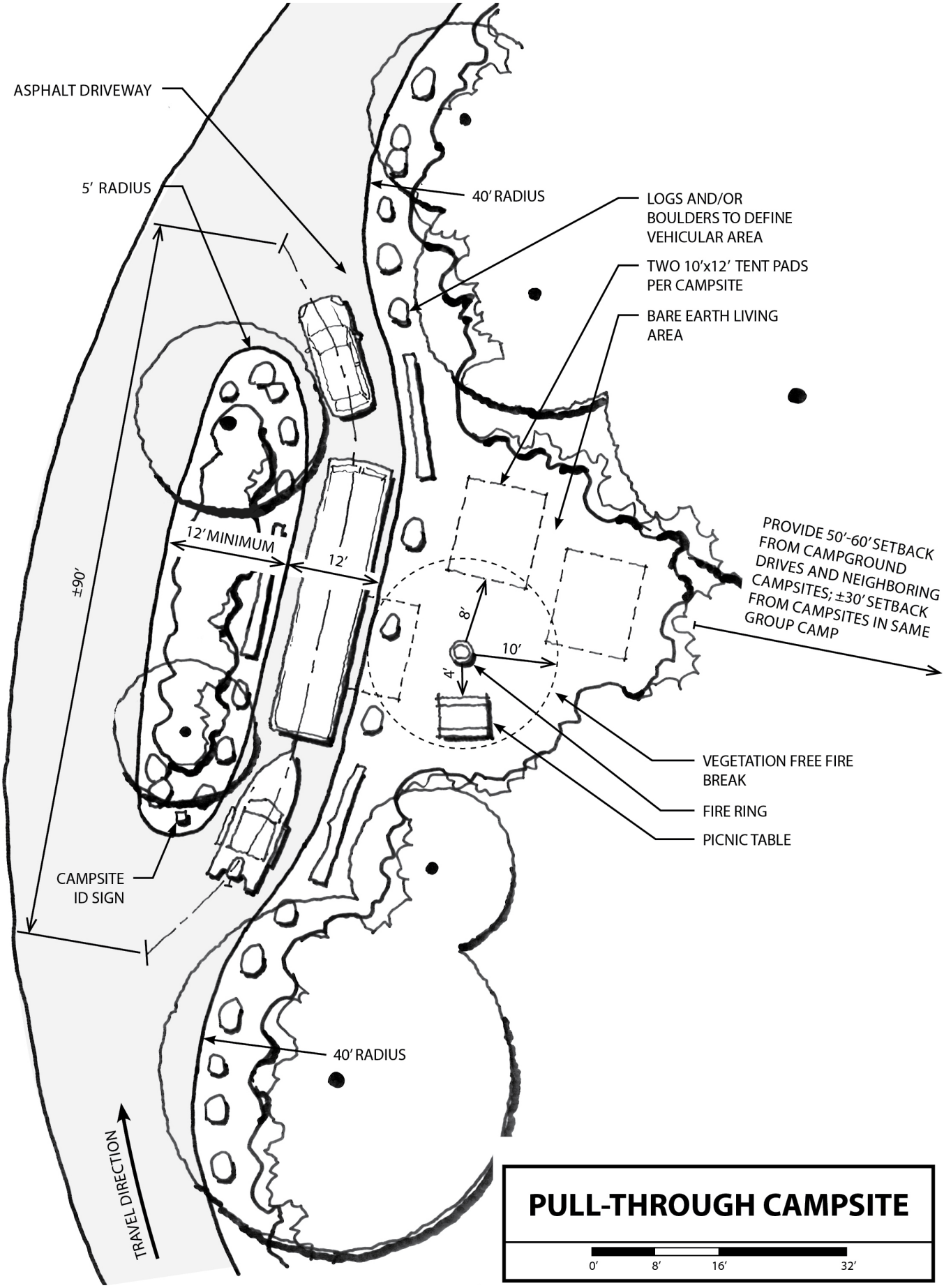
NOTE: PARKING AND SITE LAYOUT ARE SAME AS EITHER UNIVERSAL CAMPSITE OR CAR-ONLY TENT CAMPSITE

ACCESSIBLE CAMPSITE

0' 8' 16' 32'

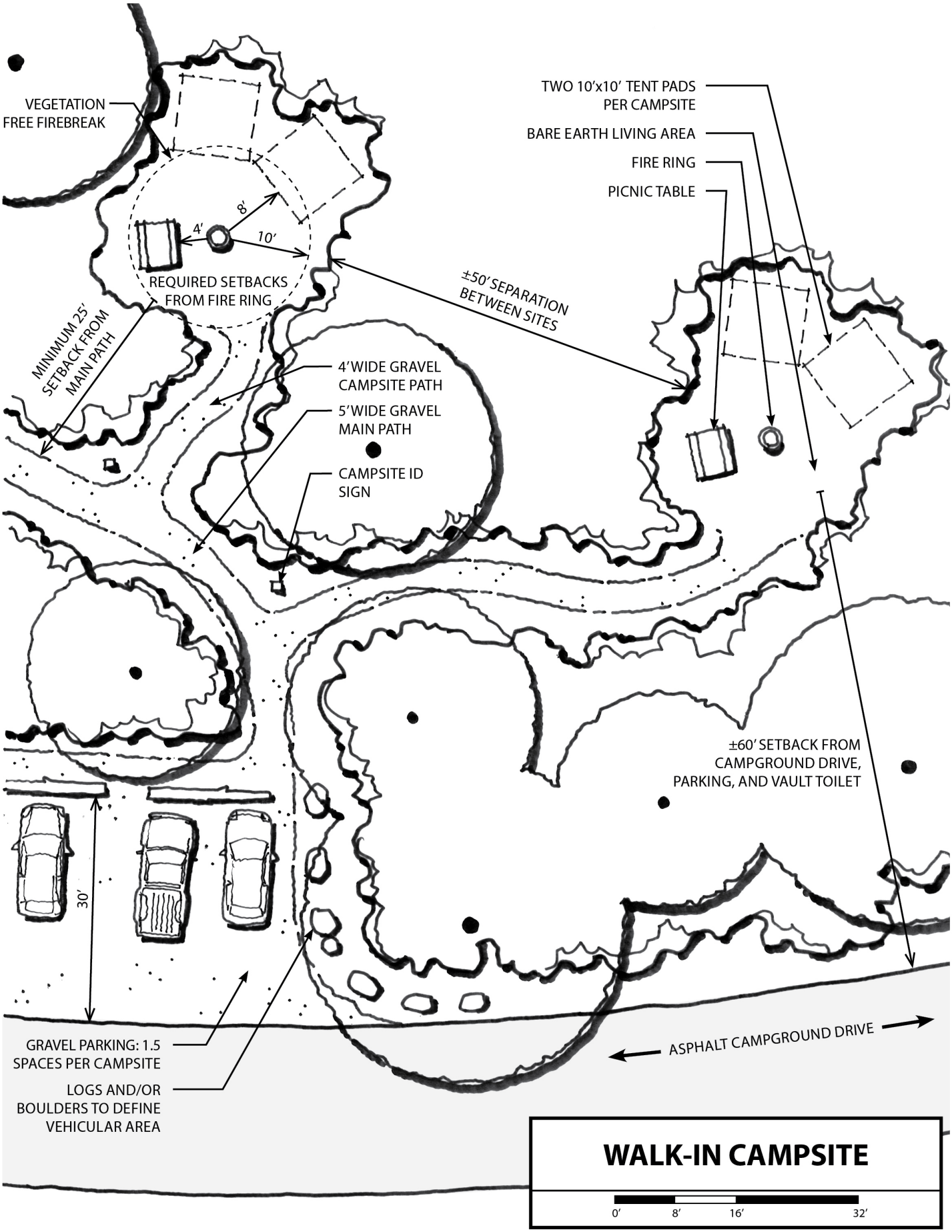
Pull-through Campsite

The pull-through campsite provides the most parking space and is the easiest and safest type of campsite for large RVs and vehicles pulling trailers to enter and leave, since no backing up is required. This type of campsite makes efficient use of the area inside camp loops. The living area of the pull-through campsite is similar to the other campsites except that it provides larger tent pads.


ASPHALT DRIVEWAY
5' RADIUS
40' RADIUS
LOGS AND/OR BOULDERS TO DEFINE VEHICULAR AREA
TWO 10'x12' TENT PADS PER CAMPSITE
BARE EARTH LIVING AREA
12' MINIMUM
12'
±90'
8'
10'
4'
PROVIDE 50'-60' SETBACK FROM CAMPGROUND DRIVES AND NEIGHBORING CAMPSITES; ±30' SETBACK FROM CAMPSITES IN SAME GROUP CAMP
VEGETATION FREE FIRE BREAK
FIRE RING
PICNIC TABLE
CAMPSITE ID SIGN
40' RADIUS
TRAVEL DIRECTION
PULL-THROUGH CAMPSITE
0'
8'
16'
32'

Walk-in Campsite

Walk-in campsites provide a more secluded feel and a more primitive camping experience by separating the campsites from vehicles and drives. Walk-in sites are located at the edges of campgrounds and typically occupy high quality stands of forest, where their smaller footprint minimizes disturbance. To access these campsites, campers will park in designated gravel parking lots beside campground drives and carry in their needed supplies. The living area for a walk-in campsite is similar to a universal site.


VEGETATION FREE FIREBREAK
TWO 10'x10' TENT PADS PER CAMPSITE
BARE EARTH LIVING AREA
FIRE RING
PICNIC TABLE
8'
4'
10'
REQUIRED SETBACKS FROM FIRE RING
±50' SEPARATION BETWEEN SITES
MINIMUM 25' SETBACK FROM MAIN PATH
4'WIDE GRAVEL CAMPSITE PATH
5'WIDE GRAVEL MAIN PATH
CAMPSITE ID SIGN
±60' SETBACK FROM CAMPGROUND DRIVE, PARKING, AND VAULT TOILET
30'
GRAVEL PARKING: 1.5 SPACES PER CAMPSITE
LOGS AND/OR BOULDERS TO DEFINE VEHICULAR AREA
ASPHALT CAMPGROUND DRIVE
WALK-IN CAMPSITE
0'
8'
16'
32'

PICNIC SHELTER

The parks and campgrounds that PacifiCorp operates along the Lewis River currently contain several picnic shelters for day use as well as for use by group campers. The existing shelters vary in size, function, and style. Some are small, providing a roof over a few picnic tables. Others are larger, house more picnic tables, incorporate built-in seating areas, have a sink, and some have a hearth with a grill.

This master plan proposes new picnic shelters for Merwin Dam Park, Saddle Dam Park, Cougar Camp, Beaver Bay Camp, and Swift Forest Camp. The size and function of these new picnic shelters has been determined by programmatic need and available space. Shelters associated with group camps will have a hearth with a grill, while shelters for day use picnicking do not. All picnic shelters will have picnic tables and may include built-in seating.

All new group camp picnic shelters and some day use picnic shelters will incorporate an accessible counter and sink to serve as a dishwashing station. Current Cowlitz County land use and health regulations require that each campsite be within 300' of a sanitary wash station that is connected to a septic system. Incorporating dishwashing stations into the picnic shelters will reduce overall cost by reducing the need for standalone dishwashing station structures.

The new shelters should maintain stylistic continuity with the best of the existing structures, express the regional vernacular for outdoor recreational structures (as described in the North Pacific Province section of the US Forest Services' "The Built Environment Image Guide"), and establish a consistent and distinctive identity for PacifiCorp parks and campgrounds.

The existing shelters in the group camps at Cresap Bay and Beaver Bay Camps provide good examples to draw from. They exhibit features that are consistent with the regional character, such as substantially sized wood members, exposed rafters and beams, and gable roofs with broad overhangs. They have distinctive reddish-orange standing-seam metal roofs – a feature found on most newer structures in PacifiCorp parks and campgrounds. A beneficial architectural feature of the Cresap shelter is the use of a monitor roof to allow more natural light into and ventilation from the interior. New picnic shelters should use these examples as design precedents. Some suggested improvements include higher eaves to allow more light below the roof, use of stone base to be in keeping with regional character, and careful design for accessibility, including barrier-free amenities and adequate circulation space.

Existing Beaver Bay Group Camp Shelter

Existing Cresap Bay Group Camp Shelter

An example of North Pacific Province style from the US Forest Service's The Built Environment Image Guide.

PICNIC TABLE

New picnic tables should be of rugged construction - able to withstand heavy use and the wet climate conditions for many years. In keeping with the forested condition of the sites and the regional architectural vernacular, the tabletops should be made of thick planks of wood (2-1/2" minimum thickness). Tables should be 8' long in large picnic areas where space is not a constraint. In campsites or areas where space is limited, provide 6' long tables.

All tables should be anchored to the ground while allowing movement where appropriate. Tables in open day use lawn areas will be placed on gravel pads, forming a 2' to 3' wide perimeter to ease mowing. Designated accessible tables will conform to ADAAG standards and will be installed on asphalt pads and connected to an accessible route.

In order to promote a stylistic continuity, a standard for new picnic tables should be established. When existing tables are reused, the various styles should be grouped together.

FEE BOOTH

One new fee booth will be added at Cougar Camp at the new point of entry/exit. Other existing booths should be evaluated and replaced if their condition warrants. The minimum outside dimension for this booth shall be 6' wide by 9' in length. For more detailed design guidelines refer to the Bureau of Reclamation's "Recreation Facility Design Guidelines." Traffic should be directed around the booth by the use of concrete Jersey barriers, bollards, or by setting the booth on a concrete traffic island.

PLAY STRUCTURE

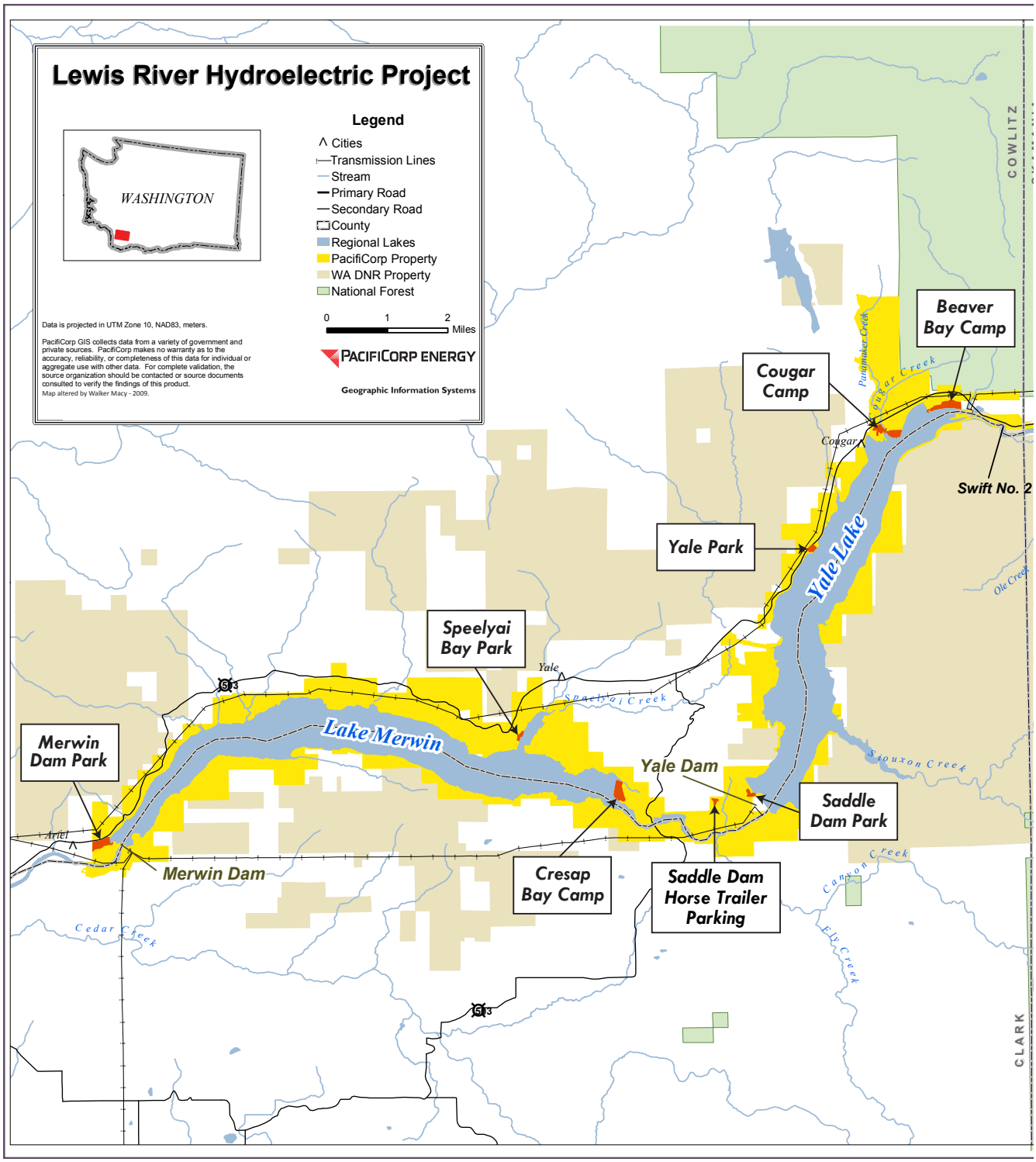
All new and renovated play structures will be connected to an accessible route and designed with an appropriate number of barrier-free play features in accordance with ADAAG standards. Play structures are also required to have fall-safe play surface such as engineered wood chips with adequate safety zone around the structure, and an accessible ramp into the play area.

INTERPRETIVE KIOSK

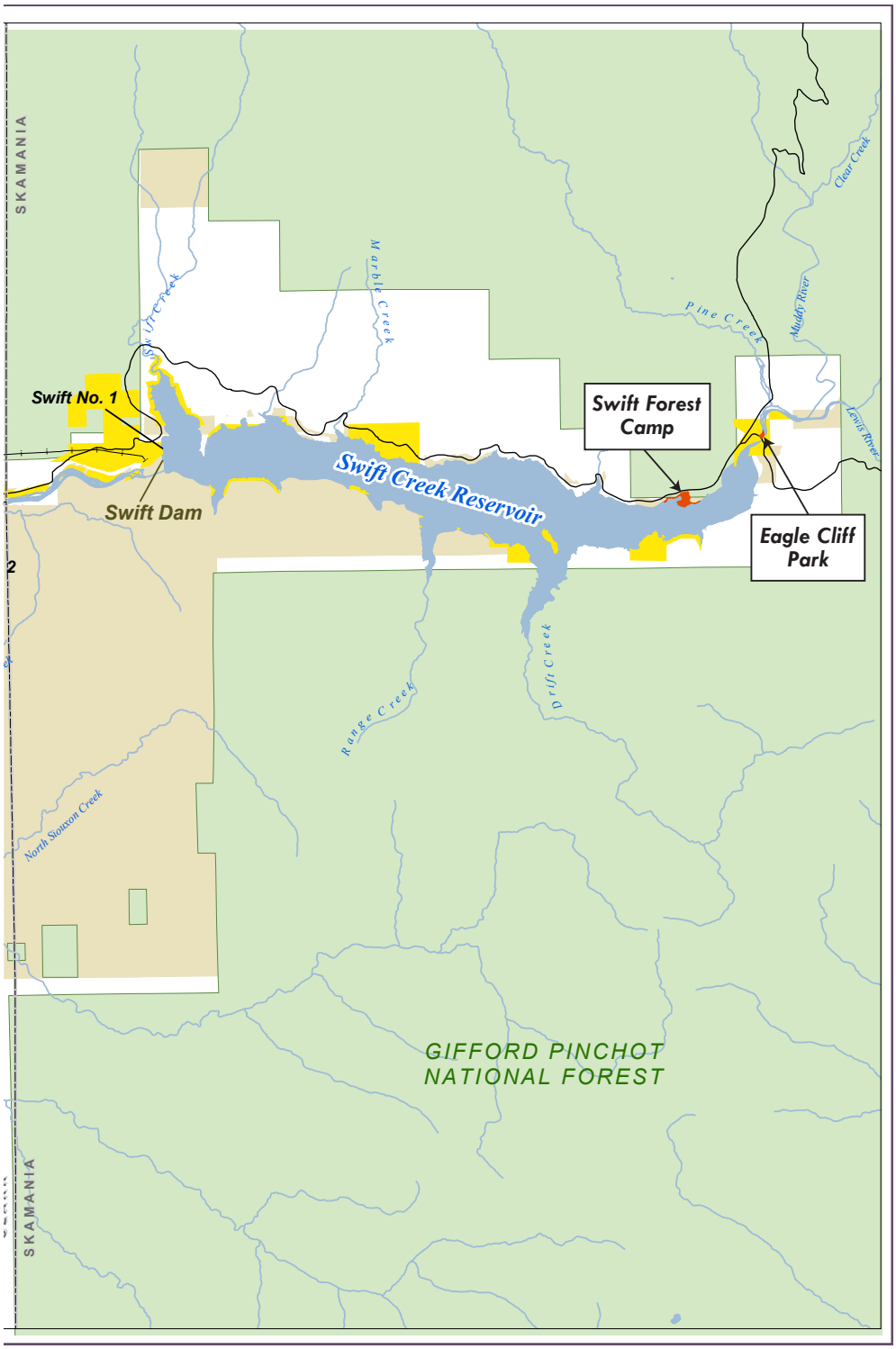
The Lewis River Settlement Agreement (SA) requires development of an Interpretive and Education Program, which will include interpretive kiosks. The signage program for the kiosks is currently in development. This master plan gives general locations at each site for the kiosks; see the site plans in Part 3.

The kiosks will fall into two categories: the Welcome Kiosk and the Interpretive Kiosk. Each of the nine recreation facilities addressed in this master plan will have one Welcome Kiosk, which identifies the facility as PacifiCorp property and gives the park rules and hours of operation. All sites except Eagle Cliff Park will have between one and three Interpretive Kiosks. These will contain educational material relevant to the site on topics such as hydroelectric power, history, and wildlife.

PART 3: SITE MASTER PLANS


Lewis River Hydroelectric Project
WASHINGTON
Legend
Cities
Transmission Lines
Stream
Primary Road
Secondary Road
County
Regional Lakes
PacifiCorp Property
WA DNR Property
National Forest
0 1 2 Miles
Data is projected in UTM Zone 10, NAD83, meters.
PacifiCorp GIS collects data from a variety of government and private sources. PacifiCorp makes no warranty as to the accuracy, reliability, or completeness of this data for individual or aggregate use with other data. For complete validation, the source organization should be contacted or source documents consulted to verify the findings of this product.
Map altered by Walker Macy - 2009.
PACIFICORP ENERGY
Geographic Information Systems
COWLITZ
CLARK
Beaver Bay Camp
Cougar Camp
Swift No. 2
Yale Park
Yale Lake
Speelyai Bay Park
Lake Merwin
Merwin Dam Park
Yale Dam
Saddle Dam Park
Merwin Dam
Cresap Bay Camp
Saddle Dam Horse Trailer Parking
Ariel
Yale
Cougar
Cougar Creek
Pandmaker Creek
Ole Creek
Speelyai Creek
Siouxon Creek
Canyon Creek
Ely Creek
Cedar Creek
503

Project-wide Locator Map



Lewis River Recreational Facilities

- Merwin Dam Park
- Speelyai Bay Park
- Cresap Bay Camp
- Saddle Dam Park
- Saddle Dam Horse Trailer Parking
- Yale Park
- Cougar Camp
- Beaver Bay Camp
- Swift Forest Camp
- Eagle Cliff Park

Merwin Dam Park

PROGRAM

FERC New Project License Requirements:

1. Day Use Facilities: (By 4-year License Anniversary)
   A. Provide 2 new volleyball courts.
   B. Provide 4 new horseshoe pits.
   C. Provide new children's play structure, cost not to exceed $150k.

2. Picnic Shelters: (By 4-year License Anniversary)
   A. Provide 2 new day use group picnic shelters.
   B. Remove the existing picnic tables on the hillside, and replace them in the level grass area with a suitable number of portable tables.

3. Marble Creek Trail: (By 4-year License Anniversary)
   A. Provide access route to trailhead of existing ½ mile Marble Creek Trail (which will be upgraded to ADAAG standards).

ADA Evaluation Recommendations: (By 4-year License Anniversary)

4. Designate 1-2 van accessible parking stalls and access aisle.
5. Provide 3-4 accessible picnic tables throughout park.
6. Provide access route to swim area, accessible shelter and picnic area(s).
7. Close inaccessible hillside restroom (and remove).
8. At main restroom, replace signage and modify showers.

Requested by PacifiCorp:

9. Provide accessible path into water at swim area.

EXISTING CONDITIONS

Merwin Park is PacifiCorp's oldest recreation facility on the Lewis River, and the closest to Vancouver and the I-5 corridor. It is adjacent to Merwin Dam and the PacifiCorp regional Hydroelectric Control Center (HCC). Large open lawns, a stand of tall firs, and a sandy beach offer many opportunities for picnicking and group gatherings. Its natural beauty and proximity to population centers make it very popular during the summer months.

Vehicular Circulation and Parking

Visitors approach the park driving past the town of Ariel on the same road used to access the HCC and the Merwin Dam Hatchery. There is a paved loop through the main parking lot, and paved accessible parking spaces. There are 8 accessible parking spaces; none are van-accessible and there is no designated access aisle. All other parking is on open lawns, with space to accommodate approximately 250 vehicles. Concrete wheel stops are used in the grass to define the lines of parking, and the edges of the parking areas are contained by a bollard and cable railing system.

A gravel loop path through the park allows PacifiCorp vehicle access to the pump house. Another gravel drive leads from the east end of the paved parking area to a rough boat launch used by PacifiCorp only.

Pedestrian Circulation

A loop path encircles the open lawn, running past the parking, restrooms, beach, and hillside area. This path is paved near the restrooms and beach, and the remainder is gravel. The gravel section is rough and the cross-slope makes it non-accessible. A narrow paved path switchbacks down to the beach area, but it is too steep to be considered accessible.

There is no formal circulation defined through the steep, grassy hillside picnic area, except for short paved paths near the unused upper restrooms.

The Marble Creek Trail begins near the northeast corner of the site. It does not meet accessibility standards.

Existing non-accessible gravel path around the lawn, picnic tables on the steep hillside, and the pump house in the background

Boat Launch

There is a gravel boat launch for PacifiCorp use only.

Water Access and Swim Area

A gently sloping, grassy, crescent-shaped beach is at the south end of a large swimming area enclosed by booms. At 3.6 acres this is the largest swim area of any of the Lewis River recreation facilities. There is no accessible path to the beach or water's edge.

Shoreline Erosion

North of the beach, the bank has been eroded by wave action. The nearly vertical, and in places overhanging, bank is 3' to 4' high.

Natural Resources

Not applicable.

Vegetation

The majority of the site is open irrigated lawn. The hillside between the central lawn and the highway has a towering mature stand of Douglas firs, and is maintained as a grassy picnic area. Beyond the picnic area and fence, the hillside is dense with native understory and mixed conifer and deciduous trees, as well as invasive species.

An allée of mature bigleaf maple runs between the parking lot and the central lawn. Gaps in the allée show that some trees have died over the years. Groves of bigleaf maples near the water provide shade.

A tall evergreen hedge screens the neighborhood of HCC staff residences from most of the park, but does not extend along the northern fence line adjacent to the beach.

Restrooms

The recently constructed lower restroom building is large, well-located for the users of the park, and has outdoor showers. These restrooms only need upgrades to the signage and showers to be fully accessible.

The upper restroom on the hillside does not meet accessibility standards, and is not currently used.

Utilities

The lower restroom's septic system drains to a drain field just west of the restroom building. See the Septic Disposal Matrix in Part 2 for further details.

The septic disposal system for the upper restroom is unknown.

There are two drinking fountains on the hillside which appear to drain into gravel sumps. There is also a drinking fountain at the lower restroom building.

Drainage

The whole park slopes toward the adjacent staff residences. Excessive runoff from the park is reported to create persistently wet conditions at the residences.

Site Amenities

Campsites

The host campsite is situated at the end of an old access road with a clear view into most parts of the park. The slope of the paving makes it difficult to level the host's RV. There are also concerns from HCC staff about the prominently visible spot that the host's RV occupies.

Picnic Shelter

On the hillside there is an old, small wooden picnic/cooking shelter on a concrete pad. A second concrete pad on the hillside marks the location from which another old picnic shelter had been removed.

Picnic Tables

Approximately 130 picnic tables are spread across the hillside. They are permanently installed, with large cylindrical concrete bases and heavy wooden benches and tabletops. Their condition varies widely; some have newly replaced wood while others are rotting and starting to fall apart. The steep hillside precludes any accessible routes through the area. Maintenance of the grass is made difficult by the combination of the steep slope and the numerous tables.

Fee Booth

All vehicles pass a fee booth before entering the parking area.

Horseshoe Pit

There is one horseshoe pit out of three original pits remaining on the slope between below the pump house.

Large open lawn, existing restroom building, mature stand of trees on the hillside, and host trailer in the background

PROPOSED IMPROVEMENTS

The master plan for Merwin Park focuses on upgrading the picnicking areas and providing more recreational activities, while enhancing the native vegetation. It also provides for universal access to all major features of the park.

Vehicular Circulation and Parking

All parking will remain the same, except for the accessible parking. The easternmost accessible stalls will be re-striped to create two van-accessible stalls. The total number of accessible stalls will remain the same. A striped access aisle will also be added to connect all of these stalls to the site's accessible pedestrian route.

The new asphalt loop path will provide PacifiCorp vehicle access to the pump house, general maintenance circulation, and potentially, occasional access for visitors to drop off large loads at the picnic shelters. Removable bollards will control vehicle access to this loop from the parking lot.

A new access path for maintenance equipment will be graded into the hillside, leading up to the old restroom building, which will be converted to maintainance and storage use.

Pedestrian Circulation

The existing non-accessible gravel loop path will be replaced with a wide asphalt path on a similar, but modified alignment. The new loop path will enclose the central lawn and define the new picnic areas, while providing an accessible route throughout the park. The existing asphalt paths near the restroom building will be replaced and expanded as needed to meet accessibility requirements.

An existing path down to the beach will be re-graded and re-paved to be accessible. It will be extended to provide an accessible route to the water's edge, and even into the water, at a range of reservoir levels.

The short slope at the back of the beach will be terraced with rustic stone steps, to create seating and to connect the beach with the new picnic shelter. A paved ramp will angle through the steps to provide an accessible route.

A wood chip path will arc up the hillside, around the remaining hillside picnic tables. It will not be accessible, but will provide an improved walking surface to reach the picnic tables and to take in the view from the hillside.

An accessible gravel path will connect the asphalt loop path to the existing Marble Creek Trail trailhead near the northeast corner of the park. Beyond the trailhead the trail will not meet ADAAG accessibility standards, but it will be upgraded to meet the UAOR Moderate Difficulty standard for accessible recreation trails.

Boat Launch

No proposed improvements.

Water Access and Swim Area

Accessible paths will be provided to the beach, to the water's edge, and even into the water, at a range of reservoir levels. The existing beach will be maintained with a sandy surface below the high water line, and grass above.

Shoreline Stabilization

The eroded bank north of the beach will be reinforced with stone stabilization at a 2.5H:1V slope to protect against further wave erosion, and to mitigate the danger of the existing drop-off.

Natural Resources

Not applicable.

Vegetation

The central lawn inside the loop path will remain a smoothly manicured, irrigated lawn. Outside of the loop path, the grassy picnic areas will be a lower maintenance priority, and will have a rougher appearance as a transition between the central lawn and surrounding natural areas. The grassy hillside outside of the remaining picnic areas

will be planted with understory native shrubs and a mix of native conifer and deciduous trees. Once established, this restoration planting will increase the apparent buffer between the park and Lewis River Road, enhance the park's wildlife habitat, and decrease the amount of regular maintenance.

The gaps in the allée of mature bigleaf maples will be in filled with new bigleaf maples to create a continuous tree-lined corridor which leads users into the park.

The evergreen screening hedge which partially surrounds the staff residences will be extended on the north side to screen the residences from the beach. Native evergreen trees will also be planted in that area for further screening.

Restrooms

Minor modifications will bring the existing lower restrooms into full compliance with accessibility standards. The signage will be replaced with ANSI standard signs, and the showers will be modified to remove barriers.

The upper restroom is unused, and will be converted to serve as maintenance storage.

Utilities

When the upper restroom is converted to maintenance storage use, the existing sanitary connection will be abandoned. The details and documentation of this abandonment shall be coordinated with the Cowlitz County Environmental Health Specialist.

There are no proposed changes to the drinking fountains.

Drainage

A french drain (drain pipe in a trench, filled with gravel) will be installed around the uphill edge of the staff residences to intercept stormwater runoff from the park. A short section of the drain will outlet near the beach, and the rest of the pipe will drain into the wooded stream channel just west of the HCC headquarters building.

Site Amenities

Campsites

The host campsite will be moved a short distance to just outside the tree line. The host's site will be leveled and re-paved. Deciduous trees will be planted on the south side of the campsite to provide partial visual screening of the host's RV, while allowing the host an open sight line out into the park below the branch canopy.

Picnic Shelter

Two day use picnic shelters will be built, one near the beach and one at the foot of the hillside. Their long axes will be oriented toward the view over Lake Merwin. They will each accommodate six accessible picnic tables and a small counter space. Overall size of the shelters will be approximately 30' x 45'. Potable water will be provided.

The small existing shelter on the hillside will be removed, but its concrete pad will remain as a viewpoint.

Picnic Tables

Most of the approximately 130 existing picnic tables on the hillside will be removed, and replaced with new tables in more convenient locations. The master plan identifies 17 picnic tables on the hillside to remain; these were chosen for their good condition, linear arrangement which allows for larger groups, and their location near the foot of the hillside.

The master plan identifies areas in which to locate a total of around 80 new picnic tables. These will be arranged both as individual tables and also in linear arrangements up to five tables long. Four accessible picnic tables will be provided throughout the park, in addition to the total of 12 accessible picnic tables in the picnic shelters.

Fee Booth
No proposed changes.

Horseshoe Pit
Four new horseshoe pits will be added, for a total of five including the existing horseshoe pit.

Volleyball Courts
Two grass volleyball courts will be added. The sloping central lawn will be graded to create level terraces for each court. Permanent ground sleeves for the net posts will be installed, so the posts can be removed seasonally and for mowing.

Play Structure
A new play structure will be installed. The cost shall not exceed $150,000, and it will include the required number of accessible play features. It will be set within a semi-circular area of fall-safe play surfacing such as engineered wood chips. The perimeter curb containing the surfacing will include a ramp for universal access into the play area.

KEY NOTES

1. NEW ACCESSIBLE ASPHALT PATH
2. NEW WOOD CHIP PATH ON HILLSIDE
3. NEW ACCESS PATH TO MAINTENANCE STORAGE
4. 8 TOTAL EXISTING ACCESSIBLE PARKING STALLS
5. RE-STRIPE TO CREATE 2 VAN ACCESSIBLE PARKING STALLS AND NEW ACCESS AISLE
6. EXISTING GRASS PARKING AREA WITH CONCRETE WHEEL STOPS
7. NEW DAY USE PICNIC SHELTER
8. NEW PICNIC TABLE AREA
9. ACCESSIBLE PICNIC TABLE ON ASPHALT PAD
10. NEW VOLLEYBALL COURTS
11. NEW HORSESHOE PITS
12. NEW SOFT SURFACE AREA WITH PLAY STRUCTURE
13. EXISTING PICNIC TABLES TO REMAIN; REMOVE ALL OTHERS FROM HILLSIDE
14. EXISTING DRINKING FOUNTAIN
15. EXISTING HORSESHOE PIT

WELCOME KIOSK

INTERPRETIVE KIOSK

LEWIS RIVER ROAD

EXISTING RESTROOM BUILDING TO BE CONVERTED FOR MAINTENANCE STORAGE

NATIVE RESTORATION PLANTINGS ABOVE PATH AND PICNIC AREAS

NEW ACCESSIBLE ROUTE TO TRAIL HEAD OF EXISTING MARBLE CREEK TRAIL

EXISTING PUMP HOUSE

STONE BANK STABILIZATION AT 2.5H:1V SLOPE

NEW PICNIC AREA ON GRASSY SLOPE

LAKE MERWIN

EXISTING SWIM AREA

OPEN LAWN

NEW LOOP PATH

EXISTING ROUGH BOAT LAUNCH FOR PACIFICORP USE

STONE STEPS AND RAMP ON EXISTING SLOPE ABOVE BEACH

BEACH AREA

EXISTING RESTROOM

PLANT BIGLEAF MAPLES TO FILL GAPS IN EXISTING MAPLE ALLEE

RE-PAVE HOST AREA TO BE LEVEL

MOVE HOST TRAILER TO END OF PAVING

NEW SCREENING TREES

RE-ALIGN HOST ENTRY DRIVE

EXISTING CABLE GATE

NEW EVERGREEN SCREENING TREES

EXTEND SCREENING HEDGE

FRENCH DRAIN TO DIVERT RUNOFF

EXISTING FENCE AND HEDGE

REMOVE EXISTING GATE AND RE-ALIGN EXISTING BOLLARD/ CABLE BARRIER

NEW REMOVABLE BOLLARDS

EXISTING FEE BOOTH

TO LEWIS RIVER ROAD AND HATCHERY

TO MERWIN HCC

EXISTING HCC STAFF RESIDENCES

MERWIN DAM PARK

MASTER PLAN

NORTH

0′ 20′ 40′ 80′ 120′

Speelyai Bay Park

PROGRAM

FERC New Project License Requirements:

1. Restroom: (By 6-year License Anniversary)
   A. Upgrade or replace existing restroom to meet ADAAG standards.

2. Day Use Parking at Quarry Area: (By 12-year License Anniversary)
   A. Improve parking with gravel and marked spaces ("quarry" area is just past entry booth).
   B. Evaluate feasibility (feasibility study by others) of providing additional parking under nearby Project Transmission Lines (area uphill from "quarry" parking), with trail access to the boat launch.

ADA Evaluation Recommendations: (By 6-year License Anniversary)

3. Develop 1 van accessible parking stall and access aisle.
4. Develop 1 boat trailer accessible parking stall and access aisle to boat launch.
5. Improve existing access route to picnic/swimming area, and extend route to outside tables and other facilities.
6. Provide transfer rail over water from dock to boat.
7. Improve boat ramp transitions, including hand rails.
8. Remove 1 table in picnic shelter for more room.
9. Correct 3-inch lip at shelter pad.
10. Replace water fountains and add 2-foot tactile warning area.
11. Add railing at water's edge.
12. Upgrade or replace existing bathroom, including ramp.

Requested by PacifiCorp:

13. Address eroding shoreline and undesirable retaining wall.

EXISTING CONDITIONS

Speelyai Bay Park is located on Speelyai Bay, an offshoot of Lake Merwin. It is the primary boat launch for Lake Merwin, and has a day use picnic area overlooking the bay.

Vehicular Circulation and Parking

Visitors entering the park pass a fee booth and an unimproved gravel parking area before driving down to the lower parking lot, day use area, and the boat launch. The upper gravel lot is an old quarry and is used for occasional overflow parking.

The open area under the transmission lines, near the upper quarry lot, appears to be impractical to use for parking. It sits at least 100 vertical feet above the lower parking lot, and a trail connecting the two would be steep, and also would have to cross a potentially unstable slope. There is a better opportunity for future overflow parking just up the entry road from the fee booth. There is a large, relatively level area next to the road, which could be cleared to provide this parking. A pedestrian path could parallel the entry road, connecting to the lower park.

The lower asphalt parking lot is striped for 57 boat trailer parking stalls and 34 vehicle parking stalls. Most of the boat trailer stalls are arranged head-to-head, requiring users to often back out of those stalls. The drive aisle between the angled boat trailer stalls and vehicle stalls is only 12' wide, which does not provide adequate room for either boat trailers or vehicles to safely drive into or back out of. The drive aisles between the boat trailer stalls and the east edge of the lot are about 21' wide, which is still not quite adequate, especially for the stalls that are perpendicular to the edge of paving. The turns at either end of the lot have an outside diameter of 70' to 75', which limits the size of trailer combinations that can use the boat launch.

The vehicle parking stalls are lined up on the west edge of the parking lot. These stalls are primarily for users of the day use picnic area, and it is a safety concern that they need to cross the boat trailer parking and associated drive aisles to reach their destination.

The four accessible parking stalls are also on the west side of the parking lot. Given the slope of the paving, there is no practical way to create an accessible route connecting the stalls to the picnic area. The northernmost boat trailer stall is striped as a boat trailer accessible stall, but the paving where it is located is too steep, and again there is no practical way to create an accessible route between it and the boat launch.

Pedestrian Circulation

A paved path leads from the parking lot to the existing picnic shelter. This path appears to meet the requirements to be an accessible route, but does not connect to accessible parking stalls.

The existing restroom is located on the hill above the picnic area, across the entry drive. To get to the restroom, park users must either climb a steep grass slope and cross the main drive, or walk up the parking lot. Then they have the option of using stairs or a series of switchback concrete ramps to get up to the level of the restroom.

The recently installed concrete curb ramps at the head of each boarding float do not meet accessibility standards – the cross-slope of each ramp is too steep at around 5%.

Existing boat trailer parking lot

Boat Launch

In 2004 the boat launch ramp was extended to permit boat access at lower reservoir levels. The two boarding floats are in good condition but do not meet accessibility standards. They do not have handrails on the gangway ramp, the bull rails are larger than allowed by ADAAG for clear openings, and there is no accessible route connecting the boarding floats to an accessible parking stall.

Two concrete abutments remain from old floating docks. One near the current boat launch appears to be in good condition and could be used again. The one at the north end of the picnic area is badly degraded and is a potential safety hazard.

Water Access and Swim Area

At the sound end of the picnic area, the grass slopes gently down to a sandy beach and swim area enclosed by booms. The bank along the east side of the picnic area is supported by a timber retaining wall. Stairs at the midpoint of the wall leading down to an old floating dock once provided water access, but that stair is now badly degraded.

Shoreline Erosion

The wood retaining wall on the east bank of the picnic area is about 2' tall at the south end, rising to a height of 6' at the north end. Wave erosion has exposed the toe of the wall, and its stability is uncertain. Just beyond the south end of the wall, the bank has eroded back several feet. The height of this wall, and its adjacency to the popular picnic area, make it a safety concern.

At the beach, a small lip at the edge of the grass shows some erosion of the beach sand, even though it is partially protected from waves by the swim booms.

Natural Resources

At the south end of the parking lot, a small drainage is a likely wetland. It has not been delineated.

Existing wood retaining wall

Vegetation

The forested hillside above the park and entry drive consists of a few mature firs and dense stands of alder. There is some evidence of landslide occurance above the lower parking lot, likely after it was originally logged but before the alder filled in. There are several outstanding Douglas firs between the existing restroom building and the entry drive.

The grass picnic area has mature groves of alder which provide shade. However the age of these trees makes them suspect since they are a short lived species. One large alder suffered a major collapse since we began evaluating this site, probably during a winter storm, and at least one other had recently been cut down.

Existing restroom building, ramps, and large Douglas firs

restroom and day use area or accessible parking.

Utilities

The septic disposal system for the existing restrooms is unknown. The drain field appears to be located on the level cut southwest of the restroom building.

There are two drinking fountains and one water spigot in the picnic area, which appear to drain to gravel sumps.

Drainage

Stormwater drains off of the parking lot directly into the lake, with a minimal vegetated slope separating the two. Seepage from the hillside above the parking lot is partially intercepted by a small ditch along the upper edge of the lot. This ditch has filled with debris over time, and as a result there is usually some seep water draining across the parking lot, and down the boat ramp. In the winter this often forms a sheet of ice, which is a safety hazard.

Site Amenities

Campsites

The host campsite is currently located in the upper "quarry" lot.

Picnic Shelter

The existing timber day use picnic shelter is in good condition. The roof covers about 18' x 24', and the two picnic tables inside do not have much maneuvering room. The tables are not accessible, and the inside dimensions of the shelter only allow for one accessible picnic table with adequate room to maneuver.

Picnic Tables

In addition to the two picnic tables inside the picnic shelter, 24 picnic tables are spread around the grass picnic area. They are in fair to good condition, and are fixed in place, most with concrete bases. The wood-only tables appear to be a potentially accessible design, but there is no accessible route leading to them.

Fee booth

All vehicles pass a fee booth at the upper "quarry" lot.

Boarding float with swim area and picnic area in the background

PROPOSED IMPROVEMENTS

The master plan for Speelyai Bay Park improves the safety and efficiency of the boat trailer parking, and creates better parking for users of the day use picnic area. It also provides universal access to all major features of the park.

Vehicular Circulation and Parking

The lower parking lot will be re-striped to create more pull-through boat trailer stalls, increase the drive aisles to an adequate width, and reserve two stalls for boat tie-down near the top of the boat ramp. Most vehicle parking will be moved adjacent to the picnic area.

The paving will be expanded on the southeast side of the lower lot to increase the available turning radius. The turns at either end of the lot will be 95' outside diameter, which is an upgrade over the current layout, and will allow all but the largest trailer combinations to navigate the lot.

A boat trailer accessible stall will be located just south of the boat launch. Two van accessible stalls will be located at the picnic area. These three stalls together satisfy the ADAAG requirements for the number of accessible stalls, even though they replace four existing stalls that had been marked as accessible. The accessible parking areas will be re-paved to bring slopes within accessible standards.

The upper "quarry" lot will be upgraded for efficient overflow vehicle and boat trailer parking. New gravel surfacing will be applied, and head-in vehicle stalls and one-way pull-through boat trailer stalls will be defined.

Pedestrian Circulation

An accessible route will connect the main features of the park: the accessible boat trailer and vehicle stalls, the boat launch, the picnic shelter, a new accessible picnic table, and the new restroom building.

Just above the boat ramp, a raised concrete crossing will provide a level access route across the sloping paving. This raised crossing will also lead to the transition ramp at each boarding float, replacing the existing curb ramps which do not meet accessibility standards.

A gravel path with steps will allow park users to walk to the upper "quarry" lot without using the entry drive.

Boat Launch

The boarding floats will be upgraded to accessible standards, including handrails at the gangway ramps and modification of the bull rails to provide clear openings per ADAAG.

The existing degraded concrete abutment for an old floating dock at the picnic area will be removed. The similar existing concrete base south of the boat launch will remain for potential future use.

Water Access and Swim Area

The swim area will be expanded to the north, with a small new beach. This new beach and the existing beach will be re-graded to gently slope at around 8H:1V up to the more level picnic and restroom areas. There will be no water access along the new reinforced bank at the picnic area.

Shoreline Stabilization

The wood retaining wall will be removed, and the bank reinforced with stone bank stabilization at a 2.5H:1V slope to protect against further wave erosion, and to mitigate the danger of the existing drop-off. The sloped stone bank will address the ADA Evaluation's recommendation to add a guardrail at the retaining wall.

The re-graded beaches will better resist wave erosion, since they will be at a lower angle of repose. The point between the two beaches will be reinforced with stone since it is more exposed to wave energy.

Natural Resources

At the south end of the lower parking lot there is a probable wetland, and no work is proposed in this area.

Vegetation

The large Douglas firs at the existing restroom will be protected during the restroom demolition. Many alder trees will likely be removed at the picnic area and around

the lower parking lot based on a hazard tree assessment; these will be replaced with longer-lived bigleaf maples.

Restrooms

The existing restroom building and the concrete ramp system will be removed, but the building's concrete pad and stairs will remain to serve as the new host campsite.

A new fully-accessible restroom building with flush toilets and an accessible drinking fountain will be constructed in the picnic area. The new drinking fountain will address the ADA evaluation's recommendation to replace the existing drinking fountains.

A double stall vault toilet will be installed near the top of the boat ramp.

Utilities

Sewage from the proposed restroom will be collected in a septic tank and pumped to the existing drain field on site. This will require certification of the existing field by a licensed on-site designer and approval by the County Environmental Health specialist. If the existing field is not suitable, pressurized drip disposal shall be investigated.

Potable water service from the existing restroom location will be relocated to serve the new restroom.

The vault toilet will be pumped when required.

Drainage

The east edge of the lower lot will be cut back to accommodate stormwater treatment swales. A curb along the southeast edge will direct parking lot runoff into one swale, and runoff will sheet off the north east edge of the lot, directly into the other swale. Since the overall impervious surface on the site will not be increased, these swales will not need to conform to any regulatory requirements. They can be built as minimal interventions, to intercept the polluted parking lot runoff rather than letting it flow directly into the lake.

A swale between the lower lot and the toe of the hillside will divert hillside seepage around the lot.

The raised accessible crossing above the boat ramp will divert parking lot runoff into one of the stormwater swales. This will also reduce the potential for winter ice on the ramp.

Site Amenities

Campsites

The host campsite and all hookups will be relocated from the upper "quarry" lot to the location of the old restroom. The restroom's concrete floor and surrounding paving will remain and be re-finished if necessary. The two sets of stairs to the restroom will also remain for the host's use.

The new host campsite sits about 10' above the parking lot, which give it an excellent view over most parts of the park. A new paved ramp at about 12% slope will be graded to allow seasonal RV access up to the campsite. One nearby parking spot will be reserved for the host's use.

Picnic Shelter

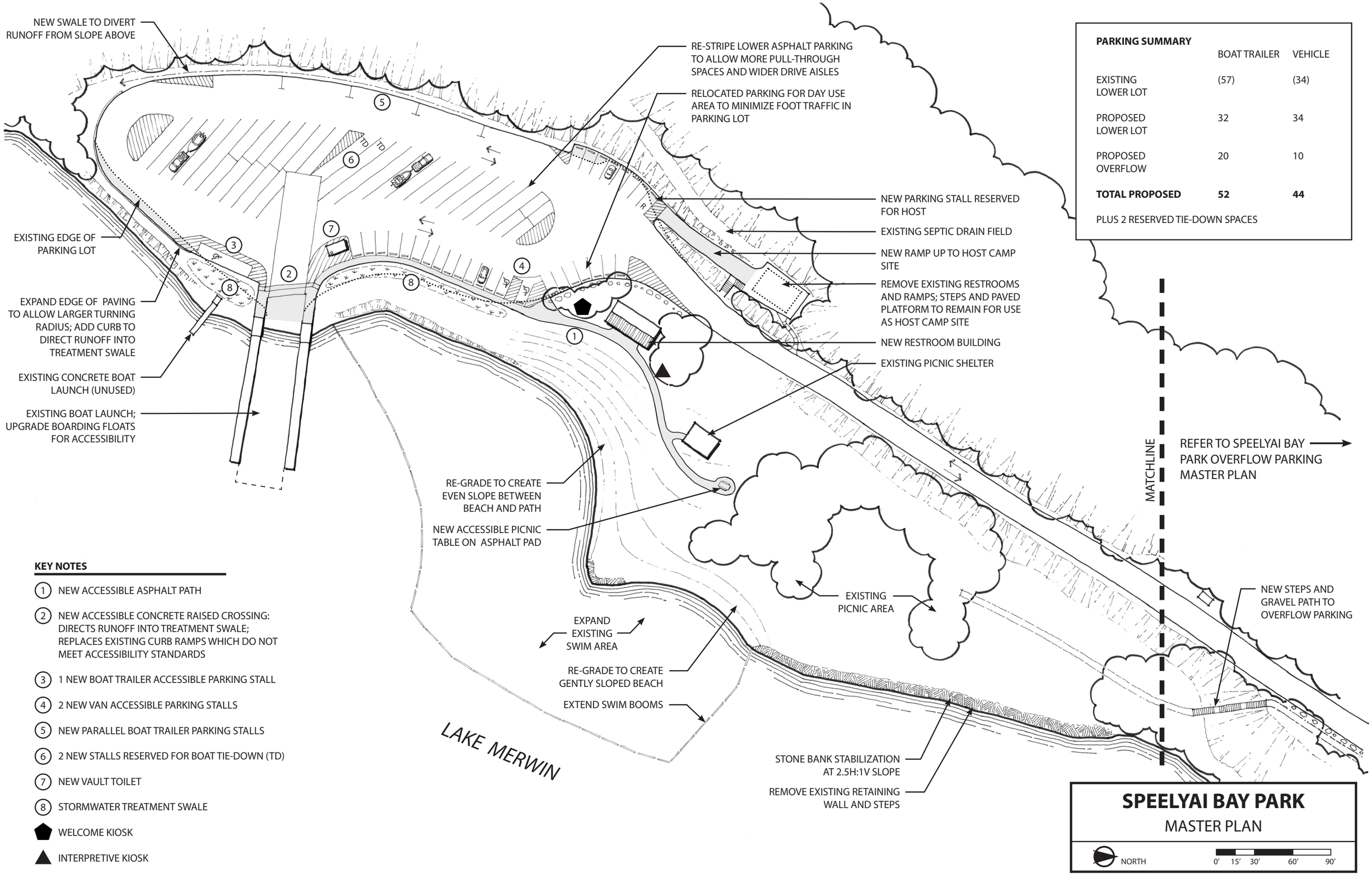
The two picnic tables in the existing shelter will be replaced with one accessible picnic table. Because there is only room for one table, that table should be the largest that fits in the shelter with enough surrounding maneuvering space. The adjacent grade will be raised level to the shelter's concrete pad.

Picnic Tables

In addition to the accessible picnic table inside the shelter, one new accessible picnic table, connected to the accessible route, will be added. The existing picnic tables will remain, but a few will need to be relocated to make room for the new beach area.

Fee booth

No proposed changes.



PARKING SUMMARY	BOAT TRAILER	VEHICLE
EXISTING LOWER LOT	(57)	(34)
PROPOSED LOWER LOT	32	34
PROPOSED OVERFLOW	20	10
TOTAL PROPOSED	**52**	**44**

PLUS 2 RESERVED TIE-DOWN SPACES

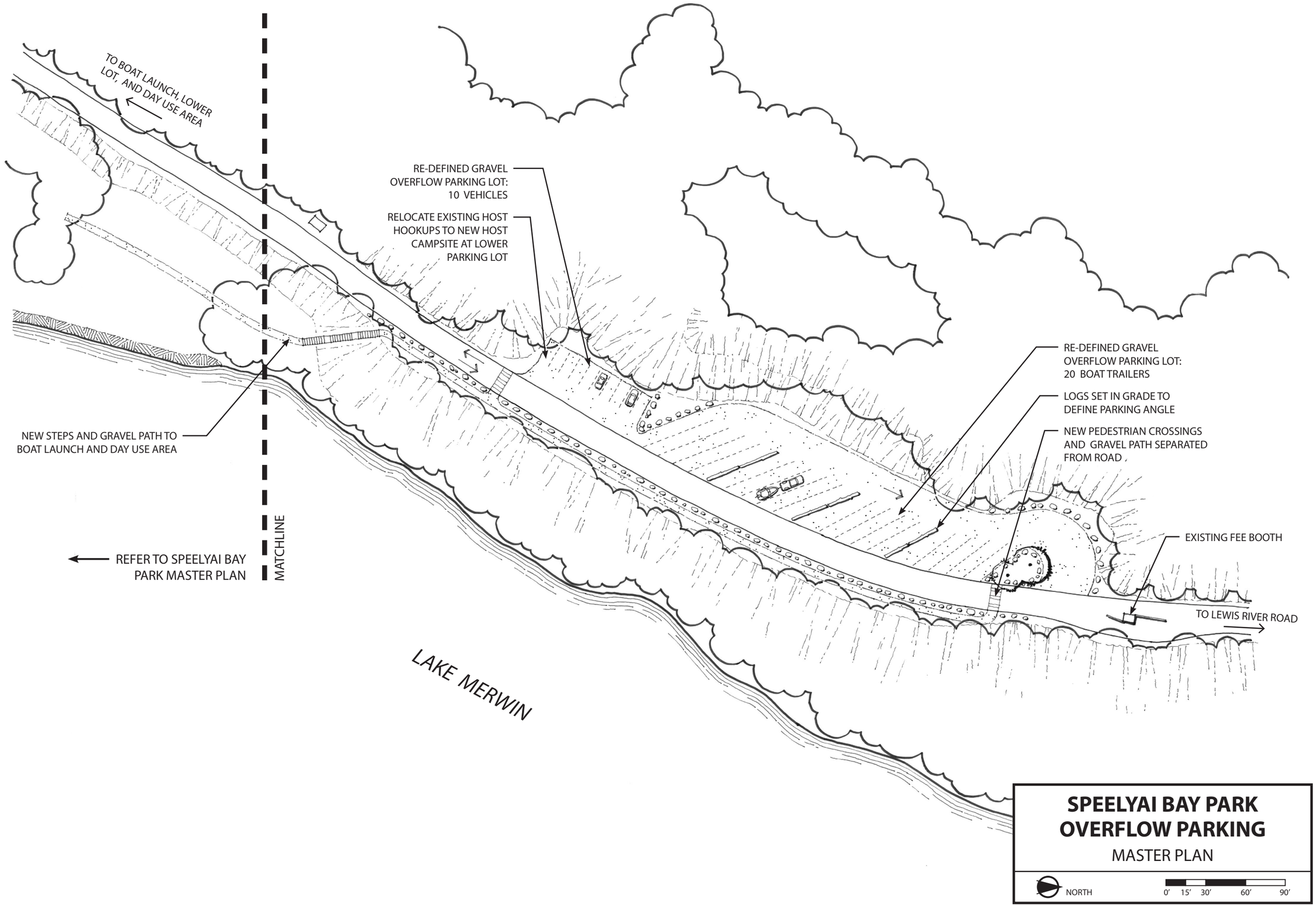
KEY NOTES

1. NEW ACCESSIBLE ASPHALT PATH
2. NEW ACCESSIBLE CONCRETE RAISED CROSSING: DIRECTS RUNOFF INTO TREATMENT SWALE; REPLACES EXISTING CURB RAMPS WHICH DO NOT MEET ACCESSIBILITY STANDARDS
3. 1 NEW BOAT TRAILER ACCESSIBLE PARKING STALL
4. 2 NEW VAN ACCESSIBLE PARKING STALLS
5. NEW PARALLEL BOAT TRAILER PARKING STALLS
6. 2 NEW STALLS RESERVED FOR BOAT TIE-DOWN (TD)
7. NEW VAULT TOILET
8. STORMWATER TREATMENT SWALE

WELCOME KIOSK

INTERPRETIVE KIOSK

SPEELYAI BAY PARK
MASTER PLAN



SPEELYAI BAY PARK OVERFLOW PARKING

MASTER PLAN

NORTH

0′ 15′ 30′ 60′ 90′

Cresap Bay Camp

PROGRAM

ADA Evaluation Recommendations: (By 4-year License Anniversary)

1. Designate 1 van accessible parking stall and access aisle.
2. Designate 1 boat trailer accessible parking stall and access aisle.
3. Extend access routes to connect both parking and individual accessible campsites to boarding dock.
4. Adjust boarding float – widen where it meets pilings.
5. Reduce transition step from dock to boat.
6. Upgrade restroom signage to standard.
7. Designate accessible camp sites.
8. Improve water faucet.
9. Make a few push-door type trash cans available.
10. Stripe space to reserve access to phone.
11. At group camp:
    A. Provide access route to picnic shelter, from campsites S1-S3 and S13-S15.
    B. Raise fire grates to above 18".
    C. Improve path from campground loop to restroom with tactile warning.
    D. Raise height of water signage and ADA parking signs.
    E. Lower shower shelf closer to bench.

Requested by PacifiCorp:

12. Shoreline Stabilization:
    A. Address eroding bank on west and south-facing shores.

EXISTING CONDITIONS

Cresap Bay Camp occupies a broad peninsula near the upper end of Lake Merwin. It combines a boat launch, a day use picnic area, and a campground. It is the only campground on Lake Merwin that is open to the general public.

Vehicular Circulation and Parking

After passing the fee booth, visitors drive approximately three-quarters of a mile to the campground and day use area. The asphalt day use parking lot is striped for passenger vehicles and a variety of boat trailer sizes. There are two accessible parking stalls which would be van-accessible except that they are not signed as such, and there is no boat trailer accessible stall. A large reinforced turf overflow parking lot is adjacent to the main lot.

The dimensions of the parking lot and the approach route to the boat launch limit the size of boat trailer combinations that can use the ramp. Some turns have 65' to 70' outside diameter and are only navigable by moderately sized truck and trailer combinations.

Pedestrian Circulation

The parking lot, restroom, and beach area are connected by an accessible route. However there is no accessible route to the boat launch, and no accessible route between the campground and the day use area.

A gravel path leads from the day use area to the group camp, and is also used for maintenance vehicle access. The paved group camp drive has moderate grades and could serve as an accessible route, but there is no accessible connection between it and any of the campsites, the group picnic shelter, or the nearby restroom.

Boat Launch

The boarding floats at the boat launch have accessibility barriers posed by the pilings, which reduce the clear space on either side to around 24" wide. ADAAG sets the minimum width of clear space at 36" for short constrictions, and 60" for the typical width. Also the bull rails are larger than allowed by ADAAG for clear openings.

Water Access and Swim Area

Just south of the boat launch is a small sandy beach with a swim area enclosed by booms. Stairs and an accessible path connect from the top of the beach to the restrooms and parking lot.

Shoreline Erosion

The peninsula that Cresap Bay Camp occupies is exposed to frequent wind waves from the west and southwest. The west shoreline is protected by booms which partially dissipate the wave energy, but the bank is still suffering wave action erosion. The southwest shoreline has no protection from the waves, and has tall eroded banks. Near the group camp, the bank is about 10' tall, and nearly vertical to overhanging. There is some rip-rap bank stabilization just south of the swim area.

Eroded bank at the south end of the swim area

Natural Resources
Not applicable.

Vegetation
The site is dominated by dense second-growth conifer forest. The native understory is dense and diverse, especially in the less-visited areas around the group camp. The day use area is open lawn with a few small stands of alder and Douglas fir, and there is a large open grassy clearing between the day use area and the group camp.

Restrooms
There are four restroom buildings – two in the main campground area, one near the group camp, and one at the day use area. All have showers except at the day use area. They are all universally accessible except that the signage does not meet ANSI standards, and the shelves in the group camp showers are too high.

Utilities
See the Septic Disposal Matrix in Part 2 for details.

Drainage
Not applicable.

Site Amenities

Campsites
The main campground loop has 60 individual campsites, including seven walk-in tent sites and three host sites. The group camp has 15 sites, and is located separately from the rest of the campground. There are no accessible campsites.

Picnic Shelter
The picnic shelter at the group camp measures 28' x 46' and has picnic tables, a sink, and a fire pit with a chimney. The picnic tables are not accessible and there is no accessible route leading to the shelter.

Picnic Tables
In addition to the six picnic tables in the group camp shelter, there are eight wood picnic tables on the day use lawn near the beach. None are of accessible design.

Fee booth
The fee booth is positioned at the beginning of the entry drive, about three-quarters of a mile from the campground.

Message Center
The message center sign is located in a traffic island at the entry to the parking lot. It is surrounded by large stone cobbles, so there is no universal access approach to it. It is oriented to be primarily viewable from vehicles.

View from the campground toward the day use area

PROPOSED IMPROVEMENTS

The master plan for Cresap Bay Camp focuses on making major features of the site universally accessible.

Vehicular Circulation and Parking

The existing paving above the boat ramp will be re-striped to add a boat trailer accessible stall and access aisle. This stall will be positioned to function as a pull-through stall. Additional re-striping in the same area will clarify the location of two boat tie-down stalls.

Signage will be added at the two existing accessible parking stalls to designate them as van accessible.

Pedestrian Circulation

A new paved path will form an accessible route connecting the parking lot and day use area to the boat trailer accessible parking stall and boat launch boarding floats. One existing campsite will be abandoned, and its paved parking area narrowed and extended to serve as an accessible route connecting the main campground to the boat launch and day use area.

At the group camp, new paved paths will provide accessible routes connecting the accessible campsite to the restroom building and the picnic shelter. Detectable warning pavers on the path will designate the edge between pedestrian and vehicular areas.

Boat Launch

The boarding floats will be either replaced or upgraded with widened decking near the pilings and bull rails to meet accessibility requirements. They will also be connected by accessible routes to the campground, parking lot, and day use area.

Water Access and Swim Area

No proposed improvements.

Shoreline Stabilization

The eroded west and southwest facing banks will be reinforced with stone bank stabilization at a 1.5H:1V slope to protect against further wave erosion. A split rail fence will be installed above the bank to discourage visitors from approaching the edge.

Natural Resources

Not applicable.

Vegetation

No proposed improvements.

Restrooms

The signage in all restrooms will be upgraded to meet ANSI standards. The shelves in the group camp showers will be lowered to meet ADAAG standards.

Utilities

The drinking water spigots closest to each accessible campsite will be upgraded to accessible standards, including

Drainage

Not applicable.

Site Amenities

Campsites

Two existing campsites in the main campground loop and one campsite in the group camp loop will be upgraded to accessible campsite standards, including accessible fire rings. The sites are chosen for their proximity to facilities and feasibility of connection to the accessible route network.

Picnic Shelter

New paved paths will provide accessible routes to the group picnic shelter.

Picnic Tables
In the group camp shelter, all tables will be replaced by accessible tables, and all tables will be arranged to provide adequate maneuvering room.

One accessible picnic table on an asphalt pad will be added in the day use area.

Fee Booth
No proposed improvements.

Message Center
The message center will be moved to a location near the corner of the parking lot, on the new paved accessible route. This central location will be visible to drivers entering the parking lot, convenient to pedestrians, and the approach will be universally accessible.

Signage
The drinking water and accessible parking signs at the group camp will be raised to the height required by ADAAG.

Trash Receptacles
Accessible trash receptacles with push-type doors will be provided near each accessible campsite and at the day use area.

Telephone
Telephone service is not currently provided at any of the recreation facilities, so the ADA Evaluation's recommendation regarding the pay phone does not apply.

LAKE MERWIN

EXISTING RESTROOMS

UPGRADE EXISTING CAMPS SITES TO ACCESSIBILITY STANDARDS

TO ADDITIONAL CAMPING LOOPS

ABANDON EXISTING CAMP SITE TO BECOME ACCESSIBLE ROUTE

EXISTING BOAT LAUNCH

RELOCATE EXISTING MESSAGE CENTER SIGN

SHORT-TERM PARKING STALL

EXISTING STEPPED TIMBER RETAINING WALLS

EXISTING SWIM AREA

EXISTING ACCESSIBLE PATH TO BEACH

EXISTING RESTROOMS

EXISTING ACCESSIBLE PARKING STALLS; ADD SIGNAGE TO DESIGNATE AS VAN ACCESSIBLE

EXISTING OVERFLOW PARKING

TO LEWIS RIVER DRIVE

TO GROUP CAMP

KEY NOTES

1. NEW ACCESSIBLE ASPHALT PATH
2. REPLACE OR UPGRADE EXISTING BOARDING FLOATS TO ACCESSIBILITY STANDARDS
3. STONE SLOPE STABILIZATION AT 1.5H:1V SLOPE WITH SPLIT RAIL FENCE
4. NEW ACCESSIBLE PICNIC TABLE ON ASPHALT PAD
5. RE-STRIPE TO CREATE NEW BOAT TRAILER ACCESSIBLE PARKING STALL AND ACCESS AISLE
6. RE-STRIPE TO CREATE NEW BOAT TIE-DOWN STALL

⬟ WELCOME KIOSK

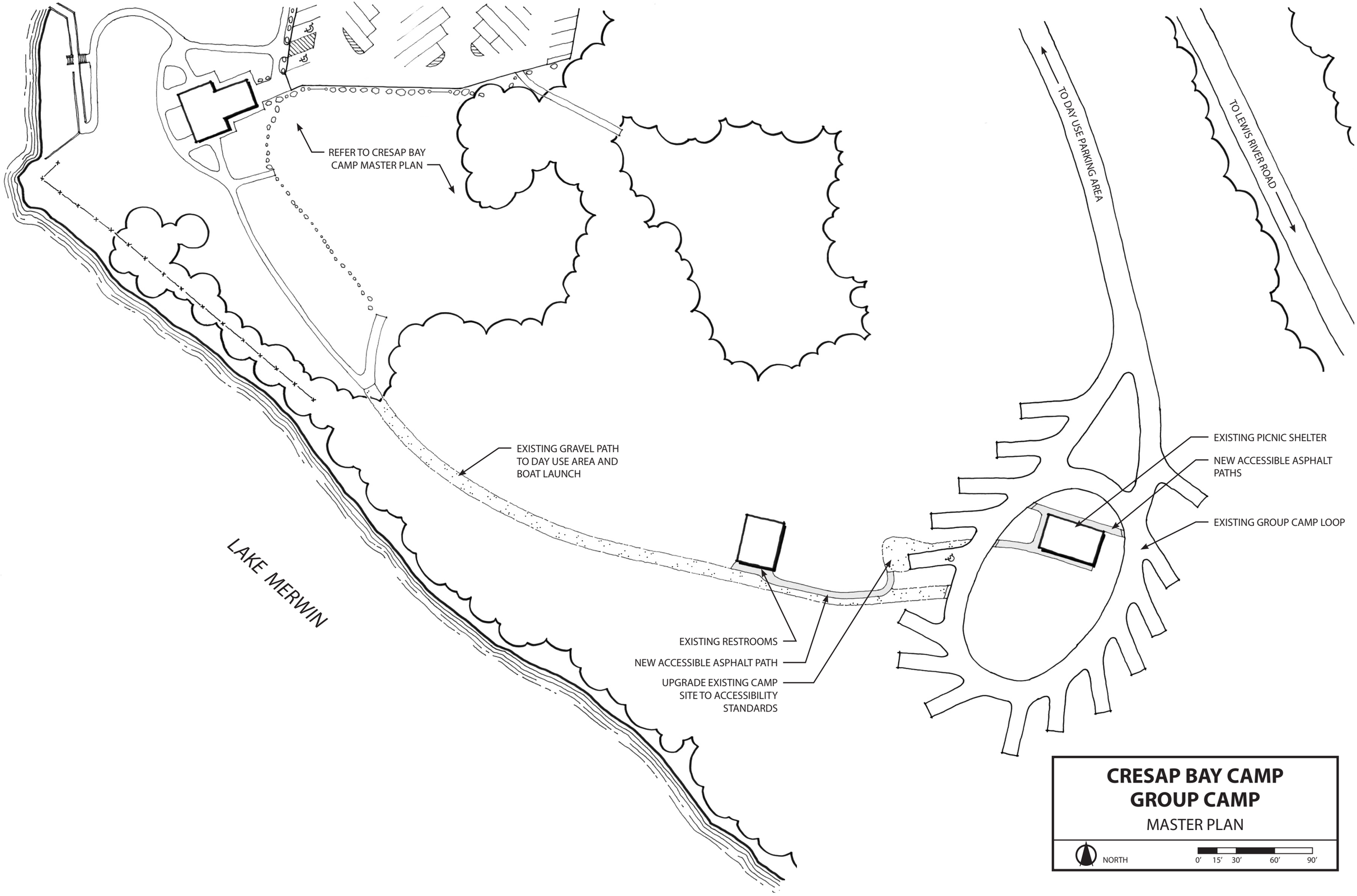
▲ INTERPRETIVE KIOSK

CRESAP BAY CAMP

MASTER PLAN

NORTH

0′ 15′ 30′ 60′ 90′



CRESAP BAY CAMP
GROUP CAMP
MASTER PLAN

NORTH

0′ 15′ 30′ 60′ 90′

Saddle Dam Park

PROGRAM

FERC New Project License Requirements:

1. Trail Connection: (By 5-year License Anniversary)
   A. Develop a non-motorized, multi use (not including equestrian), natural surface trail along base of dam, between the parking lot and existing Saddle Dam trail at north end of the dam.

2. Horse Trailer Parking: (By 5-year License Anniversary)
   A. Improve the parking area outside of the Saddle Dam Park gate.
   B. Accommodate 5-10 vehicles with horse trailers.
   C. Provide one horse tie-up rail.

3. Picnic Shelter: (By 7-year License Anniversary)
   A. Provide a new day use group picnic shelter in the day use area.
   B. Must be placed near where boat-in users can access a boat-in dock, and possibly near the shoreline to beach small boats.
   C. To be located on Yale Lake, site not specified.

ADA Evaluation Recommendations: (By 7-year License Anniversary)

4. Designate 1 boat trailer accessible parking stall near the boat ramp, with access route.
5. Designate 1 van accessible parking stall near the boat ramp, with access route.
6. Establish access route throughout day use area.
7. Provide barrier-free picnic tables.
8. Modify restroom signage to ANSI standard.

EXISTING CONDITIONS

Saddle Dam Park sits between Yale Dam and the earthen Saddle Dam. The day use area and boat launch are on a ridged point between the two dams, and the large parking lot and Saddle Dam Farm sit on the lower side of the earthen dam. In 2001 a campground was removed, and it currently operates as a day use park.

Vehicular Circulation and Parking

Park visitors drive about five miles between Lewis River Road and the parking area. The large gravel parking lot is sized for a variety of vehicles including boat trailers. There are four paved accessible parking stalls. Three of these would be van accessible, except they are not signed as such. There is no boat trailer accessible stall.

The entry road continues to the top of the earthen dam, where there is turnaround for the boat launch. The large 110' outside diameter of the turnaround and the generous layout of the parking lot allow very large trailer combinations such as an RV with a long boat trailer.

An old asphalt access road continues from the turnaround, around the point to the top of Yale Dam. It is blocked by removable bollards and is for PacifiCorp use only.

Horse Trailer Parking

Just outside the fee booth and gate for Saddle Dam Park is an open area used for horse trailer parking, for accessing a nearby equestrian trailhead. This triangular area is formed by the intersection of the park entry road and a gated road that leads to Yale Dam. There is no traffic control at this intersection. A gated logging road also begins at this intersection, and creates additional open space for parking. The spaces for parking are not well defined and limited in size. The truck traffic heading to the dam is a concern as it could potentially spook horses nearby.

Pedestrian Circulation

An accessible route connects the parking lot and restroom building to the boat launch turnaround, with switchbacks to ascend the dam. This path meets ADAAG standards, but the accessible parking stalls are separated from the day use area by a long distance and the climb up the side of the dam. There is no designated accessible route beyond this path.

The existing open area used for parking horse trailers.

The day use area is reached from the turnaround by timber/concrete steps, and circulation through the day use area is on grass and dirt surface. The dam access road is also used by visitors on foot for exploration and for the view of Mt. St. Helens from the point.

Boat Launch

The boat launch ramp was extended in 2001 for boat access at lower reservoir levels. The boarding float is in good condition but does not have edge protection. There is also no accessible route leading to the boarding floats, and no boat trailer accessible parking stall.

Water Access and Swim Area

The swimming beach is just below the day use picnic area, separated by a narrow grassy slope. The swim area is enclosed by booms.

Shoreline Erosion

Not applicable.

Natural Resources

On the downhill side of the Saddle Dam, the large open fields of the Saddle Dam Farm are part of the Lewis River Wildlife Habitat Management Area.

Vegetation

The ridge above the day use area is a dense mixed conifer/ deciduous forest, while the picnic area is under a canopy of mostly large alders. The day use area is maintained as mown grass, and there is a small grassy terrace beyond the day use and swim areas, just above the water.

Below Saddle Dam, the large open fields of Saddle Dam Farm have small groves and hedgerows of mixed conifer and deciduous trees. There is a larger mixed grove at the parking lot.

Restrooms

The restroom building in the parking lot is fully accessible except that the signage does not meet ANSI standards. Also it is not connected by an accessible route to the day use area.

Utilities

See the Septic Disposal Matrix in Part 2 for details on the existing septic disposal system.

The existing drinking fountain at the picnic area appears to drain to a gravel sump.

Drainage

Not applicable.

Site Amenities

Campsites

Not applicable.

Picnic Shelter

Not applicable.

Picnic Tables

Eight picnic tables are lined up along the narrow terrace that forms the day use picnic area. Each table has a barbecue fire pit. There are several other picnic tables distributed between the parking lot and the beginning of the dirt dam access road. None of the picnic tables are of accessible design.

Fee booth

All visitors to the day use area pass a fee booth at the entry to the parking lot. There is an unused fee booth near the horse trailer parking area, about three-quarters of a mile before reaching the day use area.

The beach and picnic terrace, from the edge of the turnaround

Wide view across Yale Lake from the east end of the picnic terrace

PROPOSED IMPROVEMENTS

The Saddle Dam Park master plan primarily focuses on making major features of the day use area universally accessible. It also adds a new day use picnic shelter which is targeted for use by boat-in visitors, adds a trail connection from the parking lot, and upgrades the existing horse trailer parking.

Vehicular Circulation and Parking

One van accessible stall and one boat trailer accessible stall will be added at the boat launch turnaround area. They will be located on the level area at the beginning of the existing dam access road. A removable bollard at the end of these stalls will allow access for PacifiCorp vehicles.

Three of the four existing accessible parking stalls will be signed as van accessible.

Horse Trailer Parking

The existing horse trailer parking will be expanded, paved with gravel, and defined for circulation and up to ten pull-through horse trailer stalls. The expanded parking will require some clearing along the edges of the existing gated logging road, and the gate will be moved back. With 55' foot long stalls and large 110' outside diameter turns, this parking area will accommodate large vehicle and trailer combinations.

The individual stalls will not be marked, so their width can vary based on user needs. The provided space will accommodate 10 stalls at 12' wide each, 8 stalls at 15' wide, or 6 stalls at 20' wide. Hitching rails will be added near the parking. The open triangular area that is currently used for horse trailer parking will be available for overflow parking.

The intersection of the park entry road and the gated road to the dam will be re-configured to separate the horse trailer parking from PacifiCorp truck traffic and create a safer traffic flow. The angled west connection between the two roads will be removed, blocked by boulders, and re-vegetated. The boulders will be arranged so that temporarily moving a few will allow occasional access for cranes or other oversize vehicles.

The east connection at the horse trailer area will be slightly re-configured to form a 'T' intersection with a stop sign. Both horse trailers and most PacifiCorp vehicles headed for the dam will use this intersection, but the dam traffic will not pass near the horse trailer parking.

Pedestrian Circulation

The paved boat trailer turnaround will be striped to designate accessible routes connecting both the new accessible parking spaces and the existing switchback path to a new paved path which leads down to the day use area. This new path will be graded at maximum 5% slope to be an accessible route without requiring handrails. It will be built on fill to accommodate a two foot shoulder and maximum 3:1 slope below the path.

This new accessible route will connect all accessible parking stalls to the day use picnic area, the new day use picnic shelter, the new vault toilet, and the boat launch boarding floats. Another short accessible route will connect the new accessible parking stalls to a nearby accessible picnic table.

Paved landings will be added to the existing steps between the turnaround and the day use picnic terrace. The lowest steps will be buried since they are below the level of the accessible path where they connect.

A gravel path will follow dam access road grade to a small viewpoint area at the end of the point. This path will not meet ADAAG accessibility requirements, but will meet the UAOR "Moderate" difficulty standard for accessible recreation trails. A new fence with a vehicular gate just past the viewpoint will discourage visitors from walking further on the road toward the dam.

Trail Connection

A new trail will connect the parking lot to the existing Saddle Dam Trail. The multi-use trail will be of a natural surface such as wood chips or gravel, and motor vehicles and equestrians will not be allowed on it. There will be a new signed trail head at the north corner of the parking lot.

Boat Launch

The boarding float will be upgraded with bull rails for edge protection.

On the beach east of the swim area, anchor buoys and moorage eye cleats on boulders will be installed for use by boat-in visitors. The moorage eye cleats will be just below an existing grassy terrace, and near the new day use picnic shelter. The anchor buoys will allow users to anchor their boat away from the shore, but allow access to shore by wading.

Water Access and Swim Area

No proposed improvements.

Shoreline Stabilization

Not applicable.

Natural Resources

The new trail connection through the Saddle Dam Farm wildlife area will be of a natural surface and motor vehicle use will be prohibited.

Vegetation

In two areas on the slope below the dam access road, trees will be selectively trimmed and cut to open views out from the picnic tables and the viewpoint at the end of the gravel path.

At the Horse Trailer Parking, the area of the removed intersection will be seeded with a mowable native meadow mix to allow occasional vehicle traffic.

Restrooms

A new double stall vault toilet will be installed near the top of the boat launch where it will also be convenient to the day use area.

A new single stall vault toilet will also be installed at the horse trailer parking area.

The signage in the existing restroom building will be replaced with ANSI standard signage.

Utilities

The vault toilets will be pumped based on use.

The drinking fountain at the picnic area will be moved a short distance to accommodate the new path, and will utilize a covered gravel infiltration sump. Alternatively, a small gray water treatment system and infiltration system may be required based on consultation with the County Environmental Health representative. If that determination is made, the drinking fountain will need to be moved further from the water, probably near the new accessible parking, to achieve the required 100' drain field setback.

Drainage

Not applicable.

Site Amenities

Campsites

Not applicable.

Picnic Shelter

A day use picnic shelter will be built at the far end of the picnic area terrace. This shelter will be positioned near the new beach moorage cleats to be convenient for boat-in visitors. Approximately 18' x 45', it will accommodate three accessible picnic tables, but will not have a sink.

This shelter is intended to satisfy the Lewis River Settlement Agreement (SA) requirement to provide a new day use picnic shelter for boaters on Yale Lake. The SA names Yale Park, Cougar Park, and Beaver Bay as the options for locating this shelter. However, we feel that Saddle Dam Park is the best location on Yale Lake for this shelter. It has an open, gently sloped beach on which to land boats. The forested ridge shelters the beach from the prevailing southwest winds. The beach is adjacent to deeper water, and within close view of the shelter. The other locations do not have a beach conducive for landing boats near a potential shelter site which is not already enclosed by booms as a swim area. Saddle Dam Park's day use area also sees fewer visitors, which makes it the best candidate to accommodate a new user group. The shelter site is at the far end of the park, remote from the parking lot, which will make it an attractive destination for boaters.

Picnic Tables

In addition to the three picnic tables in the new shelter, there will be seven picnic tables on the day use picnic terrace. They will be oriented to the view over the lake toward Mount St. Helens. There will also be three picnic tables higher up on the dam access road. One table at each location will be of accessible design and positioned on an asphalt pad.

Fee booth

No proposed changes.

YALE LAKE

SADDLE DAM

EXISTING BOAT LAUNCH; UPGRADE BOARDING FLOAT FOR ACCESSIBILITY

EXISTING SWIM AREA

NEW DAY USE PICNIC SHELTER

NEW ANCHOR BUOYS

NEW MOORAGE EYE CLEATS ON BOULDERS

EXISTING GRASSY TERRACE

SELECTIVE CUT AND TRIM FOR VIEWS OF MOUNT ST. HELENS

SELECTIVE CUT AND TRIM FOR VIEWS

NEW GRAVEL PATH AND VIEW POINT

NEW FENCE WITH VEHICULAR GATE

NEW PICNIC TABLES TO REPLACE EXISTING; ORIENT TO VIEW

2 NEW ACCESSIBLE PICNIC TABLES ON ASPHALT PADS

TO LEWIS RIVER ROAD AND HORSE TRAILER PARKING

NEW GRAVEL PATH ON SIDE OF ROAD

EXISTING ACCESSIBLE PARKING STALLS; ADD SIGNAGE TO DESIGNATE AS VAN ACCESSIBLE

EXISTING FEE BOOTH

1 NEW VAN ACCESSIBLE PARKING STALL AND 1 NEW BOAT TRAILER ACCESSIBLE PARKING STALL

NEW VAULT TOILET

NEW REMOVABLE BOLLARD FOR PACIFICORP ACCESS

TO YALE DAM SPILLWAY

KEY NOTES

1. NEW ACCESSIBLE ASPHALT PATH
2. NEW ACCESSIBLE ASPHALT PATH ON FILL SLOPE
3. STRIPE EXISTING PAVING TO DESIGNATE ACCESSIBLE ROUTE
4. RELOCATE EXISTING DRINKING FOUNTAIN AND FISH SIGNS
5. EXISTING ACCESSIBLE ASPHALT PATH AND PARKING
6. EXISTING STEPS WITH NEW PAVED LANDINGS

WELCOME KIOSK

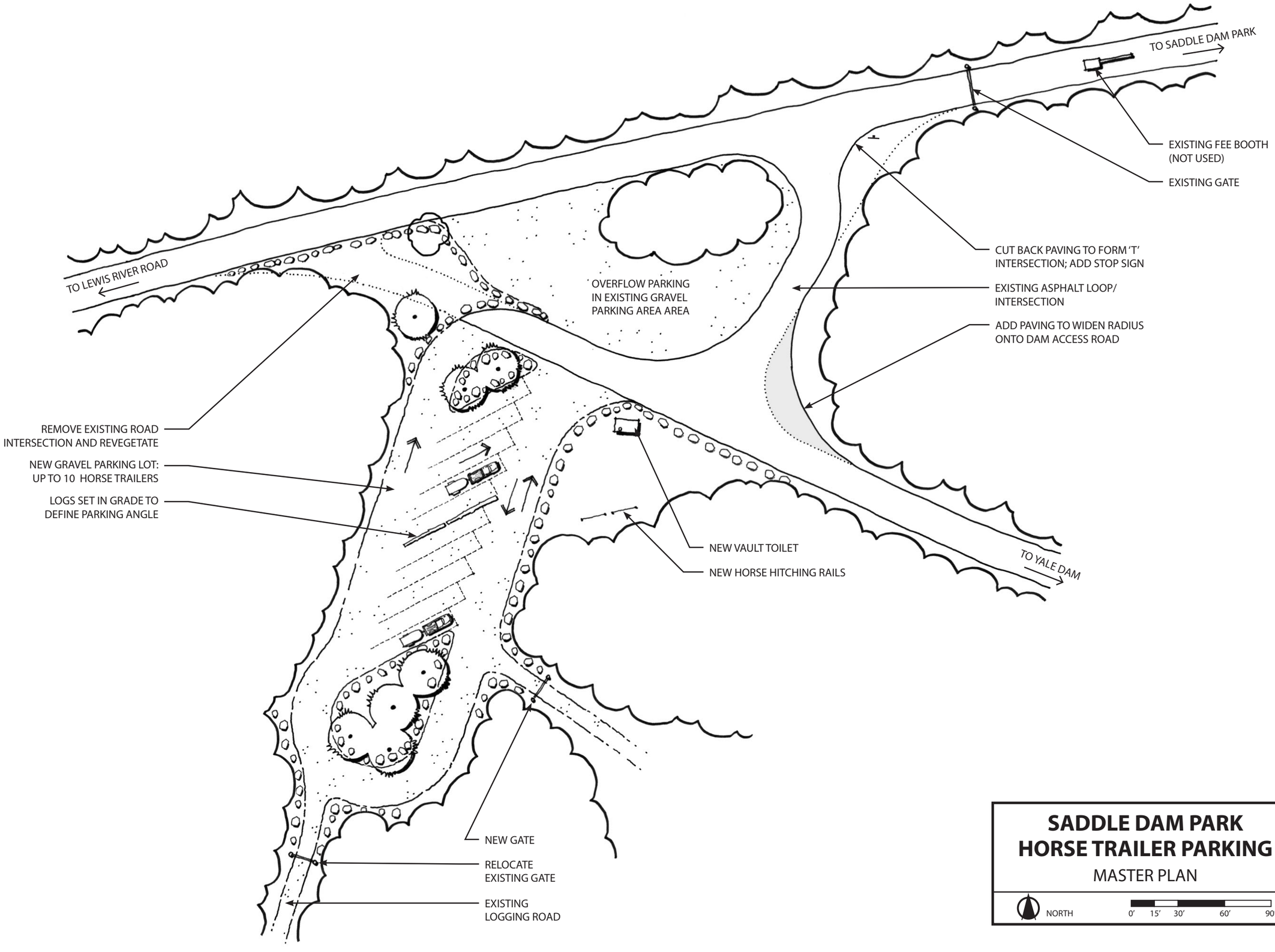
INTERPRETIVE KIOSK

SADDLE DAM PARK

MASTER PLAN

NORTH

0' 15' 30' 60' 90'



SADDLE DAM PARK
HORSE TRAILER PARKING

MASTER PLAN

NORTH

0′ 15′ 30′ 60′ 90′

SADDLE DAM PARK TRAIL CONNECTION

MASTER PLAN

NORTH

0′ 50′ 100′ 200′ 300′

TO HORSE TRAILER PARKING

EXISTING SADDLE DAM TRAIL

YALE LAKE

SADDLE DAM

NEW MULTI-USE TRAIL CONNECTION (NO EQUESTRIAN)

NEW TRAIL HEAD

EXISTING GRAVEL DRIVE

REFER TO SADDLE DAM PARK MASTER PLAN

TO LEWIS RIVER ROAD AND HORSE TRAILER PARKING

EXISTING GRAVEL PARKING LOT

EXISTING RESTROOM

4 EXISTING ACCESSIBLE PARKING STALLS; ADD SIGNAGE TO DESIGNATE 3 AS VAN ACCESSIBLE

YALE DAM SPILLWAY

Yale Park

PROGRAM

FERC New Project License Requirements:

1. Boat Ramp: (By 4-year License Anniversary)
   A. Extend one concrete boat ramp lane 10'-20' horizontal and 1.5'-3' vertical, depending on topography.
   B. Replace existing floating boat docks.

2. Parking Lot: (By 4-year License Anniversary)
   A. Better define and expand parking lot.

ADA Evaluation Recommendations: (By 4-year License Anniversary)

3. Upgrade restroom signage to ANSI standard.
4. Develop access route from restroom to upper level and picnic shelter.
5. Develop access route throughout park to link parking lot to restroom, swim area, and park amenities.
6. Provide barrier-free picnic amenities, including access route throughout day use area.
7. Remove one picnic table from shelter.
8. Add signage and/or tactile indicators to identify water fountains.
9. Replace water fountain handles and add signage or detectable surface.
10. Rebuild boat ramp and replace boarding floats.
11. Designate additional accessible stalls, including 1 van and 1 boat trailer accessible parking stall, with access route to boat ramp.

EXISTING CONDITIONS

Yale Park is a heavily used boat launch and day use park, operating year-round. Located adjacent to Lewis River Road, it is the most easily accessed boat launch on Yale Lake. The day use area features a swimming area and picnicking under the trees or on an open lawn.

Vehicular Circulation and Parking

All park visitors pass a fee booth in the driveway. The queuing distance behind the booth is sometimes inadequate, with visitors waiting to enter lined up on along the side of the highway.

The large open parking area is partially a grass surface, with a vaguely defined gravel circulation loop. There is no definition for rows of parking stalls, but on busy days the park host directs traffic to maximize parking counts. On Saturday, July 4, 2009, one of the busiest days of the year, the park host reported a peak of 81 boat trailers and 172 vehicles packing the lot.

There are two paved accessible parking stalls near the restroom building, and no boat trailer accessible stall.

A gate at the northeast edge of the parking lot allows access to the day use area for maintenance vehicles.

Pedestrian Circulation

Paved paths connect the accessible parking stalls to the restrooms. There is no other defined pedestrian circulation.

Boat Launch

The four-lane boat launch has two boarding floats. One concrete abutment at the north end of the ramps could potentially have an additional boarding float added to serve the fourth lane. The boarding floats do not meet accessibility standards and are not connected to an accessible route.

Water Access and Swim Area

The day use area has a wide beach with a swim area enclosed by booms.

Shoreline Erosion

On the east side of the day use area, the bank has been eroded by wave action. The vertical, and sometimes overhanging, bank is 4' to 5' high.

The shoreline adjacent to the parking lot is protected from erosion by loose rip-rap. Southwest of the parking lot, the shoreline is very flat and no erosion is evident.

Open parking area, with boat launch in background

Eroded bank adjacent to day use picnic area

Natural Resources

The well head located near the east corner of the parking lot is regulated by the Washington State Department of Health; they require a 100' Sanitary Control Area around the well head. Parking is not allowed within this 100' buffer zone, but users frequently park at this corner of the lot.

The densely vegetated area southwest of the parking lot is a likely wetland, although it has not been delineated.

Vegetation

Over half of the day use area is a dense stand of tall Douglas firs. The rest of the day use area is open lawn with groves of alder.

A row of trees provides some buffer between the parking lot and the highway. There is very little riparian vegetation between the parking lot and the lake.

At the southwest end of the parking lot is an open lawn with an old orchard which serves as an overflow picnic area. Beyond the orchard is a dense stand of alder and cottonwood.

Restrooms

The restroom building is fully accessible except that the signage does not meet ANSI standards.

Utilities

The septic disposal system for the restrooms is unknown.

There are two drinking fountains and one water spigot at the existing picnic area. They appear to drain to gravel sumps.

Drainage

Stormwater drains off of the parking lot directly into the lake, with a very little vegetation on the rip-rap slope separating the two.

Site Amenities

Campsites

There are two host campsites with RV hookups near the restroom building.

Picnic Shelter

There are two small day use picnic shelters. One is in the trees, situated with a filtered view out to the lake. It has two picnic tables, but there is very little maneuvering room around them. The second picnic shelter is at the northeast edge of the parking lot. It is of attractive heavy wooden construction with a peaked roof, and covers three picnic tables set in a row. Neither of the shelters are connected to an accessible route nor have accessible picnic tables.

Picnic Tables

In addition to the picnic tables in the shelters, there are picnic tables scattered around the day use areas. About 25 are in the stand of Douglas firs, seven are near the shoreline in a grove of alder, and eleven are in the orchard just southwest of the parking. None of the picnic tables are accessible.

Fee booth

The fee booth sits at the corner of the parking lot, just inside the park entrance.

View across open lawn to beach and swim area

PROPOSED IMPROVEMENTS

The Yale Park master plan primarily focuses on upgrading the parking lot for safety and efficiency, while also providing universal access to the day use facilities and the boat launch.

Vehicular Circulation and Parking

The gravel parking lot will be redefined to establish a clear sequence of circulation and parking for the boat launch users, and to provide dedicated vehicle parking areas for the day use area. The boat trailer parking will be organized with single rows of pull-through stalls and drive aisles wide enough for safe use. Most drive aisles will be signed for one-way traffic. Lanes for the boat launch queue and for boat tie-down will be provided. A separate row of pull-through stalls will be provided for overnight storage of boat trailers.

Much of the vehicle parking for the day use area will be directly adjacent. Additional vehicle parking will be provided on the outside edges of the parking lot. Overflow vehicle parking will be defined on the existing lawn near the fee booth in part of the orchard.

The parking stalls will be grass surface, and the drive aisles will be gravel. The grass surface will reduce dust, and reduce the amount of impervious surface on the site, simplifying the permit process. Selection of the correct soil for the grass areas will be critical to ensure durability, especially during wet weather.

Four paved accessible parking stalls will be provided near the restroom building, including two van-accessible stalls. One paved boat trailer accessible stall will be provided near the boat launch, with an accessible route connection to one of the boarding floats.

The edge of the parking lot along the lake will be pulled back to make room for the stormwater swales and riparian plantings.

Parking at the east corner of the parking lot will be removed inside the 100' well head buffer. The maintenance gate in this area will be moved to the newly defined edge.

The paved driveway approach just outside the parking lot will be widened with a larger radius to safely accommodate entering and exiting traffic. The driveway will total three lanes: two entry lanes and one exit lane, separated by concrete barriers and the fee booth. The added entry lane, combined with moving the fee booth, will increase the queuing area for traffic coming off the highway. The existing gate will be replaced with a three-leaf gate, which will allow flexibility for controlling each lane for differing levels of traffic.

Pedestrian Circulation

A new paved path will provide an accessible route to connect the accessible parking stalls, the restroom building, and the accessible picnic tables added in the existing shelter and near the shoreline. It will continue down to the water's edge, and even into the water at a range of reservoir levels.

An accessible route will connect the boat trailer accessible parking stall to a boarding float, the vault toilet, and an accessible picnic table.

Boat Launch

Two of the four boat launch lanes will be extended for boat access at lower reservoir levels. Three new accessible boarding floats will replace the two existing boarding floats. The floats will integrate a grated walking surface consistent with Department of Fish and Wildlife requirements.

Water Access and Swim Area

A new paved path will provide an accessible route down to the water's edge, and even into the water at a range of reservoir levels.

Shoreline Stabilization

The eroded bank at the day use area will be reinforced with stone bank stabilization at a 2.5H:1V slope to protect against further wave erosion, and to mitigate the danger of the existing drop-off.

The rip-rap bank at the parking lot will be repaired and supplemented as needed. It will be planted in a similar manner to the typical stone bank stabilization.

Natural Resources

The defined edge of the parking lot will be pulled back at the east corner of the lot to prevent parking within the 100' Sanitary Control Area buffer. Vehicle circulation is not prohibited within this buffer.

The parking lot will be expanded toward the likely wetland. When that wetland is delineated, it may be determined that the parking expansion is inside the wetland buffer. If that is the case, then the parking expansion may need to be abandoned if no other arrangements can be made.

Vegetation

The stormwater swales and the top of bank along the parking lot will be planted with riparian trees to visually buffer the parking lot from the water, and to provide shade on the parking lot. The islands defined within the parking lot will also be planted with native trees to visually break up the wide expanse and to provide shade. The rows of parking stalls will be planted with grass to reduce dust reduce the overall impervious surface.

At the east corner of the parking lot inside the 100' well head buffer, the gravel parking surface will be replaced by lawn and native trees planted to create a new picnic area.

Restrooms

The signage at the restroom building will be upgraded to meet meet ANSI standards.

A new double stall vault toilet will be installed near the boat launch.

Utilities

A new accessible drinking fountain will be installed near the restroom building, on an accessible route. It will drain to the existing restroom's septic disposal system. This new drinking fountain is intended to address the ADA Evaluation's recommendation to upgrade the existing drinking fountains, which are not on an accessible route and will not be modified.

The vault toilet will be pumped when required.

Drainage

The overall area of the newly defined parking lot will be slightly smaller than the existing parking lot. The grass parking stalls will total a slightly larger area than the existing grass area in the middle of the lot. Because of these two factors, the overall area of impervious surface will be reduced from the current condition.

Stormwater runoff from the parking lot will be intercepted by stormwater treatment swales before entering the lake. Minimal grading will be required to direct most of the runoff into the swales. A concrete apron with an angled leading edge will be built at the top of the boat ramp; this raised edge will direct runoff to one of the swales.

Since the overall impervious surface on the site will not be increased, these swales will not need to conform to any regulatory requirements. They can be built as minimal interventions, to intercept the polluted parking lot runoff rather than letting it flow directly into the lake.

Site Amenities

Campsites

The two host campsites will be shifted slightly to make room for vehicle circulation at the corner of the parking lot. No modifications will be required to the RV hookups.

Picnic Shelter

One of the three picnic tables in the existing picnic shelter near the parking lot will be replaced with an accessible picnic table, oriented perpendicular to the long axis of the shelter. The narrow concrete pad under the shelter will be expanded to provide adequate maneuvering room around the accessible picnic table.

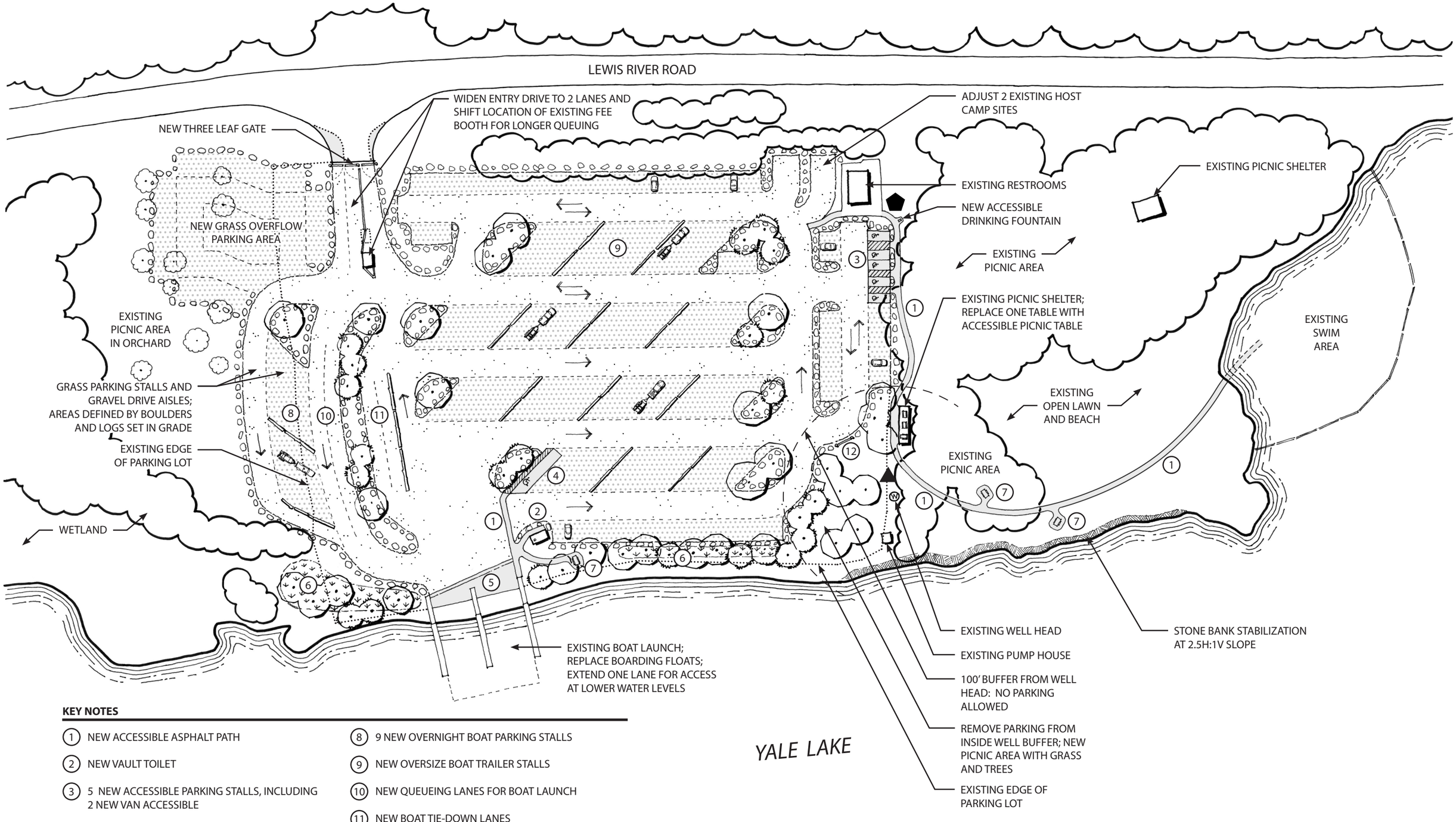
This shelter is currently at the edge of the parking lot, but it will be bordered by the new picnic area when the edge of the parking is moved back to accommodate the well head buffer zone.

Picnic Tables

In addition to the accessible picnic table added in the shelter, there will be three new accessible picnic tables: two in the day use area near the shoreline and one near the boat launch. The existing picnic tables will remain, with several relocated to a new picnic area created inside the well head buffer zone.

Fee booth

The fee booth will be moved about 25’ further into the parking lot. Combined with widening the entry drive to two lanes, this will create added queuing area for traffic coming off the highway.



KEY NOTES

1. NEW ACCESSIBLE ASPHALT PATH
2. NEW VAULT TOILET
3. 5 NEW ACCESSIBLE PARKING STALLS, INCLUDING 2 NEW VAN ACCESSIBLE
4. 1 NEW BOAT TRAILER ACCESSIBLE PARKING STALL
5. NEW CONCRETE APRON WITH LIP TO DIRECT DRAINAGE INTO TREATMENT SWALE
6. NEW STORMWATER TREATMENT SWALE
7. NEW ACCESSIBLE PICNIC TABLE ON ASPHALT PAD
8. 9 NEW OVERNIGHT BOAT PARKING STALLS
9. NEW OVERSIZE BOAT TRAILER STALLS
10. NEW QUEUEING LANES FOR BOAT LAUNCH
11. NEW BOAT TIE-DOWN LANES
12. RELOCATE EXISTING GATE FOR MAINTENANCE ACCESS

GRASS PARKING STALLS

WELCOME KIOSK

INTERPRETIVE KIOSK

PARKING SUMMARY

BOAT TRAILER	74
VEHICLE	89
VEHICLE OVERFLOW	47

YALE PARK

MASTER PLAN

NORTH

0' 20' 40' 80' 120'

Cougar Camp

PROGRAM

FERC New Project License Requirements:

1. Day Use Restroom: (By 6-year License Anniversary)
   A. Replace or renovate the day use restroom to meet ADAAG standards.

2. Existing Campsites: (By 14-year License Anniversary)
   A. Renovate the existing tent-only campsites.
   B. Relocate shoreline sites farther back from shoreline.
   C. Retain +/- 45 sites total.

3. Campground Expansion: (when needed, based on monitoring RRMP trigger thresholds)
   A. Provide one of the following:
      i. +/- 78 new RV/tent sites and one new group camp
      ii. +/- 90 new RV/tent sites
   B. New sites to be located in the undeveloped area between Cougar Camp and Lewis River Road. New sites could also potentially be located at boat launch area, which could be closed if necessary.
   C. Provide adequate buffer distance between new sites and Lewis River Road and Cougar Creek (coordinate with USFS regarding Cougar Creek Conservation Covenant).
   D. Add 2-3 new restrooms (not specified or required in FERC agreement).

ADA Evaluation Recommendations: (By 4-year License Anniversary)

4. Designate 1 van accessible parking stall at the day use area, with access route.
5. At the day use restroom, upgrade signage to ANSI standards.
6. Develop an access route throughout day use area connecting the restroom, swim area, and barrier-free picnic sites.
7. Replace or retrofit the playground equipment at day use area to meet accessibility standards.
8. At the boat launch, designate 1 boat trailer accessible parking stall and one van accessible parking stall, with access route to the boarding float.
9. Install transition plates and railings onto the boat launch boarding floats.
10. At the group camp, develop an access route and barrier-free amenities.
11. Designate 4 barrier-free camp sites with access route to restrooms.
12. At the campground restroom, adjust the shower shelves and door pressure.

EXISTING CONDITIONS

Cougar Camp is just off Lewis River Road, near the town of Cougar. It is split down the middle by Cougar Creek. The west half is primarily a day use area, plus a group camp loop. The east half has a boat launch and a larger loop of individual campsites. Even though there is only one entrance to the site, the two halves are often referred to by separate names: Cougar Park for the west side and Cougar Camp for the east side.

Vehicular Circulation and Parking

The main access drive is one way heading east: all visitors enter from the highway at the west end and exit the site one quarter mile to the east. The entry drive passes a fee booth just before the gravel day use parking lot and group camp. As the drive continues east it crosses a narrow bridge over Cougar Creek. 150' past the creek it returns to the highway. This exit section of the drive is within the 500' Cougar Creek Conservation Easement.

The east side camp loop is served by a paved one-way loop drive off the east end of the main access drive. The group camp has a gravel loop drive off the north end of the day use area.

A gravel parking lot for users of the boat launch is located on the east bank of Cougar Creek. Its west entry is the only current access; an old east access has been blocked, possibly because of conflict with the entry to the adjacent camp loop.

There are four accessible parking stalls at the day use parking lot; these would be van-accessible except that they are not signed as such. At the boat launch there are two paved accessible parking spaces sized for boat trailers. These are not properly signed and are not connected to the boarding float by an accessible route.

Pedestrian Circulation

At the day use area, a paved accessible path connects the accessible parking stalls to the restroom building, and continues to a small overlook above the beach. There are no other accessible routes in the day use area or campground.

A short paved path between the accessible boat trailer stalls and the boat launch is too steep to meet accessibility requirements.

A trail follows an old road grade due east from the main access drive, leading down to the water. There is also a trail on an old road grade near the day use area, which leads to a floating dock and then continues out onto a long, narrow peninsula.

The day use swim area, with the bridge in the background

The existing entry road, facing west toward the entrance

Forest in the undeveloped east side of the campground

Boat Launch

The boat launch has one boarding float which needs repair and does not have continuous edge protection. It does not meet accessibility requirements because it lacks transition plates at the gangway ramp. The boat ramp is just below the outfall of Cougar Creek and requires seasonal clearing of debris from the creek. The bathymetry in the area of the ramp only allows use of the ramp at relatively high reservoir levels.

A floating dock on the opposite side of the creek mouth from the boat launch provides moorage for small boats and is connected by a trail to the day use area.

Water Access and Swim Area

The day use area has a sandy beach with a swim area enclosed by booms. The east side camp loop has several campsites that are close to the water's edge, but on the east side of the same loop the bank rises in height and prevents access to the water. A trail leads to a break in the tall bank just northeast of the same camp loop, where there is a small beach.

Shoreline Erosion

The east bank of the east side camp loop is eroded by wave action. The nearly vertical, and in places overhanging bank is 2' to 8' high, above a steep boulder slope. The erosion is encroaching on several campsites, and is a safety concern.

Natural Resources

Cougar Creek is home to runs of Kokanee salmon and endangered bull trout. There is a 500' conservation easement around the creek, north of the bridge, where no new development is allowed. The easement does not include previously developed areas such as the group camp and the maintenance building.

Vegetation

The site is dominated by dense conifer forest. Around the day use area the forest includes many mature trees and dense native understory. This forest transitions to dense deciduous riparian forest near the shoreline.

On the east side the forest is slightly more open, with less understory growth and fewer mature trees. The undeveloped area north of the east side camp loop is relatively level, with several shallow dry stream channels. The undeveloped area is bounded on the east by a steep hillside with larger conifer trees. There is concern that the hillside may be unstable and that falling trees may be a hazard.

A campsite at the top edge of the eroded bank

The day use area is mostly open lawn, partially shaded by the adjacent forest and by scattered native and ornamental trees on the lawn.

Restrooms

The large restroom building at the day use area does not match current standards for PacifiCorp restrooms, and is planned to be replaced.

The restroom building at the east side camp loop also includes showers, and is fully accessible except that the shower shelves and door pressure need adjustment.

Utilities

The septic disposal systems for the existing restrooms and the sink in the existing group camp shelter are unknown.

The gray water disposals in the existing east side camp loop likely drain to gravel sumps.

Drainage

Not applicable

Site Amenities

Campsites

The east side camp loop on the east side has 38 car-only tent sites, seven walk-in tent sites, and two host sites. Several of the sites have south-facing shoreline frontage. On the east side of the loop, the bank rises to 8' high and is severely eroded, forming a dangerous drop-off, the edge of which is encroaching on several campsites. Walk-in tent sites 41 through 45 are too close to the edge and are a safety concern. There are no accessible campsites.

The group camp has 15 closely spaced car-only tent sites and a picnic shelter.

Picnic Shelter

The group camp picnic shelter measures approximately 24' x 24'. It is an attractive wood construction with a peaked roof, a sink, and a fire pit with a chimney.

Picnic Tables

There are six picnic tables at the day use area, and one at each campsite. Adjacent to the group camp, there is a group picnic area with 13 tables on a terrace above the lush Cougar Creek floodplain. None of the site's picnic tables are accessible.

Fee booth

The fee booth is positioned on the left side of the entry drive just before the day use area and group camp.

Play Structure

The small existing play structure in the day use area is not accessible.

The shady group picnic area, with the group camp shelter beyond

The Cougar Camp master plan focuses on a large expansion of the camping capacity, and on organization of the vehicle traffic for each side of the park. It will also provide universal access to all major features of the park.

Vehicular Circulation and Parking

The main access drive will be re-aligned to provide two points of entry and exit, and to allow sections of two-way traffic. The west entry will be signed for standard vehicle use only; all oversize RV and boat trailer traffic must use the east entry.

The west entry/exit and the main drive to the day use area will serve users of the group camp and day use area only. This section will be two-way traffic, which will require minimal widening.

The middle section of the main drive between the day use area and the boat launch will remain as a narrow one lane drive and bridge for use by pedestrians and maintenance vehicles only.

The existing exit drive east of the bridge is within the 500' Cougar Creek Conservation Easement and will be removed. A new drive will be built just outside of the easement, with a new east entry/exit to serve the boat launch and all east side camp loops. The new main drive will be two-way traffic between the entry and the boat launch. An abandoned second driveway at the boat launch parking lot will be re-opened to create a turnaround loop, before the main drive switches to one-way eastbound traffic.

The entry to the existing east side camp loop will be re-aligned to clarify the circulation and create a safe intersection with the new main drive.

The four existing accessible parking stalls at the day use area will be signed as van-accessible. At the boat launch, the existing paved accessible parking area will be striped and signed to designate 1 boat trailer accessible stall and one van accessible stall.

Two van accessible parking stalls will be added at the group picnic area, and one van accessible stall will be added nearby at the existing group camp picnic shelter. Three additional van accessible stalls will be provided: one at the new group camp and one at each of the two new restrooms in the east side campground expansion.

Pedestrian Circulation

The existing paved accessible path at the day use area will be extended to connect with the new accessible picnic tables, and the play structure. An accessible path will also be extended north from the day use restroom, crossing the main drive and connecting to the group picnic area and the group camp.

A new paved accessible route will connect the boat launch to the nearby accessible parking and vault toilet. Because of the elevation change it will connect at the back side of the parking so that it is long enough to keep the slope within accessible standards.

All designated accessible campsites will be connected by an accessible route to the nearest restroom building. At the group camp, an accessible route will also connect to the nearby picnic shelter.

A future trail connection east toward Beaver Bay campground will be reached by existing and new campground trails.

Boat Launch

The boarding float will be repaired and upgraded with continuous bull rails and transition plates at the gangway ramp.

Water Access and Swim Area

The steep banks on either side of the small beach just north of the east side camp loop will be graded back for stabilization and to open up the area. This will be the closest water access for many of the east side camp sites.

Shoreline Stabilization

The eroded bank east of the east side camp loop will be reinforced with stone bank stabilization at a 1.5H:1V slope to protect against further wave erosion. A split rail fence will be installed above the bank to discourage campers from approaching the edge.

Natural Resources

The existing exit drive will be removed from the 500' Cougar Creek Conservation Easement and its location restored with native vegetation. No improvements will be added inside the easement beyond primitive foot trails.

Vegetation

New campsites on the west side will be located to minimize disturbance to the forest. The new walk-in site loop near the day use parking is in the site's best stand of trees; the master plan specifies a wide spacing for these sites to allow flexibility in fitting the sites between the mature trees.

The new camp loops on the east side may need to be slightly adjusted to avoid cutting significant trees. After construction the new camping area would be very open under the tall tree canopy, with little visual separation from the surroundings. To mitigate this, native trees and shrubs will be planted strategically for screening, especially between the campsites and the restrooms, the main loop drive, and the highway. A 100' buffer from the toe of the steep slope east of the new camp loops will protect campsites from potential hazard trees on the slope.

Restrooms

The day use restroom will be replaced with a fully accessible modern facility with showers, to serve both the day use area and the added campsites nearby.

At the restroom building at the east side camp loop, the shower shelves and door pressure will be adjusted to meet accessible standards.

Two new restroom buildings with flush toilets, showers, and dishwashing stations will be built to serve the new east side camp loops.

Three vault toilets will be installed: one double stall at the boat launch, one single stall to serve the new walk-in tent site loop, and one single stall to serve the new group camp loop.

A new contained vault RV dump station will be provided at the north end of the boat launch parking lot.

A standalone dishwashing station will be installed at the new walk-in campsite loop.

Utilities

New septic treatment systems for each of the two new restrooms will be constructed. Each restroom will produce less than 3,500 gpd and will utilize a standard septic tank, plus a grease trap for the dishwashing station. Because of the dense trees and limited open flat area, a pressurized drip disposal system is recommended. Based on soil conditions, additional pre-treatment may be required. Requirements for final design of these systems shall be coordinated with the County Environmental Health Specialist.

The three vault toilets will be pumped when needed.

The RV dump vault will be pumped as required and include an alarm system to notify staff when pumping is needed. Both potable and non-potable water sources will be provided, with required physical separation and isolation of piping systems.

The dishwashing sink at the new group camp shelter and the standalone dishwashing station at the new walk-in campsite loop will have grease traps and septic tanks, and the effluent will drain to new drip disposal systems.

The gray water disposals at the east side camp loop do not meet current code, and will need to be replaced

when the campsites are renovated. Two new standalone dishwashing stations will be installed there. They will have grease traps and septic tanks, and the effluent will either drain to a new combined drip disposal system, or will be added to the existing restroom drain field if feasible.

Potable water service to the new campground loops will be extended from water lines in the existing campground loops. Drinking water will be provided at the new restrooms, the new group camp shelter, the standalone dishwashing station at the new walk-in campsite loop, and at standalone hose bibs located throughout the new campground loops.

Drainage

No proposed improvements.

Site Amenities

Campsites

The existing campsites in the group camp and east side camp loop will be renovated, to the extent practical, to meet the standards specified in this master plan for car-only tent sites and walk-in sites.

In the existing east side camp loop, sites 41, 42, 44, and 45 will be relocated at least 20 feet back from the steep bank. Site 43 will be removed because there is not adequate room to relocate it.

In the existing group camp loop, site G14 will be upgraded to accessible standards, and will be connected by an accessible route to the nearby picnic shelter and the day use restrooms. Site 33 in the existing east side camp loop will also be converted to accessible standards, and connected by an accessible route to the nearby restroom and dishwashing station.

85 total campsites will be added, including each type of campsite described in this master plan. The Lewis River Settlement Agreement calls for either +/- 90 new universal campsites or a combination of universal campsites and one group camp. However, we feel that, given the topographic constraints, the outstanding forest resource, and the existing use of the campground, providing a variety of campsite types will best serve the users and maximize the total campsite count.

Two of the three new camp loops on the east side will provide a total of 41 universal and pull-through campsites, including one pull-through site reserved for the camp host. The closest sites to the highway will be separated by a 130' buffer. Each loop will enclose an undisturbed stand of trees, to preserve the feel of the forest setting.

The third new camp loop on the east side will act as a transition buffer between the RV users in the new universal campsites and the tent campers in the existing east-side camp loop. This new camp loop will provide a combination of car-only sites and walk-in sites. The walk-in sites are the least obtrusive and most flexible in location, so they will be placed closest to the existing camp loop, and in the far corner of the new campground area where vehicle access is not practical.

Campsite 33, which will be upgraded to accessible standards

The new group camp near the west entry will provide ten closely spaced car-only sites and a new picnic shelter. It will be located to take advantage of an old road grade and to minimize disturbance to the forest. The closest sites to the highway will be separated by a 140' buffer.

The new camp loop near the day use area will consist entirely of walk-in sites. It will be located in mixed conifer/deciduous forest which contains some of the site's best mature trees. The widely spaced walk-in sites have the smallest footprints of any campsite type, and have the flexibility to be individually located to minimize disturbance to the forest. The existing wide grassy drive south of the day use parking lot will be signed for campsite parking only.

In addition to the two existing campsites upgraded to be accessible, four new accessible campsites will be provided: one at the new group camp, and one at each of the three new east side camp loops.

Picnic Shelter

The new group camp picnic shelter will match the wood shelter at the existing group camp, and will include a hearth and a sink.

Picnic Tables

Two accessible picnic tables on asphalt pads will be added at the day use area, and will be connected by an accessible route.

Two accessible picnic tables on asphalt pads will be added at the group picnic area, and will be connected by an accessible route. Elevated fire rings will be provided near the accessible tables, similar to at an accessible campsite.

Fee booth

The existing fee booth near the day use parking lot will be relocated just west of the new group camp, to control the west entry. The paving will be widened around it to allow traffic on both sides.

A new fee booth will control the new east entry. It will be positioned 250' down the drive to provide queuing room for the longer vehicles that use this entry.

Play Structure

The existing play structure in the day use area will be replaced with an accessible play structure. A ramp into the play area will connect it with the accessible route through the day use area.

Fire Pit

At the new group camp, a barrier-free fire pit will be provided near the shelter. The fire building surface will be elevated similar to the fire ring at an accessible campsite. The ground surface around it and leading to it will be compacted fine gravel, and the benches surrounding the pit will be arranged to allow several spaces for a wheelchair.

KEY NOTES

1. NEW ACCESSIBLE ASPHALT PATH
2. NEW VAULT TOILET
3. NEW RESTROOM
4. REPLACE EXISTING RESTROOM
5. EXISTING DAY USE AREA; ADD ACCESSIBLE PICNIC TABLES AND UPGRADE PLAY STRUCTURE TO ACCESSIBLE STANDARDS
6. EXISTING FIRE WOOD SHED
7. NEW DESIGNATED ACCESSIBLE CAMP SITE
8. 4 EXISTING ACCESSIBLE PARKING STALLS; ADD SIGNAGE TO DESIGNATE AS VAN ACCESSIBLE
9. RE-STRIPE EXISTING PAVING TO DESIGNATE 1 BOAT TRAILER ACCESSIBLE PARKING STALL AND 1 VAN ACCESSIBLE PARKING STALL; NEW ACCESSIBLE PATH TO BOARDING FLOAT AND VAULT TOILET
10. RE-OPEN EXISTING DRIVEWAY TO SERVE AS TURNAROUND LOOP FOR EAST SIDE TRAFFIC
11. NEW RV DUMP STATION
12. EXISTING DAY USE PARKING AREA
13. EXISTING GROUP PICNIC AREA; ADD 2 VAN ACC. STALLS AND ACCESSIBLE PICNIC TABLES
14. NEW HOST CAMPSITE
15. NEW STANDALONE DISHWASHING STATION
16. NEW VAN ACCESSIBLE PARKING STALL

CAMP SITE SUMMARY

	EXISTING	ADDED
WALK-IN	6	21
CAR-ONLY	38	13
GROUP TENT	15	10
UNIVERSAL	2	31
PULL-THROUGH	-	10
TOTAL	**61**	**85**

LEWIS RIVER ROAD

COUGAR CREEK

EXISTING EAST ENTRY/EXIT: NO RV'S OR BOATS ALLOWED

140'

RELOCATE FEE BOOTH

NEW GROUP CAMP LOOP:
10 CAR-ONLY SITES
PICNIC SHELTER

EXISTING GROUP CAMP LOOP:
15 CAR-ONLY SITES
PICNIC SHELTER

2-WAY

EXISTING MAINTENANCE BUILDING

STRIPED SECTION: MAINTENANCE ACCESS ONLY

EXISTING SWIM AREA

NEW CAMP LOOP ON EXISTING GRAVEL DRIVE:
16 WALK-IN SITES

NEW EAST ENTRY/EXIT

FEE BOOTH

REMOVE EXISTING EXIT DRIVE

500' COUGAR CREEK CONSERVATION EASEMENT

130'

100' BUFFER FROM TOE OF STEEP SLOPE

NEW CAMP LOOP:
16 UNIVERSAL SITES
5 PULL-THROUGH SITES

NEW CAMP LOOP:
15 UNIVERSAL SITES
5 PULL-THROUGH SITES

NEW CAMP LOOP:
13 CAR-ONLY TENT SITES
5 WALK-IN SITES

NEW DRIVE

RE-ALIGN INTERSECTION

EXISTING RESTROOM

IMPROVE SITE 33 TO ACCESSIBILITY STANDARDS

EXISTING BOAT LAUNCH AND GRAVEL PARKING LOT; UPGRADE BOARDING FLOAT FOR ACCESSIBILITY

EXISTING FLOATING DOCK

EXISTING TRAIL

NEW TRAIL CONNECTION TO BEAVER BAY CAMPGROUND

EASE GRADES AT EXISTING WATER ACCESS

EXISTING TRAIL ON OLD ROAD BED

STONE BANK STABILIZATION AT 1.5H:1V SLOPE WITH SPLIT RAIL FENCE

REMOVE SITE 43

MOVE SITES 41, 42, 44, AND 45 BACK FROM TOP OF ERODING BANK

EXISTING CAMP LOOP
RENOVATE ALL SITES:
38 CAR-ONLY TENT SITES
6 WALK-IN SITES
2 HOST SITES

YALE LAKE

KEY NOTES

- WELCOME KIOSK
- INTERPRETIVE KIOSK

COUGAR CAMP
MASTER PLAN

NORTH

0' 50' 100' 200' 300'

Beaver Bay Camp

PROGRAM

FERC New Project License Requirements:

1. Separation of Parking Area from Adjacent Wetland: (By 4-year License Anniversary)
   A. Provide an earth berm, drainage ditch, and fence for separation.

2. Campground Redesign: (By 13-year License Anniversary)
   A. Provide one of the two following campsite options:
      i. +/- 43 RV/tent sites
      ii. 4 group camps: +/- 60 sites total
   B. Renovate the group camp: +/- 15 RV sites.
   C. Remove +/- 20 campsites and the roadway adjacent to the wetland.
   D. Replace the two older restrooms.

ADA Evaluation Recommendations: (By 7-year License Anniversary)

3. Modify message center to standard.
4. Designate 4 barrier-free camp sites (B-9, B-11, A-30, A-41.
5. Designate an access route and barrier-free amenities at the group camp.
6. Designate an access route and barrier-free amenities at the day use area.
7. Provide bull rails and transfer bars on the boarding float.
8. At boat launch, designate 1 boat trailer accessible parking stall, with access route.
9. At day use area, designate 1 van accessible parking stall, with access route.

EXISTING CONDITIONS

Beaver Bay Camp is at the upper end of Yale Lake, near the Swift No. 2 hydroelectric facility. It features a large campground, a boat launch, and a day use facility. The long, narrow site is bordered by a large wetland area.

Vehicular Circulation and Parking

Visitors pass a fee booth just off of the highway, then drive about 1000 feet before entering the campground. The main access drive continues straight along the shoreline past the campground and ends at the boat launch and day use parking area.

The main frontage drive carries most of the campground traffic, and all boat trailer traffic. It is the most direct connection, but it creates a barrier between the campsites and the water, and is a potential safety concern for campers who do cross it, or who use it as a walking route.

Circulation within the campground is on a network of drives parallel to the main frontage drive. Two narrow loop drives enclose the north side of the campground, and in places run close to the wetland. The west loop is especially proximate to the wetland; one stretch is only separated from adjacent standing water by concrete highway barriers. The gravel loop drive at the group camp also comes very close to the wetland edge.

There are two paved accessible parking stalls near the boat launch and day use area, but no boat trailer accessible stall. There are also two accessible stalls at the restroom building near the parking lot, two accessible stalls at the new restroom in the middle of the campground, and one accessible stall at the group camp picnic area. All need to be re-striped and none are signed to be van-accessible.

Pedestrian Circulation

At the day use area, a very short accessible path connects the accessible parking to a picnic table. The accessible parking areas at the two restrooms and the group picnic shelter are connected by accessible routes to their respective buildings. There are no other accessible route connections on the site.

An elevated wetland walk and viewing platform was installed near the northeast corner of the parking lot. It is built of sturdy wooden construction and accessible design, but it is not connected by an accessible route to the nearby restroom building and accessible parking.

Boat Launch

The boat ramp has one wide lane and one boarding float. The boarding float was installed in 2004. It features continuous bull rails they are larger than allowed for the required clear openings required by ADAAG.

Water Access and Swim Area

The day use swim area is in a small, shallow bay created by a narrow spit of land, and enclosed by swim booms.

The tall eroded bank along the campground prevents easy water access, but in several places steep paths have been cut through the bank to the water's edge.

Shoreline Erosion

The entire bank east of the day use area has been eroded by wave action. The nearly vertical, and in places overhanging bank is 4' to 6' high, above a boulder and gravel slope.

Natural Resources

The entire north edge of the site is bordered by a likely wetland which has not been delineated.

Vegetation

The campground is within a dense conifer forest with intermittent clearings, and with many trees of mature size. There is very little understory or groundcover within the vicinity of the campsites. Outside of the camp loop drives the native understory is dense and diverse.

Much of the wetland is open and shrubby, with many standing dead trees indicating changing water levels in recent years. The edge of the wetland toward the campground is mixed conifer and deciduous riparian

forest. In some area at the indicated edge of the probable wetland, the trees and understory are typical upland species, with wetland species only represented on the ground plane.

Restrooms

Two existing restrooms are outdated and and their removal is required. One is at the east end of the parking lot and the other in the east campground.

A large new restroom building with showers was built in 1995 in the middle of the campground. It is not identified as being in conflict with any accessibility standards.

There is an RV dump with two dumping stations adjacent to the new restroom.

Utilities

See the Septic Disposal Matrix in Part 2 for details on the septic disposal systems for the newer restroom and the RV dump.

Drainage

The gravel parking lot does not have adequate cross-slope for drainage and collects large areas of standing water. There is concern that runoff from the parking lot drains into the adjacent wetland.

Site Amenities

Campsites

The campground has 63 individual campsites of varying sizes, most of which are pull-through sites. The group camp has 15 car-only tent sites and a picnic shelter. Several individual and group campsites are very close to the edge of the wetland. Additionally there are two host camp sites, one at each end of the campground. There are no accessible campsites.

Picnic Shelter

The group camp picnic shelter measures 28' x 46' and has picnic tables, a sink, and a fire pit with a chimney. The picnic tables are not accessible.

Picnic Tables

There are six picnic tables at the day use area, but none are of accessible design.

Fee booth

The fee booth is positioned just off of the highway with about 200' distance for vehicle queuing.

Play Structure

The play structure in the day use area was installed in 2004 and is designed for accessibility. However there is no accessible route leading to the play area.

Existing main frontage drive

One of several group campsites at the edge of the wetland

PROPOSED IMPROVEMENTS

The Beaver Bay Camp master plan focuses on re-organizing the campground to enhance the camping experience and to reduce impacts on the wetland. It also provides universal access to major site features.

Vehicular Circulation and Parking

The main frontage drive will be removed from the east half of the campground to bring the campsites closer to the water and mitigate the danger of campers crossing the road. The main drive will be re-routed onto the camp loop drive which runs around the north end of the east campground. The loop drive will be widened to handle the traffic load; all paving expansion will occur on the side of the drive away from the wetland. The intersection where this drive rejoins the main frontage road near the RV dump will be slightly modified to accommodate larger vehicles and increased traffic.

The main frontage drive will remain in front of the west campground because it is not feasible to re-route traffic there around the north side. The camp loop drive north of this section of the campground will be removed because it is adjacent to the wetland, and unnecessary for circulation to the campsites.

The network of camp loop drives in the east campground will be removed, and replaced with loop drives for three group camps. The new group camp drives overlap the existing drives where practical, and are designed to minimize the amount of paving required to provide access to each campsite. The result is an economical layout that leaves room for larger contiguous vegetated areas and more campsites: the new design has 8 more campsites than the existing east campground in the same area.

Most of the gravel loop drive at the group camp will be removed due to its proximity to the wetland; the portion of the drive leading to the shelter and accessible parking will be paved. Gravel parking for the group camp will be provided along this drive.

A boat trailer accessible parking stall will be added near the boat launch, at the end of the existing paved frontage road. The pavement will be widened to create the access aisle. The pavement will be striped in front of and behind the stall to keep the areas clear so that it can be used as a pull-through stall.

The existing accessible parking between the boat ramp and day use area will be re-striped and signed for one van accessible stall. Excess pavement which is not used for the stall and the associated access aisle will be removed.

The existing accessible parking stalls at the group camp shelter, near the elevated wetland walk, and at the existing restroom in the middle of the campground will be re-striped and signed as van-accessible parking stalls.

Each of the three new group camp picnic shelters will have a nearby van accessible parking stall and accessible route connection.

Pedestrian Circulation

An accessible route will connect the accessible parking at the day use area to new accessible picnic tables and the play structure. It will also connect to the boat launch boarding float and cross above the boat ramp to the boat-trailer accessible stall.

A paved accessible path will connect the accessible parking stalls on the east side of the parking lot to the nearby raised wetland walk and viewpoint.

A new accessible path in the existing group camp will connect the accessible campsite, accessible parking, the picnic shelter, a new accessible picnic table, and the new fire ring.

Each of the new accessible campsites will be connected to a nearby restroom by an accessible route. Also each of the three new group camp picnic shelters will have an accessible route connection to a nearby accessible parking stall.

A new trail near the top of the bank will connect the east campground sites to the new beach accesses and to the day use area. Also a gravel path will be added to the width of the remaining frontage drive for users who prefer to walk this route to the day use area.

Boat Launch

The boarding float bull rails will be modified to meet ADAAG requirements for clear openings.

Water Access and Swim Area

Two new beach access areas will be created for use campers. Two areas with existing steep paths through the bank will be excavated to form wide bowls, with gentle slopes at around 12H:1V. The low angle will provide safe access to the water's edge and naturally resist wave erosion.

Shoreline Stabilization

The eroded bank east of the day use area will be reinforced with stone bank stabilization at a 1.5H:1V slope to protect against further wave erosion, with the exception of the new gently sloped areas created for water access. A split rail fence will be installed above the bank to discourage campers from approaching the edge.

Natural Resources

Several campsites, the group camp loop drive, and a long stretch of paved campground loop drive will be removed because they are near the wetland edge. All new campsites added within the wetland buffer will be walk-in tent sites, which have minimal footprints and remote parking.

At the north edge of the parking lot, a drainage ditch and a low berm will prevent water from flowing between the parking lot and the wetland.

A split rail fence will be placed near the edge of the wetland at the day use area and parking lot to discourage users from entering the wetland. The entire wetland edge will be marked with signs notifying users that entering the wetland is not permitted.

The wetland has not been delineated so the boundary shown is approximate, based on observations in the field. If the final wetland boundary differs from what is drawn, and if the wetland buffer needs to be wider and have more stringent setback restrictions, it could impact the proposed master plan. The campsite count is intentionally designed to be over what is required, so that there is flexibility to accommodate wetland requirements.

Vegetation

Areas where paving has been removed will be restored with soil and native vegetation. This may include wetland restoration plantings where the camp loop drive is removed north of the west campground.

The east campground has a consistent high tree canopy, but very little understory or ground cover, so there would be no visual separation around the rearranged camping areas. To mitigate this, shade tolerant native trees and shrubs will be planted in the spaces between the rows of campsites, and especially between the campsites and the main loop drive. The central areas within each group camp will remain open, but the spaces between each group camp will be planted for screening.

Restrooms

The two outdated restrooms will be removed: one near the parking lot, and one in the middle of the east campground.

One new restroom building with flush toilets, showers, and a dishwashing station will be built to serve the east campground.

Three vault toilets will be installed: one double stall near the top of the boat ramp, one single stall at the west end of the west campground, and one single stall near the walk-in tent sites.

A dishwashing station will be added to the back side of the remaining existing restroom building. Additionally two standalone dishwashing stations will be installed, one at the west end of the west campground, and one at the new walk-in campsite area.

Utilities

The septic/drain system for the restroom removed from the east portion of the site will be removed and abandoned. Decommissioning and abandonment shall be coordinated with the County Environmental Health specialist.

The septic/drain system for the restroom removed near the parking lot will be retained. This system may be reused pending recertification by an licensed on-site designer. Depending on capacity and health, this field will be used for disposal of effluent from the new dishwashing station nearby.

A new septic system to serve the east campground will be installed. It will serve the restroom and treat gray water from the dishwashing sinks at the three new picnic shelters in the new group camps. The system, sized for a flow of less than 3,500 gpd, will use a standard septic tank with a pumped dosing chamber, plus a grease trap for the dishwashing stations. Because of the limited open area, heavy vegetation, and proximity of wetlands, a pressurized drip disposal system is recommended. A portion of this flow may be dosed to the recertified field near the parking lot. This system must be designed by a licensed on-site designer or professional engineer and coordinated with the County Environmental Health Specialist.

The three new contained vault toilets will be pumped based on demand.

Water service to the new restroom, picnic shelters, and dishwashing stations will be provided by extending or tapping the mainline. At each feed a meter and isolation valves should be installed to allow for leak detection and control without impacting the overall water system.

Drinking water will be provided at the new restroom building, the standalone dishwashing stations, the new group camp picnic shelters, and at standalone hose bibs located throughout the campground.

Drainage

The gravel parking lot will be minimally re-graded to drain runoff into two swales on its western edge. Along the north edge of the parking lot, a low berm and shallow ditch will direct runoff into one of the swales, and prevent water flow between the wetland and parking lot.

The swales west of the parking lot will be vegetated to assist the removal of pollutants from parking lot runoff before it drains into the lake. There is no increase in the impervious surface of the parking lot, so the swale design will not need to conform to any regulatory requirements. The swales will join and flow through a culvert under the new accessible path in the day use area.

Site Amenities

Campsites

The west campground campsites will be renovated to the universal campsite and pull-through campsite standards described in this master plan, but the layout will remain nearly the same. The camp loop drive and three campsites on the north side will be removed, and the middle drive will be widened to safely accommodate two-way traffic. The north row of campsites currently are accessed from the north side, so they will be shifted slightly so that the driveways connect to the middle drive. Two new universal sites will be added at the west end in the space formerly occupied by the drive. The campsite closest to the restroom will be upgraded to accessible standards.

The existing group camp will be converted to have walk-in sites only. One campsite will be upgraded to accessible standards, and will be connected by a short accessible path to the accessible parking at the shelter. The existing loop drive and several campsites will be removed because of proximity to the wetland.

All campsites in the east campground will be removed, and replaced with three new group camp loops. Sites in one will be arrayed around a traditional one-way loop drive, with a central open space. The other two group camps will each consist of two cul-de-sacs and a connecting drive. The cul-de-sac layout requires far less paving than a typical straight drive to access the same number of campsites, and the shape encourages the social function of the group camp. The space enclosed between the cul-de-sacs and the connecting drive will also be an open, social space, which is anchored by a picnic shelter at each group camp. One accessible campsite will be provided at each of the three new group camps.

The campsites within each group camp are spaced far enough apart to potentially function as individual campsites, available between those dates when the whole group camp is reserved. The two larger cul-de-sac group camps could also potentially be split; for example, a smaller group could reserve the front half with the shelter, leaving the back half available for reservation as individual campsites. The two cul-de-sac group camps could even be combined to accommodate one very large group.

A new camp area with individual walk-in sites will be developed at the east end of the campground, outside the main loop drive, in formerly undeveloped forest. The dense understory and rolling, irregular topography in this area are best suited to the small footprint of the walk-in tent sites, and also provide the deep forest experience that inspires the effort to walk in.

Because of the long delay before the redesign of the campground, three existing campsites in the east campground will be upgraded to accessible standards for temporary use in the interim. At the same time, one existing site in the west campground and one site in the existing group camp (described above) will be upgraded to accessible standards, but these two will remain as permanent campsites after the redesign.

The total number of campsites is intentionally designed to be over what is required by the Lewis River Settlement Agreement. This allows flexibility in case the final wetland requirements are more stringent than expected, and also is intended to compensate for Cougar Camp and Swift Forest Camp, which each have slightly lower campsite counts than required.

Picnic Shelter

The picnic tables in the existing group picnic shelter will be upgraded to tables of accessible design, and arranged to allow adequate maneuvering room.

There will be three new picnic shelters, one at each group camp. They will each have a hearth, a sink, and accessible picnic tables, and have a similar size and appearance to the existing group camp picnic shelter.

Picnic Tables

In addition to the picnic tables in the group picnic shelters, two accessible picnic tables on asphalt pads will be added at the day use area, connected by an accessible route.

Fee booth

No proposed changes.

Play Structure

The existing play structure will be connected by a new accessible route.

Fire Pit

At each of the four group camps, a barrier-free fire pit will be provided near the shelter. The fire building surface will be elevated similar to the fire ring at an accessible campsite. The ground surface around it and leading to it will be compacted fine gravel, and the benches surrounding the pit will be arranged to allow several spaces for a wheelchair.

Signage

The existing message center sign near the campground entry will be replaced by the new Welcome Kiosk. This is intended to address the ADA Evaluation's recommendation to upgrade the message center.

CAMP SITE SUMMARY

	EXISTING	REMOVED	ADDED
WALK-IN	-	-	21
CAR-ONLY	15	(15)	-
UNIVERSAL	13	(3)	46
PULL-THROUGH	50	(41)	5
TOTAL	**78**	**(59)**	**72**

PROPOSED TOTAL: 91

(EXISTING - REMOVED + ADDED = PROPOSED)

WETLAND

APPROXIMATE WETLAND BOUNDARY

RENOVATED GROUP CAMP:
9 WALK-IN SITES
EXISTING PICNIC SHELTER
(CAMPSITES NEAR WETLAND EDGE REMOVED)

WETLAND

APPROXIMATE WETLAND BOUNDARY

NEW CAMP AREA:
12 WALK-IN SITES

PROPERTY LINE

TO LEWIS RIVER ROAD

EXISTING CAMP LOOP:
10 UNIVERSAL SITES
9 PULL-THROUGH SITES
2 ADDED UNIVERSAL SITES

NEW GROUP CAMP LOOP:
9 UNIVERSAL SITES
2 PULL-THROUGH SITES
PICNIC SHELTER

NEW GROUP CAMP:
17 UNIVERSAL SITES
2 PULL-THROUGH SITES
PICNIC SHELTER

NEW GROUP CAMP:
18 UNIVERSAL SITES
1 PULL-THROUGH SITE
PICNIC SHELTER

YALE LAKE

EXISTING DAY USE AND SWIM AREA

EXISTING GRAVEL PARKING LOT

EXISTING BOAT LAUNCH;
UPGRADE BOARDING FLOAT
FOR ACCESSIBILITY

REFER TO BEAVER BAY CAMP MASTER PLAN - WEST

MATCHLINE

REFER TO BEAVER BAY CAMP MASTER PLAN - EAST

BEAVER BAY CAMP

MASTER PLAN - OVERALL

NORTH

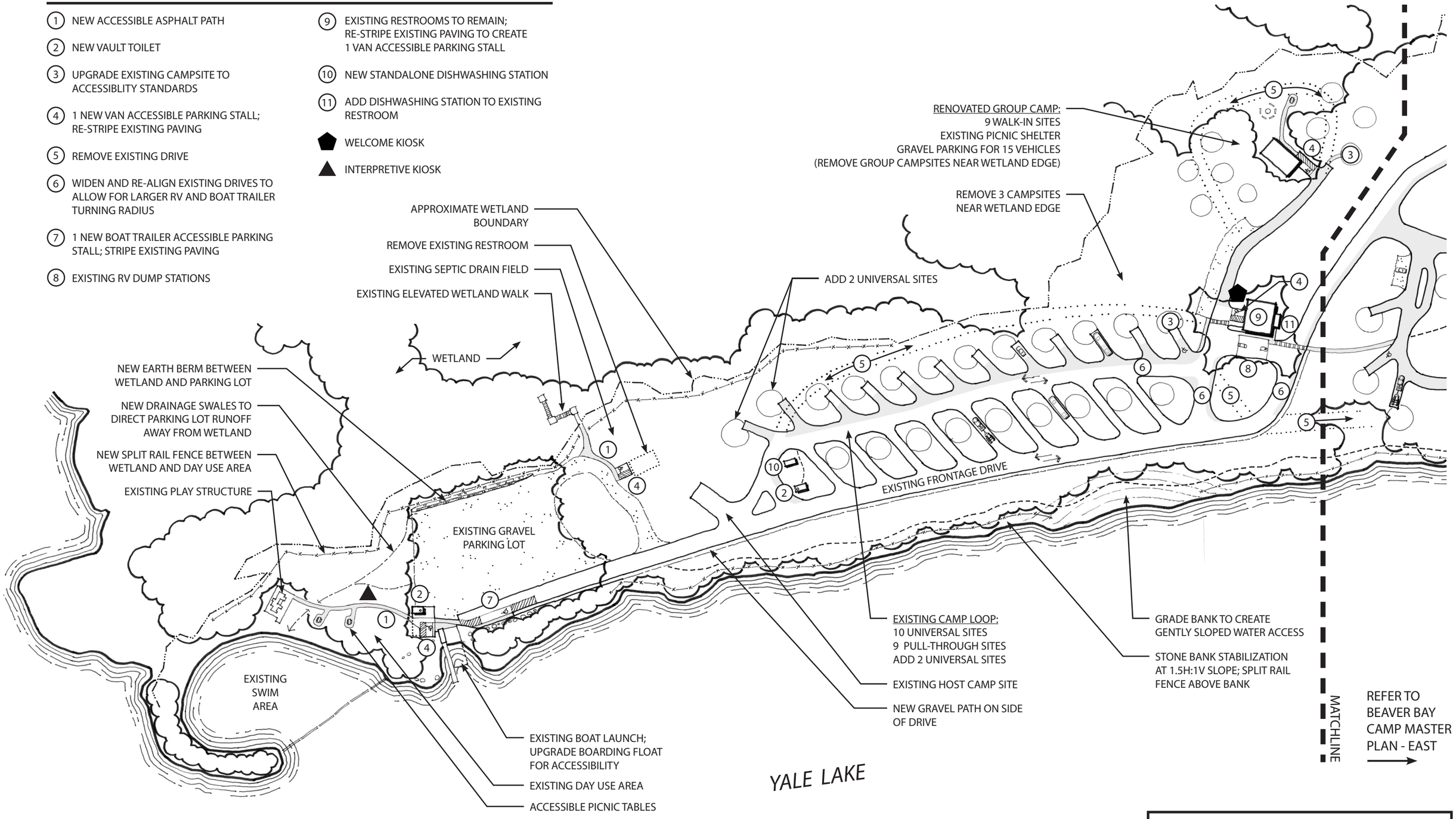
0′ 50′ 100′ 200′ 300′

KEY NOTES

1. NEW ACCESSIBLE ASPHALT PATH
2. NEW VAULT TOILET
3. UPGRADE EXISTING CAMPSITE TO ACCESSIBLITY STANDARDS
4. 1 NEW VAN ACCESSIBLE PARKING STALL; RE-STRIPE EXISTING PAVING
5. REMOVE EXISTING DRIVE
6. WIDEN AND RE-ALIGN EXISTING DRIVES TO ALLOW FOR LARGER RV AND BOAT TRAILER TURNING RADIUS
7. 1 NEW BOAT TRAILER ACCESSIBLE PARKING STALL; STRIPE EXISTING PAVING
8. EXISTING RV DUMP STATIONS
9. EXISTING RESTROOMS TO REMAIN; RE-STRIPE EXISTING PAVING TO CREATE 1 VAN ACCESSIBLE PARKING STALL
10. NEW STANDALONE DISHWASHING STATION
11. ADD DISHWASHING STATION TO EXISTING RESTROOM

⬟ WELCOME KIOSK

▲ INTERPRETIVE KIOSK

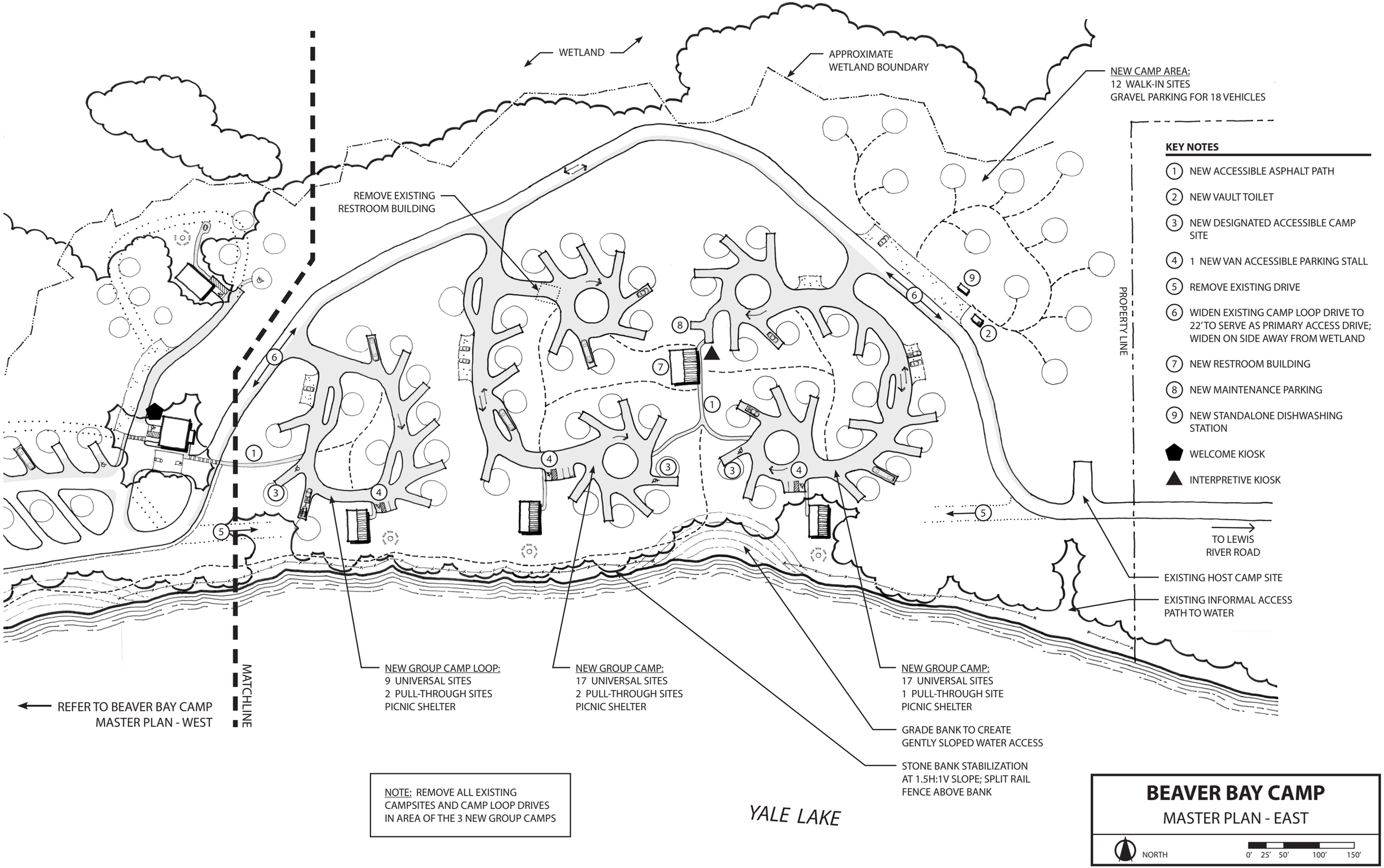


BEAVER BAY CAMP

MASTER PLAN - WEST

NORTH

0′ 25′ 50′ 100′ 150′


WETLAND
APPROXIMATE
WETLAND BOUNDARY
NEW CAMP AREA:
12 WALK-IN SITES
GRAVEL PARKING FOR 18 VEHICLES
REMOVE EXISTING
RESTROOM BUILDING
PROPERTY LINE
KEY NOTES
1 NEW ACCESSIBLE ASPHALT PATH
2 NEW VAULT TOILET
3 NEW DESIGNATED ACCESSIBLE CAMP SITE
4 1 NEW VAN ACCESSIBLE PARKING STALL
5 REMOVE EXISTING DRIVE
6 WIDEN EXISTING CAMP LOOP DRIVE TO 22'TO SERVE AS PRIMARY ACCESS DRIVE; WIDEN ON SIDE AWAY FROM WETLAND
7 NEW RESTROOM BUILDING
8 NEW MAINTENANCE PARKING
9 NEW STANDALONE DISHWASHING STATION
WELCOME KIOSK
INTERPRETIVE KIOSK
TO LEWIS
RIVER ROAD
EXISTING HOST CAMP SITE
EXISTING INFORMAL ACCESS
PATH TO WATER
NEW GROUP CAMP LOOP:
9 UNIVERSAL SITES
2 PULL-THROUGH SITES
PICNIC SHELTER
NEW GROUP CAMP:
17 UNIVERSAL SITES
2 PULL-THROUGH SITES
PICNIC SHELTER
NEW GROUP CAMP:
17 UNIVERSAL SITES
1 PULL-THROUGH SITE
PICNIC SHELTER
GRADE BANK TO CREATE
GENTLY SLOPED WATER ACCESS
STONE BANK STABILIZATION
AT 1.5H:1V SLOPE; SPLIT RAIL
FENCE ABOVE BANK
MATCHLINE
REFER TO BEAVER BAY CAMP
MASTER PLAN - WEST
NOTE: REMOVE ALL EXISTING
CAMPSITES AND CAMP LOOP DRIVES
IN AREA OF THE 3 NEW GROUP CAMPS
YALE LAKE
BEAVER BAY CAMP
MASTER PLAN - EAST
NORTH
0' 25' 50' 100' 150'

Swift Forest Camp

PROGRAM

FERC New Project License Requirements:

1. Picnic Shelter: (By 5-year License Anniversary)
   A. Provide a new day use group picnic shelter in day use area.

2. Campground Expansion: (when needed, based on monitoring RRMP trigger thresholds)
   A. Provide one of the following:
      i. +/- 27 new RV/tent sites and two new group camps
      ii. +/- 40 new RV/tent sites
   B. Provide water faucets, gray water sumps, and restrooms for the new campsites.
   C. Provide adequate buffer distance between facilities.
   D. Boat launch parking and access may need to be re-designed or re-located.
   E. When needed, based on monitoring demand trigger thresholds.

ADA Evaluation Recommendations: (By 5-year License Anniversary)

3. Designate 4 barrier-free camp sites (A35, B25, C4, C5).
4. Designate access routes, including access to restrooms.
5. Replace or retrofit playground equipment.
6. Install bull rails and transfer bar on boarding floats.
7. Designate boat trailer accessible parking stall, with access route.
8. Designate van accessible parking stall, with access route.
9. Modify restroom sink and upgrade restroom signage to ANSI standard.

Requested by PacifiCorp:

10. Debris Removal:
    A. Relocate the area for storage of woody debris removed from the reservoir.
    B. Maintain current size, about 1.3 acres.

EXISTING CONDITIONS

Swift Forest Camp is near the east end of Swift Reservoir, just off Lewis River Road. It features a large campground, a boat launch, and a day use facility. It is also used by PacifiCorp for operations to remove woody debris from the reservoir.

Vehicular Circulation and Parking

The main paved access drive heads straight from the highway to the large open boat launch area. Paved camp loop drives are on both sides of the main drive.

A large open gravel and grass area at the west end of the site serves as parking and circulation for the boat launch and day use area. There is no accessible parking. An area within the lot is fenced off for log removal operations.

Pedestrian Circulation

Currently there is no defined pedestrian circulation around the day use area or boat ramp. The campground has a network of trails but does not have any accessible routes.

Boat Launch

The boat ramp has two lanes and one boarding float. The boarding float is in good condition but does not feature bull rails for edge protection.

There is an unused ramp at the northwest corner of the gravel lot, which is currently blocked to prevent its use.

Water Access and Swim Area

The large swim area at the day use area is enclosed by swim booms. The bank below ordinary high water is steep, making the swim area less usable when the reservoir is below full reservoir level.

The tall eroded bank forms a barrier between the existing campground and the water. The steep gravel slope below the eroded bank would not make a good water access.

Boat launch at the corner of the open parking/circulation area, view over the reservoir in the background

Tall eroded bank along the edge of the existing campground

Shoreline Erosion

The bank along the campground and most of the gravel lot has been eroded by wave action. The nearly vertical, and in places overhanging, bank is 6’ to 8’ high, above a steep gravel slope.

Natural Resources

Logs and woody debris that enter the reservoir from the Lewis River and its tributaries are collected and stockpiled in a fenced off area within the large open gravel lot. Much of that wood is separated out to be used for lumber or stream restoration projects, or to be burned for fuel. The remainder is burned on site.

Vegetation

The campground is within a dense conifer forest with intermittent clearings. South of the main drive, the forest is composed of closely spaced, small to medium sized trees, with little to no understory in the vicinity of the campsites. North of the drive the trees are somewhat larger, more widely spaced, and with more understory, especially along the edge at the main drive.

Restrooms

The campground has three restrooms with flush toilets but no showers. Two are in the middle of the two larger camp loops, and one serves the day use area and the smaller west camp loop. Each of the restrooms needs upgrades to meet accessibility standards.

There is an RV dump in the northeast corner of the open gravel lot.

Utilities

The septic disposal systems for the existing restrooms are unknown.

Drainage

The large gravel parking lot drains directly into the reservoir with little to no vegetative buffer between.

Site Amenities

Campsites

The campground has 93 individual campsites, plus two host camp sites near the campground entry. There are no accessible campsites.

Picnic Shelter

Not applicable.

Picnic Tables

There are several picnic tables at the day use area, but none are of accessible design.

Fee booth

All visitors pass a fee booth on entry.

Play Structure

The small play structure in the day use area does not meet accessibility guidelines.

The forest on the south side of the main drive, between the existing camp loop and the open parking area.

Campsites along the north side of the main drive

PROPOSED IMPROVEMENTS

The master plan for Swift Forest Camp expands the campground capacity, and reorganizes the large open gravel lot to efficiently serve multiple purposes. It also upgrades the day use area and provides universal access to major site features.

Vehicular Circulation and Parking

The main access drive will be extended to lead to a new boat launch parking lot. The new paved parking lot will define an efficient space for boat trailer parking, and clearly organize the circulation for boat launch users. The 100' outside diameter turns will accommodate all but the very largest boat trailer combinations. This parking lot is proposed to be asphalt paved to minimize maintenance, but it could potentially be gravel paved, similar to Yale Park, if initial construction costs become a concern.

Two smaller asphalt lots on the north side of the main drive will provide parking for the day use area and the new walk-in tent campsites. One van-accessible parking stall will be provided at the day use parking, and one van accessible stall and one boat trailer accessible stall will be located near the top of the boat ramp.

A gravel shoulder will be added to the main drive near the day use area, to provide overflow parallel parking.

A gate at the northwest corner of the boat launch parking lot will control access to the log removal staging area.

At the new RV dump location, the existing paved drive intersection will be widened with gravel paving to create a turnaround for RV traffic.

Pedestrian Circulation

A new paved path at the day use area will provide an accessible route to connect the picnic shelter, an accessible picnic table, the play structure, the day use parking, and the nearby existing restroom. Accessible paths will connect all new accessible campsites to nearby restrooms. An accessible route will also connect the accessible parking to the boat launch boarding float and the vault toilet.

A new path will parallel the main drive, connecting the existing campground loops to the day use and swim area. This will allow campers to reach the day use area without walking on the main drive. The drive crossings will be striped.

Boat Launch

The boarding float will be upgraded with bull rails for edge protection.

Water Access and Swim Area

No proposed improvements.

Shoreline Stabilization

The eroded bank east of the boat launch will be reinforced with stone bank stabilization at a 1.5H:1V slope to protect against further wave erosion. A split rail fence will be installed above the bank to discourage campers from approaching the edge.

Natural Resources

The staging area for the log removal operation will be moved to the west end of the existing open gravel lot. The total dedicated area will remain at 1.3 acres, the same as the existing fenced area. An existing ramp and nearly obstacle-free bank will facilitate moving the logs out of the water.

Vegetation

One new campground loop will be within a dense stand of small to medium conifers. Many of these trees should be able to remain during construction. The clearing for campsites and the drive will be in effect a thinning operation; the remaining trees will grow faster and will soon fill in to create a shady forest environment.

The second new campground loop will be entirely located in what is now an open gravel lot. Shade,

screening, buffering from the parking lot and main drive, and protection from the prevailing west/southwest winds are concerns for campsites in this location. To mitigate these problems, and to create the forest environment that campers seek, native trees and shrubs will be planted between the rows of campsites, and between the camp loops and the main drive and parking lot. Further, berms will be formed between each camp loop and the parking lot to create a topographic separation. The berms are also a way to dispose of spoils from the over-excavation for new paving.

Windrows of native trees and shrubs will also be planted on the west and north sides of the parking lot, to provide additional wind protection, and to visually buffer the log removal staging area from both the parking lot and the day use area.

Restrooms

The existing restrooms will be upgraded to accessible standards by upgrading the signage to ANSI standard and modifying the sink height.

One new accessible restroom building with flush toilets, a dishwashing station, and without showers, will be built to serve the two new campground loops.

One double stall vault toilet will be installed near the top of the boat ramp.

The RV dump will be moved to a convenient location on the main access drive, to make room for campground expansion.

A standalone dishwashing station will be installed to serve the new walk-in campsite area.

Utilities

A septic treatment system for the restroom at the new campground area will be constructed. The restroom will produce less than 3,500 gpd and will utilize a standard septic tank plus a grease trap for the dishwashing stations. As this site is previously disturbed, with heavily compacted soils and little available open space, a pressured drip disposal system is recommended. Based on soil conditions, additional pre-treatment may be required. Requirements for final design of this system shall be coordinated with the County Environmental Health Specialist.

The dishwashing sink in the new group shelter and the standalone dishwashing station for the new picnic shelter will share a septic tank and grease trap. The effluent will flow, by gravity if feasible, to join the drip disposal system for the new restroom.

The new vault toilet will be pumped when needed.

The vault for the relocated RV dump will be pumped as required and include an alarm system to notify staff when pumping is needed. Both potable and non-potable water sources will be provided, with required physical separation and isolation of piping systems.

Water service to the new restroom, picnic shelter, and dishwashing station will be provided by extending or tapping the mainline. At each feed a meter and isolation valves should be installed to allow for leak detection and control without impacting the overall water system.

Drinking water will be provided at the new restroom building, the standalone dishwashing station, the new picnic shelter, and at standalone hose bibs located throughout the new campground areas.

Drainage

The new parking lot will be crowned to drain into vegetated stormwater treatment swales on the west and east sides. The new asphalt parking lot is not considered to be an increase in impervious surface over the existing gravel lot. Additionally, the overall impervious surface will be reduced when creating the campsites, berms, and planted buffers. Therefore the swale design will not need to conform to any regulatory requirements.

Site Amenities

Campsites

Two new campground loops will consist of both universal sites and pull-through sites. The loops are configured to provide as many campsites as possible within the available space, while still providing adequate separation between sites. Two accessible campsites will be designated, one in each loop. Additionally, four existing campsites (A35, B25, C4, C5) will be upgraded to accessible standards.

A new string of walk-in sites will occupy the space between an existing campground loop and the day use area.

Picnic Shelter

A new day use picnic shelter will be built at the day use area. It will be approximately 25' x 40' and include a sink.

Picnic Tables

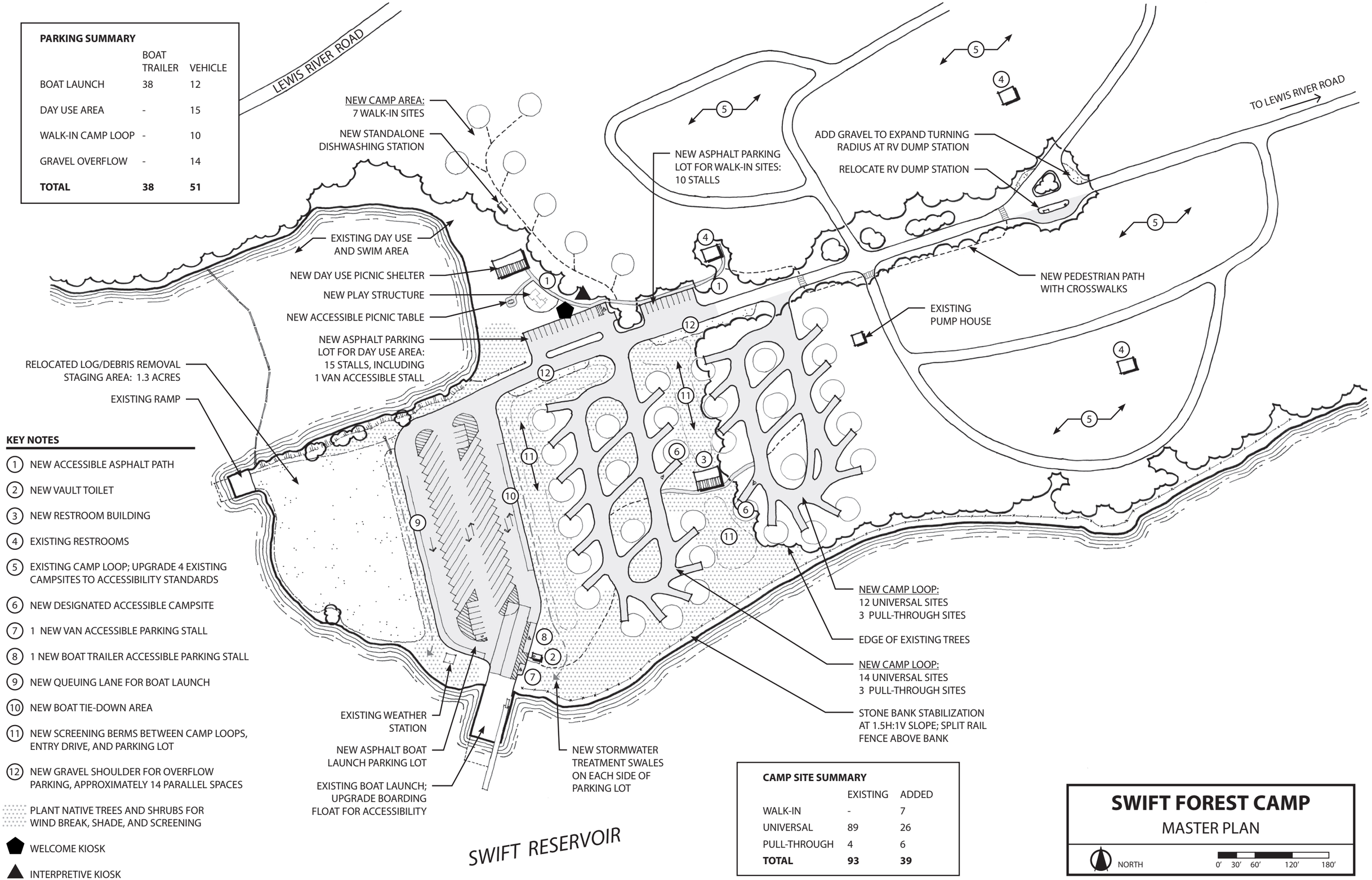
One accessible picnic table on an asphalt pad will be added at the day use area.

Fee booth

No proposed changes.

Play Structure

A new play structure with accessible play features will be installed in a new soft-surface play area.



PARKING SUMMARY

	BOAT TRAILER	VEHICLE
BOAT LAUNCH	38	12
DAY USE AREA	-	15
WALK-IN CAMP LOOP	-	10
GRAVEL OVERFLOW	-	14
TOTAL	**38**	**51**

KEY NOTES

1. NEW ACCESSIBLE ASPHALT PATH
2. NEW VAULT TOILET
3. NEW RESTROOM BUILDING
4. EXISTING RESTROOMS
5. EXISTING CAMP LOOP; UPGRADE 4 EXISTING CAMPSITES TO ACCESSIBILITY STANDARDS
6. NEW DESIGNATED ACCESSIBLE CAMPSITE
7. 1 NEW VAN ACCESSIBLE PARKING STALL
8. 1 NEW BOAT TRAILER ACCESSIBLE PARKING STALL
9. NEW QUEUING LANE FOR BOAT LAUNCH
10. NEW BOAT TIE-DOWN AREA
11. NEW SCREENING BERMS BETWEEN CAMP LOOPS, ENTRY DRIVE, AND PARKING LOT
12. NEW GRAVEL SHOULDER FOR OVERFLOW PARKING, APPROXIMATELY 14 PARALLEL SPACES

PLANT NATIVE TREES AND SHRUBS FOR WIND BREAK, SHADE, AND SCREENING

WELCOME KIOSK

INTERPRETIVE KIOSK

CAMP SITE SUMMARY

	EXISTING	ADDED
WALK-IN	-	7
UNIVERSAL	89	26
PULL-THROUGH	4	6
TOTAL	**93**	**39**

SWIFT FOREST CAMP

MASTER PLAN

NORTH

0′ 30′ 60′ 120′ 180′

Eagle Cliff Park

PROGRAM

FERC New Project License Requirements:

1. Park Improvements: (By 11-year License Anniversary)
   A. Install a double vault toilet north of the highway.
   B. Create small picnic area at north end of parking area.

2. Remove Old Facilities South of Road: (By 11-year License Anniversary)
   A. Includes removal of abandoned vault toilet.

ADA Evaluation Recommendations: (By 5-year License Anniversary)

3. Designate a barrier-free access route.
4. Develop a barrier-free picnic area.
5. Designate accessible parking for car and van, with access route.

EXISTING CONDITIONS

Located just beyond the east end of Swift Reservoir, Eagle Cliff Park is the most remote site covered in this master plan, and the only one that is located on the original Lewis River channel. It is a popular site for fly fishing.

The park originally occupied both sides of USFS Road 90. However the floods of 1996 destroyed the portion of the park west of the road and bridge, along with most of the park amenities.

Vehicular Circulation and Parking
The gravel parking lot is located on the east side of the road. It is near the top of the river bank and is oversized for the typical number of visitors. There is no accessible parking.

A gate at the edge of the parking lot controls access to a gravel ramp which leads down to the river terrace.

Pedestrian Circulation
There is no defined pedestrian circulation in the park.

Boat Launch
Not applicable.

Water Access and Swim Area
Visitors either hike down the steep bank or walk down the gravel ramp to get to the water's edge.

Shoreline Erosion
Not applicable.

Natural Resources
The towering, jagged cliffs on the far side of the river give the park its name.

The entire park is within the 300' riparian buffer specified in the WHMP.

Vegetation
The park occupies a terrace on the inside of a bend in the river. The sparse trees on this terrace suggest a history of flooding. Currently much of the terrace west of the road is covered by a thicket of young trees that have grown since the 1996 floods. The steep hillside above the east side of the park is covered by a thick stand of small conifer trees.

Restrooms
The existing vault toilet was destroyed in the 1996 floods.

Utilities
Not applicable.

Drainage
Stormwater drains off of the parking lot directly into the river, with a minimal vegetated slope separating the two.

Site Amenities

Campsites
Not applicable.

Picnic Shelter
Not applicable.

Picnic Tables
Several tables on the west side of the road may be salvageable.

Fee Booth
Not applicable.

Eagle Cliff Park and Lewis River as viewed from the road

PROPOSED IMPROVEMENTS

The Eagle Cliff Park master plan abandons the portion of the park west of the road, placing all amenities east of the road to eliminate visitor crossings of the road on foot. It creates a new picnic area and provides universal access to major site features.

Vehicular Circulation and Parking

The gravel parking lot will be reduced in size to provide parking and circulation for 15 vehicles. The east edge will be pulled back to increase the riparian buffer area between the river and parking. The new layout will also create more area for picnicking along the river.

One van accessible parking stall on asphalt paving will be provided. The ADA Evaluation recommends designating two accessible parking stalls, but because the total number of parking stalls is reduced to 15, ADAAG only requires one accessible stall.

The gate controlling access to the gravel ramp will be relocated to the new edge of the parking lot.

Pedestrian Circulation

A paved path will create an accessible route connecting the accessible parking, the vault toilet, and two accessible picnic tables.

Boat Launch

Not applicable.

Water Access and Swim Area

No proposed improvements.

Shoreline Stabilization

Not applicable.

Natural Resources

Because the park is within the WHMP riparian buffer, all improvements will need to be approved by the Terrestrial Coordination Committee (TCC).

Vegetation

Native trees and shrubs will be planted in the area where the parking lot is removed, both for habitat benefits and to visually screen the parking from the river. Openings in the vegetation will be left to allow visual access into the park from the road.

Restrooms

A new single stall vault toilet will be installed at the north end of the parking lot.

The existing vault toilet west of the road will be removed.

Utilities

The new vault toilet will be pumped when needed.

No water service will be provided.

Drainage

The new riparian buffer plantings between the parking lot and river bank will provide bio-filtration of the minimal runoff produced by the parking lot.

Site Amenities

Campsites

Not applicable.

Picnic Shelter

Not applicable.

Picnic Tables

Nine picnic tables will be provided in a new picnic area along the top of the river bank, including two accessible picnic tables on asphalt pads.

The picnic tables and any other remaining park amenities west of the road will be removed, and re-used if their condition allows.

Fee booth

Not applicable.

KEY NOTES

WELCOME KIOSK

BOULDER/COBBLE RIVER TERRACE

TOE OF RIVER BANK

NEW PICNIC TABLES

NEW ACCESSIBLE PICNIC TABLES ON ASPHALT PADS

EXISTING EDGE OF GRAVEL PARKING

RELOCATED GATE WITH NEW "NO PARKING" SIGNS

EXISTING GRAVEL SERVICE DRIVE

LEWIS RIVER

NEW RIPARIAN PLANTINGS

NEW ACCESSIBLE ASPHALT PATH

NEW VAULT TOILET

NEW VAN ACCESSIBLE PARKING STALL ON ASPHALT PAVING

RE-DEFINE GRAVEL PARKING LOT: 15 VEHICLES

LEWIS RIVER ROAD

EXISTING ASPHALT DRIVEWAY

VISUAL ACCESS FROM ROAD

REMOVE EXISTING VAULT TOILET SOUTH OF ROAD

EAGLE CLIFF PARK

MASTER PLAN

NORTH

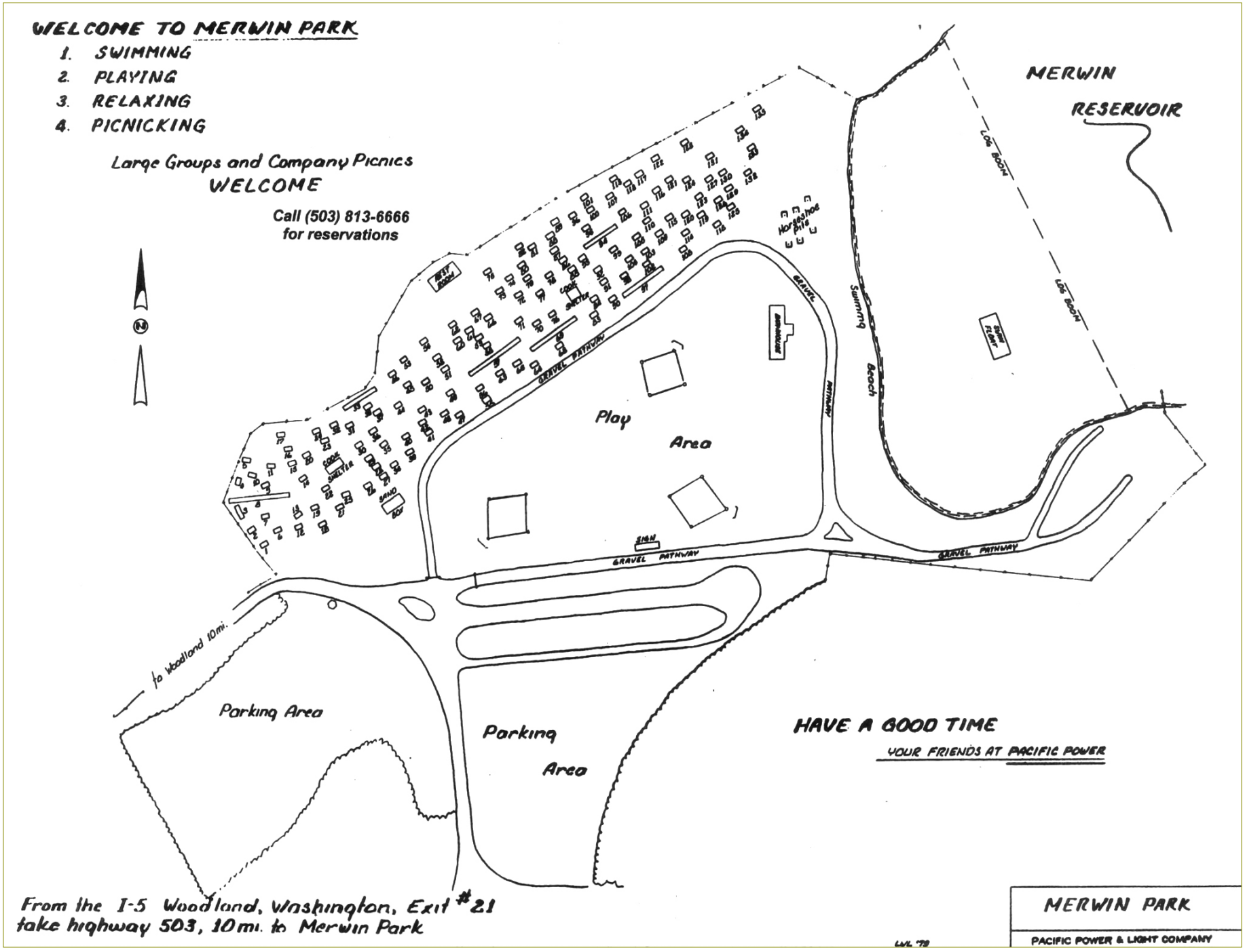
0′ 10′ 20′ 40′ 60′

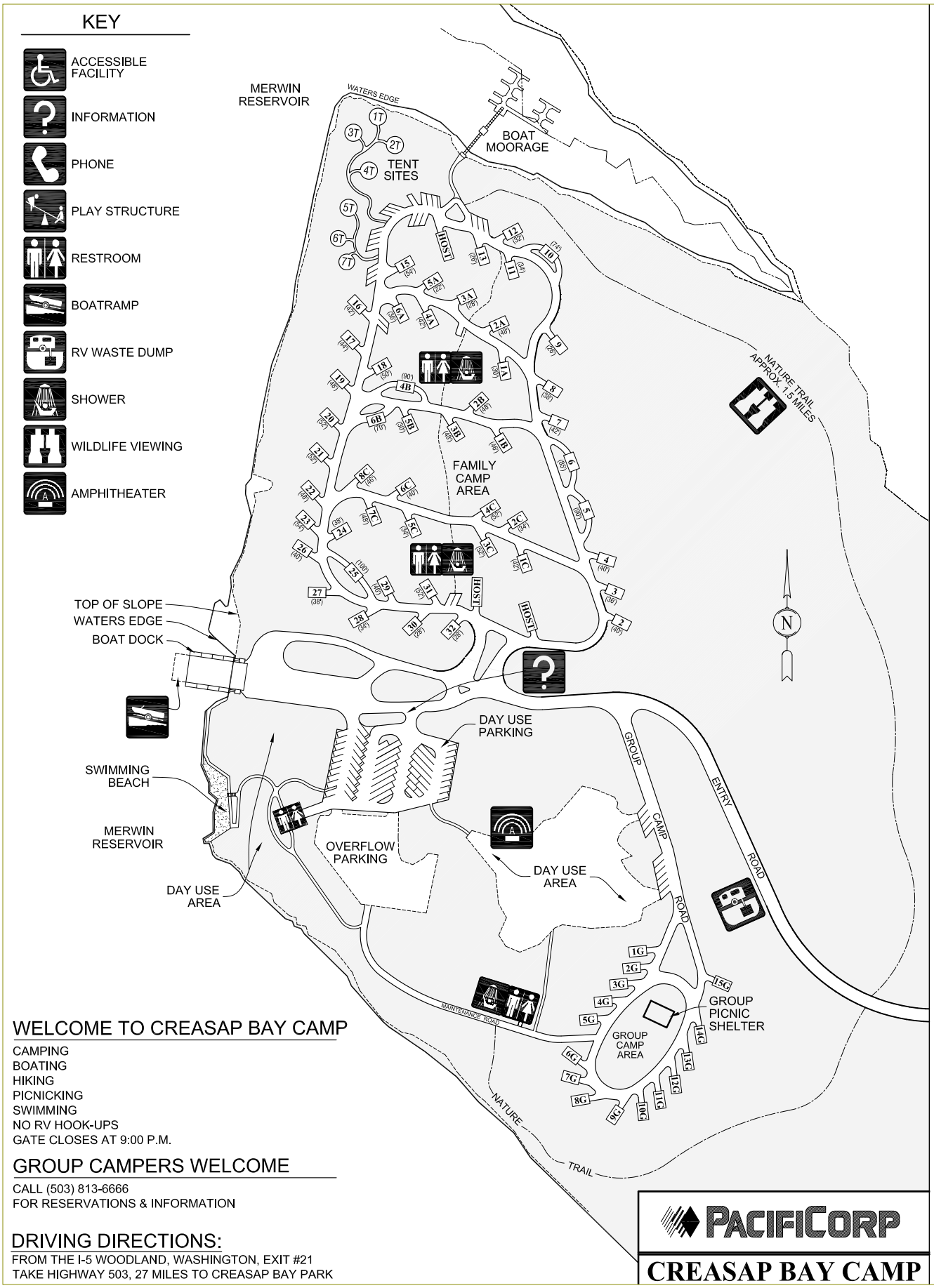
PART 4: APPENDICES

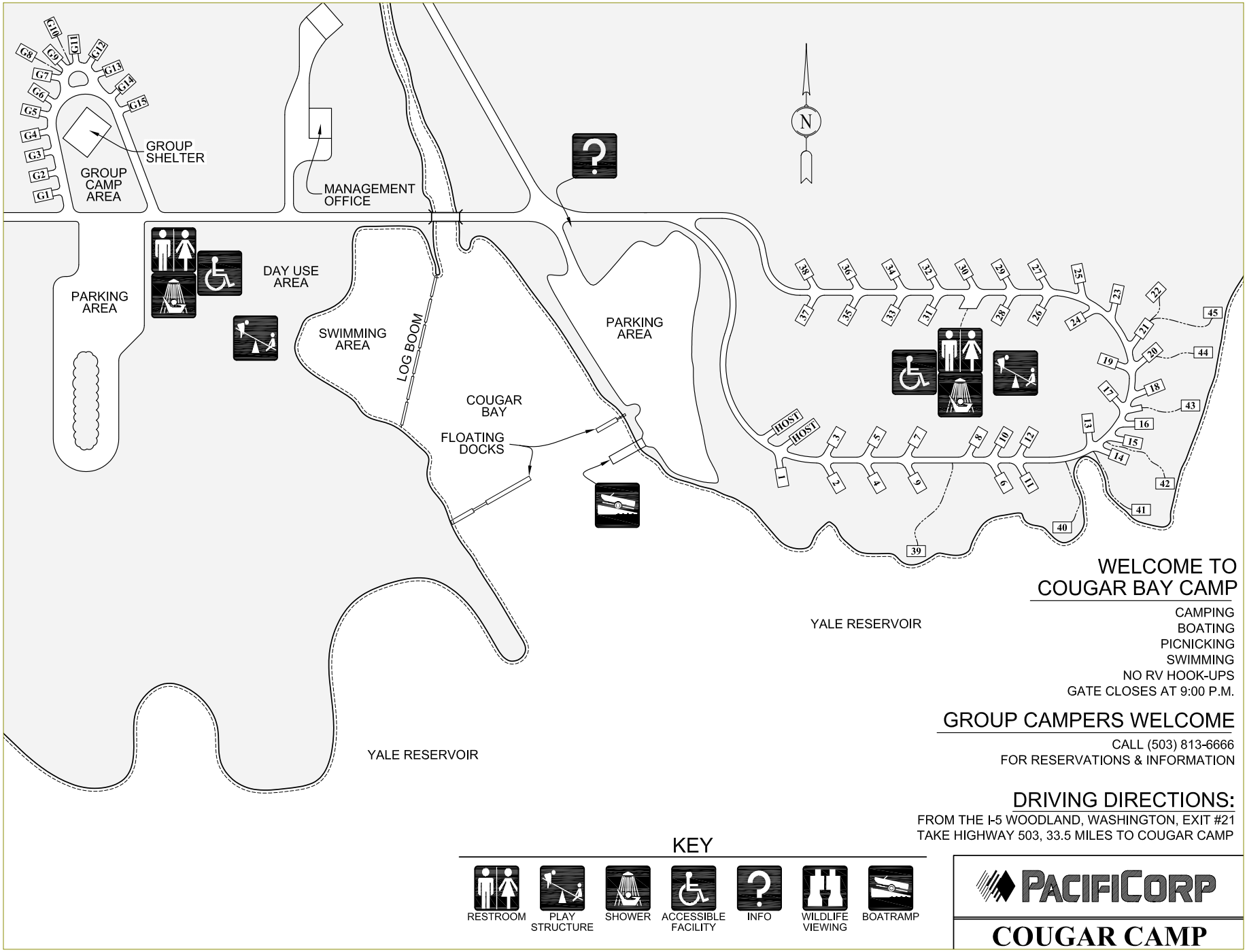
Appendix A: PacifiCorp Visitor Maps

Appendix A includes PacificCorp Visitor Maps for the following recreation facilities:

1. Merwin Park
2. Cresap Bay Camp
3. Cougar Camp
4. Beaver Bay Camp
5. Swift Camp


WELCOME TO MERWIN PARK
1. SWIMMING
2. PLAYING
3. RELAXING
4. PICNICKING
Large Groups and Company Picnics
WELCOME
Call (503) 813-6666
for reservations
MERWIN
RESERVOIR
Log Boom
Log Boom
Swimming
Beach
Horseshoe Pits
GRAVEL PATHWAY
Play
Area
SIGN
GRAVEL PATHWAY
GRAVEL PATHWAY
to Woodland 10mi.
Parking Area
Parking
Area
HAVE A GOOD TIME
YOUR FRIENDS AT PACIFIC POWER
From the I-5 Woodland, Washington, Exit #21
take highway 503, 10mi. to Merwin Park
MERWIN PARK
PACIFIC POWER & LIGHT COMPANY


KEY
ACCESSIBLE FACILITY
INFORMATION
PHONE
PLAY STRUCTURE
RESTROOM
BOATRAMP
RV WASTE DUMP
SHOWER
WILDLIFE VIEWING
AMPHITHEATER
MERWIN RESERVOIR
WATERS EDGE
BOAT MOORAGE
TENT SITES
HOST
FAMILY CAMP AREA
NATURE TRAIL APPROX. 1.5 MILES
TOP OF SLOPE
WATERS EDGE
BOAT DOCK
DAY USE PARKING
SWIMMING BEACH
MERWIN RESERVOIR
OVERFLOW PARKING
DAY USE AREA
DAY USE AREA
GROUP CAMP ENTRY ROAD
GROUP CAMP ROAD
GROUP PICNIC SHELTER
GROUP CAMP AREA
MAINTENANCE ROAD
NATURE TRAIL
N
WELCOME TO CREASAP BAY CAMP
CAMPING
BOATING
HIKING
PICNICKING
SWIMMING
NO RV HOOK-UPS
GATE CLOSES AT 9:00 P.M.
GROUP CAMPERS WELCOME
CALL (503) 813-6666
FOR RESERVATIONS & INFORMATION
DRIVING DIRECTIONS:
FROM THE I-5 WOODLAND, WASHINGTON, EXIT #21
TAKE HIGHWAY 503, 27 MILES TO CREASAP BAY PARK
PACIFICORP
CREASAP BAY CAMP


G10
G11
G12
G13
G14
G15
G8
G9
G7
G6
G5
G4
G3
G2
G1
GROUP SHELTER
GROUP CAMP AREA
MANAGEMENT OFFICE
?
N
PARKING AREA
DAY USE AREA
SWIMMING AREA
LOG BOOM
COUGAR BAY
FLOATING DOCKS
PARKING AREA
HOST
HOST
YALE RESERVOIR
YALE RESERVOIR
WELCOME TO COUGAR BAY CAMP
CAMPING
BOATING
PICNICKING
SWIMMING
NO RV HOOK-UPS
GATE CLOSES AT 9:00 P.M.
GROUP CAMPERS WELCOME
CALL (503) 813-6666
FOR RESERVATIONS & INFORMATION
DRIVING DIRECTIONS:
FROM THE I-5 WOODLAND, WASHINGTON, EXIT #21
TAKE HIGHWAY 503, 33.5 MILES TO COUGAR CAMP
KEY
RESTROOM
PLAY STRUCTURE
SHOWER
ACCESSIBLE FACILITY
INFO
WILDLIFE VIEWING
BOATRAMP
PACIFICORP
COUGAR CAMP

KEY

- ACCESSIBLE FACILITY
- INFORMATION
- PHONE
- PLAY STRUCTURE
- RESTROOM
- BOATRAMP
- RV WASTE DUMP
- SHOWER
- WILDLIFE VIEWING

WELCOME TO BEAVER BAY CAMP

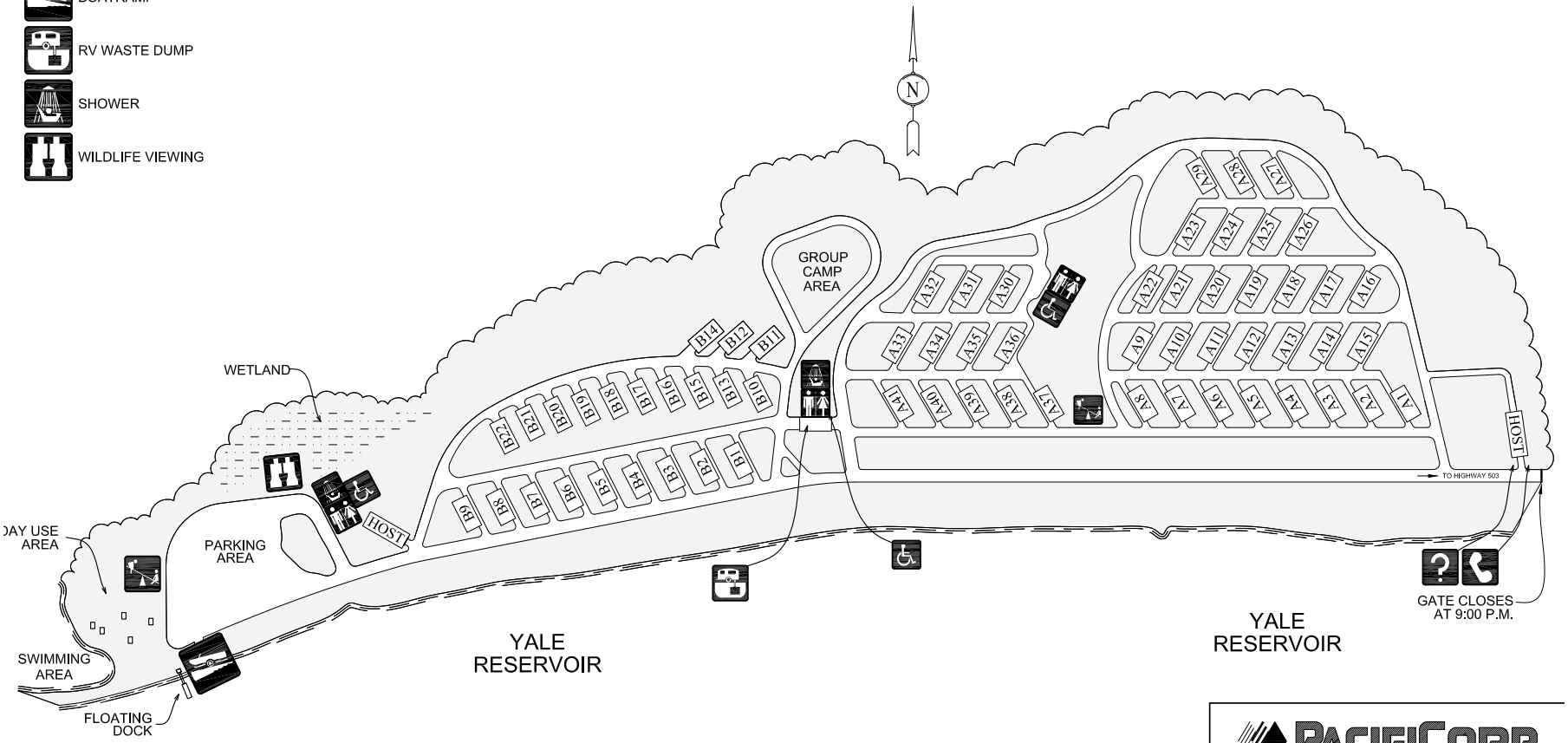
CAMPING
BOATING
HIKING
PICNICKING
SWIMMING
NO RV HOOK-UPS

GROUP CAMPERS WELCOME

CALL (503) 813-6666
FOR RESERVATIONS & INFORMATION

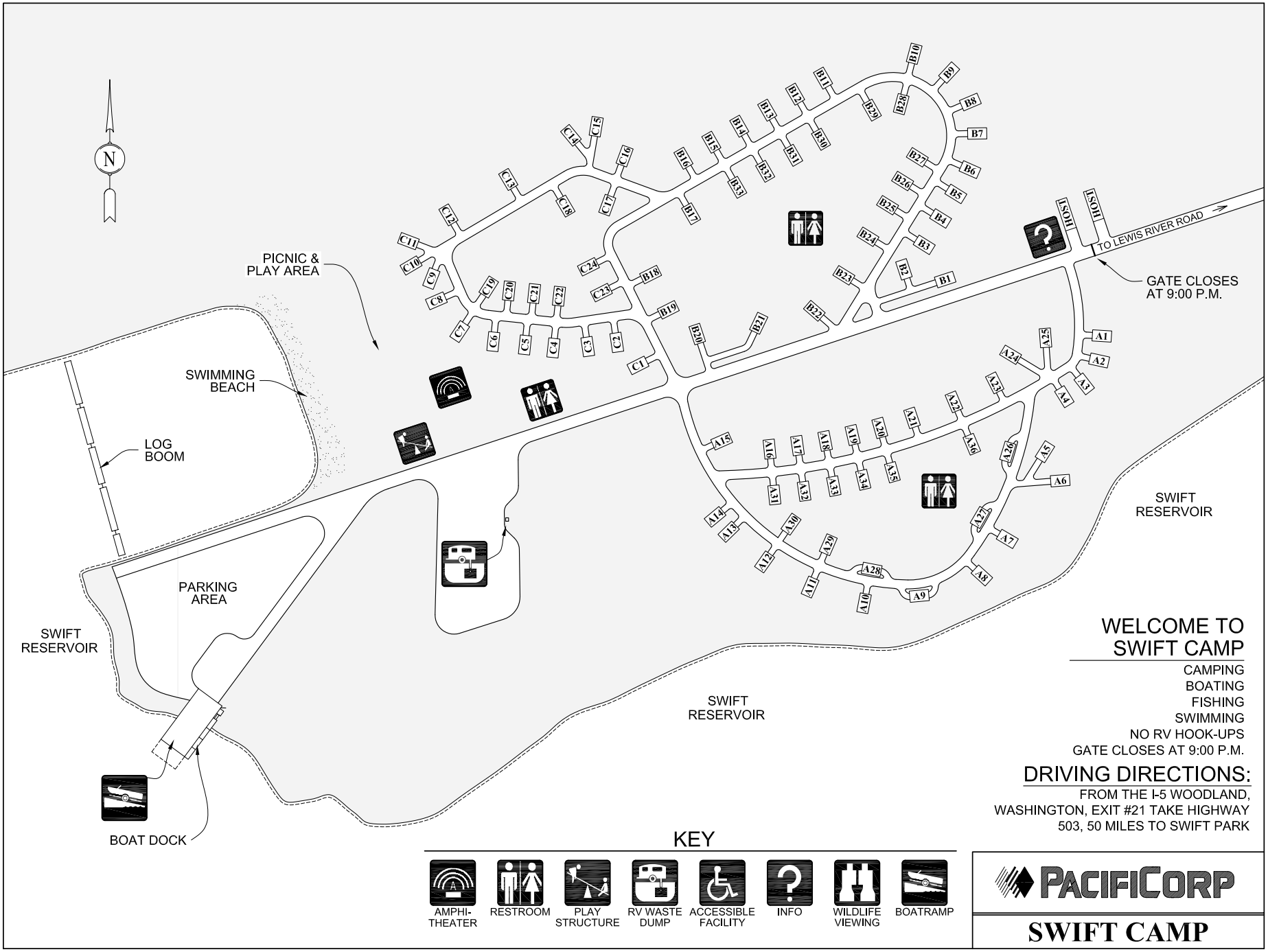
DRIVING DIRECTIONS:

FROM THE I-5 WOODLAND, WASHINGTON, EXIT #21
TAKE HIGHWAY 503, APPROX. 35 MILES TO
BEAVER BAY CAMP



PACIFICORP

BEAVER BAY CAMP

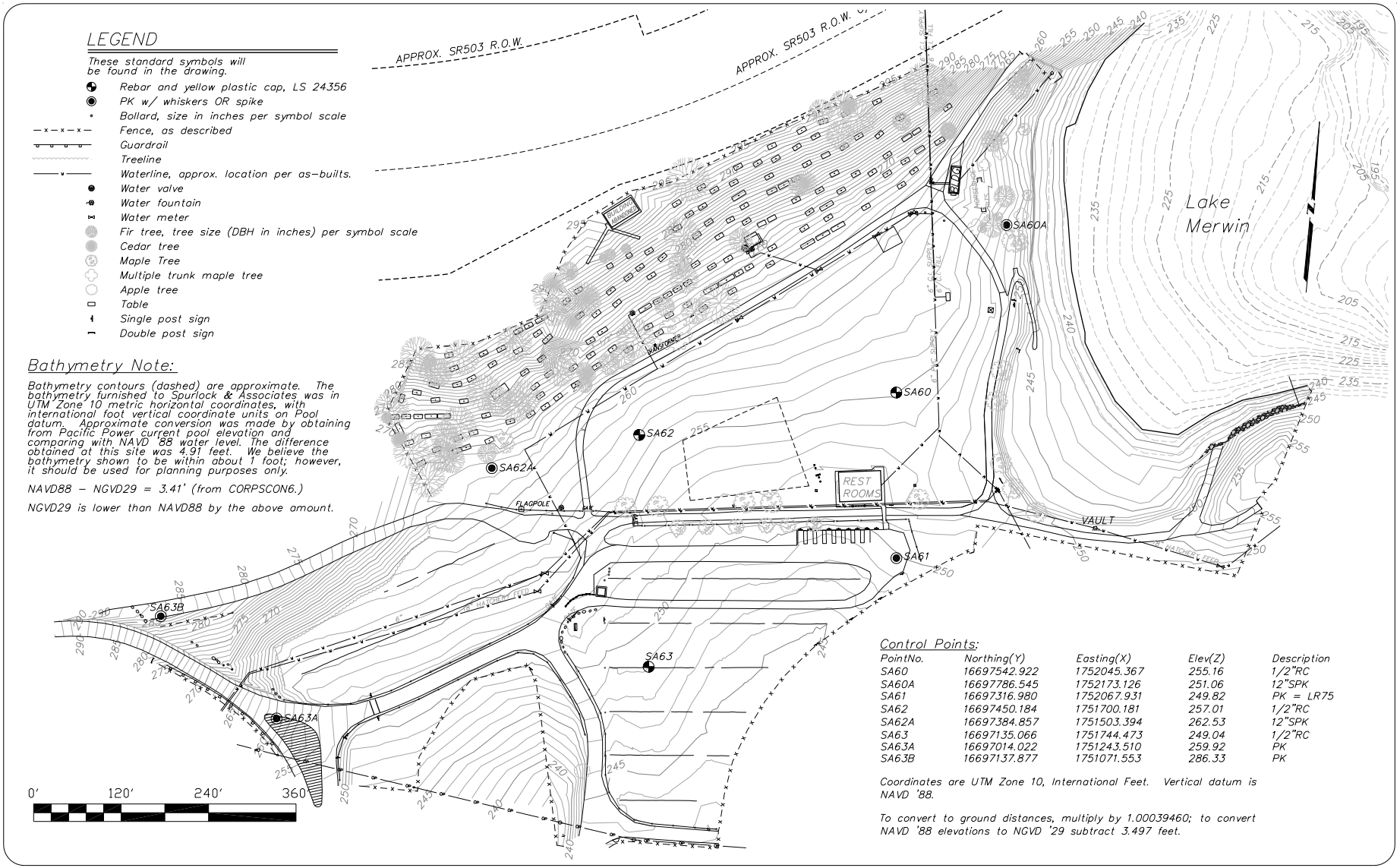

N
PICNIC &
PLAY AREA
SWIMMING
BEACH
LOG
BOOM
PARKING
AREA
SWIFT
RESERVOIR
BOAT DOCK
TO LEWIS RIVER ROAD
GATE CLOSES
AT 9:00 P.M.
SWIFT
RESERVOIR
SWIFT
RESERVOIR
WELCOME TO
SWIFT CAMP
CAMPING
BOATING
FISHING
SWIMMING
NO RV HOOK-UPS
GATE CLOSES AT 9:00 P.M.
DRIVING DIRECTIONS:
FROM THE I-5 WOODLAND,
WASHINGTON, EXIT #21 TAKE HIGHWAY
503, 50 MILES TO SWIFT PARK
KEY
AMPHI-
THEATER
RESTROOM
PLAY
STRUCTURE
RV WASTE
DUMP
ACCESSIBLE
FACILITY
INFO
WILDLIFE
VIEWING
BOATRAMP
PACIFICORP
SWIFT CAMP

Appendix B: Site Surveys

Appendix B includes site surveys for the following sites:

1. Merwin Day Use Park
2. Speeylai Park - West
3. Speeylai Park - East
4. Cresap Bay Campground
5. Saddle Dam Park
6. Yale Day Use Park
7. Cougar Park
8. Beaver Bay Park
9. Eagle Cliff Park

A site survey was not produced for Swift Forest Camp.



Bathymetry Note:

Bathymetry contours (dashed) are approximate. The bathymetry furnished to Spurlock & Associates was in UTM Zone 10 metric horizontal coordinates, with international foot vertical coordinate units on Pool datum. Approximate conversion was made by obtaining from Pacific Power current pool elevation and comparing with NAVD '88 water level. The difference obtained at this site was 4.91 feet. We believe the bathymetry shown to be within about 1 foot; however, it should be used for planning purposes only.

NAVD88 – NGVD29 = 3.41' (from CORPSCON6.)

NGVD29 is lower than NAVD88 by the above amount.

Control Points:

PointNo.	Northing(Y)	Easting(X)	Elev(Z)	Description
SA60	16697542.922	1752045.367	255.16	1/2"RC
SA60A	16697786.545	1752173.126	251.06	12"SPK
SA61	16697316.980	1752067.931	249.82	PK = LR75
SA62	16697450.184	1751700.181	257.01	1/2"RC
SA62A	16697384.857	1751503.394	262.53	12"SPK
SA63	16697135.066	1751744.473	249.04	1/2"RC
SA63A	16697014.022	1751243.510	259.92	PK
SA63B	16697137.877	1751071.553	286.33	PK

Coordinates are UTM Zone 10, International Feet. Vertical datum is NAVD '88.

To convert to ground distances, multiply by 1.00039460; to convert NAVD '88 elevations to NGVD '29 subtract 3.497 feet.

DATE	NO.	REVISION	BY

DESIGNED: EDK | SCALE: 1" = 120' | DATE: 02-16-09
DRAWN: EDK | DATUM - BENCH
CHECKED: GDS | FILE: 431MERWN.DWG
APPROVED: | JOB NO. 108431

Lewis River Recreation Areas: Merwin Day Use Park

SPURLOCK & ASSOCIATES
P.O. Box C - Longview, WA 98632 - (360) 578-1794
Planners Engineers Surveyors

JOB NO. 108431
DRAWING NO. 81
SHEET NO. 1 OF 1

Bathymetry Note:

Bathymetry contours (dashed) are approximate. The bathymetry furnished to Spurlock & Associates was in UTM Zone 10 metric horizontal coordinates, with international foot vertical coordinate units on Pool datum. Approximate conversion was made by obtaining from Pacific Power current pool elevation and comparing with NAVD '88 water level. The difference obtained at Merwin Park was 4.91 feet. We believe the bathymetry shown to be within about 1 foot; however, it should be used for planning purposes only.

NAVD88 – NGVD29 = 3.41' (from CORPSCON6.)

NGVD29 is lower than NAVD88 by the above amount.

Symbol Legend

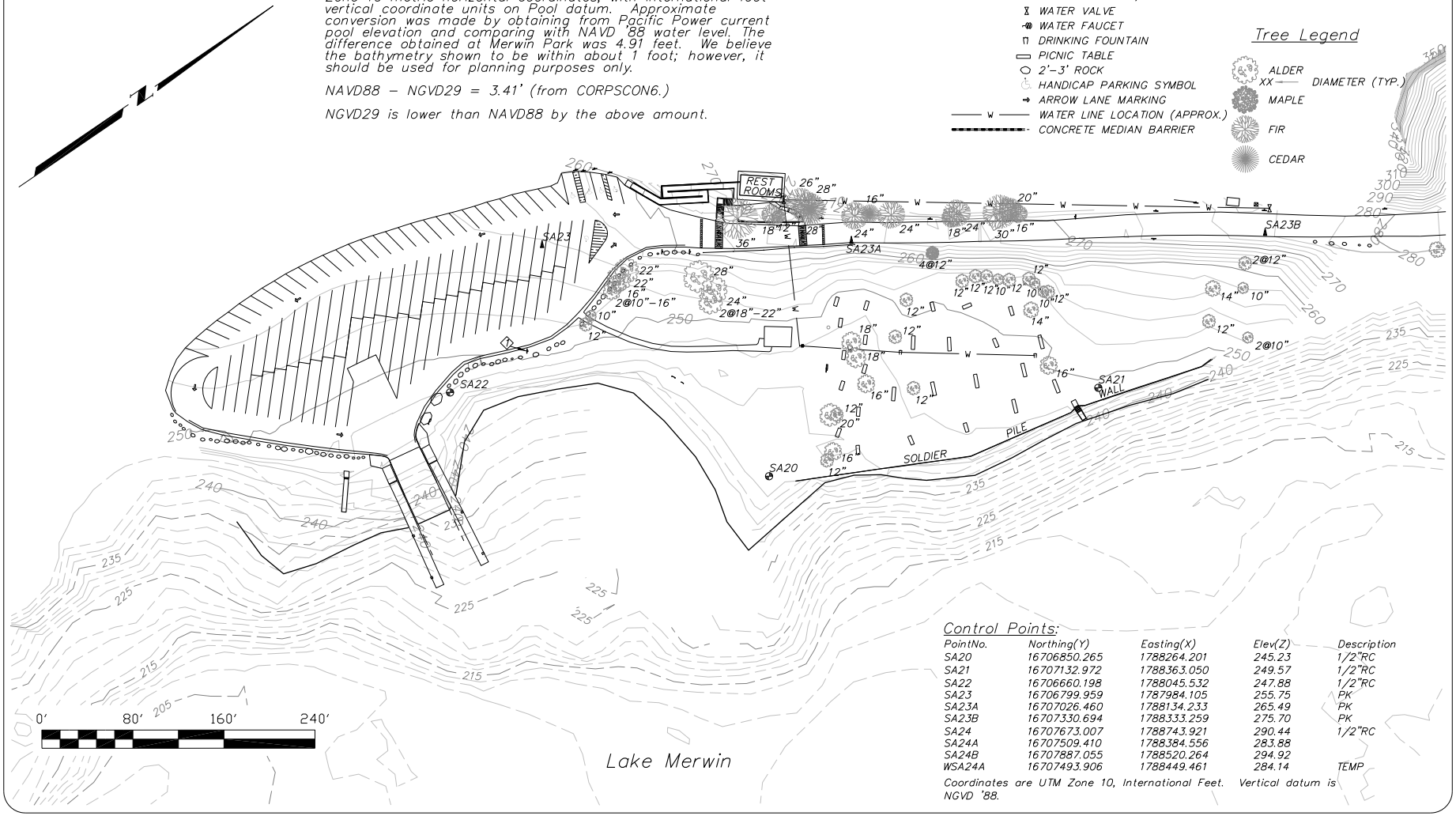
- SIGN NOTE
- SINGLE POST SIGN, SEE NOTE
- MULTI POST SIGN, SEE NOTE
- WATER VALVE
- WATER FAUCET
- DRINKING FOUNTAIN
- PICNIC TABLE
- 2'–3' ROCK
- HANDICAP PARKING SYMBOL
- ARROW LANE MARKING
- W — WATER LINE LOCATION (APPROX.)
- CONCRETE MEDIAN BARRIER

Symbol Legend

- REBAR WITH PLASTIC CAP
- PK NAIL
- 12" SPIKE

Tree Legend

- ALDER
- XX — DIAMETER (TYP.)
- MAPLE
- FIR
- CEDAR



Control Points:

PointNo.	Northing(Y)	Easting(X)	Elev(Z)	Description
SA20	16706850.265	1788264.201	245.23	1/2"RC
SA21	16707132.972	1788363.050	249.57	1/2"RC
SA22	16706660.198	1788045.532	247.88	1/2"RC
SA23	16706799.959	1787984.105	255.75	PK
SA23A	16707026.460	1788134.233	265.49	PK
SA23B	16707330.694	1788333.259	275.70	PK
SA24	16706773.007	1788743.921	290.44	1/2"RC
SA24A	16707509.410	1788384.556	283.88	
SA24B	16707887.055	1788520.264	294.92	
WSA24A	16707493.906	1788449.461	284.14	TEMP

Coordinates are UTM Zone 10, International Feet. Vertical datum is NGVD '88.

DATE	NO.	REVISION	BY	APPROVED:	JOB NO. 108431
				DESIGNED: EDK	SCALE: 1" = 80'
				DRAWN: EDK	DATUM - BENCH
				CHECKED: GDS	FILE: 431SPEEL.DWG

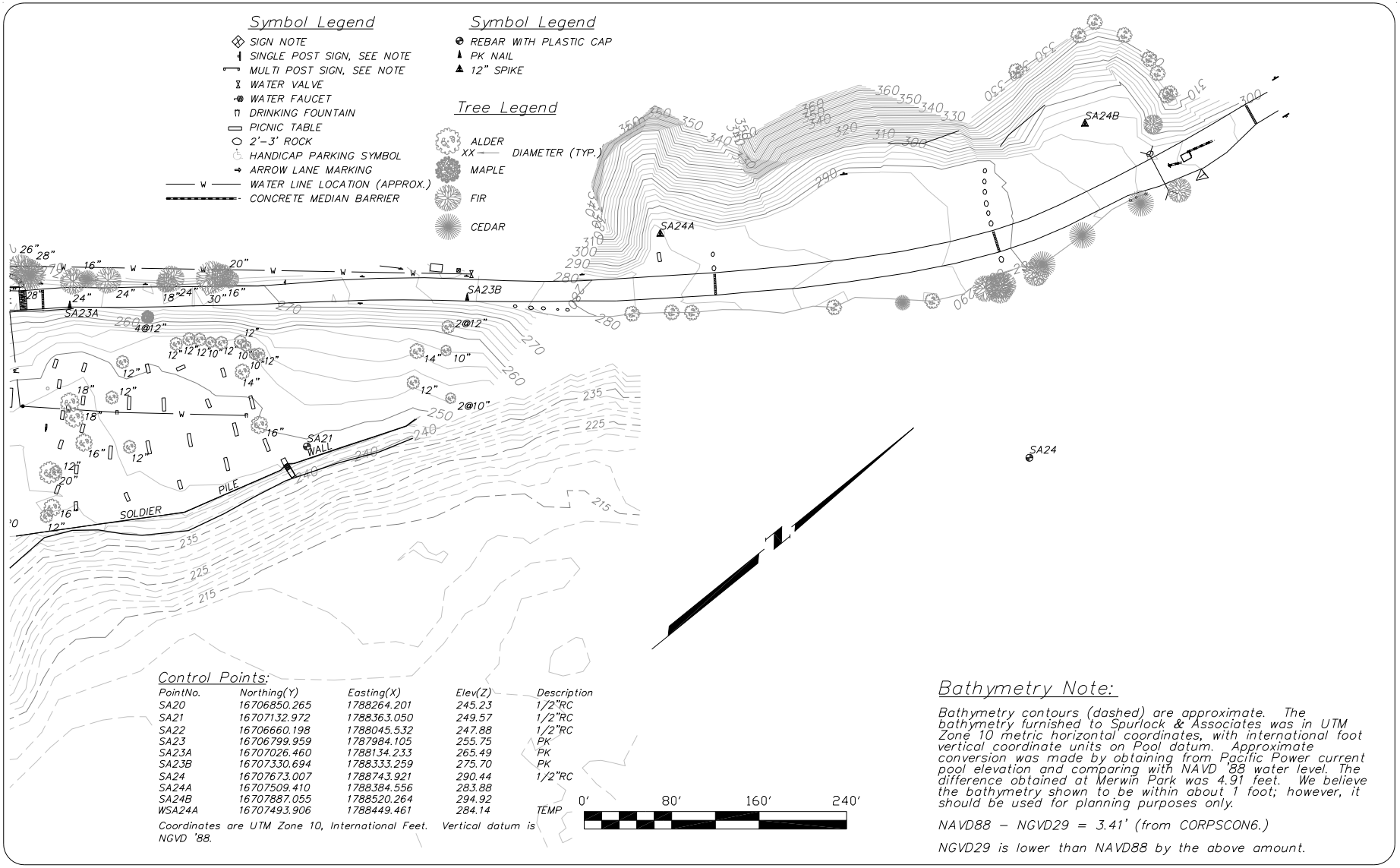
DATE: 11/25/08

November 2008 Topography

Lewis River Recreation Areas: Speelyai Park – West

SPURLOCK & ASSOCIATES
P.O. Box C - Longview, WA 98632 - (360) 578-1794
Planners Engineers Surveyors

JOB NO. 108431
DRAWING NO. 01
SHEET NO. 1 OF 2



Control Points:

PointNo.	Northing(Y)	Easting(X)	Elev(Z)	Description
SA20	16706850.265	1788264.201	245.23	1/2"RC
SA21	16707132.972	1788363.050	249.57	1/2"RC
SA22	16706660.198	1788045.532	247.88	1/2"RC
SA23	16706799.959	1787984.105	255.75	PK
SA23A	16707026.460	1788134.233	265.49	PK
SA23B	16707330.694	1788333.259	275.70	PK
SA24	16707673.007	1788743.921	290.44	1/2"RC
SA24A	16707509.410	1788384.556	283.88	
SA24B	16707887.055	1788520.264	294.92	
WSA24A	16707493.906	1788449.461	284.14	TEMP

Coordinates are UTM Zone 10, International Feet. Vertical datum is NGVD '88.

Bathymetry Note:

Bathymetry contours (dashed) are approximate. The bathymetry furnished to Spurlock & Associates was in UTM Zone 10 metric horizontal coordinates, with international foot vertical coordinate units on Pool datum. Approximate conversion was made by obtaining from Pacific Power current pool elevation and comparing with NAVD '88 water level. The difference obtained at Merwin Park was 4.91 feet. We believe the bathymetry shown to be within about 1 foot; however, it should be used for planning purposes only.

NAVD88 – NGVD29 = 3.41' (from CORPSCON6.)

NGVD29 is lower than NAVD88 by the above amount.

DATE	NO.	REVISION	BY

DESIGNED: EDK | SCALE: 1" = 80' | DATE: 11/25/08
DRAWN: EDK | DATUM - BENCH
CHECKED: GDS | FILE: 431SPEEL.DWG
APPROVED: | JOB NO. 108431

November 2008 Topography

Lewis River Recreation Areas:
Speelyai Park – East

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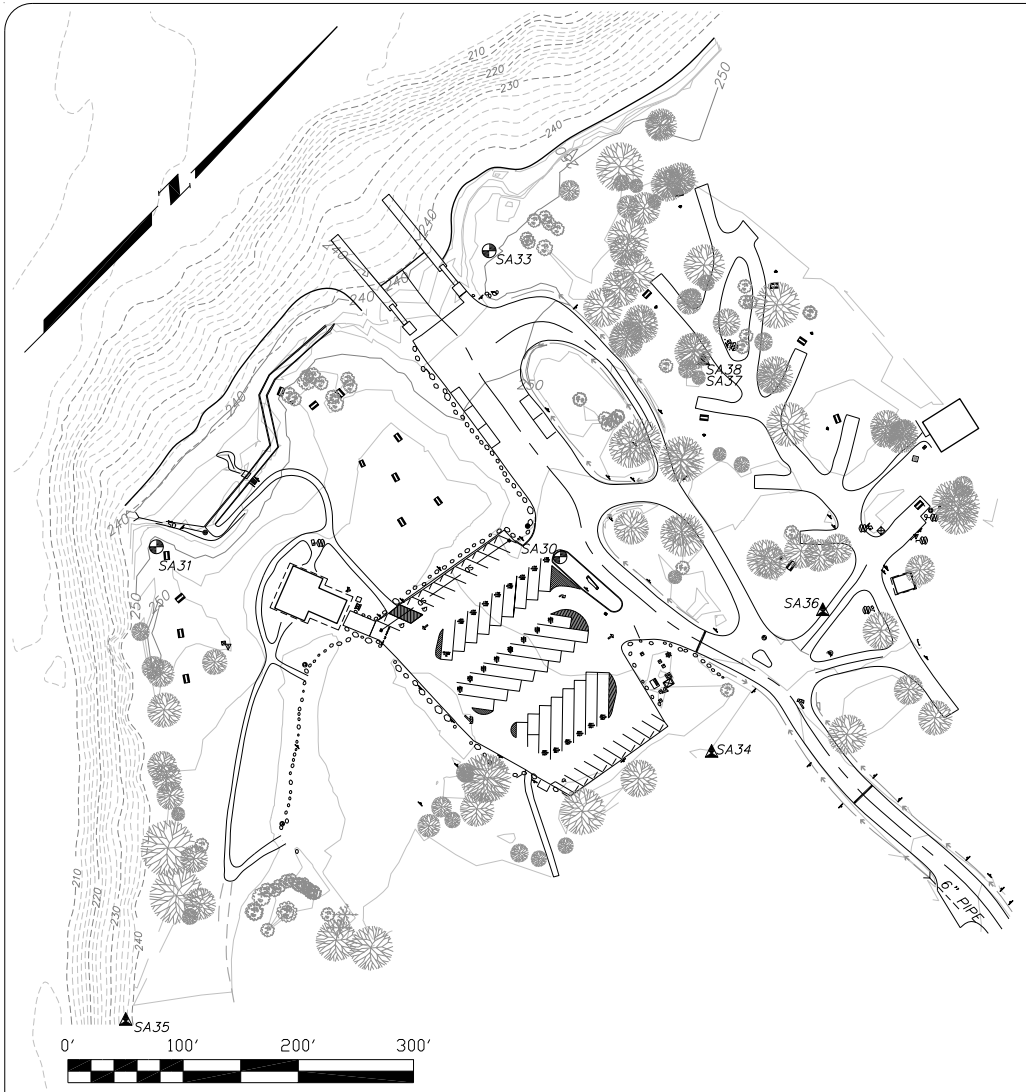
Planners Engineers Surveyors

JOB NO. 108431
DRAWING NO. 02
SHEET NO. 2 OF 2



Control Points:

PointNo.	Northing(Y)	Easting(X)	Elev(Z)	Description
SA30	16701834.71	1796645.88	253.03	1/2"SA
SA31	16701593.02	1796392.08	251.57	1/2"SA
SA32	16701879.50	1796408.64	246.25	2"BT "CRESAP
SA33	16701978.94	1796414.58	248.92	1/2"SA
SA34	16701807.50	1796859.17	251.65	PK
SA35	16701283.37	1796664.23	253.86	?
SA36	16701962.65	1796840.48	253.02	PK
SA37	16702043.19	1796613.09	253.44	PK
SA38	16702043.19	1796613.09	253.44	12"SPK

Bathymetry Note:

Bathymetry contours (dashed) are approximate. The bathymetry furnished to Spurlock & Associates was in UTM Zone 10 metric horizontal coordinates, with international foot vertical coordinate units on Pool datum. Approximate conversion was made by obtaining from Pacific Power current pool elevation and comparing with NAVD '88 water level. The difference obtained at Merwin Park was 4.91 feet. We believe the bathymetry shown to be within about 1 foot; however, it should be used for planning purposes only.

NAVD88 – NGVD29 = 3.41' (from CORPSCON6.)

NGVD29 is lower than NAVD88 by the above amount.

Tree Legend

- ALDER (TYP. DIAMETER PER SYMBOL SIZE)
- FIR

Symbol Legend

- S&A CONTROL POINTS
- SIGN NOTE
- SINGLE POST SIGN, SEE NOTE
- MULTI POST SIGN, SEE NOTE
- WATER VALVE
- WATER FAUCET
- PICNIC TABLE
- ROCK
- HANDICAP PARKING SYMBOL
- ARROW LANE MARKING
- HIGHWAY CENTERLINE
- UNDERGROUND POWER
- OVERHEAD POWER
- WATER LINE LOCATION (APPROX.)

DATE	NO.	REVISION	BY

DESIGNED: EDK | SCALE: 1" = 100' | DATE: 04/03/09
DRAWN: EDK | DATUM - BENCH
CHECKED: GDS | FILE: 431CRESP.DWG
APPROVED: | JOB NO. 108431

March 2009 Topography

Lewis River Recreation Areas:
Cresap Bay Campground

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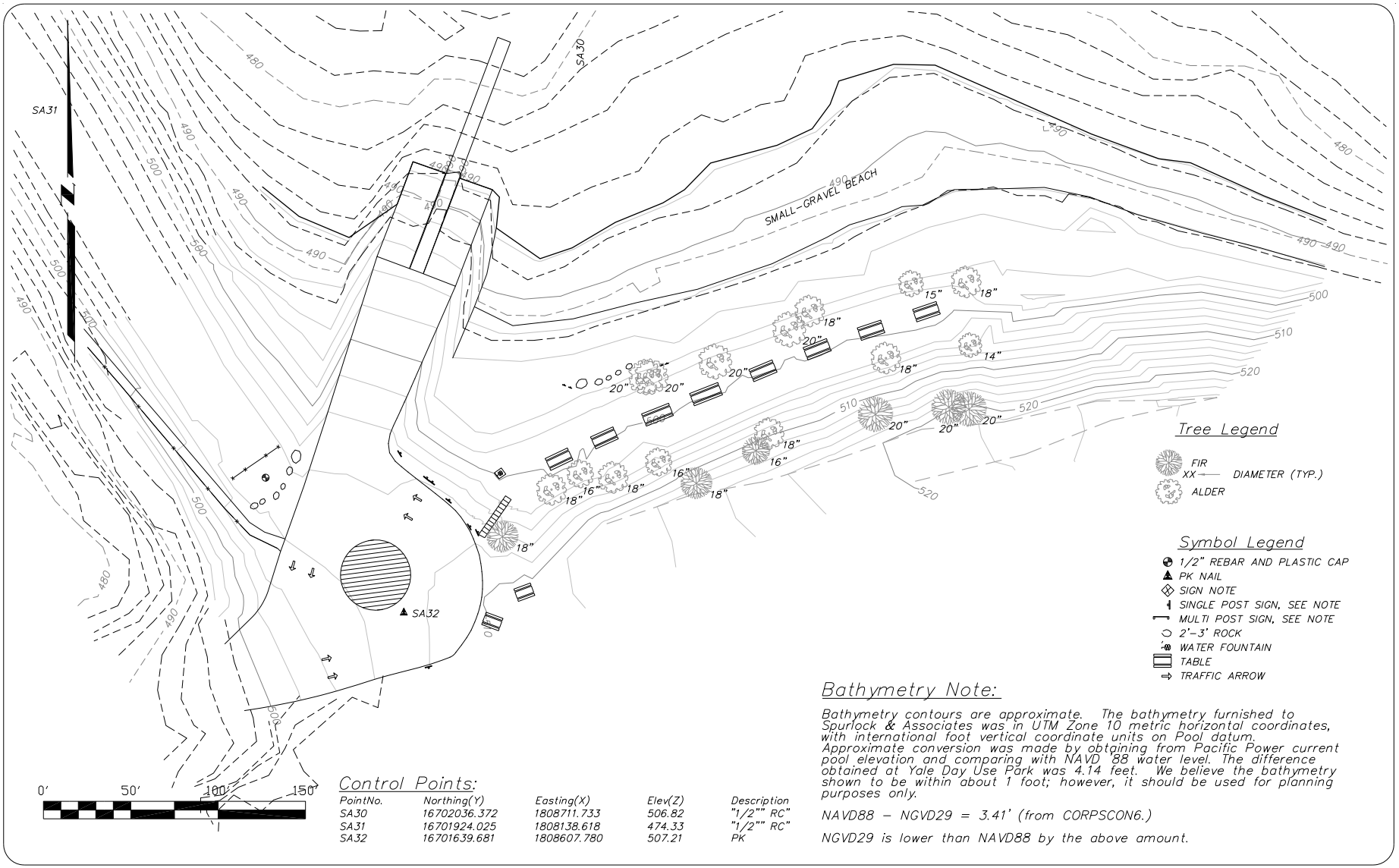
JOB NO. 108431
DRAWING NO. 01
SHEET NO. 1 OF 1



Tree Legend

FIR
XX — DIAMETER (TYP.)
ALDER

Symbol Legend

- 1/2" REBAR AND PLASTIC CAP
- PK NAIL
- SIGN NOTE
- SINGLE POST SIGN, SEE NOTE
- MULTI POST SIGN, SEE NOTE
- 2'-3' ROCK
- WATER FOUNTAIN
- TABLE
- TRAFFIC ARROW

Bathymetry Note:

Bathymetry contours are approximate. The bathymetry furnished to Spurlock & Associates was in UTM Zone 10 metric horizontal coordinates, with international foot vertical coordinate units on Pool datum. Approximate conversion was made by obtaining from Pacific Power current pool elevation and comparing with NAVD '88 water level. The difference obtained at Yale Day Use Park was 4.14 feet. We believe the bathymetry shown to be within about 1 foot; however, it should be used for planning purposes only.

NAVD88 – NGVD29 = 3.41' (from CORPSCON6.)

NGVD29 is lower than NAVD88 by the above amount.

Control Points:

PointNo.	Northing(Y)	Easting(X)	Elev(Z)	Description
SA30	16702036.372	1808711.733	506.82	"1/2"" RC"
SA31	16701924.025	1808138.618	474.33	"1/2"" RC"
SA32	16701639.681	1808607.780	507.21	PK

DATE	NO.	REVISION	BY	APPROVED:	DESIGNED: EDK	SCALE: 1" = 50'	DATE: 12-4-08
					DRAWN: EDK	DATUM - BENCH	
					CHECKED: GDS	FILE: 431SADDL.DWG	
						JOB NO. 108431	

November 2008 Topography

Lewis River Recreation Areas: Saddle Dam Park

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JOB NO. 108431
DRAWING NO. 01
SHEET NO. 1 OF 1

Bathymetry Note:

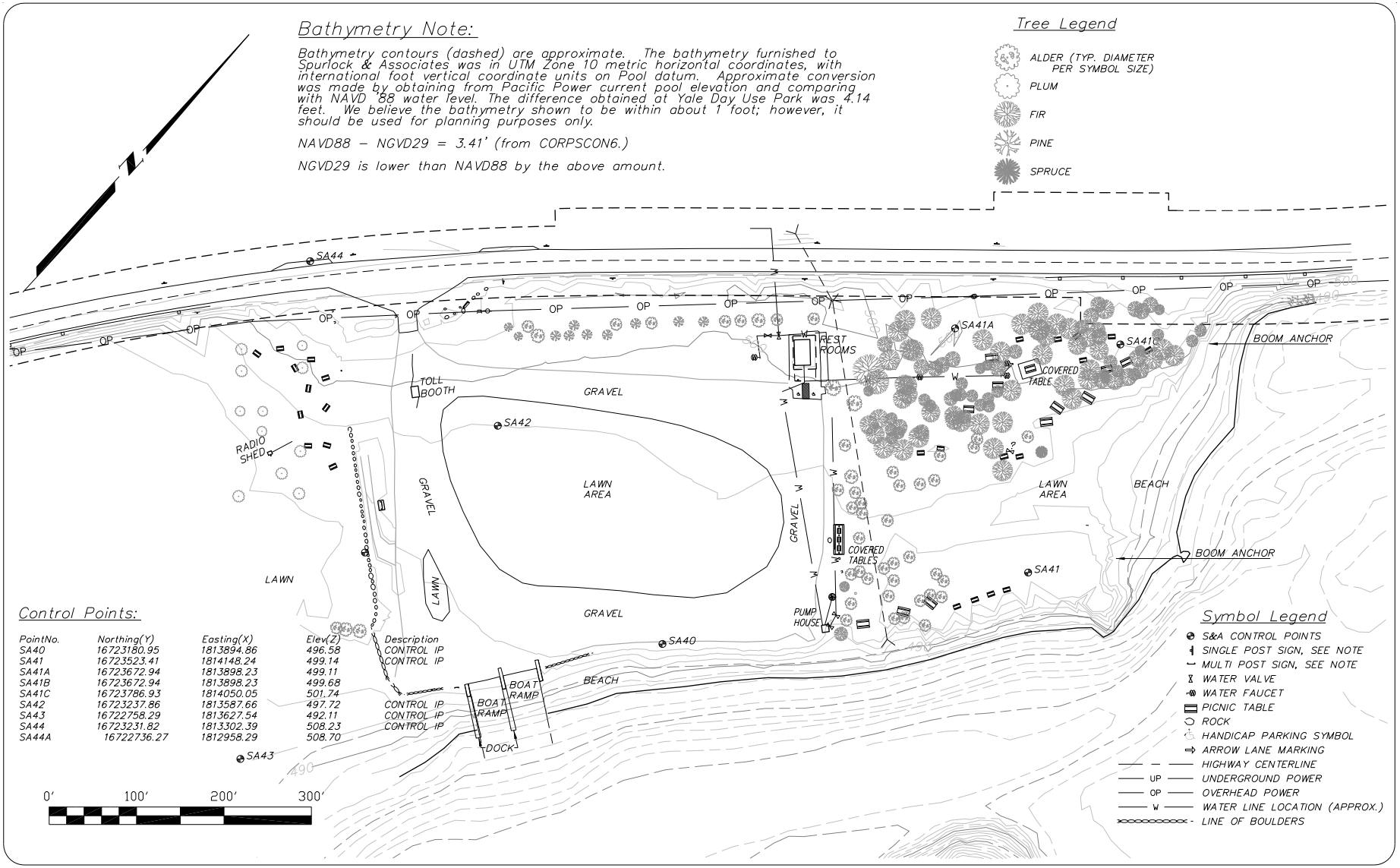
Bathymetry contours (dashed) are approximate. The bathymetry furnished to Spurlock & Associates was in UTM Zone 10 metric horizontal coordinates, with international foot vertical coordinate units on Pool datum. Approximate conversion was made by obtaining from Pacific Power current pool elevation and comparing with NAVD '88 water level. The difference obtained at Yale Day Use Park was 4.14 feet. We believe the bathymetry shown to be within about 1 foot; however, it should be used for planning purposes only.

NAVD88 – NGVD29 = 3.41' (from CORPSCON6.)

NGVD29 is lower than NAVD88 by the above amount.

Tree Legend

- ALDER (TYP. DIAMETER PER SYMBOL SIZE)
- PLUM
- FIR
- PINE
- SPRUCE



Control Points:

PointNo.	Northing(Y)	Easting(X)	Elev(Z)	Description
SA40	16723180.95	1813894.86	496.58	CONTROL IP
SA41	16723523.41	1814148.24	499.14	CONTROL IP
SA41A	16723672.94	1813898.23	499.11	
SA41B	16723672.94	1813898.23	499.68	
SA41C	16723786.93	1814050.05	501.74	
SA42	16723237.86	1813587.66	497.72	CONTROL IP
SA43	16722758.29	1813627.54	492.11	CONTROL IP
SA44	16723231.82	1813302.39	508.23	CONTROL IP
SA44A	16722736.27	1812958.29	508.70	

Symbol Legend

- S&A CONTROL POINTS
- SINGLE POST SIGN, SEE NOTE
- MULTI POST SIGN, SEE NOTE
- WATER VALVE
- WATER FAUCET
- PICNIC TABLE
- ROCK
- HANDICAP PARKING SYMBOL
- ARROW LANE MARKING
- HIGHWAY CENTERLINE
- UP — UNDERGROUND POWER
- OP — OVERHEAD POWER
- W — WATER LINE LOCATION (APPROX.)
- LINE OF BOULDERS

DATE	NO.	REVISION	BY

DESIGNED: EDK | SCALE: 1" = 100' | DATE: 01/20/09
DRAWN: EDK | DATUM - BENCH
CHECKED: GDS | FILE: 431YALE.DWG
APPROVED: | JOB NO. 108431

November 2008 Topography

Lewis River Recreation Areas: Yale Day Use Park

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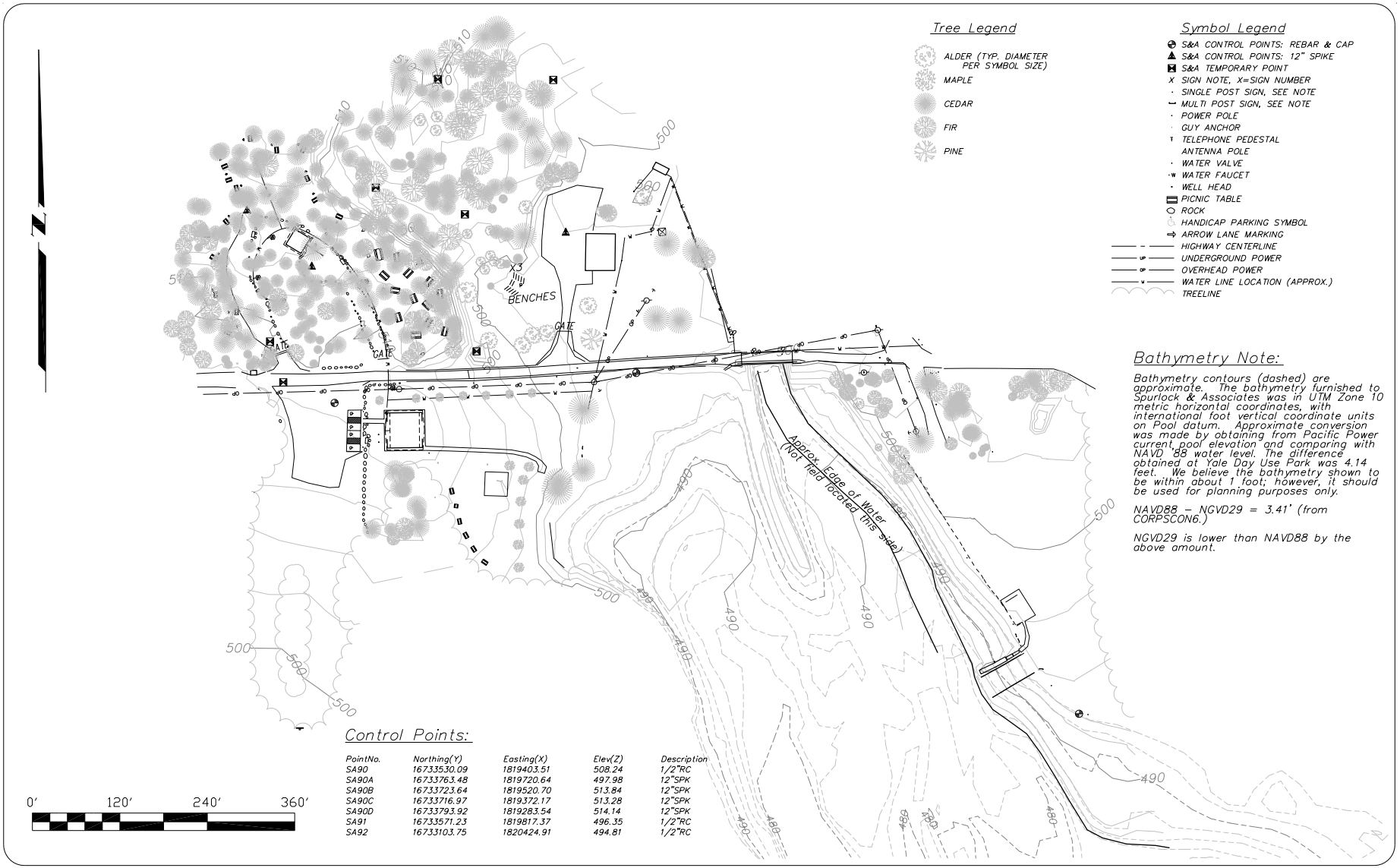
Planners Engineers Surveyors

JOB NO. 108431
DRAWING NO. B
SHEET NO. 1 OF 1



				DESIGNED: EDK	SCALE: 1" = 120'	DATE: 1-26-09
				DRAWN: EDK	DATUM - BENCH	
				CHECKED: GDS	FILE: 431COUGR.DWG	
DATE	NO.	REVISION	BY	APPROVED:	JOB NO. 108431	

December 2008 Topography

Lewis River Recreation Areas: Cougar Park

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Planners Engineers Surveyors

JOB NO. 108431
DRAWING NO. 8
SHEET NO. 1 OF 1

Bathymetry Note:

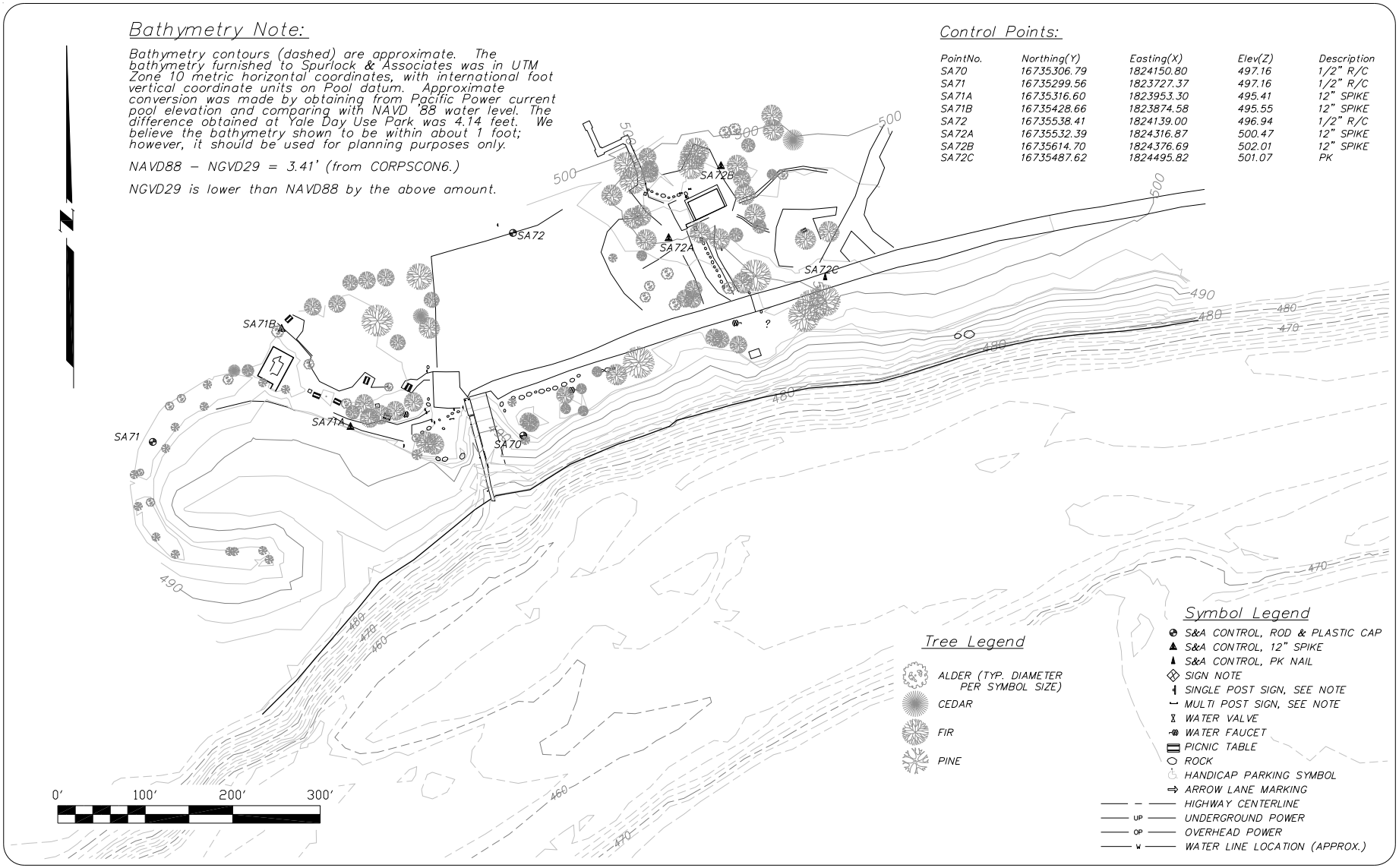
Bathymetry contours (dashed) are approximate. The bathymetry furnished to Spurlock & Associates was in UTM Zone 10 metric horizontal coordinates, with international foot vertical coordinate units on Pool datum. Approximate conversion was made by obtaining from Pacific Power current pool elevation and comparing with NAVD '88 water level. The difference obtained at Yale Day Use Park was 4.14 feet. We believe the bathymetry shown to be within about 1 foot; however, it should be used for planning purposes only.

NAVD88 – NGVD29 = 3.41' (from CORPSCON6.)

NGVD29 is lower than NAVD88 by the above amount.

Control Points:

PointNo.	Northing(Y)	Easting(X)	Elev(Z)	Description
SA70	16735306.79	1824150.80	497.16	1/2" R/C
SA71	16735299.56	1823727.37	497.16	1/2" R/C
SA71A	16735316.60	1823953.30	495.41	12" SPIKE
SA71B	16735428.66	1823874.58	495.55	12" SPIKE
SA72	16735538.41	1824139.00	496.94	1/2" R/C
SA72A	16735532.39	1824316.87	500.47	12" SPIKE
SA72B	16735614.70	1824376.69	502.01	12" SPIKE
SA72C	16735487.62	1824495.82	501.07	PK



Tree Legend

- ALDER (TYP. DIAMETER PER SYMBOL SIZE)
- CEDAR
- FIR
- PINE

Symbol Legend

- S&A CONTROL, ROD & PLASTIC CAP
- S&A CONTROL, 12" SPIKE
- S&A CONTROL, PK NAIL
- SIGN NOTE
- SINGLE POST SIGN, SEE NOTE
- MULTI POST SIGN, SEE NOTE
- WATER VALVE
- WATER FAUCET
- PICNIC TABLE
- ROCK
- HANDICAP PARKING SYMBOL
- ARROW LANE MARKING
- HIGHWAY CENTERLINE
- UP — UNDERGROUND POWER
- OP — OVERHEAD POWER
- W — WATER LINE LOCATION (APPROX.)

DATE	NO.	REVISION	BY

DESIGNED: EDK | SCALE: 1" = 100' | DATE: 01/21/09
DRAWN: EDK | DATUM – BENCH
CHECKED: GDS | FILE: 431BEAVR.DWG
APPROVED: | JOB NO. 108431

November 2008 Topography

Lewis River Recreation Areas: Beaver Bay Park

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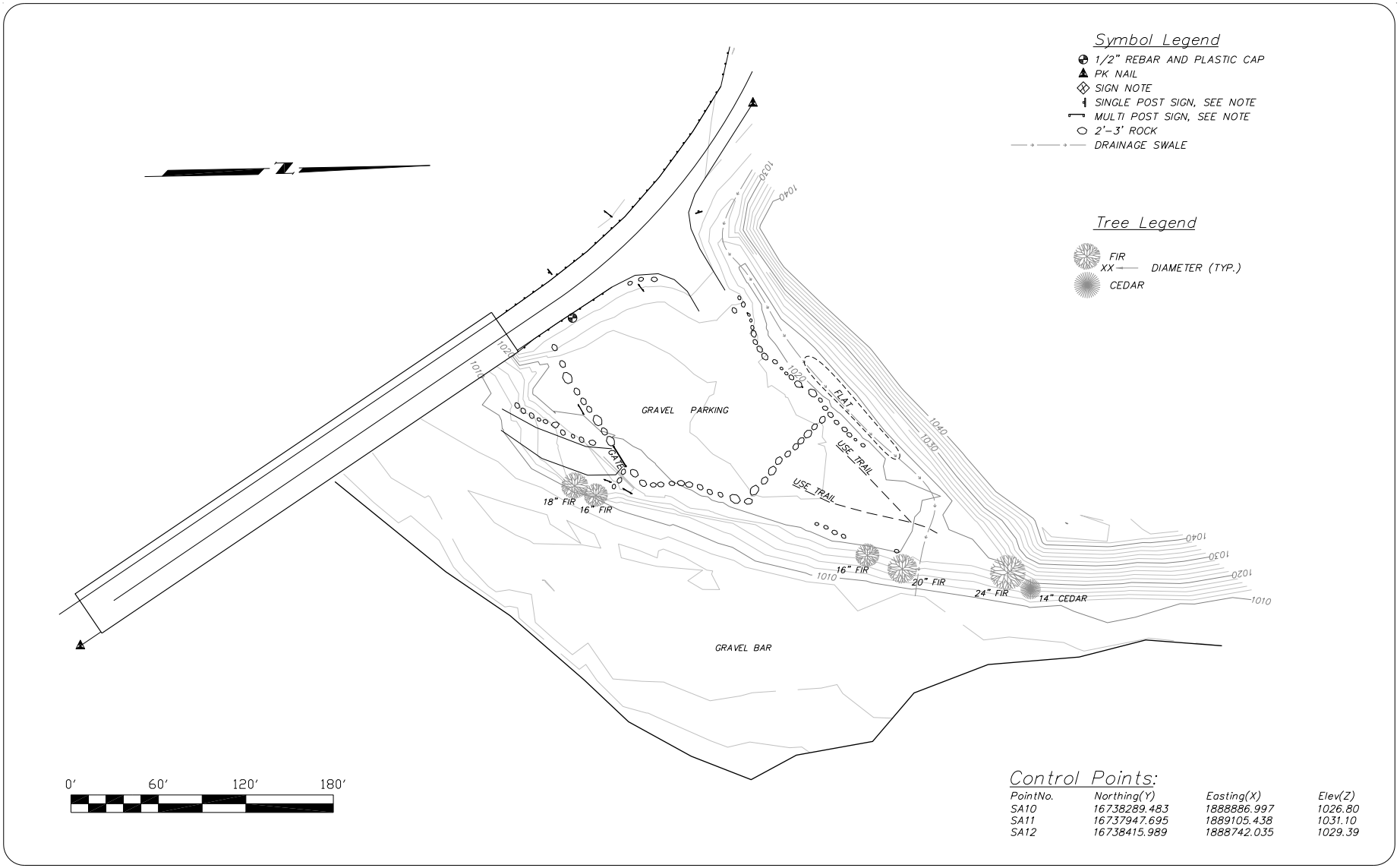
Planners Engineers Surveyors

JOB NO. 108431
DRAWING NO. 8
SHEET NO. 1 OF 1



Control Points:

PointNo.	Northing(Y)	Easting(X)	Elev(Z)
SA10	16738289.483	1888886.997	1026.80
SA11	16737947.695	1889105.438	1031.10
SA12	16738415.989	1888742.035	1029.39

DATE	NO.	REVISION	BY	DESIGNED: EDK	SCALE: 1" = 50'	DATE: 11/25/08
				DRAWN: EDK	DATUM - BENCH	
				CHECKED: GDS	FILE: 431EAGLE.DWG	
				APPROVED:	JOB NO. 108431	

November 2008 Topography

Lewis River Recreation Areas:
Eagle Cliff Park

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Planners Engineers Surveyors

JOB NO. 108431
DRAWING NO. B
SHEET NO. 1 OF 1

Appendix C: Aerial Photos

Appendix C includes aerial photos for the following sites. The proposed site plans are overlaid for reference.

1. Merwin Dam Park
2. Speelyai Bay Park
3. Cresap Bay Camp
4. Saddle Dam Park
5. Yale Park
6. Cougar Camp
7. Beaver Bay Camp
8. Swift Forest Camp
9. Eagle Cliff Park


Merwin Dam Park


Speelyai Bay Park


Cresap Bay Camp


Saddle Dam Park


Yale Park


Cougar Camp


Beaver Bay Camp


Swift Forest Camp


Eagle Cliff Park

Appendix D: References

PacifiCorp Energy. (2007). Draft of American with Disabilities Act Site Evaluation for Lewis River Recreation Sites.

PacifiCorp Energy. (2004). Lewis River Settlement Agreement.

PacifiCorp Energy. (2008). Recreation Resources Management Plan.

PacifiCorp Energy. (2008). Wildlife Habitat Management Plan.

PLAE, Inc. (1993). Universal Access to Outdoor Education: A Design Guide. Berkeley, CA.

U.S. Architectural and Transportation Barriers Compliance Board. (2002). Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities.

USDA Forest Service. (2001). The Built Environment Image Guide for the National Forests and Grasslands.

USDI Bureau of Reclamation. (2002). Recreation Facilities Design Guidelines.

Appendix E: Consultation Record

Exhibit E. Consultation Record and
Response to Lewis River Recreation Committee (LRC) Comments

Lewis River Hydroelectric Projects
(FERC Nos. P-935, P-2071, and P-2111)
Lewis River Recreational Facilities Master Plan, December 2009

Comment/Question	Response
Lewis River Recreational Facilities Master Plan	
From: Eychaner, Jim (RCO) [mailto:Jim.Eychaner@rco.wa.gov] **Sent:** Wednesday, November 18, 2009 11:38 AM **To:** Olson, Todd **Subject:** RE: ACTION REQUIRED: SA 11.2.2.6 Lewis River Recreational Facilities Master Plan, 30-day review and comment period Todd, is this a true statement: Besides approval by government agencies, improvements proposed by this master plan will need approval from the Terrestrial Coordination Committee (TCC), the internal PacifiCorp group responsible for managing terrestrial natural resources. (page 32) JE	**From:** Olson, Todd **Sent:** Wednesday, November 18, 2009 11:51 AM **To:** 'Eychaner, Jim (RCO)' **Cc:** Moore, David **Subject:** RE: ACTION REQUIRED: SA 11.2.2.6 Lewis River Recreational Facilities Master Plan, 30-day review and comment period Hi Jim Thanks for the note – We maintain that TCC approval is only needed for any expansion beyond a recreational site's current use boundaries. So, for example, if a park needs to be expanded into the wildlife lands to provide additional campsites, we will coordinate with the TCC and work to get their approval. Improvements to established rec sites such as adding playground equipment, adding new pathways, ADA upgrades, restroom upgrades, etc. do not need TCC approval. David, please clarify this in the final version of the Master Plan. Thanks – Todd
From: Mariah Reese [mailto:m.reese@tds.net] **Sent:** Sunday, November 29, 2009 10:58 PM **To:** Moore, David **Subject:** LRC PLAN I still have significant concerns about the way the plan has changed for speelyai and the proposed parking arrangement for boats and cars. As I said at the LRC meeting, this site plan is not taking into account how that park is used by the community and what really happens there on a hot summer day. I feel that it is a mistake- a big one and its going to be a difficult public relations project if it is completed the way that it is shown on the map. The boat trailer only parking signage on the asphalt was not particulary well received this summer when on many days there were TONS of boat parking spaces and no car spaces left. Just so you know.... Mariah -- Mariah Stoll-Smith Reese	**From:** Moore, David **Sent:** Wednesday, December 09, 2009 5:34 PM **To:** 'Mariah Reese' **Subject:** RE: LRC PLAN Greetings Mariah, I appreciate your expressed concerns regarding the new site plan for Speelyai Bay Park. The proposed changes are necessary to address public safety and Americans with Disabilities Act (ADA) issues identified during the site investigation of the park. PacifiCorp will make an effort to provide those favorable site features from the existing day use parking area at the new day use parking area. Please contact me if you have an further questions. Regards, David Moore PacifiCorp Energy 825 NE Multnomah St, Suite 1500 Portland, OR 97232 Office: (503) 813-6945 Cell: (503) 347-4629