SHORELINE IMPACT ASSESSMENT & HABITAT MANAGEMENT PLAN LIBERTY LAKE REGIONAL PARK

SHORELINE IMPROVEMENTS PROJECT

SPOKANE COUNTY

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ANDERSON ENVIRONMENTAL CONSULTING

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LIST OF ACRONYMS AND ABBREVIATIONS

AEC	Anderson Environmental Consulting, LLC
Spokane County Prop.	Parcel # 55252.9004
BMP	Best Management Practice
CAO	Spokane County Critical Areas Ordinance
CPNWH	Consortium of Pacific Northwest Herbaria
DNR	Washington State Department of Natural Resources
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
HPA	Hydraulic Project Approval
HUC	Hydraulic Unit Code
INLC	Inland Northwest Land Conservancy
IPaC	Information Planning and Consultation
LUMP	Land Use Management Plan
NWI	National Wetlands Inventory
OHWM	Ordinary High-Water Mark
PHS	Priority Habitats and Species
SIA	Shoreline Impact Assessment
SMP	Spokane County Shoreline Master Program
LLRP Property	Liberty Lake Regional Park 3707 S Zephyr Rd, Liberty Lake WA (Parcel No. 55252.9004)
TESC	Temporary Erosion and Sediment Control Plan
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife
ADA	Americans with Disabilities Act of 1990

1. INTRODUCTION

The proposed Liberty Lake Regional Park (LLRP) Project is located in unincorporated Spokane County, Washington on Zephyr Road south of the City of Liberty Lake, WA. The Project is in Section 25, Township 25 North, Range 45 East. Latitude 47.637057, Longitude 117.061317.

Spokane County completed a master plan for Liberty Lake Regional Park in 2018. Since the completion of the master plan, the county has worked to secure funding for the first phase of construction. Phase I of renovations is for the northern most portion of the park consisting of the park entry, parking lot improvements and beach area with new and expanded dock systems, ADA kayak launch, picnic shelters, a new restroom, and new park entry monument signage. Due to the project's proximity to Liberty Lake a significant amount of environmental planning and permitting will be required.

The purpose of this Shoreline Impact Assessment (SIA) document is to describe the shoreline ecological functions impacted as a result of the proposed park improvements and mitigate those impacts as necessary.

1.1 LOCATION

The LLRP property is located near the City of Liberty Lake at the southeast corner of Liberty Lake in Spokane County, Washington. See **Figure 1** for a vicinity map and **Figure 2** for a site map.

1.1.1 Legal

- Section 25 of Township 25 north, and Range 45 east

1.1.2 Approximate Coordinates

- Latitude 47.637057
- Longitude 117.061317

1.2 REGULATORY ENVIRONMENT

The proposed park improvements are within Spokane County jurisdiction for the Critical Areas Ordinance (CAO) and Shoreline Master Program (SMP).

1.2.1 Spokane County Shoreline Management Program

A portion of the Property is located within 200 feet (ft.) of Liberty Lake's OHWM and is under the jurisdiction of the Spokane County Shoreline Master Program (SMP). The shoreline jurisdiction includes associated Critical Areas as specified in the Spokane County Critical Areas Ordinance (CAO) including Wetlands, Fish and Wildlife Habitat and Species Conservation Areas, Geologically Hazardous Areas, Critical Aquifer Recharge Areas, and a 100-year Floodplain.

AEC, Spokane County and Department of Ecology met on-site to discuss the appropriate location of the OHWM for this section of Liberty Lake. There were several issues that made it difficult to delineate a typical OHWM location especially in relation to Wetland C. It was determined that Wetland C would be included within the shoreline buffer due to connected nature of Wetland C to the shoreline environment. It was also determined that the OHWM would be moved landward within the existing sandy beach area. This change brought in a much larger area (approximately 68,000 square feet) within the buffer and triggered significantly more mitigation as a result. **Figure 3** below shows the changes to the OHWM from the original expectation based on pre-existing data to the more conservative location agreed upon with state and local agencies.

The LLRP Property lies within the Natural shoreline designation with a 200-ft. shoreline buffer, which is intended to protect ecological functions, conserve existing natural resources, protect the natural or cultural features, which are valuable in their natural conditions and encourage uses that preserve the enjoyment of the shoreline areas by the public (Spokane County 2014). According to SMP 5.3.14 and Table 5A (Use and Development Matrix), shoreline modifications, including docks and public parks are allowed subject to a Shoreline Substantial Permit and Shoreline Conditional Use Permit (docks).

The improvements within the Natural shoreline environment are allowed under the code pursuant to SMP 5.2.8 Public Access. The project is intended to improve the amenities of existing LLRP and increase accessibility through ADA improvements. SMP 5.2.8(1) states that local governments should provide public access as part of development projects. SMP 5.2.8(13) indicates that "public access structures shall be allowed within the required shoreline buffers of this Program" as long as the impacts are properly mitigated.

Section 1, Title, Authority, Purpose and Intent, Section 1.4 states:

"The Shoreline Master Program shall apply to any proposed development, use, any extension or enlargement of any existing building improvement or use of land in shorelines of the state, and to any division of land, any portion of which includes land in a shoreline area."

1.2.2 Spokane County Critical Areas Ordinance

As mentioned above there are several regulated Critical Areas that require analysis based on the project proposal in compliance with the Spokane County CAO.

Critical areas regulated in the CAO include:

a. Wetlands,
b. Critical aquifer recharge areas (CARA),
c. Fish and wildlife habitat conservation areas,
d. Frequently flooded areas, and
e. Geologically hazardous areas.

Development within critical areas within shoreline jurisdiction, requires mitigation sequencing during project design that follows the following guidelines:

- Avoid the impact all together;
- Minimize the impacts;
- Rectify the impact by repairing, rehabilitating, or restoring the affected environment;
- Reduce or eliminate the impact through proper maintenance; and
- Compensate for the impact; or

1.2.3 Permits

The Revised Code of Washington (RCW) 77.55.011(11) requires a hydraulic project approval (HPA) for any over water projects that "use, divert, obstruct, or change the natural flow or bed of any of the salt or fresh waters of the state". Therefore, the proposed dock will require an HPA from Department of Fish and Wildlife.

"Section 404 of the Clean Water Act (CWA) establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities in waters of the United States regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports) and mining projects." The U.S. Army Corps of Engineers administers the permit review process for proposed projects. U.S Army Corps 404 permits are currently taking several months. It is not anticipated that the project will require a 404 permit.

The federal Clean Water Act passed in 1972, grants states and tribal governments the authority to "review and approve, condition, or deny proposed projects, actions, and activities directly affecting waters of the United States. In Washington, Ecology is the certifying authority and is responsible for issuance of Section 401 water quality certifications. Tribal governments and EPA also have this authority on tribal and non-state lands." The 401 request will be submitted with the other regulatory deliverables; however since a 404 permit is not required, a 401 water quality certification is not required.

Figure 1: Vicinity Map

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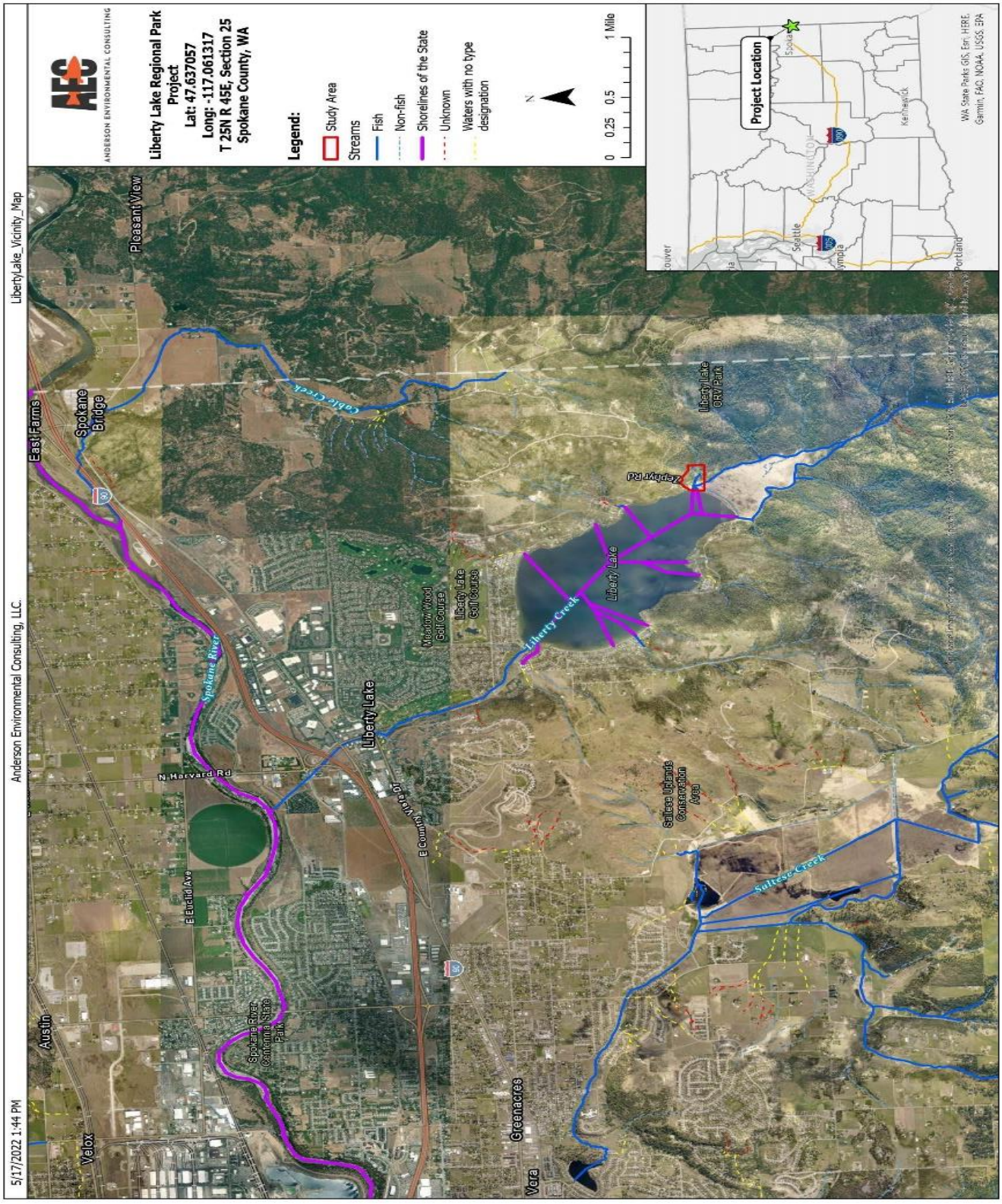

Figure 2: Site Plan Map

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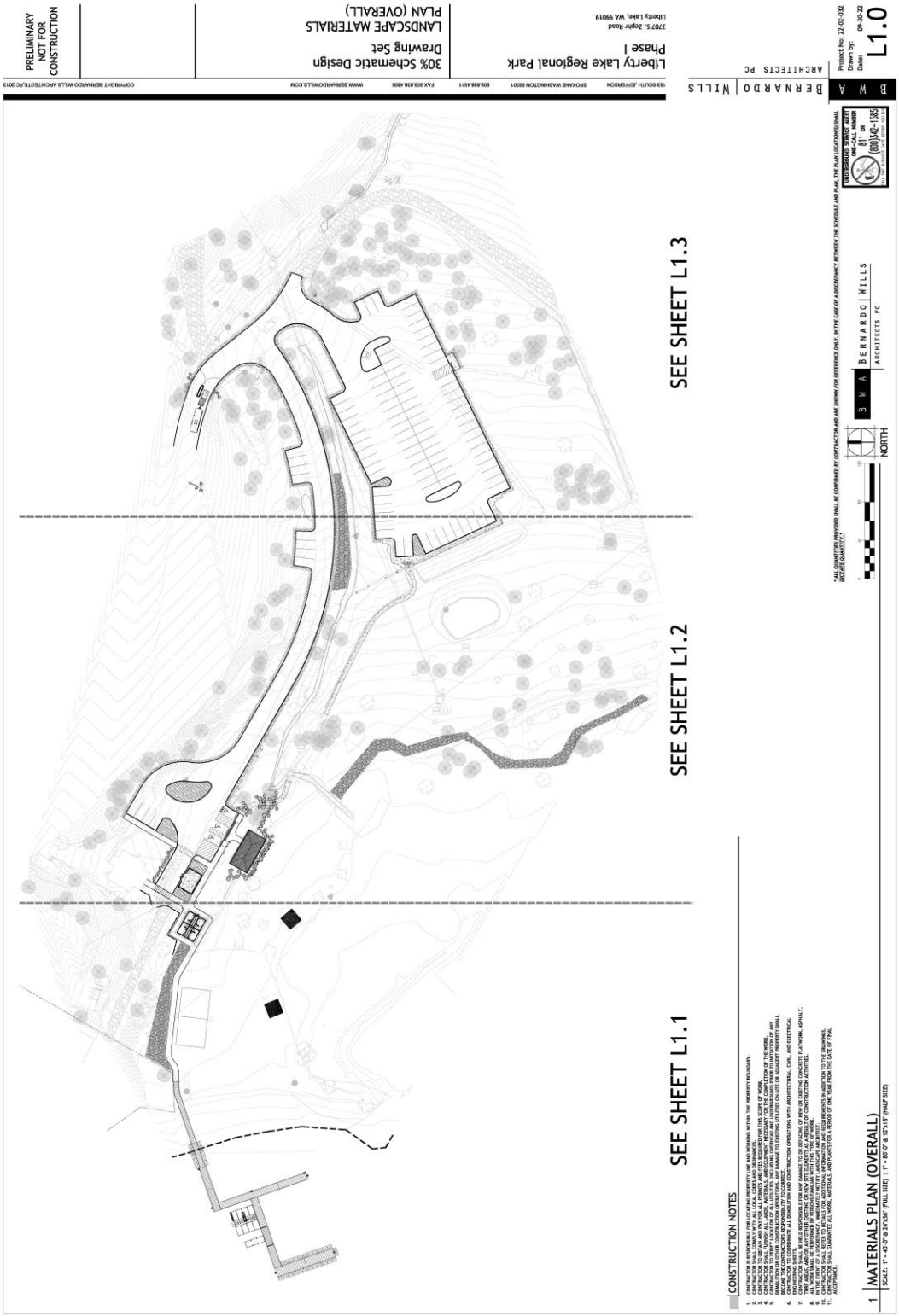

Figure 3: OHWM Comparison

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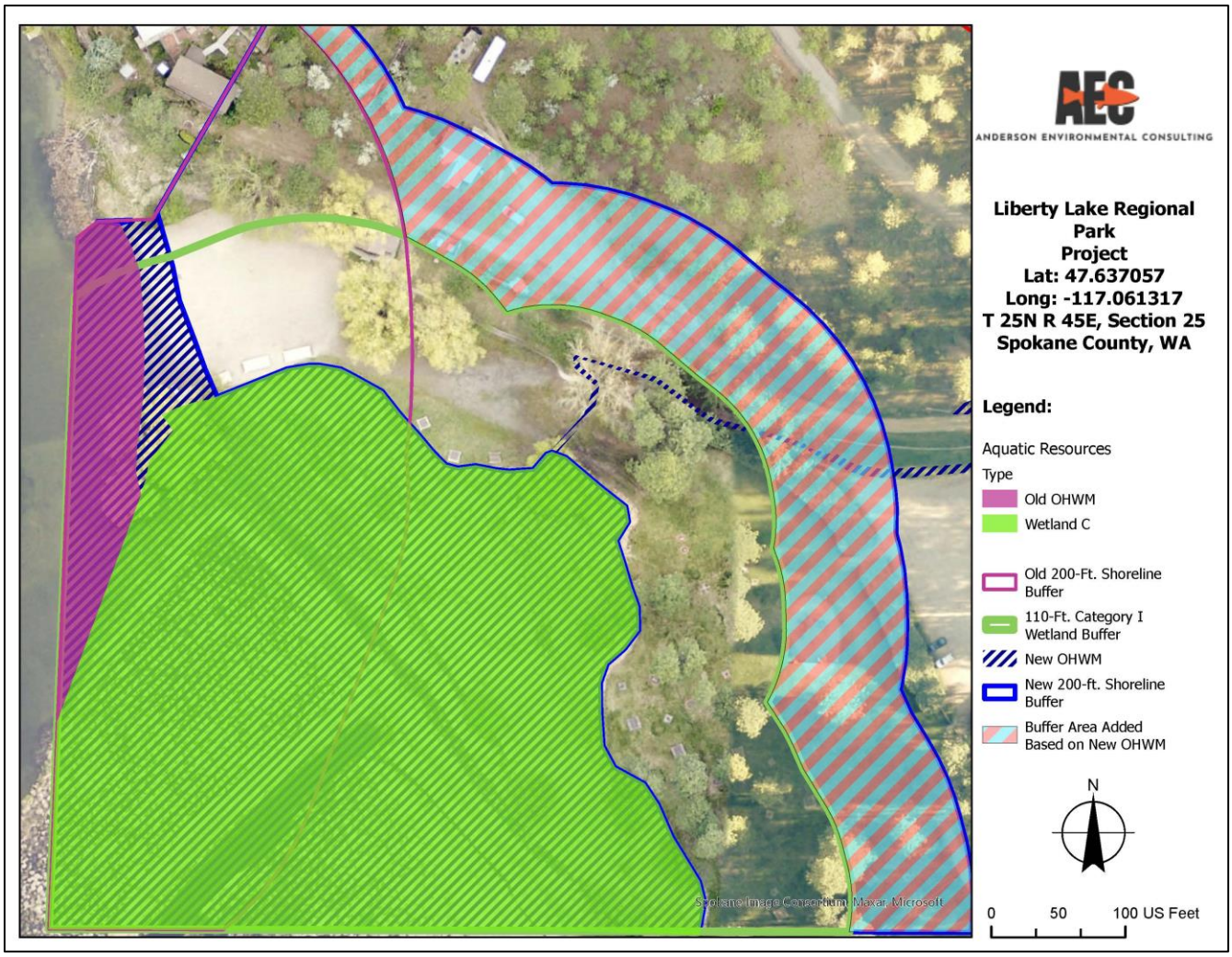

1.3 PHOTOS

Photo 1: Looking west towards beach area with existing restroom

Photo 2: Looking Southeast towards Wetland C and existing picnic benches

Photo 3: Looking southeast from wetland towards existing parking area

Photo 4: Looking west at portion of Wetland B and existing driveway

2. EXISTING CONDITIONS

The project is located on the southeast corner of Liberty Lake and includes the park, lake and county roads. The vicinity consists of residences, campgrounds, and county-owned land. Zephyr Rd. continues north from the project area providing access to residences, businesses, and golf courses. The Project is approximately 2,000 ft. above sea level.

According to the Natural Resources Conservation Service (NRCS) Agricultural Applied Climate Information System (AgACIS) 30-year averages for the weather station in Spokane Felts Field, Washington, the area receives an average of 17.36 inches of rainfall per year. Summer temperatures generally reach the low 70's (Fahrenheit) and winter temperatures dip into the low 30's (Fahrenheit) (USDA 2022a).

The weather station shows that precipitation levels have been above average for 2022 from January through July (by 1.98 inches). The previous 2021 fall/winter (September through December) were slightly below average by 4-5 inches (USDA 2022a).

2.1 SOILS

The U.S. Department of Agriculture (USDA) soil survey for Spokane shows four soil units are within the study area that are described below.

3220- Stapaloop ashy fine sandy loam, 0 to 8 percent slopes

This soil unit consists of well drained soils that formed from glaciofluvial deposits with an influence of volcanic ash and loess in the upper part and are found in outwash plains. The average annual precipitation is 20-24 inches, and the average annual temperature is 42-45 degrees F. The average depth to water table is more than 80 inches.

5026- Micapeak-Spokane complex, 15 to 30 percent slopes

This soil unit consists of well drained soils that formed from volcanic ash and loess mixed with colluvium and residuum weathered from metamorphic rock and/or colluvium and residuum weathered from granite. These soils are found in landforms such as side slopes and backslopes of hills. The mean annual precipitation is 19-29 inches, and the mean annual temperature is 42-50 degrees F. The average depth to water table is more than 80 inches.

5073- Lenz-Rock outcrop complex, 15 to 30 percent slopes

This soil unit consists of well drained soils that formed from loess mixed with minor amounts of volcanic ash over residuum and/or colluvium derived from granitic and metamorphic rocks and are found in hills. The average precipitation is 18-24 inches, and the mean annual temperature is 42-50 degrees F. The average depth to water table is more than 80 inches.

8000- Pywell-Bellslake complex, 0 to 3 percent slopes

This soil unit consists of very poorly drained soils that formed from decomposed herbaceous and woody material mixed with minor amounts of mineral material and are found in drainageways and flood plains. The average precipitation is 20-25 inches, and the mean annual temperature is 42-46 degrees F. The average depth to water table is 0-6 inches.

2.2 WETLANDS

A total of seven aquatic resources were identified within the study area. The aquatic resources are Wetlands A, B, C, and D which are lacustrine emergent and palustrine emergent wetlands. Two ephemeral streams and a lake were also identified: Ephemeral Stream A, Ephemeral Stream B, and Liberty Lake.

Wetlands were rated using the Washington State Wetland Rating System for Eastern Washington. Wetlands A, B, and D function generally moderate for water quality and hydrology and low to moderate for habitat functions. They were classified as Category III wetlands. Wetland C functions high for water quality and hydrology and moderate to high for habitat function. It was classified as a Category I wetland.

Table 1: Wetland Overview

Resource ID	Cowardin	Acres	Category	Habitat Score	Buffer (Ft.)	Replacement Ratio:
Wetland A	PEM1C	0.042	III	4	60	1:1
Wetland B	PEM1C	0.005	III	4	60	1:1
Wetland C	LEM1C	3.560	I	7	110	2.5:1
Wetland D	PEM1C	0.003	III	4	60	1:1
Liberty Lake	L2UB2	0.336	Natural		200	1.5:1
Ephemeral Stream A	R4SB	0.024	NCN-Fish		25	1:1
Ephemeral Stream B	R4SB	0.007	NCN-Fish		25	1:1

2.3 TOPOGRAPHY

The LLRP Property consists of gradual slopes rising from the shoreline however, the area of the proposed improvements is relatively flat.

2.4 HYDROLOGY

The Project area is within Hydrologic Unit Code (HUC) 170103050306 Liberty Creek-Spokane River. Liberty Lake and two unnamed tributaries are located in the Project area. Liberty Lake is rated as a 303d listed water and has a Total Maximum Daily Load (TMDL) for phosphorus.

Many unnamed tributaries and Liberty Creek stemming from the surrounding mountains provides Liberty Lake's hydrology. Liberty Creek flows from Liberty Lake and drains into the Spokane River approximately two miles north of the lake. The Spokane River continues west for 72 miles until its confluence with the Columbia River which eventually drains to the Pacific Ocean.

FEMA flood map #53063C0615D and #53063C0620D (July 6, 2010) shows that the project area is within a 100-year floodplain associated with Liberty Lake. The NWI map shows the open water features of the lake, three tributaries and a wetland feature adjacent to the lake in the study area. See **Attachment A** for a Soil Unit/NWI Map.

2.5 VEGETATION

The study area consists of plant communities including emergent wetland, emergent upland and forested upland communities.

The emergent wetland areas are dominated by reed canarygrass (Phalaris arundinacea) and red fescue (Festuca rubra). Much of the upland areas are dominated with plants such as bulbous bluegrass (Poa bulbosa), chickweed (Stellaria media), black medic (Medicago lupulina), and thyme-leaved sandwort (Arenaria serpyllifolia). The forested upland areas are dominated by Ponderosa pine (Pinus ponderosa) with an understory of arrowleaf balsamroot (Balsamorhiza sagittata) and Oregon grape (Mahonia aquifolium). In the landscaped areas of the park, many ornamental trees and shrubs were observed such as juniper and cedar trees. See **Table** for vegetation identified on or near the LLRP property.

Table 2: Vegetation Inventory

Scientific Name	Common Name	Native/Non-Native
Trees		
Pinus ponderosa	Ponderosa Pine	Native
Thuja plicata	Western Red Cedar	Native
Juniperus communis	Common Juniper	Native
Herbs		
Phalaris arundinacea	Reed canarygrass	Non-native
Festuca rubra	Red fescue	Non-native
Lemna minor	Common duckweed	Non-native
Mimulus guttatus	Yellow monkeyflower	Native
Poa bulbosa	Bulbous bluegrass	Non-native
Stellaria media	Chickweed	Non-native
Medicago lupulina	Black medic	Non-native
Taraxacum officinale	Common dandelion	Non-native
Plantago lanceolata	Narrowleaf plantain	Non-native
Arenaria serpyllifolia	Thyme-leaf sandwort	Non-native

2.6 FISH AND WILDLIFE HABITAT AND SPECIES CONSERVATION AREAS

The lake, wetlands and forested area in and around the LLRP property provides numerous habitat functions including fish and aquatic species habitat, terrestrial habitat for various birds, ungulates, and small mammals.

2.6.1 Priority Habitats and Species

WDFW Priority Habitat and Species (PHS) database and mapping for the study area lists northwest white-tailed deer (*Odocoileus virginianus ochrourus*) and rocky mountain elk (*Cervus elaphus nelsoni*) as having occurrences nearby (WDFW 2022). Liberty Lake and associated wetlands are listed as having ideal conditions for waterfowl winter concentrations and breeding concentrations. The species listed include Canada geese, mallard, pintail, wigeon, goldeneye, bufflehead, red-breasted merganser and rednecked grebe. See **Attachment A** for the PHS Report.

2.6.2 Information Planning and Consultation

The U.S. Fish and Wildlife Service (USFWS) Information Planning and Consultation (IPaC) system was used to identify potential federally listed, threatened or endangered species and designated critical habitat that could occur on the LLRP property. The Yellow-billed cuckoo (*Coccyzus americanus*), Grizzly bear (*Ursus arctos horribilis*), and Bull trout (*Salvelinus confluentus*) are listed as possibly occurring on the LLRP property (USFWS 2022a). These species were not observed during site visits. See **Attachment A** for IPaC Species List.

Yellow-billed cuckoo is not known to occur in Spokane County and requires vast expanses of contiguous deciduous riparian habitat, which is not present within the impact area for the project.

The USFWS' October 2010 Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for Bull Trout in the Coterminous United States; Final Rule determined the Spokane River in Idaho and Washington is not critical habitat for bull trout. Bull trout are not expected to be present in the area.

Spalding's catchfly has a range that includes the LLRP property, and their habitat includes open pine forests which are present near the project area; however, none were observed during site visits.

2.7 GEOLOGICALLY HAZARDOUS AREAS

CAO 11.20.070 (A)(1) defines Geologic Hazard Areas as erosion, landslide, or seismic hazard areas defined by characteristics such as slope (>30%) and historical landslides (areas adjacent to lakes).

The Spokane County Critical Areas Maps categorize the slopes on the LLRP Property as "Erodible Soils" and "Alluvium" (Spokane County 2019b). CAO Table 11.20.030 does not have any categories that match the project scope. However, docks and road maintenance are listed as permitted uses without review and parks/campgrounds are listed as limited allowable uses provided applicable agency review and permit approvals.

2.8 CRITICAL AQUIFER RECHARGE AREAS

CAO 11.20.075 (A)(1) defines Critical Aquifer Recharge Areas as those areas with a critical recharging effect on aquifers used for potable water. The Spokane County Building and Planning Department maintains an Aquifer Susceptibility Map (Spokane County 2019a), which rates areas as having a high, moderate, or low susceptibility to groundwater contamination based on a model that uses five environmental characteristics including:

1. Soil media
2. Hydraulic Conductivity
3. Annual Recharge
4. Depth to Groundwater
5. Importance of the vadose zone

According to the map, the LLRP lies within an area with a "Low Susceptibility" to groundwater contamination. According to CAO Table 11.20.075B, recreational uses such as vegetation removal, fill, excavation, road building and docks are not regulated within the Critical Aquifer Recharge Areas.

2.9 100-YEAR FLOODPLAINS

Federal Emergency Management Agency (FEMA) Flood Maps 53063C0620D &53063C0615D shows the mapped Zone AE (base flood elevations determined) 100-year flood plain Liberty Lake roughly follows the OHWM of the lake on the LLRP Property. See **Attachment B** for the FEMA flood map.

3. IMPACTS

Standards for shoreline buffers require no net loss of ecological functions and preservation of the existing character of the shoreline consistent with the SMP. The existing condition of the shoreline in the project area is neutral as far as providing habitat functions, as it is dominated with non-native cultivated vegetation and noxious weeds and used primarily for moderate to high intensity recreational use. There are large areas of non-functional shoreline and wetland buffers which include the existing beach area (13,000 square feet) and parking/driveway areas.

Although the improvements to the LLRP are not anticipated to have any impacts to wetlands located on-site, the associated wetland buffers will be impacted by the proposal. There are existing impacts to the wetland and shoreline buffers including the driving surfaces and parking areas and the current restroom facility which is being replaced in approximately the same location. The driveways and parking areas are a hard compacted surface of gravel and dirt which function as an impermeable surface allowing water to flow into nearby wetlands. Due to the nature of existing uses, only the new impacts are being calculated when addressing impacts to the wetland and shoreline buffers. New impacts can be summarized as the areas which are not currently impermeable surface. These areas were calculated using aerial photographs in GIS. These new impact areas are mostly non-native grasses and shrubs.

The proposed park improvements are also incorporating stormwater controls which will also improve the quality of wetlands requiring runoff to be treated prior to entering the wetland.

Additionally, there are new impacts within the designated shoreline buffer including the dock/pier, pathways, picnic shelters and portion of new parking area that need to be mitigated in order to comply with the local regulations and to ensure a no net loss of ecological function. See **Table 3** for a summary of ecological functions and impacts.

Impacts (disturbance area) to the LLRP property which are regulated by various jurisdictions include:

- Approximately 14,770 sq. ft. (0.33 ac) of disturbance area within the 200' 'natural' shoreline buffer (including overwater structures),
- Approximately 4,845 sq. ft.(0.15 ac) disturbance area within the other regulated wetland buffers,
- 19,615 sq. ft. (0.45 ac) total new disturbance area with buffers (shoreline and wetlands).

See

Figure 3 for the Impact Area Map.

Table 3: Impacts

Feature	Function	Impacts
200-ft. Shoreline Buffer	The shoreline buffer provides very little quality habitat for wildlife and has been heavily disturbed by the non-native landscaping and use of the park.	The dock including elevated gangway and pathway are proposed through the shoreline buffer area, new pathways from parking area and around new bathroom and picnic shelter are also proposed. The improvements for the pathways and new parking area are intended to provide ADA accessibility to the park. These improvements will have minimal impact to the existing degraded buffer area.
Wetland Buffers	The wetland buffers have also been heavily impacted by the use of the park, parking and are considered low quality.	New parking areas are the only new impact within the wetland buffers. However, this impact will be minimal due to the low quality nature of the existing buffer area.
Floodplain	Provides water storage during high flows. Vegetation may provide aquatic and terrestrial habitat.	The primary impacts to the Floodplain include the dock and elevated gangway. These structures are water dependent and typical within floodplain areas. They will allow water to pass over or under and will be anchored in case of a flood event.
Visual Aesthetics	Provides high quality natural beauty and aesthetic benefit for recreational users.	The materials used for the improvements will attempt to use natural tones and materials that help fit in with the wooded lake environment.

Figure 3: Impacts Map

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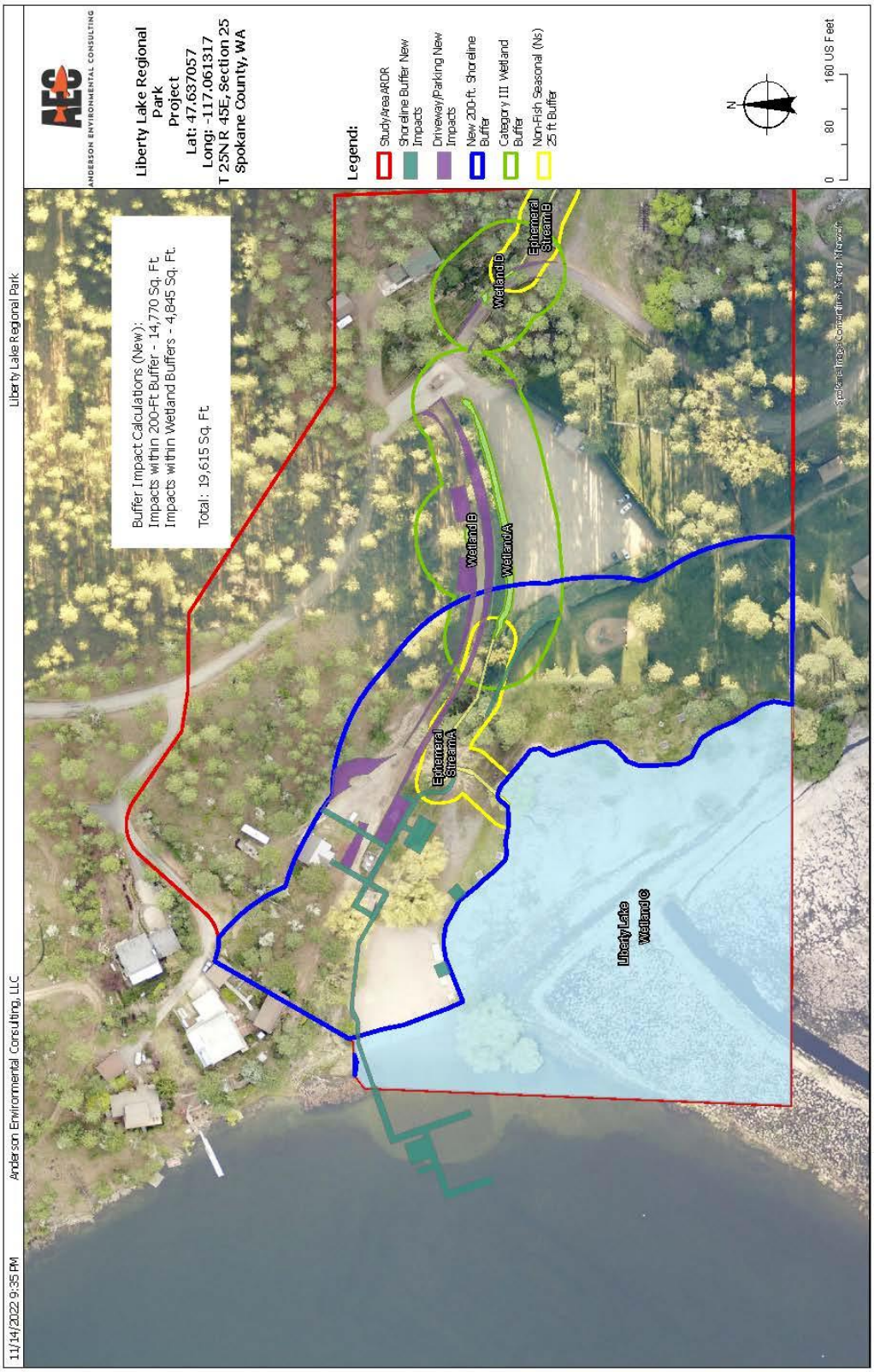

4. LIBERTY LAKE REGIONAL PARK MITIGATION PLAN

The mitigation sequencing is to first avoid, minimize harm, restore or replace temporary impacts before compensatory mitigation is implemented. The temporary impacts are going to be restored however, this plan will require compensatory mitigation for the permanent new impacts.

4.1 AVOIDANCE MEASURES

The following measures have been taken to avoid impacts to the ecological functions of the shoreline and critical areas:

- Avoidance is not possible because the project is an existing lake access park and the improvements are intended to provide enhanced park amenities.
- Proposed improvements like the parking and driveway areas have avoided impacts to wetlands.

4.2 MEASURES TO MINIMIZE HARM

The following lists measures that will minimize impacts to the shoreline and critical area:

- The project proposal is minimizing impacts by repurposing current impervious surface areas for the improvements like the driveways, parking and restroom facility.
- The proposed stormwater improvements will benefit adjacent wetlands and wetland buffers by treating stormwater which does not exist currently.
- Vegetation will be replanted/reseeded within all temporarily disturbed areas.

The intent of the mitigation plan is to mitigate the impacts of the new park improvements within the shoreline and wetland buffer areas. As previously stated there are many areas within the project area which were already previously impacted by park uses. The mitigation plan is specifically looking at new areas of impact for the purposes of providing mitigation. The current impacts would have been accounted for when the County developed the baseline levels for the Cumulative Impacts Analysis under the required SMP update.

Due to the existing nature of the site and location of improvements, plantings/seeding is the primary source of mitigation for the proposal. Several areas were identified on-site as suitable areas for mitigation which would not also negatively impact public access of the shoreline. These areas include enhancing the existing wetlands, wetland buffers and shoreline buffer with native vegetation.

The replacement ratios in Table 1: Wetland Overview are located in both the Spokane County Shoreline Master Program and Critical Areas Ordinance. Based on the required replacement ratios, the project would trigger approximately 29,422 square feet of plantings for the 19,615 square feet of impact area. Calculating the required mitigation was challenging because of the overlapping buffers throughout the project site. The requirement for almost 30,000 square feet of mitigation creates issues due to the degraded nature of the buffers and the limited area available for mitigation on-site in order to not hinder use of the public park.

The mitigation will bring a significant ecological uplift within both the shoreline and wetland buffers as well as the wetlands themselves, which doesn't exist today. The replacement ratios in the code are intended for functioning buffer areas which don't exist currently at the LLRP site. For these reasons, we are proposing

approximately 23,900 square feet of area be planted within both the shoreline buffer wetland buffers and several of the degraded wetlands. The **Table 4** below shows the mitigation proposed within the shoreline and wetland buffers. If the proposed mitigation is deemed insufficient, we would propose utilizing ongoing mitigation for Spokane County sponsored restoration projects such as the Saltese Flats in order to reach our required thresholds.

Table 4: Proposed Mitigation

Type of Impact:	Proposed Impacts within Shoreline Buffer:	Proposed Impacts within Wetland Buffers:	Total Square Footages:
Driveway/Parking	5,435	4,845	
Dock	3,435		
Pathway/Improvements	5,900		
	14770	4,845	Total: 19,615
Proposed mitigation within each buffer	16,550	7,350	Total Mitigation: 23,900

4.3 PLANTING/SEEDING

- Planting should be done in spring or fall of 2023. Additional planting may be needed in the Fall of 2023 depending on the success of the spring planting. See **Table** for recommended species and spacing. Areas may be planted at a greater density than the desired future conditions to account for expected plant mortality.

Table 5: Plantings

Scientific Name	Common Name	Location	Spacing from	Number of Plants
Alnus incana	Thinleaf alder	Shoreline	10	37
Pinus ponderosa	Ponderosa pine	Upland	’8’/15 from other trees	37
Amelanchier alnifolia	Serviceberry	Upland	8’	37
Holodiscus discolor	Oceanspray	Upland	8’	37
Populus trichocarpa	Black cottonwood	Shoreline	8’/15’ from other trees	37
Salix exigua	Coyote willow	Shoreline	8’	37
Cornus sericea	Red-osier dogwood	Shoreline	8’	56
Rosa woodsii	Woods rose	Shoreline	8’	37
Populus tremuloides	Quaking aspen	Upland	8’/15’ from other trees	56
Total Plants				373

- Native forbs and bunchgrasses will be seeded over the entire disturbance area immediately following grading and prior to Coir Blanket placement. See

- **Table** for recommended species and seeding rates.
- Seeding should be done as early as possible in the spring of 2023, as several species require a cold stratification to germinate. Additional seeding in Fall of 2023 may be needed.
- Depending on road access and observed plant stress, a gravity-fed irrigation system may be utilized to provide water during the dry season for the first 2 years after seeding and planting.

Table 6: Seed Mix

Scientific Name	Common Name	Percent of Total
GRASSES		
Festuca idahoensis	Idaho fescue	35
Hesperostipa comata	Needle-and-thread grass	5
Poa secunda	Sandberg bluegrass	40
Pseudoroegneria spicata	Bluebunch wheatgrass	5
Total		**85**
FORBS		
Achillea millefolium	Common yarrow	5
Balsamorhiza sagittata	Arrowleaf balsamroot	5
Lupinus sericeus	Silky lupine	5
Total		**15**

4.4 SUCCESS CRITERIA, MAINTENANCE AND MONITORING

4.4.1 Success Criteria

The long-term goal of the mitigation is to mitigate the impacts of the new impacted areas from the project and provide an ecological uplift where possible for wetlands and associated buffers. In accordance with Spokane County and for the purposes of this plan, success will be measured for 5 years or until success standards outlined in **Table 7** are met.

Table 7. Success Criteria Monitoring

Success Criteria	Monitoring Method	Metric/Documentation
Deter recreational use within planting area	Place signage at edge of mitigation areas to inform public to keep out of area. Walk the site and inspect shoreline for signs of access such as trampled vegetation, compacted soils, litter or debris.	Take note and photos of any signs of access and record in monitoring report.
70% groundcover with native grass and forbs by year 5	Estimate percent ground cover of native grasses and forbs	40% native ground cover after 1 year (2022) 60% native ground cover after 2 years (2023) 70% native ground cover after 5 years (2026) Use photo point to document overall conditions of the site and compare general site conditions

70% survival of planted trees and shrubs	Stem count each live, tree and shrub in the planted areas. Natural recruitment of native species also counts towards success.	At least 149 live native trees and shrubs will be live by year 1; 224 native trees and shrubs will be live by year 2; 261 native trees and shrubs will be live by year 5 (2026). Volunteer plants will be counted towards success.

4.4.2 Maintenance

Weed control

Weeds will be controlled sufficiently so that they do not inhibit the establishment of the native plants. After construction Spokane County parks and recreation staff will help with the survival of mitigation by keeping the public out of mitigation areas with a combination of signage and temporary fencing. A qualified applicator familiar with native species and weeds will use spot application of herbicides to any non-native species as needed. Additional applications will be done as needed annually for 5 years.

Additional Seeding/Plantings

Additional seeding/planting may be done as needed following monitoring results and recommendations. Additional seeding/plantings should be done in Fall (Late September/October). Plant protectors may be used as needed if browsing is evident during monitoring.

Irrigation

Plantings will be irrigated as needed to establish and meet success criteria but will be discontinued after success criteria are met. This may be accomplished through the existing park irrigation system or backpack spraying during dry periods.

Other Adaptive Management

Other adaptive management may be implemented if success criteria are not being met. These may include additional soil roughening, temporary irrigation, additional slope stabilization, modification of planting specifications and/or other measures.

4.4.3 Monitoring

Monitoring will be done in late 2023, then once annually in early summer for 5 years or until success criteria are met.

An annual monitoring report will be shared with the agencies by Spokane County staff by email at the end of the monitoring season and will include:

1. Descriptions of success metrics
2. Descriptions of any past maintenance, adaptive management or corrective actions taken
3. Recommended future maintenance, adaptive management or corrective actions
4. Photos of the site

Figure 4: Mitigation Plan Map

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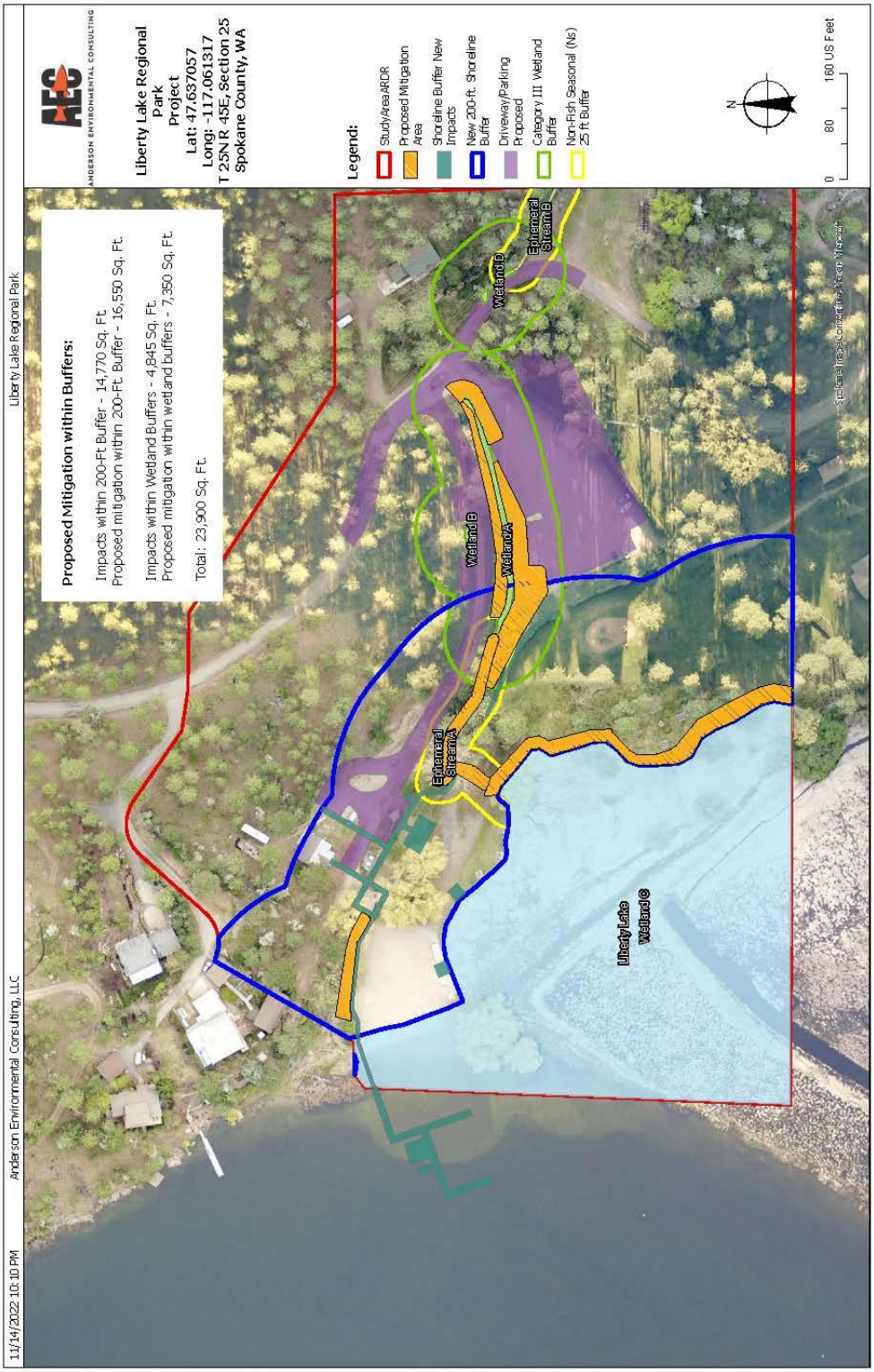

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ATTACHMENT A. SPECIES OCCURRENCE DATA

- PHS Report
- IPaC Report

ATTACHMENT B. FEMA FLOOD MAP