

PAINTED HILLS PRD
BIOLOGICAL EVALUATION, CRITICAL AREAS REPORT,
AND HABITAT MANAGEMENT PLAN
Spokane County Tax Parcels #45336.9191 and 44041.9144
February 28, 2019



Biology

Soil &

Water, Inc.

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AND HABITAT MANAGEMENT PLAN

for the

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Retained by

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July 20, 2015 (Revised August 30, 2016, and February 2019)

1.0: Introduction

Biology Soil & Water, Inc. (BSW) was retained by Black Realty to complete a Biological Evaluation (BE) for the proposed Painted Hills Planned Residential Development (PRD) located in the City of Spokane Valley, WA. This BE also includes all of the Critical Areas Report and Habitat Management Plan (HMP) elements required by the City of Spokane Valley Municipal Code, Section 21.40 (SVMC 21.40).

South Dishman Mica Road defines the west boundary of the site, E. Thorpe Road defines the south boundary of the property, S. Madison Road defines the East boundary, and developed private property defines the north property boundary (Figures 1-3). The Painted Hills Golf Course formerly occupied this location. The former club house was renovated to expand the existing restaurant and the remainder of the site will become residential development and open space. The subject property is comprised of seven separate tax parcels totaling 99.5 acres (+/-) where 580 residential units are proposed, and a 10+ acre parcel on the south end of the site that will be designated as a wildlife travel corridor. The Action Area was defined as a half mile radius of the 99+ acre Project Area so the site investigation would characterize adjacent areas where listed species could live or be impacted by the project. This assessment addresses all Critical Areas and listed Priority Habitat and Species including Threatened, Endangered, Proposed, and Candidate Species in the Project Area.

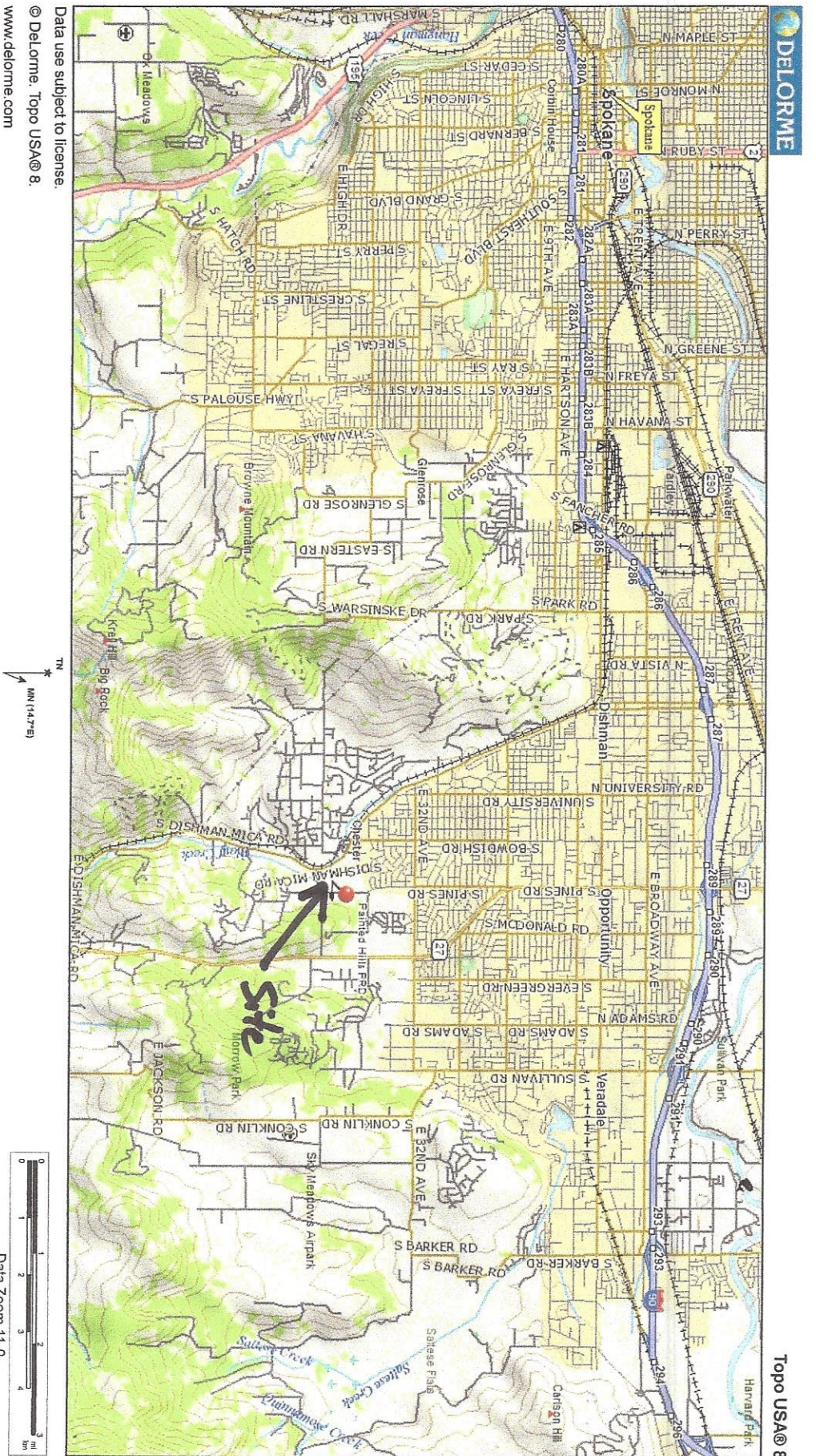
The USFWS and NMFS species lists were accessed on their websites on 4/21/2015 and updated August 29, 2016 and January 29, 2019. No NMFS species are listed for the vicinity. The USF&W list indicated the potential presence of the species and critical habitat(s) shown in Table 1 (and in Appendix 1).

Table 1. USFWS listed species and critical habitats potentially present in the vicinity of

| Species | ESU/DPS | Federal Status | Designated Critical Habitat |
|--|--------------------|-------------------|-----------------------------|
| Bull trout <i>Salvelinus confluentus</i> | Columbia River DPS | <i>Threatened</i> | <i>Yes</i> |
| Water howellia, <i>Howellia aquatilis</i> | | <i>Threatened</i> | <i>No</i> |
| Spalding's silene, <i>Silene spaldingii</i> | | <i>Threatened</i> | <i>No</i> |
| Canada Lynx, <i>Lynx canadensis</i> | | <i>Threatened</i> | <i>No</i> |
| Yellow-billed cuckoo, <i>Coccyzus americanus</i> , | | <i>Threatened</i> | <i>No</i> |

The undersigned investigated the Project and Action Areas on March 1, March 29, and April 19, 2015. The site conditions have not changed since the investigation in 2015. The conclusions of this plan are based on an evaluation of habitat and species data for Spokane County compiled by State and Federal jurisdictions, an evaluation of construction plans and specifications for the project, a literature review, and field investigations by the author of this report. The project will have no effect on Bull Trout or proposed Bull Trout Critical Habitat. The project will not result in the destruction or adverse modification of potential, designated or proposed Critical Habitat or Essential Fish Habitat for any fish species. The project will have no

Figure 2



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effect on the threatened species Water howellia, Spalding's silene, Canada lynx, or the Yellow-billed cuckoo. There will be no significant adverse effect on any listed Species of Concern. The site plan includes a 10+ acre wildlife travel corridor for deer and elk and over 30 acres of open space.

The Project Area does not meet any of the Department of Natural Resources (DNR) criteria for High Quality Terrestrial Habitat. Washington Department of Fish and Wildlife (WDF&W) maps (Appendix 2: Critical Areas Maps) indicate the subject property falls within an Elk polygon (WDF&W Priority Habitat). A 10+ acre wildlife travel corridor is proposed along the entire south end of the project and the corridor will be enhanced with vegetative plantings to accommodate animals traveling through the area.

Chester Creek and its associated 100-foot buffer bisects the SW corner of the property. Buffer Width Averaging is proposed to compensate for the encroachment of two lots and foot paths in the riparian buffer. The impact mitigation also includes riparian buffer enhancement. The existing buffer is almost totally devoid of woody vegetation because it was previously a driving range and/or maintained golf course fairway. An evaluation of streams and wetlands is included in this report.

2.0: Methods of Investigation

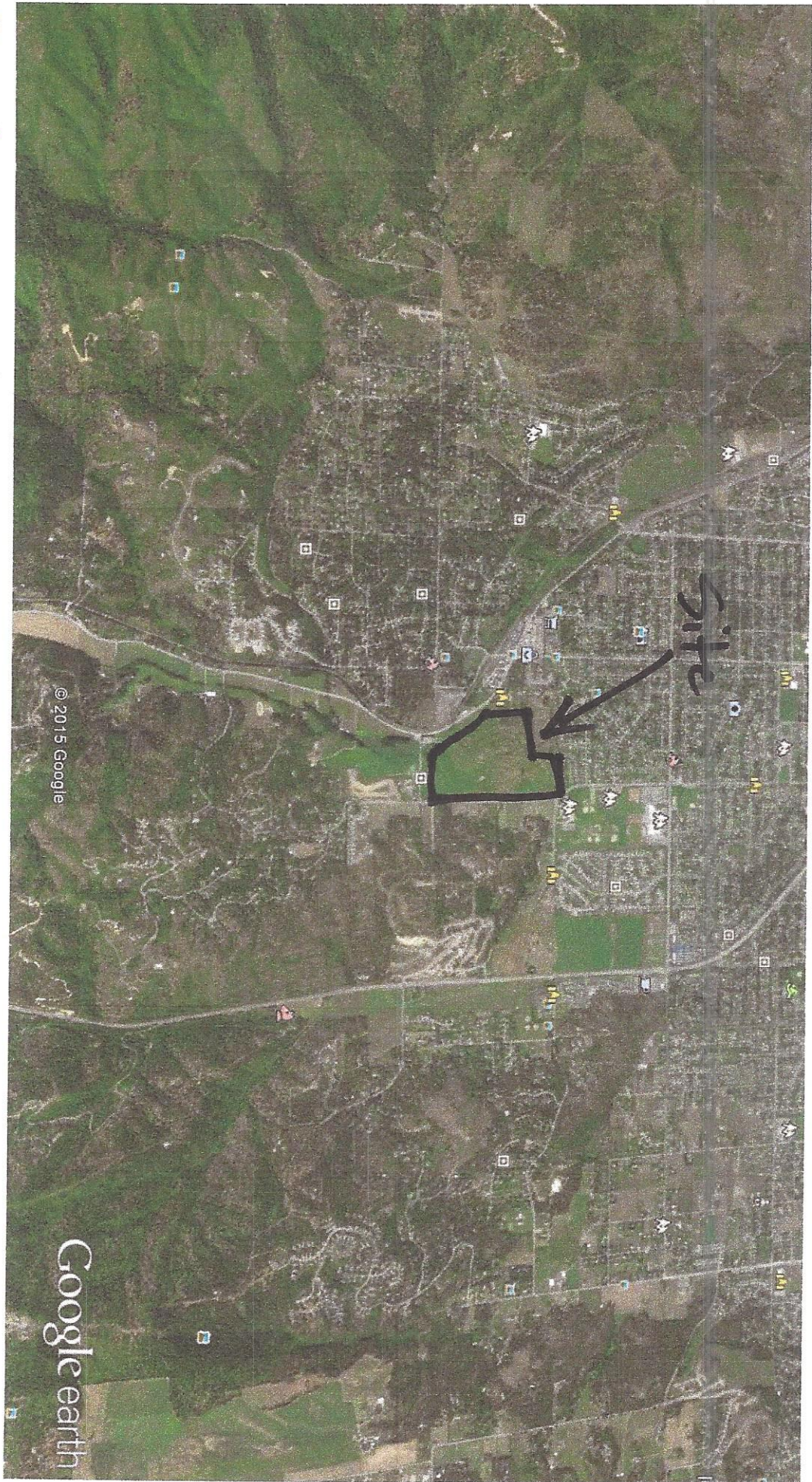
The north parcel of the Project Area is located in Sec. 33, T25N, R44E and the south parcel is located in Sec. 4, T24N, R44E of Spokane County, WA (Figures 1-3). Biology Soil & Water, Inc. (BSW) investigated the property on March 1 and 29, and April 19, 2015 for wetlands, riparian habitat, and species protected under the Federal, State, and local regulations. The undersigned is familiar with the soils, vegetation, and hydrologic characteristics of this property from previous investigations of adjacent properties in the immediate vicinity and throughout the drainage basin.

3.0: Description of the Action and Project Areas

Spokane is located in a valley at the westmost extent of the Rocky Mountains. From the north side of the Spokane River valley, the Selkirk Mountains extend north into Canada. On the south side of the Spokane River valley, a forested finger of the Bitterroot Mountains extends east from Lake Coeur d'Alene to Dishman Hills. The subject property is located in the Chester Creek valley with forested foothills on the east and west sides of the valley. The Painted Hills PRD is surrounded primarily by residential development with varying degrees of housing density, a few small undeveloped tracts of agricultural land in the Chester Creek valley, and forested land with varying densities of residential development (Figure 4).

3.1: Description of the Action Area

For purposes of describing habitat in the surrounding area, the Action Area is defined as a half mile radius of the project area. Habitat types in the Action Area would be described as a mosaic of urban developed, fragments of conifer forest, and small tract agriculture. From the north property line, dense residential development extends north into the City. A church and residential development border the painted Hills PRD at the NW corner. Horizon Middle School is located NE of the site. From the east property line (S. Madison Rd) hay fields and pasture extend 250-500 feet toward the toe of the surrounding forested slopes. Sparse residential extends east up the forested hillsides. Commercial and single-family residential development extends south from Thorpe Road except for the Chester Creek drainage and associated flood plain that is



Google earth

miles
km



Figure 4

Google earth

mainly forested and small tract agriculture. Undeveloped forested hillsides extend about 1200 feet east to the densely developed Ponderosa neighborhood. A mixture of commercial and residential land uses extend NW along Dishman-Mica Road.

Land uses in the Action Area are a mosaic of dense residential development on former agricultural land, remaining undeveloped small tracts of agricultural land, and forested land with varying densities of residential development. Large mammals that are willing to cross highways and residential developments interspersed with open farm land will find connectivity to a few hundred acres of wooded and sparsely populated foothills extending south and west from the Painted Hills PRD site to Dishman Hills.

3.2: Description of the Project Area

The 99+ acre Painted Hills PRD property was formerly a golf course. Black Realty Inc. bought the property in a trustees auction in the fall of 2013 after the owners filed for bankruptcy in 2012. Except for cart paths, sand traps, and man-made water hazards, the entire property was planted in non-native turf grasses with sparse conifer and deciduous trees lining some of the fairways. The turf grass was maintained by treatment with herbicides and regular mowing of the greens, fairways and rough. These practices virtually eliminated the native herbaceous plant community. Since golf course maintenance ceased, noxious weeds have invaded the site.

Honey willows were planted inside the Ordinary High Water Mark (OHWM) of Chester Creek whose channel was historically dredged and maintained for flood control. The banks of the channel are covered with Reed canarygrass. Outside the OHWM of the stream channel where the vegetation was not mowed or maintained, the vegetative community is dominated by Canarygrass. Teasel, tansy, thistle, wormwood, and lettuce are also well represented.

3.3: Comparison of three Development Alternatives

A State Environmental Policy Act (SEPA) Environmental Impact Statement (EIS) is being prepared for the project. The EIS provides a detailed analysis of three alternatives. Alternative #1 proposed no development. Alternative #2, the preferred development scenario, was for the Planned Residential Development discussed in this report. Alternative #3 was for a standard Residential Subdivision under the current zoning without PRD requirements and density. A detailed comparison of the three alternatives is provided later in this report.

4.0: Project Risk Assessment and Impacts

Listed threatened and endangered species identified by jurisdictions for potential occurrence in Spokane County include the Yellow-billed Cuckoo (*Coccyzus americanus*), Canada Lynx (*Lynx canadensis*), Bull trout (*Salvelinus confluentus*), Water howellia (*Howellia aquatilis*) and Spalding's silene (*Silene spaldingii*). A BSW field investigation determined that the project would have NO EFFECT on any of the above listed species.

4.1: Yellow-billed Cuckoo (*Coccyzus americanus*), Federal Status: Threatened

The yellow-billed cuckoo was formerly a very rare summer visitor to western Washington, especially in the Puget Sound area (Roberson 1980). Jewitt et al. (1953) described the former breeding range in Washington as ranging north to Bellingham, east to Ellensburg, south to Vancouver, and west to Grays Harbor. There are only two published records of yellow-billed cuckoo in eastern Washington. Yellowbilled cuckoos were detected on July 21, 1956, 20

miles north of Grand Coulee Dam in Okanogan County (Weber and Larrison 1977) and in June 1978 at George, Grant County (Roberson 1980).

The March and April investigations occurred before the Yellow-billed cuckoo would have migrated into the Spokane County area if it seasonally utilized the area for breeding or nesting. The investigation for the Yellow-billed cuckoo focused on specific habitat requirements of that species. Cuckoos prefer to nest in areas with at least 10 hectares (ha) (25 acres) of contiguous (riparian) woodland (Laymon 1998). The typical patch size is 20 ha (50 acres) or greater, and the likelihood of occupancy increases dramatically with increasing patch size, but they have been found breeding in patch sizes as small as 4 ha (10 acres) along the Colorado River in southern California (Johnson, Matthew J., 2007). Yellow-billed cuckoo's nest in undisturbed stands of cottonwood/willow galleries greater than 10 acres in total area and greater than 100 meters wide along waterways.

The project area does not contain, and is not in close proximity to, adequate habitat patches for that species. The largest habitat patch consisting of species utilized by the yellow-billed cuckoo is less than one tenth of the minimum patch size utilized by this reclusive species. The yellow-billed cuckoo is known not to utilize any habitat with characteristics of those found along Chester Creek adjacent to this project. This project will not impact yellow-billed cuckoo populations or habitat components. There is no suitable habitat for the yellow billed cuckoo in the vicinity of this project. **The project will have NO EFFECT on the yellow-billed cuckoo.**

4.2: Bull Trout (*Salvelinus confluentus*) Threatened

The U.S. Fish and Wildlife Service (USF&WS) lists the Columbia River population of bull trout as threatened. Small pockets of bull trout are present in isolated habitat fragments in the main stem and tributaries of the Columbia River. One isolated fragment of the Columbia River segment includes Coeur d'Alene Lake, its tributaries in the drainage basin, and the Spokane River. Bull trout populations have been identified in Coeur d'Alene Lake and three tributaries in its sub-basin, but no bull trout populations are known to occur presently, or have been noted historically, in the Spokane River downstream from the Post Falls Hydroelectric Dam (PBTTAT, 1998).

The Post Falls dam stops the migration of fish out of the Coeur d'Alene basin downstream into the Spokane River. Waterfalls and dams prevent the upstream and downstream migration of bull trout into the segment of the Spokane River and its tributaries in the vicinity of the project area. No dam on the Spokane River has a fish passage facility and all dams create fish barriers for upstream and downstream migration. EPA fact sheets for 1999 NPDES permits for wastewater treatment plants discharging to the Spokane River state that bull trout cannot get past the Post Falls Dam (EPA 2008). There is no known population of bull trout in the Spokane River downstream of the Post Falls dam (FERC 2006). The USFWS does not include the Spokane River and its tributaries located downstream from the Post Falls dam in bull trout recovery planning efforts (Federal Register / Vol. 75, No. 200 / Monday, October 18, 2010). **The project will have No Effect on Bull Trout.**

Bull Trout Critical Habitat

Activities that may adversely modify critical habitat include those that alter the primary constituent elements to an extent that the value of critical habitat for both the survival and recovery of the bull trout is appreciably reduced. The proposed project will not destroy or adversely modify critical habitat by altering primary constituent elements. The value of critical

habitat for both the survival and recovery of the bull trout will not be reduced as a result of this project. The project will not alter the minimum flow or natural flow regime of the subject stream, alter any segment of the stream, riparian vegetation, or any chemical parameters so as to reduce water quality, alter channel morphology or create instream barriers to bull trout movement. No decrease in water quantity will occur because of the project. **The project will cause no significant and detrimental alterations to water quality and will have NO EFFECT on proposed Bull Trout Critical Habitat.**

4.3: Spalding's catchfly (*Silene spaldingii*), Federal Status: Threatened

The range of Spalding's silene (*Silene spaldingii*) includes eastern Washington, northeast Oregon, Idaho, and western Montana. Spalding's silene occurs primarily in open grasslands with minor shrub and/or (occasionally) scattered conifer components. Spalding's silene is found most commonly in Idaho fescue/snowberry associations at elevations of 1900-3050 feet. These sites are typically dominated by Idaho fescue and have sparse cover of snowberry where the total vegetative cover is greater than 100%. Some of these sites occur in a mosaic of grassland and ponderosa pine forest. Spalding's silene populations have been found on all aspects, although there seems to be a preference for slopes that face north. On drier sites, the species can be found on the bluebunch wheatgrass/Idaho fescue association.

Spalding's silene can occupy habitats that vary from sagebrush plains to mountain ridges. Spalding's silene generally occurs in native grasslands that are in reasonably good ecological condition, although populations have persisted in areas that have had moderate grazing pressure. Populations tend to be quite small and are currently quite fragmented, raising questions about their long-term viability. Fire may have historically played a role in maintaining habitat particularly in sites that are interspersed with ponderosa pine forest. Much of the historically suitable habitat has been lost through conversion or degradation.

The timing of the site investigation did not coincide with the flowering of listed plant species. The project biologist is a qualified botanist and wetland professional that routinely completes site investigations during all seasons when snow does not cover vegetation. Site investigations often occur when salient plant flowering parts are senescent or may not be sufficiently preserved to allow taxonomic identification beyond genus to the species level. Twenty years of experience in plant identification during all life history and seasonal growth habits has equipped the project biologist to conduct accurate plant identifications and wetland investigations in accordance with best available science and consistent with the accepted professional practices for the conditions at the time the work was performed.

Individual plants exhibit essential identification characteristics unique to their genera, but display sufficient variation so it is possible to categorize and differentiate each species within a genus using taxonomic keys. During plant senescence, individual characteristics often become blurred making it difficult or impossible for a botanist to differentiate among species within the genus. The sepals of the genus *Silene* form a bulbous calyx that is easily recognized and sufficient to identify the plant to genus. The Threatened species *Silene spaldingii* overlaps in range and is somewhat similar in appearance with some other species in the genus.

The field biologist is familiar with the species and has observed it at other locations. During the field investigation, the *Silene* genus was not identified in the Action or Project Areas. Previous years of cultivation, followed by the planting of turf grasses, years of mowing, and herbicide applications is sufficient grounds for discounting effects on Spalding's silene when considered alone. No populations of Spalding's silene were identified in the Project Area during

the field investigation. **The project will have NO EFFECT on Spalding's Silene and will not result in the destruction or adverse modification of potential, designated or proposed Spalding's silene Critical Habitat.**

4.4: Water howellia (*Howellia aquatilis*)

Howellia is found in seasonal wetlands, ponds and lakes because its seeds do not germinate under water. Since seeds germinate in the fall and over-winter as seedlings Howellia requires a dry autumn followed by a wet spring in order to establish for the year. In addition to seasonally fluctuating ponds, Howellia requires fertile, highly organic soils, which are generally maintained by deciduous trees surrounding the ponds. Research indicates that Howellia does not form a persistent seed bank, making this annual especially dependent on year to year reproductive success in order to persist.

No Howellia was observed in the Project Area. Howellia is found in seasonal wetlands, ponds and lakes. No Howellia habitat occurs in the Project Area. **The project will have NO EFFECT on the Howellia aquatilis species and will not result in the destruction or adverse modification of potential, designated or proposed Howellia Critical Habitat.**

4.5: Canada lynx (*Lynx canadensis*) Federal Status: Threatened

Lynx prefer dense coniferous forest with sapling/pole thickets, rock outcrops, and wetlands at elevations of around 4000' to 4500'. The elevation of the Action Area is around 2010-2015 feet. Denning usually occurs in mature old growth stands with lots of deadfall. These forested stands do not occur in the Action Area. Lynx prefer snowshoe hare habitat, as they are dependent on snowshoe hare as a staple food item. Snowshoe hare prefers dense lodgepole stands that do not occur in the Project or Action Areas. BSW did not find any evidence of Canada lynx in the low elevations associated with the Project Area. **The project will have NO EFFECT on the Canada lynx or Canada lynx habitat. The Canada lynx does not appear on the 1/29/2019 official USFW species list for the site.**

4.6: Species of Concern

The site was also investigated for the presence of species from the Species of Concern list for Spokane County published by the U.S. Fish and Wildlife Service. Most of these species are also included in the WDF&W list of priority species that was adopted by the City of Spokane Valley. Each species is listed below, followed by an evaluation of available habitat, observed habitat utilization, and potential project effects.

Bald eagle (*Haliaeetus leucocephalus*)

The Bald eagle is listed as a State Sensitive species. Eagles do not nest near the Project Area. Human activity associated with major roads and urban development are limiting factors for Bald eagles in the Action Area. At any location in Spokane County road kill can provide food for transient opportunist eagles. However, Bald eagles do not routinely forage in the Action Area and no nest sites were observed by BSW within one-half mile of the Project Area. BSW concludes that noise and human activity during construction will not impact eagle nesting as no nests were identified in the Action Area. Perching and foraging opportunities occur on the stream bank and eagles could utilize the stream corridor. **The project will have NO EFFECT on the Bald eagle.**

Western Burrowing Owl (*Athene cunicularia*) No historical observation in the vicinity. No individuals, nests, or sign observed during the site survey. **No Effect from project.**

California floater (*Anodonta californiensis*) freshwater mussel. **No Effect from project.**

Ferruginous hawk (*Buteo regalis*) nests on rocky ledge or high ground vantage on prairie. **No Effect from project.**

Giant Columbia spire snail (*Fluminicola columbiana*) cold, unpolluted, medium to large streams. **No Effect from project.**

Loggerhead shrike (*Lanius ludovicianus*) A robin sized gray, black, and white bird of open areas. Community types not dominated by shrubs, such as grasslands and riparian areas, are not used. Loggerhead Shrikes prefer nesting in big sagebrush and antelope bitterbrush, and avoid spiny hopsage, rabbitbrush, and green rabbitbrush (*Chrysothamnus viscidiflorus*). Nest shrubs are taller, closer to an edge, and contain denser cover and fewer main stems than unoccupied shrubs. Roost shrubs are large, dense live shrubs, whereas tall, dead shrubs that provide good visibility are used for perching. **No Effect from project.**

Longeared myotis (*Myotis evotis*) Roosts are sometimes found in crevices in small basalt rock formations. Compared to random plots, roosts are in more open, rocky habitats, closer to the edge of forest stands, and relatively distant from sources of permanent water. Often roost in Ponderosa pine trees >30 cm in diameter and >12 m high. Less use of grasslands and closed pine than expected. **No significant effect if present in vicinity.**

Northern goshawk (*Accipiter gentilis*) goshawks select relatively closed-canopy coniferous/boreal forest habitat for nesting - **No significant effect.**

Oliv-sided flycatcher (*Contopus cooperi*) found in boreal and western coniferous forests - **No Effect**

Pallid Townsend's big-eared bat (*Corynorhinus townsendii pallescens*) Eastside mixed conifer forest, shrub-steppe, and riparian-wetlands. In Washington, old buildings, silos, concrete bunkers, barns, caves, and mines are common roost structures. **No effect on roosting or hibernacula**

Peregrine falcon (*Falco peregrinus*) Two subspecies of peregrine falcons (*Falco peregrinus*) occur in Washington state at present, (*F. p. pealei* and *F. p. anatum*). Peale's peregrine falcon is a coastal subspecies so our concern in Spokane County is with *F. p. anatum* (Continental peregrine falcon). DDT exposure totally eliminated this subspecies from former breeding sites in eastern Washington. Following a ban on the use of DDT, captive-reared young birds have been released at several sites in Spokane County in an attempt to augment natural reintroductions by wild birds. There is no potential for degradation or loss of critical habitat for peregrine falcons in the project area. Peregrine falcons nest on cliffs or even man-made structures such as buildings or bridges that do not occur in the project area so no action is required to protect nest sites from human disturbance. The primary method used to reintroduce falcons to the wild is called "hacking". WDF&W does not currently use any hack sites in the vicinity. **No significant effect**

Redband trout (*Oncorhynchus mykiss*) **No Effect from project.**

Sagebrush lizard (*Sceloporus graciosus*) **No Effect from project.**

Westslope cutthroat trout (*Oncorhynchus clarki lewisi*) **No Effect from project.**

Palouse goldenweed (*Haplopappus liatriformis*) palouse, not in our area **No Effect**

4.7: WDF&W Priority Species Deer, Elk, and Gray Wolf

Impacts to the WDF&W Priority Species White-tailed deer and Elk will be minimized by protecting a travel corridor through the site. The subject property is not mapped as White-tailed

deer priority habitat. Wooded lands to the east and south are mapped as priority white-tailed deer habitat. However, deer utilize the site as they do all undeveloped parcels in the area. The site falls within the northern extent of the mapped Elk Habitat polygon in the Spokane Valley. The site does not provide cover or refugia required by elk and is not elk habitat, but Elk moving through the general area between Mica Peak and Dishman Hills could potentially cross the subject property on east/west treks. The developer will protect and enhance an east/west 10+ acre deer and elk travel corridor across the property. Woody vegetative plantings prescribed for the corridor will provide some habitat value and protective cover where none currently exists. Deer will continue to use the area set aside as a travel corridor.

The site is also mapped as Gray wolf habitat. It is possible that wolves could travel through the area in search of prey. There are deer and abundant small (domesticated) mammals available in this residential area so their presence would not be well received in the surrounding neighborhoods. Wolves could also utilize the 10+ acre travel corridor for safe east/west passage through the property. On May 5, 2011, wolves were federally delisted in the eastern one-third of Washington State.

4.8: Wetlands

Wetland Inventory Maps of the site show two wetlands on the property (Appendix 2). Both of the wetlands are shown to occur on the west side of Chester Creek. BSW investigated the mapped wetlands on March 1, 2015. In each mapped wetland, BSW dug a test hole on top of the creek bank in close proximity to the Chester Creek OHWM. On March 1, neither of the test holes had saturated soils in the top 16 inches of the soil profile. In Test Hole #1 the water table was at 21 inches and saturation occurred at 16 inches. In Test Hole 2, there was no saturation in the top 24 inches of the soil profile.

The test holes were inspected again on March 29th and the water level in test holes was lower than on March 1st. This result was expected due to the landscape position of the mapped wetlands. The year to date precipitation for Spokane was fluctuating between slightly above normal for the year to slightly below normal for the year to date making this year to date average in precipitation. Wetland hydrology should have been present in what was a normal year at the time of the investigation if the subject areas were wetlands. The argument that Spokane was below normal for the hydrologic year is also not valid for this drainage basin because it has a low elevation and runoff comes earlier in the year than many other drainages as will be explained in detail below.

The wetland hydrologic criteria was not met in either test hole at the start of the growing season when the water table should have been at its annual high. Stream high water conditions consistent with a high water table does not typically occur during the growing season on Chester Creek. Seasonal high water occurs in the winter during rain on snow and frozen ground conditions. During the growing season, wetland conditions do not occur outside of the stream OHWM where the National Wetland Inventory Map indicates the wetlands occur. David Moore, DOE, investigated the site on June 8, 2016 and concurred with that finding in the field and by phone after the site visit.

The hydrologic studies referenced in this report all conclude that Chester Creek is not influenced by a high water table so it loses water to the underlying sands and gravels. This prevents wetland conditions from occurring outside the area of flowing water in the channel. The author of this report concurs with those conclusions based on 20+ years of personal

observations of hydrologic conditions and numerous wetland investigations in the Chester Creek drainage basin.

Most streams occur in the lowest elevational contour of a drainage basin where bedrock, or some restricting layer, prohibits the infiltration of water and causes a seasonal high water table. Under those physical conditions, the water table influences, or contributes to the stream through the winter and spring portions of the hydrologic year. The key feature to wetland occurrence in riparian zones is a high water table that generally correlates to the surface elevation of the stream. Wetland conditions form when the water table comes in close proximity to the soil surface during the growing season. The water level in the stream generally corresponds to the top of the water table in the surrounding basin. During the growing season, evapotranspiration lowers the water table at the same time annual precipitation decreases. When the water table falls, isolated depressions remain full of water until the water table drops allowing the depressional wetlands to dry out. When these depressions remain inundated or saturated for sufficient duration, DOE considers them to be wetlands within the stream channel. At some point the water table falls below the bottom of the stream and no longer contributes to base flow in the stream. The above scenario does not occur in Chester Creek.

Chester Creek loses water to the underlying sands and gravels all year long. Chester Creek flood events occur during the winter when heavy rains on frozen ground and/or snow prevent infiltration of stormwater in the contributing basin. Flood events do not occur during the growing season. The extent and duration of occasional flood events depends on how long the above normal precipitation continues and how far downstream the flooding spreads before infiltration exceeds hydrologic input. The frequency, duration, and extent of flooding have been attenuated by flood control measures thoughtfully implemented downstream. The flood control measures proposed with this project are a continuation of that process.

In summary, Chester Creek is not influenced by a high water table that creates wetlands. Chester Creek loses water to the underlying sands and gravels so wetlands do not occur outside of the channel of flowing water. The test holes evaluated with a shovel by BSW in 2015 and again in 2016 support that conclusion. That conclusion is backed by 20+ years of personal experience in the basin, previous hydrologic studies of the basin, Bore Hole Logs taken within the area of interest on Chester Creek, Bore Hole Logs throughout the Painted Hills project area, well logs of proximate properties, and the Geotechnical and Hydrologic Analysis of the same Bore Hole Logs. No wetlands occur adjacent to Chester Creek because is not influenced by a high water table. This conclusion is supported by the Geotechnical Evaluation of the area. The author of the Geotechnical Evaluation report reached the same conclusion as BSW, that Chester Creek loses water to the underlying well drained sands and gravels all year long preventing wetlands from forming.

4.8.1: Chester Creek Flood Frequency

A hydrologic and hydraulic analysis for Chester Creek was completed by Michael Baker Jr., Inc. and approved by Spokane County in a letter to the Federal Emergency Management Agency dated August 6, 1990. There are no long-term gage records for Chester Creek. The limited gage measurements on Chester Creek were collected near the Dishman-Mica Road crossing of Chester Creek from December 1994 through March 1995 and November 1995 through February 1996 when no flood events occurred. In February 2006, the hydraulic analysis for Chester Creek was revised by West Consultants, Inc. under a FEMA contract. The analysis

established flood magnitude-frequency estimates for the watercourse. A steady flow model has been developed for Chester Creek.

The reports conclude that spring floods in the upper Spokane River basin are due to snowmelt runoff from high elevation watersheds. Such floods are of less significance on Chester Creek because the lower elevation of the watershed limits the size of the snowpack so spring runoff occurs about a month earlier and at more gradual rates than on the Spokane River. Nearly all maximum annual flood peaks on Chester Creek occur during the winter. Warm winds and rain can melt the snow rapidly. The May 1948 flood on Hangman Creek was a non-typical flood caused by a heavy snowpack, a late, cold spring, and heavy rains during the critical snow melting period. All other maximum annual flood peaks on Hangman Creek occurred during the winter. When winter rain causes snowmelt on frozen soil conditions, short-duration, intense runoff generates a flood peak during winter storms. During the more extreme events, Chester Creek runs over its banks filling depressions in the flood zone.

The duration of flooding is generally between 100 hours and 1000 hours, or between four days and forty days with smaller events occurring with greater frequency than large events. Hydric soils form under saturated soil conditions. Wetlands have to exhibit saturated soils during the growing season, but those conditions seldom occur outside of the stream channel on Chester Creek because flooding usually happens in the winter. Floods are typically of a small magnitude so when over bank flow fills depressions outside of the channel, the water has usually infiltrated before the growing season begins. The subject areas may have been exposed to more frequent flooding in the past, but good planning and flood control measures designed to minimize flooding have moderated those historical flood events to some degree. Chester Creek does not follow the same hydrograph as snowmelt dominated systems.

4.8.2: Flood Protection Measures

Channel geometry for Chester Creek were developed from surveys conducted in March 2003. Overbank geometry were developed from topography developed by TerraPoint (2003). Flood plain boundaries for Chester Creek and Unnamed Tributary to Chester Creek were delineated using 2-foot contour interval maps developed by TerraPoint from LiDAR data.

Previously, a watershed plan for Chester Creek was designed with management recommendations for drainage, flooding, water quality, and riparian habitat. As a result, flood control improvements have been implemented along Chester Creek. The improvement area began at the Painted Hills Golf Course. In 1998, a project to install new culverts and extensive dredging of the channel between Thorpe Road and Schaffer Road was implemented. Two large volume borrow pits were constructed downstream. Each pit was designed for the retention and infiltration of Chester Creek floodwaters up to a 25-year event. One borrow pit was constructed just north of E. 40th Avenue and the other just south of 28th Avenue.

The Chester Creek channel has been historically maintained as has been reported in the literature and supported by direct evidence of spoil piles on the channel banks. Dredging makes the channel deeper and the dredging spoil piles make the channel banks higher. As a result of channel dredging, the surrounding areas are dewatered faster and the water table falls a corresponding distance deeper below the soil surface. Soils in the areas mapped as NWI wetlands do exhibit some relic hydric characteristics from infrequent historical flooding, but with the exception of rare flood events, the water table is too far below the soil surface at the start of the growing season to meet the wetland hydrologic criteria.

The two mapped wetlands do not meet the hydrologic criteria so they are not wetlands. They are low lying areas adjacent to Chester Creek that have been historically flooded, but flooding is far too infrequent for the subject areas to meet the wetland hydrologic criteria. Even if they were wetlands, they are on the opposite side of the creek from where development is proposed so the riparian buffer would be more restrictive and extend further east into the development than a wetland buffer. However, there are no wetlands on the subject property.

Additional flood control measures are being incorporated into the project design (see the Painted Hills Flood Control Plan). In the proposed Alternative #2, a thirty-foot wide by 3-foot-deep box culvert will be installed in the Right of Way to prevent back up on the Haase property south of Thorpe. On the north side of Thorpe, water will proceed northeast in an open concrete channel and headwall for two 48-inch pipes. The pipes extend northeast across the park to Madison Road where it will be piped north to a headwall and bioswale. The bioswale is a long sloping reach that terminates in a settling pond. At the settling pond, water will rise one foot and crest over a weir into the infiltration pond located at the north end of the development. Inland Pacific Engineering Company (IPEC) developed an Operations and Maintenance Plan for the facility to ensure the flood control systems receive regular maintenance and inspections to minimize long term effects of sediments that may enter the system.

Other flood control measures will be required by the City of Spokane Valley who historically maintained the Chester Creek channel on an annual basis. To my knowledge, the channel was last dredged in 1998. The channel must be kept clear of deadfall that would impede flow in the channel. The property owners must implement the channel maintenance plan to insure flow in the channel is not impeded. WCE has also prepared a Chester Creek Levee Operation and Maintenance Manual for Level Operation and Maintenance for the Chester Creek Homeowners Association. This manual requires annual maintenance inspections and maintenance as required to maintain the integrity of the levee with additional inspections during all flood events.

Fill material shall be placed behind the existing levee turning the levee into an engineered slope and eliminating the possibility of a levee failure during a flood event. Fill material will reinforce the creek bank and raise the bank elevation to a minimum height of one foot above the Base Flood Elevation. Raising the property to an elevation 1 foot above the base Flood Elevation ensures to FEMA and the City that the property, and buildings on the property, will not be inundated by a flood event. The fill material will slope to the northeast through the proposed streets, with their own proposed storm drainage systems, and the ultimate low point where flood control ponds will be constructed at the north end of the project.

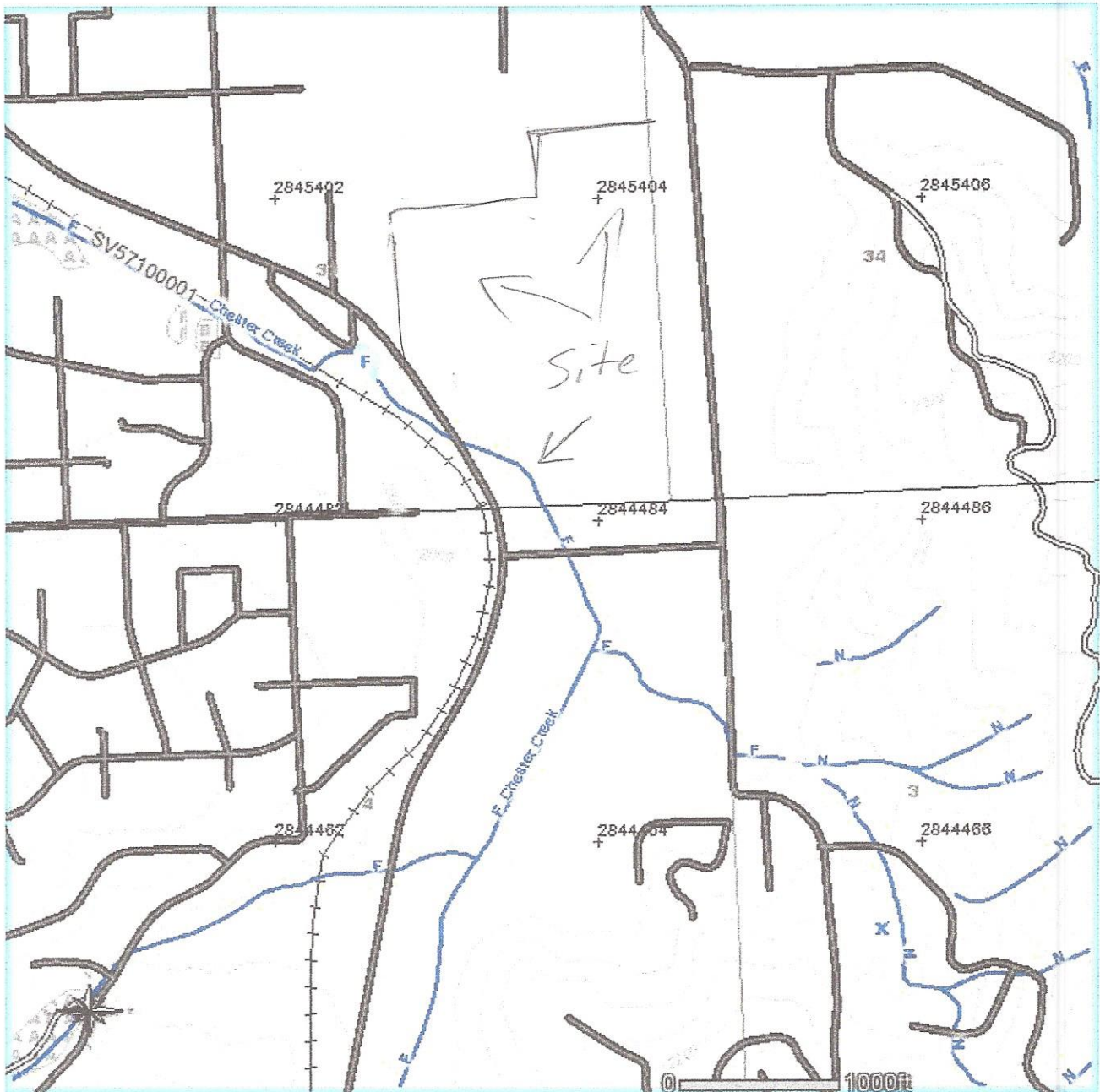
4.9: Riparian Areas

The DNR Water Type Map (Figure 5) defines Chester Creek as a Type F Water. Chapter 21.40 of the City of Spokane Valley Municipal Code, titled Critical Areas, bases stream buffer widths on the DNR Riparian Management Zones. Chester Creek is greater than 15 feet in width (bankfull) so the appropriate buffer width can be found in Table 21.40-10 of the City Code. The DNR guidance states that in Eastern Washington, if there is no site index information, as in this case, assume Site Class III unless site specific information indicates otherwise. The table indicates that a Type F Natural Water not classified as a Shoreline of the State, having a Site Class 3 designation, has a total buffer width of 100 feet. BSW delineated the Chester Creek OHWM in the field on March 31, 2015. The OHWM flags were surveyed and plotted on the site plan map along with the 100-foot riparian buffer by Whipple Consulting Engineers.

Figure 5: FOREST PRACTICE WATER TYPE MAP

TOWNSHIP 0 NORTH HALF undefined, RANGE 0 (W.M.) HALF undefined, SECTION 0

Application #: _____



4/1/2015 9:23:14 AM
NAD 83
Contour Interval: 40 Feet

The DNR Water Type Map also identified a Type F Water located about one mile east of the subject property. The map showed the stream crossing SR27 and running NW across a cultivated field before disappearing. There is no stream in that location so a Water Type Modification Form was submitted to Spokane County. The form was circulated to all appropriate agencies, the Water Type change was approved, and that stream segment was removed from the map. However, the FEMA map shows potential flood waters traveling toward the proposed development from that general direction. So additional work was required by FEMA to pipe the flood water to the borrow pit located on adjacent Gussman property to the north. Several years ago, the ditch was proposed, approved, and created to convey stormwater to a borrow pit. After the pipe improvements required by FEMA, floodwater will have the same fate as stormwater and be conveyed into the borrow pit where it will infiltrate and have no impact on the proposed development. No impacts are proposed to regulated waters by this FEMA requirement so no mitigation is required.

5.0: Analysis of Three Development Alternatives (Figures 6-8)

5.1: Alternative #1 (no development, Figure 6)

The existing conditions would be maintained under the no development scenario of Alternative #1 (Figure 6). The existing conditions are turf grasses and vegetation consistent with a golf course with sparse woody vegetation bordering some of the fairways. The open space is utilized by deer and provides a potential travel corridor for elk moving between Madison Hills and Dishman Hills. These conditions would remain exactly the same in the Alternative #1 no development scenario. The entire property, stream buffer, trails, and bridges would remain in the existing condition.

In the existing condition, the buffer on the right stream bank (N/E side of the creek) has an area of 104,131.93+/- sq. ft.. The buffer on the left stream bank (S/W side of the creek) has an area of 78,329.96 +/- sq. ft.. The total area of stream buffer is 182,461.89+/- sq. ft.. The existing buildings, trails, and bridges result in 18,604.23+/- sq. ft. of buffer impact. All of the existing impact areas would remain exactly the same if no development occurred.

5.2: Alternative #3 (standard residential development, Figure 7)

In Alternative #3, a 3665.18 sq. ft. polygon on the west side of the creek, east of the existing restaurant parking lot, would be impacted (green hatched area in Figure #7). The 100-foot buffer width would be reduced to the 75-foot minimum width allowed by the City Code so the restaurant parking lot could be expanded. Alternative #3 also proposes a 1383.16 sq. ft. buffer impact (green hatched area in Figure # 7) from the City required improvement (widening) of Thorpe Road. According to the buffer averaging provisions of the City Code, buffer impact areas must be replaced with an equal or larger buffer area that is contiguous with the existing buffer so there is no net loss of buffer area. The 3665.18 sq. ft. and 1383.16 sq. ft. buffer impact areas total 5048.34 sq. ft. and would be replaced with a 5096.06 ft. sq. replacement area on the opposite side of the creek as represented by the blue hatched polygon in Figure # 7. The proposed 5048.34 sq. ft. buffer impact area would be mitigated with buffer averaging but also with vegetative enhancement of the buffer replacement area. The proposed buffer averaging will result in a small net increase in buffer area and habitat quality.

On the right stream bank (N/E side of the creek) fill material will cover the entire 104,131.93+/- sq. ft. of riparian buffer to bring the land surface elevation to a height of one foot

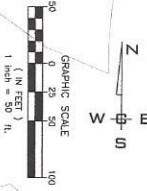
Figure 6

CHESTER CREEK EXISTING DELINEATION & IMPACT

SE1/4 SEC. 33, T25N, R44E, W1M.
 SW1/4 SEC. 32, T25N, R44E, W1M.
 NE1/4 SEC. 4, T25N, R44E, W1M.



STREAM BUFFER EXHIBIT
 SCALE: 1"=50'



LEGEND
 --- GROUNDWATER HIGH WATER MARK (GHWM)
 --- EXISTING STREAM BUFFER DELINEATION
 [Hatched Box] EXISTING STREAM BUFFER AREA
 [Cross-hatched Box] AREA OF STREAM BUFFER IMPACT

AREAS

| | |
|------------------|------------------------|
| NE STREAM BUFFER | 104,131.93 SF ± |
| SW STREAM BUFFER | 78,329.96 SF ± |
| TOTAL | 182,461.89 SF ± |

EXISTING IMPACT AREA

| | |
|---------------|-----------------------|
| 1,572.83 SF ± | |
| 1,196.01 SF ± | |
| 3,258.83 SF ± | |
| 4,272.07 SF ± | |
| 7,141.98 SF ± | |
| 488.87 SF ± | |
| TOTAL | 18,604.23 SF ± |

DATUM: NAVD - 88
 THIS IS A PRELIMINARY PLAN FOR THE CITY OF SPOKANE VALLEY. IT IS NOT TO BE USED FOR CONSTRUCTION OR FOR ANY OTHER PURPOSES WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER OF RECORD.

| | | |
|-----|----------|----------------------|
| NO. | DATE | DESCRIPTION |
| 1 | 08/14/18 | ORIGINAL PREPARATION |
| 2 | 08/14/18 | REVIEWED PLANS |

SCALE:

| | |
|------------|--------|
| HORIZONTAL | 1"=50' |
| VERTICAL | N/A |



SPokane Valley Painted Hills PUD
 EXIST. STREAM BUFFER EXHIBIT (ALLT1)
 DISHMAN-MICA RD.
 SPOKANE VALLEY, WA

PLANS NOT APPROVED BY AGENCY
 SHEET 1 OF 3
 JOB NUMBER 13-1166



CITY OF Spokane Valley
 Project Number: 13-1166
 Project Name: Dishman-Mica Rd. Stream Buffer Exhibit (Allt1)
 City of Spokane Valley
 Development Engineering
 Name: [Redacted]
 Title: [Redacted]
 Date: [Redacted]
 I have reviewed this plan and find it to be in accordance with the City of Spokane Valley Ordinance 13-1166.
 David R. Johnson
 Registered Professional Engineer



Figure 7

DATUM: NAVD - 88
 WITH AN ELEVATION OF 2002 BY NAVD83, 2009 BY
 MAP 859) HAS BEEN USED FOR THIS SERVICE. DATUM IS THIS
 MAP.

| NO. | DATE | BY | REVISIONS |
|-----|------|----|-----------|
| | | | |
| | | | |

| SCALE: | PROJ #: | DATE: | DESIGN: | REVISIONS: |
|--------------------|---------|----------|---------|------------|
| HORIZONTAL: 1"=50' | 13-1166 | 11/01/17 | DRN | |
| VERTICAL: 1"=10' | | | | |

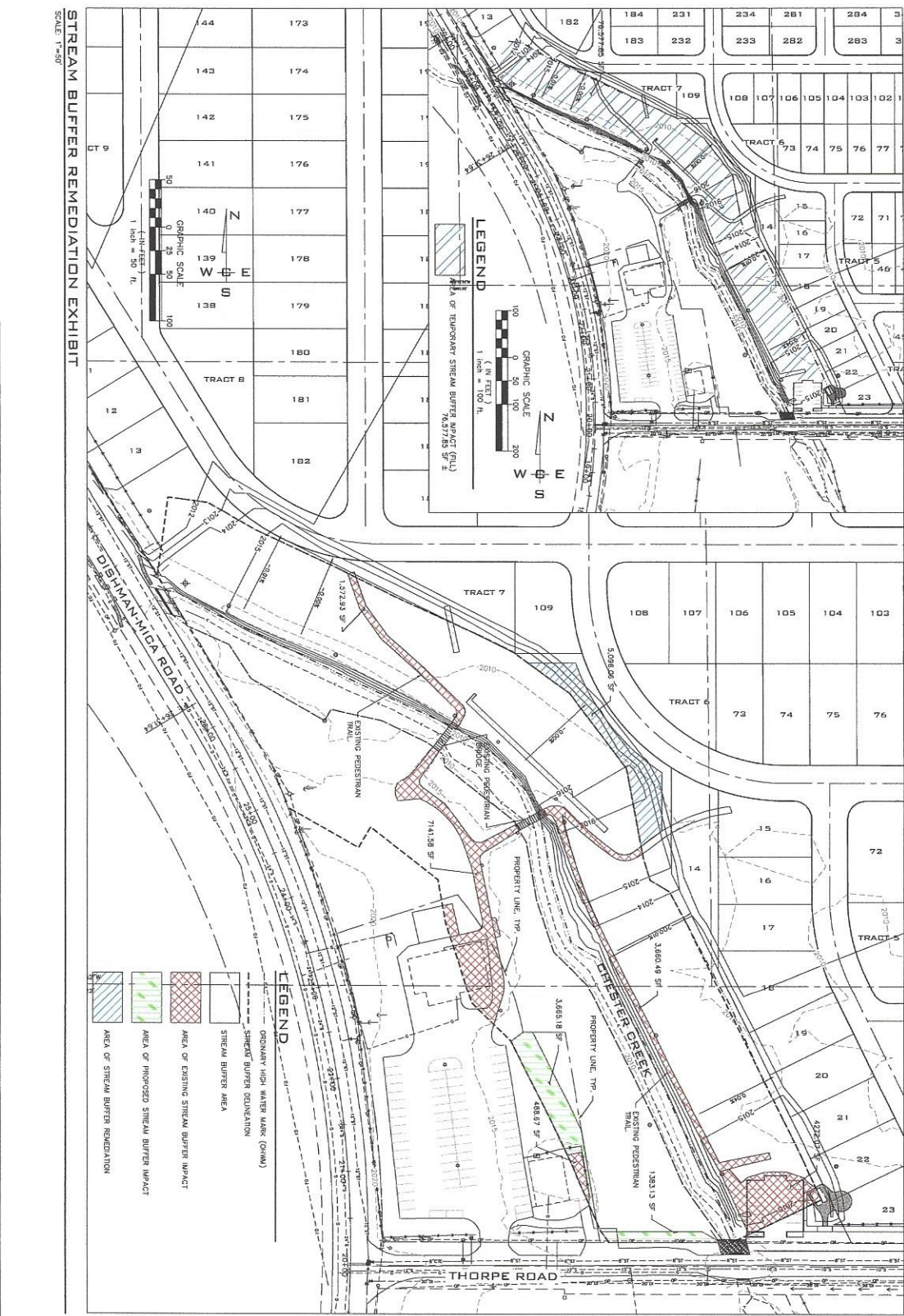
| DATE: | REVISIONS: |
|-------|------------|
| | |
| | |

IWCE
 INDEPENDENT WATER CONSULTANTS ENGINEERS
 1100 S. WASHINGTON ST., SUITE 100
 SPOKANE, WA 99202
 PH: 509.325.1100 FAX: 509.325.1101

**PAINTED HILLS
 PROP. STREAM BUFFER EXHIBIT (ALT 3)
 DISHWAN-MICA RD.
 SPOKANE VALLEY, WA**

**SHEET
 3 OF 3**

JOB NUMBER
 13-1166



CHESTER CREEK DELINEATION, IMPACT AND REMEDIATION

SE1/4 SEC 33 T25N R44E W1M
 SW1/4 SEC 32 T25N R44E W1M
 NE1/4 SEC 4 T24N R44E W1M

UNDERGROUND SERVICE ALERT
 811
 CALL BEFORE YOU DIG

AREAS

| | |
|-----------------------|------------------------|
| NE STREAM BUFFER | 104,131.93 SF ± |
| NE STREAM BUFFER REM. | 5,095.06 SF ± |
| SW STREAM BUFFER | 76,329.96 SF ± |
| TOTAL | 187,557.95 SF ± |

IMPACTS

| | |
|--------------------------|-----------------------|
| EXISTING IMPACTS: | 1,572.93 SF ± |
| 3,660.49 SF ± | 4,272.07 SF ± |
| 7,141.58 SF ± | ± 4,888.67 SF ± |
| 17,135.74 SF ± | ± 1,665.18 SF ± |
| 5,049.34 SF ± | ± 1,383.18 SF ± |
| TOTAL IMPACTS: | 22,184.09 SF ± |

REMEDICATION

REMEDICATION:
 5,096.06 SF ±



above the BFE (see blue hatched area in the upper left corner of Figure # 7). The buffer is currently planted in non-native golf course turf grass and is almost totally devoid of woody vegetation. Only a handful of trees and shrubs would be impacted by the fill. This is a temporary buffer impact that will be mitigated by vegetative enhancement. No loss of buffer area will occur as a result of temporary impact. Existing trails will be removed and new trails of the same width will be built to replace the existing trails in the same location. Compared to Alternative #1, the trail impact area will be slightly less in Alternative #3 because some of the existing trail area will be eliminated. Alternative #3 proposes no new permanent buffer impact on the right stream bank (N/E side of the creek).

The temporary buffer impact area on the right stream bank (N/E side of the creek) will be replanted with native grasses and native trees and shrubs at the industry standard rate of 350 stems per acre or 837 total plants. This represents a significant enhancement of wildlife habitat compared to the existing disturbed condition and previous land use as a golf course.

Due to the proposed buffer width averaging, the Alternative #3 buffer total area would increase slightly (47.72 sq. ft.) compared to the existing condition. In Alternative #3, two small trail segments in the buffer totaling 1468.49 sq. ft. will be eliminated and not replaced so the Riparian Buffer area will also increase by that small amount compared to the Alternative #1 no development scenario. The remainder of the property would be developed with residential lots. In Alternative #3, the 10+ acre vegetated park/wildlife corridor along the southern border of the site would not be established and that area would be developed.

Compared to the Alternative #1 no development scenario, Alternative #3 proposes 5048.34 sq. ft. of new buffer impact that would be replaced with a slightly larger 5096.06 sq. ft. replacement area as required for buffer width averaging. The proposed 5096.06 sq. ft. buffer replacement area would be enhanced with woody vegetative plantings.

5.3: Alternative #2 (Planned Residential Development, Figure #8)

Alternative #2, a Planned Residential Development (PRD) is the preferred alternative due to the benefits of PRD mixed uses and the advantage of a 10+ acre park/wildlife corridor that is not offered in Alternative 3. Compared to Alternative #1, the Existing Buffer Impact Area is slightly smaller in Alternative #2 because some of the existing trail impacts in Alternative #1 are eliminated. The Alternative #2 and Alternative #3 scenarios both propose impacting the same 3665.18 sq. ft. buffer area polygon for expansion of the existing restaurant parking lot and the 1383.16 sq. ft. buffer impact from the required widening of Thorpe Road. Those two impacts are exactly the same as proposed in Alternative #3 and the impact area is included in the buffer averaging area.

In Alternative #2, a 3665.18 sq. ft. polygon on the west side of the creek, east of the existing restaurant parking lot, would be impacted (green hatched area in Figure #8). The 100-foot buffer width would be reduced to the 75-foot minimum width allowed by the City Code so the restaurant parking lot could be expanded. Alternative #2 also proposes a 1383.16 sq. ft. buffer impact (green hatched area in Figure #8) from the City required improvement (widening) of Thorpe Road. According to the buffer averaging provisions of the City Code, buffer impact areas must be replaced with an equal or larger buffer area that is contiguous with the existing buffer so there is no net loss of buffer area. The 3665.18 sq. ft. and 1383.16 sq. ft. buffer impact areas total 5048.34 sq. ft. and would be replaced with a 5096.06 sq. ft. replacement area on the opposite side of the creek as represented by the blue hatched polygon in Figure #8. The proposed 5048.34 sq. ft. buffer impact area would be mitigated with buffer averaging but also

with vegetative enhancement of the buffer replacement area. The proposed buffer averaging will result in a small net increase in buffer area and habitat quality. This proposed buffer impact and the proposed mitigation is exactly the same as in Alternative #3, but the proposed buffer replacement area is in a different location.

Compared to Alternative #3, the following additional 10,545.33 sq. ft. of buffer impacts are proposed in Alternative #2 on the right stream bank (N/E side of the creek). The additional impacts include three new trail segments and the extension of another trail segment. Some existing trail segments are eliminated in Alternative #2, and they offset part of the new trail impacts, but there will be a small net gain in trail impact area. The area of impact is included in the buffer replacement area proposed for impact mitigation.

Alternative #2 proposes using buffer width averaging to reduce the buffer width by 25% on two lots adjacent to the southmost bridge (Figure #8). This will result in a 5616.36 sq. ft. buffer impact that will be mitigated with buffer averaging. The Alternative #2 total combined buffer impact area is 15,593.67 sq. ft. Buffer Averaging is proposed for impact mitigation. The proposed Buffer Impact Replacement Area is 15,618.51 sq. ft. There will be no net loss of buffer area as a result of averaging. The Buffer Replacement Area is contiguous with the existing buffer. The mitigation area will be enhanced with the planting of trees and shrubs. The mitigation area is contiguous with the proposed 10+ acre Park/Wildlife Travel Corridor. Clusters of woody vegetative plantings will also be installed in this corridor to enhance wildlife habitat.

5.4: Summary of Alternative 1, 2, and 3 Buffer Impacts

The existing trail areas differ in all three alternatives because the trail segments that are both eliminated and added in Alternative #2 and Alternative #3 are different. The Thorpe Road improvement Area impacts are the same for Alternative 2 and 3. Buffer impacts from the proposed parking lot expansion area on the left (S/W) side of the creek are the same for Alternative 2 and 3. Buffer Averaging is proposed for mitigating those buffer impacts and the replacement areas have the same square footage in both Alternatives 2 and 3.

In both Alternatives #2 and #3, the 104,131.93+/- sq. ft. riparian buffer on the right stream bank (N/E side of the creek) will be filled with soil to a height of one foot above the Base Flood Elevation (see blue hatched area depicted in inset at top left corner of Figures 7 and 8). The buffer is currently planted in golf course turf grasses and is nearly devoid of woody vegetation. This temporary impact area will be mitigated by reseeding the area in native grasses and planting clusters of native woody vegetation. This will result in a significant improvement in buffer quality.

Alternative #2 proposes additional buffer impacts by reducing the 100-foot buffer width to 75 feet on two lots adjacent to the southmost bridge on the right stream bank (N/E side of the creek). That 5616.36 sq. ft. buffer impact is not proposed in Alternative #3 so the buffer replacement area is proportionally larger in Alternative #2. The buffer replacement area will be enhanced by planting native trees and shrubs. Alternative #2 also proposes a 10+ acre Park/Wildlife Habitat Travel Corridor across the southern project boundary that is not proposed in Alternative #3. The 10+ acre Park/Wildlife Habitat Travel Corridor (Figure 3) will be enhanced by the planting of native trees and shrubs.

5.5: Temporary Buffer Impact Mitigation

Any peripheral buffer areas that are inadvertently disturbed during construction will be planted with the specified native seed mix to prevent erosion. This work will be completed in

strict accordance with the IPEC Operation and Maintenance Manual and Best Management Practices.

5.6: Buffer impact Area from the Chester Creek Culvert Extension

Thorpe Road will be made wider along its north side to meet City standards that require an additional 6.5 feet of pavement, a 2-foot curb, and 6-foot sidewalk. This will result in 1383.16 sq. ft. of riparian buffer impact. The impact area includes a new box culvert under the new road construction. A crane will install the concrete box culvert that will be capped and paved over. The culvert will be an extension of the existing culvert and will not cover or change the existing substrate on the stream bottom. All in-channel and over-channel work will occur during the summer/fall dry season so no over-water or in-water work will be required. The area of impact is counted in the total project buffer impact area calculations, buffer averaging replacement area calculations, and vegetative plantings are prescribed for the impact area as part of the proposed buffer impact mitigation for the project.

6.0: Rationale for Adjustment (Reductions) of Riparian Habitat Buffer

The City of Spokane Valley Municipal Code, Section 21.40.034 states that "the habitat buffer width may be averaged (reduced in width near a development but widened elsewhere to retain the overall area of the habitat buffer) if all of the following conditions are met. Each proposed buffer impact and reduction is discussed in the following section in the context of the conditions set forth in the City Code.

1) The FWHCA has significant differences in characteristics that affect its habitat functions, such as a native forested component adjacent to a degraded herbaceous component.

Alternative #2 Buffer Impacts from Two Lots

A proposed 25% buffer reduction resulting in 5616.36 sq. ft. of buffer impact is proposed on the right stream bank (N/E side of the creek). The proposed impact is in close proximity to the southmost bridge across Chester Creek. The proposed buffer impact area is planted in non-native golf course turf grasses. The turf grass was maintained by treatment with herbicides and regular mowing. The proposed impact area has no trees and only one shrub.

The 5616.36 sq. ft. area of proposed buffer impact experienced the highest intensity human activity on the property during the years of golf course operation. Foot and golf cart traffic from the club house was directed by cart paths over two bridges to the fairways, driving range, and practice areas across the creek where the buffer impact from two lots is proposed. In the Alternative #2 and #3 site plans, the existing bridges will be utilized and the golf cart paths will be extended east to connect the housing development on the east side of the creek to the bar and restaurant located in the former golf course clubhouse on the west side of the creek.

Due to the existing trails and bridges, the Alternative #2 proposed area of buffer width reduction from two lots will continue to experience the highest intensity human activity on the property. This part of the buffer experienced the highest degree of historical degradation and will continue to experience the greatest intensity of human activity and foot traffic on the existing trails and bridges. The proposed impact area occurs in an existing highly disturbed area that would benefit the least from protection because this area did not function as buffer historically and from a habitat perspective will not in the future due to the intensity of human traffic funneled through this corridor. Mitigation for the proposed buffer impact is proposed

where it will have the greatest benefit for wildlife and greatest habitat function.

If development is approved under Alternatives #2 or #3, then the buffer impact from Thorpe Road improvements is an unavoidable impact. The impact area immediately adjacent to the road provides the least habitat function on the property. The buffer replacement area will part of the best habitat on the property.

If development is approved under Alternatives #2 or #3, then the buffer impact from expanding the existing parking lot on the left (west) side of the creek is the same for both alternatives. The impact area is immediately adjacent to an existing parking lot and building. The historically disturbed, high human traffic area has only herbaceous vegetation with no trees or shrubs to provide wildlife cover or habitat. The area where the buffer reduction is proposed will be enhanced with native trees and shrubs as will the buffer replacement area. The buffer reduction is proposed in a degraded herbaceous habitat component. The buffer will be replaced adjacent to the proposed 10+ acre wildlife corridor that will be enhanced with clusters of native trees and shrubs.

2) The buffer is increased adjacent to the higher functioning area of habitat or more sensitive portion of the FWHCA and decreased adjacent to the lower functioning or less sensitive portion.

The area where a 25% buffer reduction is proposed for two lots is the most disturbed buffer area on the site and the area where intense human activity will occur due to the existing trails and bridges that link the development on the east side of the creek to the commercial area on the west side of the creek. The trails and bridges create a corridor that runs perpendicular to the creek. The corridor passes through the entire buffer on both sides of the creek and funnels all human activity through that corridor. This area of concentrated activity is the lowest functioning part of the buffer on the property. This corridor for human traffic did not historically function as a buffer and will not in the future under either Alternative #2 or #3 development scenarios.

North of the area proposed for buffer reduction is a large area of open space on the right stream bank (N/E side of the creek) that extends out away from the buffer and effectively widens the buffer in that area. This area will have a much lower level of human activity compared to the trail and bridge corridor. This is a higher functioning area of buffer compared to the proposed buffer reduction area.

The buffer addition area is located south of the buffer impact area and expands the buffer eastward to connect with the designated wildlife travel corridor where human activity will be reduced to a minimum. The buffer replacement area will be planted with native grasses and clusters of native trees and shrubs. The intent is to make the buffer wider where there is least human activity and provide the most benefit for wildlife. Habitat functions are lowest where the reduction is proposed and highest where the buffer replacement will occur in a proposed wildlife travel corridor where dense vegetative plantings will be installed to enhance the existing woody vegetation and wildlife habitat. The buffer width increase will occur in the higher functioning area of habitat as suggested by the City Code and decrease adjacent to the least sensitive buffer. The Park/Wildlife Travel Corridor covers the entire southern border of the property, is over 350 feet wide, and has an area of over 10 acres.

Variations in sensitivity are created by the existing physical characteristics (bridges and trails), historical land uses (vegetation removal and intense human activity), and the continued concentration of human activity on trails and bridges through that narrow corridor across the stream and buffer on both sides. That corridor has the least habitat function because it has the

least wildlife activity. The proposed buffer impact will occur in the least sensitive area from the perspective of wildlife presence, use, and function. Buffer enhancement will occur where there is the least human activity and the greatest benefit from the perspective of wildlife presence, use, and function. The total area contained within the buffer after averaging is greater than that contained within the standard buffer prior to averaging.

3) The total area of the buffer, after averaging, is equal or greater than the area required without averaging.

The buffer averaging proposed in Alternatives #2 and #3 result in a small increase in buffer area. Alternative #3 proposes a total buffer impact area of 5048.34 sq. ft. (0.116 acres). Alternative #3 proposes a total buffer impact replacement area of 5096.06 sq. ft.(0.117 acres). Alternative #2 proposes a total buffer impact area of 15,593.67 sq. ft. (0.358 acres). Alternative #2 proposes a total buffer impact replacement area of 15,618.51 sq. ft. (0.359 acres). No net loss of buffer will occur from Alternative #2 or Alternative #3.

4) The buffer at its narrowest point is never less than 75 percent of the original habitat buffer width.

Alternatives #2 and #3 propose buffer averaging. In each instance, the buffer will be reduced from 100 feet to 75 feet, so the buffer is not reduced to less than 75% of the original habitat buffer at any location.

Mitigation Rationale Summary

The continued use of the two bridges and trails crossing the stream and buffer has the effect of funneling, controlling, and limiting human access to this narrow corridor or choke point. Buffer reduction for two lots is proposed immediately adjacent to the high intensity human use corridor in the buffer. Three separate buffer impacts will occur from trails. Two of the impacts will result when the existing trails are extended from the bridges into the development and connected to a proposed trail in the 10+ acre wildlife travel corridor.

The proposed buffer mitigation provides adequate compensation for the proposed impacts as defined by the City Code. The areas of proposed buffer reduction will be enhanced by the planting of native tree and shrub patches. The remaining riparian buffer will also be enhanced by planting patches of native woody vegetation on both sides of the stream. The buffer replacement area will be enhanced by the planting of native tree and shrub patches. The buffer replacement area will be contiguous with the Wildlife Travel Corridor where additional tree and shrub plantings are proposed.

Alternative #2 is the preferred alternative because it provides the 10+ acre Park/Wildlife Travel Corridor not included in Alternative #3. The proposed vegetative enhancement of the remaining buffer areas, replacement buffer areas, and wildlife travel corridor provides generous mitigation to offset the impacts. The proposed vegetative enhancement represents a significant improvement compared to the existing condition and historical land uses of the last several decades.

Mitigation Sequencing

Several development plans have been scrutinized over the last three years by the City of Spokane Valley and various firms employed to certify the levee on the right (east) bank of Chester Creek. Numerous changes have been implemented to the stormwater and flood control

plans for the site in order to arrive at the preferred final site plan. The levee certification involved earthwork on the levee, removal of all vegetation in the stream channel, and other options required for development approval. Those plans were all abandoned in favor of the three development alternatives analyzed in this report. In the end, Alternative #2 was favored by the City and the developer. While the preferred alternative results in more buffer impact than the other two alternatives, it was determined that the buffer enhancements and vegetative plantings proposed to improve habitat, the advantages of a Planned Residential Development, and the creation of a 10+ acre Park/Wildlife Travel Corridor far outweighed the benefits of the other two alternatives. The preferred alternative was determined to avoid the most impacts, minimize impacts to the stream channel, and provide the most benefits.

7.0 Impact Mitigation Strategy

7.1: Noxious weed control

The dominant invasive species that were identified on the site include tumble mustard and knapweed. These species are known for their ability to propagate and spread rapidly with catastrophic impacts on native species. As required by Washington State Noxious Weed Control law, RCW 17.10, and the Spokane County Noxious Weed Board, invasive species will be managed through control measures that do not adversely impact native vegetation. Funds will be allocated for noxious weed monitoring and herbicide control as part of the proposed mitigation for this project. Black Realty or their designated Homeowners Association shall contract their preferred weed control specialist to monitor the site and provide weed control in the mitigation areas at appropriate intervals throughout the growing season to prevent seed set.

7.2: Revegetation with Woody Plants

In addition to noxious weed control, mitigation for buffer impacts will include the planting of native trees and shrubs. The buffer will be re-vegetated with native plants including species from the tree, shrub, and grass vegetative strata. The replication of natural spatial relationships, structural complexity, vertical stratification, and microhabitat diversity will be stressed in the planting design to achieve a mosaic of open areas and dense tree/shrub clusters. Vegetation will not be planted in a uniform manner. Shrubs will be planted in grouped patches and interspersed with other shrub species and height classes. Patch size will be variable with curving edges. The incorporation of these elements will increase landscape diversity and promote habitat elements that are often scarce or absent at sites that have been disturbed. Native species and endemic plant materials will be selected for site revegetation to help maintain ecotypes that are adapted to local climatic and soil conditions and preserve local genotypes.

7.3: Rationale

Structural complexity refers to the arrangement and degree of interspersion of plant community types throughout the system. Complex structural patterns (such as variable patch size, curving edges, and high degree of interspersion between species) increase the value of a system for wildlife. Good wildlife habitat consists of open areas interspersed with clusters of vegetation, several horizontal layers, and a variable structural pattern. **Vertical stratification** describes a community with good structural diversity and several horizontal layers (logs, woody debris, forbs, shrubs, and trees). Woody debris provides travel routes, perch sites, cover, and thermal refuge for a variety of small mammals and ground nesting birds. **Microhabitat diversity** refers to variety in microhabitat types. Examples of microhabitat types include

herbaceous cover and shrubs that provide food, habitat, and substrate for a variety of animals.

7.4: Objectives for the Restored Riparian Buffer

Restoration will be achieved by planting native trees, shrubs and grasses primarily to provide food and cover for wildlife. The Vegetation Plan will incorporate as many design features as possible for each function in order to increase the value for that function.

Objective a: Re-establish species diversity and structural diversity in the buffer by replanting native tree and shrub species from each vegetative class.

Objective b: Re-establish vegetative species and structural diversity to re-establish bird and mammal habitat values in the enhanced buffer areas.

Objective c: Re-establish vegetative density in the riparian buffer area.

8.0: Mitigation Planting Plan

Woody plant materials will be installed at the industry standard density of 360 stems per acre. The buffer replacement area is 15,618.51 (0.359 acres) X 360 stems/acre = 130 containers. The Buffer Replacement Area shall have 130 containers planted within that polygon. An additional 100 containers will be distributed throughout the east and west sides of the creek in the buffer reduction areas (Zone 1 and Zone 2, Figure 9). An additional 200 containers shall be planted in patches of 20 containers throughout the designated wildlife travel corridor. An additional 200 containers shall be planted in patches of 20 containers throughout the buffer on the right stream bank (N/E side of the creek) where fill material will create a temporary 104,131.93+/- sq. ft. (2.39 acres) buffer impact. The 2.39-acre area of temporary impact will also be seeded with the prescribed native upland grass seed mix.

Clusters of vegetation will be planted according to the guidelines prescribed above. The specified number of containers will be planted within each zone as shown in Figure 9.

| Area Mitigated | Number of Plants | Zone |
|------------------------------------|-------------------------|-------------|
| buffer reduction areas | 100 | 1 |
| right stream bank fill impact area | 250 | 1 |
| buffer replacement Area | 130 | 2 |
| wildlife travel corridor | 150 | 3 |
| total | 630 | |

Zone 1: Riparian Buffer on East and West Sides of Chester Creek

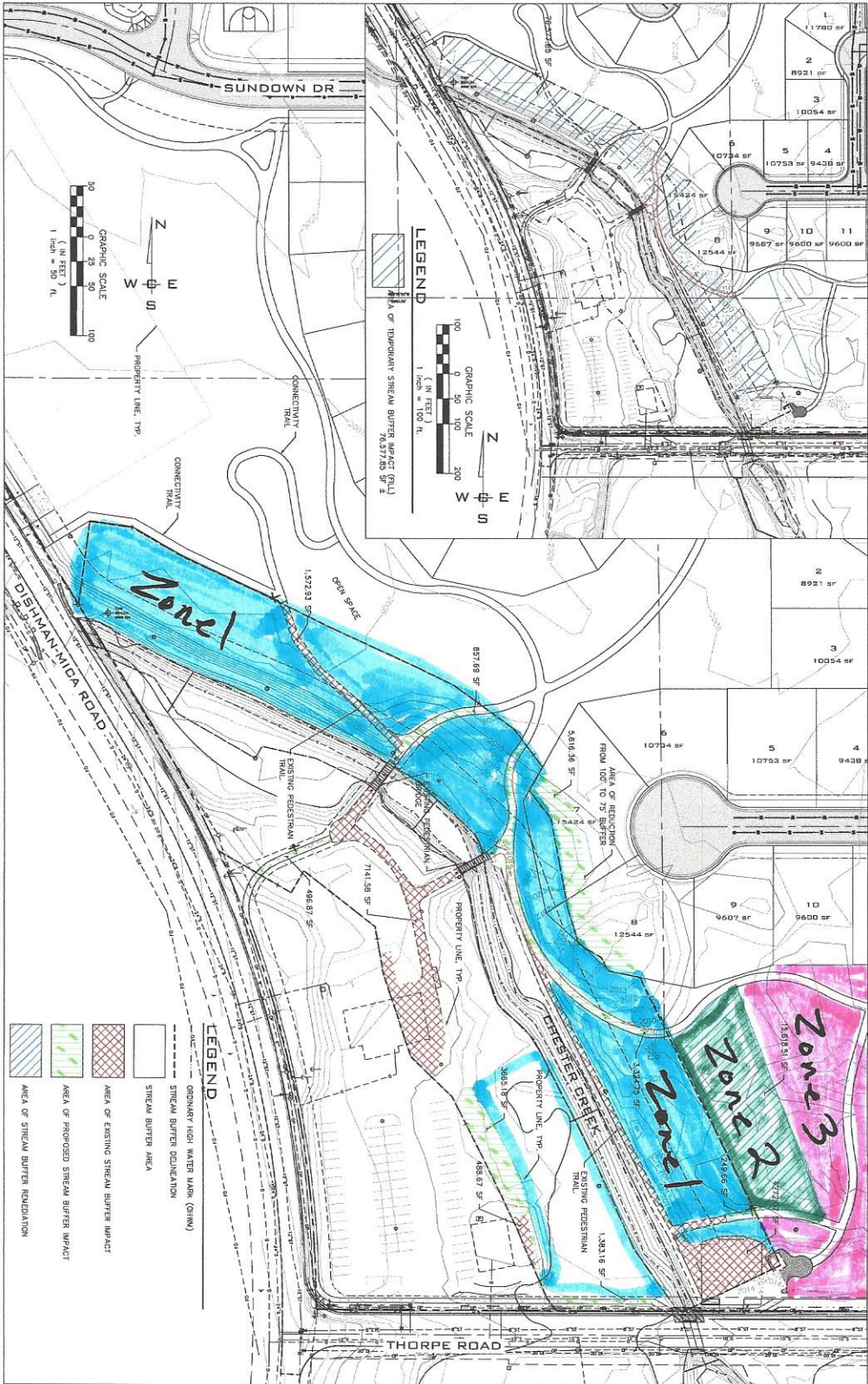
A total of 350 containers planted in existing buffer areas

| | <u>Common Name</u> | <u>Scientific Name</u> | <u># Planted</u> |
|--------------|------------------------|-------------------------------------|------------------|
| Trees | Ponderosa pine | <i>Pinus ponderosa</i> | 20 |
| Large shrubs | serviceberry | <i>Amelanchier alnifolia</i> | 20 |
| | Rocky mountain juniper | <i>Juniperous scopulorum</i> | 30 |
| | mock orange | <i>Philadelphus lewisii</i> | 80 |
| Small shrubs | Wood's rose | <i>Rosa woodsii</i> | 60 |
| | common snowberry | <i>Symphoricarpos albus</i> | 60 |
| | Phlox sp. | <i>Phlox speciosa or longifolia</i> | 80 |
| Total | | | 350 |

Figure 9

CHESTER CREEK DELINEATION, IMPACT AND REMEDIATION

SE1/4 SEC.33 T.25N. R.44E. W.M.
SW1/4 SEC.32 T.25N. R.44E. W.M.
NE1/4 SEC.4 T.24N. R.44E. W.M.



DATUM: NAVD - 88
THIS IS OF THE SOUTH FORK SPOKANE RIVER PROJECT
WITH AN ELEVATION OF 2002.81 MARCH 2007 - 2008
MAY 2009 AND USED FOR THE SERVICE PLAN OF 08/15/11

| | | | |
|-----|----------|-----|----------------------|
| NO. | DATE | BY | REVISION |
| 1 | 08/15/11 | JPM | ORIGINAL PREPARATION |
| 2 | 08/14/18 | BNG | REVIEWED PLANS |

| | | | |
|-------------|----------|----------|----------|
| SCALE: | PROJ. #: | DATE: | DATE: |
| HORIZONTAL: | 13-1166 | 08/14/18 | 08/14/18 |
| VERTICAL: | N/A | BNG | BNG |



SPokane Valley Painted Hills PRD
PROP. STREAM BUFFER EXHIBIT (ALT 2)
DISHMAN-NICA RD.
SPokane Valley, WA

| | |
|------------------------|------------|
| NOT APPROVED BY AGENCY | PLANS |
| 13-1166 | 2 OF 3 |
| 13-1166 | JOB NUMBER |

Zone 1
Zone 2
Zone 3



LEGEND

- GROUND HIGH WATER MARK (GHWM)
- STREAM BUFFER DELINEATION
- STREAM BUFFER AREA
- AREA OF EXISTING STREAM BUFFER IMPACT
- AREA OF PROPOSED STREAM BUFFER IMPACT
- AREA OF STREAM BUFFER REMEDIATION

REMEDICATION
REMEDICATION: 15,618.51 SF ±

TOTAL IMPACTS:
31,242.96 SF ±

PROPOSED IMPACTS:
857.69 SF ±
5616.36 SF ±
3,324.73 SF ±
468.89 SF ±
3,669.18 SF ±
1,138,316 SF ±
15,931.67 SF ±

EXISTING IMPACTS:
1,572.93 SF ±
4,177.04 SF ±
7,141.58 SF ±
4,488.67 SF ±
15,649.29 SF ±

AREAS
NE STREAM BUFFER 98,803.32 SF ±
NE STREAM BUFFER REM. 1,5,618.51 SF ±
SW STREAM BUFFER 76,329.96 SF ±
TOTAL - 192,751.79 SF ±



Zone 2 - Buffer Replacement Area on East Side of Chester Creek

130 plants in patches

| | <u>Common Name</u> | <u>Scientific Name</u> | <u># Planted</u> |
|--------------|------------------------|-------------------------------------|------------------|
| Trees | Ponderosa pine | <i>Pinus ponderosa</i> | 5 |
| Large shrubs | serviceberry | <i>Amelanchier alnifolia</i> | 10 |
| | Rocky mountain juniper | <i>Juniperous scopulorum</i> | 10 |
| | chokecherry | <i>Prunus virginiana</i> | 10 |
| | mock orange | <i>Philadelphus lewisii</i> | 30 |
| Small shrubs | Wood's rose | <i>Rosa woodsii</i> | 20 |
| | common snowberry | <i>Symphoricarpos albus</i> | 25 |
| | Phlox sp. | <i>Phlox speciosa or longifolia</i> | 20 |
| Total | | | 130 |

Zone 3 - Wildlife Travel Corridor on East Side of Chester Creek

150 plants in patches

| | <u>Common Name</u> | <u>Scientific Name</u> | <u># Planted</u> |
|--------------|--------------------|------------------------------|------------------|
| Trees | Ponderosa pine | <i>Pinus ponderosa</i> | 20 |
| Large shrubs | serviceberry | <i>Amelanchier alnifolia</i> | 20 |
| | chokecherry | <i>Prunus virginiana</i> | 10 |
| | mock orange | <i>Philadelphus lewisii</i> | 40 |
| Small shrubs | Wood's rose | <i>Rosa woodsii</i> | 30 |
| | common snowberry | <i>Symphoricarpos albus</i> | 30 |
| Total | | | 150 |

The minimum container size shall be one half gallon. Vegetation shall be planted at the landscapers discretion according to conditions on the ground and the location of existing vegetation. Plantings shall be interspersed around existing vegetation, and where possible, in patches of 15-25 plants of mixed size and species as indicated in the plan. Shrubs shall be planted in the approximate prescribed quantities depending on plant availability. Large shrubs should be planted in clusters on 10-foot centers. Small upland shrubs should be clustered on 3-6 foot centers around large shrubs.

Depending on availability, the mixture of grass species listed below should be drill seeded or hydroseeded at a density of 22 pounds PLS per acre in all disturbed areas. Grasses should be planted during the growing season when precipitation and temperature levels will insure germination and survival. Grasses should be planted early in the fall so that the crop is well established by October 15. If germination, growth, and root development are substantial before the end of the growing season, some degree of erosion control will be provided during the winter and spring months that follow. **It may be necessary to irrigate the soil surface to keep it in a moist condition for the first two weeks after seeding. Irrigation should supplement rainfall as required to achieve a total from combined sources of 2 inches per week and no more than 0.25 inches per hour.** Seed can also be installed to lie dormant over the winter and germinate in the spring.

| Grasses | | Bunch | |
|--------------------------|---------------------------------|---------------|----------------------|
| <u>Common Name</u> | <u>Scientific Name</u> | <u>or Sod</u> | <u>PLS (lb/acre)</u> |
| bluebunch wheatgrass | <i>Agropyron spicatum</i> | B | 8.0 |
| Idaho fescue | <i>Festuca idahoensis</i> | B | 6.0 |
| <u>prairie junegrass</u> | <u><i>Koeleria cristata</i></u> | B | 8.0 |
| Total | | | 22.0 |

A list of suppliers who will prepare the prescribed grass seed mixtures and supply nursery stock specified in the vegetation plan follows.

Grass seed: Grassland West 1-800-582-2070
 PO Box 489
 908 Port Drive
 Clarkston, WA 99403

| | | |
|------------------|---|--|
| Trees, & Shrubs: | Plants of the Wild PO Box 866 Tekoa, WA 99033 509-284-2848 | Wildlife Habitat Institute 1025 East Hatter Creek Road Princeton, ID 83857 208-875-8704 |
|------------------|---|--|

8.1: Ponderosa Pine Planting

ALWAYS plant after December 15 and before March 31. Plant ONLY conservation grade seedlings 20-24 feet from fast growing deciduous trees. Plant seedlings on **30 foot centers** with no shrubs inter-planted close to the trees to prevent shading and competition that greatly reduces survival. A mulch of Ponderosa pine needles applied in a 3-6 foot radius around the tree trunk at planting will greatly reduce competition and increase tree survival.

Ponderosa pine out-planting survival following *Rhizopogon rubescens* inoculation is 2-3 times higher compared to non-inoculated. Numerous studies have shown that ectomycorrhizal fungi can profoundly affect conifer performance by facilitating nutrient and water uptake, maintaining soil structure, and protecting roots from pathogens and environmental extremes. A specific ectomycorrhizal fungus, *Rhizopogon rubescens*, inoculated onto the root systems of Ponderosa pine seedlings greatly increase survival. Irrigation options are being explored at this mitigation site, but the landscaper should buy plants that have been inoculated or dust the planting holes with this fungi if it is available.

8.2: Additional Planting Guidelines

Depending on availability, the mixture of grass species listed above should be seeded at a density of 22 pounds PLS per acre. Grasses should be planted during the growing season when precipitation and temperature levels will insure germination and survival. Grasses should be planted in early April so that the crop is well established before dry weather, in the fall so that the crop is well established before October 15, or dormant seeded late in the fall so the seed will not germinate until spring. Site preparation and planting should occur in the fall and winter.

Seeding rates of live, germinable seed or Live Pure Seed (LPS) are a product of seed lot purity and germination percentage. LPS calculations are based on the number of seeds per pound and the number of seeds per square foot at one pound per acre. A nursery will prepare a custom seed mix with the prescribed LPS for each species.

Trees and shrubs should be planted after the end of the growing season when the plants are dormant. The best time to plant is late winter when sub-zero temperatures are over but plants are still dormant. Plants may be planted any time during the growing season when the daytime high temperatures are 70F or cooler if irrigation is available from the time of planting through the rest of the growing season. **Each tree or shrub planted should be clearly identified with an easy to identify tag that identifies the species.** Without such identification it is impossible for the monitoring biologist to tell which plants are enhancement plantings and which are native to the site.

8.3: Additional Fish and Wildlife Habitat Mitigation Requirements

Area irrigation heads should be installed where native grasses are planted to insure germination and survival in the buffer enhancement areas. Drip irrigation should be installed for woody plantings where there is no coverage by area sprinkler heads. Irrigation shall continue until the plants are well established as determined by the project biologist.

Mitigation plantings should be installed no later than the next growing season after completion of the buffer impacts, unless otherwise approved by the City Manager or designee. The timing may also depend on the installation of utilities and water supply for irrigation and will proceed as soon as those amenities are available. Regardless of which year construction begins, it is known that the first construction phase will include the stormwater plan and fill on the east side of the stream. **The irrigation should be installed at the same time as the plantings.** BSW will monitor site impacts and mitigation work to insure the work is completed as specified in this plan. The five year monitoring requirement for each phase will be implemented as described below.

Mitigation areas shall be maintained to insure the mitigation and management plan objectives are successful. Maintenance shall include corrective actions to rectify problems, including rigorous, as-needed elimination of undesirable plants; protection of trees and shrubs from herbivory and competition by grasses and herbaceous plants; and repair and replacement of any dead woody plants.

People may drive, park and passively enjoy recreation in the area so the enhancement areas must be protected from human traffic after planting. Signs should be posted every 100 feet to explain the sensitivity of the newly planted areas and discourage foot traffic in newly seeded areas. Permanent signs with Riparian Buffer Area, Natural Area Do Not Disturb, or similar language should be posted around the protected areas.

8.4: Willow Monitoring and Maintenance of the Chester Creek Channel

Honey willows were planted in the channel about thirty years ago. All subsequent channel maintenance and dredging has avoided the willows that have now grown quite large. Honey willows are prone to dropping very large branches that catch additional debris and create channel obstructions, as will the trees themselves when they die and fall into the channel. The channel must be monitored regularly so potential obstructions may be identified and removed to eliminate potential problems as is required by the Inland Pacific Engineering Company (IPEC) Operation and Maintenance Manual.

If channel obstruction, erosion, or maintenance is required, Best Management Practices and spill control protocols will be strictly adhered to and peripheral impacts will be held to a minimum. The channel may be dry, but the equipment operators must respect the sensitivity of

the area, install construction fences to identify minimized work areas, and take all prudent measures to minimize impact in the buffer. All temporary impact areas will be restored at the earliest possible moment to prevent soil erosion. The replacement woody vegetation plantings cannot be placed in or within 15 feet of the stream channel all replacement planting will occur in the riparian buffer and wildlife travel corridor as detailed later in this report.

8.5: Timeline for Construction

Construction will begin as soon as permitted in 2019/2020 and continue in phases over the next few years.

8.6: ESA Compliance

The purpose of this report is to confirm that the project is in compliance with Sections 9 and 10 of the Endangered Species Act. The proposed project will have no effect on any listed species. Mitigation actions are enhancement of the existing facility and the proposed changes will have no effect on any listed habitat or species.

9.0 THE MONITORING PLAN

All monitoring plans require that a mitigation site be monitored annually to determine whether the goals and performance standards have been met. Monitoring typically lasts for 5 years or until the City of Spokane Valley is satisfied that the conditions of the mitigation plan have been met. The site should be monitored in the spring to evaluate the success of weed control from the previous year and prescribe weed control for the current year. The monitoring will also evaluate plant survival to insure that performance standards for percent ground cover of native vegetation are met. Planting of the original grass seed mixture will be repeated to fill in problem areas if they occur.

The City of Spokane Valley will be notified immediately after diagnosis of failing functions, hydrologic systems, or biological vitality and integrity of the plantings as determined through annual monitoring. The herbaceous vegetation will be managed to insure 80% areal cover with native grasses after five years (year 1=20%, year 2=30%, year 3=50%, year 4=70%, year 5=80%). Tree and shrub stock will be monitored to insure 100% survival after the first year and 80% for each subsequent year. Reinforcement plantings will be performed annually as necessary to insure performance standards are met at the end of five years.

If the final monitoring report clearly demonstrates that the site has achieved all of the goals and objectives set forth in this Habitat Management Plan, then the applicant shall be released from additional mitigation and reporting obligations. However, if performance objectives are not met at the end of five years, additional measures shall be implemented as required until the mitigation objectives are met.

10.0 Cost of Implementing Mitigation and Surety

The cost of purchasing and installing vegetation, weed control, replacement plantings, site monitoring, and reporting for 5 years is estimated below.

| | |
|---|---------------------|
| 630 stems @ \$28/stem = | \$17,640.00 |
| 2 acres X 22/lbs per acre = 44lbs. X \$80/lb = | \$3,500.00 |
| hydroseeding @ \$3000 per acre X 2 acres = | \$6,000.00 |
| Annual weed control @ \$10000/yr = | \$50,000.00 |
| Year 1 monitoring + as-built report | \$3,000.00 |
| 5 years monitoring @ \$800/year = | \$4,000.00 |
| 5 years monitoring reports @ \$1000/yr | \$5,000.00 |
| 630 stems X 15% annual mortality replacement | |
| <u>= 95 stems/yr X \$28/stem = \$2,660.00 X 5 yrs =</u> | <u>\$13,300.00</u> |
| Total cost for 5 years | \$102,440.00 |

10.0 LIMITATIONS

Within the limitations of scope, schedule, and budget, BSW services have been executed in accordance with best available science and generally accepted professional practices for the conditions at the time the work was performed. This report is not intended to represent a legal opinion. Specifically, there is no positive or negative recommendation towards the purchase, sale, lease, or construction on the subject property. No warrant, expressed or implied, is made.

 3-8-2019

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Spokane Valley, WA 99212-1529
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Email: bswinc@icehouse.net

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Appendix 1

U.S. Fish & Wildlife Service

SPOKANE COUNTY

Updated 8/29/2015

LISTED

Threatened

Salvelinus confluentus (Bull trout) – Columbia River distinct population segment
Howellia aquatilis (Water howellia), plant
Silene spaldingii (Spalding's silene), plant
Spiranthes diluvialis (Ute ladies'-tresses), plant
Lynx canadensis (Canada lynx)
Coccyzus americanus (Yellow-billed cuckoo)

SPECIES OF CONCERN

Bald eagle (*Haliaeetus leucocephalus*) (delisted, monitor status)
Burrowing owl (*Athene cunicularia*)
California floater (*Anodonta californiensis*), mussel
Ferruginous hawk (*Buteo regalis*)
Giant Columbia spire snail (*Fluminicola columbiana*)
Loggerhead shrike (*Lanius ludovicianus*)
Long-eared myotis (*Myotis evotis*)
Northern goshawk (*Accipiter gentilis*)
Olive-sided flycatcher (*Contopus cooperi*)
Pallid Townsend's big-eared bat (*Corynorhinus townsendii pallescens*)
Peregrine falcon (*Falco peregrinus*) (Delisted, monitor status)
Redband trout (*Oncorhynchus mykiss*)
Sagebrush lizard (*Sceloporus graciosus*)
Westslope cutthroat trout (*Oncorhynchus clarki lewisi*)

Vascular Plants

Haplopappus liatrifomis (Palouse goldenweed)



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Washington Fish And Wildlife Office
510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263
Phone: (360) 753-9440 Fax: (360) 753-9405
<http://www.fws.gov/wafwo/>

In Reply Refer To:

January 29, 2019

Consultation Code: 01EWF00-2019-SLI-0368

Event Code: 01EWF00-2019-E-00756

Project Name: Painted Hills PRD

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated and proposed critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. The species list is currently compiled at the county level. Additional information is available from the Washington Department of Fish and Wildlife, Priority Habitats and Species website: <http://wdfw.wa.gov/mapping/phs/> or at our office website: http://www.fws.gov/wafwo/species_new.html. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether or not the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species, and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). You may visit our website at <http://www.fws.gov/pacific/eagle/for> information on disturbance or take of the species and information on how to get a permit and what current guidelines and regulations are. Some projects affecting these species may require development of an eagle conservation plan: (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Also be aware that all marine mammals are protected under the Marine Mammal Protection Act (MMPA). The MMPA prohibits, with certain exceptions, the "take" of marine mammals in U.S. waters and by U.S. citizens on the high seas. The importation of marine mammals and marine mammal products into the U.S. is also prohibited. More information can be found on the MMPA website: <http://www.nmfs.noaa.gov/pr/laws/mmpa/>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Related website:

National Marine Fisheries Service: http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Washington Fish And Wildlife Office

510 Desmond Drive Se, Suite 102

Lacey, WA 98503-1263

(360) 753-9440

Project Summary

Consultation Code: 01EWF00-2019-SLI-0368

Event Code: 01EWF00-2019-E-00756

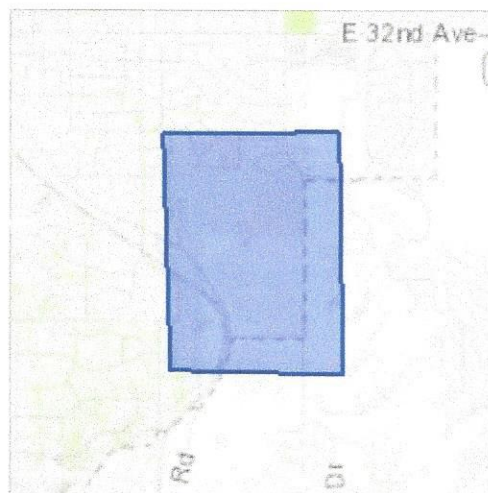
Project Name: Painted Hills PRD

Project Type: DEVELOPMENT

Project Description: The developer proposes constructing a 580 unit planned residential development. The project was planned for construction two years ago, and will be built as soon as permitted in 2019-2020.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/47.616722714208315N117.2421334615195W>



Counties: Spokane, WA

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

| NAME | STATUS |
|---|------------|
| Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is proposed critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911 | Threatened |

Fishes

| NAME | STATUS |
|--|------------|
| Bull Trout <i>Salvelinus confluentus</i> Population: U.S.A., conterminous, lower 48 states There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8212 | Threatened |

Flowering Plants

| NAME | STATUS |
|--|------------|
| Spalding's Catchfly <i>Silene spaldingii</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3681 | Threatened |
| Water Howellia <i>Howellia aquatilis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7090 | Threatened |

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

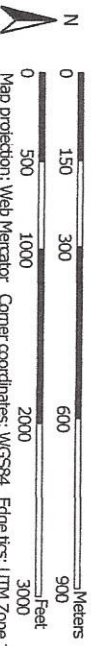
Appendix 2

Critical Areas Maps

Soil Map—Spokane County, Washington



Map Scale: 1:12,700 if printed on A landscape (11" x 8.5") sheet.















Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

USDA
Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

| | | | |
|---|------------------------|---|-----------------------|
|  | Area of Interest (AOI) |  | Spot Area |
|  | Area of Interest (AOI) |  | Stony Spot |
|  | Soil Map Unit Polygons |  | Very Stony Spot |
|  | Soil Map Unit Lines |  | Wet Spot |
|  | Soil Map Unit Points |  | Other |
|  | Special Point Features |  | Special Line Features |
|  | Blowout |  | Water Features |
|  | Borrow Pit |  | Streams and Canals |
|  | Clay Spot |  | Transportation |
|  | Closed Depression |  | +++ |
|  | Gravel Pit |  | Rails |
|  | Gravelly Spot |  | Interstate Highways |
|  | Landfill |  | US Routes |
|  | Lava Flow |  | Major Roads |
|  | Marsh or swamp |  | Local Roads |
|  | Mine or Quarry |  | Background |
|  | Miscellaneous Water |  | Aerial Photography |
|  | Perennial Water | | |
|  | Rock Outcrop | | |
|  | Saline Spot | | |
|  | Sandy Spot | | |
|  | Severely Eroded Spot | | |
|  | Sinkhole | | |
|  | Slide or Slip | | |
|  | Sodic Spot | | |

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000. Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Spokane County, Washington
 Survey Area Data: Version 5, Sep 4, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 4, 2011—Jul 5, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

| Spokane County, Washington (WA063) | | | |
|------------------------------------|--|--------------|----------------|
| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
| 1040 | Hardesty ashy silt loam, 0 to 3 percent slopes | 14.4 | 2.3% |
| 1080 | Narcisse silt loam, 0 to 3 percent slopes | 108.4 | 17.7% |
| 1200 | Endoaquolls and Fluvaquents, 0 to 3 percent slopes | 61.9 | 10.1% |
| 3022 | Bong ashy sandy loam, moist, 0 to 8 percent slopes | 14.3 | 2.3% |
| 3054 | Clayton ashy fine sandy loam, 0 to 8 percent slopes | 7.2 | 1.2% |
| 3130 | Phoebe ashy sandy loam, 0 to 3 percent slopes | 29.2 | 4.8% |
| 5040 | Spokane-Swakane complex, 3 to 15 percent slopes | 7.9 | 1.3% |
| 5041 | Spokane-Swakane complex, 15 to 30 percent slopes | 43.1 | 7.0% |
| 5073 | Lenz-Rock outcrop complex, 15 to 30 percent slopes | 37.6 | 6.1% |
| 7101 | Pits-Dumps complex | 12.0 | 2.0% |
| 7110 | Urban land-Opportunity, disturbed complex, 0 to 3 percent slopes | 11.4 | 1.9% |
| 7122 | Urban land-Marble, disturbed complex, 8 to 15 percent slopes | 0.1 | 0.0% |
| 7170 | Urban land-Springdale, disturbed complex, 0 to 3 percent slopes | 153.0 | 24.9% |
| 7181 | Urban land-Phoebe, disturbed complex, 3 to 8 percent slopes | 112.9 | 18.4% |
| Totals for Area of Interest | | 613.5 | 100.0% |



U.S. Fish and Wildlife Service

National Wetlands Inventory

May 14, 2015



This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

POWERED BY
esri

Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

User Remarks:

No wetland hydrology at either location. NOT a wetland.

