

Habitat Management Plan
for the
Volkman PUD Subdivision
located in
Section 16, T26N, R42E and Section 21, T26N, R42E
Spokane County, WA
March 7, 2026



Biology
Soil &
Water, Inc.

Habitat Management Plan

for the

Volkman PUD Subdivision

located in

Section 16, T26N, R42E and Section 21, T26N, R42E
Tax parcels 26163.0017, 26164.0018, 26211.0101, 26211.0211,
26214.0051, 26164.0031 26164.0046, 26211.0054, 26211.0201,
26211.0057, 26214.0058, and 26214.0053

Spokane County, WA

March 7, 2026

Retained by

Whipple Consulting Engineers

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Investigated by

Biology Soil & Water, Inc.

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HABITAT MANAGEMENT PLAN

for the

Volkman PUD Subdivision

1.0: Introduction

Biology Soil & Water, Inc. (BSW) was retained to assess potential Critical Areas impacts from the Volkman PUD Subdivision Project. The site is in Spokane County, WA on the east side of SR291, also referred to as N. Nine Mile Road (Figures 1-3). The address is 9702 N Nine Mile Road, but the property is over one mile long from north to south. The northern part is across the road from the former Sundance Golf Course property in Sec. 16, T26N, R42E and the southern part is in Sec 21, T26N, R42E. The project area includes Tax Parcels 26163.0017, 26164.0018, 26211.0101, 26211.0211, 26214.0051, 26164.0031, 26164.0046, 26211.0054, 26211.0201, 26211.0057, 26214.0058, and 26214.0053.

The 136.52 acre property is Zoned R1 with a net project area of 97.78 acres and 38.73 acres of slopes greater than thirty percent (Figure 4). The proposed density is 5 units per acre with 706 units on 406 total lots. The mixed uses consist of 31 standard lots, 22 duplexes, 114 townhouses, 28 cottages, 120 auto court, 37 compact lots, and 54 multi-family units. The project will be developed in phases with site work beginning in 2026.

BSW investigated Critical Areas, habitats, and species at the site on December 11-14, 2025. The Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) maps depict the potential occurrence of Shrubsteppe habitat and two listed State Candidate Species, the Townsends Big-eared Bat and Yuma myotis (figure 5). In December 2025, the DNR Water Type Map depicted six Type U stream segments, one Type N segment and one Type F segment on the Volkman property (Figure 6).

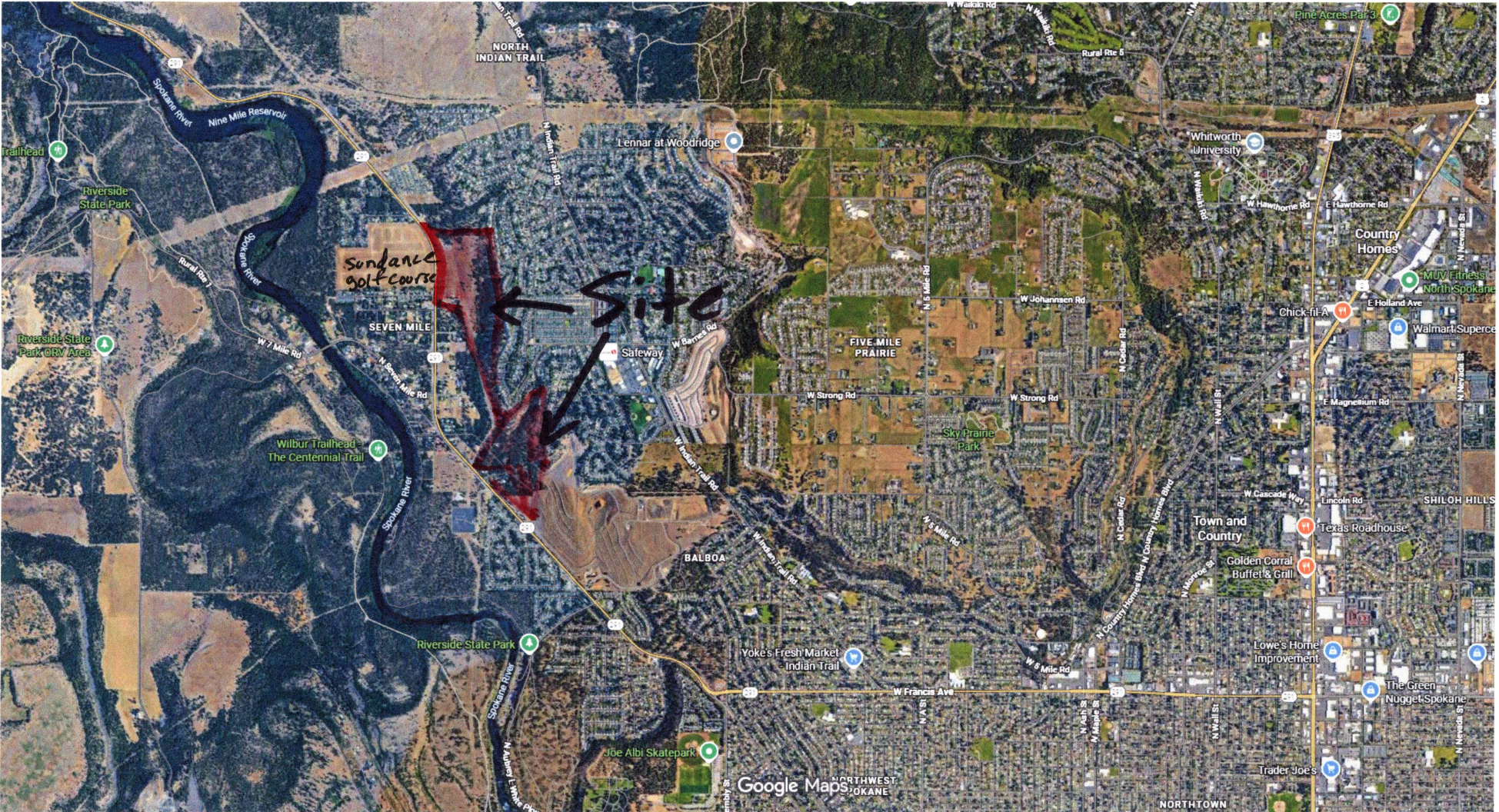
BSW investigated the site and submitted Water Type Modification forms to DNR who circulated the forms to reviewing agencies for comment. BSW recommended removal of all the mapped stream segments on the Volkman property because they did not exist. All the topographical draws were dry, without eroded channels or scour, and vegetated entirely with upland vegetation. All reviewing agencies (DOE, Spokane Tribe, WDF&W, and DNR) concurred, and all segments were removed from the DNR map (Figure 7). The draws formerly identified as streams on the DNR map were also depicted as R4SBC Riverine Wetlands on the National Wetland inventory map. The mapped streams are not wetlands. No wetlands occur on or immediately adjacent to the property. The site is not encumbered by wetland or riparian buffers and consists entirely of well-drained soils over deep flood deposited gravels.

2.0 SITE DESCRIPTION

2.1 Physiography

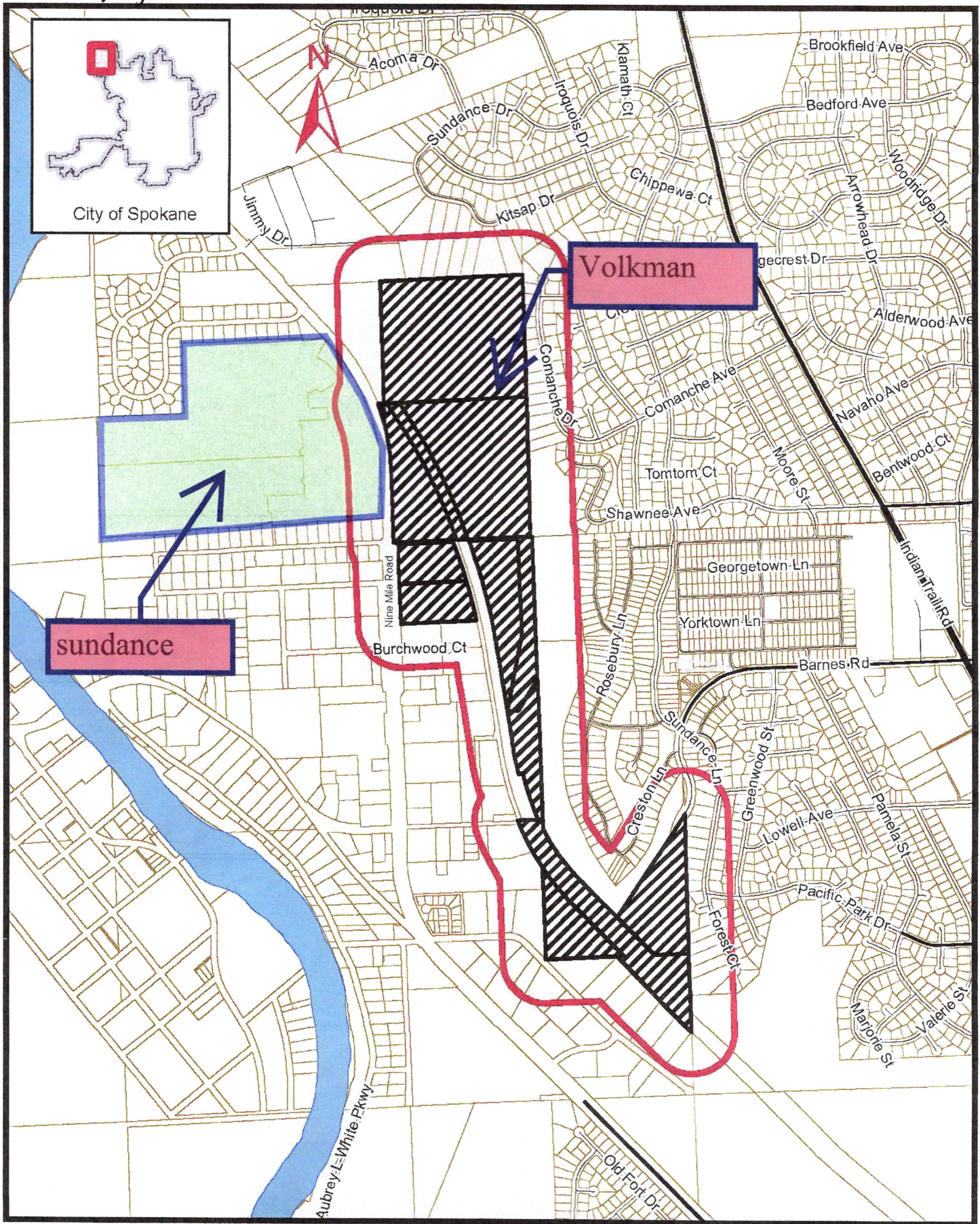
The property is located on the eastern edge of the Columbia Plateau, created when a vast sheet of lava originating near the Tri-Cities flowed into Spokane and northern Idaho during the Tertiary Period 1.6 to 65 million years ago. During the subsequent

Google Maps *Figure 1*



Imagery ©2025 Airbus, Landsat / Copernicus, Maxar Technologies, USDA/FPAC/GEO, Map data ©2025 Google 2000 ft

Figure 2



Legend

- Parcels
- Project Site
- Notification district

APPLICANT: Whipple Consulting Engineers, Inc
PROPOSAL: 406-lot subdivision; up to 800 units

Prepared by: AEB
 Date prepared: 10/7/25

16-26-42 / 21-26-42

Volkman PUD

Figure 3

Legend



SEVEN MILE

N Seven Mile Rd

291

Trailhead - The Centennial Trail

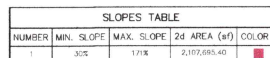
Google Earth

Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

2000 ft



PRELIMINARY PLAT
VOLKMAN PUD SUBDIVISION
LOCATED IN A PORTION OF THE
S 1/2, SEC 16, T 26 N, R 42 E, W.M.
SEC 21, T 26 N, R 42 E, W.M.
SPOKANE COUNTY, WA



VICINITY MAP

IMPERVIOUS AREAS	
	SF
PAVEMENT	575,519.06
SIDEWALK	60,657.95
CURB AND GUTTER	63,449.04
TOTAL	699,626.05



SITE DATA		MARKED FOR	
		26163.0017	26164.0046
		26164.0018	26121.0054
PARCEL NUMBER		26211.001	26211.020
		26211.021	26211.050
		26214.0051	26215.058
		26164.0031	26214.0053
ZONING		R	I
DENSITY (MIN) (sq/ac)		4	130
ALLOWED DENSITY		546	135
PROPOSED DENSITY (sq/ac)		5	AC
PROJECT AREA		5,916.64	36.52
NET PROJECT AREA		4,259.393.35	97.78
SLOPE AREA ≥ 30%		1,687.381	38.73
TOTAL		406	76
STANDARD LOTS		22	44
DUPLICA (SPILT LOTS)		22	44
TOWNSHIP		114	114
COTTAGE (5 LOT DENSITY PLAT)		28	126
ALCO COUNTRY		120	120
COMPACT LOTS		37	37
MULTI-FAMILY UNITS (40 LOT DENSITY PLAT) 6u/lot		94	324
NUMBER OF COMMERCIAL LOTS		1	
NUMBER OF GS TRACTS		39	
NUMBER OF PRIVATE ROAD TRACTS		5	
NUMBER OF ALLEY TRACTS		9	
NUMBER OF AVISTA TRACTS		6	AC
AREA OF LOTS		1,931,953.33	44.35
AREA OF COMMERCIAL LOTS		83,741.47	1.91
AREA OF TRACTS		1,123,478.18	25.80
AREA OF PRIVATE ROAD TRACTS		542,726.08	12.34
AREA OF ALLEY TRACTS		65,884.99	1.51
AREA OF AVISTA TRACTS		174,871.98	3.90
TOTAL LOT & TRACT AREAS		4,322,274.04	99.83
AREA OF RIGHT OF WAY		1,624,393.51	37.29107
SERVICES PROVIDERS			
DOMESTIC WATER		CITY OF SPOKANE	
SANITARY SEWER		CITY OF SPOKANE	
SEWER DISCHARGE		CITY OF SPOKANE	

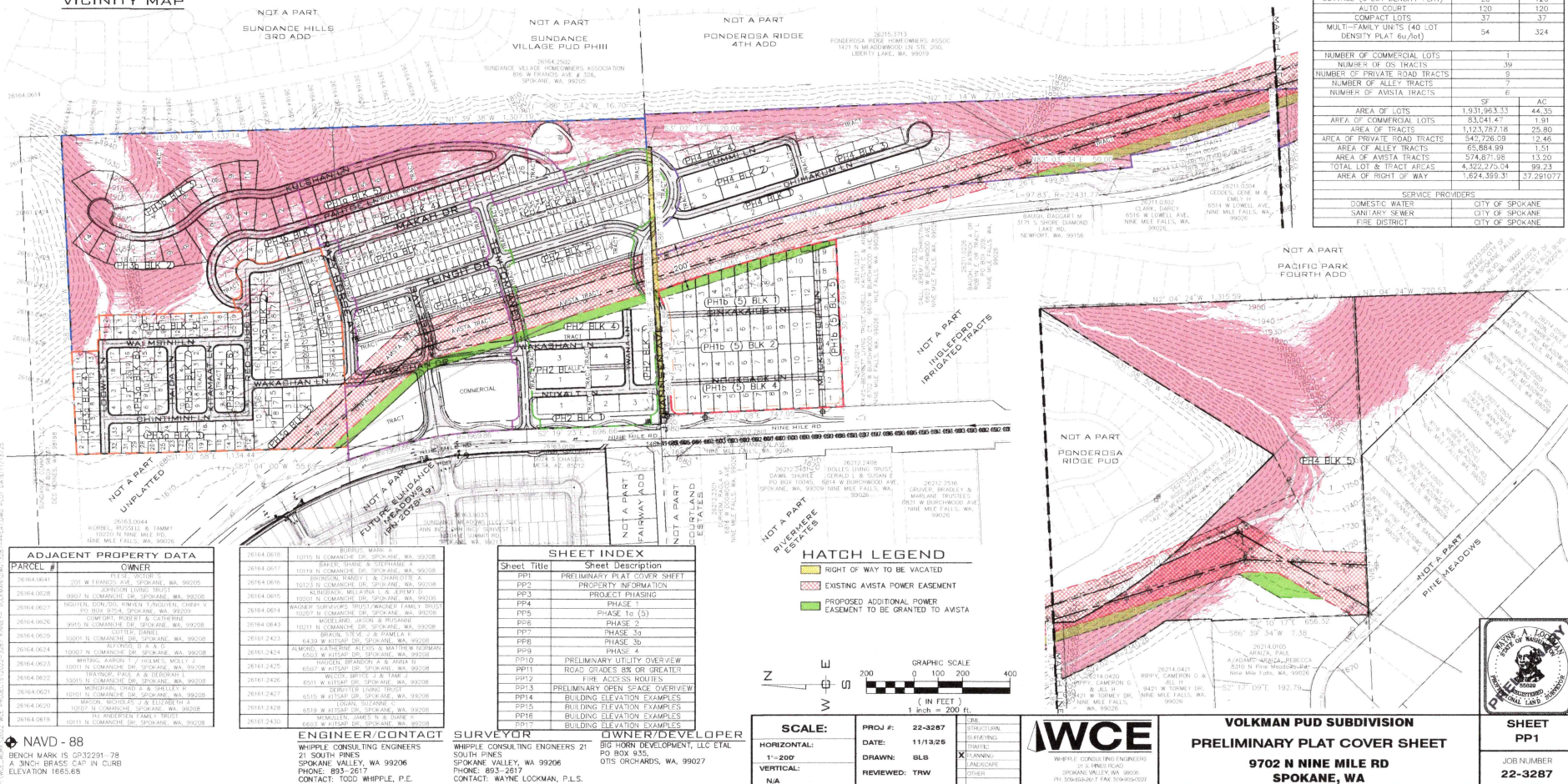
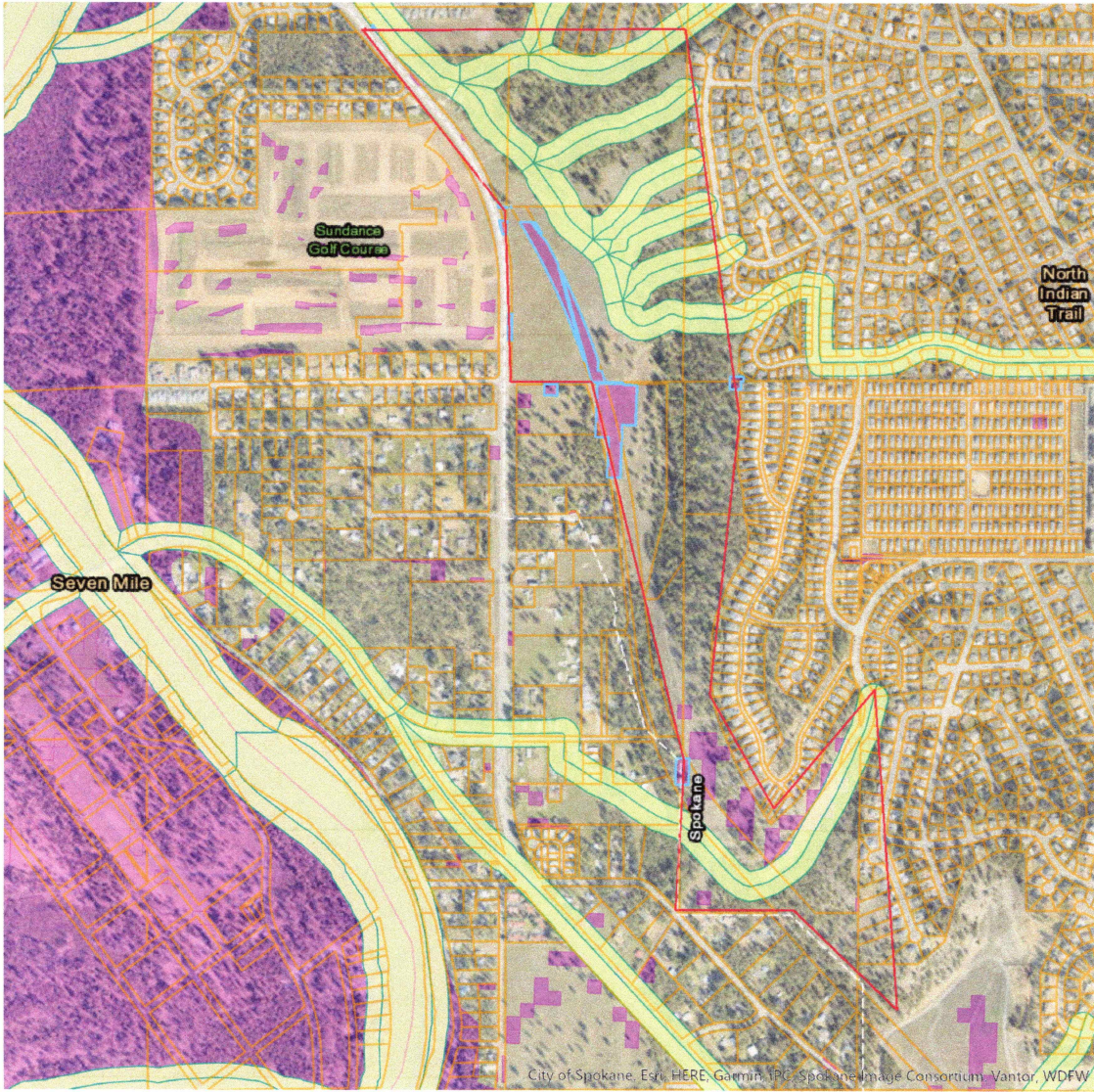




Figure 5

Priority Habitats and Species on the Web



Report Date: 12/05/2025

PHS Species/Habitats Overview:

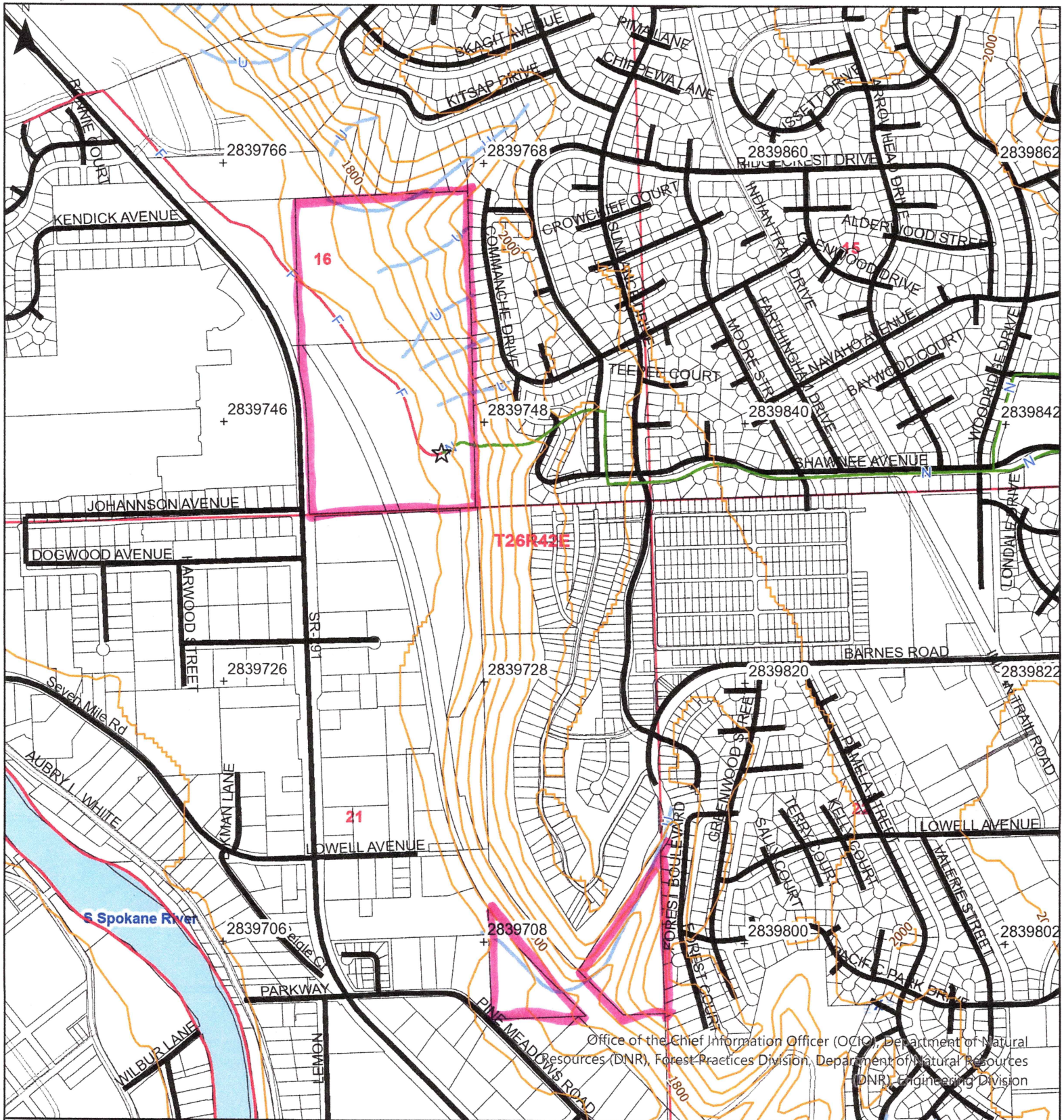
Occurrence Name	Federal Status	State Status	Sensitive Location
Shrubsteppe	N/A	N/A	No
Townsend's Big-eared Bat		Candidate	Yes
Yuma myotis			Yes

Riparian Management Zones, if present, are not included in the Overview table above or the Details below. For RMZ details, please visit ripariandata.wdfw.wa.gov.

PHS Species/Habitats Details:

Figure 6

Forest Practices Activity Map - Application



Office of the Chief Information Officer (OCIO), Department of Natural Resources (DNR), Forest Practices Division, Department of Natural Resources (DNR), Engineering Division

Map Symbols

- | | |
|-------------------------|----------------------|
| --- Harvest Boundary | ⬤ Landing |
| - - - Road Construction | ▽ Waste Area |
| ~ Stream | ⬆ Clumped WRTS/GRTS |
| ▨ RMZ / WMZ Buffers | ⬆ Existing Structure |
| ⛏ Rock Pit | |

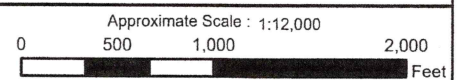
Additional Information

Legal Description

S17 T26.0N R42.0E, S21 T26.0N
R42.0E, S22 T26.0N R42.0E, S16 T26.0N
R42.0E, S20 T26.0N R42.0E, S15 T26.0N
R42.0E

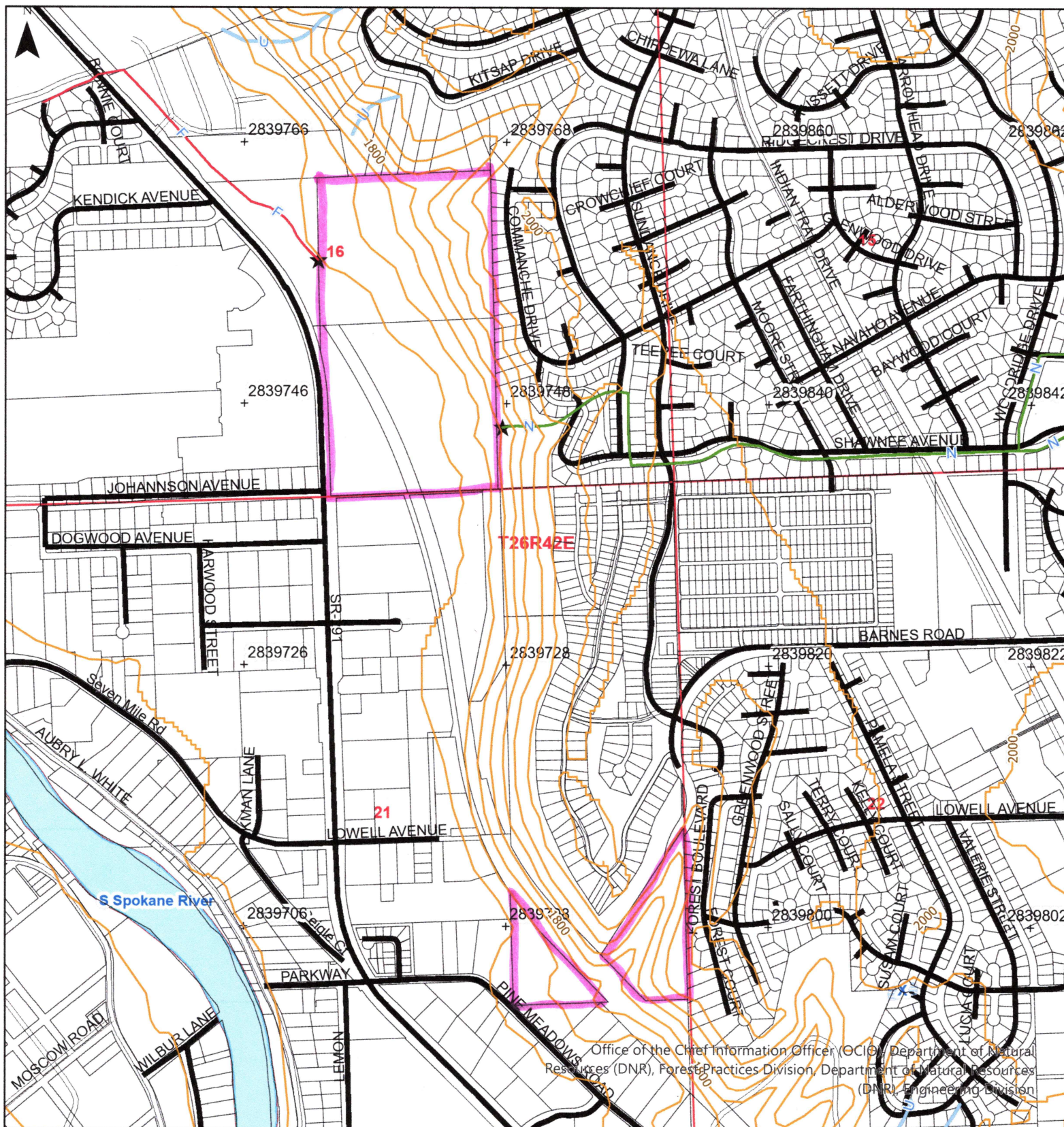


Extreme care was used during the compilation of this map to ensure its accuracy. However, due to changes in data and the need to rely on outside information, the Department of Natural Resources cannot accept responsibility for errors or omissions, and therefore, there are no warranties that accompany this material.



Date: 12/16/2025 Time: 3:22 PM

Figure 7(2026) Forest Practices Activity Map - Application # _____



Office of the Chief Information Officer (OCIO), Department of Natural Resources (DNR), Forest Practices Division, Department of Natural Resources (DNR), Engineering Division

Map Symbols

- | | |
|-------------------------|----------------------|
| --- Harvest Boundary | ● Landing |
| - - - Road Construction | ▽ Waste Area |
| ~ Stream | ⬆ Clumped WRTS/GRTS |
| ▨ RMZ / WMZ Buffers | ■ Existing Structure |
| ✕ Rock Pit | |

Additional Information

Legal Description

S21 T26.0N R42.0E, S15 T26.0N
R42.0E, S22 T26.0N R42.0E, S16 T26.0N
R42.0E

Extreme care was used during the compilation of this map to ensure its accuracy. However, due to changes in data and the need to rely on outside information, the Department of Natural Resources cannot accept responsibility for errors or omissions, and therefore, there are no warranties that accompany this material.

Approximate Scale : 1:12,000
0 500 1,000 2,000 Feet

Date: 3/8/2026 Time: 11:12 AM

Pleistocene Epoch, continental ice sheets created ice dams that blocked rivers and created immense lakes in mountain valleys. When the Purcell Trench Lobe glacial ice dam broke, the glacial outburst flood released 500 cubic miles of water from Lake Missoula. Where flood flow was constricted in the Spokane River Valley, the wall of water reached a height of 570 feet, approached a hundred miles an hour, and scoured away everything in its path. After passing the constriction, part of the flood waters overtopped the riverbank and a 200 foot high wall of water spilled out across the west plains at 75 miles per hour.

Most of the flood water followed the Spokane River valley north scouring out fractured basalt in its path. The high velocity waters plucked out huge chunks of the highly fractured basalt bedrock creating coulees and exposed rock outcroppings. In the project vicinity, flood waters created a flat basalt plateau with eroded channels hundreds of feet deep on both sides of the plateau. The larger main channel called the Hilliard Trough defines the east side of the plateau and the smaller Trinity Trough defines the west side of the plateau. When the floodwater velocity slowed, bedload gravels were deposited in the troughs to form the Spokane Aquifer.

The basalt plateau has two tiers. The eastern tier is roughly circular with an average diameter of about 2.5 miles (Figure 9). The top of the plateau, called the Five Mile Prairie, is covered with Palouse windblown sediments. The central and northern parts are agricultural land with urban development around the edges. The west tier of the plateau is about 400 feet lower in elevation, about 2.5 miles long from north to south, and about one mile wide from east to west. In the 1940's, the entire west tier of the plateau was cultivated. Today, urban development covers the entire west tier with large homes and manicured lawns extending to the west edge of bluff. The project area occurs on the west slope of the west tier of the plateau.

2.2 Historical and Current Land Use Signatures

The Volkman property was historically an open-canopy conifer forest extending from the west slope of the bluff to SR291. By the 1940's, eighty percent of the project area had been cleared of woody vegetation and was cultivated. By the 1970's, the south half of the site had been developed, the cultivated footprint was smaller, and Ponderosa pines were reclaiming small patches of their former domain. About forty percent of the northmost 1100 feet of the property was formerly cultivated but forest has reclaimed the area.

Below the 1100 foot forested component, a 1300-foot long area remains unforested because cultivation continued until recent times. The herbaceous canopy in the historically cultivated soils is dominated by invasive and noxious weeds like mustard and hounds tongue. Slopes above the cultivation line are open canopy Ponderosa pine over bunchgrasses and native herbaceous plants like vetch, lupine, and biscuit root. Much of the hillside was historically logged.

Housing is proposed on the lower, gentler slopes of the bluff and across the flat terrace of flood deposited gravels. Steeper slopes above the development will remain open canopy Ponderosa pine forest offering wildlife refugia and serving as a wildlife travel corridor along the entire east edge of the Volkman property. A 200-foot wide tract containing Avista powerlines extends from the SE corner toward the NW part of the Volkman property. Apart from perpendicular road crossings, the 200-foot wide tract will

remain undeveloped to serve as a wildlife travel corridor through the property and open space for foraging wildlife.

3.0: LISTED CRITICAL AREAS, HABITATS, AND SPECIES

3.1: Streams

In December 2025, the DNR Water Type Map depicted six Type U stream segments, one Type N segment and one Type F segment on the Volkman property (Figure 6).

3.2: Wetlands

The draws identified as streams on the DNR map were also depicted as R4SBC Riverine Wetlands on the National Wetland Inventory (NWI) map.

3.3 WDF&W Priority Habitat and Species

The WDF&W Priority Habitat and Species (PHS) website identifies part of the Project Area as “Presumptive Shrubsteppe Habitat” and requests that designation to be confirmed or refuted during the biologist field investigation. The PHS database for the project includes a record of observation of the species or habitat for the Townsends Big-eared Bat and Yuma Myotis.

4.0: SITE INVESTIGATION AND FINDINGS

4.1 Vegetative Community Summary

There was no snow cover when the site was investigated in December, but due to winter conditions, the list is not complete. However, the species list is complete enough for the reader to understand the disturbed and less disturbed habitat types.

Table 1. Plant species identified on the Volkman property in December 2025.

	Common Name	Scientific Name
Herbs:	yarrow	<i>Achillea millefolium</i>
	dogbane	<i>Apocynun androsaemifolium</i>
	balsamroot	<i>Balsamorhiza sagitata</i>
	spotted knapweed	<i>Centaurea maculosa</i>
	clematis	<i>Clematis lingusticifolia</i>
	hounds tongue	<i>Cynoglossum officinale</i>
	Tansymustard	<i>Descurainia Sophia</i>
	willow weed	<i>Epilobium watsonii</i>
	Northern buckwheat	<i>Eriogonium compositum</i>
	willow weed	<i>Epilobium watsonii</i>
	hawkweed	<i>Hieracium gracile</i>
	prickly lettuce	<i>Lactuca serriola</i>
	dalmatian toadflax	<i>Linaria dalmatica</i>
	silky lupine	<i>Lupinus sericeus</i>
	sticky cinquefoil	<i>Potentilla glandulosa</i>
	tumble mustard	<i>Sisymbrium altissimum</i>
	mullein	<i>Verbascum thapsus</i>

Grasses	common vetch	<i>Vicia sativa</i>
	bluebunch wheatgrass	<i>Agropyron spicatum</i>
	Idaho fescue	<i>Fescuta idahoensis</i>
	Junegrass	<i>Koeleria cristata</i>
	Sandberg bluegrass	<i>Poa sandbergii</i>
Shrubs	needlegrass	<i>Stipa columbiana</i>
	elk sedge	<i>Carex geyeri</i>
	serviceberry	<i>Amelanchier alnifolia</i>
	kinnikinnik	<i>Arctostaphylos uva-ursi</i>
	tall Oregon grape	<i>Berberis aquifolium</i>
	creeping Oregon grape	<i>Berberis repens</i>
	wild rose	<i>Rosa woodsii</i>
Trees:	snowberry	<i>Symphoricarpos albus</i>
	Ponderosa pine	<i>Pinus ponderosa</i>
	Douglas fir	<i>Pseudotsuga menziesii</i>

4.2 Resident Animal Species

The site provides habitat for resident and neotropical migratory bird species. The habitat includes shrub refugia, resting, perches, cover, and foraging opportunities for several species of birds and small mammals.

The following species of birds observed by BSW and others in the Trinity Trough of the Spokane River corridor are likely to utilize the Volkman property to some extent. The species list includes year around residents and seasonal visitors present in the Spokane area at the time of various surveys. Other resident and migratory bird species utilize the river corridor and may utilize this site.

Birds		Range
Common Name	Scientific Name	Utilization
red-tailed hawk	<i>Buteo jamaicensis</i>	resident
bald eagle	<i>Haliaeetus leucocephalus</i>	resident
chipping sparrow	<i>Spizella passerina</i>	breeding
house sparrow	<i>Passer domesticus</i>	resident
song sparrow	<i>Melospiza melodia</i>	breeding
northern flicker	<i>Colaptes auratus</i>	resident
black-capped chickadee	<i>Parus atricapillus</i>	resident
mourning dove	<i>Zenaida macroura</i>	resident
rock dove	<i>Columba livia</i>	resident
violet-green swallow	<i>Tachycineta thalassina</i>	breeding
western wood peewee	<i>Contopus sordidulus</i>	breeding
eastern kingbird	<i>Tyrannus tyrannus</i>	breeding
American robin	<i>Turdus migratorius</i>	resident
house finch	<i>Carpodacus mexicanus</i>	resident
Cassin's finch	<i>Carpodacus cassinii</i>	resident
brown-headed cowbird	<i>Molothrus ater</i>	breeding
Brewers blackbird	<i>Euphagus cyanocephalus</i>	breeding
northern oriole	<i>Icterus galbula</i>	breeding
yellow warbler	<i>Dendroica petechia</i>	breeding
house wren	<i>Troglodytes aedon</i>	breeding

pygmy nuthatch	<i>Sitta pygmaea</i>	resident
European starling	<i>Sturnus vulgaris</i>	resident
black-billed magpie	<i>Pica pica</i>	resident
California quail	<i>Callipepla californicus</i>	resident
turkey	<i>Meleagris gallopavo</i>	resident

Mammals and/or sign observed by BSW in the vicinity in recent years.

Common Name	Scientific Name
coyote	<i>Canis latrans</i>
porcupine	<i>Erethizon dorsatum</i>
white-tailed deer	<i>Odocoileus virginianus ochrourus</i>
mule deer	<i>Odocoileus hemionus hemionus</i>
vole	<i>Microtus spp.</i>
yellow-pine chipmunk	<i>Eutamias amoenus</i>
Eastern Gray Squirrel	<i>Sciurus carolinensis</i>
Columbia ground squirrel	<i>Spermophilus columbianus</i>
yellow-bellied marmot	<i>Marmota flaviventris</i>

Other mammals utilizing the Spokane River corridor that could potentially utilize the subject property include bats, mole, shrew, mouse, skunk, raccoon, and mink. Other mammals utilizing the Spokane River corridor on temporary treks and potentially crossing the property include elk, moose, wolves, and cougar.

5.0: Project Risk Assessment and Impacts

Species of Concern, Priority Habitats, and Species

The site was investigated for the presence of species from the Species of Concern list for Spokane County published by the U.S. Fish and Wildlife and the WDF&W list of priority species. Each species is listed below, followed by an evaluation of available habitat, observed or potential habitat utilization, and potential project effects.

Bald eagle (*Haliaeetus leucocephalus*)

The Bald eagle is listed as a State Sensitive species. Bald eagles routinely forage in the adjacent Spokane River corridor. No eagles were observed during the site investigation and no nest sites were observed so the noise and human activity associated with the project will not impact eagle nesting. The Ponderosa pines on the edges of open meadow could provide perching and foraging opportunities for the Bald Eagle. Noise associated with project construction could cause eagles to move to other trees a short distance away, but the impact is temporary and will have no significant effect on small amount of potential eagle activity in the vicinity. **The project will not have a significant effect on the Bald eagle.**

California Gull (*Larus californicus*)

California Gulls breed on sparsely vegetated islands and levees in inland lakes and rivers. They forage in any open area where they can find food including garbage dumps, scrublands, pastures, orchards, meadows, and farms. In the winter they forage along the Pacific Coast and use mostly marine areas including mudflats, estuaries, deltas,

and beaches. In the unlikely event gulls visit the subject property, they would find open meadows for foraging in the 200-foot wide utility corridor. **The project will not have a significant effect on the species.**

Calliope hummingbird (*Selasphorus calliope*) Season: breeding

The USF&W states that the “Calliope hummingbird nests are often built on an old, dead pinecone base and lined with soft, downy plant materials. Nests are characteristically under an overhanging branch to shield from precipitation, radiation loss to cold sky and predation, and can often be found in trees at the base of steep stream banks. The Calliope Hummingbird may be impacted by habitat threats to aspen, coniferous forest, montane riparian, montane shrubland, and springs habitats. The main food source for Calliope Hummingbirds is floral nectar and small insects. Flower species include typical red-tubular hummingbird flowers as well as wide variety of yellow, white, blue, and purple flowers. Like other hummingbirds, they forage aerially for small insects by perching on branch tips and flying out like a flycatcher, called hawking.”

Calliope Hummingbirds are found in northwestern montane environments. They breed in mixed brush-land, forest edges, and openings and nest in conifers. Most breeders in Washington are found in the Ponderosa pine zone, although they are found higher as well. The Project Area does provide suitable nesting habitat and marginal foraging habitat for this species. **Most of the suitable nesting and foraging habitat will not be disturbed by the project. The project will not have a significant effect on the species.**

Cassin's finches (*Haemorhous cassinii*)

Cassin's finches inhabit mature, open, and dry coniferous forests at elevations between 3,000 and 11,000 feet. They breed mostly near the tree line in very high-elevation mountain forests of conifers, especially spruce and fir, but also Ponderosa pine and Douglas-fir in some areas. The species winters in mountain forests of conifers, sometimes in open woods of lower valleys. They feed mostly on the buds and seeds of various trees, some weed seeds, also insects, and berries and small fruits when available. **The site provides limited habitat for the species and the majority of suitable nesting and foraging habitat will not be disturbed by the project. The project will not have a significant effect on the species.**

Evening Grosbeak (*Coccothraustes esptinus*)

The Evening Grosbeak breeds in coniferous and mixed forests across Canada, the western mountainous areas of the United States, and Mexico. They are found in both deciduous and coniferous forests and forage in trees and bushes. Their diet mainly consists of seeds, berries, and insects. The breeding range consists of mixed forests as well as exclusive coniferous and deciduous forests. In the nonbreeding season, the Evening Grosbeak can be found in suburban and urban areas in coniferous and deciduous forests. The Evening Grosbeak is not as adverse to human activity in their non-breeding season. **The majority of suitable nesting and foraging habitat will not be disturbed by the project. The project will not have a significant effect on the species.**

Golden Eagle (*Aquila chrysaetos*)

BSW did not identify any active or abandoned eagle nests in or adjacent to the project area. Eagle activity is most intense during the winter, but existing food resources can support summer resident eagle foraging within one half mile of the proposed construction activity.

Human activity associated with roads and houses is probably the primary limiting factor for golden eagles in the vicinity. BSW concludes that noise and increased human activity during project construction will not impact eagle nesting or fledgling as no nests were identified in the area. BSW concludes that some golden eagle foraging activity could occur near and possibly in the project area, but the species would much prefer the Spokane River Corridor habitat only one half to three quarters of a mile away. The majority of suitable foraging habitat will not be disturbed by the project. **The project will not have a significant effect on the species.**

Lesser Yellowlegs (*Tringa flavipes*)

Lesser Yellowlegs are medium-sized, slender, long-legged shorebirds. The nest is a depression on dry mossy ground and is usually well hidden, typically within 200 meters of a water source and next to fallen branches, logs, or underneath low shrubs. **The project area does not provide habitat for this species.**

Olivesided flycatcher (*Contopus cooperi*)

The Olivesided flycatcher is found in boreal and western coniferous forests distributed throughout North and South America. Its breeding habitat ranges from California and New Mexico up to central Alaska, across Canada, and part of northeastern US. Its non-breeding habitat is mainly in the northern part of South America and a small area in Central America. Their breeding habitat is mainly in open areas or edges of western forests, in areas up to 10,000 feet in elevation (e.g., in the Rockies), and always near water. They can also nest in cities or on farms, but there is no water on this site so the project area does not offer suitable breeding habitat. **The project will have no effect on the species.**

Rufous Hummingbird (*Selasphorus rufus*)

Rufous Hummingbirds make a clockwise circuit of western North America each year. They move up the Pacific Coast in late winter and spring, reaching Washington and British Columbia by May. As early as July they may start south again, traveling down the chain of the Rocky Mountains. The Rufous Hummingbird can be found throughout Washington State. While they are most prevalent in western Washington, there are suitable habitats in eastern Washington, and it is relatively common in Spokane. Typically arriving in our area in May, they often linger until to September to take advantage of the wildflower season and may stay in one local region for the entire summer in preferred habitat. Migrants occur at all elevations but more commonly in lowlands during spring and in mountain meadows as high as 12,000 feet where nectar-rich, tubular flowers are blooming during late summer and fall.

They are observed in forest edges, open areas within coniferous forests, in sub-alpine shrubby habitats, and in residential areas but prefer higher elevations where rainfall is greater. The Project Area provides only marginal habitat for this species due to

the degree of historical disturbance and limited occurrence of nectar-rich tubular flowers. **The project will not have a significant effect on the species or its preferred habitat.**

Townsend's Big-eared Bat (*Corynorhinus townsendii*)

The preferred habitat of Townsend's Big-eared Bat is mixed conifer forest, mixed meso-phytic forests, deserts, native prairies, riparian communities, active agricultural areas, shrub-steppe, riparian-wetlands, and coastal habitat types. In Washington, old buildings, silos, concrete bunkers, barns, caves, and mines are common roost structures. Their distribution is strongly correlated with the availability of caves and cave-like roosting habitat, with population centers occurring in areas dominated by exposed, cavity forming rock and/or historic mining districts. On occasion they will roost under bridges in the daytime, but they prefer open roosting areas in large rooms and do not tuck themselves into cracks and crevices like many bat species do. The project area does not offer and will have no effect on roosting or hibernacula, but travel distances of 0.5 mile to 11 miles between day roosts and foraging sites are typical so the species could potentially forage at this site. However, the Spokane River Corridor is in close proximity and provides far superior foraging opportunities so utilization of the Volkman site would be limited at best. **The project will have no significant impact on the species or its preferred habitat.**

Yuma myotis (*Myotis yumanensis*)

Several surveys have found this common species to be relatively uncommon or rare in eastern Washington. Yuma myotis reside in moist and dry forests, riparian zones, grasslands, shrubsteppe, and deserts. Buildings, bridges, cliff crevices, caves, mines, and trees are used as summer day roosts, especially when located near water. Night roosts have been found on porches, in buildings, and under bridges. Concrete bridges are favored over other bridge types. Tree roosting individuals prefer large living conifer and hardwood trees in areas with high forest cover near water. They are closely associated with rivers, streams, ponds, and lakes and forage in forests and along forest edges. Foraging occurs after sunset and will not be affected by daytime construction activity. If the species is present in the vicinity, it may seek out daytime roosts (during construction hours) in Ponderosa pines located away from the temporary noise of construction activity. After development, the site will still offer foraging opportunities along the forest edges and meadows. **The project will have no significant impact on the species or its preferred habitat.**

Moose (*Alces alces*)

Moose have a very high dietary sodium requirement. Aquatic plants are the only source of sodium in moose habitat capable of supplying the moose's high dietary sodium requirements and must account for about 18 percent of the moose daily diet. Moose must acquire a whole year's supply of sodium in the summer to make up for the winter deficiency when aquatic plants are not available. The forested component of the project area does not provide the diet required for moose survival, so they only leave the immediate vicinity of the Spokane River for short periods of time. However, bull moose wander more widely during the rut from the end of August through early October, when they often travel long distances in pursuit of cows. Moose may occasionally wander into

residential areas and find relief from the summer heat in irrigation systems, swimming pools, and shade trees while browsing on the leaves of deciduous trees and shrubs in the nicely landscaped yards. These visits to suburban areas are brief and highly stressful. If moose were to pass through the project area during project construction, the noise would probably cause them to alter course and avoid the associated human activity. **The project will have no significant effect on moose and no effect on moose habitat.**

White-tailed Deer (*Odocoileus virginianus*) Presence and Habitat:

Common white-tailed deer habitat characteristics on the site include mixed species woodlands in multiple successional stages, three types of edge habitat, high availability of cover, low elevation, short, diversified slopes, and high quantity and quality of browse. White-tailed deer browse that is abundant on the site includes common snowberry, rose species, Oregon grape, and other shrub species.

Winter Range:

Winter ranges are generally occupied from early December through late March, depending on weather conditions and food availability. Winter range is the most critical component of landscapes used by deer. The quality and quantity of available winter range are the primary limiting factors for white-tailed deer populations in Washington. The site has some winter range characteristics including low elevation, coniferous tree stands, and some browse availability so the site is part of the home range for a small number of deer. Part of the forested component has closed-canopy conifer stands of at least 11 m in height with overstory cover of at least 70% to that provide essential snow intercept. However, deer activity on the site is limited due to lack of surface water and limited amount of closed forest canopy.

Spring/Summer/Fall Range:

The site provides classic spring, summer, and fall range characteristics for white-tailed deer including sloping meadows dominated by grasses, low elevation, some shrub browse, escape and thermal cover, natural travel corridors, and some forested areas with diversity of forest successional stages. The limiting factors for summer White-tailed deer utilization is lack of on-site water. The presence of browsed shrubs, pellet piles, and a trail system confirm the site is part of the home range of a small number of White-tailed deer but the extent of summer utilization is unknown. **The forested corridor between the top of the bluff and the currently proposed development will continue to provide travel corridors and refugia for resident deer.**

Gray Wolf (*Canis lupus*)

On 4 January 2021, gray wolves were delisted from the Federal Endangered Species Act, but wolves are protected as Endangered under state law in Washington. It is possible, but unlikely that wolves could wander into the project area in search of prey. Wolves utilizing the Spokane River Corridor would have to travel through dense residential development where they would not be well received before reaching the project area. The relatively unpeopled west side of the Spokane River would be much preferred by wolves compared to the developed east side of the river. **The project will have no significant effect on the Gray Wolf and no effect on wolf habitat.**

Streams

In December 2025, the DNR Water Type Map depicted six Type U stream segments, one Type N segment and one Type F segment on the Volkman property (Figure 6). BSW investigated the site and submitted Water Type Modification forms to DNR for circulation to reviewing agencies for comment. BSW recommended removal of all the mapped stream segments on the Volkman property because the mapped stream channels did not exist. The draws were all dry, without eroded channels or scour, and vegetated entirely with upland vegetation. The reviewing agencies all concurred, and the segments were removed from the DNR map (Figure 7). None of the streams exist. **The DNR map was revised and the entire length of all eight stream segments depicted on the Volkman property were removed from the DNR Water Type Map**

Riparian Wetlands

The draws formerly identified as streams on the DNR map were also depicted as R4SBC Riverine Wetlands on the National Wetland Inventory (NWI) map (Figure 7). The NWI mapped riparian wetlands on the Volkman property are not streams or wetlands. No wetlands occur on or immediately adjacent to the property. The site is not encumbered by wetland or riparian buffers and consists entirely of well-drained soils over deep flood deposited gravels. The NWI defines the Riverine System as “all wetlands and deepwater habitats contained within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and (2) habitats with water containing ocean-derived salts of 0.5 ppt or greater. A channel is an open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of standing water.”

The NWI mapped riparian wetlands on the Volkman property are not streams or wetlands. No wetlands occur on or immediately adjacent to the property. The site is not encumbered by wetland or riparian buffers and consists entirely of well-drained soils over deep flood deposited gravels.

Shrubsteppe

The WDF&W Priority Habitat and Species (PHS) maps depict small polygons as “Presumptive Shrubsteppe Habitat” and requests that designation to be confirmed or refuted during the biologist field investigation. Most of the areas depicted as shrubsteppe are formerly cultivated agricultural fields where all woody vegetation was removed and nature has not fully reclaimed the Ponderosa pine forest. The extent to which woody vegetation has reclaimed formerly cultivated soils is in proportion to the time since cultivation ceased. All the cultivated areas were formerly open canopy Ponderosa pine forest, not shrubsteppe and the forest is slowly reclaiming the disturbed areas. Some polygons mapped as shrubsteppe are openings in the open canopy forest from historical logging and nature has not fully returned to the Ponderosa pine forest climax community. The other polygons mapped as shrubsteppe are not shrubsteppe and they occur on steep slopes that will not be developed. The subject property supports a Ponderosa pine overstory because it receives more precipitation than areas defined as shrubsteppe habitat.

The change in vegetation from forest to shrub/meadow at this site is not a gradual transition from forest habitat to shrubsteppe over a wide area due to different site

characteristics of temperature, soil types, precipitation regimes, and microclimate changes. Shrubsteppe habitat does not occur in a small forest opening in the middle of a conifer forest climax community. Shrubsteppe habitat is a distinct climax community that occurs in a far different type of ecotone. The term habitat type may be used loosely on a small scale to describe the dominant species of tree and shrub in a vegetative community like Ponderosa pine/snowberry associations. However, the term shrubsteppe habitat type should not be applied on micro-scales at a disturbed site to infer that the observed plant community is the climax community. Shrubsteppe habitat is not the natural climax plant community on the subject property. **The project will have no impact on shrubsteppe habitat.**

Summary of Project Impacts to Habitats and Species

Cover requirements vary among species, but it is essential for habitat to provide a variety of cover types. The site provides some important habitat types essential for migrating, foraging, wintering, breeding, nesting, and perching. Tree and shrub density on parts of the site are adequate to meet the breeding requirements of several bird and mammal species. However, historical logging and agricultural land uses have diminished habitat quality. Habitat fragmentation, human disturbance, and isolation by surrounding residential neighborhoods limits wildlife utilization. The Spokane River Corridor attracts many species to the vicinity. However, site proximity to excellent habitat in the Spokane River Corridor diminishes utilization of the comparatively lower quality habitat on this site. The project will not have a significant adverse effect on any Critical Area, Priority Habitat, or Species listed in the Spokane County Critical Areas Ordinance.

6.0 HABITAT MANAGEMENT PLAN

In Spokane, glacial outburst floods scoured two deep channels separated by a basalt plateau. As the sides of the plateau weathered, landslide deposits softened the contours, soils formed, and an open canopy Ponderosa pine forest covered the slopes. Slopes on the west side of the plateau are steep, so a forested corridor remains undeveloped below the rim of the bluff. Birds and mammals utilize the corridor. A large tract of land on the entire length of the Volkman east property will remain undeveloped so the wildlife travel corridor between development on the top and bottom of the bluff will be preserved (Figure 4). This tract is a mosaic of open canopy Ponderosa pine overstory with a mixed species shrub understory and patches of open meadow. The protected habitat zone preserves site connectivity to forested slopes located north and south of the subject property.

The following Habitat Management Plan elements shall be included in the Declaration of Protective Covenants of the Homeowners Association to ensure that a large tract of undeveloped land along the east side of the property will be preserved as wildlife habitat. The edge of each lot abutting the undeveloped tract shall treat the tract as a “no touch” area to insure the tract is not mowed and no grass clippings, leaves, or materials of any type are deposited in the tract. The tract shall not be used for the storage of equipment, boats, vehicles, or materials of any kind. Pets should not be allowed run free in the tract to protect wildlife utilizing the corridor.

Habitat Recommendations for all Homeowners

1) Retain native vegetation on the lots where possible.

To the extent allowed by fire codes, homeowners are encouraged retain the native tree and shrub components on lots. Providing understory shrub cover habitat maximizes food, thermal protection, hiding cover, nesting, and brooding cover for resident birds and mammals.

Resource availability, specifically food and nest opportunities, are determining factors of the size and species richness of the bird community. Homeowners are encouraged to landscape yards to provide multiple canopy levels for birds and enhance their properties with native vegetation from the species list provided below.

2) Homeowners shall manage noxious weeds as mandated by RCW 17.10, Spokane County.

Weeds on individual lots should be rigorously managed by homeowners. The Homeowners Association should implement weed control measures in open space tracts in ways that do not adversely impact native vegetation.

3) Residents should restrain free-ranging pets.

Scavenging and predation on eggs and nestlings by rabbits, squirrels, mice, coyotes, opossums, raccoons, and skunks contribute to the steady annual attrition rate of birds. However, predation by domesticated dogs and cats has a devastating effect on resident bird populations. It is estimated that domesticated cats in North America kill 4 million songbirds every day. Residents shall not allow pets to roam freely outside of yards to avoid impacts to the resident bird community and protect wildlife habitat. County Ordinances shall be strictly interpreted with respect to specific language prohibiting livestock and the restraint of pets.

4) Landscape to avoid human/animal conflicts.

Human/animal conflicts may be reduced by thoughtful landscaping practices. Preserve existing vegetation and landscape with native plant materials with the expectation that deer will eat your shrubs. Or landscape with plants that deer do not find palatable. The Spokane County Conservation District can provide a list of unpalatable species. District extension agents can also provide homeowners with a list of native trees and shrubs offered for sale by that agency each spring.

Table 4: White-tailed Deer Vegetation Preferences

Stratum	Common Name	Scientific Name
Tree:	Rocky mountain maple	<i>Acer glabrum</i>
	paper birch	<i>Betula sp.</i>
	black hawthorn	<i>Crataegus douglasii</i>
	Douglas fir	<i>Pseudotsuga menziesii</i>
	ponderosa pine	<i>Pinus ponderosa</i>
	quacking aspen	<i>Populus tremuloides</i>
	black cottonwood	<i>Populus trichocarpa</i>
	willow	<i>Salix sp.</i>
	western red cedar	<i>Thuja plicata</i>

Shrub:	hemlock	<i>Tsuga heterophylla</i>
	kinnikinnik	<i>Actostaphylos uva-ursi</i>
	serviceberry	<i>Amelanchier alnifolia</i>
	creeping/low Oregon grape	<i>Berberis repens</i>
	redstem ceanothus	<i>Ceanothus sanguineus</i>
	deerbrush, buckbrush	<i>Ceanothus velutinus</i>
	red-osier dogwood	<i>Cornus stolonifera</i>
	myrtle boxwood	<i>Pachistima myrsinites</i>
	blue elderberry	<i>Sambucus cerulea</i>
	common snowberry	<i>Symphoricarpus albus</i>
Herb:	wild strawberry	<i>Fragaria virginiana</i>
	trumpet/orange honeysuckle	<i>Lonicera ciliosa</i>
	clubmoss	<i>Lycopodium selago</i>
	thimbleberry	<i>Rubrus parviflora</i>
	blackberry/raspberry	<i>Rubrus sp.</i>
Other:	huckleberry	<i>Vaccinium sp.</i>
	any berry or fruit, mushrooms, arboreal lichens, moss, agricultural crops.	

5) Landscaping should enhance wildlife habitat.

The replication of structural complexity, vertical stratification, and microhabitat diversity should be emphasized in the planting design. Shrubs should be planted with the goal of enhancing wildlife habitat. The vegetation should be planted in patches, have curving edges, and not be planted in a uniform manner.

Rationale

Structural complexity refers to the arrangement and degree of interspersions of plant community types throughout the system. Complex structural patterns (such as variable patch size, curving edges, and high degree of interspersions 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 plants and animals.

7.0: 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.



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