BRADLEY PARK PROPERTY

CITY OF LACEY, WASHINGTON

PRIORITY SPECIES MITIGATION PLAN

MAR 3 1 2021
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Prepared By:

Curtis Wambach, M.S.
Senior Biologist and Principal

EnviroVector
OPTIMIZE USABLE LAND

18 March 2021

360-790-1559

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EXHIBIT
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18 March 2021

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1.0 INTRODUCTION

1.1 Purpose

The purpose of this Priority Species Mitigation Plan is to satisfy comments from the Washington Department of Fish and Wildlife (WDFW) requesting a wildlife survey for priority species and to satisfy the City of Lacey requirements for a Priority Species Mitigation Plan under Lacey Municipal Code (LMC) 14.33.110(B)(2 & 9). The WDFW commented to the City that two (2) State Priority Species, the pileated woodpecker (*Dryocopus pileatus*) and Pacific Coast band tailed pigeon (*Columba fasciata*), may be associated with the site. In addition, the WDFW noted that the big brown bat (*Eptesicus fuscus*) has been documented near the subject property and that this species should be included in the wildlife and habitat survey. The WDFW also mentioned to consult the US Fish and Wildlife Service if bald eagles (*Haliaeetus leucocephalus*) are nesting near the subject property.

Another purpose of this report is to identify and map Critical Areas that may occur on the subject property or within three hundred (300) feet of the subject property.

The proposed project consists of a subdivision located on the northern portion of the subject property. This study evaluates potential impacts to regulated environmental features and provides measures to off-site those potential impacts.

1.2 Property Location

The 15.66-acre subject property is located on 15th Avenue NE to the north and 6th Avenue NE to the south, City of Lacey, Thurston County, WA in Section 08, Township 18 North, Range 01 west, Willamette Meridian (**Table 1; Figure 1**).

Table 1 Parcels Comprising Subject Property

No#	Property Address	Parcel Number	Property Size (Acres)
1	---	11808430201	15.66
1 Parcel	Total Size		15.66 acres

Permitting Jurisdiction is City of Lacey.

1.3 Site Evaluation

Critical Areas evaluations were performed on the subject property on:

1. 4 February 2021
2. 11 February 2021
3. 17 February 2021

2.0 GENERAL PROPERTY DESCRIPTION

The northern two thirds (2/3) of the subject property consists of a forested environment dominated by a Douglas fir (*Pseudotsuga menzeisii*) canopy with a dense understory of shrubs and herbaceous vegetation (**Figure 2, Appendix A, Photos 45-50**). The southern one third (1/3) of the subject property consists of a grassy area and a large patch of monotypic Himalayan blackberry (*Rubus armeniacus*) (**Appendix A, Photos 51-62**).

The subject property is confined within public roads and high intensity development. The northern property boundary is borders by 15th Avenue NE. The southern edge of the property is borders by 6th Avenue BE. Single and multi-family development is located west of the subject property. High-intensity subdivisions are located east of the subject property.

3.0 METHODOLOGY

This report is based on a review of existing information and field investigations. The goal of these efforts is to collect and document existing information that reflects current site conditions for assessing potential impacts.

3.1 Review of Existing Literature

Prior to conducting fieldwork, and throughout the duration of project design, biologists reviewed existing information to identify wetlands, streams, vegetation patterns, topography, soils, wildlife habitats, and other natural resources in the project area. Existing data sources that were reviewed for this report included, but were not limited to, the following:

- Washington. U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) Soil Survey
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI), online wetlands mapper
- Washington Department of Fish and Wildlife (WDFW) Salmonscape Database
- Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species Database
- Washington State Department of Natural Resources (DNR) Natural Heritage Database
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) and Flood Insurance Studies
- State Department of Natural Resources (DNR) Natural Heritage Database
- Washington Department of Fish and Wildlife (WDFW) Management Recommendations

3.2 Field Investigation

Field investigations were performed on 4 February 2021, 11 February 2021, and 17 February 2021, which encompassed the subject property. Three (3) field researchers evaluated the site for Critical Areas and regulated wildlife and habitat by traversing the site along fifteen (15) foot transects. Binoculars were used to search the canopy for habitat features or nests used by the pileated woodpecker, bald eagle, band-tailed pigeon, or big brown bat.

The site evaluation focused on evidence of:

- The pileated woodpecker and its habitat,
- The big brown bat and its habitat,
- The Pacific Band-tailed Pigeon and its habitat,
- The bald eagle and its habitat.

Field investigations comply with the WDFW Management Recommendations for the specific species and habitat

3.3 Wildlife Cameras

Four (4) baited wildlife cameras were installed within three (3) stations (**Figure 2**). Cameras 1 & 2 were installed at Station 1, which contained two (2) pileated woodpecker feeding stations, one (1) of which containing an excavated cavity (**Appendix A, Photos 5-14**). Camera 3 was installed in Station 2, which contains a pileated woodpecker feeding station and cavity in a living Douglas fir tree (**Appendix A, Photos 19 & 21**). Camera 4 was installed in Station 3 at a Douglas fir snag containing many feeding scars and cavities (**Appendix A, Photos 33-36**).

4.0 STUDY RESULTS

4.1 Background Information

4.1.1 Thurston County Geodata Soils

One (1) non-hydric soil type has been mapped on the subject property by Thurston County Geodata (**Appendix B; Table 3**). The soil type is not a prairie indicator soil.

Table 3. Thurston County Geodata Soil Summary

Soil Unit	Hydric	Prairie plant	Comments
Alderwood gravelly sandy loam, 0-3% slopes	No	No	Extends over the entire property and in vicinity

4.1.2 Thurston County Geodata Wetlands & Streams

No wetlands or streams are mapped on or within three hundred (300) feet of the subject property by Thurston County Geodata (**Appendix C**).

4.1.3 WDFW Priority Habitats and Species (PHS) Database

No priority habitats or species are mapped on or within three hundred (300) feet of the subject property by the Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) database (**Appendix D**).

Big brown bat (*Eptesicus fuscus*), little brown bat (*Myotis lucifugus*) and Yuma myotis (*Myotis yumanensis*) are mapped in the township. None were identified onsite (See Section 4.2 Field Results).

4.2 Field Results

4.2.1 Critical Areas

No wetlands or streams have been mapped by Agency databases or have been identified by this study on or within three hundred (300) feet of the subject property.

4.2.2 Wildlife Observations

Wildlife observed during the field investigations are typical of rural/suburban adapted species. These species are adapted to rural/suburban areas and may inhabit or visit the site for food or shelter. Wildlife observed have been recorded and displayed in **Table 4**. General photographs of wildlife species observed on the site are provided in **Appendix A, Photos 45-50**.

4.2.3 Priority Habitats and Species

No priority species, other than the pileated woodpecker, were identified on the subject property during the study.

4.2.3.1 Pileated Woodpecker (*Dryocopus pileatus*)

One (1) priority species, the pileated woodpecker, has been identified on the subject property during the site evaluation. The pileated woodpecker is not Federally-listed under the Endangered Species Act (ESA) but is a State Candidate for listing.

Seven (7) pileated woodpecker feeding stations were identified on the subject property during the site evaluation (**Figure 2; Appendix, Photos 1-4**). Two (2) of the seven (7) trees with feeding stations also had pileated woodpecker nesting cavities.

One (1) pileated woodpecker was identified in Station 2 (**Appendix A, photos 20-25**). The identified pileated woodpecker was observed actively excavating a cavity in the tree (**Appendix A, Photos 19 & 21**). Shavings from the cavity excavation is clearly seen on the ground under the activity (**Appendix A, Photo 26**).

Table 4. Wildlife Species Observed on the Subject Property

COMMON NAME	SCIENTIFIC NAME	STATE LISTED	FEDERALLY LISTED	PRIORITY SPECIES	COMMENTS
Pileated woodpecker	*Dryocopus pileatus*	Candidate	No	Yes	State-Listed and Candidate Species
Downy woodpecker	*Picoides pubescens*	No	No	No	Not regulated
Black-tailed deer	*Odocoileus hemionus columbianus*	No	No	Yes	Species of Recreational, Commercial, and/or Tribal Importance
Eastern gray squirrel	*Sciurus carolinensis*	No	No	No	Introduced
House finch	*Carpodacus mexicanus*	No	No	No	Abundant
Black-capped chickadee	*Poecile atricapillus*	No	No	No	Abundant
Meadowlark	*Sturnella neglecta*	No	No	No	Common
Red-breasted nuthatch	*Sitta canadensis*	No	No	No	Common
American robin	*Turdus migratorius*	No	No	No	Common
Bewick's wren	*Trogloytes bewickii*	No	No	No	Observed in forest
American crow	*Corvus brachyrhynchos*	No	No	No	Observed in grassy area
Hummingbird	*Calypte sp.*	No	No	No	Observed in forest
Northern flicker	*Colaptes auratus*	No	No	No	Observed in forest
Song sparrow	*Melospiza melodia*	No	No	No	Throughout site
Western scrub-jay	*Aphelocoma californica*	No	No	No	Observed in grassy area
Douglas squirrel	*Tamiasciurus douglasii*	No	No	No	Observed by motion cameras in forest
Eastern gray squirrel	*Sciurus carolinensis*	No	No	No	Observed by motion cameras in forest
Red-tailed hawk	*Buteo jamaicensis*	No	No	No	Observed flying overhead

4.2.3.2 Band Tailed Pigeon (*Columba fasciata*)

The band-tailed pigeon typically migrates south, outside of Washington State, during the winter (Lewis *et al*., 2003a). Thereby, band-tailed pigeons may not have been in the study area at the time of the study. The band-tailed pigeon requires mineral springs, which are are necessary during the breeding and brood-rearing seasons. No mineral springs were identified on the subject property or within the immediate vicinity of the subject property. Thereby, breeding or brooding is not likely to occur on the subject property. The band-tailed pigeon may facultatively forage on the subject property; however, the subject property may not provide habitat essential for the long-term survival of this species.

4.2.3.3 Big Brown Bat (*Eptesicus fuscus*)

No big brown bat was identified on the subject property during the site evaluation. Information on the big brown bat was obtained through the WDFW at https://wdfw.wa.gov/species-habitats/species/eptesicus-fuscus#desc-range .

The big brown bat is one of the largest bat species in Washington and features a heavy body, large head, and broad nose. The fur varies from pale to dark brown, is darker above and lighter below, and has an oily texture. Individual hairs on the back are relatively long and extend one-quarter of the way down the upper surface of the tail membrane. Wing membranes and ears are black. Ears are relatively rounded and short, and barely reach the nose when pressed forward.

The large, powerful jaw musculature and heavy teeth of big brown bats allow them to feed on hard-bodied insects as well as other prey. Beetles typically form the bulk of their diet, while moths, termites, true bugs, leafhoppers, flies, and flying ants are other main foods. Other regional studies have found preferences for caddisflies, bees, and ants.

Pregnancy lasts about sixty (60) days. Births occur from May to August. Litter size is usually one pup in Western North America.

Big brown bats range from southern and central Canada to northern South America and the Caribbean. This species is present throughout Washington. The big brown bat is a habitat generalist that occupies a variety of forest types, rangeland, and urban areas. In Washington and Oregon, the species appears to be more common in forest than shrubsteppe and alpine areas. Occurrence in the West extends from sea level to three thousand eight hundred (3,800) meters in elevation. In mountainous areas, males inhabit higher elevations than females.

Summer day roosts of this species, including maternity colonies, occur in a variety of settings, including buildings (e.g., inside attics and walls), trees, snags, caves, mines, crevices in cliffs, and bridges. Reproductive females are colonial and occupy sites offering suitable temperature gradients. Maternity roosts are often in older buildings having appropriate entry points or in large live or dead trees in intermediate stages of decay. Occupation of trees and snags depends on the presence of cavities, hollow trunks, crevices, loose exfoliating bark, and dead or broken tops; cavity volume; openness from surrounding vegetation; and older age of the forest stand. Ponderosa pine, aspen, and Douglas-fir are among the main tree species used for roosting.

Maternity roosts in the West usually contain anywhere from about a dozen to several hundred individuals, but in other regions, females sometimes roost in smaller groups or alone. Buildings offer greater safety from predators and warm microclimates, resulting in earlier births, faster juvenile growth, and increased energy savings, and therefore are probably preferred as roosts over some types of natural sites. Most adult females return to the same maternity roost or roost area in successive years.

Hibernacula (place where an animal spends their winter) include buildings, caves, mines, and rock crevices but the extent that other natural sites (e.g., hollow trees) are used is poorly known. Hibernacula generally have air temperatures of 0-18°C (32-64°F). Some winter sites also function as maternity roosts in summer.

Swarming behavior occurs at mines and caves before hibernation. Hibernation lasts from November to April. The big brown bat would have been in hibernation at the time of the study. Hibernacula rarely hold more than a few hundred individuals with those present usually roosting alone or in small clusters of fewer than twenty (<20) animals. Both sexes hibernate together. Individuals may lose twenty-five percent (25%) of their pre-hibernation body weight over winter, thus failure to accumulate sufficient fat reserves can be a major mortality factor, particularly for juveniles. Movement among hibernacula is common within a winter.

Conservation of the big brown bat includes:

- Protection of maternity roosts and sizeable hibernacula is a priority for conservation.
- For tree-dwelling populations, retention and recruitment of large snags, decadent trees, and hollow trees is important.
- On intensively managed forests, management agreements and incentives for protecting large-diameter roost trees are desirable. Maintaining remnant patches of structurally diverse forest with abundant large snags is another protective strategy.
- Providing roost structures within two (2) to three (3) km of open water or riparian areas is probably beneficial by providing ready access to drinking and foraging sites.
- Maintaining potential roosts across a variety of topographical positions is also desirable so that bats have a range of suitable roosting sites to select from.
- Where eviction from buildings is necessary, appropriate actions should be taken to minimize negative impacts to the bats.
- Precautions to reduce disturbance should be taken when mine and cave surveys are conducted during the breeding season and winter hibernation.

4.2.3.4 Bald Eagle (Haliaeetus leucocephalus)

No bald eagles or their nests are mapped by the WDFW PHS database (**Appendix D**) or were identified on the subject property or within the immediate vicinity of the subject property. No significant bald eagle habitat occurs on the subject property. The bald eagle is protected under the Bald and Golden Eagle Protection Act and has experienced recovery as a result of DDT removal from most of its range.

Bald eagles nest in large trees, usually near marine shorelines, large lakes, or rivers, which do not occur within four (4) miles of the subject property. Bald eagles prey on fish, waterfowl, and

small mammals, or scavenge. Many birds that nest in Canada and Alaska migrate south to overwinter in Washington, concentrating on rivers with spawned-out salmon, especially chum, which does not occur within four (4) miles of the subject property.

Bald eagles commonly roost communally, especially in winter. Bald eagles return to their breeding territories year after year and may repair and use the same nest for many successive years. They can also construct alternate nests within the territory. Territories also typically contain large perch trees. None of this habitat occurs on the subject property or within at least four (4) miles of the subject property.

4.3 Pileated Woodpecker Evaluation

The pileated woodpecker and associated feeding stations and nesting cavities have been identified and documented on the subject property. The subject property contains Douglas fir trees and snags that provide habitat for the pileated woodpecker. Because the home range of the pileated woodpecker is one thousand (1,000) acres or even larger in urban areas (Lewis *et al*., 2003), individuals that may occur on the subject property are likely to occupy home ranges that extend for many acres offsite.

Pileated woodpeckers inhabit mature and old-growth forests, and second-growth forests with large snags and fallen trees (Lewis *et al.*, 2003 WDFW Management Recommendations). Large snags and large decaying live trees in older forests are used by pileated woodpeckers for nesting and roosting throughout their range (Lewis *et al*., 2003). In western Oregon and western Washington, they may use younger forests (<40 years old) as foraging habitat.

4.3.1 Nesting

Large snags occur on the subject property that are utilized by the pileated woodpecker as feeding stations and as cavity nests.

Pileated woodpeckers excavate large nest cavities in snags or large decaying live trees, as can be observed on the subject property (**Appendix A, photos 7, 8, 19, & 21**). The nest entrances are approximately five (5) inches height and four (4) inches width according to the WDFW Management Recommendations for the Pileated Woodpecker (Lewis *et al*., 2003). The internal dimensions of the nesting cavity are approximately twenty-two (22) inches deep and eight (8) inches wide.

During the breeding season, birds may start a number of cavity excavations, but only complete one nest cavity (Bull and Jackson 1995, Aubry and Raley, 2002a).

The breeding and nesting periods of the pileated woodpecker extends from late March to early July (Bull *et al.*, 1990). Preferred nest tree species and characteristics vary to some degree among different regions of the northwest. Cavity nests were found in Douglas fir on the subject property. The WDFW Management Recommendations report that most nest cavities are observed in hard snags with intact bark and broken tops, or live trees with dead tops. Hard snags are characterized as being comprised of sound wood while soft snags are composed primarily of wood in advanced stages of decay or deterioration (Brown, 1985).

4.3.2 Foraging

Pileated woodpeckers forage in forests containing large trees and snags that support abundant insect prey associated with dead and dying wood. Large rectangular/oval excavations in snags are indicative of pileated woodpecker foraging (McClelland, 1979, Neitro et al., 1985, Bull and Jackson, 1995). Large rectangular feeding stations were identified on the subject property.

In Washington, prey consisted of carpenter and thatching ants (Hymenoptera), beetle larvae (Coleoptera), termites (Isoptera), and other insects (Bull *et al*., 1992a, Torgersen and Bull, 1995, Aubry and Raley, 1996).

Mature and old-growth coniferous forest are considered high-quality foraging habitat (Aubry and Raley, 1996), but forests as young as forty (40) years of age are used if snags, particularly large residual snags from burns or harvests, are present (Mellen *et al*. 1992).

Pileated woodpeckers forage on large snags that are greater than twenty (>20) inches diameter at breast height (dbh), as well as live trees, logs, and stumps (Bull *et al*., 1986, Bull 1987, Torgersen and Bull, 1995). Pileated woodpeckers forage on snags in a broad range of decay conditions but appear to prefer large snags that may harbor more insects and larvae than smaller snags (Mannan *et al*., 1980).

4.3.3 Home Range

Home ranges are approximately one thousand (1,000) acres per breeding pair (Lewis et al., 2003). The actual year-round home range for the pileated woodpecker is larger than the breeding range (Mellen *et al*., 1992). Although home ranges in the central Oregon Coast Range were actively defended, the ranges of adjacent birds overlapped from nine to thirty percent (9-30%) (Mellen *et al.*, 1992). Home ranges are generally larger in urban areas where adequate habitat trees are more scattered.

4.3.4 Urban/Suburban Habitat Use

Pileated woodpeckers are residents in some developing areas throughout Washington. In these areas they occupy remnant patches of forest, parks, and green belts (Lewis *et al.*, 2003). The Pileated woodpecker requires large trees and sizeable territory (Moulton and Adams, 1991). Pileated woodpeckers in suburban areas forage on a variety of substrates, including large and small diameter coniferous and hardwood trees and snags, and occasionally on suet feeders, utility poles, and fruit trees (Bull and Jackson, 1995; Lewis *et al*., 2003).

Pileated woodpeckers select large diameter trees and snags for nesting and roosting, which they have on the subject property. Home ranges in urban environments may be larger than in rural areas due to the fragmented nature of remnant forest habitats in most suburban landscapes (Lewis et al., 2003).

Pileated woodpeckers and other cavity-dependent species would benefit from the retention of snags as well as the retention of live trees in the largest size classes available in the stand

4.3.5 Pileated Woodpecker Management Recommendations

The Washington Department of Fish and Wildlife (WDFW) provides generalized recommendations addressing the principle needs of pileated woodpeckers based primarily on the findings of a recent study conducted in the greater Seattle area in 2002. Specific relevant recommendations include:

- Preserve forested area to the greatest extent practicable to achieve project goals.
- Retention of snags as well as the retention of live trees
- Retention of existing snags measuring ten (10) to twenty (20) inches in diameter at seven (7) or more snags per acre.
- Retention of existing snags measuring twenty (20) to thirty (30) inches in diameter at three (3) or more snags per acre.
- Preserve all cavity nests.

The proposed project is in compliance with the WDFW management recommendations (See Section 7 of this report).

4.4 Vegetation Communities and Habitat Types

Three (3) vegetation communities have been identified and mapped on the subject property (**Figure 2**). These vegetation communities consist of:

- Coniferous Forest

  Coniferous forest dominated by Douglas fir (Pseudotsuga menziesii) trees of ten (10) to eighteen (18) inch DBH and dense understory vegetation with extensive trail network.

- Himalayan Blackberry

  Monotypic stand of Himalayan blackberry (*Rubus armeniacus*) with lesser amounts of other introduced weedy species located between forest and grassy area.

- Grassy Area

  European grasses and introduced lawn weeds located on the southern portion of the subject property.

4.4.1 Coniferous Forest

The dominant vegetation community on the northern portion of the subject property consists of coniferous forested dominated by Douglas fir trees (**Figures 2**).

Dominant plant species identified to occur associated with the onsite Douglas fir forest include:

- Sword fern (*Polystichum munitum*)
- Douglas fir (*Pseudotsuga menziesii*)
- Red alder (*Alnus rubra*)
- Big-leaf maple (*Acer Macrophyllum*)
- Cascara (*Rhamnus purshiana*)
- Cascade Oregon grape (*Mahonia nervosa*)
- English laurel (*Prunus laurocerasus*)
- English holly (*Ilex aquifolium*)
- Beaked hazelnut (*Corylus cornuta*)
- Osoberry (*Oemleria cerasiformis*)
- Bracken fern (*Pteridium aquilinum*)
- Snowberry (*Symphoricarpos albus*)

4.4.2 Himalayan Blackberry

Thickets of monotypic Himalayan blackberry occur on the southern portion of the subject property (**Appendix A, photos 57-62**). Dominant plant species that occur in the Himalayan blackberry thickets include the following:

- Himalayan blackberry (*Rubus armeniacus*)
- English ivy (*Hedera helix*)

4.4.3 Grassy Area

European grasses typically associated with lawns or pastures occur on the southern portion of the subject property.

Dominant plant species in the grassy areas include:

- Scotch broom (*Cytisus scoparius*)
- Orchard grass (*Dactylis glomerata*)
- Kentucky blue grass (*Agrostis Pretensis*)
- Tall fescue (*Festuca arundinacea*)
- Velvet grass (*Holcus lanatus*)
- Common plantain (*Plantago lancelata*)
- Alaska brome (*Bromus sitchensis*)
- Oxeye daisy (*Leucanthemum vulgare*)
- Hairy cat's ear (*Hypochaeris radicata*)
- Foxglove (*Digitalis purpurea*)
- Sweet vernal grass (*Anthoxanthum odoratum*)
- Red fescue (*Festuca rubra*)
- Lady's purse (*Capsella bursa-pastoris*)
- Leafy spurge (*Euphorbia esula*)

5.0 REGULATORY CONSIDERATIONS

Because no wetlands, streams, or their buffers were identified on the subject property or within three hundred (300) feet of the subject property, wetland or stream regulations do not apply. Because a priority species, the pileated woodpecker, and its associated feeding stations and cavity nests have been identified on the subject property, a Habitat Assessment and Priority Species Mitigation Plan have been prepared to assess potential impacts to the species and its habitat, as well as to propose measures that would avoid, minimize, or mitigate potential impacts.

No prairie soils occur on the subject property; thereby, no prairie plant survey is required. Because the site contains less preferred MPG soils and is located north of interstate 5, should release a project from further gopher review.

Under Lacey Municipal Code (LMC) 14.33.060(B)(2)---*State priority habitats and areas associated with state priority species*, priority habitats and species are considered to be priorities for conservation and management. Priority species require protective measures for their perpetuation due to their population status, sensitivity to habitat alteration, and/or recreational, commercial, or tribal importance. Priority habitats are those habitat areas or elements with unique or significant value to a diverse assemblage of species. A priority habitat may consist of a unique vegetation type or dominant plant species, a described successional stage, or a specific structural element. Priority habitats and species are identified by the state Department of Fish and Wildlife.

The City of Lacey requires a Habitat Assessment under LMC 14.33.115---*Critical Areas Requirements*. Under LMC 14.33.115(C)---*Habitat Assessment*, Subsection 2, A habitat assessment is an investigation of the project area to evaluate the presence or absence of a potential fish or wildlife species or habitat that is protected under this ordinance. A critical area report for a habitat conservation area shall contain an assessment of habitats.

Under LMC 14.33.115(C)(2), identification of any species of local importance, priority species, or endangered, threatened, sensitive or candidate species that have a primary association with habitat on or adjacent to the project area, an assessment of potential project impacts to the use of the site by the species.

This report satisfies LMC 14.33.115(C)(3), which states that Habitat Assessments must provide a discussion of any Federal, State, or local special management recommendations, including Washington Department of Fish and Wildlife (WDFW) habitat management recommendations, that have been developed for species or habitats located on or adjacent to the project area.

This report satisfies LMC 14.33.115(C)(4), which states that Habitat Assessments must provide a discussion of measures, including avoidance, minimization and mitigation, proposed to preserve existing habitats and restore any habitat that was degraded prior to the current proposed land use activity and to be conducted in accordance with "mitigation sequencing".

In addition, under LMC 14.33.115(C)(5), Habitat Assessments must provide a discussion of ongoing management practices that will protect habitat after the project site has been developed, including proposed monitoring and maintenance programs.

5.1 Priority Species Mitigation Plan

Under LMC 14.33.110(B)(9), a priority habitat and priority species management plan prepared by a qualified habitat biologist based upon best available science information provided in the critical area report. The plan shall detail how the designated fish and wildlife habitat conservation area and any priority species found within said area shall be protected. The plan shall follow all recommendations provided by the Department of Fish and Wildlife in its priority habitat and priority species program according to its publication "Management Recommendations of Washington Priority Habitats and Species" or based on site specific recommendations made by the Department of Fish and Wildlife based on review of the project site.

Applications for uses and activities on sites containing a habitat or species subject to this section shall include a critical area report that evaluates the potential impacts of the proposed use or activity on the habitat and/or species, as applicable.

The process for determining whether critical area reports are required, and the extent of information required. Critical area reports that pertain to important habitats and species may also be referred to as priority species management plan.

The director, upon review of a critical area delineation or survey, may require the applicant to submit a critical area report that outlines what impacts will occur and how any impacts will be mitigated. The critical area report must demonstrate that impacts are unavoidable.

Mitigation actions associated with development proposals impacting critical areas shall adhere to the following mitigation sequence:

A. Avoiding the impact altogether by not taking a certain action or parts of an action.

B. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts.

C. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.

D. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.

E. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and/or

F. Monitoring the impact and taking appropriate corrective measures.

A priority species management plan must identify how the development impacts from the proposed project will be addressed and follow the management recommendations outlined in the *Management Recommendations from Washington's Priority Habitats and Species* (1991) as amended.

6.0 PROPOSED PROJECT

6.1 Project Overview

The proposed Bradley Park project consists of an 82-unit proposed plat located on a 15.66-acre parcel in the City of Lacey (**Figure 3**). The southern portion of the property will remain undeveloped. Bradley Park is consistent with other nearby developments. Lots will be served with power, gas, internet, and other utilities.

6.2 Unavoidable Impacts

Unavoidable impacts consist of the removal of 428,879 sf (9.85 acres) of Douglas fir forest. The proposed land use would overlap seven (7) pileated woodpecker habitat trees (**Figure 3**).

6.3 Indirect Construction Impacts

Potential indirect short-term effects during construction include:

1) Erosion and sedimentation.
2) Elevated potential for noise and vibrations; and
3) Increased exhaust emissions and dust from heavy machinery.

The implementation of erosion and sediment control Best Management Practices (BMPs) would limit the erosion and sedimentation. Work would occur primarily during daytime hours to limit noise and vibration. Exhaust emissions and dust would be limited to hours of machinery operation. Mufflers would be standard on heavy machinery to limit noise, vibration, and exhaust emission.

6.4 Operational Impacts

Some impacts would occur generated by routine human activities. Some noise and human activity would occur during routine daytime operations that could disturb wildlife species. Directing human activities away from habitat would minimize noise impacts. A split rail fence around high quality habitat is recommended to limit human access.

6.5 Species Impacts

With applied conservation measures, no impacts to individual wildlife species are anticipated. Mitigation is expected to off-set impacts to facultative wildlife species that may occasionally use individual on-site Douglas fir trees as habitat.

7.0 CONCEPTUAL MITIGATION PLAN

This is a conceptual mitigation plan based on the potential impacts that may occur to identified pileated woodpecker habitat features.

7.1 Mitigation Strategy

The mitigation strategy is based on WDFW Management Recommendations and City of Lacey Code and includes:

1) Habitat & Landscape Linkages

   The project was designed to preserve and to establish landscape linkages of contiguous habitat connecting diverse habitat networks for the pileated woodpecker (**Figures 4 & 5**). The pileated woodpecker maintains a home range of greater than one thousand (>1,000) acres in urban areas, which would extend almost entirely offsite.

2) Habitat Preservation

   Preserve thirty-two (32) large Douglas fir trees in the tree preservation area totaling 18,766 sf (0.43 acres) in size (**Figures 4 & 5**). The tree preservation area would be part of a larger network of forested patches comprising the pileated woodpecker urban home range for a breeding pair, which encompasses more than one thousand (>1000) acres.

3) Relocate Pileated Woodpecker Habitat Trees

   Relocate seven (7) pileated woodpecker habitat trees, including feeding stations and cavity nests, to the tree preservation area (**Figures 4 & 5**). If pileated woodpecker nesting occurs onsite, trees or snags that contain pileated woodpecker feeding stations or cavity nests will be relocated outside of nesting season, which occurs from late March through Early July. No construction window is necessary, if no pileated woodpeckers are nesting in the selected trees on the subject property. The WDFW Management Recommendations for the pileated woodpecker suggests the retention of snags at seven (7) or more per acre for those with a DBH of twenty (20) to thirty (30) inches. This mitigation plan proposes the equivalent of ten (10) snags per acre.

4) Control Invading Weeds.

   Remove introduced invasive weeds, primarily Scotch broom (*Cytisus scoparius*) & Himalayan blackberry (*Rubus discolor*), in the tree preservation area to enhance the growth of native vegetation and to provide a greater habitat value.

5) Install Spilt-Rail Fence.

   Install split-rail fence around tree preservation area to discourage entry. Blocking access would discourage disturbance within the pileated woodpecker tree preservation area.

6) Monitoring and Maintenance.

   Propose a five (5)-year Monitoring and Maintenance Plan that would apply adaptive management and ensure mitigation success for the long-term.

7.2 Goals and Objectives

***Goal 1*: Mitigate Habitat**. Mitigate pileated woodpecker habitat on the subject property to the greatest extent practicable to achieve land use goals.

Recommended Objectives:

- Preserve thirty-two (32) large Douglas fir trees in the tree preservation area totaling 18,766 sf (0.43 acres) in size. If one (1) or more of the preserved trees parish during the monitoring period, replace the tree with one (1) gallon Douglas fir at a three to one (3:1) replacement to loss ratio.
- Relocate seven (7) pileated woodpecker habitat trees, including feeding stations and cavity nests, to the tree preservation area. If the relocated snags to not stay intact or are otherwise incidentally destroyed, replace the snags using cut live trees from the mitigation area. If relocated trees containing nesting cavities are incidentally destroyed, replacement snags will be installed with artificially created nesting cavities to appropriate habitat specifications.
- Remove and control exotic and invasive plants, primarily Scot's broom and Himalayan blackberry, in mitigation area to allow growth of native plant species.
- If no utilization of the pileated woodpecker tree preservation area during any year of monitoring, apply adaptive management through consultation with the department of fish and wildlife.

8.0 MONITORING AND MAINTENANCE

8.1 Monitoring Methodology

We recommend that the monitoring program be performed for a period of five (5) years. A baseline assessment will be performed at the end of the construction phase. This information will be used as a baseline to compare subsequent monitoring events.

Field visits will be completed once per year and twice the fifth (5^{th}) year as follows:

- At the time of construction completion.
- Early in the growing season of the first (1^{st}) year after construction.
- Early in the growing season of the second (2^{nd}) through forth (4^{th}) years after construction.
- Beginning and end of the fifth (5^{th}) growing season.

Monitoring will evaluate plant growth and establishment and wildlife usage in mitigation area. If mitigation objectives are met at an earlier date, monitoring phase will be closed earlier, upon approval of regulatory agencies.

8.2 Success Criteria

Summary of Success Criteria

1. Success of preserved trees will be based on one hundred percent (100%) survival rate following each monitoring event at the end of the fifth year.
2. Weed maintenance success will be based on less than twenty percent (20%) aerial cover of non-native invasive weeds within the preservation areas following the third year of monitoring.
3. Success of pileated woodpecker habitat tree/snag relocation is based on seven (7) snags and two (2) pileated woodpecker nesting cavities.

8.3 Maintenance (M) and Contingency (C)

Established performance standards for the project will be compared to the monitoring results in order to judge the success of the mitigation project. Contingency measures will include the items listed below and will be implemented if these performance standards are not met. Maintenance and remedial action on the site will be implemented immediately upon completion of the monitoring event (unless otherwise specifically indicated below).

- Replace dead preserved Douglas fir trees to meet the goals and objectives of the plan. (C)
- Re-install woodpecker habitat snags after reason for failure has been identified (C)
- Remove/control weedy or exotic invasive plants (*e.g.*, Scot's broom, reed canarygrass, Himalayan blackberry, purple loosestrife, etc.) by manual or chemical means approved by City of Lacey. Use of herbicides or pesticides within the mitigation area would only be implemented if other measures failed or were considered unlikely to be successful. (C & M)

9.0 CONCLUSION

No wetlands or streams have been identified on or within three hundred (300) feet of the subject property during the site evaluation. Thereby, wetland and stream regulations would not apply.

One (1) priority species, the pileated woodpecker (*Dryocopus pileatus*) has been identified on the subject property during the site evaluation. The pileated woodpecker is not federally-listed under the endangered species list but is a State Candidate for listing.

Seven (7) pileated woodpecker feeding stations and two (2) pileated woodpecker tree cavities were identified on the subject property during the site evaluation (**Figure 2; Appendix, Photos 1-4**). One (1) pileated woodpecker was identified in Station 2 (**Appendix A, photos 20-25**). The identified pileated woodpecker was observed activity excavating a cavity in the tree (**Appendix A, Photos 19 & 21**). Shavings from the cavity excavation is clearly seen on the ground under the activity (**Appendix A, Photo 26**).

No priority species other than the pileated woodpecker, including the band-tailed pigeon, was identified on the subject property during the study. However, band-tailed pigeons typically migrate south, outside of Washington State, during the winter (Band-tailed Pigeon, 2003). Thereby, band-tailed pigeons may not have been in the study area at the time of the study (Band-tailed Pigeon, 2003).

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Unavoidable impacts consist of the removal of 428,879 sf (9.85 acres) of Douglas fir forest. The proposed land use would overlap seven (7) pileated woodpecker habitat trees.

The mitigation strategy is based on WDFW Management Recommendations and City of Lacey Code and includes:

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   The project was designed to preserve and to establish landscape linkages of contiguous habitat connecting diverse habitat networks for the pileated woodpecker (**Figures 4 & 5**). The pileated woodpecker maintains a home range of greater than one thousand (>1,000) acres in urban areas, which would extend almost entirely offsite.

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6) Monitoring and Maintenance.

   Propose a five (5)-year Monitoring and Maintenance Plan that would apply adaptive management and ensure mitigation success for the long-term.

This report complies with City of Lacey Code for the preservation of a priority species.

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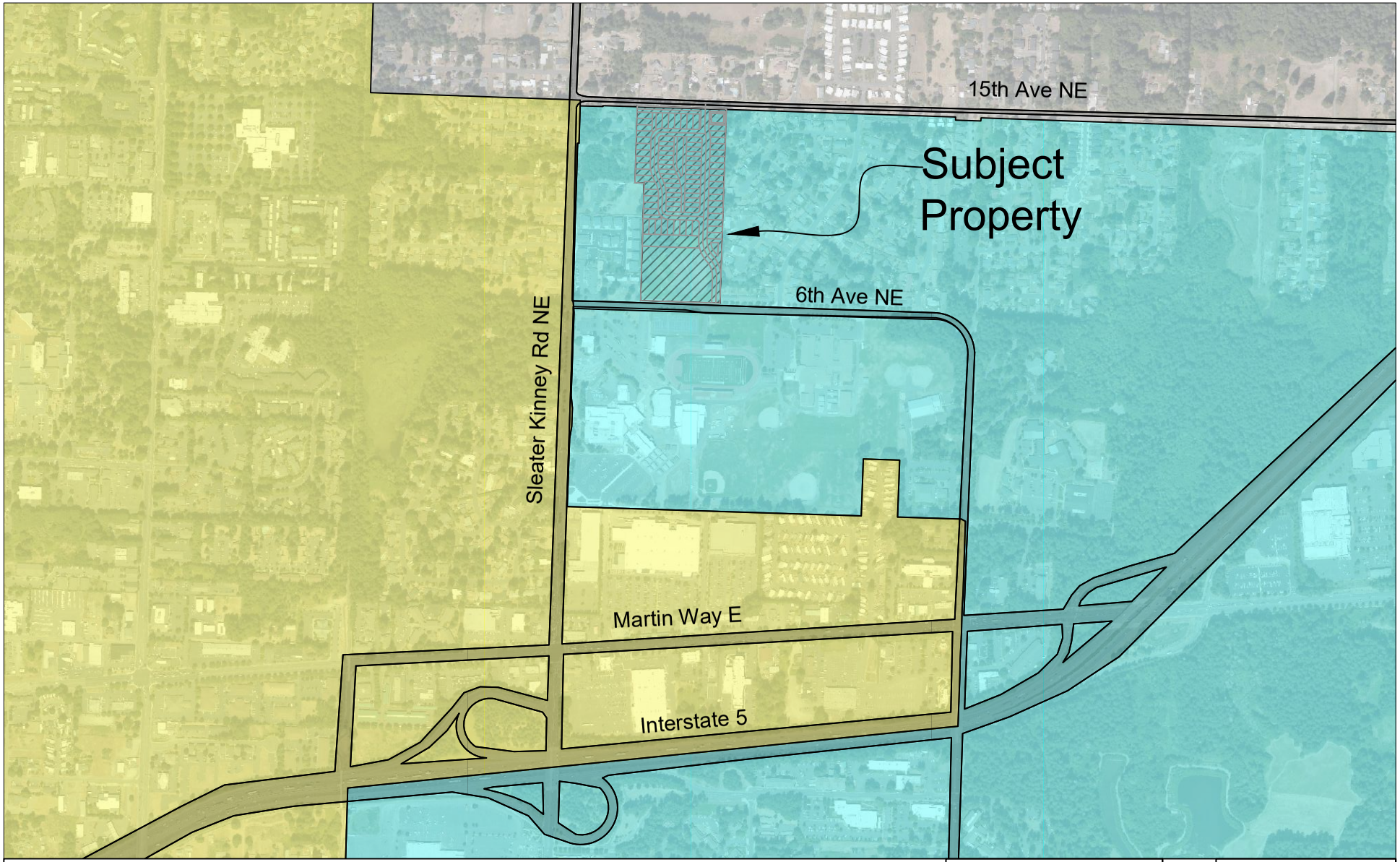
FIGURES



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City of Lacey
City of Olympia

Figure 1

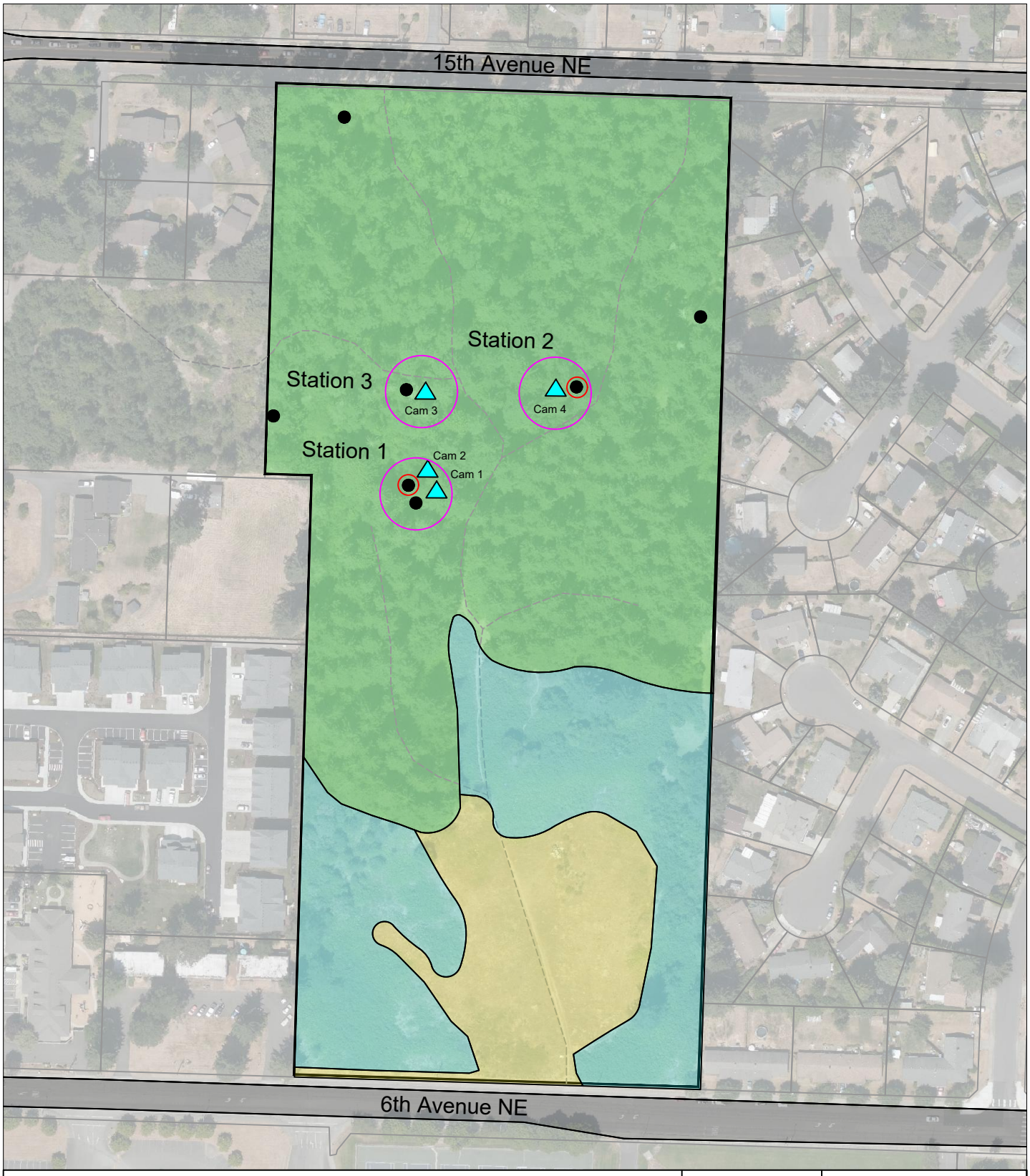
Bradley Park

Vicinity Map

Scale: 1" = 900

0 900

10 March 2021



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Feeding stations
Motion Cameras
Cavity Nests
On-site Trails

Forest
Himalayan Blackberry
Grassy Area
Station

Figure 2

Bradley Park

Existing Conditions

Scale: 1"= 175

0 175

10 March 2021

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Feeding stations
Motion Cameras
Cavity Nests
On-site Trails

Forest
Himalayan Blackberry
Grassy Area

Figure 3

Bradley Park

Proposed Project

Scale: 1"= 175

0 175

10 March 2021

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Forested Mitigation Area
Himalayan Blackberry (preserved)
Grassy Area (Preserved)
Trans-located Feeding stations
Trans-located Cavity Nests
Removed Feeding stations
Removed Cavity Nest
Pre-development Vegetation Boundary

Figure 4

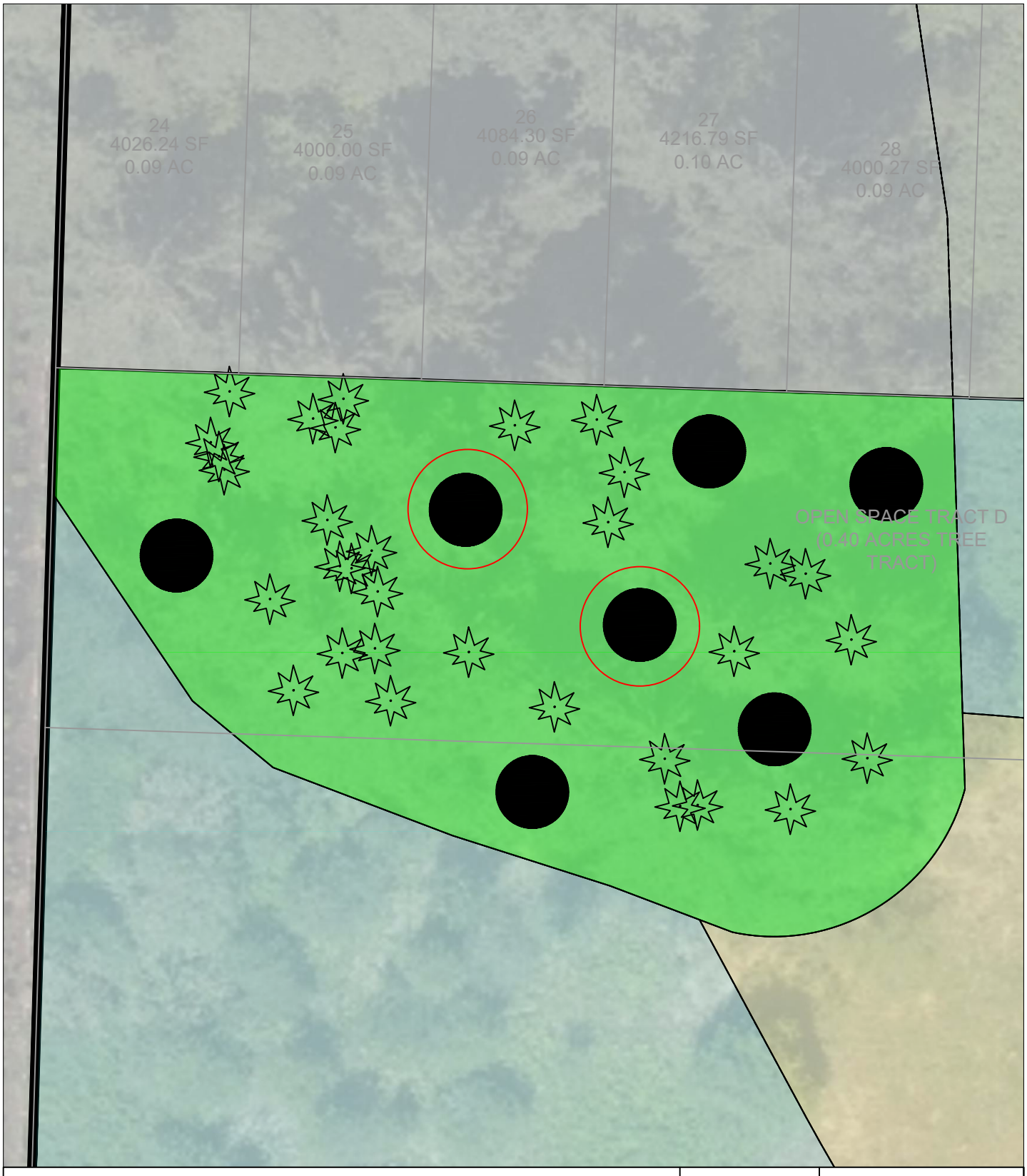
Bradley Park

Mitigation Plan

Scale: 1"= 175

0 175

10 March 2021



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Forested Mitigation Area
Trans-located Feeding stations
Trans-located Cavity Nests
Existing Surveyed Douglas Fir Tree (Preserved)
Himalayan Blackberry (preserved)
Grassy Area (Preserved)
Pre-development Vegetation Boundary

Figure 5

Bradley Park

Mitigation Plan

Scale: 1"= 30'

0 30'

10 March 2021

Appendix A

Photographs

Pileated Woodpecker Feeding Stations & Cavity Nests

Photo 1. Small snag with downy woodpecker feeding stations.

Photo 2. Northern flicker cavity.

Photo 3. Pileated feeding station at northern property boundary.

Photo 4. Woodpecker feeding station.

Station 1

Photo 5. Pileated woodpecker feeding station at Station 1

Photo 6. Pileated cavities & feeding stations at Cameras 1 & 2.

Photo 7. Pileated cavities & feeding stations at Cameras 1 & 2.

Photo 8. Pileated woodpecker cavities in Station 1.

Photo 9. Cameras 1 & 2 at Station 1.

Photo 10. Cameras 1 & 2 at Station 1.

Photo 11. Cameras 1 & 2 at Station 1.

Photo 12. Cameras 1 & 2 at Station 1.

Photo 13. Woodpecker suit baited in Station 1 for Cameras 1 & 2

Photo 14. Eastern gray squirrel from Camera 1

Photo 15. Eastern gray squirrel at Camera 1.

Photo 16. Eastern gray squirrel at Camera 1.

Photo 17. Douglas squirrel at suit.

Photo 18. Douglas squirrel at suit.

Station 2

Photo 19. Pileated woodpecker creating cavity.

Photo 20. Pileated woodpecker creating cavity at Station 2

Photo 21. Pileated woodpecker creating cavity.

Photo 22. Pileated woodpecker creating cavity at Station 2

Photo 23. Pileated woodpecker at Station 2

Photo 24. Pileated woodpecker drilling new cavity

Photo 25. Pileated woodpecker in Station 2.

Photo 26. Woodpecker shavings on the ground under activity

Photo 27. Eastern gray squirrel at Camera 3 in Station 2.

Photo 28. Eastern gray squirrel triggers motion camera.

Photo 29. Eastern gray squirrel.

Photo 30. Installing Camera 3 bait in Station 2.

Photo 31. Douglas squirrel at Camera 3 in Station 2.

Photo 32. Black-tailed deer at Camera 3 in Station 2

Station 3

Photo 33. Pileated woodpecker feeding station at Station 3.

Photo 34. Tree cavity in Station 3

Photo 35. Pileated woodpecker feeding station at Station 3.

Photo 36. Pileated woodpecker feeding station at Station 3.

Photo 37. Douglas squirrel at Station 3.

Photo 38. Douglas squirrel at station 3

Wildlife

Photo 39. Northern flicker photographed on the subject property.

Photo 40. Black-capped chickadee on the subject property.

Photo 41. Crow nest in Douglas fir tree.

Photo 42. Downy woodpecker pecking at tree.

Photo 43. Scrub jay located in the grassy area.

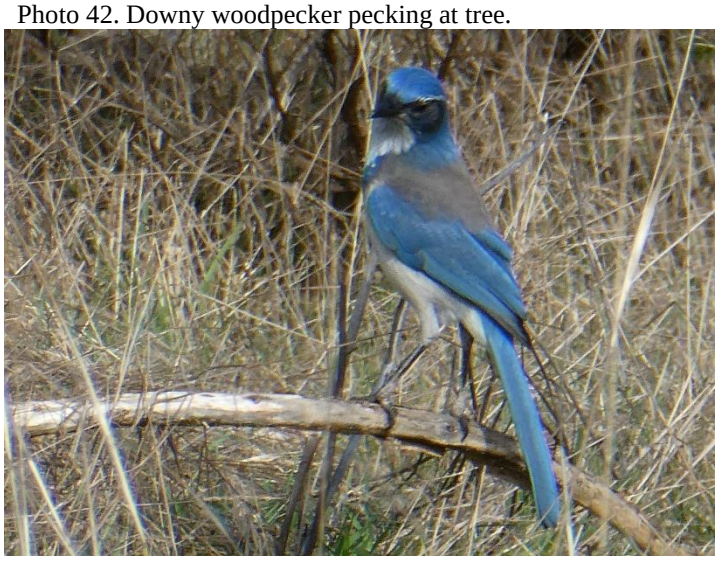


Photo 44. Scrub jay located in the grassy area.

Forest

Photo 45. Douglas forest on northern portion of subject property.

Photo 46. Douglas forest on northern portion of subject property.

Photo 47. Douglas forest on northern portion of subject property.

Photo 48. Douglas forest on northern portion of subject property.

Photo 49. Douglas forest on northern portion of subject property.

Photo 50. Douglas forest on northern portion of subject property.

Grassy Area

Photo 51. Grassy area on southern portion of subject property.

Photo 52. Grassy area on southern portion of subject property.

Photo 53. Grassy area on southern portion of subject property.

Photo 54. Orchard grass in grassy area

Photo 55. Queen Anne's Lace in grassy area.

Photo 56. Grassy area on southern portion of subject property.

Himalayan Blackberry

Photo 57. Himalayan blackberry between forest and grassy area.

Photo 58. Himalayan blackberry between forest and grassy area.

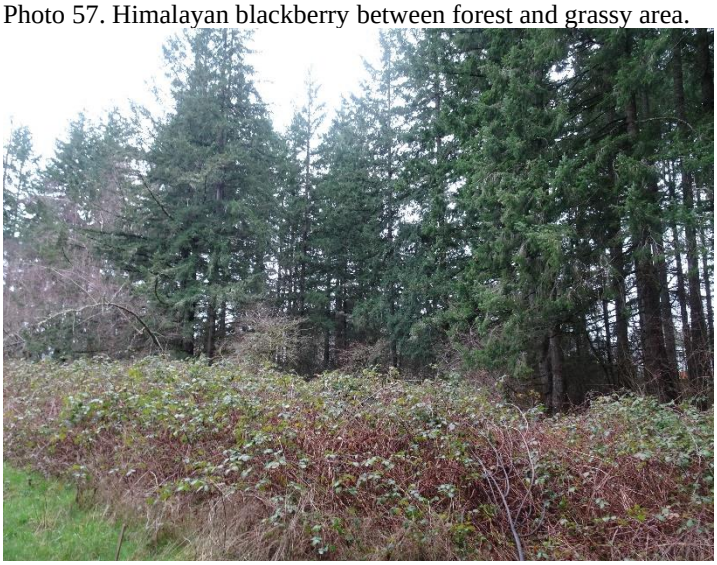


Photo 59. Himalayan blackberry between forest and grassy area.

Photo 60. Himalayan blackberry between forest and grassy area.

Photo 61. Thicket of monotypic Himalayan blackberry.

Photo 62. Thicket of monotypic Himalayan blackberry.

Appendix B

Thurston County Geodata

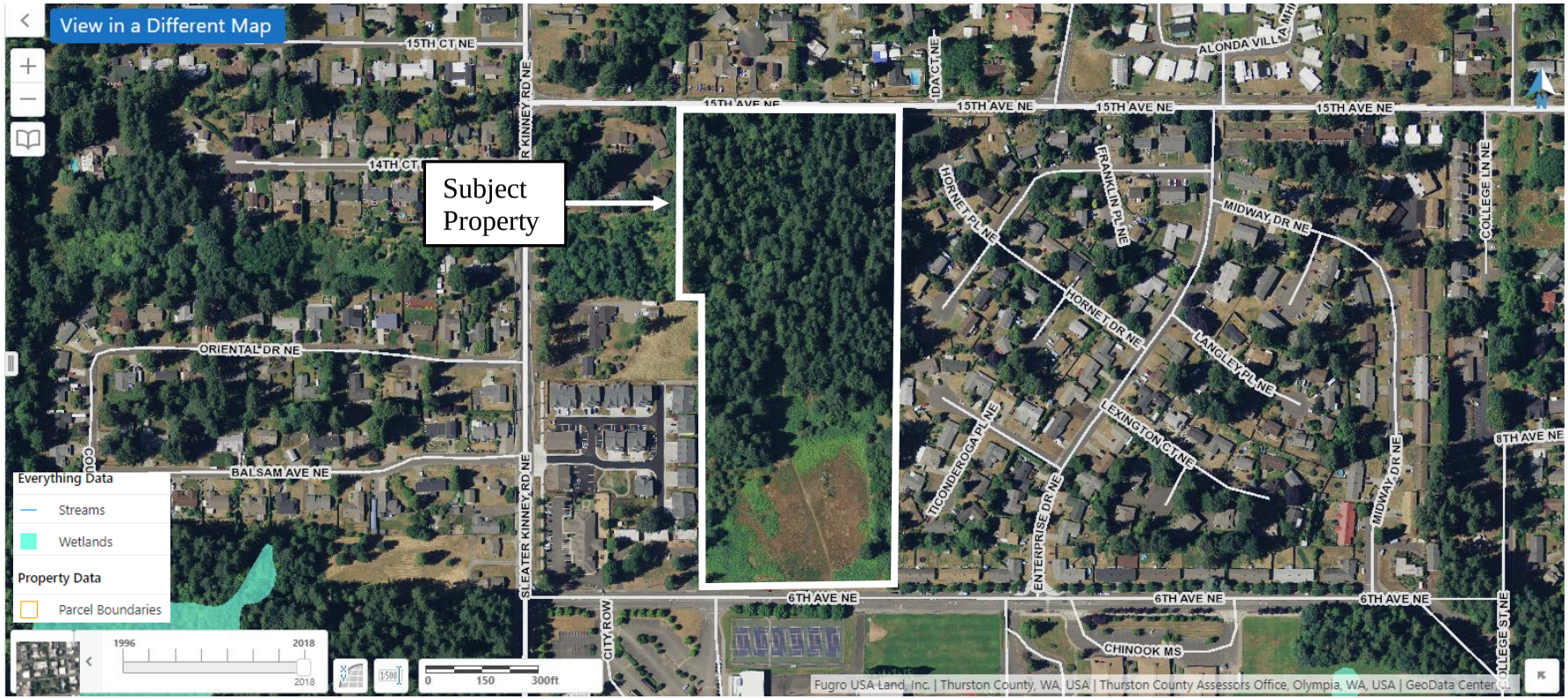
Soils

McKenna gravelly silt loam, 0-5% slopes (hydric)
Subject Property
Alderwood gravelly sandy loam, 0-3% slopes (non-hydric)
Giles silt loam , 0-3% slopes (non-hydric)
15th Ct Ne
14th Ct Ne
Sleater Kinney Rd Ne
15th Ave Ne
Forrestal Pl Ne
Hornet Pl Ne
Oriental Dr Ne
Balsam Ave Ne
6th Ave Ne
Sleater Kinney
Shangrila Pl Ne
Enterprise Dr Ne
Langley Pl Ne
Lexington Pl Ne
Saratoga Pl Ne
Alonda Ln Ne
Midway Dr Ne

Appendix C

Thurston County Geodata

Wetlands & Streams

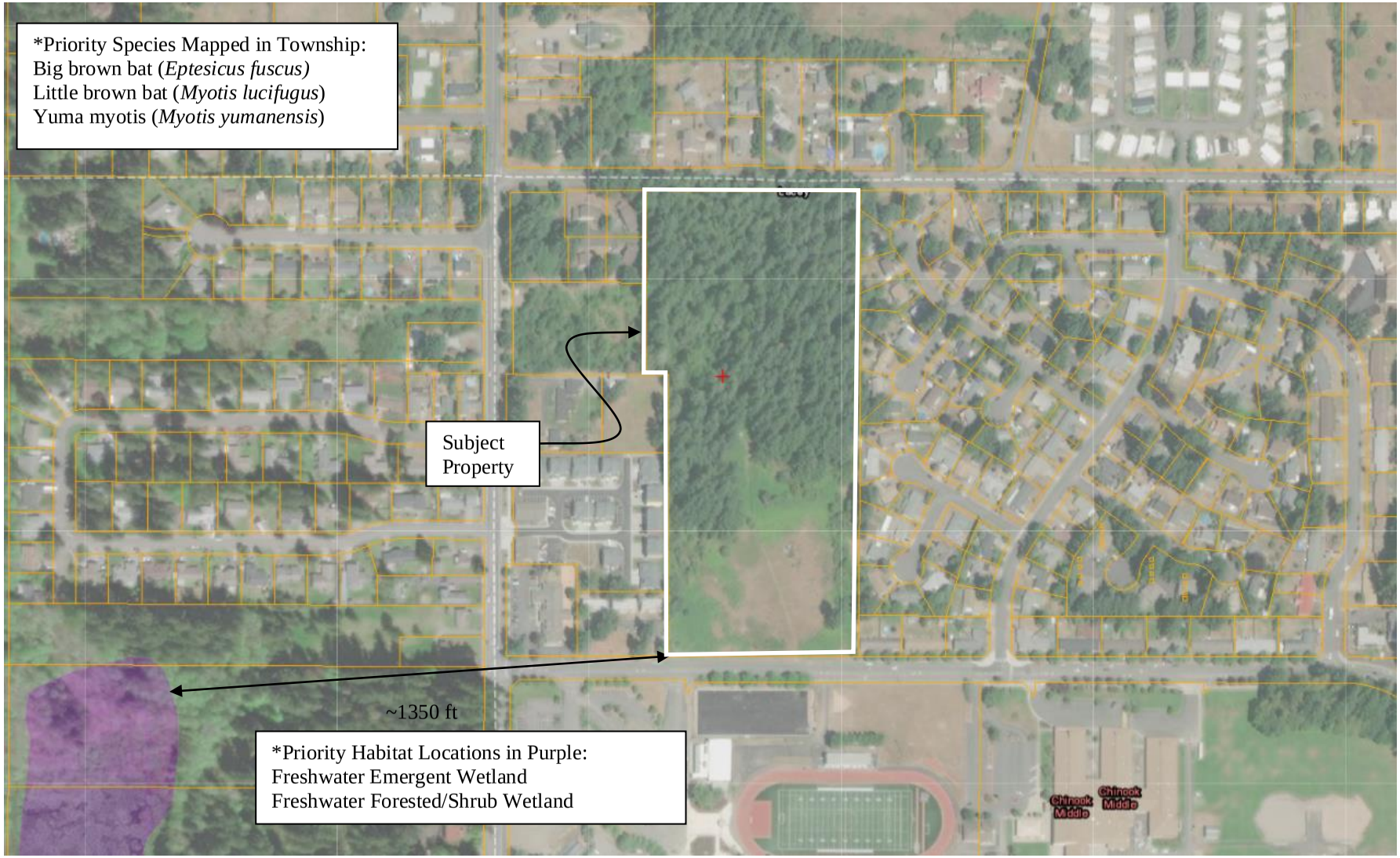

View in a Different Map
Subject Property
15TH CT NE
14TH CT
ORIENTAL DR NE
BALSAM AVE NE
SLEATER KINNEY RD NE
15TH AVE NE
6TH AVE NE
8TH AVE NE
HORNET PL NE
FRANKLIN PL NE
MIDWAY DR NE
HORNET DR NE
LANGLEY PL NE
LEXINGTON CT NE
TICONDEROGA PL NE
ENTERPRISE DR NE
COLLEGE LN NE
COLLEGE ST NE
CHINOOK MS
CITY ROW
Everything Data
Streams
Wetlands
Property Data
Parcel Boundaries
1996
2018
0 150 300ft
Fugro USA Land, Inc. | Thurston County, WA, USA | Thurston County Assessors Office, Olympia, WA, USA | GeoData Center, Inc.

Appendix D

Washington Department of Fish and Wildlife (WDFW)

Priority Habitats and Species (PHS)

Database


*Priority Species Mapped in Township:
Big brown bat (*Eptesicus fuscus)*
Little brown bat (*Myotis lucifugus*)
Yuma myotis (*Myotis yumanensis*)
Subject Property
~1350 ft
*Priority Habitat Locations in Purple:
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Chinook Middle
Chinook Middle