

PLANTS & ANIMALS ASSESSMENT

**Segale Properties Cumberland Ownership
King County, Washington**

July 8, 2022

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Title: Plants & Animals Assessment Report for the Segale
Properties Cumberland Project Site
King County, Washington

Project Number: 2019-105-002

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Date: July 8, 2022

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1.0 INTRODUCTION

1.1 STATEMENT OF PURPOSE

This report documents the results of our field investigations at the Segale Properties Cumberland project site located in unincorporated King County, Washington (Figures 1 & 2) throughout our field visits in 2019 and 2021. Field visits took place on December 3 and December 10, 2019, April 22, 2021, and May 14, 2021. The purpose of this investigation is to evaluate current wildlife use and habitat conditions within the project area, as well as evaluate any listed, priority, or other protected species such as bald eagles (*Haliaeetus leucocephalus*) and great blue herons (*Ardea herodias*) in the vicinity of the project site. We also evaluate impacts of the proposed activities on plants and animals, including fisheries for the project. A separate document was prepared outlining the wetland conditions and impacts at the project site (Raedeke Associates, 2022)

This document is intended for submittal to King County as part of an application by Segale Properties to develop an aggregate process and mining operation north of Cumberland, Washington.

1.2 STUDY AREA LOCATION

The Segale Properties Cumberland project site consists of an approximately 1,000-acre assemblage located north of Cumberland and south of the Green River in unincorporated King County, Washington. The project site consists of 8 different parcels spread across Sections 9, 15, 17, and 21 of Township 21 North, Range 7 East. The project site includes King County Tax Parcel Nos. 1721079001, 0921079001, 1521079008, 1521079009, 2121079006, 2121079029, 2121079009, and 2121079005. Parcel maps retrieved on-line from King County depict the property boundaries.

1.3 PROJECT DESCRIPTION

The proposed project site is bounded by the Green River Gorge Conservation Area to the north and west; Cumberland-Kanaskat Road SE to the east and SE 352nd Street/309th Avenue SE/SE Green River Gorge Road to the south. The applicant proposes to develop an aggregate processing and mining facility on approximately 994 acres encompassing 16 separate parcels. The mining operation would include an approximate 1,500 to 2,000 sq. ft. general office area; truck scales, an approximate 10,000 to 15,000 sq. ft. maintenance shop; aggregate processing and product stockpiles; process water treatment/recycling facility; and an asphalt plant and associated yard. Estimated life span of the mine is 30 years. Primary access to the site would be from Cumberland-Kanaskat Road SE with emergency access only to SE Green River Gorge Road. An additional access road entrance/exit is also proposed on the eastern edge of the project site, leading onto Cumberland Kanaskat Rd SE. An application sketch prepared by Segale Properties

(Figure 7) shows the area of disturbance of the proposed development. Information regarding specific locations of mining and structures, as well as information regarding plans for reclamation and restoration have not yet been received as of the time of preparing this document. None of the wetlands found within the DNR parcel 16 (Figure 3) would be impacted by the proposed activities.

2.0 METHODS

2.1 REVIEW OF BACKGROUND INFORMATION

In preparation for our wildlife reconnaissance site visit, we reviewed information from the Washington Department of Fish and Wildlife (WDFW 2022a) Priority Habitats and Species (PHS) database for documented information on the potential occurrence of federal- or state-listed wildlife species within the project site and vicinity, as well as the WDFW (2022b) Salmonscape database. We also reviewed the King County (2022a) iMap GIS mapping tool, and the King County (2022b) code, to determine potential presence of King County regulated wildlife species on site.

Reference lists maintained by WDFW (2008) were consulted for information on the status of listed wildlife species that could use the site during at least some part of the year. Species accounts and management recommendations provided by WDFW (e.g., Rodrick, E., and R. Milner, 1991, Larsen et al. 2004) were consulted to determine habitat associations of such species and to evaluate the likelihood of their occurrence on the project site. During the field investigation, we searched for the presence of these species, or signs thereof, which could be found on the property. We reviewed current and historical aerial photographs (Google Earth 2022) to assist in the definition of existing land use, wildlife habitat, and potential use by wildlife species.

2.2 SITE VISIT / FIELD SAMPLING PROCEDURES

Raedeke Associates, Inc. staff visited the study area on December 3 and December 10, 2019, April 22, 2021, and May 14, 2021. Each visit consisted of multiple staff members conducting investigations concurrently. During these field investigations, we searched for the presence or habitat of wildlife species that have been listed endangered, threatened, or sensitive by the USFWS (2020b) or WDFW (2008). We also searched for the presence or habitat of wildlife species identified in the King County (2022b) code as “Species of Local Importance”.

During our field investigations, we documented wildlife presence, sign, and habitat and described plant communities. We recorded information regarding reproduction, habitat use, and activities of all wildlife species observed. In addition, we noted special habitat features such as large and/or hollow trees, snags [standing dead or partly dead trees at least four inches in diameter at breast height (dbh) and at least six feet tall], and large downed logs.

3.0 RESULTS

3.1 RESULTS OF BACKGROUND INFORMATION REVIEW

3.1.1 Overview

As outlined in our wetland investigations (Raedeke Associates, 2022), the USFWS (2022a) NWI does show one wetland within the immediate vicinity of the project site. The NWI depicts an unnamed stream originating from the northwest slopes of the 1,474-foot-high point on the eastern edge of the project site, in Section 21. This wetland is classified as an unknown perennial, unconsolidated bottom, permanently flooded riverine system. This feature is mapped as flowing southwest through parcel 1621079001, which is not part of the project site. While the Washington Department of Fish and Wildlife (2022b) Salmonscape map also depicts this stream, King County (2022a) iMap does not identify this stream.

The Green River, which lies outside the project site to the north and west, is identified by the NWI as a riverine wetland. Wetlands shown on the NWI are general in terms of location and extent, as they are determined primarily from aerial photograph interpretation. Thus, the number and extent of existing wetlands within the project area may differ from those marked on an NWI map. King County (2022a) iMap does not depict any other streams or wetlands on or within the vicinity of the project site.

3.1.2 Listed and Priority Species, Federal and State Databases

WDFW PHS and Salmonscape Databases

The current Washington Department of Fish and Wildlife (WDFW 2022a) online Priority Habitats and Species (PHS) database map depicts 15 PHS entries within a 1,000-foot radius of the project site (Figure 4). These include mountain quail, fall Chinook, Chum, Sockeye, winter steelhead, summer steelhead, resident coastal cutthroat, steelhead, Chinook, Dolly Varden/bull trout, fall Chum, Coho, harlequin duck, elk, and freshwater forested/shrub wetland.

The mountain quail (*Oreortyx pictus*) entry described is a single observation of a male mountain quail observed in October of 1993. This sighting is recorded at the southeast periphery of the Green River. This sighting is approximately 1000 feet northwest of the project site within the Green River Gorge Conservation Area. Mountain quail are a priority species in Washington's PHS program and are listed as a Species of Greatest Conservation Need in Eastern Washington only (WDFW 2022f). This species is most typically found east of the Cascade Crest, although has been introduced in Western Washington.

All the fish species indicated on the PHS map are indicated as occurring within the Green River to the north and west of the project site. Similarly, the harlequin duck (*Histrionicus histrionicus*) entry indicates river corridor and its vicinity as a breeding area

for this species. The harlequin duck entries are located as close as 180 feet from the boundaries of the project site.

The general locality in which the project site is located is indicated as regular concentration of Roosevelt Elk (*Cervus elaphus*). This PHS entry indicates the elk concentration occurs as far north as North Bend and extends south to Enumclaw, west to Auburn, and east into the Snoqualmie National Forest.

The freshwater forested/shrub wetlands are indicated generally along the periphery of the project site within the Green River Gorge Conservation area, southeast of Cumberland-Kanaskat Road SE, and southwest of SE 352nd St. No other species of concern are mapped as occurring on the property on the WDFW PHS map.

The Salmonscape (WDFW 2022b) mapper shows Green River north and west of the project site as documented presence of rainbow trout, bull trout, chum, cutthroat trout, and sockeye; and documented spawning of winter steelhead, summer steelhead, coho, and fall chinook, (Figure 5). It does not indicate any other fish-bearing streams within the vicinity of the project site.

Washington Natural Heritage Program and Wetlands of High Conservation Value

The Washington Natural Heritage Program (WDNR 2021) database indicates the presence of natural heritage features northwest of the project area on the northwest side of the Green River (Figure 6). The Wetlands of High Conservation Value indicates a known wetland of high conservation value approximately 4,000 feet northwest of the project site in the vicinity of ASE 312th Way. No natural heritage features are indicated as occurring at or in the immediate vicinity of the project site.

U.S. Fish and Wildlife Service IPAC Mapper

The USFWS (2022b) official list of threatened and endangered species indicated as potentially occurring in the vicinity of the project area (as indicated by the USFWS Information, Planning, and Conservation System) includes seven species. These are the gray wolf (*Canis lupus*), North American wolverine (*Gulo gulo luscus*), marbled murrelet (*Brachyramphus marmoratus*), streaked horned lark (*Eremophila alpestris strigata*), yellow-billed cuckoo (*Coccyzus americanus*), bull trout (*Salvelinus confluentus*), and monarch butterfly (*Danaus plexippus*). These seven species are discussed more in depth throughout the remainder of this section.

In 1973, under provisions of the federal Endangered Species Act (ESA), gray wolves (*Canis lupus*) were classified as an endangered species in Washington. In 2011, wolves in the eastern third of Washington were removed from federal protections under the ESA. Wolves in the western two-thirds of Washington continue to be protected under the ESA and are classified as an endangered species under federal law. At present, wolves are classified as an endangered species under state law (WAC 220-610-010) throughout

Washington regardless of federal classification. The state has been divided into three recovery areas: Eastern Washington, the Northern Cascades, and the Southern Cascades and Northwest Coast. All the known packs in Washington occur within the Eastern Washington and North Cascades recovery areas. No packs are known to occur anywhere near the project site. The nearest known pack to the project site is the Teanaway, located east of the Cascade crest in central Washington (WDFW 2022c, 2022d). Consequently, wolves are not expected to occur on the site or in the vicinity on a regular basis.

In 2013, the USFWS proposed threatened status for the North American wolverine, but the proposed rule was withdrawn in 2014 (Federal Register 2013c, 2014d). Although still indicated as proposed threatened and as potentially occurring within the project area vicinity in King County by the USFWS (2022b), the North American wolverine has not been recently documented within King County, particularly within the urbanized Puget Sound lowlands. Apparently, a wolverine was sighted in the Tokul area in May 2018, and one (which may have been the same animal) was killed trying to cross I-90 near Preston in June 2018 (Jason Rogers, City of Snoqualmie, pers. comm., June 28, 2019; Conservation Northwest 2019). Recent sightings of wolverines in Washington include Mount Rainier National Park and the southern Washington Cascades (WDFW 2022e; Conservation Northwest 2022). However, established populations in Washington have been documented only in the North Cascades and northeastern Washington (Aubry et al. 2007, 2016), and the existence of a breeding population farther south in the Washington Cascades and foothills has not yet been determined (WDFW 2022e). Consequently, we do not expect this species to occur in this area.

Marbled murrelets are known to occur in Pierce County throughout the year (Smith et al. 1997, WDFW 2022a). However, the lack of old, multi-layered forest on the site or in the vicinity and the urbanizing, lowland setting both make it highly unlikely that this species would occur in the project area. Data from the PHS database maintained by WDFW (2022a) provide no records of known breeding sites or occurrences of this species within at least several miles of the project site. The remaining stands of trees within the site or vicinity are generally too young and too small or fragmented by urban development to provide suitable breeding sites for this species. Based on all these factors, we do not expect marbled murrelets to be present within the site boundaries or in the vicinity.

In October 2014, the U.S. Fish and Wildlife Service listed the western distinct population segment (DPS) of the yellow-billed cuckoo as a threatened species (Federal Register 2014b). In western North America, the yellow-billed cuckoo typically occupies forested streamside habitat, particularly where dominated by willows and cottonwoods that form open woodlands with dense, low vegetation; they are generally absent from large, urban areas and dense forests (Seattle Audubon Society 2022). Yellow-billed Cuckoos apparently have been extirpated as a breeding population in Washington, with only occasional sightings over the last 20 years (Seattle Audubon Society 2022; Smith et al. 1997). Because yellow-billed cuckoos are not currently known to occur regularly in Washington, none of the proposed critical habitat is located in Washington (Federal

Register 2014a, 2014b), and based on the relative lack of suitable riparian habitat on the project site, we do not expect this species to occur anywhere on the project site. The adjacent habitat found within the Green River Gorge Conservation Area could provide potential suitable habitat for yellow-billed cuckoos, but will remain unaltered throughout the course of the proposed activities.

Streaked horned larks are a once widespread species that now are present in small numbers in western Washington and Oregon (Stinson 2016). Associated with open grassland habitat, this species primarily spends most of its life on the ground and can be found in agricultural fields. Some nesting sites of streaked horned larks have been documented in King County (Stinson 2005). No large, open, grassy habitat characteristics exist at the project site that could potentially support streaked horned larks. Additionally, no individuals have been documented in any of our background research materials (WDFW 2022a, King County 2022a). We did not observe any evidence of streaked horned larks on or in the vicinity of the project site and as a result do not expect them to occur within the site or in the vicinity.

A candidate species, the Monarch butterfly (*Danaus plexippus*) is not federally listed as threatened or endangered. Although the U.S. Fish and Wildlife Service indicated it currently meets the criteria for listing, the Monarch Butterfly was not listed to devote resources to higher-priority listing actions (USFWS 2020a). Review of the species' status will continue annually until its status is no longer candidate species. Range-wide fragmentation and degradation of habitat are the main factors in the current decline of Monarch butterfly populations (USFWS 2020b).

The Monarch is widespread throughout the contiguous United States and are known to occur in Washington, although are generally found east of the Cascade Crest. Habitat requirements include sufficient amounts of milkweed, as well as variety of other nectar-producing plant abundance for nectar foraging, and generally herbaceous and sparsely vegetated plant communities, typically near wetlands and riparian areas (USFWS 2020b). Monarchs are also sensitive to herbicides and as a result, intensively managed lands are generally not conducive to monarch habitation. Although milkweed is often associated with roadside habitat, such as that found on the project site, there are no reports of native milkweeds west of the Cascade Crest in Washington, other than those that were likely planted in the Seattle Area (Xerces Society 2018). As a result, we would not expect monarch butterflies to regularly utilize the project site due to the likely nonexistence of their preferred forage, the lack of open, herbaceous habitat without the use of pesticides and herbicides, and the generally forested nature of the project site.

3.1.3 King County Regulated Species

King county regulates certain wildlife species and their habitats within the King County (2022b) code through Title 21A.24.382: "Wildlife habitat conservation areas - development standards". In addition to federally- and state-listed species (WDFW

2020a) and their associated habitat, King County (2022b) also identifies “Species of Local Importance” as well as “Habitats of Local Importance”.

Upon review of these listed species and habitats, those most relevant to this project site include: bald eagle, great blue heron, marbled murrelet, northern goshawk, osprey, peregrine falcon, Townsend’s big-eared bat, and Vaux’s swifts, Oregon white oak woodlands, snag-rich areas and downed logs, heron rookeries, cavity nesting duck habitat, and bald eagle foraging areas. During field investigations Raedeke staff observed for these regulated habitats, species, and their sign.

3.2 EXISTING CONDITIONS

3.2.1 Vegetation Communities and General Habitat Characteristics

The project site generally consists of three main forest habitat types; (1) closed-canopy second-growth, regenerating forest habitat type with areas of varying understory coverage (Fc-c), (2) open canopy second-growth, regenerating forest habitat type with larger portions of blowdowns and a sparse shrub layer (Fc-o), and (2) early successional, regenerating forest (<50 feet tall) with dense shrub and understory coverage (Fs-o). Figure 3 displays the habitat cover types across the project site.

The second-growth forested areas are generally characterized by an overstory of western hemlock (*Tsuga heterophylla*) and Douglas-fir (*Pseudotsuga menziesii*), with an understory of western hemlock & Douglas-fir saplings, salmonberry (*Rubus spectabilis*), sword fern (*Polystichum munitum*), salal (*Gaultheria shallon*), English holly (*Ilex aquifolium*), and some vine maple (*Acer circinatum*). These areas generally have a moderate amount of 8 to 13-inch diameter at breast height (dbh) snags. More sporadically dispersed throughout these areas are larger snags approximately 20 inches dbh. Some of the portions of these closed-canopy forests have overstories dominated by western hemlock and a sparser shrub layer dominated by sword fern.

Throughout these second-growth areas are insets of more open overstory due to blowdown events with large amounts of downed woody debris that are approximately 15 inches dbh. We also observed some larger Douglas-fir trees ranging from 20 to 30 inches dbh, mostly located along the roads that run through the site.

The open-canopy second growth forested areas have sections of smaller downed woody debris ranging from 1 to 4 inches in diameter. They also contain some interspersed outcroppings of red alder (*Alnus rubra*)

The areas of early successional forest with open understory and a dense shrub layer were characterized by trees generally 40 feet tall or less including western white pine (*Pinus monticola*), Douglas-fir, and some interspersed western redcedar (*Thuja plicata*). The understory consisted of vine maple, Douglas spiraea (*Spiraea douglasii*), English holly,

huckleberry (*Vaccinium ovalifolium*), and dull Oregon grape (*Mahonia nervosa*). Some of the younger forested areas such as the very northwestern portion of section 16 have a sparser understory with a few large remnant leaf trees in an open canopy overstory. These areas also have some left habitat snags approximately 16 inches dbh and 20 feet tall. Portions of these areas were also observed with more heavy coverage of Scotch broom (*Cytisus scoparius*) in the understory layer.

3.2.2 Special Habitat Features

Special habitat features include biologic elements such as edges between plant communities or successional stages, snags, and coarse woody debris, which are often important to wildlife (Brown 1985, Johnson and O'Neil 2001, Thomas and Verner 1986). The most distinct edges on the project site were those between the forest habitat and the corridors for gravel roads, as well as edges between forest and shrub-dominated areas. Edge habitats often support a variety of species adapted to both adjacent habitats.

Snags (dead or partly dead trees at least 4 inches dbh and 6 feet tall) are important to many wildlife species (Cross 1986, Neitro et al. 1985, Scott et al. 1977, Ohmart and Anderson 1986), for nesting, feeding, and roosting. Throughout the project site we found many snags with evidence of woodpecker excavations. Many of the snags throughout the site contained potential nest or roost cavities by cavity-nesting species such as chickadees, hairy woodpeckers, and flickers. Some excavations on larger observed snags appeared to be large enough to potentially be used by pileated woodpeckers, but we observed no evidence of current use by cavity-nesting species in any of the potential nesting excavations that we observed.

Coarse woody debris includes downed logs and major limbs of trees lying on the ground. Downed logs provide many habitat features, including perch sites, food, nest cavities, and cover for many species, such as some amphibians (Jones 1986). As previously discussed, many areas of the second-growth forested habitat contained areas of blowdown, which serves as downed woody debris habitat for many species.

Our investigations also revealed a number of wetlands within the DNR Section 16 parcel, as well as a small stream just south of the southern border of the DNR Section 16 parcel (Figure 3). These are elaborated upon in our wetlands report (Raedeke 2022).

3.2.3 Invasive Species

Vegetation communities on-site include a variety of plant species adapted to disturbed areas, which include several non-native species that are considered to be invasive. The most widespread and abundant of these species are Himalayan blackberry (*Rubus armeniacus*) and scotch broom, most commonly found in the early successional areas, with some English holly observed throughout the closed-canopy forested areas.

3.2.4 Wildlife Observations

The project site and the surrounding lands provide habitat for a wide variety of native animal species common to young forests, and successional shrublands of the Puget Sound lowlands. Not all the species regularly found in lowland habitats of the Puget Sound area would necessarily inhabit the project site and vicinity, but a variety of species is expected to occur in the habitats found on site. Some species expected to occur on site possibly do so in low numbers or only during certain times of the year. Species likely to be present on this site would also be expected in similar habitats in other areas of the Puget Sound lowlands. During our field investigations, we observed 19 wildlife species, or signs thereof (Table 1).

We did not directly observe any mammal species during our investigations, but we observed many signs of their use throughout the project site such as game trails, bear tracks, elk rubs on young regenerating trees, and rabbit scat. All of the forested areas exhibited signs of established game trails and it appeared that use by elk and deer was extensive throughout the site.

We did not observe any large raptor stick nests during our site investigations, nor any sign of nesting by herons. Bird species observed during our investigations included common and typical species found in the Puget Sound lowlands (Table 1). We did observe a Cooper's hawk (*Accipiter cooperii*) flying through the road corridor in the central portion of Section 16.

Endangered, Threatened, Sensitive, and Other Priority Wildlife Species

As discussed above, elk were listed on the Washington PHS map at the project site (Figure 4) and were confirmed to be using the site extensively. The Cumberland Mine area is within the historic distribution of Roosevelt elk (*Cervus elaphus roosevelti*); however, by the turn of the century they had been eliminated by early settlers (Bradley 1982, Spencer 2002). Rocky Mountain elk (*C. e. nelsoni*) were reintroduced into western Washington from Yellowstone national Park in the early part of the century, and by the late 1980s and early 1990s these elk eventually spread to the mine site (Spencer 2002).

The heaviest elk use areas appeared to be those located within the closed canopy, second-growth forest, where we observed the most game trails, tracks, scat, and antler rubs. In addition, the Green River corridor likely also provides quality elk habitat to the north and west of the project site.

The Cumberland mine site is located in the Issaquah Game Management Unit (GMU) 454 and is part of the North Rainier Elk Herd as identified by Washington Department of Fish and Wildlife (WDFW 2018). The project site is located within a regular concentration of elk as listed by WDFW (2022a), and we would expect elk to use the project site throughout the year.

Pileated woodpeckers are also listed as a priority species in Washington and were confirmed to be utilizing the site for foraging and could potentially use the site for nesting as well. Harlequin ducks were not observed during our investigations, and we would expect them to be more closely associated with the areas immediately adjacent to the Green River corridor.

Raedeke staff did not observe evidence of gray wolf, North American wolverine, marbled murrelet, streaked horned lark, yellow-billed cuckoo (*Coccyzus americanus*), or monarch butterflies during our site investigations. Nor were any other endangered, threatened, sensitive, or priority species observed.

Bald eagles, formerly listed as a threatened species, have been de-listed at the federal and state levels. However, eagles in Washington are still protected by the Bald Eagle Protection Act of 1984 (RCW 77.12.655), and the Bald Eagle Protection Rules (WAC 232-12-292). We saw no evidence of nesting activity by bald eagles in the vicinity of the project site during our field investigations, and no nests or roost sites are known to occur on the property or in the vicinity.

King County Species and Habitats of Local Importance

Per KCC 21A.24.382 many species of wildlife have nests and habitats that are given species protections and buffers at particular periods throughout the year. These species and their associated habitats and nests include: hairy woodpecker, bald eagle, great blue heron, marbled murrelet, northern goshawk, osprey, peregrine falcon, Townsend's big-eared bat, and Vaux's swift.

We could potentially anticipate Townsend's big-eared bats and Vaux's swifts to utilize the project site in some capacity such as dispersal or foraging, however both species prefer older forests with larger hollow snags and trees with shedding bark for roosting and nesting. We did not observe sign of either species during our field observations.

As previously discussed, we observed potential nesting excavations of hairy woodpeckers in several snags throughout the site, although we did not observe any sign of current nesting activity (fresh woodchips, sounds of young, entering/exiting adults, etc.) at any of these excavation sites.

4.0 IMPACTS

4.1 EVALUATION OF IMPACTS OF THE PROPOSED PROJECT

As outlined above, the proposed project involves development of the site into an aggregate processing and mining facility on approximately 994 acres encompassing 16 separate parcels (Figure 7). None of the wetlands found within the DNR parcel 16 (Figure 3) would be impacted by the proposed activities. As mentioned above, information regarding the phasing of the proposed impacts, as well as the proposed plan for reclamation and restoration has not yet been received as of the time of preparing this report. The process of developing this mine will affect the existing plant and animal communities in three ways: (1) direct changes in and loss of the habitats available; (2) increase in human use and mechanical disturbance associated with facilities and roadways; and (3) potential for changes in the hydrologic characteristics of the site, with potential for impacts to wetland and riparian communities (both plants and animals).

Commercial land conversion is a process of habitat alteration that changes the characteristics of the plant communities and the habitat available for wildlife. The major features of such a conversion include loss of vegetation, isolation or fragmentation of remaining vegetation patches, potential replacement of native vegetation with ornamental or invasive species, removal of snags and downed logs, potential for increase in the use of pesticides, insecticides, and herbicides, and increased noise and other disturbance factors (Thomas et al. 1974, Penland 1984, Adams et al. 1985).

4.2 Impacts on Vegetation Communities

The native forest habitat within the proposed development areas would be eliminated and converted to bare ground as each area is cleared, stripped, and excavated under the proposed activities. This involves the second growth conifer forests found across much of the project site. The areas off site to the north and west of the project site within the Green River corridor would be unaltered, but would become more fragmented and function as edge habitat in areas adjacent to the project site. The proposed development would require the removal of many large, established trees and many snags and downed logs across the project area.

The proposed activities will avoid all impacts to existing jurisdictional wetlands, streams and their associated buffers. No wetlands are found within the project parcels and the small stream located immediately south of the section 16 DNR parcel will be retained and all impacts to the stream and its associated buffer will be avoided. For more information regarding how the proposed project avoids impacts to existing wetlands see the Raedeke Associates (2022) wetlands report.

Direct alteration (reduction) to the distribution, composition, and amount of native vegetation resulting from site development under the proposed development would affect the distribution and composition of wildlife populations on the property. In addition,

indirect impacts to unaltered habitat retained on-site would make it less suitable for some species of wildlife currently inhabiting the site.

Clearing of the forested areas would eliminate habitat for a variety of birds, mammals, reptiles, and amphibians adapted to these communities. The quality of any remaining habitat off-site would be reduced due to reduced connectivity throughout the new mining facilities, as well as an increased presence of human activity and industrial noises throughout the site from the expected uses. The artificial edges created between areas of retained native forest habitat and the mining areas could also increase the likelihood of spread of invasive or weedy plant species associated with disturbance as well as from seeding of non-native grasses and other weedy plants (such as Scotch broom and clover).

Wildlife movements among available habitats would be affected by the construction of the mining facilities, compared with pre-development conditions. Under current conditions within undeveloped areas, animals can move among habitat patches relatively freely, even across gravel roads, except as influenced by disturbance from existing human activities (e.g., occasional human activity across the site, traffic from Cumberland Kanaskat Rd SE) or limitations on species that may be averse to moving or dispersing across non-forest patches. In contrast, after development movements of many wildlife species would be funneled through remaining natural open spaces of variable width and function, most likely concentrated off-site along the Green River corridor.

Reclamation areas is not yet proposed, but will likely be included in the plan for the development activities after mining activities are completed, which could establish grassland habitat that could be suitable for elk and deer forage. A large portion of the existing forested areas in the southeast section of the Segale ownership parcels will be retained as forest and is excluded from the proposed area of disturbance (Figure 7).

4.3 Impacts on Wildlife

Direct alteration (reduction) to the distribution, composition, and amount of native vegetation resulting from mine expansion under the proposed development would affect the distribution and composition of wildlife populations on the property. In addition, indirect impacts to unaltered habitat retained off-site would make it less suitable for some species of wildlife currently inhabiting these areas.

Impacts of clearing the land for the proposed mine include both temporary impacts during land-clearing and longer-term impacts of habitat alteration. Construction related impacts include increases in noise, dust, human activity, temporary disturbance of vegetation for staging areas, potential erosion and sediment transport from exposed soils, and other potential water quality impacts. These can alter animal behavior, causing avoidance of adjoining habitats, alteration of movement and dispersal patterns, abandonment of nest sites, reduced breeding success, and increased mortality.

Upon completion, the proposed mining activities would substantially reduce the forest habitat available for native wildlife across the site. This would reduce the local populations of most native species on the property. The active mining areas would provide little habitat, except for those species adapted to highly disturbed conditions. Potential reclamation areas could provide developing vegetation for such species.

The species typically favored in highly disturbed environments are habitat generalists, some of which are invasive exotic species. A limited number of species, including native species such as barn swallow and house finch, and introduced exotics such as rock dove, European starling, and house sparrow, can utilize the limited crevices and ledges found in buildings, as well as landscaped habitats. Species that dwell primarily in forested habitats, but can persist near disturbed environments, such as chickadees, squirrels, shrews, garter snakes, and some species of terrestrial amphibians, may persist in the retained forested open space areas, but in lower numbers.

Populations of reptiles and amphibians, which rely on forest duff, downed logs, snags, and wetlands, would be eliminated from cleared and graded areas across the site. The clearing, grading, and construction of the proposed facilities would eliminate habitat areas and increase fragmentation. This, together with increased disturbance (e.g., commercial operations, construction noises, vehicular traffic, human presence throughout site) may affect movement patterns of some wildlife species, creating a barrier to movements of small mammals, reptiles, and amphibians. Increased mortality would likely result from animals attempting to cross the mining facilities and roads, and some animals may alter movement patterns to avoid areas or time periods of high activity. Increased fragmentation of remaining native habitat, together with the expected increased human activity associated with the mining operations would affect animal movement patterns by causing the animals to avoid areas or time periods of high activity. However, many species would probably continue to use undeveloped areas adjacent to the site.

As native forests of the development areas (most of which is closed-canopy, second-growth conifer forest) are removed for the mine, some native species, particularly those that tend to occupy larger blocks of forest away from forest edges, may be eliminated from the site. The species affected (e.g., larger carnivore and some forest birds such as the brown creeper) would be restricted to the forested areas retained on-site, as well as areas located off-site, such as the Green River corridor.

4.4 Impacts to Endangered, Threatened, Sensitive, and Other Priority Species

This proposed site plan would likely affect wildlife species common to western Washington habitats and is not expected to adversely affect state or federally listed threatened and endangered species. The species observed on site are all common to local habitats and have a demonstrated tolerance to human disturbance. For example, we observed the Cooper's hawk fly past our crew of 4 as we all conversed and conducted work in plain view on an access road.

The proposed development is not expected to adversely affect state or federally listed species, as none are expected to occur on site. Other priority or protected species observed on site or in the vicinity include pileated woodpecker, and elk. No active nest or roost cavities of pileated woodpeckers (a state Candidate and WDFW Priority species) were observed on site. Consequently, we do not expect the proposed development to adversely affect these species.

Other Listed Species

As noted above, the nearest known gray wolf packs are located nearly 50 miles east of the project site. Wolves are wide-ranging and can travel great distances in a single day, and it is possible that dispersing or foraging individuals could occasionally wander onto the site or vicinity in search of prey (deer or elk). However, wolves tend to avoid conflict with humans, and the existing developments in the vicinity. Increased forest fragmentation and increased human disturbance associated with the proposed development would further discourage wolves from using this area. Increased machinery use, increased noise, and increased visual human presence on the site would all act as deterrents for these individuals. Although the proposed development may have adverse impacts on prey species, given the existing development and human activity in the area, and their general known distance from the project site, the proposed activities would not likely have a significant adverse impact on Washington wolf populations.

Wolverines are not expected to occur on site or find suitable habitat. Similarly, although marbled murrelets are found in King County, the site lacks suitable habitat (old, multi-layered forests with large trees and a relatively closed canopy) for nesting, meaning we would not expect them to occur at the project site. Yellow-billed cuckoos are thought to be extirpated as a breeding population in Washington, and only occasional sightings have been recorded in recent decades; the only potentially suitable habitat on site, deciduous riparian forest, is limited, but would be retained under the proposed development. For the above reasons, the proposed development activities are not expected to adversely affect these species.

Other Priority Species

Elk.

The proposed development would reduce the amount of elk habitat available and likely reduce the elk population using the site. While large portions of the uplands within the project parcels would be developed and no longer elk habitat, the identified riparian corridor along the Green River, as well as the extensive forested habitats located east and northeast off-site of the project parcels would be retained as forested habitat.

In 2018, WDFW (2018) suggested that “Elk in GMU 454 should continue to be managed with liberal seasons designed to keep damage issues at acceptable levels in developing

areas”. Recent studies of elk abundance within the greater North Rainier Elk Herd at nearby GMU’s 653 and 485 (located immediately east and southeast of GMU 454) estimate total elk abundance at numbers above current management objectives (WDFW 2018). In 2020 (WDFW 2020b) population estimates placed elk numbers in GMU 454 at the Herd Plan population target. Accordingly, a minimal amount of take (i.e. to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or to attempt to engage in any such conduct) is acceptable for this subpopulation located at the project site.

The proposed development could potentially result in an increase in elk and human conflicts. Increased traffic on Cumberland Kanasket Rd SE would increase the likelihood of conflicts between elk and vehicles, with potential for more roadkill or injury to the animals and damage to vehicles, particularly during winter when elk use of the site is expected to be the highest. Increased urbanization throughout the region also will likely contribute to the local elk herd’s general habituation level with human disturbance, leading to their increased presence and potential conflict around areas with human use. WDFW (2020b) also suggests that reduction of elk habitat in the GMU 454 will increase human-elk conflicts.

In terms of the region’s overall elk population numbers, loss of the forested areas at the project site currently used by elk would have little impact on the capacity of the area to support elk because the elk in the area are most limited by forage production (Spencer 2002, Raedeke and Lehmkuhl 1984, Jenkins and Starkey 1990, and Raedeke 1995). These second-growth forest stands provide minimal suitable forage for elk. Reclaimed grasslands associated with mine reclamation efforts could provide additional elk forage habitat when reclamation efforts take place.

The loss of the forested areas would also not affect the ability of elk to move through or around the project lands. As noted in the most recent WDFW (2020) Herd Plan, elk are exhibiting a high level of adaptability to disturbed areas, including traveling through these regions.

Within the historical context of land use, the project site has been utilized for commercial uses such as logging, which would have had similar impacts to local populations of elk as the proposed project activities. We would not expect the proposed activities to have impacts that would exceed those of historical uses at the project site.

Bald Eagle.

Bald eagles, now a delisted species, would be expected to continue to forage for salmon along the Green River. Clearing of well-developed forest throughout the site could eliminate some potential perching habitat for wintering or breeding eagles, but most of the existing forest along the river, would remain. Consequently, the proposed development is not expected to have significant adverse impacts on bald eagles.

Pileated Woodpecker.

The loss or alteration of native forest on-site upon buildout under the proposed activities could reduce the amount of potentially suitable habitat available in the area for pileated woodpeckers. The development would eliminate a substantial area of forest on site, but large snags suitable for nesting in the forests found on the project site were relatively rare, compared to more moderate-sized (15" dbh) snags. Further, no nest or roost sites are known to occur on the project site. Pileated woodpeckers would likely continue to forage and use areas within remaining forested portions of the local vicinity along the Green River and to the east of the project site as development is carried out.

5.0 MITIGATION

Mitigation has been defined by the State Environmental Policy Act (SEPA) (WAC 197-11-768; cf. Cooper 1987), and subsequently in a Memorandum of Agreement between the Environmental Protection Agency and the COE (Anonymous 1989). In order of desirability, mitigation may include:

- Avoidance - avoiding impacts by not taking action or parts of an action;
- Minimization - minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- Compensatory Mitigation - may involve:
 - a) repairing, rehabilitating, or restoring the affected environment;
 - b) replacing or creating substitute resources or environments;
 - c) mitigation banking.

6.1 AVOIDANCE AND MINIMIZATION OF IMPACTS

The proposed development (Figure 7) incorporates a number of measures to avoid or minimize potential impacts on plants and fish and wildlife habitat:

- The project would avoid direct impacts to all mapped critical areas, including mapped wetlands and wetland buffers near the site, as well as buffers to the Green River. Additionally, buffers to the Green River consistent with those required under County code at the time the application was filed would be retained along the River corridor, thus avoiding impacts to these sensitive areas.
- The project would avoid impacts to the stream identified south of the DNR section 16 parcel (Figure 3). This is outside of the area of disturbance and the stream, as well as its associated buffers would be left unaltered.
- Construction limits, including staging areas, would be clearly marked in the field prior to beginning construction activities.
- Appropriate BMPs and TESC measures would be implemented in accordance with an approved SWPPP, consistent with standards of the local stormwater manual (or that in effect at the time of permitting), including specific measures to prevent and control spills of pollutants, and to handle, control, and store potential contaminants.
- Clearly marking Construction limits, including staging areas, in the field prior to beginning construction activities.
- Avoiding vehicle re-fueling and maintenance activities within wetland or stream buffers, or at least 100 feet of wetlands or streams

6.2 RECOMMENDED & OTHER POTENTIAL MITIGATION MEASURES

For the proposed development project, additional measures to avoid or minimize the potential impacts to wildlife could include the following:

- Implement vegetative screening along the periphery of the site to help attenuate noise levels leaving the site. Keeping disturbance levels as similar as possible to baseline levels before any development will help prevent negative impacts on local wildlife communities.
- Retain as many large, healthy trees on-site as possible to promote overall plant species diversity and retain soil stability and habitat functionality. This will also help retain wildlife habitat functions such as nesting and perching platforms. This is especially true of the north and west edges of the project site, along the Green River. A retention buffer would help to retain habitat functionality along this area, but retaining any other large trees beyond that buffer, when possible, will further enhance this effort.
- For any replanting that may take place at the project site, focus on planting Pacific Northwest native plant species and reduce the use of non-native ornamental species or cultivars as much as possible.
- Wherever possible, improve the functionality of the local plant community by removing invasive plants such as Himalayan blackberry, holly, and ivy. Any removal of invasive plants that must take place in the spring before fruiting or seeding should be conducted without the use of power tools or heavy equipment wherever possible to avoid any disturbance to potential nesting species on or near the project site.
- If active nests of protected species such as bald eagles or great blue herons be discovered on site, measures to avoid or minimize disturbance during the nesting season (January through August; Azzerad 2012, U.S. Fish and Wildlife Service 2007) may need to be implemented.

6.0 LIMITATIONS

We have prepared this report for the exclusive use of Segale Properties and their consultants. No other person or agency may rely on the information, analysis, or conclusions contained herein without permission from Mr. Mike Pruett.

The determination of ecological system classifications, functions, values, and boundaries is an inexact science, and different individuals and agencies may reach different conclusions. We cannot guarantee the outcome of such determinations. Therefore, the conclusions of this report should be reviewed by the appropriate regulatory agencies.

We warrant that the work performed conforms to standards generally accepted in our field and has been prepared substantially in accordance with then-current technical guidelines and criteria. The conclusions of this report represent the results of our analysis of the information provided by project proponent and their consultants, together with information gathered in the course of this study. No other warranty, expressed or implied, is made.

Thank you for the opportunity to prepare this information. If you have any questions, comments, or need additional information, we are available at 206-525-8122 or via email at cwright@raedeke.com.

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FIGURES AND TABLES

FIGURE 1. VICINITY MAP

FIGURE 2. KING COUNTY PARCEL VIEWER

FIGURE 3. EXISTING CONDITIONS AND COVER TYPE MAP

FIGURE 4. WASHINGTON DEPARTMENT OF FISH AND WILDLIFE PHS MAP

FIGURE 5. WASHINGTON DEPARTMENT OF FISH AND WILDLIFE SALMONSCAPE MAP

**FIGURE 6. WASHINGTON DEPARTMENT OF NATURAL RESOURCES WETLANDS OF HIGH
CONSERVATION VALUE**

FIGURE 7. PROPOSED SITE PLAN

TABLE 1. WILDLIFE SPECIES (OR SIGN THEREOF) OBSERVED AT THE SEGALE PROPERTIES CUMBERLAND PROJECT SITE DURING SITE INVESTIGATIONS IN 2019 AND 2021.

Common Name	Scientific Name
BIRDS	
American Robin	<i>Turdus migratorius</i>
Black-throated gray warbler	<i>Setophaga nigrescens</i>
Canada Goose	<i>Branta canadensis</i>
Cooper's hawk	<i>Accipiter cooperii</i>
Dark-eyed Junco	<i>Junco hyemalis</i>
Hairy woodpecker	<i>Leuconotopicus villosus</i>
Mourning Dove	<i>Zenaida macroura</i>
Pacific wren	<i>Troglodytes pacificus</i>
Pileated Woodpecker (foraging excavations)	<i>Dryocopus pileatus</i>
Red-breasted sapsucker (foraging excavations)	<i>Sphyrapicus ruber</i>
Spotted towhee	<i>Pipilo maculatus</i>
Turkey vulture	<i>Cathartes aura</i>
White-crowned sparrow	<i>Zonotrichia leucophrys</i>
MAMMALS	
Black bear (potential den & tracks)	<i>Ursus americanus</i>
Black-tailed deer (scat)	<i>Odocoileus hemionus columbianus</i>
Bobcat (scat)	<i>Lynx rufus</i>
Douglas squirrel	<i>Tamiasciurus douglasii</i>
Eastern cottontail (scat)	<i>Sylvilagus floridanus</i>
Roosevelt Elk (scat and rubs on trees)	<i>Cervus canadensis roosevelti</i>