

THE MEIER GROUP LLC

MAZAMA POCKET GOPHER HABITAT CONSERVATION PLAN

Prepared for:
The Meier Group, LLC
Tumwater, WA

Prepared By:
Ramboll Environ US Corporation
Olympia, WA

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ACRONYMS AND ABBREVIATIONS

ESA	Endangered Species Act
Applicant	Meier Group LLC
BPA	Bonneville Power Administration
CAO	Critical Areas Ordinance
CFR	Code of Federal Regulations
FR	Federal Register
GMA	Growth Management Act
HCP	Habitat Conservation Plan
ITP	Incidental Take Permit
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
SEPA	State Environmental Policy Act
SHPO	State Historic Preservation Office
T-lines	Transmission lines
USFWS	U.S. Fish and Wildlife Service

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1. INTRODUCTION AND BACKGROUND

Kurt Meier, of the Meir Group, LLC (Applicant), submits this Habitat Conservation Plan (HCP) in partial fulfillment of requirements to seek an Incidental Take Permit (ITP) under section 10(a)(1)(B) of the Endangered Species Act of 1973 (ESA), as amended (87 Stat. 884; 16 U.S.C. 1531 et seq.). The Applicant is proposing to clear and develop 6.4 acres at 6400 Linderson Way (Parcel No. 12703130102) in the City of Tumwater, Thurston County, Washington. The property to be developed is occupied by the threatened Olympia subspecies of the Mazama pocket gopher (*Thomomys mazama pugetensis*) (pocket gopher).

The proposed project (Project) entails clearing trees, brush, and other vegetation; site preparation activities such as grading and excavation; and construction of an office building and associated facilities. Building construction is expected to occur on the northern half of the property, while paved parking will be constructed at the southwest and southeast portions of the property under existing Bonneville Power Administration (BPA) transmission lines (T-lines). The entire property will be cleared for construction with the exception of an existing retention pond at the southwest corner of the property and some areas beneath the BPA T-lines.

Project development will remove most of the vegetation and disturb the Nisqually loamy, fine sand, prairie soils. Soil disturbance will impact pocket gophers known to occupy the southern portion of the property (approx. 2.7 acres). This HCP is being prepared to address the resulting impacts to the pocket gopher and describe the Applicant's proposed conservation program intended to compensate for unavoidable impacts.

2. REGULATORY AND LEGAL FRAMEWORK FOR HABITAT CONSERVATION PLANS

2.1 The Endangered Species Act

The U.S. Congress enacted the ESA to protect plants and animals in danger of, or threatened with, extinction. The U.S. Fish and Wildlife Service (USFWS) is responsible for implementing the ESA for those species under its jurisdiction. The ESA and its implementing regulations in Title 50 of the Code of Federal Regulations (CFR) Section 17 prohibit the take of any fish or wildlife species that is federally listed as threatened or endangered without prior approval pursuant to either Section 7 or Section 10 of the ESA.

Section 3 of the ESA defines "take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or to attempt to engage in any such conduct" (16 United States Code [USC] § 1532 (19)). The term "harm" is defined to include any act "which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 C.F.R. § 17.3). The term "harass" is defined as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering" (50 C.F.R. § 17.3).

Section 7(a)(2) of the ESA requires each Federal agency to ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued

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existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat (16 USC § 1536 (a)(2)). If the actions of a Federal agency are not likely to jeopardize the continued existence of any endangered or threatened species, but could adversely affect the species or result in a take, the action must be addressed under Section 7 of the ESA (16 USC § 1536 (a)(2)).

Section 9 of the ESA prohibits the “take” of threatened and endangered species, including the attempt or action to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect” such species (16 U.S.C. § 1532).

Section 10 of the ESA allows non-federal entities, under certain terms and conditions, to incidentally take ESA-listed species that would otherwise be prohibited under Section 9 of the ESA. When a non-Federal landowner or other non-Federal entity wishes to proceed with an activity that is legal in all other respects, but may result in the incidental taking of a listed species, an incidental take permit, as defined under Section 10 of the ESA, is required. Incidental take is defined as take that is “incidental to, and not the purpose of, the carrying out of an otherwise lawful activity” (50 CFR § 17.3). Under Section 10, a USFWS-approved HCP is required to accompany an application for an incidental take permit to demonstrate that all reasonable and prudent efforts have been made to avoid, minimize, and mitigate for the effects of the potential incidental take.

The USFWS is required to respond to all applicants seeking permits, which would allow incidental take of listed species if approved. It is necessary for USFWS to assure that the HCP and any implementing agreements submitted by the applicant comply with the provisions of the ESA with regard to incidental take [50 CFR 17.22 (b)(2)] prior to issuance of a take permit for federally listed threatened or endangered fish and wildlife species.

An HCP submitted in support of a Section 10 permit application must specify (16 U.S.C. § 1539(a)(2)(A)(i)-(iv); 50 C.F.R. § 17.22(b)(iii)):

- The impact that will likely result from the taking;
- Steps the applicant will take to monitor, minimize, and mitigate such impacts; the funding available to implement such steps; and the procedures to be used to deal with unforeseen circumstances;
- Alternative actions to such taking considered by the applicant and the reasons why such alternatives are not proposed to be used; and
- Other measures that may be required as necessary or appropriate for the purposes of the plan.
- To issue an incidental take permit, USFWS must find that (16 U.S.C. § 10(a)(2)(B); 50 C.F.R. §§ 17.22(b)(2) and 17.32(b)(2)):
- The taking will be incidental;
- The applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking;
- The applicant will ensure that adequate funding for the conservation plan and procedures to deal with unforeseen circumstances will be provided;

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- The taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild; and
- The applicant will ensure that other measures as may be required by USFWS as necessary or appropriate for the purposes of the HCP will be implemented.

2.2 Other Federal, State, County and Local Requirements

The Applicant understands that an ITP is valid so long as the proposed Project is in compliance with all relevant Federal, State, and local laws, regulations, and ordinances. The Applicant acknowledges responsibility for ensuring that the proposed Project and the Covered Activities will comply with applicable Federal, state, and local laws, regulations, and ordinances. Several of the more pertinent regulatory requirements are discussed below.

2.3 Federal

Migratory Bird Treaty Act - The Migratory Bird Treaty Act (MBTA) (16 USC 703 *et seq.*) makes it unlawful to take, import, export, possess, sell, purchase, or barter any migratory bird, as well as the nests, eggs, and feathers of migratory birds. Nearly all bird species that may occur in Washington State are protected under the Migratory Bird Treaty Act. It is USFWS policy that an ESA Section 10 permit for listed migratory birds is sufficient to relieve the permittee from liability under the MBTA for species covered by the section 10 permit. For the MBTA, this is accomplished by having the Permit double as a Special Purpose Permit authorized under 50 Code of Federal Regulations (CFR) 21.27. Incidental take for migratory birds is not being requested nor are they addressed in the HCP. However, to address potential issues that may arise, removal of the Douglas fir trees, the only migratory bird habitat known to occur on the Project Site, will be conducted outside of the nesting period for most migratory birds, i.e., April through July, to the extent possible.

National Environmental Policy Act - The National Environmental Policy Act (NEPA) (42 U.S.C. §§ 4321 *et seq.*) requires that Federal agencies analyze and publicly disclose the social, economic and environmental effects associated with major federal actions (§ 4332). This analysis can take the form of an Environmental Assessment (EA) and/or Environmental Impact Statement (EIS). The issuance of an ITP is a Federal action subject to NEPA compliance. Before deciding whether to approve a proposed HCP and issue an ITP, the USFWS will prepare and distribute an (EA) or (EIS) that addresses the direct, indirect, and cumulative effects of the incidental take authorized by permit issuance, and the direct, indirect, and cumulative effects associated with the implementation of mitigation and minimization measures described in the HCP.

National Historic Preservation Act - Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 USC § 40 *et seq.*), requires Federal agencies to take into account the effects of their proposed actions on properties eligible for inclusion in the National Register of Historic Places. "Properties" are defined as "cultural resources," which includes prehistoric and historic sites, buildings, and structures that are listed or eligible for listing in the National Register of Historic Places. An undertaking is defined as a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a federal agency; including those carried out by or on behalf of a federal agency; those carried out with Federal financial assistance; those requiring a Federal permit, license or approval; and those subject to state or local regulation administered pursuant to a delegation or approval by a Federal agency. The issuance of an ITP is an undertaking subject to Section 106 of the NHPA.

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2.4 State

State Forest Practices Act – The Washington State Forest Practices Act (FPA) was designed to provide protection to forest soils, fisheries, wildlife, water quality and quantity, air quality, recreation, and scenic beauty. At the same time, the FPA was intended to allow the maintenance of a viable forest products industry by regulating forest practices such as timber removal, road construction and maintenance, reforestation, and the use of forest chemicals. Anyone proposing timber harvest or other related activities on state or private lands in Washington State must submit a forest practices application to Washington Department of Natural Resources. However, only landowners that cut at least 5,000 board feet per year have to file a Forest Practices Application/Notification. Although there is a small patch of trees (seven Douglas fir trees) on the Project Site, the total volume is substantially less than 5,000 board feet, thus, the Applicant will be in compliance with the FPA.

Growth Management Act - The Washington State Growth Management Act (GMA) (36.70A RCW) addresses the consequences of population growth in Washington State. The GMA requires all cities and counties in the state to protect critical areas and designate resource lands of long-term commercial significance. Proposed developments and land use activities are subject to review by local governments to ensure consistency with regulations established for the protection of critical areas pursuant to RCW 36.70A.170. Critical area reviews are processed with other local land use and development permits. The Project will occur on land zoned as General Commercial by the City of Tumwater. The Applicant will apply for the necessary permits that ensure compliance with local land use and development permits consistent with the GMA.

2.5 County

Critical Areas Ordinance - The Growth Management Act requires local governments to protect five types of critical areas: important fish and wildlife habitat conservation areas, wetlands, critical aquifer recharge areas, frequently flooded areas; and geologically hazardous areas, (such as bluffs). Thurston County's critical areas regulations are a response to that law – they regulate how development and redevelopment can safely occur on lands that contain critical areas. The Project Site is zoned as General Commercial by the City of Tumwater and does not contain any of the five types of critical areas, thus, development at the Project Site will be in compliance with the Critical Areas Ordinance.

2.6 City Permits

The City of Tumwater requires formal land use approvals and building permits before developing land, constructing, remodeling, or demolishing buildings and other structures. Permits are also required for other actions such as tree removal and installation of signs. Most of these regulations are mandated by state laws such as the Subdivision Act, the State Environmental Policy Act, the Shoreline Management Act, the Growth Management Act, and the State Building Code Act. These city ordinances and state regulations exist to protect the health, safety, and general welfare of the community.

The application process for a commercial building permit is much more extensive than applying for a residential permit. The Community Development Department's Development Review Committee may be required to conduct a Site Plan Review and may request changes to a plan in order to comply with the Tumwater Municipal Code. A project can proceed only

after completing the City's Site Plan Review process and final plans are approved and the appropriate fees are paid. The Applicant will be required to comply with all commercial building permit conditions prior to the start of project development.

3. PURPOSE AND NEED

This HCP has been prepared to meet the requirements of the ESA. An HCP is needed because Project components have the potential to result in take of listed species that inhabit or may transit the Permit area. Pursuant to Section 10(a)(1)(b) of the ESA, USFWS may authorize incidental take by a non-federal entity through the issuance of an ITP. In support of an application for an ITP, the applicant must prepare an HCP. This document establishes the methods and measures of success required to meet the conservation needs of listed species that could be impacted by the Project. Importantly, it also provides a stable and predictable operating and regulatory environment and preserves Applicants' ability to pursue their development objectives with assurances from the USFWS that incidental take of Covered Species is authorized. The purpose of the HCP is to:

- Quantify the potential impacts that the Project may have on the Covered Species;
- Address the potential take of the listed species by setting forth measures that are intended to ensure that any such take caused by the Project will be incidental;
- Ensure that the impacts of the take will, to the maximum extent practicable, be minimized and mitigated, including provisional procedures to deal with changed and unforeseen circumstances;
- Ensure that mitigation for impacts to listed species that cannot be avoided will result in a net benefit to the Covered Species;
- Ensure that adequate funding for implementation of the HCP will be provided; and
- Ensure that the take of the listed species will not appreciably reduce the likelihood of the survival and recovery of these species in the wild.

This HCP addresses activities including clearing, improvement, and development of land for commercial development in Thurston County, Washington in compliance with other applicable Federal, state, and local requirements.

4. PLAN AREA AND PERMIT AREA

The plan area for the Project includes all areas that may be influenced by HCP implementation, including the Project site and where off-site mitigation will occur. The permit area includes the Project site where the Covered Activities and the resulting unavoidable take will occur. These are described below.

4.1 Plan Area

The plan area includes the geographic boundaries of all areas that may be influenced by implementation of the HCP regardless of ownership, political boundaries, or whether take is likely to occur. For this Project, the plan area includes the range of the Olympia subspecies of the Mazama pocket gopher described in Section 6.1, which includes the Project site described in Section 4.2 (Figure 1 and Figure 2) and the off-site mitigation area (Figure 3).

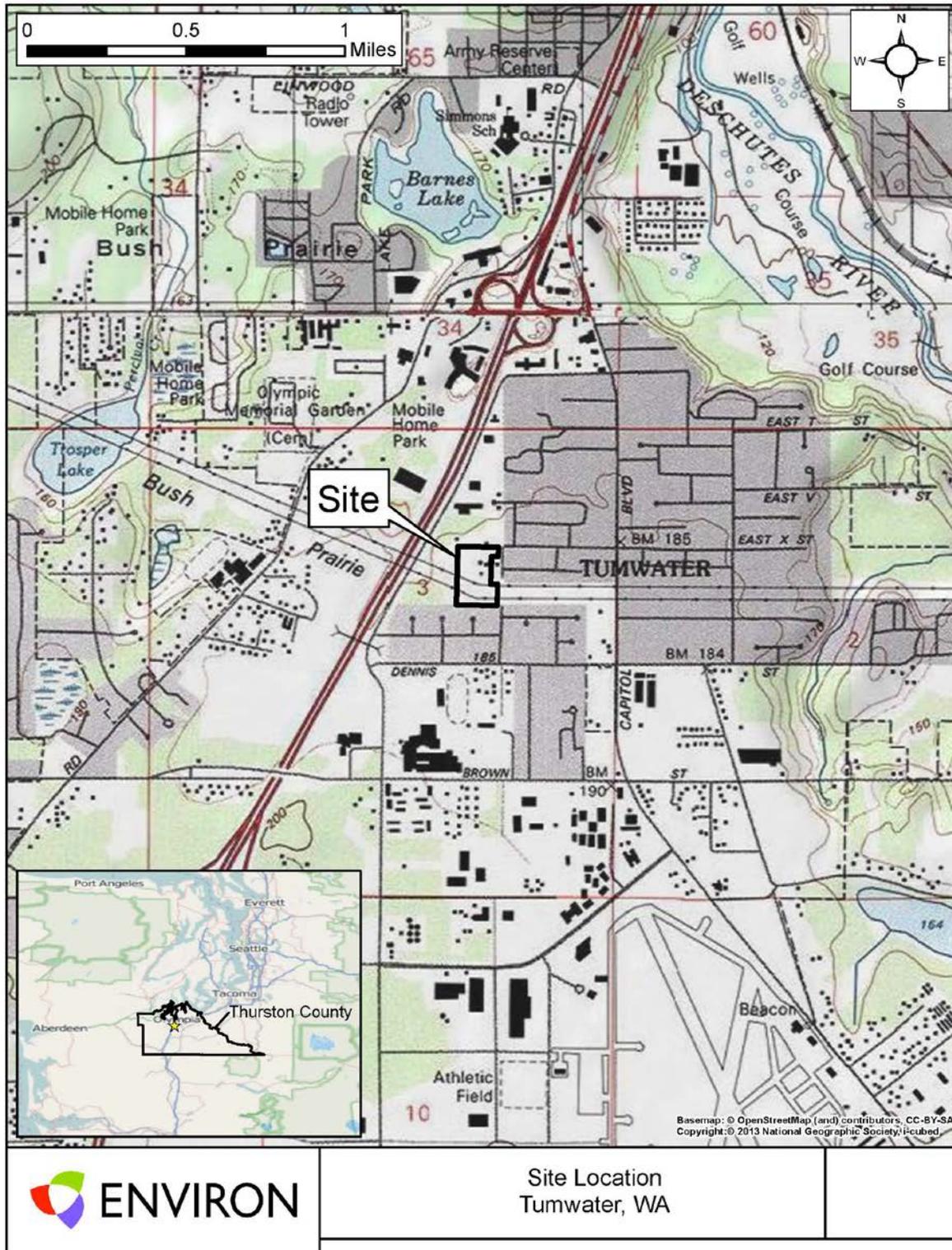


Figure 1: Project Location in Thurston County

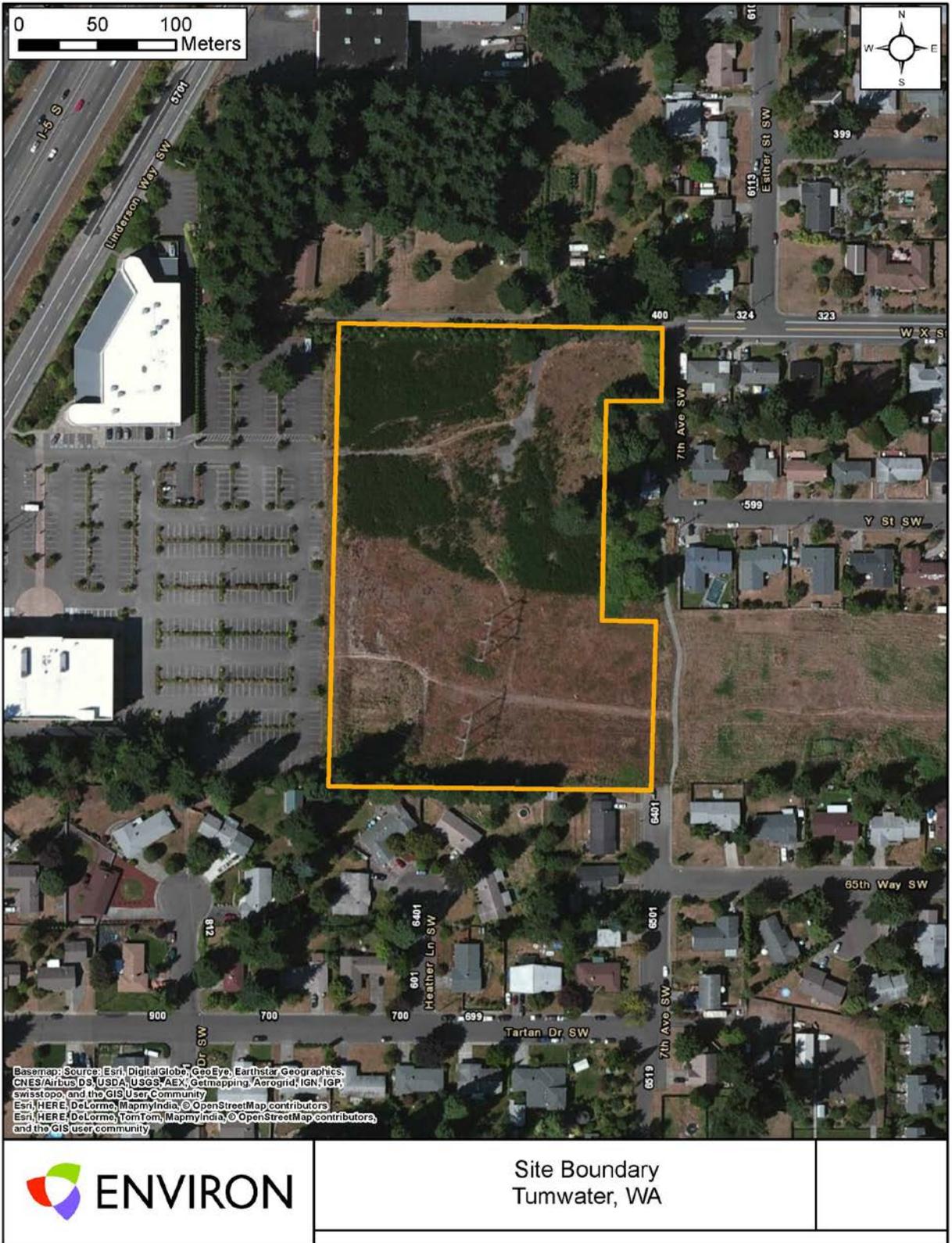


Figure 2: Project Site Footprint



Bush Prairie Farm Easement Acquisition



Map created by Capitol Land Trust
with data from Thurston County Geodata.

Figure 3: Off-site Mitigation Location.

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The mitigation site is the Bush Prairie Farm located south of the Olympia Airport at 8400 Old Highway 99 SE in Olympia, Washington, and is described in the Conservation Program addressing mitigation measures (Section 7.2.3) below.

4.2 Permit Area

The permit area is a subset of the plan area consisting of the Project site where the construction activities necessary to clear the property and construct the building and parking lot will occur. The Project site, Parcel No. 12703130102, is located at 6400 Linderson Way SW, City of Tumwater, in the Southwest Quarter of Section 3, T17N, R2W (Figure 1 and Figure 2). This property is approximately 6.4 acres in size and is due east of Parcel No. 12703130202, located at 6500 Linderson Way SW. Both these properties, as well as an adjacent property at 6300 Linderson Way SW, are zoned General Commercial (GC). The two properties located right on Linderson Way have already been developed and contain two state government buildings and associated parking. The Project site is not on any city street. Rather, access to the Project site is at an entry point at the southwest corner of the property via the parking lot associated with the property at 6500 Linderson Way. The Project site is bounded to the north, east and south primarily by properties zoned as Single-Family Medium Density Residential (SFM-R), although the adjacent property at the southeast corner of the Project site is owned by the City of Tumwater and is zoned both GC and SFM-R. The City of Tumwater property has a BPA transmission line running east-west along its length.

Existing Vegetative Conditions - Except for the City of Tumwater property, the adjacent properties to the east and south are comprised of residences. Vegetation at these residences is typical, with most of the properties having lawns, gardens, and a variety of native and non-native shrubs and trees. However, the property to the north has not been converted to residences; rather, it is comprised mostly of a young mixed conifer-hardwood forest condition. The adjacent properties are clearly visible in Figure 2.

The northern half of the Project site includes a small patch of Douglas fir trees less than $\frac{1}{4}$ acre in total size at the central east boundary. The trees and the remainder of the northern portion of the property contains dense stands of the non-native and invasive Scot's broom (*Cytisus scoparius*) (2.40 acres) within which is a small patch of open grassy area (0.46 acres), a mixed Scot's broom/grass area (0.25 acres), and an asphalt path/drive (0.14 acres) (Figure 2 and Figure 4). The southern portion of the Project site is comprised of native and non-native grasses and forbs (2.68 acres). The vegetation in the southern portion under the BPA T-lines has been mowed in the past (Figure 2 and Figure 4). The permit area is not located within designated critical habitat for the Olympia subspecies of the Mazama pocket gopher (79 FR 19712).

Wetlands and water resources – There are no streams, wetlands or other water resources on the property. However, there is one storm water retention pond on the Project site, located at the southwest corner of the Project site (Figure 2 and Figure 4). This retention pond, approximately 0.50 acres in size, was created in 2008 as part of a Site Plan prepared for development of the site that was expected to occur in 2008. This development project did not go forward at that time.

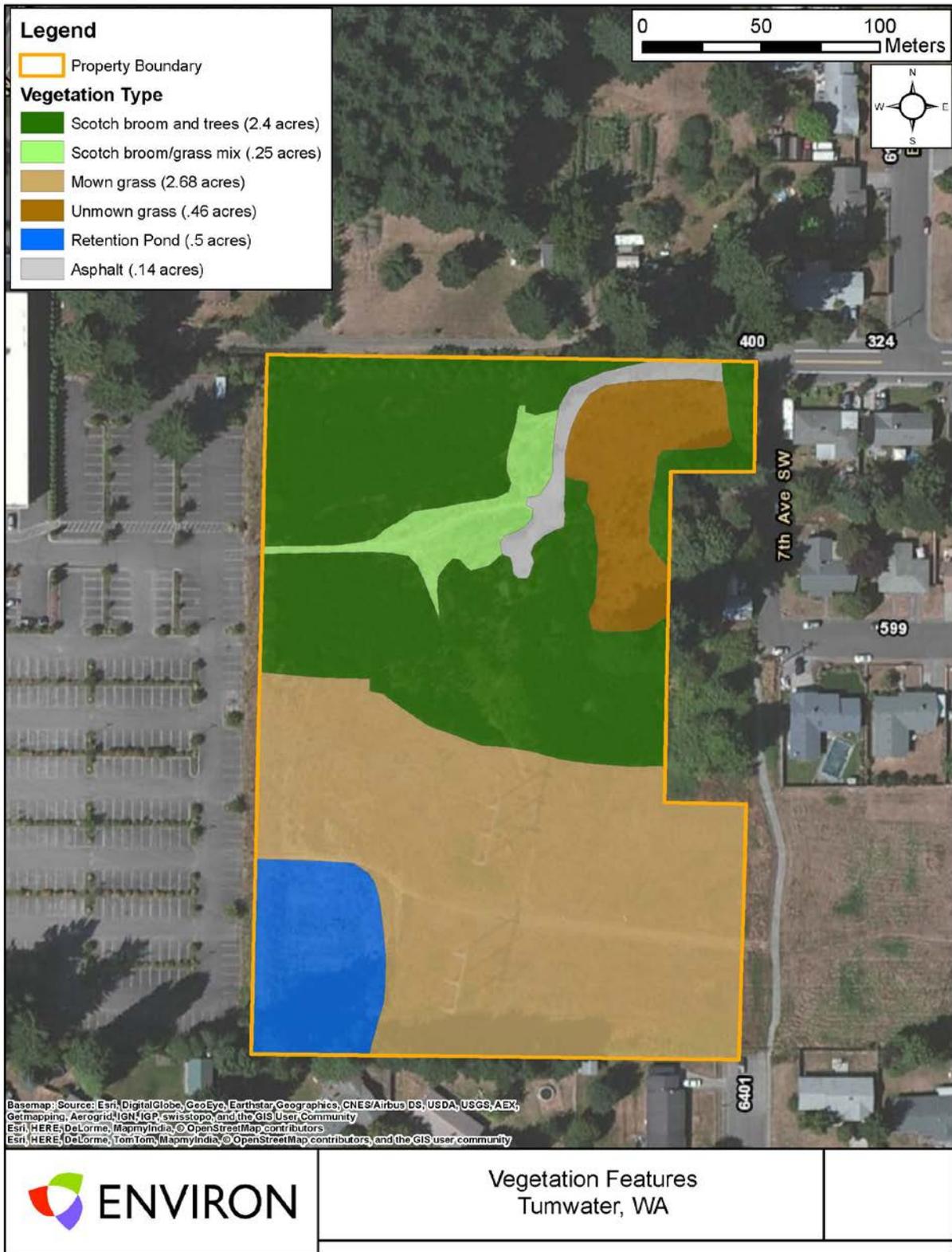


Figure 4: Project Site Vegetation Features including Habitat and Non-habitat.

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Existing Wildlife Habitat and Use – As stated above, the northern portion of the Project site contains primarily dense Scot's broom with a small patch of Douglas fir trees, a few small grassy openings, and an old asphalt path/drive. The Scot's broom spreads towards the south thinning to a point where only grass exists about where the BPA T-lines run through the property. The Scot's broom and treed portion of the Project site comprises about 2.7 acres of the 6.4-acre property. The (unmown) grass area is 0.46 acres in size while the asphalt comprises 0.14 acre. All habitat and non-habitat features are shown in Figure 4.

Wildlife occurrences on or near the Project site may include the big brown bat and Townsend's big-eared bat, neither of which are Federally-listed species (WDFW 2014). The trees may provide nesting, roosting, and foraging habitat for Neotropical migratory songbirds. Raptors may perch and hunt from these trees although the trees are near residences that may minimize foraging opportunities. Although the USFWS website for determining potential Federally-listed species that may occur on a project site lists seven species that occur in Thurston County, in addition to three sub-species of pocket gopher, it is unlikely that any of them other than the Olympia pocket gopher sub-species occurs on the Project site (USFWS 2014a). A list of these species is provided in Table 1, along with comments about the likelihood of occurrence on the Project site.

5. PROPOSED ACTION

5.1 Proposed Project Description

The proposed Project entails clearing most of the 6.4-acre property of trees, brush, degraded grassland and other vegetation in preparation for construction of an office building and parking lots as shown in the Project Site Plan (Figure 5). Building construction is expected to occur on the northern half of the property, while a parking area constructed of porous paving material will be located on the northern, western, and southeastern portions of the property (Figure 5). Parking at the southeast and southwest portions of the property will be under the existing BPA T-lines. The central area under the BPA T-lines (~0.70 acre) will, for the most part, be retained in its existing condition because T-line guy-wires cannot be removed or sustain any damage (Figure 5).

Within 4-6 weeks after receipt of the ITP, ground preparation will begin. It will take 4-5 weeks to cut down the trees and remove the Scot's broom and other vegetation. Construction activities involving heavy equipment will result in disturbance and removal of the Nisqually loamy, fine sand, prairie soils that are characteristic of pocket gopher habitat on this site. This activity will result in degradation of the existing pocket gopher habitat and elimination of the pocket gophers known to occupy portions of the property (Figure 6).

5.2 Proposed Covered Activities

Proposed Covered Activities include:

- Vegetation removal; including the use of heavy equipment and trucks to clear and remove debris from the site;
- Site preparation activities such as excavation, grading, soil re-distribution, and soil storage on-site;

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Table 1: Federally listed species that may occur in or near the project area.

Species	Listing Status	Critical Habitat	Comments
Olympia pocket gopher (<i>Thomomys mazama pugetensis</i>)	Threatened	Final designated critical habitat	Within sub-species range and likely occurs
Tenino pocket gopher (<i>Thomomys mazama tumuli</i>)	Threatened	Final designated critical habitat	Not within sub-species range
Yelm pocket gopher (<i>Thomomys mazama yelmensis</i>)	Threatened	Final designated critical habitat	Not within sub-species range
Marbled murrelet (<i>Brachyramphus marmoratus</i>)	Threatened	Final designated critical habitat	Seabird requiring old forest nesting habitat
Streaked horned lark (<i>Eremophila alpestris strigata</i>)	Threatened	Final designated critical habitat	Breeds & winters in the area but prefers open, sparsely vegetated spaces
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	Threatened	Proposed critical habitat	Not confirmed to be breeding in the state; requires large blocks of riparian habitat for nesting
Oregon spotted frog (<i>Rana pretiosa</i>)	Threatened	Proposed critical habitat	No wetland habitat in project area
Bull trout (<i>Salvelinus confluentus</i>)	Endangered	Final designated critical habitat	No streams in project area
Golden paintbrush (<i>Castilleja levisecta</i>)	Threatened		
Water howellia (<i>Howellia aquatilis</i>)	Threatened		

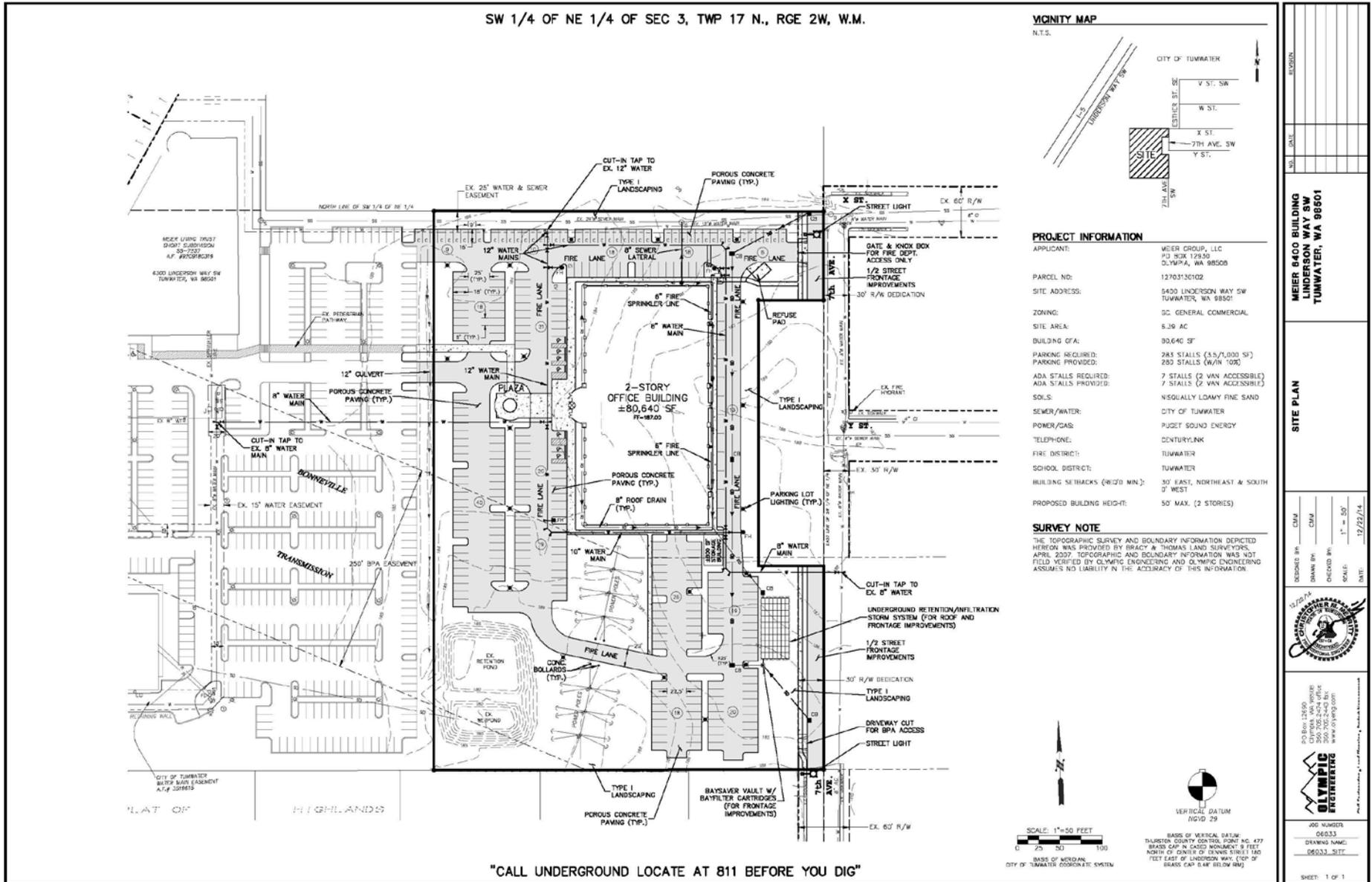


Figure 5: Proposed Project Site Plan

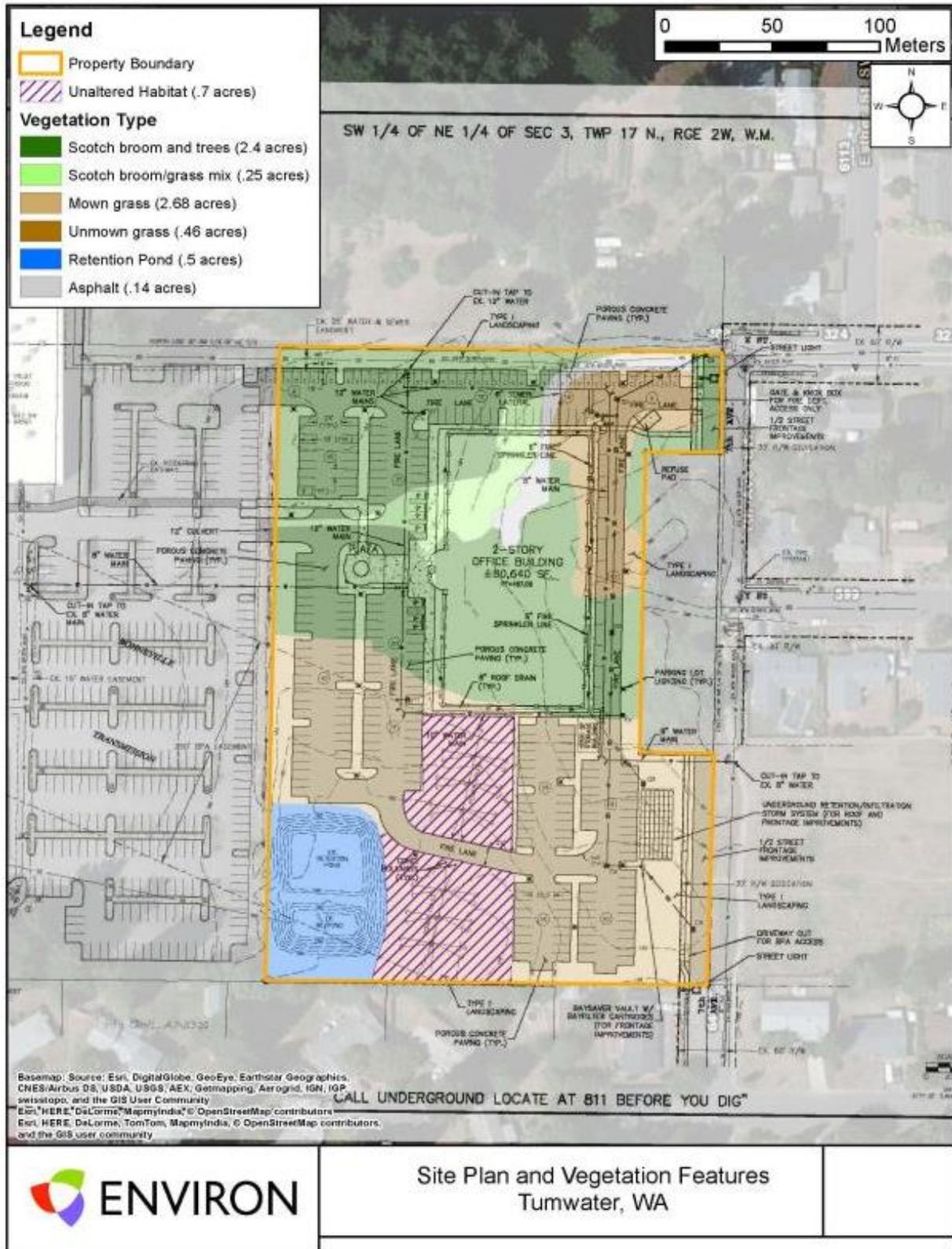


Figure 6: Project Site Plan and Vegetation Features Overlay

- Construction activities including materials delivery and staging; erecting forms and laying concrete and paved porous parking lot surfaces; and constructing the commercial building and associated structures.

5.3 Requested Permit Duration

The proposed Project is expected to be completed within approximately 12 months. However, to accommodate potential unforeseen Project development events, e.g., construction delays, and to ensure the success of the Applicant's conservation program for the pocket gopher, the Applicant requests a permit-duration of five years.

5.4 Covered Species

The Applicant has determined that the Covered Activities cannot avoid potential impacts to the pocket gopher and/or its habitat (Figure 7). The Applicant therefore proposes to cover this species for incidental take.

6. STATUS OF THE SPECIES AND CRITICAL HABITAT

6.1 Status of the Mazama Pocket Gopher, *Thomomys mazama* Merriam, 1897

The protection classifications are as follows:

Federal status: Threatened (4 Washington subspecies)

State status: Threatened

NatureServe Global rank: G4

NatureServe State rank: S2

<i>T. m. yelmensis</i>	T1T2	S1
<i>T. m. couchi</i>	T1	S1
<i>T. m. glacialis</i>	T1T2	S1
<i>T. m. pugetensis</i>	T1Q	S1
<i>T. m. tumuli</i>	T1Q	S1
<i>T. m. melanops</i>	T3	S2
<i>T. m. louiei</i>	TH	SH
<i>T. m. tacomensis</i>	TXQ	



Figure 7: Mazama pocket gopher (Photo by Bill Leonard)

T. m. tacomensis is believed to be extinct, therefore it was not ranked.

6.2 Conservation status

In 1991 the Washington Fish and Wildlife Commission determined the Roy (*T. m. glacialis*), Tenino (*T. m. tumuli*), Tacoma (*T. m. tacomensis*), Shelton, (*T. m. couchi*), and Cathlamet (*T. m. louiei*) subspecies of the Mazama pocket gopher to be candidates for listing as threatened or endangered under state law (per title 77 of the Revised Code of Washington and the Washington Administrative Codes 232-12-014, 232-12-011, and 232-12-297). In 2001 the USFWS published notification that the Mazama pocket gopher in Washington was a

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candidate for listing under the ESA (66 FR 54808-54832). The state of Washington listed the Mazama pocket gopher as threatened under state law in 2006, making unlawful taking of the species a misdemeanor (RCW 77.15.130).

On April 9, 2014, USFWS listed the Olympia (*T. m. pugetensis*), Roy, Tenino, and Yelm (*T. m. yelmensis*) subspecies of Mazama pocket gopher as threatened under the ESA (79FR 19760-19796). Though multiple subspecies of Mazama pocket gophers are known from Washington State, this status of the species description will focus primarily on the Olympia subspecies that may be affected by this HCP.

Distribution and Population Trends

Mazama pocket gophers are found in northern California, western Oregon, and western Washington. In Washington, Mazama pocket gophers are found on remnant glacial outwash prairies of the southern Puget Sound region and on subalpine meadows of the Olympic Mountains. Six subspecies are currently known to exist in Washington: one in Clallam; one in Mason; three in Thurston, and one in Pierce counties (Figure 8 and Figure 9). They were formerly found near Tacoma and in Wahkiakum County.

Pocket gophers are seldom found in densely developed areas, or sites with very rocky soil (WDFW 2013). The largest populations appear to be found on the Olympia and Shelton Airports, Scatter Creek Wildlife Area, and JBLM (WDFW 2014). Many surviving subpopulations are small (<50) and appear to be isolated from other subpopulations, although there are few data on dispersal to help delineate genetically connected populations. Small subpopulations are unlikely to persist for long without at least occasional demographic and genetic recharge by dispersing individuals from other nearby populations (Stinson 2013). Re-colonization becomes less likely as habitat is fragmented and populations isolated. Large populations or clusters of subpopulations close enough and with land condition that permits exchange of dispersers, may be important for the persistence of each subspecies and the species. Most of the Mazama pocket gophers in the southern Puget Sound region currently occur in about ten general areas in Pierce, Thurston, and Mason counties (WDFW 2014). These concentrations of known pocket gopher occurrences and prairie soil types are separated by distance or rivers and vary widely depending on soils present and land-use history. Abundance and distribution of the Olympia subspecies (Figure 9) that may be impacted by this HCP is summarized below.

The largest known population of the Olympia subspecies of the Mazama pocket gopher is found in the loamy sand soils at the Olympia Regional Airport and surroundings in Tumwater on Bush Prairie (Stinson 2013). Pocket gopher mounds have been documented in surveys on over several hundred acres of maintained grassland at the airport (McAllister and Schmidt 2005). Pocket gophers are also found in vacant lots, yards, and pastures in nearby locations on both sides of Interstate 5 (WDFW 2014). In 2005, McAllister and Schmidt (2005) derived a crude population estimate of 6,000 for the airport, but no trapping was done to determine how closely this approximated the number of actual pocket gophers.

Chambers Prairie, extending from about Ward Lake to Lake St. Clair, is the largest area of Nisqually soil type (3,700 ac), and probably supported an extensive gopher population in the past (Stinson 2013). Most of the area has residential development of various densities. Chambers Prairie has gophers scattered in vacant lots, roadsides, and rural and agricultural

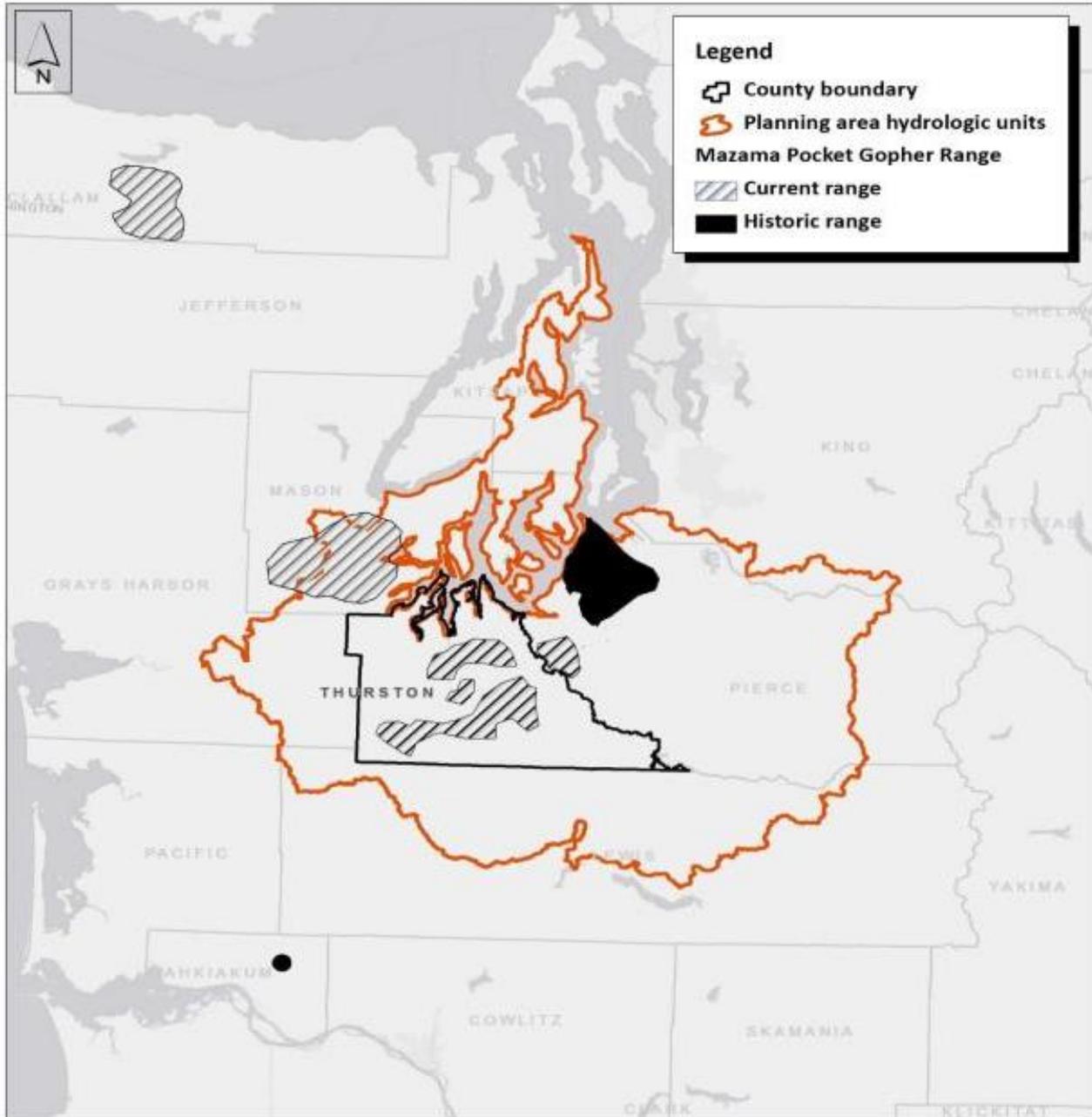


Figure 8: Historical and Current Range of the Mazama Pocket Gopher in Washington [based on museum specimens and WDFW data]

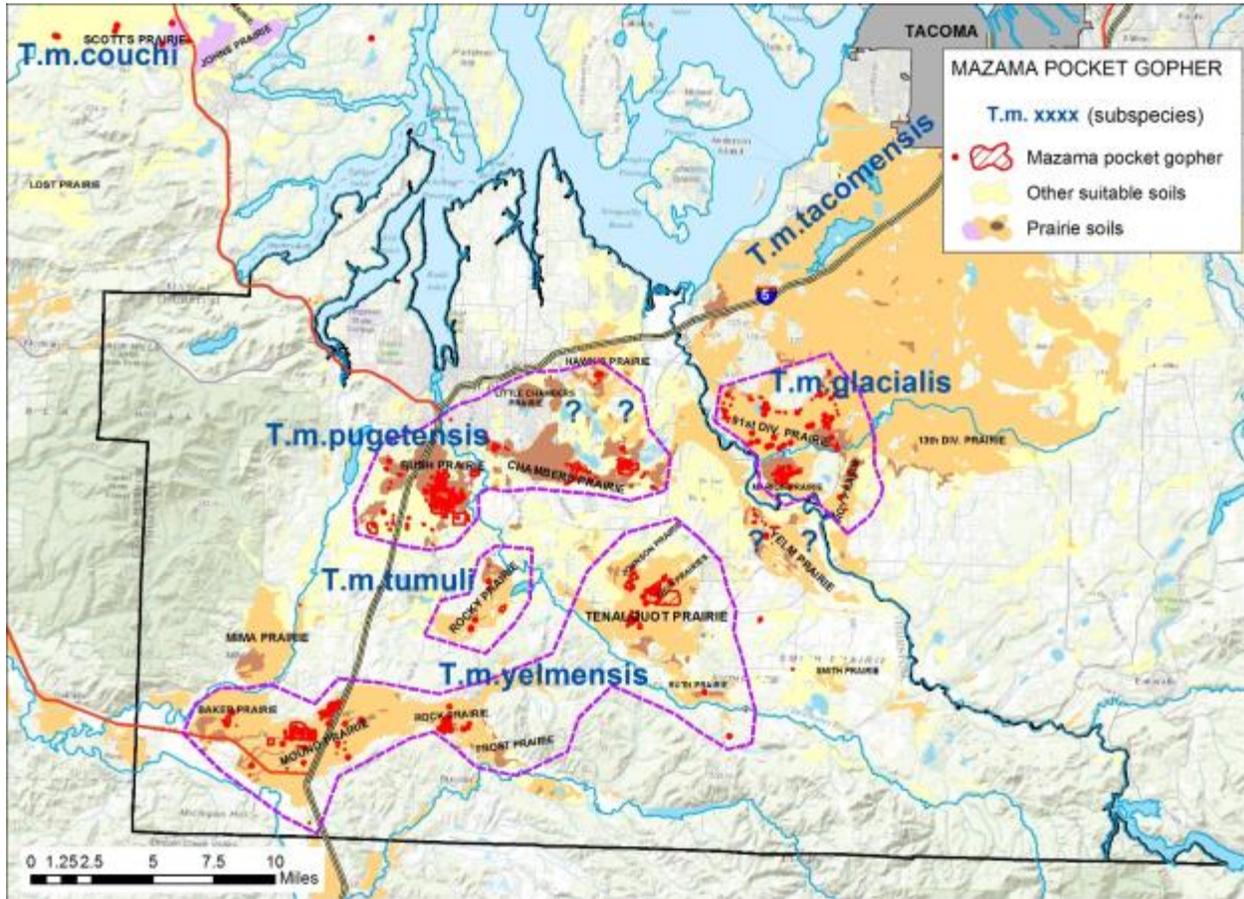


Figure 9: Distribution (generally within dashed line) of Mazama Pocket Gopher Subspecies in the South Puget Sound Region [based on museum specimens, WDFW data, and Dalquest and Sheffer (1944); ?? = uncertain subspecies – areas not included in original subspecies description]

sites, but no large extensive populations like the airport are known (WDFW 2014). The northwestern half of the area is within the urban growth areas of Olympia and Lacey, and much is densely developed such that the likelihood of extensive local extirpation is elevated. The southeastern half of this area also has turf, Christmas tree, and berry farms, and other smaller farms and pastures (Stinson 2013).

Little Chambers Prairie and Hawks Prairie contain substantial areas of loamy sand soils, but most of the suitable habitat is heavily developed, with dense residential neighborhoods, roads, and businesses. Small patches of habitat with pocket gophers exist on some less developed or undeveloped lands, but these appear to be small and isolated, and may not persist in the long-term (Stinson 2013).

Life History and Ecology

Pocket gophers spend most of their time within their system of burrows. Pocket gophers are believed to be generally solitary and exclude other gophers from their burrows except when breeding and when females have litters. Pocket gophers generally remain within their established territories, although they will shift their home range in response to seasonally wet soils (Stinson 2013).

Pocket gophers adjust their annual cycle of activity to the seasonal changes of weather, soil, and plant growth where they occur (Cox and Hunt 1992). Pocket gopher territory (i.e., burrow systems) sizes vary with habitat quality and reproductive status. Using radio-telemetry, Witmer et al. (1996) estimated that the late winter-early spring home range of *T. mazama* on a fallow field averaged 108 m² for 4 males (range 73–143 m²), and 97 m² for 4 females (range 47–151 m²; 0.01–0.03 acre). WDFW personnel captured an average of nine gophers per acre in a 22-acre plot at Olympia Airport, but some pocket gophers were not captured and remained in the plots (G. Olson, unpubl. data).

Mazama pocket gophers attain sexual maturity by the breeding season after their birth, when ~ 9 months old and rear a single litter of ~5 (2-7) pups per year (Witmer et al. 1996, Verts and Carraway 2000). Pocket gopher populations can increase dramatically in the summer after the dispersal of young of the year, and may increase to 3–4 times the spring adult population. In addition to this annual influx of young-of-the-year, gopher populations also fluctuate year-to-year due to environmental conditions. Pocket gopher populations are characterized by local extinction and recolonization (Baker et al. 2003). Territoriality and extreme weather may influence pocket gopher populations more than any other factors.

Pocket gophers have been called 'keystone species' and 'ecosystem engineers' because they affect the presence and abundance of plants and other animals (Vaughan 1961, 1974; Reichman and Seabloom 2002). Their extensive excavations affect soil structure and chemistry; food caches and latrines enrich the soil, affecting plant community composition and productivity. Mazama pocket gophers are an important prey species for many predators, including hawks, owls, coyotes, and weasels; their burrows provide retreats for salamanders, western toads, frogs, lizards, small mammals, and invertebrates (Stinson 2005).

Habitat Characteristics

Mazama pocket gophers live on open meadows, prairies and grassland habitats of the glacial outwash plain where there are porous, well-drained soils (Dalquest 1948). Mazama pocket gophers do not require high quality prairie, but can live in a wide range of grasslands, particularly if they include a significant component of forbs, such as clover, lupines, dandelions, false dandelions, and camas. In addition to remnant prairies, occupied sites in Washington include grassy fields at airports, pastures, fields, Christmas tree farms, and occasionally clearcuts (Stinson 2013).

Although most of the populations are found in grasslands on land that was prairie, they will move into sites with well-drained soil where forest cover has been removed, including recent clearcuts. Pocket gophers are known to populate sites after timber harvest and become

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common for a few years while grasses and forbs are available, but decline as the area regenerates to forest. This has been observed most frequently in Mason County. They are otherwise essentially absent from forest habitats in Washington (Stinson 2013). Pocket gophers also less frequently reported where grassland has been taken over by dense Scot's broom (Steinberg 1996, Olson 2011b).

Perennial forbs are preferred for food over grasses, and fleshy roots and bulbs, such as camas (*Camassia spp.*) are important when green vegetation is not available. The availability of forbs may provide nutrients important for gopher growth and reproduction. Pocket gophers also eat fungi and disseminate the spores of species that have an important role in facilitating plant growth.

Mazama pocket gopher association with soil types and characteristics

The distribution and abundance of pocket gophers are greatly affected by soils. Soil characteristics that affect gophers include depth and texture, particularly rock and clay content that affects burrowing ability, permeability that can result in periodic flooding of burrows, and water-holding capacity and fertility that affect growth of plant foods. In general, pocket gophers prefer deep, light-textured, porous, well-drained soils, and do not occur in peat or heavy clay soils (Chase et al. 1982, Baker et al. 2003).

Distribution of Mazama pocket gophers appears correlated with prairie soil types, but they are not found on all remnant prairie sites. They rarely occur where soil is very rocky (Steinberg 1996a, Olson 2011b). There are local populations in non-prairie loam, sandy, and gravelly soil types (e.g., Indianola loamy sand, Grove, Everett) that may have been unused by gophers in the past due to forest cover. These occurrences often are adjacent to more typical prairie soils (e.g., Nisqually soils). They may be able to occupy any site that supports herbaceous vegetation, does not have significant tree cover, and is well-drained sandy, loamy, or gravelly soil (Stinson 2013; WDFW 2013). In Washington Mazama pocket gophers have not been found in clay, and there are few records in silt soils. In summary, deep well-drained, sandy loam or loamy sand with sufficient fertility and water-holding capacity to support desired forbs appears to provide optimal habitat (Baker et al. 2003).

Threats/Reasons for Decline

Much Mazama pocket gopher habitat in the south Puget Sound has been lost to development, agriculture, and succession to forest, and what remains continues to be degraded by invasion of Scot's broom and other non-native plants (Stinson 2013).

Urban Development

Residential development that becomes high density has been particularly destructive to prairie habitat, and probably led to extinction of *T. m. tacomensis*. Habitat loss has eliminated most of the prairie vegetation, though significant areas remain in grassland. Pocket gophers may not persist in high-density residential areas due to effects of frequent mowing, herbicides, impervious surfaces, and perhaps elevated mortality rates resulting from predation by cats and dogs and trapping or poisoning of rodents, including pocket gophers (Stinson 2013).

Trends in the human population suggest that amount and quality of habitat will continue to decline without protection and careful management of conflicting uses. Thurston County is

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projected to have 170,000 additional people and need an additional 50,000 detached single-family housing units, and >25,000 multi-family units by 2040 (Sustainable Thurston 2011:A11). As habitat patches become smaller, fewer, and farther apart, the likelihood of each patch continuing to support pocket gophers declines as intervening habitat patches are lost (Stinson 2013).

The persistence of Mazama pocket gophers on roadsides, vacant lots, lightly grazed pastures, and within commercial timberland suggests that they are relatively resilient, and may be able to persist in rural and low-density developed areas. However, recent extinction of the Tacoma pocket gopher indicates that life for pocket gophers in high-density residential and commercial areas is hazardous and recruitment and re-colonization is inadequate to maintain local populations (Stinson 2013). The last possible records of the Tacoma pocket gopher were animals that were killed by pet cats and identified as gophers by homeowners (Ramsey and Slipp 1974). It is not known if the mortalities from these sources have a significant effect on pocket gopher populations, particularly in less densely settled areas.

Pocket gophers can damage young trees and their mounds can be a nuisance to landowners. Their foraging habits can also be unwelcome in vegetable gardens and at Christmas tree, berry, and vegetable farms in the area. Though Mazama pocket gophers are currently protected from killing without a permit; the frequency with which they are trapped or poisoned is unknown. When larger populations are suppressed by these methods, they readily recover if habitat remains suitable, but for small and isolated populations, mortality from persecution added to other hazards may lead to extirpation (Stinson 2013).

Livestock grazing

Pocket gophers may survive in pastures in rural residential areas, but studies in California indicate that gopher density tends to decrease in heavily grazed pastures (Eviner and Chapin 2003). *T. mazama* has persisted on well-managed ranches in Thurston County (Stinson 2013).

Gravel mining

South Puget Sound prairies are located on glacial outwash gravels. Some of these glacial gravel deposits are very deep and valuable for use in construction and road-building, and prairie sites may be destroyed by gravel mining. One of the sites where Tacoma pocket gophers were collected became a large gravel pit, and two gravel pits have been opened on occupied gopher habitat in Pierce County south of Roy, and on Rock and Rocky prairies in Thurston County (Stinson 2013).

Airport Management and Development

Pocket gophers are known to occur in grasslands surrounding airport runways and adjoining lands. Airport safety considerations require that the vegetation be mowed to maintain visibility, eliminate cover for large animals that might pose a hazard for aircraft, and provide a safety margin should aircraft overshoot or land short of runways. This management benefits pocket gophers by reducing woody vegetation and maintaining grassland conditions.

Succession and invasive plants

The fire regime established and perpetuated by Native Americans maintained the south Puget Sound prairies for the past 4,000 years, or more. Fire suppression allows Douglas-fir to invade and overwhelm prairie ecosystems. Disturbances such as grazing and vehicle traffic may accelerate colonization by Douglas fir because Douglas fir seed germination is enhanced by disturbance that increases mineral soil contact (Stinson 2013). Douglas fir control has been conducted on prairies in recent years at Johnson Prairie and Weir Prairie RNA on JBLM, Mima Mounds and Rocky Prairie NAP, Thurston County's Glacial Heritage Preserve, and Scatter Creek WLA.

Scot's broom is one of the numerous invasive exotic plants that degrade native prairies in the south Puget Sound region, though it may be the most visible invasive species that rapidly covers prairies. Olson (2011a) reported that Scot's broom negatively affected the probability of pocket gopher site occupancy and plot use; the model suggested that plot use appears to decline as Scot's broom cover approached 10%. Parker (2002) reported that the glacial outwash prairie ecosystem is readily invaded by Scot's broom and that simply reducing soil disturbance and fires would not stop broom invasion (Parker 2002). Rook et al. (2011) noted that Scot's broom has long lasting effects on the soil that reduces germination and success of some native species. Scot's broom can be killed through burning, hand pulling, or herbicide, but control requires an ongoing program because the plants produce abundant seeds that can remain viable in the soil for several decades. Regular mowing can prevent Scot's broom seed production. Fire often stimulates germination of broom seeds in the soil, so a second burn, or herbicide, is often employed to effectively control the abundant seedlings (Rook et al. 2011). Portions of the Artillery Impact Area on JBLM are broom free, indicating that frequent burning prevents broom establishment, but this can also affect native species. All control methods can be detrimental to native species if not well planned.

Implications of habitat loss for populations

Pocket gophers are vulnerable to local extinctions because of the small size of local breeding populations (Steinberg 1999). Low effective size of local populations and relatively large genetic differences between populations may be typical of gopher populations (Daly and Patton 1990). Pocket gophers have probably persisted by continually re-colonizing habitat after local extinctions; however, the loss of habitat patches and increases in hazards such as busy roads may inhibit re-colonization (Stinson 2013).

6.3 Status of Designated Critical Habitat

On April 9, 2014, USFWS published a Final Rule designating critical habitat for three subspecies of the Mazama pocket gopher including the Olympia pocket gopher (USFWS 2014c). The designated critical habitat areas constituted USFWS' best assessment of the areas that meet the definition of critical habitat for the listed subspecies of the Mazama pocket gopher. Approximately 676 acres of critical habitat were designated for the Olympia pocket gopher, all of it located within the boundaries of the Olympia Regional Airport.

7. ANALYSIS OF IMPACTS LIKELY TO RESULT FROM THE TAKING

7.1 Species Effects and Impacts Analysis

The relative value of pocket gopher habitat can be assessed based on a number of factors. Pocket gophers prefer deep, light-textured, porous, well-drained soils. Areas that include the soil types that the USFWS described in the habitat characterization in the final listing rule for the species (79FR 19760-19796) are considered to have higher relative habitat quality than sites with other soil types. Mazama pocket gophers prefer perennial forbs for food over grasses. Locations that provide preferred vegetation types such as clover, lupines, dandelions, false dandelions, and camas provide better habitat than sites under grassy cover. Pocket gophers are also less frequently reported where grassland has been taken over by dense Scot's broom (Steinberg 1996, Olson 2011b), and are essentially absent from forest habitats in Washington (Stinson 2013). Potential habitat value therefore tends to be inversely correlated with woody vegetation and Scot's broom densities.

The amount and quality of the habitat varies considerably on different areas of the Project site. According to NRCS soil survey maps the entire Project area contains Nisqually loamy, fine sand, prairie soils, though soil samples from the site have not been taken. Some portions of the site, such as the existing paved areas and the storm water retention pond, were disturbed prior to the listing of the species. These areas likely contain compacted soils or may be inundated for extended periods, making them less suitable or unavailable for pocket gopher use. Woody vegetation, forested cover, and invasive species such as Scot's broom that are less favored food items or that out-compete preferred foods have reduced the amount or usability of some potential habitat areas at the Project site.

Mazama pocket gophers can be difficult to observe because they spend most of their lives underground, with the exception of very brief surface forays for feeding or for dispersal of young from their natal burrow systems. Mazama pocket gophers are typically detected by searching potential habitat for the presence of pocket gopher mounds. Detection of mounds can verify presence of the species on a site, but does not provide abundance or distribution data. A USFWS site visit with the property owner identified pocket gopher mounds in the grassy area under the BPA T-lines though the actual number of pocket gophers remains unknown. Although a single site visit cannot determine the full extent of pocket gopher occupancy at any given site, it is known that pocket gophers occur in several areas of the Project site. Mounds were observed at an area to the west along the path under the transmission line, an area near the northern-most tower, and an area at the northeast boundary of the mown grass near the fence approximate 20-30 feet from the Scot's broom edge. The entire mown grass area occupied by gophers is approximately 2.7 acres in size.

Most of this occupied area consists of degraded grasslands with encroaching non-native and woody vegetation. Observations of gopher mounds in regularly disturbed areas (such as within storm water retention basins) may represent temporary use or dispersal patterns since these areas are unlikely to provide viable habitat for more than very short periods (such as between rain and storm water events or until the limited amount of available food plants is exhausted).

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The Project site is largely surrounded by impervious surfaces, or landscapes significantly invaded by non-native or woody cover types that would not be expected to support pocket gophers, except for the BPA power-line corridor that extends to the east and could provide similar habitat to that found on the Project site. As activities on adjacent and nearby properties continue to degrade available habitat and isolate any remaining pocket gophers, these small populations would be expected to face an increased risk of extirpation even in the absence of the proposed activities covered by this HCP.

Individual pocket gophers in areas with degraded or limited food resources would be expected to require larger home ranges with more extensive burrow systems. Mazama pocket gophers are known to be antagonistic towards each other (except when breeding) which generally results in avoidance behavior that tends to distribute individuals across a landscape. This distribution behavior combined with the larger expected home ranges in areas of lower habitat suitability might result in impacts to fewer individuals when compared to habitat impacts in areas with higher relative habitat quality.

Any individuals of the species present and their habitat will be lost when construction is initiated on the Project development site. Incidental take is expected to be highest during initial site clearing, grading, and excavation as these activities will extend below the ground and into burrow systems, natal nests, and food caches. Burrow systems may be destroyed and individual animals harmed during these construction activities. Harm to animals or disturbance of burrow systems may also occur once the site is developed if pocket gophers persist in landscaped areas and the storm water retention area. Though some individuals may be able to disperse to adjacent BPA T-line ROW, storm water retention area, or road ROW areas on or near the development site, there is no way to assess the potential survival of these individuals.

Take in the form of harm may occur during site clearing, excavation, and grading when forage plants are removed and soils for burrow systems are removed or compacted. Take may occur in the form of harassment wherever suitable habitat is removed and covered with impervious surfaces. Harassment may occur when individuals experience a measurable disruption to their normal behavior when their forage resources are removed, they are disturbed, or there is an increased energetic demand from having to relocate and/or rebuild tunnel systems and food caches.

Observing or documenting instances of take will be difficult or impossible because Mazama pocket gophers remain underground for most of their lives. The loss of suitable habitat expected to occur on the Project development site will therefore serve as a surrogate for the amount of take anticipated over the term of the requested permit. When the Project site has been developed and construction is complete, Mazama pocket gopher habitat is likely to be lost due to development activities. It is possible that the central portion of the mown grass area near the T-line tower guy-wires might not be disturbed because this area will remain intact during and after the Project site is developed.

The USFWS stated that "there are few data on historical or current population sizes of Mazama pocket gophers in Washington" in the final listing rule determining the species was threatened (79 FR 19775). Estimates of demographic-level responses resulting from the loss of a small area of poor to moderate quality habitat is therefore difficult to assess.

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Approximately 2.7 acres of the Project development site consists of occupied or potentially occupied habitat. Though Olympia pocket gophers have been identified on the site, the areas could reasonably be characterized as poor or moderate quality habitat consisting primarily of degraded grassland and areas invaded by Scot's broom and other woody and invasive vegetation.

The Applicant proposes to compensate for the impacts of the taking by conserving 2.5 acres of occupied habitat that will be permanently managed in a manner compatible with, and benefitting, the Olympia subspecies of the Mazama pocket gopher. The proposed Bush Prairie Farm conservation site is south of, and near the pocket gopher population at the Olympia Regional Airport.

7.2 Conservation Program

The Conservation Program describes the actions the Applicant will implement to provide for the conservation of species impacted by the Covered Activities. Typically, Conservation Programs consist of six components:

1. Biological Goals
2. Biological Objectives
3. Minimization Measures
4. Mitigation Measures
5. Monitoring Plan
6. Adaptive Management Plan

7.2.1 Biological Goals and Objectives

Biological goals are intended to be broad, guiding principles that clarify the purpose and direction of the Applicants' HCP (USFWS and NMFS 2000). The biological goals describe what the conservation program aims to accomplish over the course of the permit term for species covered by the plan. The Applicant's biological goals for the conservation program in this HCP are to contribute to the conservation of the Olympia subspecies of Mazama pocket gopher by permanently conserving habitat to maintain viable populations of this subspecies in the Plan area.

Biological objectives describe measurable performance targets to evaluate progress towards achieving the program's biological goals. Objectives provide benchmarks for determining the effectiveness of the conservation program and inform effective adaptive management over the duration of the permit. To achieve the biological goals established for this HCP, the Applicant will:

1. Execute a Conservation Easement at the Bush Prairie Farm permanent conservation site consisting of no less than 2.5 acres of habitat occupied by the Olympia subspecies of Mazama pocket gophers; and
2. Ensure that the conservation site will benefit the pocket gopher by reducing the threat of habitat loss and fragmentation by extinguishing any future subdivision or development rights associated with the site; and

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3. Ensure that the conservation site is managed in a manner that is compatible with, and benefits, the Olympia subspecies of the Mazama pocket gopher by preparing a Management Plan, described in Section 7.2.3, in keeping with these objectives and provide a copy of the plan to USFWS; and
4. Provide funding to implement the ongoing management actions or documentation verifying that such management actions have been provided for; and
5. Ensure that the management actions described here benefitting the Olympia subspecies of the Mazama pocket gopher shall be perpetual; and
6. Complete these tasks prior to the effective date of the requested ITP.

7.2.2 Minimization Measures

Because the Covered Activities will likely permanently remove the Mazama pocket gopher habitat from the Project site, there are few measures that could be implemented to minimize impacts to the species. However, the Applicant agrees to the following minimization measure:

1. USFWS has not authorized translocation of Mazama pocket gophers from occupied Project development sites as a method to minimize impacts to the species at this time. The Applicant commits, however, to allow and support trapping and translocation actions if USFWS determines that this practice is beneficial or may aid species recovery efforts. The Applicant will fund translocation activities (as detailed in the Funding Assurances section of this document) in the event that USFWS authorizes and agrees to allow these activities within the Permit area.

7.2.3 Mitigation Measures

The Applicant proposes to compensate for the unavoidable impacts associated with the permanent loss of occupied habitat by securing an offsite parcel approved by USFWS for the conservation of Olympia pocket gophers and their habitat, and ensuring that the site will be permanently managed for the benefit of the species. The Applicant believes that the conservation site will offset impacts of the taking that will result from the Project and that management of the site will support other ongoing recovery efforts for the species within Thurston County.

The Applicant will acquire the 2.5-acre Bush Prairie Farm conservation site and ensure that the site will be permanently managed in a manner compatible with and benefitting the Olympia subspecies of the Mazama pocket gopher. The Applicant will ensure, through an Agreement with the Bush Prairie Farm owner, that future subdivision and development rights associated with the Bush Prairie conservation site will be extinguished to reduce the threat of further habitat loss and fragmentation. This is especially important for this conservation site that is currently zoned for commercial and industrial development in an area surrounded by commercial, industrial and warehouse facilities. Securing this parcel for mitigation will permanently expand the amount of conserved habitat for Olympia pocket gophers adjacent to the Olympia Regional Airport, the only dedicated critical habitat unit for the species.

The Applicant will develop a Management Plan (Appendix A), in cooperation with the Bush Prairie Farm owner, with the goal of maintaining pocket gopher habitat on this site. Management Plan actions will include control of unauthorized access and activities on the

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property, control and maintenance of invasive plant species, e.g., Scot's broom, such that no more than 10% of the conservation site may be occupied by or covered by these species, and other measures to promote and maintain habitat for Olympia pocket gophers. The establishment and permanent management of the Bush Prairie Farm conservation site will provide greater habitat quality than the degraded habitat located at the Project development site within a context of increasing fragmentation by urban development.

7.2.4 Monitoring

Monitoring is an important element of HCPs (50 CFR 17.22 and 17.32) and is essential to determining and documenting the success of the plan's conservation program, informing adaptive management efforts, and in collecting information needed to meet reporting requirements. Two types of monitoring are incorporated into this HCP. Compliance monitoring will document how the Applicant implements the terms and conditions of the requested Permit. Effectiveness monitoring will determine and document if the stated biological goals and objectives are being achieved.

Compliance monitoring will describe how the HCP is implemented, and will result in an annual report to the USFWS each year for the duration of the requested permit (described more fully in Section 9.4). Compliance monitoring will describe implementation of: 1) the Covered Activities, and 2) the conservation program. Covered Activities monitoring will describe the amount of take occurring each year in terms of individuals of the species, when that can be determined, and in terms of the amount of habitat removed. Conservation program monitoring documents the implementation of the plan's conservation measures. This portion of the annual report will describe how and when each of the mitigation measures was performed each year.

Effectiveness monitoring determines if the biological goals and objectives of the plan are being achieved. Effectiveness monitoring will result in the collection of data that, over time, will determine if the conservation measures are working and how the Covered Species are responding to these actions.

Effectiveness monitoring efforts are focused on ensuring that suitable habitat is maintained for the Covered Species on the conservation site. Annual monitoring of the conservation site will document conditions and determine the level of effort needed to manage woody or invasive species such as Scot's broom. An annual report summarizing existing conditions, management recommendations, other observations of Covered Species or their presence (such as pocket gopher mounds), will be submitted by the conservation site manager, to USFWS. Monitoring results will be used to make management recommendations and guide management activities on the conservation site. Reporting requirements are described in section 9.4 below.

7.2.5 Adaptive Management

The U.S. Department of the Interior defines adaptive management as a structured approach to decision making in the face of uncertainty that makes use of the experience of management and the results of research in an embedded feedback loop of monitoring, evaluation, and adjustments in management strategies (Williams et al. 2009). Uncertainties may include a lack of biological information for the Covered Species, a lack of knowledge about the effectiveness of mitigation or management techniques, or doubt about the

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anticipated effects of the Project. Adaptive management is a required component of HCPs that allows for the incorporation of new information into conservation and mitigation measures during HCP implementation. Effective implementation of this approach requires explicit and measurable objectives, and identifies what actions are to be taken and when they are to occur. Adaptive management measures do not generally trigger the need for an amendment to the HCP or Permit.

Because the Project site will permanently remove pocket gopher habitat within the first year of the Permit term, and the nature of the Project activities include full build-out, there will be no ability to apply adaptive management to the Project site. However, adaptive management can be applied in conjunction with monitoring of the conservation site to adjust and improve management techniques as site conditions change over time and as new information on Covered Species and their management becomes available.

Increased frequency of mowing or other vegetation management actions will be employed if invasive plant species exceed 10% total areal cover on the conservation site.

Uncertainty regarding biological or ecological factors impacting Olympia pocket gophers on the conservation site that can be affected with recurring management actions (such as invasive and woody plant species control) will be addressed by testing and comparing alternative approaches with control treatments. Results will be evaluated and subsequent management will be modified to reflect the improved understanding resulting from such testing. The study design, methods, results, and modifications to ongoing management activities will be described in the annual report provided by the conservation site manager. Any change/adaptation to the management regime will be based on best available science and focused on ensuring that the biological goals described in the HCP are achieved.

8. ALTERNATIVES CONSIDERED TO AVOID TAKE OF POCKET GOPHERS

One alternative for avoiding take of pocket gophers on the Project site is to not build a commercial facility. Not building would result in a huge economic loss to the Applicant who invested in the future of this property because of its location, potential for complementing existing commercial buildings, and because it is zoned General Commercial. The property was obtained years prior to the listing of the Mazama pocket gopher so the Applicant had no prior knowledge that he would be confronted with having to address potential impacts to a species listed under the ESA, if commercial development were to proceed. The development of this property, but for the new listing of the gopher under the ESA, would be considered otherwise lawful.

Other alternatives to build while avoiding take of pocket gophers would require a different design that involves disturbance of less land and avoidance of the gopher-occupied area. These alternatives would eliminate approximately 50% of the land available for development because the gopher-occupied area is in the center of the southern half of the property. To avoid impacts to the pocket gopher, the entire southern portion of the property would have to remain undeveloped. On such a small parcel as the 6.4-acre property, it would not be economical or practical to construct a commercial building and associated parking that would utilize approximately the northern half of the property. Avoiding the occupied pocket gopher

habitat area would essentially cut the entire southern portion of the property out of the development plans, rendering any commercial development unfeasible.

9. CHANGED AND UNFORESEEN CIRCUMSTANCES

The “No Surprises” policy (69 FR 71723) states that if a Permittee is properly implementing an HCP that has been approved by USFWS, no additional commitment of resources beyond that already specified in the HCP will be required. “Properly implemented conservation plan” means any HCP and Permit whose commitments and provisions have been and are being fully implemented by the Permittee and in which the Permittee is in full compliance with the terms and conditions of the permit, i.e., the HCP is consistent with the agreed-upon operating conservation program for the Project. A properly-implemented conservation plan for the HCP includes implementation of all elements of the conservation plan, including the Adaptive Management, Monitoring Program, and responses to Changed Circumstances.

In accordance with No Surprises, the Applicant will be responsible for implementing and funding adaptive management and remedial measures in response to any Changed Circumstances as described in the HCP. The Applicant would only be obligated to address Unforeseen Circumstances within the specified limits described below.

9.1 Changed Circumstances

Changed circumstances include all reasonably foreseeable circumstances that could be anticipated to occur in the plan area within the duration of the proposed permit. This includes natural events that periodically occur in the plan area (fire, flood, climate change, earthquake, new species invasions, disease, etc.), the listing of other species within the plan area that may be affected by the Covered Activities, or other events that could affect the Applicant’s ability to meet the biological goals and objectives described in this HCP.

If natural events, such as those listed above, that could affect the Applicant’s ability to meet the biological goals and objectives described in this HCP occur, then how these events have affected Covered Species and/or their habitat will be described in the annual report. Site management actions will be altered or adapted as described in the section on Adaptive Management to continue to achieve the stated biological goals and objectives of this HCP.

If unplanned fire occurs at the conservation site, then additional management activities may be required to meet HCP and site management performance standards. Some invasive species such as Scot’s broom that may be present in the seed bank can be stimulated to germinate by fire. Additional management actions such increased frequency of mowing may be necessary after an unplanned fire event to control these invasive plants. Seeding or planting may also be necessary to help prevent colonization of bare soils by invasive species.

A major earthquake may cause topographic uplift or subsidence. Changes to site conditions such as colonization of disturbed soil areas by invasive species could result in shifting vegetation communities. The Applicant will adjust management actions to ensure that the biological goals and objectives and the associated performance standards described in the HCP will continue to be achieved. Altered management actions could include changing the timing or frequency of management actions or planting and seeding plant species important to the Covered Species for reproduction or feeding.

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If new species invasions are detected on the conservation site, then the Applicant will employ the Adaptive Management procedures described previously to evaluate and adapt management activities to ensure that the goals and objectives of the conservation program will be met.

9.2 Unforeseen Circumstances

Unforeseen circumstances include circumstances that were not anticipated by the Applicant or USFWS during the preparation of the HCP that result in a substantial and adverse change in the status of the Covered Species. Unforeseen Circumstances are defined by Federal regulation (50 CFR §17.3) as “changes in circumstances affecting a species or geographic area covered by a conservation plan or agreement that could not reasonably have been anticipated by plan or agreement developers and the USFWS at the time of the conservation plan’s or agreement’s negotiation and development, and that result in a substantial and adverse change in the status of the covered species.”

USFWS bears the burden of demonstrating that Unforeseen Circumstances exist, using the best scientific and commercial data available. If an Unforeseen Circumstance occurs during the term of the HCP, and if USFWS determines that additional conservation and mitigation measures are necessary to respond to such Unforeseen Circumstances, then USFWS may require more conservation measures of the Applicant, but only if such measures are limited to modifications within conservation site, if any, or the HCP’s operating conservation program for the affected species, and if such measures maintain the original terms of the HCP to the maximum extent possible (50 CFR 17.22).

Notwithstanding the foregoing paragraph:

1. USFWS will clearly document any findings of Unforeseen Circumstances. In determining whether any event constitutes an unforeseen circumstance, USFWS will consider, but not be limited to, the following factors: 1) the extent of the current range of affected species, 2) percentage of range adversely affected by the HCP, 3) the percentage of range of the affected species conserved by the HCP, 4) the ecological significance of that portion of the range affected by the HCP, 5) the level of knowledge about the affected species and habitat and the degree of specificity of the species’ conservation program under the HCP, and 6) whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.
2. USFWS will not require the commitment of additional land, water, or financial compensation without the consent of the Applicant or impose additional restrictions on the use of land, water, or natural resources otherwise available for use by the Applicant under the original terms of the HCP, including additional restrictions on covered actions that are permitted under the HCP.
3. Nothing in this HCP will be construed to limit or constrain USFWS or any other governmental agency or individual from taking additional actions at its own expense to protect or conserve a species included in the HCP.

In the event of Unforeseen Circumstances, USFWS will provide written notice (except where there is substantial threat of imminent, significant adverse impacts to a Covered Species) to the Applicant with a detailed statement of the facts regarding the unforeseen circumstance

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involved, the anticipated impact(s) to the Covered Species and their habitat(s), and all information and data that supports the assertion. In addition, the notice will include any proposed conservation measure(s) that is believed would address the Unforeseen Circumstance, an estimate of the cost of implementing such conservation measure(s), and the likely effects upon the Applicant. If USFWS makes a finding of Unforeseen Circumstances, the Applicant will avoid contributing to appreciably reducing the likelihood of the survival and recovery of the affected species, during the period necessary to determine the nature and location of additional or modified mitigation.

9.3 Funding Assurances

The Applicant, Meier Group, LLC, commits to:

1. Acquire a Conservation Easement at the Bush Prairie Farm permanent conservation site consisting of no less than 2.5 acres of habitat occupied by the Olympia subspecies of Mazama pocket gophers; and
2. Ensure that the conservation site is managed in a manner that is compatible with, and benefits, the Olympia subspecies of the Mazama pocket gopher by preparing a Management Plan, described in Section 7.2.3, in keeping with these objectives and provide a copy of the plan to USFWS; and
3. Provide funding to implement the ongoing management actions or documentation verifying that such management actions have been provided for prior to the effective date of the requested ITP.

Delivery of certified copies of the Conservation Easement, Management Plan, and other associated documentation to USFWS will serve to satisfy the Assurances of Funding requirement.

9.4 Such Other Measures that the Secretary May Require Permit Amendments

It may be necessary at some time over the duration of the proposed Permit for the USFWS and the Applicant to clarify provisions of the HCP or the requested ITP with respect to program implementation or the meaning and intent of language contained in these documents. Such clarifications should not change the substantive provisions of any of the documents in any way, but merely clarify and make more precise the existing provisions.

In addition, it may be necessary to make administrative changes or minor modifications to the documents at some time over the duration of the proposed Permit. Such changes should not result in substantive changes to any provisions of the documents, but may be necessary or convenient to represent the overall intent of the Applicant and the USFWS. Examples of such administrative changes or minor modifications include correction of typographic errors in the documents, changes in the legal business name or mailing address of a permittee, or clarification of reporting procedures. Requests for administrative changes and minor modifications must be received in writing and may be reviewed and approved by the USFWS Regional Office or by the State USFWS Ecological Services Office in accordance with applicable regulations and policies (50 CFR 13).

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Except as provided for above, the HCP and the ITP may not be amended or modified in any way without the written approval of the Applicant and the USFWS. Substantive amendments to the HCP or the ITP would be required for changes in location, covered activity, type or amount of take, or covered species. Examples of changes requiring major amendments to the documents include the listing of a species not currently addressed in the HCP that may be affected by the Covered Activities; the modification of any Covered Activity, minimization, or mitigation measure under the HCP, including funding, that may affect the type or amount of take, the effects of the Covered Activities, or the nature or scope of the minimization or mitigation measures in a manner or to an extent not previously considered in issuing the ITP; or any other modification of the Covered Activities that causes an effect to the Covered Species or their designated critical habitat not considered in the original ITP. Such major amendments will be processed by the USFWS in accordance with the provisions of the ESA, the applicable regulations (50 CFR 13 and 17), and will be subject to the appropriate level of environmental review under the provisions of NEPA.

Annual Reporting

The Applicant will prepare an annual report that will be submitted to the USFWS Washington Fish and Wildlife Office in Lacey, Washington and the USFWS Regional office in Portland, Oregon no later than November 1 each year for the duration of the permit. The annual report will address each of the ITP terms and conditions and describe the ongoing management of the conservation site. Monitoring and reporting for the conservation site will continue beyond the duration of the ITP, and will be summarized in a report submitted to USFWS once every five years after permit expiration.

The report will summarize the following information:

- The development status of the Project site;
- The date on which development and construction is completed (usually the date a Certificate of Occupancy is issued for the last structure completed on a site);
- Results of compliance monitoring describing how each of the requested permit terms and conditions was achieved, verifying that the Applicant met all requirements during the permit year;
- A description of all management actions implemented on the conservation site (including specific actions and dates);
- If the Project or the conservation site is conveyed to a third party in fee, under easement, or through some other arrangement, the structure of the relationship and responsibility for ongoing management under the requirements in the HCP and the ITP will be defined. Providing copies of conservation easements or management agreements defining these roles and responsibilities to USFWS will fulfill this requirement;
- Results of effectiveness monitoring describing progress towards achieving the biological goals and objectives of the HCP;
- A description of any remedial actions implemented in response to changed circumstances (as described in Section 9.1).

The Applicant may convey monitoring and reporting requirements associated with the conservation site to the site manager.

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APPENDIX A

MITIGATION LAND DEVELOPMENT RIGHTS PURCHASE AGREEMENT AND CONSERVATION SITE MANAGEMENT PLAN OUTLINE

**Mitigation Land Development Rights Purchase Agreement
Between The Meier Group, LLC and Mark Clark, Landowner**

The Meier Group LLC (the Applicant) proposes to compensate for unavoidable impacts associated with the permanent loss of occupied habitat for the Olympia subspecies of the Mazama pocket gopher (pocket gopher) as described in "The Meier Group, LLC Mazama Pocket Gopher Habitat Conservation Plan" (HCP) by executing a Conservation Easement and Management Agreement with Mark Clark, owner (Landowner) of the 2.5-acre Bush Prairie Farm conservation site (conservation site).

The Applicant proposes to acquire the development rights and implement a management plan to ensure that the conservation site will be permanently managed for the benefit of the pocket gopher. The Conservation Easement will benefit the pocket gopher by extinguishing future subdivision and development rights associated with the conservation site to reduce the threat of habitat loss and fragmentation.

The Applicant and the Landowner will develop a Management Plan with the goal of maintaining pocket gophers and their habitat on the site. Obligations and requirements described in the Management Plan will be perpetual, will run with the land, and will be implemented by the Landowner, his heirs or successors, and any subsequent owners. Management Plan actions will include, but are not limited to:

- 1) control of unauthorized access and activities on the property;
- 2) control and maintenance of invasive plant species, e.g., Scot's broom, such that no more than 10% of the conservation site may be occupied by or covered by these species; and,
- 3) other measures to promote and maintain habitat for Olympia pocket gophers as determined by annual monitoring results.

The Landowner may reserve the right to continue to engage in accepted agricultural practices recognized as providing a net conservation benefit and therefore specifically exempted from the take prohibitions of Section 9 of the ESA as described in the Section 4(d) Special Rule for the pocket gopher (79 FR 19790-19792).

The Conservation Easement and the Management Plan are being created to meet the mitigation requirements of Section 10(a)(1)(B) of the ESA. Management of the conservation site must therefore be in accordance with the terms and conditions of the HCP and the requested ITP. Execution of the Conservation Easement and approval of the Management Plan must be completed prior to the effective date of the requested Incidental Take Permit. The Conservation Easement and the associated Management Agreement shall run with the land, shall be perpetual in nature, and shall be recorded in the public records of the Thurston County Clerk's Office.

Management Plan Outline

A Management Plan meeting the following requirements will be developed by the Applicant and the Conservation Site Land Manager, and copies provided to USFWS prior to the effective date of the requested ITP.

Conservation mitigation land agreements should include a management plan identifying any habitat or other management activities that will be needed, the endowment necessary to carry out such management in perpetuity, activities allowed to occur on the lands, and monitoring and reporting requirements for management objectives. The conservation land manager is responsible for fulfilling the obligations of the final management plan. Therefore, it is important to accurately estimate budget needs up-front. The conservation lands management plan should at a minimum provide the following information:

1. Property description (information available in HCP Section 4.1 and Section 7.2.3.)
 - a. geographical setting,
 - b. adjacent land uses,
 - c. location relative to regional open space plans,
 - d. geology, and
 - e. cultural or historic features on-site.
2. Description of biological resources on-site, including vegetation map.
3. Identification of activities allowed on the conservation land;
 - a. current agricultural activities consistent with accepted agricultural activities described in the Mazama pocket gopher 4(d) Special Rule;
 - b. control of unauthorized access and activities on the property;
 - c. control and maintenance of invasive plant species, e.g., Scot's broom, such that no more than 10% of the conservation site may be occupied by or covered by these species; and
 - d. other measures to promote and maintain habitat for Olympia pocket gophers as determined by annual monitoring results.
4. Identification of biological goals and objectives (information available in HCP Section 7.2.1.)
5. Management needs of the property
 - a. control of public access,
 - b. monitoring of resources,
 - c. budget needs and necessary endowment funds to sustain the budget,
 - d. yearly reporting requirements,
 - e. and any special management requirements that are necessary to implement the biological goals and objectives.
6. Any monitoring schedules and special management plan activities, including adaptive management practices.
 - a. Implementation of the current agricultural activities and land management regime conducted by the landowner;
 - b. Annual monitoring by the Capitol Land Trust (CLT) per their Conservation Easement funding requirements (see attached Monitoring Report Form);
 - c. Monitoring reports will be submitted annually either in collaboration between the landowner and CLT, or separately; and
 - d. Management adjustments (adaptive management) will be made, in coordination between the landowner, CLT, and USFWS, as needed, to ensure conservation of the pocket gopher continues on the conservation (mitigation) land.
7. Any decision trees or other structures for future management.



Capitol Land Trust Monitoring Report

Property name (address):	
Date monitored:	
Owner's name (phone #):	
Names of people present:	Mike Leigh (CLT staff) +
Weather conditions:	
Length of visit:	

- 1. List interesting plants, animals, or conservation features noticed during visit:**
- 2. Describe the current land uses on the property. If there have been changes since the last visit, please note:**
- 3. Describe any evidence of possible easement violations. (See easement or abstract for prohibited uses.)**
- 4. Describe any new construction, structures, improvements, or other human caused or natural changes to property that has occurred since last monitoring visit. Include location, extent, purpose, and responsible individual(s) or event(s):**



Capitol Land Trust Monitoring Report

5. Describe any evidence of potential threats or problem areas not already mentioned.

This might include:

- Hunting ORV's Dumping/Litter Pollution Invasive Species
 Logging Fire Boundary Issues Erosion Vandalism

6. Were all property boundaries clearly marked or easy to find?

7. Recommendations for the land trust and/or future monitors (*e.g.*: timing of visit; features to visit; mud boots needed; areas missed this year; management concerns, etc.):

8. Other Observations, Comments, or Remarks:

9. Did you visit the entire property? If not, please indicate what area you were unable to monitor. Please describe your route.