ENVIRONMENTAL OVERLAY ZONE MAP CORRECTION PROJECT

VOLUME 2, PART E:

East Buttes and Terraces, Natural Resources Inventory and Protection Decisions

Recommended Draft, As Amended

May 2022

THE BUREAU OF PLANNING & SUSTAINABILITY

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Acknowledgements

This plan is the culmination of three years of work across the City of Portland. Many thanks to the thousands of stakeholders, property owners, renters, business owners and interested people who attended dozens of neighborhood and community meetings and invited staff to their homes and businesses to perform site visits.

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A. Introduction

Volume 2, Part E, includes the results for Resource Sites in the East Buttes and Terraces geography (see Map 1). For each resource site the following is presented:

1. Verification riparian corridors and wildlife habitat features, functions and classifications pursuant to Metro Rule 3.07.1320 and Table 3.07-13d, and OAR 660-023-0110.
2. Confirmation of Habitat Conservation Areas, pursuant to Metro Rule 3.07.1320 and Table 3.07.13a.
3. Economic, Social, Environmental and Energy analysis pursuant to OAR 660-023-0110 for areas that are not Habitat Conservation Areas.
4. Program implementation recommendations pursuant to Metro Rule 3.07.1330 and 3.07.1340, and OAR 660-023-0110. Program implementation is presented in Volume 1, Part B.

B. HOW TO USE THIS DOCUMENT

Below is a description of how to use the information found in this volume during quasi-judicial reviews.

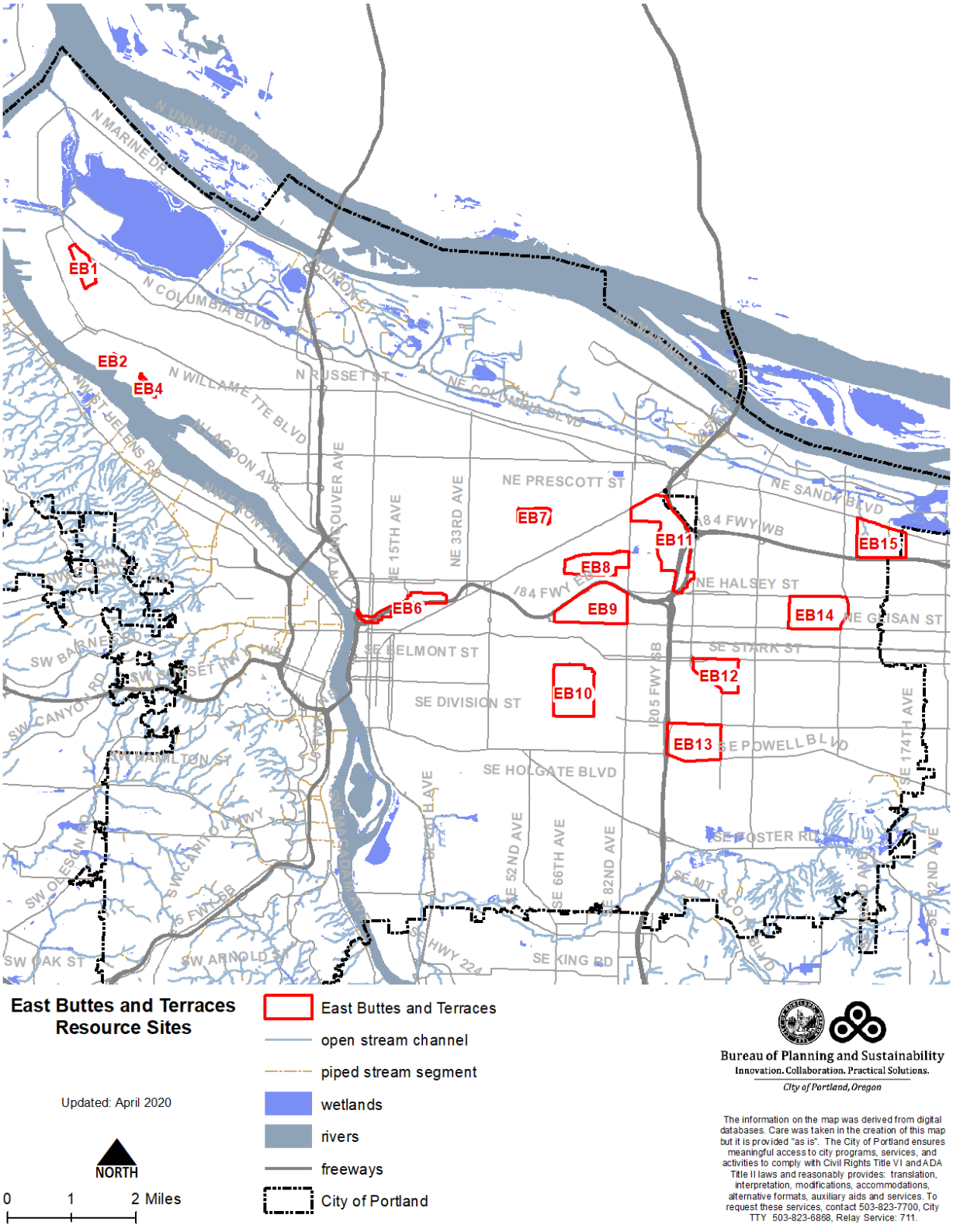
Area Descriptions

Volume 2, Part E, begins with an overview of the area's features, functions and conditions, including land use patterns. This information is provided for context but is also applicable to each resource site and should be used in conjunction with resource site-specific maps and descriptions during quasi-judicial reviews.

Natural Resource Features and Classification Maps

Metro Title 13 and Statewide Planning Goal 5, wildlife habitat, rules require verification of natural resource features and classifications. Natural resource features include rivers, streams, wetlands, flood area, vegetation (forest, woodland, shrubland and herbaceous), steep slopes and Special Habitat Areas. The methodology used to identify and map these features and the functions provided (also referred to in the zoning code as "functional values") is documented in Volume 3, Natural Resources Inventory. The methodology to verify the classifications is documented in Volume 3, Title 13 and Goal 5 Compliance.

Each Resource Site begins with maps that document the location and extent of natural resource features, functions and classifications. The decisions regarding which natural resources to protect are based on the mapped features. The natural resource features maps can be updated at any time based on current conditions and additional factual data, such as a wetland delineation performed by a qualified professional. The environmental overlay zone boundaries may be corrected based on new topographic feature data through 33.885.070, Correction to the Official Zoning Maps, or through 33.430.250.D, Modification of Zone Boundaries.



Map 1: East Buttes and Terraces Resource Geography

Habitat Conservation Area and ESEE Decision Maps

Metro Title 13 requires confirmation of Habitat Conservation Areas. The methodology used to determine Habitat Conservation Areas is documented in Volume 3, Title 13 and Goal 5 Compliance. For natural resources that are not a Habitat Conservation Area, and for which Portland intends to protect the resources, Statewide Planning Goal 5 OAR 660-023-0110 must be followed to show the ESEE decisions. The methodology used to make the ESEE decisions is documented in Volume 3, Title 13 and Goal 5 Compliance. The Habitat Conservation Area determinations and ESEE decisions are the legislative intent regarding which resources should be protected and to what level of protection. The legislative intent should be consulted during quasi-judicial review.

Natural Resource Features and Functions Descriptions

Descriptions of the natural resource features and functions are not required by Metro Title 13 or Statewide Planning Goal 5; a map of the features is sufficient. However, Portland Zoning Code Title 33 requires that impacts to natural resources be fully mitigated to address both features and functions (also referred to as "functional values" in the zoning code). The functions provided by the resources are mapped based on the city's Natural Resources Inventory methodology, see Volume 3. The area descriptions provided at the beginning of this document also provide information about functions that pertain to each resource site. Both the resource site descriptions and area description should be used to asses natural resource impacts and mitigation alternatives during quasi-judicial reviews. Additional factual information about the resource functions may also be provided by a qualified professional.

Metro Title 13 and Oregon Goal 5 Compliance

An explanation of compliance requirements for Metro Urban Growth Management Functional Plan Title 13, Nature in Neighborhoods, and Oregon Statewide Land Use Planning Goal 5, Open Spaces, Scenic and Historic Areas, and Natural Resources is found in Volume 3. The natural resource protection requirements are summarized and recommendations are made for each resource site. For natural resources that are not a Title 13 Habitat Conservation Area, the general ESEE analysis and recommendations are affirmed, clarified or modified based on resource site-specific information. An ESEE decision is made and describes the significant natural resource features and functions to be protected from the impacts of conflicting uses.

Implementation

Results of Metro Title 13 and Oregon Goal 5 requirements are explained and presented in Map I for each resource site. The results are implemented by updates to the official zoning maps and zoning code, documented in Volume 1, Part B.

C. NATURAL RESOURCE DEFINITIONS

The natural resource definitions are part of the citywide Natural Resources Inventory (see Volume 3) and used to explain how resources are mapped and classified. These are not regulatory definitions.

Waterbodies

Stream: A stream is a channel that has a defined bed and bank and carries water continuously for a week or more during at least the wet season (October through April). Streams may be naturally occurring or may be a relocated, altered or created channel. Streams may contribute water into another waterbody or the water may flow into a pipe or culvert. Streams may flow for some distance underground. Streams are also referred to as *drainageways, ditches,* or *drainages* in other City of Portland reports, codes and rules or by other agencies including but not limited to Oregon Department of State Land or US Army Corps of Engineers. Streams include:

- the water itself, including any vegetation, aquatic life or habitat;
- the channel, bed and banks located between the top-of-bank; the channel may contain water, whether or not water is actually present;
- intermittent streams, which flow continuously for weeks or months during the wet season and normally cease flowing for weeks or months during dry season;
- sloughs, which are slow-moving, canal-like channels that are primarily formed by tidal influences, backwater from a larger river system, or groundwater;
- oxbows and side channels connected by surface flow to the stream during a portion of the year; and
- drainage from wetlands, ponds, lakes, seeps or springs, which may or may not form a defined bed and bank.

Drainage: A drainage is an area on the land that conveys flowing water for only hours or days following a rainfall. If a drainage drains water from a wetland, pond, lake, seep, or spring even if it does not have a defined bed and bank, then it is classified as a stream.

Roadside Ditch: A roadside ditch is a constructed channel typically parallel and directly adjacent to a public or private road. A roadside ditch is designed to capture and convey stormwater runoff from the road and is routinely cleaned (i.e., mechanically scoured or scraped of vegetation and debris) to maintain water conveyance capacity. Naturally occurring streams and drainages that have been relocated due to the construction of a road are not considered a *roadside ditch*.

Wetlands: Areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions; although due to landscaping, seeding, mowing or grazing wet-adopted vegetation (hydrophytes) may not be present.

Flood area: The combination of the FEMA 100-year floodplain, the Special Flood Hazard Area (those areas with a 1% or greater chance of flooding in any given year), as well as areas that were inundated with water during the February 1996 floods.

Floodway: The floodway consists of the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood (100-year flood) without cumulatively increasing the water surface elevation more than one foot.

Vegetation

Vegetation Patch: An area of contiguous vegetation greater than ½ acre in size containing a distinct pattern, distribution, and composition of vegetation relative to surrounding vegetated and non-vegetated areas.

Forest: Trees with their crowns overlapping, generally forming 60-100% of cover.

Woodland: Open stands of trees with crowns not usually touching, generally forming 25-60% of cover. Tree cover may be less than 25% in cases where it exceeds shrubland and herbaceous vegetation.

Shrubland: Shrubs generally greater than 0.5 m tall with individuals or clumps overlapping to not touching, generally forming more than 25% of cover with trees generally less than 25% of cover. Shrub cover may be less than 25% where it exceeds forest, woodland, and herbaceous vegetation. Vegetation dominated by woody vines (i.e., blackberry) is generally included in this class.

Herbaceous: Herbs (graminoids, forbs, ferns and shrubs less than 0.5m tall) dominant, generally forming at least 25% of cover. Herbaceous cover may be less than 25% where it exceeds forest, woodland and shrubland vegetation. This includes shrubs less than 0.5 m tall.

Land: The ground itself and any features associated with or located on the ground including but not limited to flood area, vegetation, rip rap, paved areas, structures, buildings, trails, etc.

Steep slopes: Land with a 25% or greater slope.

Riparian Corridors: Rivers, streams, wetlands and flood areas plus the areas bordering the waterbodies; the width of the riparian corridor varies by waterbody size, as well as the vegetation and slopes surrounding the waterbody.

Wildlife Habitat: Waterbodies, flood areas, land, vegetation and other features that support fish and wildlife during one or more life cycle phase; manmade features may provide wildlife habitat.

Special Habitat Areas: Habitats designated by the City of Portland in accordance with Metro's Urban Growth Management Functional Plan Title 13, Nature in Neighborhoods, criteria for Habitat of Concern. These are areas that contain or support special status species, sensitive/unique plant populations, or other unique natural or manmade habitat features.

D. RESOURCE SITE BOUNDARIES

Portland established resource sites through previously adopted conservation and protection plans in accordance with Statewide Planning Goal 5. OAR 660-023-0010 defines resource site, or site, as "a particular area where resources are located. A site may consist of a parcel or lot or portion thereof or may include an area consisting of two or more contiguous lots or parcels."

Metro Title 13 does not require the designation of resource sites. However, because there is significant wildlife habitat throughout Portland that is not a Habitat Conservation Area, and therefore subject to Goal 5 OAR 660-023-0110, resource site will continue to be used.

This project is remapping resource site boundaries to be more consistent and easier to implement. The resource sites were remapped in the following way:

1. The previous resource site boundaries were used to the maximum extent practicable. The intent is to maintain consistency between the past plans and this plan.
2. Resource site boundaries were expanded to capture contiguous or similar and adjacent natural resource features that were not within a resource site.
3. Resource site boundaries were expanded to eliminate unnecessary gaps between resource sites.
4. Very small resource sites, with similar natural resource features and functions, were consolidated into one single larger resource site.
5. Resource site boundaries were adjusted to include entire properties within a single resource site. In some cases, adjacent lots under the same ownership may be in different resource sites; however, in these situations the resource site boundary follows lot lines.
6. Centerlines of streets, bridges, railroad tracks or other transportation facilities are often used to delineate resource site boundaries.
7. The City Boundary or Urban Service Boundary is used along the edges of Portland to provide the outer edge of resource sites.

E. RESULTS

The results begin with a general description of the East Buttes and Terraces natural resources. The general description is applicable to each resource site. The general description is applicable within each resource site. Following the general description are results for the resource sites. For each resource site the following information is provided:

1. Maps
    A. Water Features – rivers, streams, wetlands and flood areas
    B. Land Features – forest, woodland, shrubland and herbaceous vegetation, steep slopes
    C. Special Habitat Areas
    D. Riparian Corridor Classifications
    E. Wildlife Habitat Classifications
    F. Urban Development Value
    G. Metro Title 13 Habitat Conservation Areas
    H. Statewide Planning Goal 5 Areas
    I. Natural Resource Protections

2. Natural Resource Descriptions – A narrative that provides additional site-specific information about the types, quantity, quality or functionality (aka resource functions or functional values) of the natural resource features present in the resource site.

3. Metro Title 13 and Oregon Goal 5 Compliance – The compliance requirements are documented in Volume 3 and summarized here. If there are natural resources that are not a Habitat Conservation Area present in the resource site, then the general ESEE recommendation (Volume 3) will be confirmed, modified or clarified based on resource site-specific conditions.

4. Natural Resource Protection Decisions – At the end of each resource site section are the final decisions regarding which riparian corridors and wildlife habitat should be protected. These decisions are repeated in Volume 1; if there is a discrepancy between sections, the decisions in Volume 2, Part A take precedence.

E.1. East Buttes and Terraces Natural Resources

The East Buttes and Terraces are geologically and biologically significant elements of the Portland landscape. Together with the Columbia Corridor and the Johnson Creek Basin, they comprise the major natural and scenic resources of East Portland.

Geologic formations, soils, ground and surface waters, vegetation and wildlife are interdependent elements of the natural community. The ability of these elements to function properly is an important measure of the general health and vitality of the local environment. A healthy environment preserves a neighborhood's scenic, recreational and educational values, and contributes to Portland's high quality of life.

E.1.a. Geology

The primary geologic formation underlying the East Buttes and Terraces area is Columbia River basalt. This formation is composed of lavas which erupted from volcanic vents east of the Cascades 17.6 million years ago, and which flooded much of the Columbia River basin in one of the largest lava floods on earth.

The Columbia River basalt is locally overlain by up to 1,500 feet of sandstone and gravel deposits known as the Troutdale Formation. This formation has two distinct compositions: the lower fades consists of gravels containing quartzite, schists and granites which tie it to the ancestral Columbia River, the upper fades is primarily sandstone of basaltic origin presumably eroded from the Cascades. The deposition of these sands and gravels began ten million years ago and ceased nearly two million years ago (Price 1987).

Near the end of the Troutdale deposition until only a few hundred thousand years ago, a group of shield and cinder cone volcanoes erupted across the lower Willamette Valley. The Boring Volcanoes, as they are collectively known, are comprised mainly of high-aluminia basalts, but locally contain ash, cinders and other materials. These basalts are similar to those of Mt. Hood and other Cascade mountains and the Boring volcanism is believed to be tied to the uplift of the High Cascades. The Boring lavas were viscous and did not flow far from their source vents with explosive eruptions being rare. Three of the cinder cone volcanoes are local landmarks located within the area: Rocky Butte, Kelly Butte and Mount Tabor. At Rocky Butte, an intrusive body of Boring lava has been exposed by erosion and uplift. Thickness of the lava ranges from over 600 ft. at a vent to less than 50 ft. for individual flows away from the vent. Age of the lava is reported to be 1.33 million years (Swanson 1986).

During the early part of the Pleistocene period (beginning 1.6 million years ago), extensive erosion occurred in the lower Willamette Valley lowlands, scouring the lowlands and leaving the prominent volcanoes.

The most spectacular geologic event of recent times, the series of catastrophic floods known as the Missoula Floods, is most directly responsible for the creation of the East Portland terraces. Advancing glacial ice had blocked the Clark Fork River valley in western Montana forming Lake Missoula-a lake 250 miles long and 2,000 feet deep. Between 16,000 and 12,000 years ago, the glacial dam repeatedly failed causing some of the largest floods known on earth. The flood waters spilled across Idaho and eastern Washington, surged down the Columbia River and through the Gorge, and met head-on with the Boring volcanoes. Rocky Butte in particular stood in the immediate path of the flood waters and its facing slope was cut into a nearly vertical bluff. With the exception of the Boring volcanoes, the entire east side of Portland was submerged under up to 400 ft. of water.

E.1.b. Soils

Soil provides habitat for complex plant and animal communities. Soil is a living organism without which the forest values discussed above would not exist. Soil microorganisms, seeds and root stocks, nutrients, oxygen and moisture play essential roles in supporting life above the ground. Soil also provides water management functions, effecting water recharge, discharge and storage.

E.1.c. Topography and Slopes

As many as five distinct terraces are now evident in east Portland. Perhaps the best example of the first terrace (at 150 ft. mean sea level) is the Overlook Bluff. Other terrace levels can be observed along NE Glisan Street and other east-west streets in the area. Evidence of erosion during and after the time of the Missoula Floods can be seen in several deep swaths cut into the depositional surfaces and bedrock. One such swath passes from Rocky Butte and Mt. Tabor to the southwest toward Lake Oswego. The most easily recognized example of this erosion is Sullivan's Gulch, a resource site covered later in this report.

Mt. Tabor, Rocky Butte and Kelly Butte, the most prominent resource sites in the planning area, are formerly active cinder cone volcanoes, part of a group known as the Boring Volcanoes. Portland is one of very few cities in the United States with a volcano within its limits. Another unique characteristic is that within Mt. Tabor Park is the best and most accessible example of the exposed volcanic vent of a Boring Volcano. Though the scenic and natural qualities of the buttes are better known, their volcanic origins are important resources in themselves, with significant geologic and educational values.

Another distinguishing feature of the East Buttes is that they are major Portland landmarks. At elevations of 600 ft. or more, rising 300 ft. to 400 ft. above the relatively flat East Portland landscape, the buttes can be seen from miles away in all directions. The buttes provide a

backdrop to the local community, adding visual relief to urbanized areas of the city with limited open space. The buttes are important reference points that help to define neighborhoods and contribute to their unique identity.

E.1.d. Vegetation

The forest, an element of virtually every site in this study, provides important natural resource values. Forest vegetation moderates the effects of winds and storms, stabilizes and enriches the soil, and slows runoff from precipitation. These functions control erosion and enable the forest floor to filter out sediments and pollutants as the water soaks down into groundwater reserves or passes into surface drainages. By stabilizing soil, increasing groundwater infiltration and reducing runoff and erosion, the forest protects the local community from landslides and other hazards such as flooding.

The forest also provides habitat for local birds, mammals, herptiles and insects. The structural components of the forest, the tree canopies, branches, trunks, snags, downed logs, shrubs and herbaceous plants on the forest floor, all provide breeding, feeding and refuge areas for many species of wildlife. The planning area contains a diverse bird population due its diversity of habitat types.

The forest provides additional values which accrue to local landowners and the surrounding neighborhoods. The forest also moderates climate extremes. The microclimate of the forest, created in part by the shade of the vegetation and the transpiration of water from the leaves, keeps surrounding air at an even temperature. The forest thus acts as a natural air conditioner for adjacent residential areas, cooling the air during the day and warming it at night. This is particularly important in east Portland where historic removal of tree canopy has resulted in increased heat island impacts.

The vegetation at Kelly and Rocky Buttes provides additional educational values. The south slope of Kelly Butte is home to the trout lily (*Erythronium oregonum*). This is the only known population of wild trout lilies in the city and is perhaps the largest population in the region. The hairy manzanita (*Arctostaphylos columbiana*) is another Kelly Butte species not found elsewhere in the city. Both Kelly and Rocky Buttes are also home to the pacific yew (*Taxus brevifolia*), uncommon in the Portland area and significant for its "taxol," a cancer-fighting substance found in its bark. Kelly and Rocky Buttes are the only remaining examples of the Pacific Northwest's western hemlock forest community within the planning area. This community is unique among all temperate forests in the world (see Kelly Butte discussion below).

E.1.e. Wildlife

The following species and found within the East Buttes and Terraces and are identified by the City of Portland as special status species, because of they are officially listed or identified as being of concern by federal, state or other entities because they are rare, declining or of special interest: American kestrel, American white pelican, bald eagle, band-tailed pigeon, black-throated gray warbler, brown creeper, bufflehead, bushtit, chipping sparrow, common nighthawk, common yellowthroat, downy woodpecker, great blue heron, hooded merganser, Hutton's viero, merlin, Nashville warbler, orange-crowned warbler, pacific wren, peregrine falcon, purple finch, purple martin, red crossbill, red-eyed viero, red-necked grebe, rufous hummingbird, rufous woodpecker, Swainson's thrush, Vaux's swift, varied thrush, western meadowlark, western wood-pewee, white-breasted nuthatch, willow flycatcher, Wilson's warbler, wood duck, and yellow warbler.

E.1.f. Special Habitat Areas

Edgewater Street Forest and Ravine is designated a Special Habitat Area because it meets the following criteria:

- Native Oak (O) – An area that contains Oregon white oaks; other tree species and vegetation may be present.
- Habitat Corridor (C) – An area that provides a wildlife movement corridor between larger habitat patches.

Willamette Bluff Complex North is designated a Special Habitat Area because it meets the following criteria:

- Native Oak (O) – An area that contains Oregon white oaks; other tree species and vegetation may be present.
- Habitat Corridor (C) – An area that provides a wildlife movement corridor between larger habitat patches.

Sullivan's Gulch is designated a Special Habitat Area because it meets the following criterion (U) a resource or structure that provide a critical or unique function in natural or built environments.

Mt. Tabor is designated a Special Habitat Area because it meets the following criteria:

- Grassland Habitat (G) – Upland grassland habitat or landscape feature important to individual grassland-associated species or assemblages of grassland-associated species on more than an incidental basis.
- Migratory Stopover Habitat (M) – An area or feature used by migratory birds for nesting, resting, feeding or cover on more than an incidental basis.

- Habitat Corridor (C) – An area that provides a wildlife movement corridor between larger habitat patches

Rocky Butte and Grotto complex is designated a Special Habitat Area because it meets the following criteria:

- Migratory Stopover Habitat (M) – An area or feature used by migratory birds for nesting, resting, feeding or cover on more than an incidental basis.
- Habitat Corridor (C) – An area that provides a wildlife movement corridor between larger habitat patches
- Wetlands (W) – Wetlands and associate seeps, springs and streams that are part of the wetland complex.

Kelly Butte is designated a Special Habitat Area because it meets the following criteria:

- Grassland Habitat (G) – Upland grassland habitat or landscape feature important to individual grassland-associated species or assemblages of grassland-associated species on more than an incidental basis.
- Migratory Stopover Habitat (M) – An area or feature used by migratory birds for nesting, resting, feeding or cover on more than an incidental basis.

Wilkes Creek Headwaters is designated a Special Habitat Area because it meets the following criterion (U) a resource or structure that provide a critical or unique function in natural or built environments.

Forest Park is designated a Special Habitat Area because it meets the following criteria:

- Special Status Species (S) – A habitat area or feature that supports an at-risk wildlife species on more than an incidental basis to complete one or more life history stages.
- Special Status Plants (P) – An area where rare or unique plant species have been documented. (Note – Because rare plants are often sought out for harvesting, the exact location of these species will not be documented in this report.)
- Native Oak (O) – An area that contains Oregon white oaks; other tree species and vegetation may be present.
- Bottomland Hardwood Forest (B) – An area that contains remnant bottomland hardwood forest species; other tree species and vegetation may be present.
- Elk Migratory Corridor (E) – Areas that the Oregon Department of Fish and Wildlife has designated as elk migratory corridors.
- Migratory Stopover Habitat (M) – An area or feature used by migratory birds for nesting, resting, feeding or cover on more than an incidental basis.
- Habitat Corridor (C) – An area that provides a wildlife movement corridor between larger habitat patches

E.1.g. Stormwater Management

Portland's stormwater system is a complex network of engineered and natural assets that provide conveyance, protect water quality, and provide and protect habitat and biological communities. In addition to hundreds of miles of pipes and ditches, and thousands of sumps and pollution reduction facilities; the city depends on the natural areas that intercept rainfall and the acres of wetlands and hundreds of miles of streams and drainageways that function as a critical part of the stormwater conveyance network. Within the City of Portland there are three methods of conveying stormwater runoff from impervious areas. When soils allow infiltration, stormwater runoff may be directed to sumps or other stormwater facilities to be infiltrated into the ground, after being treated to protect groundwater. Some portions of the City direct stormwater to the combined sewer system, which sends stormwater along with sewage to the sanitary treatment plant for processing. In the remainder of the City, stormwater is directed to a natural stream system.

When natural areas are developed, the services provided by those natural areas are lost. Many of these services are critical to the healthy functioning of natural resources and difficult or impossible to replace. For example, forest vegetation slows and takes up runoff from precipitation, thereby minimizing erosion and allowing the forest floor to filter out sediments and nutrients as the water soaks down into groundwater or passes into streams. By decreasing runoff and increasing groundwater infiltration, the forest protects downstream neighborhoods from flooding. The forest canopy helps to maintain stream flows, filter out potential pollutants, and moderate stream temperatures, thereby sustaining habitat for fish, amphibians and aquatic organisms as well terrestrial wildlife. Replacement of these functions through built stormwater management measures can only address a subset of the service provisions provided by natural systems.

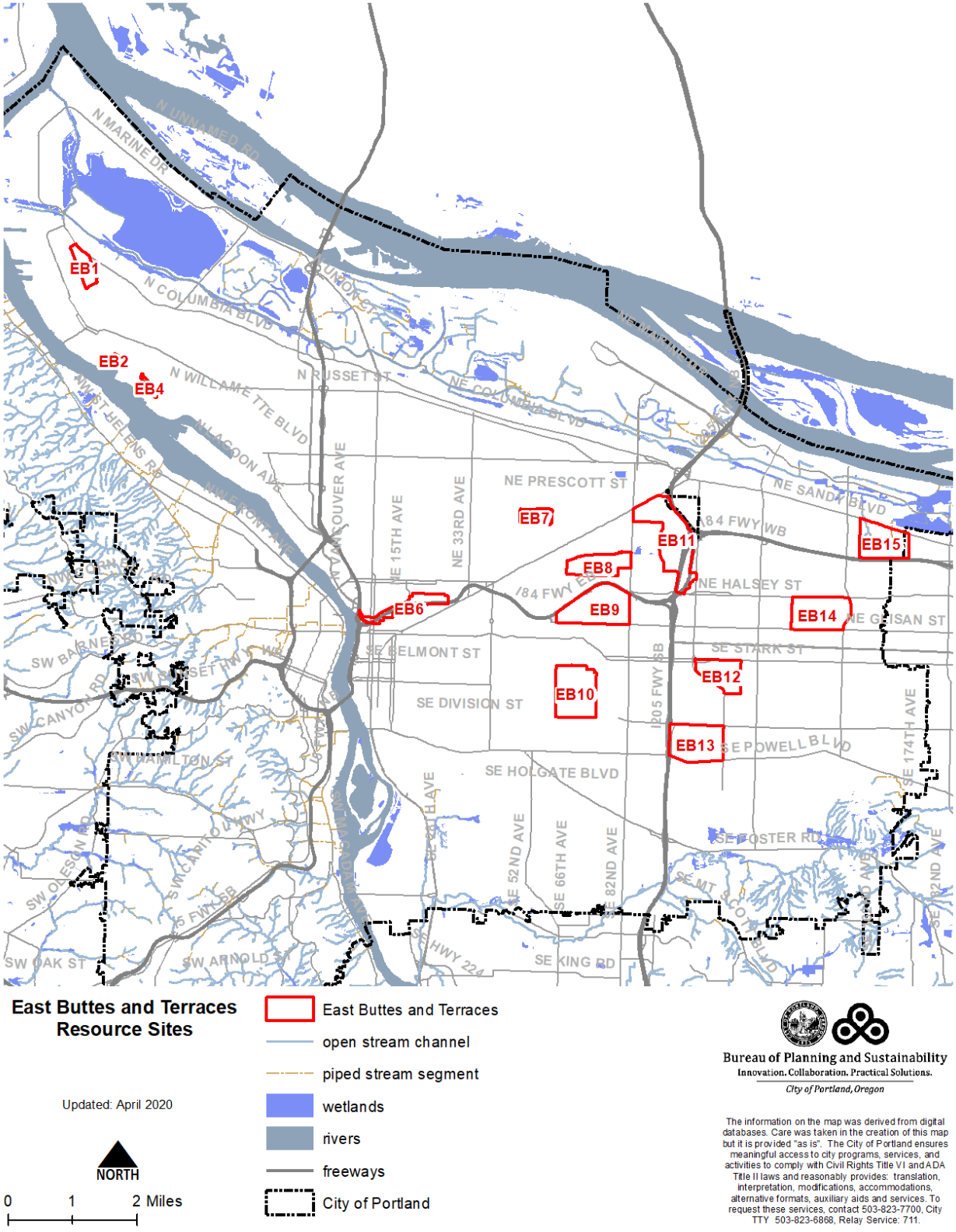
Natural resources found within urban boundaries are vulnerable to negative impacts from unmanaged or inadequately managed stormwater. Pavement, roofing, and other impervious surfaces prevent infiltration of stormwater into the ground and increase the amount of runoff during rainfall events. This can disrupt the natural hydrologic cycle and increase pollution levels of stormwater washing into rivers, streams, wetlands and groundwater resources. Significant problems can result from urbanization and inappropriately managed stormwater:

- Stormwater collects pollutants and sediment from impervious surfaces and carries those materials to streams, rivers and groundwater. Particulates and pollutants from streets, autos, landscaping, roofs, animal waste and other sources can harm ESA-listed salmon, other native fish and aquatic species.
- Increased in-stream erosion and decreased groundwater recharge occurs due to changes in the timing, routing and amount of runoff. As a result, streambanks can be undercut, impacting stream health and potentially damaging buildings, roads and bridges. Streams

become "flashy" – rising and falling very quickly during wet weather, increasing flood risks, and resulting in very low stream flows in the summer.

- Landslide risks can be exacerbated by deficient or inadequate stormwater management.
- Problems with incomplete or ineffective stormwater system could be made worse with climate change due to increases in temperature and changes in precipitation patterns. This could further impact water temperatures in rivers and streams, a serious problem in Portland streams that exceed temperature standards in the summer. More intense storm patterns can also increase the risks of erosion, landslides and flooding.
- Reduced groundwater and aquifer recharge due to impervious surfaces also negatively impacts water availability during dry periods, which are expected to increase with climate change.

E.2. Resource Sites



Map 1: East Buttes and Terraces

Resource Site No.: EB1 **Resource Site Name:** Pier & Chimney Parks

Previous Plan: East Butte, Terraces & Wetlands Plan
Previous Resource Site No.: 141

The results of the analysis found in Volume 3 and the resource site-specific evaluation, are presented in the following maps:

A. Water Features – rivers, streams, wetlands and flood areas
B. Land Features – forest, woodland, shrubland and herbaceous vegetation, steep slopes
C. Special Habitat Areas
D. Riparian Corridor Classifications
E. Wildlife Habitat Classifications
F. Urban Development Value
G. Metro Title 13 Habitat Conservation Areas
H. Statewide Planning Goal 5 Areas
I. Recommended Natural Resource Protections

Following the maps, additional information about existing natural resource features and functions in the resource site is presented.

Implementation of the results is found in Volume 1, Part B, updates to zoning maps and zoning code.

Resource site EB1 includes the following:

Site (acres)	85.3
Base Zones (acres)	
IG2	0.3
IH	0.1
OS	84.9
R5	<1
RM1	<1

Map A: Water Features

Resource Site: EB1

Updated: May 2022

Resource Sites
Urban Service Boundary
Taxlots
Wetlands
Rivers
Open stream channel
Piped Stream Segment
Flood Area

NORTH

0 245 490 Feet

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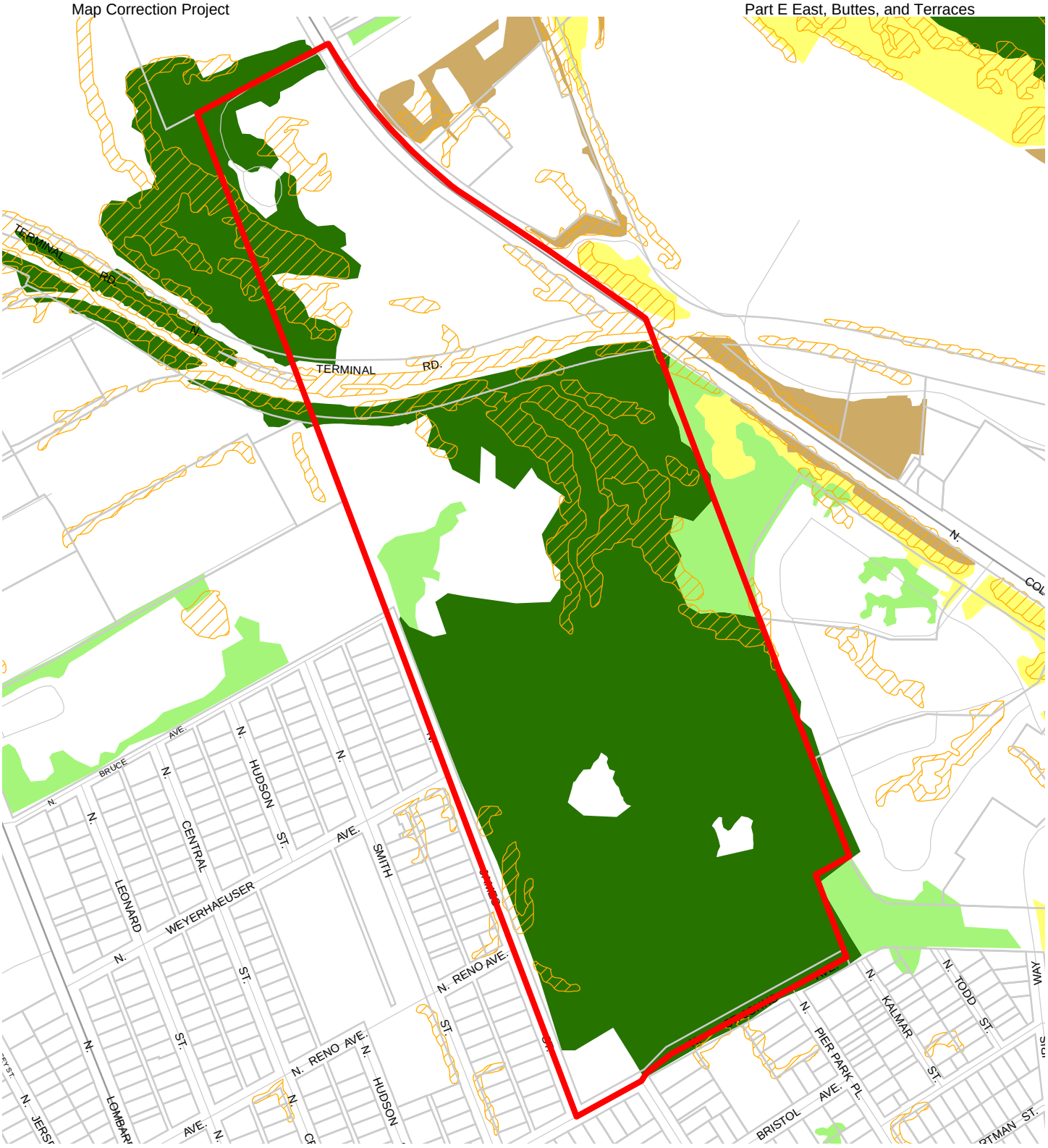

Map B: Vegetation and Steep Slopes

Resource Site: EB1

Updated: May 2022

NORTH

0 335 670 Feet

- Resource Sites
- Urban Service Boundary
- Taxlots
- Forest
- Woodland
- Shrubland
- Herbaceous

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Map C: Special Habitat Areas

Resource Site: EB1

Updated: May 2022

NORTH

0 315 630 Feet

- Resource Sites
- Special Habitat Areas (SHAs)
- Open Stream Channel
- Piped Stream Segment
- Parks
- Schools
- Urban Service Boundary
- Taxlots

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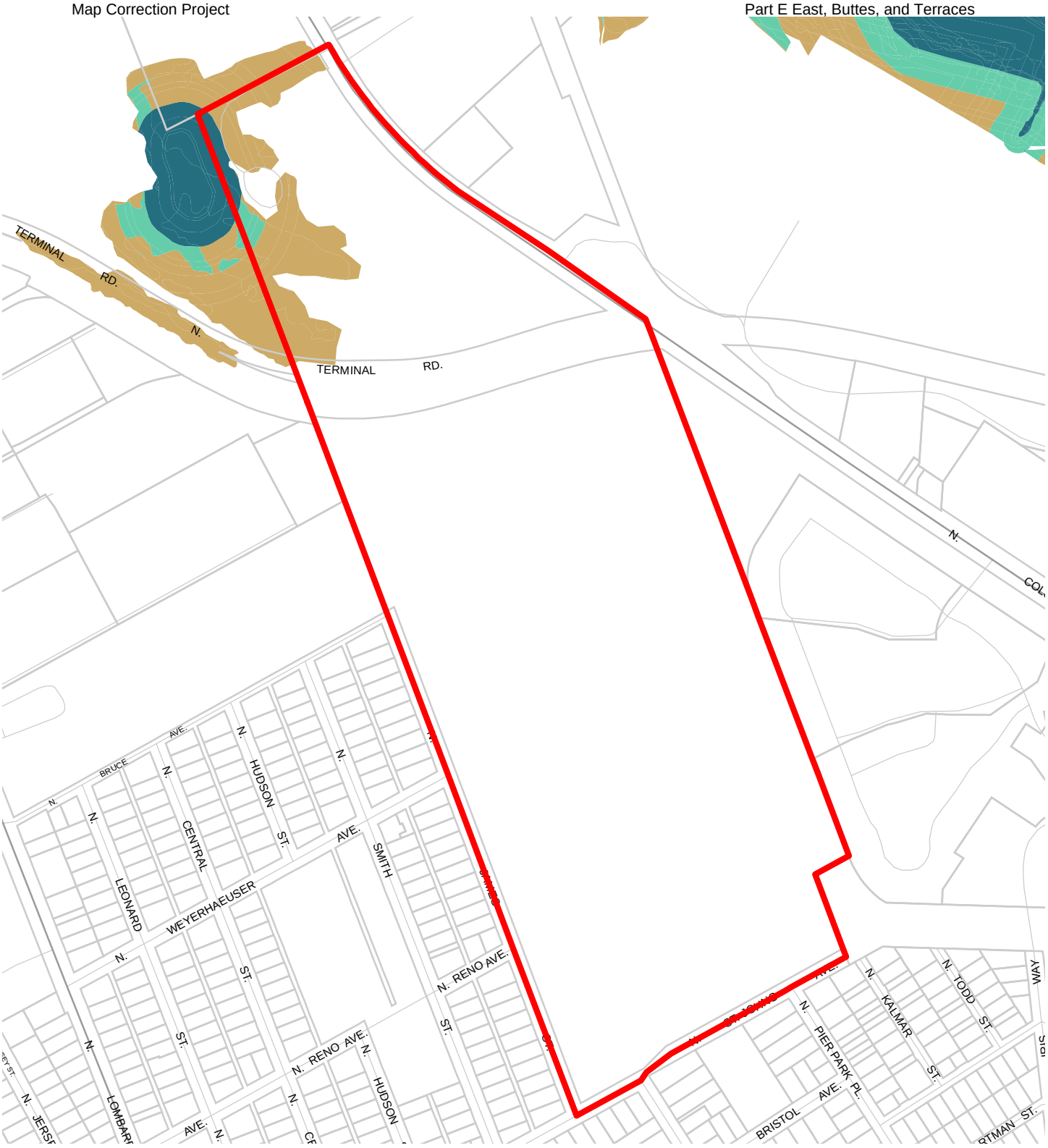

Map D: Riparian Corridors Habitat Classification

Resource Site: EB1

Updated: May 2022

Class I (high rank)
Class II (medium rank)
Class III (low rank)
Resource Sites
Urban Service Boundary
Taxlots

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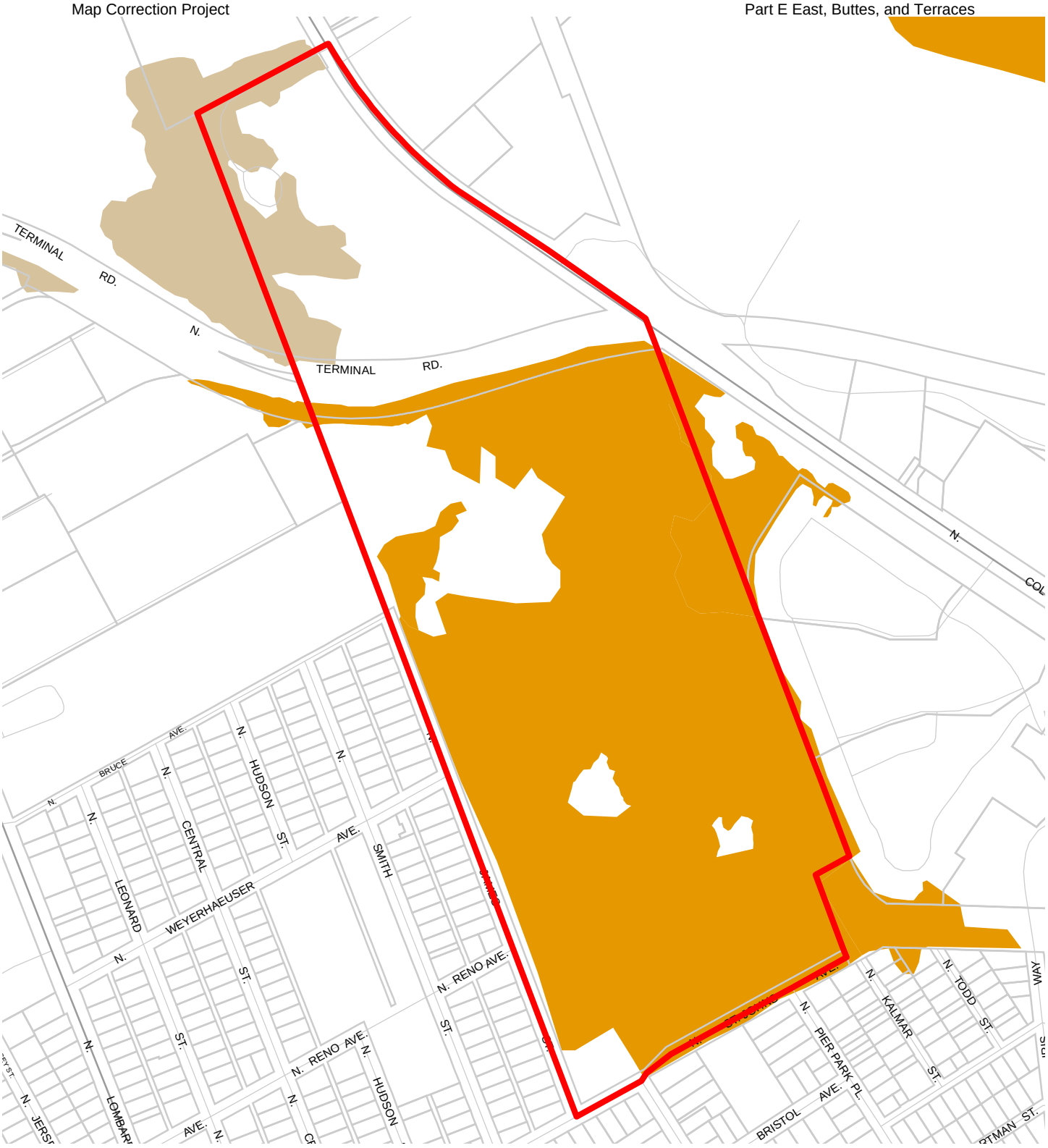
NORTH

0 245 490 Feet



Map E: Wildlife Habitat Classification

Resource Site: EB1

Updated: May 2022

NORTH

0 200 400 Feet

- Resource Sites
- Class A (high rank)
- Class B (medium rank)
- Class C (low rank)
- Urban Service Boundary
- Taxlots

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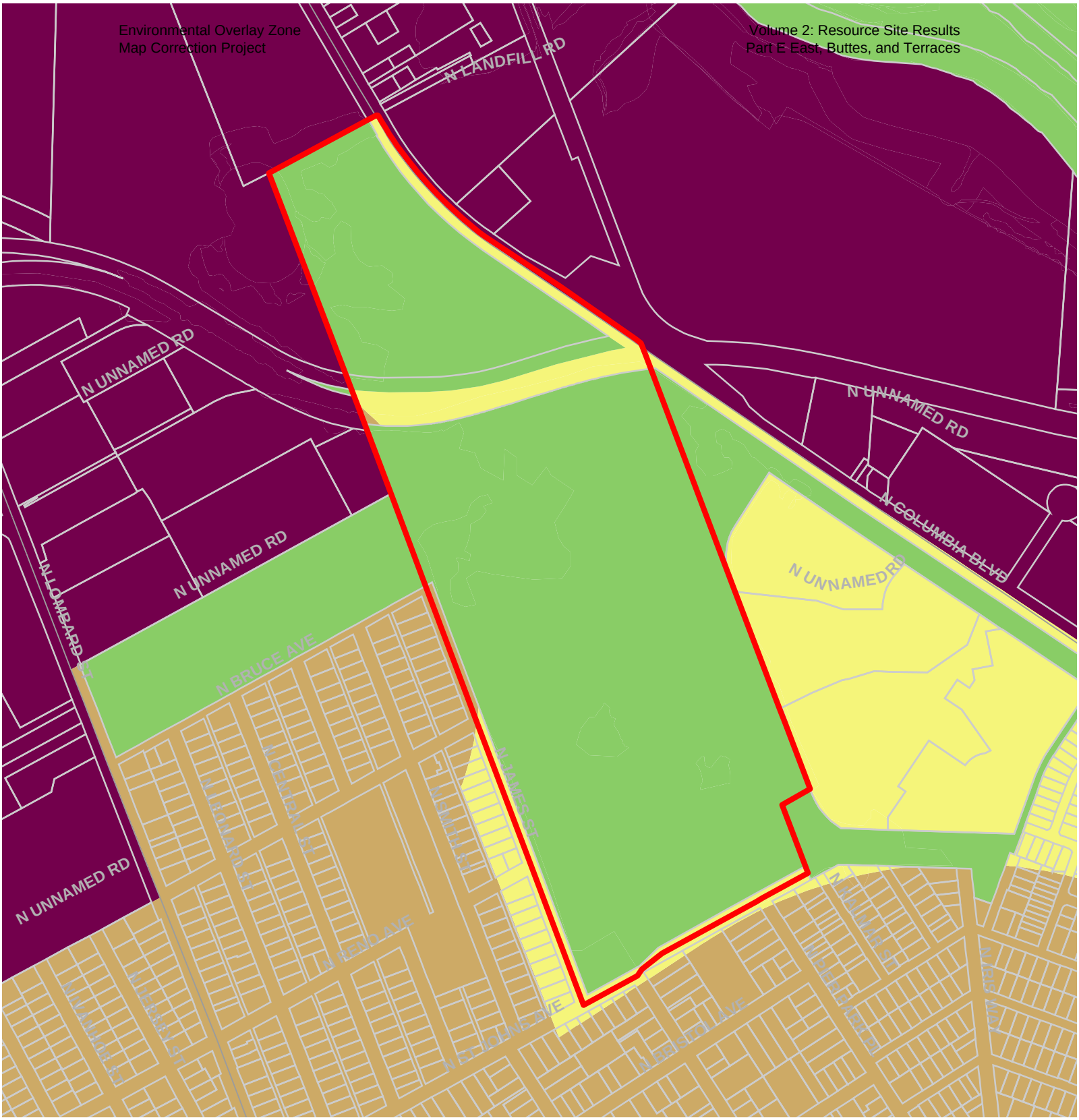

Map F: Urban Development Value (Title 13)
Resource Site: EB1

- Urban Service Boundary
- Resource Sites
- High Development Value
- Medium Development Value
- Low Development Value
- Parks

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Updated: July 2021

NORTH

0 375 750 Feet

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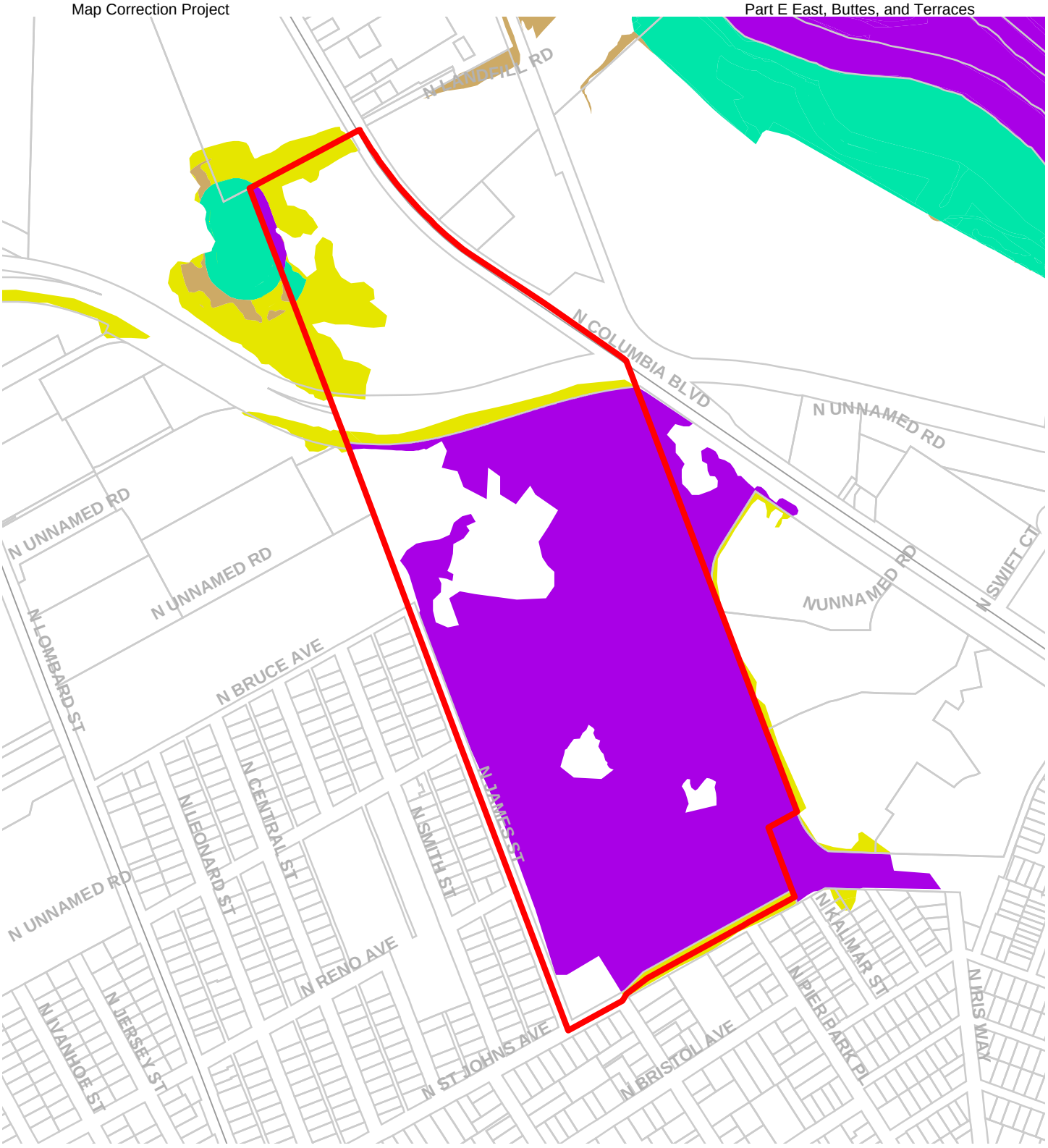

Map G: Title 13 Habitat Conservation Areas (HCA) and Goal 5 Areas

Resource Site: EB1

Updated: May 2022

NORTH

0 400 800 Feet

Recommended Draft - As Amended

- Urban Service Boundary
- Resource Sites
- HCA High Value
- HCA Moderate Value
- HCA Low Value
- Goal 5 Significant Natural Resources

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Map H: Goal 5 Resources

Resource Site: EB1

Updated: May 2022

NORTH

0 400 800 Feet

Recommended Draft - As Amended

- Urban Service Boundary
- Resource Sites
- Goal 5 Significant Natural Resources

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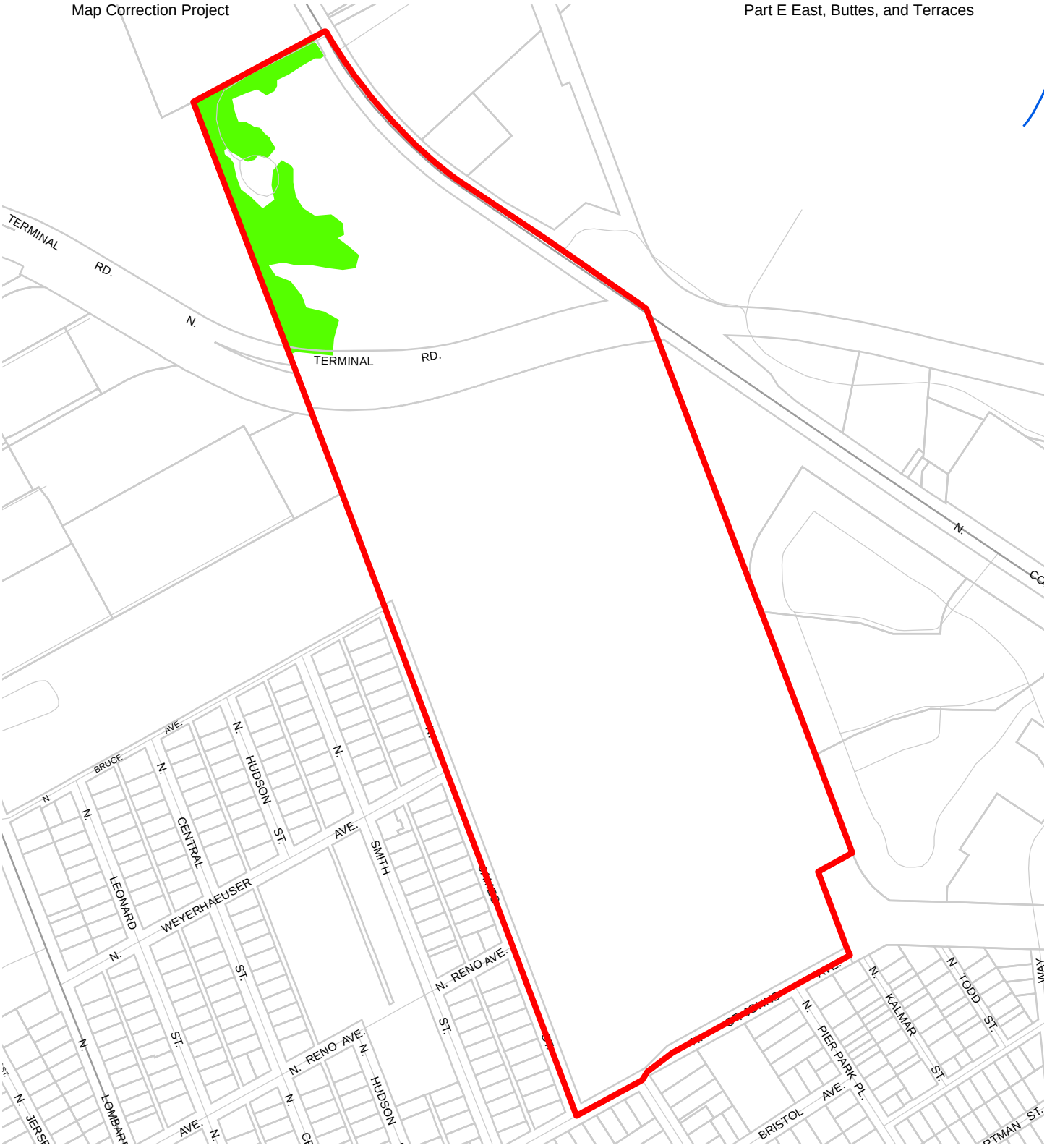
May 2022



Map I: DRAFT Proposed Environmental Overlay Zones

Resource Site:

EB1

Updated: May 2022

Resource Sites
Open Stream Channel
Piped Stream Segment
Proposed Conservation Zone
Proposed Protection Zone
Urban Service Boundary
Taxlots

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NORTH

0 265 530 Feet

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Natural Resource Description

Within resource site EB1 the following significant natural resource features and functions are present:

Significant Riparian Corridor Features: land within 50 feet of waterbodies; and forest, woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies.

Significant Wildlife Habitat Features: forest patches, and associated and contiguous wetlands, two acres in size or larger.

Special Habitat Areas: None

Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status fish and wildlife species.

Table A: Quantity of Natural Resource Features in Resource Site	**EB1**
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	
Forest (acres)	54.0
Woodland (acres)	2.9
Shrubland (acres)	0.0
Herbaceous (acres)	0.0
Flood Area*	
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	11.8
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are areas with a slope greater than 25%.	

The Chimney and Pier Park resource site includes Pier and Chimney Parks, and a rail line that separates the parks. The site is located approximately two miles from the tip of a peninsula separating the Columbia and Willamette Rivers. The site is bordered by residential and industrial areas and serves as a buffer between these two.

Pier Park is an active use park with paved trails, tennis courts, playgrounds, an outdoor swimming pool, a baseball diamond and a soccer field. Most of the park is comprised of manicured lawns, with Douglas firs and occasionally
cedars towering above. Rhododendrons and other shrubs are infrequently interspersed within the park.

Chimney Park is an 18-acre park. Much of It includes a path and a fenced off-leash dog area. Railroad tracks and industrial development surround the site, with Pier Park located to the south. Pier Park provides important scenic, recreational and open space values to the city. Habitat values are very limited due to the absence of a forest understory and the park's high human use. The park provides little cover resources and food production.

Douglas fir, western red cedar, bigleaf maple, dogwood, European hawthorn, birch and oak trees are present. The Douglas fir are dominant, between 40 to 70 years of age, and thinned to a regular spacing. Under this tall tree canopy, very few plants can be found; this area is predominantly lawn with occasional vine maple, Oregon grape, rhododendron, laurel, snowberry and holly.

Chimney Park and the adjacent woodland offer more diverse and abundant vegetation and habitat. This area contains greater variety of trees and includes pacific madrone, cherry, cottonwood and willow.

The forest understory sets this area apart from Pier Park: the shrub and herb layers are well-established with red huckleberry, western hazel, snowberry, thimbleberry, vine maple, Oregon grape, oceanspray, wild rose, salal, Indian plum and a complete complement of herbaceous flora. Himalayan blackberry
and English ivy are beginning to become problems in the understory.

This multi-layered forest provides significantly greater habitat values than those of Pier Park. Food sources are plentiful and cover for nesting and shelter is much more accessible. Small mammals, passerines and red-tailed hawks frequent the area.

Special status bird species observed within or adjacent to this resource site include bald eagle, brown creeper, bushtit, chipping sparrow, downy woodpecker, Hutton's viero, orange-crowned warbler, osprey, pacific wren, peregrine falcon, pileated woodecker, purple finch, purple martin, varied thrush, Vaux's swift, Wilson's warbler

Table B: Quality of Natural Resource Functions in Resource Site EB1				
Resource Site (acres) = 85				
	Class 1/A	**Class 2/B**	**Class 3/C**	**Total**
Riparian Corridors*				
acres	0.4	0.2	3.7	4.3
percent total inventory site area	0.4%	0.2%	4.4%	5.0%
Wildlife Habitat*				
acres	0.0	52.6	4.3	56.8
percent total inventory site area	0.0%	61.6%	5.0%	66.6%
Special Habitat Areas**				
acres	0.0			
percent total inventory site area	0.0%			
Combined Total+				
acres	0.4	52.7	3.7	56.8
percent total inventory site area	0.4%	61.8%	4.4%	66.6%

* Class I riparian resources, Special Habitat Areas, and wildlife habitat include open water.
** Metro Title 13 designated all Special Habitat Areas as Class I riparian corridors.
+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Stormwater runs off impervious surfaces (e.g. rooftops, driveways, parking lots, streets) rapidly. Without a place to retain the water (such as wetlands or adequate stormwater facilities), stormwater runoff results which can cause or exacerbate flooding and increase stream erosion. In addition, when water runs off quickly, it does not have a chance to infiltrate and recharge streams or aquifers to provide water during drier periods.

The type and capacity of stormwater facilities to manage the runoff from impervious surfaces varies in the city, affecting the local rate and amount of runoff, and the amount of pollutants in the water. Much of the city was developed prior to any stormwater regulations and receives limited or no management prior to discharging to pipes and surface waters.

Table C shows the total amount of impervious area within the resource site and how much of that impervious area does not receive management; the percentage of total impervious area that is not managed is called "effective impervious area." The higher the percent of effective impervious area in a watershed, the greater the negative impacts of stormwater runoff to streams. Stream science indicates that when effective impervious area reaches 10% of a watershed, negative stream impacts become significant; and at 25%, these impacts on waterways can be substantial. An additional consideration is the differences in soil conditions

and other factors that influence the ability of pervious areas to retain, infiltrate or filter pollutants from stormwater. For example, a mature forest is much more effective in managing stormwater than a manicured lawn; both areas would have a lower effective impervious surface percentage than a developed site, but they have different outcomes for stormwater management.

For Resource Area EB1, 2% of the total area is effectively impervious. This indicates a significant degree of stormwater management and/or existing natural resources that should be preserved. Areas with very low impervious cover significant degree of stormwater management and/or are more likely to be functioning properly to support biologic systems.

Table C. Impervious Area within Resource Site EB1

Total area (acres)	Total impervious Area (acres)	Total unmanaged impervious area* (acres)	Percent of resource site that is effectively impervious
85	3.6	2	2%

*Total unmanaged impervious area refers to the number of acres within a resource area that receives no formal stormwater management measures to regulate flow or treat pollutants before they reach surface waters, also referred to as effective impervious area.

Metro Title 13 and Oregon Goal 5 Compliance

The following information supplements evaluation of natural resource protections presented in Volume 3 and supports compliance with Metro Title 13 and Oregon Plan Goal 5.

Title 13 Habitat Conservation Areas

Map G presents the Habitat Conservation Areas (HCA) within the resource site EB1. Natural resources should be protected within HCA as follows:

1. *Strictly limit* or *limit* conflicting uses within Class I/High Rank Riparian Areas in all Urban Development Areas.
2. *Strictly limit* or *limit* conflicting uses within Class II/Medium Rank Riparian Areas within Moderate and Low Value Urban Development Area as well as parks and open spaces.
3. *Strictly limit* or *limit* conflicting uses within Class A/High or B/Medium Rank Wildlife Habitat within parks and open spaces.
4. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class III/Low Rank Riparian Areas in all Urban Development Areas.
5. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class A/High, Class B/Medium or Class C/Low Rank Wildlife Habitat in all Urban Development Area, expect parks and open space.

Strictly limiting or *limiting* conflicting uses in HCA will protect and conserve existing streams and wetlands to maintain significant natural resource functions including: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and fish and wildlife habitat. *Strictly limiting* or *limiting* conflicting uses in HCA will allow for additional urban development that is sensitive to the natural resource features and requires mitigation for unavoidable negative impacts to features and functions. The recommendation will also contribute towards meeting other regulatory requirements including the Metro Title 3, Water Quality and Flood Management; Oregon Goal 6, Air, Water and Land Resources Quality; Oregon Goal 7, Areas Subject to Natural Hazards; the Clean Water Act; and the Endangered Species Act.

Goal 5 Significant Natural Resources

Resource site EB1 contains natural resource features that are not a Title 13 HCA and are therefore subject to Statewide Planning Goal 5 OAR 660-023-0110. The General ESEE analysis, Volume 3, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

The common impacts of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; adding impervious surface; modifying streams, wetlands and flood areas; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site open space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

The analysis of economic, social, environmental and energy consequences provided in Volume 3 is confirmed for resource site EB1, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses would retain the wildlife habitat functions provided by significant natural resource features including maintaining habitat for at risk plant, fish and wildlife species, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative

consequences of additional development in areas of Class A or Class B wildlife habitat should be required.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

Natural Resources Protection Decisions

Based on the analysis presented in Volume 3 and Goal 5 Compliance, and the resource site-specific evaluation for EB1, the following decisions are applied to protect the significant riparian corridors and wildlife habitat:

1. Apply a protection overlay zone (p zone) to wetlands and streams from top-of-bank to top-of-bank, and to land within 25 feet of wetlands and land within 25 feet of streams.
2. Apply a conservation overlay zone (c zone) to land between 25 and 50 feet of wetlands and the top-of-bank of streams; and to areas of forest or woodland vegetation contiguous to and greater than 50 feet from streams and wetlands.
3. Allow conflicting uses within all other areas containing significant natural resources.

The wetland is located outside of resource site EB1; however, the forest vegetation in resource site EB1 is contiguous to the wetland and is providing riparian corridor functions to the wetlands.

Resource Site No.: EB2 **Resource Site Name:** Willamette Cove Bluff

Previous Plan: East Butte, Terraces & Wetlands Plan
Previous Resource Site No.: 140

The results of the analysis found in Volume 3 and the resource site-specific evaluation, are presented in the following maps:

A. Water Features – rivers, streams, wetlands and flood areas
B. Land Features – forest, woodland, shrubland and herbaceous vegetation, steep slopes
C. Special Habitat Areas
D. Riparian Corridor Classifications
E. Wildlife Habitat Classifications
F. Urban Development Value
G. Metro Title 13 Habitat Conservation Areas
H. Statewide Planning Goal 5 Areas
I. Recommended Natural Resource Protections

Following the maps, additional information about existing natural resource features and functions in the resource site is presented.

Implementation of the results is found in Volume 1, Part B, updates to zoning maps and zoning code.

Resource site EB2 includes the following:

Site (acres)	13.5
Base Zones (acres)	
OS	0.1
R5	13.3

Map A: Water Features

Resource Site: EB2

Updated: May 2022

NORTH

0 80 160 Feet

- Resource Sites
- Urban Service Boundary
- Taxlots
- Wetlands
- Rivers
- Open stream channel
- Piped Stream Segment
- Flood Area

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Map B: Vegetation and Steep Slopes

Resource Site: EB2

Updated: May 2022

NORTH

0 112.5 225 Feet

Resource Sites
Urban Service Boundary
Taxlots
Forest
Woodland
Shrubland
Herbaceous

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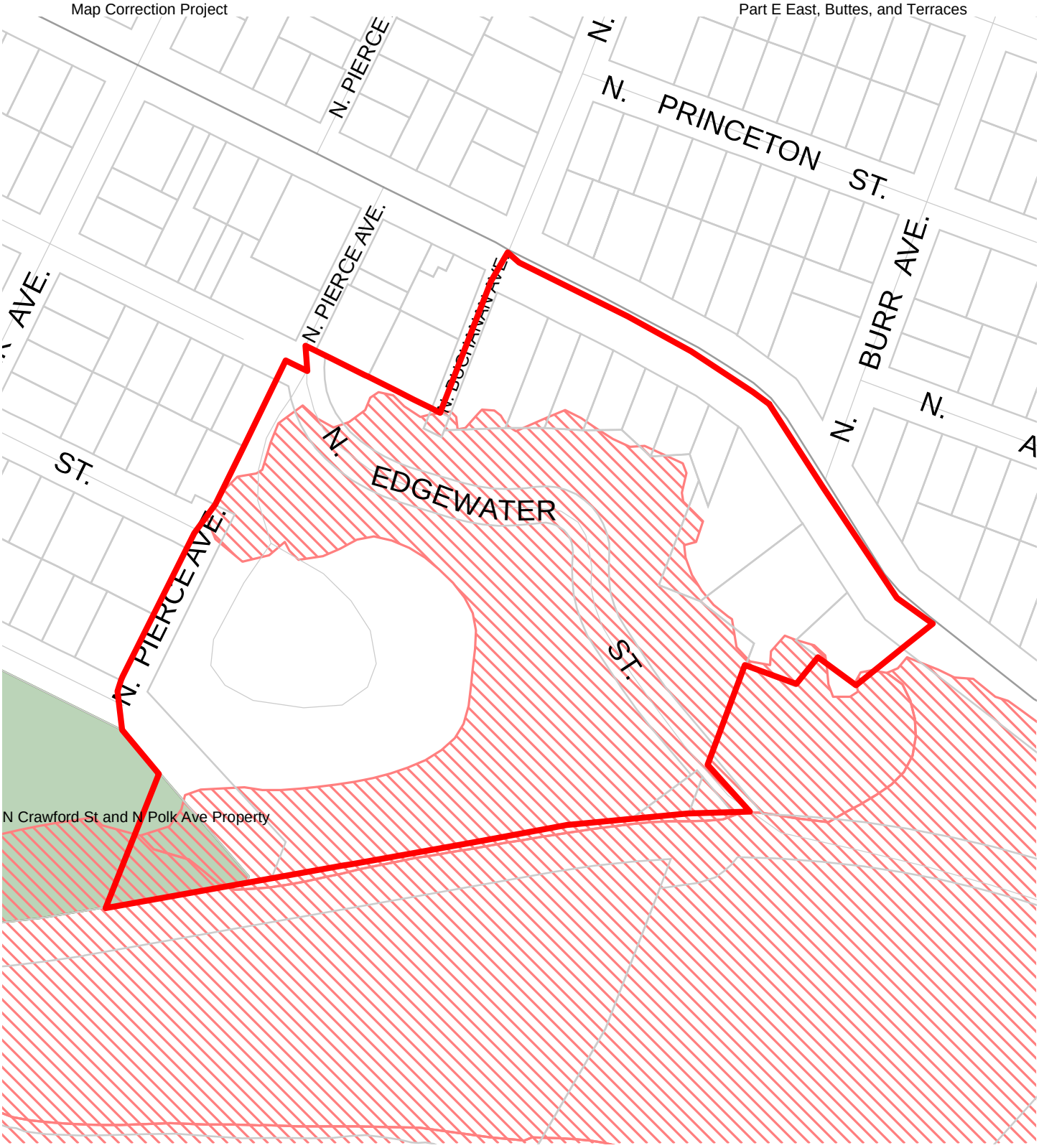
May 2022



Map C: Special Habitat Areas

Resource Site: EB2

Updated: May 2022

NORTH

0 105 210 Feet

Resource Sites
Special Habitat Areas (SHAs)
Open Stream Channel
Piped Stream Segment
Parks
Schools
Urban Service Boundary
Taxlots

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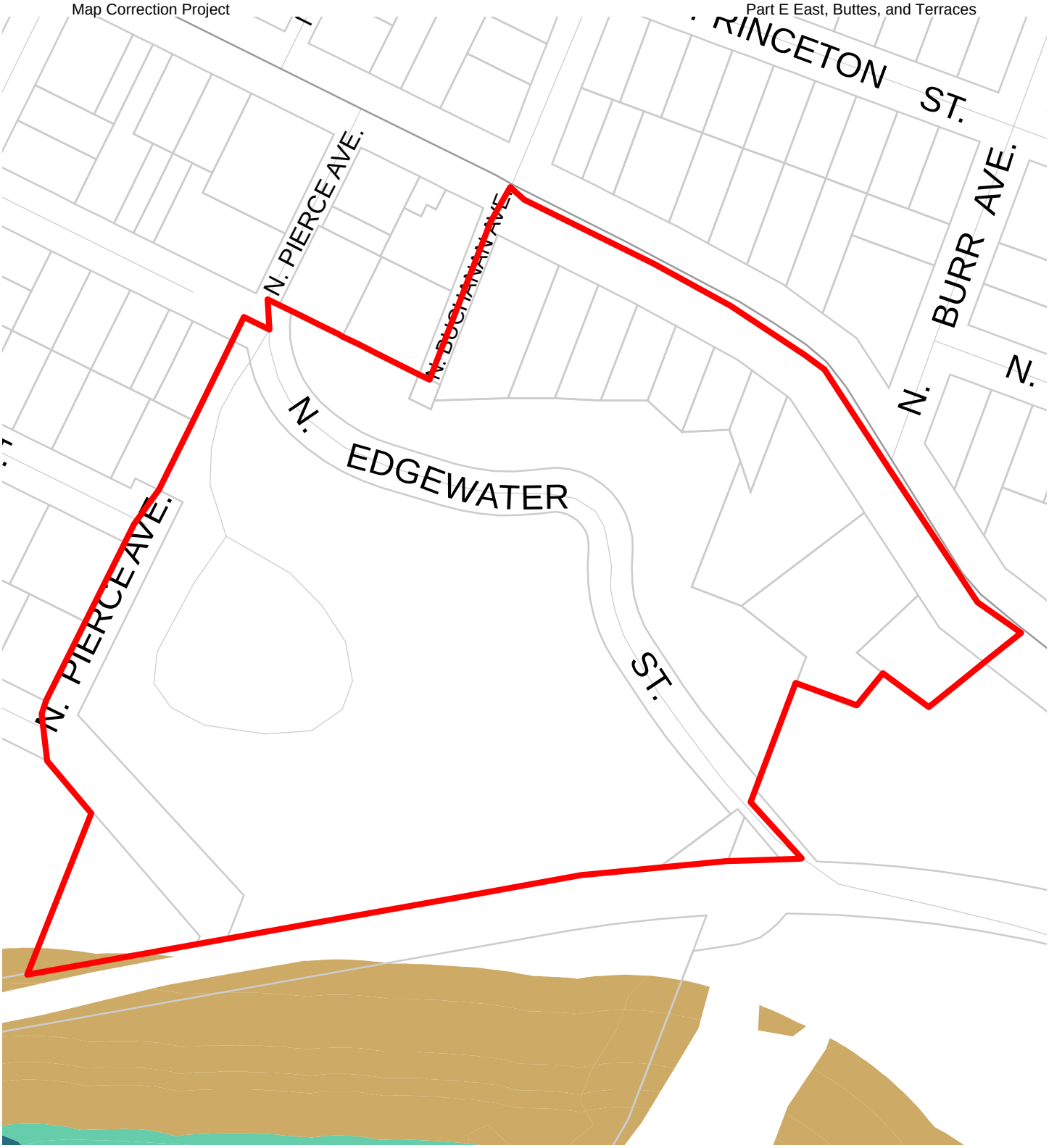

Map D: Riparian Corridors Habitat Classification

Resource Site: EB2

Updated: May 2022

Class I (high rank)
Class II (medium rank)
Class III (low rank)
Resource Sites
Urban Service Boundary
Taxlots

NORTH

0 80 160 Feet

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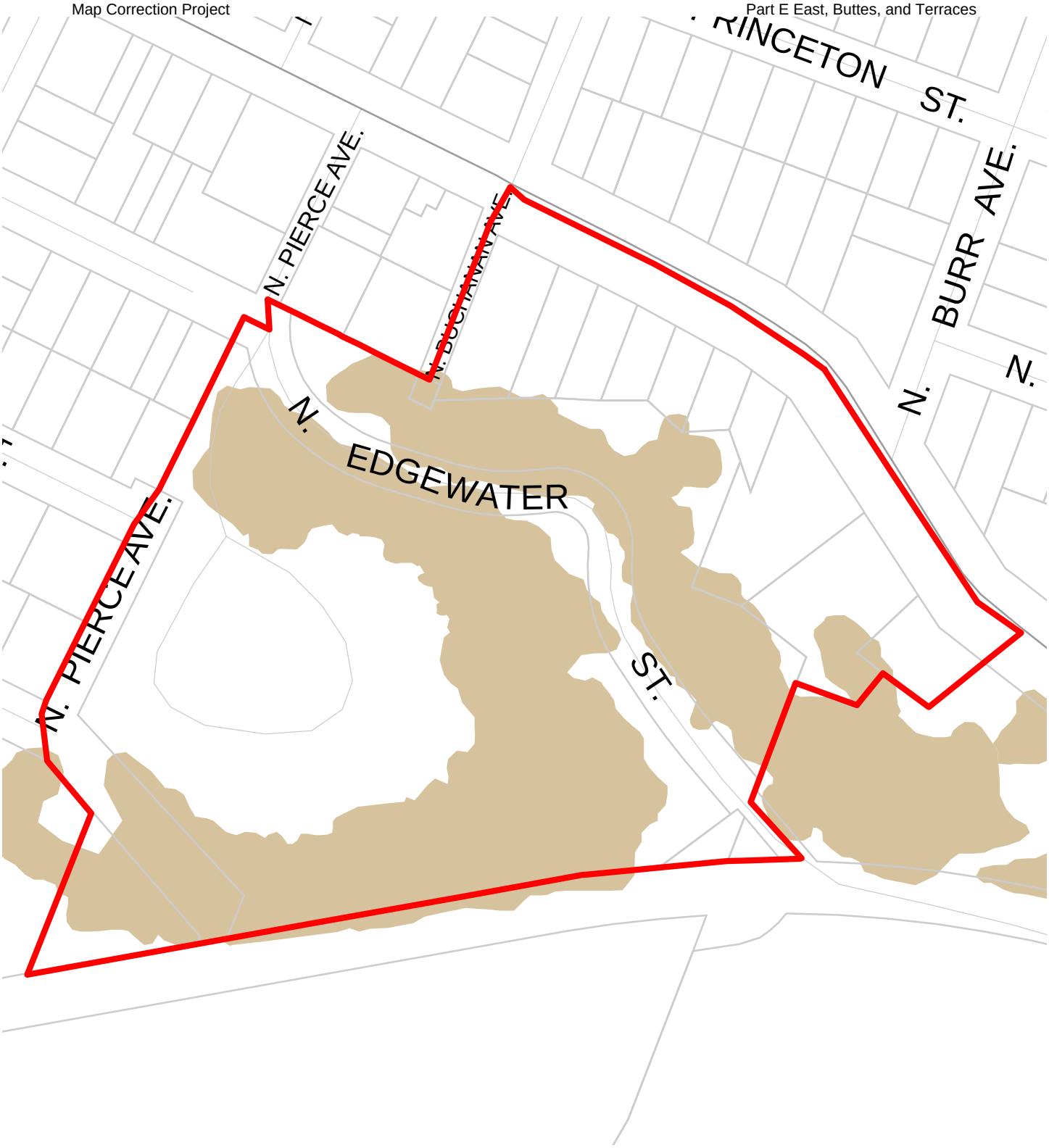

Map E: Wildlife Habitat Classification

Resource Site: EB2

Updated: May 2022

NORTH

0 65 130 Feet

Resource Sites
Class A (high rank)
Class B (medium rank)
Class C (low rank)
Urban Service Boundary
Taxlots

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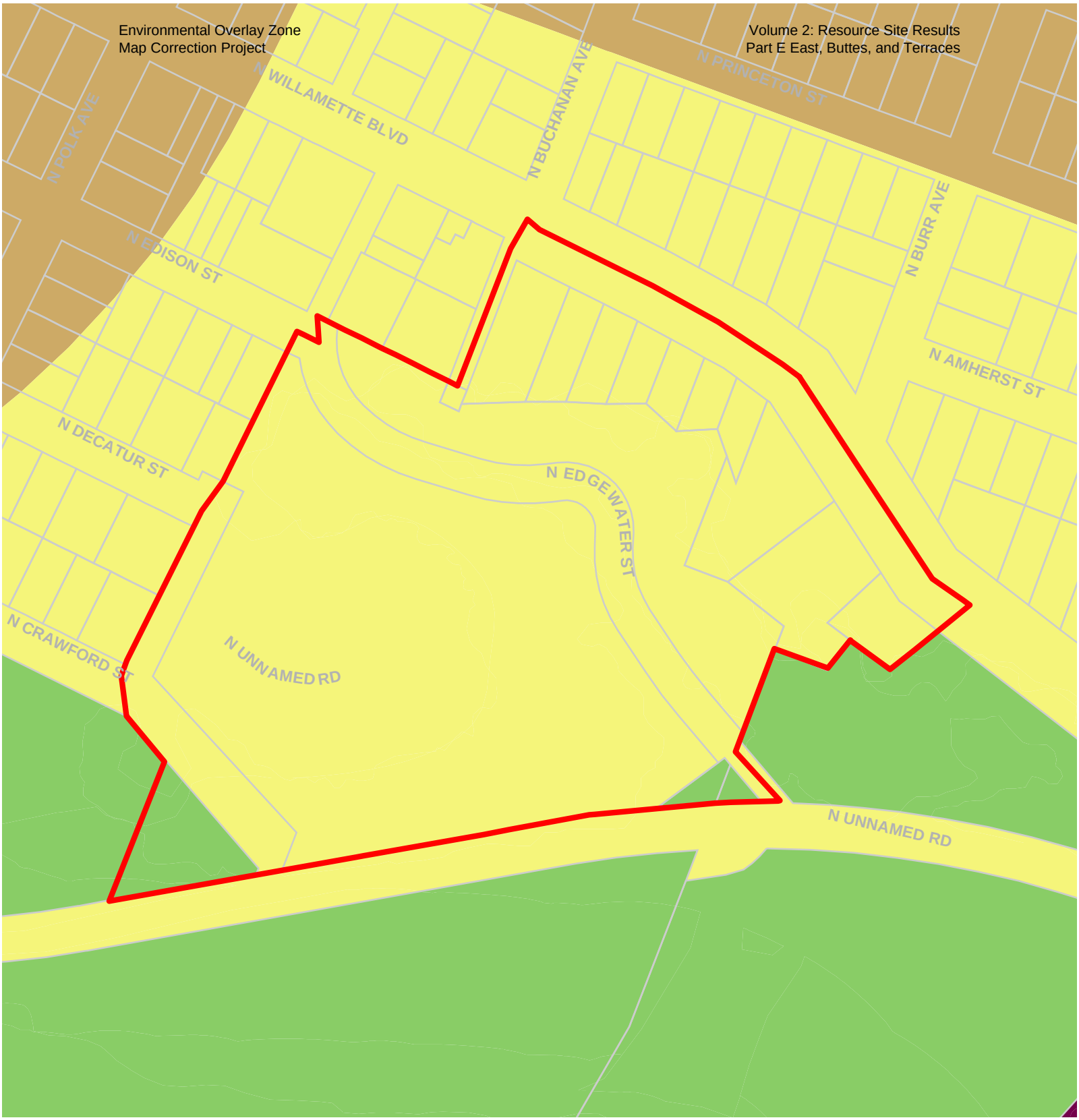
May 2022



Map F: Urban Development Value (Title 13)
Resource Site: EB2

- Urban Service Boundary
- Resource Sites
- High Development Value
- Medium Development Value
- Low Development Value
- Parks

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Updated: July 2021

NORTH

0 120 240 Feet

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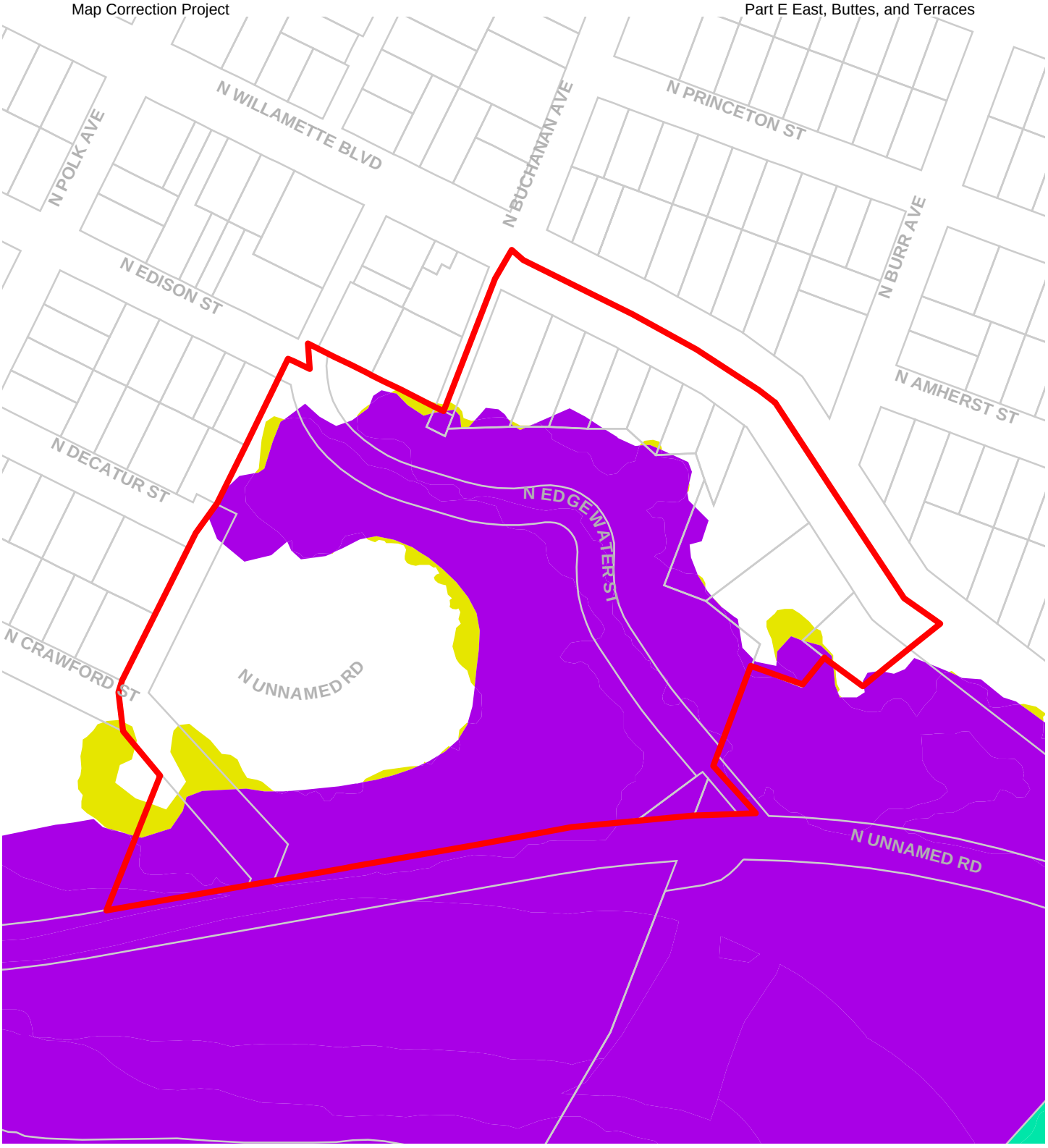

Map G: Title 13 Habitat Conservation Areas (HCA) and Goal 5 Areas

Resource Site: EB2

Updated: May 2022

NORTH

0 130 260 Feet

- Urban Service Boundary
- Resource Sites
- HCA High Value
- HCA Moderate Value
- HCA Low Value
- Goal 5 Significant Natural Resources

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Map H: Goal 5 Resources

Resource Site: EB2

Updated: May 2022

NORTH

0 130 260 Feet

Urban Service Boundary

Resource Sites

Goal 5 Significant Natural Resources

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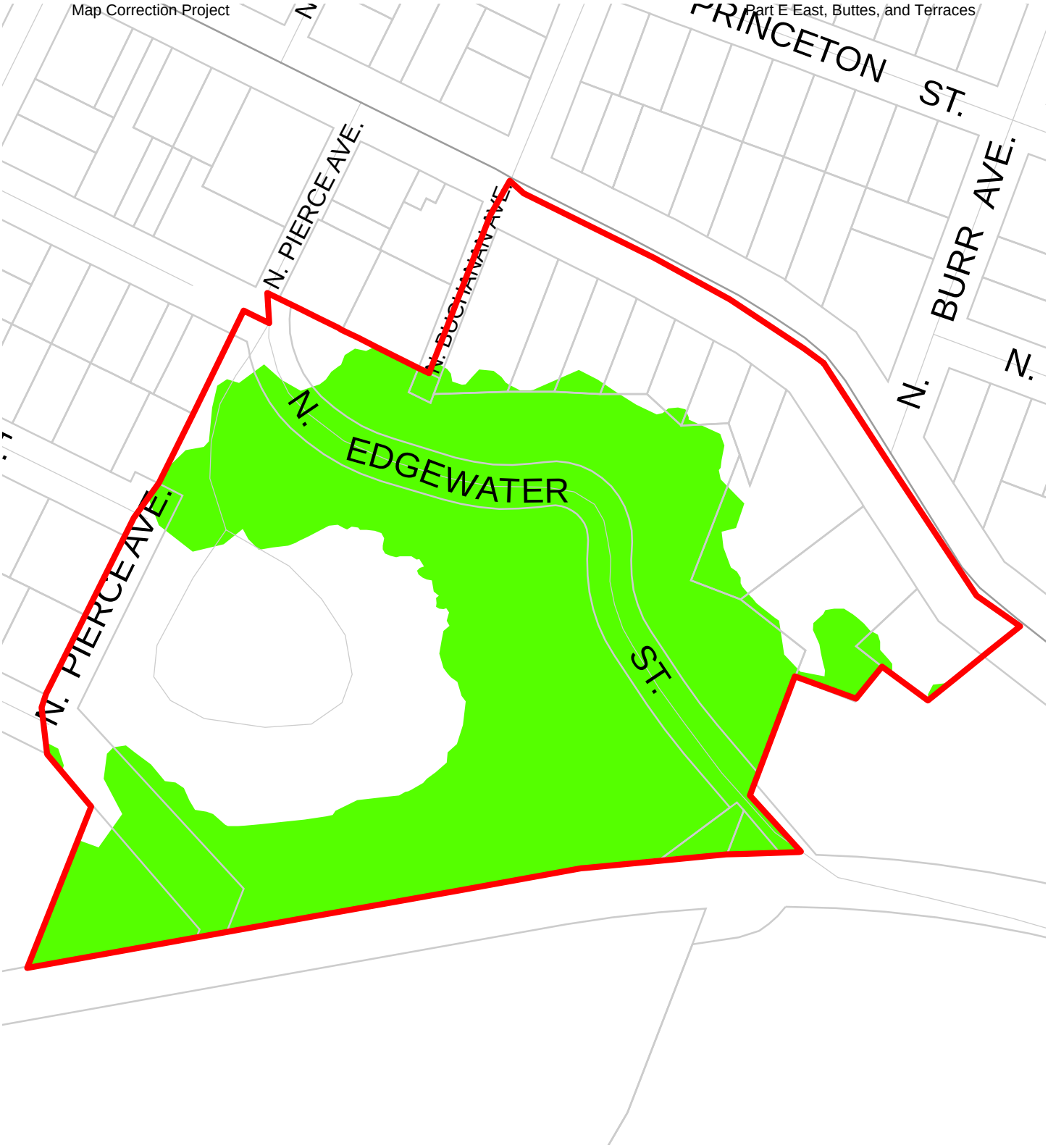
May 2022



Map I: DRAFT Proposed Environmental Overlay Zones

Resource Site:

EB2

Updated: May 2022

Resource Sites
Open Stream Channel
Piped Stream Segment
Proposed Conservation Zone
Proposed Protection Zone
Urban Service Boundary
Taxlots

NORTH

0 87.5 175 Feet

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Natural Resource Description

Within resource site EB2 the following significant natural resource features and functions are present:

Significant Riparian Corridor Features: None

Significant Wildlife Habitat Features: forest patches, and associated and contiguous wetlands, two acres in size or larger.

Special Habitat Areas: Edgewater Street Forest and Ravine (O, C)

Riparian Corridor Functions: None

Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status fish and wildlife species.

Table A: Quantity of Natural Resource Features in Resource Site EB2	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	
Forest (acres)	5.7
Woodland (acres)	0.0
Shrubland (acres)	0.1
Herbaceous (acres)	0.2
Flood Area*	
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	8.7
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are areas with a slope greater than 25%.	

Special status bird species observed within or adjacent to this resource site throated gray warbler, brown creeper, bufflehead, bushtit, common yellowthroat, downy woodpecker, great blue heron, merlin, Nashville warbler, orange-crowned warbler, pacific wren, red crossbill, rufous woodpecker, Swainson's thrush, Vaux's swift, western meadowlark, western wood-pewee, white-breasted nuthatch, willow flycatcher, and yellow warbler.

Table B: Quality of Natural Resource Functions in Resource Site EB2				
Resource Site (acres) = 13				
	Class 1/A	**Class 2/B**	**Class 3/C**	**Total**
Riparian Corridors*				
acres	0.0	0.0	0.0	0.0
percent total inventory site area	0.0%	0.0%	0.3%	0.3%
Wildlife Habitat*				
acres	0.0	0.0	5.7	5.7
percent total inventory site area	0.0%	0.0%	42.1%	42.1%
Special Habitat Areas**				
acres	6.9			
percent total inventory site area	51.0%			
Combined Total+				
acres	0.0	0.0	5.7	5.7
percent total inventory site area	0.0%	0.0%	42.4%	42.4%

* Class I riparian resources, Special Habitat Areas, and wildlife habitat include open water.
** Metro Title 13 designated all Special Habitat Areas as Class I riparian corridors.
+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Stormwater runs off impervious surfaces (e.g. rooftops, driveways, parking lots, streets) rapidly. , Without a place to retain the water (such as wetlands or adequate stormwater facilities), stormwater runoff results which can cause or exacerbate flooding and increase stream erosion. In addition, when water runs off quickly, it does not have a chance to infiltrate and recharge streams or aquifers to provide water during drier periods.

The type and capacity of stormwater facilities to manage the runoff from impervious surfaces varies in the city, affecting the local rate and amount of runoff, and the amount of pollutants in the water. Much of the city was developed prior to any stormwater regulations and receives limited or no management prior to discharging to pipes and surface waters.

Table C shows the total amount of impervious area within the resource site and how much of that impervious area does not receive management; the percentage of total impervious area that is not managed is called "effective impervious area." The higher the percent of effective impervious area in a watershed, the greater the negative impacts of stormwater runoff to streams. Stream science indicates that when effective impervious area reaches 10% of a watershed, negative stream impacts become significant; and at 25%, these impacts on

waterways can be substantial. An additional consideration is the differences in soil conditions and other factors that influence the ability of pervious areas to retain, infiltrate or filter pollutants from stormwater. For example, a mature forest is much more effective in managing stormwater than a manicured lawn; both areas would have a lower effective impervious surface percentage than a developed site, but they have different outcomes for stormwater management.

For Resource Area EB2, 14% of the total area is effectively impervious, indicating a critical level of vulnerability, with negative impacts beginning to impact natural functions, but natural processes are still in place and providing support to biologic systems.

Table C. Impervious Area within Resource Site EB2

Total area (acres)	Total impervious Area (acres)	Total unmanaged impervious area* (acres)	Percent of resource site that is effectively impervious
14	2.5	1.9	14%

*Total unmanaged impervious area refers to the number of acres within a resource area that receives no formal stormwater management measures to regulate flow or treat pollutants before they reach surface waters, also referred to as effective impervious area.

Metro Title 13 and Oregon Goal 5 Compliance

The following information supplements evaluation of natural resource protections presented in Volume 3 and supports compliance with Metro Title 13 and Oregon Plan Goal 5.

Title 13 Habitat Conservation Areas

Map G presents the Habitat Conservation Areas (HCA) within the resource site EB2. Natural resources should be protected within HCA as follows:

1. *Strictly limit* or *limit* conflicting uses within Class I/High Rank Riparian Areas in all Urban Development Areas.
2. *Strictly limit* or *limit* conflicting uses within Class II/Medium Rank Riparian Areas within Moderate and Low Value Urban Development Area as well as parks and open spaces.
3. *Strictly limit* or *limit* conflicting uses within Class A/High or B/Medium Rank Wildlife Habitat within parks and open spaces.
4. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class III/Low Rank Riparian Areas in all Urban Development Areas.
5. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class A/High, Class B/Medium or Class C/Low Rank Wildlife Habitat in all Urban Development Area, expect parks and open space.

Strictly limiting or *limiting* conflicting uses in HCA will protect and conserve existing streams and wetlands to maintain significant natural resource functions including: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and fish and wildlife habitat. *Strictly limiting* or *limiting* conflicting uses in HCA will allow for additional urban development that is sensitive to the natural resource features and requires mitigation for unavoidable negative impacts to features and functions. The recommendation will also contribute towards meeting other regulatory requirements including the Metro Title 3, Water Quality and Flood Management; Oregon Goal 6, Air, Water and Land Resources Quality; Oregon Goal 7, Areas Subject to Natural Hazards; the Clean Water Act; and the Endangered Species Act.

Goal 5 Significant Natural Resources

Resource site EB2 contains natural resource features that are not a Title 13 HCA and are therefore subject to Statewide Planning Goal 5 OAR 660-023-0110. The General ESEE analysis, Volume 3, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

The common impacts of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; adding impervious surface; modifying streams, wetlands and flood areas; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R5 base zones. Open spaces are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

The analysis of economic, social, environmental and energy consequences provided in Volume 3 is confirmed for resource site EB2, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses would retain the wildlife habitat functions provided by significant natural resource features including maintaining habitat for at risk plant, fish and wildlife species, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative

consequences of additional development in areas of Class A or Class B wildlife habitat should be required.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

Natural Resources Protection Decisions

Based on the analysis presented in Volume 3 and the resource site-specific evaluation for EB2, the following decisions are applied to protect the significant riparian corridors and wildlife habitat:

1. Apply a protection overlay zone (p zone) to wetlands and streams from top-of-bank to top-of-bank, and to land within 25 feet of wetlands and land within 25 feet of streams.
2. Apply a conservation overlay zone (c zone) to land between 25 and 50 feet of wetlands and the top-of-bank of streams.
3. Apply a conservation overlay zone (c zone) to areas of forest and woodland vegetation, including areas that are on steep slopes and within Special Habitat Area W3.F, Willamette Bluff Complex.
4. Allow conflicting uses within all other areas containing significant natural resources.

Note – There is no Resource Site EB3. The resource site numbering in the Ezone Map Correction Project skips from EB2 to EB4. EB3 refers to a resource site that was included in the East Buttes, Terraces & Wetlands Conservation Plan that was designated as resource sites 140. That resource site remains regulated by that plan and is not updated by the Ezone Map Correction Project.

Resource Site No.: EB4 **Resource Site Name:** University of Portland Bluff

Previous Plan: East Butte, Terraces & Wetlands Plan
Previous Resource Site No.: 140

The results of the analysis found in Volume 3 and the resource site-specific evaluation, are presented in the following maps:

A. Water Features – rivers, streams, wetlands and flood areas
B. Land Features – forest, woodland, shrubland and herbaceous vegetation, steep slopes
C. Special Habitat Areas
D. Riparian Corridor Classifications
E. Wildlife Habitat Classifications
F. Urban Development Value
G. Metro Title 13 Habitat Conservation Areas
H. Statewide Planning Goal 5 Areas
I. Recommended Natural Resource Protections

Following the maps, additional information about existing natural resource features and functions in the resource site is presented.

Implementation of the results is found in Volume 1, Part B, updates to zoning maps and zoning code.

Resource site EB4 includes the following:

Site (acres)	14.0
Base zones (acres)	
CI1	7.4
R5	6.6

Map A: Water Features

Resource Site: EB4

Updated: May 2022

Resource Sites
Urban Service Boundary
Taxlots
Wetlands
Rivers
Open stream channel
Piped Stream Segment
Flood Area

NORTH

0 135 270 Feet

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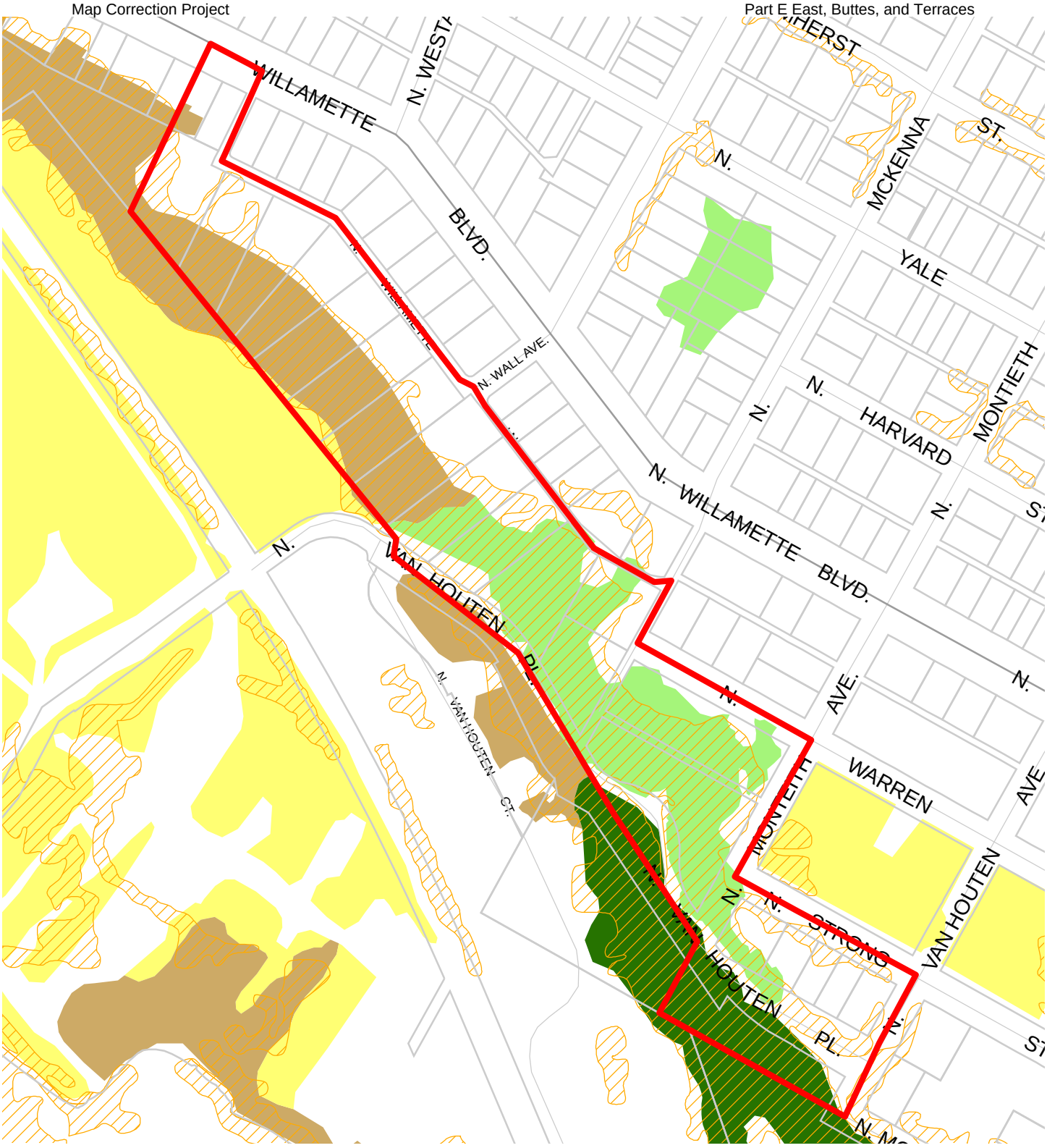

Map B: Vegetation and Steep Slopes

Resource Site: EB4

Updated: May 2022

NORTH

0 185 370 Feet

- Resource Sites
- Urban Service Boundary
- Taxlots
- Forest
- Woodland
- Shrubland
- Herbaceous

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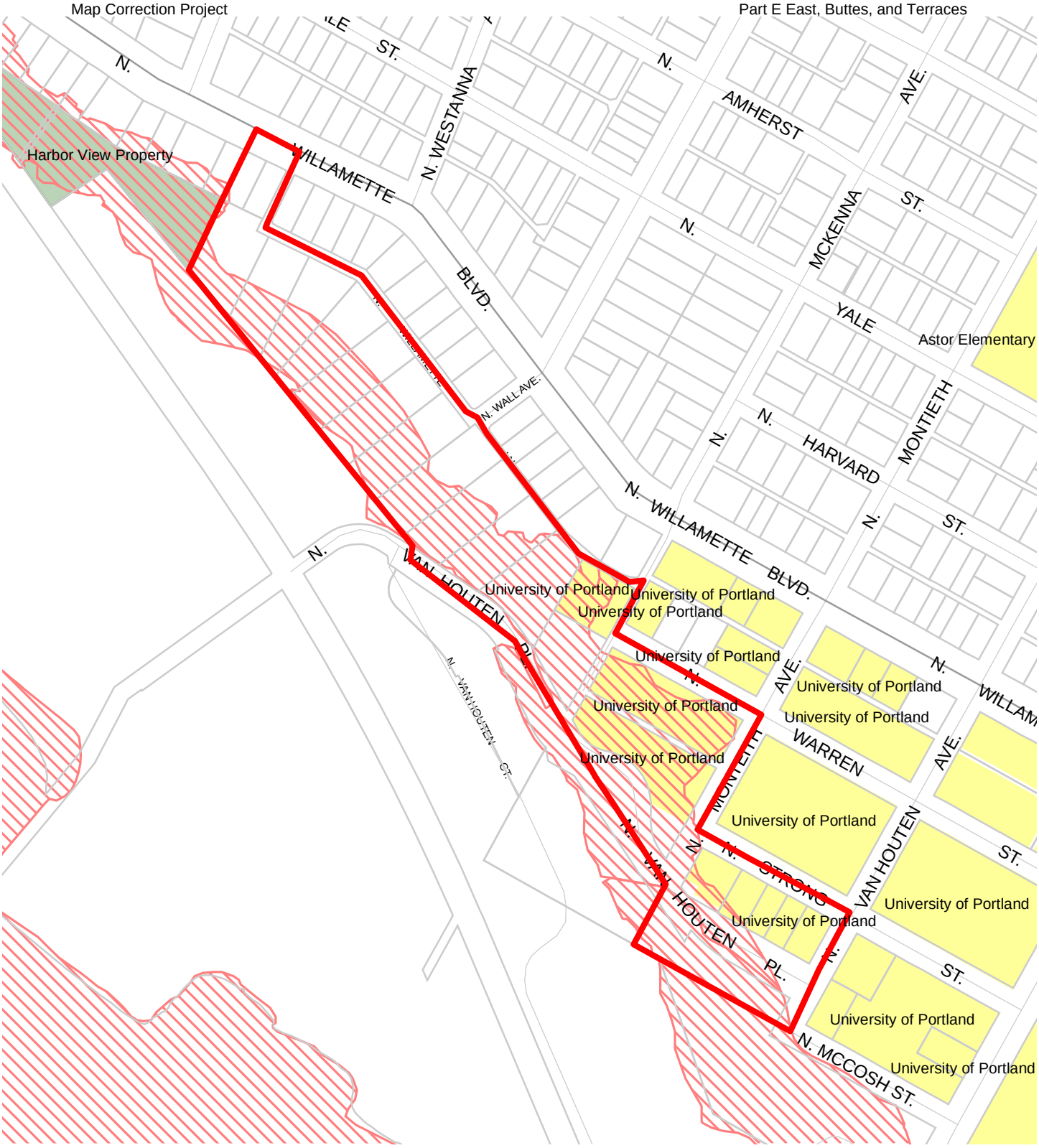
May 2022



Map C: Special Habitat Areas

Resource Site: EB4

Updated: May 2022

NORTH

0 170 340 Feet

- Resource Sites
- Special Habitat Areas (SHAs)
- Open Stream Channel
- Piped Stream Segment
- Parks
- Schools
- Urban Service Boundary
- Taxlots

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Map D: Riparian Corridors Habitat Classification

Resource Site: EB4

Updated: May 2022

Class I (high rank)
Class II (medium rank)
Class III (low rank)
Resource Sites
Urban Service Boundary
Taxlots

NORTH

0 135 270 Feet

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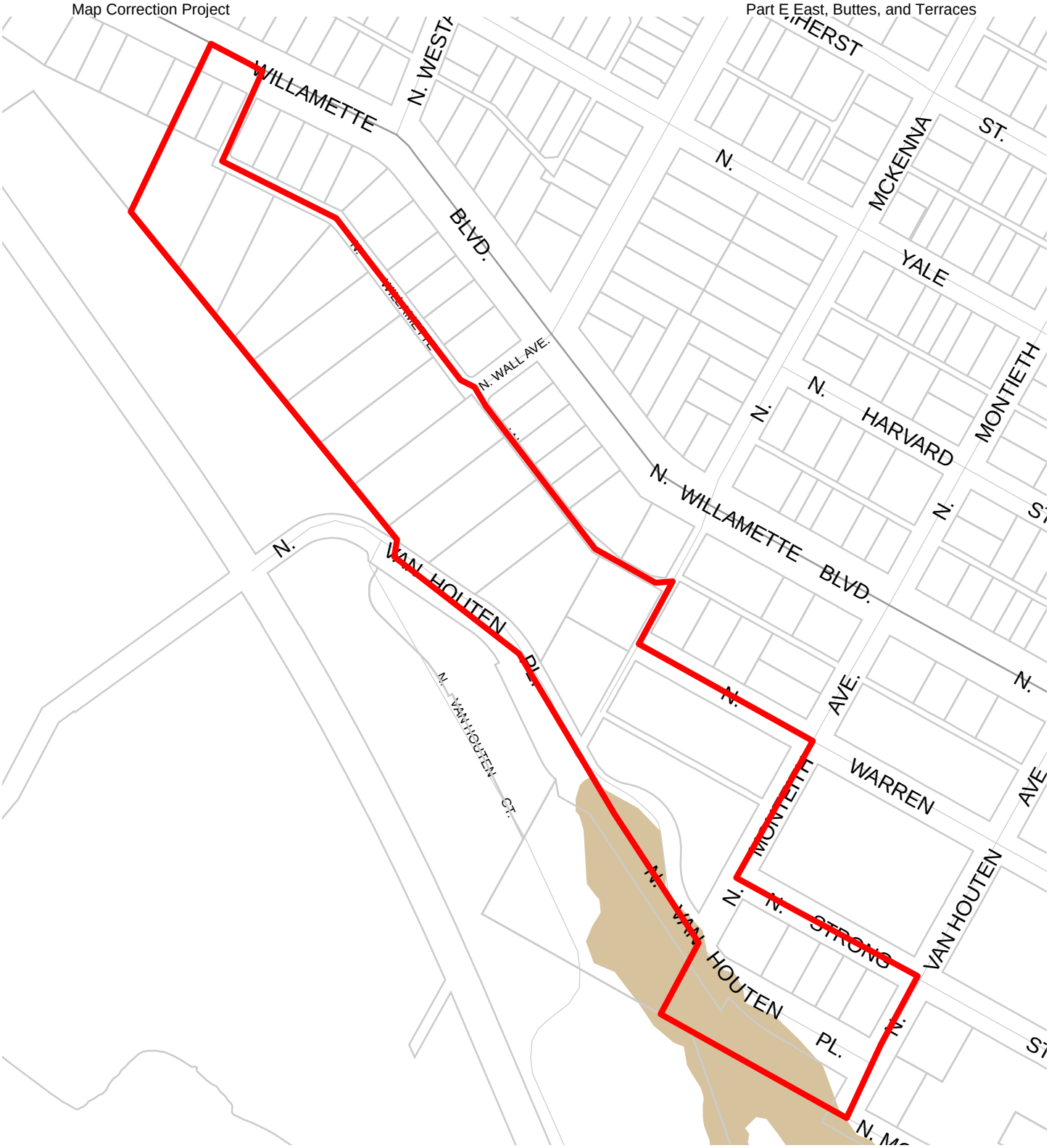

Map E: Wildlife Habitat Classification

Resource Site: EB4

Updated: May 2022

NORTH

0 110 220 Feet

- Resource Sites
- Class A (high rank)
- Class B (medium rank)
- Class C (low rank)
- Urban Service Boundary
- Taxlots

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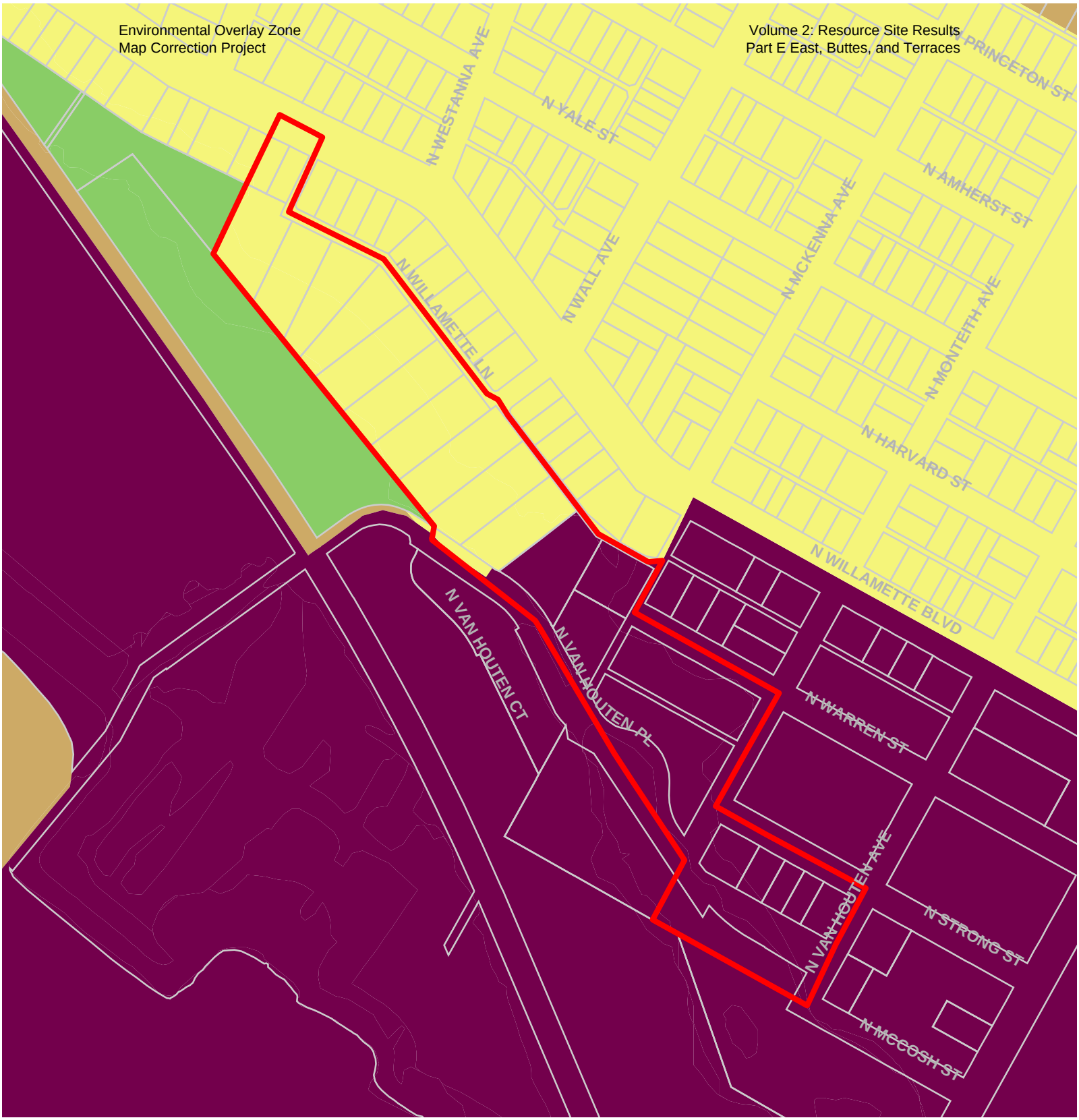

Map F: Urban Development Value (Title 13)
Resource Site: EB4

- Urban Service Boundary
- Resource Sites
- High Development Value
- Medium Development Value
- Low Development Value
- Parks

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NORTH

0 205 410 Feet

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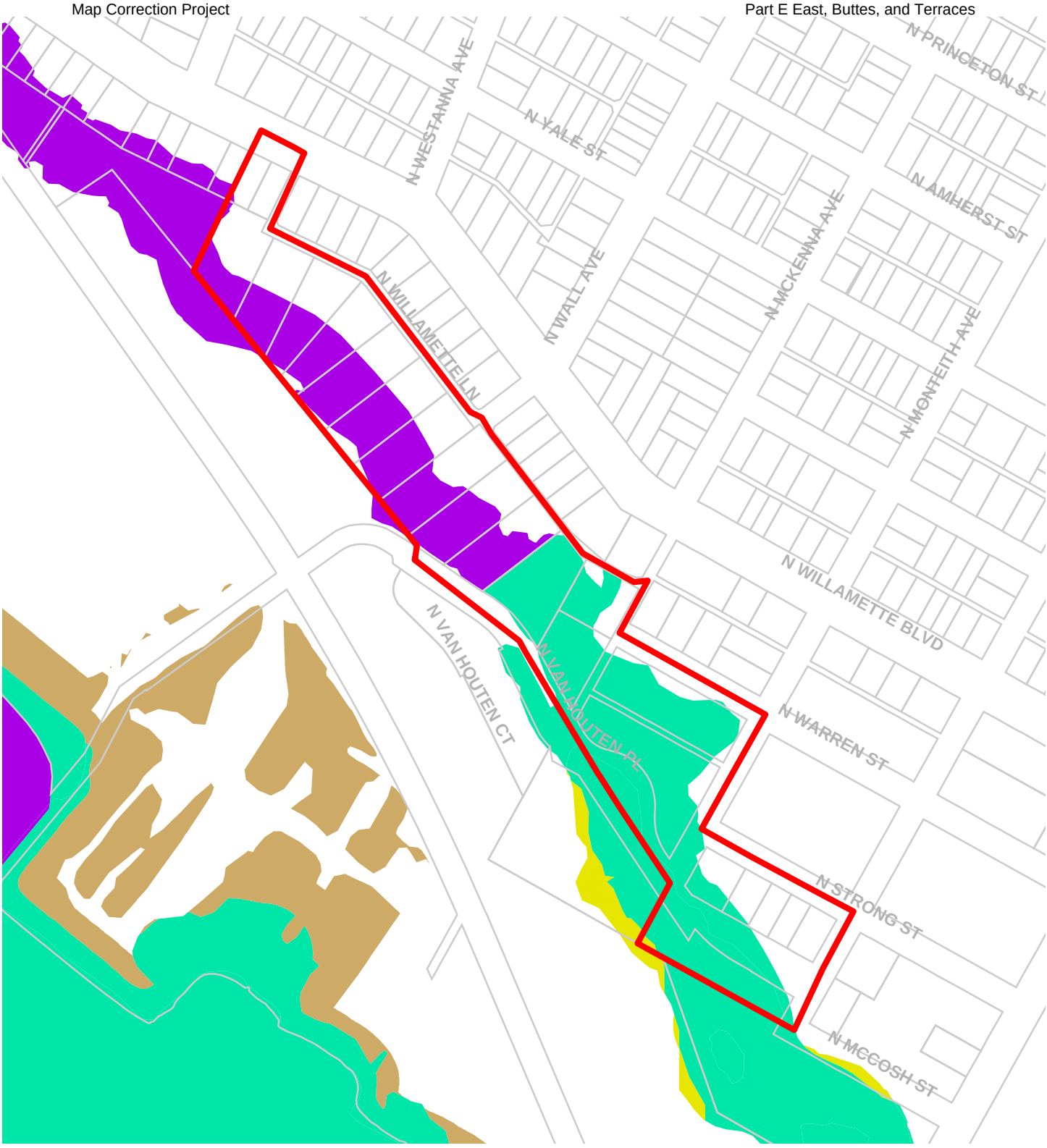

Map G: Title 13 Habitat Conservation Areas (HCA) and Goal 5 Areas

Resource Site: EB4

Updated: May 2022

NORTH

0 220 440 Feet

- Urban Service Boundary
- Resource Sites
- HCA High Value
- HCA Moderate Value
- HCA Low Value
- Goal 5 Significant Natural Resources

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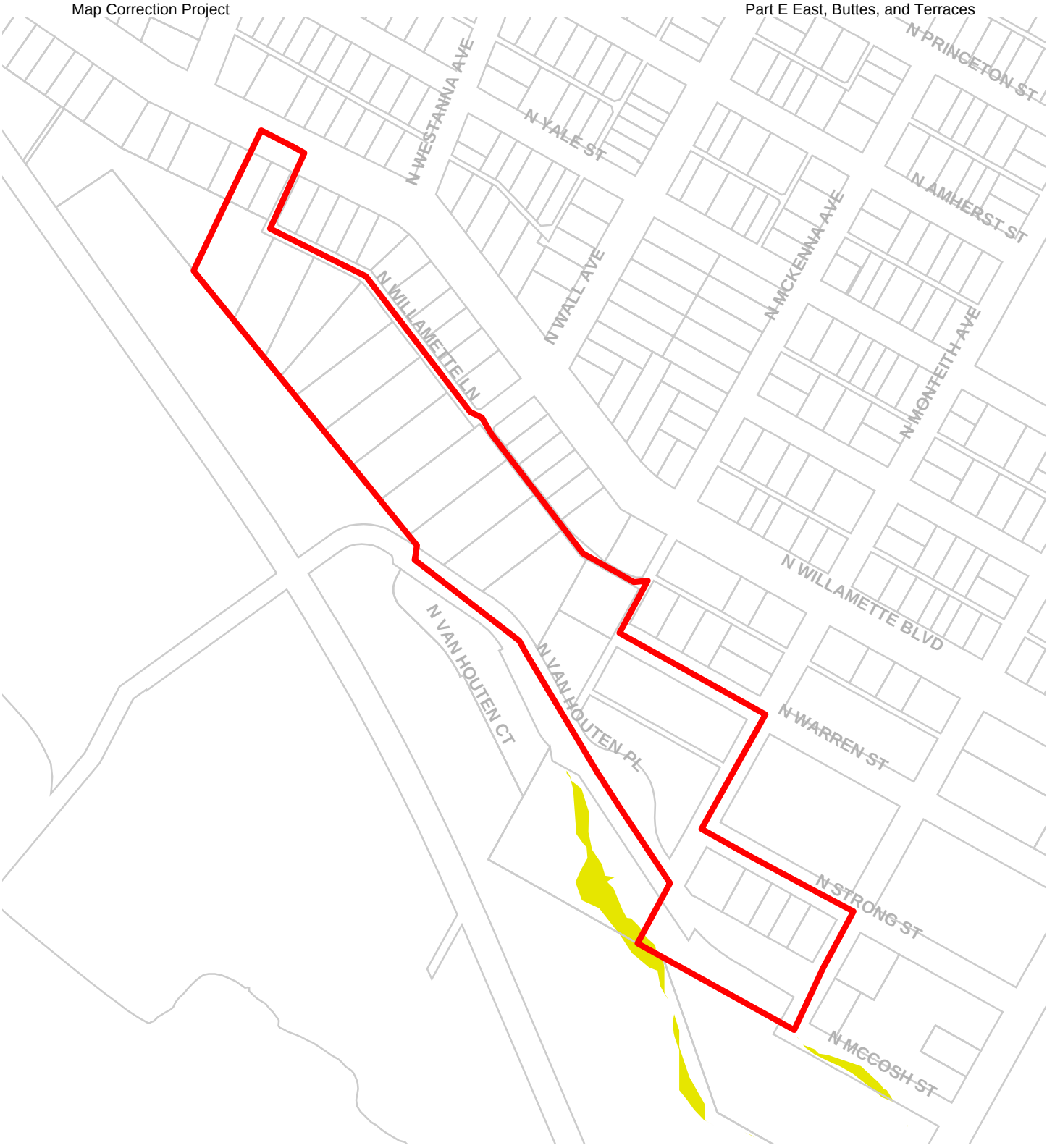

Map H: Goal 5 Resources

Resource Site: EB4

Updated: May 2022

NORTH

0 220 440 Feet

Recommended Draft - As Amended

- Urban Service Boundary
- Resource Sites
- Goal 5 Significant Natural Resources

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Map I: DRAFT Proposed Environmental Overlay Zones

Resource Site:

EB4

Updated: May 2022

Resource Sites
Open Stream Channel
Piped Stream Segment
Proposed Conservation Zone
Proposed Protection Zone
Urban Service Boundary
Taxlots

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NORTH
0 145 290 Feet

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Natural Resource Description

Within resource site EB4 the following significant natural resource features and functions are present:

Significant Riparian Corridor Features: None

Significant Wildlife Habitat Features: forest patches, and associated and contiguous wetlands, two acres in size or larger.

Special Habitat Areas: Willamette Bluff Complex (O, C)

Riparian Corridor Functions: None

Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status fish and wildlife species.

Table A: Quantity of Natural Resource Features in Resource Site EB4	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	
Forest (acres)	1.0
Woodland (acres)	3.8
Shrubland (acres)	2.5
Herbaceous (acres)	0.1
Flood Area*	
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	8.9
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are areas with a slope greater than 25%.	

Special status bird species observed within or adjacent to this resource site include American kestrel, American white pelican, bald eagle, band-tailed pigeon, black-throated gray warbler, brown creeper, bufflehead, bushtit, chipping sparrow, common nighthawk, common yellowthroat, downy woodpecker, great blue heron, hooded merganser, Hutton's viero, merlin, Nashville warbler, orange-crowned warbler, pacific wren, peregrine falcon, purple finch, purple

martin, Nashville warbler, red-necked grebe, red crossbill, red-eyed viero, rufous hummingbird, Swainson's thrush, varied thrush, Vaux's swift, western meadowlark, western wood-pewee, white-breasted nuthatch, willow flycatcher, Wilson's warbler, wood duck, and yellow warbler.

Table B: Quality of Natural Resource Functions in Resource Site EB4				
Resource Site (acres) = 14				
	Class 1/A	**Class 2/B**	**Class 3/C**	**Total**
Riparian Corridors*				
acres	0.0	0.0	0.0	0.0
percent total inventory site area	0.0%	0.0%	0.0%	0.0%
Wildlife Habitat*				
acres	0.0	0.0	1.0	1.0
percent total inventory site area	0.0%	0.0%	7.3%	7.3%
Special Habitat Areas**				
acres	8.1			
percent total inventory site area	57.7%			
Combined Total+				
acres	0.0	0.0	1.0	1.0
percent total inventory site area	0.0%	0.0%	7.3%	7.3%

* Class I riparian resources, Special Habitat Areas, and wildlife habitat include open water.

** Metro Title 13 designated all Special Habitat Areas as Class I riparian corridors.

+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Stormwater runs off impervious surfaces (e.g. rooftops, driveways, parking lots, streets) rapidly. , Without a place to retain the water (such as wetlands or adequate stormwater facilities), stormwater runoff results which can cause or exacerbate flooding and increase stream erosion. In addition, when water runs off quickly, it does not have a chance to infiltrate and recharge streams or aquifers to provide water during drier periods.

The type and capacity of stormwater facilities to manage the runoff from impervious surfaces varies in the city, affecting the local rate and amount of runoff, and the amount of pollutants in the water. Much of the city was developed prior to any stormwater regulations and receives limited or no management prior to discharging to pipes and surface waters.

Table C shows the total amount of impervious area within the resource site and how much of that impervious area does not receive management; the percentage of total impervious area that is not managed is called “effective impervious area.” The higher the percent of effective

impervious area in a watershed, the greater the negative impacts of stormwater runoff to streams. Stream science indicates that when effective impervious area reaches 10% of a watershed, negative stream impacts become significant; and at 25%, these impacts on waterways can be substantial. An additional consideration is the differences in soil conditions and other factors that influence the ability of pervious areas to retain, infiltrate or filter pollutants from stormwater. For example, a mature forest is much more effective in managing stormwater than a manicured lawn; both areas would have a lower effective impervious surface percentage than a developed site, but they have different outcomes for stormwater management.

For Resource Area EB4, 0% of the total area is effectively impervious. This indicates a significant degree of stormwater management and/or existing natural resources that should be preserved. Areas with very low impervious cover significant degree of stormwater management and/or are more likely to be functioning properly to support biologic systems.

Table C. Impervious Area within Resource Site EB4

Total area (acres)	Total impervious Area (acres)	Total unmanaged impervious area* (acres)	Percent of resource site that is effectively impervious
14	1.9	0	0%

*Total unmanaged impervious area refers to the number of acres within a resource area that receives no formal stormwater management measures to regulate flow or treat pollutants before they reach surface waters, also referred to as effective impervious area.

Metro Title 13 and Oregon Goal 5 Compliance

The following information supplements evaluation of natural resource protections presented in Volume 3 and supports compliance with Metro Title 13 and Oregon Plan Goal 5.

Title 13 Habitat Conservation Areas

Map G presents the Habitat Conservation Areas (HCA) within the resource site EB4. Natural resources should be protected within HCA as follows:

1. *Strictly limit* or *limit* conflicting uses within Class I/High Rank Riparian Areas in all Urban Development Areas.
2. *Strictly limit* or *limit* conflicting uses within Class II/Medium Rank Riparian Areas within Moderate and Low Value Urban Development Area as well as parks and open spaces.
3. *Strictly limit* or *limit* conflicting uses within Class A/High or B/Medium Rank Wildlife Habitat within parks and open spaces.

4. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class III/Low Rank Riparian Areas in all Urban Development Areas.
5. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class A/High, Class B/Medium or Class C/Low Rank Wildlife Habitat in all Urban Development Area, expect parks and open space.

Strictly limiting or *limiting* conflicting uses in HCA will protect and conserve existing streams and wetlands to maintain significant natural resource functions including: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and fish and wildlife habitat. *Strictly limiting* or *limiting* conflicting uses in HCA will allow for additional urban development that is sensitive to the natural resource features and requires mitigation for unavoidable negative impacts to features and functions. The recommendation will also contribute towards meeting other regulatory requirements including the Metro Title 3, Water Quality and Flood Management; Oregon Goal 6, Air, Water and Land Resources Quality; Oregon Goal 7, Areas Subject to Natural Hazards; the Clean Water Act; and the Endangered Species Act.

Goal 5 Significant Natural Resources

Resource site EB4 contains natural resource features that are not a Title 13 HCA and are therefore subject to Statewide Planning Goal 5 OAR 660-023-0110. The General ESEE analysis, Volume 3, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

The common impacts of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; adding impervious surface; modifying streams, wetlands and flood areas; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R5 base zones. Commercial uses are allowed in the CI1 base zones. Open spaces are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

The analysis of economic, social, environmental and energy consequences provided in Volume 3 is confirmed for resource site EB4, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses would retain the wildlife habitat functions provided by significant natural resource features including maintaining habitat for at risk plant, fish and wildlife species, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of Class A or Class B wildlife habitat should be required.

Steep slopes are susceptible to erosion and landslides. The Willamette Bluff Complex is susceptible to fire, particularly due to the steep slopes and invasive vegetation. Additional removal of native vegetation should be *limited*, while removal of non-native vegetation with replacement with native species, particularly native trees, should be encouraged. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

Natural Resources Protection Decisions Based on the analysis presented in Volume 3 and the resource site-specific evaluation for EB4, the following decisions are applied to protect the significant riparian corridors and wildlife habitat:

1. Apply a protection overlay zone (p zone) to wetlands and streams from top-of-bank to top-of-bank, and to land within 25 feet of wetlands and land within 25 feet of streams.
2. Apply a conservation overlay zone (c zone) to land between 25 and 50 feet of wetlands and the top-of-bank of streams.
3. Apply a conservation overlay zone (c zone) to areas of forest, woodland, shrubland and herbaceous vegetation within Special Habitat Areas W3.E and W3.F, Willamette Bluff Complex, including vegetation located on steep slopes.
4. Allow conflicting uses within all other areas containing significant natural resources.

Note – There is no Resource Site EB5. The resource site numbering in the Ezone Map Correction Project skips from EB4 to EB6. EB5 applies to a previously adopted resource site in the East Buttes, Terraces & Wetlands Conservation Plan that is designated as resource site 140, that remains regulated by that plan and are not updated by the Ezone Map Correction Project.

Resource Site No.: EB6 **Resource Site Name:** Sullivan's Gulch

Previous Plan: East Butte, Terraces & Wetlands Plan
Previous Resource Site No.: 139

The results of the analysis found in Volume 3 and the resource site-specific evaluation, are presented in the following maps:

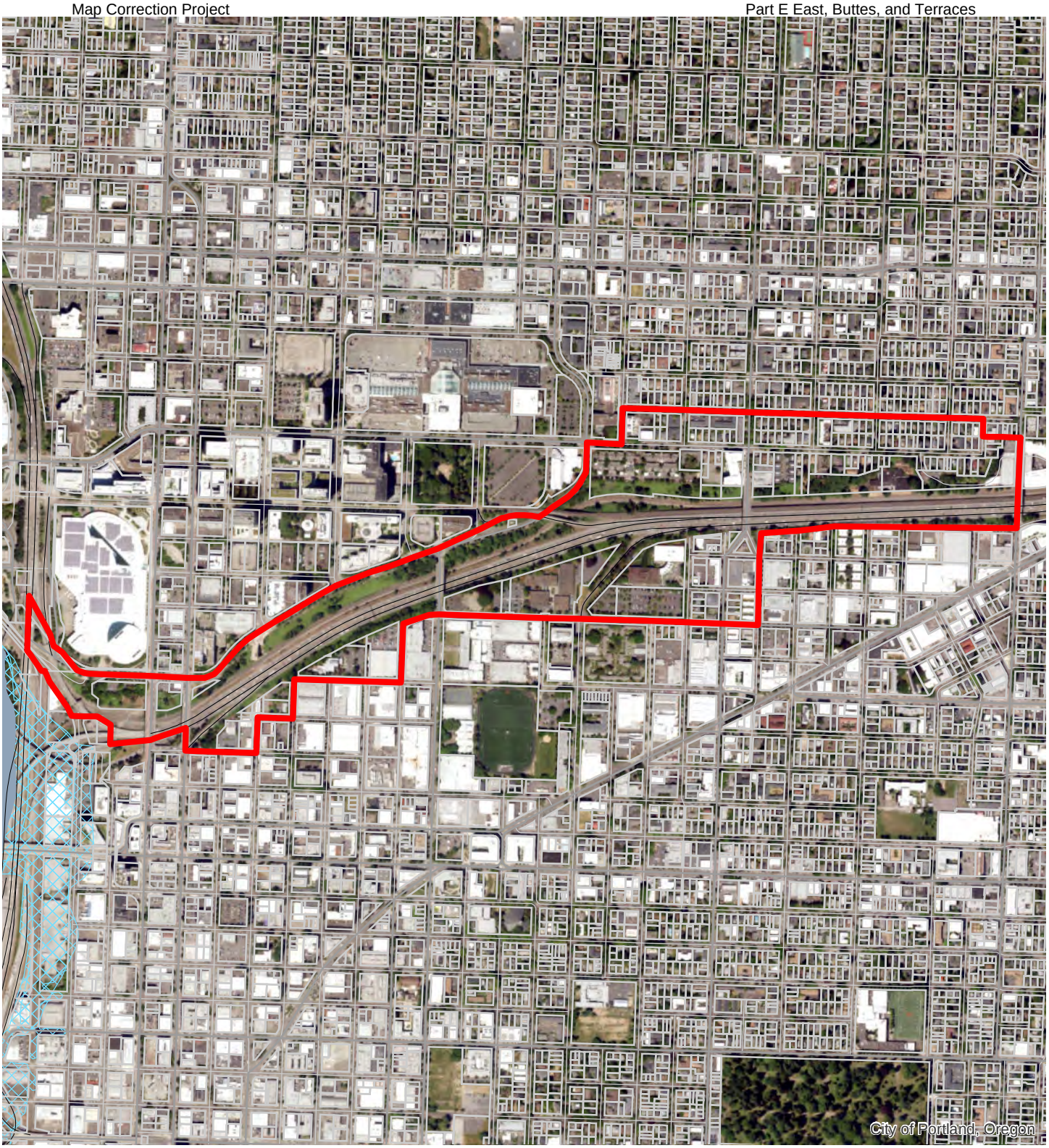
A. Water Features – rivers, streams, wetlands and flood areas
B. Land Features – forest, woodland, shrubland and herbaceous vegetation, steep slopes
C. Special Habitat Areas
D. Riparian Corridor Classifications
E. Wildlife Habitat Classifications
F. Urban Development Value
G. Metro Title 13 Habitat Conservation Areas
H. Statewide Planning Goal 5 Areas
I. Recommended Natural Resource Protections

Following the maps, additional information about existing natural resource features and functions in the resource site is presented.

Implementation of the results is found in Volume 1, Part B, updates to zoning maps and zoning code.

Resource site EB6 includes the following:

Site (acres)	135.0
Base zones (acres)	
CM2	0.7
CM3	11.5
CX	44.5
EG1	0.1
EX	4.0
IG1	22.0
IG2	9.5
IH	1.9
OS	9.1
R2.5	19.9
RM1	4.1
RM2	0.1
RM3	3.0
RM4	6.3



Map A: Water Features

Resource Site: EB6

Updated: May 2022

Resource Sites
Urban Service Boundary
Taxlots
Wetlands
Rivers
Open stream channel
Piped Stream Segment
Flood Area

NORTH

0 495 990 Feet

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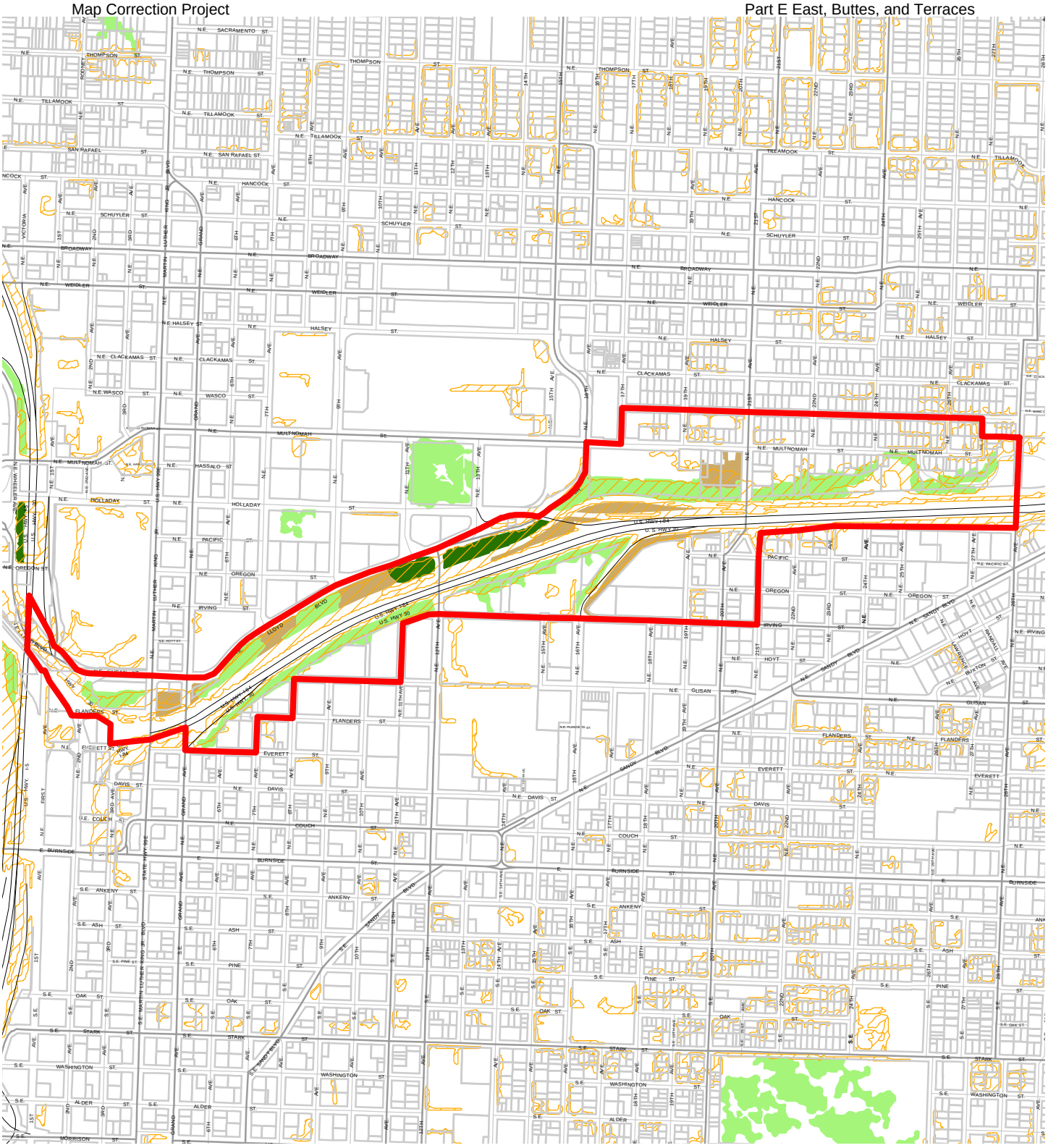

Map B: Vegetation and Steep Slopes

Resource Site: EB6

Updated: May 2022

NORTH

0 650 1,300 Feet

- Resource Sites
- Urban Service Boundary
- Taxlots
- Forest
- Woodland
- Shrubland
- Herbaceous

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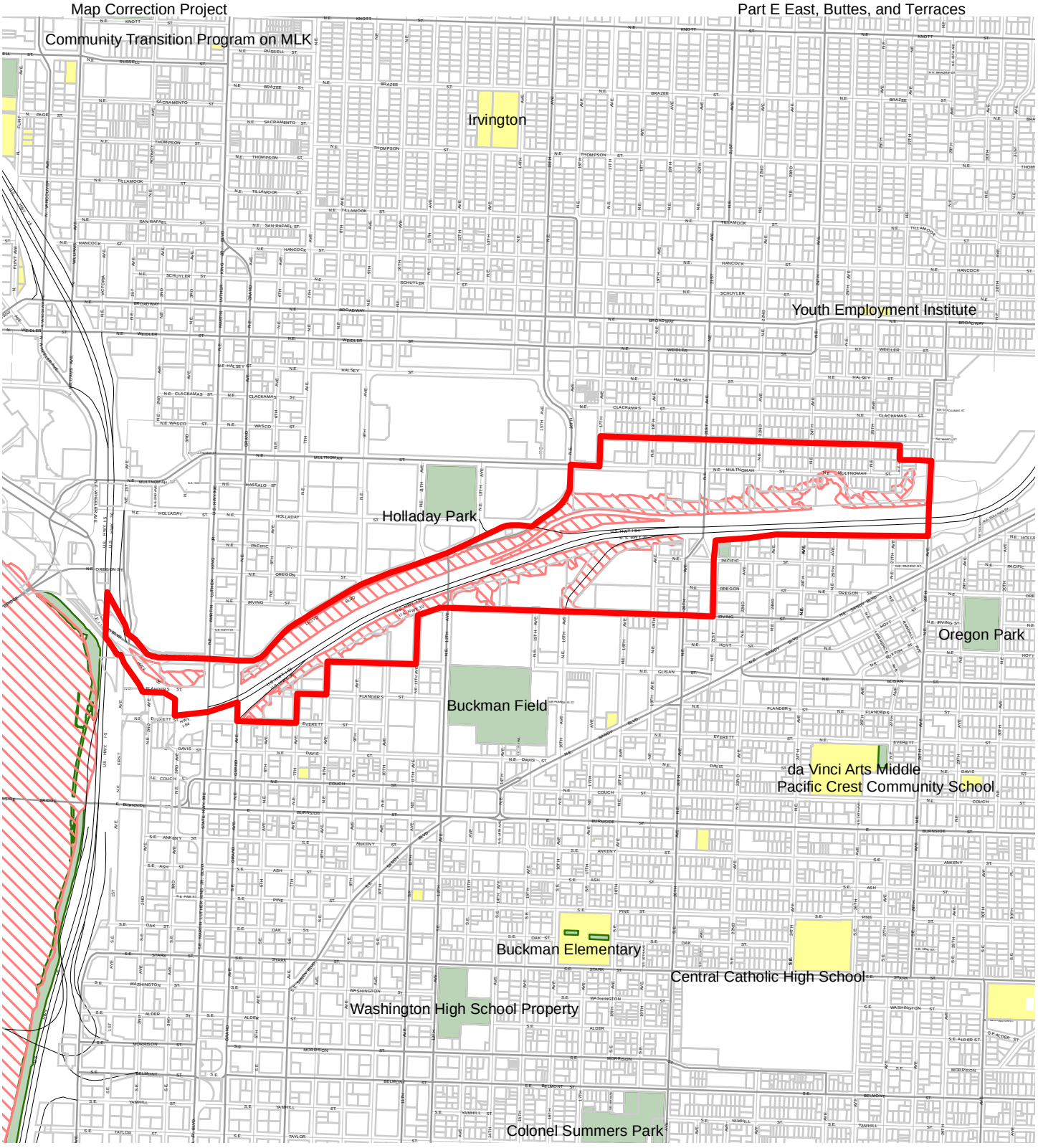

Map C: Special Habitat Areas

Resource Site: EB6

Updated: May 2022

NORTH

0 650 1,300 Feet

Resource Sites
Special Habitat Areas (SHAs)
Open Stream Channel
Piped Stream Segment
Parks
Schools
Urban Service Boundary
Taxlots

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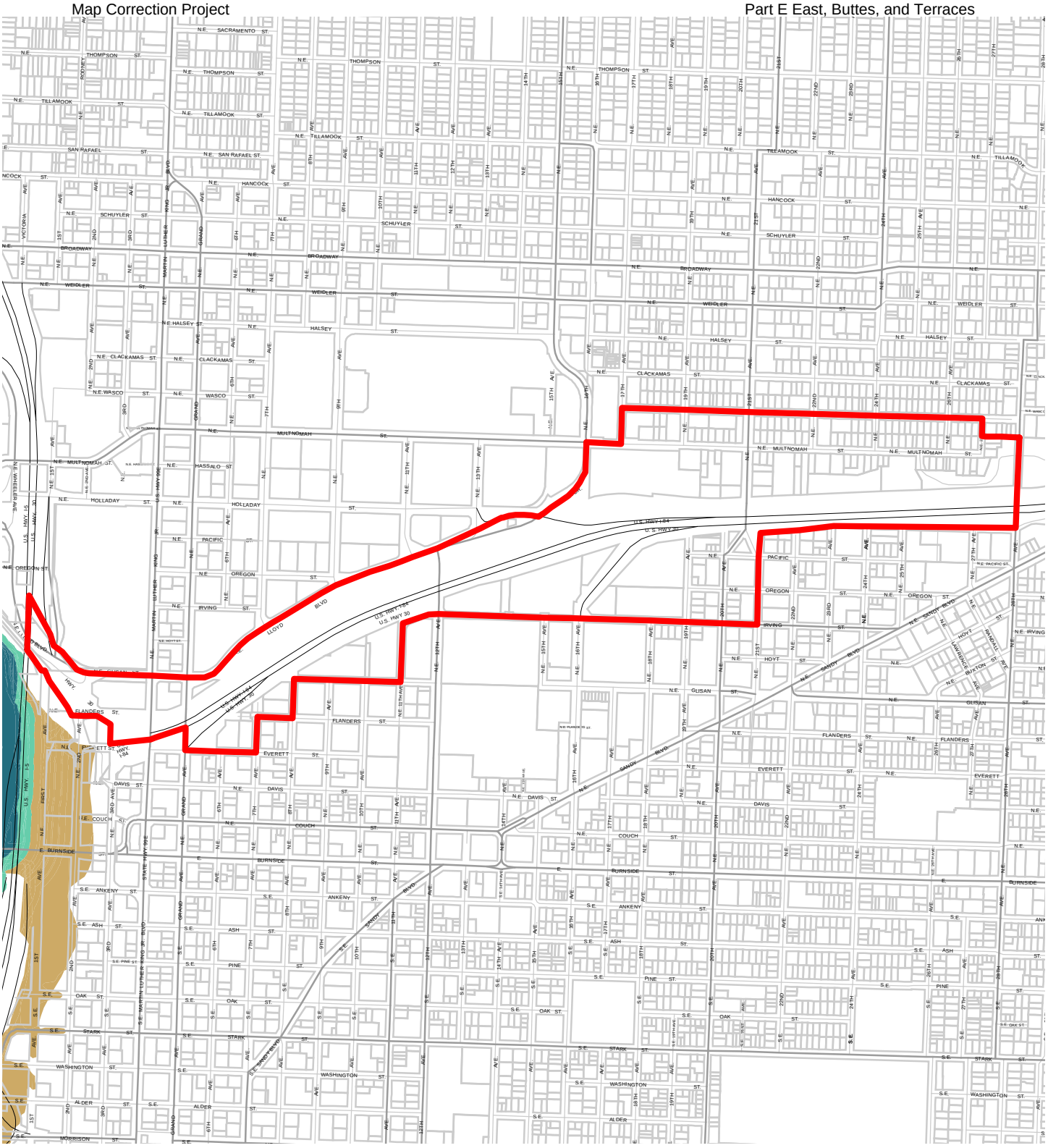

Map D: Riparian Corridors Habitat Classification

Resource Site: EB6

Updated: May 2022

Class I (high rank)

Class II (medium rank)

Class III (low rank)

Resource Sites

Urban Service Boundary

Taxlots

NORTH

0 495 990 Feet

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Map E: Wildlife Habitat Classification

Resource Site: EB6

Updated: May 2022

NORTH

0 425 850 Feet

- Resource Sites
- Class A (high rank)
- Class B (medium rank)
- Class C (low rank)
- Urban Service Boundary
- Taxlots

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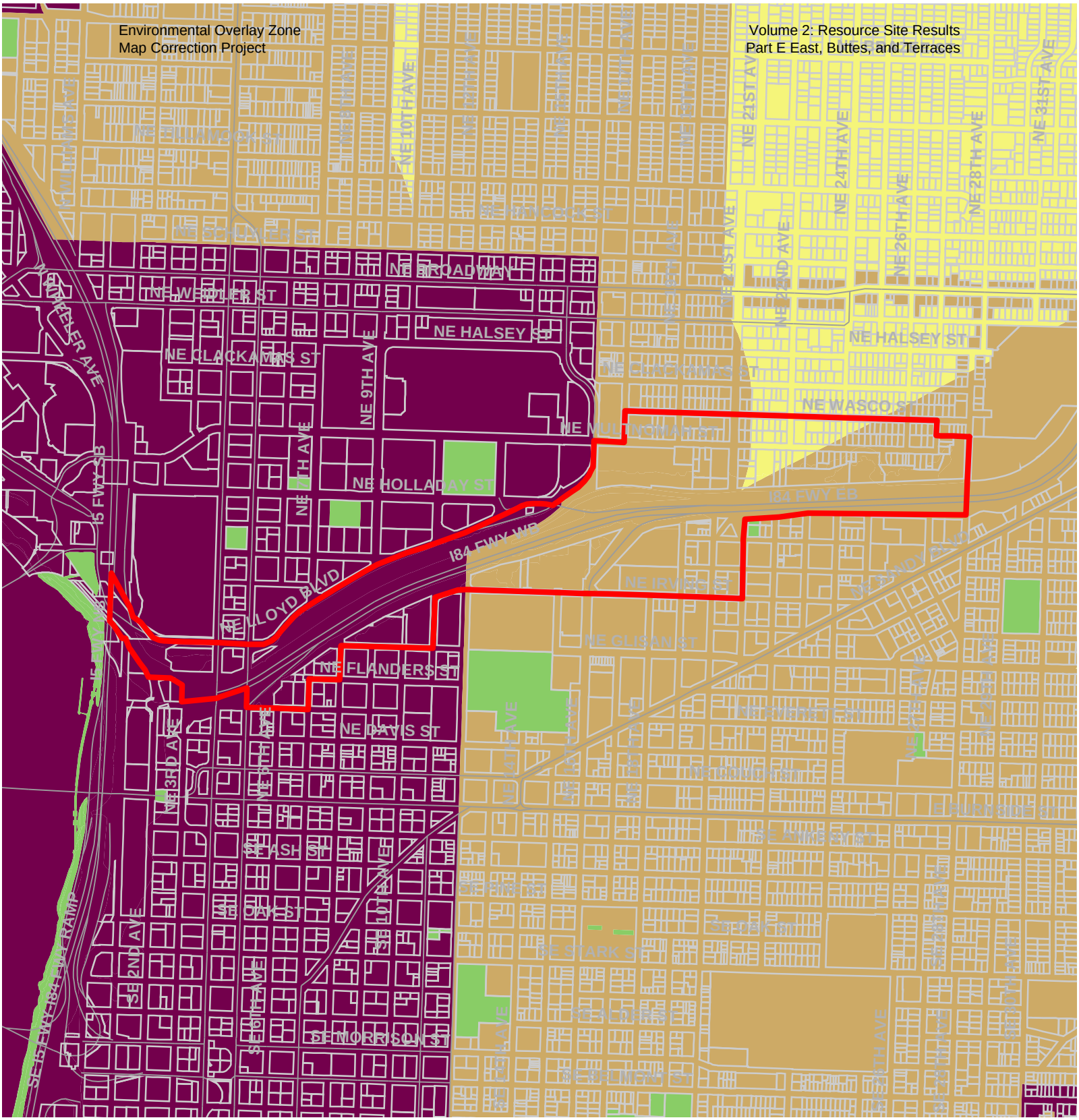

Map F: Urban Development Value (Title 13)
Resource Site: EB6

- Urban Service Boundary
- Resource Sites
- High Development Value
- Medium Development Value
- Low Development Value
- Parks

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Updated: July 2021

NORTH

0 700 1,400 Feet

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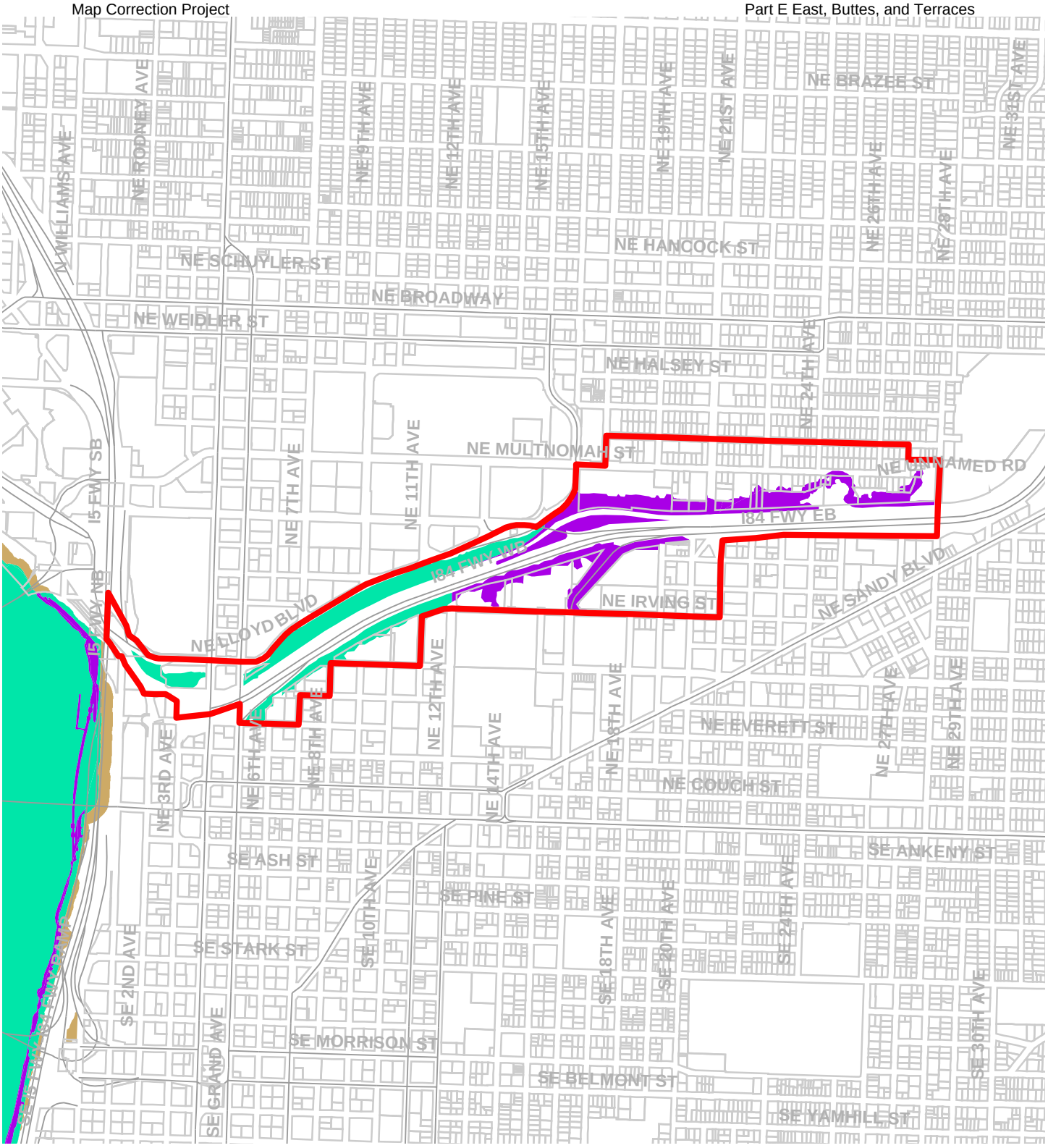

Map G: Title 13 Habitat Conservation Areas (HCA) and Goal 5 Areas

Resource Site: EB6

Updated: May 2022

NORTH

0 800 1,600 Feet

- Urban Service Boundary
- Resource Sites
- HCA High Value
- HCA Moderate Value
- HCA Low Value
- Goal 5 Significant Natural Resources

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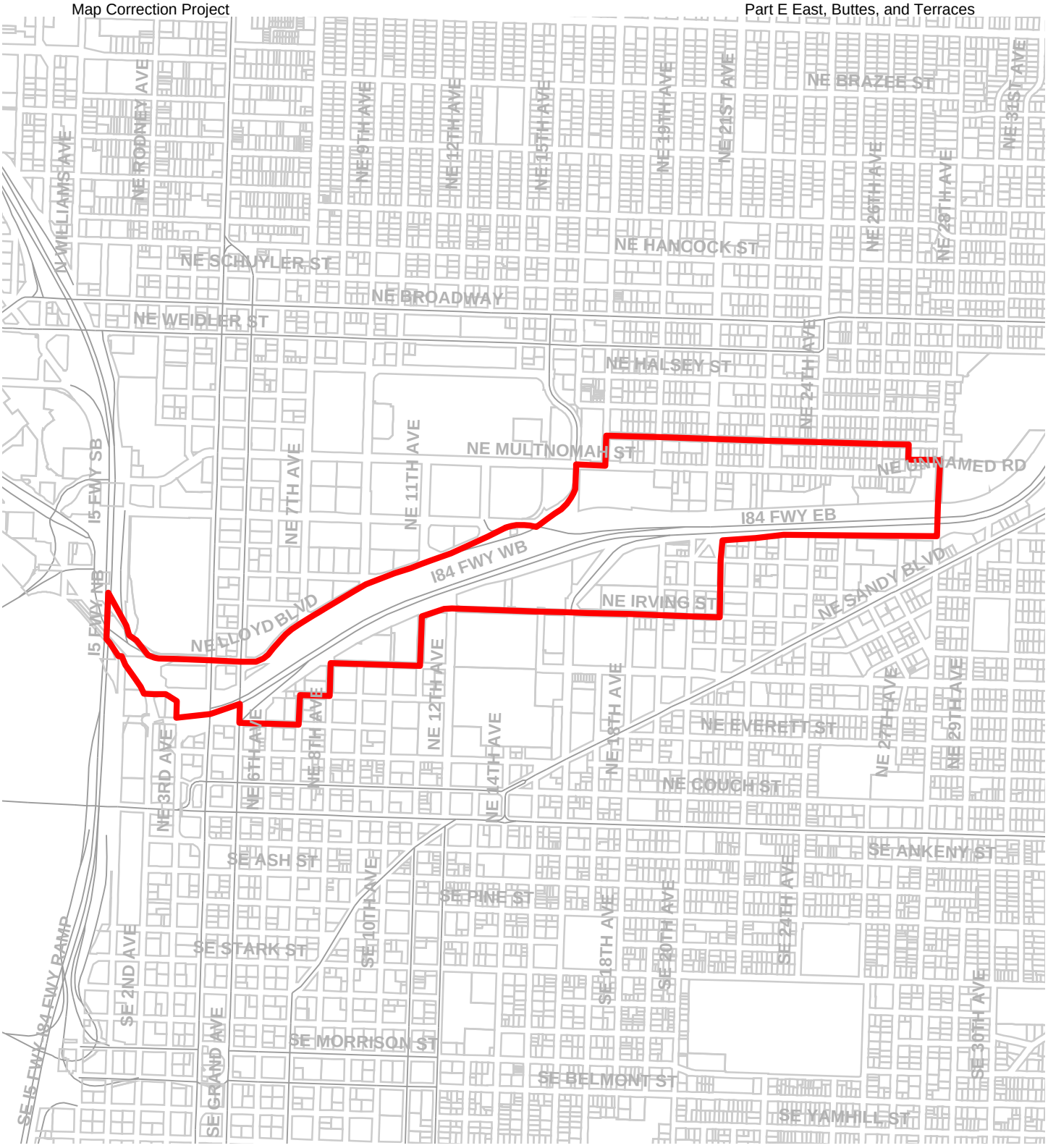

Map H: Goal 5 Resources

Resource Site: EB6

Updated: May 2022

NORTH

0 800 1,600 Feet

Urban Service Boundary

Resource Sites

Goal 5 Significant Natural Resources

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Map I: DRAFT Proposed Environmental Overlay Zones

Resource Site:

EB6

Updated: May 2022

Resource Sites
Open Stream Channel
Piped Stream Segment
Proposed Conservation Zone
Proposed Protection Zone
Urban Service Boundary
Taxlots

NORTH

0 550 1,100 Feet

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Natural Resource Description

Within resource site EB6 the following significant natural resource features and functions are present:

Significant Riparian Corridor Features: None

Significant Wildlife Habitat Features: forest patches, and associated and contiguous wetlands, two acres in size or larger.

Special Habitat Areas: Sullivan's Gulch (U)

Riparian Corridor Functions: None

Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status fish and wildlife species.

Table A: Quantity of Natural Resource Features in Resource Site EB6	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	
Forest (acres)	2.7
Woodland (acres)	20.1
Shrubland (acres)	7.6
Herbaceous (acres)	0.0
Flood Area*	
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	45.1
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are areas with a slope greater than 25%.	

Along I-84 is a steeply-sloped, largely vegetated corridor, known as Sullivan's Gulch. Sullivan's Gulch begins outside of the inventory site, near NE 21st Avenue, and continues west to the Willamette River.

The history of the gulch suggests that it had predominantly woody shrub growth at one time and drained the area south of Alameda Ridge and north of the present location of Glisan Street. In Portland's early years, the Willamette River would occasionally flood the gulch as far up as NE 16th. The Union Pacific Railroad line was built along the bottom of the gulch in the late 1800s, and the lower end of the gulch was filled to prevent flooding. The railroad had a great impact on the growth of Portland's eastern metropolitan region, and lead to the construction of the Banfield freeway which became the western terminus of Interstate 205. Following the Great Depression, a "Hooverville" settlement emerged in the gulch, with numerous shack homes bordering the railroad between NE Grand Avenue and NE 21st Avenue. The gulch was later used as a golf course, with a clubhouse located at NE 15th Avenue. More recently, the MAX light rail line was added to the corridor and improvements were made to the Banfield Freeway. Today, an eight-lane freeway, a freight rail line and service road, and a light rail passenger line all share the Sullivan's corridor.

Between the Lloyd Blvd/I-84 on-ramp and NE 12th Avenue, vegetation is comprised of black cottonwoods to the east, indicating the presence of surface or subsurface water, and big leaf maple to the west. The understory is a mix of hawthorn, English holly, Pacific dogwood, ivy, clematis, Himalayan blackberry and some Scott's broom. Between NE 12th Avenue and NE Grand Avenue the vegetation includes big leaf maple, cherry, one Oregon white oak, hawthorn, butterfly bush, English holly and English ivy. The middle of this stretch of the gulch is void of large trees and dominated by Himalayan blackberry. Between NE Grand Ave and the river, the vegetation includes some large trees, including one Oregon white oak, and an understory of Himalayan blackberry or turf grass. There is standing water under the I-84/I-5 on-ramp.

During a spring 2011 site visit, birds observed using Sullivan's Gulch included: song sparrow, Western scrub jay, American robin, bushtit, crow, Anna's hummingbird, white-crowned sparrow and yellow-rumped warbler. In the standing water under the I-84/I-5 onramp, two mallards were observed.

Special status bird species observed within or adjacent to this resource site include bald eagle, brown creeper, bushtit, chipping sparrow, downy woodpecker, great blue heron, Hammond's flycatcher, merlin, orange-crowned warbler, osprey, pacific-slope flycatcher, rufous hummingbird, Swainson's thrush, varied thrush, Vaux's swift, western wood-pewee, and Wilson's warbler.

Steep slopes in Portland are relatively prone to wildfire and landslides. Although Sullivan's Gulch has not burned recently, north of the inventory site is Waud Bluff which experienced fires in 2001 and 2003. The primary sources of fuel were non-native plant species such Himalayan blackberry. Native species, including Oregon oak, Douglas fir, Oregon grape, snowberry, Gilia capitata (globe gilia) and Penstemon ovatus (broad leaved penstemon), are more fire-resistant plants.

Table B: Quality of Natural Resource Functions in Resource Site EB6				
Resource Site (acres) = 135				
	Class 1/A	**Class 2/B**	**Class 3/C**	**Total**
Riparian Corridors*				
acres	0.0	0.0	0.0	0.0
percent total inventory site area	0.0%	0.0%	0.0%	0.0%
Wildlife Habitat*				
acres	0.0	0.0	0.0	0.0
percent total inventory site area	0.0%	0.0%	0.0%	0.0%
Special Habitat Areas**				
acres	33.6			
percent total inventory site area	24.9%			
Combined Total+				
acres	0.0	0.0	0.0	0.0
percent total inventory site area	0.0%	0.0%	0.0%	0.0%

* Class I riparian resources, Special Habitat Areas, and wildlife habitat include open water.
** Metro Title 13 designated all Special Habitat Areas as Class I riparian corridors.
+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Stormwater runs off impervious surfaces (e.g. rooftops, driveways, parking lots, streets) rapidly. , Without a place to retain the water (such as wetlands or adequate stormwater facilities), stormwater runoff results which can cause or exacerbate flooding and increase stream erosion. In addition, when water runs off quickly, it does not have a chance to infiltrate and recharge streams or aquifers to provide water during drier periods.

The type and capacity of stormwater facilities to manage the runoff from impervious surfaces varies in the city, affecting the local rate and amount of runoff, and the amount of pollutants in the water. Much of the city was developed prior to any stormwater regulations and receives limited or no management prior to discharging to pipes and surface waters.

Table C shows the total amount of impervious area within the resource site and how much of that impervious area does not receive management; the percentage of total impervious area that is not managed is called "effective impervious area." The higher the percent of effective impervious area in a watershed, the greater the negative impacts of stormwater runoff to streams. Stream science indicates that when effective impervious area reaches 10% of a watershed, negative stream impacts become significant; and at 25%, these impacts on waterways can be substantial. An additional consideration is the differences in soil conditions

and other factors that influence the ability of pervious areas to retain, infiltrate or filter pollutants from stormwater. For example, a mature forest is much more effective in managing stormwater than a manicured lawn; both areas would have a lower effective impervious surface percentage than a developed site, but they have different outcomes for stormwater management.

For Resource Area EB6, 45% of the total area is effectively impervious, indicating significant negative impacts are occurring due to the level of unmanaged impervious area and any additional impacts will cause further degradation.

Table C. Impervious Area within Resource Site EB6

Total area (acres)	Total impervious Area (acres)	Total unmanaged impervious area* (acres)	Percent of resource site that is effectively impervious
135	67	61	45%

*Total unmanaged impervious area refers to the number of acres within a resource area that receives no formal stormwater management measures to regulate flow or treat pollutants before they reach surface waters, also referred to as effective impervious area

Metro Title 13 and Oregon Goal 5 Compliance

The following information supplements evaluation of natural resource protections presented in Volume 3 and supports compliance with Metro Title 13 and Oregon Plan Goal 5.

Title 13 Habitat Conservation Areas

Map G presents the Habitat Conservation Areas (HCA) within the resource site EB6. Natural resources should be protected within HCA as follows:

1. *Strictly limit* or *limit* conflicting uses within Class I/High Rank Riparian Areas in all Urban Development Areas.
2. *Strictly limit* or *limit* conflicting uses within Class II/Medium Rank Riparian Areas within Moderate and Low Value Urban Development Area as well as parks and open spaces.
3. *Strictly limit* or *limit* conflicting uses within Class A/High or B/Medium Rank Wildlife Habitat within parks and open spaces.
4. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class III/Low Rank Riparian Areas in all Urban Development Areas.
5. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class A/High, Class B/Medium or Class C/Low Rank Wildlife Habitat in all Urban Development Area, expect parks and open space.

Strictly limiting or *limiting* conflicting uses in HCA will protect and conserve existing streams and wetlands to maintain significant natural resource functions including: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and fish and wildlife habitat. *Strictly limiting* or *limiting* conflicting uses in HCA will allow for additional urban development that is sensitive to the natural resource features and requires mitigation for unavoidable negative impacts to features and functions. The recommendation will also contribute towards meeting other regulatory requirements including the Metro Title 3, Water Quality and Flood Management; Oregon Goal 6, Air, Water and Land Resources Quality; Oregon Goal 7, Areas Subject to Natural Hazards; the Clean Water Act; and the Endangered Species Act.

Goal 5 Significant Natural Resources

All of the significant natural resources within resource site EB6 are designated Habitat Conservation Areas under Metro Title 13; therefore, no resource site-specific ESEE is required.

Natural Resources Protection Decisions

Based on the analysis presented in Volume 3 and the resource site-specific evaluation for EB6, the following decisions are applied to protect the significant riparian corridors and wildlife habitat:

1. Apply a protection overlay zone (p zone) to wetlands and streams from top-of-bank to top-of-bank, and to land within 25 feet of wetlands and land within 25 feet of streams.
2. Apply a conservation overlay zone (c zone) to land between 25 and 50 feet of wetlands and the top-of-bank of streams.
3. Apply a conservation overlay zone (c zone) to Special Habitat Area W20, Sullivan's Gulch and on forest and woodland vegetation within Special Habitat Area W20, including vegetation located on steep slopes.
4. Allow conflicting uses within all other areas containing significant natural resources.

Note – There is no Resource Site EB7. The resource site numbering in the Ezone Map Correction Project skips from EB6 to EB8. EB7 refers to a resource site in the East Buttes, Terraces & Wetlands Conservation Plan that was signified as resource sites 138. Resource site 138 remains regulated by that plan and are not updated by the Ezone Map Correction Project.

Resource Site No.: EB8 **Resource Site Name:** Rose City Golf Course

Previous Plan: East Butte, Terraces & Wetlands Plan
Previous Resource Site No.: 137

The results of the analysis found in Volume 3 and the resource site-specific evaluation, are presented in the following maps:

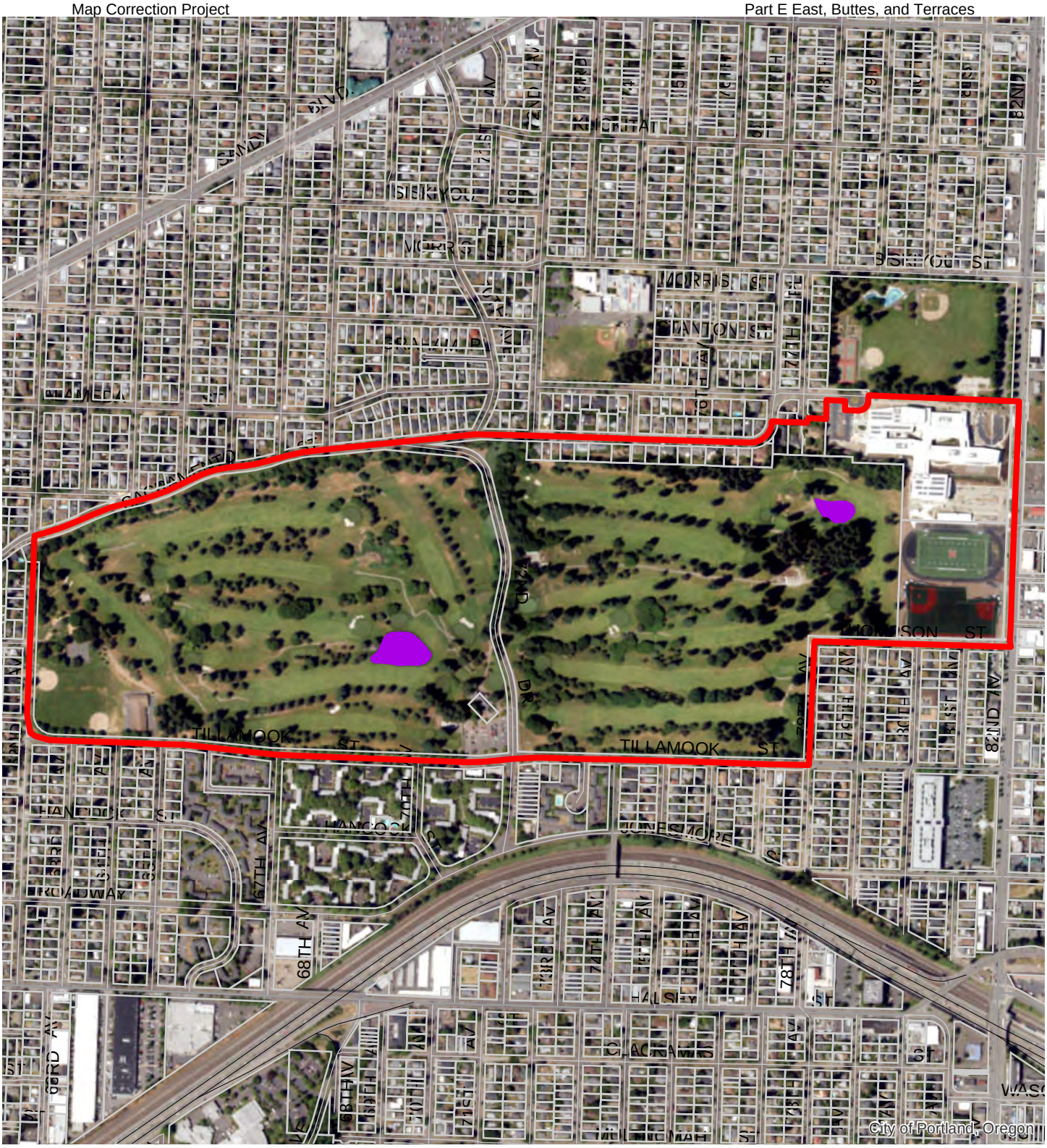
A. Water Features – rivers, streams, wetlands and flood areas
B. Land Features – forest, woodland, shrubland and herbaceous vegetation, steep slopes
C. Special Habitat Areas
D. Riparian Corridor Classifications
E. Wildlife Habitat Classifications
F. Urban Development Value
G. Metro Title 13 Habitat Conservation Areas
H. Statewide Planning Goal 5 Areas
I. Recommended Natural Resource Protections

Following the maps, additional information about existing natural resource features and functions in the resource site is presented.

Implementation of the results is found in Volume 1, Part B, updates to zoning maps and zoning code.

Resource site EB8 includes the following:

Site (acres)	186.9
Base zone (acres)	
CE	0.0
OS	159.9
R2.5	1.2
R5	25.6
RM1	0.2



Map A: Water Features

Resource Site: EB8

Updated: May 2022

Resource Sites
Urban Service Boundary
Taxlots
Wetlands
Rivers
Open stream channel
Piped Stream Segment
Flood Area

NORTH

0 385 770 Feet

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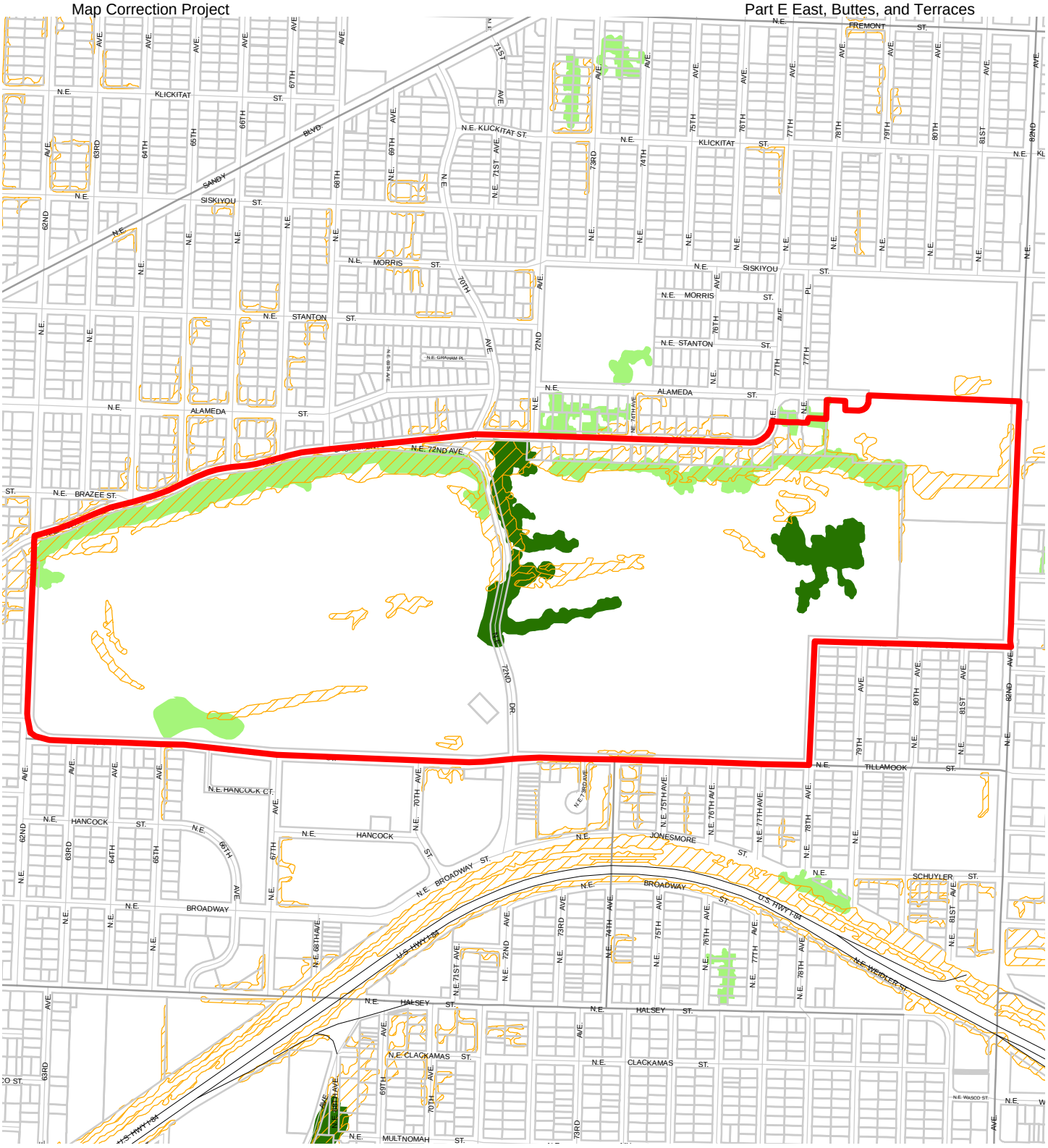

Map B: Vegetation and Steep Slopes

Resource Site: EB8

Updated: May 2022

NORTH

0 500 1,000 Feet

- Resource Sites
- Urban Service Boundary
- Taxlots
- Forest
- Woodland
- Shrubland
- Herbaceous

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Map C: Special Habitat Areas

Resource Site: EB8

Updated: May 2022

NORTH

0 500 1,000 Feet

- Resource Sites
- Special Habitat Areas (SHAs)
- Open Stream Channel
- Piped Stream Segment
- Parks
- Schools
- Urban Service Boundary
- Taxlots

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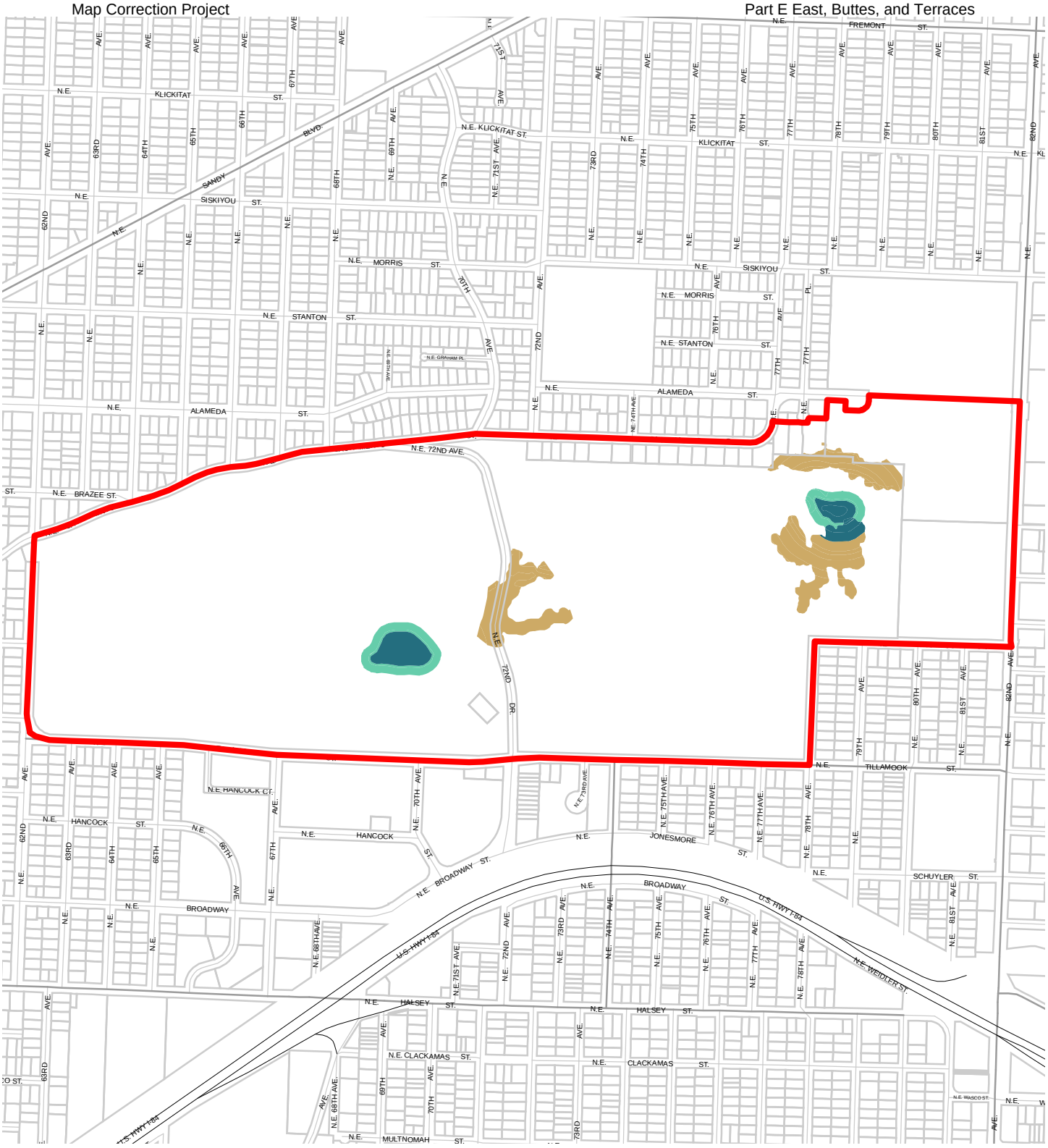

Map D: Riparian Corridors Habitat Classification

Resource Site: EB8

Updated: May 2022

- Class I (high rank)
- Class II (medium rank)
- Class III (low rank)
- Resource Sites
- Urban Service Boundary
- Taxlots

NORTH

0 385 770 Feet

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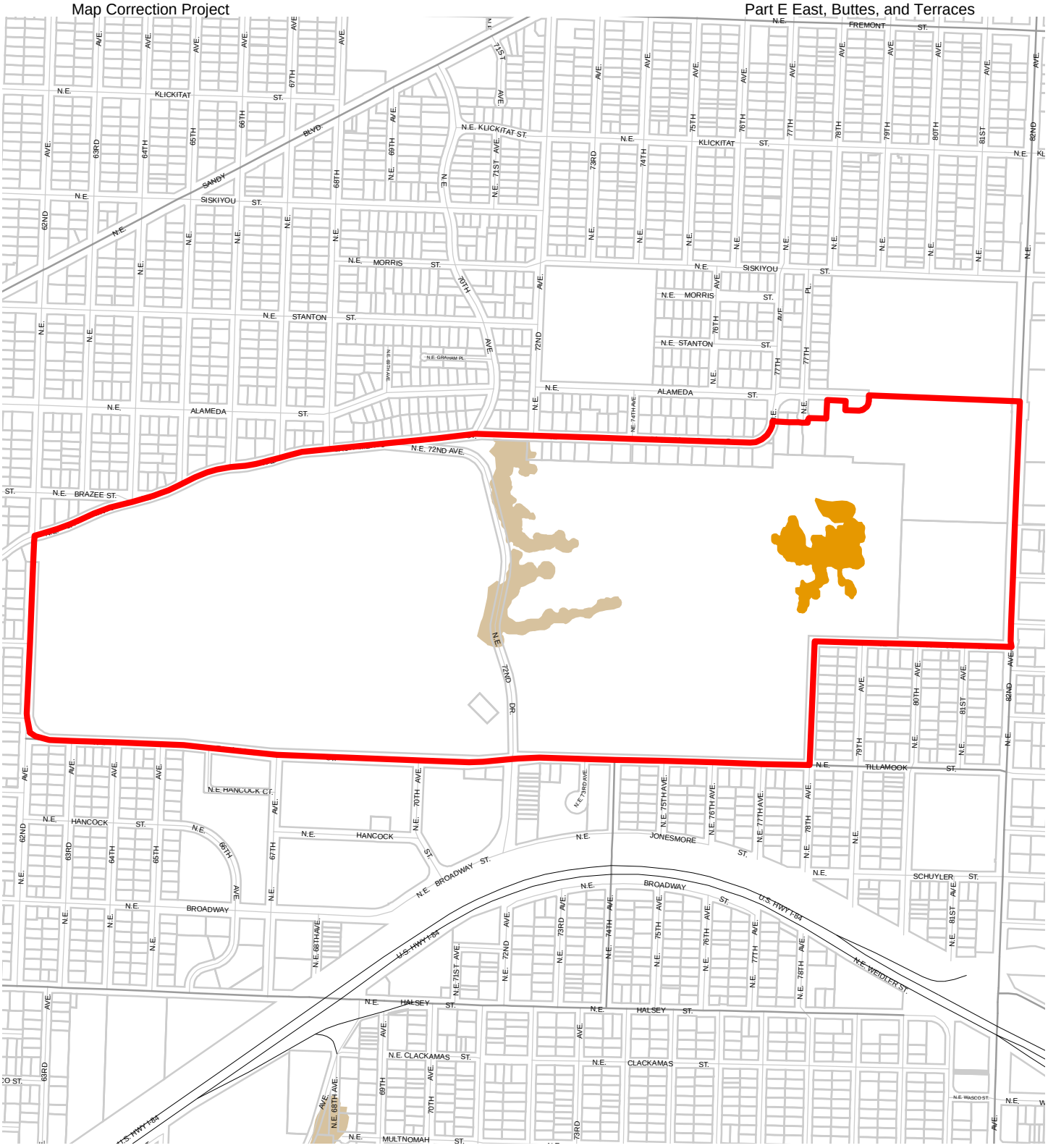

Map E: Wildlife Habitat Classification

Resource Site: EB8

Updated: May 2022

NORTH

0 312.5625 Feet

- Resource Sites
- Class A (high rank)
- Class B (medium rank)
- Class C (low rank)
- Urban Service Boundary
- Taxlots

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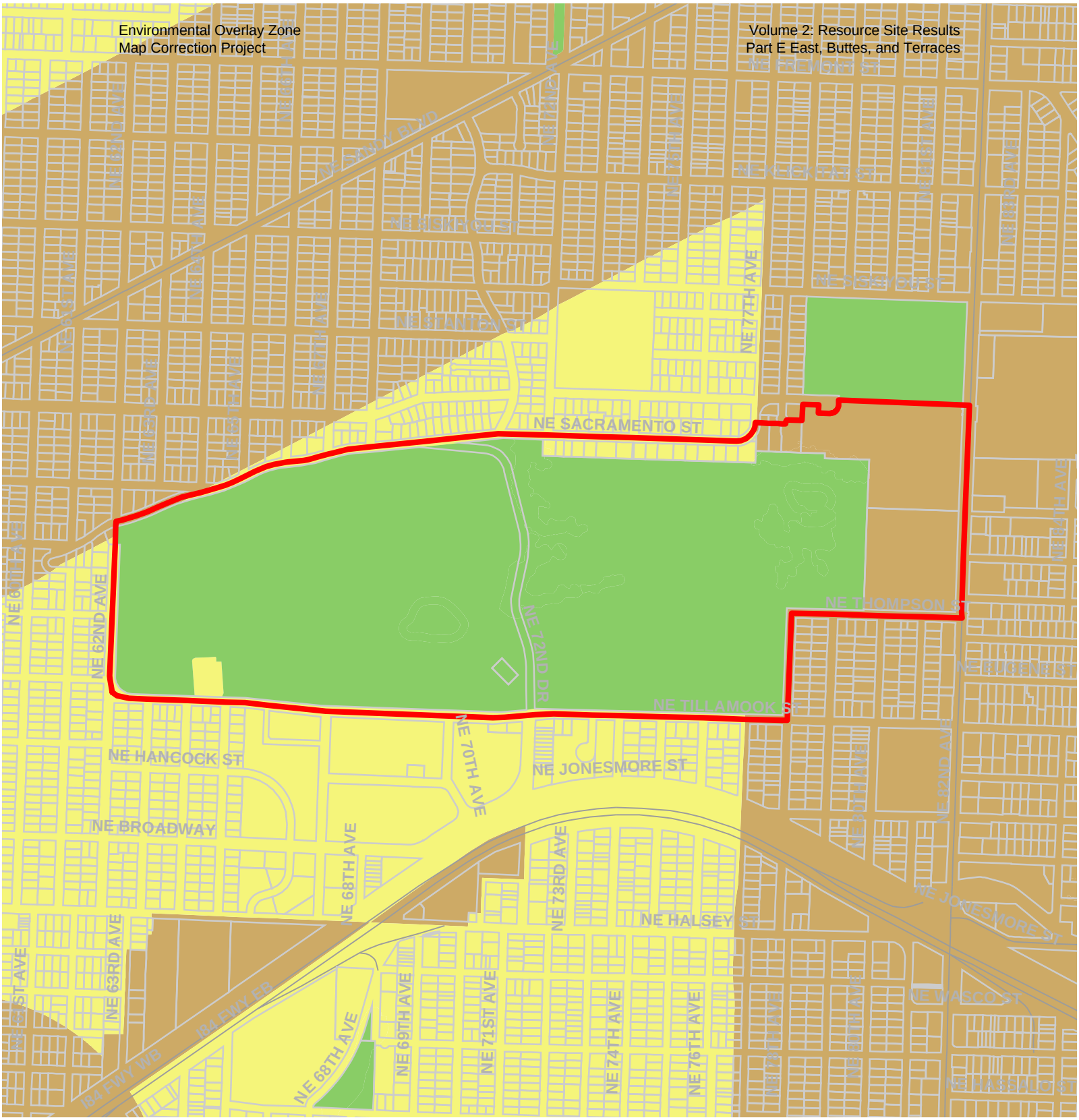

Map F: Urban Development Value (Title 13)
Resource Site: EB8

- Urban Service Boundary
- Resource Sites
- High Development Value
- Medium Development Value
- Low Development Value
- Parks

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Updated: July 2021

NORTH

0 500 1,000 Feet

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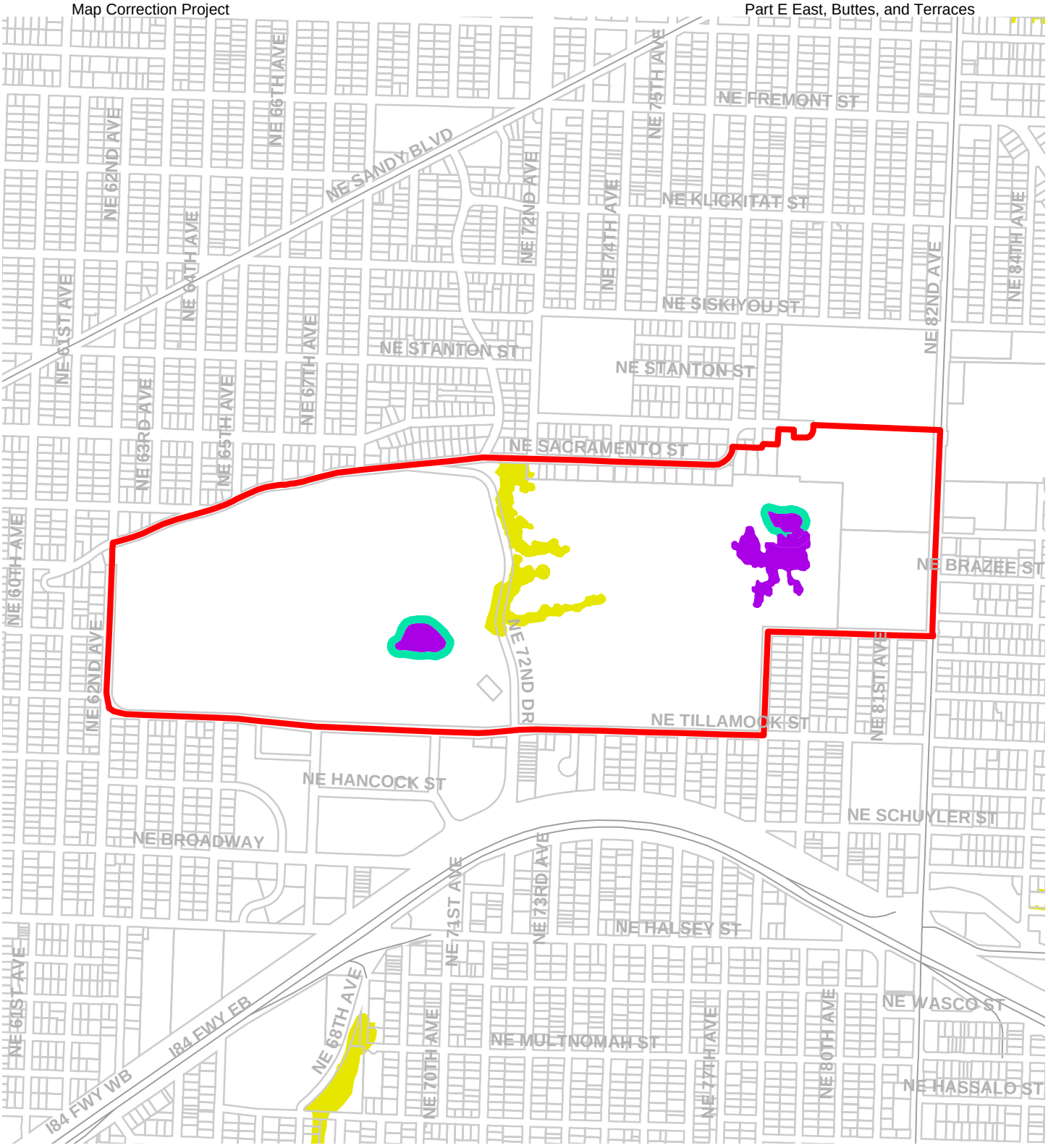

Map G: Title 13 Habitat Conservation Areas (HCA) and Goal 5 Areas

Resource Site: EB8

Updated: May 2022

NORTH

0 600 1,200 Feet

- Urban Service Boundary
- Resource Sites
- HCA High Value
- HCA Moderate Value
- HCA Low Value
- Goal 5 Significant Natural Resources

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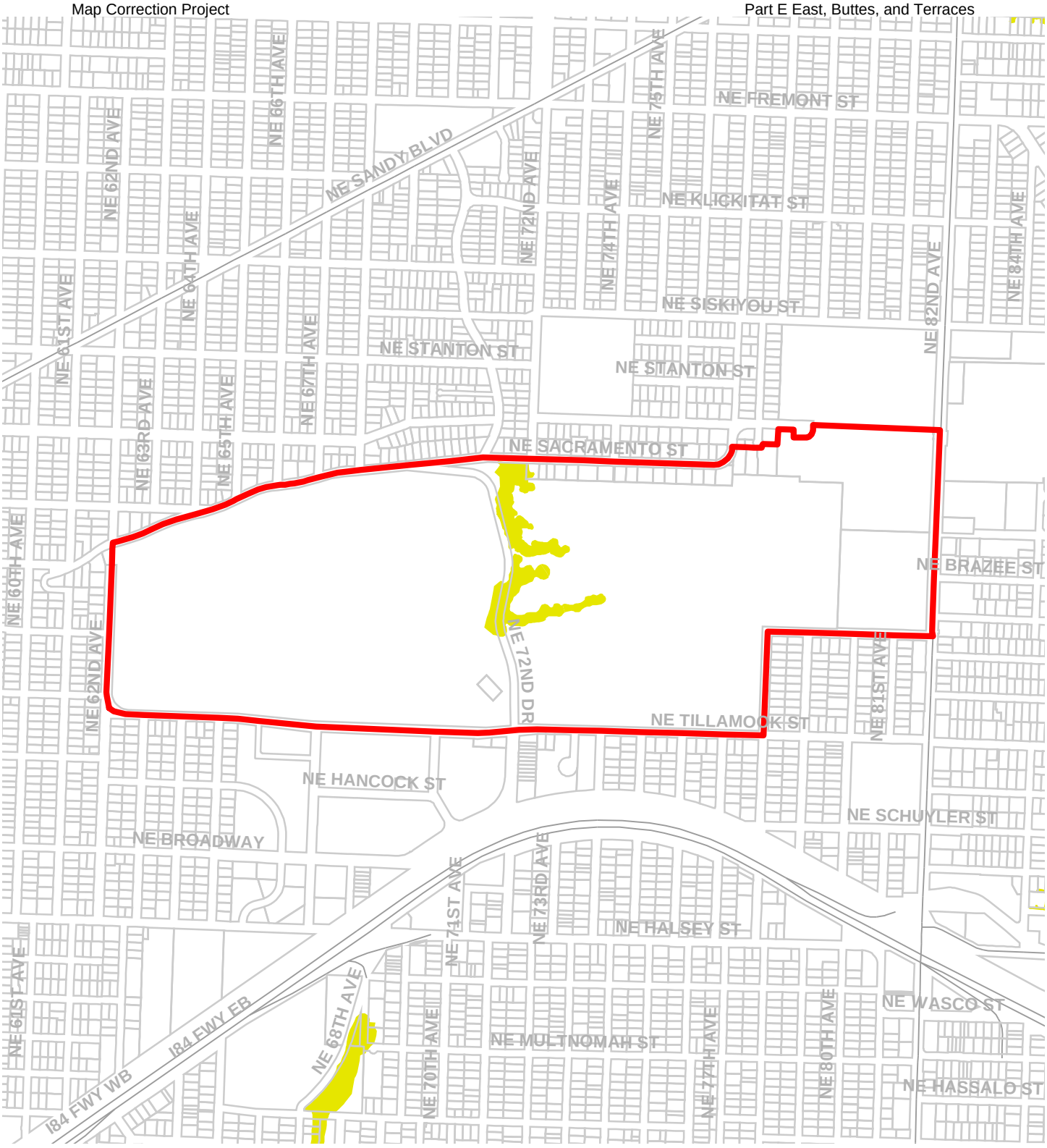

Map H: Goal 5 Resources

Resource Site: EB8

Updated: May 2022

NORTH

0 600 1,200 Feet

Recommended Draft - As Amended

- Urban Service Boundary
- Resource Sites
- Goal 5 Significant Natural Resources

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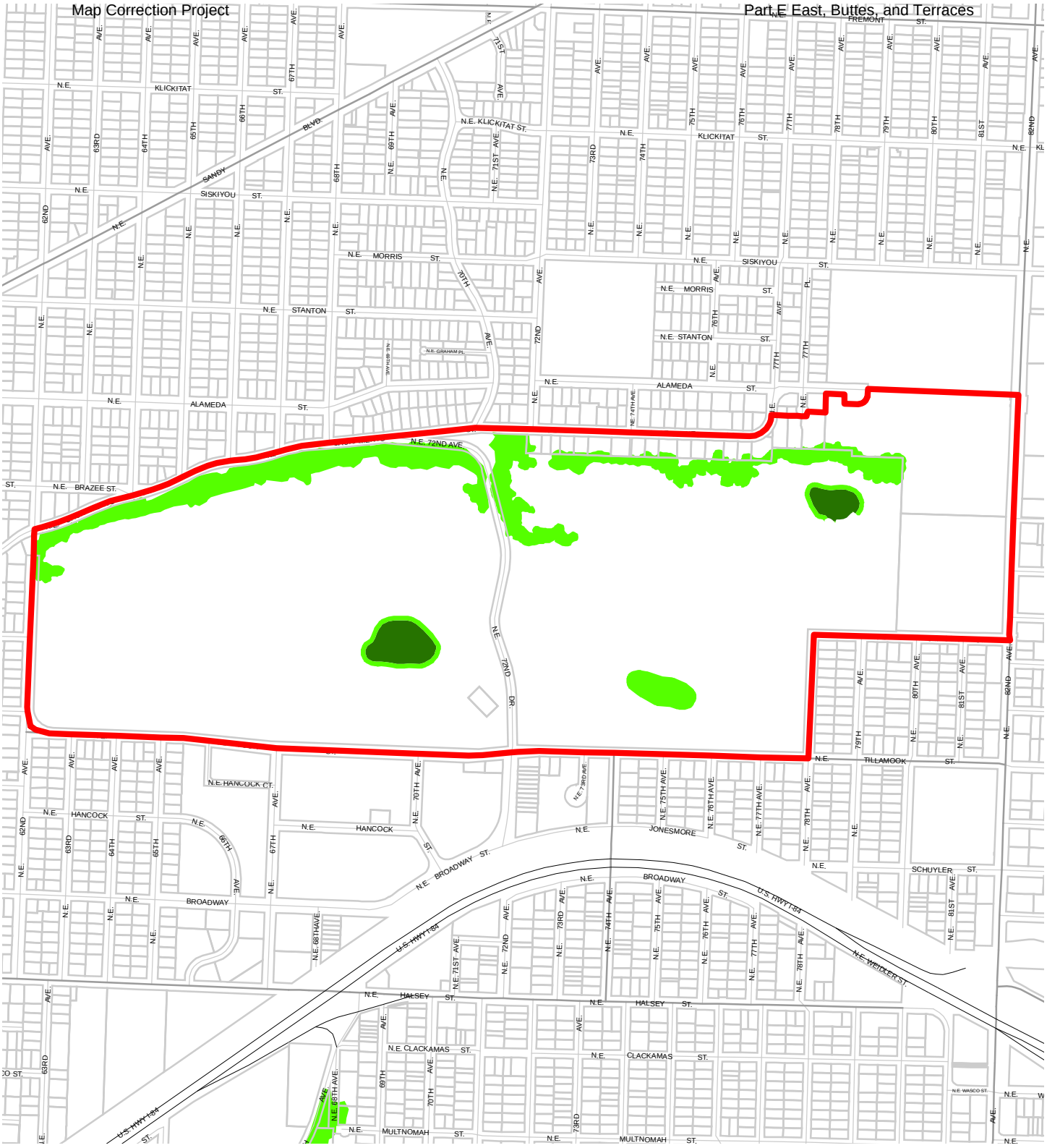
May 2022



Map I: DRAFT Proposed Environmental Overlay Zones

Resource Site:

EB8

Updated: May 2022

Resource Sites
Open Stream Channel
Piped Stream Segment
Proposed Conservation Zone
Proposed Protection Zone
Urban Service Boundary
Taxlots

NORTH

0 420 840 Feet

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Natural Resource Description

Within resource site EB8 the following significant natural resource features and functions are present:

Significant Riparian Corridor Features: None

Significant Wildlife Habitat Features: forest patches, and associated and contiguous wetlands, two acres in size or larger.

Special Habitat Areas: None

Riparian Corridor Functions: None

Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status fish and wildlife species.

Table A: Quantity of Natural Resource Features in Resource Site EB8	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	1.5
Vegetated Areas >= 1/2 acre (acres)	
Forest (acres)	8.2
Woodland (acres)	13.1
Shrubland (acres)	0.0
Herbaceous (acres)	0.0
Flood Area*	
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	22.9
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are areas with a slope greater than 25%.	

This site is located in northeast Portland, between NE 62nd and NE 80th Avenues. The golf course is situated in a natural depression that extends from the base of Rocky Butte toward the Willamette River. Geographical evidence suggests that this U-shaped depression is a Columbia River outwash channel.

Along the northern boundary of the channel is a forested bluff that rises toward the Alameda Ridge area. The golf course is bordered by residential areas on three sides, with Rose City Park at its western end. Madison High School is located at the northeastern corner of the site.

The site is developed primarily for recreational use, with manicured fairways, trails and paved roads. Three wetlands (ponds) are present: two are located at the northeastern end of the site near Madison High School, the other is on the southeastern side of the site, near the third hole.

The resource site is 150 acres in area. The golf course encompasses about 80 percent of this area, with fairways, trails and paved paths, and a club house. The city's Scenic Resource Inventory identifies a scenic viewpoint along the top of the bluff at the northern boundary of the site.

The site's vegetation is cultivated extensively for recreational use, although some non-cultivated areas are present on the northern slopes. The dominant tree species are Douglas fir and bigleaf maple. Other trees include western red cedar, black cottonwood, giant sequoia, European hawthorn, plum, pine, oak, and empress tree. Most of these trees, particularly the exotic species, are scattered in groves or rows between fairways. The shrub layer (located primarily along the northern bluf0 consists of Oregon grape, western hazel, serviceberry, mock orange, oceanspray, Himalayan blackberry and Scot's broom. Herbaceous flora include poison oak, dewberry, Queen Anne's lace, bracken fern, fennel, St. John's wort, nightshade and morning glory.

Special status bird species observed within or adjacent to this resource site include bald eagle, black-throated gray warbler, brown creeper, bufflehead, Bullock’s oriole, bushtit, common nighthawk, common yellowthroat, downy woodpecker, great blue heron, Hammond’s flycatcher, hooded merganser, merlin, Nashville warbler, northern harrier, olive-sided flycatcher, orange-crowned warbler, pacific-slope flycatcher, pacific wren, pileated woodpecker, purple finch, red crossbill, rufous hummingbird, Swainson’s thrush, varied thrush, Vaux’s swift, western wood-pewee, white-breasted nuthatch, willow flycatcher, and Wilson’s warbler.

Table B: Quality of Natural Resource Functions in Resource Site EB8				
Resource Site (acres) = 187				
	Class 1/A	**Class 2/B**	**Class 3/C**	**Total**
Riparian Corridors*				
acres	1.9	1.8	6.5	10.3
percent total inventory site area	1.0%	1.0%	3.5%	5.5%
Wildlife Habitat*				
acres	0.0	3.4	5.3	8.6
percent total inventory site area	0.0%	1.8%	2.8%	4.6%
Special Habitat Areas**				
acres	0.0			
percent total inventory site area	0.0%			
Combined Total+				
acres	1.9	4.3	7.0	13.2
percent total inventory site area	1.0%	2.3%	3.7%	7.1%

* Class I riparian resources, Special Habitat Areas, and wildlife habitat include open water.
** Metro Title 13 designated all Special Habitat Areas as Class I riparian corridors.
+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Stormwater runs off impervious surfaces (e.g. rooftops, driveways, parking lots, streets) rapidly. , Without a place to retain the water (such as wetlands or adequate stormwater facilities), stormwater runoff results which can cause or exacerbate flooding and increase stream erosion. In addition, when water runs off quickly, it does not have a chance to infiltrate and recharge streams or aquifers to provide water during drier periods.

The type and capacity of stormwater facilities to manage the runoff from impervious surfaces varies in the city, affecting the local rate and amount of runoff, and the amount of pollutants in the water. Much of the city was developed prior to any stormwater regulations and receives limited or no management prior to discharging to pipes and surface waters.

Table C shows the total amount of impervious area within the resource site and how much of that impervious area does not receive management; the percentage of total impervious area that is not managed is called "effective impervious area." The higher the percent of effective impervious area in a watershed, the greater the negative impacts of stormwater runoff to streams. Stream science indicates that when effective impervious area reaches 10% of a watershed, negative stream impacts become significant; and at 25%, these impacts on waterways can be substantial. An additional consideration is the differences in soil conditions

and other factors that influence the ability of pervious areas to retain, infiltrate or filter pollutants from stormwater. For example, a mature forest is much more effective in managing stormwater than a manicured lawn; both areas would have a lower effective impervious surface percentage than a developed site, but they have different outcomes for stormwater management.

For Resource Area EB8, 2% of the total area is effectively impervious. This indicates a significant degree of stormwater management and/or existing natural resources that should be preserved. Areas with very low impervious cover significant degree of stormwater management and/or are more likely to be functioning properly to support biologic systems.

Table C. Impervious Area within Resource Site EB8

Total area (acres)	Total impervious Area (acres)	Total unmanaged impervious area* (acres)	Percent of resource site that is effectively impervious
187	17	3	2%

*Total unmanaged impervious area refers to the number of acres within a resource area that receives no formal stormwater management measures to regulate flow or treat pollutants before they reach surface waters, also referred to as effective impervious area.

Metro Title 13 and Oregon Goal 5 Compliance

The following information supplements evaluation of natural resource protections presented in Volume 3 and supports compliance with Metro Title 13 and Oregon Plan Goal 5.

Title 13 Habitat Conservation Areas

Map G presents the Habitat Conservation Areas (HCA) within the resource site EB8. Natural resources should be protected within HCA as follows:

1. *Strictly limit* or *limit* conflicting uses within Class I/High Rank Riparian Areas in all Urban Development Areas.
2. *Strictly limit* or *limit* conflicting uses within Class II/Medium Rank Riparian Areas within Moderate and Low Value Urban Development Area as well as parks and open spaces.
3. *Strictly limit* or *limit* conflicting uses within Class A/High or B/Medium Rank Wildlife Habitat within parks and open spaces.
4. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class III/Low Rank Riparian Areas in all Urban Development Areas.

5. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class A/High, Class B/Medium or Class C/Low Rank Wildlife Habitat in all Urban Development Area, expect parks and open space.

Strictly limiting or *limiting* conflicting uses in HCA will protect and conserve existing streams and wetlands to maintain significant natural resource functions including: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and fish and wildlife habitat. *Strictly limiting* or *limiting* conflicting uses in HCA will allow for additional urban development that is sensitive to the natural resource features and requires mitigation for unavoidable negative impacts to features and functions. The recommendation will also contribute towards meeting other regulatory requirements including the Metro Title 3, Water Quality and Flood Management; Oregon Goal 6, Air, Water and Land Resources Quality; Oregon Goal 7, Areas Subject to Natural Hazards; the Clean Water Act; and the Endangered Species Act.

Goal 5 Significant Natural Resources

Resource site EB8 contains natural resource features that are not a Title 13 HCA and are therefore subject to Statewide Planning Goal 5 OAR 660-023-0110. The General ESEE analysis, Volume 3, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

The common impacts of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; adding impervious surface; modifying streams, wetlands and flood areas; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R5 base zones. Open space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

The analysis of economic, social, environmental and energy consequences provided in Volume 3 is confirmed for resource site EB8, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses would retain the wildlife habitat functions provided by significant natural resource features including maintaining habitat for at risk plant, fish and wildlife species, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of Class A or Class B wildlife habitat should be required.

Natural Resources Protection Decisions

Based on the analysis presented in Volume 3 and the resource site-specific evaluation for EB8, the following decisions are applied to protect the significant riparian corridors and wildlife habitat:

1. Apply a protection overlay zone (p zone) to wetlands and streams from top-of-bank to top-of-bank, and to land within 25 feet of wetlands and land within 25 feet of streams.
2. Apply a conservation overlay zone (c zone) to land between 25 and 50 feet of wetlands and the top-of-bank of streams.
3. Apply a conservation overlay zone (c zone) within areas of forest or woodland vegetation located along the northern boundary of the Rose City Golf Course, including vegetation on steep slopes.
4. Allow conflicting uses within all other areas containing significant natural resources.

Resource Site No.: EB9 **Resource Site Name:** Rosemont Bluff

Previous Plan: East Butte, Terraces & Wetlands Plan
Previous Resource Site No.: 133

The results of the analysis found in Volume 3 and the resource site-specific evaluation, are presented in the following maps:

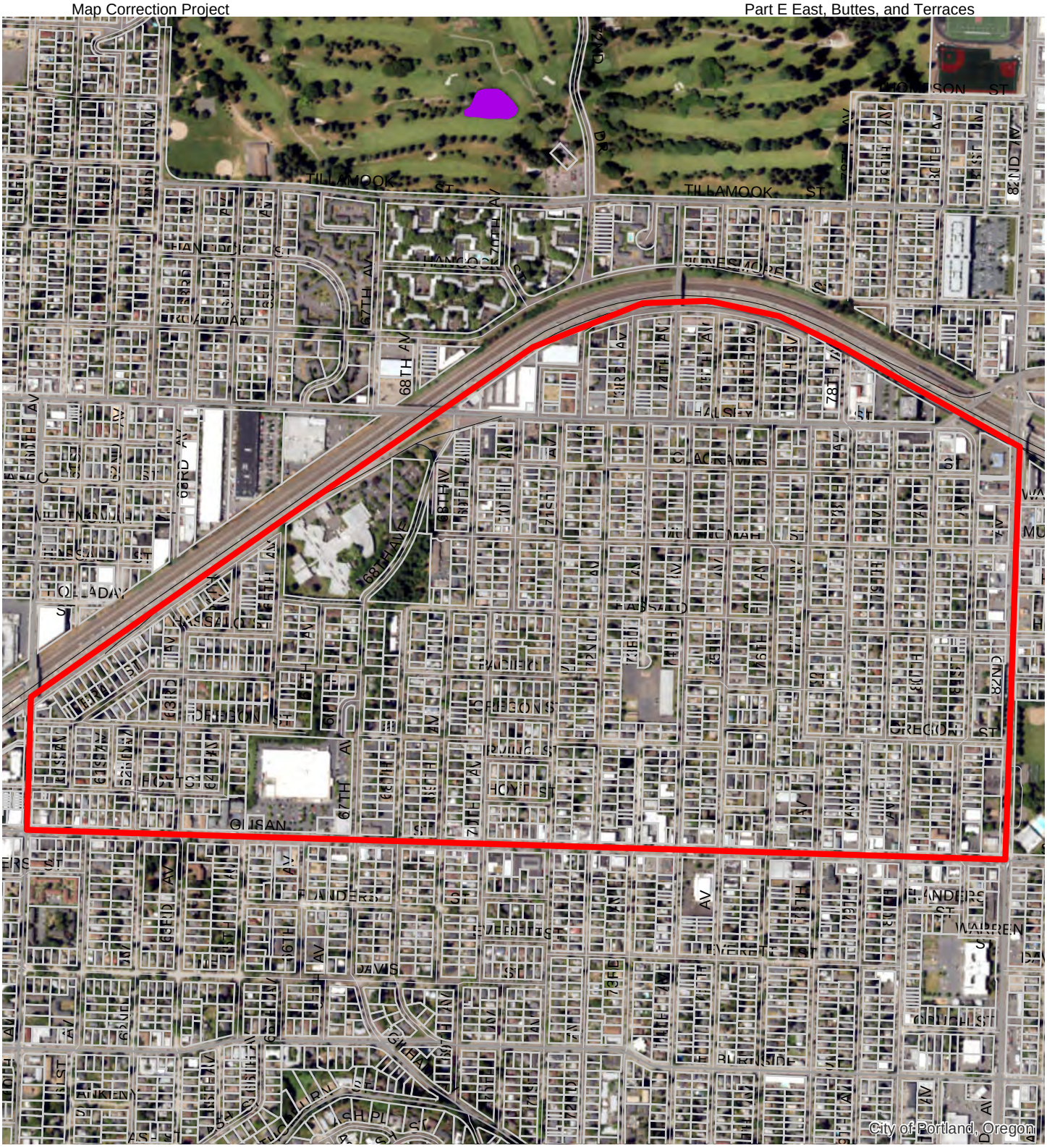
A. Water Features – rivers, streams, wetlands and flood areas
B. Land Features – forest, woodland, shrubland and herbaceous vegetation, steep slopes
C. Special Habitat Areas
D. Riparian Corridor Classifications
E. Wildlife Habitat Classifications
F. Urban Development Value
G. Metro Title 13 Habitat Conservation Areas
H. Statewide Planning Goal 5 Areas
I. Recommended Natural Resource Protections

Following the maps, additional information about existing natural resource features and functions in the resource site is presented.

Implementation of the results is found in Volume 1, Part B, updates to zoning maps and zoning code.

Resource site EB9 includes the following:

Site (acres)	341.0
Base zones (acres)	
CE	17.0
CM1	0.9
CM2	27.4
EG1	11.0
EG2	4.3
OS	2.9
R2.5	37.4
R5	150.1
RM1	38.4
RM2	51.6
RM4	0.1



Map A: Water Features

Resource Site: EB9

Updated: May 2022

Resource Sites
Urban Service Boundary
Taxlots
Wetlands
Rivers
Open stream channel
Piped Stream Segment
Flood Area

NORTH

0 435 870 Feet

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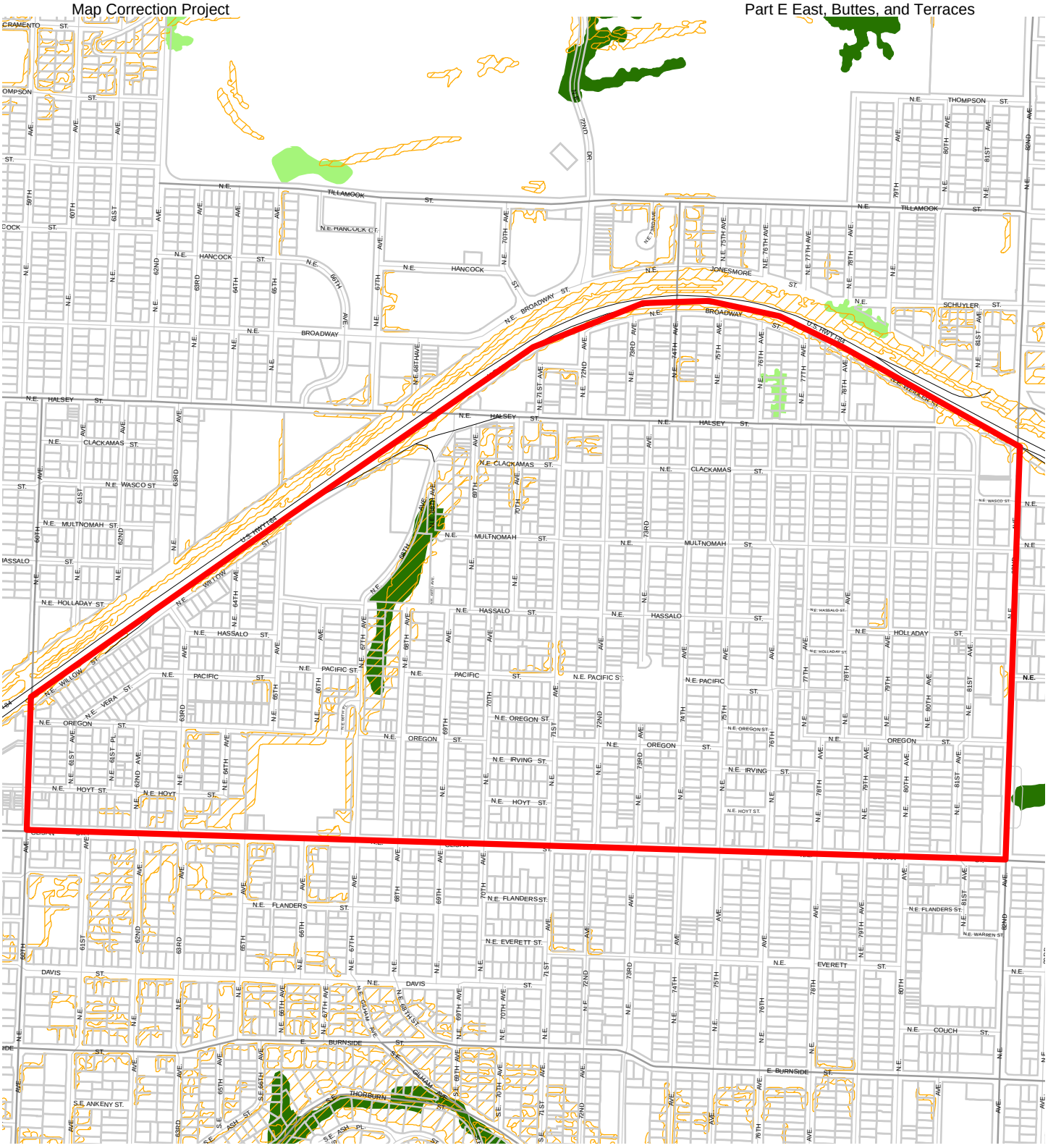

Map B: Vegetation and Steep Slopes

Resource Site: EB9

Updated: May 2022

NORTH

0 550 1,100 Feet

- Resource Sites
- Urban Service Boundary
- Taxlots
- Forest
- Woodland
- Shrubland
- Herbaceous

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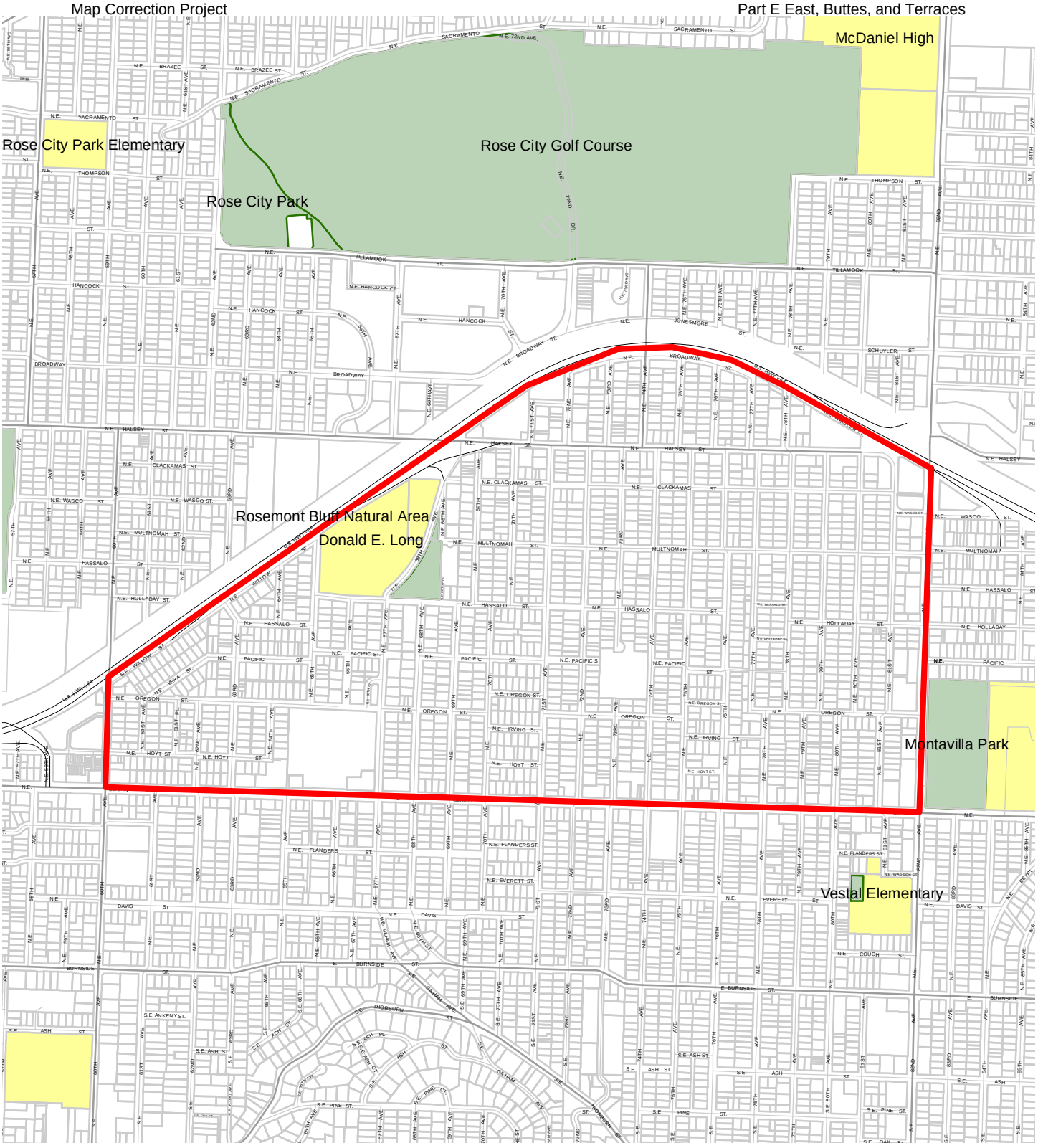

Map C: Special Habitat Areas

Resource Site: EB9

Updated: May 2022

NORTH

0 500 1,000 Feet

Resource Sites

Special Habitat Areas (SHAs)

Open Stream Channel

Piped Stream Segment

Parks

Schools

Urban Service Boundary

Taxlots

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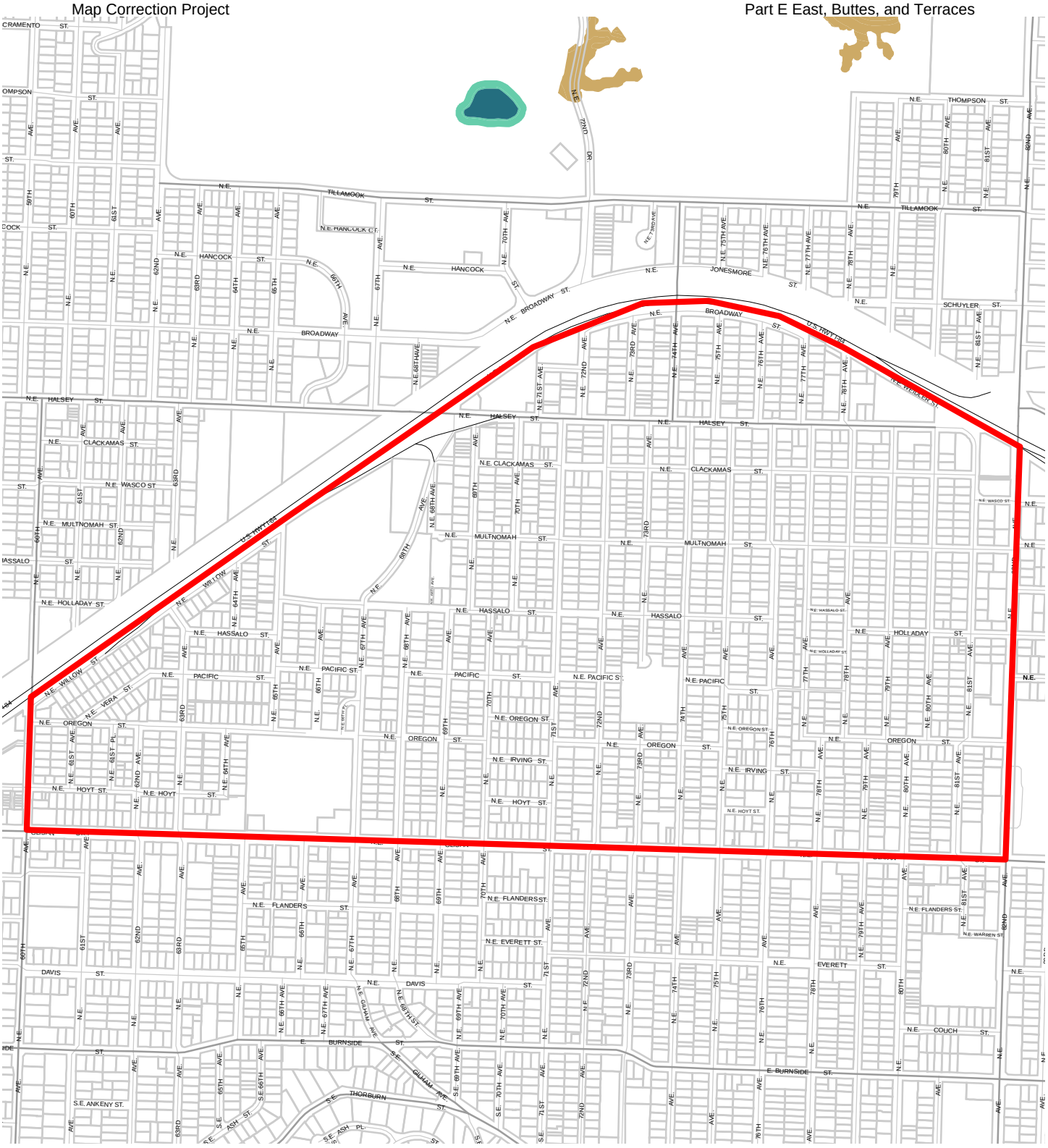

Map D: Riparian Corridors Habitat Classification

Resource Site: EB9

Updated: May 2022

Class I (high rank)

Class II (medium rank)

Class III (low rank)

Resource Sites

Urban Service Boundary

Taxlots

NORTH

0 435 870 Feet

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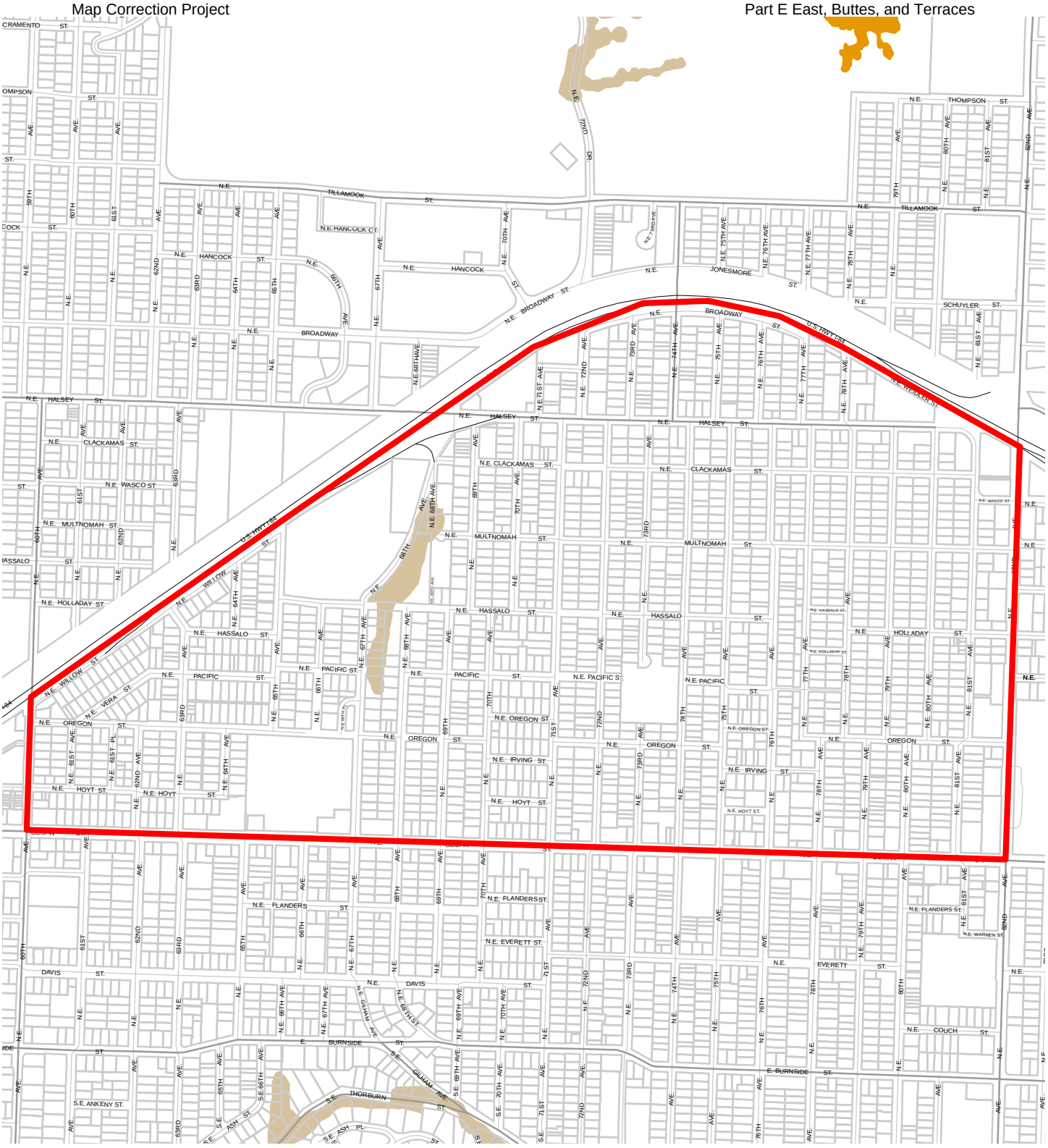

Map E: Wildlife Habitat Classification

Resource Site: EB9

Updated: May 2022

NORTH

0 355 710 Feet

- Resource Sites
- Class A (high rank)
- Class B (medium rank)
- Class C (low rank)
- Urban Service Boundary
- Taxlots

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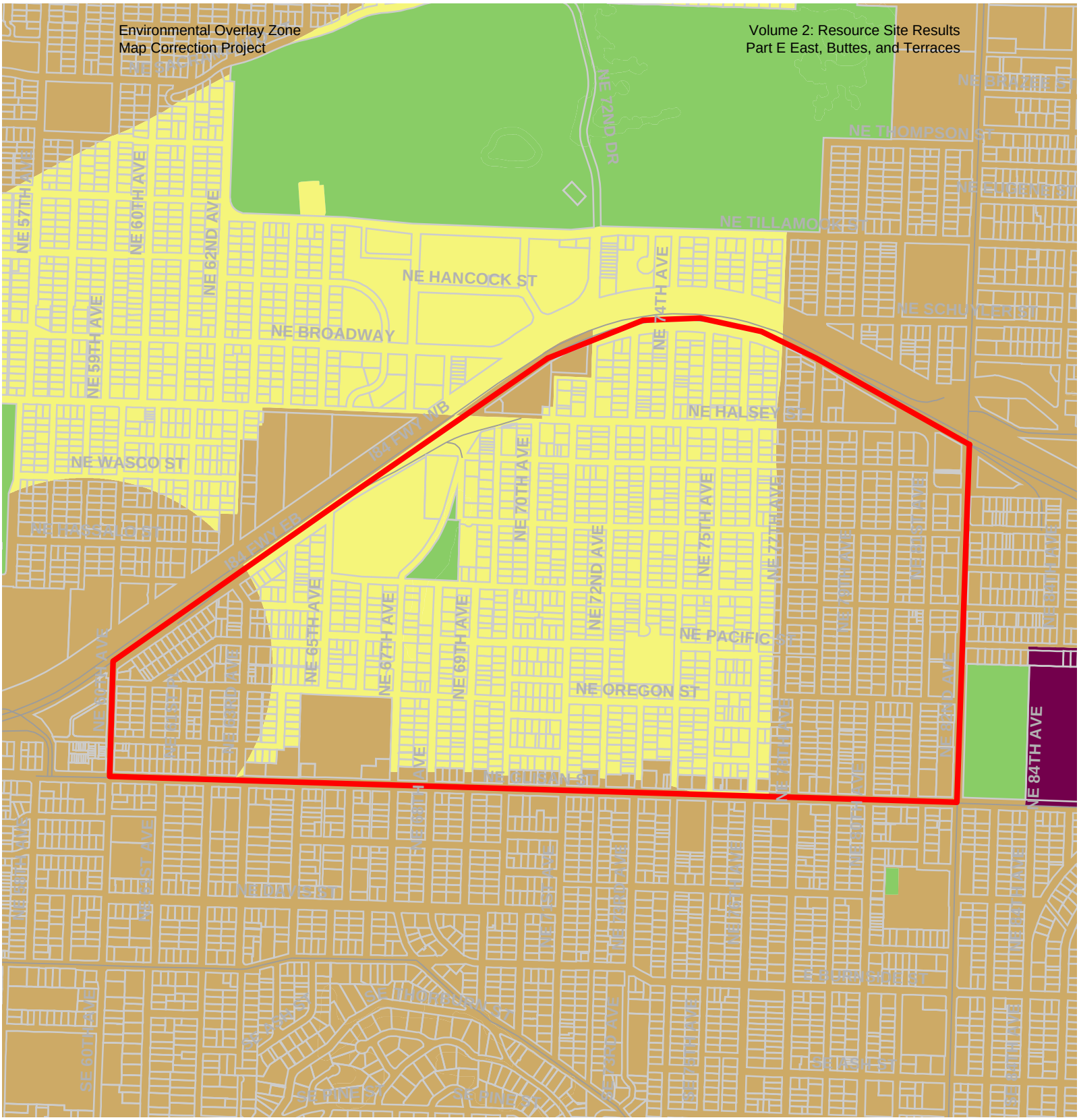

Map F: Urban Development Value (Title 13)
Resource Site: EB9

- Urban Service Boundary
- Resource Sites
- High Development Value
- Medium Development Value
- Low Development Value
- Parks

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Updated: July 2021

NORTH

0 600 1,200 Feet

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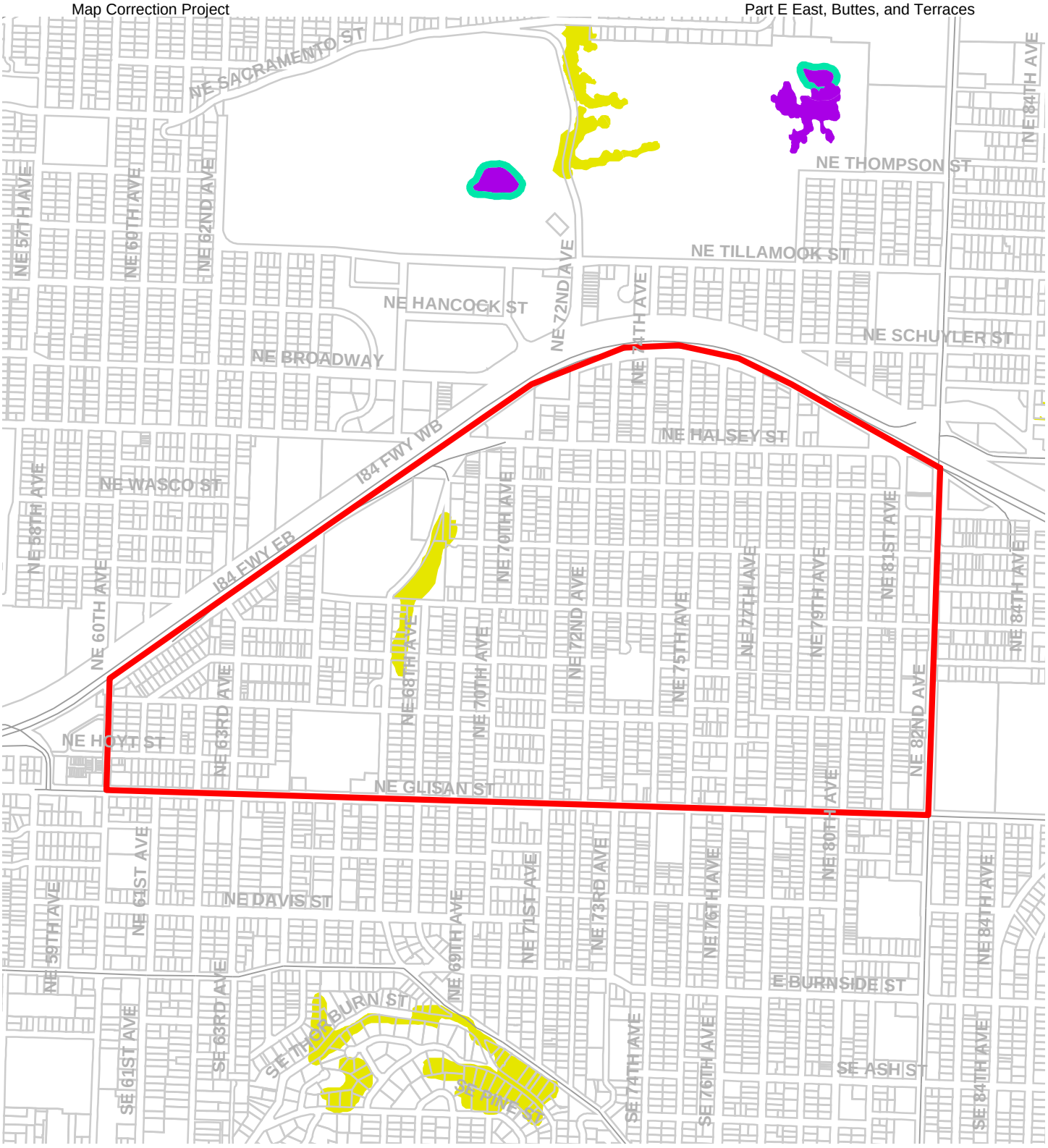

Map G: Title 13 Habitat Conservation Areas (HCA) and Goal 5 Areas

Resource Site: EB9

Updated: May 2022

NORTH

0 650 1,300 Feet

- Urban Service Boundary
- Resource Sites
- HCA High Value
- HCA Moderate Value
- HCA Low Value
- Goal 5 Significant Natural Resources

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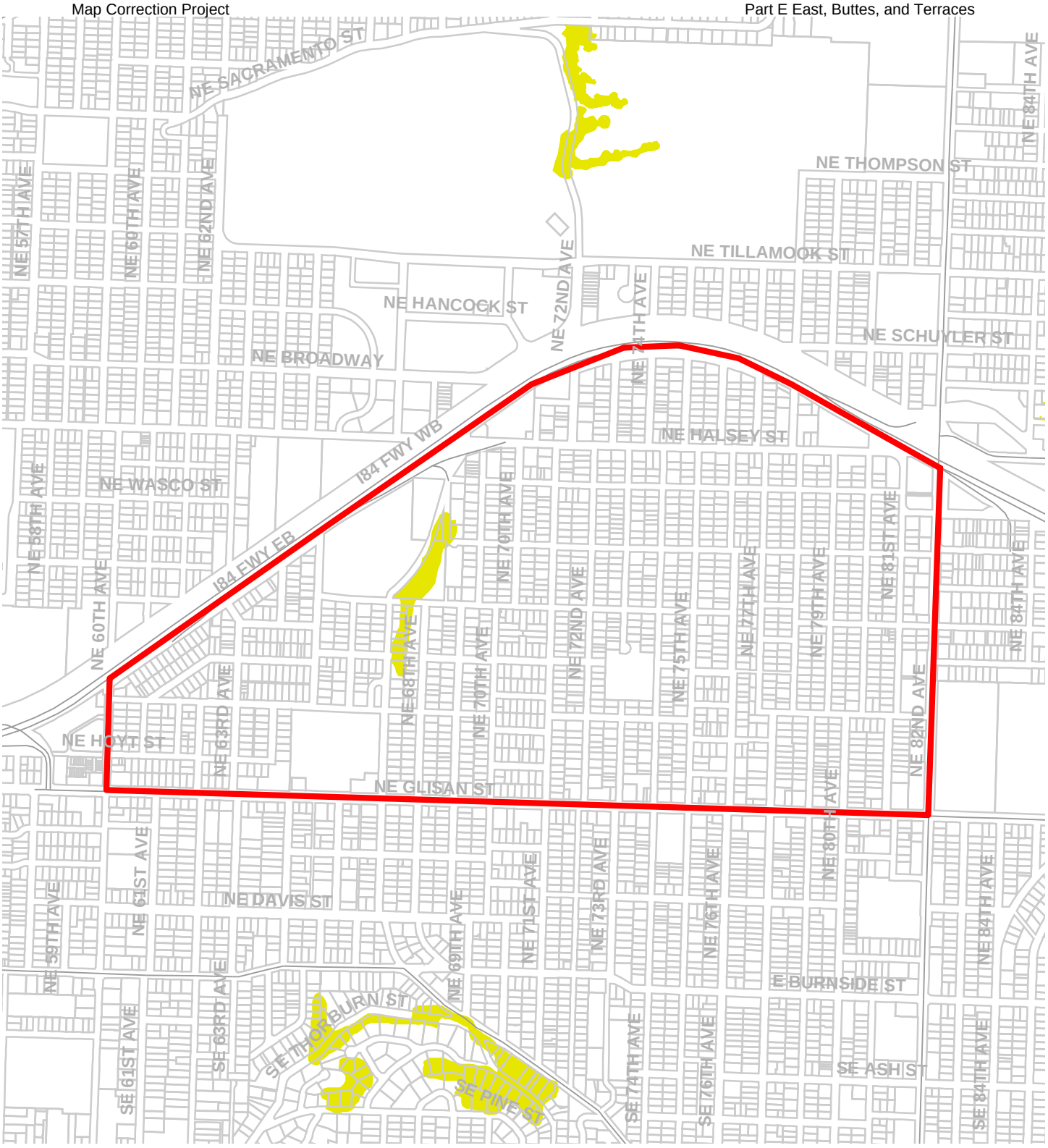

Map H: Goal 5 Resources

Resource Site: EB9

Updated: May 2022

NORTH

0 650 1,300 Feet

Urban Service Boundary

Resource Sites

Goal 5 Significant Natural Resources

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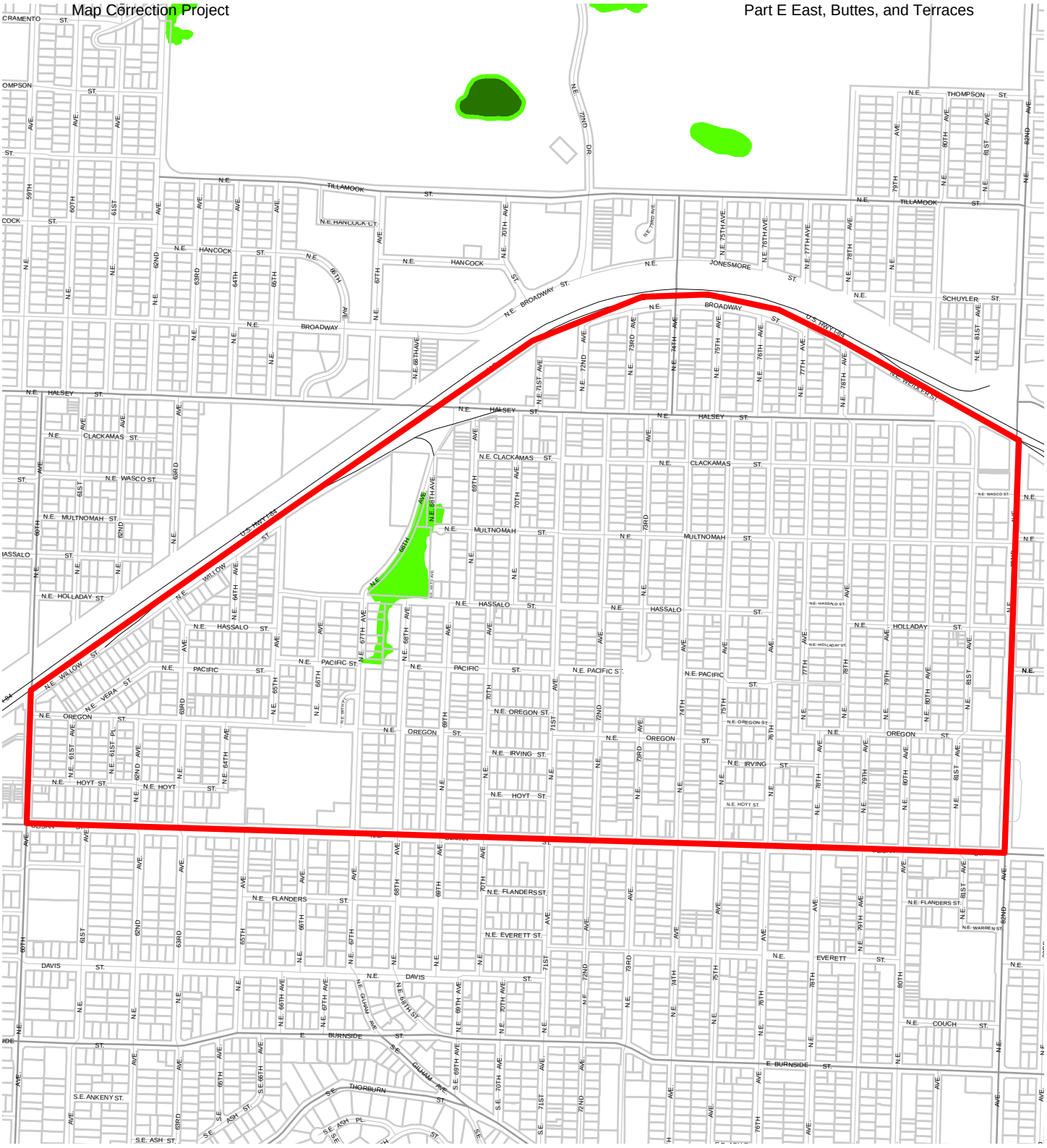

Map I: DRAFT Proposed Environmental Overlay Zones

Resource Site: EB9

Updated: May 2022

Resource Sites
Open Stream Channel
Piped Stream Segment
Proposed Conservation Zone
Proposed Protection Zone
Urban Service Boundary
Taxlots

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NORTH

0 475 950 Feet

Natural Resource Description

Within resource site EB9 the following significant natural resource features and functions are present:

Significant Riparian Corridor Features: None

Significant Wildlife Habitat Features: forest patches, and associated and contiguous wetlands, two acres in size or larger.

Special Habitat Areas: None

Riparian Corridor Functions: None

Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status fish and wildlife species.

Table A: Quantity of Natural Resource Features in Resource Site EB9	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	
Forest (acres)	3.5
Woodland (acres)	0.6
Shrubland (acres)	0.0
Herbaceous (acres)	0.0
Flood Area*	
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	17.4
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are areas with a slope greater than 25%.	

This site includes Rosemount Bluff Natural Area. Special status bird species observed within or adjacent to this resource site include bald eagle, black-throated gray warbler, brown creeper, bufflehead, Bullock's oriole, bushtit, common nighthawk, common yellowthroat, downy woodpecker, great blue heron, Hammond's flycatcher, hooded merganser, merlin, Nashville warbler, olive-sided flycatcher, orange-crowned warbler, pacific-slope flycatcher, pacific wren,

pileated woodpecker, red crossbill, rufous hummingbird, Swainson's thrush, Vaux's swift, western wood-pewee, white-breasted nuthatch, willow flycatcher, and Wilson's warbler.

Table B: Quality of Natural Resource Functions in Resource Site EB9				
Resource Site (acres) = 341				
	Class 1/A	**Class 2/B**	**Class 3/C**	**Total**
Riparian Corridors*				
acres	0.0	0.0	0.0	0.0
percent total inventory site area	0.0%	0.0%	0.0%	0.0%
Wildlife Habitat*				
acres	0.0	0.0	3.5	3.5
percent total inventory site area	0.0%	0.0%	1.0%	1.0%
Special Habitat Areas**				
acres	0.0			
percent total inventory site area	0.0%			
Combined Total+				
acres	0.0	0.0	3.5	3.5
percent total inventory site area	0.0%	0.0%	1.0%	1.0%

* Class I riparian resources, Special Habitat Areas, and wildlife habitat include open water.
** Metro Title 13 designated all Special Habitat Areas as Class I riparian corridors.
+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Stormwater runs off impervious surfaces (e.g. rooftops, driveways, parking lots, streets) rapidly. , Without a place to retain the water (such as wetlands or adequate stormwater facilities), stormwater runoff results which can cause or exacerbate flooding and increase stream erosion. In addition, when water runs off quickly, it does not have a chance to infiltrate and recharge streams or aquifers to provide water during drier periods.

The type and capacity of stormwater facilities to manage the runoff from impervious surfaces varies in the city, affecting the local rate and amount of runoff, and the amount of pollutants in the water. Much of the city was developed prior to any stormwater regulations and receives limited or no management prior to discharging to pipes and surface waters.

Table C shows the total amount of impervious area within the resource site and how much of that impervious area does not receive management; the percentage of total impervious area that is not managed is called “effective impervious area.” The higher the percent of effective impervious area in a watershed, the greater the negative impacts of stormwater runoff to

streams. Stream science indicates that when effective impervious area reaches 10% of a watershed, negative stream impacts become significant; and at 25%, these impacts on waterways can be substantial. An additional consideration is the differences in soil conditions and other factors that influence the ability of pervious areas to retain, infiltrate or filter pollutants from stormwater. For example, a mature forest is much more effective in managing stormwater than a manicured lawn; both areas would have a lower effective impervious surface percentage than a developed site, but they have different outcomes for stormwater management.

For Resource Area EB9, 18% of the total area is effectively impervious, indicating a critical level of vulnerability, with negative impacts beginning to impact natural functions, but will some natural processes still in place and providing support to biologic systems.

Table C. Impervious Area within Resource Site EB9

Total area (acres)	Total impervious Area (acres)	Total unmanaged impervious area* (acres)	Percent of resource site that is effectively impervious
341	160	61	1 8%

*Total unmanaged impervious area refers to the number of acres within a resource area that receives no formal stormwater management measures to regulate flow or treat pollutants before they reach surface waters, also referred to as effective impervious area.

Metro Title 13 and Oregon Goal 5 Compliance

The following information supplements evaluation of natural resource protections presented in Volume 3 and supports compliance with Metro Title 13 and Oregon Plan Goal 5.

Title 13 Habitat Conservation Areas

Map G presents the Habitat Conservation Areas (HCA) within the resource site EB9. Natural resources should be protected within HCA as follows:

1. *Strictly limit* or *limit* conflicting uses within Class I/High Rank Riparian Areas in all Urban Development Areas.
2. *Strictly limit* or *limit* conflicting uses within Class II/Medium Rank Riparian Areas within Moderate and Low Value Urban Development Area as well as parks and open spaces.
3. *Strictly limit* or *limit* conflicting uses within Class A/High or B/Medium Rank Wildlife Habitat within parks and open spaces.
4. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class III/Low Rank Riparian Areas in all Urban Development Areas.

5. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class A/High, Class B/Medium or Class C/Low Rank Wildlife Habitat in all Urban Development Area, expect parks and open space.

Strictly limiting or *limiting* conflicting uses in HCA will protect and conserve existing streams and wetlands to maintain significant natural resource functions including: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and fish and wildlife habitat. *Strictly limiting* or *limiting* conflicting uses in HCA will allow for additional urban development that is sensitive to the natural resource features and requires mitigation for unavoidable negative impacts to features and functions. The recommendation will also contribute towards meeting other regulatory requirements including the Metro Title 3, Water Quality and Flood Management; Oregon Goal 6, Air, Water and Land Resources Quality; Oregon Goal 7, Areas Subject to Natural Hazards; the Clean Water Act; and the Endangered Species Act.

Goal 5 Significant Natural Resources

Resource site EB9 contains natural resource features that are not a Title 13 HCA and are therefore subject to Statewide Planning Goal 5 OAR 660-023-0110. The General ESEE analysis, Volume 3, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

The common impacts of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; adding impervious surface; modifying streams, wetlands and flood areas; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R5, R2.5, R2 and R1 base zones. Employment uses area allowed in the EG1 and EG2 base zones. Commercial uses are allowed in the CD, CI1, CM1 and CM2 base zones. Open Space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

The analysis of economic, social, environmental and energy consequences provided in Volume 3 is confirmed for resource site EB9, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses would retain the wildlife habitat functions provided by significant natural resource features including maintaining habitat for at risk plant, fish and wildlife species, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of Class A or Class B wildlife habitat should be required.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

Natural Resources Protection Decisions

Based on the analysis presented in Volume 3 and the resource site-specific evaluation for EB9, the following decisions are applied to protect the significant riparian corridors and wildlife habitat:

1. Apply a protection overlay zone (p zone) to wetlands and streams from top-of-bank to top-of-bank, and to land within 25 feet of wetlands and land within 25 feet of streams.
2. Apply a conservation overlay zone (c zone) to land between 25 and 50 feet of wetlands and the top-of-bank of streams.
3. Apply a conservation overlay zone (c zone) to areas of forest vegetation on steep slopes.
4. Allow conflicting uses within all other areas containing significant natural resources.

Resource Site No.: EB10 **Resource Site Name:** Mount Tabor

Previous Plan: East Butte, Terraces & Wetlands Plan
Previous Resource Site No.: 133

The results of the analysis found in Volume 3 and the resource site-specific evaluation, are presented in the following maps:

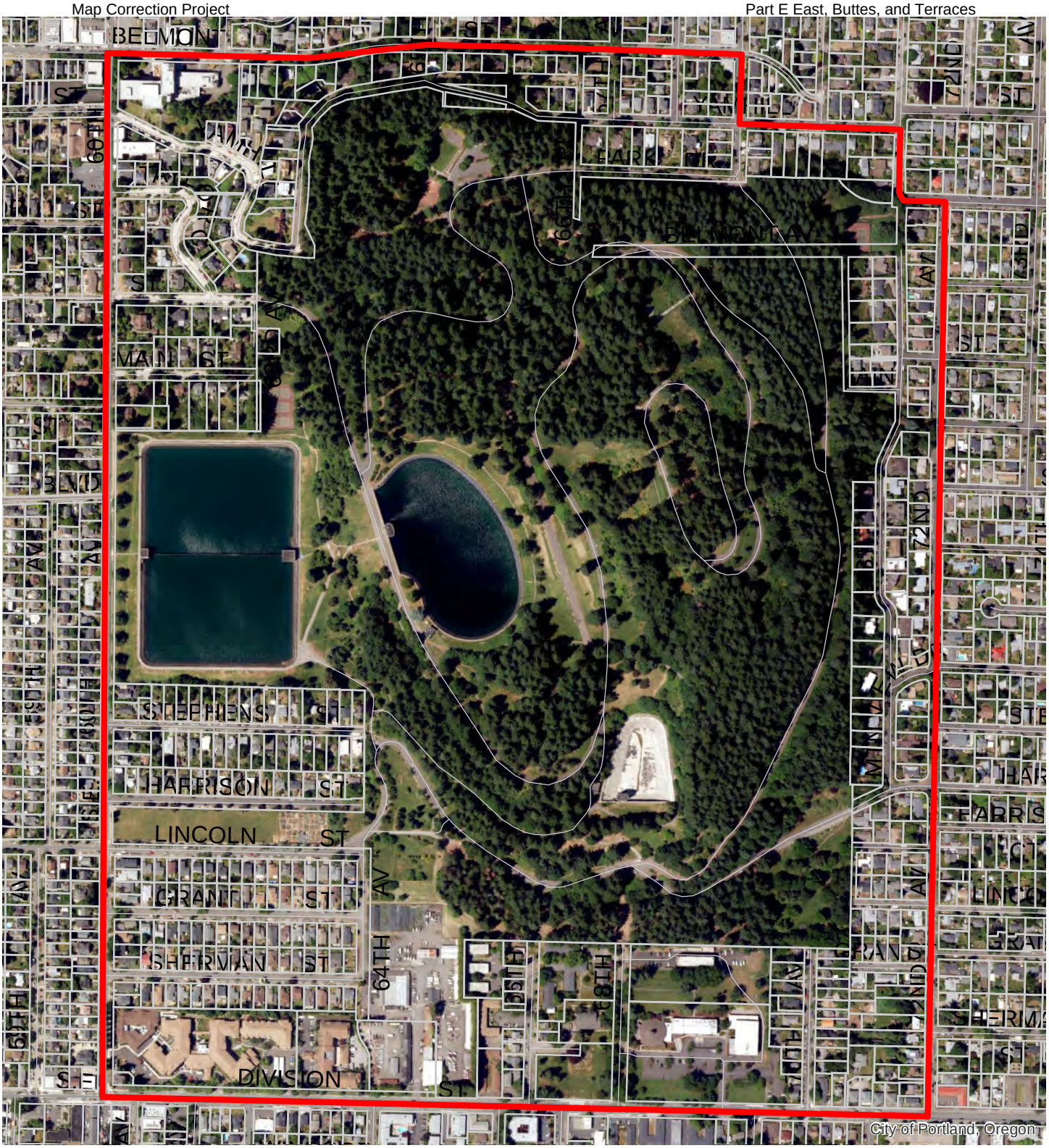
A. Water Features – rivers, streams, wetlands and flood areas
B. Land Features – forest, woodland, shrubland and herbaceous vegetation, steep slopes
C. Special Habitat Areas
D. Riparian Corridor Classifications
E. Wildlife Habitat Classifications
F. Urban Development Value
G. Metro Title 13 Habitat Conservation Areas
H. Statewide Planning Goal 5 Areas
I. Recommended Natural Resource Protections

Following the maps, additional information about existing natural resource features and functions in the resource site is presented.

Implementation of the results is found in Volume 1, Part B, updates to zoning maps and zoning code.

Resource site EB10 includes the following:

Site (acres)	313.0
Base zones (acres)	
CI1	18.7
CM1	0.4
CM2	0.1
OS	190.7
R2.5	5.5
R5	80.1
R7	<1
RM1	9.3
RM2	8.3



Map A: Water Features

Resource Site: EB10

Updated: May 2022

Resource Sites
Urban Service Boundary
Taxlots
Wetlands
Rivers
Open stream channel
Piped Stream Segment
Flood Area

NORTH

0 285 570 Feet

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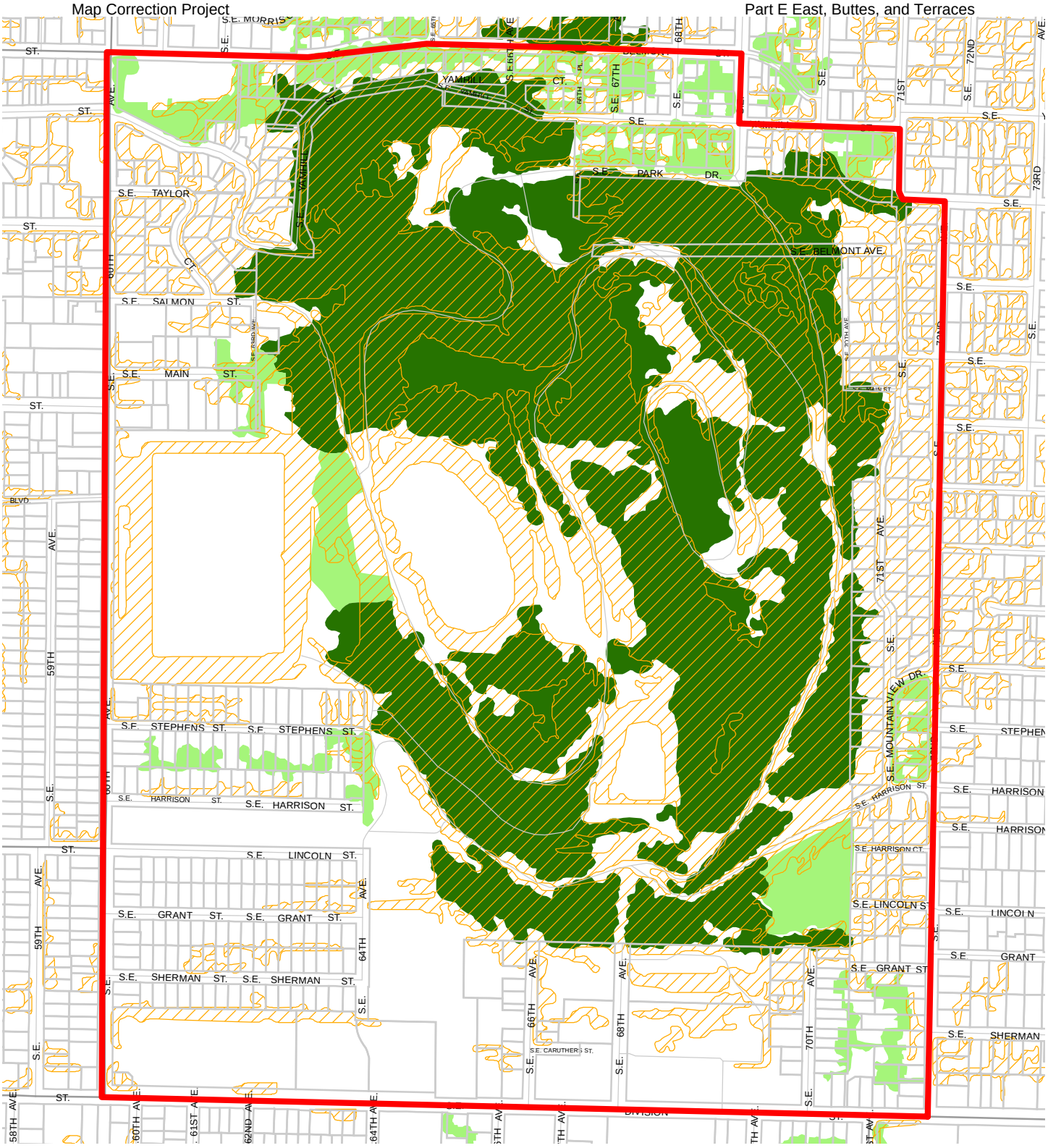

Map B: Vegetation and Steep Slopes

Resource Site: EB10

Updated: May 2022

NORTH

0 390 780 Feet

- Resource Sites
- Urban Service Boundary
- Taxlots
- Forest
- Woodland
- Shrubland
- Herbaceous

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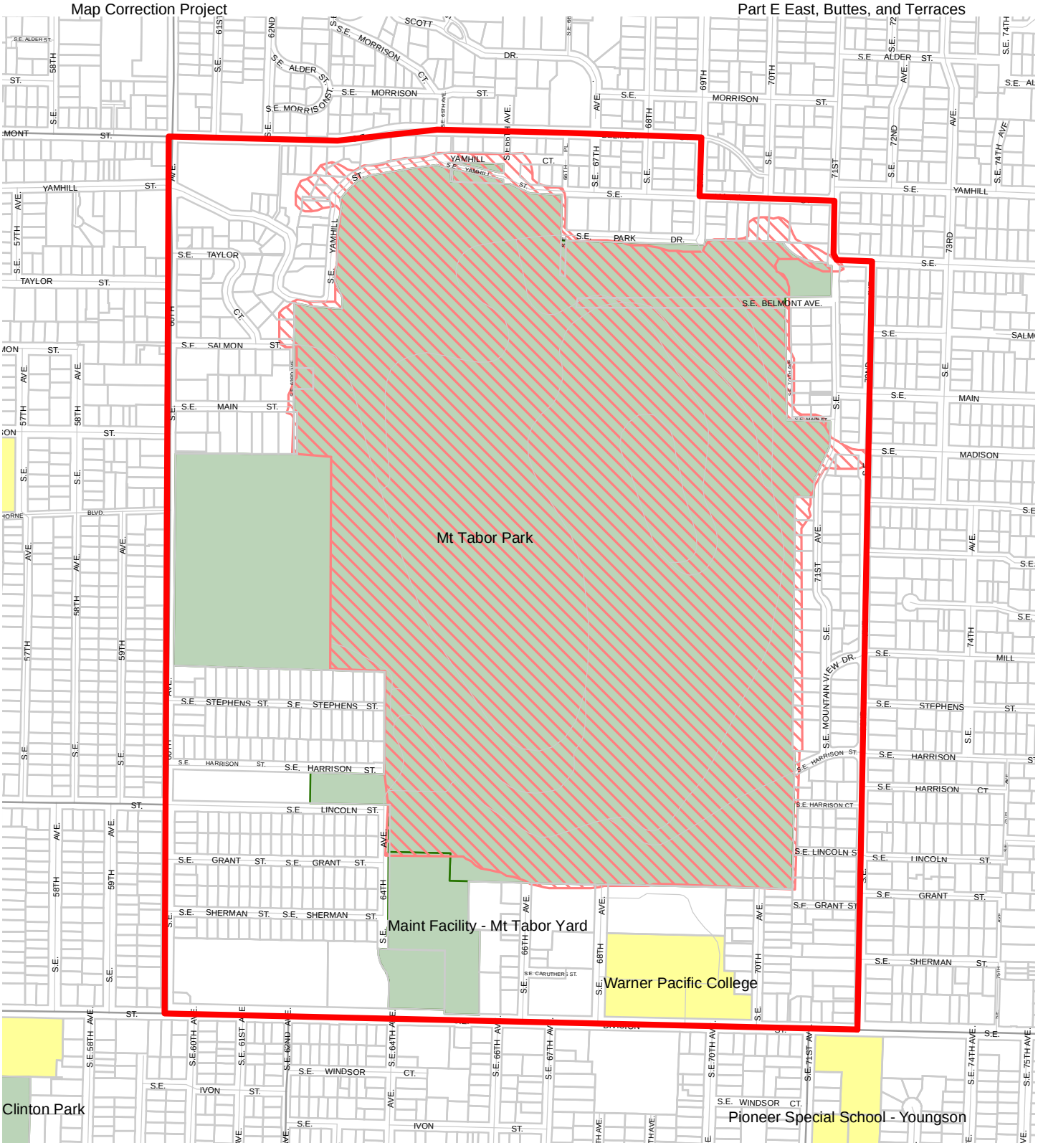

Map C: Special Habitat Areas

Resource Site: EB10

Updated: May 2022

NORTH

0 365 730 Feet

- Resource Sites
- Special Habitat Areas (SHAs)
- Open Stream Channel
- Piped Stream Segment
- Parks
- Schools
- Urban Service Boundary
- Taxlots

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Map D: Riparian Corridors Habitat Classification

Resource Site: EB10

Updated: May 2022

Class I (high rank)

Class II (medium rank)

Class III (low rank)

Resource Sites

Urban Service Boundary

Taxlots

NORTH

0 285 570 Feet

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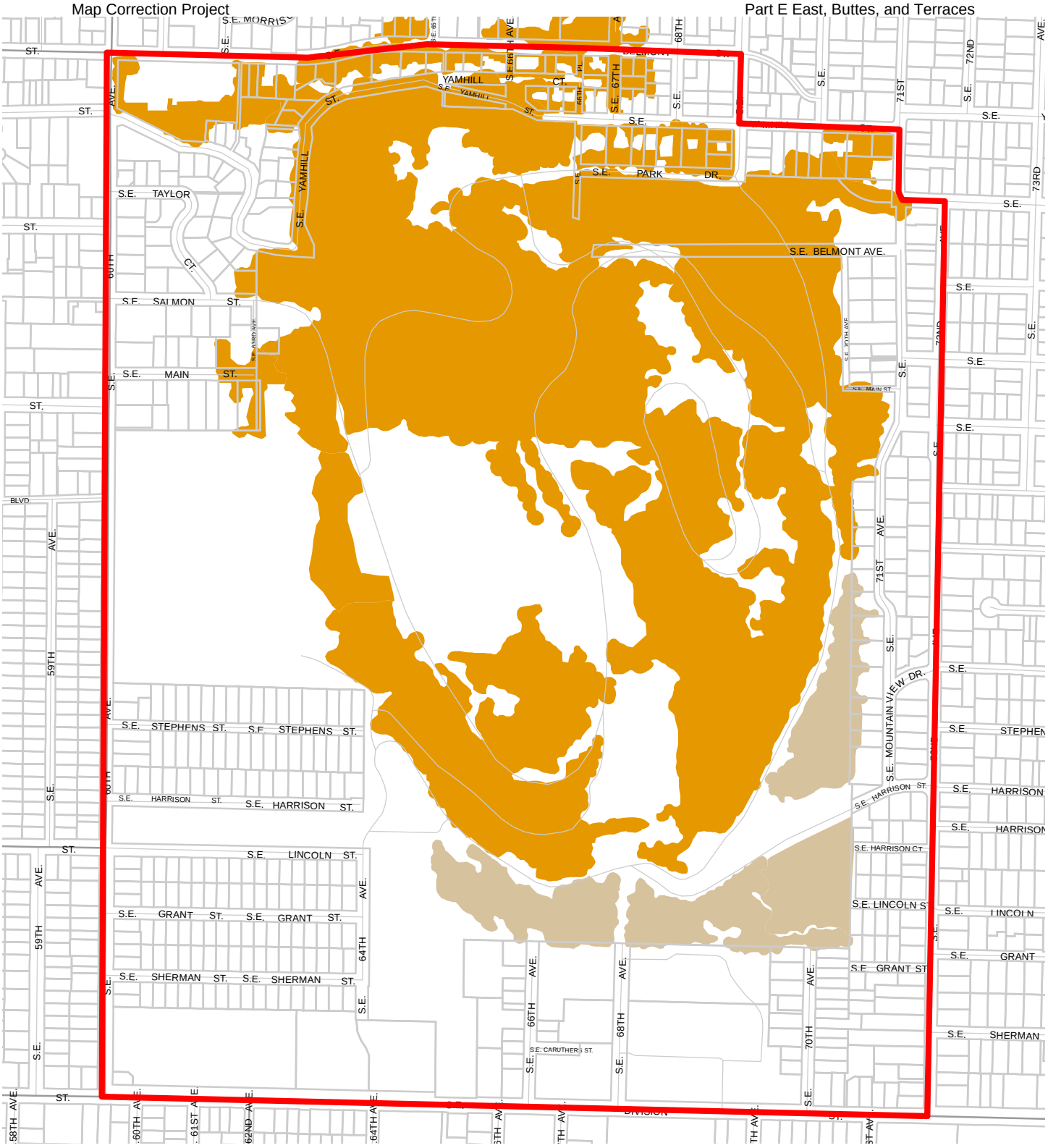

Map E: Wildlife Habitat Classification

Resource Site: EB10

Updated: May 2022

NORTH

0 230 460 Feet

- Resource Sites
- Class A (high rank)
- Class B (medium rank)
- Class C (low rank)
- Urban Service Boundary
- Taxlots

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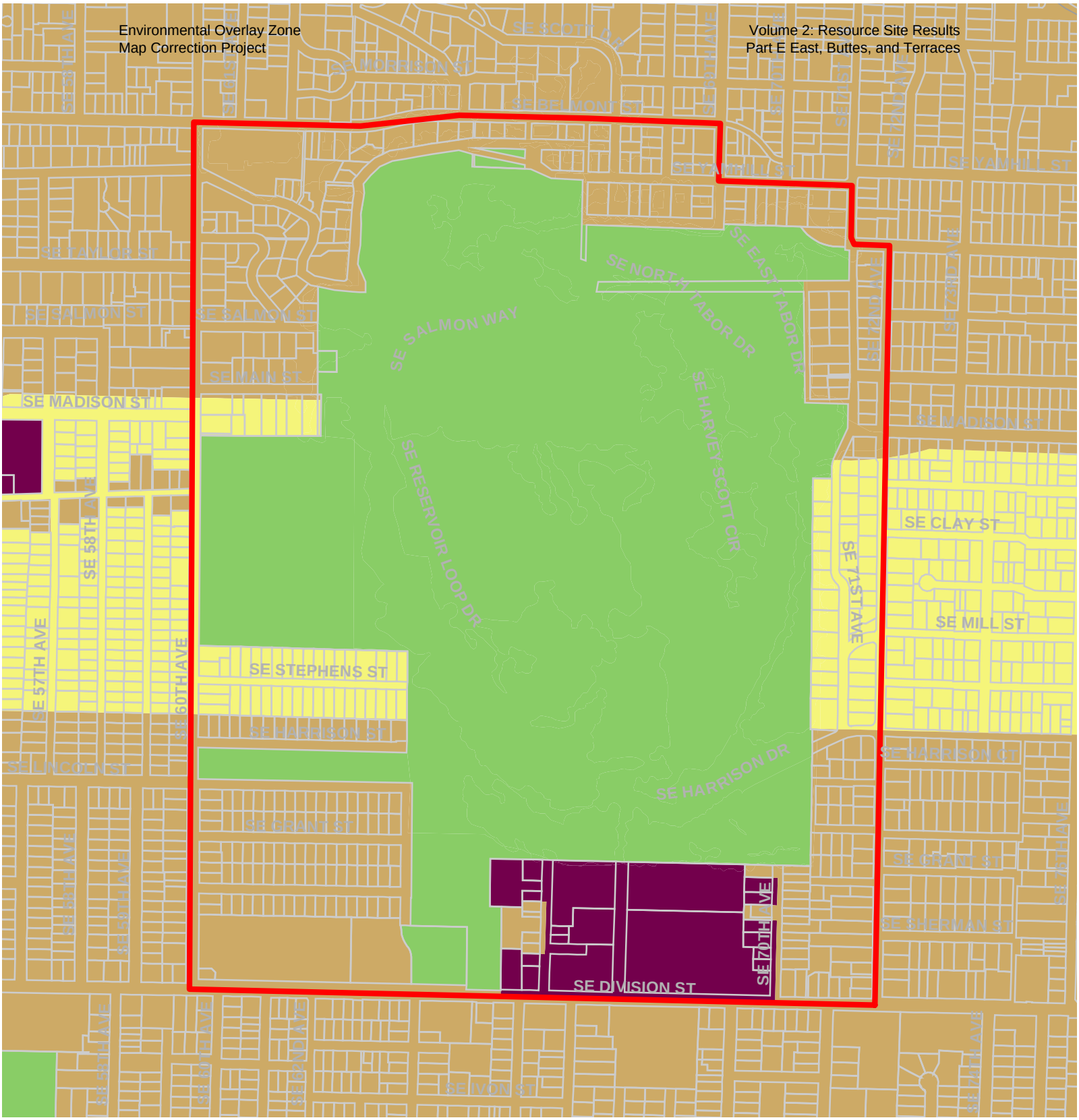

Map F: Urban Development Value (Title 13)
Resource Site: EB10

- Urban Service Boundary
- Resource Sites
- High Development Value
- Medium Development Value
- Low Development Value
- Parks

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Updated: July 2021

NORTH

0 437.5 875 Feet

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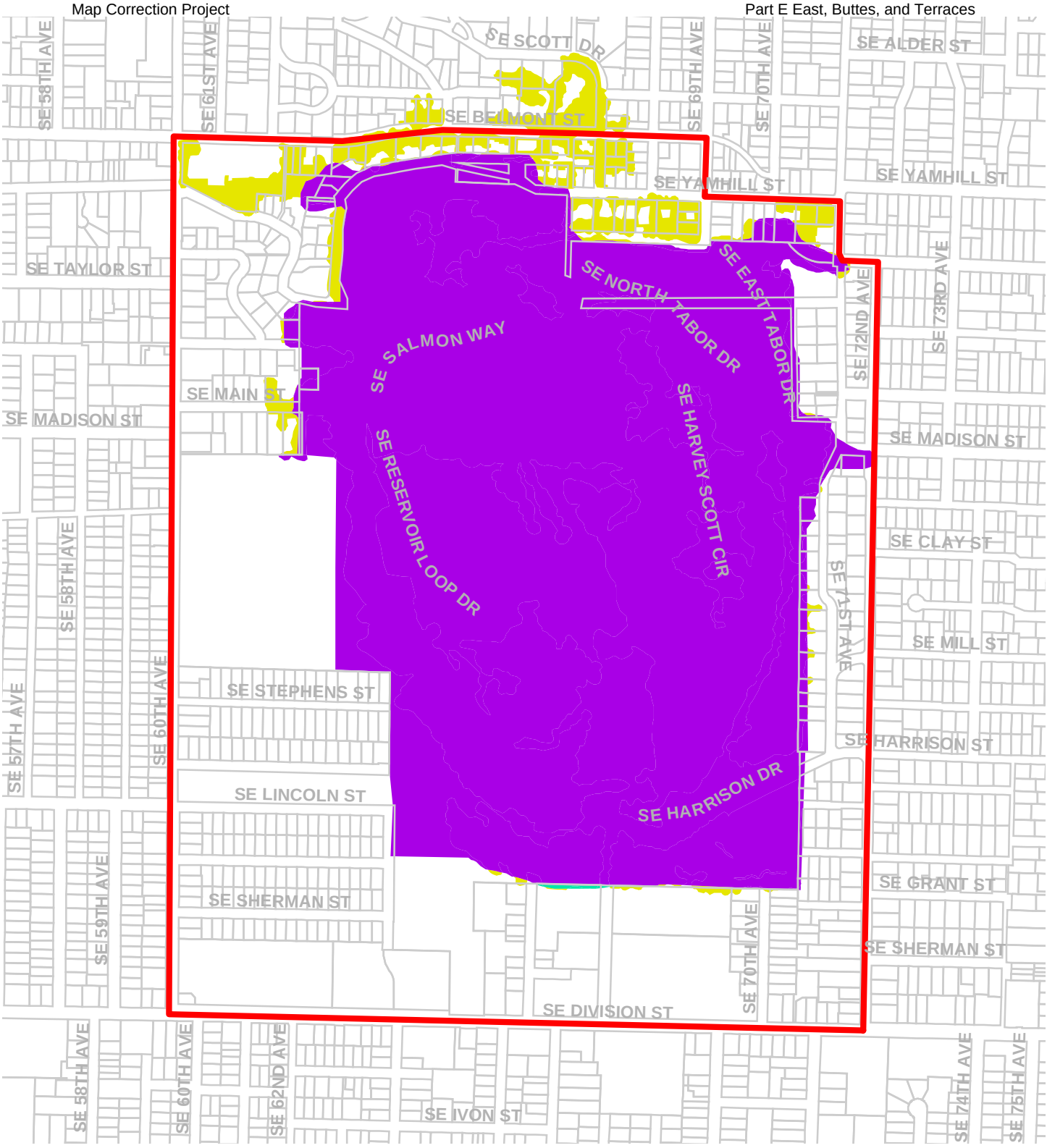

Map G: Title 13 Habitat Conservation Areas (HCA) and Goal 5 Areas

Resource Site: EB10

Updated: May 2022

NORTH

0 465 930 Feet

- Urban Service Boundary
- Resource Sites
- HCA High Value
- HCA Moderate Value
- HCA Low Value
- Goal 5 Significant Natural Resources

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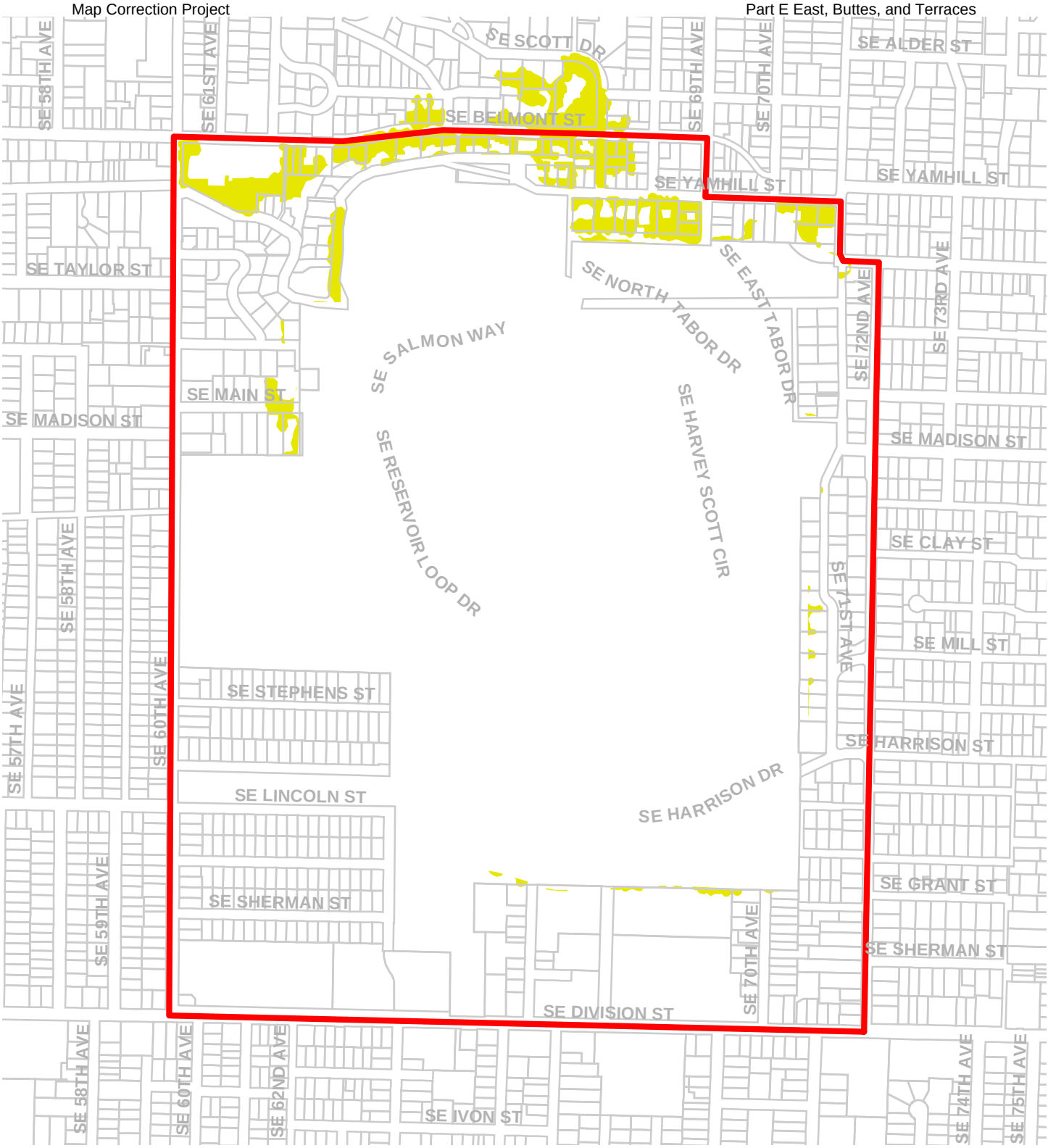

Map H: Goal 5 Resources

Resource Site: EB10

Updated: May 2022

NORTH

0 465 930 Feet

Urban Service Boundary

Resource Sites

Goal 5 Significant Natural Resources

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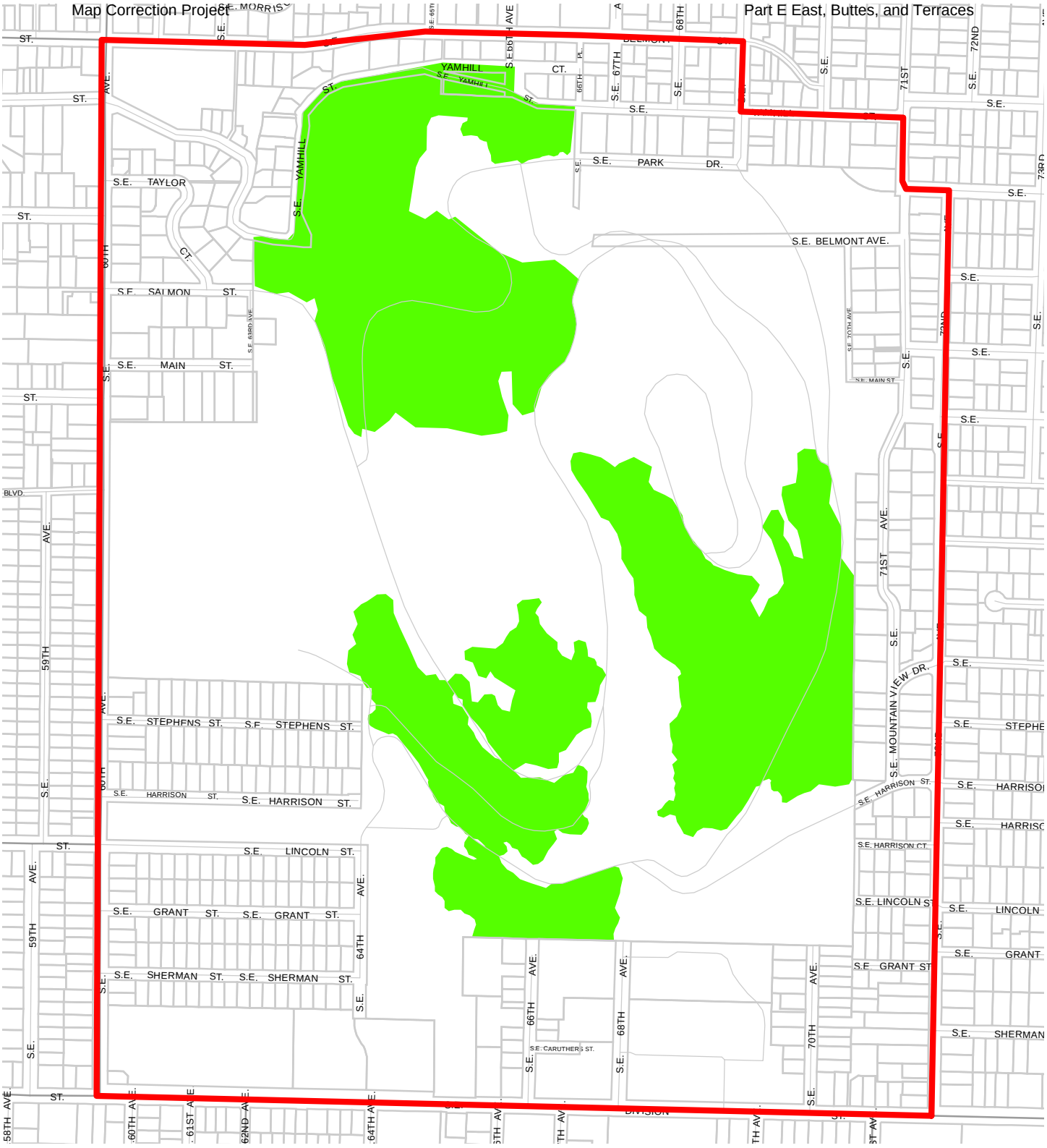

Map I: DRAFT Proposed Environmental Overlay Zones

Resource Site: EB10

Updated: May 2022

- Resource Sites
- Open Stream Channel
- Piped Stream Segment
- Proposed Conservation Zone
- Proposed Protection Zone
- Urban Service Boundary
- Taxlots

NORTH

0 310 620 Feet

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Natural Resource Description

Within resource site EB10 the following significant natural resource features and functions are present:

Significant Riparian Corridor Features: None

Significant Wildlife Habitat Features: forest patches, and associated and contiguous wetlands, two acres in size or larger.

Special Habitat Areas: Mt. Tabor (G, M, C)

Riparian Corridor Functions: None

Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status fish and wildlife species.

Table A: Quantity of Natural Resource Features in Resource Site EB10	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	
Forest (acres)	110.6
Woodland (acres)	20.8
Shrubland (acres)	0.0
Herbaceous (acres)	0.0
Flood Area*	
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	160.1
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are areas with a slope greater than 25%.	

Mount Tabor is located approximately three miles from the Willamette River in central east Portland. Tabor is one of three cinder cone volcanoes located within the planning area. Mt. Tabor is the best and most accessible example of the volcanic character of the Boring Volcanoes: a small vent near the top is

excavated revealing the core and throat of the cinder cone.5 According to a Geological Society of Oregon Country sign on Mt. Tabor, Portland is the only city in the United States with a volcano within its limits.

Mt. Tabor rises abruptly from the otherwise gently sloping east Portland landscape, from approximately 300 ft. mean sea level (rnsl) at its base to 640 ft. msl at its summit. The volcano is over a mile long (from north to south) and three-quarters of a mile wide. Portland's largest east side park occupies one-half of the site, while most of the north half is developed with single-dwelling residential homes and local service streets. Though small pockets of forest and undeveloped open space occur within these residential areas, the primary resource areas are located within Mt. Tabor Park.

Mt. Tabor Park is a key element of the Olmsted Brothers' 1903 park system proposal. The park totals approximately 175 acres. About 70 percent of the park is developed for active recreational uses, with manicured lawns, flower and shrub beds, trails, tennis and basketball courts. Paved roads spiral around the park with several parking lots interspersed. There are also several reservoirs owned and operated by the city, a soap box derby track, a picnic area and a playground.

The remaining portion of the site is undeveloped with moderately steep terrain. These areas are of higher habitat value for wildlife, primarily due to the presence of a forest understory. Recreational activity in this area is limited to the use of several trails passing through the forest.

Surface water resources include an intermittent drainage and small wetland on the west slope of the park and south of the exposed cinder cone. Groundwater resources are located in the Troutdale Formation which underlies most of Mt. Tabor. Small areas of Boring lava are located near the exposed cinder cone. Soils at Mt. Tabor and Rosemont Bluff are steep, gravelly silt loams with moderate to severe limitations for building site development (Mult. Co. Soil Survey 1983).

The entire volcano is of geologic significance and the exposed volcanic vent is a geologic feature unique to the region. Mt. Tabor Park occupies 175 acres within the site. The entire park provides important recreational, scenic and open space values. The several reservoirs (three uncovered, others covered) supply drinking water to Portland area residents. Other surface water resources include a 1,000 ft. long intermittent drainage and small, 500 sq. ft. wetland south of the exposed cinder cone.

This site's vegetation is cultivated extensively for urban park use, though some non-cultivated areas on the steeper slopes are present. The dominant species is Douglas fir. Trees are limbed (lower branches removed) and sub-canopy is open.

Occasional deciduous trees include choke cherry, vine maple, bigleaf maple, red alder, dogwood, oak, birch and hawthorn. Shrubs include western hazel, red huckleberry, willow, rhododendron, juniper, forsythia, azalea, cedar and spiraea. The herb layer is comprised of about 80 percent mowed lawn, yet in the less cultivated areas, sword fem, bracken fern, orchard grass, Oregon grape, salal, twisted stalk, fringecup and poison ivy are common. The non-cultivated areas include a native shrub layer absent in other parts of the park; shrubs include wild rose, snowberry, oceanspray, serviceberry and thimbleberry. Certain areas of the park are threatened by the invasion of Himalayan blackberry, English ivy, Scot's broom and English holly.

The vegetative cover within the park provides limited habitat for wildlife. The trees provide some roosting and perching habitat for birds. In the cultivated areas, cover is limited and food production is low. In the non-cultivated areas, covering about 40 acres, the greater diversity of native understory vegetation provides more food and cover for wildlife. Wildlife observed in the park include hairy woodpecker, red-tailed hawk, owls, juncos, wrens, chickadees, pheasants, crows and squirrels.

The City of Portland's Scenic Resource Inventory identifies two panoramic views from Mt. Tabor, one from above the reservoir and the other from the summit. These two views were rated among the top seven in the city. The ESEE analysis for the Scenic Resource Protection Plan (1991) concludes that these views are fully protected through the park's Open Space zoning, and hence, no specific view regulations are needed.

Groundwater resources within the Mt. Tabor resource site yield up to 500 gallons per minute. The Boring lava near the exposed cinder cone contains only small amounts of perched water and yields are only 10 gpm (Trimble 1963; Redfern 1976). Groundwater recharge occurs principally through infiltration, but also, through migration from overlying formations and adjacent recharge areas.

Special status bird species observed within or adjacent to this resource site include American kestrel, American white pelican, bald eagle, band-tailed pigeon, black-throated gray warbler, brown creeper, bufflehead, Bullock’s oriole, bushtit, chipping sparrow, common nighthawk, common yellowthroat, downy woodpecker, great blue heron, Hammond’s flycatcher, hermit warbler, hooded merganser, house wren, Hutton’s vireo, Nashville warbler, northern harrier, olive-sided flycatcher, orange-crowned warbler, pacific wren, pacific-slope flycatcher, peregrine falcon, pileated woodpecker, purple finch, purple martin, red crossbill, red-eyed vireo, rufous hummingbird, short-eared owl, Swainson’s hawk, Swainson’s thrush, varied thrush, Vaux’s swift, western meadowlark, western sandpiper, western wood-pewee, white-breasted nuthatch, willow warbler, Wilson’s warbler, wood duck, and yellow warbler.

Table B: Quality of Natural Resource Functions in Resource Site EB10				
Resource Site (acres) = 313				
	Class 1/A	**Class 2/B**	**Class 3/C**	**Total**
Riparian Corridors*				
acres	0.0	0.0	0.0	0.0
percent total inventory site area	0.0%	0.0%	0.0%	0.0%
Wildlife Habitat*				
acres	0.0	110.5	14.2	124.7
percent total inventory site area	0.0%	35.3%	4.6%	39.8%
Special Habitat Areas**				
acres	163.0			
percent total inventory site area	52.1%			
Combined Total+				
acres	0.0	110.5	14.2	124.7
percent total inventory site area	0.0%	35.3%	4.6%	39.8%

* Class I riparian resources, Special Habitat Areas, and wildlife habitat include open water.
** Metro Title 13 designated all Special Habitat Areas as Class I riparian corridors.
+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Stormwater runs off impervious surfaces (e.g. rooftops, driveways, parking lots, streets) rapidly. , Without a place to retain the water (such as wetlands or adequate stormwater facilities), stormwater runoff results which can cause or exacerbate flooding and increase stream erosion. In addition, when water runs off quickly, it does not have a chance to infiltrate and recharge streams or aquifers to provide water during drier periods.

The type and capacity of stormwater facilities to manage the runoff from impervious surfaces varies in the city, affecting the local rate and amount of runoff, and the amount of pollutants in the water. Much of the city was developed prior to any stormwater regulations and receives limited or no management prior to discharging to pipes and surface waters.

Table C shows the total amount of impervious area within the resource site and how much of that impervious area does not receive management; the percentage of total impervious area that is not managed is called "effective impervious area." The higher the percent of effective impervious area in a watershed, the greater the negative impacts of stormwater runoff to streams. Stream science indicates that when effective impervious area reaches 10% of a watershed, negative stream impacts become significant; and at 25%, these impacts on waterways can be substantial. An additional consideration is the differences in soil conditions

and other factors that influence the ability of pervious areas to retain, infiltrate or filter pollutants from stormwater. For example, a mature forest is much more effective in managing stormwater than a manicured lawn; both areas would have a lower effective impervious surface percentage than a developed site, but they have different outcomes for stormwater management.

For Resource Area EB10, 20% of the total area is effectively impervious, indicating a critical level of vulnerability, with negative impacts beginning to impact natural functions, but natural processes are still in place and providing support to biologic systems.

Table C. Impervious Area within Resource Site EB10

Total area (acres)	Total impervious Area (acres)	Total unmanaged impervious area* (acres)	Percent of resource site that is effectively impervious
313	68	61	20%

*Total unmanaged impervious area refers to the number of acres within a resource area that receives no formal stormwater management measures to regulate flow or treat pollutants before they reach surface waters, also referred to as effective impervious area.

Metro Title 13 and Oregon Goal 5 Compliance

The following information supplements evaluation of natural resource protections presented in Volume 3 and supports compliance with Metro Title 13 and Oregon Plan Goal 5.

Title 13 Habitat Conservation Areas

Map G presents the Habitat Conservation Areas (HCA) within the resource site EB10. Natural resources should be protected within HCA as follows:

1. *Strictly limit* or *limit* conflicting uses within Class I/High Rank Riparian Areas in all Urban Development Areas.
2. *Strictly limit* or *limit* conflicting uses within Class II/Medium Rank Riparian Areas within Moderate and Low Value Urban Development Area as well as parks and open spaces.
3. *Strictly limit* or *limit* conflicting uses within Class A/High or B/Medium Rank Wildlife Habitat within parks and open spaces.
4. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class III/Low Rank Riparian Areas in all Urban Development Areas.
5. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class A/High, Class B/Medium or Class C/Low Rank Wildlife Habitat in all Urban Development Area, expect parks and open space.

Strictly limiting or *limiting* conflicting uses in HCA will protect and conserve existing streams and wetlands to maintain significant natural resource functions including: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and fish and wildlife habitat. *Strictly limiting* or *limiting* conflicting uses in HCA will allow for additional urban development that is sensitive to the natural resource features and requires mitigation for unavoidable negative impacts to features and functions. The recommendation will also contribute towards meeting other regulatory requirements including the Metro Title 3, Water Quality and Flood Management; Oregon Goal 6, Air, Water and Land Resources Quality; Oregon Goal 7, Areas Subject to Natural Hazards; the Clean Water Act; and the Endangered Species Act.

Goal 5 Significant Natural Resources

Resource site EB10 contains natural resource features that are not a Title 13 HCA and are therefore subject to Statewide Planning Goal 5 OAR 660-023-0110. The General ESEE analysis, Volume 3, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

The common impacts of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; adding impervious surface; modifying streams, wetlands and flood areas; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R5, R2.5, R2 and R1 base zones. Employment uses area allowed in the EG1 and EG2 base zones. Commercial uses are allowed in the CD, CI1, CM1 and CM2 base zones. Open Space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

The analysis of economic, social, environmental and energy consequences provided in Volume 3 is confirmed for resource site EB10, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses would retain the wildlife habitat functions provided by significant natural resource features including maintaining habitat for at risk plant, fish and wildlife species, maintaining vegetation on steep slopes, and maintaining the stormwater

management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of Class A or Class B wildlife habitat should be required.

Mt Tabor contains a mixture of mowed lawns, managed forested areas with manicured understory, and forested areas with more diverse understory vegetation. Conflicting uses are only limited in the areas where the forest understory is not primarily mowed lawn or paved impervious surface.

Natural Resources Protection Decisions

Based on the analysis presented in Volume 3 and the resource site-specific evaluation for EB10, the following decisions are applied to protect the significant riparian corridors and wildlife habitat:

1. Apply a protection overlay zone (p zone) to wetlands and streams from top-of-bank to top-of-bank, and to land within 25 feet of wetlands and land within 25 feet of streams.
2. Apply a conservation overlay zone (c zone) to land between 25 and 50 feet of wetlands and the top-of-bank of streams.
3. Apply a conservation overlay zone (c zone) to areas of forest vegetation, including forest located on steep slopes, except in areas of Mt Tabor Park that are managed for active park uses.
4. Allow conflicting uses within all other areas containing significant natural resources.

Resource Site No.: EB11 **Resource Site Name:** Rocky Butte

Previous Plan: East Butte, Terraces & Wetlands Plan
Pervious Resource Site No.: 134

The results of the analysis found in Volume 3 and the resource site-specific evaluation, are presented in the following maps:

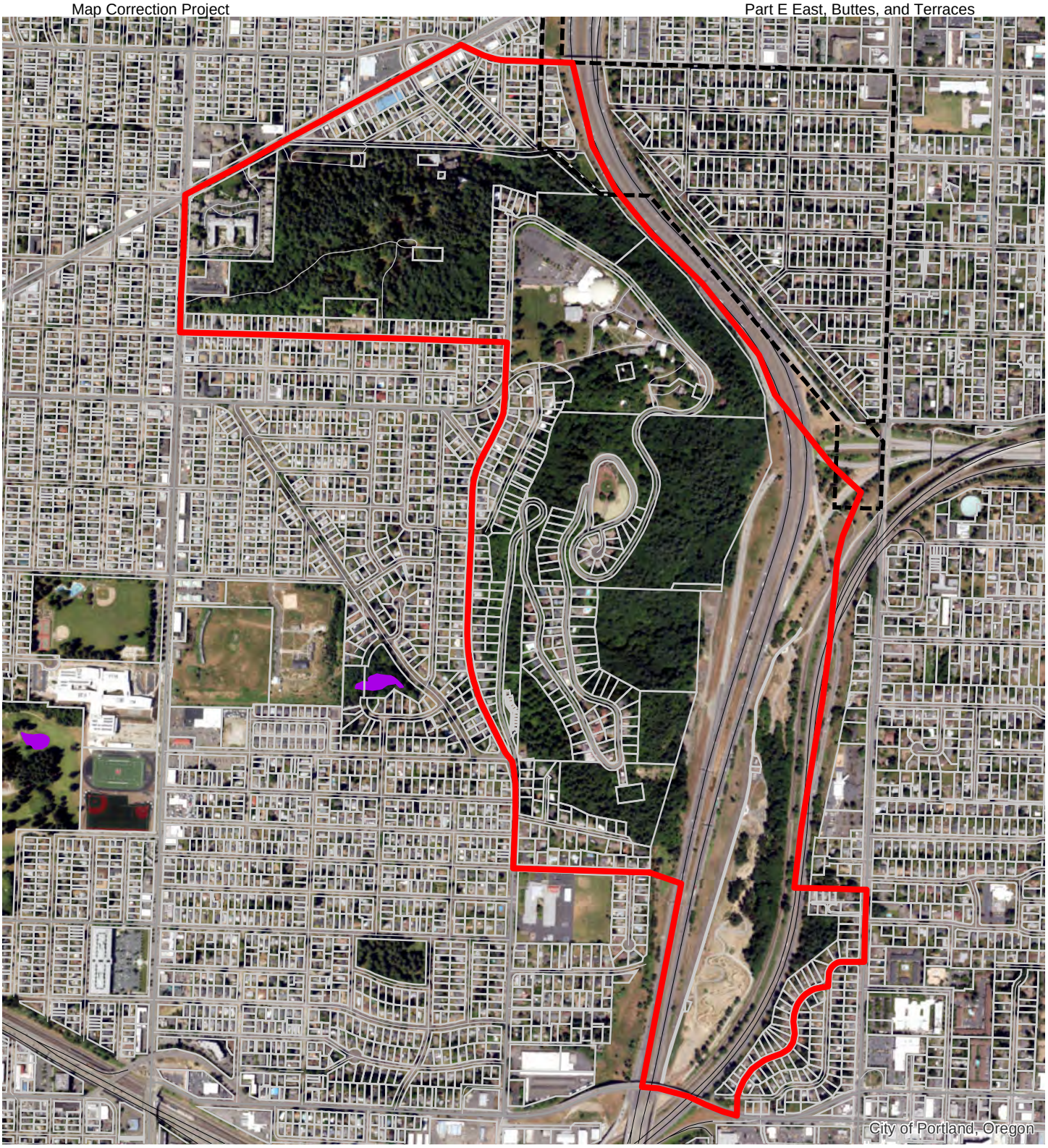
A. Water Features – rivers, streams, wetlands and flood areas
B. Land Features – forest, woodland, shrubland and herbaceous vegetation, steep slopes
C. Special Habitat Areas
D. Riparian Corridor Classifications
E. Wildlife Habitat Classifications
F. Urban Development Value
G. Metro Title 13 Habitat Conservation Areas
H. Statewide Planning Goal 5 Areas
I. Recommended Natural Resource Protections

Following the maps, additional information about existing natural resource features and functions in the resource site is presented.

Implementation of the results is found in Volume 1, Part B, updates to zoning maps and zoning code.

Resource site EB11 includes the following:

Site (area)	412.5
Base zones (area)	
CE	3.0
CM2	6.0
OS	186.6
R2.5	2.8
R5	41.5
R7	160.9
RM1	1.0
RM2	10.7



Map A: Water Features

Resource Site: EB11

Updated: May 2022

Resource Sites
Urban Service Boundary
Taxlots
Wetlands
Rivers
Open stream channel
Piped Stream Segment
Flood Area

NORTH

0 500 1,000 Feet

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Map B: Vegetation and Steep Slopes

Resource Site: EB11

Updated: May 2022

NORTH

0 700 1,400 Feet

Resource Sites
Urban Service Boundary
Taxlots
Forest
Woodland
Shrubland
Herbaceous

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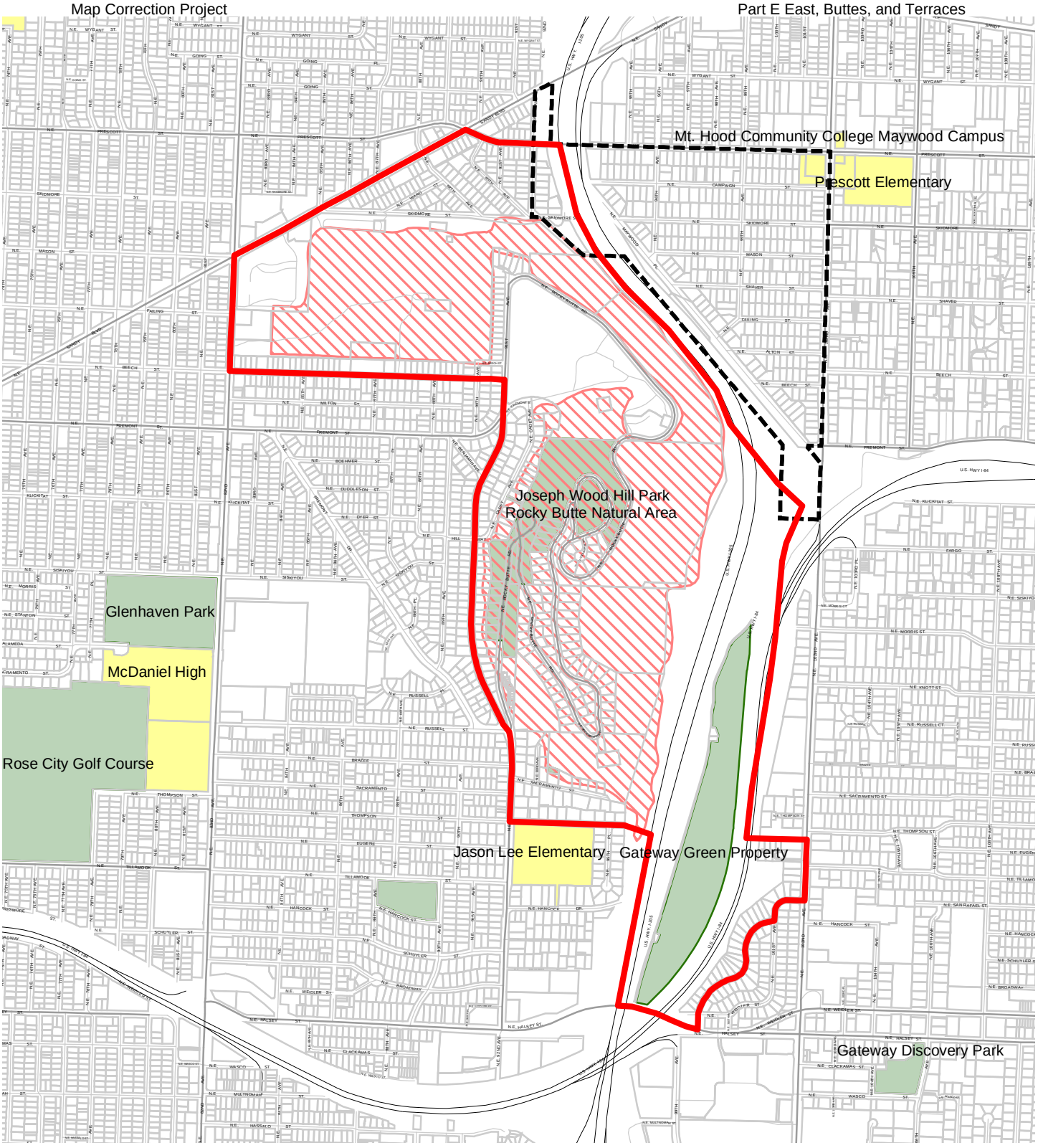
May 2022



Map C: Special Habitat Areas

Resource Site: EB11

Updated: May 2022

NORTH

0 650 1,300 Feet

- Resource Sites
- Special Habitat Areas (SHAs)
- Open Stream Channel
- Piped Stream Segment
- Parks
- Schools
- Urban Service Boundary
- Taxlots

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Map D: Riparian Corridors Habitat Classification

Resource Site: EB11

Updated: May 2022

Class I (high rank)
Class II (medium rank)
Class III (low rank)
Resource Sites
Urban Service Boundary
Taxlots

NORTH

0 500 1,000 Feet

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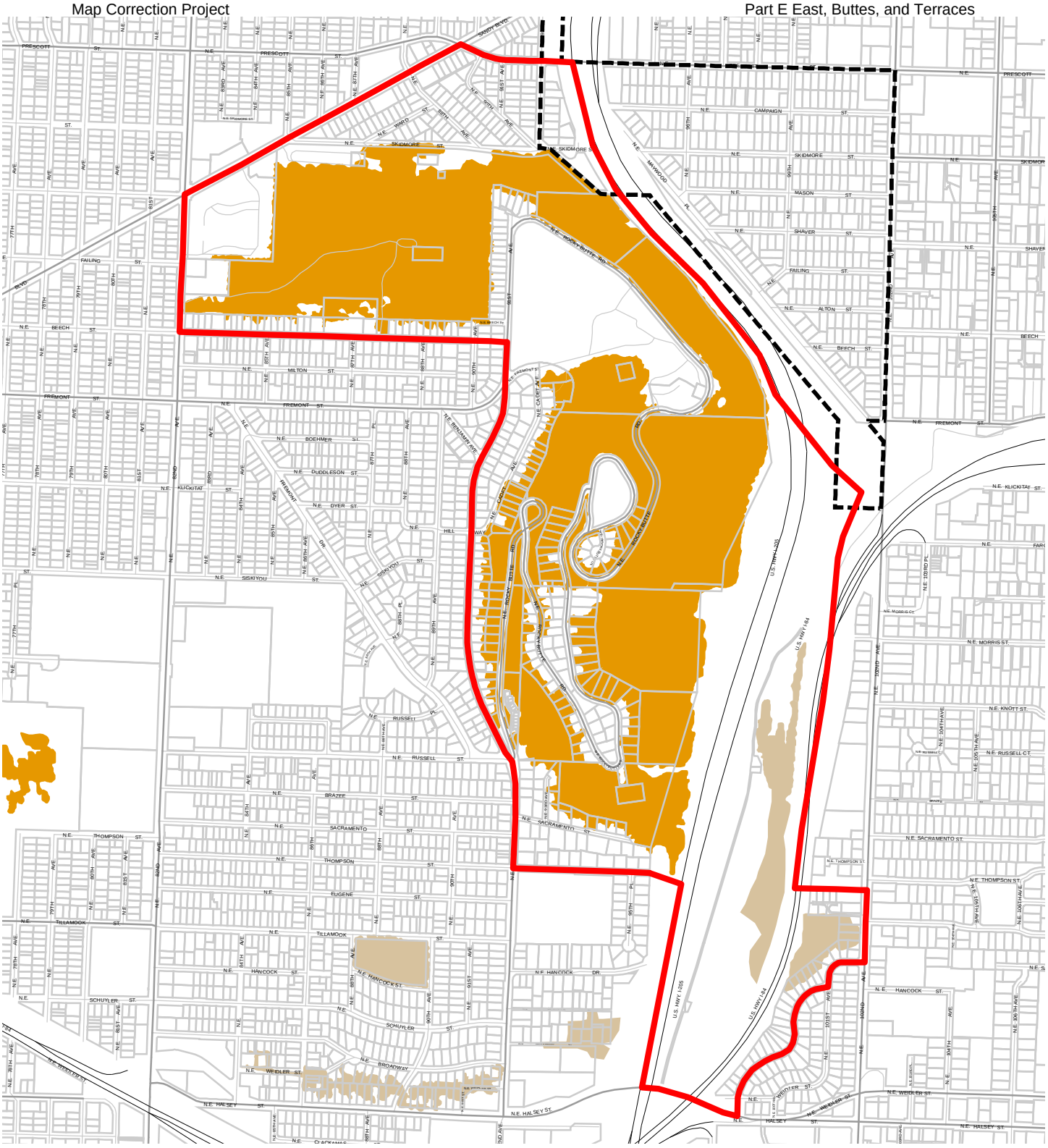

Map E: Wildlife Habitat Classification

Resource Site: EB11

Updated: May 2022

NORTH

0 445 890 Feet

- Resource Sites
- Class A (high rank)
- Class B (medium rank)
- Class C (low rank)
- Urban Service Boundary
- Taxlots

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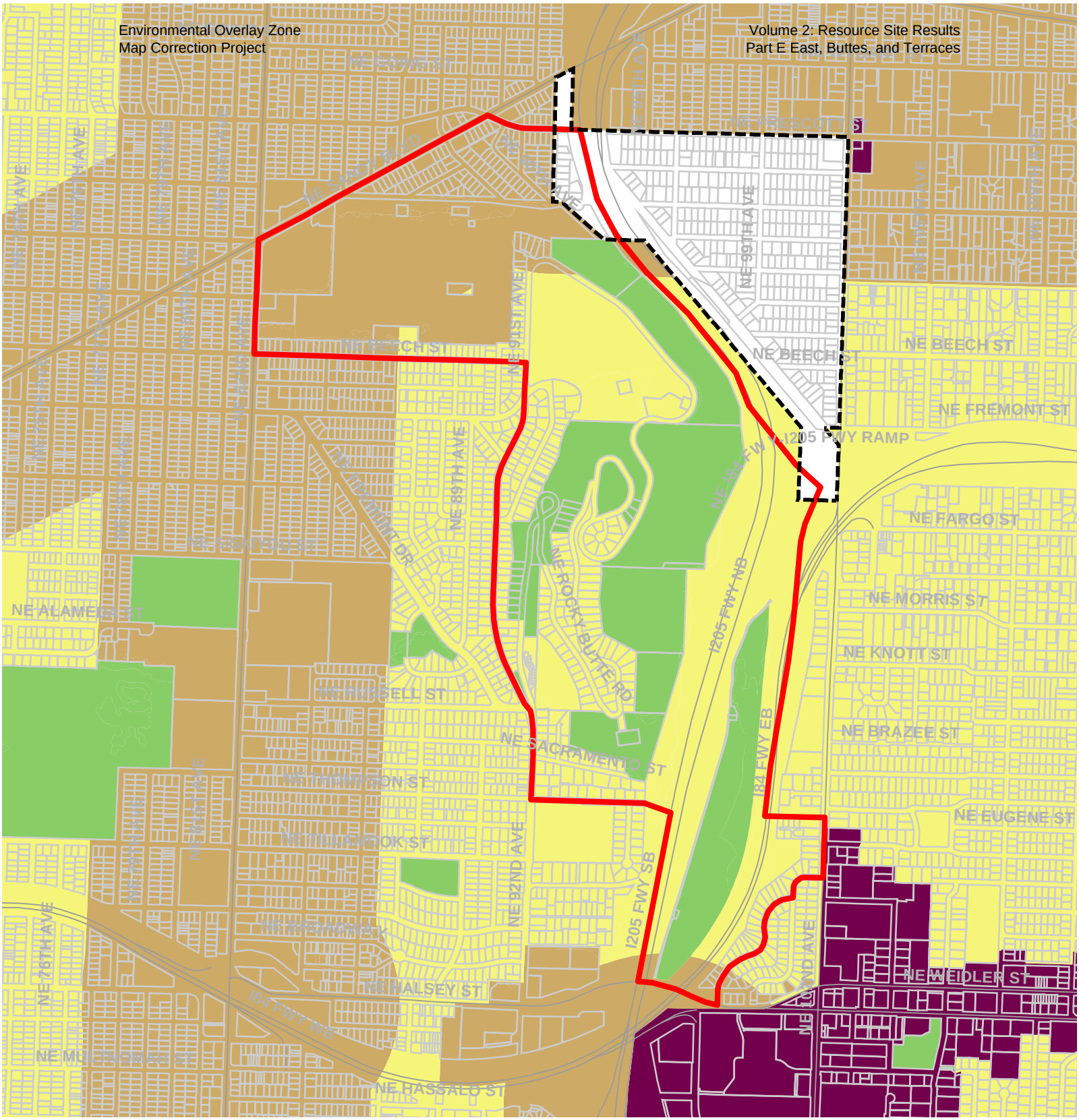

Map F: Urban Development Value (Title 13)
Resource Site: EB11

- Urban Service Boundary
- Resource Sites
- High Development Value
- Medium Development Value
- Low Development Value
- Parks

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Updated: July 2021

NORTH

0 800 1,600 Feet

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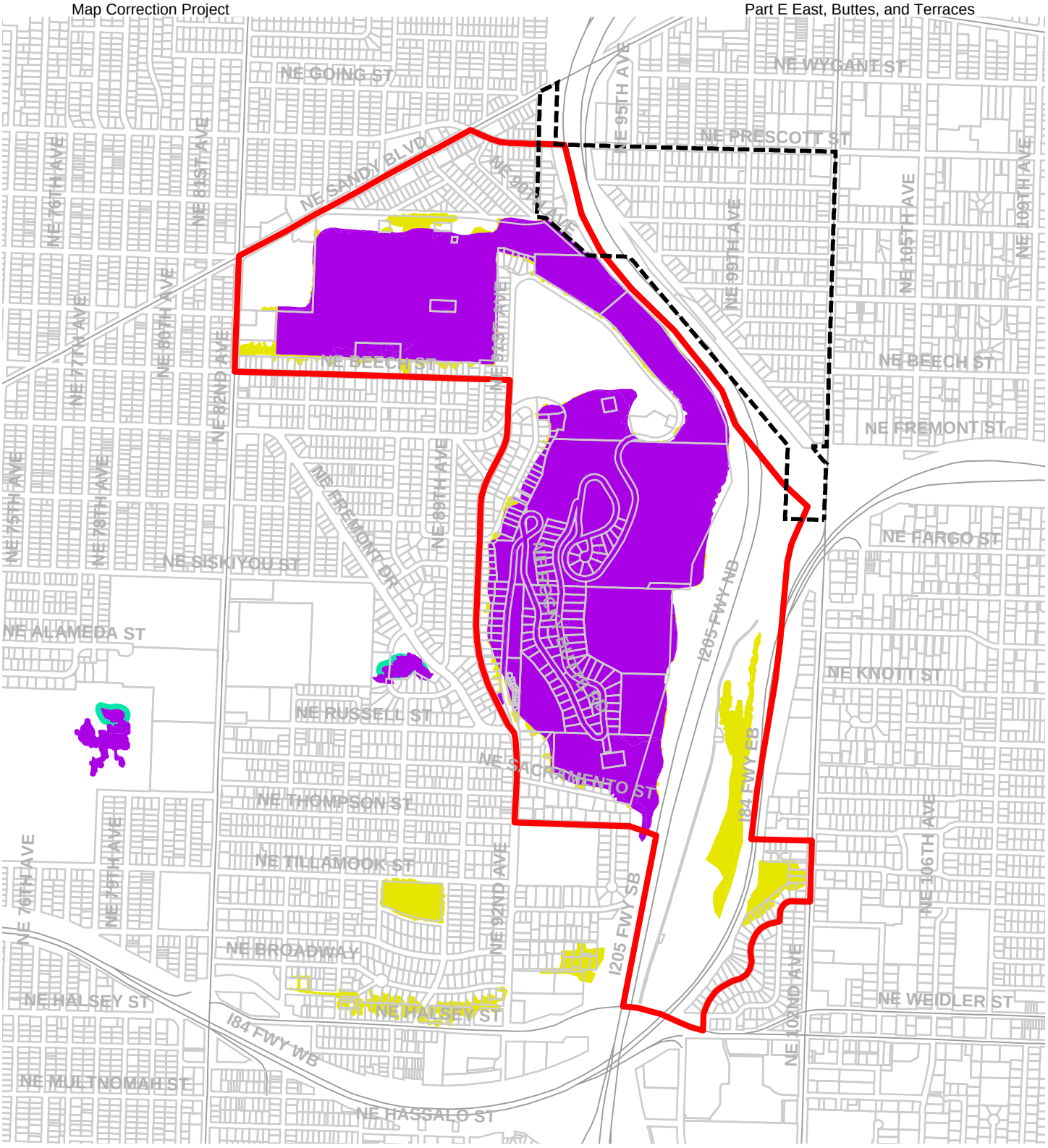

Map G: Title 13 Habitat Conservation Areas (HCA) and Goal 5 Areas

Resource Site: EB11

Updated: May 2022

NORTH

0 850 1,700 Feet

Recommended Draft - As Amended

- Urban Service Boundary
- Resource Sites
- HCA High Value
- HCA Moderate Value
- HCA Low Value
- Goal 5 Significant Natural Resources

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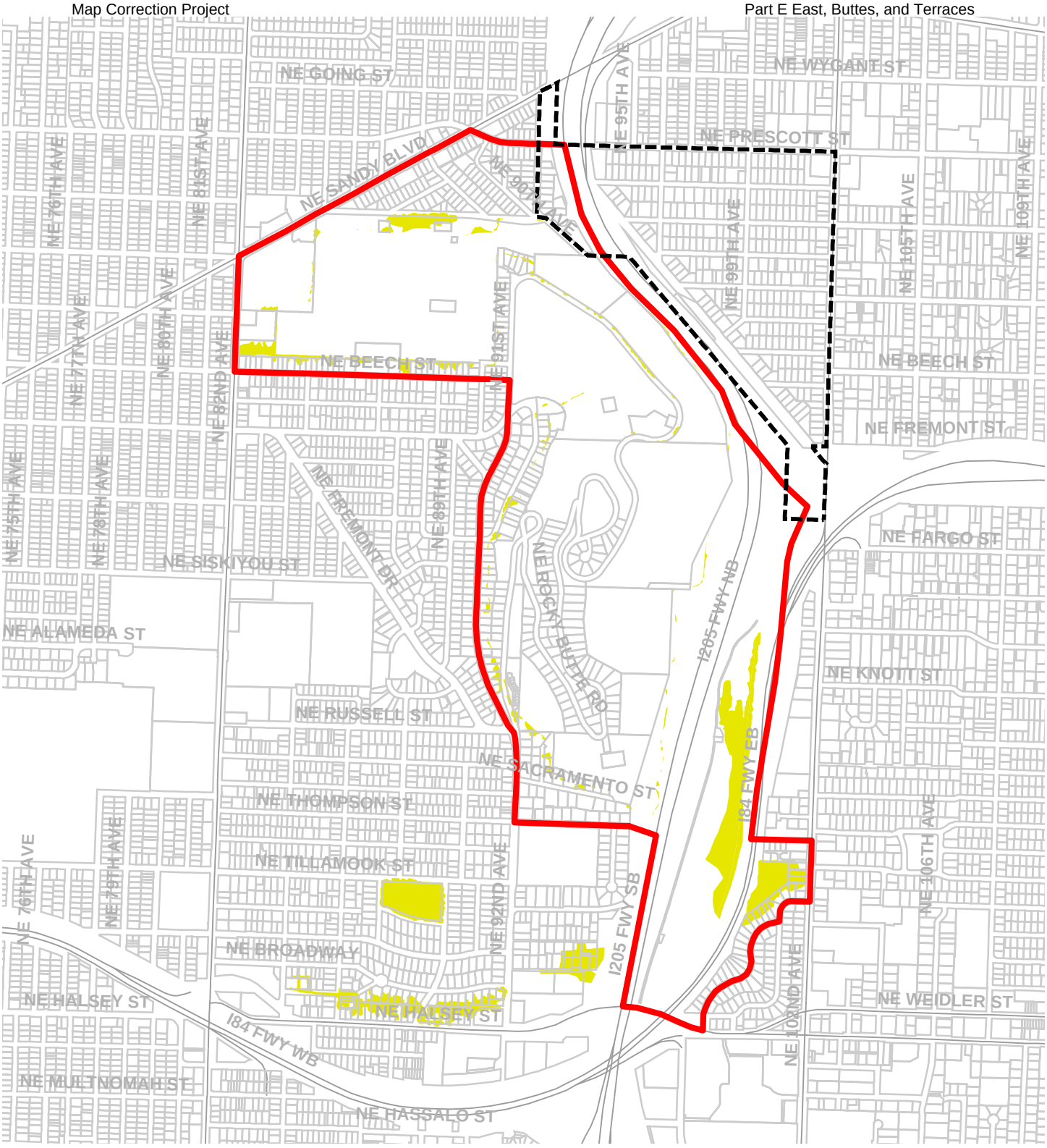
May 2022



Map H: Goal 5 Resources

Resource Site: EB11

Updated: May 2022

NORTH

0 850 1,700 Feet

Recommended Draft - As Amended

- Urban Service Boundary
- Resource Sites
- Goal 5 Significant Natural Resources

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May 2022

Map I: DRAFT Proposed Environmental Overlay Zones

Resource Site:

EB11

Updated: May 2022

Resource Sites
Open Stream Channel
Piped Stream Segment
Proposed Conservation Zone
Proposed Protection Zone
Urban Service Boundary
Taxlots

NORTH

0 550 1,100 Feet

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Natural Resource Description

Within resource site EB11 the following significant natural resource features and functions are present:

Significant Riparian Corridor Features: None

Significant Wildlife Habitat Features: forest patches, and associated and contiguous wetlands, two acres in size or larger.

Special Habitat Areas: Rocky Butte/Grotto (M, C)

Riparian Corridor Functions: None

Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status fish and wildlife species.

Table A: Quantity of Natural Resource Features in Resource Site EB11	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	
Forest (acres)	188.8
Woodland (acres)	13.0
Shrubland (acres)	0.0
Herbaceous (acres)	0.0
Flood Area*	
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	196.9
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are areas with a slope greater than 25%.	

This once active volcano is located in northeast Portland two miles south of the Columbia River and immediately west of the interchange of Interstates 84 and 205. Rocky Butte is a prominent landmark rising over 400 ft. above the surrounding East Portland landscape to its summit at 610 ft. Slopes on the sides of the butte exceed 45 degrees and are vertical cliffs in some areas. The volcano is nearly a mile long (from north to south) but unusually narrow at only 1,500 ft. (east-

west). The butte stood directly in the path of the massive Missoula Flood waters which scoured the east face of the butte and caused substantial erosion on the west side when the waters whirled around the obstruction.

Joseph Wood Hill Park, located at the summit of Rocky Butte, contains a large stone fortress built between 1934 and 1939 by the Works Progress Administration (WP A). An aircraft navigational beacon was built on the summit in 1929 and is one of the last remaining beacons still functioning. The butte is also known for other unique features, such as the scenic drive which passes through a 375-foot long tunnel which was hand dug through solid lava. The 2.38-acre park and the 19-acre scenic drive were listed on the National Register of Historic Places in November 1991.

Single dwelling residential areas abut the base of the butte and follow the winding scenic drive to the summit. The 1-205 and 1-84 interchange borders the butte to the east. The Grotto is located on the butte's northwest side, with an elevator that rises about 100 ft. to a plateau on the north side. Also located on this plateau is the Bible Temple. Two quarries are located at the base of the butte. One of these, the old stone quarry at the end of (former) Mason Street, provided much of the stone for the WPA work on Rocky Butte as well for the Portland Hotel and other early buildings. Natural and quarried wetlands are located near the base of the butte. To the southeast are some woods bordering both sides of 1-84 at its intersection with 1-205. The woods are a sub-area of the resource site and are referred to as the Banfield Grove.

Rocky Butte's silt loam soils are extremely steep, weak and have shallow depth to bedrock. These soils have severe limitations for building site development meaning that "one or more soil properties or site features are so unfavorable or difficult to overcome that [development] may not be feasible" (Mult. Co. Soil Survey 1983). Limited groundwater reserves are contained in the Boring lava which underlies Rocky Butte. The surrounding lowlands including The Grotto and the Banfield Grove are of significantly greater groundwater resource value.

Since the arrival of the first settlers to the Portland area in the 1800s, Rocky Butte has been recognized as an important scenic resource with commanding panoramic views of the region. First formal recognition of the scenic and open space values of Rocky Butte was the Olmsted Park Plan of 1903 (see Chapter 3). In 1921, the Portland Planning Commission under Charles Cheney produced a boulevard plan for Portland in which Rocky Butte served as a regional hub. Rocky Butte soon became known as "one of the scenic wonders of the Columbia Highway."8 In the 1930s, the Multnomah County Commissioners took measures to protect the scenic views from the butte; height covenants, for example, were attached to the deed of the surrounding lands. Later, in the 1970s, Significant Environmental Concern zoning was placed over a portion of the butte to further protect the scenic and natural qualities of the area. In the mid-1980s, 70 acres of Oregon Dept. of Transportation land on Rocky Butte were designated Open Space.9

In 1991, the Rocky Butte summit was formally recognized as the second most significant viewpoint in Portland, after SW Terwilliger Boulevard. The Rocky Butte Plan District was specially designed as part of the Scenic Plan to provide additional protection for Rocky Butte's panoramic views, historical architectural elements and its natural scenic qualities. Other identified scenic resources at Rocky Butte include The Grotto (scenic site and panoramas) and Shriner's Hospital (scenic site).

Rocky Butte is the object of a view corridor from the Glenn Jackson Bridge. The view corridor recognizes the importance of Rocky Butte as the northernmost butte in East Portland. The Glenn Jackson Bridge marks a major entryway into the city and state. The north face of Rocky Butte is prominent from the bridge. The Planning Commission recommends the adoption of this view corridor as part of the Development Standards project for the Columbia South Shore.

In 1992, Rocky Butte was identified as a "regionally significant natural area site" in the adopted Metro Greenspaces Master Plan. As such, the butte is envisioned as a major anchor in the overall Greenspace System for the region. The Master Plan echoes earlier statements concerning the significance of the butte; according to the plan, Rocky Butte is "important for its historic prominence as a Portland landmark."

The forest composition includes a wide variety of trees: Douglas fir (up to 4 ft. in diameter), grand fir, western red cedar, western hemlock, bigleaf maple, red alder, pacific madrone, Oregon white oak, Oregon ash, black cottonwood, cascara and bitter cherry. The diverse shrub population includes Indian plum, western hazel, salal, snowberry, vine maple, oceanspray, mockorange, serviceberry, red elderberry, salmonberry, thimbleberry, blackcap, wild rose, Oregon grape and willows. Non-native shrubs include blackberry, holly, laurel and camelias. The herb layer is composed of licorice-, sword- and bracken-fem, trillium, inside-out flower, western dock and fringe cup. Erodium (crane's bill) and English ivy are invasive non-natives. Several snags are also present within the forest.

With its unique cliffs, rocky soils, wetlands and diverse forest vegetation, Rocky Butte provides the highest valued habitat within the planning area. Species which inhabit the area include red tailed hawk, song sparrows, warblers, hummingbirds, as well as other passerines and small mammals.

Once an active volcano, the basalt cliffs and rugged terrain have become a popular recreation area for rock climbers, hikers and bicyclists. The Audubon Society has identified the forest and its native plants as an excellent wildlife shelter and habitat as it serves as a haven for various species of migrating and nesting birds such as the red-tailed hawk.

Groundwater resources are limited by the Boring lava formation which underlies Rocky Butte (yields are about 10 gal/min). The Grotto and Banfield Grove areas have greater groundwater

resource value (yields as high as 2,000 gpm). Recharge is primarily through infiltration and is directly affected by impervious surfaces.

The Banfield Grove sub-area is divided by the Banfield Freeway. To the east of the freeway is a three-acre triangular-shaped ravine containing a grove of trees and bordered by residential housing. Though subject to considerable traffic noise, this eastern portion is a refuge for local wildlife. Snags and greater vegetative diversity are partly responsible for the higher score. A seasonal water source is available in both areas. The sub-area provides groundwater recharge values.

Special status bird species observed within or adjacent to this resource site include American kestrel, bald eagle, band-tailed pigeon, black-throated gray warbler, brown creeper, Bullock's oriole, bushtit, downy woodpecker, great blue heron, Hutton's vireo, merlin, Nashville warbler, orange-crowned warbler, osprey, pacific-slope flycatcher, pacific wren, pileated woodpecker, purple finch, red crossbill, varied thrush, Vaux's swift, western meadowlark, white-breasted nuthatch, Wilson's warbler, and yellow warbler.

Table B: Quality of Natural Resource Functions in Resource Site EB11				
Resource Site (acres) = 413				
	Class 1/A	**Class 2/B**	**Class 3/C**	**Total**
Riparian Corridors*				
acres	0.0	0.0	0.0	0.0
percent total inventory site area	0.0%	0.0%	0.0%	0.0%
Wildlife Habitat*				
acres	0.0	177.7	13.2	190.9
percent total inventory site area	0.0%	43.1%	3.2%	46.3%
Special Habitat Areas**				
acres	191.5			
percent total inventory site area	46.4%			
Combined Total+				
acres	0.0	177.7	13.2	190.9
percent total inventory site area	0.0%	43.1%	3.2%	46.3%
* Class I riparian resources, Special Habitat Areas, and wildlife habitat include open water. ** Metro Title 13 designated all Special Habitat Areas as Class I riparian corridors. +Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.				

Stormwater runs off impervious surfaces (e.g. rooftops, driveways, parking lots, streets) rapidly. , Without a place to retain the water (such as wetlands or adequate stormwater facilities),

stormwater runoff results which can cause or exacerbate flooding and increase stream erosion. In addition, when water runs off quickly, it does not have a chance to infiltrate and recharge streams or aquifers to provide water during drier periods.

The type and capacity of stormwater facilities to manage the runoff from impervious surfaces varies in the city, affecting the local rate and amount of runoff, and the amount of pollutants in the water. Much of the city was developed prior to any stormwater regulations and receives limited or no management prior to discharging to pipes and surface waters.

Table C shows the total amount of impervious area within the resource site and how much of that impervious area does not receive management; the percentage of total impervious area that is not managed is called "effective impervious area." The higher the percent of effective impervious area in a watershed, the greater the negative impacts of stormwater runoff to streams. Stream science indicates that when effective impervious area reaches 10% of a watershed, negative stream impacts become significant; and at 25%, these impacts on waterways can be substantial. An additional consideration is the differences in soil conditions and other factors that influence the ability of pervious areas to retain, infiltrate or filter pollutants from stormwater. For example, a mature forest is much more effective in managing stormwater than a manicured lawn; both areas would have a lower effective impervious surface percentage than a developed site, but they have different outcomes for stormwater management.

For Resource Area EB11, 11% of the total area is effectively impervious, indicating a critical level of vulnerability, with negative impacts beginning to impact natural functions, but natural processes are still in place and providing support to biologic systems.

Table C. Impervious Area within Resource Site EB11

Total area (acres)	Total impervious Area (acres)	Total unmanaged impervious area* (acres)	Percent of resource site that is effectively impervious
420	88	48	11%

*Total unmanaged impervious area refers to the number of acres within a resource area that receives no formal stormwater management measures to regulate flow or treat pollutants before they reach surface waters, also referred to as effective impervious area.

Metro Title 13 and Oregon Goal 5 Compliance

The following information supplements evaluation of natural resource protections presented in Volume 3 and supports compliance with Metro Title 13 and Oregon Plan Goal 5.

Title 13 Habitat Conservation Areas

Map G presents the Habitat Conservation Areas (HCA) within the resource site EB11. Natural resources should be protected within HCA as follows:

1. *Strictly limit* or *limit* conflicting uses within Class I/High Rank Riparian Areas in all Urban Development Areas.
2. *Strictly limit* or *limit* conflicting uses within Class II/Medium Rank Riparian Areas within Moderate and Low Value Urban Development Area as well as parks and open spaces.
3. *Strictly limit* or *limit* conflicting uses within Class A/High or B/Medium Rank Wildlife Habitat within parks and open spaces.
4. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class III/Low Rank Riparian Areas in all Urban Development Areas.
5. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class A/High, Class B/Medium or Class C/Low Rank Wildlife Habitat in all Urban Development Area, expect parks and open space.

Strictly limiting or *limiting* conflicting uses in HCA will protect and conserve existing streams and wetlands to maintain significant natural resource functions including: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and fish and wildlife habitat. *Strictly limiting* or *limiting* conflicting uses in HCA will allow for additional urban development that is sensitive to the natural resource features and requires mitigation for unavoidable negative impacts to features and functions. The recommendation will also contribute towards meeting other regulatory requirements including the Metro Title 3, Water Quality and Flood Management; Oregon Goal 6, Air, Water and Land Resources Quality; Oregon Goal 7, Areas Subject to Natural Hazards; the Clean Water Act; and the Endangered Species Act.

Goal 5 Significant Natural Resources

Resource site EB11 contains natural resource features that are not a Title 13 HCA and are therefore subject to Statewide Planning Goal 5 OAR 660-023-0110. The General ESEE analysis, Volume 3, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

The common impacts of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; adding impervious surface; modifying streams, wetlands and flood areas; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R7, R5, R2 and R1 base zones. Commercial uses are allowed in the CE and CM2 base zones. Open space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

Strictly limiting or *limiting* conflicting uses would retain the wildlife habitat functions provided by significant natural resource features including maintaining habitat for at risk plant, fish and wildlife species, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of Class A or Class B wildlife habitat should be required.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

Natural Resources Protection Decisions

Based on the analysis presented in Volume 3 and the resource site-specific evaluation for EB11, the following decisions are applied to protect the significant riparian corridors and wildlife habitat:

1. Apply a protection overlay zone (p zone) to areas of forest vegetation on steep slopes.
2. Apply a protection overlay zone (p zone) to wetlands and streams from top-of-bank to top-of-bank, and to land within 25 feet of wetlands and land within 25 feet of streams.
3. Apply a conservation overlay zone (c zone) to land between 25 and 50 feet of wetlands and the top-of-bank of streams.
4. Apply a conservation overlay zone (c zone) to areas of forest vegetation that is not located on steep slopes, except within the managed gardens in the upper area of The Grotto.
5. Allow conflicting uses within all other areas containing significant natural resources.

Resource Site No.: EB12 **Resource Site Name:** Floyd Light Forest

Previous Plan: East Butte, Terraces & Wetlands Plan
Previous Resource Site No.: 132

The results of the analysis found in Volume 3 and the resource site-specific evaluation, are presented in the following maps:

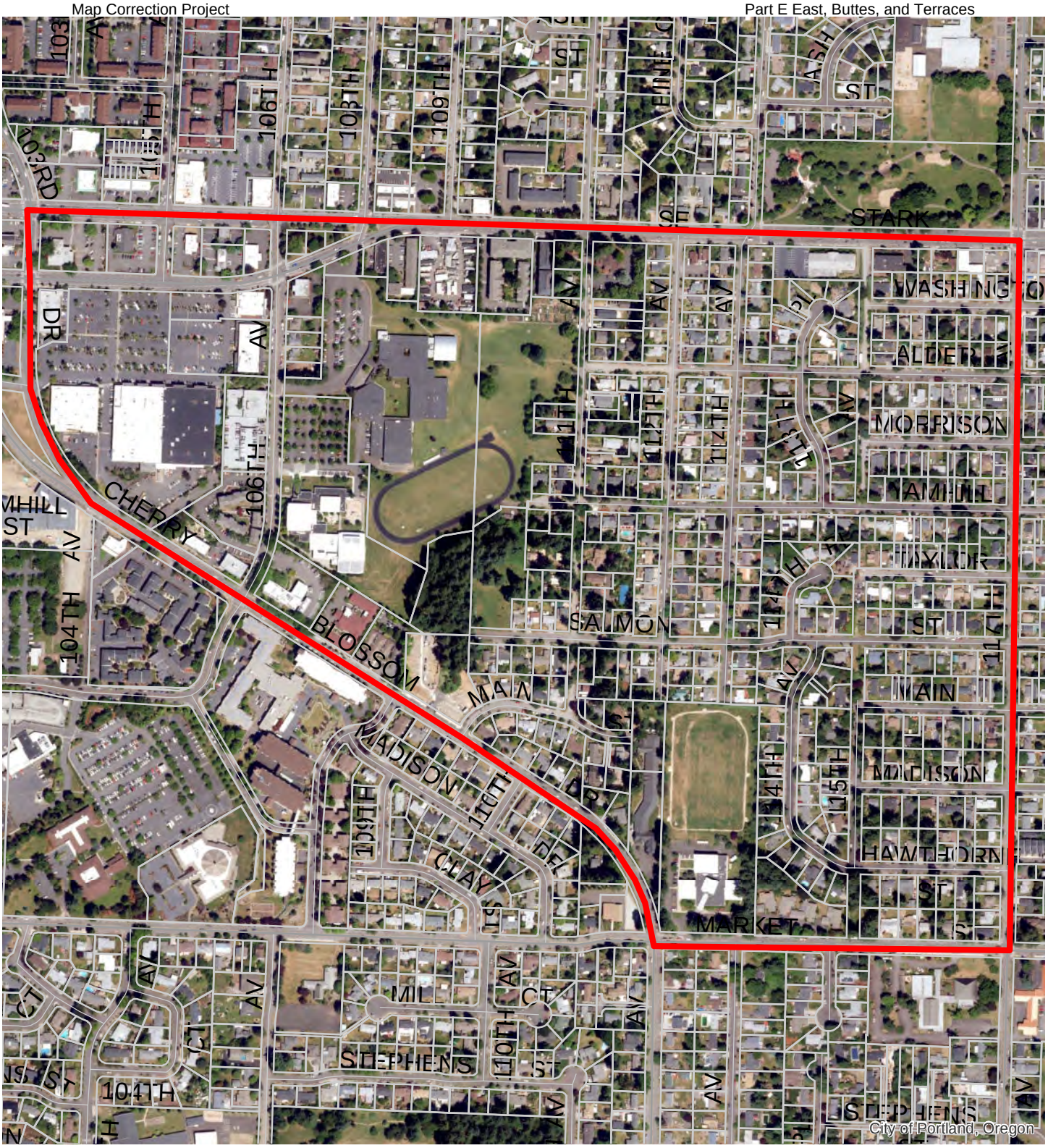
A. Water Features – rivers, streams, wetlands and flood areas
B. Land Features – forest, woodland, shrubland and herbaceous vegetation, steep slopes
C. Special Habitat Areas
D. Riparian Corridor Classifications
E. Wildlife Habitat Classifications
F. Urban Development Value
G. Metro Title 13 Habitat Conservation Areas
H. Statewide Planning Goal 5 Areas
I. Recommended Natural Resource Protections

Following the maps, additional information about existing natural resource features and functions in the resource site is presented.

Implementation of the results is found in Volume 1, Part B, updates to zoning maps and zoning code.

Resource site EB12 includes the following:

Site (acres)	178.5
Base zone (acres)	
CI2	<1
CM1	1.3
CM2	7.3
CX	26.0
OS	15.5
R2.5	10.5
R5	93.4
R7	8.8
RM1	10.1
RM2	3.8
RMP	1.7



Map A: Water Features

Resource Site: EB12

Updated: May 2022

Resource Sites
Urban Service Boundary
Taxlots
Wetlands
Rivers
Open stream channel
Piped Stream Segment
Flood Area

NORTH

0 275 550 Feet

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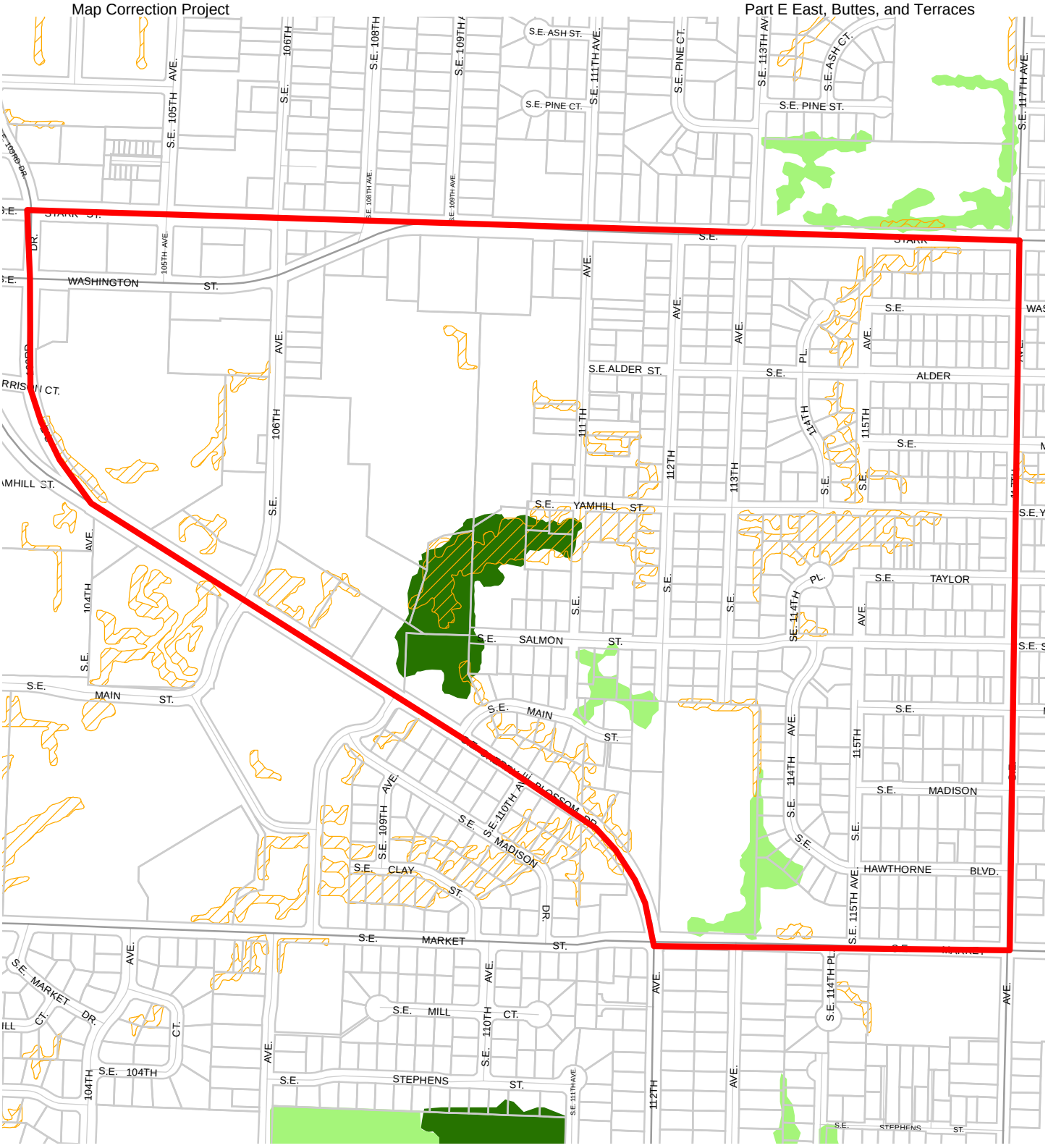

Map B: Vegetation and Steep Slopes

Resource Site: EB12

Updated: May 2022

NORTH

0 375 750 Feet

- Resource Sites
- Urban Service Boundary
- Taxlots
- Forest
- Woodland
- Shrubland
- Herbaceous

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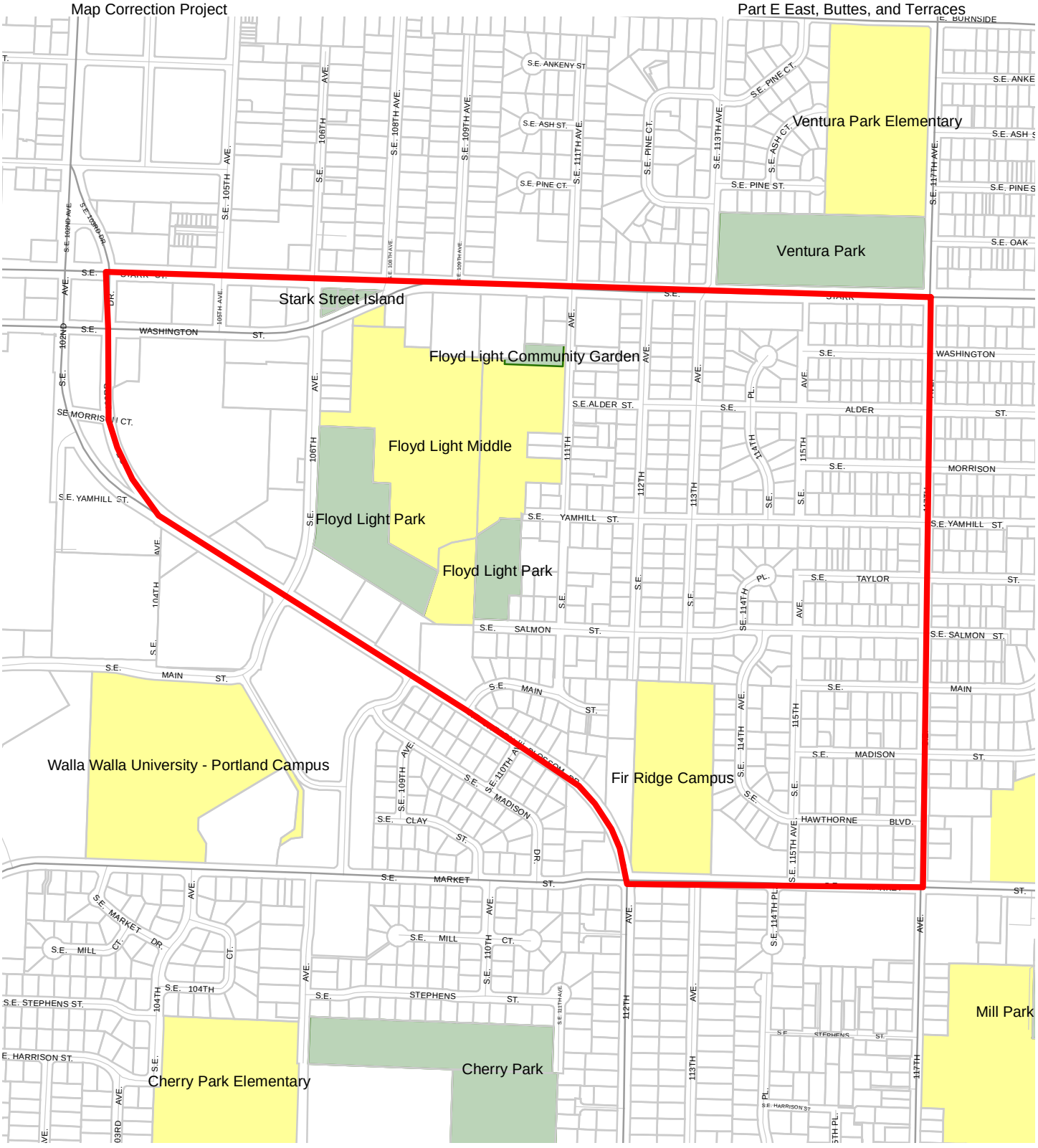

Map C: Special Habitat Areas

Resource Site: EB12

Updated: May 2022

NORTH

0 355 710 Feet

- Resource Sites
- Special Habitat Areas (SHAs)
- Open Stream Channel
- Piped Stream Segment
- Parks
- Schools
- Urban Service Boundary
- Taxlots

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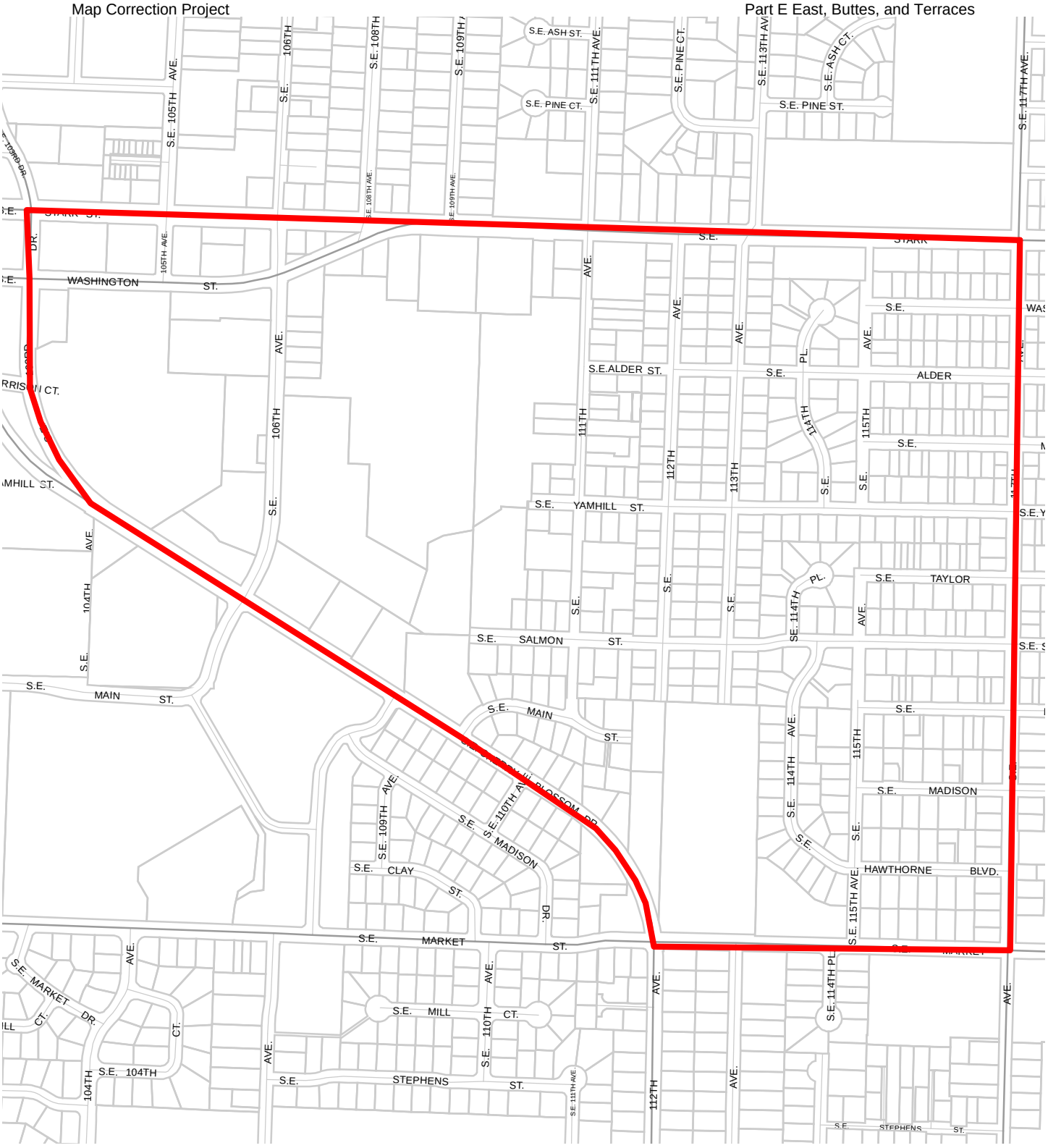

Map D: Riparian Corridors Habitat Classification

Resource Site: EB12

Updated: May 2022

Class I (high rank)
Class II (medium rank)
Class III (low rank)
Resource Sites
Urban Service Boundary
Taxlots

NORTH

0 275 550 Feet

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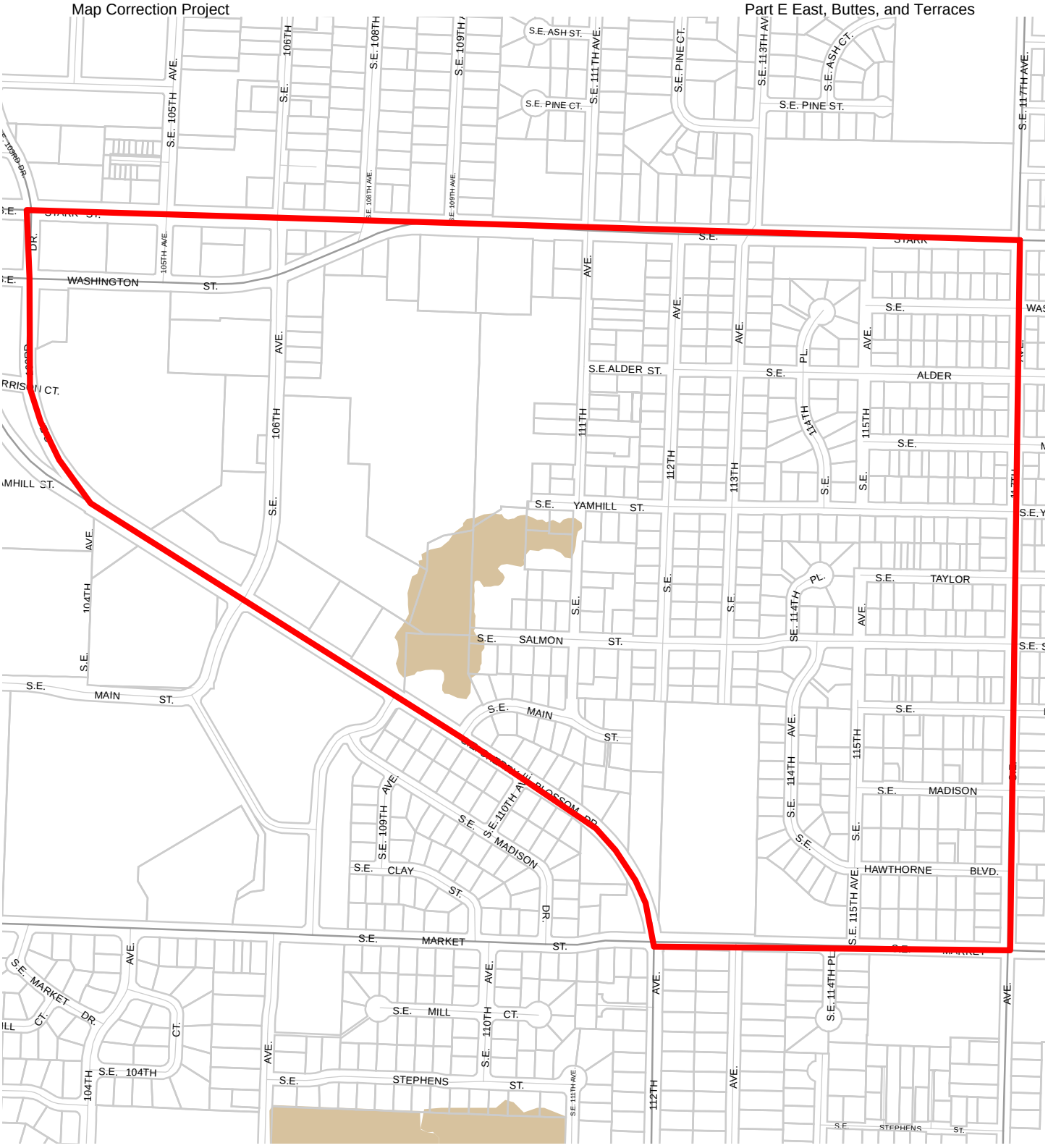

Map E: Wildlife Habitat Classification

Resource Site: EB12

Updated: May 2022

NORTH

0 220 440 Feet

- Resource Sites
- Class A (high rank)
- Class B (medium rank)
- Class C (low rank)
- Urban Service Boundary
- Taxlots

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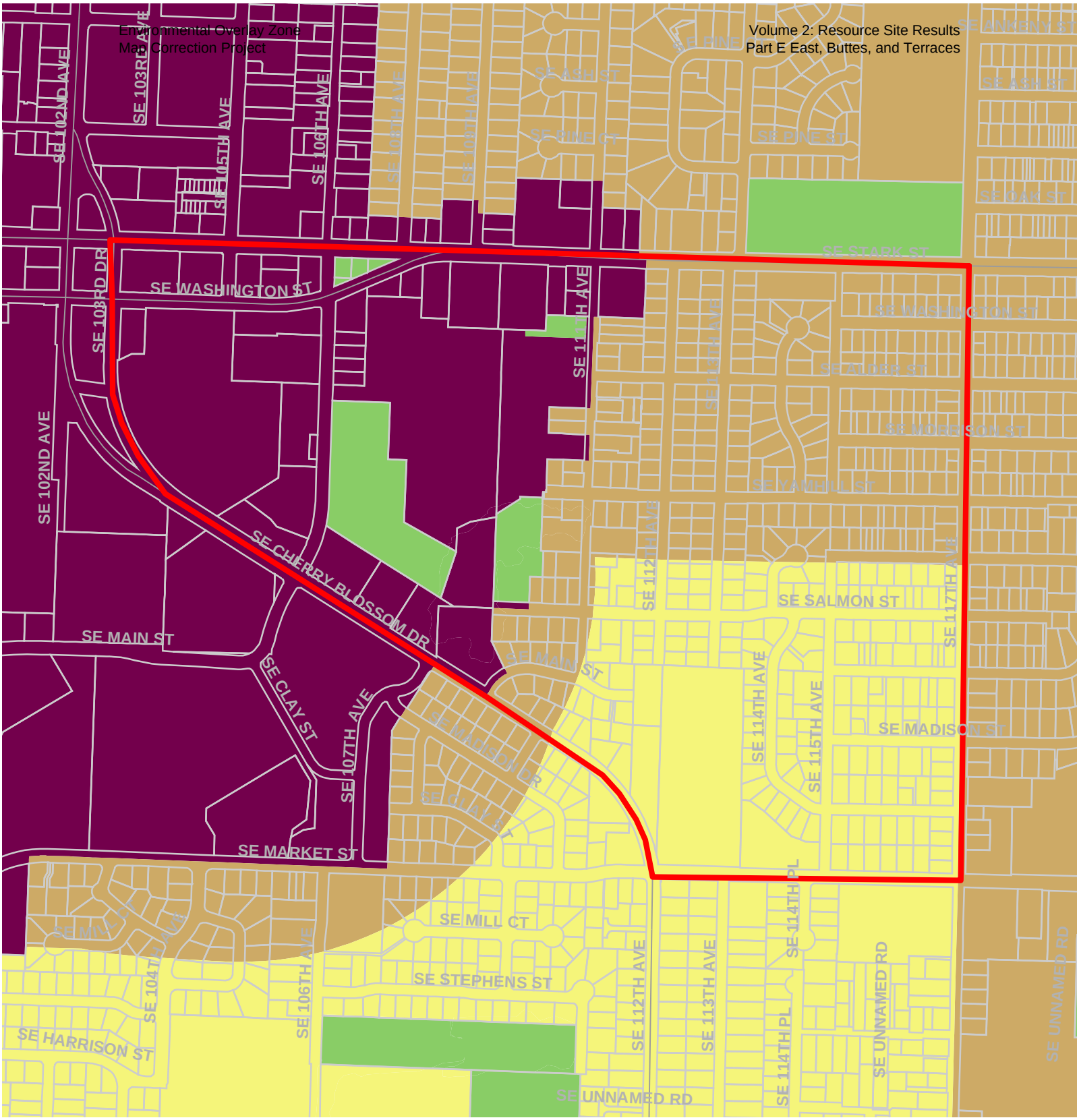

Map F: Urban Development Value (Title 13)
Resource Site: EB12

- Urban Service Boundary
- Resource Sites
- High Development Value
- Medium Development Value
- Low Development Value
- Parks

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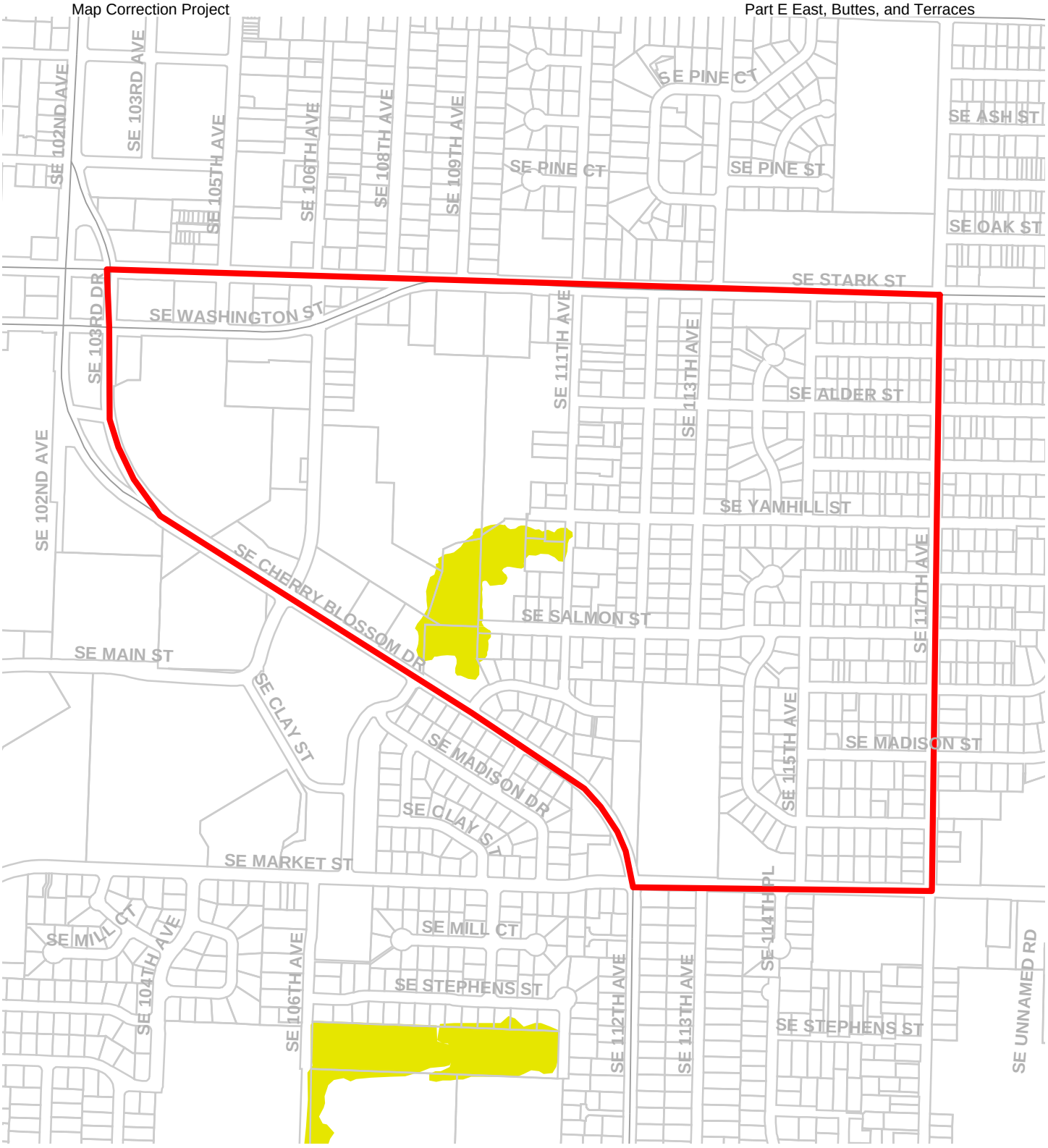
Updated: July 2021

NORTH

0 400 800 Feet

The information on the map was derived from digital databases. Care was taken in the creation of this map but it is provided "as is". The City of Portland ensures meaningful access to city programs, services, and activities to comply with Civil Rights Title VI and ADA Title II laws and reasonably provides: translation, interpretation, modifications, accommodations, alternative formats and auxiliary aids and services. To request these services, contact 503-823-7700, City TTY 503-823-6868, Relay Service: 711.



Map G: Title 13 Habitat Conservation Areas (HCA) and Goal 5 Areas

Resource Site: EB12

Updated: May 2022

NORTH

0 445 890 Feet

- Urban Service Boundary
- Resource Sites
- HCA High Value
- HCA Moderate Value
- HCA Low Value
- Goal 5 Significant Natural Resources

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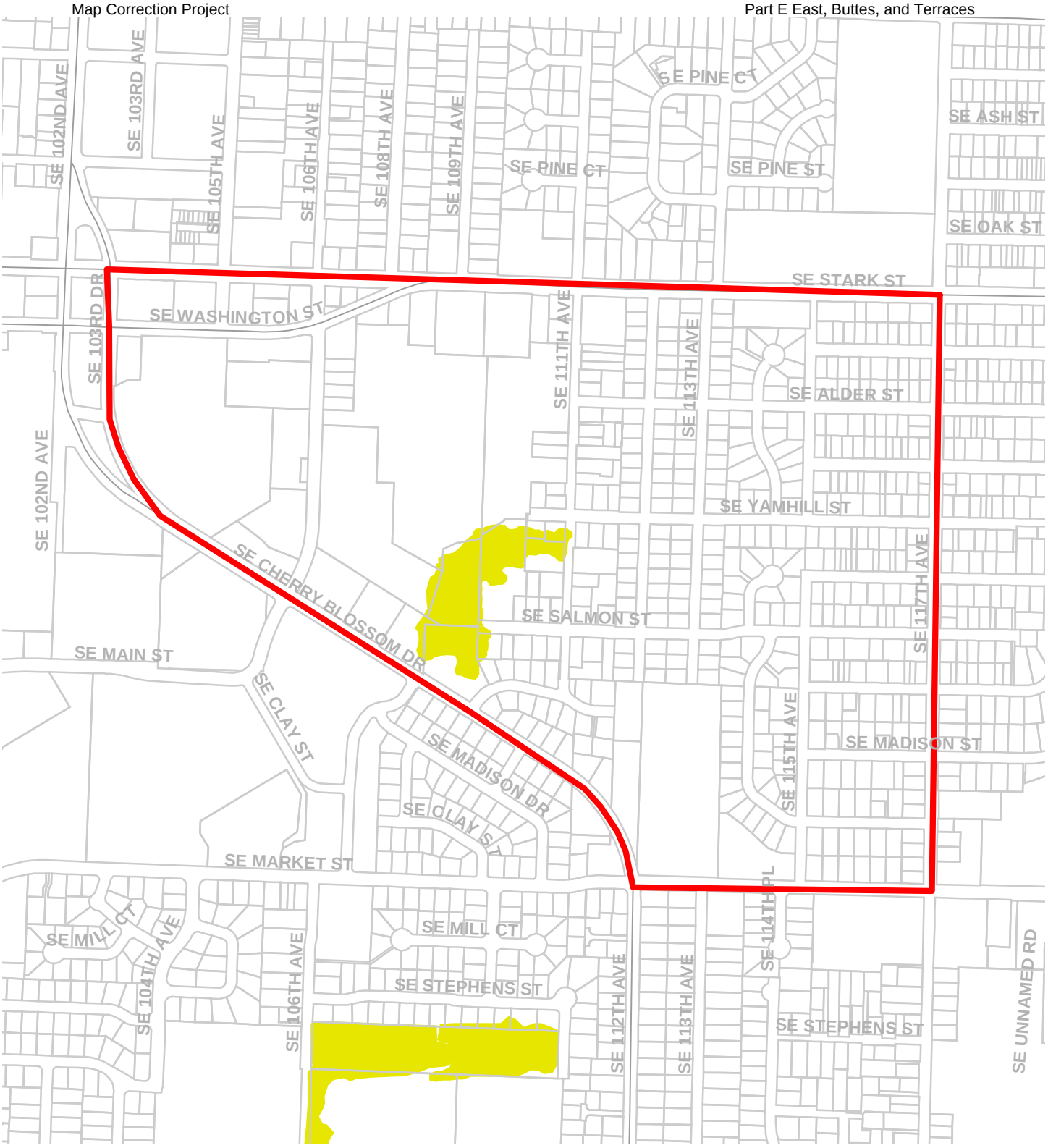

Map H: Goal 5 Resources

Resource Site: EB12

Updated: May 2022

NORTH

0 445 890 Feet

Urban Service Boundary

Resource Sites

Goal 5 Significant Natural Resources

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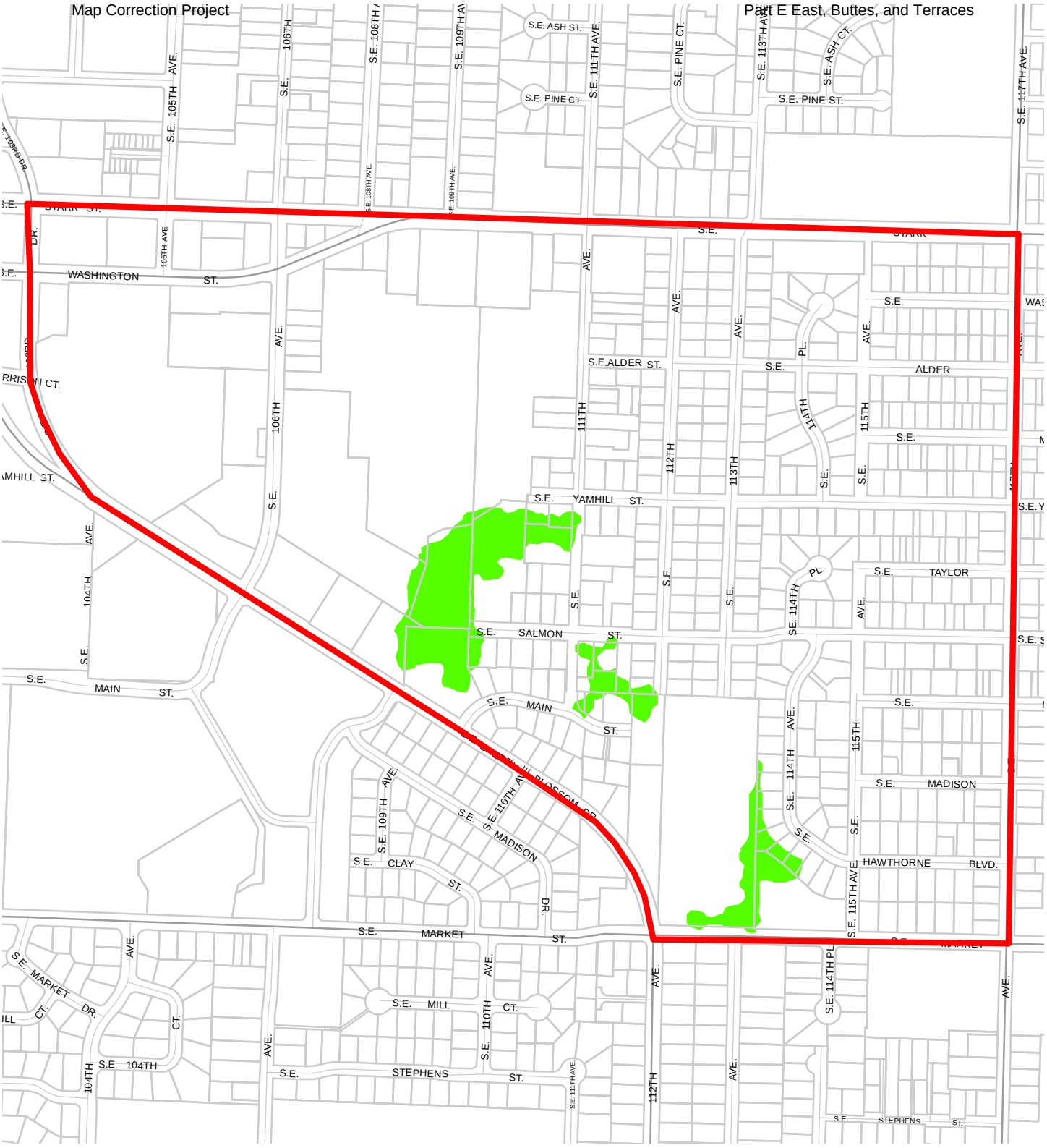

Map I: DRAFT Proposed Environmental Overlay Zones

Resource Site: EB12

Updated: May 2022

- Resource Sites
- Open Stream Channel
- Piped Stream Segment
- Proposed Conservation Zone
- Proposed Protection Zone
- Urban Service Boundary
- Taxlots

NORTH

0 300 600 Feet

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Natural Resource Description

Within resource site EB12 the following significant natural resource features and functions are present:

Significant Riparian Corridor Features: None

Significant Wildlife Habitat Features: forest patches, and associated and contiguous wetlands, two acres in size or larger.

Special Habitat Areas: None

Riparian Corridor Functions: None

Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status fish and wildlife species.

Table A: Quantity of Natural Resource Features in Resource Site EB12	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	
Forest (acres)	4.9
Woodland (acres)	2.5
Shrubland (acres)	0.0
Herbaceous (acres)	0.0
Flood Area*	
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	11.7
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are areas with a slope greater than 25%.	

Special status bird species observed within or adjacent to this resource site include bald eagle, bushtit, downy woodpecker, orange-crowned warbler, pacific-slope flycatcher, varied thrush, Vaux's swift, western wood-pewee, white-breasted nuthatch, and Wilson's warbler.

Table B: Quality of Natural Resource Functions in Resource Site EB12				
Resource Site (acres) = 178				
	Class 1/A	**Class 2/B**	**Class 3/C**	**Total**
Riparian Corridors*				
acres	0.0	0.0	0.0	0.0
percent total inventory site area	0.0%	0.0%	0.0%	0.0%
Wildlife Habitat*				
acres	0.0	0.0	4.9	4.9
percent total inventory site area	0.0%	0.0%	2.7%	2.7%
Special Habitat Areas**				
acres	0.0			
percent total inventory site area	0.0%			
Combined Total+				
acres	0.0	0.0	4.9	4.9
percent total inventory site area	0.0%	0.0%	2.7%	2.7%

* Class I riparian resources, Special Habitat Areas, and wildlife habitat include open water.
** Metro Title 13 designated all Special Habitat Areas as Class I riparian corridors.
+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Stormwater runs off impervious surfaces (e.g. rooftops, driveways, parking lots, streets) rapidly. , Without a place to retain the water (such as wetlands or adequate stormwater facilities), stormwater runoff results which can cause or exacerbate flooding and increase stream erosion. In addition, when water runs off quickly, it does not have a chance to infiltrate and recharge streams or aquifers to provide water during drier periods.

The type and capacity of stormwater facilities to manage the runoff from impervious surfaces varies in the city, affecting the local rate and amount of runoff, and the amount of pollutants in the water. Much of the city was developed prior to any stormwater regulations and receives limited or no management prior to discharging to pipes and surface waters.

Table C shows the total amount of impervious area within the resource site and how much of that impervious area does not receive management; the percentage of total impervious area that is not managed is called "effective impervious area." The higher the percent of effective impervious area in a watershed, the greater the negative impacts of stormwater runoff to streams. Stream science indicates that when effective impervious area reaches 10% of a watershed, negative stream impacts become significant; and at 25%, these impacts on waterways can be substantial. An additional consideration is the differences in soil conditions

and other factors that influence the ability of pervious areas to retain, infiltrate or filter pollutants from stormwater. For example, a mature forest is much more effective in managing stormwater than a manicured lawn; both areas would have a lower effective impervious surface percentage than a developed site, but they have different outcomes for stormwater management.

For Resource Area EB12, 0.1% of the total area is effectively impervious. This indicates a significant degree of stormwater management and/or existing natural resources that should be preserved. Areas with very low impervious cover significant degree of stormwater management and/or are more likely to be functioning properly to support biologic systems.

Table C. Impervious Area within Resource Site EB12

Total area (acres)	Total impervious Area (acres)	Total unmanaged impervious area* (acres)	Percent of resource site that is effectively impervious
179	76	0.1	0.1%

*Total unmanaged impervious area refers to the number of acres within a resource area that receives no formal stormwater management measures to regulate flow or treat pollutants before they reach surface waters, also referred to as effective impervious area.

Metro Title 13 and Oregon Goal 5 Compliance

The following information supplements evaluation of natural resource protections presented in Volume 3 and supports compliance with Metro Title 13 and Oregon Plan Goal 5.

Title 13 Habitat Conservation Areas

Map G presents the Habitat Conservation Areas (HCA) within the resource site EB12. Natural resources should be protected within HCA as follows:

1. *Strictly limit* or *limit* conflicting uses within Class I/High Rank Riparian Areas in all Urban Development Areas.
2. *Strictly limit* or *limit* conflicting uses within Class II/Medium Rank Riparian Areas within Moderate and Low Value Urban Development Area as well as parks and open spaces.
3. *Strictly limit* or *limit* conflicting uses within Class A/High or B/Medium Rank Wildlife Habitat within parks and open spaces.
4. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class III/Low Rank Riparian Areas in all Urban Development Areas.
5. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class A/High, Class B/Medium or Class C/Low Rank Wildlife Habitat in all Urban Development Area, expect parks and open space.

Strictly limiting or *limiting* conflicting uses in HCA will protect and conserve existing streams and wetlands to maintain significant natural resource functions including: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and fish and wildlife habitat. *Strictly limiting* or *limiting* conflicting uses in HCA will allow for additional urban development that is sensitive to the natural resource features and requires mitigation for unavoidable negative impacts to features and functions. The recommendation will also contribute towards meeting other regulatory requirements including the Metro Title 3, Water Quality and Flood Management; Oregon Goal 6, Air, Water and Land Resources Quality; Oregon Goal 7, Areas Subject to Natural Hazards; the Clean Water Act; and the Endangered Species Act.

Goal 5 Significant Natural Resources

Resource site EB12 contains natural resource features that are not a Title 13 HCA and are therefore subject to Statewide Planning Goal 5 OAR 660-023-0110. The General ESEE analysis, Volume 3, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

The common impacts of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; adding impervious surface; modifying streams, wetlands and flood areas; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R10, R7, R5, R3, R2, R1 and RMP base zones. Employment uses area allowed in the EG2 base zone. Industrial uses are allowed in the IG2 base zone. Commercial uses are allowed in the CX, CE, CM2 and CM1 base zones. Open space uses area allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

The analysis of economic, social, environmental and energy consequences provided in Volume 3 is confirmed for resource site EB12, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses would retain the wildlife habitat functions provided by significant natural resource features including maintaining habitat for at risk plant, fish and wildlife species, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of Class A or Class B wildlife habitat should be required.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

Natural Resources Protection Decisions

Based on the analysis presented in Volume 3 and the resource site-specific evaluation for EB12, the following decisions are applied to protect the significant riparian corridors and wildlife habitat:

1. Apply a protection overlay zone (p zone) to wetlands and streams from top-of-bank to top-of-bank, and to land within 25 feet of wetlands and land within 25 feet of streams.
2. Apply a conservation overlay zone (c zone) to land between 25 and 50 feet of wetlands and the top-of-bank of streams.
3. Apply a conservation overlay zone (c zone) to areas of forest vegetation, including vegetation located on steep slopes.
4. Allow conflicting uses within all other areas containing significant natural resources.

Resource Site No.: EB13 **Resource Site Name:** Kelly Butte

Previous Plan: East Butte, Terraces & Wetlands Plan
Previous Resource Site No.: 132

The results of the analysis found in Volume 3 and the resource site-specific evaluation, are presented in the following maps:

A. Water Features – rivers, streams, wetlands and flood areas
B. Land Features – forest, woodland, shrubland and herbaceous vegetation, steep slopes
C. Special Habitat Areas
D. Riparian Corridor Classifications
E. Wildlife Habitat Classifications
F. Urban Development Value
G. Metro Title 13 Habitat Conservation Areas
H. Statewide Planning Goal 5 Areas
I. Recommended Natural Resource Protections

Following the maps, additional information about existing natural resource features and functions in the resource site is presented.

Implementation of the results is found in Volume 1, Part B, updates to zoning maps and zoning code.

Resource site EB13 includes the following:

Site (acres)	295.9
Base zones (acres)	
CE	14.0
CM1	3.8
CM2	10.8
EG2	19.2
IG2	11.2
OS	65.7
R10	38.9
R5	76.8
R7	11.3
RM1	23.7
RM2	11.3
RMP	9.1

Map A: Water Features

Resource Site: EB13

Updated: May 2022

Resource Sites
Urban Service Boundary
Taxlots
Wetlands
Rivers
Open stream channel
Piped Stream Segment
Flood Area

NORTH

0 325 650 Feet

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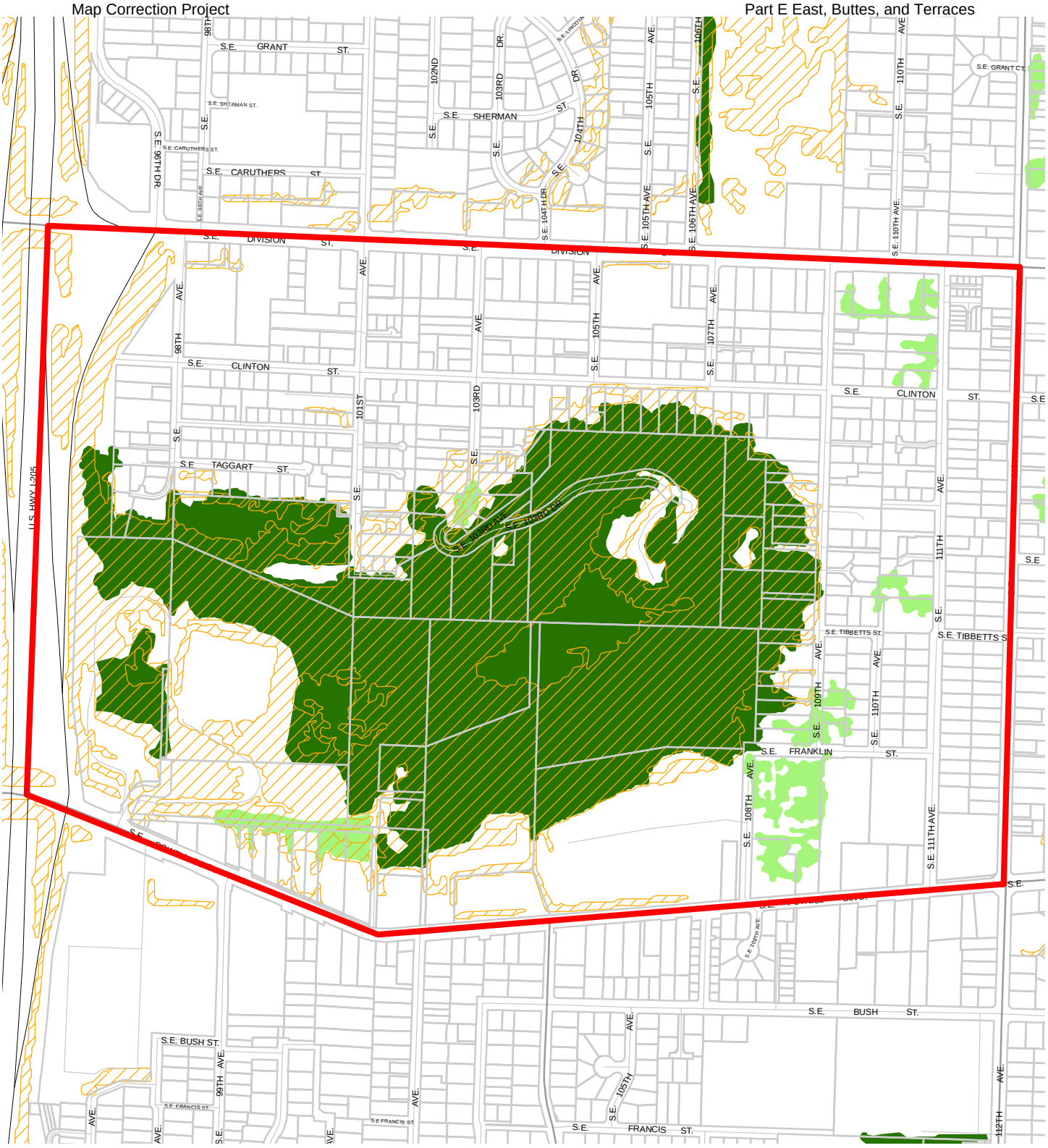

Map B: Vegetation and Steep Slopes

Resource Site: EB13

Updated: May 2022

NORTH

0 445 890 Feet

Recommended Draft - As Amended

- Resource Sites
- Urban Service Boundary
- Taxlots
- Forest
- Woodland
- Shrubland
- Herbaceous

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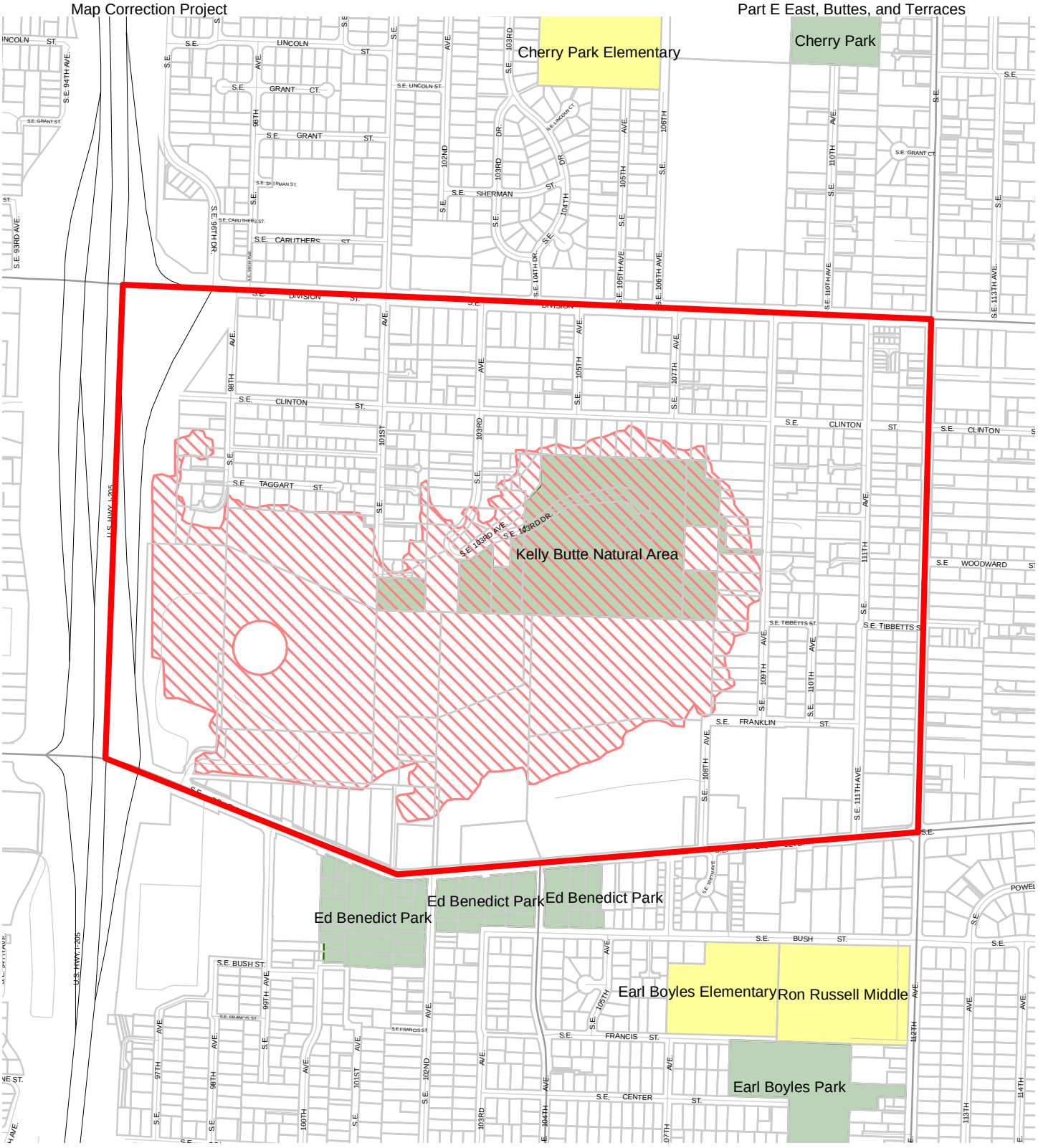
May 2022



Map C: Special Habitat Areas

Resource Site: EB13

Updated: May 2022

NORTH

0 420 840 Feet

- Resource Sites
- Special Habitat Areas (SHAs)
- Open Stream Channel
- Piped Stream Segment
- Parks
- Schools
- Urban Service Boundary
- Taxlots

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Map D: Riparian Corridors Habitat Classification

Resource Site: EB13

Updated: May 2022

Class I (high rank)

Class II (medium rank)

Class III (low rank)

Resource Sites

Urban Service Boundary

Taxlots

NORTH

0 325 650 Feet

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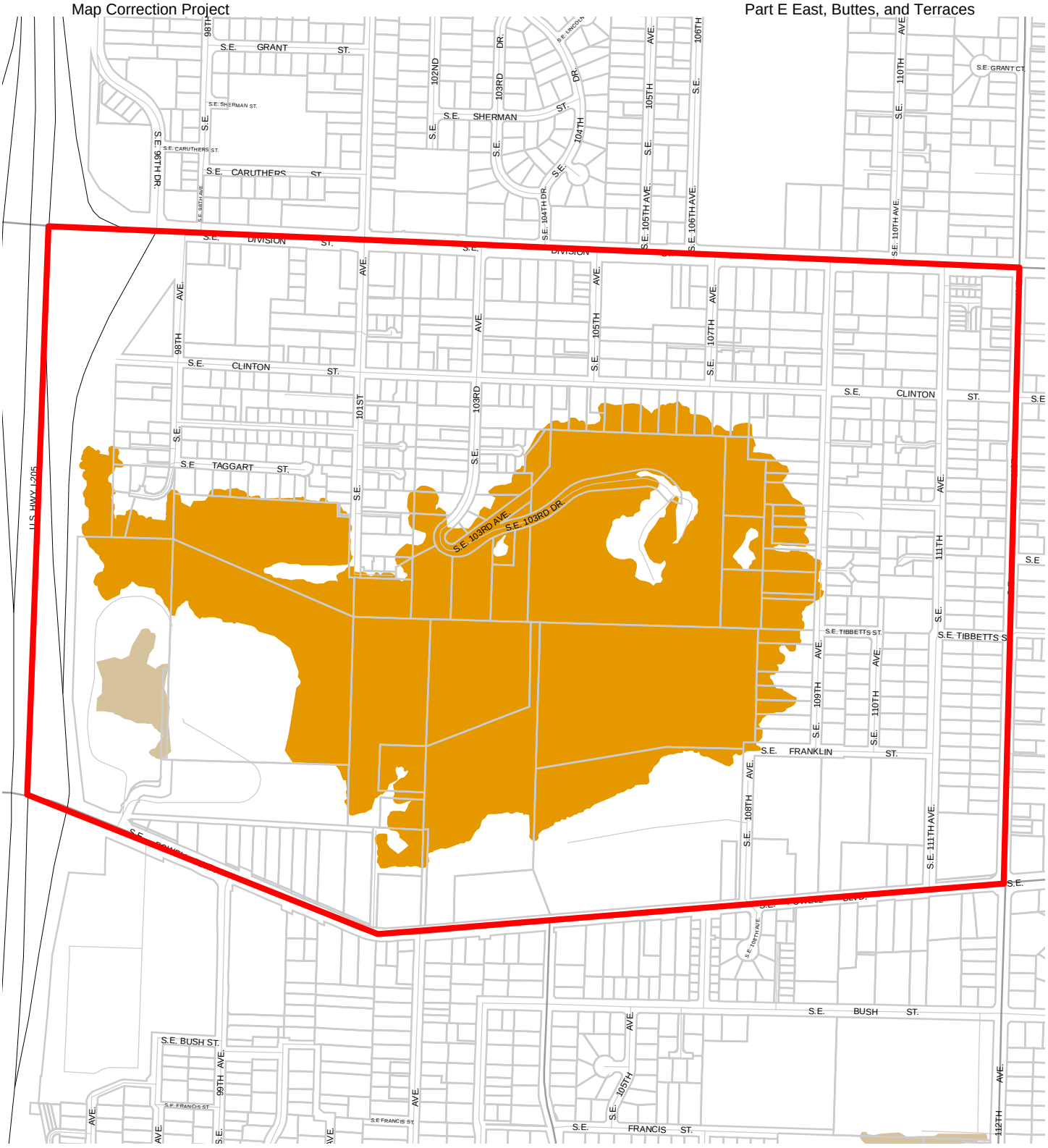

Map E: Wildlife Habitat Classification

Resource Site: EB13

Updated: May 2022

NORTH

0 262.5525 Feet

- Resource Sites
- Class A (high rank)
- Class B (medium rank)
- Class C (low rank)
- Urban Service Boundary
- Taxlots

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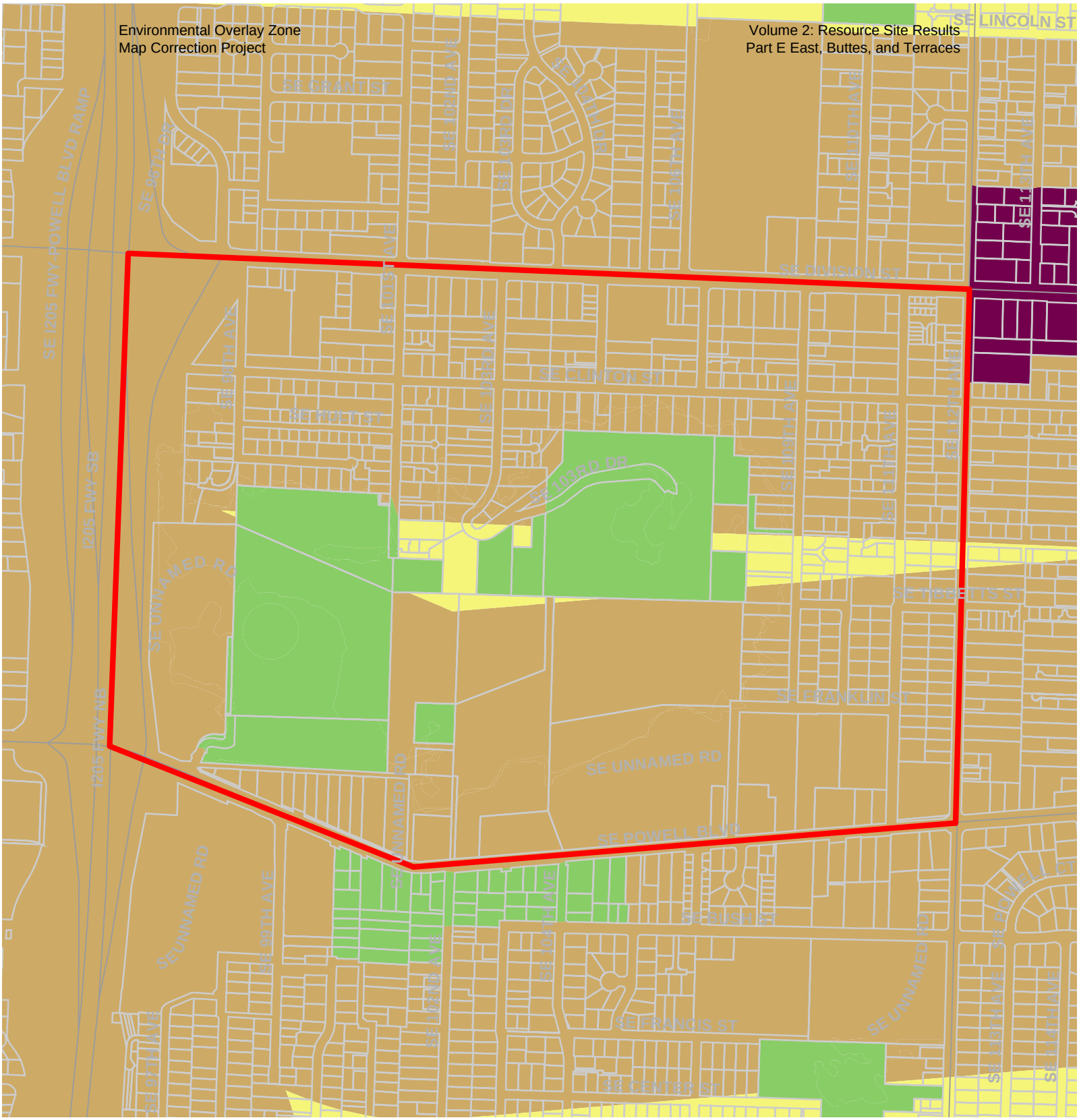

Map F: Urban Development Value (Title 13)
Resource Site: EB13

- Urban Service Boundary
- Resource Sites
- High Development Value
- Medium Development Value
- Low Development Value
- Parks

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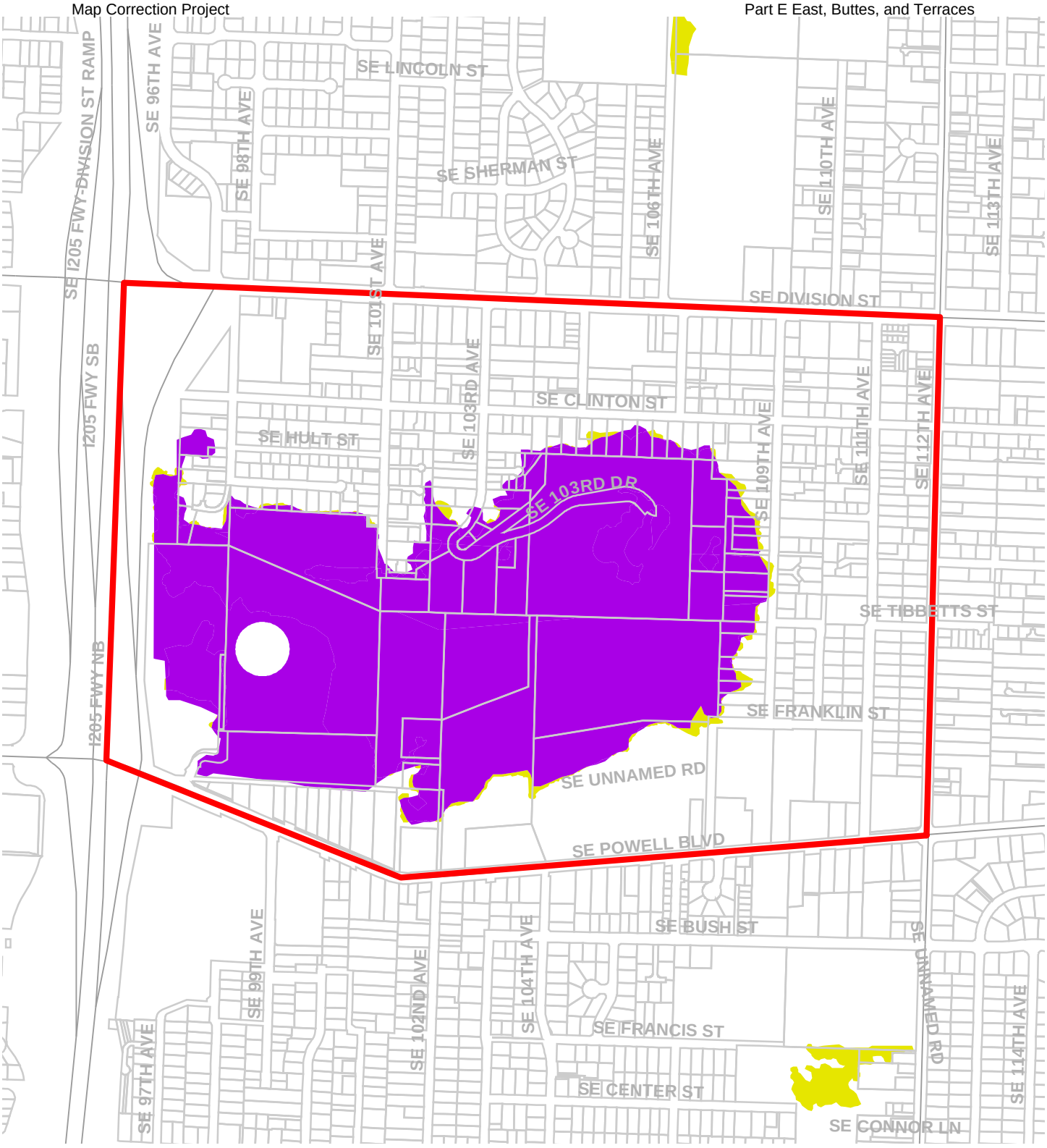
Updated: July 2021

NORTH

0 475 950 Feet



Map G: Title 13 Habitat Conservation Areas (HCA) and Goal 5 Areas

Resource Site: EB13

Updated: May 2022

NORTH

0 500 1,000 Feet

- Urban Service Boundary
- Resource Sites
- HCA High Value
- HCA Moderate Value
- HCA Low Value
- Goal 5 Significant Natural Resources

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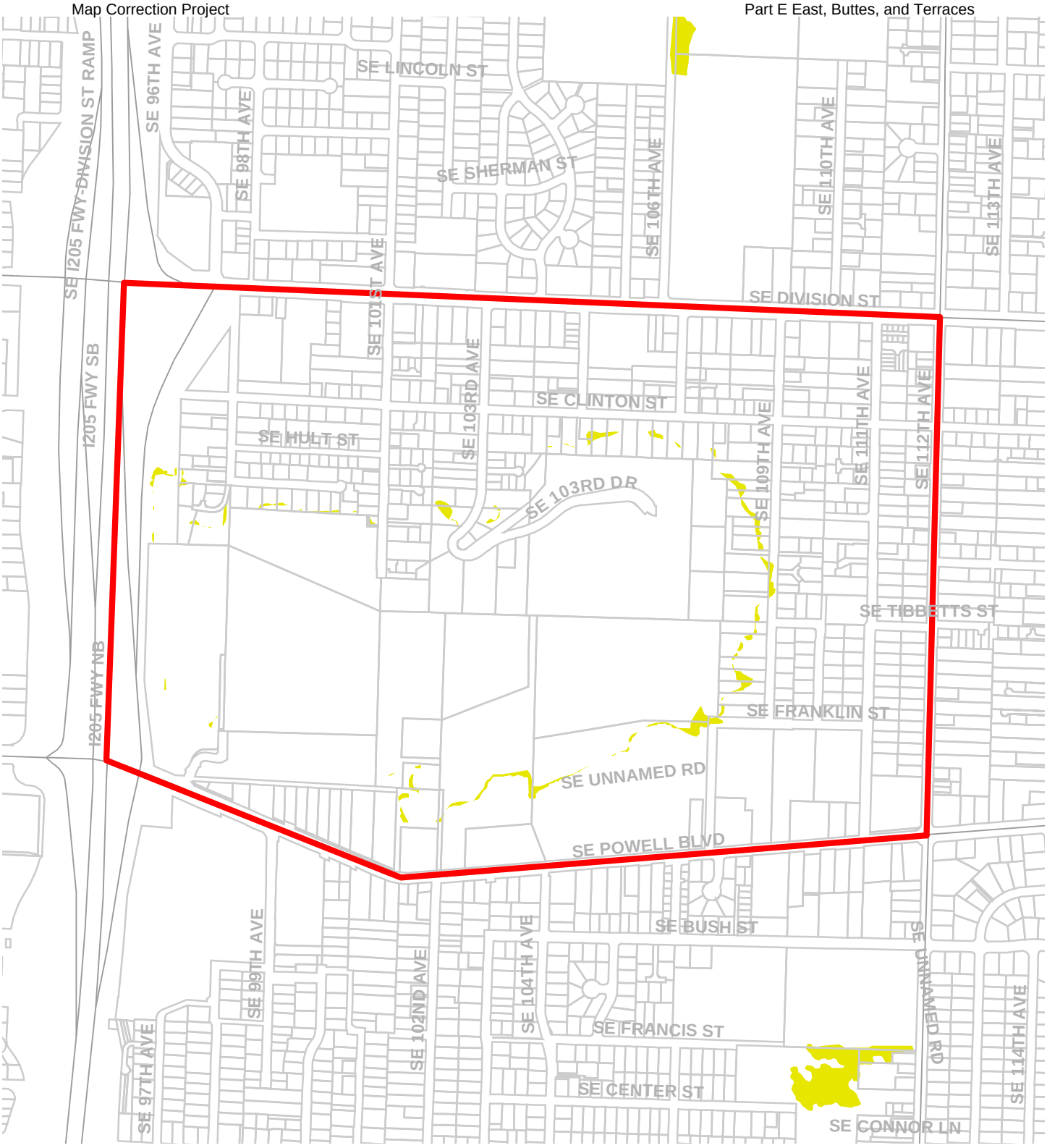

Map H: Goal 5 Resources

Resource Site: EB13

Updated: May 2022

NORTH

0 500 1,000 Feet

Recommended Draft - As Amended

- Urban Service Boundary
- Resource Sites
- Goal 5 Significant Natural Resources

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May 2022

Map I: DRAFT Proposed Environmental Overlay Zones

Resource Site: EB13

Updated: May 2022

- Resource Sites
- Open Stream Channel
- Piped Stream Segment
- Proposed Conservation Zone
- Proposed Protection Zone
- Urban Service Boundary
- Taxlots

NORTH

0 355 710 Feet

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Natural Resource Description

Within resource site EB13 the following significant natural resource features and functions are present:

Significant Riparian Corridor Features: None

Significant Wildlife Habitat Features: forest patches, and associated and contiguous wetlands, two acres in size or larger.

Special Habitat Areas: Kelly Butte (G, M)

Riparian Corridor Functions: None

Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status fish and wildlife species.

Table A: Quantity of Natural Resource Features in Resource Site EB13	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	
Forest (acres)	88.2
Woodland (acres)	8.4
Shrubland (acres)	0.0
Herbaceous (acres)	0.0
Flood Area*	
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	105.5
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are areas with a slope greater than 25%.	

Kelly Butte is one of three cinder cone volcanoes located within the East Buttes, Terraces and Wetlands planning area. The butte is located approximately five miles east of the Willamette River, directly east of Interstate 205 and between SE Powell Boulevard and SE Division Street.

Kelly Butte is a prominent local landmark, located between nearby Mt. Tabor and Powell Butte. At 596 ft. in elevation, the butte towers 300 ft. above the surrounding neighborhood. The butte is forested and steep, with side slopes approaching 45 degrees. The site is bordered by developed residential areas to the north and east, commercial and light industrial uses to the south, and by the I-205 corridor to the west. Large undeveloped residential lots are located on the central south slope of the butte. The site includes the Kelly Butte Natural Area. Extensive recreational uses, such as hiking, biking and horse riding, occur along the butte's various trails and paved roads. A large city water tank is located on the west slope, and smaller Powell Valley Rd. Water District tanks are found on the east and south slopes.

Approximately 75 percent of the site is undeveloped and forested, containing significant habitat value for wildlife. In addition to habitat, the forest provides scenic, recreational, slope stabilization and erosion control values. A small palustrine wetland is located on the north side of the butte. Approximately half of this area is zoned Open Space and owned by the city; the remaining land is zoned for single-dwelling residential development.

Soils on Kelly Butte are gravelly, of low strength and extremely steep. These soils have severe limitations for building site development meaning that "one or more soil properties or site features are so unfavorable or difficult to overcome that [development] may not be feasible" (Green 1983). The gravelly silt loams provide habitat for a rare Erythronium population (see below). Groundwater resources at Kelly Butte are located primarily within the underlying Troutdale Formation that occupies the entire site except a small area of Boring lava to the west, now partly covered by the I-205 highway.

A sub-area of the Kelly Butte, "Floyd Light Forest," is located near Floyd Light Middle School at approximately SE Salmon Street and SE 110th Avenue. The forest is situated on a small bluff overlooking the school.

The Kelly Butte volcano is of geologic significance, in part because few other cities in the nation have volcanoes within their borders. Recent local and regional planning efforts have formally recognized the significance of Kelly Butte as a natural, scenic and open space resource. In 1991, the Scenic Resources Protection Plan named Kelly Butte as an official scenic viewpoint, noting the "striking view of Mt. Hood which is framed by towering evergreen trees." In 1992, Kelly Butte was identified as a "regionally significant natural area site" in the Metro Greenspaces Master Plan. As such, the butte is envisioned as a major anchor in the overall Greenspace System for the region. According to the Master Plan, Kelly Butte's "forested peak and steep walls provide drama to [the] urban landscape and natural visual and recreation experiences for nearby residents." Arguably no other resource site within the planning area offers the same sense of urban refuge as Kelly Butte.

The Kelly Butte forest is one of the last remaining examples of the Pacific Northwest's western hemlock forest community within the planning area. The forest community is unique among all temperate forests in the world (Waring and Franklin 1979).4 A slow growing tree species found at Kelly Butte is the pacific yew (*Taxus brevifolia*), commonly associated with ancient forests of the Pacific Northwest. In recent years, a cancer-fighting substance known as "taxol" was discovered in the bark of the yew. Taxol has proven effective in fighting leukemia and several types of cancer. A significant feature of the vegetation at Kelly Butte is the population of trout or fawn lilies (*Erythronium oregonum*) on the butte's south slope. This is the only known population of wild trout lilies in the city; the special site conditions, including the stony soils and southern exposure, make this site a uniquely suited habitat for the lily. Also unique to the city is the hairy manzanita (*Arctostaphylos columbiana*) which grows on the slopes of the butte.

Kelly Butte's vegetation spans a range of successional stages from scrub/shrub to conifer topping hardwood. The forest is a mix of conifer and broadleaf deciduous trees with Douglas fir being the dominant species. Intermixed with the fir are other, predominantly deciduous trees: bigleaf maple, willow, pacific dogwood, red alder, bitter cherry, black cottonwood, Oregon ash, western red cedar, cascara, oak, birch and European hawthorn.

Shrub species at Kelly Butte include western hazel, Oregon grape, wild rose, vine maple, Indian plum, choke cherry, Douglas spiraea, thimbleberry, oceanspray, serviceberry, snowberry, red-flowering current, salal, trailing blackberry and evergreen huckleberry. The herbaceous layer.is comprised of snow queen, fringecup, fairy bells, vanilla leaf, trillium, bunchberry, poison oak, inside-out flower, false Soloman's seal, wild strawberry, clematis, cleavers, sedges, grasses, and ferns: sword, licorice, bracken and wood fern.

Brushy deciduous tree and shrub growth suggest that selective logging has occurred on Kelly Butte in the past. Invasive exotic plants such as Himalayan blackberry, laurel, holly and English ivy are present, particularly near the developed areas at lower elevations. Domestic animals also are present.

The forested slopes in varying stages of succession provide some of the highest habitat values within the East Buttes and Terraces planning area. Shrub pockets provide food and cover for passerine species and small mammals. Forest trees provide food, cover, perch and nest sites for woodpeckers and other passerine species. Anna's hummingbird (*Calypte anna*) was observed and reportedly nests at the butte, making this the northernmost nesting site in the bird's range. Species observed include chickadee, song sparrow, varied thrush, Oregon junco, robins and kinglets. Mammals observed include grey squirrel and brush rabbit.

The Troutdale Formation underlying much of the butte provides an excellent aquifer. Groundwater yields are about 500 gallons per minute (gpm). The Boring lava provides low yields

of only 10 gpm. Recharge occurs principally through infiltration, but also through migration from overlying formations and adjacent recharge areas (Trimble 1963; Redfern 1976).

The Floyd Light Forest sub-area is about 3.5 acres in size and is situated on a small, west sloping bluff. The forest contains Douglas fir, bigleaf maple, western red cedar, bitter cherry and a few non-native trees such as European hawthorn. Understory vegetation includes vine maple, oceanspray, western hazel, thimbleberry, mock orange, wild rose, Oregon grape, choke cherry, Himalayan blackberry and laurel. Sword and licorice fems, cleavers and ivy make up the ground layer. Habitat values are medium (habitat score: 38) but the forest provides important nesting, forage and cover habitat for local birds.

Special status bird species observed within or adjacent to this resource site include bald eagle, band-tailed pigeon, black-throated gray warbler, brown creeper, bushtit, downy woodpecker, hermit warbler, Hutton's vireo, Nashville warbler, orange-crowned warbler, pacific wren, purple finch, varied thrush, Vaux's swift, western wood-pewee, white-breasted nuthatch, and Wilson's warbler.

Table B: Quality of Natural Resource Functions in Resource Site EB13

Resource Site (acres) = 296				
	Class 1/A	**Class 2/B**	**Class 3/C**	**Total**
Riparian Corridors*				
acres	0.0	0.0	0.0	0.0
percent total inventory site area	0.0%	0.0%	0.0%	0.0%
Wildlife Habitat*				
acres	0.0	85.9	2.4	88.2
percent total inventory site area	0.0%	29.0%	0.8%	29.8%
Special Habitat Areas**				
acres	107.1			
percent total inventory site area	36.2%			
Combined Total+				
acres	0.0	85.9	2.4	88.2
percent total inventory site area	0.0%	29.0%	0.8%	29.8%

* Class I riparian resources, Special Habitat Areas, and wildlife habitat include open water.
** Metro Title 13 designated all Special Habitat Areas as Class I riparian corridors.
+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Stormwater runs off impervious surfaces (e.g. rooftops, driveways, parking lots, streets) rapidly. , Without a place to retain the water (such as wetlands or adequate stormwater facilities),

stormwater runoff results which can cause or exacerbate flooding and increase stream erosion. In addition, when water runs off quickly, it does not have a chance to infiltrate and recharge streams or aquifers to provide water during drier periods.

The type and capacity of stormwater facilities to manage the runoff from impervious surfaces varies in the city, affecting the local rate and amount of runoff, and the amount of pollutants in the water. Much of the city was developed prior to any stormwater regulations and receives limited or no management prior to discharging to pipes and surface waters.

Table C shows the total amount of impervious area within the resource site and how much of that impervious area does not receive management; the percentage of total impervious area that is not managed is called "effective impervious area." The higher the percent of effective impervious area in a watershed, the greater the negative impacts of stormwater runoff to streams. Stream science indicates that when effective impervious area reaches 10% of a watershed, negative stream impacts become significant; and at 25%, these impacts on waterways can be substantial. An additional consideration is the differences in soil conditions and other factors that influence the ability of pervious areas to retain, infiltrate or filter pollutants from stormwater. For example, a mature forest is much more effective in managing stormwater than a manicured lawn; both areas would have a lower effective impervious surface percentage than a developed site, but they have different outcomes for stormwater management.

For Resource Area EB13, 8% of the total area is effectively impervious. This indicates a significant degree of stormwater management and/or existing natural resources that should be preserved. Areas with very low impervious cover significant degree of stormwater management and/or are more likely to be functioning properly to support biologic systems.

Table C. Impervious Area within Resource Site EB13

Total area (acres)	Total impervious Area (acres)	Total unmanaged impervious area* (acres)	Percent of resource site that is effectively impervious
296	81	22	8%

*Total unmanaged impervious area refers to the number of acres within a resource area that receives no formal stormwater management measures to regulate flow or treat pollutants before they reach surface waters, also referred to as effective impervious area.

Metro Title 13 and Oregon Goal 5 Compliance

The following information supplements evaluation of natural resource protections presented in Volume 3 and supports compliance with Metro Title 13 and Oregon Plan Goal 5.

Title 13 Habitat Conservation Areas

Map G presents the Habitat Conservation Areas (HCA) within the resource site EB13. Natural resources should be protected within HCA as follows:

1. *Strictly limit* or *limit* conflicting uses within Class I/High Rank Riparian Areas in all Urban Development Areas.
2. *Strictly limit* or *limit* conflicting uses within Class II/Medium Rank Riparian Areas within Moderate and Low Value Urban Development Area as well as parks and open spaces.
3. *Strictly limit* or *limit* conflicting uses within Class A/High or B/Medium Rank Wildlife Habitat within parks and open spaces.
4. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class III/Low Rank Riparian Areas in all Urban Development Areas.
5. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class A/High, Class B/Medium or Class C/Low Rank Wildlife Habitat in all Urban Development Area, expect parks and open space.

Strictly limiting or *limiting* conflicting uses in HCA will protect and conserve existing streams and wetlands to maintain significant natural resource functions including: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and fish and wildlife habitat. *Strictly limiting* or *limiting* conflicting uses in HCA will allow for additional urban development that is sensitive to the natural resource features and requires mitigation for unavoidable negative impacts to features and functions. The recommendation will also contribute towards meeting other regulatory requirements including the Metro Title 3, Water Quality and Flood Management; Oregon Goal 6, Air, Water and Land Resources Quality; Oregon Goal 7, Areas Subject to Natural Hazards; the Clean Water Act; and the Endangered Species Act.

Goal 5 Significant Natural Resources

Resource site EB13 contains natural resource features that are not a Title 13 HCA and are therefore subject to Statewide Planning Goal 5 OAR 660-023-0110. The General ESEE analysis, Volume 3, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

The common impacts of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; adding impervious surface; modifying streams, wetlands and flood areas; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R10, R7, R5, RM2, RM1 and RMP base zones. Employment uses area allowed in the EG2 base zone. Industrial uses are allowed in the IG2 base zone. Commercial uses are allowed in the CX, CE, CM2 and CM1 base zones. Open space uses area allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

The analysis of economic, social, environmental and energy consequences provided in Volume 3 is confirmed for resource site EB13 with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses would retain the wildlife habitat functions provided by significant natural resource features including maintaining habitat for at risk plant, fish and wildlife species, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of Class A or Class B wildlife habitat should be required.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

Natural Resources Protection Decisions

Based on the analysis presented in Volume 3 and the resource site-specific evaluation for EB13, the following decisions are applied to protect the significant riparian corridors and wildlife habitat:

1. Apply a protection overlay zone (p zone) to wetlands and streams from top-of-bank to top-of-bank, and to land within 25 feet of wetlands and land within 25 feet of streams.
2. Apply a conservation overlay zone (c zone) to land between 25 and 50 feet of wetlands and the top-of-bank of streams.
3. Apply a protection overlay zone (p zone) to areas of forest vegetation on steep slopes.
4. Apply a conservation overlay zone (c zone) to areas of forest vegetation not on steep slopes.
5. Allow conflicting uses within all other areas containing significant natural resources.

Resource Site No.: EB14 **Resource Site Name:** Glendoveer Golf Course

Previous Plan: East Butte, Terraces & Wetlands Plan
Previous Resource Site No.: 136

The results of the analysis found in Volume 3 and the resource site-specific evaluation, are presented in the following maps:

A. Water Features – rivers, streams, wetlands and flood areas
B. Land Features – forest, woodland, shrubland and herbaceous vegetation, steep slopes
C. Special Habitat Areas
D. Riparian Corridor Classifications
E. Wildlife Habitat Classifications
F. Urban Development Value
G. Metro Title 13 Habitat Conservation Areas
H. Statewide Planning Goal 5 Areas
I. Recommended Natural Resource Protections

Following the maps, additional information about existing natural resource features and functions in the resource site is presented.

Implementation of the results is found in Volume 1, Part B, updates to zoning maps and zoning code.

Resource site EB14 includes the following:

Site (acres)	281.6
Base zones (acres)	
OS	240.3
R10	0.2
R5	0.5
R7	30.9
RM1	9.5
RM2	0.2

Map A: Water Features

Resource Site: EB14

Updated: May 2022

Resource Sites
Urban Service Boundary
Taxlots
Wetlands
Rivers
Open stream channel
Piped Stream Segment
Flood Area

NORTH

0 355 710 Feet

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The information on the map was derived from digital databases. Care was taken in the creation of this map but it is provided "as is". The City of Portland ensures meaningful access to city programs, services, and activities to comply with Civil Rights Title VI and ADA Title II laws and reasonably provides: translation, interpretation, modifications, accommodations, alternative formats, auxiliary aids and services. To request these services, contact 503-823-7700, City TTY 503-823-6868, Relay Service: 711.

Map B: Vegetation and Steep Slopes

Resource Site: EB14

Updated: May 2022

NORTH

0 485 970 Feet

- Resource Sites
- Urban Service Boundary
- Taxlots
- Forest
- Woodland
- Shrubland
- Herbaceous

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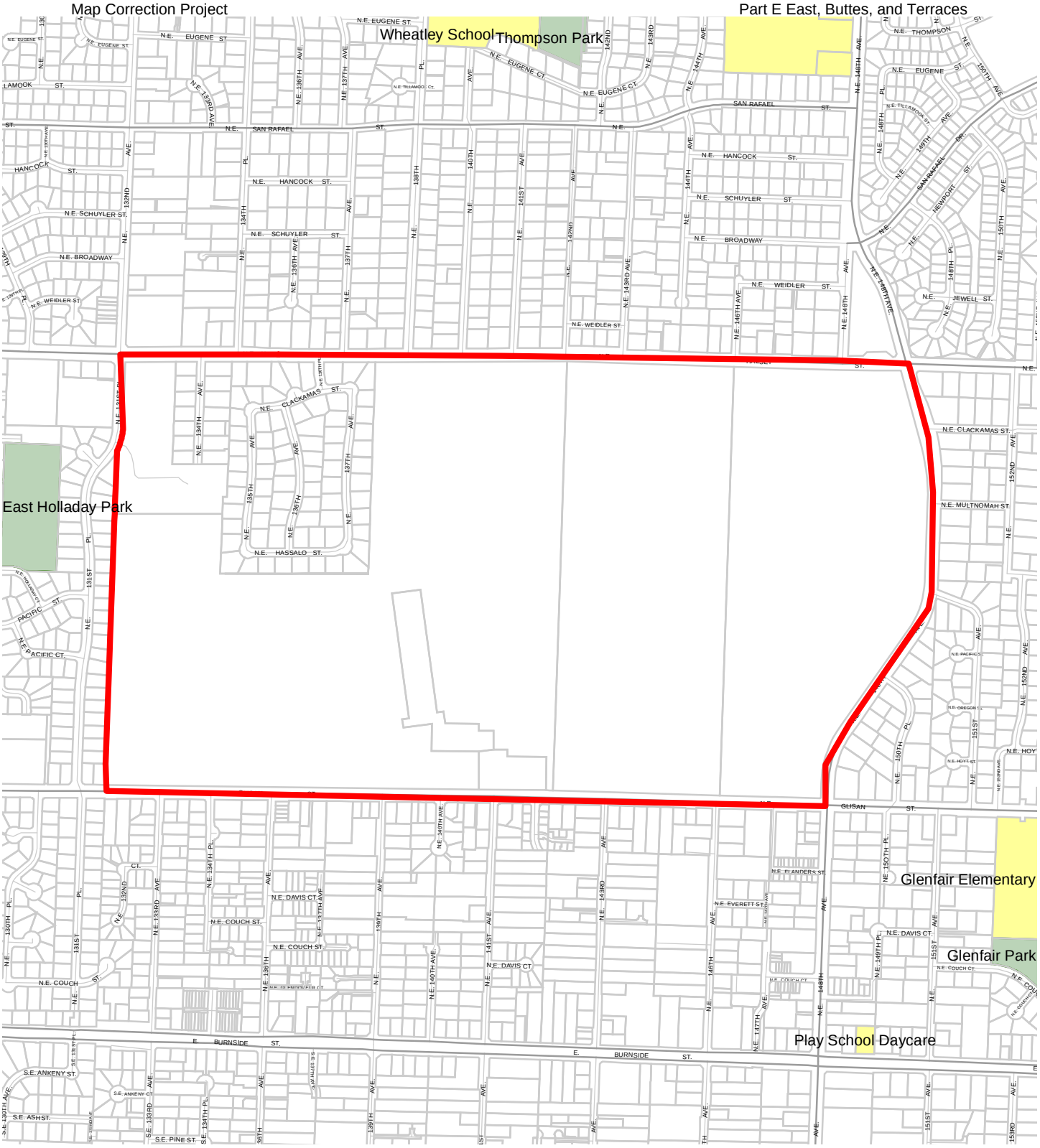

Map C: Special Habitat Areas

Resource Site: EB14

Updated: May 2022

NORTH

0 460 920 Feet

- Resource Sites
- Special Habitat Areas (SHAs)
- Open Stream Channel
- Piped Stream Segment
- Parks
- Schools
- Urban Service Boundary
- Taxlots

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Map D: Riparian Corridors Habitat Classification

Resource Site: EB14

Updated: May 2022

Class I (high rank)

Class II (medium rank)

Class III (low rank)

Resource Sites

Urban Service Boundary

Taxlots

NORTH

0 355 710 Feet

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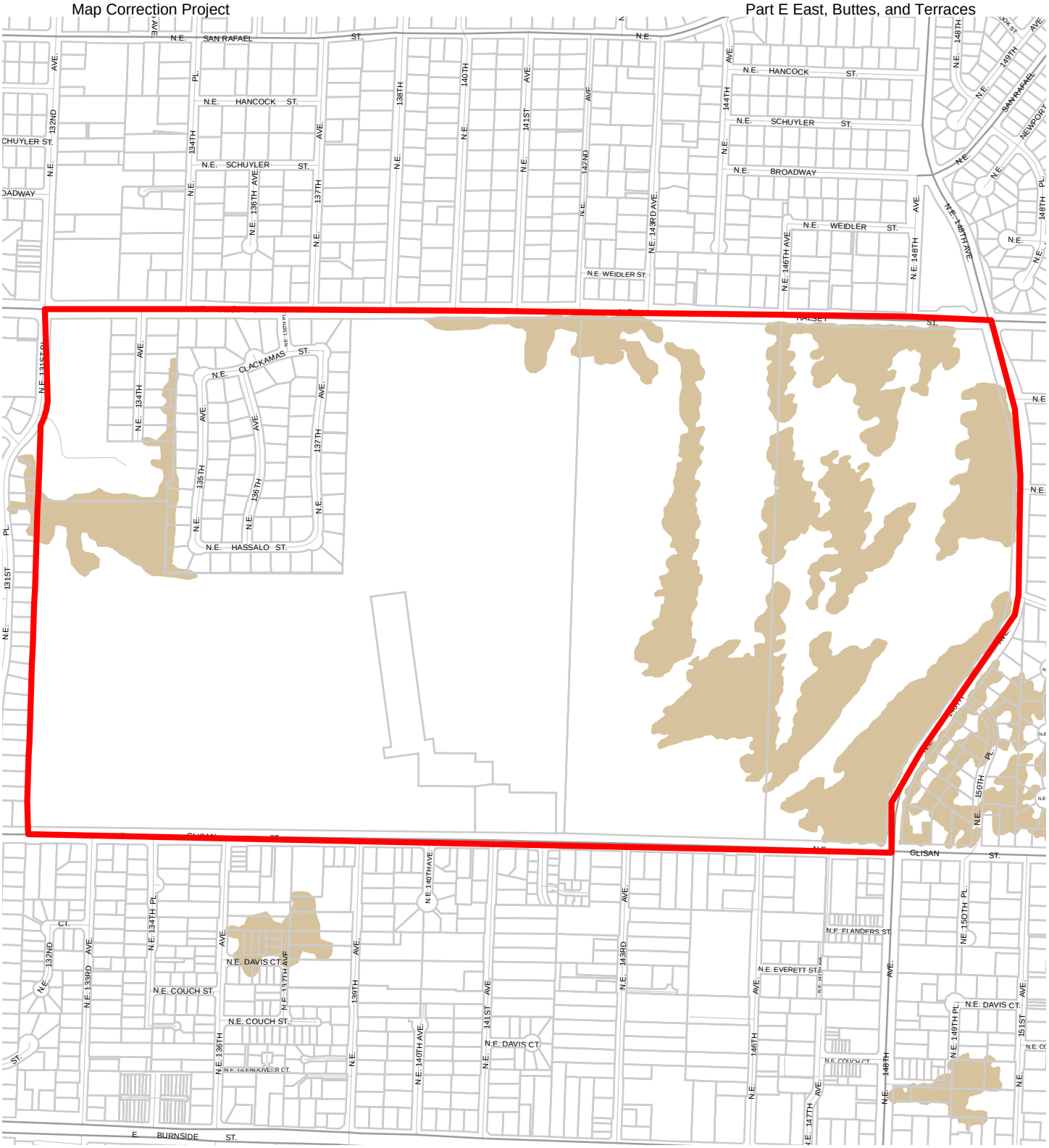

Map E: Wildlife Habitat Classification

Resource Site: EB14

Updated: May 2022

NORTH

0 287.5575 Feet

- Resource Sites
- Class A (high rank)
- Class B (medium rank)
- Class C (low rank)
- Urban Service Boundary
- Taxlots

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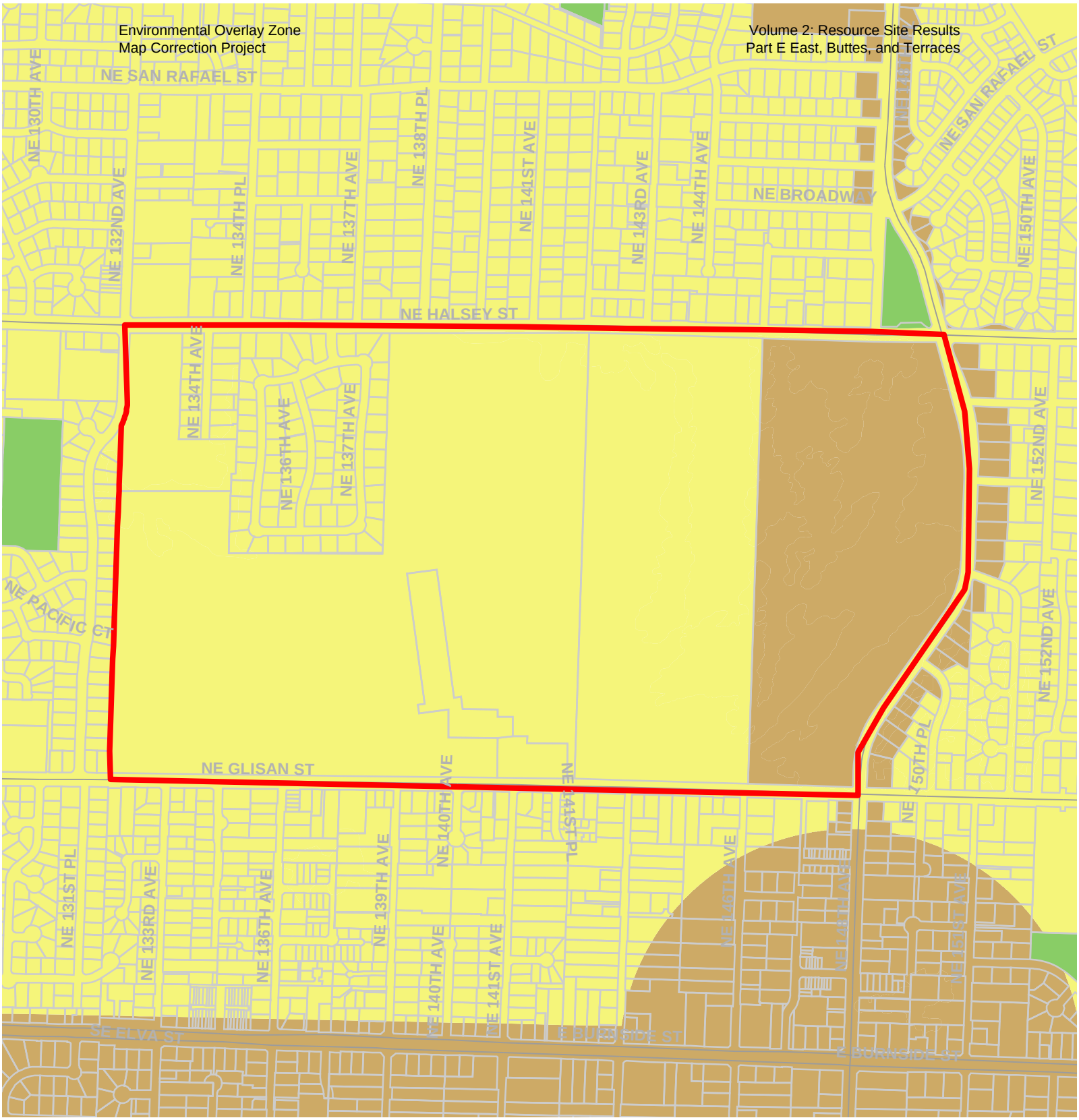

Map F: Urban Development Value (Title 13)
Resource Site: EB14

- Urban Service Boundary
- Resource Sites
- High Development Value
- Medium Development Value
- Low Development Value
- Parks

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Updated: July 2021

NORTH

0 500 1,000 Feet

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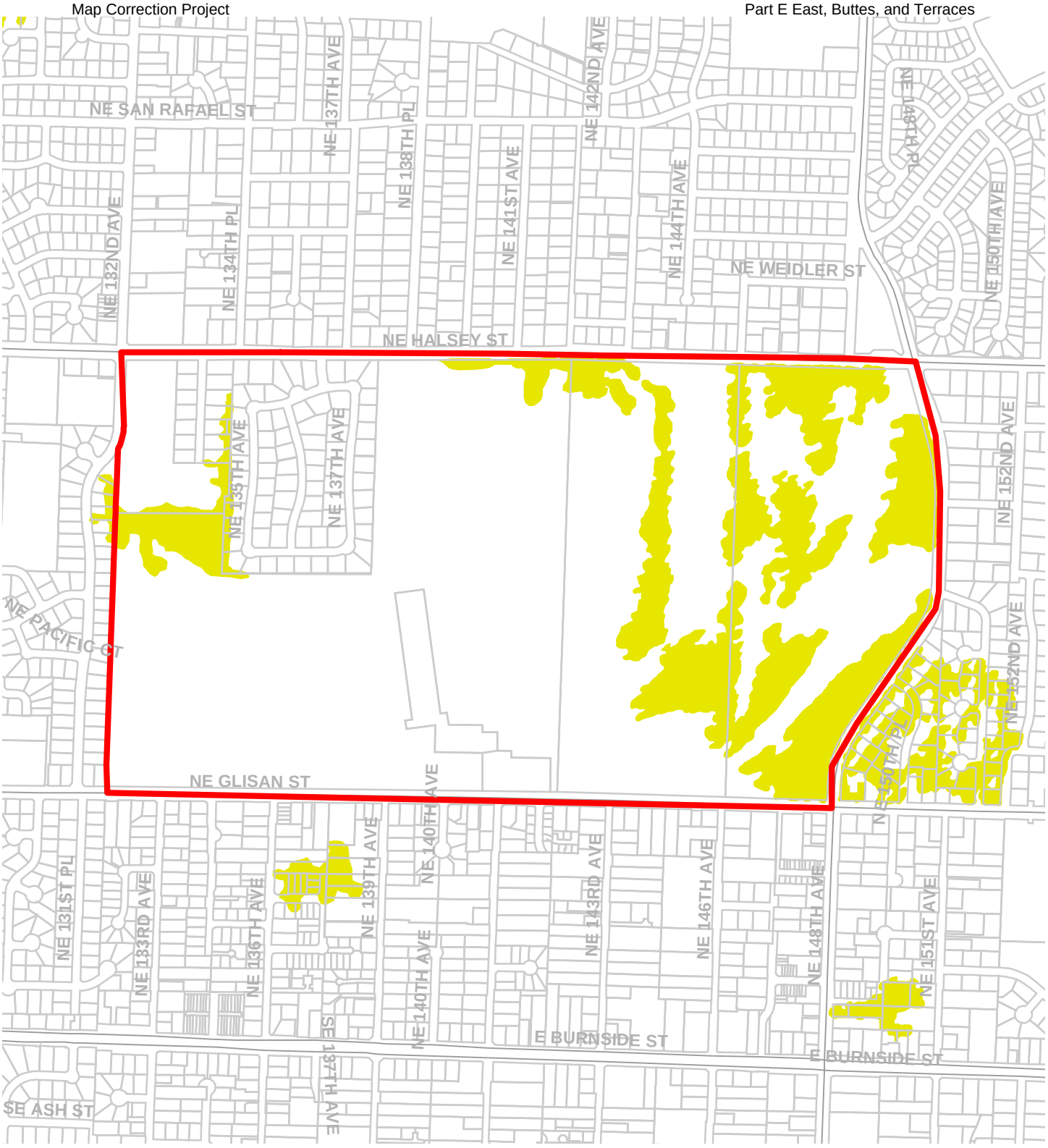

Map G: Title 13 Habitat Conservation Areas (HCA) and Goal 5 Areas

Resource Site: EB14

Updated: May 2022

NORTH

0 550 1,100 Feet

- Urban Service Boundary
- Resource Sites
- HCA High Value
- HCA Moderate Value
- HCA Low Value
- Goal 5 Significant Natural Resources

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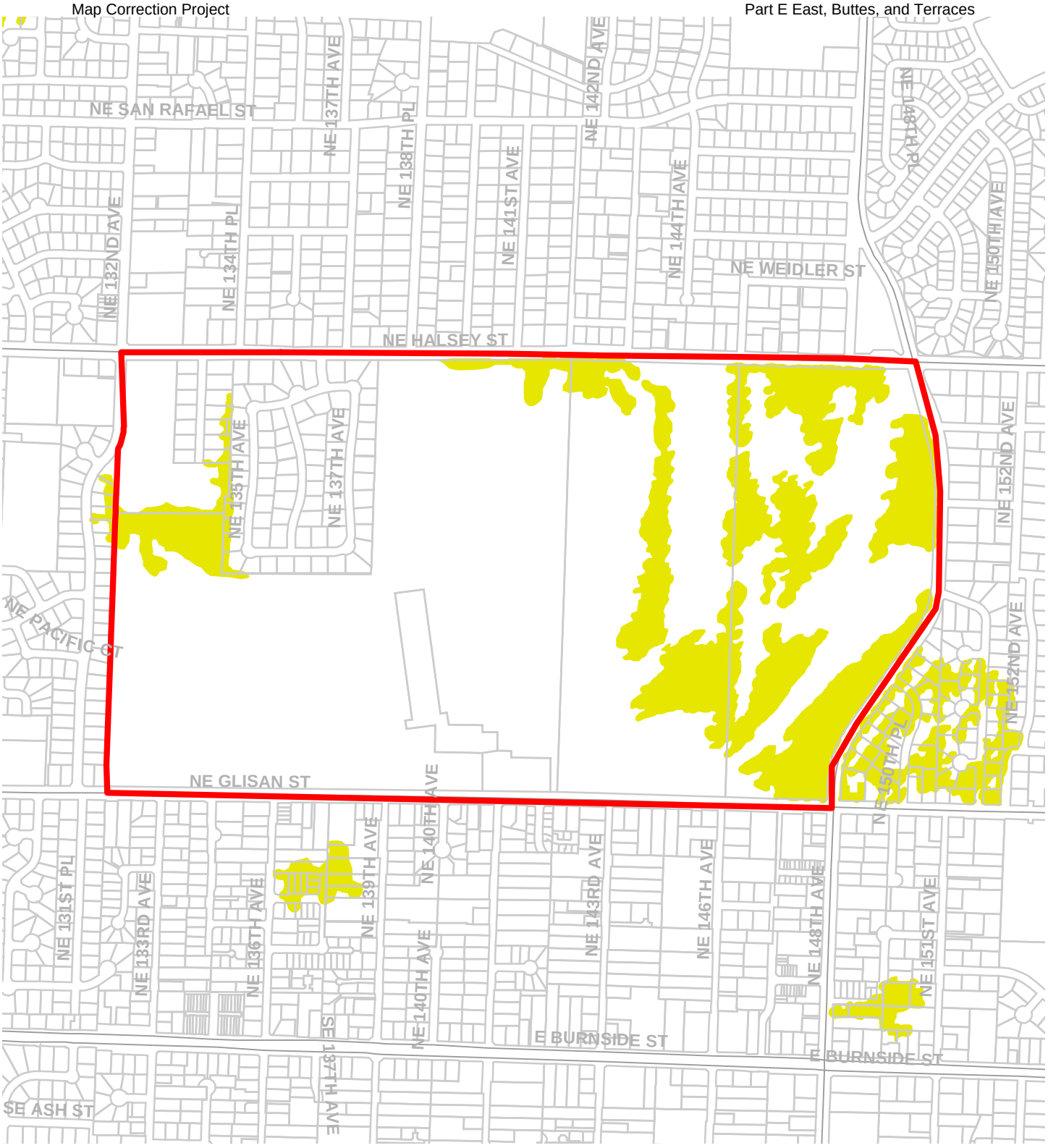

Map H: Goal 5 Resources

Resource Site: EB14

Updated: May 2022

NORTH

0 550 1,100 Feet

Recommended Draft - As Amended

- Urban Service Boundary
- Resource Sites
- Goal 5 Significant Natural Resources

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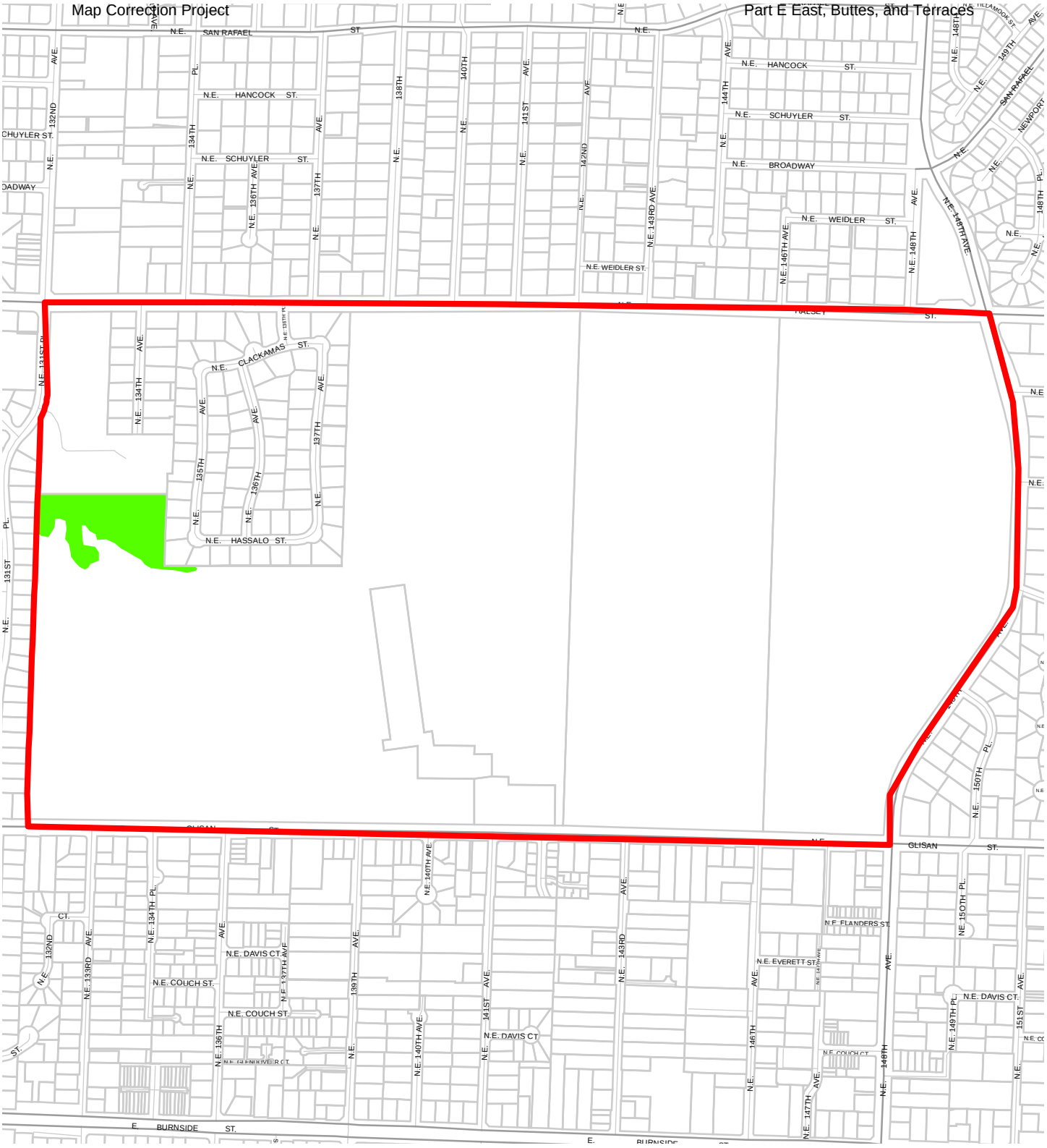

Map I: DRAFT Proposed Environmental Overlay Zones

Resource Site: EB14

Updated: May 2022

- Resource Sites
- Open Stream Channel
- Piped Stream Segment
- Proposed Conservation Zone
- Proposed Protection Zone
- Urban Service Boundary
- Taxlots

NORTH

0 387.5 775 Feet

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Natural Resource Description

Within resource site EB14 the following significant natural resource features and functions are present:

Significant Riparian Corridor Features: None

Significant Wildlife Habitat Features: forest patches, and associated and contiguous wetlands, two acres in size or larger.

Special Habitat Areas: None

Riparian Corridor Functions: None

Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status fish and wildlife species.

Table A: Quantity of Natural Resource Features in Resource Site EB14	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	
Forest (acres)	61.7
Woodland (acres)	17.2
Shrubland (acres)	0.0
Herbaceous (acres)	0.0
Flood Area*	
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	3.4
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are areas with a slope greater than 25%.	

The Glendoveer Golf Course is located in outer-northeast Portland, near the eastern city limits. The site is bordered by several residential areas and functions as a neighborhood park. This site is a heavily used recreational area, both as a golf course and as a walking and jogging area (the site contains a fitness course). The site is level and is characterized by manicured lawns (18 golf lanes) separated from one another by individual rows and less frequently groves of trees.

This site is generally too managed and too populated to be of much value to wildlife. The forest groves and native understory vegetation are used by grey squirrels, chickarees and several bird species. Because of the high human use at the ground surface, nesting habitat is limited to the tree canopies. One exception is a secluded woodland located in the far northwest corner of the golf course which is used by screech and great horned owls, winter wren, flickers, sparrows and rabbits.

Douglas fir (up to 3 ft. in diameter) and vine maple (understory) are the dominant plant species. Other native plants include bigleaf maple, red alder, red elderberry, mock orange, salal, western hazel, Oregon grape, oceanspray, wild rose, red huckleberry, Indian plum, blackcap and sword fern. English holly, ivy and blackberry are also present.

Special status bird species observed within or adjacent to this resource site include Bald eagle, black-throated gray warbler, brown creeper, bushtit, downy woodpecker, great blue heron, Hutton's vireo, Nashville warbler, orange-crowned warbler, pacific-slope flycatcher, pacific wren, red crossbill, rufous hummingbird, white-breasted nuthatch, and Wilson's warbler.

Table B: Quality of Natural Resource Functions in Resource Site EB14

Resource Site (acres) = 282

	Class 1/A	**Class 2/B**	**Class 3/C**	**Total**
Riparian Corridors*				
acres	0.0	0.0	0.0	0.0
percent total inventory site area	0.0%	0.0%	0.0%	0.0%
Wildlife Habitat*				
acres	0.0	0.0	52.9	52.9
percent total inventory site area	0.0%	0.0%	18.8%	18.8%
Special Habitat Areas**				
acres	0.0			
percent total inventory site area	0.0%			
Combined Total+				
acres	0.0	0.0	52.9	52.9
percent total inventory site area	0.0%	0.0%	18.8%	18.8%

* Class I riparian resources, Special Habitat Areas, and wildlife habitat include open water.
** Metro Title 13 designated all Special Habitat Areas as Class I riparian corridors.
+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Stormwater runs off impervious surfaces (e.g. rooftops, driveways, parking lots, streets) rapidly. , Without a place to retain the water (such as wetlands or adequate stormwater facilities), stormwater runoff results which can cause or exacerbate flooding and increase stream erosion. In addition, when water runs off quickly, it does not have a chance to infiltrate and recharge streams or aquifers to provide water during drier periods.

The type and capacity of stormwater facilities to manage the runoff from impervious surfaces varies in the city, affecting the local rate and amount of runoff, and the amount of pollutants in the water. Much of the city was developed prior to any stormwater regulations and receives limited or no management prior to discharging to pipes and surface waters.

Table C shows the total amount of impervious area within the resource site and how much of that impervious area does not receive management; the percentage of total impervious area that is not managed is called "effective impervious area." The higher the percent of effective impervious area in a watershed, the greater the negative impacts of stormwater runoff to streams. Stream science indicates that when effective impervious area reaches 10% of a watershed, negative stream impacts become significant; and at 25%, these impacts on waterways can be substantial. An additional consideration is the differences in soil conditions and other factors that influence the ability of pervious areas to retain, infiltrate or filter pollutants from stormwater. For example, a mature forest is much more effective in managing stormwater than a manicured lawn; both areas would have a lower effective impervious surface percentage than a developed site, but they have different outcomes for stormwater management.

For Resource Area EB14, 0.1% of the total area is effectively impervious. This indicates a significant degree of stormwater management and/or existing natural resources that should be preserved. Areas with very low impervious cover significant degree of stormwater management and/or are more likely to be functioning properly to support biologic systems.

Table C. Impervious Area within Resource Site EB14

Total area (acres)	Total impervious Area (acres)	Total unmanaged impervious area* (acres)	Percent of resource site that is effectively impervious
282	27	0.1	0.1%

*Total unmanaged impervious area refers to the number of acres within a resource area that receives no formal stormwater management measures to regulate flow or treat pollutants before they reach surface waters, also referred to as effective impervious area.

Metro Title 13 and Oregon Goal 5 Compliance

The following information supplements evaluation of natural resource protections presented in Volume 3 and supports compliance with Metro Title 13 and Oregon Plan Goal 5.

Title 13 Habitat Conservation Areas

Map G presents the Habitat Conservation Areas (HCA) within the resource site EB14. Natural resources should be protected within HCA as follows:

1. *Strictly limit* or *limit* conflicting uses within Class I/High Rank Riparian Areas in all Urban Development Areas.
2. *Strictly limit* or *limit* conflicting uses within Class II/Medium Rank Riparian Areas within Moderate and Low Value Urban Development Area as well as parks and open spaces.
3. *Strictly limit* or *limit* conflicting uses within Class A/High or B/Medium Rank Wildlife Habitat within parks and open spaces.
4. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class III/Low Rank Riparian Areas in all Urban Development Areas.
5. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class A/High, Class B/Medium or Class C/Low Rank Wildlife Habitat in all Urban Development Area, expect parks and open space.

Strictly limiting or *limiting* conflicting uses in HCA will protect and conserve existing streams and wetlands to maintain significant natural resource functions including: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and fish and wildlife habitat. *Strictly limiting* or *limiting* conflicting uses in HCA will allow for additional urban development that is sensitive to the natural resource features and requires mitigation for unavoidable negative impacts to features and functions. The recommendation will also contribute towards meeting other regulatory requirements including the Metro Title 3, Water Quality and Flood Management; Oregon Goal 6, Air, Water and Land Resources Quality; Oregon Goal 7, Areas Subject to Natural Hazards; the Clean Water Act; and the Endangered Species Act.

Goal 5 Significant Natural Resources

Resource site EB14 contains natural resource features that are not a Title 13 HCA and are therefore subject to Statewide Planning Goal 5 OAR 660-023-0110. The General ESEE analysis, Volume 3, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

The common impacts of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; adding impervious surface; modifying streams, wetlands and flood areas; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R7 and R2 base zones. Open space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

The analysis of economic, social, environmental and energy consequences provided in Volume 3 is confirmed for resource site EB14, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses would retain the wildlife habitat functions provided by significant natural resource features including maintaining habitat for at risk plant, fish and wildlife species, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative consequences of additional development in areas of Class A or Class B wildlife habitat should be required.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

Natural Resources Protection Decisions

Based on the analysis presented in Volume 3 and the resource site-specific evaluation for EB14, the following decisions are applied to protect the significant riparian corridors and wildlife habitat:

1. Apply a protection overlay zone (p zone) to wetlands and streams from top-of-bank to top-of-bank, and to land within 25 feet of wetlands and land within 25 feet of streams.
2. Apply a conservation overlay zone (c zone) to land between 25 and 50 feet of wetlands and the top-of-bank of streams.
3. Apply a conservation overlay zone (c zone) to the approximately 5-acre area of forest vegetation located on the west edge of the golf course, including forest on steep slopes.
4. Allow conflicting uses within all other areas containing significant natural resources.

Resource Site No.: EB15 **Resource Site Name:** Wilkes Creek

Previous Plan: East Butte, Terraces & Wetlands Plan
Previous Resource Site No.: 135

The results of the analysis found in Volume 3 and the resource site-specific evaluation, are presented in the following maps:

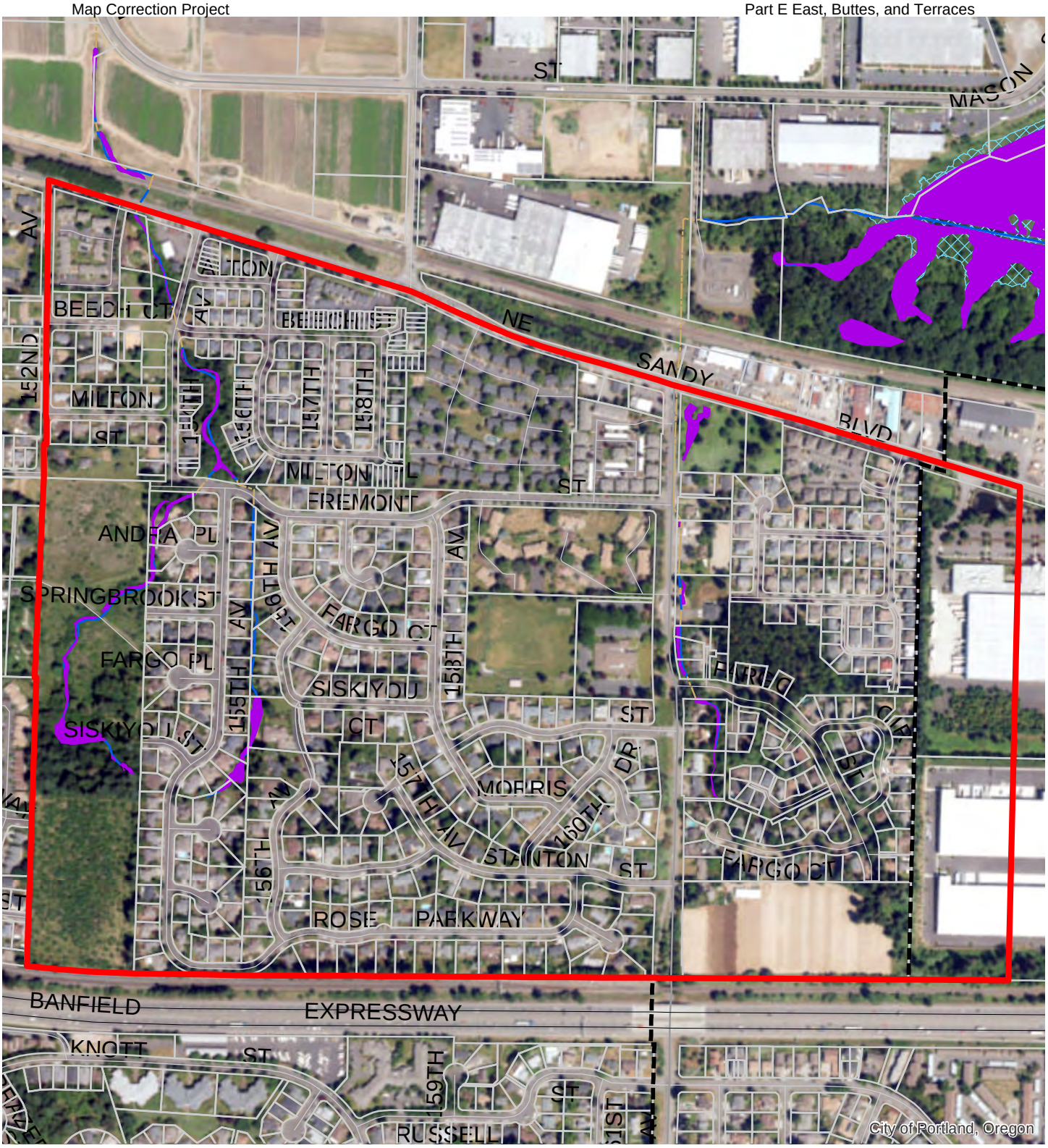
A. Water Features – rivers, streams, wetlands and flood areas
B. Land Features – forest, woodland, shrubland and herbaceous vegetation, steep slopes
C. Special Habitat Areas
D. Riparian Corridor Classifications
E. Wildlife Habitat Classifications
F. Urban Development Value
G. Metro Title 13 Habitat Conservation Areas
H. Statewide Planning Goal 5 Areas
I. Recommended Natural Resource Protections

Following the maps, additional information about existing natural resource features and functions in the resource site is presented.

Implementation of the results is found in Volume 1, Part B, updates to zoning maps and zoning code.

Resource site EB15 includes the following:

Site (acres)	225.7
Base zones (acres)	
CM1	6.2
IG2	0.2
OS	22.4
R7	143.8
RM1	53.0



Map A: Water Features

Resource Site: EB15

Updated: May 2022

Resource Sites
Urban Service Boundary
Taxlots
Wetlands
Rivers
Open stream channel
Piped Stream Segment
Flood Area

NORTH

0 295 590 Feet

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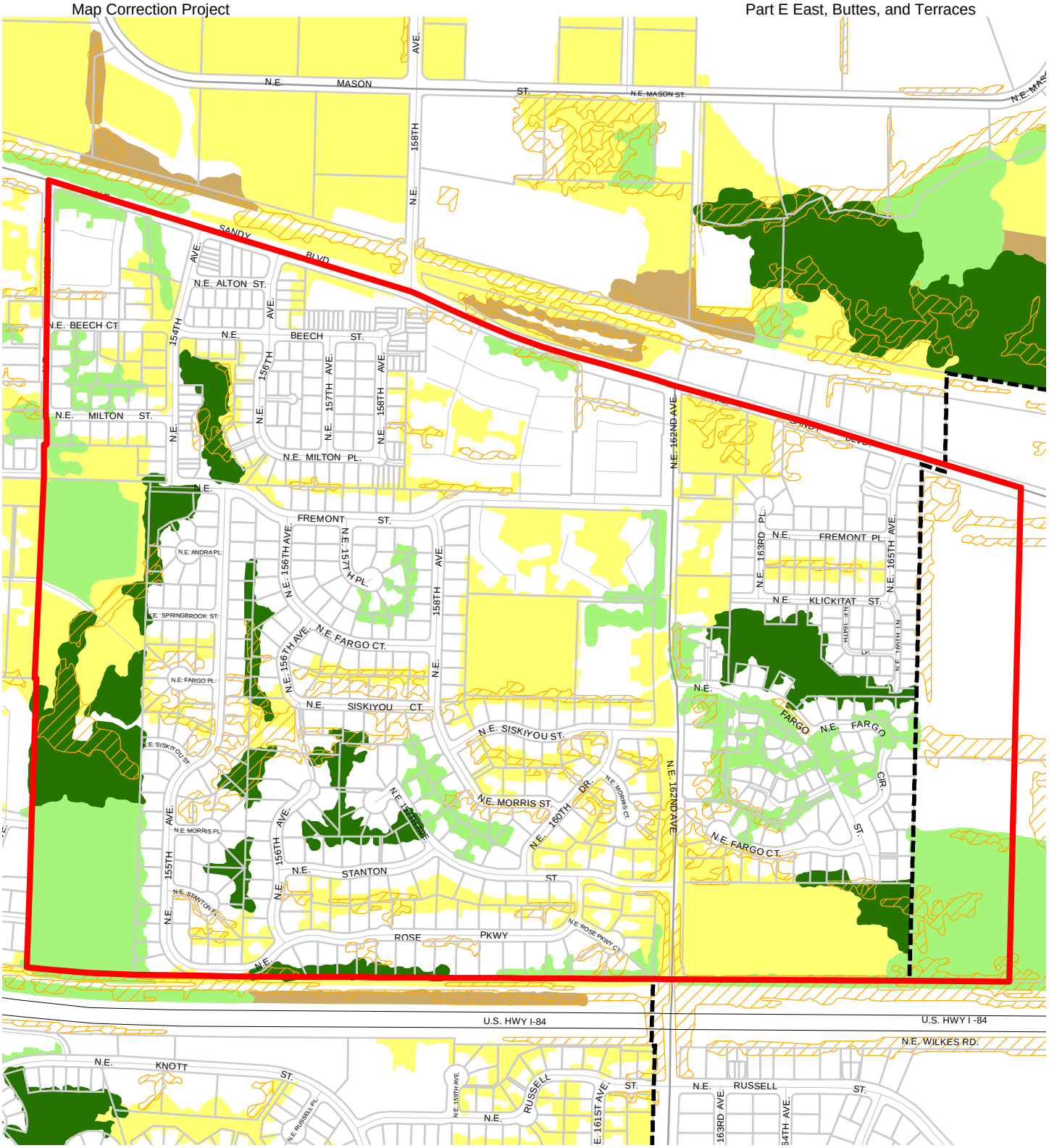
The information on the map was derived from digital databases. Care was taken in the creation of this map but it is provided "as is". The City of Portland ensures meaningful access to city programs, services, and activities to comply with Civil Rights Title VI and ADA Title II laws and reasonably provides: translation, interpretation, modifications, accommodations, alternative formats, auxiliary aids and services. To request these services, contact 503-823-7700, City TTY 503-823-6868, Relay Service: 711.



Map B: Vegetation and Steep Slopes

Resource Site: EB15

Updated: May 2022

NORTH

0 405 810 Feet

- Resource Sites
- Urban Service Boundary
- Taxlots
- Forest
- Woodland
- Shrubland
- Herbaceous

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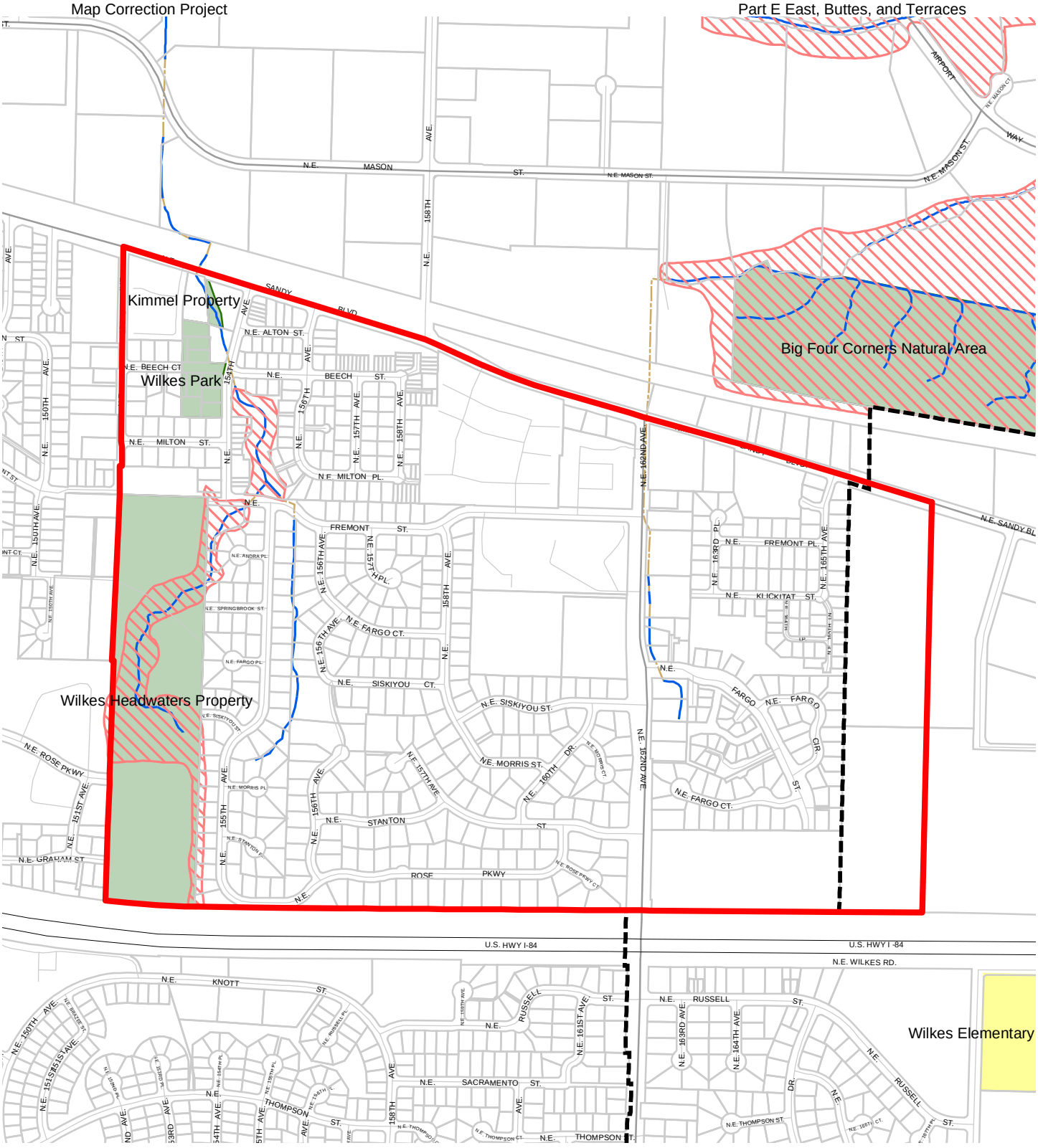

Map C: Special Habitat Areas

Resource Site: EB15

Updated: May 2022

NORTH

0 385 770 Feet

- Resource Sites
- Special Habitat Areas (SHAs)
- Open Stream Channel
- Piped Stream Segment
- Parks
- Schools
- Urban Service Boundary
- Taxlots

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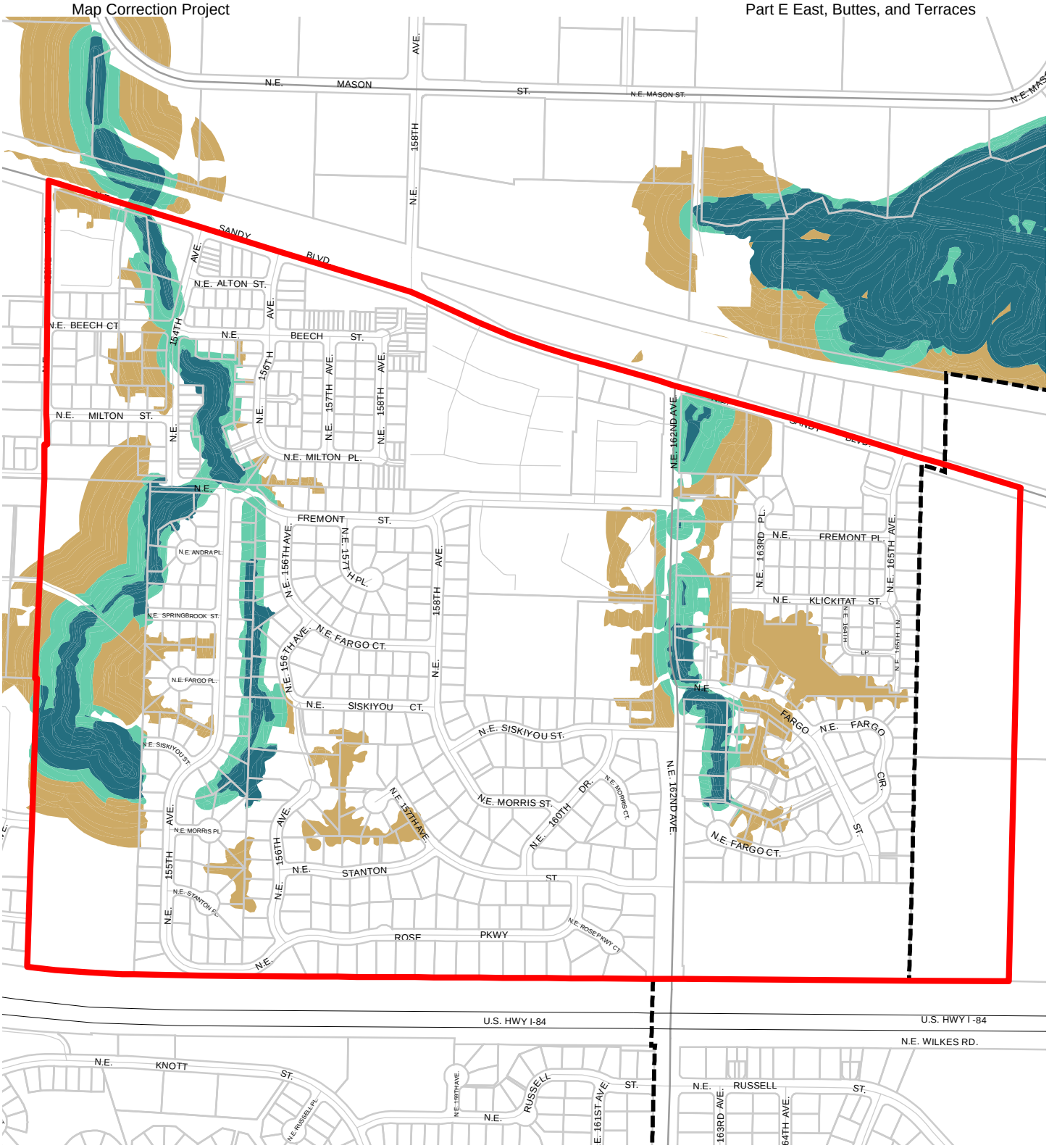

Map D: Riparian Corridors Habitat Classification

Resource Site: EB15

Updated: May 2022

Class I (high rank)
Class II (medium rank)
Class III (low rank)
Resource Sites
Urban Service Boundary
Taxlots

NORTH

0 295 590 Feet

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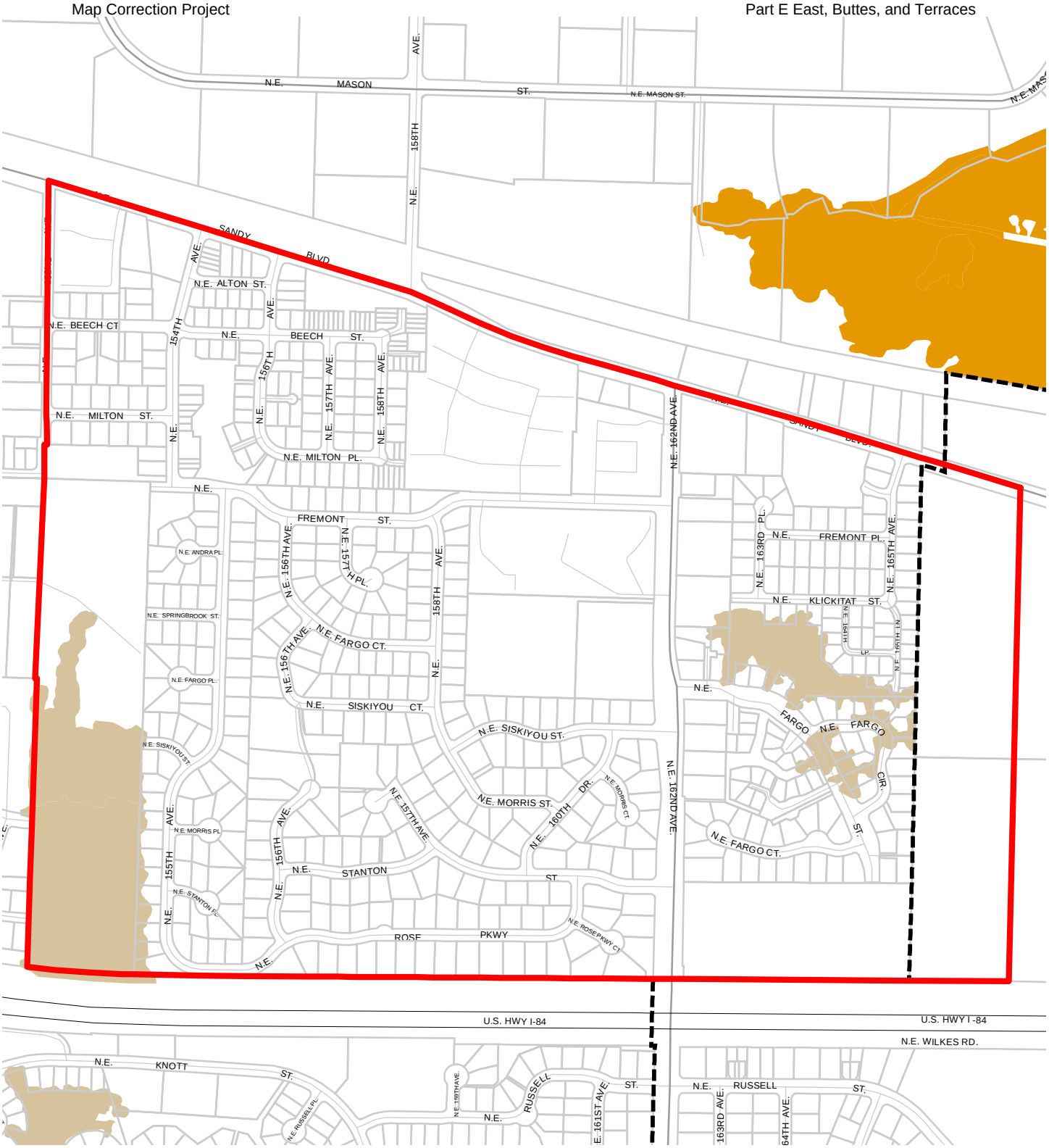

Map E: Wildlife Habitat Classification

Resource Site: EB15

Updated: May 2022

NORTH

0 240 480 Feet

- Resource Sites
- Class A (high rank)
- Class B (medium rank)
- Class C (low rank)
- Urban Service Boundary
- Taxlots

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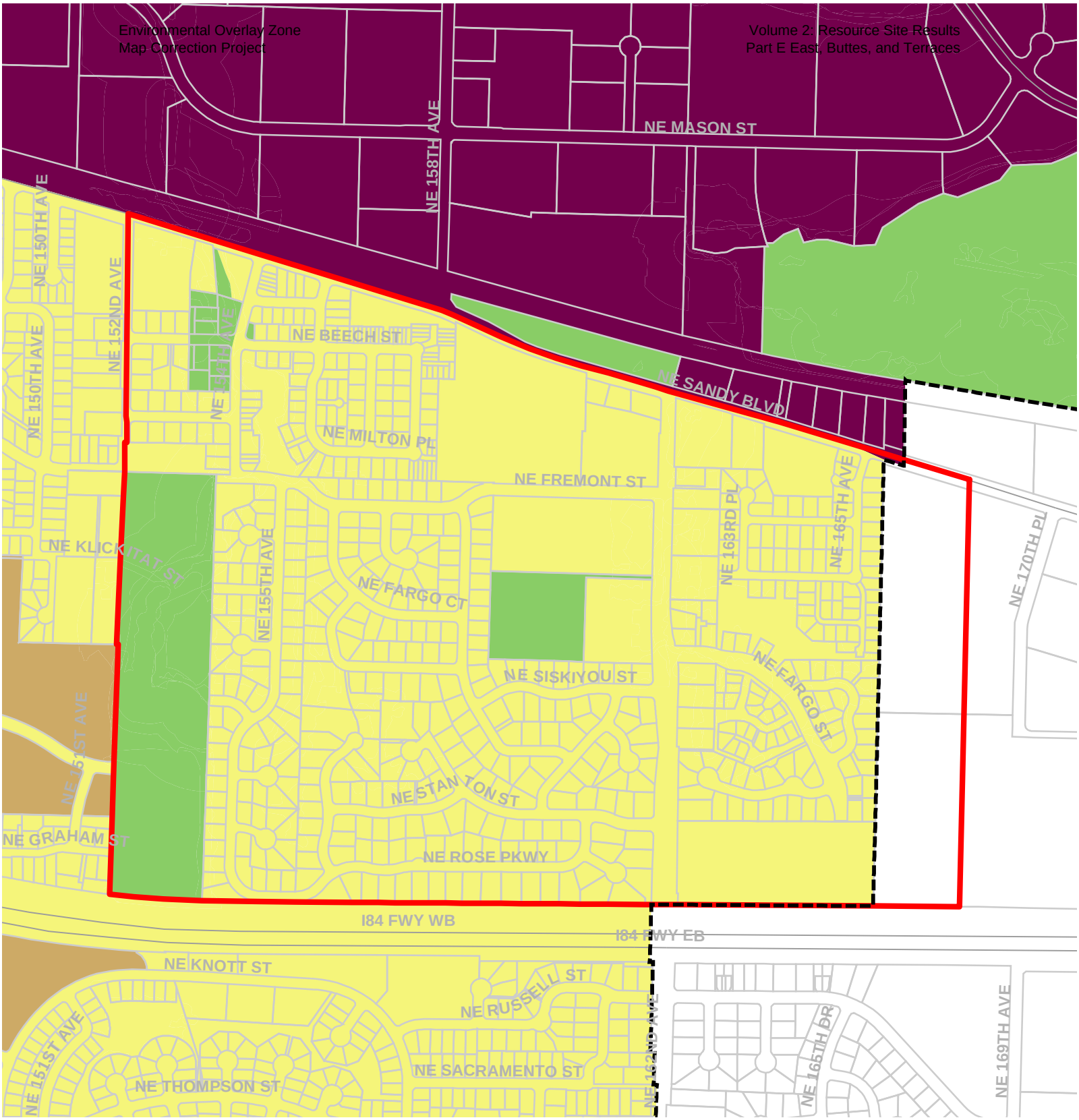

Map F: Urban Development Value (Title 13)
Resource Site: EB15

- Urban Service Boundary
- Resource Sites
- High Development Value
- Medium Development Value
- Low Development Value
- Parks

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Updated: July 2021

NORTH

0 435 870 Feet

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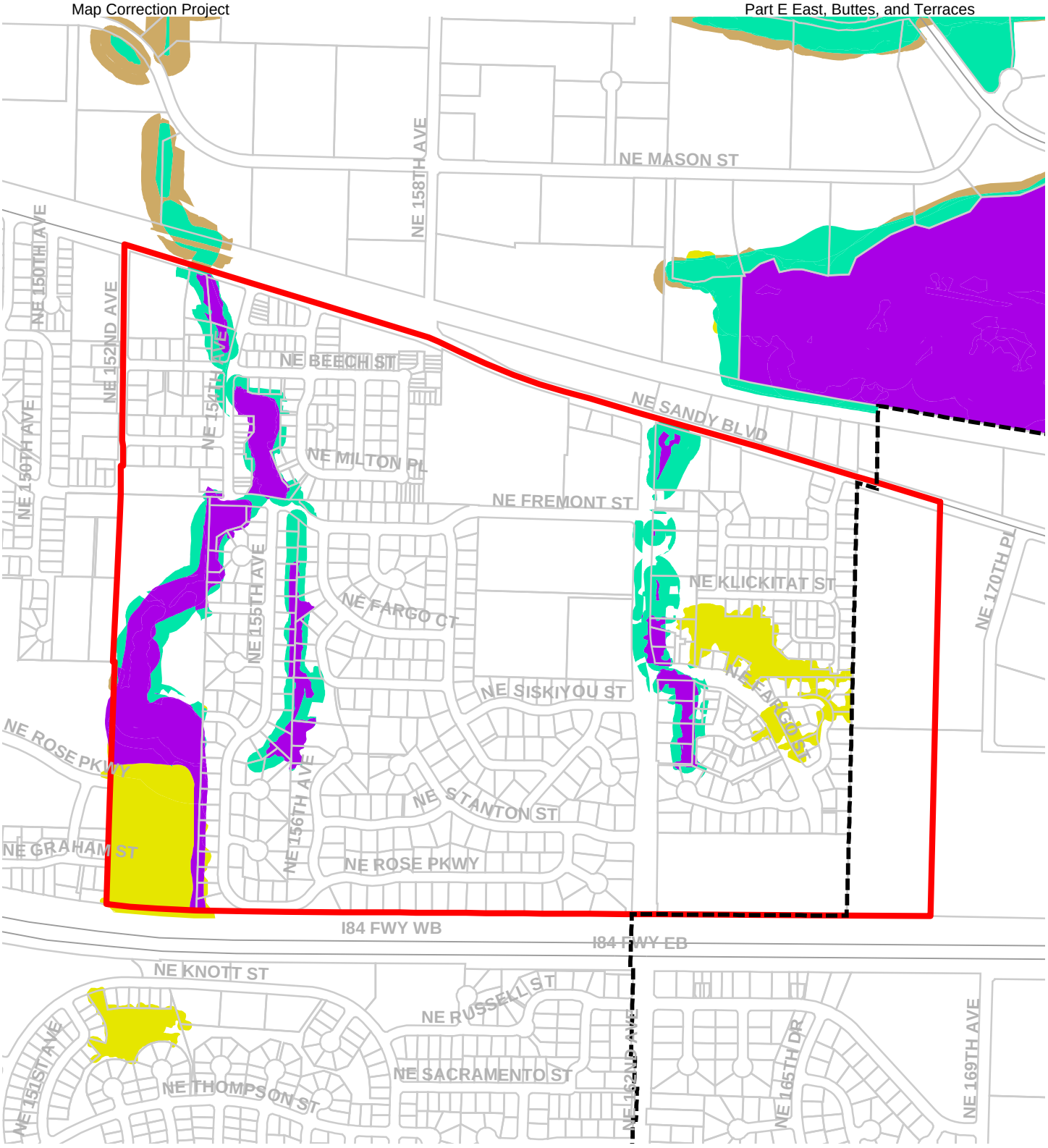

Map G: Title 13 Habitat Conservation Areas (HCA) and Goal 5 Areas

Resource Site: EB15

Updated: May 2022

NORTH

0 485 970 Feet

- Urban Service Boundary
- Resource Sites
- HCA High Value
- HCA Moderate Value
- HCA Low Value
- Goal 5 Significant Natural Resources

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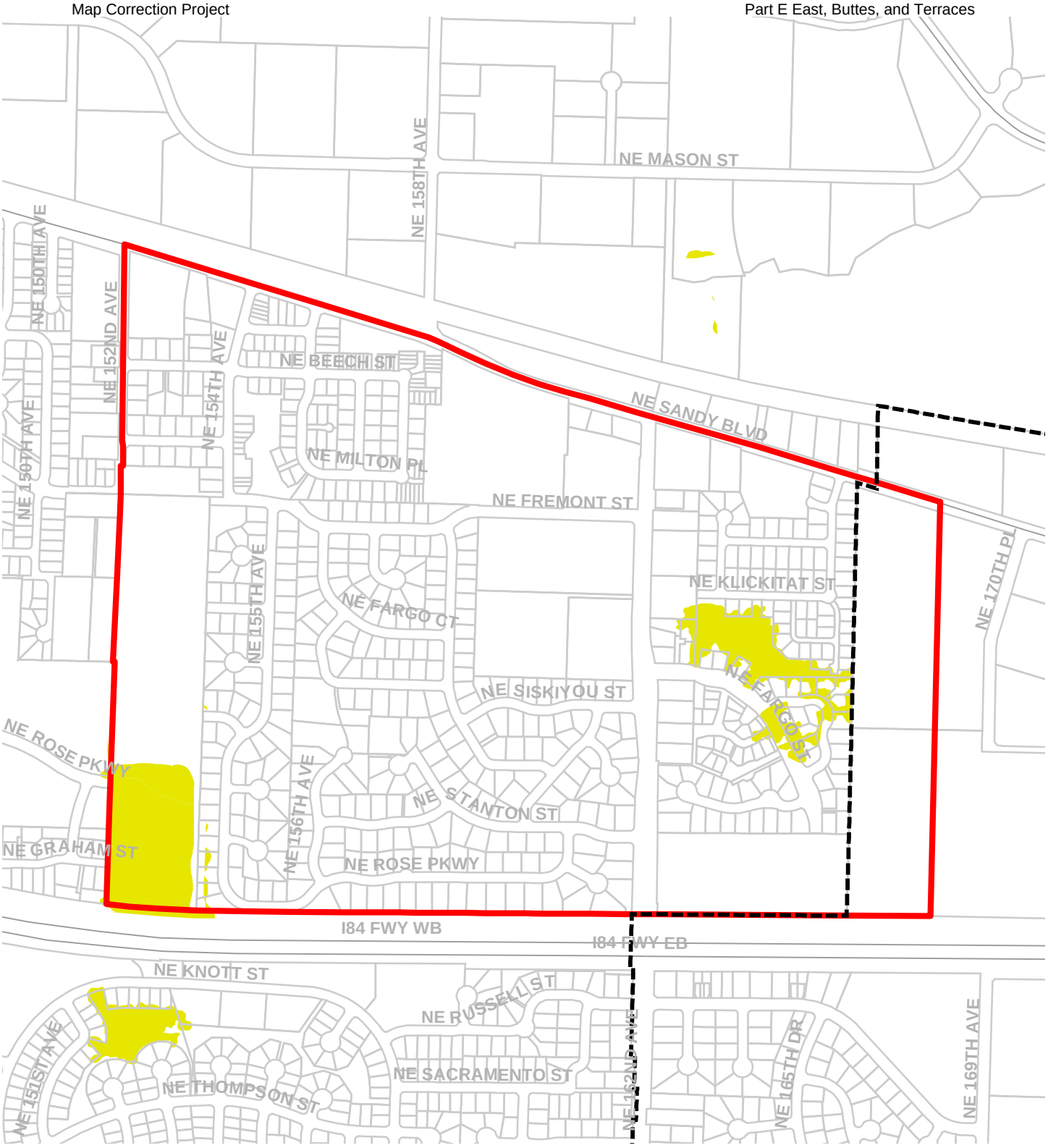

Map H: Goal 5 Resources

Resource Site: EB15

Updated: May 2022

NORTH

0 485 970 Feet

Urban Service Boundary

Resource Sites

Goal 5 Significant Natural Resources

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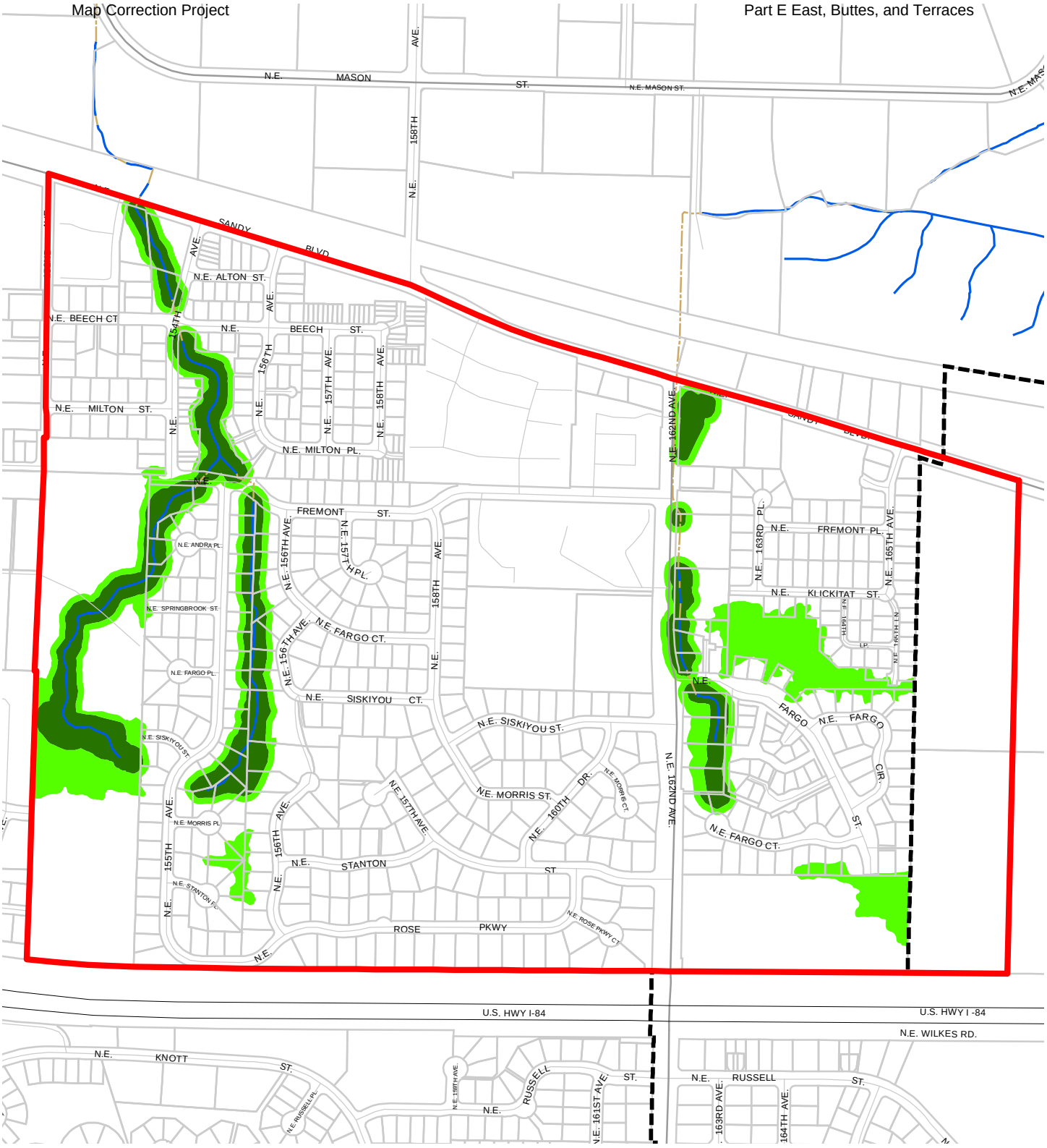
May 2022



Map I: DRAFT Proposed Environmental Overlay Zones

Resource Site: EB15

Updated: May 2022

Resource Sites
Open Stream Channel
Piped Stream Segment
Proposed Conservation Zone
Proposed Protection Zone
Urban Service Boundary
Taxlots

NORTH

0 325 650 Feet

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Natural Resource Description

Within resource site EB15 the following significant natural resource features and functions are present:

Significant Riparian Corridor Features: open stream; wetland; land within 50 feet of waterbodies; forest, woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; and forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies.

Significant Wildlife Habitat Features: forest patches, and associated and contiguous wetlands, two acres in size or larger.

Special Habitat Areas: Wilkes Creek Headwaters (U)

Riparian Corridor Functions: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and habitat patches that support special status fish and wildlife species.

Table A: Quantity of Natural Resource Features in Resource Site	**EB15**
	Study Area
Stream (Miles)	0.9
Wetlands (acres)	1.8
Vegetated Areas >= 1/2 acre (acres)	
Forest (acres)	18.9
Woodland (acres)	25.7
Shrubland (acres)	0.0
Herbaceous (acres)	47.6
Flood Area*	
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	19.1
* The flood area includes the FEMA 100-year flood plain plus the adjusted 1996 flood inundation area. **Slopes are derived from LiDAR. Steep slopes are areas with a slope greater than 25%.	

This site is divided into two principal areas, one east of NE 152nd Avenue and the other east of NE 162nd Avenue. The western portion of Resource Site EB 15 includes Wilkes Park and the Wilkes Creek Headwaters Natural Area. It is near Big Four Corners Natural Area, 115 acres of City-owned wetland, wooded wetland, waterway, and rare white oak habitat areas on the Columbia Slough.

In 2011, the City of Portland and Metro acquired the 20-acre Wilkes Creek Headwaters Natural Area in northeast Portland. The site includes the headwaters of Wilkes Creek. Two thirds of the site, including existing mature Douglas firs and big leaf maples, will be preserved as natural area. Environmental Services, Metro and Parks removed structures, fences, contaminated soil, a small dam, spring boxes and replaced a stream culvert with a bridge in the park. Portland Parks and Recreation and Bureau of Environmental Services are implementing ongoing vegetation management treatments (weed control and native planting). A long neglected 4-acre holly orchard was removed. A filbert orchard is being thinned, gradually, and replanted with native trees and shrubs over the course of several years.

Between 1999 and 2004, Bureau of Environmental Services implemented a 4-acre vegetation enhancement along the south bank of the Columbia Slough and riparian area of the creek at the confluence of Wilkes Creek. The project focused on removal of non-native vegetation and reestablishment of native tree and shrub canopy to improve water quality and habitat. The site is now well vegetated with trees and shrubs.

The eastern portion of Resource Site EB15 includes a small, partially piped, unnamed drainageway and approximately 2 acres of forest resource. The portion of the resource site within the City of Portland experienced heavy residential development in the 1990s. The resource site extends east across the city line into Gresham which was converted from converted from agriculture to industrial development in the early 2000s and from forest to industrial development in 2014.

The property at the southeast corner of 162nd and Sandy contains a small wetland that holds restoration potential for habitat, flood storage and groundwater recharge.

Special status bird species observed within or adjacent to this resource site include bald eagle, band-tailed pigeon, bufflehead, bushtit, downy woodpecker, great blue heron, green heron, hooded merganser, pacific-slope flycatcher, rufous hummingbird, Swainson’s thrush, Vaux’s swift, western wood-pewee, willow flycatcher, and wood duck.

Table B: Quality of Natural Resource Functions in Resource Site EB15				
Resource Site (acres) = 226				
	Class 1/A	**Class 2/B**	**Class 3/C**	**Total**
Riparian Corridors*				
acres	10.5	13.2	23.3	47.0
percent total inventory site area	4.7%	5.9%	10.3%	20.8%
Wildlife Habitat*				
acres	0.0	0.0	17.4	17.4
percent total inventory site area	0.0%	0.0%	7.7%	7.7%
Special Habitat Areas**				
acres	10.1			
percent total inventory site area	4.5%			
Combined Total+				
acres	10.5	13.2	31.2	54.9
percent total inventory site area	4.7%	5.9%	13.8%	24.3%

* Class I riparian resources, Special Habitat Areas, and wildlife habitat include open water.
** Metro Title 13 designated all Special Habitat Areas as Class I riparian corridors.
+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.

Stormwater runs off impervious surfaces (e.g. rooftops, driveways, parking lots, streets) rapidly. Without a place to retain the water (such as wetlands or adequate stormwater facilities), stormwater runoff results which can cause or exacerbate flooding and increase stream erosion. In addition, when water runs off quickly, it does not have a chance to infiltrate and recharge streams or aquifers to provide water during drier periods.

The type and capacity of stormwater facilities to manage the runoff from impervious surfaces varies in the city, affecting the local rate and amount of runoff, and the amount of pollutants in the water. Much of the city was developed prior to any stormwater regulations and receives limited or no management prior to discharging to pipes and surface waters.

Table C shows the total amount of impervious area within the resource site and how much of that impervious area does not receive management; the percentage of total impervious area that is not managed is called "effective impervious area." The higher the percent of effective impervious area in a watershed, the greater the negative impacts of stormwater runoff to streams. Stream science indicates that when effective impervious area reaches 10% of a watershed, negative stream impacts become significant; and at 25%, these impacts on waterways can be substantial. An additional consideration is the differences in soil conditions and other factors that influence the ability of pervious areas to retain, infiltrate or filter

pollutants from stormwater. For example, a mature forest is much more effective in managing stormwater than a manicured lawn; both areas would have a lower effective impervious surface percentage than a developed site, but they have different outcomes for stormwater management.

For Resource Area EB15, 1% of the total area is effectively impervious. This indicates a significant degree of stormwater management and/or existing natural resources that should be preserved. Areas with very low impervious cover significant degree of stormwater management and/or are more likely to be functioning properly to support biologic systems.

Table C. Impervious Area within Resource Site EB15

Total area (acres)	Total impervious Area (acres)	Total unmanaged impervious area* (acres)	Percent of resource site that is effectively impervious
245	71	2.2	1%

*Total unmanaged impervious area refers to the number of acres within a resource area that receives no formal stormwater management measures to regulate flow or treat pollutants before they reach surface waters, also referred to as effective impervious area.

Metro Title 13 and Oregon Goal 5 Compliance

The following information supplements evaluation of natural resource protections presented in Volume 3 and supports compliance with Metro Title 13 and Oregon Plan Goal 5.

Title 13 Habitat Conservation Areas

Map G presents the Habitat Conservation Areas (HCA) within the resource site EB15. Natural resources should be protected within HCA as follows:

1. *Strictly limit* or *limit* conflicting uses within Class I/High Rank Riparian Areas in all Urban Development Areas.
2. *Strictly limit* or *limit* conflicting uses within Class II/Medium Rank Riparian Areas within Moderate and Low Value Urban Development Area as well as parks and open spaces.
3. *Strictly limit* or *limit* conflicting uses within Class A/High or B/Medium Rank Wildlife Habitat within parks and open spaces.
4. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class III/Low Rank Riparian Areas in all Urban Development Areas.
5. *Allow* conflicting uses or conducted a local Goal 5 ESEE for Class A/High, Class B/Medium or Class C/Low Rank Wildlife Habitat in all Urban Development Area, expect parks and open space.

Strictly limiting or *limiting* conflicting uses in HCA will protect and conserve existing streams and wetlands to maintain significant natural resource functions including: microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and fish and wildlife habitat. *Strictly limiting* or *limiting* conflicting uses in HCA will allow for additional urban development that is sensitive to the natural resource features and requires mitigation for unavoidable negative impacts to features and functions. The recommendation will also contribute towards meeting other regulatory requirements including the Metro Title 3, Water Quality and Flood Management; Oregon Goal 6, Air, Water and Land Resources Quality; Oregon Goal 7, Areas Subject to Natural Hazards; the Clean Water Act; and the Endangered Species Act.

Goal 5 Significant Natural Resources

Resource site EB15 contains natural resource features that are not a Title 13 HCA and are therefore subject to Statewide Planning Goal 5 OAR 660-023-0110. The General ESEE analysis, Volume 3, describes the conflicting uses and provides an overarching analysis of the economic, social, environmental and energy consequences of prohibiting, limiting or allowing the conflicting uses within areas of significant natural resources. In addition to the General ESEE analysis, the following resource site-specific consequences are considered.

The common impacts of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; adding impervious surface; modifying streams, wetlands and flood areas; generating pollution; landscaping with non-native or invasive vegetation; building fences or other wildlife barriers; and other impacts such as noise, light, litter and pets.

Within the resource site residential uses are allowed outright or conditionally in the R7, R3 and R2 base zones. Commercial uses are allowed in the CM1 base zone. Open space uses are allowed in the OS base zone. Development of new uses may involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces and landscaping with non-native plants, with associated impacts on the natural resources. Basic utilities and other infrastructure are allowed in all base zones. New or upgraded utility corridors may be cleared of vegetation and may fragment wildlife habitat.

The analysis of economic, social, environmental and energy consequences provided in Volume 3 is confirmed for resource site EB15, with the following additional information that clarifies the analysis.

Strictly limiting or *limiting* conflicting uses would retain the wildlife habitat functions provided by significant natural resource features including maintaining habitat for at risk plant, fish and wildlife species, maintaining vegetation on steep slopes, and maintaining the stormwater management and air-cooling functions of the tree canopy. Mitigation for negative

consequences of additional development in areas of Class A or Class B wildlife habitat should be required.

Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

Natural Resources Protection Decisions

Based on the analysis presented in Volume 3 and the resource site-specific evaluation for EB15, the following decisions are applied to protect the significant riparian corridors and wildlife habitat:

1. Apply a protection overlay zone (p zone) to stream channels from top-of-bank to top-of-bank, wetlands and land within 25 feet of stream top-of-bank or 25 feet of wetlands.
2. Apply a conservation overlay zone (c zone) to land between 25 and 50 feet of stream top-of-bank or wetlands; and areas of forest vegetation contiguous to but more than 50 feet from stream top-of-bank or wetlands
3. Apply a conservation overlay zone (c zone) to areas of high, medium or low ranked wildlife habitat that is more than 50 feet from stream top-of-bank or wetlands.
4. Allow conflicting uses within all other areas containing significant natural resources.

The *Environmental Overlay Zone Map Correction Project* plan documents:

Volume 1: Project Overview, Zoning Amendments, Ezone Remapping

The purpose of the Project Report is to document the overall project approach and methodology, summarize public engagement, and it includes all of the zoning code amendments. This document provides summary information on the mapping protocols that are used to map ezones, as well as maps of the proposed ezone mapping in each resource site.

Volume 2: Resource Site Inventory and Resource Protection Decisions

For the geographies listed below, each document presents an inventory of natural resource features and functions, a site-specific Economic, Social, Environmental and Energy Analysis (if applicable) and the decisions regarding which natural resource should be protected.

Part A1 – Forest Park and Northwest District, Resource Sites 1 – 20

Part A2 – Forest Park and Northwest District, Resource Sites 21 – 41

Part B – Skyline West

Part C – Tryon Creek and Southwest Hills East

Part D – Fanno Creek

Part E – East Buttes and Terraces

Part F – Johnson Creek

Part G – Boring Lava Domes

Volume 3: Natural Resources Inventory, Compliance, and Appendix

This volume contains a summary of the approach and methodology used to produce the citywide Natural Resources Inventory, documentation that demonstrates compliance with Metro Urban Growth Management Plan Title 13 for Habitat Conservation Areas and Oregon State Planning Goal 5 for significant natural resources that are not a Habitat Conservation Area, and appendices that provide background information on the Environmental Overlay Zone Map Correction Project.