

ENVIRONMENTAL OVERLAY ZONE MAP CORRECTION PROJECT

VOLUME 3, PART G: Boring Lava Domes, Natural Resources Inventory and ESEE Decisions

Discussion Draft
November 2019



How to Comment

You may submit comments to Bureau of Planning and Sustainability staff on the Environmental Overlay Zone Map Correction Discussion Draft by:

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Bureau of Planning and Sustainability
1900 SW 4th Avenue, Suite 7100
Portland, Oregon 97201
Attention: Ezone Map Correction Project

For more information

Visit the project website: <https://www.portlandoregon.gov/bps/e-zone>
Contact the project team: 503-823-4225

COMMENTS DUE: January 31, 2020

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For accommodations, modifications, translation, interpretation or other services, please contact at 503-823-7700 or use the City's TTY at 503-823-6868, or Oregon Relay Service at 711.

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Volume 3 Part G, includes the results for resource sites in the Johnson Creek geography (see Map 1 and 2). For each resource site the following is presented:

1. Natural resources inventory of riparian corridors and wildlife habitat pursuant to OAR 660-023-0030, 660-023-0090 and 660-023-0110.
2. Economic, Social, Environmental and Energy analysis pursuant to OAR 660-023-0040.
3. Economic, Social, Environmental and Energy decisions pursuant to OAR 660-023-0040.
4. Program implementation recommendations pursuant to OAR 660-023-0050.

[illegible]

Map 1: Boring Lava Domes Resource Geography

B. How to Use this Document

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

Significant Natural Resource Feature and Functions Descriptions and Maps

Natural resource features include rivers, streams, , wetlands, flood area, vegetation (forest, woodland, shrubland and herbaceous), steep slopes and Special Habitat areas. These features are factual data that are mapped following the in the natural resources inventory. The descriptions are based on supplemental inventories, reports and site visits. Natural resource functions are the riparian corridor and wildlife habitat benefits provided by the features. The methodology uses to map and identify the natural resource features and function is documented in the Natural Resources Inventory (Appendix B) and Wetland Inventory Project (Appendix C) .

The natural resource features maps can be updated at any time based on more current and accurate data, such as a wetland delineation. 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.

Economic, Social, Environmental and Energy Analysis

The general ESEE analysis and recommendations are found in Volume 2. For each resource site, the general ESEE analysis and recommendations are affirmed, clarified or modified based on resource site-specific information. An ESEE decisions is made for each resource site. The ESEE decision describes which significant natural resource features and functions should be protected from the impacts of conflicting uses.

Implementation

The results of the inventory and ESEE decision for each resource site are implement by updates to the zoning code and maps found in Volume 1.

C. Natural Resources Definitions

Additional details can be found in Volume 4, Appendix B: Natural Resources Inventory, and Appendix C: Updated Wetland Mapping Protocol.

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 water body 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 where shallow water is present long enough to create hydric soils and could support hydrophilic vegetation, although due to landscaping, seeding, mowing or grazing hydrophilic vegetation may not be present.

Floodplain: Areas with a 1% or greater chance of flooding in any given year and areas that were inundated with water during the 1996 floods.

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.

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

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

Wildlife Habitat: Waterbodies, floodplain, 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: Designated by the City of Portland in accordance with Metro's Urban Growth Management Functional Plan Title 13, Nature in Neighborhoods, areas that contain or support special status species, sensitive/unique plant populations, or other unique natural or manmade habitat features.

D. Resource Site Boundaries

Statewide Land Use Planning Goal 5 requires local jurisdictions to establish resource sites within which the natural resources are inventoried and the ESEE analysis is performed. 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.”

Portland established resource sites through the previously adopted conservation and protection plans. 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 project.
2. Resource site boundaries were expanded to capture contiguous or similar and adjacent natural resource features.
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 description of the Johnson Creek natural resources generally. The general description is applicable to each resource site. Following the general description are results for the resource sites. For each resource site the following information is provided:

1. Inventory of Natural Resources – The quantity and quality of natural resource features, such as streams miles or acres of forest, based on the Natural Resources Inventory methodology (Appendix B), Wetland Inventory Project (Appendix C) and site visits is presented. A description of the natural resources is also provided.
2. Determination of Significance – Statement of which natural resources are significant for purposes of State Land Use Planning Goal 5.
3. Resource Site-Specific ESEE – Additional analysis addressing site-specific conditions resulting in a decision for the resource site. The decision may confirm, clarify or modify the general ESEE recommendation found in Volume 2.
4. Maps
 - A. Zoning – base zones
 - B. Water Features – rivers, streams, wetlands and flood areas
 - C. Land Features – forest, woodland, shrubland and herbaceous vegetation, steep slopes, Special Habitat Areas
 - D. Riparian Corridors – natural resource features providing one or more riparian corridor functions
 - E. Wildlife Habitat – natural resource features providing one or more wildlife habitat functions
 - F. Determination of Significance – Goal 5 significant natural resources
 - G. ESEE Decision – where to strictly limit, limit and allow conflicting uses in areas of significant natural resources

Boring Lava Domes Natural Resources

Encompassing about 1370 acres, the Lava Domes site is defined by a series of buttes, typically forested and steep, which are divided by perennial and seasonal streams flowing north into Johnson Creek. These buttes are volcanic in origin, formed several hundred thousand years ago, when a group of shield and cinder cone volcanoes—the "Lava Domes"—erupted across the lower Willamette Valley. These now dormant volcanoes are comprised mainly of high-alumina basalts, but locally contain ash, cinders and other materials. The basalts are similar to those of Mount Hood and other Cascade mountains and the origin of the Lava Domes is therefore believed to be tied to the uplift of the Cascade Range.

The site's streams are first and second order, generally high gradient streams with low to moderate flows. The streams are generally cool and clear; most of the streams support a healthy macroinvertebrate population, and several support amphibians and fish. Average channel gradients are between 10 and 12 percent, with some high elevation reaches exceeding 25 percent. As they near Johnson Creek, stream gradients drop to 2 or 3 percent. The Lava Dome hillsides, which include the side slopes of the stream ravines, can reach gradients of as much as 65 percent and occasionally more where rock cliffs and outcroppings occur.

The forest that historically covered the gentle sloping Lava Domes ridges and lowlands was partially cleared in the early 1900s for agriculture, timber and cemetery uses. Forest clearing has increased dramatically in recent years as housing development expanded from the lowlands and ridges onto the hillside slopes. Presently, about one half (700 acres) of the site is forested. Because of the Lava Domes poorly drained clay soils, the recent clearing and development activities have had direct influence on water quality and quantity within the lower Johnson Creek basin, often exacerbating local flooding and increasing sedimentation and turbidity. The important relationship between the Lava Domes and the rest of the Johnson Creek basin was one factor that prompted the City Planning Commission to request a reevaluation of natural resources within the Lava Domes.

The Lava Domes forest straddles the border between the Willamette Valley vegetation zone and the Western Hemlock zone (Franklin and Dyrness), see Figure 3. The Lava Domes forest community exhibits characteristics common to both of these zones. The prominent occurrence of western red cedar and the presence of hemlock suggests that the forest is best characterized by the *Thuja plicata*/*Acer circinatum*/*Polystichum munitum* (red cedar/vine maple/sword fern) community of the Western Hemlock zone.

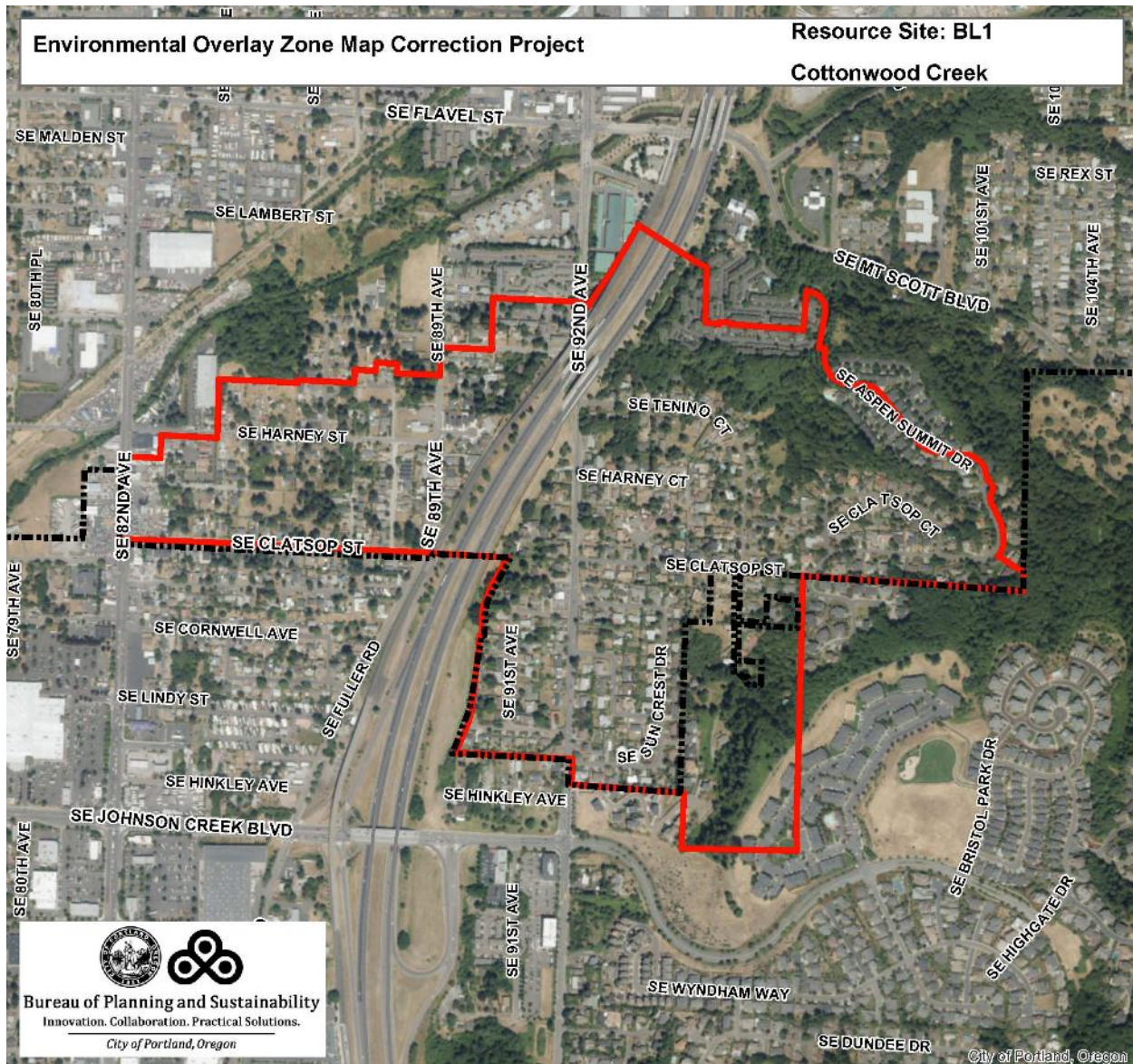
The Willamette Valley *Pseudotsuga menziesii*/*Acer circinatum*/*Polystichum munitum* (Douglas fir/vine maple/sword fern) community is similar though cedars are less common associates. Both of these communities frequently occur on north slopes such as the those that make up the Lava Domes planning area.

The Lava Domes forest generally ranges from 60 to 100-year-old second growth stands in a mid-successional stage referred to as conifer topping hardwood. Certain areas of the site, however, contain much older forest with tree diameters reaching five feet or more. As summarized in Table 1, the Lava Dome subdistricts are typically comprised of a mixed conifer/deciduous forest with western red cedar

(THPL2), bigleaf maple (ACMA) and Douglas fir (PSME) frequently occurring as dominant tree species. Other occasional dominant trees include red alder (ALRU), western hemlock (TSHE) and black cottonwood (POBA). Dominant shrubs in the forest community include vine maple (ACCI), western hazel (COCO), Indian plum (OECE) and snowberry (SYAL). On the ground layer, common herbaceous plants include sword fern (POMU) and stinging nettle (URDI).



Previous Plan: Boring Lava Domes Supplement **Previous Resource Site No.:** 30a



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site		BL1
		Study Area
Stream (Miles)		0.6
Wetlands (acres)		0.0
Vegetated Areas >= 1/2 acre (acres)		59.7
Forest (acres)		31.8
Woodland (acres)		9.4
Shrubland (acres)		0.1
Herbaceous (acres)		18.4
Flood Area*		0.0
Vegetated (acres)		0.0
Non-vegetated (acres)		0.0
Steep Slopes (acres)**		65.5
Impervious Surface (acres)		62.0
* 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 area with a slope greater than 25%.		

This watershed is located in the southwestern corner of the Lava Domes site in the vicinity of SE Tenino Ct. The watershed resources include Cottonwood Creek its tributaries, habitat areas, and forested riparian and upland areas.

Table B: Quality of Natural Resource Functions in Resource Site BL1				
Resource Site (acres) = 203.921104				
	High	Medium	Low	Total
Riparian Corridors*				
acres	10.5	4.7	16.5	31.7
percent total inventory site area	5.1%	2.3%	8.1%	15.6%
Wildlife Habitat*				
acres	0.0	29.5	0.0	29.5
percent total inventory site area	0.0%	14.5%	0.0%	14.5%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total⁺				
acres	10.5	20.6	1.3	32.3
percent total inventory site area	5.1%	10.1%	0.6%	15.9%
<p>* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.</p> <p>** Special Habitat Areas rank high for wildlife habitat.</p> <p>+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.</p>				

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site BL1 the following significant features and functions are present:

Significant Natural Resource Features: open stream; flood area; forest vegetation within 300 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant 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.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2 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.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; 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. Employment uses are allowed in the EG2 base zone. Industrial uses are allowed in the IG2 base zone. Open space uses are allowed in the OS base zone. There is also Clackamas County zoning that allows residential development. 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.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site BL1, with the following additional information that clarifies the analysis.

Strictly limiting or limiting conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and wetlands, 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 high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

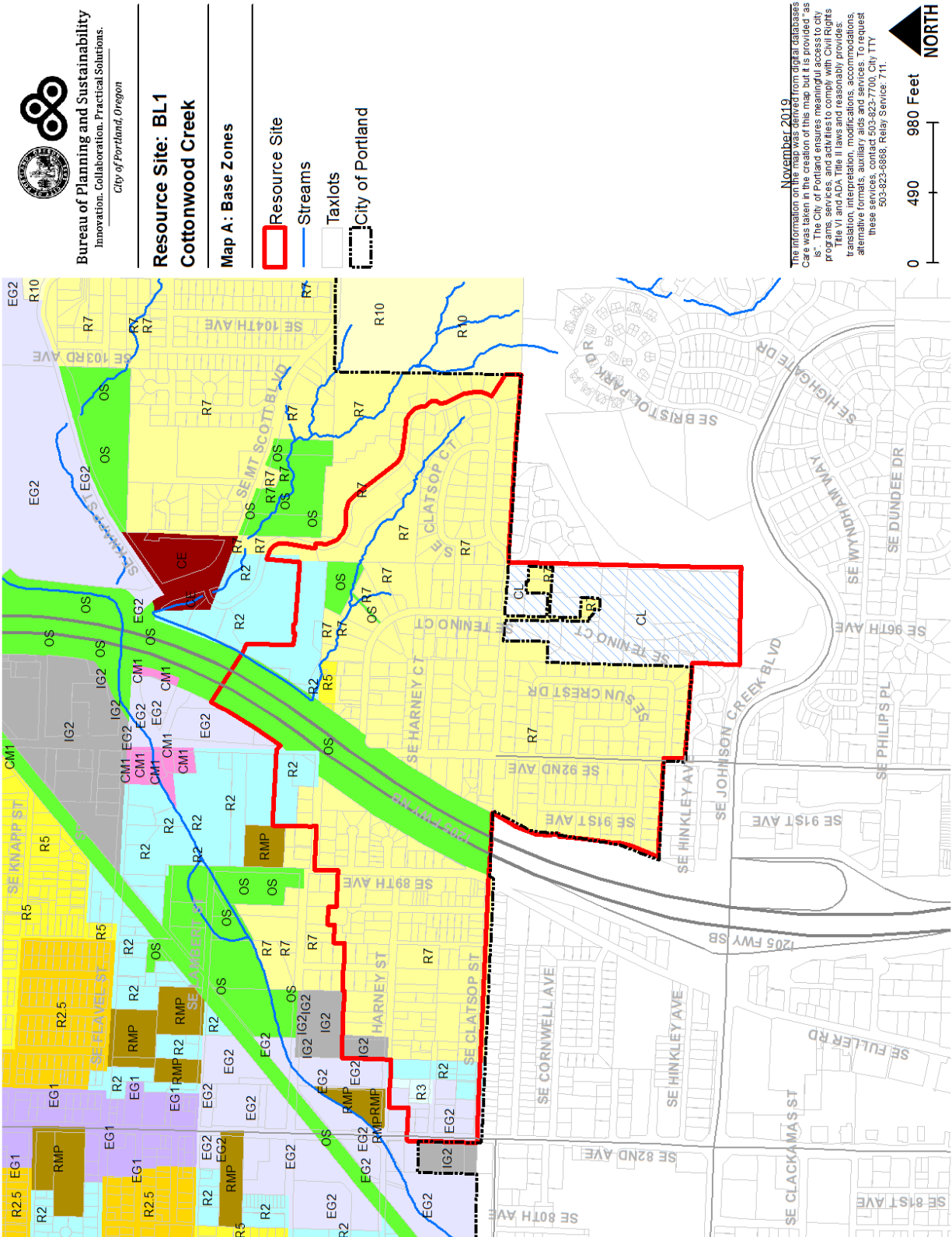
Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

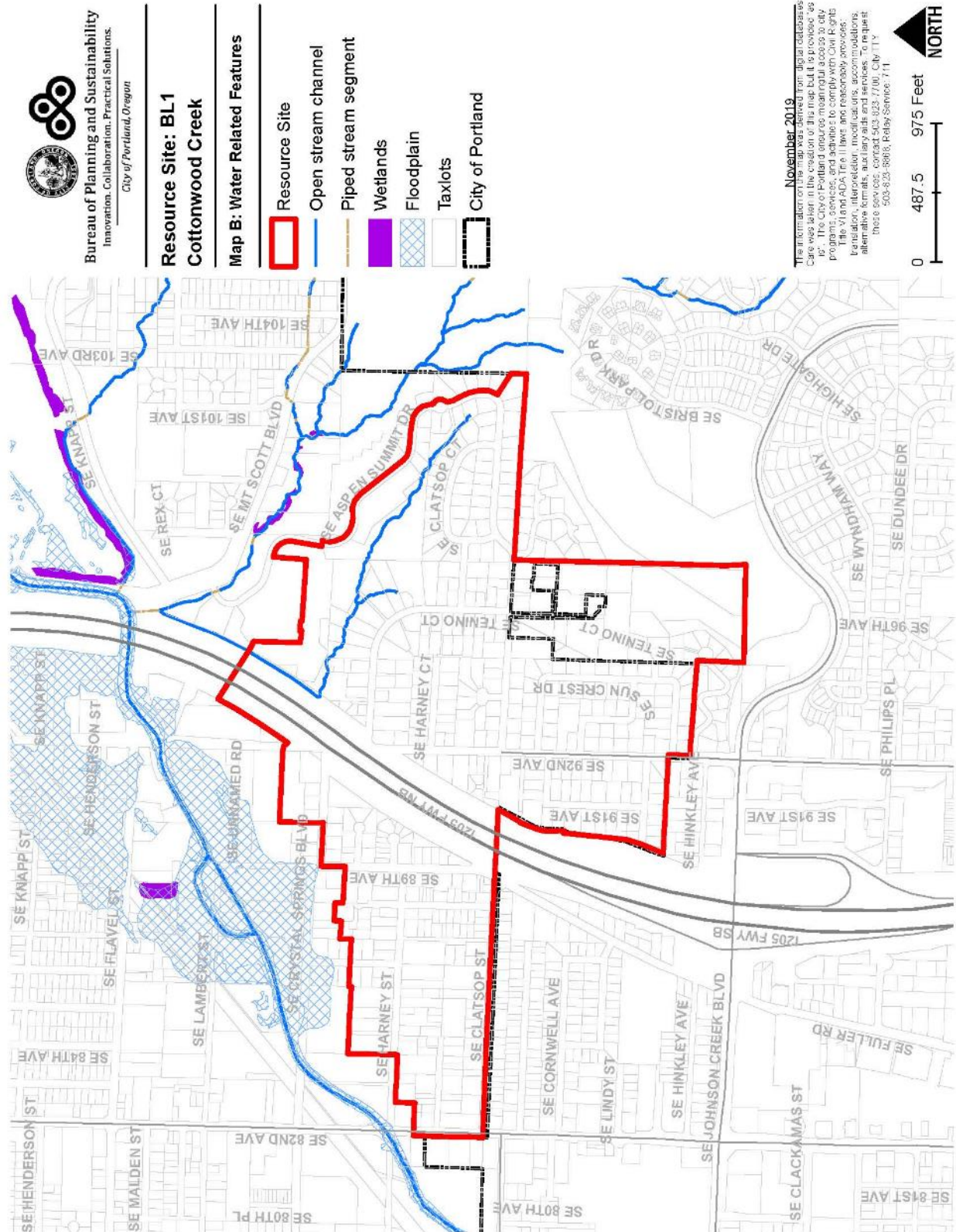
ESEE Decisions

Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resource Site BL1 are:

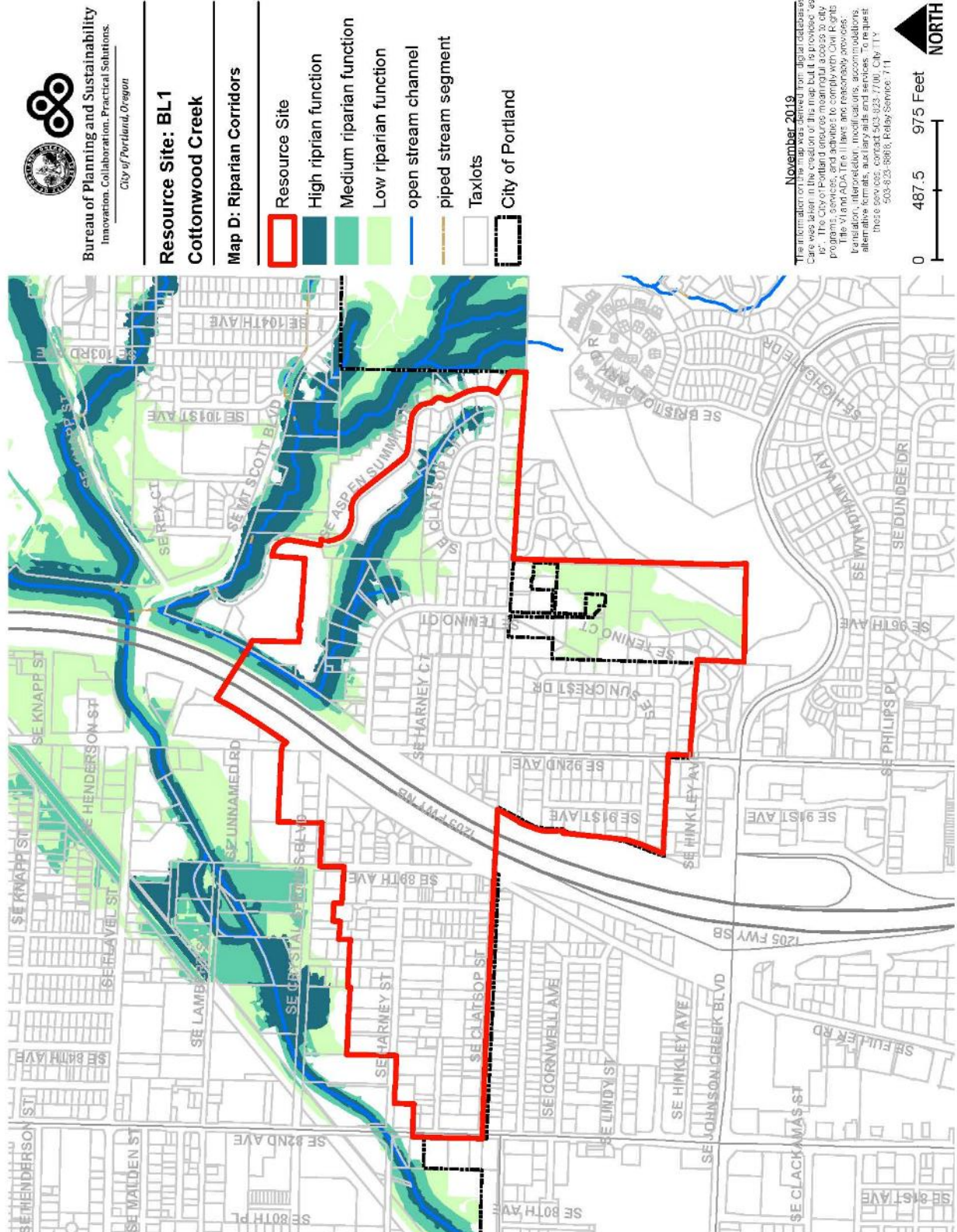
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank and land within 40 feet of stream top-of-bank.
2. *Strictly limit* conflicting uses within areas forest or woodland vegetation on steep slopes that are contiguous to but more than 40 feet from stream top-of-bank.
3. *Limit* conflicting uses within areas of forest or woodland vegetation on not steep slopes that are contiguous to but more than 40 feet from stream top-of-bank.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

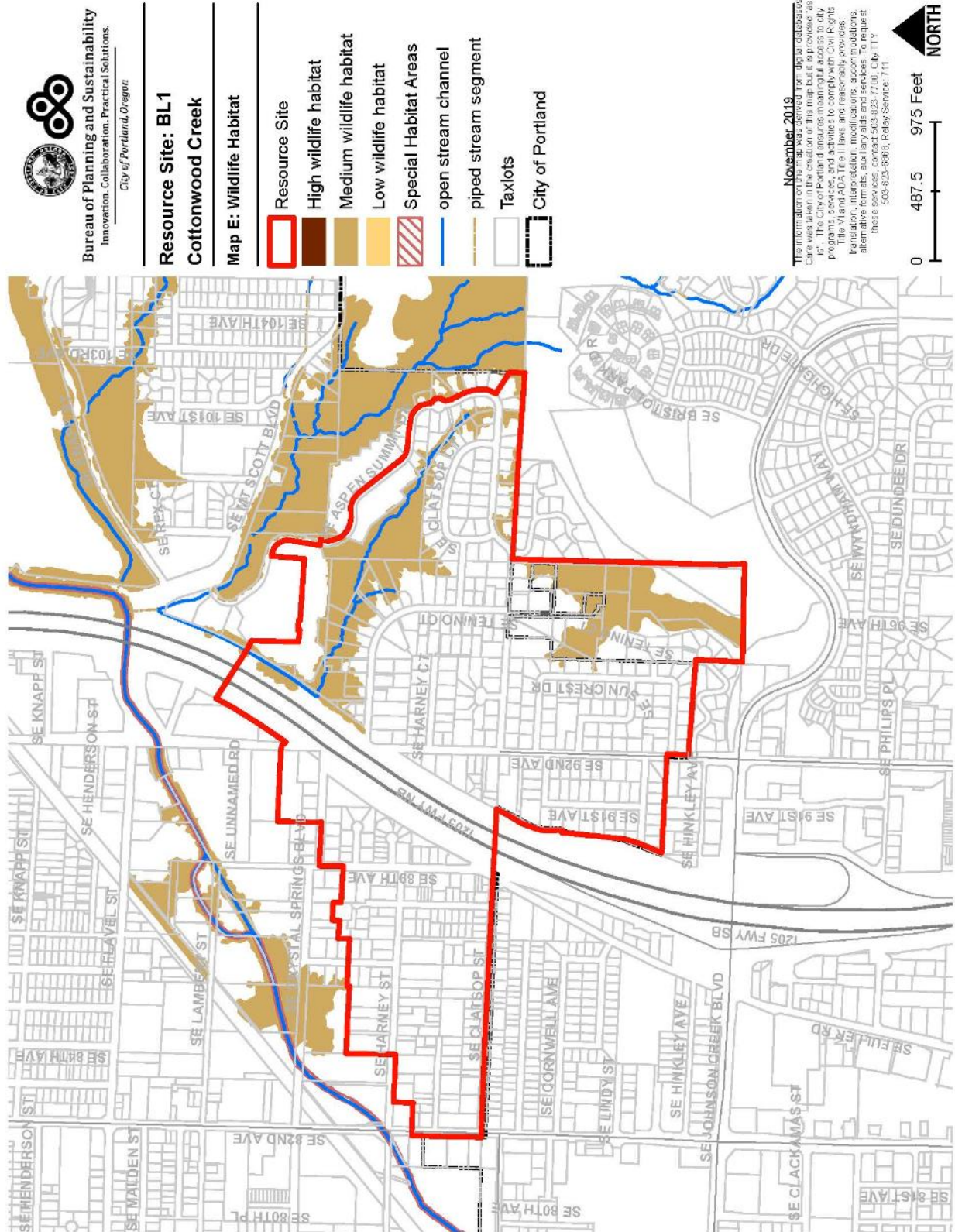
Table C: ESEE Decision for Resource Site BL1	
ESEE Decision	Acres
Strictly Limit	11.1
Limit	18.4
Allow	174.4

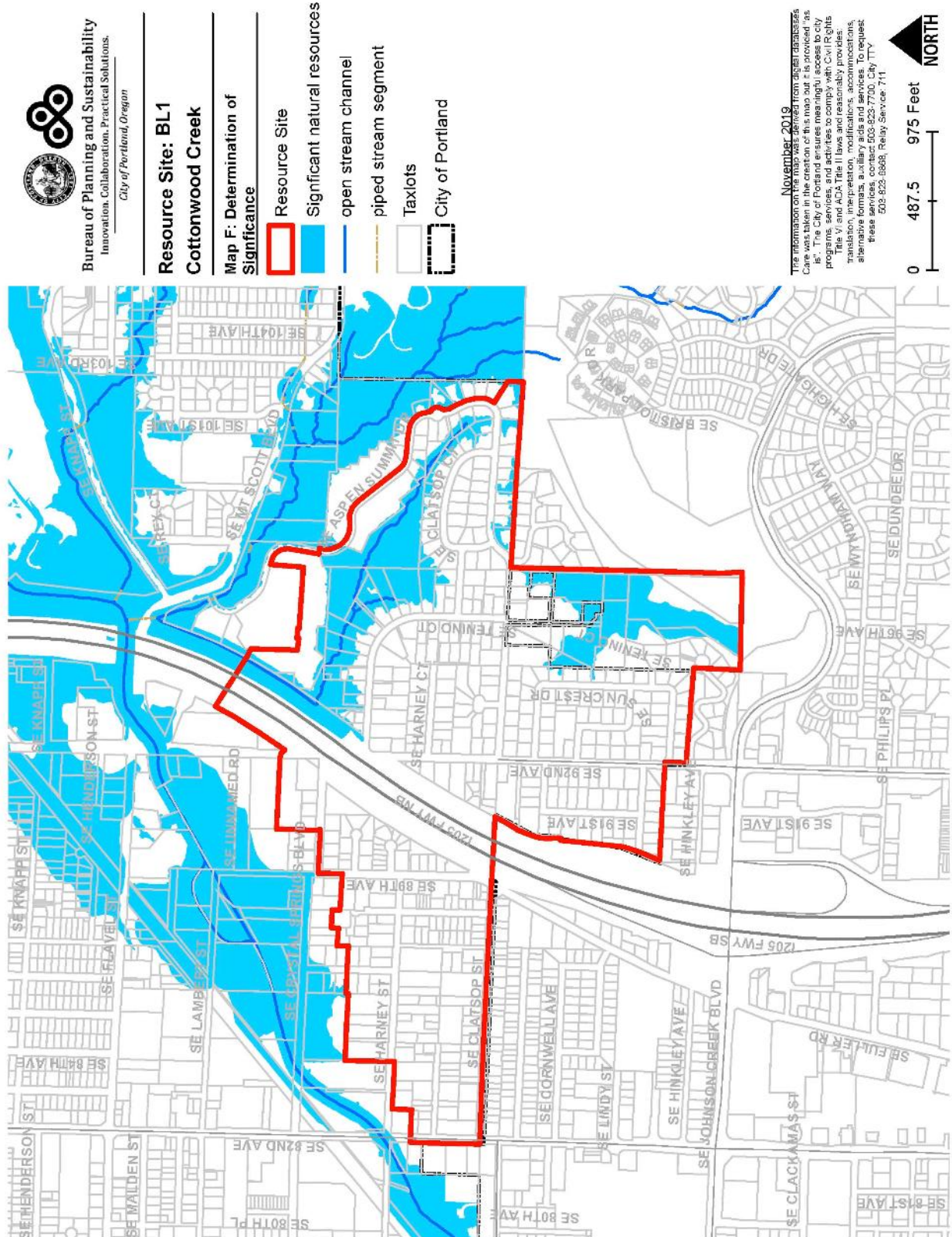


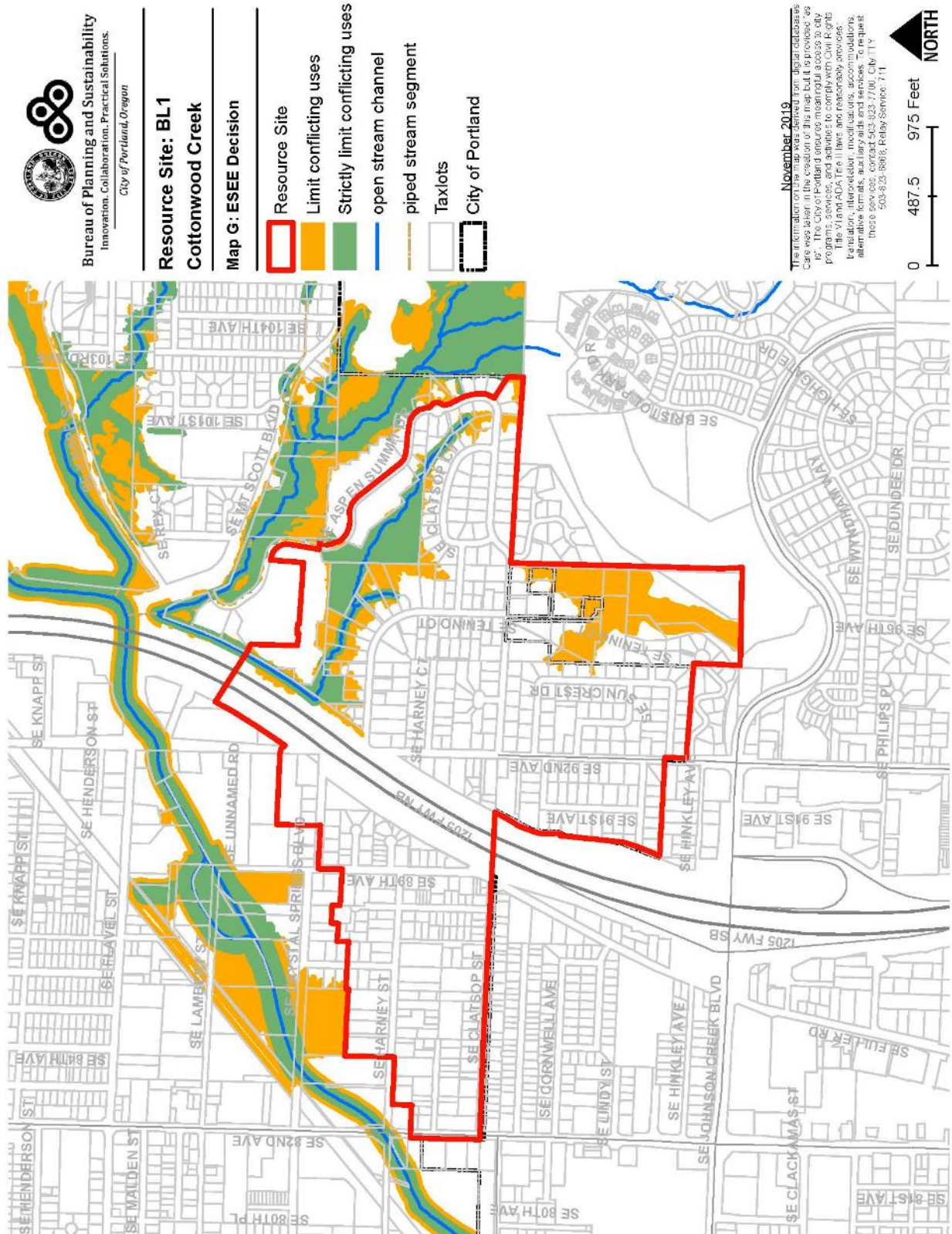












Resource Site No.: BL2 Resource Site Name: Veteran's Creek
Previous Plan: Boring Lava Domes Supplement Previous Resource Site No.: 30b



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site		BL2
		Study Area
Stream (Miles)		0.6
Wetlands (acres)		0.4
Vegetated Areas >= 1/2 acre (acres)		95.1
Forest (acres)		42.0
Woodland (acres)		17.0
Shrubland (acres)		0.0
Herbaceous (acres)		36.2
Flood Area*		0.0
Vegetated (acres)		0.0
Non-vegetated (acres)		0.0
Steep Slopes (acres)**		57.6
Impervious Surface (acres)		27.8
* 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 area with a slope greater than 25%.		

This watershed is located on the north slope of Mt. Scott along Mt. Scott Blvd. Resources in the watershed include Veteran's Creek and its tributaries, habitat areas, and forested riparian and upland areas.

Table B: Quality of Natural Resource Functions in Resource Site BL2				
Resource Site (acres) = 143.824976				
	High	Medium	Low	Total
Riparian Corridors*				
acres	30.0	13.3	18.3	61.6
percent total inventory site area	20.9%	9.3%	12.7%	42.8%
Wildlife Habitat*				
acres	0.0	49.2	0.0	49.2
percent total inventory site area	0.0%	34.2%	0.0%	34.2%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total⁺				
acres	30.0	24.7	9.3	64.1
percent total inventory site area	20.9%	17.2%	6.5%	44.5%
<p>* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.</p> <p>** Special Habitat Areas rank high for wildlife habitat.</p> <p>+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.</p>				

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site BL2 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; forest vegetation within 300 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant 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.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2 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.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; 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 and R2 base zones. Commercial uses are allowed in the CE 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.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site BL2, with the following additional information that clarifies the analysis.

Strictly limiting or limiting conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, 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 high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

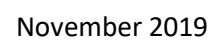
Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

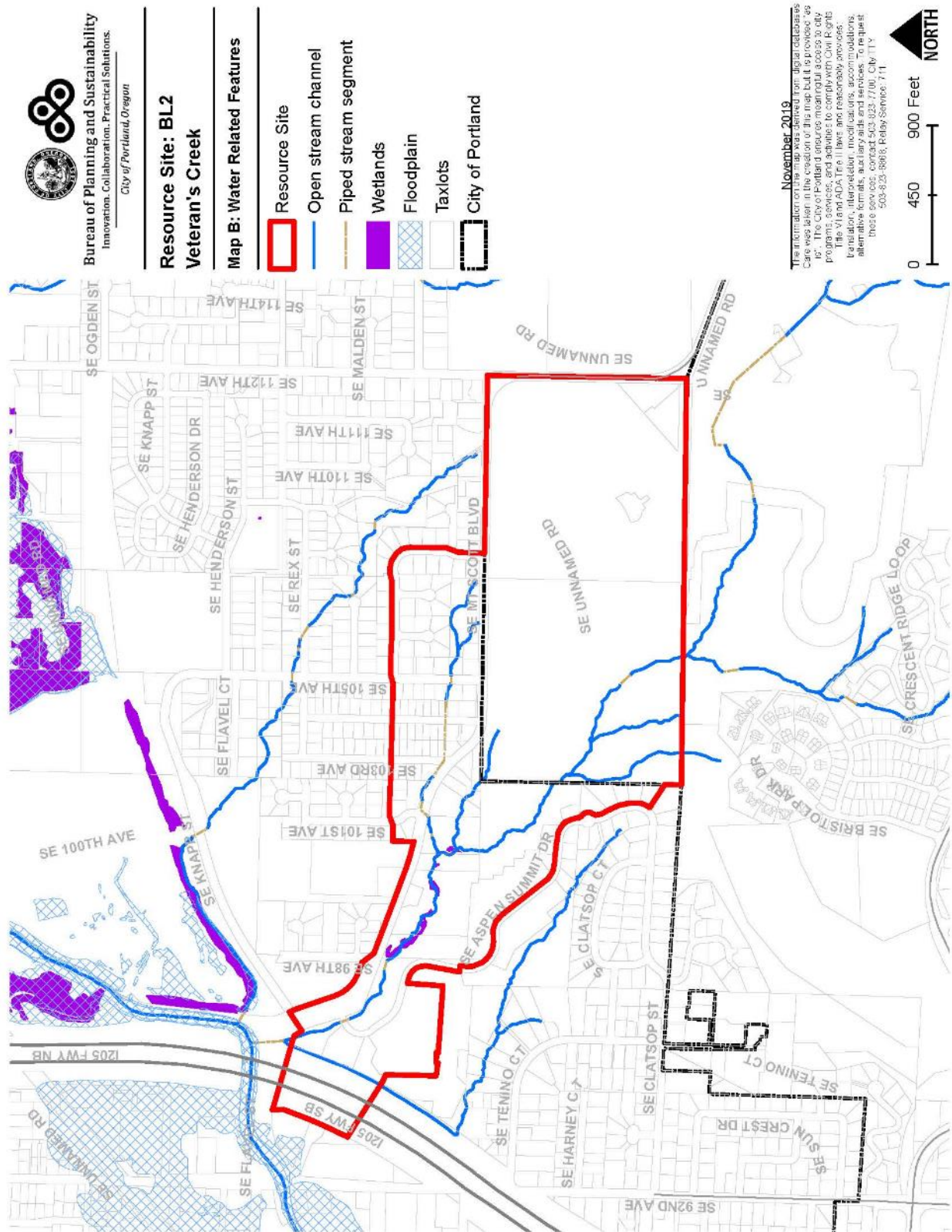
ESEE Decisions

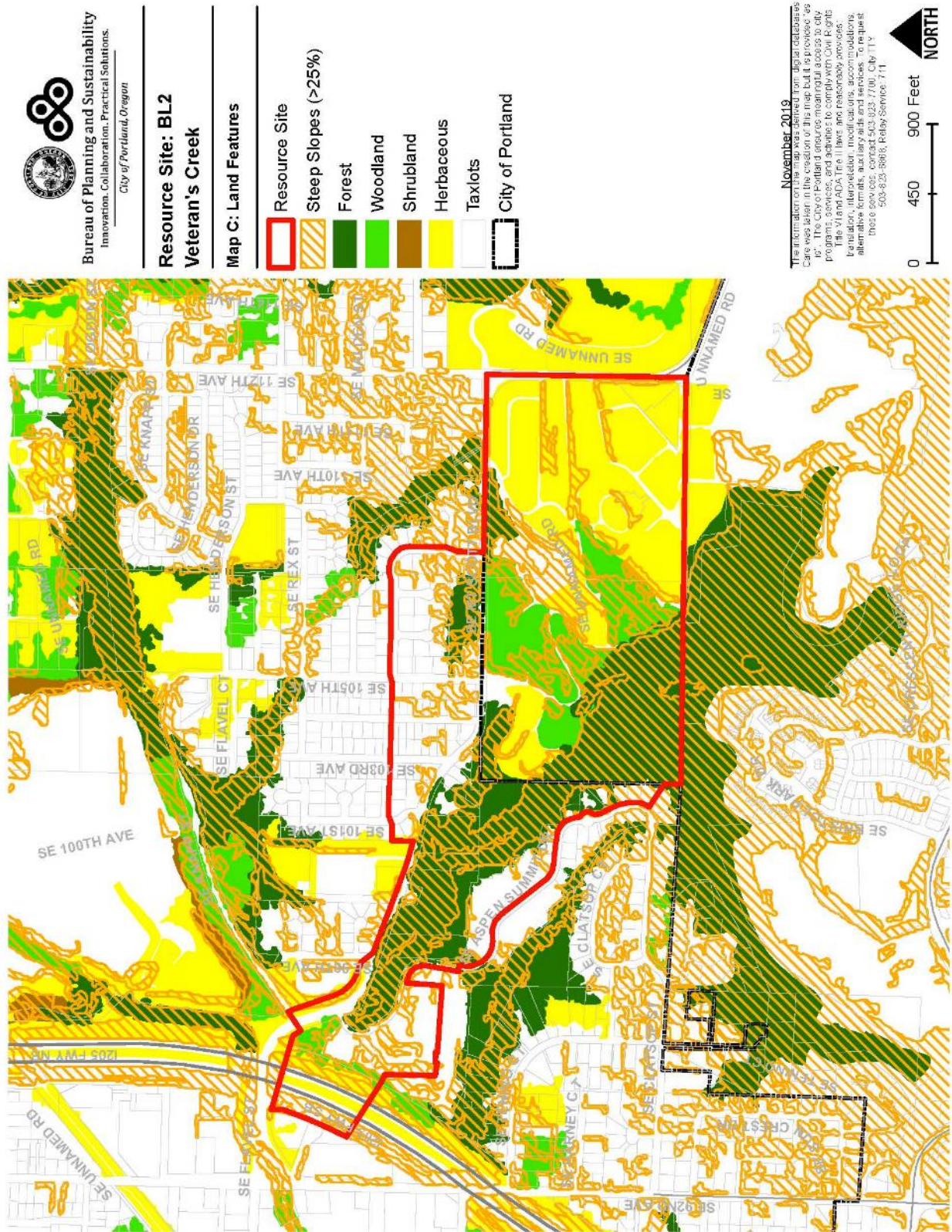
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site BL2 are:

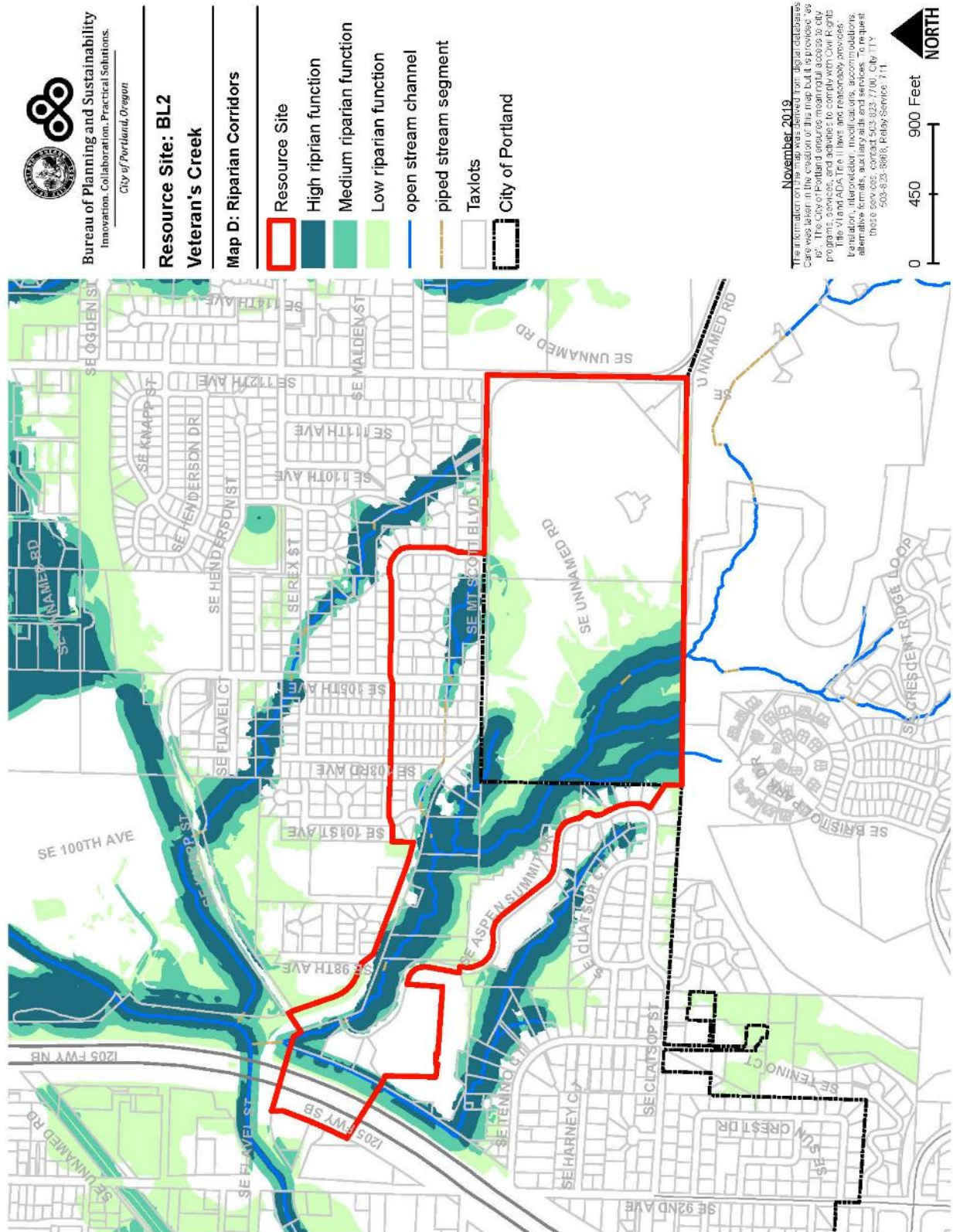
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 40 feet of stream top-of-bank, and land within 40 feet of wetlands.
2. *Strictly limit* conflicting uses within areas forest or woodland vegetation on steep slopes that are contiguous to but more than 40 feet from stream top-of-bank or wetlands extending to 100 feet from streams or wetlands.
3. *Limit* conflicting uses within areas of forest or woodland vegetation on steep slopes that are contiguous to but more than 100 feet from stream top-of-bank or wetlands and areas of forest or woodland vegetation not steep slopes that are contiguous to but more than 40 feet from stream top-of-bank or wetlands.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

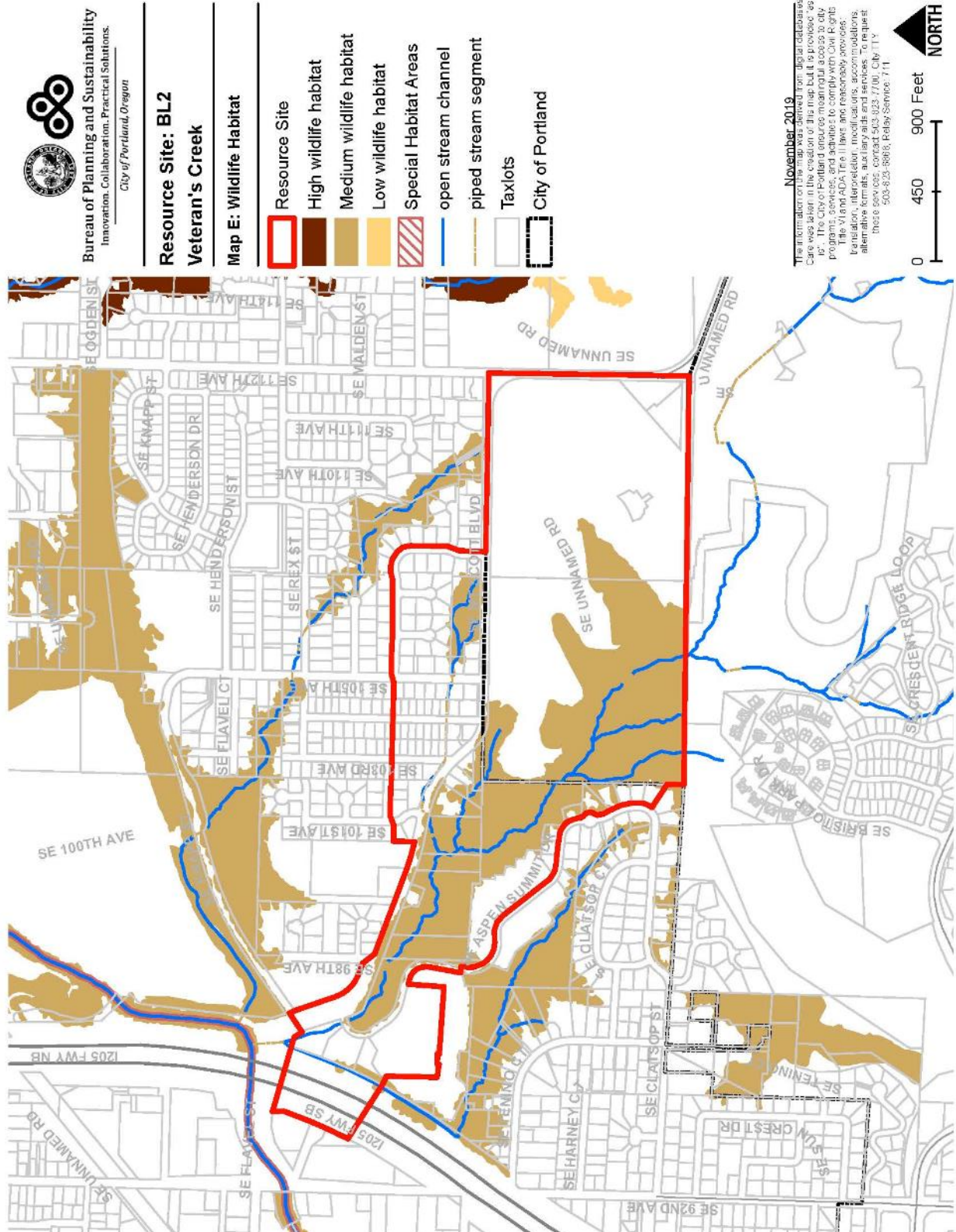
Table C: ESEE Decision for Resource Site BL2	
ESEE Decision	Acres
Strictly Limit	39.2
Limit	12.8
Allow	91.8

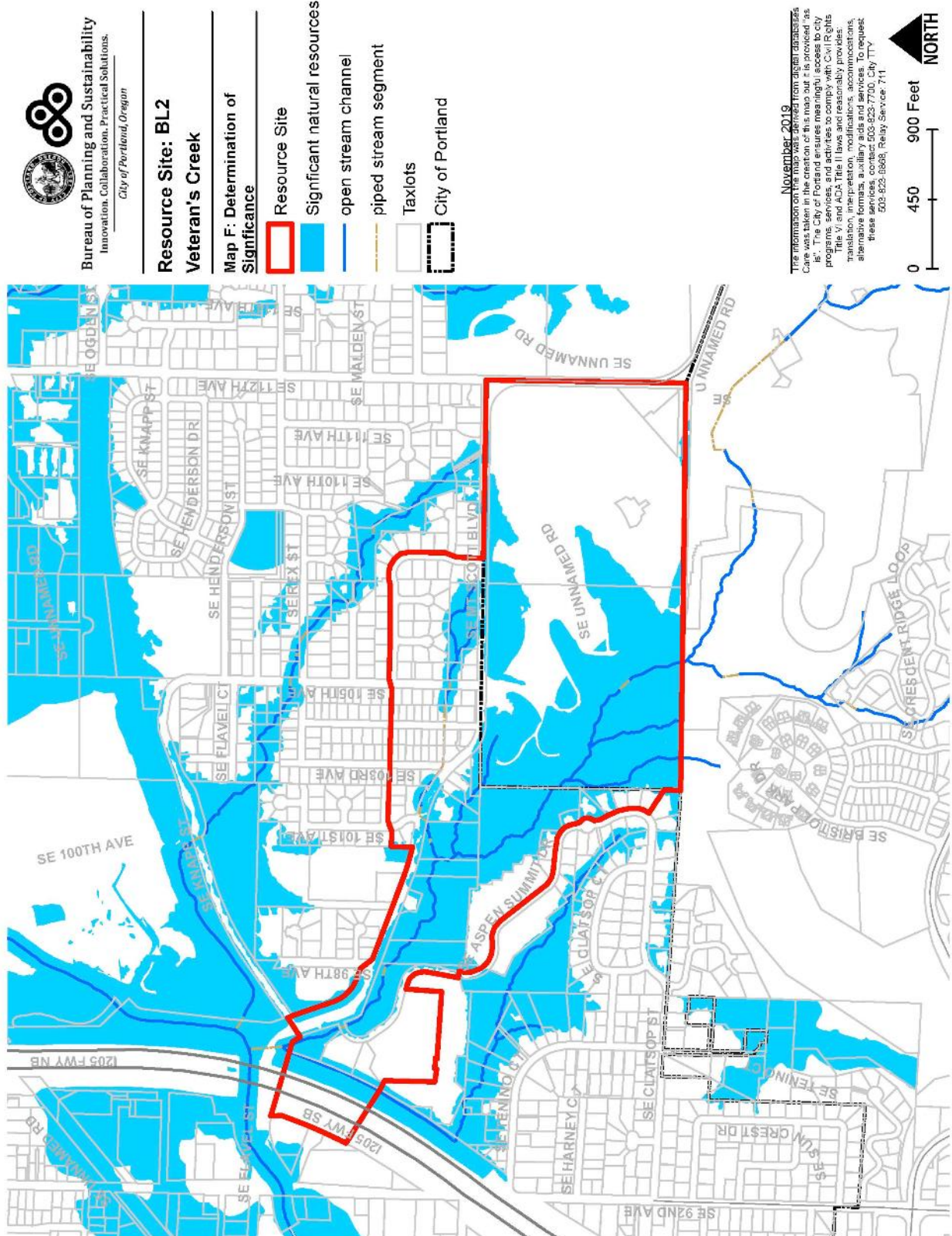


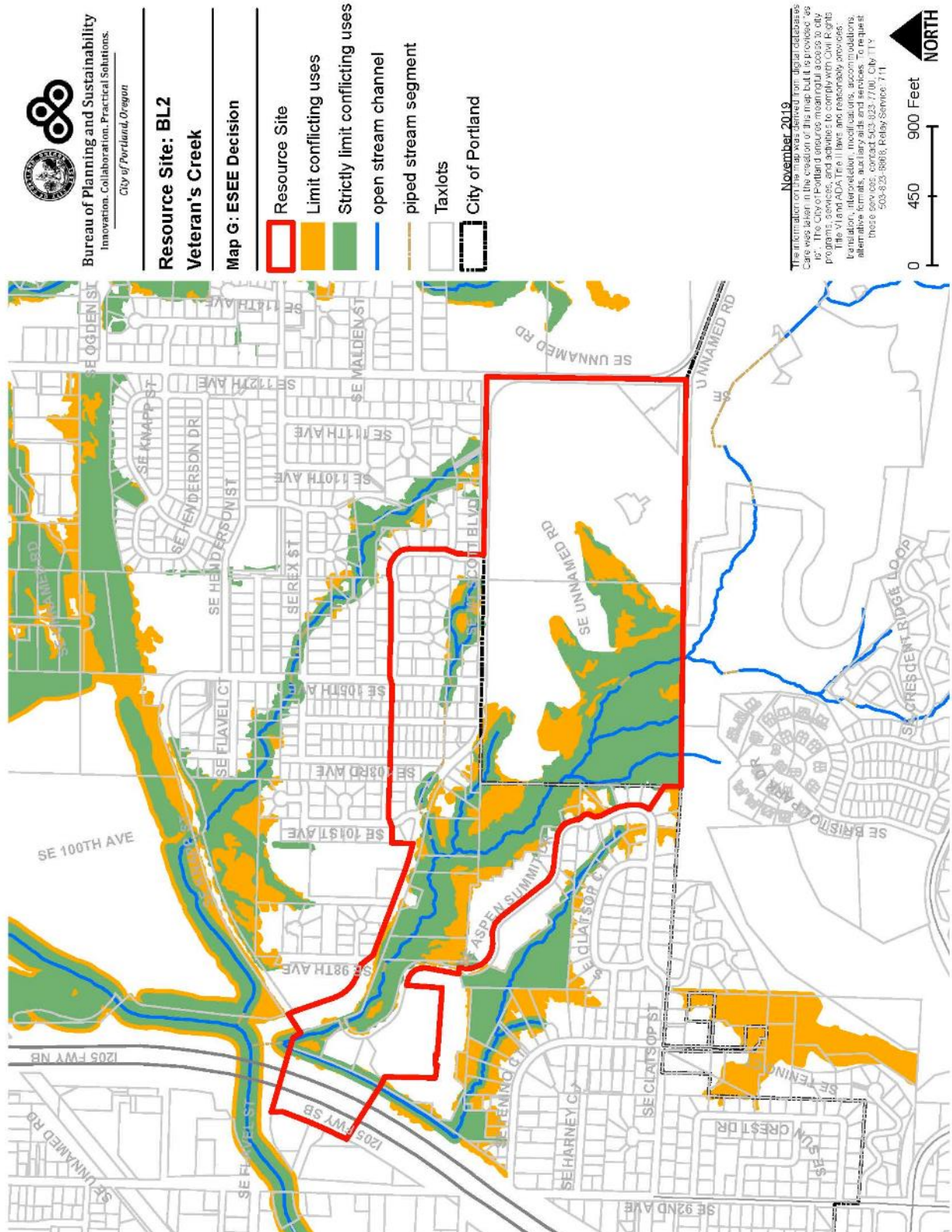












Previous Plan: Boring Lava Domes Supplement **Previous Resource Site No.:** 30c



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site		BL3
		Study Area
Stream (Miles)		1.0
Wetlands (acres)		0.0
Vegetated Areas >= 1/2 acre (acres)		53.5
Forest (acres)		33.6
Woodland (acres)		4.7
Shrubland (acres)		0.0
Herbaceous (acres)		15.2
Flood Area*		1.1
Vegetated (acres)		1.1
Non-vegetated (acres)		0.0
Steep Slopes (acres)**		48.2
Impervious Surface (acres)		46.1
* 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 area with a slope greater than 25%.		

This watershed is located to the west of SE 112th Ave. The resources in the watershed include Indian Rock Creek, habitat areas, heritage areas, and forested riparian and upland areas.

Table B: Quality of Natural Resource Functions in Resource Site BL3				
Resource Site (acres) = 162.042077				
	High	Medium	Low	Total
Riparian Corridors*				
acres	11.7	7.9	22.5	42.1
percent total inventory site area	7.2%	4.9%	13.9%	26.0%
Wildlife Habitat*				
acres	0.0	34.2	0.0	34.2
percent total inventory site area	0.0%	21.1%	0.0%	21.1%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total⁺				
acres	11.7	24.9	5.9	42.5
percent total inventory site area	7.2%	15.4%	3.6%	26.2%
<p>* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.</p> <p>** Special Habitat Areas rank high for wildlife habitat.</p> <p>+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.</p>				

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site BL3 the following significant features and functions are present:

Significant Natural Resource Features: open stream; flood area; forest vegetation within 300 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant 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.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2 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.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; 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 and R7 base zones. Commercial uses area allowed in the CE 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.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site BL3, with the following additional information that clarifies the analysis.

Strictly limiting or limiting conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, 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 high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

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*.

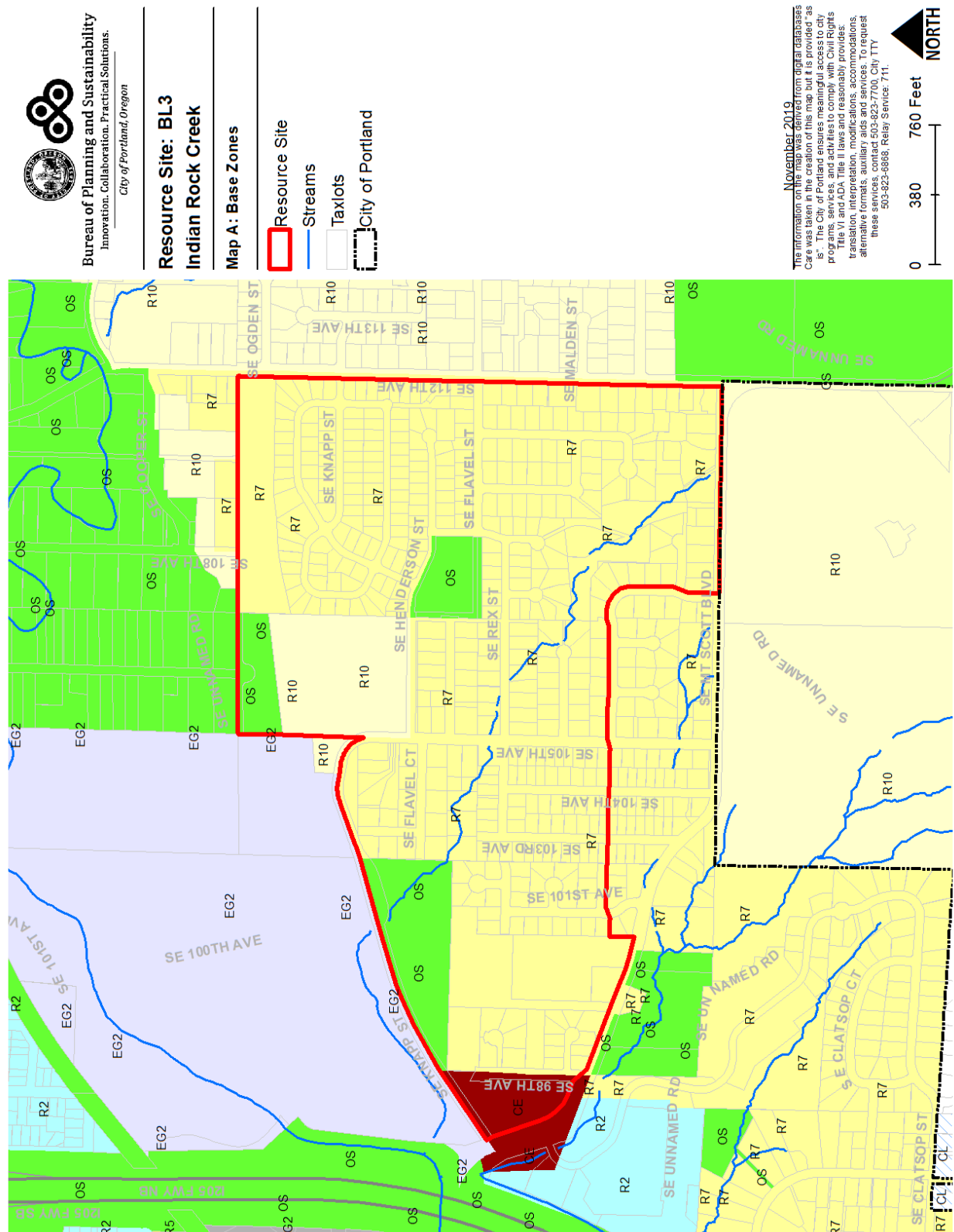
There is flood area within the site. The structures and impervious surface limit the flood capacity and infiltration functions of the land and increase the flood risk to the property as well as properties up and down stream. New or expanded development in the flood area should be *limited*.

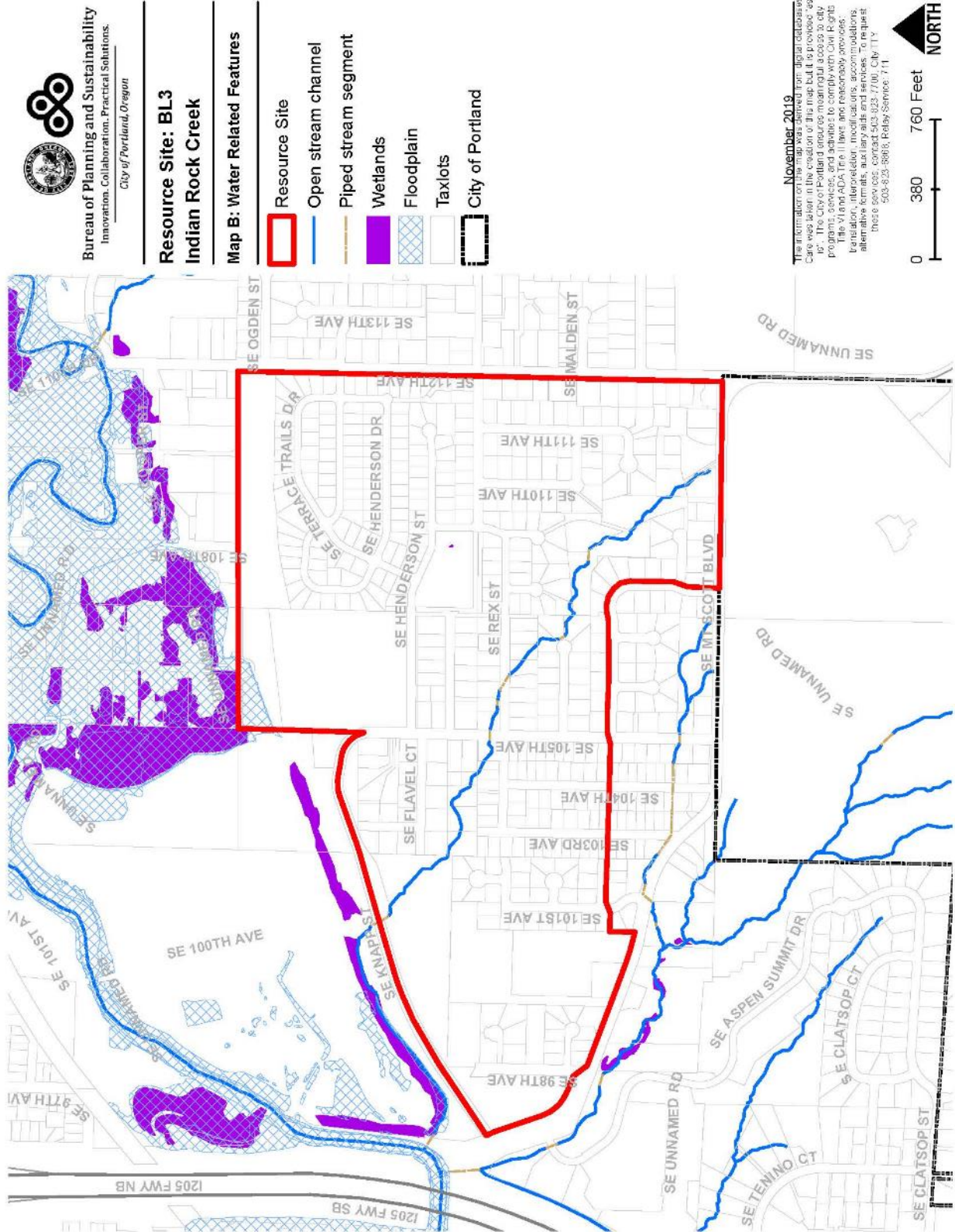
ESEE Decisions

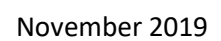
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resource Site BL3 are:

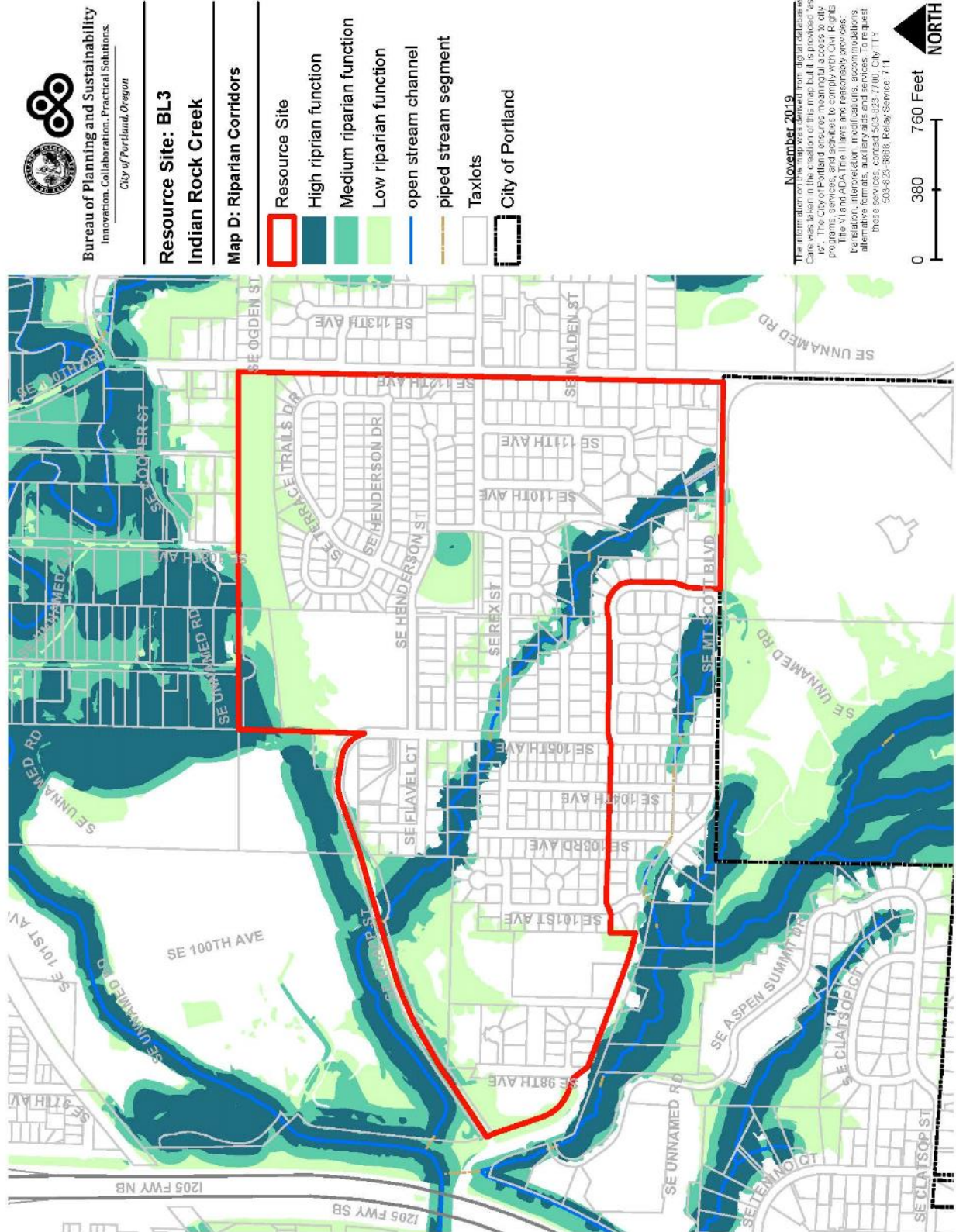
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank and land within 25 feet of stream top-of-bank.
2. *Strictly limit* conflicting uses within areas of forest vegetation between 25 and 100 feet of top-of-bank of streams and on areas of forest and woodland on steep slopes.
3. *Limit* conflicting uses within land between 25 and 40 feet of stream top-of-bank that is not forested and areas of forest or woodland vegetation not on steep slopes that are contiguous to but more than 40 feet from stream top-of-bank.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

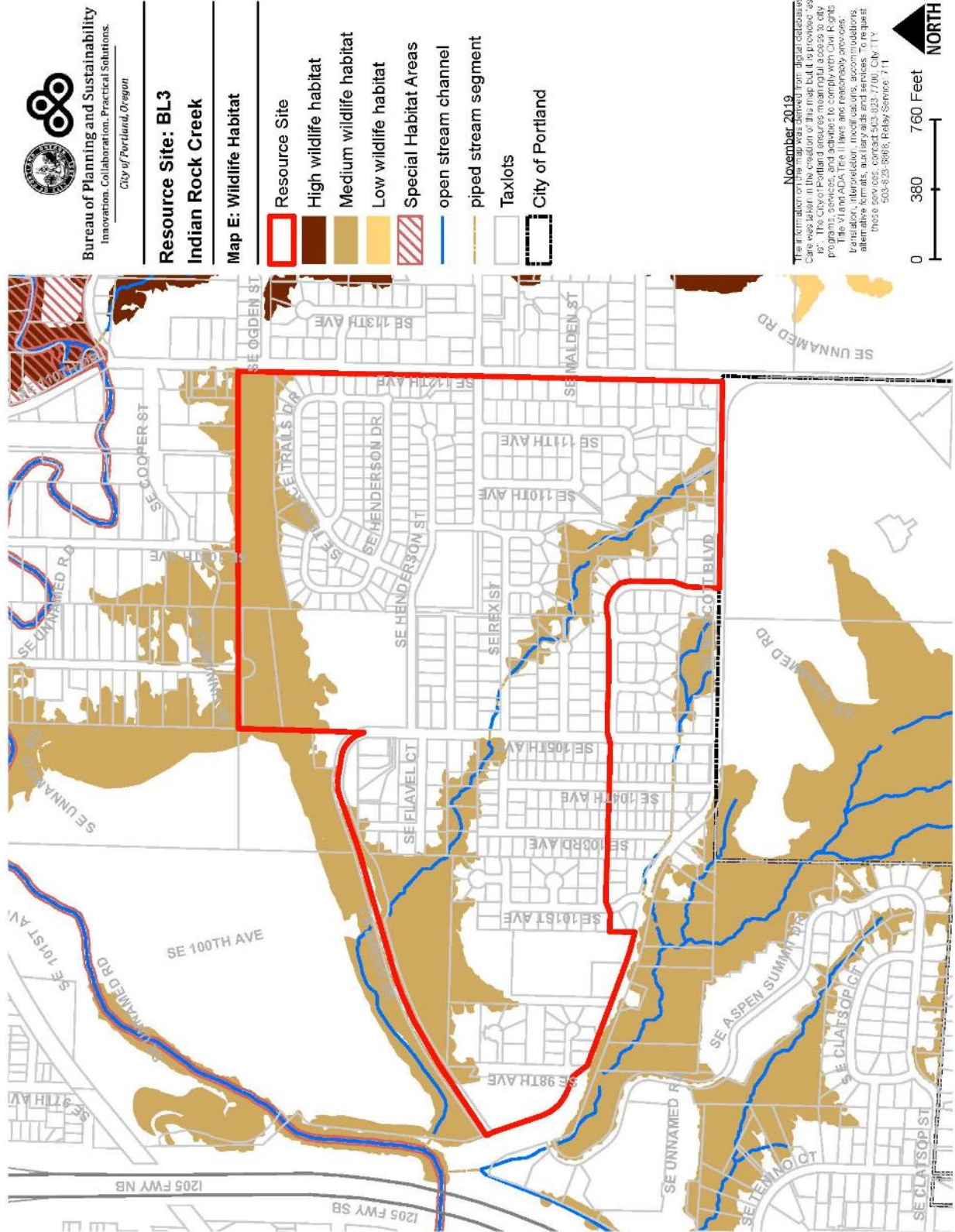
Table C: ESEE Decision for Resource Site BL3	
ESEE Decision	Acres
Strictly Limit	27.8
Limit	8.3
Allow	126.0

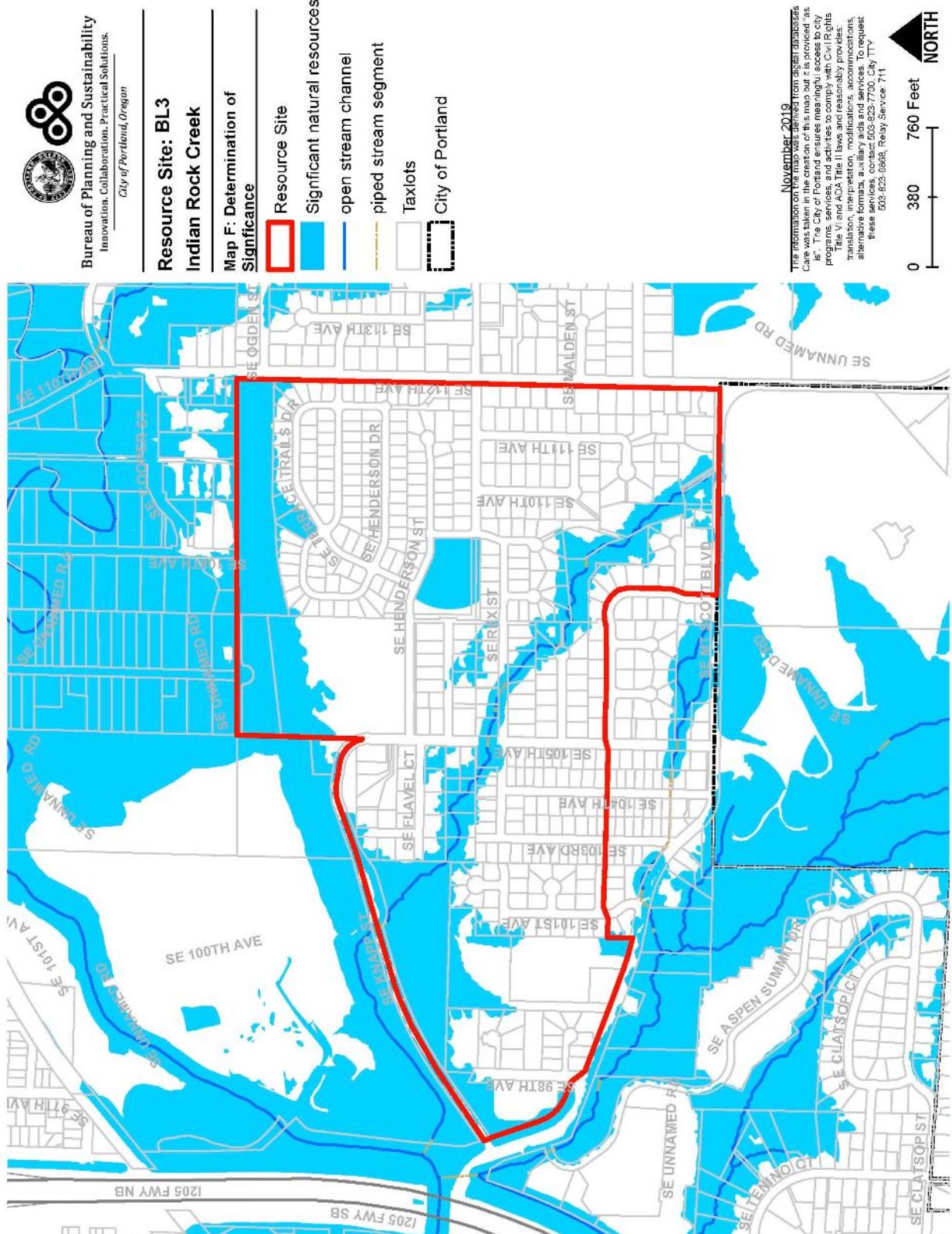


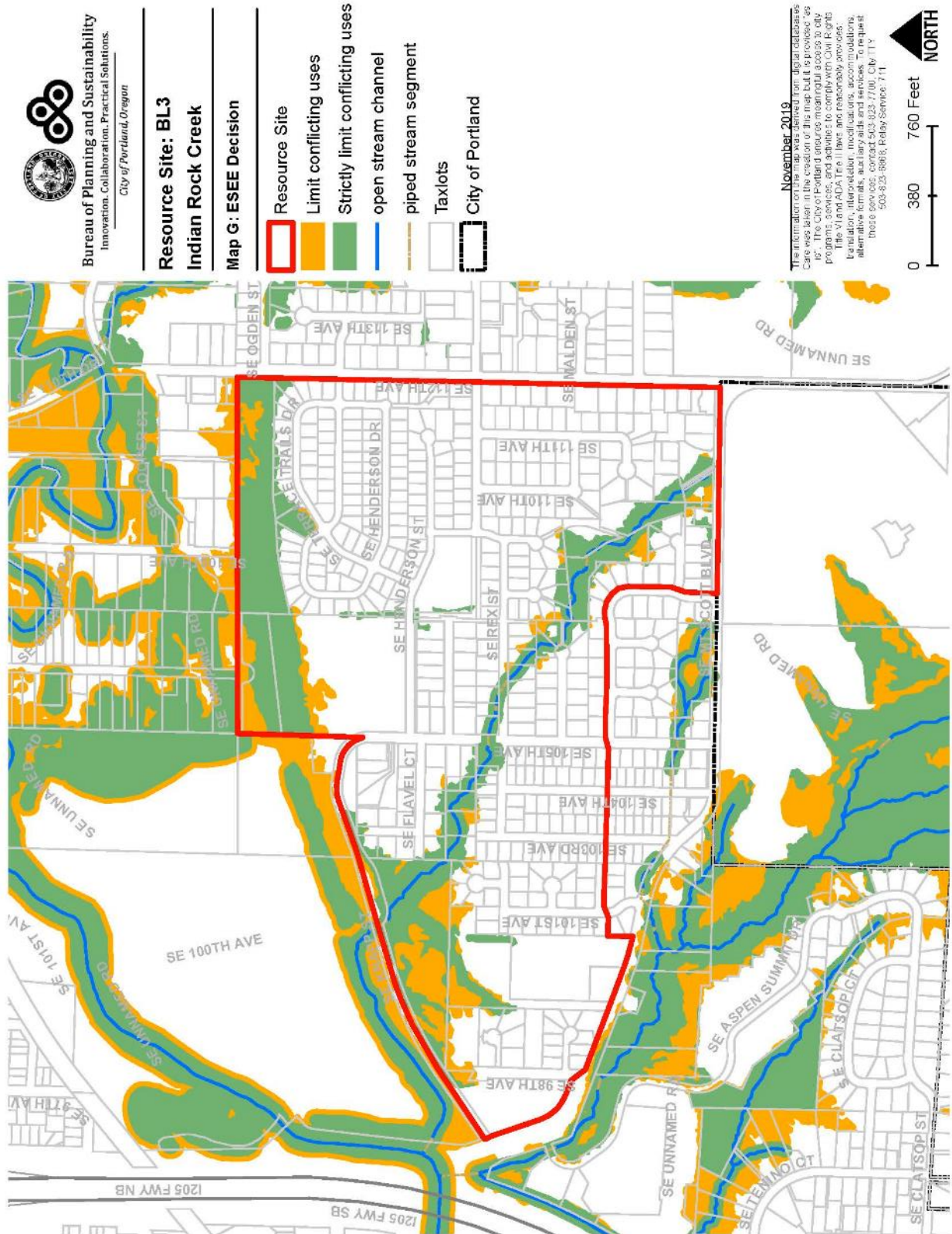




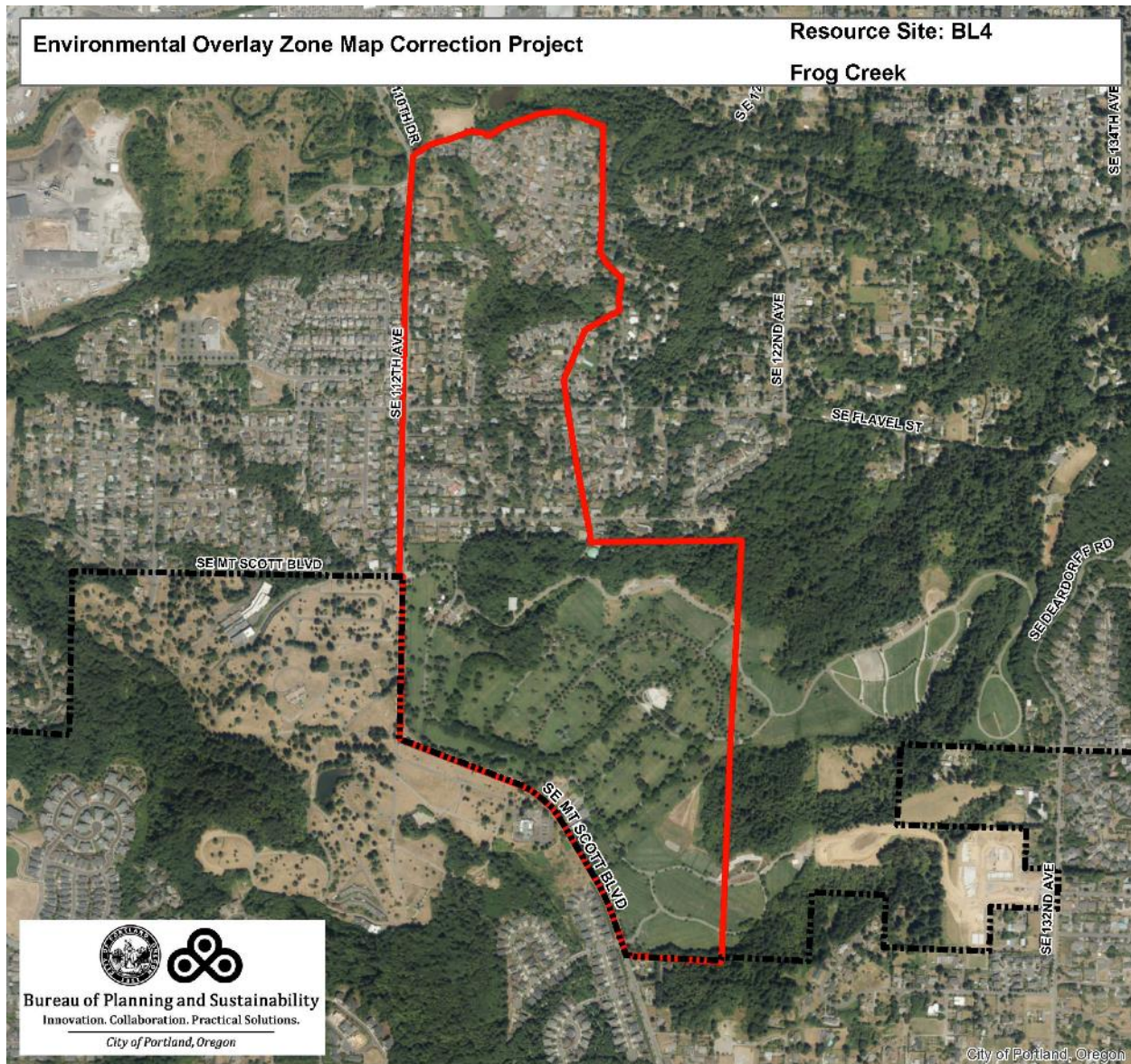








Previous Plan: Boring Lava Domes Supplement **Previous Resource Site No.:** 30d



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site BL4	
	Study Area
Stream (Miles)	0.8
Wetlands (acres)	0.4
Vegetated Areas >= 1/2 acre (acres)	165.9
Forest (acres)	53.2
Woodland (acres)	18.1
Shrubland (acres)	0.0
Herbaceous (acres)	94.6
Flood Area*	0.3
Vegetated (acres)	0.2
Non-vegetated (acres)	0.1
Steep Slopes (acres)**	82.5
Impervious Surface (acres)	35.0
* 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 area with a slope greater than 25%.	

This watershed is located just east of SE 112th Ave. The resources in the watershed include Frog Creek, its tributaries, habitat areas, and forested upland areas.

Table B: Quality of Natural Resource Functions in Resource Site BL4				
Resource Site (acres) = 260.268048				
	High	Medium	Low	Total
Riparian Corridors*				
acres	24.6	15.9	37.9	78.4
percent total inventory site area	9.5%	6.1%	14.6%	30.1%
Wildlife Habitat*				
acres	50.0	1.1	6.6	57.7
percent total inventory site area	19.2%	0.4%	2.5%	22.2%
Special Habitat Areas**				
acres				1.1
percent total inventory site area				0.4%
Combined Total⁺				
acres	52.1	6.4	20.5	79.0
percent total inventory site area	20.0%	2.5%	7.9%	30.3%
<p>* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.</p> <p>** Special Habitat Areas rank high for wildlife habitat.</p> <p>+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.</p>				

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site BL4 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; flood area; forest vegetation within 300 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant 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.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2 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.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; 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 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.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site BL4, with the following additional information that clarifies the analysis.

Strictly limiting or limiting conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, 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 high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

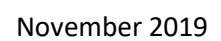
Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

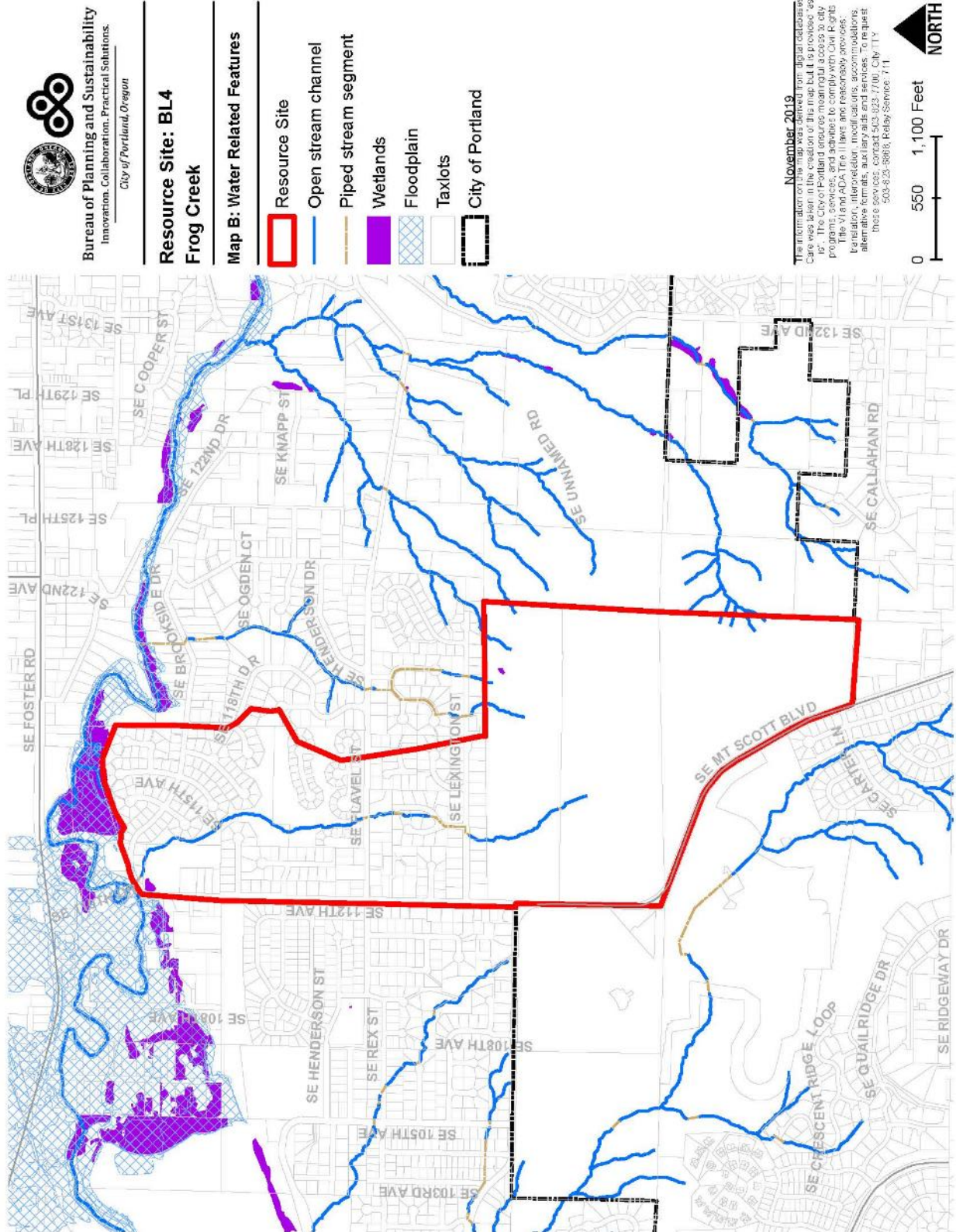
ESEE Decisions

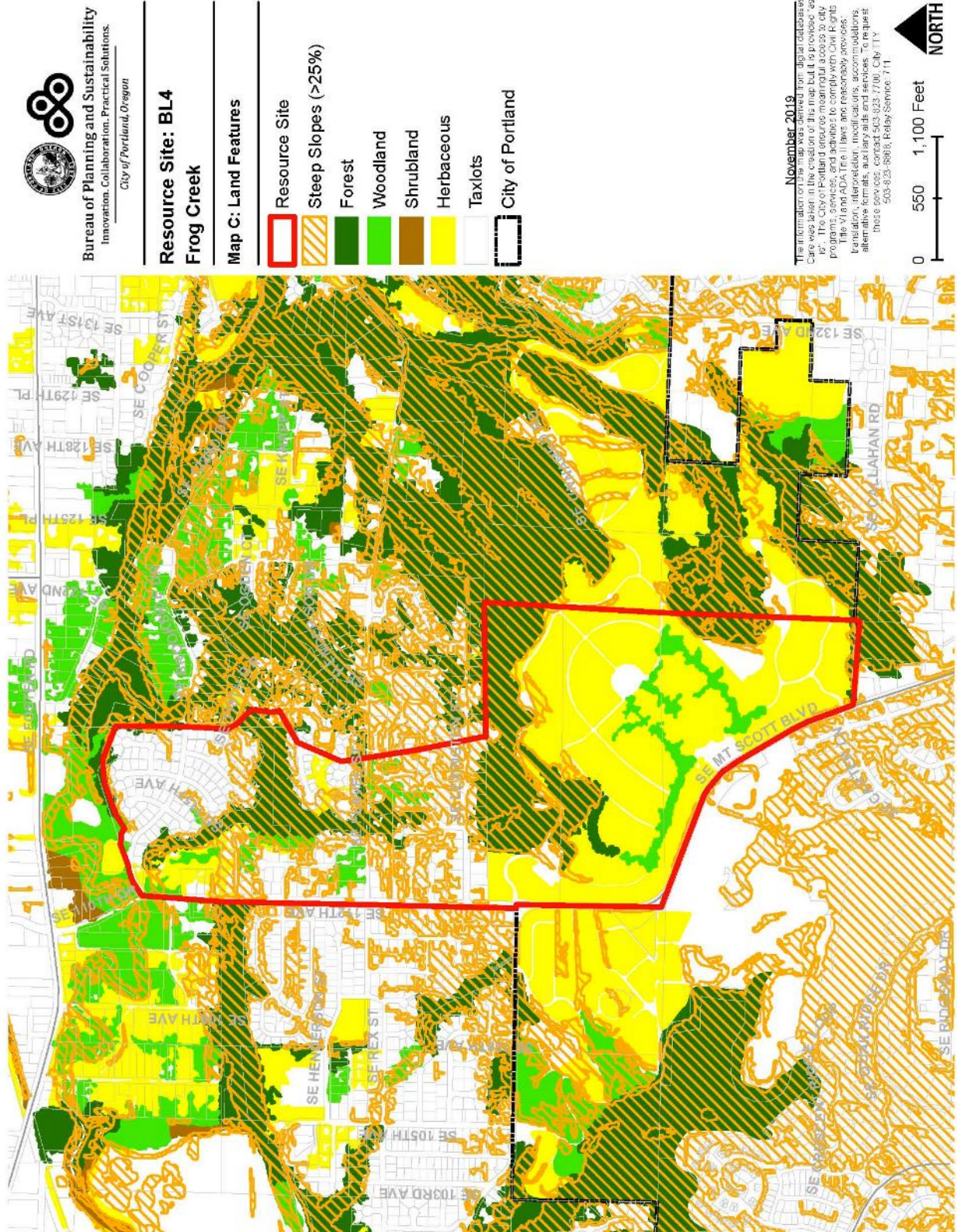
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site BL4 are:

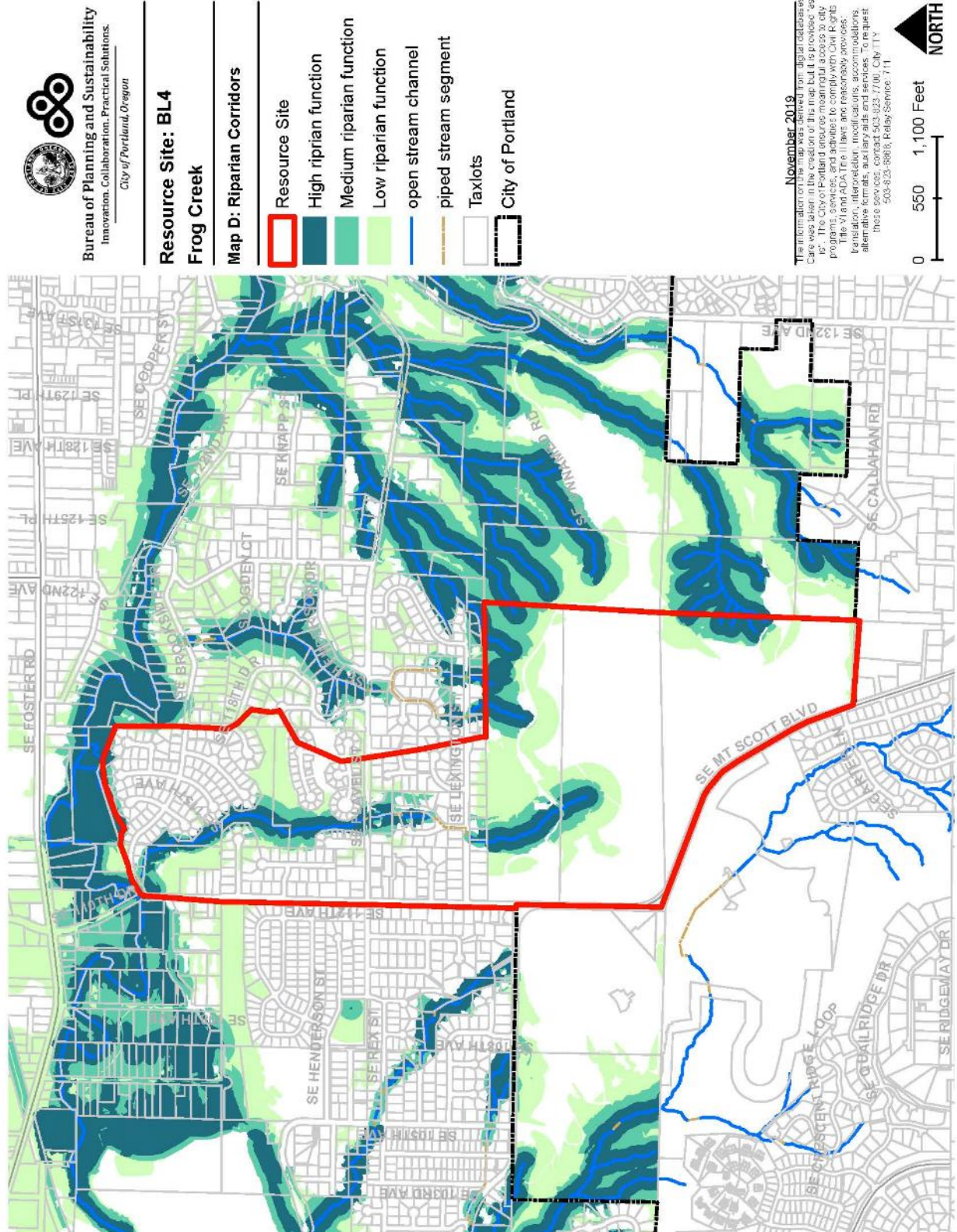
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 40 feet of stream top-of-bank and land within 40 feet of wetlands.
2. *Strictly limit* conflicting uses within areas forest or woodland vegetation on steep slopes that are contiguous to but more than 40 feet from stream top-of-bank extending or wetlands and extending to to 100 feet of streams or wetlands.
3. *Limit* conflicting uses within areas of forest or woodland vegetation on not steep slopes that are contiguous to but more than 40 feet from stream top-of-bank or wetlands and on steep slopes areas of forest or woodland vegetation that are contiguous to but more than 100 feet from stream top-of-bank or wetlands.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

Table C: ESEE Decision for Resource Site BL4	
ESEE Decision	Acres
Strictly Limit	52.9
Limit	6.3
Allow	201.1

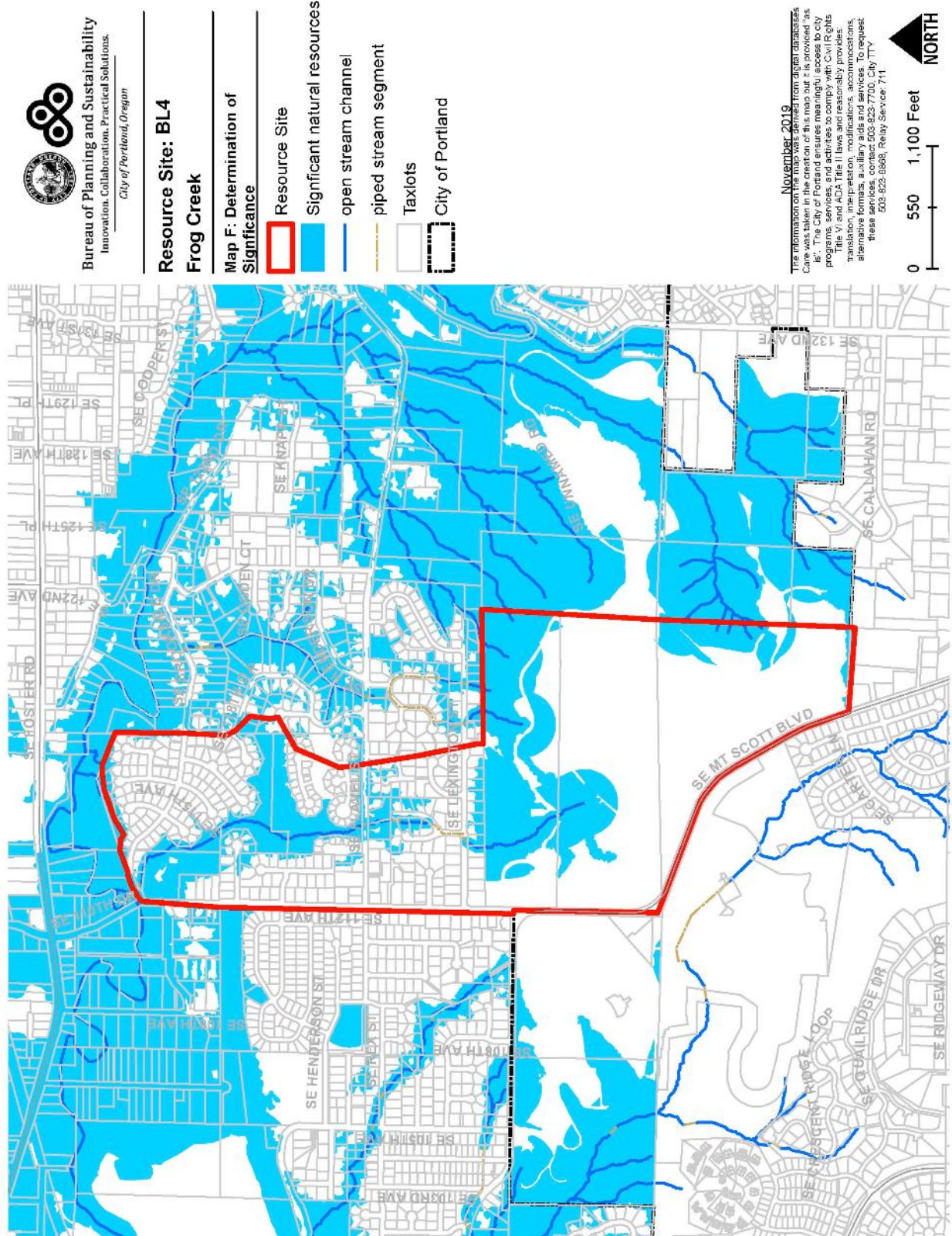


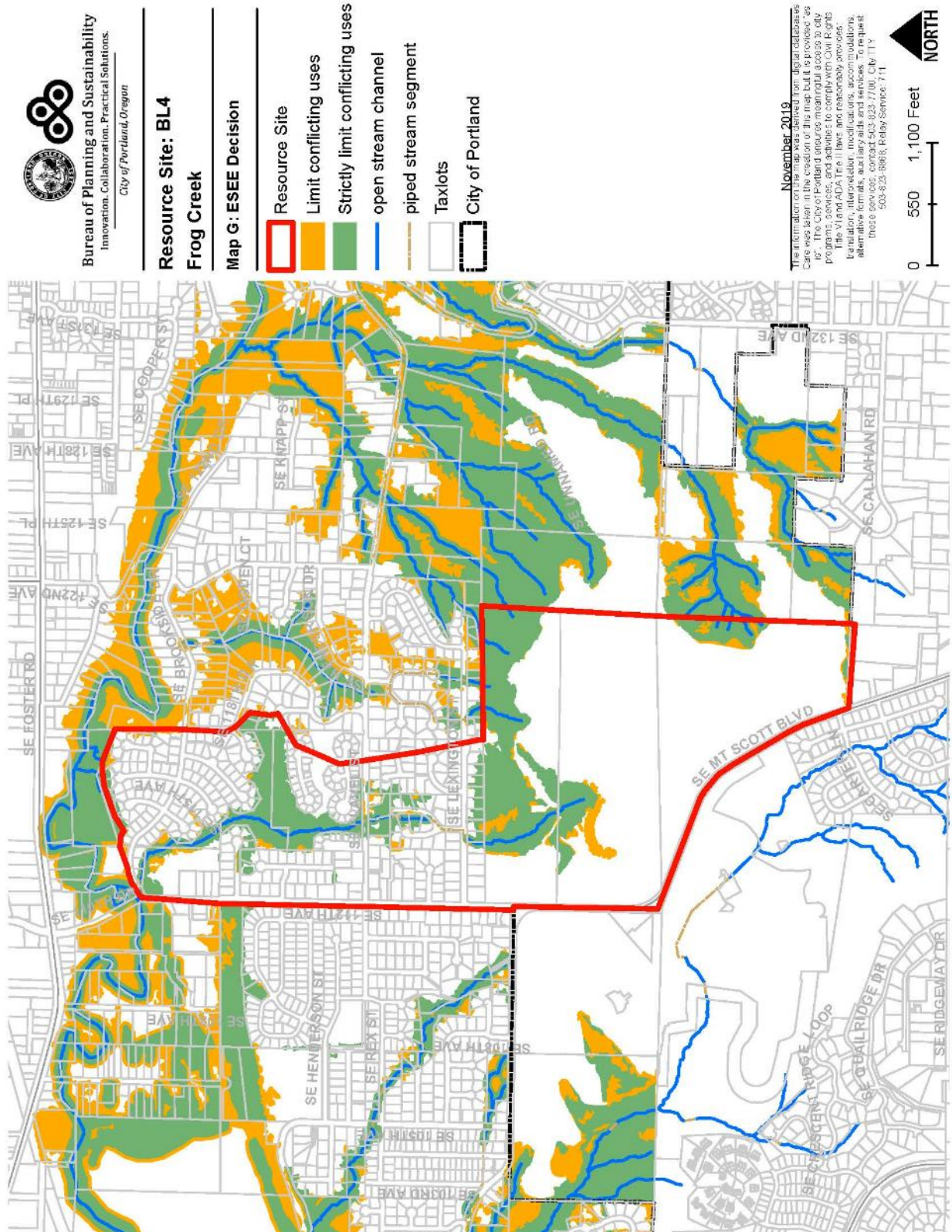












Previous Plan: Boring Lava Domes Supplement **Previous Resource Site No.:** 30e



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site		BL5
		Study Area
Stream (Miles)		3.4
Wetlands (acres)		0.0
Vegetated Areas >= 1/2 acre (acres)		55.1
Forest (acres)		44.2
Woodland (acres)		8.6
Shrubland (acres)		0.1
Herbaceous (acres)		2.3
Flood Area*		0.0
Vegetated (acres)		0.0
Non-vegetated (acres)		0.0
Steep Slopes (acres)**		66.7
Impervious Surface (acres)		26.4
* 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 area with a slope greater than 25%.		

This watershed is located generally between SE 118th Drive and 122nd Ave. The resources in the watershed include Cedar Creek and its tributaries, habitat areas, and forested upland areas.

Table B: Quality of Natural Resource Functions in Resource Site BL5				
Resource Site (acres) = 103.595257				
	High	Medium	Low	Total
Riparian Corridors*				
acres	17.1	9.4	24.2	50.6
percent total inventory site area	16.5%	9.1%	23.3%	48.9%
Wildlife Habitat*				
acres	39.0	0.0	5.0	43.9
percent total inventory site area	37.6%	0.0%	4.8%	42.4%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total⁺				
acres	41.2	2.8	6.9	50.9
percent total inventory site area	39.7%	2.7%	6.7%	49.2%
<p>* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.</p> <p>** Special Habitat Areas rank high for wildlife habitat.</p> <p>+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.</p>				

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site BL5 the following significant features and functions are present:

Significant Natural Resource Features: open stream; forest vegetation within 300 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant 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.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2 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.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; 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 base zones. 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.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site BL5, with the following additional information that clarifies the analysis.

Strictly limiting or limiting conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and wetlands, 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 high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

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*.

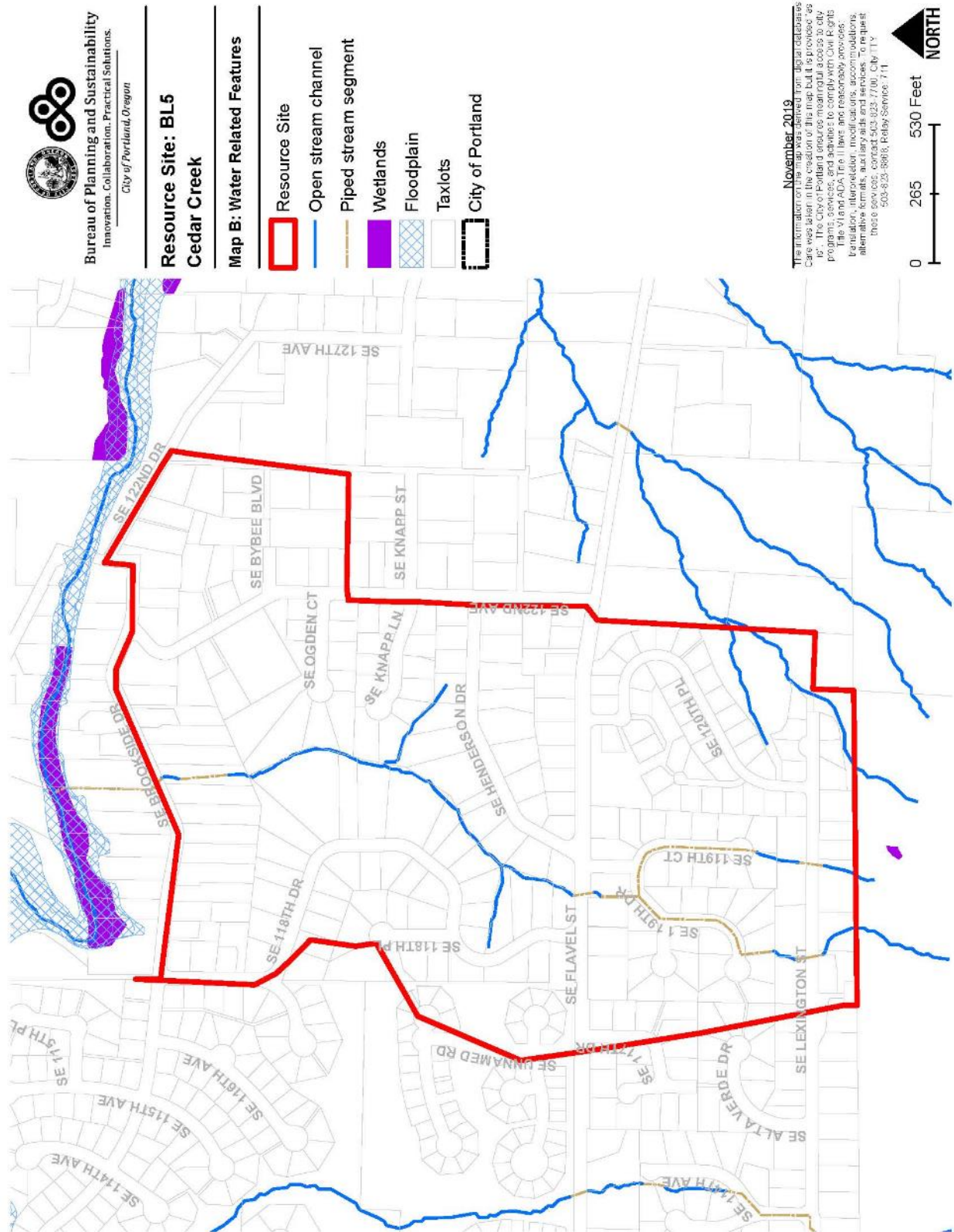
ESEE Decisions

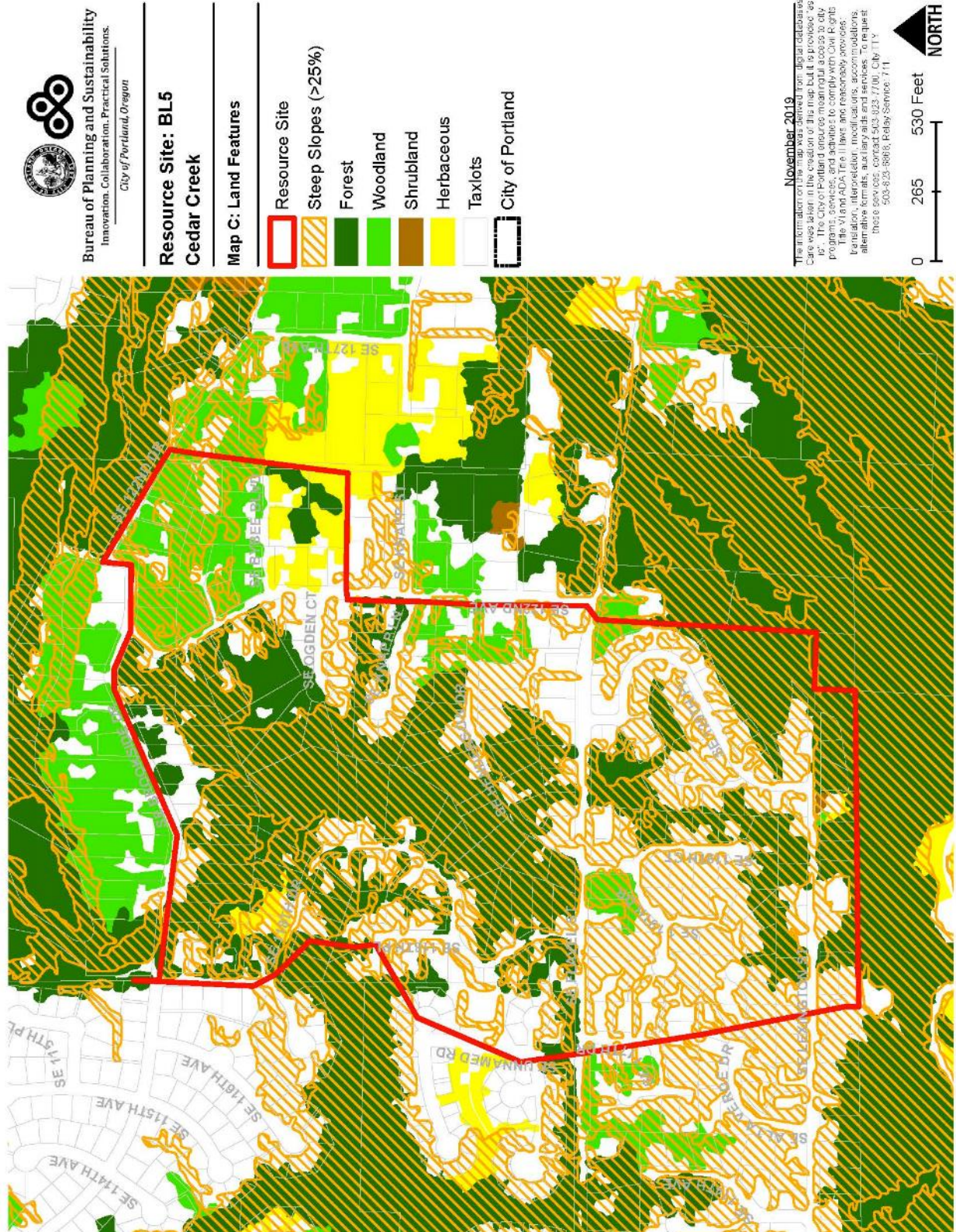
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site BL5 are:

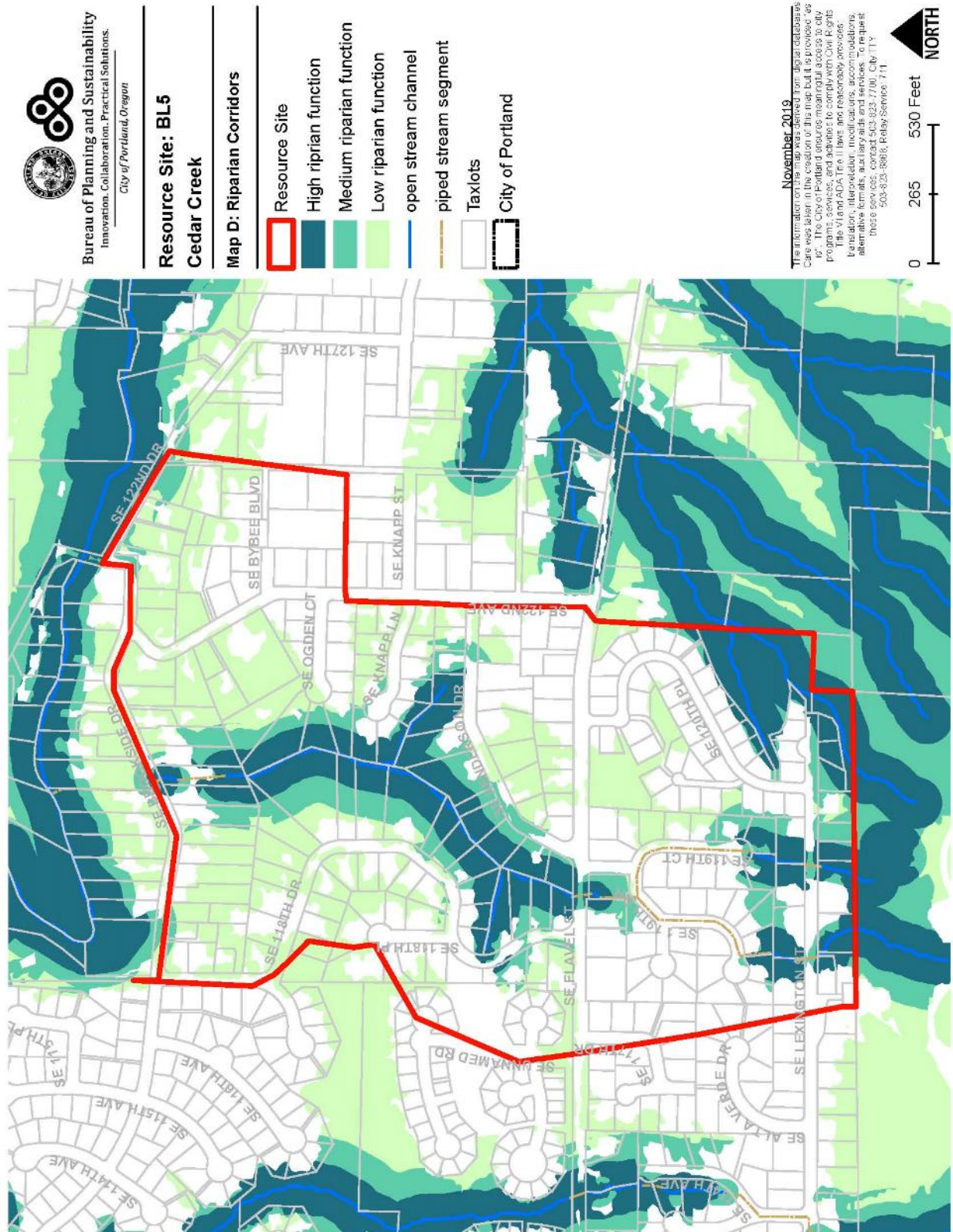
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank and land within 40 feet of stream top-of-bank.
2. *Strictly limit* conflicting uses within areas forest or woodland vegetation on steep slopes that are contiguous to but more than 40 feet from stream top-of-bank extending to 100 feet of streams.
3. *Limit* conflicting uses within areas of forest or woodland vegetation on not steep slopes that are contiguous to but more than 40 feet from stream top-of-bank and on steep slopes areas of forest or woodland vegetation that are contiguous to but more than 100 feet from stream top-of-bank.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

Table C: ESEE Decision for Resource Site BL5	
ESEE Decision	Acres
Strictly Limit	17.4
Limit	21.5
Allow	64.7







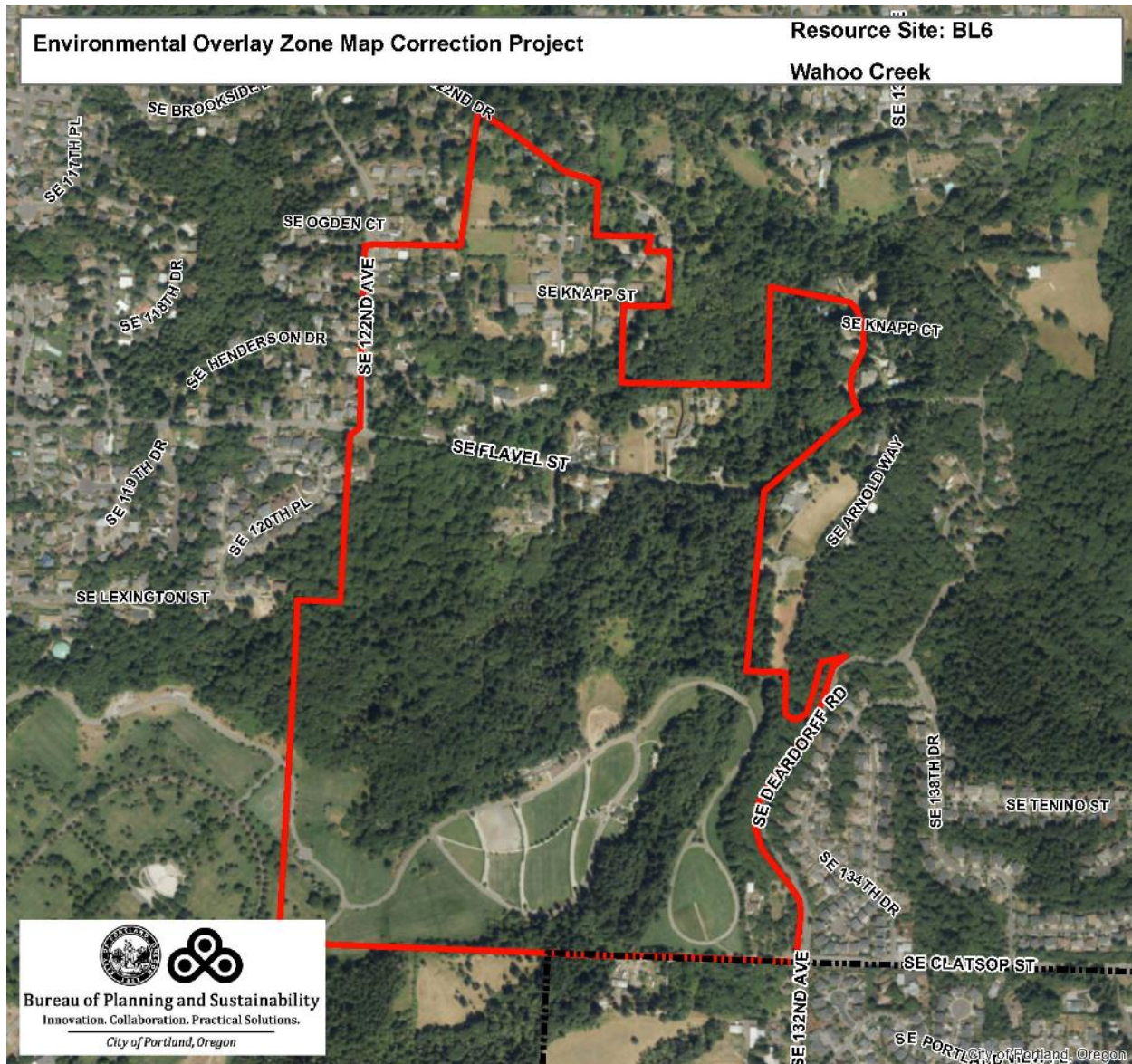








Resource Site No.: BL6 **Resource Site Name:** Wahoo Creek
Previous Plan: Boring Lava Domes Supplement **Previous Resource Site No.:** 30f



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site		BL6
		Study Area
Stream (Miles)		1.4
Wetlands (acres)		0.1
Vegetated Areas >= 1/2 acre (acres)		159.8
Forest (acres)		110.8
Woodland (acres)		10.8
Shrubland (acres)		0.4
Herbaceous (acres)		37.9
Flood Area*		0.0
Vegetated (acres)		0.0
Non-vegetated (acres)		0.0
Steep Slopes (acres)**		107.4
Impervious Surface (acres)		11.5
* 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 area with a slope greater than 25%.		

This watershed is located on the northeast slope of Mt. Scott at the east end of SE Lexington St. and crossing SE Flavel St. The watershed resources include Wahoo Creek and its tributaries, habitat areas, and forested upland areas.

Table B: Quality of Natural Resource Functions in Resource Site BL6				
Resource Site (acres) = 190.13481				
	High	Medium	Low	Total
Riparian Corridors*				
acres	71.7	33.0	28.2	133.0
percent total inventory site area	37.7%	17.4%	14.8%	69.9%
Wildlife Habitat*				
acres	112.0	0.0	0.0	112.0
percent total inventory site area	58.9%	0.0%	0.0%	58.9%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total⁺				
acres	112.5	3.7	16.8	133.1
percent total inventory site area	59.2%	2.0%	8.8%	70.0%
<p>* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.</p> <p>** Special Habitat Areas rank high for wildlife habitat.</p> <p>+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.</p>				

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site BL6 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; forest vegetation within 300 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant 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.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2 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.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; 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 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.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site BL6, with the following additional information that clarifies the analysis.

Strictly limiting or limiting conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, 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 high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

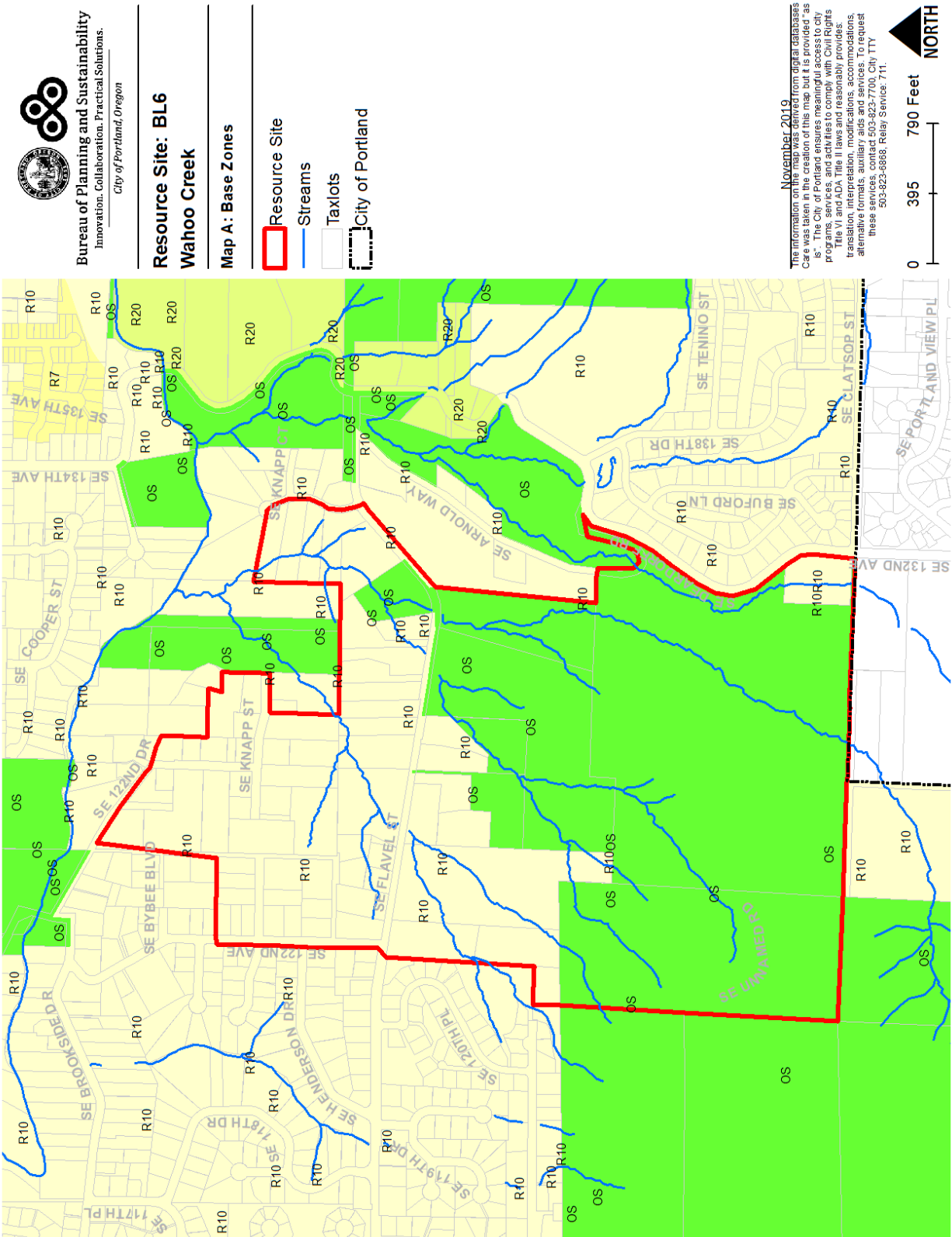
Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

ESEE Decisions

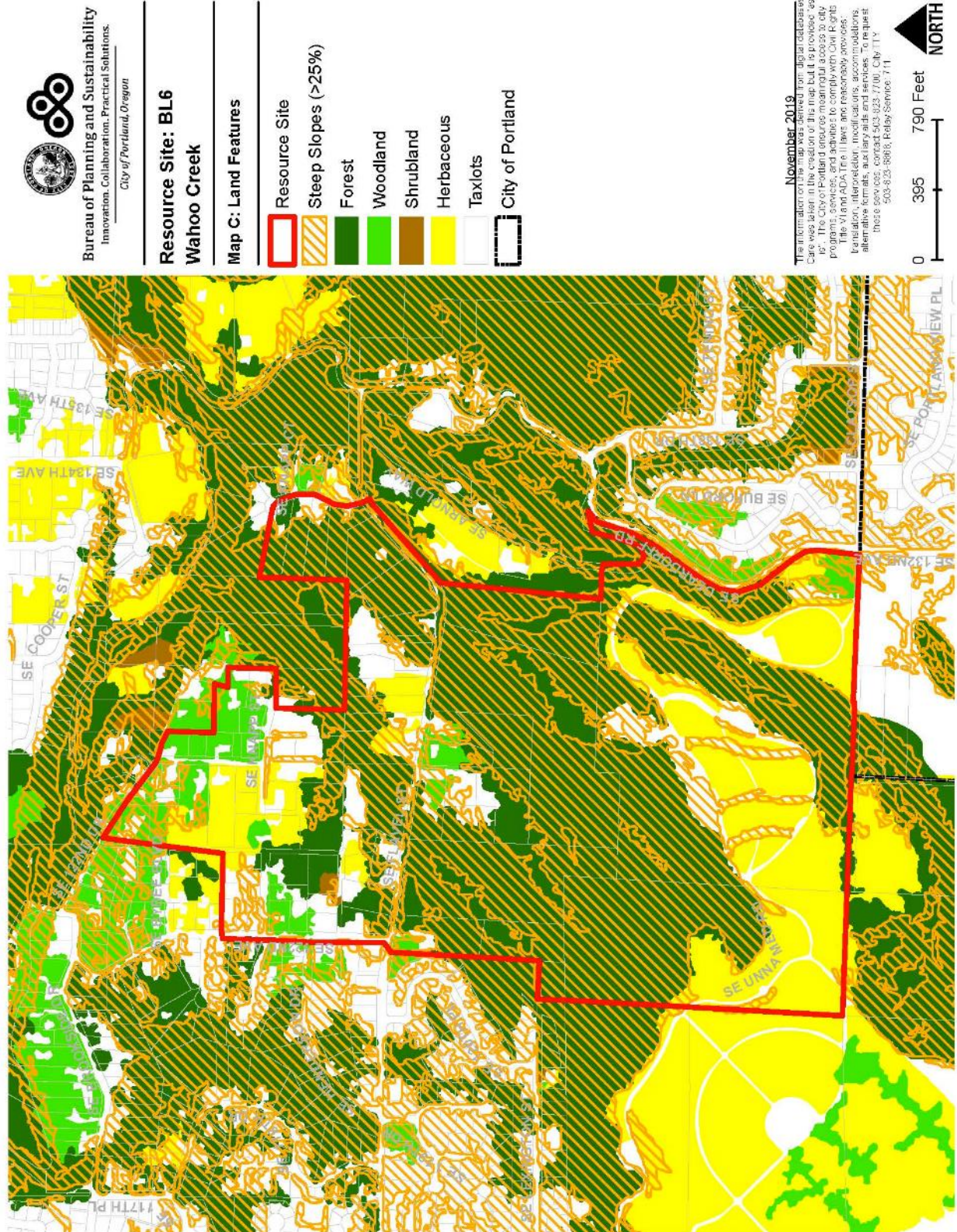
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site BL6 are:

1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 40 feet of stream top-of-bank and land within 40 feet of wetlands.
2. *Strictly limit* conflicting uses within areas forest or woodland vegetation on steep slopes that are contiguous to but more than 40 feet from stream top-of-bank or wetlands.
3. *Limit* conflicting uses within areas of forest or woodland vegetation on not steep slopes that are contiguous to but more than 40 feet from stream top-of-bank or wetlands.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

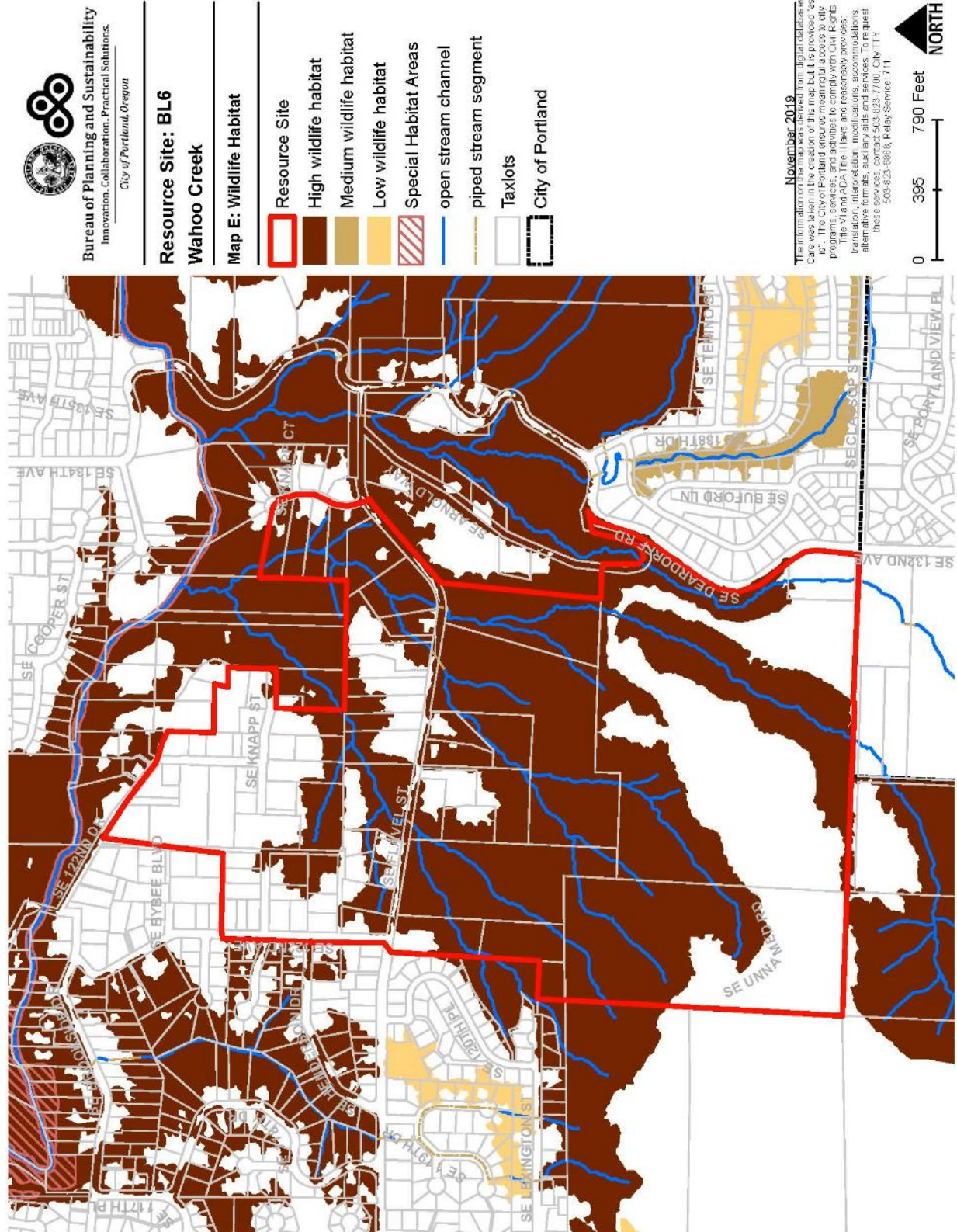
Table C: ESEE Decision for Resource Site BL6	
ESEE Decision	Acres
Strictly Limit	91.0
Limit	22.9
Allow	76.2

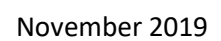


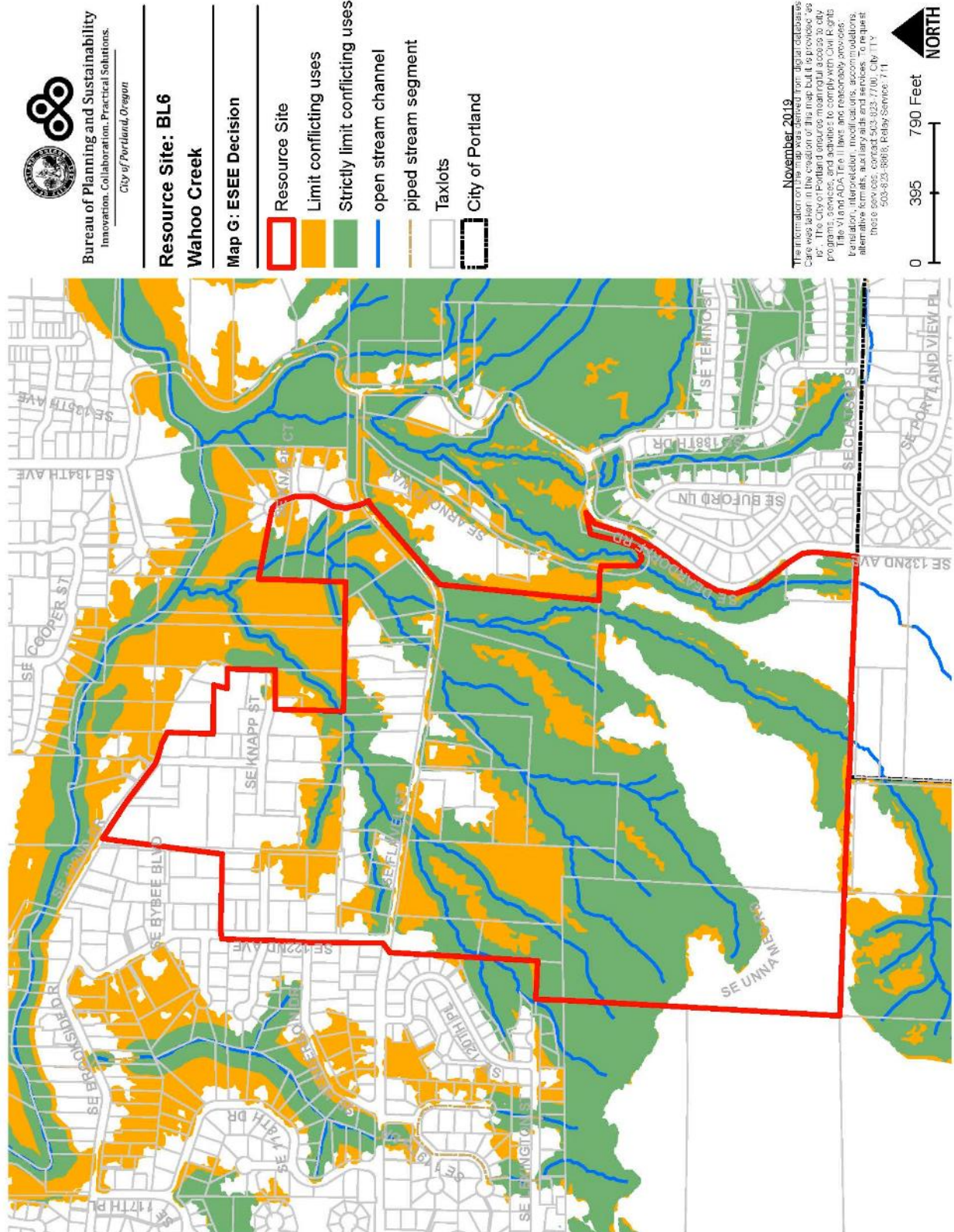




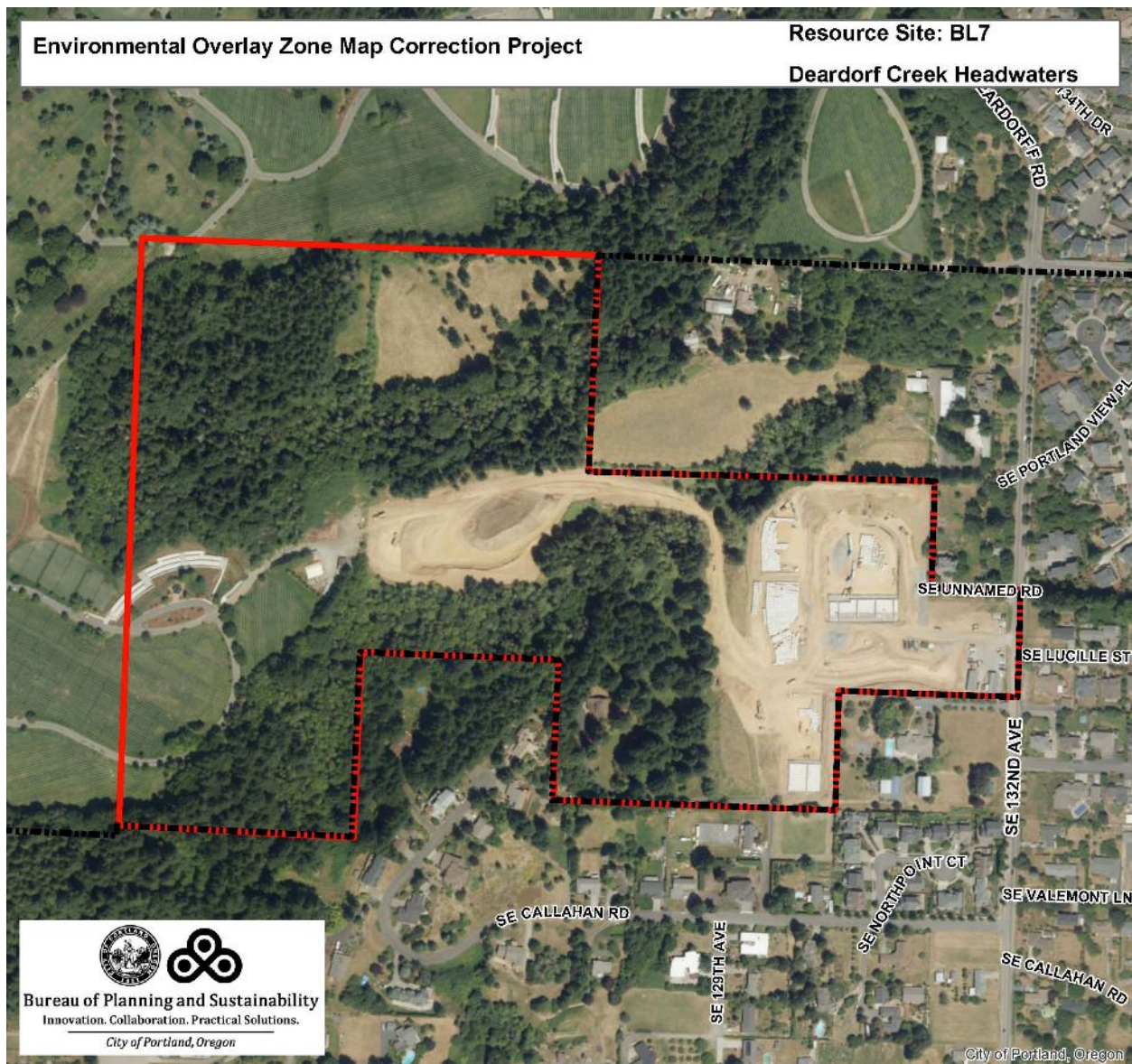








Resource Site No.: BL7 **Resource Site Name:** Deardorf Creek Headwaters
Previous Plan: Boring Lava Domes Supplement **Previous Resource Site No.:** 30g



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site		BL7
		Study Area
Stream (Miles)		3.0
Wetlands (acres)		0.2
Vegetated Areas >= 1/2 acre (acres)		65.8
Forest (acres)		34.0
Woodland (acres)		4.9
Shrubland (acres)		0.0
Herbaceous (acres)		26.9
Flood Area*		0.0
Vegetated (acres)		0.0
Non-vegetated (acres)		0.0
Steep Slopes (acres)**		27.1
Impervious Surface (acres)		0.1
* 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 area with a slope greater than 25%.		

Table B: Quality of Natural Resource Functions in Resource Site BL7				
Resource Site (acres) = 69.741241				
	High	Medium	Low	Total
Riparian Corridors*				
acres	24.7	10.2	22.5	57.4
percent total inventory site area	35.4%	14.6%	32.3%	82.2%
Wildlife Habitat*				
acres	19.1	19.7	0.0	38.8
percent total inventory site area	27.4%	28.2%	0.0%	55.6%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total⁺				
acres	30.5	10.6	16.2	57.4
percent total inventory site area	43.7%	15.2%	23.3%	82.2%
<p>* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.</p> <p>** Special Habitat Areas rank high for wildlife habitat.</p> <p>+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.</p>				

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site BL7 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; forest vegetation within 300 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant 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.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2 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.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; 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 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.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site BL7, with the following additional information that clarifies the analysis.

Strictly limiting or limiting conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, 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 high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

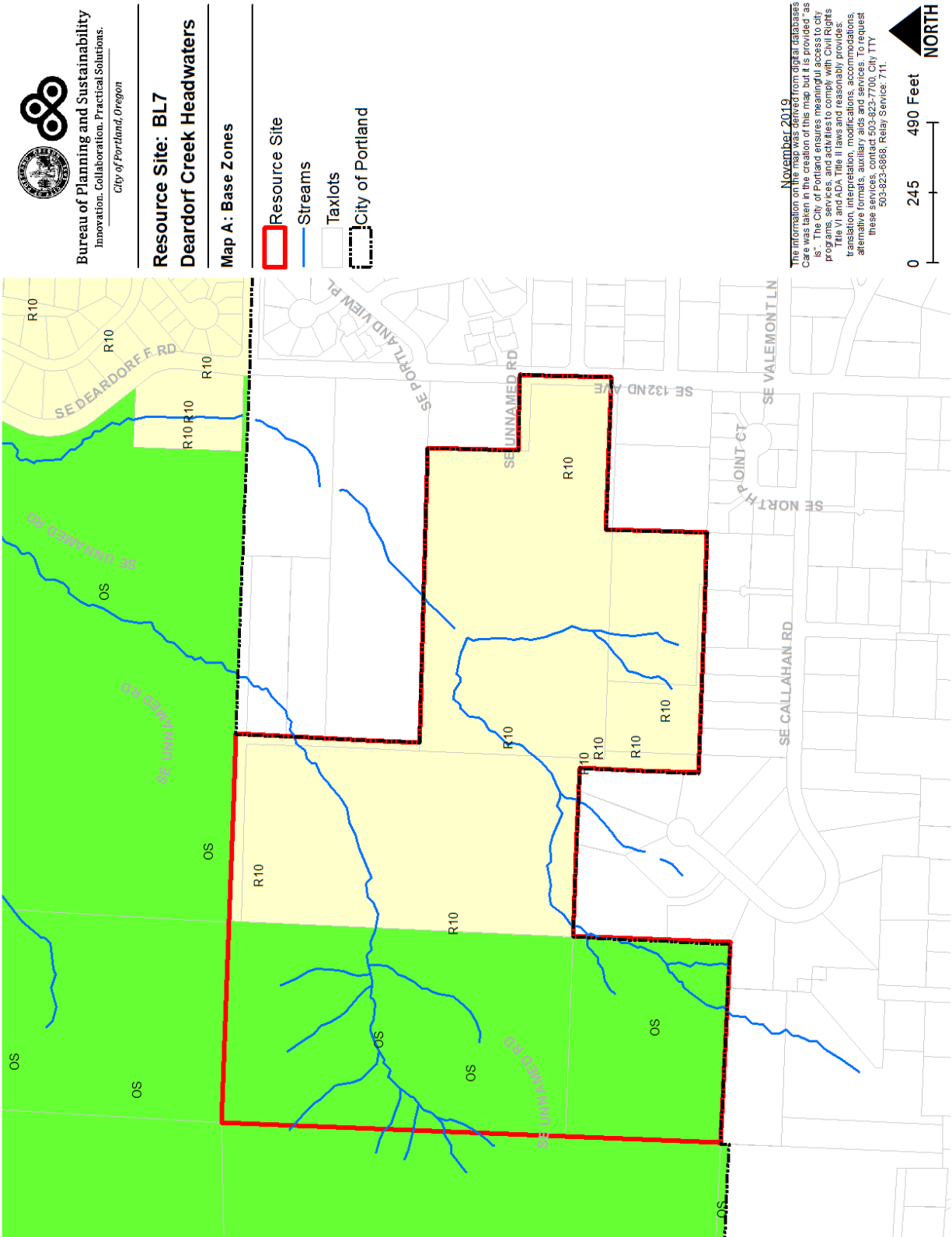
Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

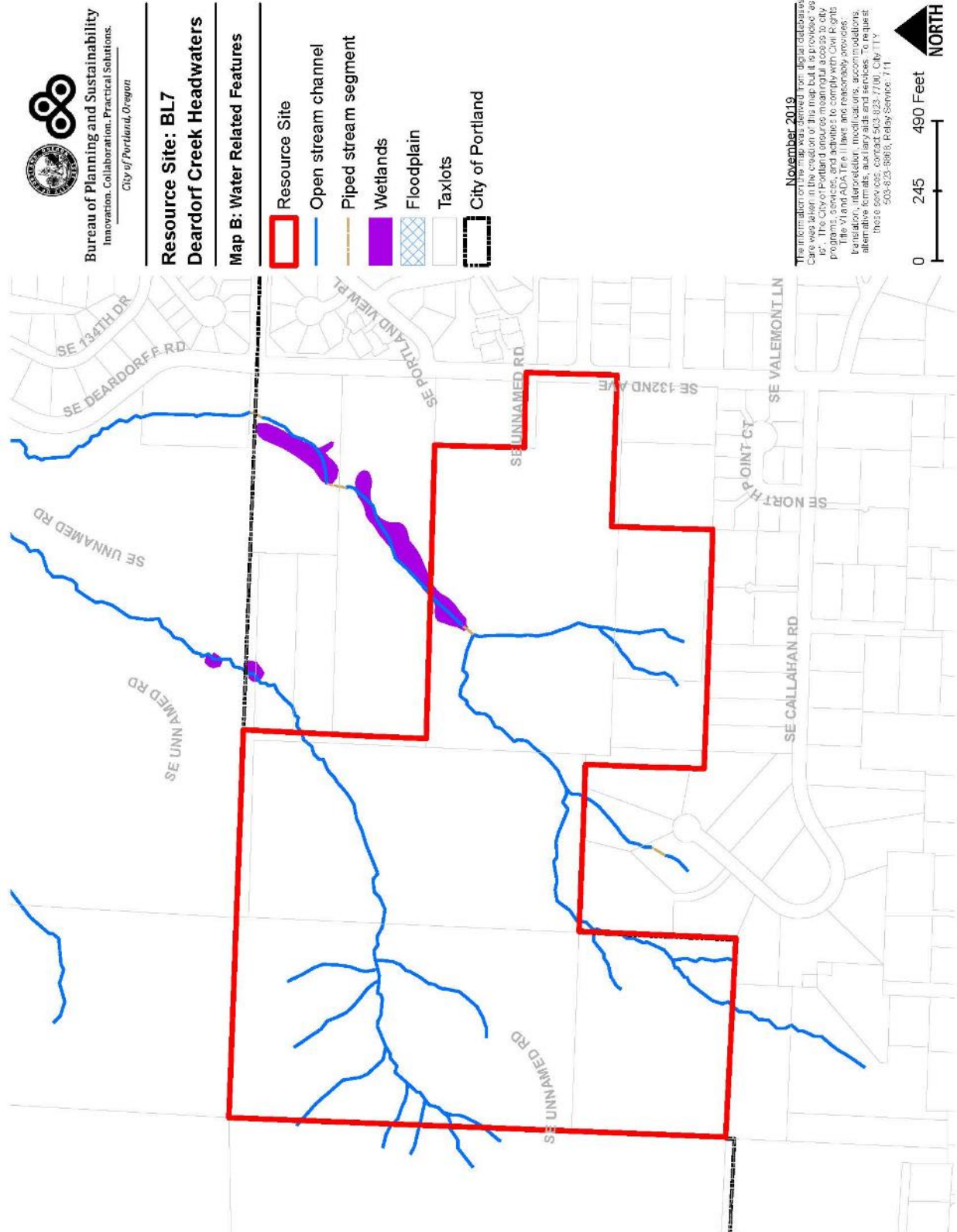
ESEE Decisions

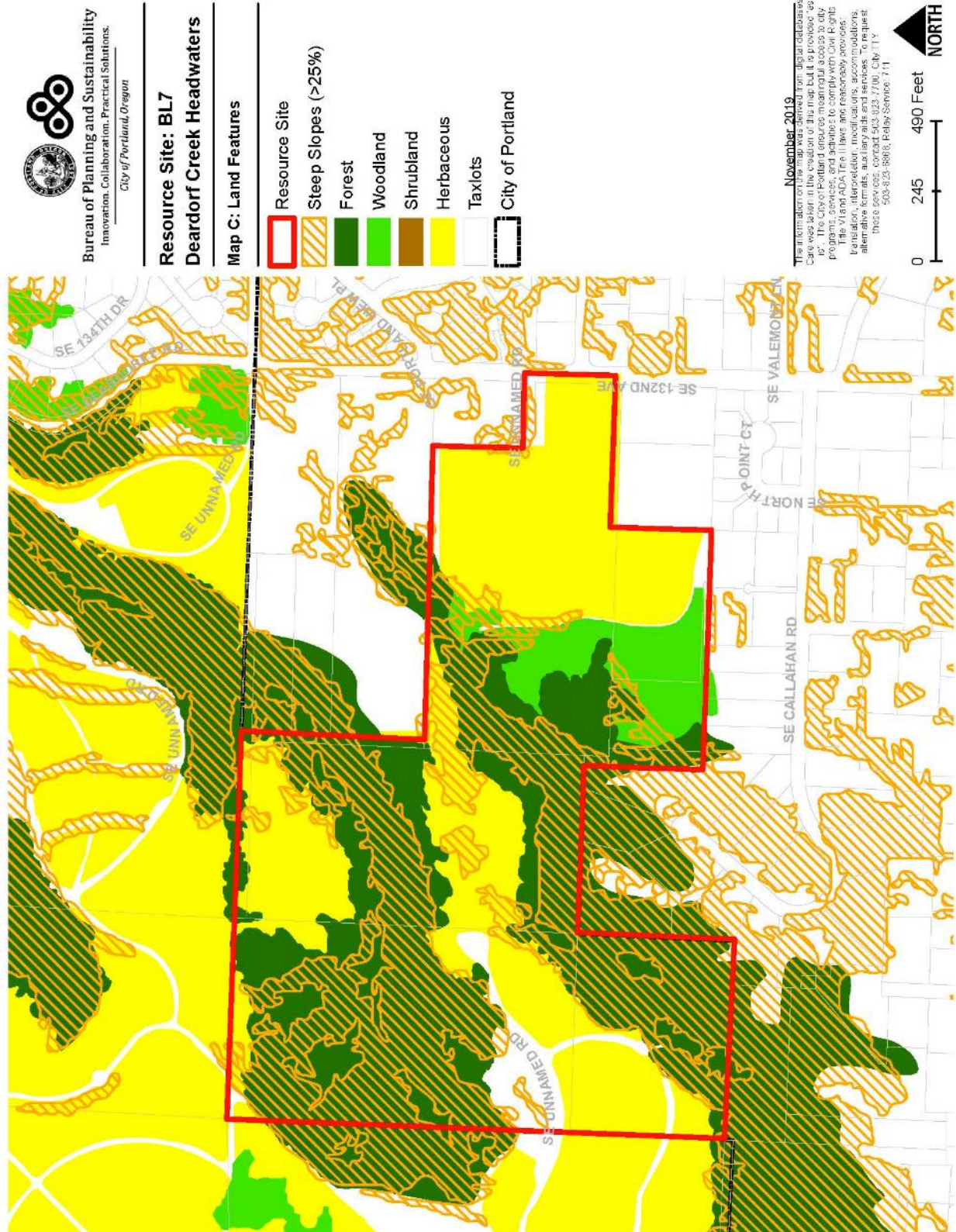
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site BL7 are:

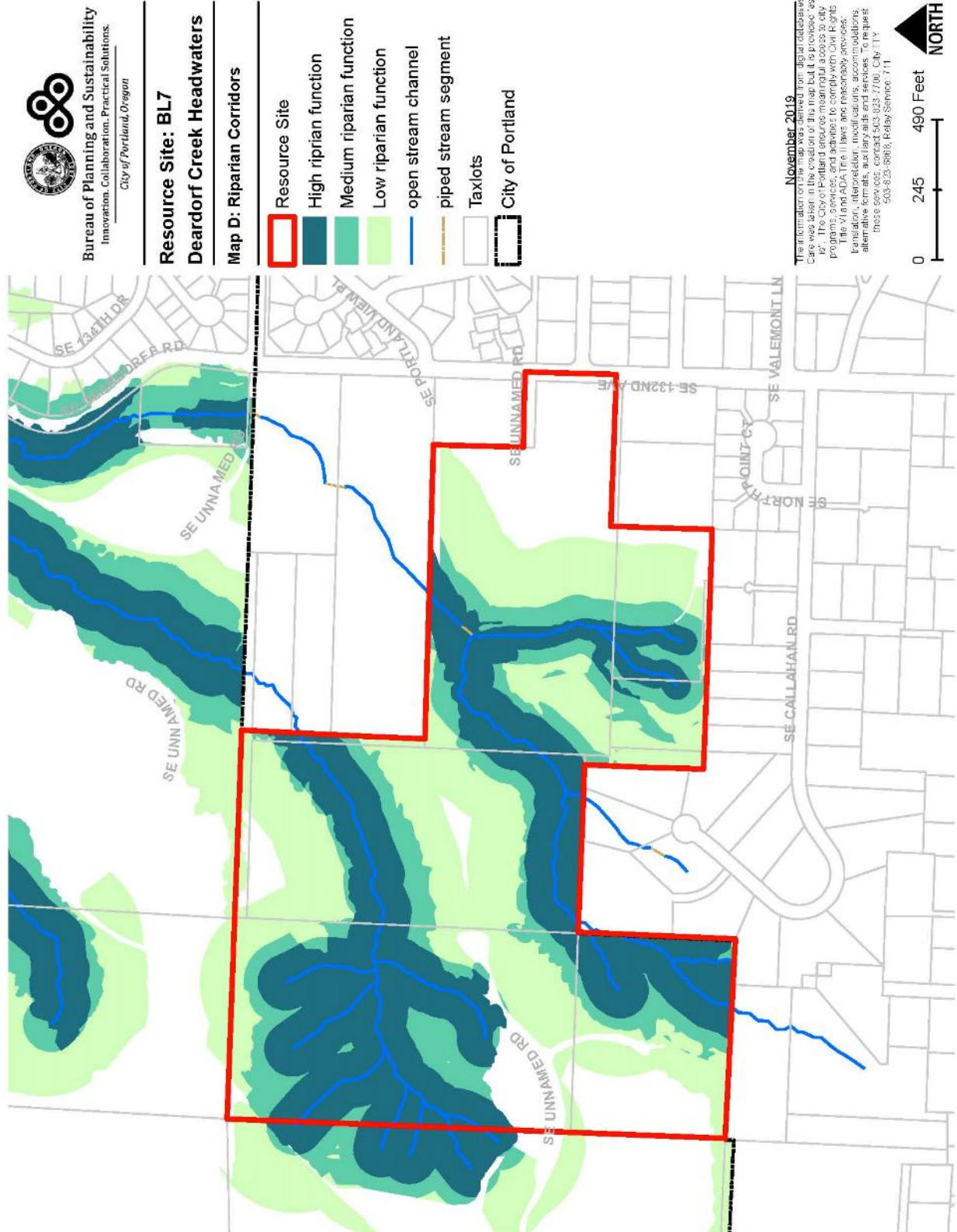
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 40 feet of stream top-of-bank and land within 40 feet of wetlands.
2. *Strictly limit* conflicting uses within areas forest or woodland vegetation on steep slopes that are contiguous to but more than 40 feet from stream top-of-bank or wetlands.
3. *Limit* conflicting uses within areas of forest or woodland vegetation on not steep slopes that are contiguous to but more than 40 feet from stream top-of-bank or wetlands.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

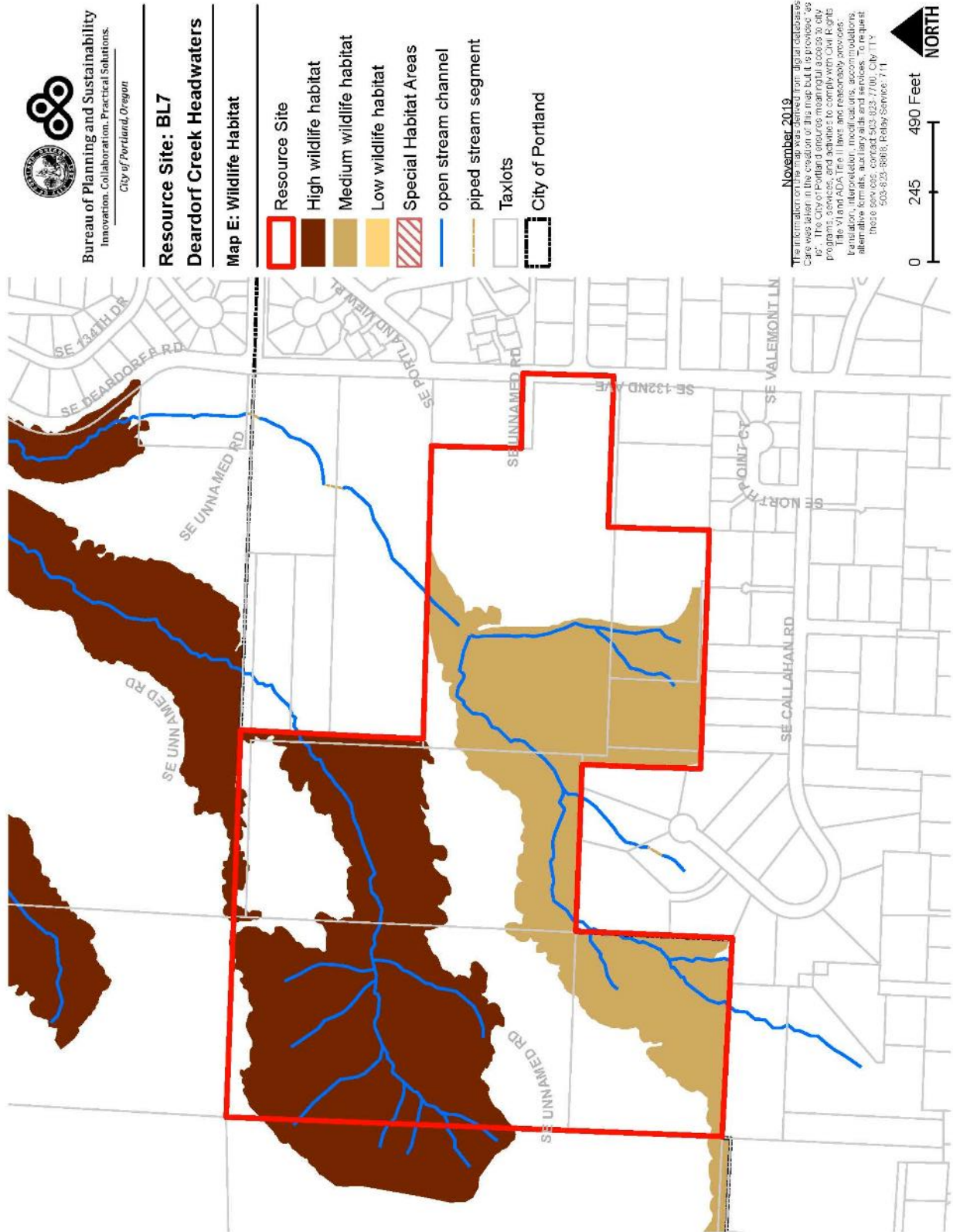
Table C: ESEE Decision for Resource Site BL7	
ESEE Decision	Acres
Strictly Limit	27.0
Limit	12.2
Allow	30.5









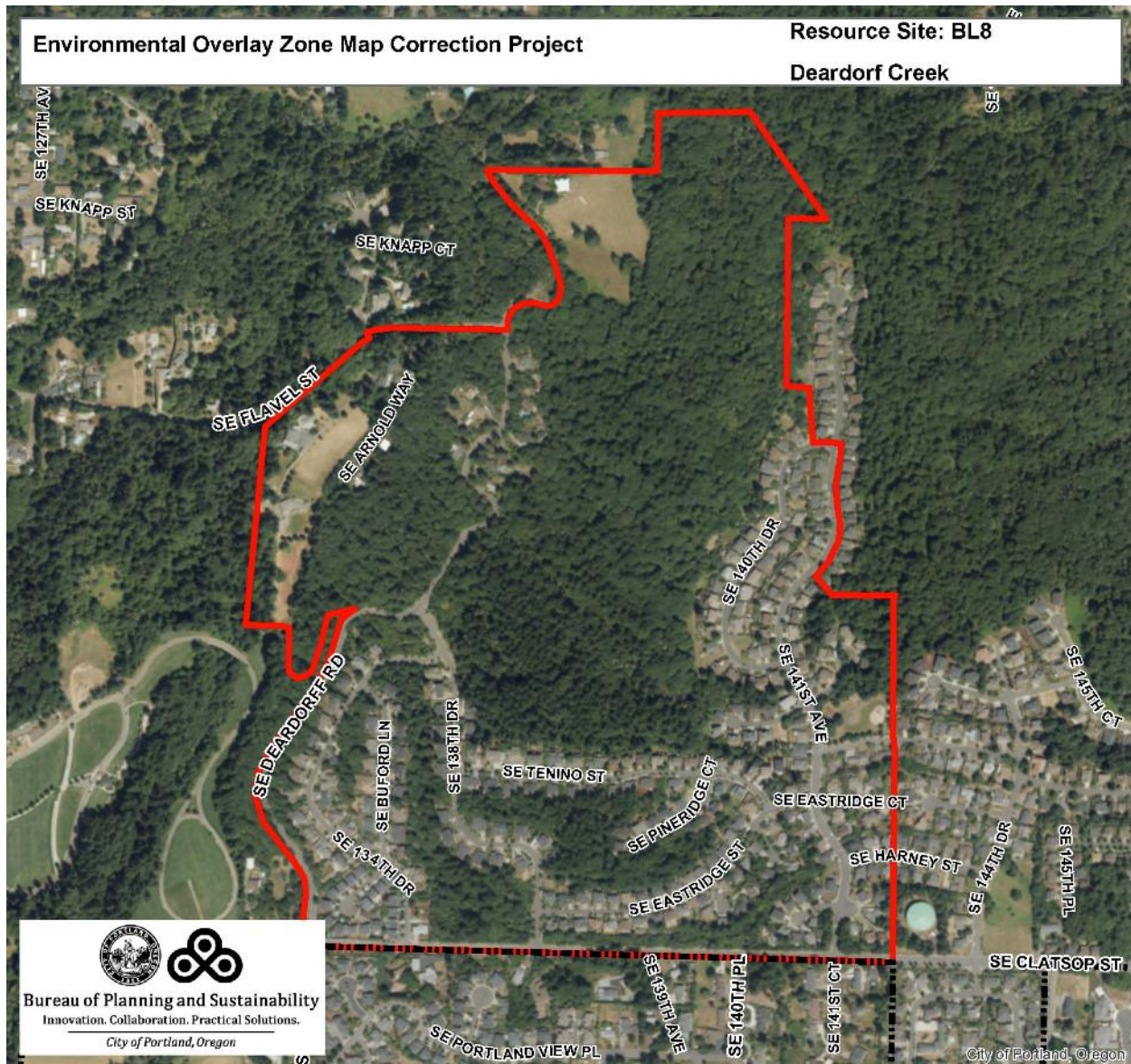






Resource Site No.: BL8 Resource Site Name: Deardorff Creek

Previous Plan: Boring Lava Domes Supplement Previous Resource Site No.: 30g



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site		BL8
		Study Area
Stream (Miles)		1.4
Wetlands (acres)		0.1
Vegetated Areas >= 1/2 acre (acres)		129.6
Forest (acres)		113.8
Woodland (acres)		3.6
Shrubland (acres)		1.3
Herbaceous (acres)		10.9
Flood Area*		0.0
Vegetated (acres)		0.0
Non-vegetated (acres)		0.0
Steep Slopes (acres)**		130.9
Impervious Surface (acres)		39.0
* 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 area with a slope greater than 25%.		

This watershed is located east of the Wahoo Creek on either side of Deardorff Road. Resources in the watershed include Deardorff Creek its tributaries, habitat areas, and forested slopes.

Table B: Quality of Natural Resource Functions in Resource Site BL8				
Resource Site (acres) = 195.765155				
	High	Medium	Low	Total
Riparian Corridors*				
acres	61.7	36.3	29.0	127.0
percent total inventory site area	31.5%	18.5%	14.8%	64.9%
Wildlife Habitat*				
acres	95.8	9.8	6.6	112.2
percent total inventory site area	49.0%	5.0%	3.4%	57.3%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total⁺				
acres	104.6	8.9	13.6	127.0
percent total inventory site area	53.4%	4.5%	6.9%	64.9%
<p>* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.</p> <p>** Special Habitat Areas rank high for wildlife habitat.</p> <p>+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.</p>				

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site BL8 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; forest vegetation within 300 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant 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.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2 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.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; 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 R20 and R10 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.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site BL8, with the following additional information that clarifies the analysis.

Strictly limiting or limiting conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, 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 high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

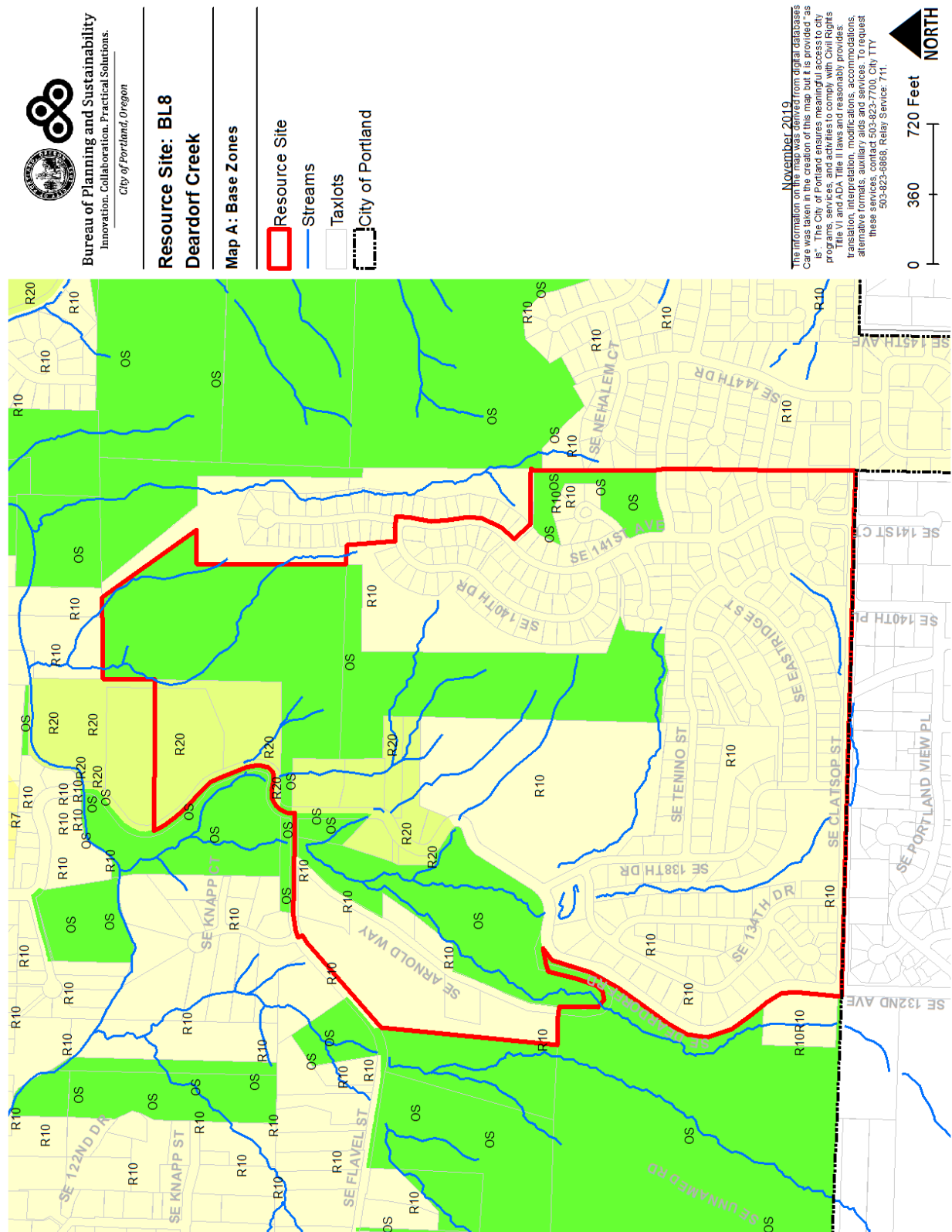
Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

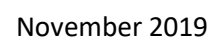
ESEE Decisions

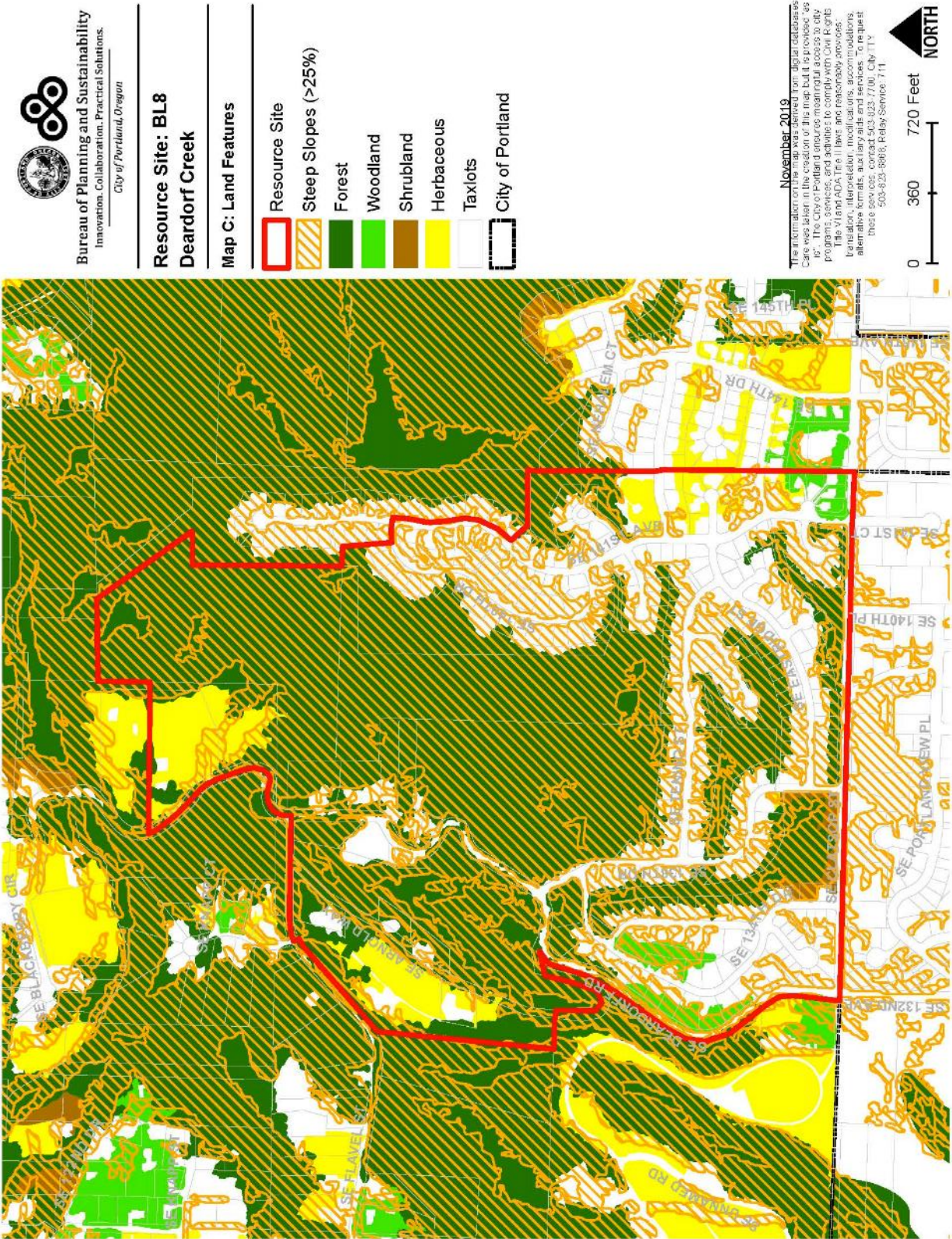
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site BL8 are:

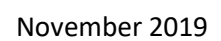
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 40 feet of stream top-of-bank and land within 40 feet of wetlands.
2. *Strictly limit* conflicting uses within areas forest or woodland vegetation on steep slopes that are contiguous to but more than 40 feet from stream top-of-bank or wetlands.
3. *Limit* conflicting uses within areas of forest or woodland vegetation on not steep slopes that are contiguous to but more than 40 feet from stream top-of-bank or wetlands.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

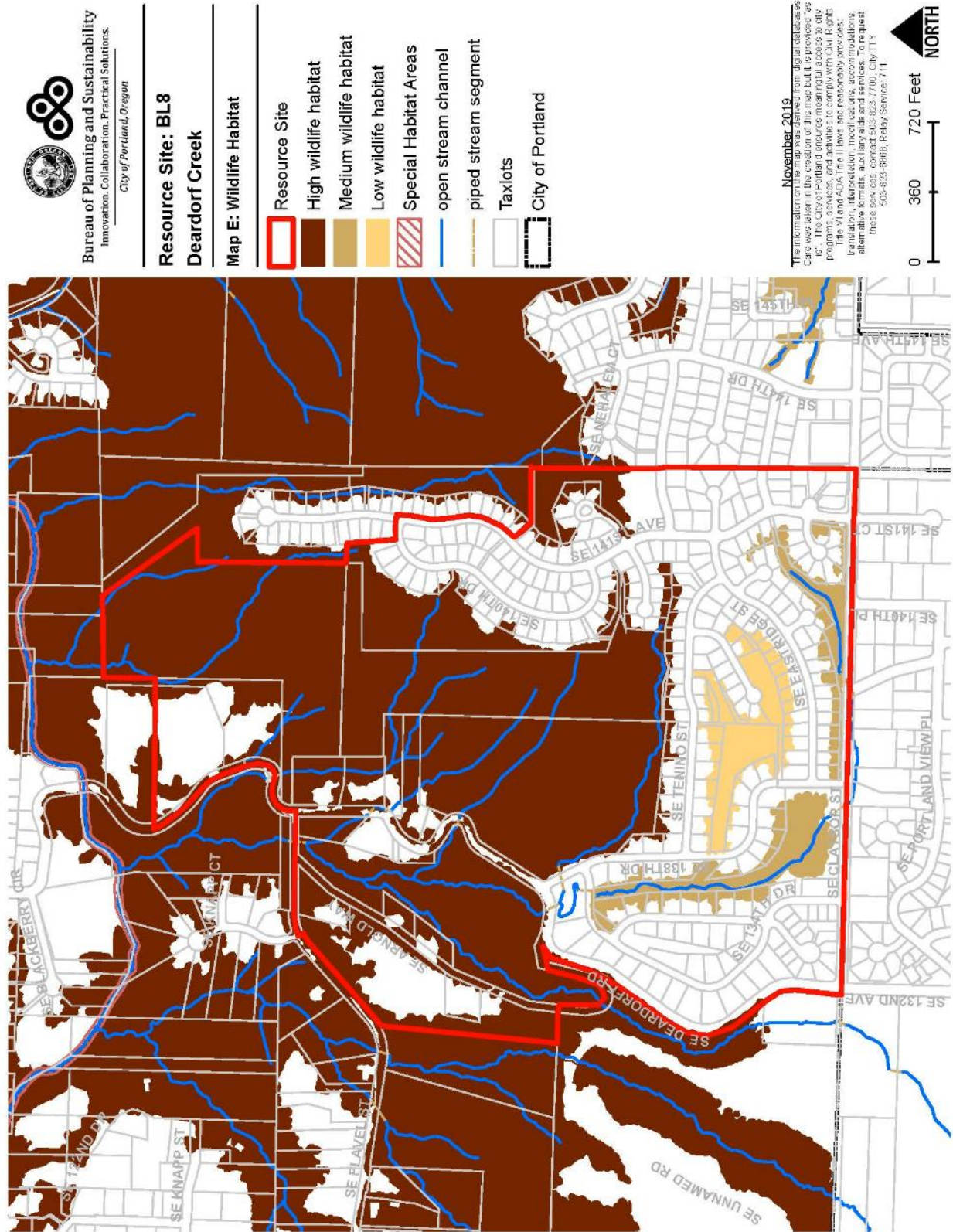
Table C: ESEE Decision for Resource Site BL8	
ESEE Decision	Acres
Strictly Limit	103.5
Limit	12.1
Allow	80.2

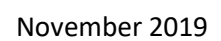


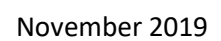






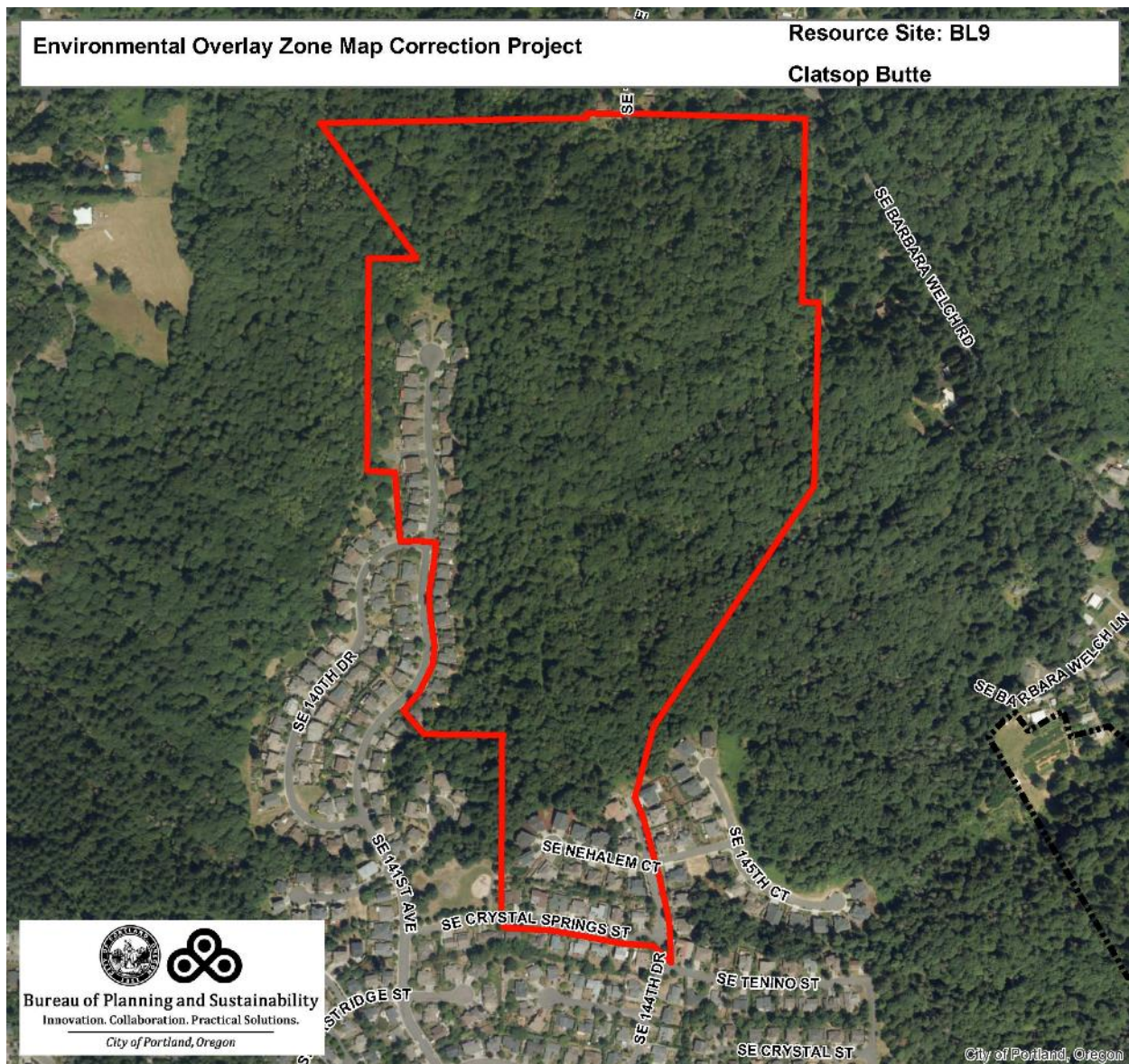






Resource Site No.: BL9 Resource Site Name: Clatsop Butte

Previous Plan: Boring Lava Domes Supplement Previous Resource Site No.: 30h



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site		BL9
		Study Area
Stream (Miles)		0.9
Wetlands (acres)		0.9
Vegetated Areas >= 1/2 acre (acres)		69.2
Forest (acres)		69.0
Woodland (acres)		0.0
Shrubland (acres)		0.0
Herbaceous (acres)		0.1
Flood Area*		0.0
Vegetated (acres)		0.0
Non-vegetated (acres)		0.0
Steep Slopes (acres)**		67.9
Impervious Surface (acres)		5.3
* 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 area with a slope greater than 25%.		

This area is located along the south side of Johnson Creek between the Deardorff and Barbara Welch Creek watersheds. Resources include creeks, habitat areas, and forested upland areas.

Table B: Quality of Natural Resource Functions in Resource Site BL9				
Resource Site (acres) = 80.708554				
	High	Medium	Low	Total
Riparian Corridors*				
acres	42.3	20.6	6.7	69.6
percent total inventory site area	52.4%	25.5%	8.3%	86.3%
Wildlife Habitat*				
acres	69.0	0.0	0.0	69.0
percent total inventory site area	85.5%	0.0%	0.0%	85.5%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total⁺				
acres	69.0	0.6	0.0	69.6
percent total inventory site area	85.5%	0.8%	0.0%	86.3%
<p>* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.</p> <p>** Special Habitat Areas rank high for wildlife habitat.</p> <p>+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.</p>				

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site BL9 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; forest vegetation within 300 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant 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.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2 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.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; 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 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.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site BL9, with the following additional information that clarifies the analysis.

Strictly limiting or limiting conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, 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 high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

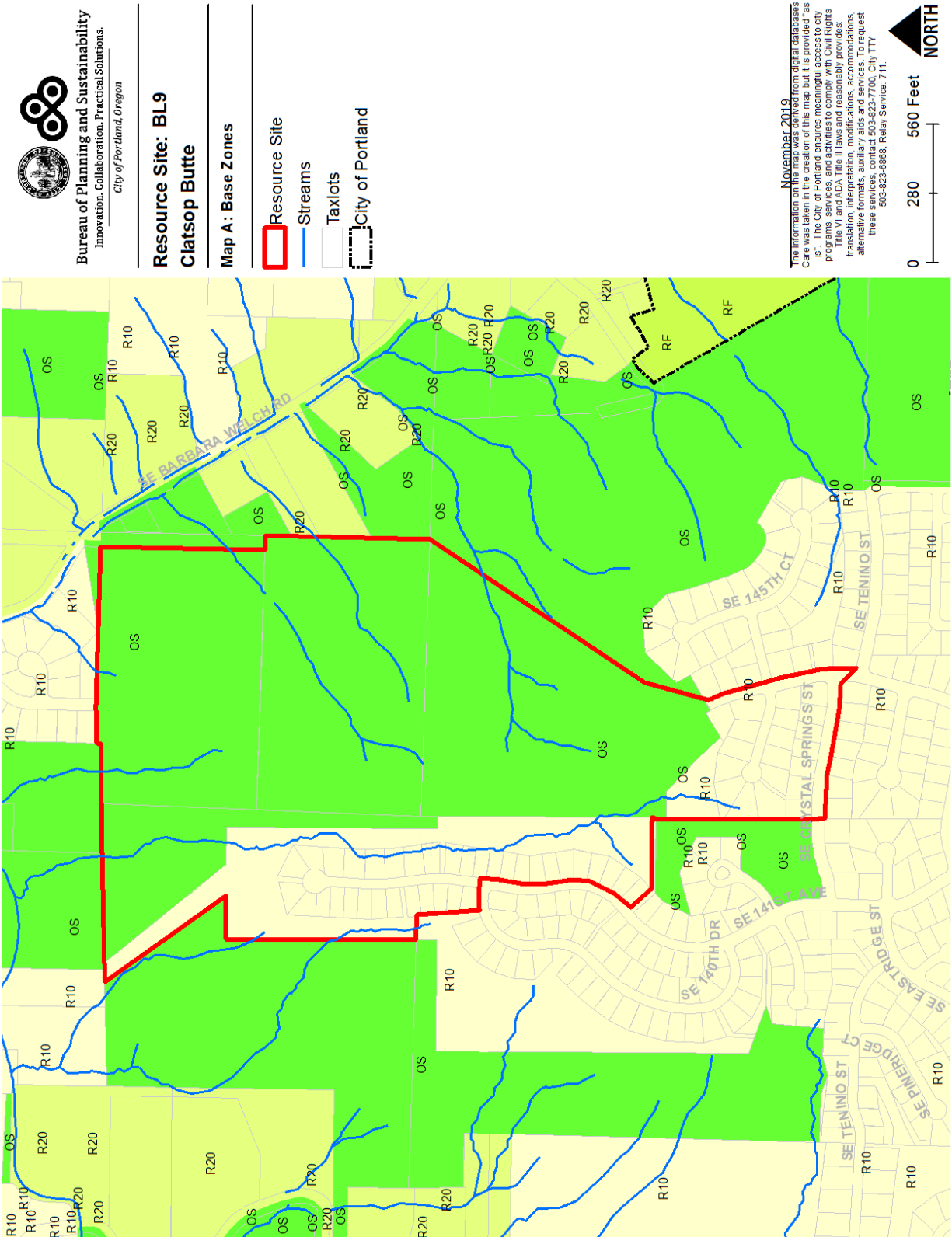
Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

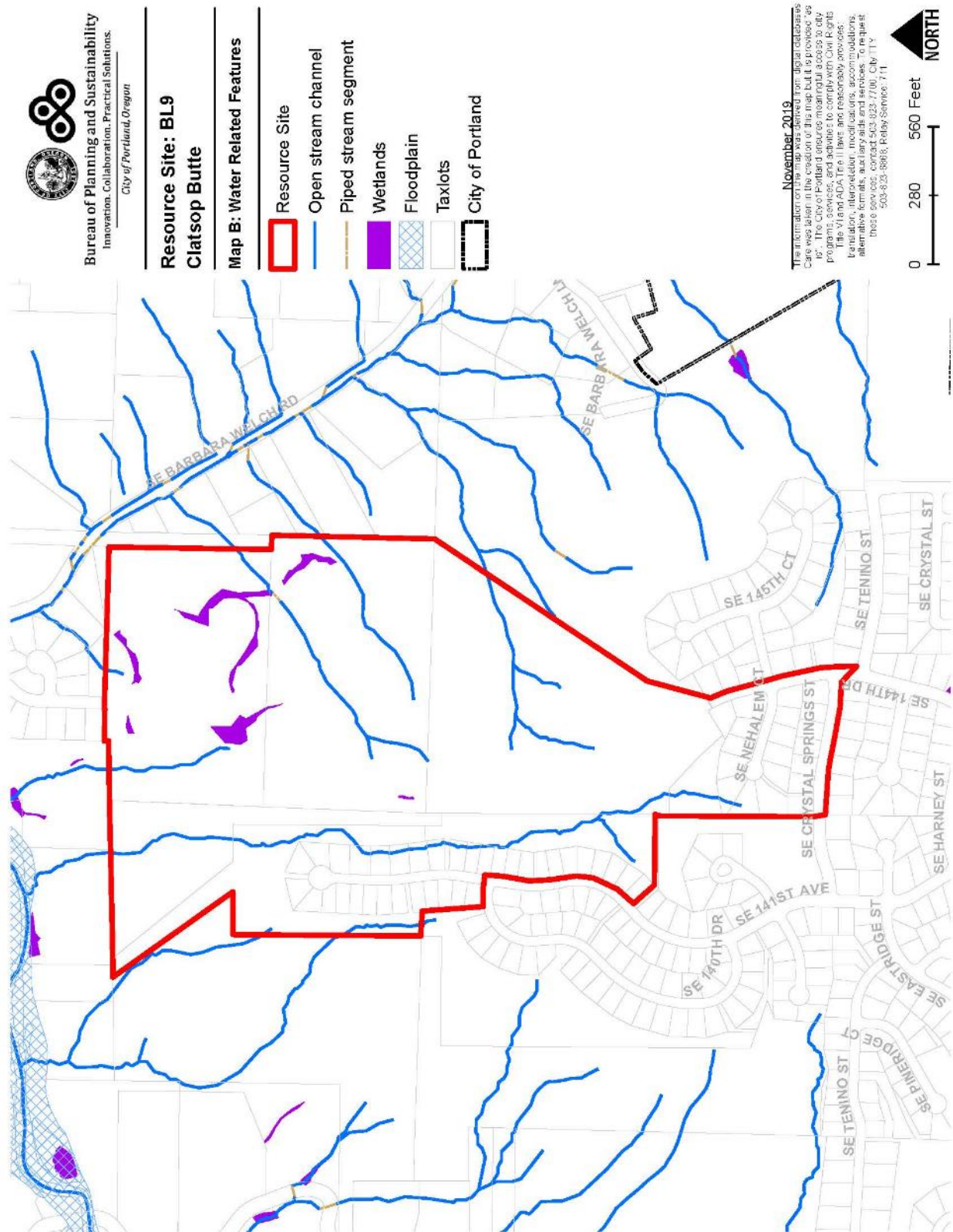
ESEE Decisions

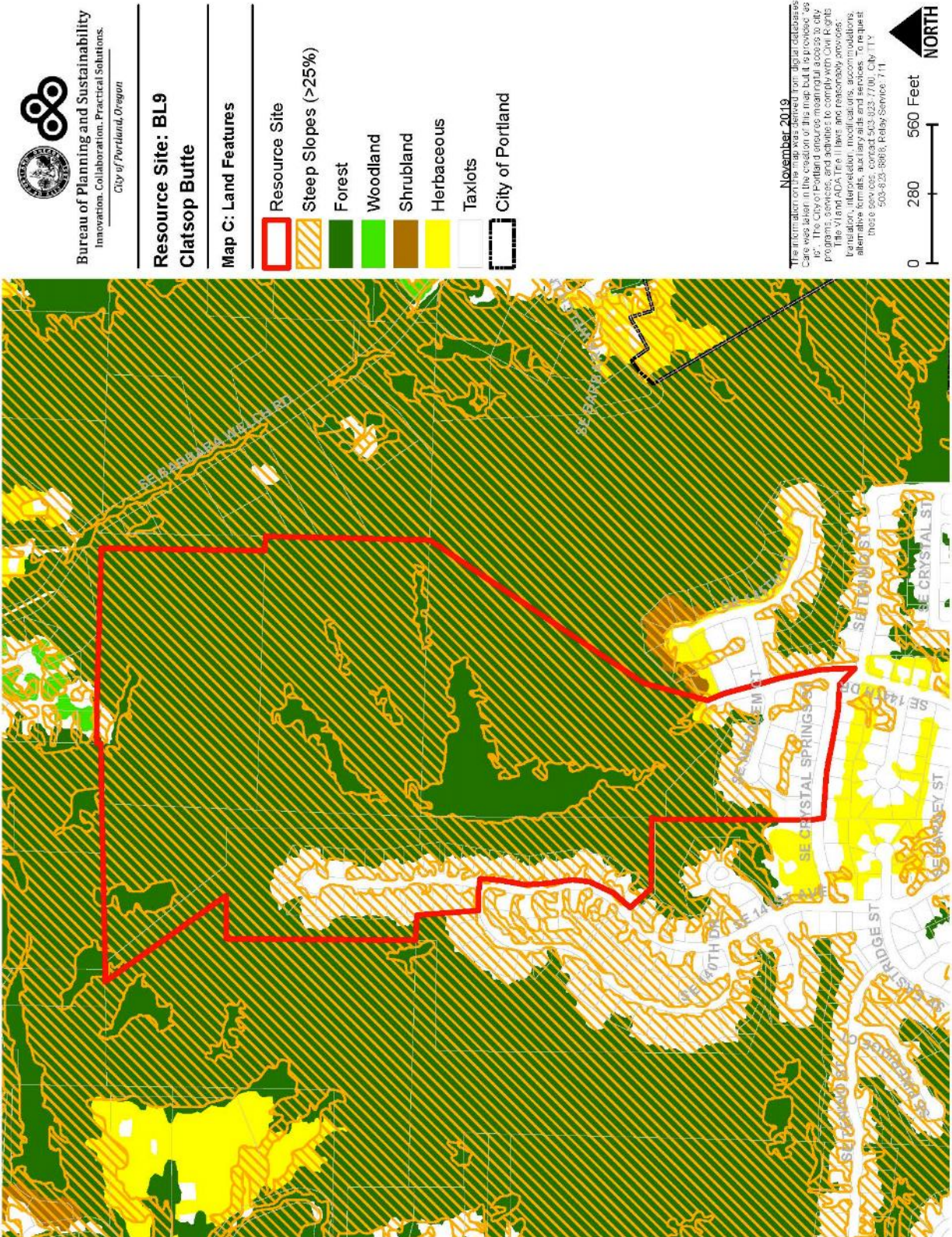
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site BL9 are:

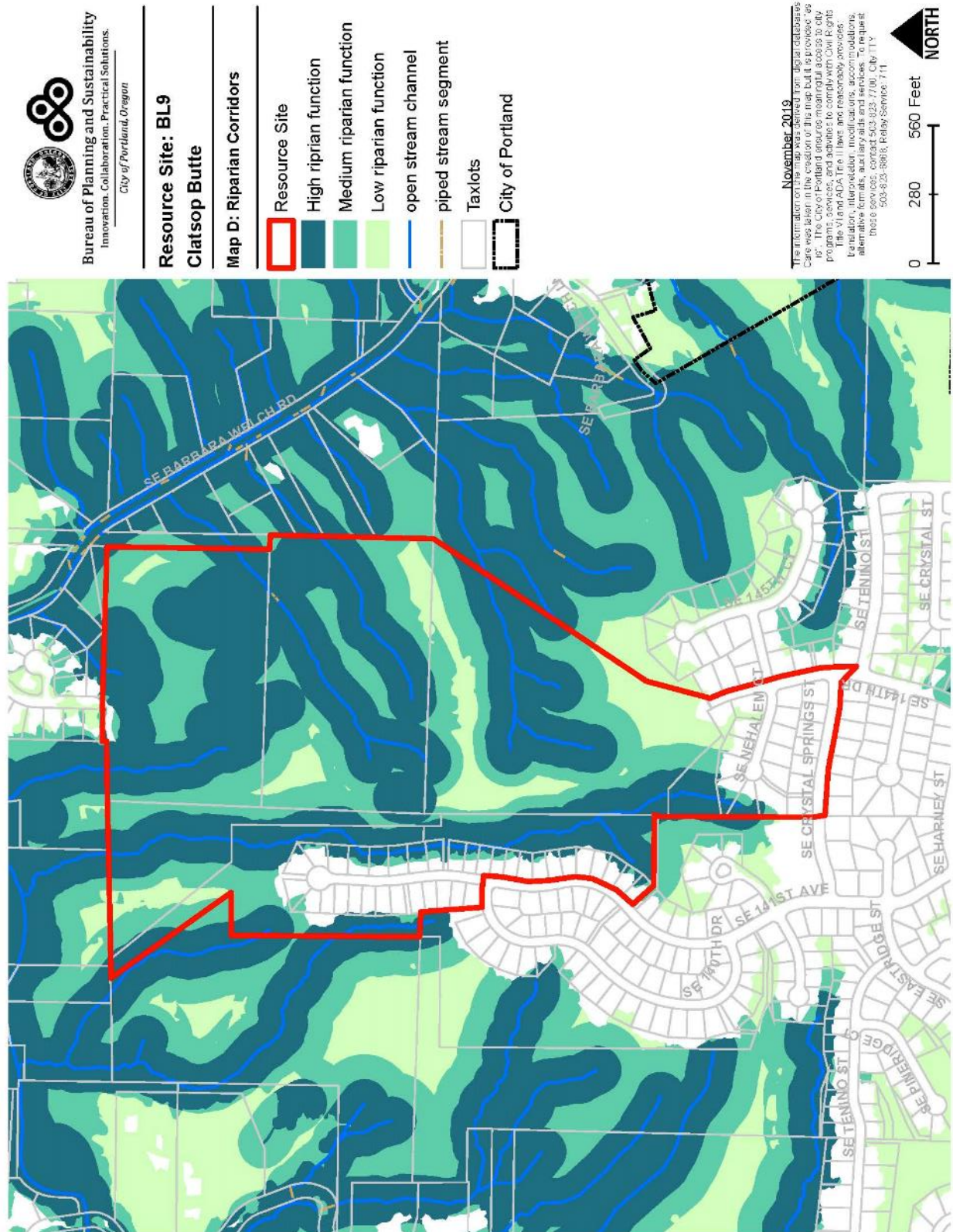
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 40 feet of stream top-of-bank, and land within 40 feet of wetlands.
2. *Strictly limit* conflicting uses within areas forest or woodland vegetation on steep slopes that are contiguous to but more than 40 feet from stream top-of-bank or wetlands and extending to 100 feet of streams or wetlands.
3. *Limit* conflicting uses within areas of forest or woodland vegetation on not steep slopes that are contiguous to but more than 40 feet from stream top-of-bank or wetlands and on steep slopes areas of forest or woodland vegetation that are contiguous to but more than 100 feet from stream top-of-bank or wetlands.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

Table C: ESEE Decision for Resource Site BL9	
ESEE Decision	Acres
Strictly Limit	62.4
Limit	6.9
Allow	11.4

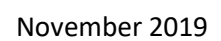


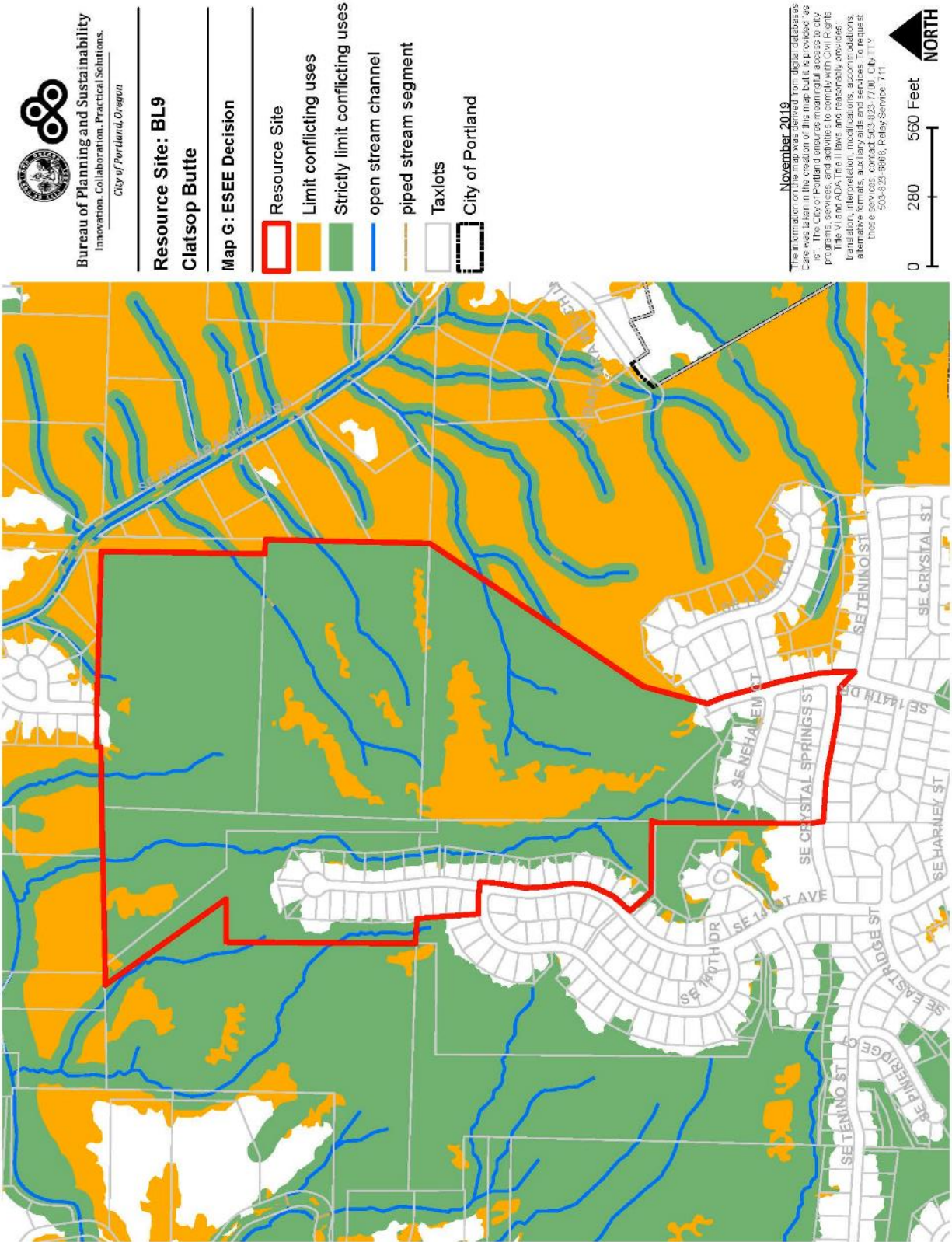




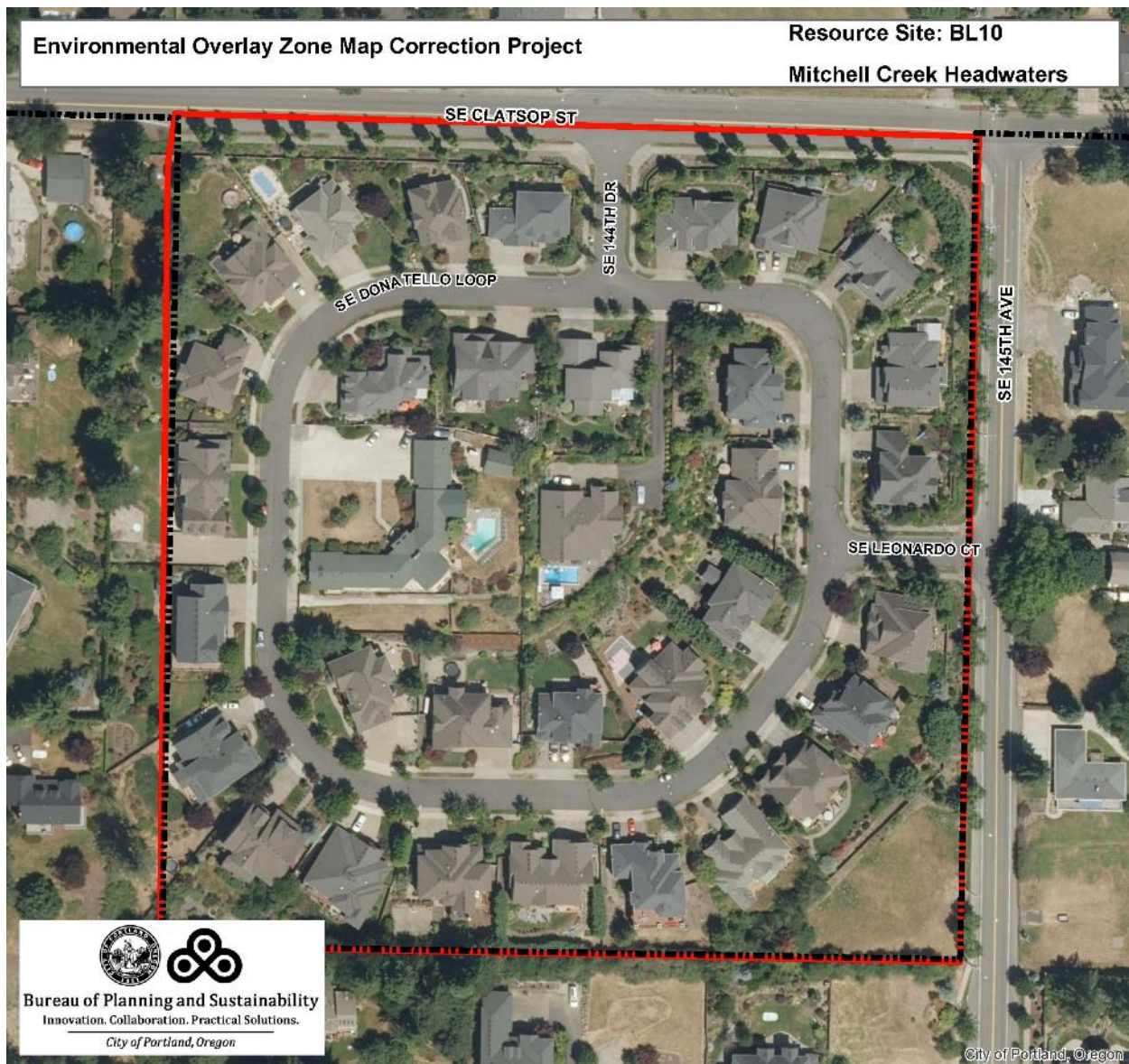








Resource Site No.: BL10 **Resource Site Name:** Mitchell Creek Headwaters
Previous Plan: Boring Lava Domes Supplement **Previous Resource Site No.:** 30I



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site BL10	
	Study Area
Stream (Miles)	0.0
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	0.5
Forest (acres)	0.0
Woodland (acres)	0.0
Shrubland (acres)	0.0
Herbaceous (acres)	0.5
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	4.1
Impervious Surface (acres)	2.1
* 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 area with a slope greater than 25%.	

Table B: There are no ranked natural resources with resource site BL10.

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site BL10 the following significant features and functions are present:

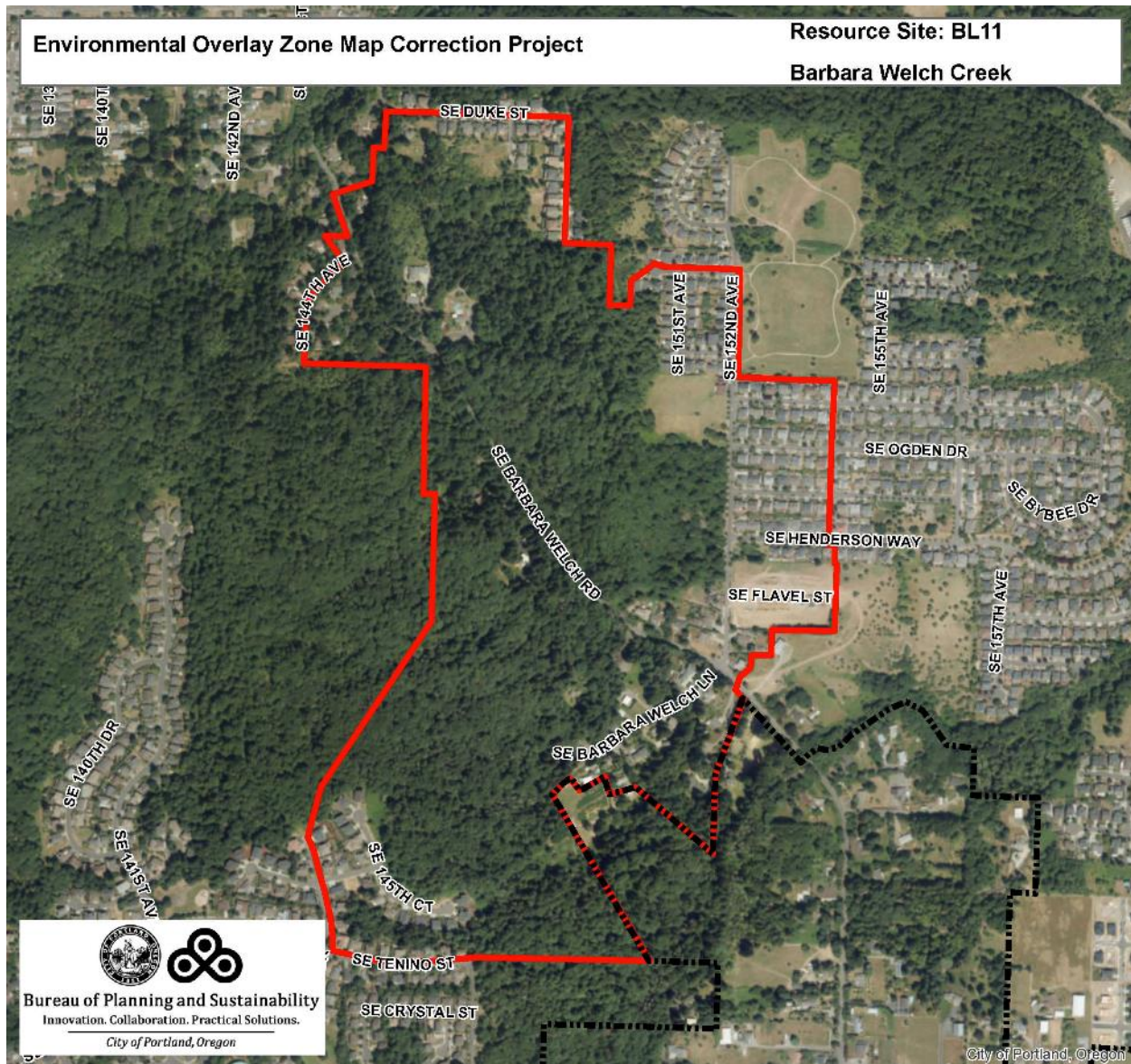
Significant Natural Resource Features: none

Significant Riparian Corridor Functions: none

Significant Wildlife Habitat Functions: none

Because there are no significant natural resources within resource site BL10, there are no ESEE decisions necessary for the site.

Resource Site No.: BL11 Resource Site Name: Barbara Welch Creek
Previous Plan: Boring Lava Domes Supplement Previous Resource Site No.: 30i



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site BL11	
	Study Area
Stream (Miles)	1.1
Wetlands (acres)	0.1
Vegetated Areas >= 1/2 acre (acres)	141.1
Forest (acres)	119.0
Woodland (acres)	8.8
Shrubland (acres)	2.9
Herbaceous (acres)	10.5
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	131.8
Impervious Surface (acres)	27.1
* 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 area with a slope greater than 25%.	

This watershed is centered on Barbara Welch Road between Clatsop Butte on the west and Cooper Bluff, Kelley Creek and Clatsop Creek watersheds on the east. The resources in the watershed include Barbara Welch Creek, its tributaries, habitat areas, and forested upland areas.

Table B: Quality of Natural Resource Functions in Resource Site BL11				
Resource Site (acres) = 179.302947				
	High	Medium	Low	Total
Riparian Corridors*				
acres	75.5	31.5	28.8	135.8
percent total inventory site area	42.1%	17.5%	16.1%	75.7%
Wildlife Habitat*				
acres	123.2	0.0	0.0	123.2
percent total inventory site area	68.7%	0.0%	0.0%	68.7%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total⁺				
acres	123.2	3.6	9.1	135.9
percent total inventory site area	68.7%	2.0%	5.1%	75.8%
<p>* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.</p> <p>** Special Habitat Areas rank high for wildlife habitat.</p> <p>+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.</p>				

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site BL11 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetland; forest vegetation within 300 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant 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.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2 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.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; 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 R20 and R10 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.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site BL11, with the following additional information that clarifies the analysis.

Strictly limiting or limiting conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, 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 high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

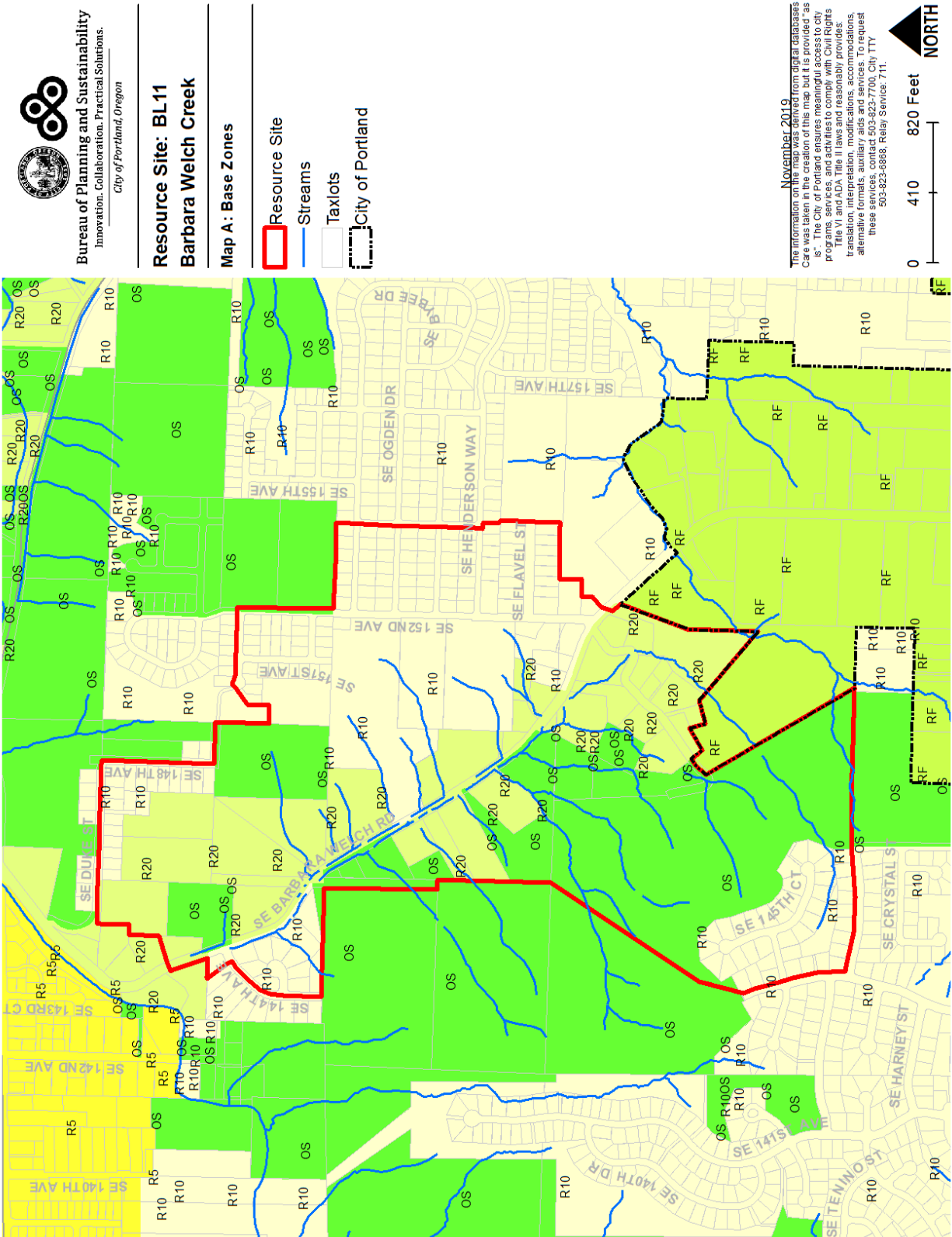
Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

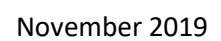
ESEE Decisions

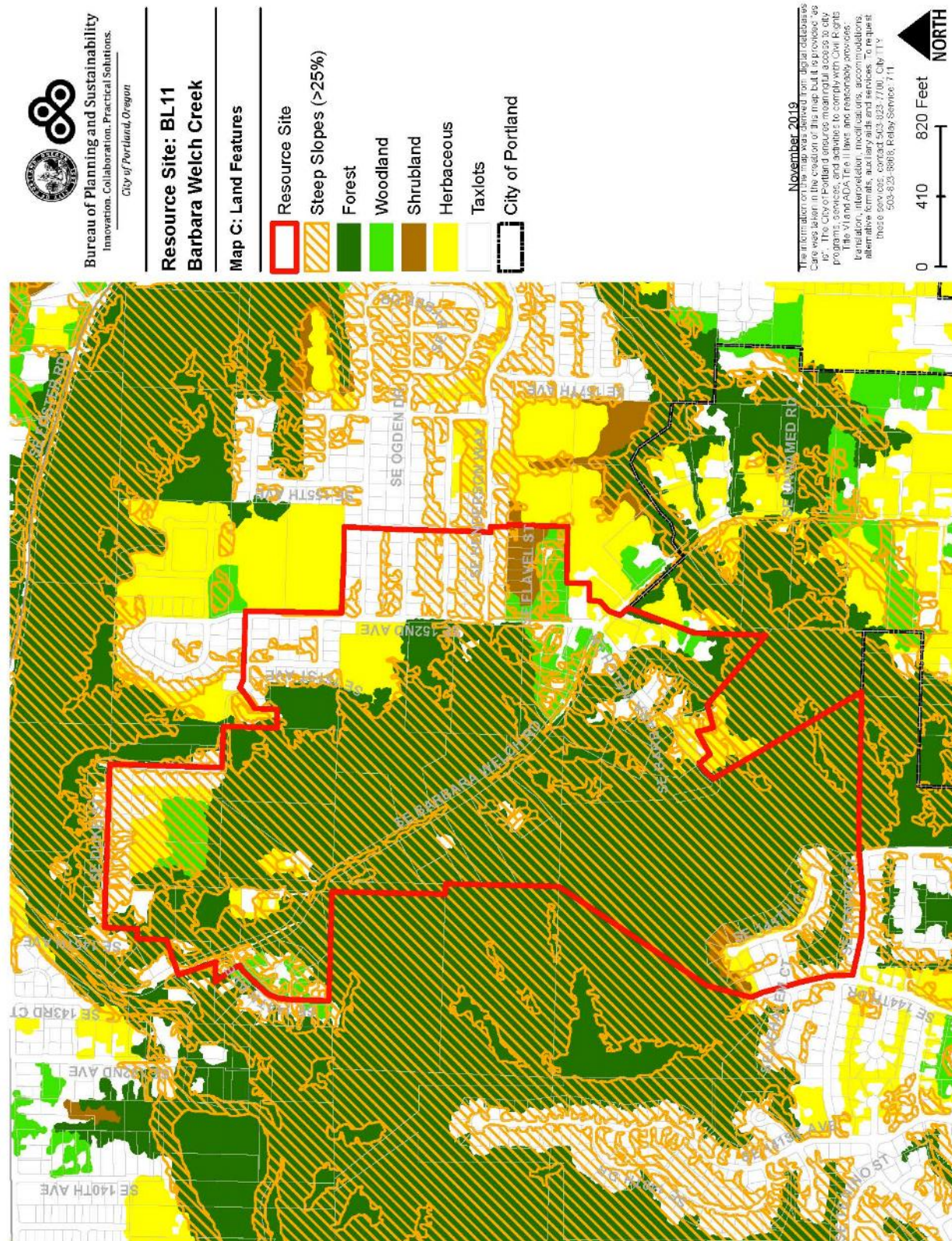
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resource Site BL11 are:

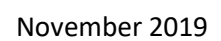
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 40 feet of stream top-of-bank (except along SE Barbara Welch Rd) or wetlands, and along SE Barbara Welch Rod land within 25 feet of stream top-of-bank.
2. *Limit* conflicting uses within land along SE Barbara Welch Rd between 25 and 40 feet of stream top-of-bank.
3. *Limit* conflicting uses within areas of forest vegetation on steep and non-steep slopes that area contiguous to but more than 40 feet from stream top-of-bank or wetlands.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

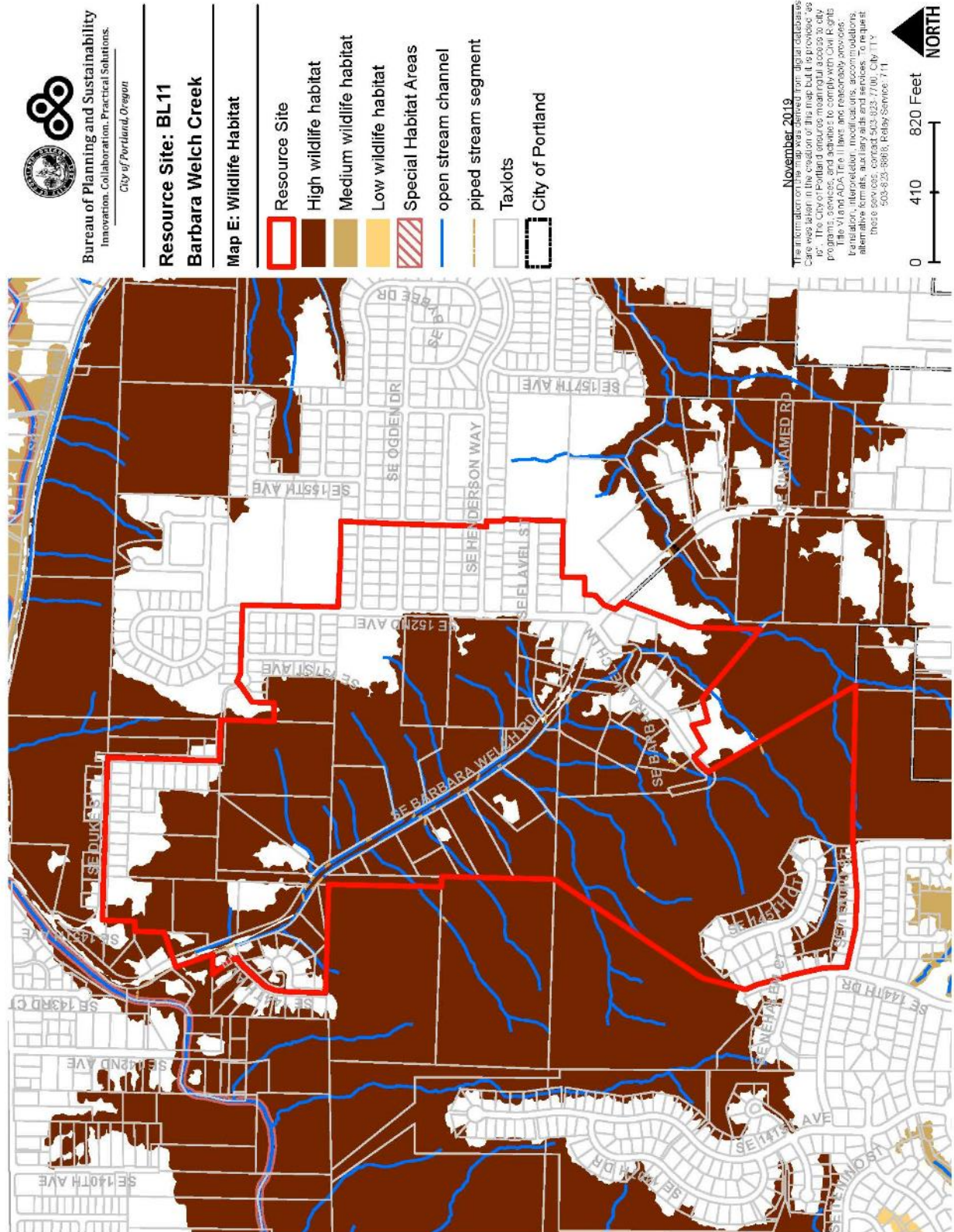
Table C: ESEE Decision for Resource Site BL11	
ESEE Decision	Acres
Strictly Limit	34.2
Limit	89.8
Allow	55.3

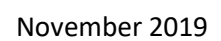


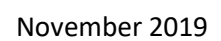






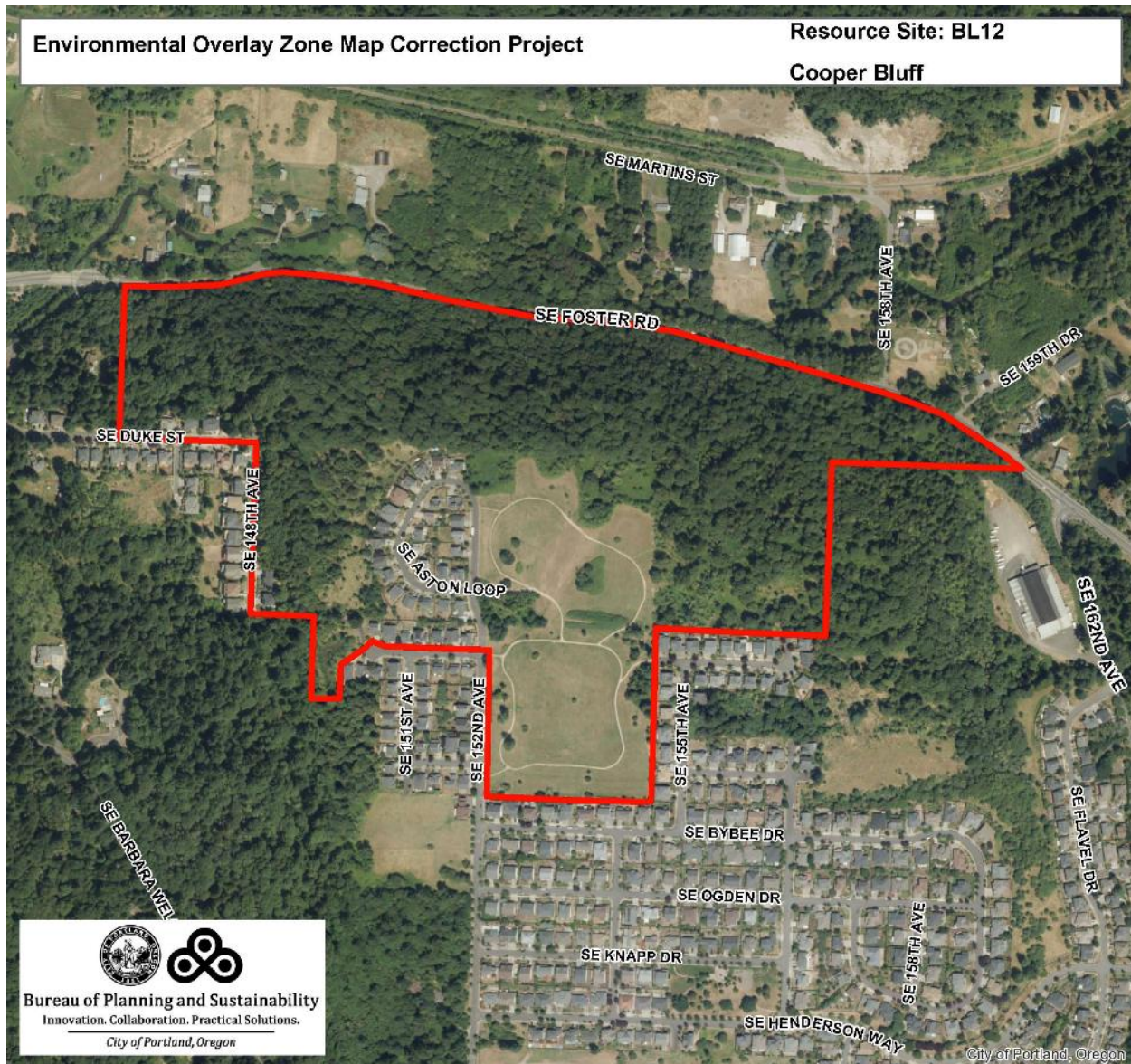






Resource Site No.: BL12 Resource Site Name: Cooper Bluff

Previous Plan: Boring Lava Domes Supplement Previous Resource Site No.: 30j



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site BL12	
	Study Area
Stream (Miles)	2.1
Wetlands (acres)	0.9
Vegetated Areas >= 1/2 acre (acres)	72.9
Forest (acres)	52.3
Woodland (acres)	1.3
Shrubland (acres)	0.0
Herbaceous (acres)	19.3
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	46.4
Impervious Surface (acres)	8.4
* 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 area with a slope greater than 25%.	

This area is located along Foster Road between the Barbara Welch and Kelley Creek watersheds. The resources include forest habitat, steep slopes and rock cliffs, and Johnson Creek tributaries.

Table B: Quality of Natural Resource Functions in Resource Site BL12				
Resource Site (acres) = 82.02087				
	High	Medium	Low	Total
Riparian Corridors*				
acres	22.8	18.7	30.5	72.1
percent total inventory site area	27.8%	22.8%	37.2%	87.9%
Wildlife Habitat*				
acres	52.0	0.0	0.0	52.0
percent total inventory site area	63.3%	0.0%	0.0%	63.4%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total⁺				
acres	53.5	6.3	12.3	72.1
percent total inventory site area	65.2%	7.7%	15.0%	87.9%
<p>* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.</p> <p>** Special Habitat Areas rank high for wildlife habitat.</p> <p>+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.</p>				

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site BL12 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; forest vegetation within 300 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant 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.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2 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.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; 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 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.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site BL12, with the following additional information that clarifies the analysis.

Strictly limiting or limiting conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, 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 high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

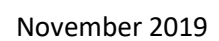
Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

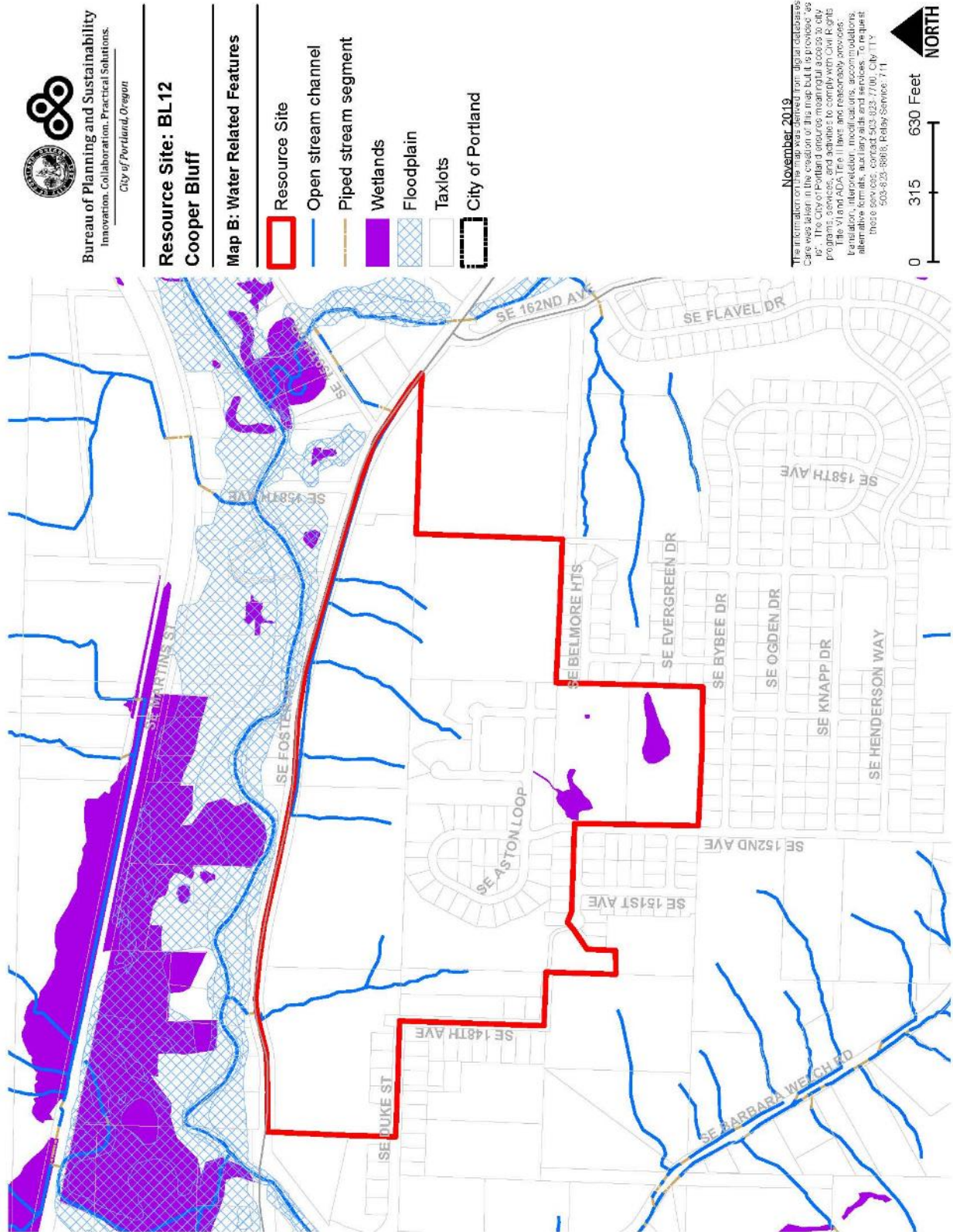
ESEE Decisions

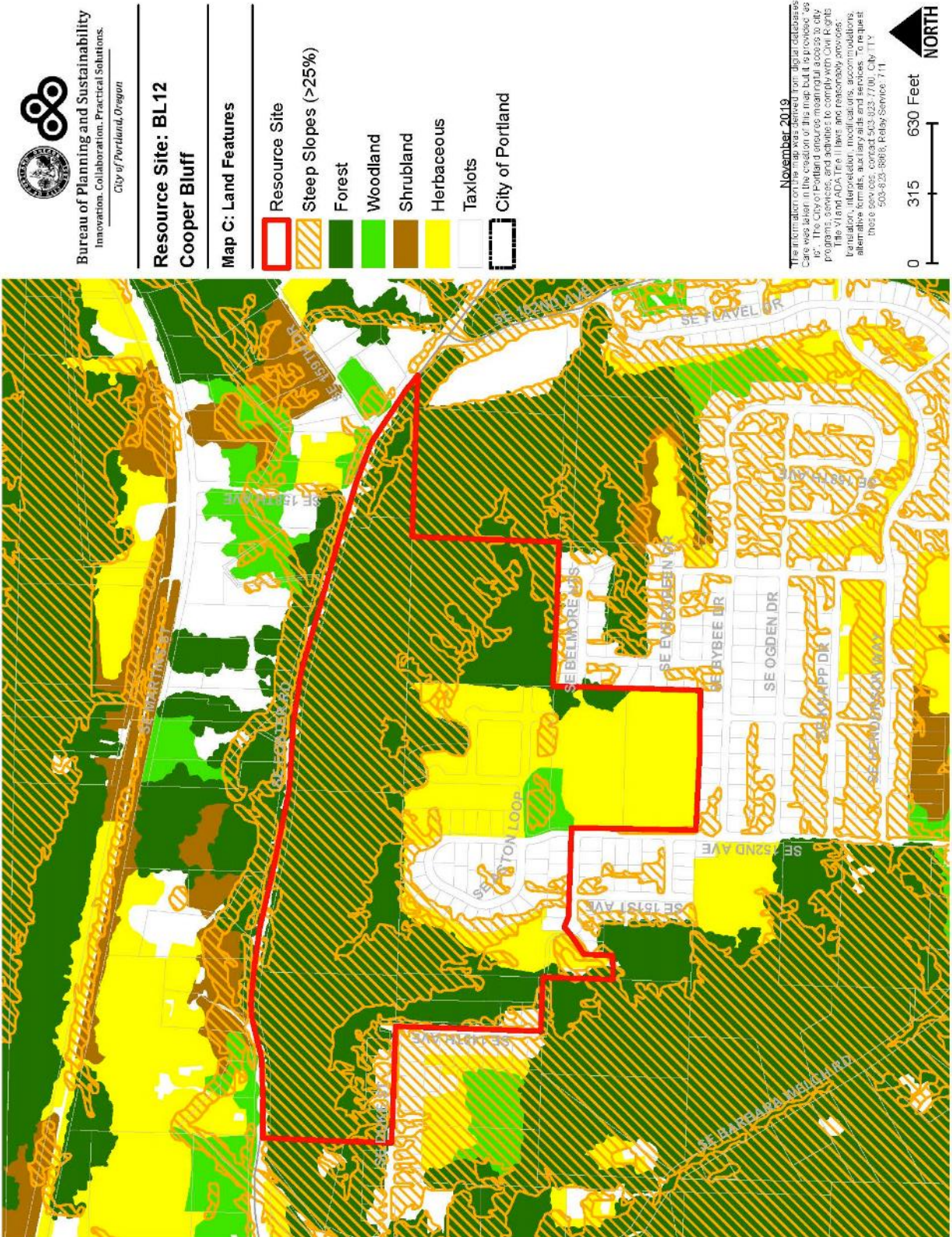
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resources Site BL12 are:

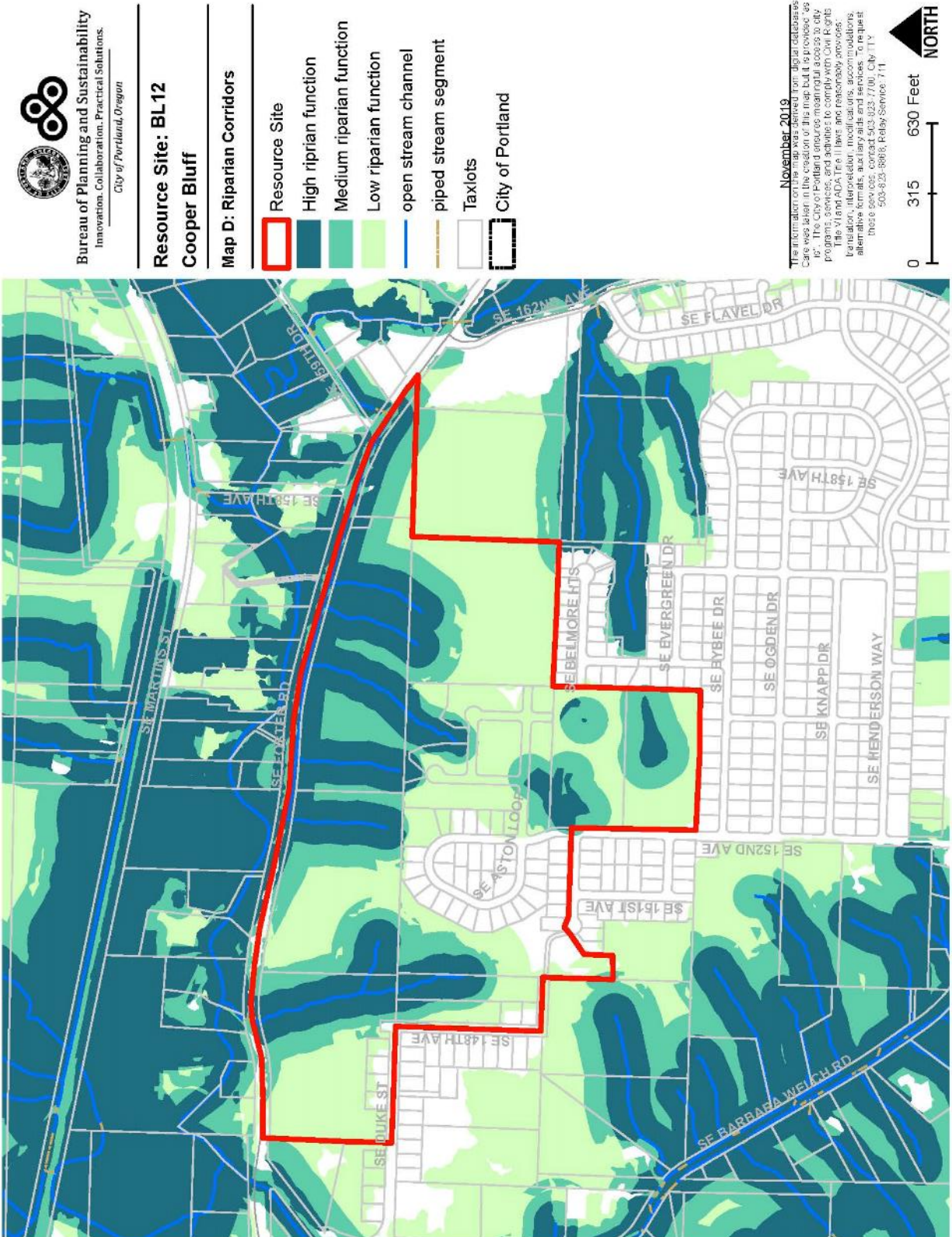
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 40 feet of stream top-of-bank and land within 40 feet of wetlands.
2. *Strictly limit* conflicting uses within areas forest or woodland vegetation on steep slopes that are contiguous to but more than 40 feet from stream top-of-bank or wetlands.
3. *Limit* conflicting uses within areas of forest or woodland vegetation on not steep slopes that are contiguous to but more than 40 feet from stream top-of-bank or wetlands.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

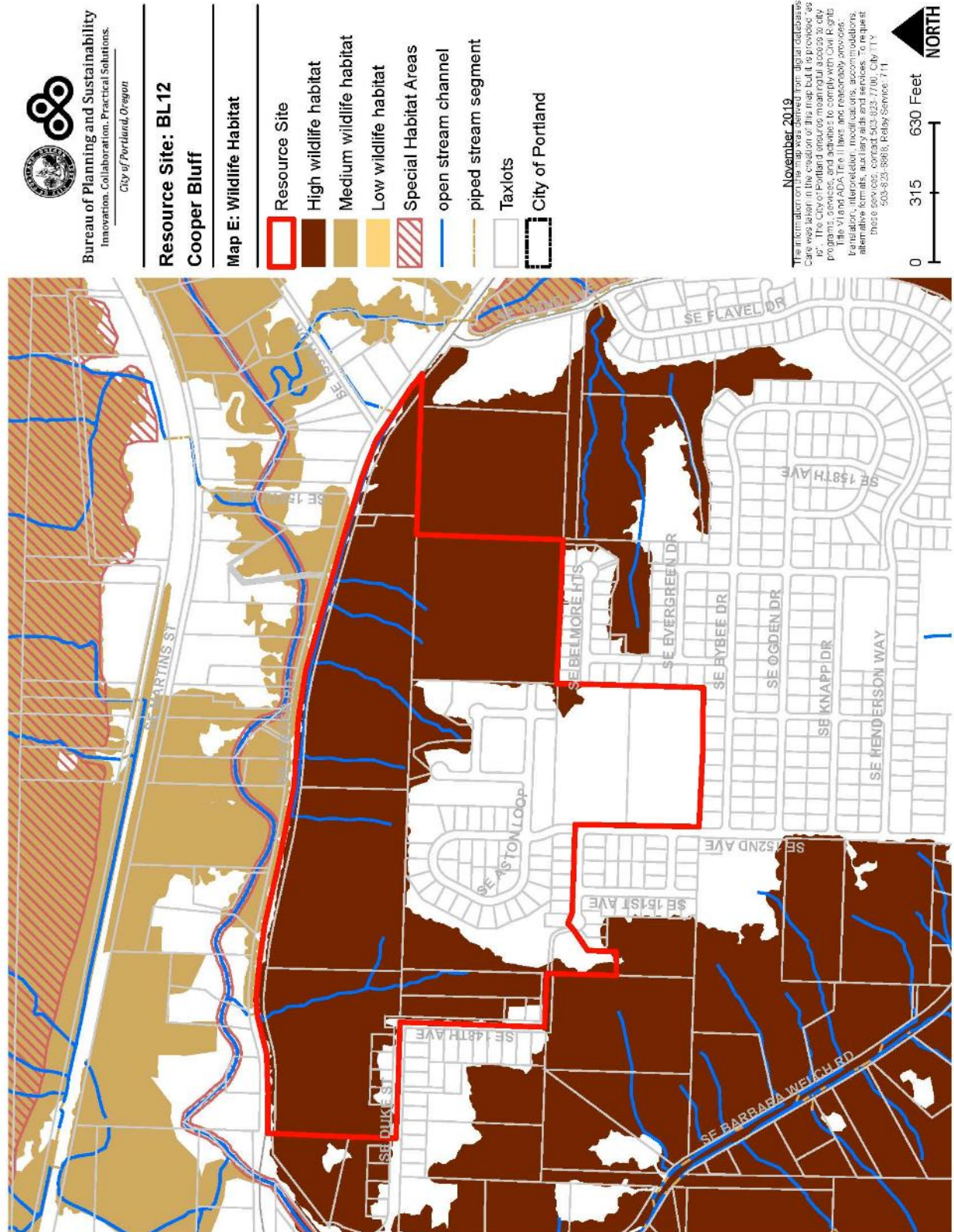
Table C: ESEE Decision for Resource Site BL12	
ESEE Decision	Acres
Strictly Limit	44.3
Limit	11.3
Allow	26.4

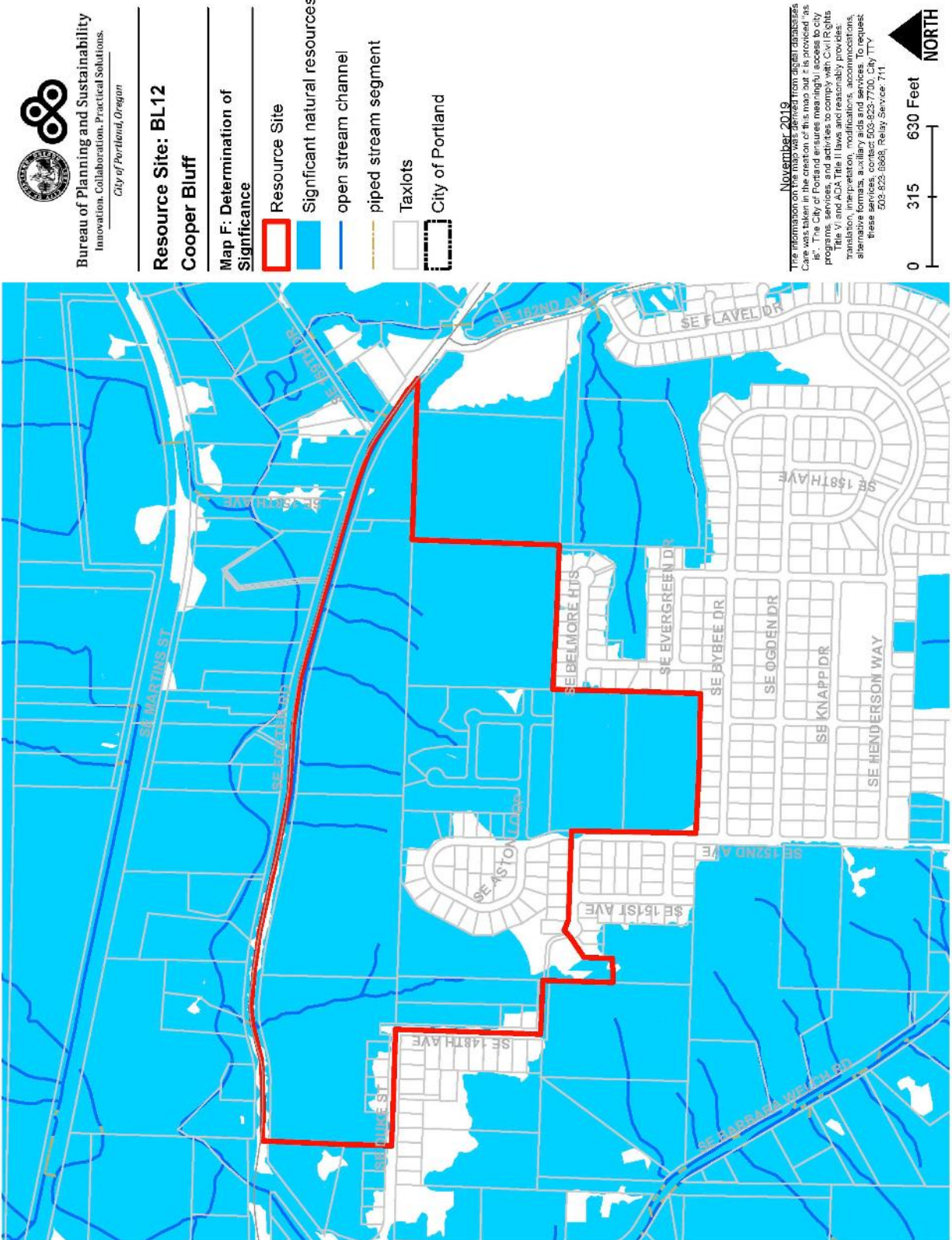






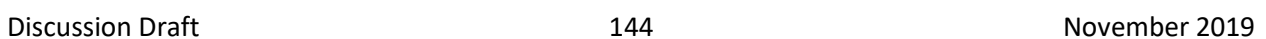








Previous Plan: Boring Lava Domes Supplement **Previous Resource Site No.:** 30k



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site BL13	
	Study Area
Stream (Miles)	0.9
Wetlands (acres)	0.5
Vegetated Areas >= 1/2 acre (acres)	170.4
Forest (acres)	76.3
Woodland (acres)	18.7
Shrubland (acres)	3.4
Herbaceous (acres)	71.9
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	78.8
Impervious Surface (acres)	42.7
* 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 area with a slope greater than 25%.	

Clatsop Creek is located just north of SE Clatsop St. and crosses Barbara Welch Road from west to east. It is a tributary to Kelley Creek. Much of the watershed is in unincorporated Multnomah County. The watershed contains Clatsop Creek, creek tributaries, steep ravines and forest habitat.

Table B: Quality of Natural Resource Functions in Resource Site BL13				
Resource Site (acres) = 247.665372				
	High	Medium	Low	Total
Riparian Corridors*				
acres	41.0	24.8	51.2	117.1
percent total inventory site area	16.6%	10.0%	20.7%	47.3%
Wildlife Habitat*				
acres	79.5	4.5	0.0	84.0
percent total inventory site area	32.1%	1.8%	0.0%	33.9%
Special Habitat Areas**				
acres				0.0
percent total inventory site area				0.0%
Combined Total⁺				
acres	83.4	9.8	27.5	120.7
percent total inventory site area	33.7%	4.0%	11.1%	48.7%
<p>* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.</p> <p>** Special Habitat Areas rank high for wildlife habitat.</p> <p>+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.</p>				

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site BL13 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; forest vegetation within 300 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant 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.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2 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.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; 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 RF and R10 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.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site BL13, with the following additional information that clarifies the analysis.

Strictly limiting or limiting conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, 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 high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

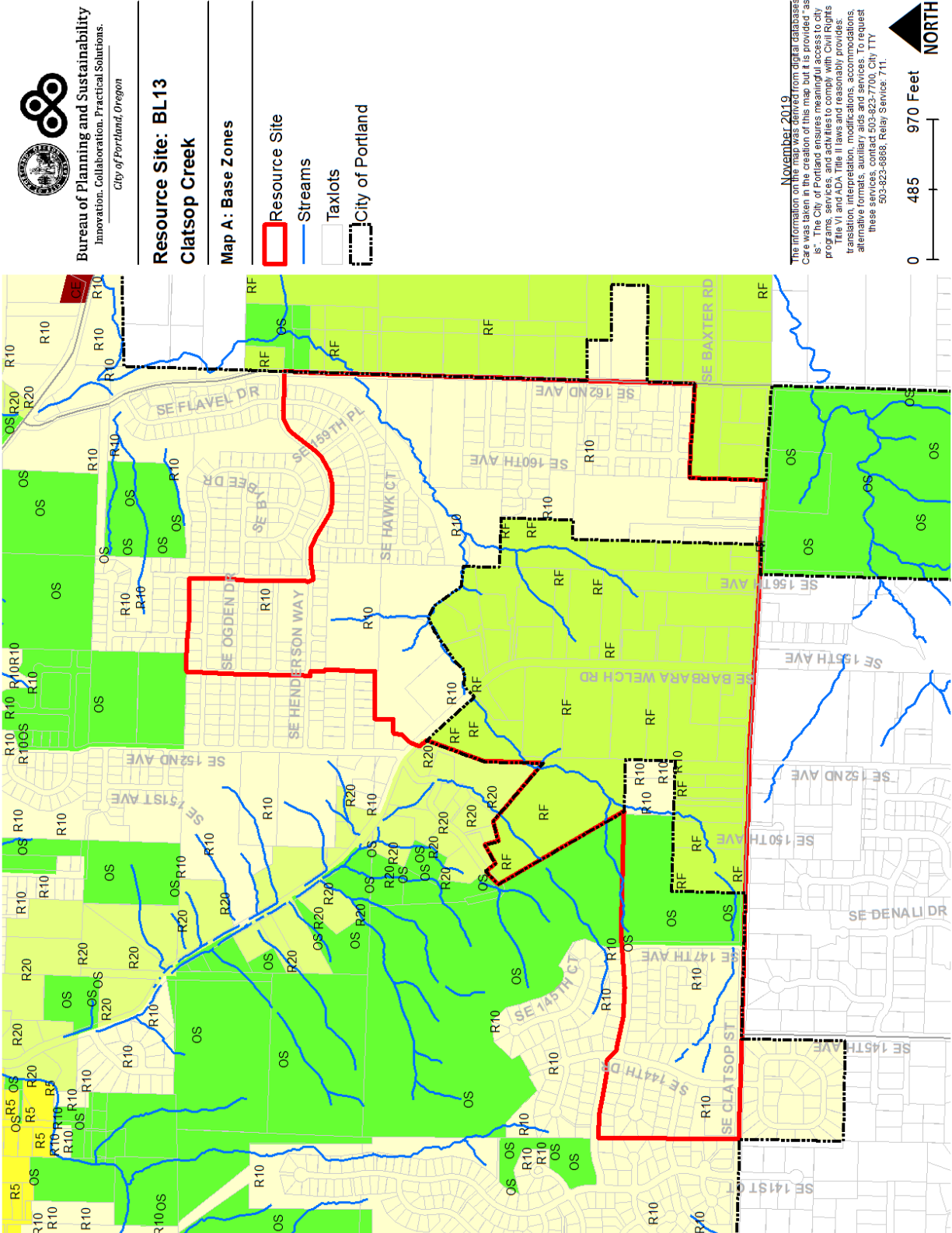
Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

ESEE Decisions

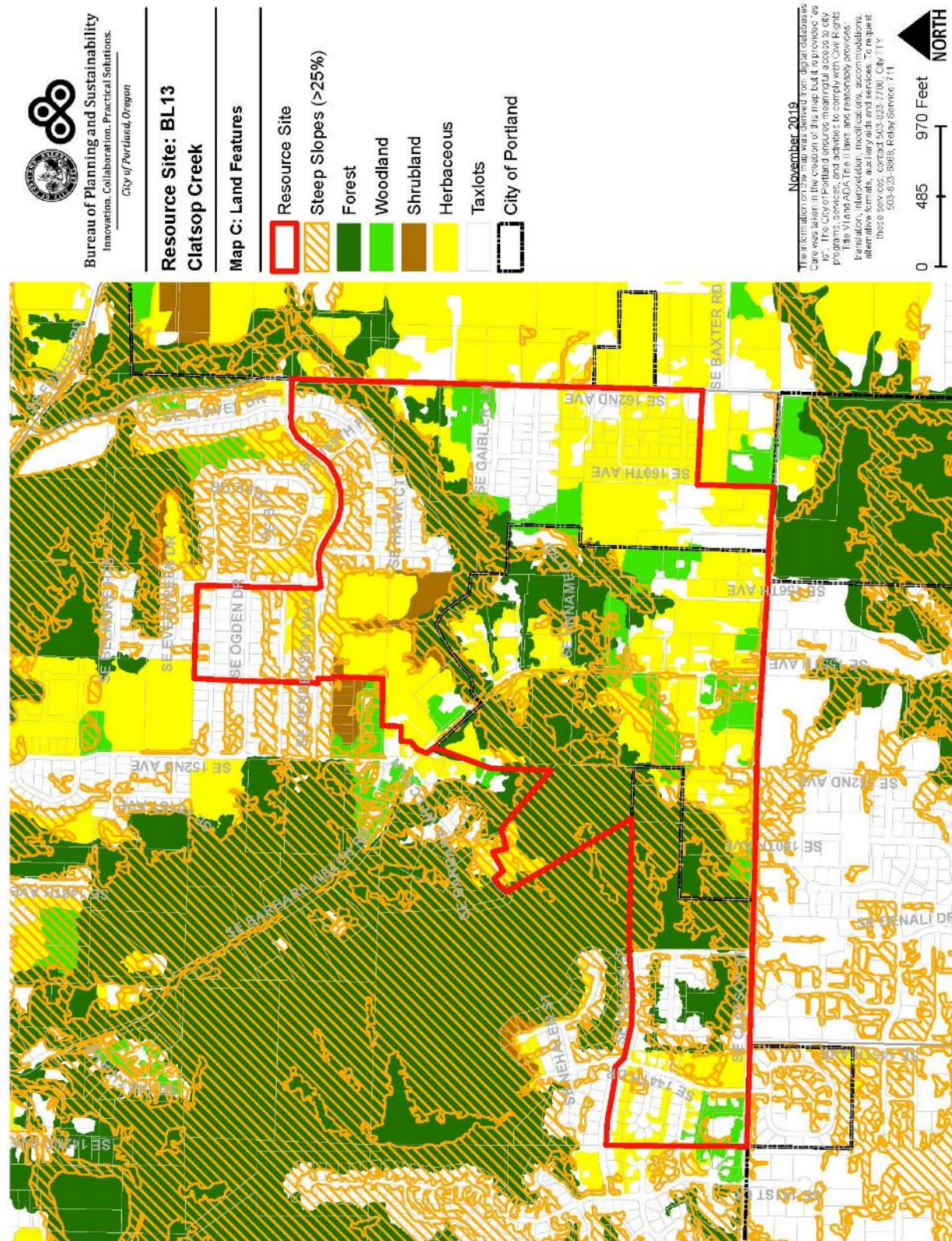
Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resource Site BL13 are:

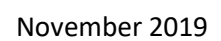
1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 40 feet of stream top-of-bank and land within 40 feet of wetlands
2. *Strictly limit* conflicting uses within areas forest or woodland vegetation on steep slopes that are contiguous to but more than 40 feet from stream top-of-bank or wetlands.
3. *Limit* conflicting uses within areas of forest or woodland vegetation on not steep slopes that are contiguous to but more than 40 feet from stream top-of-bank or wetlands.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

Table C: ESEE Decision for Resource Site BL13	
ESEE Decision	Acres
Strictly Limit	58.9
Limit	28.6
Allow	160.2



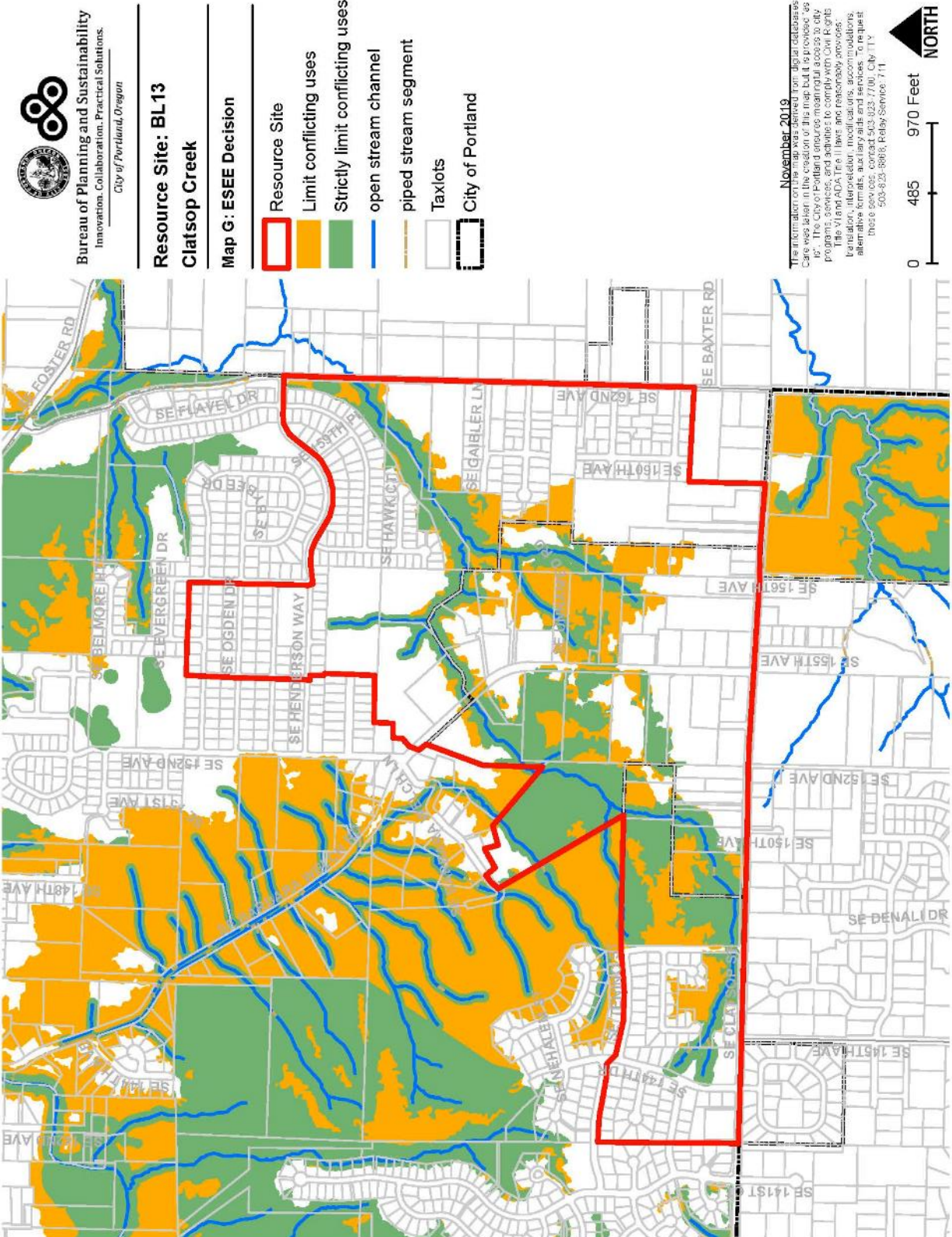






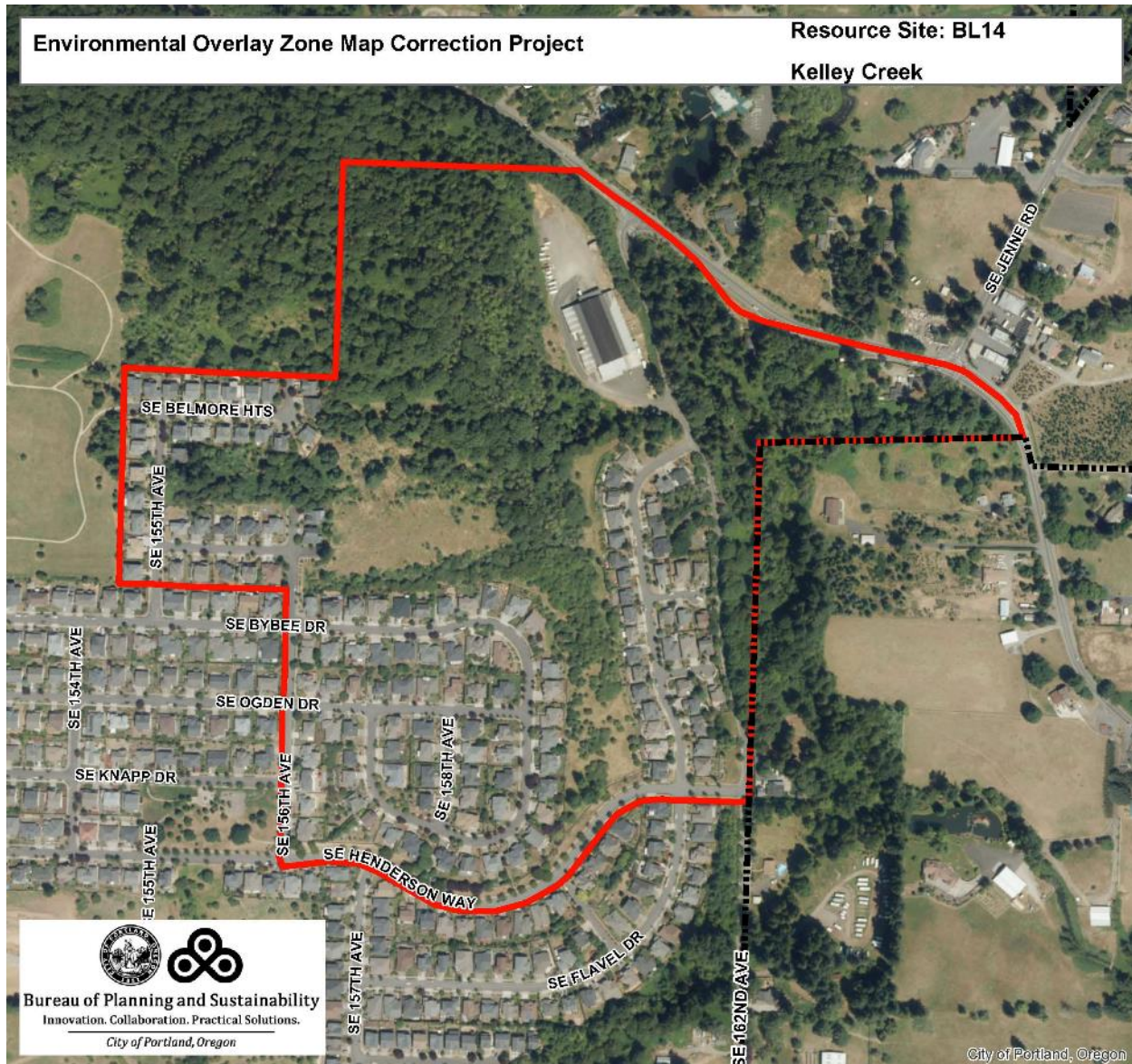






Resource Site No.: BL14 Resource Site Name: Kelly Creek

Previous Plan: Boring Lava Domes Supplement **Previous Resource Site No.:** 30m



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site BL14	
	Study Area
Stream (Miles)	1.7
Wetlands (acres)	0.0
Vegetated Areas >= 1/2 acre (acres)	41.0
Forest (acres)	30.3
Woodland (acres)	2.5
Shrubland (acres)	1.5
Herbaceous (acres)	6.6
Flood Area*	1.6
Vegetated (acres)	1.6
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	46.1
Impervious Surface (acres)	19.5
* 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 area with a slope greater than 25%.	

This watershed is located in the northeast corner of the Lava Domes site in the vicinity of Foster Road and 162nd Avenue. The watershed contains Kelley Creek, a creek tributary and forested habitat areas.

Table B: Quality of Natural Resource Functions in Resource Site BL14				
Resource Site (acres) = 78.295463				
	High	Medium	Low	Total
Riparian Corridors*				
acres	17.7	7.2	12.5	37.4
percent total inventory site area	22.6%	9.2%	16.0%	47.8%
Wildlife Habitat*				
acres	23.4	8.7	0.0	32.1
percent total inventory site area	29.9%	11.1%	0.0%	41.0%
Special Habitat Areas**				
acres				8.0
percent total inventory site area				10.2%
Combined Total⁺				
acres	32.7	2.3	2.7	37.7
percent total inventory site area	41.7%	2.9%	3.5%	48.1%
<p>* High-ranked riparian resources, Special Habitat Areas, and wildlife habitat include open water.</p> <p>** Special Habitat Areas rank high for wildlife habitat.</p> <p>+Because riparian resources, Special Habitat Areas, and wildlife Habitat overlap, the results cannot be added together to determine the combined results.</p>				

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site BL14 the following significant features and functions are present:

Significant Natural Resource Features: open stream; flood area; forest vegetation within 300 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant 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.

Significant Wildlife Habitat Functions: interior area; food and water; resting, denning, nesting and rearing; movement and migration; and reduction of noise, light and vibration.

Resource Site Specific ESEE

The General ESEE analysis, Volume 2 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.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; 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 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.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site BL14, with the following additional information that clarifies the analysis.

Strictly limiting or limiting conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, 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 high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

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*.

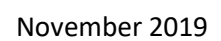
There is flood area within the site. The structures and impervious surface limit the flood capacity and infiltration functions of the land and increase the flood risk to the property as well as properties up and down stream. New or expanded development in the flood area should be *limited*.

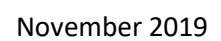
ESEE Decisions

Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resource Site BL14 are:

1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank and land within 40 feet of stream top-of-bank.
2. *Strictly limit* conflicting uses within areas forest or woodland vegetation on steep slopes that are contiguous to but more than 40 feet from stream top-of-bank.
3. *Limit* conflicting uses within areas of forest or woodland vegetation on not steep slopes that are contiguous to but more than 40 feet from stream top-of-bank.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

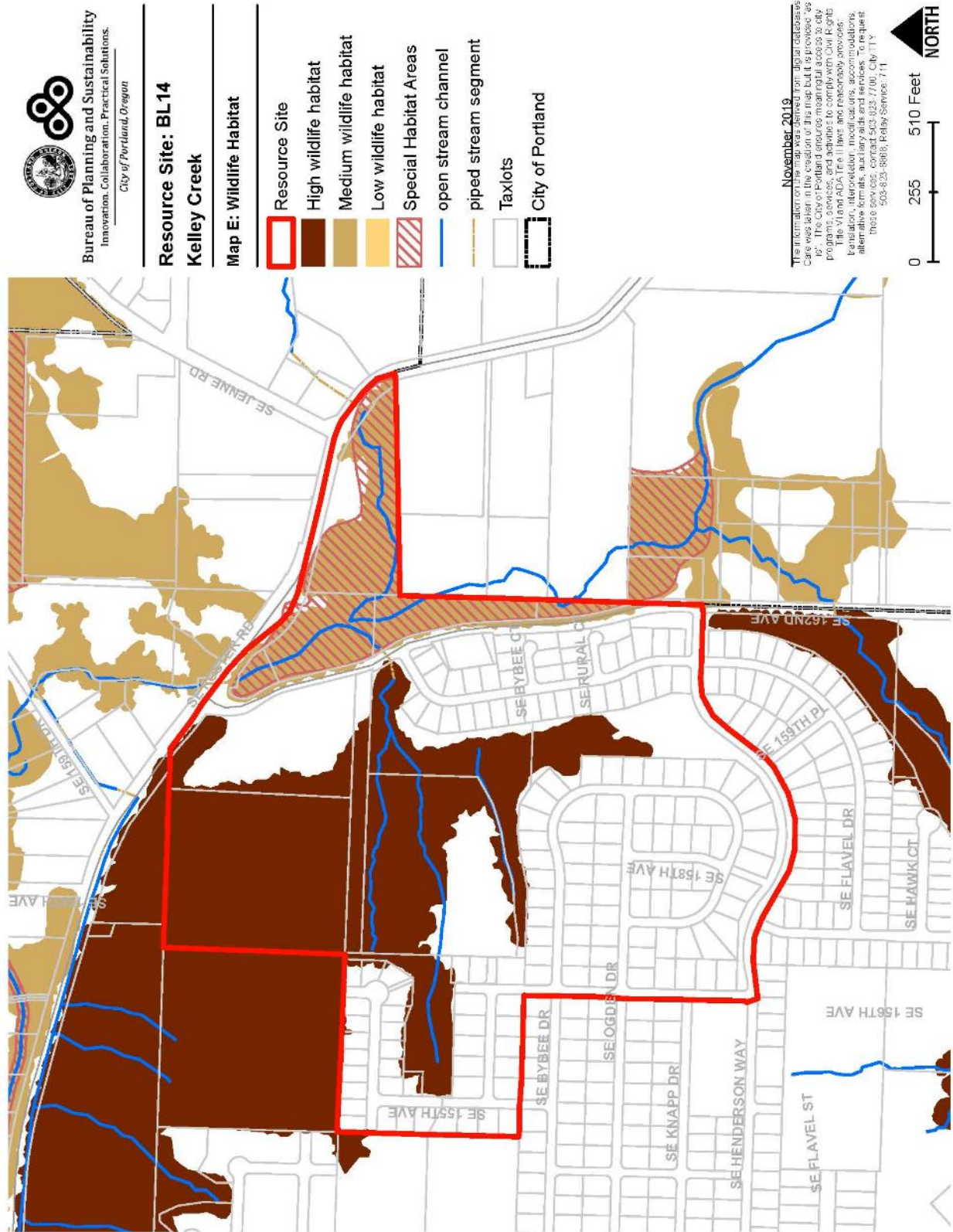
Table C: ESEE Decision for Resource Site BL14	
ESEE Decision	Acres
Strictly Limit	28.9
Limit	3.9
Allow	45.5

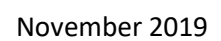


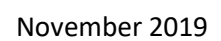






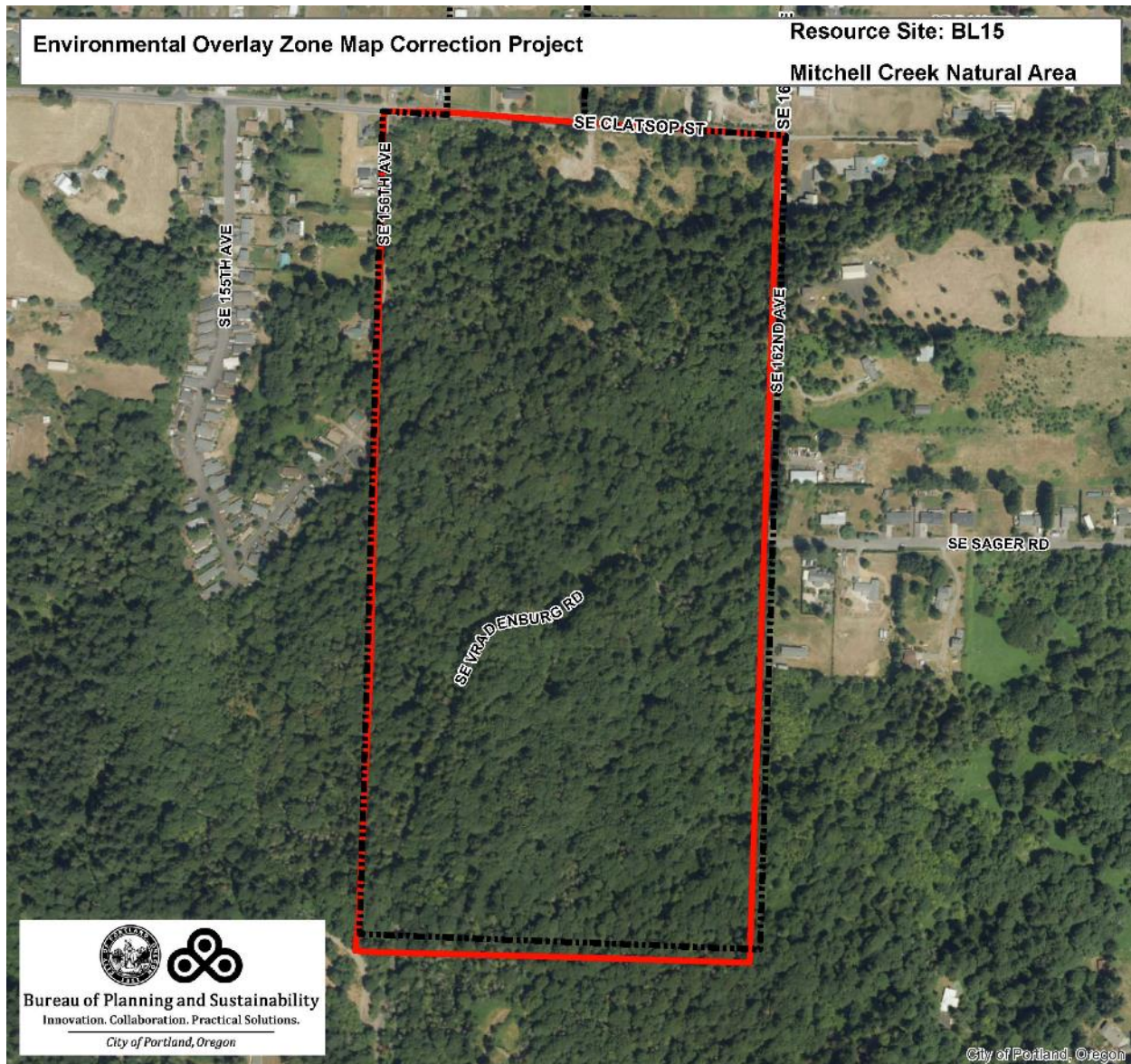






Resource Site No.: BL15 Resource Site Name: Mitchell Creek

Previous Plan: Boring Lava Domes Supplement Previous Resource Site No.: 30I



Natural Resources Inventory

Table A: Quantity of Natural Resource Features in Resource Site BL15	
	Study Area
Stream (Miles)	1.6
Wetlands (acres)	0.7
Vegetated Areas >= 1/2 acre (acres)	77.1
Forest (acres)	74.1
Woodland (acres)	1.9
Shrubland (acres)	0.0
Herbaceous (acres)	1.1
Flood Area*	0.0
Vegetated (acres)	0.0
Non-vegetated (acres)	0.0
Steep Slopes (acres)**	51.2
Impervious Surface (acres)	0.2
* 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 area with a slope greater than 25%.	

Mitchell Creek is a tributary to Kelley Creek. Approximately 96 acres of the 566-acre watershed are located within the Portland City Limits. The City portion of the watershed contains mixed-age, mixed conifer/deciduous forest with several significant north and east-trending ravines containing Mitchell Creek and its tributaries (including “MacKenzie Creek”). These creeks and ravines support a range of federal “species of concern” and state sensitive species including cutthroat trout, northern red-legged frog and pileated woodpecker. Along the main stem of Mitchell Creek, a significant corridor ranging in width from 200 feet (near 162nd Avenue) to 400 feet (near 157th Avenue) contains “a” quality resources.

Table A: Quantity of Natural Resource Features in Resource Site		BL15
		Study Area
Stream (Miles)		1.6
Wetlands (acres)		0.7
Vegetated Areas >= 1/2 acre (acres)		77.1
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Steep Slopes (acres)**		51.2
Impervious Surface (acres)		0.2
* 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 area with a slope greater than 25%.		

Determination of Significance

Natural resource features mapped in the resource site that provide functions identified in the Natural Resources Inventory are determined to be significant (Map F). Within resource site BL10 the following significant features and functions are present:

Significant Natural Resource Features: open stream; wetlands; forest vegetation within 300 feet of waterbodies; woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies; developed land within 50 feet of waterbodies; forest patches and associated and contiguous woodland patches two acres in size or larger; and Special Habitat Areas.

Significant 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.

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

Resource Site Specific ESEE

The General ESEE analysis, Volume 2 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.

Conflicting Uses

The common impact of conflicting uses in the resource site include clearing vegetation; grading activities and soil compaction; add impervious surface; modifying streams and floodplains; 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 outright or conditionally in the OS base zones. 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.

ESEE Analysis

The analysis of economic, social, environmental and energy consequences provided in Volume 2 is confirmed for resource site BL15, with the following additional information that clarifies the analysis.

Strictly limiting or limiting conflicting uses generally would retain the riparian corridor and wildlife habitat functions of the significant natural resource features including maintaining habitat for at risk species, maintaining the flow moderation, water quality and flood control functions of streams and

wetlands, 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 high or medium ranked natural resources should be required. New or expanded development should be setback from a minimum distance streams and wetlands.

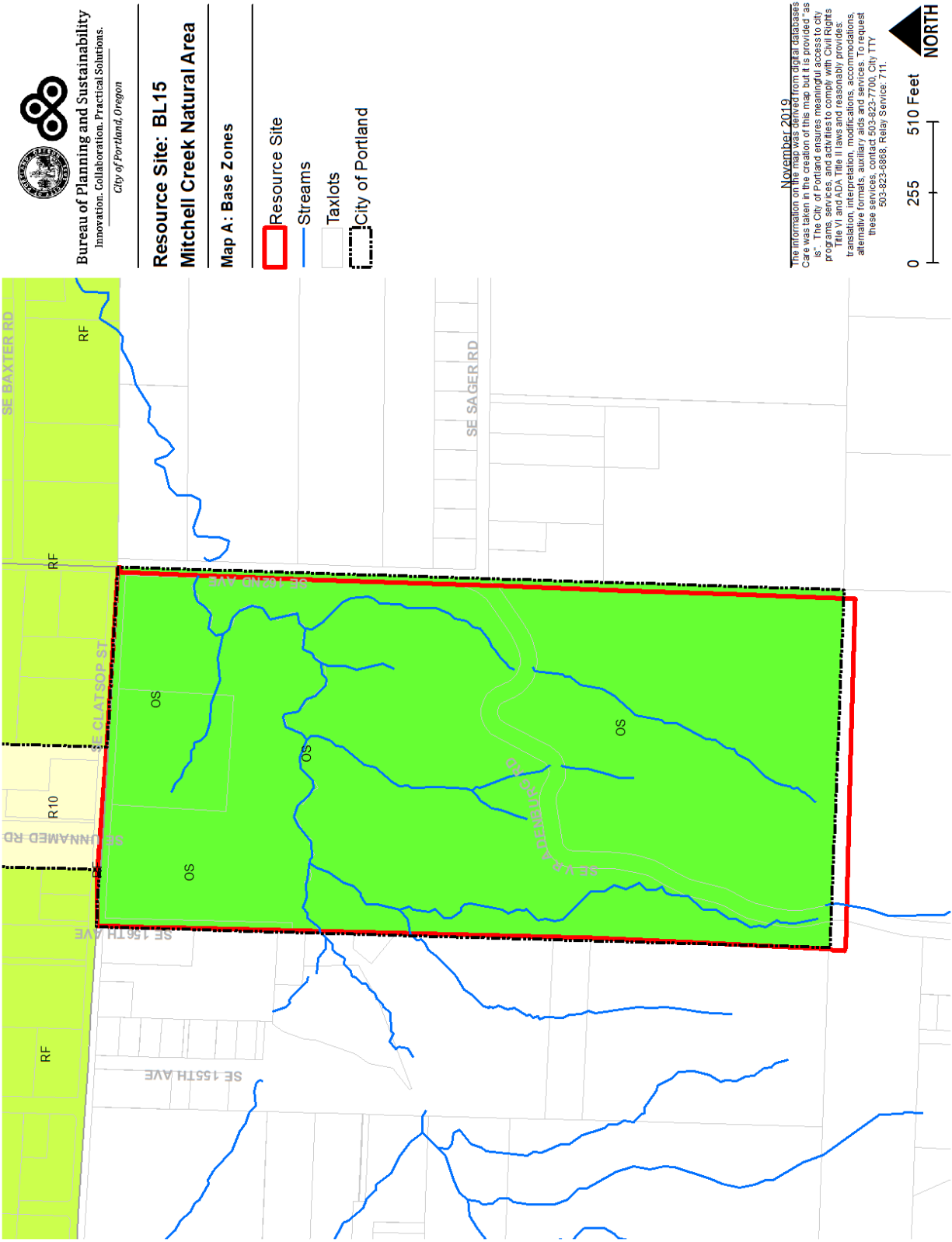
Steep slopes are susceptible to erosion and landslides. Development should be clustered away from steep slopes and trees and vegetation should be maintained to reduce the landslide risks. New or expanded development on steep slopes should be *limited*.

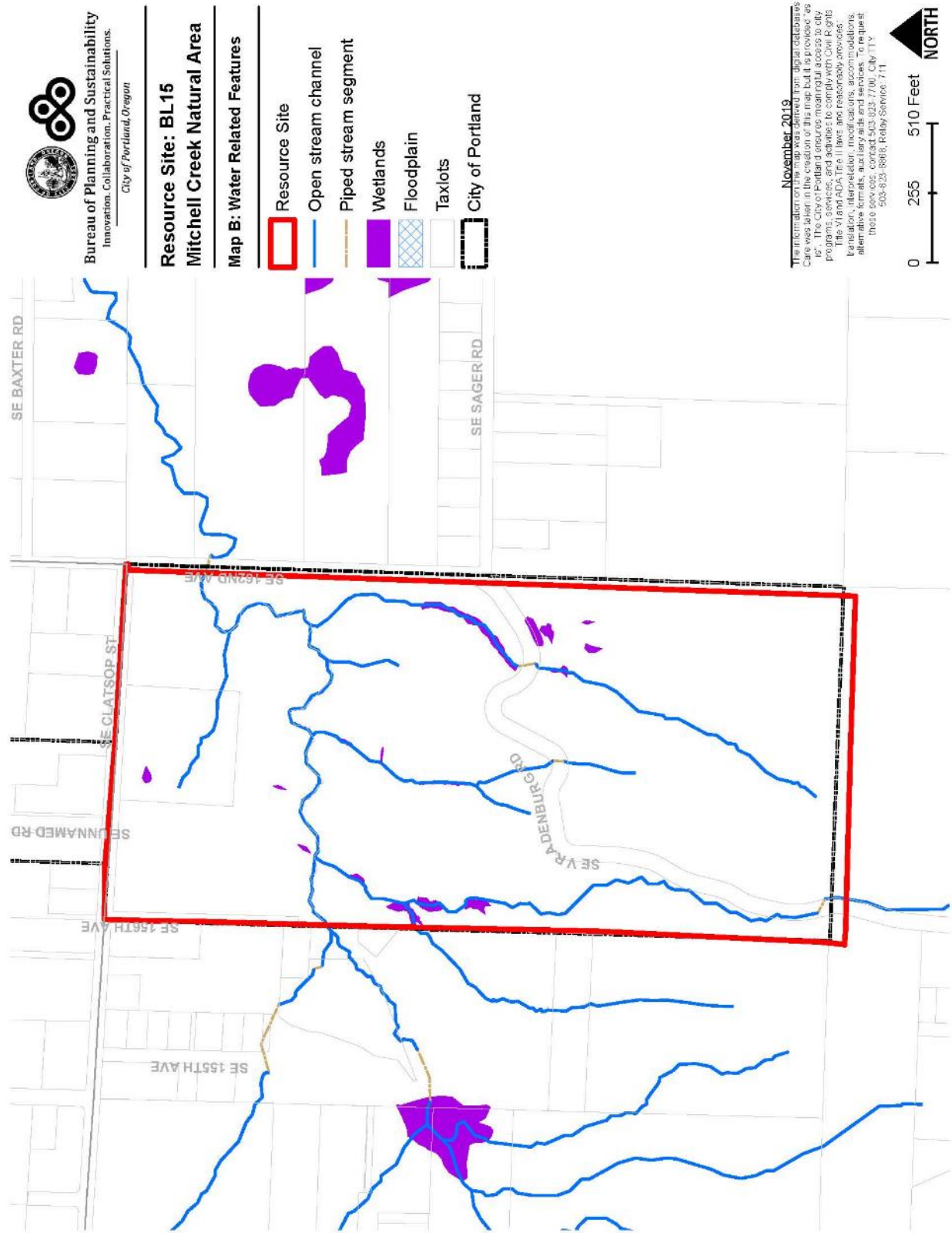
ESEE Decisions

Based on the ESEE general recommendations (Volume 2) and resource site-specific ESEE, the ESEE decisions for Resource Site BL15 are:

1. *Strictly limit* conflicting uses within stream channels from top-of-bank to top-of-bank, wetlands, land within 40 feet of stream top-of-bank and land within 40 feet of wetlands.
2. *Strictly limit* conflicting uses within areas forest or woodland vegetation on steep slopes that are contiguous to but more than 40 feet from stream top-of-bank or wetlands.
3. *Limit* conflicting uses within areas of forest or woodland vegetation on not steep slopes that are contiguous to but more than 40 feet from stream top-of-bank or wetlands.
4. *Allow* conflicting uses within all other areas containing significant natural resources.

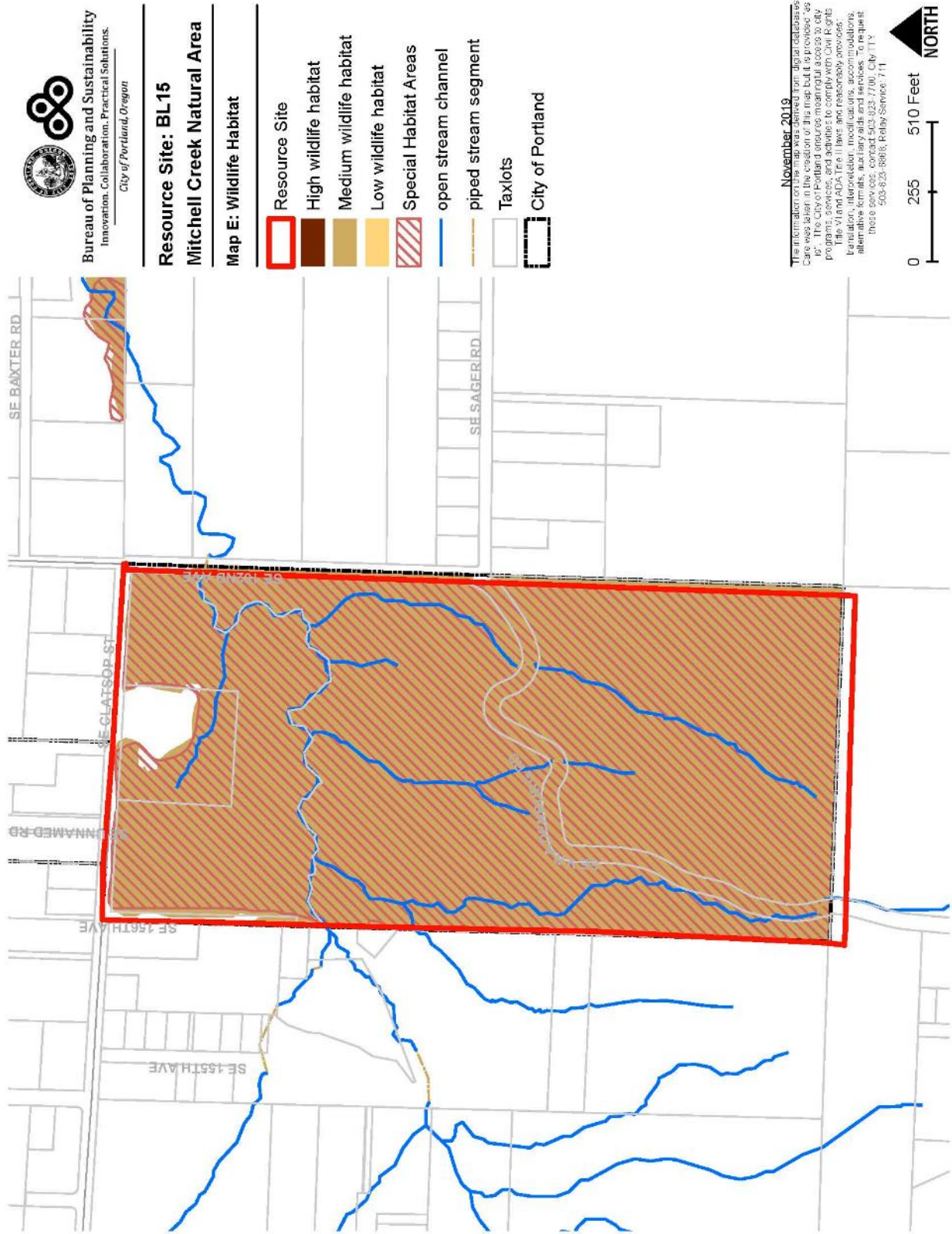
Table C: ESEE Decision for Resource Site BL15	
ESEE Decision	Acres
Strictly Limit	52.5
Limit	23.5
Allow	2.4

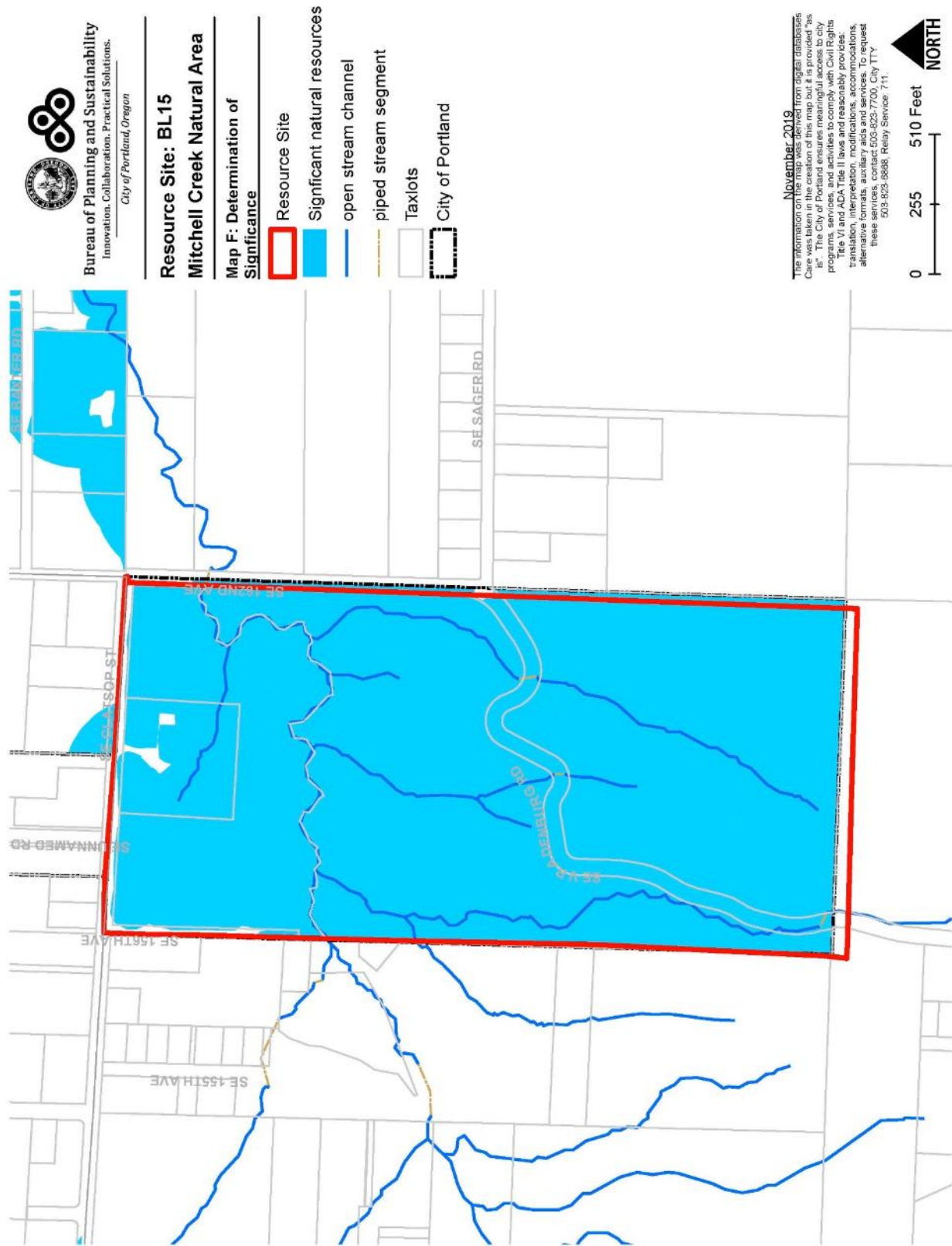


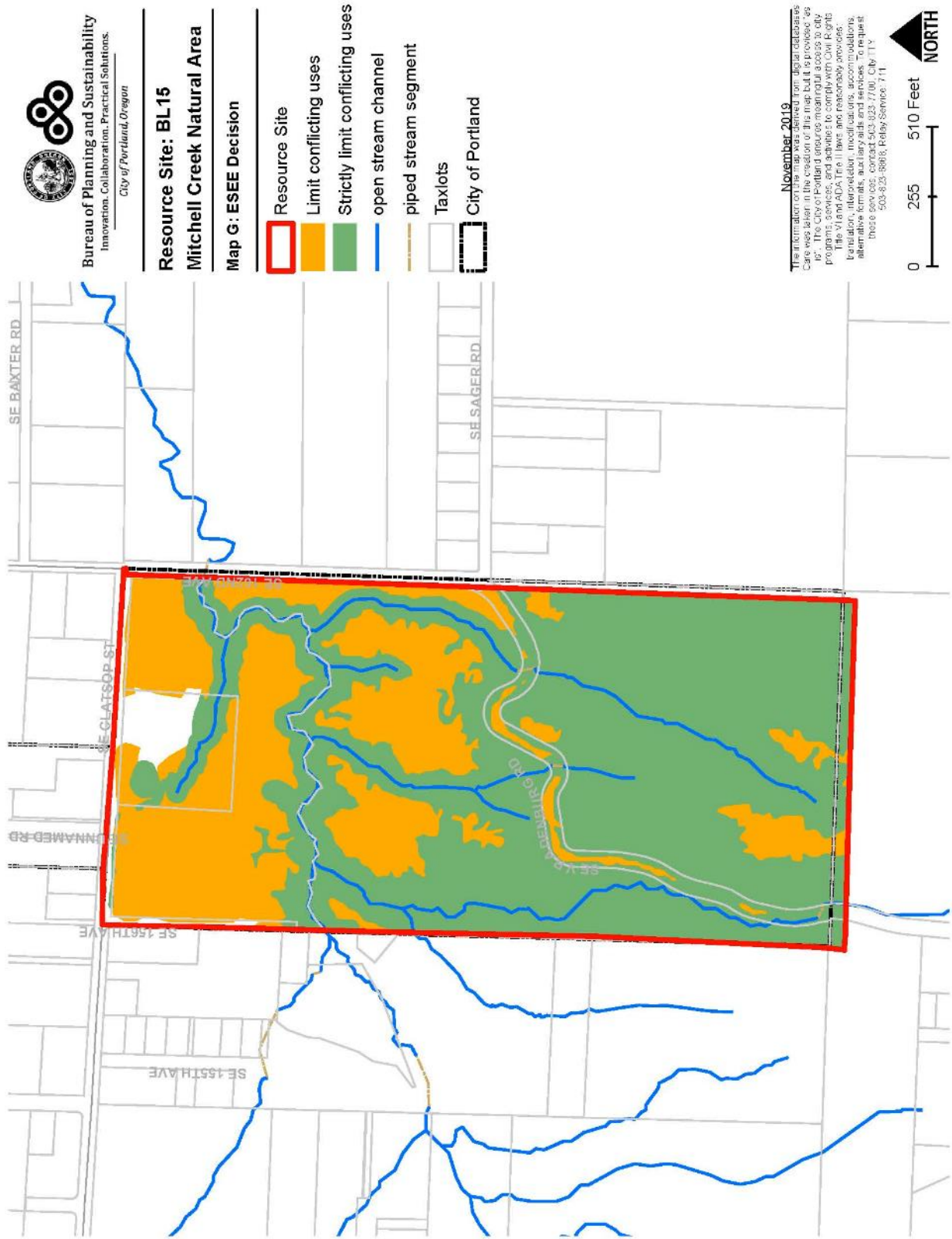














The *Environmental Overlay Zone Map Correction Project* plan documents:

Volume 1 – Project Report, Summary of Results and Implementation

The purpose of the Project Report is to document the overall project approach and methodology, summarize public engagement, provide an at-a-glance summary of the results by resource site, and present the updated zoning code maps and refinements to zoning code chapter 33.430, Environmental Zones.

Volume 2 – General Economic, Social, Environmental and Energy Analysis

The General ESEE evaluates the tradeoffs between protecting natural resources and other city goals for economic development, housing, public health, etc. The General ESEE provides an overall recommendation regarding which natural resource features should be protected. The General ESEE recommendations are then affirmed, clarified or modified for each resource site based on resource site-specific circumstances. The resource site-specific ESEEs are presented in Volume 3, Part A-H.

Volume 3 – Resource Site Inventory and ESEE Decisions

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

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 4 – Appendices

Appendices include the Regulatory Context; 2012 NRI Project Report; stream, vegetation and wetland mapping protocols; and the at-risk species list.