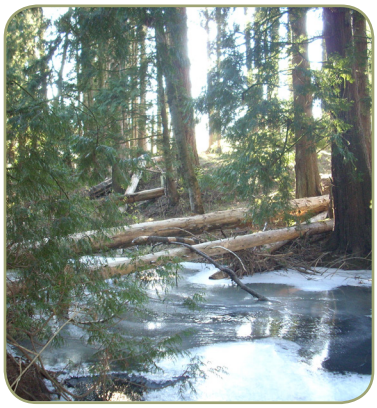
SITE CONSERVATION PLAN

Johnson Creek Natural Area

Ambleside and Upper Johnson Creek



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INTRODUCTION

CONTEXT

The Johnson Creek Watershed encompasses 54 square miles and falls under the jurisdictions of Multnomah and Clackamas counties, and the cities of Damascus, Gresham, Happy Valley, Milwaukie and Portland – although no city is entirely within the watershed. Johnson Creek originates in the foothills of Mount Hood near Boring in Clackamas County, and flows generally westward for approximately 25 miles before entering the Willamette River just south of Portland in Milwaukie, 18.5 river miles above the Willamette River's confluence with the Columbia River. The watershed is comprised of several smaller sub-watersheds, including Kelly Creek, Crystal Springs, Sunshine Creek, Butler Creek, Veterans Creek and Badger Creek . It is one of the most urbanized watershed in our region.

Johnson Creek is important to fish, wildlife and people. Despite its urban development, it is one of the few remaining streams in the Portland area that still supports anadromous salmon and steelhead, although salmon runs are much reduced compared to historic levels. The streams, floodplain and forests provide an important wildlife corridor that connects to several other natural areas including East Buttes, Deep Creek and tributaries, and the Clackamas River bluffs. The Springwater Corridor regional trail follows Johnson Creek on its path from Gresham to the Willamette River, providing scenic resources and public access to the stream. Johnson Creek and the Springwater Corridor are intertwined, with at least 10 trail bridges over the stream.

The Johnson Creek Watershed Action Plan and the Johnson Creek Inter-jurisdictional Committee have identified the following priorities for restoration in the Ambleside and Upper Johnson Creek reaches: address lack of habitat diversity and in particular the lack of large wood in the stream, remove hardened stream banks (WPA era), restore off-channel areas, and increase shade to 80 percent along stream banks. These priorities are supported by additional evaluation conducted by Henderson Design-Build Professionals for Metro in summer 2013.

PLANNING AREA

This site conservation plan includes a series of properties totaling 66 acres, beginning just east of Hogan Road and extending eastward along Johnson Creek to just west of the confluence of Sunshine and mainstem Johnson Creek (see Vicinity Map).

The plan is a tool for protecting and enhancing the unique characteristics of the site while allowing access by the public. It has been developed by Metro staff and includes an overview of the site's history, existing conditions, conservation targets and recreation and access objectives for the site.

KEY STAFF

Kate Holleran, senior regional scientist
Jeff Merrill, natural resource specialist
Mel Huie, parks and natural areas planner
Laurie Wulf, property manager
Tom Heinicke, negotiator

EXISTING CONDITIONS

Land use varies considerably between the upper and lower regions of the Johnson Creek Watershed. Ambleside and Upper Johnson Creek natural areas are located in the upper watershed where land use is predominantly rural residential and agricultural with less than 10 percent impervious surface. In contrast, the lower watershed is heavily urbanized, with mostly residential, commercial and industrial land uses, and generally greater than 25 percent impervious surface.

GEOLOGY

Between 13,000 and 15,000 years ago, large glacial floods known as the Missoula Floods deposited thick, coarse sedimentary materials in the northern side of the watershed west of Gresham and the southern side of the watershed west of I-205. These deposits resulted in permeable soils in this relatively flat portion of the watershed. In contrast, the southeastern portion of the watershed has volcanic buttes (the East Buttes), characterized by steep slopes and silty soils with low permeability, resulting in faster run-off. Consequently, most of the major tributaries of Johnson Creek come from the southeastern portion of the watershed.

MAP SOIL SYMBOL	MAP UNIT NAME	DESCRIPTION
7 B, C, D	Cascade silt loams	Loess, shallow, somewhat poorly drained on slopes of 3-30
34 A, B	Powell silt loams	Loess over old silty alluvium, shallow, somewhat poorly drained on slopes of 0-8
55	Wapato silty loam	Very deep, poorly drained soils, associated with floodplains, depth to bedrock >60", slopes 0-3%
57	Wollent	Poorly drained hydric soils; frequent ponding and flooding

STREAMS AND WETLANDS

Hydrology in the Johnson Creek Watershed is driven by rainfall and groundwater inflows. High flows occur in the winter as a result of abundant precipitation. Floods resulting from storm events, interacting with land use changes, have caused erosion, bank scouring and property damage in stream reaches lacking floodplain and riparian vegetation. Low flows in summer are sustained by groundwater inputs to the creek, but input in recent years has often not been sufficient to support significant salmonid habitat (see also Fish Habitat and Wildlife sections below). Base flows in Upper Johnson Creek and Ambleside consistently drop below minimum summer flow standards established by the Oregon Department of Fish and Wildlife for salmonids.

The Oregon Department of Environmental Quality rates water quality in Johnson Creek as poor. Water quality issues include bacteria, high temperatures and toxic legacy pesticides such as DDT, primarily originating in the agricultural upper watershed and brought into the creek by eroding soils. Other water quality problems include low dissolved oxygen levels, high phosphorus and nitrogen levels at various locations, sediment and turbidity, and metals.

NATURAL HABITATS

Historic vegetation and land use

Historically, the Johnson Creek sub basin was dominated by conifer forests, with minor amounts of oak and prairie. By 2010, the basin had become the most heavily urbanized basin in the region, with about 39 percent developed land.

The Johnson Creek watershed was originally inhabited and heavily used by Native Americans, primarily the Chinook, Clackamas, Northern Molalla, Tualatin, Siletz and Kalapooia tribes. Settlers began clearing land in the watershed for farming and timber in the 1840s. Johnson Creek is named after one of those early settlers, William Johnson, who built a water-powered sawmill on the creek in 1846. At the time of settlement, the watershed was largely forested and contained many wetlands.

Farmers that moved into the watershed initially increased the meandering of the creek. However, by the 1930s, the watershed had urbanized to the point that residents came to view flooding as a problem rather than a benefit. In response to flooding concerns, the Works Progress Administration straightened, deepened and simplified much of the lower 15 miles of Johnson Creek. A small section of bank in the Ambleside site was hardened with rock to protect adjacent homes, most of which have been removed by Metro. Ambleside is the site of a grove of Hogan cedars, considered by some to be a natural genetic variety of Western red cedar. The City of Gresham has designated all Hogan cedars in Ambleside as significant trees.

The historic vegetation map is included; however, the Oregon Institute of Natural Resources built the historical vegetation layer from GLO survey notes primarily along section lines and drew polygons to connect similar vegetation types at a 1:24,000 scale. Therefore the mapping likely missed smaller patches of vegetation, especially if they fell within the interiors of the sections. Riparian corridors and small patches of oak and prairie are particularly likely to be under-represented. The historical vegetation map should be interpreted as a coarse resolution view into existing vegetation types in the late 1800s and does not reflect the likely historic vegetation along Johnson Creek.

Wildlife at Johnson Creek

Native fish – particularly those tolerant of warm water – represented 99.7 percent of the species sampled in the watershed by the Oregon Department of Fish and Wildlife between April 2008 and February 2009. Despite significant declines, cold-water species such as ESA-listed Chinook and coho salmon and winter steelhead and cutthroat trout are still present. Steelhead and cutthroat trout are found along most of Johnson Creek, and coho and Chinook salmon sightings have increased recently in the upper mainstem. Western brook lamprey and Pacific lamprey also are present in lower Johnson Creek and its tributaries, and there have been confirmed sightings, including in 2013.

In 2010, several populations of western pearlshell freshwater mussels were found in upper Johnson Creek. Although still relatively widespread in western Oregon, western pearlshells are considered a vulnerable species and their conservation is closely linked to that of salmon.

Although no formal surveys have been conducted at Johnson Creek Natural Area, many wildlife species have been documented at the site. Johnson Creek Natural Area provides habitat for birds, including Pacific-slope and willow flycatchers, western wood-pewee, golden-crowned kinglet, Bewick's and Pacific wrens, orange-crowned, Wilson's and Townsend's warblers and Swainson thrushes. Northern flicker, downy woodpecker, red-breasted sapsucker and pileated woodpecker also use the site. The Johnson Creek mainstem and its many tributaries act as travel corridors and connect habitat for amphibians, garter snakes, birds, small mammals, black-tailed deer, coyote, river otter and beaver.

RECENT MANAGEMENT HISTORY

Metro has removed multiple structures from the Ambleside and Upper Johnson Creek natural areas. Three residences and associated outbuildings located in Ambleside are leased on a monthly or yearly basis. Metro is currently investigating options for managing the infrastructure while increasing ecological function along Johnson Creek.

Metro has systematically been controlling invasive plants and installing native plants throughout the Ambleside and Upper Johnson Creek properties as part of the new property stabilization process. All acres have been surveyed and treated for invasive plants such as Armenian blackberry, English ivy, holly, knotweed and garlic mustard. Some sites, such as Ambleside, have had multiple treatments due to high levels of ground and tree ivy. A three-acre weedy field in Upper Johnson Creek Natural Area will be re-vegetated with native plants in February 2014.

Stream and bank restoration work has been focused on improving riparian vegetation. A small dam was removed from a side channel of Johnson Creek in 2003. More substantial work to improve stream and riparian function is being considered as part of the levy program.

ACCESS AND RECREATION

Public access

To date there has been no formal master plan developed to help identify appropriate levels of public access and use at Ambleside and Upper Johnson Creek. The Springwater Corridor regional trail is adjacent to these properties, with occasional spillover use from trail users and local residents. The Springwater Corridor follows Johnson Creek on its path from Boring to the Willamette River, providing scenic resources and public access to the creek but currently not at Ambleside/Upper Johnson Creek.

The site has a few minor demand trails; the access road to the houses at Ambleside constitutes the primary public use at this time. In Upper Johnson Creek there are minor but ongoing issues with homeless encampments.

Programmatic access (education and volunteers)

Ambleside has been the site of multiple volunteer activities by such groups as the Johnson Creek Watershed Council, Reynolds High School and Mt. Hood Community College. The easy access and parking available at Ambleside accommodates small volunteer parties. The presence of three residences requires good internal communications to prevent unintended conflicts with the tenants. Upper Johnson Creek has also been the site of volunteer parties at a lower frequency than Ambleside.

SITE MANAGEMENT

Long term stewardship (site maintenance)

Metro's Natural Areas Program is committed to long term stewardship of the Johnson Creek site. Metro staff will conduct multiple site walks of the site per year to monitor natural resource condition and public use of the natural area. As determined necessary by staff, specific treatments or actions will be implemented to ensure that the health and condition of the natural area is

maintained. Some periodic stewardship actions that are implemented by Metro staff include visits to monitor for illegal use of the site, clean up of illegal dumping, mowing of buffer areas for fire safety, replacing signage and response to complaints.

Invasive species management

Invasive plant species can impact the habitat values for which land is conserved. Careful management can minimize these negative impacts. Metro has initiated an early detection and rapid response (EDRR) program for invasive species including false brome and garlic mustard, which have been documented in the area. EDRR species will be controlled by hand pulling or herbicide application as they are detected in the natural area. Other invasive plant species will be controlled as part of restoration projects or ongoing management of habitat areas.

Archeological resources

No formal archeological surveys have been completed. One house in Ambleside has been designated a historical home by the City of Gresham. As part of the stream restoration project currently underway for Upper Johnson Creek, Metro received a letter from the State Historic Preservation Office identifying the project area as having a high possibility of archeological resources and recommending extreme caution in any ground disturbing activities.

CONSERVATION

CONSERVATION TARGETS AND KEY ECOLOGICAL ATTRIBUTES

The habitat conservation targets represent the most regionally rare and threatened major habitat types present at the site. The site's habitat diversity, connectivity at the landscape level and importance to anadromous fish can help conserve rare and at-risk species and prevent decline of currently common native species.

Non-technical status and desired future condition of Johnson Creek conservation targets

TARGET	CURRENT CONDITION	DESIRED FUTURE CONDITION
Riparian forest	This target includes the riparian forest around Johnson Creek and its three perennial tributaries, as well as associated wetlands. Ambleside is in generally good condition, though it lacks snags and down wood in the riparian and aquatic habitat due to previous land use. Upper Johnson Creek also lacks snags and large wood, and includes two acres in the establishment phase.	Continued good condition of tree, shrub, and herbaceous layers. Invasive plants make up less than 1% cover. Down wood has been increased through off-site recruitment.
Native fish habitat	Lacks complexity, particularly in-stream wood, and is constrained by Ambleside Drive, a bridge, rock walls and levees, and structures.	Improved stream function through reduction of infrastructure and installation of large down wood.

Key ecological attributes for riparian forest (streams or rivers)

CATEGORY	KEA	INDICATOR	INDICATOR RATING				CURRENT RATING	DFC* FOR THIS SCP	LONG TERM DFC	COMMENTS
			POOR	FAIR	GOOD	VERY GOOD				
Size	Riparian forest width	Average width of riparian forest	<15 m (50 ft) each side of stream	15-30 m (50-100 ft) each side of stream	30-61 m (100-200 ft) each side of stream	>61 m (200 ft) each side of stream	G	G	G	Total width, both sides of stream. Estimate using GIS. Riparian forest width positively correlates with water and wildlife habitat quality, including biodiversity corridors. Width includes both sides of the stream or one side for larger rivers (effective wildlife movement corridor). Title 13 Class I riparian, which accounts for 5 primary ecological functions, is typically within 30-61 m (100-200 ft) on either side of the stream; steep slopes are encompassed in the wider distances. Optimum width won't always be achievable – e.g., could interact with other priority habitats such as prairie (Environmental Law Institute 2003; Metro's *Technical Report for Fish and Wildlife Habitat*, 2005; Hennings and Soll 2010; Shandas and Alberti 2009; Cole and Hennings 2006)
Condition	Native herbaceous layer richness	# native species of grasses, herbs, forbs and ferns, at least half of which are riparian-associated, per 0.4 ha (1 ac)	<5 species	6-12 species	12-18 species	>18 species	P	F	VG	Estimate via site walk. Species numbers based on field experience of Marsha Holt-Kingsley and Lori Hennings; currently using species list from McCain and Christy 2005 (Technical Paper R6-NR-ECOL-TP-01-05}.
Condition**	Riparian habitat continuity	Gaps in woody vegetation	>2 gaps >50 m (55 yards) OR >3 or more 25-50 m (27-55 yards) gaps	1 or 2 gaps >50 m (54 yards) OR 2 or more gaps between 15-25 m (16-27 yards)	1, 25-50 m (27-55 y) gap OR 2 or more gaps between 15-25 m (16-27 yards)	0 or 1, 15-25 m (16-27 yards) gap				Estimate via GIS, per km stream length. Riparian contiguity for water quality and wildlife. Allows for continuity and also some mosaic for wildlife that need (or create, such as beaver) openings. Puget Sound studies suggest that the fragmentation of upland vegetation and the total amount of riparian vegetation explain the greatest amount of variation in aquatic conditions. Studies document that some birds and small mammals are unwilling to cross vegetation gaps, with the most typical threshold being 50 m (164 ft) (Hennings and Soll 2010).
Condition	Standing and downed dead trees	Average # snags and large wood (> 50 cm, or 20 in, DBH) per 0.4 ha (1 ac)	< 5 snags and <5% down wood	5-11 snags and 5-10% down wood	12-18 snags and 10-20% down wood with moderate variety of size and age classes	> 18 snags and >20% cover down wood in a good variety of size and age classes	P	p	G	Estimate via site walk. Rankings distilled from multiple references and particularly from *Habitat Conservation for Landbirds in Lowlands and Valleys of Western Oregon and Washington* (Altman and Alexander 2012) and DecAID results for species' use of dead wood in Westside Lowland Conifer-hardwood forests.
Condition	Floodwater access to the floodplain	Degree of connection between stream/ floodplain during high water events	Extensively disconnected by channel incision, dikes, tide gates, elevated culverts, etc.	Moderately disconnected by channel incision, dikes, tide gates, elevated culverts, etc.	Minimally disconnected by channel incision, dikes, tide gates, elevated culverts, etc.	Completely connected (backwater sloughs, channels)	P	F	F	Measure based on field walk, aerials. Adapted from Washington DNR's *Ecological Integrity Assessment for North Pacific Lowland Riparian Forest and Shrubland*, "Hydrologic Connectivity (Riverine)." Added channel incision. Not appropriate for higher gradient streams (Stanford et al. 1996; Rocchio 2011).

*Desired future condition

Key ecological attributes for wetland shrub habitat

CATEGORY	KEA	INDICATOR	INDICATOR RATING				CURRENT RATING	DFC* FOR THIS SCP	LONG TERM DFC	COMMENTS
			POOR	FAIR	GOOD	VERY GOOD				
Condition	Native shrub richness	Number of native shrub species per acre	<2 species	3-4 species	4-5 species	>6 species	F	G	VG	Currently using species list from McCain and Christy 2005 (Technical Paper R6-NR-ECOL-TP-01-05).
Condition	Vegetative structure: shrub layer	Percent native shrub canopy cover	<30% cover or >80% cover	30-50% cover	50-70% cover	70-80% cover	P	F	VG	Scrub-shrub wetlands have minimum 30% shrub cover (Cowardin 1979). PIF biological objective for willow flycatcher and yellow-breasted chat up to 80% shrub cover with scattered herbaceous openings (Partners in Flight 2003).
Condition	Vegetative structure: tree layer	Percent native tree canopy cover	>30% cover	30-20% cover	20-10% cover	<10% cover	VG	VG	VG	Trees are not a dominant vegetative component of scrub-shrub wetlands (Cowardin et al. 1979).

Key ecological attributes for native fish habitat (instream)

CATEGORY	KEA	INDICATOR	---------- INDICATOR RATING ----------				CURRENT RATING STATUS	DFC* FOR THIS SCP	LONG TERM DFC	COMMENTS
			POOR	FAIR	GOOD	VERY GOOD				
Condition	Complexity of habitat	# of different stream habitat units per 305 m (1,000 foot) reach	Less than 2 habitat units	Between 2-5 habitat units	Between 5-10 habitat units	Greater than 10 habitat units				The number of different habitat units indicates the complexity of the stream reach. Complex stream reaches provide high quality habitat for all life stages of native fish. Habitat units may include glides, riffles, runs, pools, step pools, alcoves, side channels, etc. (Independent Multidisciplinary Science Team, 2002, *Recovery of Wild Salmonids in Western Oregon Lowlands*).
Condition	Key pieces and # of pieces of large wood in wetted areas of the stream and adjacent streambank	# key pieces and large wood per 305 m (1,000 ft) reach	<10 large wood pieces and 0-1 key pieces	10-20 large wood pieces and 2-5 key pieces	20-40 large wood pieces and 6-10 key pieces	>40 large wood pieces and >10 key pieces	P	P	F	Large wood is defined as logs greater than 46 cm (18 inch) diameter and 6 m (20 ft) in length. Note that optimum diameter and length depends on bankfull width; see DSL/ODFW's 2010 *Guide to Placement of Wood, Boulders and Gravel for Habitat Restoration*. Key pieces resist downstream transport as well as anchor and retain other pieces of large wood.
Condition	Substrate in wetted areas of stream	% area of fines and gravel substrate per 305 m (1,000 ft) reach	Fines >30% and gravel <10% of area	Fines 20-30% and gravel 10-20% of area	Fines 10-20% and gravel 20-35% of area	Fines <10% and gravel >35% of area				Visually assess for a stream reach(es) of interest or for entire stream on site. If preferred, measure quantitatively using cross-section ODFW methods. Fines are defined as sand, silt or organics. Gravels are defined as particles that range in size from a small pea to roughly baseball-sized substrate (derived from *2000 Reference Site Selection and Survey Results, Report No. OPSW-ODFW-2001-6*, Oregon Plan for Salmon and Watersheds, 2000).
Landscape context	Fish passage	Fish able to move to and from mainstem and tributaries	Complete blockage	Blocked more than half the year	Blocked less than half the year	Passage open year-round	G	VG	VG	*Could be adjusted for seasonal movement.*

*Desired future condition

Threats for native fish habitat at Ambleside/Upper Johnson Creek

Source of stress		**Stresses** (rank each as L-M-H-VH for contribution, irreversibility & source)														**Comments**
		Habitat Destruction /Conversion	Stress Rank	Altered Composition /Structure[1]	Stress Rank	Competition for Resources	Stress Rank	Human Disturbance	Stress Rank	Altered Hydrology	Stress Rank	Impaired habitat connectivity	Stress Rank	THREAT RANK	
Development, land conversion	Contribution									VH						
	Irreversibility									VH	VH			VH	Upstream development.	
	Source Rank									VH						
Invasive species	Contribution					VH										
	Irreversibility					VH	M							H	Invasive mussels have been found at mouth; invasive fish in lower reaches.	
	Source Rank					VH										
Climate change	Contribution									VH						
	Irreversibility									VH	L			L	Potential long term effects due to climate and microclimate changes.	
	Source Rank									VH						
Previous forest management	Contribution			VH												
	Irreversibility			M	VH									VH		
	Source Rank			H												

[1] Includes lack of down and standing dead wood, poor shrub structure in forest, too much shrub in prairie, etc.

Threats for riparian forest habitat at Ambleside/Upper Johnson Creek

Source of stress		**Stresses** (rank each as L-M-H-VH for contribution, irreversibility & source)													
		Habitat Destruction /Conversion	Stress Rank	Altered Composition /Structure[2]	Stress Rank	Competition for Resources	Stress Rank	Human Disturbance	Stress Rank	Altered Hydrology	Stress Rank	Impaired habitat connectivity	Stress Rank	THREAT RANK	**Comments**
Development, land conversion	Contribution	H													
	Irreversibility	H	VH											H	Surrounding area is part of the Springwater Corridor Plan and targeted for annexation/development.
	Source Rank	H													
Invasive species	Contribution					H									
	Irreversibility					M	H							M	Currently under restoration and management
	Source Rank					M									
Human use, dogs, trails, fishing, etc.	Contribution							VH							
	Irreversibility							VH	H					H	This may remain a constant threat due to narrow natural area and proximity to regional trail
	Source Rank							VH							
Climate change	Contribution									VH					
	Irreversibility									VH	L			L	Potential long term effects due to climate and microclimate changes.
	Source Rank									VH					
Previous forest management	Contribution			VH											
	Irreversibility			L	VH									VH	This can be mitigated but will take decades to accomplish.
	Source Rank			H											

Threats for shrub wetland habitat at Ambleside/Upper Johnson Creek

Source of stress		**Stresses** (rank each as L-M-H-VH for contribution, irreversibility & source)													
		Habitat Destruction /Conversion	Stress Rank	Altered Composition /Structure[3]	Stress Rank	Competition for Resources	Stress Rank	Human Disturbance	Stress Rank	Altered Hydrology	Stress Rank	Impaired habitat connectivity	Stress Rank	THREAT RANK	**Comments**
Invasive species	Contribution			M											
	Irreversibility			M	M									L	Rank reflects current restoration and management.
	Source Rank			M											
Human use, dogs, trails, fishing, etc.	Contribution							VH							
	Irreversibility							VH	VH					VH	This may remain a constant threat due to narrow natural area and proximity to regional trail.
	Source Rank							VH							
Climate change	Contribution									VH					
	Irreversibility									VH				L	Potential long term effects due to climate and microclimate changes.
	Source Rank									VH					

[2] Includes lack of down and standing dead wood, poor shrub structure in forest, too much shrub in prairie, etc.
[3] Includes lack of down and standing dead wood, poor shrub structure in forest, too much shrub in prairie, etc.

Summary of current cover, conservation targets and status, and stewardship type

STEWARDSHIP TYPE	ACRES
Developed	1.29
Riparian Forest	58.53
Savanna	3.08
Wetland	3.38
Total	**66.28**

CONSERVATION TARGET	ACRES
No Targets	1.29
Riparian Forest	61.61
Shrub Dominated Wetland	3.38
Total	**66.28**

CONSERVATION TARGET STATUS	ACRES
0 - Pre-Initiation	1.83
1 - Initiation	7.60
2 - Establishment	21.36
4 - Refinement & long-term maintenance	34.20
9 - No targets (developed)	1.29
Total	**66.28**

CURRENT COVER	ACRES
Agriculture	3.08
Developed - (Pervious/non ag)	3.12
Riparian Forest	56.70
Wetland - Shrub	3.38
Total	**66.28**

Conservation target goals and strategic restoration actions

This plan outlines strategic actions to be carried out at the Johnson Creek site over the next five to ten years. They are based on the short- and long-term goals for the conservation targets and enhancing the visitor experience. The strategic actions described here are general courses of action to achieve these objectives and not highly prescriptive courses of action. Specific prescriptions will be developed by Metro staff to address site-specific conditions encountered in the areas targeted for restoration action. Work is in progress to control invasive species and establish diverse forest structure at strategic sites in Ambleside and Upper Johnson Creek. A key focus of restoration work in the near future will be improving function by installing large wood in the stream and associated floodplain.

Specific restoration actions and funding requirements

Management actions important to maintaining or improving KEAs at Johnson Creek Natural Area, planning horizon of 5-10 years

CONSERVATION TARGET	KEA	SOURCE OF STRESS	MANAGEMENT ACTIONS	PRIORITY	ESTIMATED COST	MONITORING
Riparian forest	Forest width	Competition from invasive species	• Survey and treat periodically • Annual surveys for EDRR	• Low, treatment is ongoing and invasive species are at low levels, conduct as part of routine core stewardship	• $6,000 or three days per year; • See SSP	• Annual site walks
Riparian forest	Native tree, shrub and herbaceous richness	Competition from invasive species	• Targeted re-introduction of herbaceous species in restoration sites	• Herbaceous species recruitment may be slow in restored areas	• $10,000	• Establish transects to track recruitment of native herbaceous species

CONSERVATION TARGET	KEA	SOURCE OF STRESS	MANAGEMENT ACTIONS	PRIORITY	ESTIMATED COST	MONITORING
Riparian forest	Standing and down wood	Previous forest mgmt	• Place down wood in floodplain as part of stream restoration projects	• High, will not improve in short term without intervention as it typically requires decades or centuries to recruit large pieces of down wood	• $25,000	• Photo points when installed then periodic visual monitoring
Riparian forest	Floodwater access to floodplain	Develop-ment, land conversion	• Currently evaluating opportunities to reconnect floodwaters to the floodplain including removing rock walls and levees	• High, will not improve without intervention and restoration of flood storage in upper Johnson Creek watershed; may reduce flood impacts down stream	• Unknown	• Project dependent
Riparian forest	Native habitat continuity	Land conversion	• Strategic acquisitions to make connections between public lands	• High, several key connector parcels that are likely to develop after annexation, potentially reducing the effective width and canopy of the riparian area	• One to three properties, estimate $.75-2 million	• Review GIS
Shrub wetland	Native shrub richness and shrub cover	Previous land use	• Control non-native plants, plant with native wetland species	• High, habitat is uncommon and declining	• $12,000 (doesn't include current levy project)	• Annual site walk
Shrub wetland	Tree cover	Encroach-ment of ash into wetland	• Periodically remove ash seedlings	• Moderate, will occur slowly and is relatively easy to control	• $1,500 (one entry in next 5-10 years)	• Periodic site walk
Native fish habitat	Habitat complexity	Simplified stream channels	• Increase riparian forest health/ width by thinning to promote rapid growth of trees in riparian reforestation areas, and to allow diversifica-tion of shrub and herbaceous layer, 12-15 acres. • Increase logjams, side channel habitat	• Thinning is low to moderate priority but easy to accomplish; thinning may speed the development of large diameter conifers. • Habitat complexity work is high priority	• Thin: $10,000 • $750,000 ($290,000 + in first levy project, followed by additional work in Ambleside in 2017+)	• In-stream habitat inventory

CONSERVATION TARGET	KEA	SOURCE OF STRESS	MANAGEMENT ACTIONS	PRIORITY	ESTIMATED COST	MONITORING
Native fish habitat	Habitat complexity	Simplified stream channel	• Reduce infrastructure footprint in floodplain and riparian area to improve fish and riparian habitat by removing structures and impermeable surfaces where possible	• High, infrastructure including the hardened stream banks, levees, homes and road limit ecological function of the stream and riparian area	• $500,000 (High est. based on removing all 4 structures, the bridge and portion of the road; could include moving historic building to a different site.)	

CLIMATE CHANGE CONSIDERATIONS

As noted in the stress/source table, climate change is anticipated to affect summer temperatures and availability of water in the summer to Johnson Creek and its riparian areas. Other indirect effects of climate change may include range shifts of plants, some native to North America and some not, and increased competition by these plants.

Direct effects that may occur

- Increased summer temperatures
- Increased severity of winter rain events
- Decreased water availability in summer

Indirect effects that may occur

- Increased risk of erosion, including landslides, on steep slopes with severe rain events
- Increased risk of wildfire in hotter, dryer summers
- Range shifts by undesirable plants, increasing competition
- Disease introductions and/or increased vulnerability to disease
- Loss of synchronicity of plant reproduction and pollinators
- Loss of synchronicity of resident and migratory animals and food sources (e.g., insect hatches)

Threats and actions for KEAs of important targets affected by climate change

(Note: native fish habitat may also be impacted by reduced summer flows and higher temperatures. Further land acquisition upstream or changes to land use that result in riparian restoration and reduction in sediment upstream are actions that may mitigate those impacts.)

TARGET	KEA	THREAT	ACTION	NOTES
Riparian forest and shrub habitat	% native tree canopy cover	Altered hydrology, increased summer temperatures	Treat weeds, plant native woody plants, improve canopy cover to protect micro-climate	

RECREATION AND ACCESS

NEXT FIVE YEARS

Future public access

Staff conducted an internal process to consider an appropriate level of access for each of its natural areas. The access designation is offered as a starting point, with the understanding that judgment will always be needed on a case-by-case basis, and indicates that some part of that site could accept people at the stated level. It does not suggest that the entire site should have that level of access.

Ambleside Natural Area – High: Access at these sites is allowed and may be modestly promoted on a site by site basis. The houses at Ambleside are likely to stay in the short term; therefore, no additional public access will be considered while they are intact. However, some or all may be demolished in the future to increase the ecological function of riparian and floodplain areas. If residences are removed, access is feasible via a short loop from the Springwater Corridor to the west bank of Johnson Creek and then back to the trail.

Upper Johnson Creek Natural Area – Low: Access by neighbors or local residents is permitted but not encouraged. There are several points along the Springwater Trail where short spurs could lead to views along the west bank of Johnson Creek.

Parks and Natural Areas Planning is developing a new visitor experience overview that will be added to this plan as an appendix at a later date.

COORDINATION

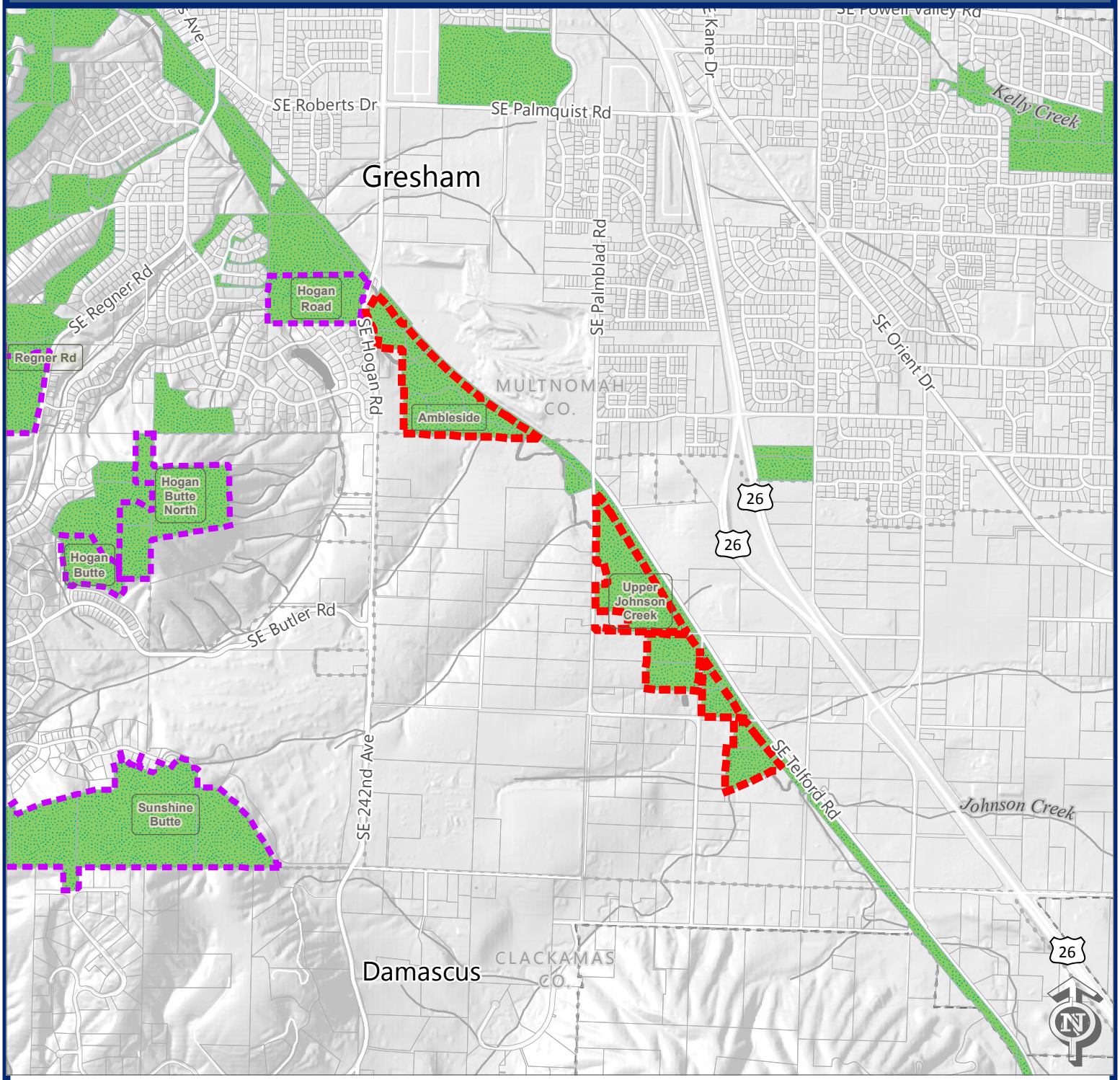
PUBLIC INVOLVEMENT

As projects are developed, Metro will provide local stakeholders and residents near the Johnson Creek Natural Area with pertinent information about the work before it is implemented. Project information may include background on the project, timing, cost, materials types and other information as necessary for the public to be aware of the project and its implications.

KEY STAKEHOLDERS

- Johnson Creek Watershed Council – Robin Jenkinson, robin@jcwc.org
- City of Gresham – Kathy Majidi, Kathy.majidi@greshamoregon.gov
- City of Portland – Ali Young, Alison.young@portlandoregon.gov
- Multnomah County – Roy Iwai, roy@multco.us

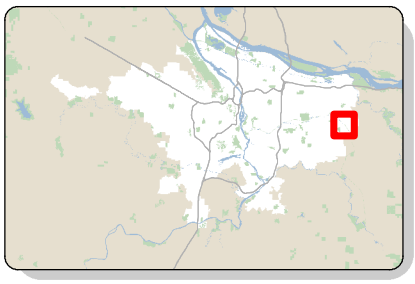
Vicinity Map



Ambleside and Upper Johnson Creek sites

Other Metro sites

Park and/or natural area



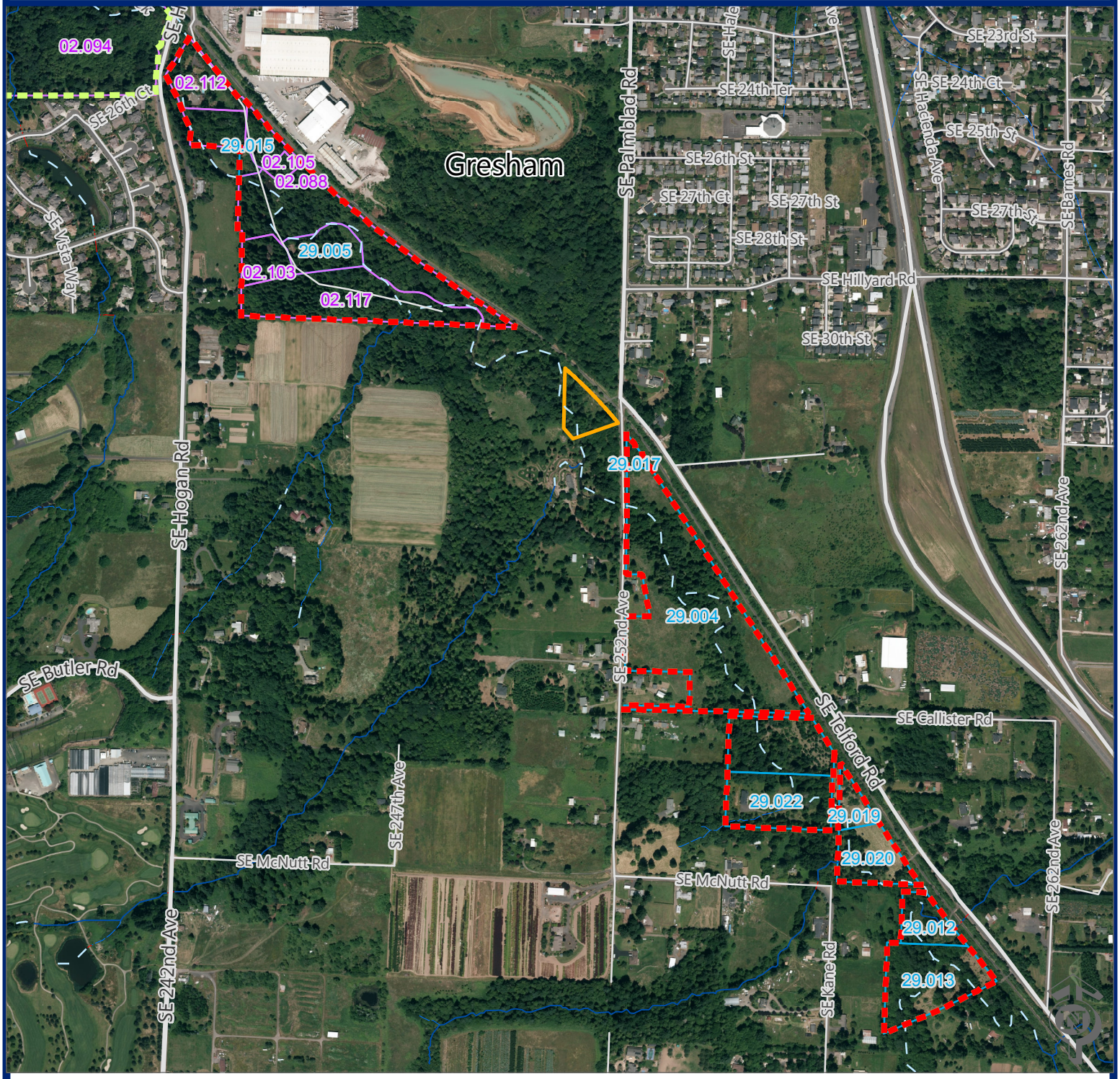
0 2,000 4,000 Feet

Metro

Ambleside and Upper Johnson Creek Site Conservation Plan

map date: 1/6/2014

Site Map



Ambleside and Upper Johnson Creek sites

Other Metro sites

City of Gresham

Bond Measure

1995 Bond Measure

2006 Bond Measure

NHD Flowlines

Intermittent stream

Perennial stream

Pipeline

Artificial path

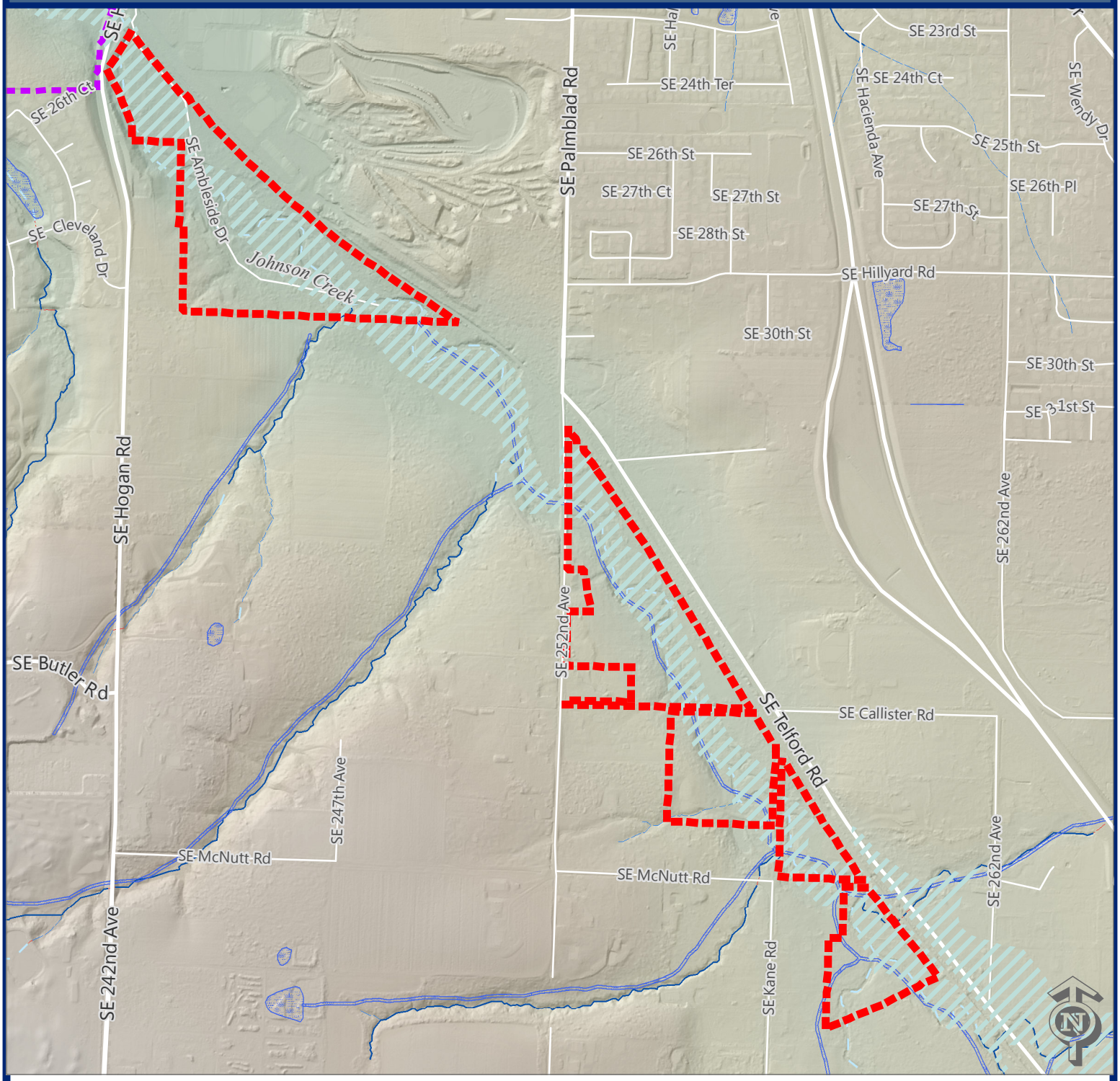
0 1,000 2,000 Feet

Metro

Ambleside and Upper Johnson Creek Site Conservation Plan

map date: 1/14/2014

Hydrology



Sites

Other Metro sites

100 year floodplain

Wetlands

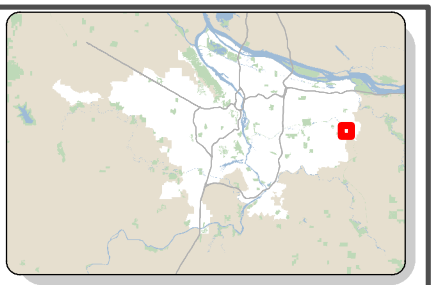
NHD Flowlines

Intermittent stream

Perennial stream

Pipeline

Artificial path



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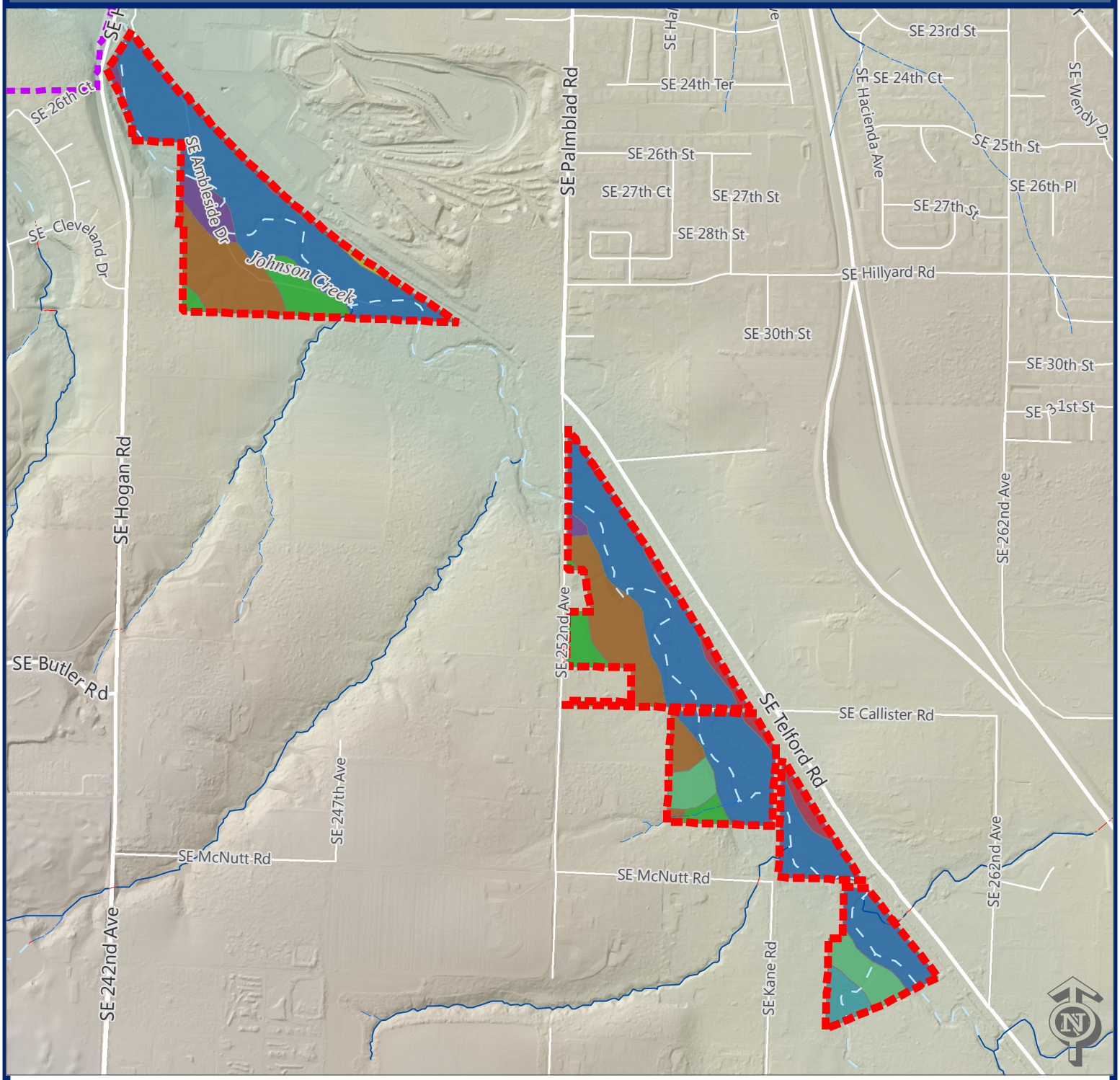
Metro

Ambleside and Upper Johnson Creek Site Conservation Plan

map date: 1/9/2014

Soils



Sites

Other sites

Site soils

- Cascade silt loam, 15 to 30 percent slopes
- Cascade silt loam, 3 to 8 percent slopes
- Cascade silt loam, 8 to 15 percent slopes
- Powell silt loam, 0 to 3 percent slopes
- Powell silt loam, 3 to 8 percent slopes
- Powell silt loam, 8 to 15 percent slopes
- Wapato silt loam
- Wollent silt loam

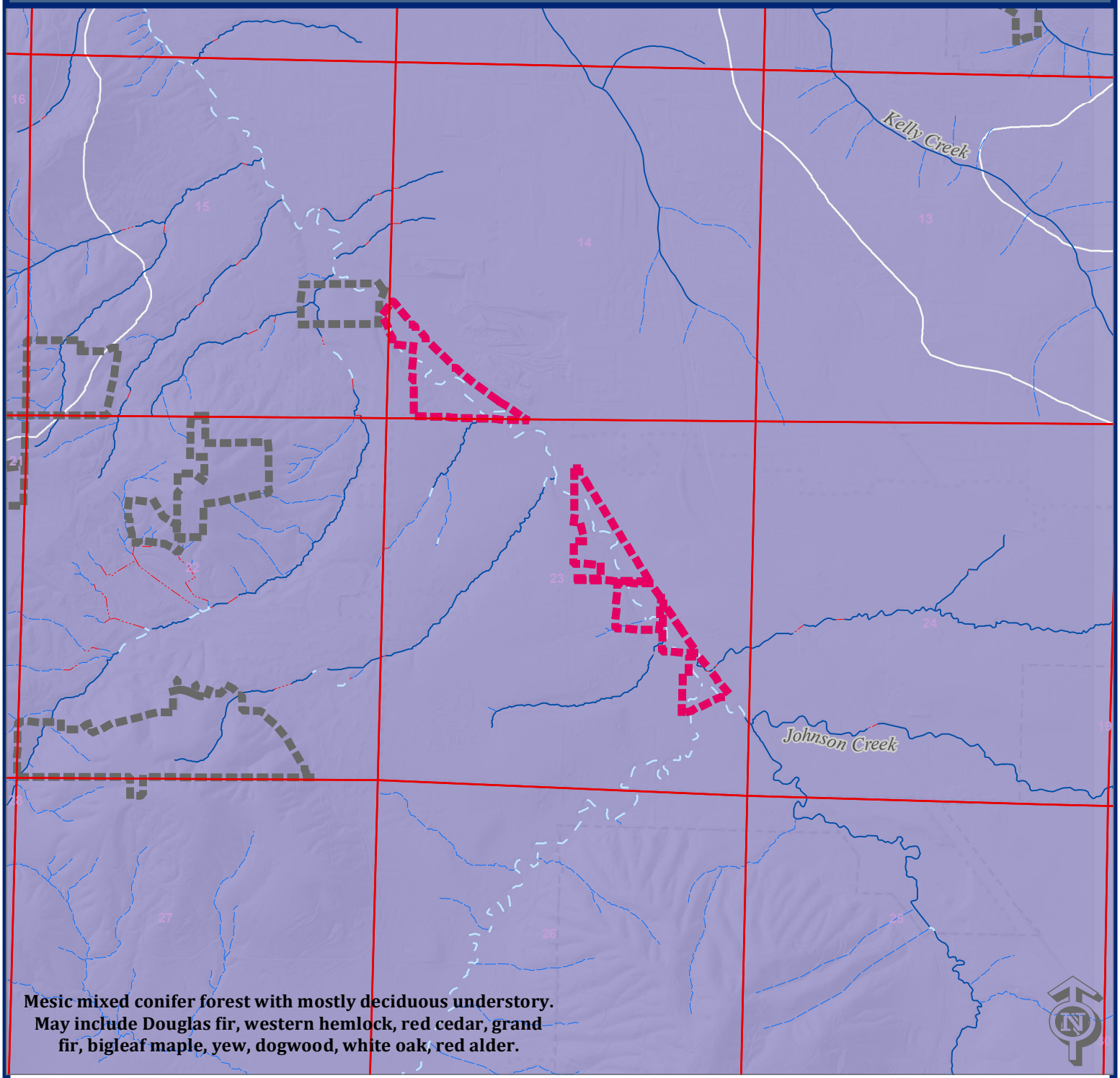
0 1,000 2,000 Feet

Metro

Ambleside and Upper Johnson Creek Site Conservation Plan

map date: 1/9/2014

Historical Vegetation (1851-1910)



Ambleside and Upper Johnson Creek sites

Other Metro sites

Historical vegetation

Closed forest; Upland

NHD Flowlines

Intermittent stream

Perennial stream

Pipeline

Artificial path

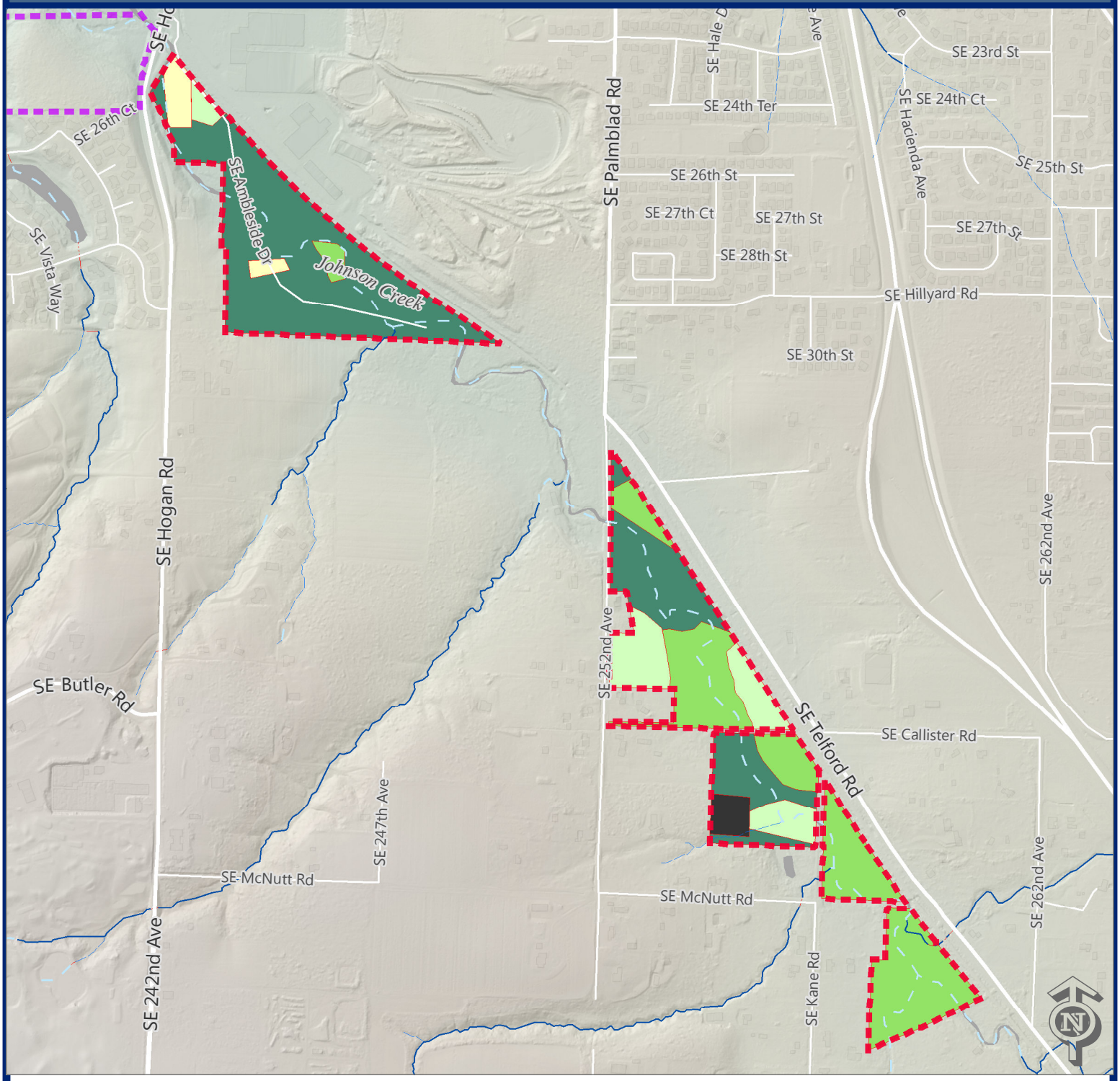
0 2,000 4,000 Feet

Metro

Ambleside and Upper Johnson Creek Site Conservation Plan

map date: 1/14/2014

Management Status



Ambleside and Upper Johnson Creek sites

Other Metro sites

Management status

- 0 - Pre-Initiation
- 1 - Initiation
- 2 - Establishment
- 4 - Refinement and long-term maintenance
- 9 - No targets (developed)

NHD Flowlines

- Intermittent stream
- Perennial stream
- Pipeline
- Artificial path

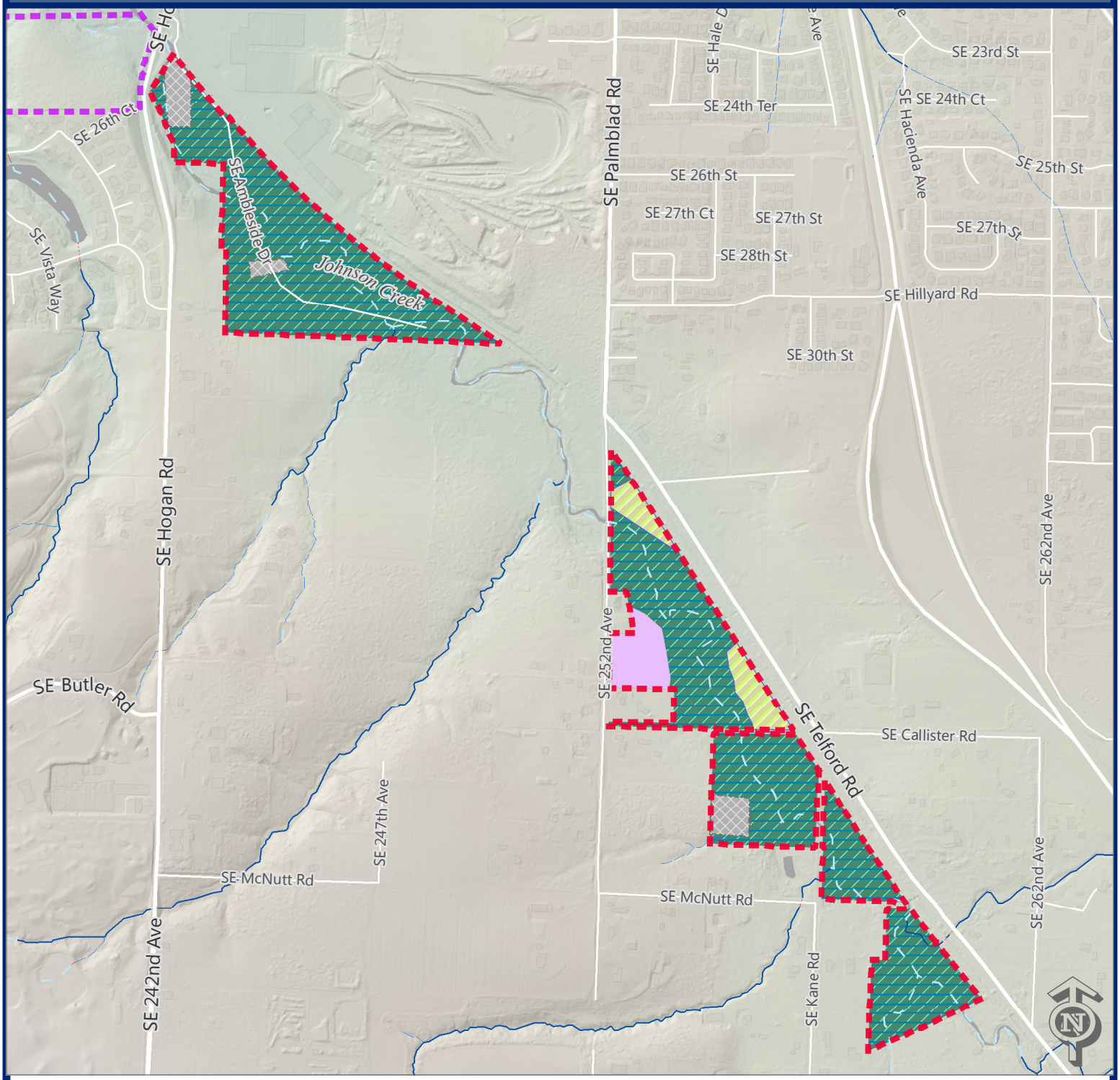
0 1,000 2,000 Feet

Metro

Ambleside and Upper Johnson Creek Site Conservation Plan

map date: 1/14/2014

Current Cover



Ambleside and Upper Johnson Creek sites

Other Metro sites

Current cover

- Agriculture
- Developed - (pervious/non ag)
- Riparian forest
- Wetland - shrub

NHD Flowlines

- Intermittent stream
- Perennial stream
- Pipeline
- Artificial path

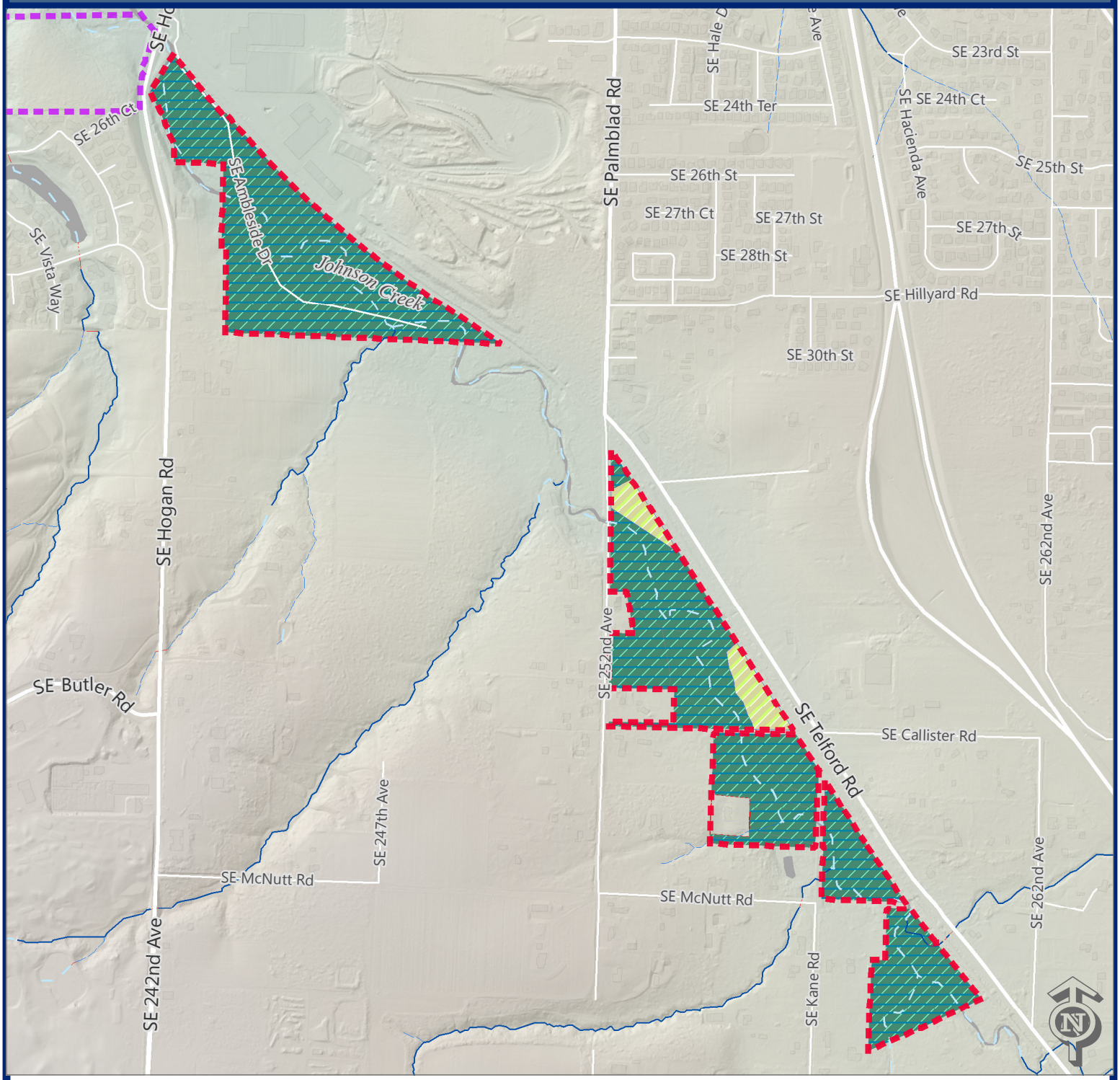
0 1,000 2,000 Feet

Metro

Ambleside and Upper Johnson Creek Site Conservation Plan

map date: 1/14/2014

Conservation Targets



Ambleside and Upper Johnson Creek sites

Other Metro sites

Conservation targets

No targets

Riparian forest

Shrub dominated wetland

NHD Flowlines

Intermittent stream

Perennial stream

Pipeline

Artificial path

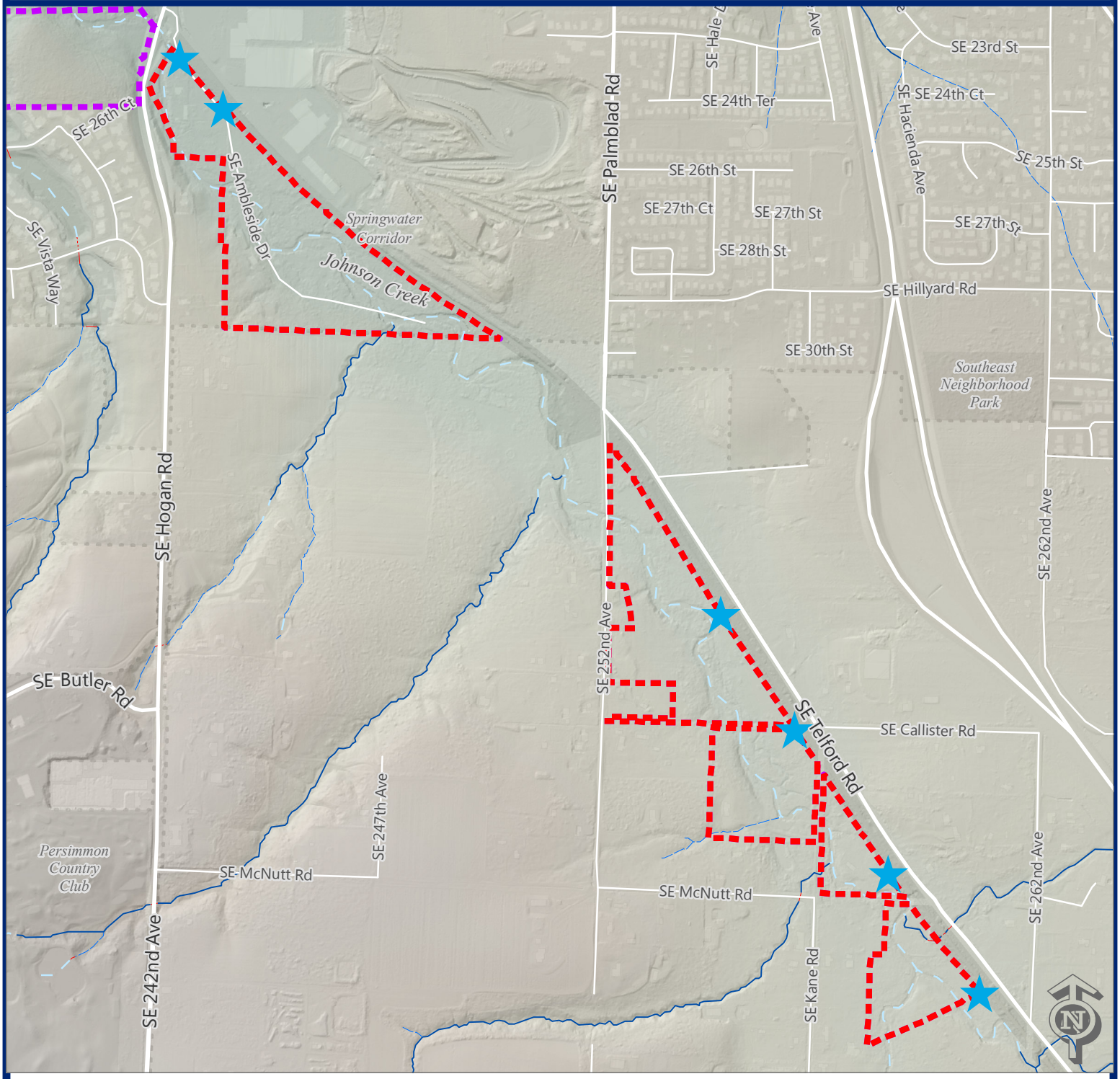
0 1,000 2,000 Feet

Metro

Ambleside and Upper Johnson Creek Site Conservation Plan

map date: 1/14/2014

Access



Ambleside and Upper Johnson Creek sites

Other Metro sites

Access points

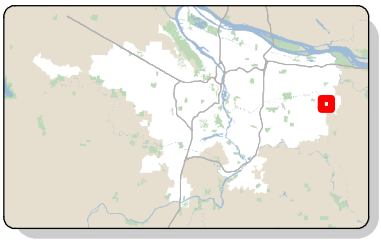
NHD Flowlines

Intermittent stream

Perennial stream

Pipeline

Artificial path



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Metro

Ambleside and Upper Johnson Creek Site Conservation Plan

map date: 1/14/2014

Johnson Creek Natural Area

Ambleside and Upper Johnson Creek

Approvals for Site Conservation Plan

Date routed: March 6, 2014

Please return to Lori Hennings

Jonathan Soll

Signature Jonathan Soll Date 3/17/14

Dan Moeller

Signature Dan Moeller Date 3/11/14

Mark Davison

Signature Mark Davison Date 3/24/14

Kathleen Brennan-Hunter

Signature Kathleen Brennan-Hunter Date 4/2/14