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Mitigation/Monitoring Report

Hopelink Redmond Integrated Service Center
Redmond, Washington

Report Prepared by:
PBS Engineering & Environmental
October 2016
PBS Project # 41342

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MITIGATION / MONITORING REPORT

Hopelink Redmond Integrated Service Center
Redmond, Washington

Prepared for
Hopelink
Redmond, Washington

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I. EXECUTIVE SUMMARY OF CRITICAL AREAS REPORT

A. General Overview

Hopelink intends to develop an integrated service center in the City of Redmond, Washington. The permanent service center will provide a consistent place to receive and give help and will include space for an innovative food program, adult education, energy and emergency financial assistance programs, case management and employment services. Hopelink is applying for a Shoreline Substantial Development permit under the City's Essential Public Facilities permitting process. A Critical Areas Report for the project was prepared in May of 2016 and has been approved by the City. Demolition of existing structures located in the Sammamish River shoreline zone, river buffer and fish & wildlife habitat conservation area will trigger mitigation under the Redmond Zoning Code (RZC). This mitigation/monitoring report has been prepared to address City of Redmond mitigation / monitoring requirements for impacts to these areas. The plan incorporates the Mitigation Plan requirements in RZC Section 21.64 and Appendix 1 of the RZC.

The city file # for the project is 2016-0271 EPF.

B. Existing Condition

The proposed project will be built on land owned by the City of Redmond and currently occupied by the Sammamish River Business Park. The current parcel is slightly over 2 acres and includes a portion of NE 90th Street, a retaining wall, and a pedestrian trail to the north. There are currently two 17,000 square foot 1-story buildings on the site. The property fronts 154th Ave NE to the west and the trail along NE 90th St to the north. Along the east side, the property borders a King County owned parcel located along the Sammamish River, which supports a multipurpose trail. The eastern boundary of the property is approximately 110 feet from the Ordinary High Water line of the Sammamish River.

The two existing buildings occupy approximately 46 percent of the site. Parking lots and sidewalks occupy an addition 43 percent for a total of 89 percent impervious surface. Currently all stormwater runs directly into the Sammamish River with no treatment.

C. Project Description

The project will demo all existing buildings and most of the hardscape. A new two story building with a footprint of approximately14,000 square feet will be built on the site. The building will be located on the west half of the parcel, with approximately 74 parking spaces located primarily on the east half of the property. A greenhouse and plaza is planned for the center of the site. Access will be off of 154th Ave NW via a shared drive with the adjacent property to the south as is currently the case. Figure 2 shows the proposed site plan. The proposed project will reduce impervious surface by 10 percent. However, there will be a slight increase in pollution generating surfaces from 36% to 40% of the parcel. Stormwater from the roof drains will be collected and discharged directly to the Sammamish River via the existing stormwater pipe. Stormwater from the parking lot will be collected and treated prior to discharge to the river. Treatment will consist of six bio-retention areas; five at the south end of the parking lot and one at the north end.

D. Location

The project is located at 15511 NE 90th St. in Redmond, WA at the intersection of 154th Ave NE with NE 90th Street (King County parcel # 022509224) (Figure 1). It is just south of the NE 90th St. Bridge over the Sammamish River on the west side of the river. The project is occurring in the NE ¼ of Section 2, T25N, R05E.

E. Description of Critical Areas

Critical areas identified on the project site include Sammamish River buffers, floodprone areas, fish and wildlife habitat conservation areas, and critical aquifer recharge areas. These are discussed in detail in the project Critical Areas Report (PBS 2016). This mitigation / monitoring report only discusses impacts to the Sammamish River buffer and fish and wildlife habitat conservation area associated with that buffer.

1. Sammamish River

The Sammamish River is a shoreline of the state and a Class 1 water. The Shoreline designation on the property is High Intensity/Multi-Use. The Shoreline designation for the King County owned parcel to the east along the Sammamish River is Urban Conservancy. The 200 foot shoreline zone extends approximately 87 to 90 feet into the subject property and covers nearly a quarter of the property.

The Sammamish River flows into the north end of Lake Washington, which flows out through the ship canal to Puget Sound. At the project location the river is 60 to 75 feet wide and up to 5 or 6 feet deep. The reach is primarily a glide reach with a slope of approximately 0.02 percent. When the river level was lowered back in the 1960s, relatively steep banks resulted. The river bank at the project site is approximately 10 feet high with 20 to 35 percent slopes, resulting in no connection to the floodplain on the west side of the river except in extreme floods. King County and the City of Redmond undertook a restoration project in 2002 at the project location that introduced some slight meandering to the previously straightened channel, pushed back the levee on the east side to create some gravel bars and floodplain, and added boulders and large wood features to the channel to create channel complexity. The banks were planted with native trees and shrubs.

Buffers for Class 1 streams are 150 feet from the Ordinary High Water (OHW) mark. The Shoreline Designation extends 200 feet from OHW or to the edge of adjacent wetlands. OHW was mapped in the field to accurately determine the extent of the buffers and Shoreline Jurisdiction at the project site. The first 110 to 113 feet of the buffer is on county owned property. Only the last 37 to 40 feet extends onto the subject property. The first 15 to 20 feet of this buffer is a raised berm that was planted to native species with some volunteer native and non-native species. The remainder of the buffer is currently occupied by a sidewalk and a portion of a building.

2. Fish and Wildlife Habitat Conservation Areas

The City has identified the Sammamish River and the King County property to the east of the subject property as critical wildlife habitat. The Sammamish River is a Class 1 stream so the 150 foot buffer is automatically considered a core preservation area. The river is considered an important wildlife corridor through the City, connecting higher value habitat areas to the south and north.

F. Avoidance / Minimization Measures

No new development will occur within the 150 foot Sammamish River buffer and habitat conservation area. Existing pavement and building encroachment will be removed except of a small area of existing pavement covering 200 square feet along the southern edge of the buffer that is needed for emergency vehicle turning. Most of the existing native vegetation along the east edge of the property in the buffer will be maintained, with the exception of the removal of four aspen trees in poor health. Water quality treatment will be added to treat runoff from impervious surfaces before it reaches the river, which will provide water quality improvement over the existing condition. The project will result in a net gain of riparian corridor and fish and wildlife habitat functions.

G. Proposed Mitigation Summary

Under 21.64.010Ce of the Redmond City Code, demolishing any structure that results in a disturbance of a critical area is a regulated activity and mitigation is required. The portion of the Fish and Wildlife Habitat Conservation area that was occupied by the office building and sidewalk will be restored by planting with native species, increasing the effective width of the stream buffer at this location by approximately 20 feet. The overall goal of the restoration plantings will be to provide an incremental increase in available habitat for species using the buffer along the river. A secondary goal is to improve water quality in the Sammamish River by reducing impervious surface near the river and treating runoff from pollution generating surfaces, which currently flows untreated into the river.

The buffer restoration area measures approximately 4,400 square feet or 0.10 acre. The remaining 3,400 square feet of the buffer on the property will be enhanced through weed control and some plantings. The restored buffer area will be irrigated for at least 3 years to ensure plant survival and will be weeded at least three times a year. Monitoring will occur yearly for 5 years. Any mortality of planted stock will be replaced in kind or with an equivalent species approved by the qualified consultant. Other contingency measures may include adjustments to the watering regime, additional weed control, addition of mulch, replacement signage and fencing or trail maintenance.

II. ASSESSMENT OF IMPACTS

A. Area of Impact

The impact consists of 3,720 square feet of buildings, concrete sidewalk and pavement that are being removed from the outer 20 feet of the Sammamish River buffer and habitat conservation area.

B. Soils

Soils are mapped as Snohomish Silt Loam, thick surface variant. This is a floodplain soil formed in alluvium and underlain with organic material such as muck. Layers of diatomaceous earth may also be present. While this soil type is somewhat poorly drained with a water table present several feet below the surface, it is not rated as a hydric soil. It is very likely that fill material was placed on the site when the business park was constructed. Recent well data from a groundwater monitoring well in the northeast corner of the site shows groundwater fluctuating between 4 and 12 feet below the surface. The condition of the soils under the building and sidewalk is unknown.

C. Existing Vegetation in Buffer

The portion of the buffer on the property that is currently vegetated measures approximately 3,400 square feet (0.08 acre). It is a constructed berm that is several feet higher than the surrounding area. It supports a mostly planted native forest community. Trees rooted on the property include three 14-16" diameter Douglas firs (*Pseudotsuga menziesii)*, a 12 inch diameter non-native red maple (*Acer rubra*), one large multi-stem cottonwood (*Populus balsamifera* var. t*ricocarpa*) and six 4-12 inch diameter quaking aspens (*Populus tremuloides*). The large cottonwood is mostly on the adjoining property to the south. Two other Douglas-firs (8.5" and 15"), a 13" big leaf maple (*Acer macrophyllum*), a 11 inch red maple and a 16" cottonwood are rooted off the property, but have significant canopy cover over the property.

The aspens and red maple were definitely planted, while the cottonwoods likely predate current development of the site. The Douglas-fir and big-leaf maple were likely planted but may have volunteered post disturbance. Other planted species include osoberry (*Oemleria cerasiformis*), swordfern (*Polystichum munitum*), snowberry (*Symphoricarpos albus*), tall Oregon grape (*Berberis aquifolium*), sweetgale (*Myrica gale*), and lady fern (*Athyrium filix-femina*). There are many small aspen saplings that have become established either from root suckers or seed. Other species present on the berm include bentgrasses (*Agrostis* sp), other grasses, Himalayan blackberry (*Rubus armeniacus*), creeping buttercup (*Ranunculus repens*), field bindweed (*Convolvulus arvensis*) and western dock (*Rumex occidentalis*). The invasive species (blackberry and bindweed) are currently a minor component. It appears some of the plantings may have been associated with the King County river restoration plantings undertaken in 2002. The existing native vegetation on the berm will be largely undisturbed by the project except for the removal of four of the aspens which were assessed by the arborist as being in poor health.

D. Wildlife Use of Project Vicinity

Despite all the modifications to the Sammamish River and the current degraded state of the channel, riparian zone and floodplain, the river still supports several listed species. The Washington Department of Fish & Wildlife (WDFW) Priority Habitats and Species (PHS) Report for the property lists 8 priority fish species that may utilize the Sammamish River during some portion of their life cycle. These are listed below in Table 1 along with other priority species with a potential to be present in the project vicinity.

Table 1. Priority Species with a Potential Presence in the Vicinity of the Property

Species	Federal Status	Critical Habitat	State Status	Occurrence Type
Coastal-Puget Sound Bull Trout *Salvelinus confluentus*	Threatened	Yes	species of concern	no recent documentation
Puget Sound Chinook Salmon *Oncorhynchus tshawytscha*	Threatened	Yes	species of concern	breeding / occurrence
Puget Sound Steelhead *Oncorhynchus mykiss*	Threatened	Proposed	none	Infrequent occurrence
Puget Sound / Strait of Georgia Coho Salmon *Oncorhynchus kisutch*	Candidate		none	rearing / occurrence
Kokanee (non-migrating sockeye) *Oncorhynchus nerka*	Proposed		priority	occurrence / migration
Sockeye salmon *Oncorhynchus nerka*	Not Warranted		priority	occurrence / migration
Resident Coastal Cutthroat *Oncorhynchus clarki*			priority	occurrence / migration
Rainbow trout *Oncorhynchus mykiss*			priority	occurrence / migration
Bald Eagle *Haliaeetus leucocephalus*			sensitive species	occasional presence
Pileated Woodpecker *Dryocopus pileatus*			species of concern	possible occurrence
Great blue heron (Species of Local Importance) *Ardea herodias*				probable occurrence
Purple martin *Progne subis*			candidate	general vicinity Lake Sammamish

The Sammamish River historically supported large runs of most of the native salmonid species which migrated up from Lake Washington to spawn in the Sammamish River and Lake Sammamish tributaries. Now most of the stocks are seriously depleted due to habitat loss and degradation. Most of the listed salmonids that have a presence in the Sammamish River primarily use the project area reach as a migratory route to upstream creeks, which at the project location would be Bear Creek, Issaquah Creek and a couple of smaller streams. Many of the salmonids that use this stretch of river are reared in a hatchery in Issaquah that releases Coho and Fall Chinook salmon. Limited rearing of juveniles may occur in the river. The most serious limiting factor to salmonid use is temperature, but other limiting factors include degraded riparian conditions and lack of off-channel areas.

In addition to the species listed above, The Sammamish River provides habitat for a large variety of fish and wildlife species. Other native fish species identified in the river include sculpin, pike minnows, sticklebacks, longnose dace, suckers and lamprey. Non-native fish are also present and include large- and small-mouth bass, yellow perch, bullhead, sunfish and carp (Tetratech, 2002). Ducks, geese and other waterfowl are common on the river, particularly at the project location since people regularly feed them under the bridge. There are also a variety of other birds present along the river. There is very little habitat for amphibians at this location because of the relatively steep banks and lack of shallow ponding habitat and wetlands.

Most of the mammal species that would utilize the river at this location would be those tolerant of human activity such as deer, raccoon, coyotes, possums, skunk, rabbits, shrews, mice and voles. We observed beaver activity along the river in the form of chewed stumps.

Wildlife use on the subject property is likely limited to small mammals and birds given the urban location and the King County trail.

E. Buffer Characterization

King County Parks owns a 100 foot wide parcel on either side of the river at the project location. On the west side of the river, the King County parcel contains a utility easement and the West Sammamish River Trail. While this trail does not receive the same level of use as the Sammamish River Trail on the east side of the river, it still has a fair amount of pedestrian and bicycle use and there is unofficial access to the river at several points. Some camping by the homeless occurs along this side of the river. Most of the King County 100 foot wide parcel was planted in 2002 and the planted trees are now about 15 to 20 feet tall and shrubs have expanded to cover much of the area. The bitter cherry has spread in some areas to form dense thickets. Some vegetation in the riparian corridor predates the restoration. There is a grove of black cottonwoods that are up to 3 or 4 feet in diameter and 60 to 70 feet tall on the King County property near the border with the subject property. There are also 4 giant sequoia (*Sequoiadendron giganteum)* trees just south of the bridge on the west side of the river that are approximately 20 inches in diameter. Figure 4 shows the existing vegetation cover types on the project site and adjacent King County parcel.

The ability of the riparian corridor/stream buffer at this location to provide natural functions is limited by the urban context, narrow width, high use trails, steep banks and lack of structural diversity. Table 2 lists the identified riparian functions with an assessment of the level of this function at the project site vicinity.

Table 2. Riparian Corridor Functional Assessment

Function	Level of functioning
Shade & Temperature	Low - Shade is improving in this reach as the plantings mature, but is still rather limited. Less than 1 percent of the channel at the project location is shaded. There is not much opportunity for temperature moderation.
Flood conveyance	Moderate - The river rarely overtops its banks because of the dredging which lowered the river elevation relative to the floodplain. Most flooding would be contained between the two trails. However, a large flood event is projected to extend well beyond the riparian corridor.
Water quality protection	Low – Some filtering of runoff from trails and other surfaces may occur, but given the urban context and high public use, the narrow, disturbed riparian corridor probably is not able to provide much in the way of water quality protection to the river at this location. High use by dogs, homeless people and concentrations of ducks would act to reduce water quality. Most stormwater runoff is directed straight into the river with little or no treatment.
Pollutant removal	Low – Very little of the riparian zone actually interacts with the river because of the steep banks. There are no wetlands at this location above OHW. Most stormwater runoff is directed straight into the river. Very limited opportunity to remove pollutants

Sediment transport	Moderate – The riparian zone in this reach likely contributes sediment from erosion but deposition would be limited by the steep banks. Some opportunity for sediment deposition was created during the 2012 restoration with the addition of gravel bars.
Bank stabilization	Moderate - The new plantings are functioning to help stabilize the banks, but the west bank is steep with some evidence of erosion.
Woody debris recruitment	Low – The plantings are still too young to provide woody debris recruitment. The few larger cottonwoods in the buffer are likely too far from the river to contribute much if they fell down.
Wildlife habitat	Low – High public use, narrow corridor, urban context, and lack of structural diversity limit wildlife use. While the river provides a travel corridor, there are no large habitat areas in the immediate vicinity. The riparian corridor does provide habitat for a variety of birds, waterfowl, and small mammals adapted to human presence. It likely provides a refuge within the urban context.
Microclimate control	Low to moderate– Improving as plantings mature but still relatively low

F. Water Quality

Currently all stormwater runoff from the site flows directly into the Sammamish River with no flow control or water quality treatment. The project will decrease impervious surface, removing all impervious surface in the buffer. Stormwater runoff from the parking areas will be treated in several bio-retention cells before discharge to the river. The project should result in an overall improvement in water quality.

III. PROPOSED MITIGATION SITES

Approximately 32% of the river buffer on the subject parcel is currently occupied by one of the existing office buildings and another 18 percent by sidewalks. Impervious surfaces cover 50% of the Fish and Wildlife Conservation Area on the property. The project proposes removal of these structures from the buffer. The mitigation site will be the same as the impact site, but will extend slightly beyond the 150 foot regulated buffer. Restoration will occur on 3,750 square feet of area where pavement and building foundations are removed in the buffer area and some landscaped areas are removed. A new gravel trail will occupy approximately 650 square feet. By restoring this area, the project will remove a nonconforming use and restore functioning to the outer portion of the buffer. The project will enhance through weed control and some plantings an additional 3,400 square feet of existing vegetated buffer. The boundaries of the restoration and enhancement areas are shown on Mitigation Plan Sheet M.1.00.

IV. EXISTING BASELINE CONDITIONS OF MITIGATION SITE

The mitigation site is the same as the impact site so conditions are the same. Refer to Section II for a description of existing conditions.

V. MITIGATION APPROACH

A. Mitigation Sequencing

The standard mitigation sequencing does not really apply to this project as there are no impacts to critical areas or buffers. The development removes infrastructure and impervious surface from a habitat conservation area buffer along the Sammamish River and provides water quality retention and treatment. Mitigation is occurring on-site and in-kind at the same location as the impact and will result in an improved buffer condition.

B. Project Specific Goals

The goal of the restoration will be to restore natural riparian corridor functioning to the extent possible given the urban context, and to provide an incremental increase in available habitat for species using the buffer along the Sammamish River. It is not generally possible to recreate a fully functioning buffer in an urban environment.

C. Mitigation Strategy

The strategy is simply to remove the infrastructure, amend the soil, plant native species and maintain the area through initial irrigation, regular weed control and contingency measures as needed. A native plant community will replace that portion of the buffer that was occupied by an office building and sidewalk. The existing vegetated portion of the buffer will be enhanced through weed control and a few additional plantings.

D. Specific Goals, Objectives and Performance Standards

The ability of the mitigation site to perform a high level of functioning is limited by the small size and scale of the mitigation, the urban context, past history and existing neighboring land uses. The goal of the mitigation is to provide an improvement over the existing condition that meets the intent of the RZC to the extent possible given the above mentioned constraints. Specifically, the objective of the restoration area is to establish a self sustaining native plant community that provides habitat for local species and increases the functional width of the buffer. The goal of the enhancement portion of the mitigation is to improve habitat value and buffer functioning through an increase in native shrub cover and removal of non-native weed species. The following performance standards for stream buffers and habitat conservation areas as listed in the RZC 21.64.020F&G were applied to the design of this mitigation project.

Table 3. City of Redmond Performance Standards Applied to Mitigation

Applicable City of Redmond Performance Standards for Riparian Buffers and Habitat Conservation Areas		How Mitigation Plan Meets These Standards
1	Use plants indigenous to the region	All specified plant materials are native to this area
2	Plants should be commercially available from local sources	All specified plant materials are readily available
3	Plants should be high in food and cover value for fish and wildlife	Planting plan includes species with high food and cover value
4	Plant perennial species	All specified plant materials are perennial
5	Use species that are known to be capable of successful establishment	All specified plant materials are known to be easy to establish
6	Substrate should consist of a minimum of one foot depth of clean inorganic/organic materials	Restored area will be amended with 1 foot of topsoil. Three to four inches of mulch will be applied to all planting areas

7	Plant densities should be based on criteria in Appendix 1	Plant densities have been slightly adjusted to match the anticipated size of planted species. Spacing averages 3.5 ft on center.
8	Install an irrigation system for the initial establish period	Irrigation will be installed as part of the landscape irrigation for the site.
9	Construction management should occur by a qualified consultant and inspected by the City	Inspections by the consultant and/or City will occur prior to planting, during planting and at the end of planting.
10	Limit the use of pesticides near streams.	No pesticides will be allowed in the Mitigation Area
11	Consolidate habitat and vegetated open space in contiguous blocks	The Mitigation Site is consolidated along the east edge of the property
12	Locate habitat contiguous to other habitat to contribute to a continuous system or corridor to provide connections to adjacent habitat	The Mitigation Site is contiguous with the King County enhanced buffer along the Sammamish River
13	Use native species in enhancement of buffers	All species being planted in the buffer are native
14	Emphasize heterogeneity and structural diversity of vegetation	The planting plan includes structural diversity. Heterogeneity of plant material is limited in favor of ease of establishment.
15	Preserve significant trees, preferably in groups	Native significant trees in buffer to be preserved

Table 4 lists measurable performance standards and success criteria for both the restoration area and the enhancement area. These success criteria will be used to evaluate the success of the mitigation.

Table 4. Performance Standards and Success Criteria

Performance Standard Measure	**Success Criteria**		
Restoration Area	**Year 1**	**Year 3**	**Year 5**
Survival of Planted Stock	100%	90%	80%
Percent Cover Native Trees & Shrubs	20%	30%	50%
Percent Cover Invasive Species[1]	<0%	<5%	<5%
Percent Cover Non-native Species[2]	<5%	<10%	<20%
Enhancement Area	**Year 1**	**Year 3**	**Year 5**
Survival of Planted Stock	100%	90%	80%
Percent Cover Native Trees & Shrubs	60%	80%	80%
Percent Cover Invasive Species[1]	<0%	<5%	<5%
Percent Cover Non-native Species[2]	<25%	<25%	<20%

1. *Includes Himalayan blackberry, Japanese knotweed, English holly, thistles, bindweed, reed canary grass, common hawthorn, butterfly bush or any other species identified by King County or City of Redmond as invasive*
2. *Allows for some cover by non-native grass species.*

VI. MITIGATION DESIGN

The portion of the Fish and Wildlife Conservation area that was occupied by the office building and sidewalk will be restored by removing the concrete sidewalk, building and foundation, amending the soil and planting with native species. These measures will effectively increase the width of the stream buffer at this location by 20 feet or 13 percent over the existing condition, and provide the full 150 feet of buffer. The total mitigation area measures 8,100 square feet (0.186 acre). This includes 3,550 square feet (0.08 acre) of existing vegetated buffer to be enhanced, 3,900 square feet (0.09 acre) of newly restored buffer area, and 650 square feet (0.015 acre) of new trail. The trail will connect to the existing King County trail and is designed to meet the requirements under RZC 21.64.020 B9c for trails in buffer areas.

Prior to demolition temporary fencing will be installed at the edge of the sidewalk to protect the existing vegetation in the enhancement area. After removal of the structures from the restoration area, the site will be graded to elevation 33. The area will be amended with 1 foot of topsoil to bring the final grade to elevation 34 to match existing grades. No site work will occur in the enhancement area except the removal of five aspen trees (*Populus tremuloides*) that were deemed unhealthy by the project arborist. The location of these five trees is shown on Mitigation Plan Sheet M1.00.

Table 5 lists species to be planted in the restored buffer. These species were chosen based on their suitability to the site, ease of establishment, reference plant lists, and habitat value. The planting plan also had to meet the City of Redmond screening requirements for parking lots, which influenced the choice and placement of plantings. The planting plan for the restored areas is shown on Mitigation Plan Sheet M1.01. Three to four inches of bark or wood mulch will be applied to the entire restoration area following planting to help keep weeds from becoming established, prevent erosion and help maintain soil moisture. Irrigation will be installed as part of the site landscaping.

Much of the enhancement area has a well established native plant community, most of which was planted. Shrubs have filled in much of the north half of the enhancement area, but are somewhat sparse in the south half, which is dominated by grasses. The plan for the enhancement area is to increase the shrub and fern density in the southern half of the area and to replace the aspens that are being removed with vine maples. Table 6 lists the species to be planted in the enhancement portion of the buffer.
Prior to planting in this area existing grasses will be removed from a three foot diameter circle prior to planting. Mulch will be applied following planting to the three foot circles around the new plants. The locations of the new plantings in this area should be adjusted to avoid damage to desirable native volunteers. The goal is to fill in the gaps and increase shrub cover and diversity.

Volunteer native species will be allowed to colonize both the restored area and the enhancement area as long as they do not jeopardize the success of the restoration/enhancement. The percent cover of native volunteers will be included in determining success criteria for native plant cover. Alders, cottonwoods and aspens are likely to become established and may need to be thinned.

Signs will be posted in at least two locations to inform the public that the area is part of a Fish & Wildlife Conservation area. While the RZC suggests that a split rail fence be installed along the edge of the buffer, the project is not proposing installation of a fence

at this time. Temporary plastic fencing will be in place during the initial plant establishment phase (Year 1). If yearly monitoring shows excessive trampling or trash, a permanent fence may be installed at a later date.

Table 5. Density Calculation for Restored Buffer

Spacing	Multiplier	Planting Area Square Feet	Number of Plants
4 feet (approx)	0.0725	3,900	283

Table 6. Planting Plan for Restored Buffer Area

Common Name	Species	Type[1]	Number	Container	Height	Spacing
TREES						
Douglas fir	*Pseudotsuga menziesii*	E	4	5 gallon	6-8’	~30’
Western red cedar	*Thuja plicata*	E	8	5 gallon	6-8’	
Scouler’s willow	*Salix scouleriana*	D	6	5 gallon[2]	3-4‘	6’ oc
Subtotal Trees			**18**			
SHRUBS						
Serviceberry	*Amelanchier alnifolia*	D	6	2 gallon		10’ oc
Western hazelnut	*Corylus cornuta*	D	10	2 gallon		6’ oc
Red elderberry	*Sambucus racemosa*	D	22	2 gallon		3-4’ oc
Snowberry	*Symphoricarpos albus*	D	43	2 gallon		3-4’ oc
Dwarf rose	*Rosa gymnocarpa*	D	77	2 gallon		3-4’ oc
Evergreen huckleberry	*Vaccinium ovatum*		47			3-4’ oc
Subtotal Shrubs			**205**			
FERNS						
Western swordfern	*Polystichum munitum*	E	60	1 gallon		4’ oc
Subtotal Ferns			**60**			
TOTAL			**283**			

1. E= Evergreen, D= Deciduous
2. Use 5 gallon if available, use 2 gallon if not.
OC = on center

Table 7. Planting Plan for Enhancement Area

Common Name	Species	Type[1]	Number	Container	Height	Spacing
SHRUBS						
Vine maple	*Acer circinatum*	D	5	2 gallon	3-4’	10’ oc
Western hazelnut	*Corylus cornuta*	D	1	2 gallon	24” min	6’ oc
Red elderberry	*Sambucus racemosa*	D	3	2 gallon	24” min	3-4’ oc
Snowberry	*Symphoricarpos albus*	D	6	2 gallon	24” min	3-4’ oc
Dwarf rose	*Rosa gymnocarpa*	D	4	2 gallon	24” min	3-4’ oc
Subtotal Shrubs			**19**			
FERNS						
Western swordfern	*Polystichum munitum*	E	5	1 gallon		4’ oc
Subtotal Ferns			**5**			
TOTAL			**24**			

1. E= Evergreen, D= Deciduous

VII. IRRIGATION PLAN

Irrigation will installed as part of the landscaping of the property in the restoration portion of the mitigation site and will be used as needed to ensure the survival of the planted stock. Irrigation may be discontinued or significantly reduced after 3 years if plants are well established. Mitigation Plan Sheet M1.02 shows the irrigation layout.

VIII. MONITORING PLAN

Baseline monitoring will be conducted once planting is complete with the report submitted to the City within 30 days. The baseline monitoring will document the location of all planted stock. It will also serve to set up protocols for follow-up monitoring. Because the area is so small, the entire area can be monitored and all planted stock assessed. The restored area will be divided into four quadrants to make estimation of percent cover easier. The edges of the quadrants will be marked in a way that they can be easily relocated. Percent cover by strata and species will be estimated for each quadrant. Photo points will be established at each of the four quadrants to provide a representative view of that portion of the restored area. See Sheet M1.02 for location of quadrants and photo points.

The site will be monitoring yearly for five years to ensure success of the plantings and to make sure that performance standards are being met. The first year monitoring will occur in early spring following planting and again at the end of the summer. Subsequent monitoring will occur yearly at the end of summer before leaf senescence. Reports are due to the City before the end of the calendar year. The monitoring will evaluate planted species survival and vigor, and percent cover of all species as specified in Table 4. It will also document any observations related to condition of the plant material, site conditions, impacts and. Contingency measures will be triggered if the success criteria are not being met or if other conditions warrant action.

1. <u>Baseline Monitoring</u>

The following activities will be part of the baseline monitoring

- Establish monitoring zones as shown on Mitigation Plan Sheet M1.02 using wooden stakes to mark the boundary between Zones A and B and between Zones C and D.
- Establish permanent photo points using wooden stakes
- Tally all planted species in each Zone and each tree greater than 3 feet tall in Zones C and D.
- Note health and vigor of planted stock
- Verify that mulch has been applied as specified and that irrigation is functioning properly
- Notify the project manager immediately of any discrepancies in number, size or general spacing of planted individuals or of any plants that appear to have poor vigor.
- Estimate percent cover of all species in each zone
- Take photos at photo points as shown. Take at least one panoramic photo of the restoration area.
- Prepare a modified site plan that shows any changes between the mitigation design and the as-built condition.

2. Monitoring Years 1 through 5

The following activities will be part of the yearly monitoring in years 1 through 5.

- Tally all planted species in each Zone in Years 1,2 and 3. Calculate mortality and percent survival. After Year 3, percent cover is more important than actual survival.
- Estimate percent cover of all species in each zone, including existing vegetation, native colonizers and non-native or invasive species
- Describe general appearance of planted stock noting any lack of vigor, water stress, browsing, or insect damage.
- Compare survival and percent cover to success criteria in Table 3.
- Note any mortality of existing trees in Zones C and D.
- Note any evidence of trampling or trash in each zone.
- Note any evidence of wildlife use including scat, browsing, nests, sightings, etc.
- Take photos at established photo points as shown on the monitoring plan
- Evaluate irrigation effectiveness
- Note volunteer native shrubs and trees in each zone
- Prepare a monitoring report that includes the above information and makes recommendations regarding contingency measures.

IX. MAINTENANCE AND CONTINGENCY PLAN

Following planting a temporary fence will be installed at the edge of the parking lot to protect the new plantings. The fence can be removed after the first year if plants are established. Weeding will occur at least three times annually during the 5 year establishment period. Weeding should be done in spring, mid-summer and at the end of the growing season. At each weeding, all invasive species will be removed through hand pulling. As much of the root should be removed as possible. Weeds should be bagged, removed from the site and disposed in a proper waste disposal receptacle. No herbicides, pesticides or fertilizers shall be used in the Mitigation area without the written approval of the consultant or the City of Redmond. Herbicides will only be used as a last resort and with permission of the City of Redmond planning department. Other non-native species will be removed if they are threatening the success of the plantings. Target weeds are listed in Table 7 below.

Table 7. Noxious Weeds to be Targeted at Mitigation Site

Scientific Name	Common Name	King County Noxious Weed Designation
Rubus Armeniacus	Himalayan blackberry	Class C Noxious Weed
Rubus lacinatus	Evergreen blackberry	Class C Noxious Weed
Phalaris arundiancea	Reed canary grass	Class C Noxious Weed
Prunus Laurocerasus	Cherry laurel	Weed of Concern
Hedera helix	English ivy	Class C Noxious Weed
Ilex aquifolium	English holly	Weed of Concern
Convolvulus arvensis	Field bindweed	Class C Noxious Weed
Cirsium vulgare	Bull thistle	Class C Noxious Weed

Cirsium arvense	Canada thistle	Class C Noxious Weed
Senecio jacobaea	Tansy ragwort	Class B Noxious Weed
Polygonum cuspidatum	Japanese knotweed	Class C Noxious Weed
Cytisus scoparius	Scotch broom	Class C Noxious Weed
Buddleia davidii	Butterfly bush	Class C Noxious Weed
Crataegus monogyna	English hawthorn	Class C Noxious Weed
Leucanthemum vulgare	Oxeye daisy	Class C Noxious Weed

Contingency measures are triggered by the yearly monitoring. The measures are intended to ensure that the project meets the stated project targets and performance standards at the end of the monitoring period. The monitoring reports will contain a section on recommended contingency measures. The City will review the monitoring reports and recommended contingency measures and work with the applicant and consultant to refine and approve all contingency measures before they are implemented.

Contingency measures could include additional plantings to replace mortality, additional weed control, thinning of volunteer species, changes to irrigation regime, or other measures. Recommended contingency measures include replacement of all planted stock that dies during the first three years either in kind or with another native species that provides similar habitat value. After three years, it may not be necessary to replace mortality if desired cover levels are being met. Replacement plantings should be conducted in the next planting window (fall or early spring). If native volunteers are coming in so thick that they crowd out the planted species, thinning may be undertaken to achieve a desirable spacing. If human impacts to the mitigation area are resulting in damage to the plants, a fence may need to be installed at the edge of the parking lot.

The City may require additional mitigation measures at its discretion to ensure the success of the mitigation site.

X. REFERENCE

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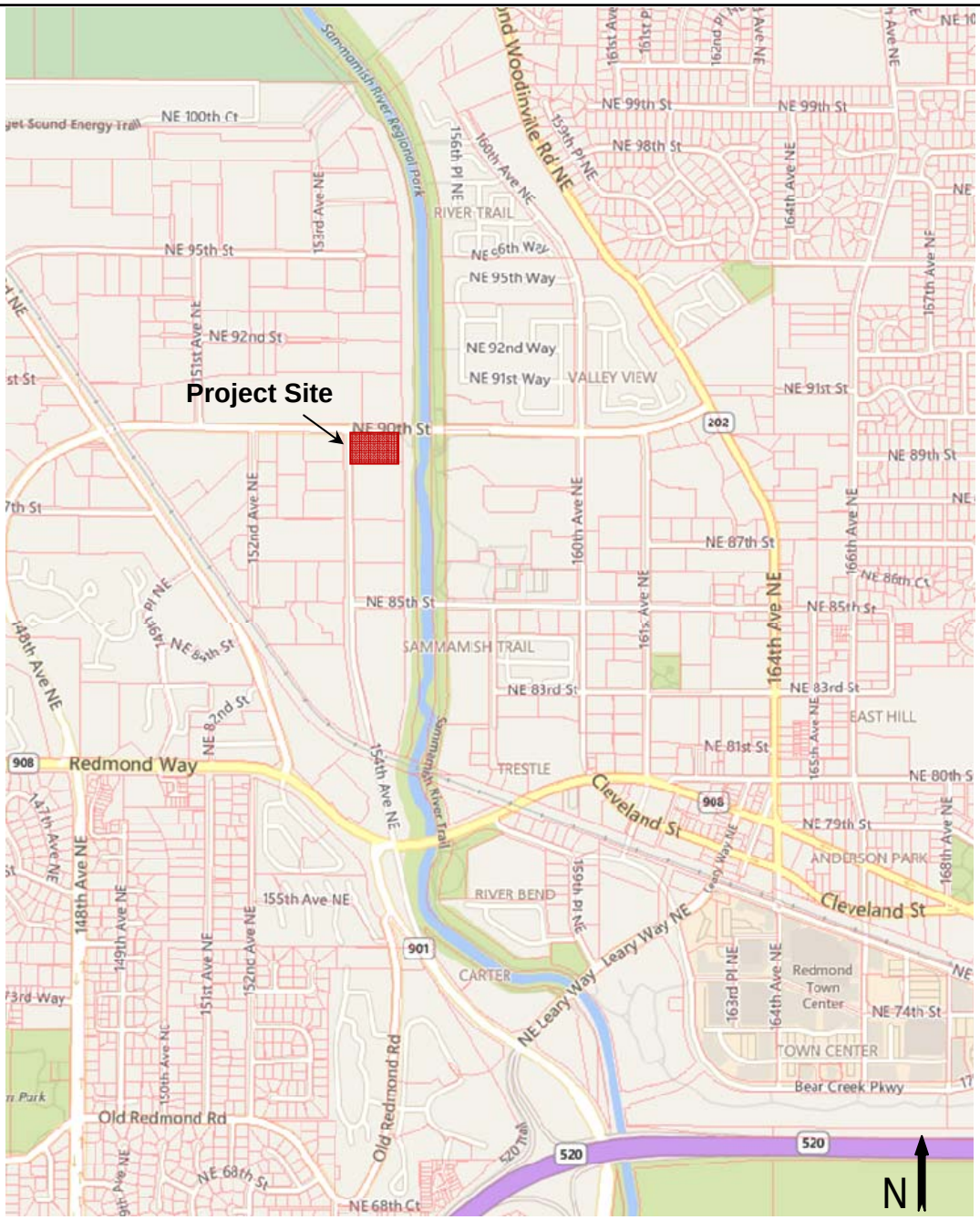
FIGURES



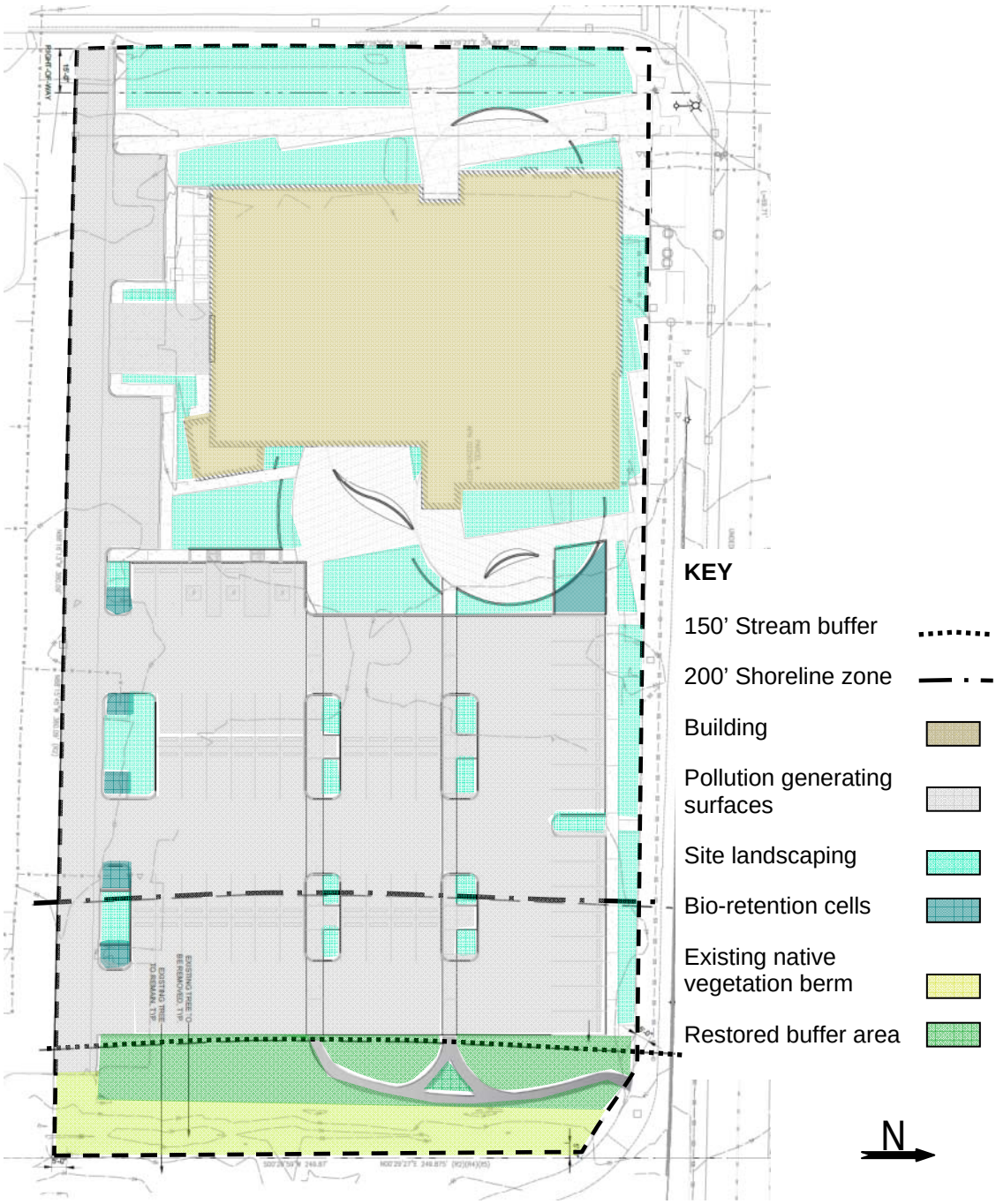
Project # 41342.000

May 2016

SITE VICINITY MAP

Hopelink Redmond Integrated Service Center
Redmond, Washington

FIGURE 1



PBS

Project # 41342.000

May 2016

PROPOSED SITE PLAN
Hopelink Redmond Integrated Service Center
Redmond, Washington

FIGURE 2

IMPACT AND MITIGATION AREAS

- 150' Class 1 River Buffer
- 200' Shoreline Zone
- Impact Area- Remove building, sidewalk & asphalt
- Restoration Area – New plantings
- Enhancement Areas – Weed control, new plantings

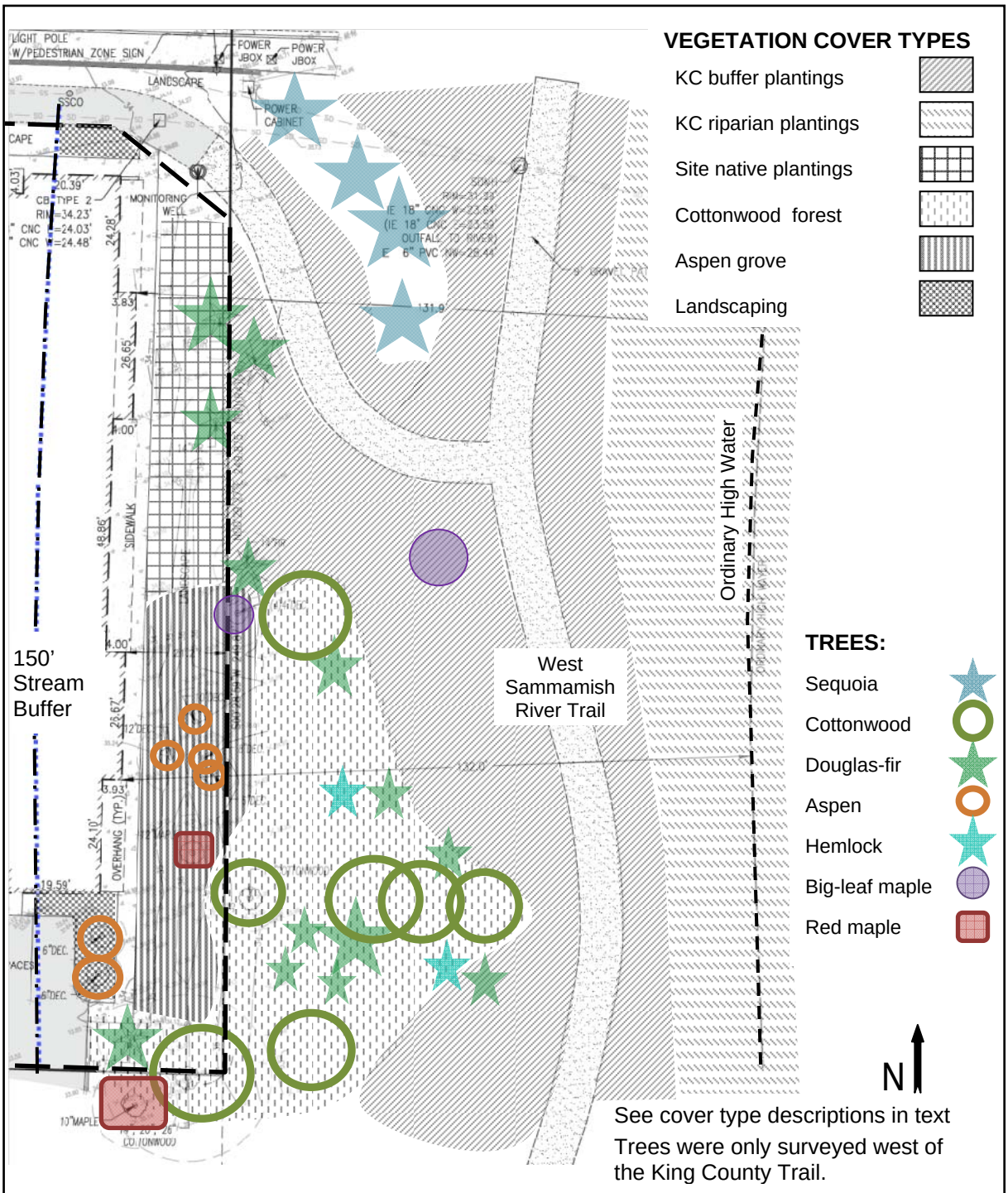
PBS

Project # 41342.000

May 2016

IMPACT & MITIGATION AREAS
Hopelink Redmond Integrated Service Center
Redmond, Washington

FIGURE 3



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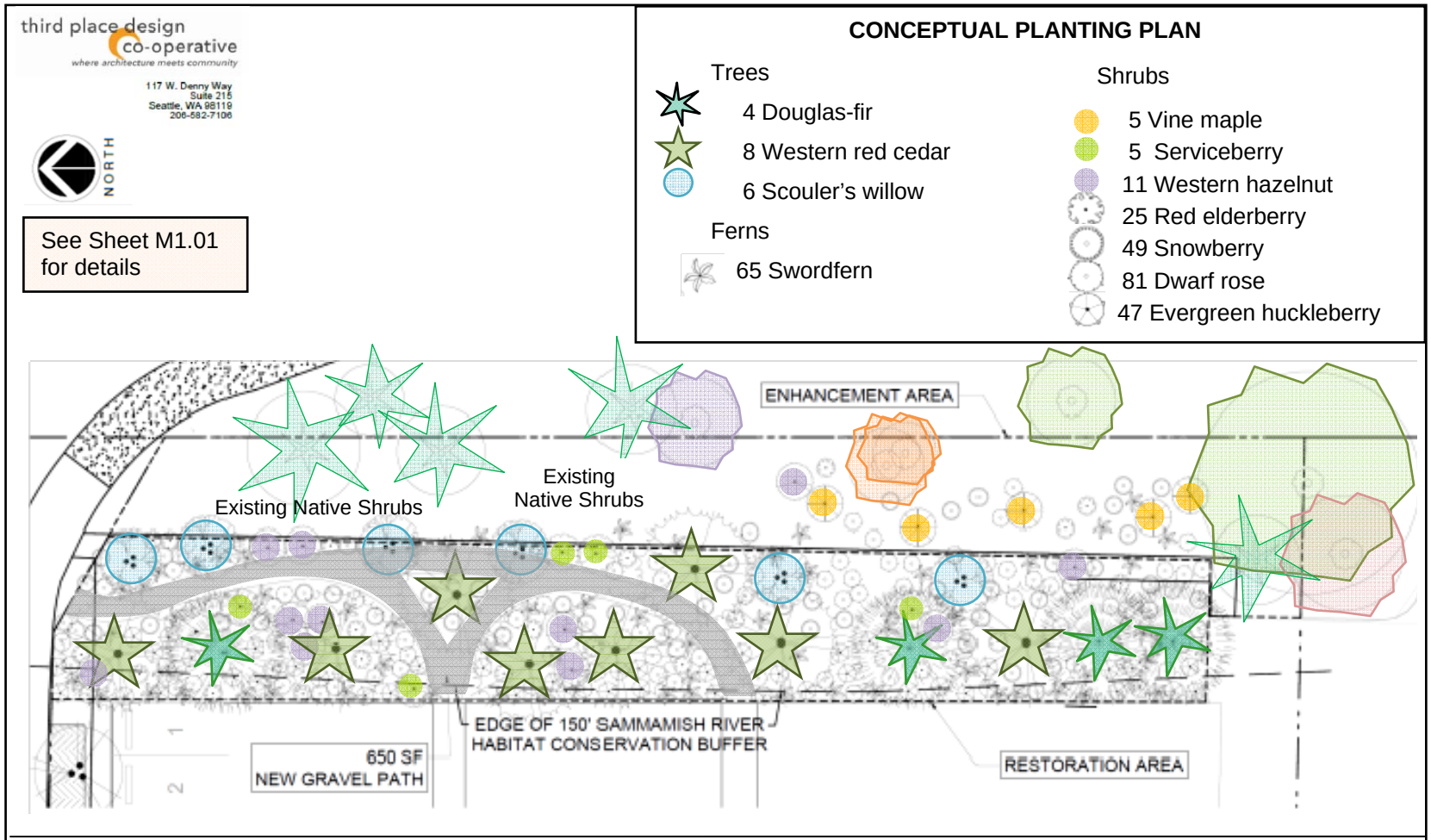
May 2016

EXISTING VEGETATIVE COVER TYPES
Hopelink Redmond Integrated Service Center
Redmond, Washington

FIGURE 4



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Project # 41342.000

May 2016

MITIGATION PLANTING PLAN
Hopelink Redmond Integrated Service Center
15517 NE 90th St. Redmond, Washington

FIGURE

5

APPENDIX A

Site Photographs

Photo 1. View to north of east edge of parcel with existing building, sidewalk and planted berm with swordferns in the foreground and Douglas-firs in the background.

Photo 2. View to south of berm with quaking aspen seedlings in foreground and planted maple and older aspens in background.

Photo 3. View of northern part of berm with planted snowberries and tall Oregon grape. Most berm plantings will be preserved.

Photo 4. View to north of King County trail through stream buffer.

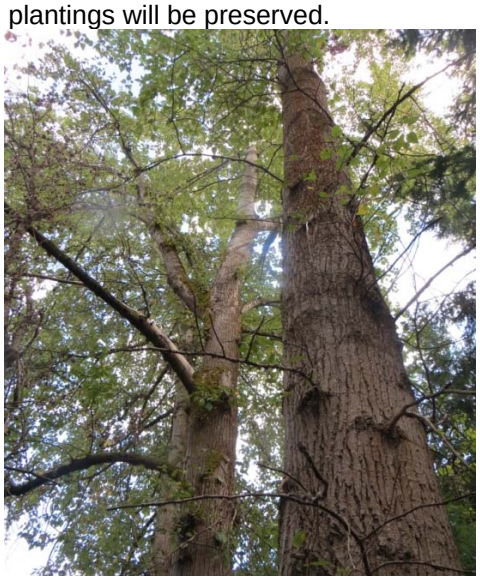


Photo 7. Large cottonwoods at southeast corner of property to be preserved

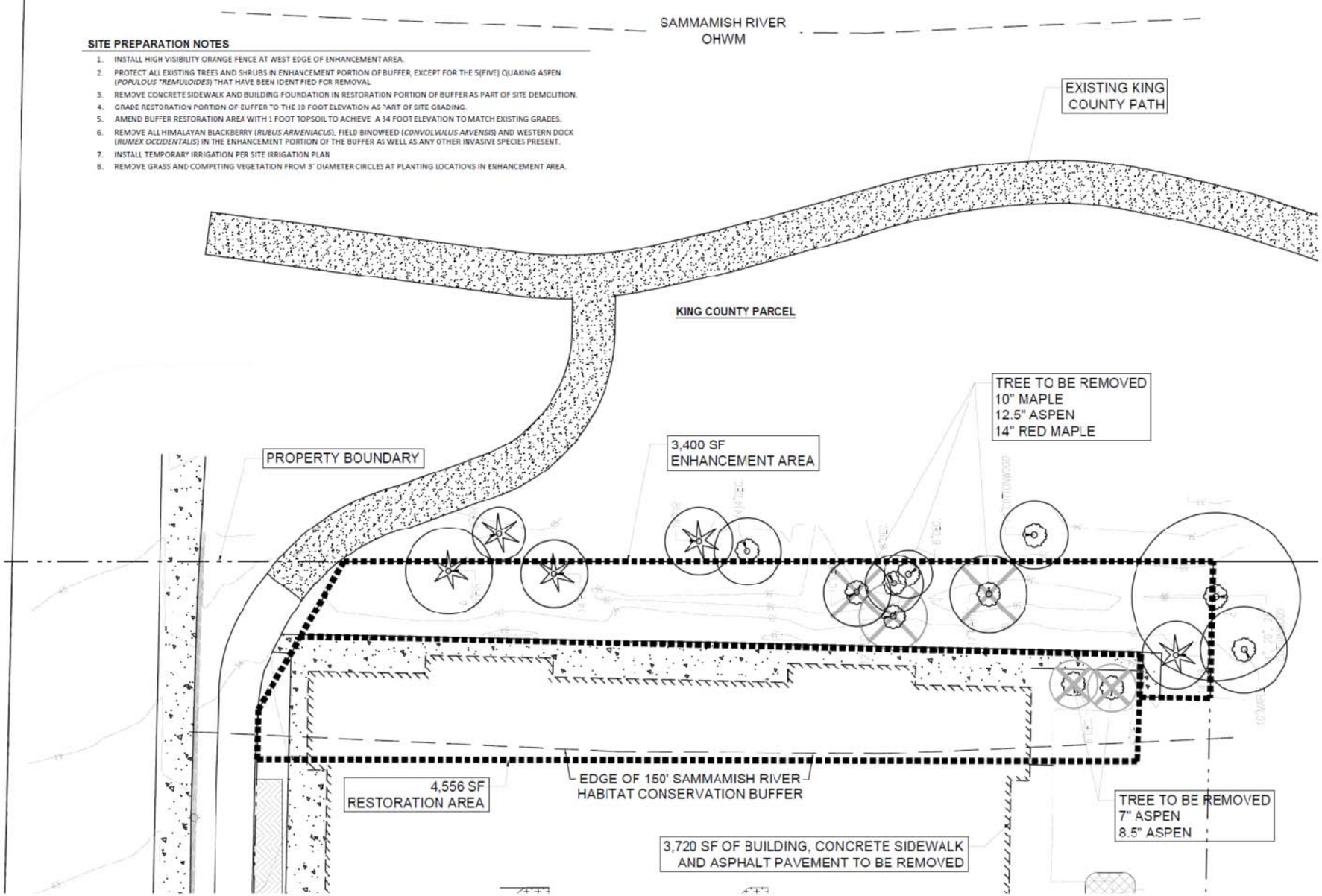
Photo 8. Birdseye view to east of buffer area in current condition

APPENDIX B

Mitigation Monitoring Plan Sheets

SITE PREPARATION NOTES

1. INSTALL HIGH VISIBILITY ORANGE FENCE AT WEST EDGE OF ENHANCEMENT AREA.
2. PROTECT ALL EXISTING TREES AND SHRUBS IN ENHANCEMENT PORTION OF BUFFER, EXCEPT FOR THE 5(FIVE) QUAKING ASPEN (*POPULOUS TREMULOIDES*) THAT HAVE BEEN IDENTIFIED FOR REMOVAL
3. REMOVE CONCRETE SIDEWALK AND BUILDING FOUNDATION IN RESTORATION PORTION OF BUFFER AS PART OF SITE DEMOLITION.
4. GRADE RESTORATION PORTION OF BUFFER TO THE 33 FOOT ELEVATION AS PART OF SITE GRADING.
5. AMEND BUFFER RESTORATION AREA WITH 1 FOOT TOPSOIL TO ACHIEVE A 34 FOOT ELEVATION TO MATCH EXISTING GRADES.
6. REMOVE ALL HIMALAYAN BLACKBERRY (*RUBUS ARMENIACUS*), FIELD BINDWEED (*CONVOLVULUS ARVENSIS*) AND WESTERN DOCK (*RUMEX OCCIDENTALIS*) IN THE ENHANCEMENT PORTION OF THE BUFFER AS WELL AS ANY OTHER INVASIVE SPECIES PRESENT.
7. INSTALL TEMPORARY IRRIGATION PER SITE IRRIGATION PLAN
8. REMOVE GRASS AND COMPETING VEGETATION FROM 3' DIAMETER CIRCLES AT PLANTING LOCATIONS IN ENHANCEMENT AREA.



1 MITIGATION PLAN
SCALE: 1" = 10'-0"

SCALE: 1" = 10'

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ISSUE DATE: 09.01.2016
DRAWN BY: JHD
CHECKED BY: KL

NO.	DATE	REMARK
1	2.16.16	30% INTAKE
2	5.5.16	60% INTAKE
3	9.1.16	90% INTAKE
4	10.28.16	FINAL INTAKE

DRAWING NAME:

MITIGATION PLAN

SHEET NO.

M1.00

PLANT SCHEDULE - BUFFER ENHANCEMENT AREA

EXISTING TREES

SYMBOL	QTY	SCIENTIFIC NAME	COMMON NAME	CONTAINER	CALIPER	HEIGHT	NATIVE OR ADAPTIVE	DECIDUOUS/EVERGREEN	SPACING
	3(2)	*PSEUDOTSUGA MENZIESII*	DOUGLAS FIR		8 - 16"		NATIVE	EXISTING EVERGREEN TO REMAIN	
	1	*ACER MACROPHYLLUM*	BIGLEAF MAPLE		13"		NATIVE	EXISTING DECIDUOUS TO REMAIN	
	1	*ACER SP* (ORNAMENTAL)	MAPLE		10 - 12"		NON-NATIVE	EXISTING DECIDUOUS TO REMAIN	
	1(3)	*POPULOUS TRICOCARPA*	BLACK COTTONWOOD		14 - 26"		NATIVE	EXISTING DECIDUOUS TO REMAIN	
	3	*POPULOUS TREMULOIDES*	QUAKING ASPEN		4 - 6"		NATIVE	EXISTING DECIDUOUS TO REMAIN	
TOTAL	7(7)	QUANTITIES IN PARENTHESIS ARE ROOTED OFF PROPERTY BUT HAVE CANOPY COVERAGE ON PROPERTY							

SHRUBS / SMALL TREES

SYMBOL	QTY	SCIENTIFIC NAME	COMMON NAME	CONTAINER	CALIPER	HEIGHT	NATIVE OR ADAPTIVE	DECIDUOUS/EVERGREEN	SPACING
	5	*ACER CIRCINATUM*	VINE MAPLE	5 GAL	1"	3 – 4' HT	NATIVE	DECIDUOUS	6' OC
	1	*CORYLUS CORNUTA*	WESTERN HAZELNUT	2 GAL		24" MIN	NATIVE	DECIDUOUS	6' OC
	3	*SAMBUCUS RACEMOSA*	RED ELDERBERRY	2 GAL		24" MIN	NATIVE	DECIDUOUS	3' - 4' OC
	6	*SYMPHORICARPOS ALBUS*	SNOWBERRY	2 GAL		16' MIN	NATIVE	DECIDUOUS	3' - 4' OC
	5	*ROSA GYMNOCARPA*	DWARF ROSE	2 GAL		16' MIN	NATIVE	DECIDUOUS	3' - 4' OC
SUBTOTAL	20								

FERNS

SYMBOL	QTY	SCIENTIFIC NAME	COMMON NAME	CONTAINER	CALIPER	HEIGHT	NATIVE OR ADAPTIVE	DECIDUOUS/EVERGREEN	SPACING
	7	*POLYSTICHUM MUNITUM*	WESTERN SWORDFERN	1 GAL		18" MIN.	NATIVE	EVERGREEN	3' - 4' OC
SUBTOTAL	7								
TOTAL	27								

PLANT SCHEDULE - BUFFER RESTORATION AREA

TREES

SYMBOL	QTY	SCIENTIFIC NAME	COMMON NAME	CONTAINER	CALIPER	HEIGHT	NATIVE OR ADAPTIVE	DECIDUOUS/EVERGREEN	SPACING
	4	*PSEUDOTSUGA MENZIESII*	DOUGLAS FIR	5 GAL	2"	6 - 8' HT	NATIVE	EVERGREEN	AS SHOWN
	8	*THUJA PLICATA*	WESTERN RED CEDAR	5 GAL	2"	6 - 8' HT	NATIVE	EVERGREEN	AS SHOWN
	6	*SALIX SCOULERIANA*	SCOULER'S WILLOW	5 GAL	1"	3 - 4' HT	NATIVE	DECIDUOUS	AS SHOWN
SUBTOTAL	18								

SHRUBS / SMALL TREES

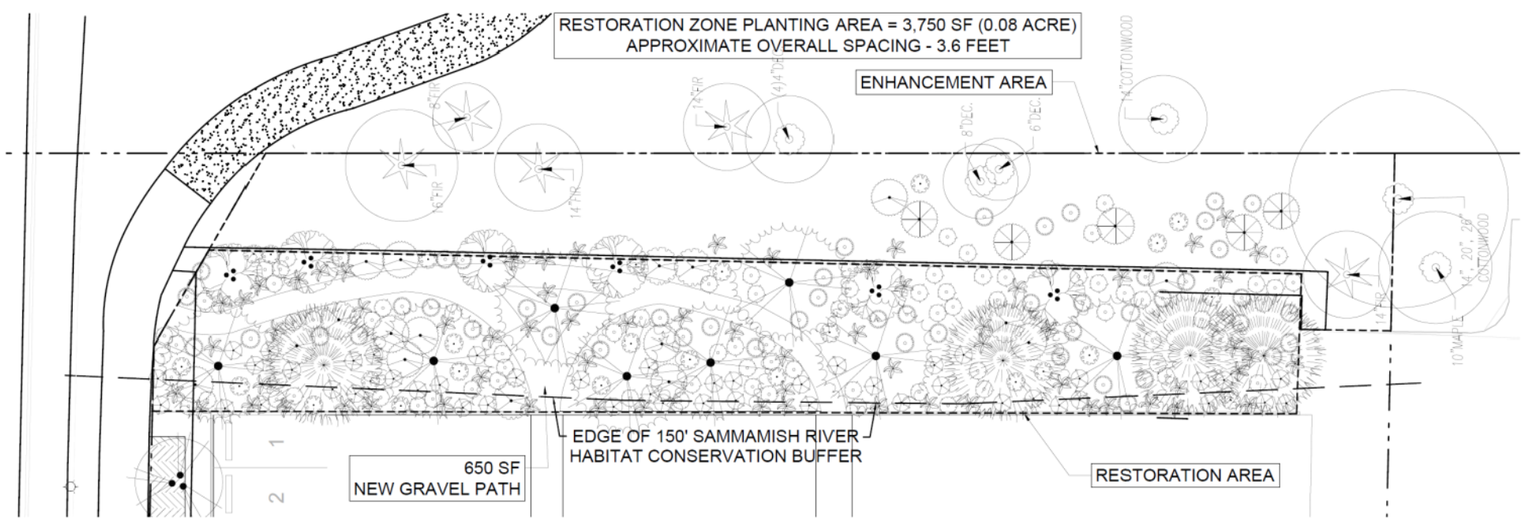
SYMBOL	QTY	SCIENTIFIC NAME	COMMON NAME	CONTAINER	CALIPER	HEIGHT	NATIVE OR ADAPTIVE	DECIDUOUS/EVERGREEN	SPACING
	6	*AMELANCHIER ALNIFOLIA*	SERVICEBERRY	2 GAL		24" MIN	NATIVE	DECIDUOUS	10' OC
	10	*CORYLUS CORNUTA*	WESTERN HAZELNUT	2 GAL		24" MIN	NATIVE	DECIDUOUS	6' OC
	22	*SAMBUCUS RACEMOSA*	RED ELDERBERRY	2 GAL		24" MIN	NATIVE	DECIDUOUS	3' - 4' OC
	43	*SYMPHORICARPOS ALBUS*	SNOWBERRY	2 GAL		16" MIN	NATIVE	DECIDUOUS	3' - 4' OC
	77	*ROSA GYMNOCARPA*	DWARF ROSE	2 GAL		16" MIN	NATIVE	DECIDUOUS	3' - 4' OC
	47	*VACCINIUM OVATUM*	EVERGREEN HUCKLEBERRY	5 GAL		24" MIN.	NATIVE	EVERGREEN	3' - 4' OC
SUBTOTAL	205								

FERNS

SYMBOL	QTY	SCIENTIFIC NAME	COMMON NAME	CONTAINER	CALIPER	HEIGHT	NATIVE OR ADAPTIVE	DECIDUOUS/EVERGREEN	SPACING
	60	*POLYSTICHUM MUNITUM*	WESTERN SWORDFERN	1 GAL			NATIVE	EVERGREEN	3' - 4' OC
SUBTOTAL	60								
TOTAL	283								

PLANTING NOTES

1. ALL PLANT SPECIES SHALL BE TRUE TO SPECIES - NO SUBSTITUTIONS ARE ALLOWED WITHOUT PRIOR APPROVAL OF THE CITY OF REDMOND.
2. PLANTING SHALL OCCUR BETWEEN OCTOBER 15 AND NOVEMBER 30 OR FEBRUARY 15 AND MARCH 30 CONTINGENT ON WEATHER.
3. ALL PLANT MATERIAL SHALL BE KEPT WATERED AND OUT OF DIRECT SUN UNTIL PLANTED.
4. FOLLOWING PLANTING, INSTALL 3 INCHES OF BARK OR WOOD MULCH TO THE ENTIRE RESTORATION PORTION OF THE BUFFER AND TO PLANTED AREAS WITHIN THE ENHANCEMENT PORTION OF THE BUFFER.



1 PLANTING: PLANTING PLAN
SCALE: 1" = 10'-0"

0 5 10 20 40
SCALE: 1" = 10'

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4	10.20.16	FINAL INTAKE

DRAWING NAME:

PLANTING: PLANTING PLAN

SHEET NO:

M1.01

PERFORMANCE STANDARDS

APPLICABLE CITY OF REDMOND PERFORMANCE STANDARDS FOR RIPARIAN BUFFERS AND HABITAT CONSERVATION AREAS	MITIGATION PLAN
1 USE PLANTS INDIGENOUS TO THE REGION	ALL PLANTS NATIVE TO THE AREA
2 PLANTS SHOULD BE COMMERCIALLY AVAILABLE FROM LOCAL SOURCES	ALL PLANTS READILY AVAILABLE
3 PLANTS SHOULD BE HIGH IN FOOD AND COVER VALUE FOR FISH AND WILDLIFE	INCLUDES SPECIES WITH HIGH FOOD AND COVER VALUE
4 PLANT PERENNIAL SPECIES	ALL SPECIES ARE PERENNIAL
5 USE SPECIES THAT ARE KNOWN TO BE CAPABLE OF SUCCESSFUL ESTABLISHMENT	ALL SPECIES ARE KNOWN TO BE EASY TO ESTABLISH
6 SUBSTRATE SHOULD CONSIST OF A MINIMUM OF ONE FOOT DEPTH OF CLEAN INORGANIC/ORGANIC MATERIALS	PLAN CALLS FOR 1 FOOT OF TOPSOIL AND 3-4 INCHES OF MULCH
7 PLANT DENSITIES SHOULD BE BASED ON CRITERIA IN APPENDIX 1	PLANT DENSITIES AVERAGE 3.6 O.C. WHICH IS APPROPRIATE FOR THE SPECIES BEING PLANTED
8 INSTALL AN IRRIGATION SYSTEM FOR THE INITIAL ESTABLISH PERIOD	IRRIGATION WILL BE INSTALLED AS PART OF THE LANDSCAPE PLAN
9 CONSTRUCTION MANAGEMENT SHOULD OCCUR BY A QUALIFIED CONSULTANT AND INSPECTED BY THE CITY	THE MITIGATION SITE WILL BE INSPECTED BY THE CONSULTANT AND THE CITY PRIOR TO PLANTING AND POST PLANTING TO MAKE SURE THE PLAN IS BEING FOLLOWED
10 LIMIT THE USE OF PESTICIDES NEAR STREAMS	NO PESTICIDES ALLOWED ON MITIGATION AREA
11 CONSIDER HABITAT AND NEAR UNITED OPEN SPACE IN CONTIGUOUS BLOCKS	HABITAT IS LOCATED ALONG SALT TOLE OF PROPERTY
12 LOCATE HABITAT CONTIGUOUS TO OTHER HABITAT TO CONTRIBUTE TO A CONTINUOUS SYSTEM OR CORRIDOR TO PROVIDE CONNECTIONS TO ADJACENT HABITAT	MITIGATION SITE IS CONTIGUOUS WITH EXISTING KING COUNTY ENHANCED BUFFER
13 USE NATIVE SPECIES IN ENHANCEMENT OF BUFFERS	ALL SPECIES IN BUFFER ARE NATIVE SPECIES
14 EMPHASIZE INTERSPERSITY AND STRUCTURAL DIVERSITY OF VEGETATION	PLANTING PLAN INCLUDES STRUCTURAL DIVERSITY WITH HIGH, MEDIUM AND LOW PLANTS. ONE BALL DIVERSITY WAS LIMITED TO ACHIEVE RAPID COLONIZATION OF SITE
15 PRESERVE SIGNIFICANT TREES, PREFERABLY IN GROUPS	NATIVE SIGNIFICANT TREES IN BUFFER TO BE PRESERVED

BASELINE VEGETATIVE MONITORING YEAR ZERO

1. CONDUCT BASELINE MONITORING AND SUBMIT REPORT WITHIN ONE MONTH (30 DAYS) OF PLANTING COMPLETION.
2. ESTABLISH MONITORING ZONES AS SHOWN USING STAKES TO MARK THE BOUNDARY BETWEEN ZONES A AND B AND ZONES C AND D.
3. TALLY ALL PLANTED SPECIES IN EACH ZONE AND EACH TREE GREATER THAN 3 FOOT TALL IN ZONES C AND D.
4. NOTIFY THE PROJECT MANAGER IMMEDIATELY OF ANY DISCREPANCIES IN NUMBER, SIZE OR GENERAL SPACING OF PLANTED INDIVIDUALS.
5. NOTIFY THE PROJECT MANAGER IMMEDIATELY IF PLANTS APPEAR STRESSED OR HAVE POOR VIGOR.
6. ESTIMATE PERCENT COVER OF ALL SPECIES IN EACH ZONE. THIS INCLUDES PLANTED STOCK, VOLUNTEER NATIVES AND INVASIVES.
7. TAKE PHOTOS AT PHOTO POINTS AS SHOWN.
8. VERIFY MULCH AS BEEN APPLIED APPROPRIATELY AND TEMPORARY IRRIGATION IS INSTALLED AS SHOWN ON PLANS.
9. A BASELINE MONITORING PLAN SHEET SHALL BE PREPARED THAT SHOWS THE LOCATIONS OF ALL PLANTED STOCK AND ANY DEVIATIONS FROM THE MITIGATION DESIGN.

MITIGATION MONITORING YEARS 1 THROUGH 5

1. BEGIN YEARLY MONITORING ONE GROWING SEASON AFTER PLANT INSTALLATION.
2. CONDUCT YEAR 1 MONITORING IN EARLY SPRING AND LATE SUMMER FOLLOWING PLANTING.
3. CONDUCT YEARS 2 THROUGH 5 MONITORING IN LATE SUMMER OR EARLY FALL BEFORE LEAF SENESENCE.
4. REPORTS ARE DUE BEFORE THE END OF THE CALENDAR YEAR
5. IN YEARS 1-3, TALLY ALL PLANTED SPECIES IN EACH ZONE AND CALCULATE MORTALITY AND PERCENT SURVIVAL BY SPECIES IN EACH ZONE.
6. ESTIMATE PERCENT COVER OF ALL SPECIES IN EACH ZONE, INCLUDING EXISTING VEGETATION, NATIVE COLONIZERS AND INVASIVES.
7. DESCRIBE GENERAL APPEARANCE OF PLANTED STOCK NOTING ANY LACK OF VIGOR, WATER STRESS, BROWSING OR INSECT DAMAGE.
8. COMPARE SURVIVAL AND PERCENT COVER TO SUCCESS CRITERIA AND PERFORMANCE STANDARDS.
9. NOTE ANY MORTALITY OF EXISTING TREES IN ZONES C AND D.
10. NOTE ANY EVIDENCE OF TRAMPLING OR TRASH IN THE BUFFER AREA
11. NOTE ANY EVIDENCE OF WILDLIFE USE INCLUDING SCAT, BROWSING, NESTS, SIGHTINGS, ETC.
12. TAKE PHOTOS AT PHOTO POINTS AS SHOWN
13. MAKE RECOMMENDATIONS REGARDING IRRIGATION REGIME.
14. NOTE ANY VOLUNTEER NATIVE SHRUBS AND TREES
15. NOTE ANY SIGNS OF OVERCROWDING OR NEED FOR THINNING.

SUCCESS CRITERIA

RESTORATION AREA	SUCCESS CRITERIA		
PERFORMANCE STANDARD MEASURE	YEAR 1	YEAR 3	YEAR 5
SURVIVAL OF PLANTED STOCK	100%	90%	80%
PERCENT COVER NATIVE TREES & SHRUBS	20%	30%	50%
PERCENT COVER INVASIVE SPECIES[1]	<0%	<5%	<5%
PERCENT COVER NON NATIVE SPECIES[1]	<5%	<10%	<20%
ENHANCEMENT AREA	**SUCCESS CRITERIA**		
PERFORMANCE STANDARD MEASURE	YEAR 1	YEAR 3	YEAR 5
SURVIVAL OF PLANTED STOCK	100%	90%	80%
PERCENT COVER NATIVE TREES & SHRUBS	60%	80%	80%
PERCENT COVER INVASIVE SPECIES[1]	<0%	<5%	<5%
PERCENT COVER NON NATIVE SPECIES[1]	<25%	<25%	<20%

MAINTENANCE PLAN

- CONTINUE IRRIGATION FOR AT LEAST 3 YEARS. ADJUST IRRIGATION AS NEEDED BASED ON RECOMMENDATIONS FROM QUALIFIED CONSULTANT
- CONDUCT MANUAL WEED CONTROL THREE TIMES YEARLY (SPRING, MID-SUMMER, EARLY FALL). PULL OR DIG ALL INVASIVE PLANTS IN BOTH THE RESTORATION AREA AND THE ENHANCEMENT AREA. SPECIES OF PARTICULAR CONCERN INCLUDE THE FOLLOWING:

SCIENTIFIC NAME	COMMON NAME	KING COUNTY NOXIOUS WEED DESIGNATION
RUBUS ARMENIACUS	HIMALAYAN BLACKBERRY	CLASS C NOXIOUS WEED
RUBUS LACINIATUS	EVERGREEN BLACKBERRY	CLASS C NOXIOUS WEED
PHALARIS ARUNDINACEA	REED CANARY GRASS	CLASS C NOXIOUS WEED
PRUNUS LAURIOCERASUS	CHERRY LAUREL	WEED OF CONCERN
HEDERA HELIX	ENGLISH IVY	CLASS C NOXIOUS WEED
ILEX AQUIFOLIUM	ENGLISH HOLLY	WEED OF CONCERN
CONVOLVULUS ARVENSIS	FIELD BINDWEED	CLASS C NOXIOUS WEED
CIRSIUM VULGARE	BULL THISTLE	CLASS C NOXIOUS WEED
CIRSIUM ARVENSE	CANADA THISTLE	CLASS C NOXIOUS WEED
SENECIO JACOBAEA	TANSY RAGWORT	CLASS B NOXIOUS WEED
POLYGONUM CUSPIDATUM	JAPANESE KNOTWEED	CLASS C NOXIOUS WEED
CYTISUS SCOPARIUS	SCOTCH BROOM	CLASS C NOXIOUS WEED
BUDDLEIA DAVIDII	BUTTERFLY BUSH	CLASS C NOXIOUS WEED
CRATAEGUS MONOGYNA	ENGLISH HAWTHORN	CLASS C NOXIOUS WEED
LEUCANTHEMUM VULGARE	OXEYE DAISY	CLASS C NOXIOUS WEED

- ANY OTHER SPECIES LISTED ON THE KING COUNTY NOXIOUS WEED LIST SHOULD ALSO BE REMOVED IF PRESENT. PLANTS SHOULD BE REMOVED WITH ROOTS, BAGGED AND DISPOSED OF OFF-SITE IN A PROPER WASTE DISPOSAL FACILITY.
- NO HERBICIDES, PESTICIDES OR FERTILIZERS SHALL BE USED IN THE MITIGATION AREA WITHOUT THE WRITTEN APPROVAL OF THE CONSULTANT OR THE CITY OF REDMOND.
- MAINTAIN SIGNS AND TEMPORARY FENCES IF NEEDED.
  REMOVE TRASH ON A REGULAR BASIS (AT LEAST MONTHLY)

CONTINGENCY MEASURES

CONTINGENCY MEASURES ARE TRIGGERED BY THE YEARLY MONITORING. THE MEASURES ARE INTENDED TO ENSURE THAT THE PROJECT MEETS THE STATED PROJECT TARGETS AND PERFORMANCE STANDARDS AT THE END OF THE MONITORING PERIOD. THE MONITORING REPORTS WILL CONTAIN A SECTION ON RECOMMENDED CONTINGENCY MEASURES. THE CITY WILL REVIEW THE MONITORING REPORTS AND CONTINGENCY RECOMMENDATIONS AND WORK WITH THE APPLICANT TO REFINE AND APPROVE ALL CONTINGENCY MEASURES BEFORE THEY ARE IMPLEMENTED.

CONTINGENCY MEASURES MAY INCLUDE:

1. REPLACING ALL PLANTING STOCK MORTALITY IN THE NEXT PLANTING WINDOW (FALL OR EARLY SPRING). IF A PARTICULAR SPECIES IS NOT THRIVING IN A GIVEN LOCATION IT SHOULD BE REPLACED BY A COMPARABLE SPECIES AT THE DIRECTION OF THE ENVIRONMENTAL CONSULTANT OR THE CITY OF REDMOND.
2. ADJUSTING IRRIGATION AS NEEDED TO CORRECT OVER OR UNDER WATERING
3. APPLYING MORE MULCH IF AREAS OF BARE GROUND APPEAR AFTER SEVERAL YEARS.
4. CONDUCTING ADDITIONAL WEED CONTROL IF THE SCHEDULED WEED CONTROL IS INEFFECTIVE IN CONTROLLING INVASIVE SPECIES
5. THINNING NATIVE VOLUNTEERS IN RESTORATION AREA IF THEY ARE CROWDING OUT THE PLANTED STOCK
6. REPLACING SIGNS IF DAMAGED OR MISSING.
7. INSTALLING FENCING ALONG EDGE OF PARKING LOT IF PEOPLE ARE CUTTING PATHS, TRAMPLING VEGETATION OR OTHERWISE CREATING UNDO DISTURBANCE OF THE MITIGATION AREA

ALL CONTINGENCY MEASURES MUST BE APPROVED BY THE CITY OF REDMOND BEFORE IMPLEMENTATION. THE CITY MAY AT ITS DISCRETION REQUIRE ADDITIONAL CONTINGENCY MEASURES.

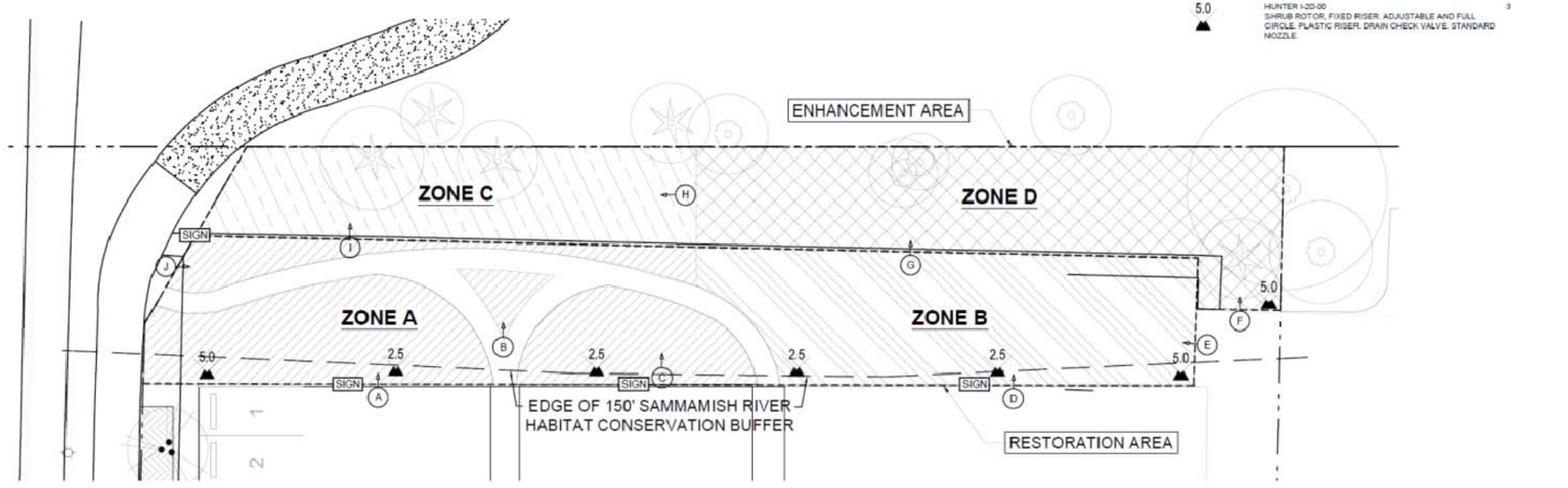
LEGEND

SIGN — SIGN - "FISH & WILDLIFE CONSERVATION AREA"

A — PHOTO POINT AND DIRECTION

IRRIGATION SYSTEM LEGEND

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
2.5	HUNTER I-20-00 SHRUB ROTOR, FIXED RISER, ADJUSTABLE AND FULL CIRCLE. PLASTIC RISER. DRAIN CHECK VALVE. STANDARD NOZZLE	4
5.0	HUNTER I-20-00 SHRUB ROTOR, FIXED RISER, ADJUSTABLE AND FULL CIRCLE. PLASTIC RISER. DRAIN CHECK VALVE. STANDARD NOZZLE	3



1 MAINTENANCE / MONITORING PLAN
SCALE: 1" = 10'-0"

SCALE: 1" = 10'

hopelink

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where architecture meets community

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FINAL PREP INTAKE

ISSUE DATE: 09.01.2016
DRAWN BY: JHD
CHECKED BY: KL

NO.	DATE	REMARK
1	2.16.16	30% INTAKE
2	5.5.16	60% INTAKE
3	9.1.16	90% INTAKE
4	10.20.16	FINAL INTAKE

DRAWING NAME:

MAINTENANCE / MONITORING PLAN

SHEET NO.

M1.02