City of Bellevue
Development Services Department
Land Use Staff Report

Proposal Name:	120th Avenue NE Expansion Stage 3(a)
Proposal Address:	12000 120th Avenue NE
Proposal Description:	Critical Areas Land Use Permit approval to widen 120th Avenue NE from NE 12th Street to the proposed intersection with NE Spring Boulevard. This proposal is part of a package of transportation improvements identified as necessary to achieve goals of the Bel-Red Subarea in the City of Bellevue Comprehensive Plan. The preferred road alignment for 120th Ave NE closely follows the centerline of the existing two-lane road. The existing road will be expanded to include four travel lanes and a center turn lane. Also included are two 5-foot-wide bike lanes, two 5-foot-wide planter strips, and two 8-foot-wide sidewalks. The proposal would result in the filling of a Category III wetland and includes a wetland and buffer mitigation plan supported by a critical areas land use permit and accompanying wetland, geotechnical and mitigation analysis. SEPA analysis for this project, including issuance of a DNS, was completed under City of Bellevue file #11-114971-LM.
File Number:	**14-139005-LO**
Applicant:	Paul Krawczyk, City of Bellevue Transportation Department
Decisions Included:	Critical Areas Land Use Permit (Process II. LUC 20.30P)
Planner:	Michael Paine, Environmental Planning Manager
State Environmental Policy Act Threshold Determination:	SEPA DNS issued July 26, 2012 under file #11-114971-LM
Director's Decision:	**Approval with Condition**

Carol V. Helland, Land Use Director
Development Services Department

Application Date:	August 15, 2014
Notice of Application Publication Date:	September 18, 2014
Decision Publication Date:	December 10, 2015
ProposalAppeal Deadline:	December 28, 2015

For information on how to appeal a proposal, visit Development Services Center at City Hall or call (425) 452-6800. Appeal of the Decision must be received in the City's Clerk's Office by 5 PM on the date noted for appeal of the decision.

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6. 120th Avenue NE Corridor Project Wetland and Stream Delineation Report (see file).

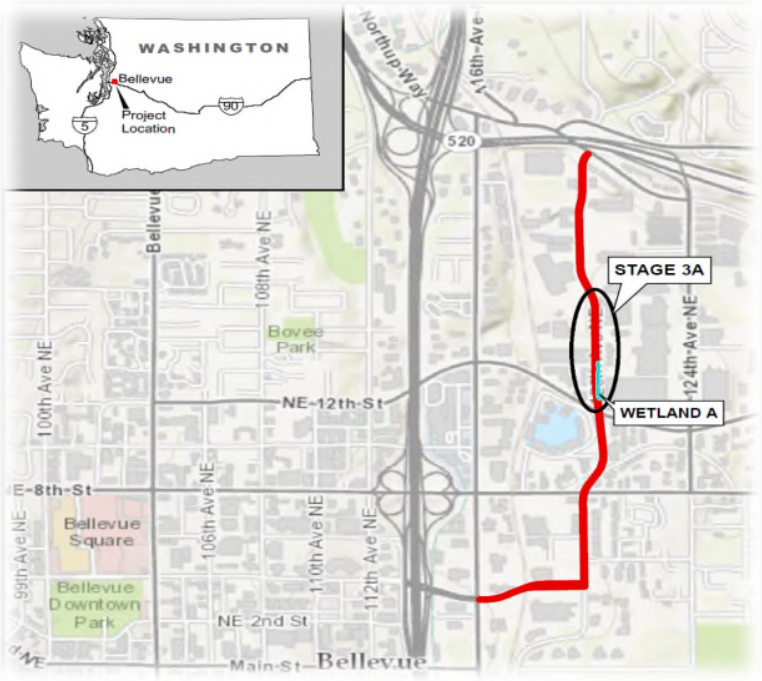
I. Proposal Description

General Description: The City of Bellevue Transportation Department seeks a critical areas land use permit approval to widen a segment of the previously constructed 120th Avenue NE from NE 12th Street to the proposed intersection with NE Spring Boulevard. This proposal is part of a larger plan to boost mobility from downtown Bellevue east and north through the Bel-Red corridor to Overlake by connecting NE 4th Street, by way of 116th Ave NE and NE 12th Street, to 120th Ave NE and Northup Way. The proposal includes construction of a five-lane road meeting City standards for an urbanized arterial consisting of four 11-foot-wide travel lanes—two lanes in each direction—and a center turn lane. Also included on both sides are two 5-foot-wide bike lanes, two 5-foot-wide planter strips, and two 8-foot-wide sidewalks. However, the size and location of the sidewalks, bicycle facilities, and planter strips will vary somewhat along the corridor to accommodate future road connection points.

The purpose of this critical areas report is to identify critical areas in the Stage 3A corridor between NE 12th Street to the proposed intersection with the newly named NE Spring Boulevard and to demonstrate that the proposal will lead to equivalent or better protection of critical area functions and values than would result from a no action alternative.

A proposal map generally depicting the location of the proposed road improvements is included as **Figure 1** below.

Figure 1: ProposalArea



Design Objectives and Feasibility: Due to the presence of wetland and steep slope critical areas, the proposal is regulated by the City of Bellevue Land Use Code (LUC) Critical Areas Overlay District requirements found at Part 20.25H LUC. The proposed road construction is considered an allowed use or development in the Critical Areas Overlay District (see LUC 20.25H.055.B) subject to compliance

with applicable performance standards. Generally, such a use or development is permitted if the applicant can demonstrate there is no technically feasible alternative with less impact on critical areas and performance standards listed in LUC 20.25.055.C.2 and LUC 20.25H.100 can be met. In response to these requirements, the applicant has obtained the services of a qualified professional who has helped design the proposal with the goal of minimizing or mitigating impacts to wetland critical areas and analyzing the proposal for geotechnical stability. A summary of compliance with required performance standards, including a feasibility analysis, prepared by the applicant's consultant is included as **Attachment 1**.

The purpose of applying Critical Areas rules to this proposal is to ensure the proposal design minimizes impacts to the existing wetland and habitat area, accounts for geotechnical stability, follows the design recommendations of a qualified design professional, and provides for an improvement overall ecological function over the degraded condition. The key elements used to analyze feasibility of alternatives and establish minimum critical area impacts are listed below. See Section II for detailed discussion of how this proposal meets this feasibility test.

- **Location of Existing Infrastructure.**

- **The function or objective of the proposed new or expanded facility.**

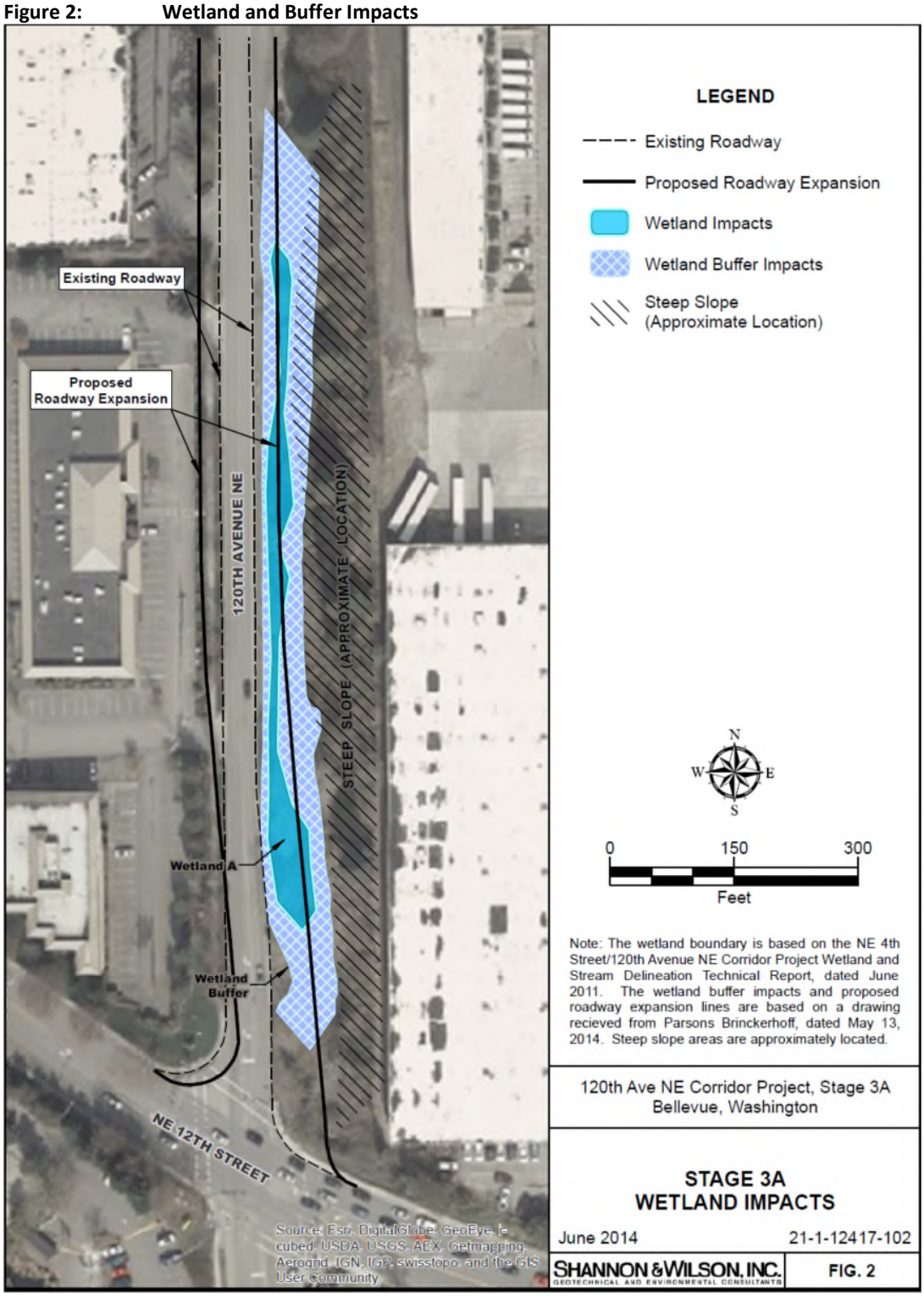
- **Demonstration that no alternative location or configuration outside of the critical area achieves the stated function or objective.**

- **Whether cost of avoidance is substantially disproportionate compared to environmental impact of the project.**

- **The ability of both permanent and temporary disturbance to be mitigated.**

Previous Environmental Review: This Phase 3(a) widening proposal is part of the NE 4th Street/120th Ave NE mobility proposal that underwent previous SEPA analysis under City of Bellevue file number 11-114971-LM. A SEPA Determination of Non-Significance was issued on July 26, 2012 and validated by the City's Hearing Examiner following and appeal hearing that concluded on January 18, 2013 under City of Bellevue Hearing Examiner's Office file number AAD 12-45. The SEPA DNS, Hearing Examiner's Decision, and all associated documentation and testimony is incorporated by reference as part of this critical areas land use permit.

Figure 2: Wetland and Buffer Impacts



A. Zoning and Land Use

The expanded arterial street would be established within existing right-of-way and on private property zoned Bel-Red Office/Residential Node (2) (BR-OR-2). General dimensional standards in LUC 20.20.010 do not apply because the proposed development is construction of a new road that will be located within a City Transportation Department right-of-way and associated easements. The proposed expansion of 120th Avenue NE Street promotes the district's vision of a mixed-use high density community and is intended to support the redevelopment of the Bel-Red Subarea. Absent this expansion, the transportation facilities in the area would be insufficient to support the projected land use growth.

B. Critical Areas Functions and Values

i. Wetland and Buffer Functions – LUC 20.25H.095

a. Wetland and Buffer Functions: Wetlands provide important functions and values for both the human and biological environment—these functions include flood control, water quality improvement, and nutrient production. These "functions and values" to both the environment and the citizens of Bellevue depend on their size and location within a basin, as well as their diversity and quality. While Bellevue's wetlands provides various beneficial functions, not all wetlands perform all functions, nor do they perform all functions equally well (Novitski et al., 1995). However, the combined effect of functional processes of wetlands within basins provides benefits to both natural and human environments. For example, wetlands provide significant stormwater control, even if they are degraded and comprise only a small percentage of area within a basin.

II. Consistency with Land Use Code Requirements:

A. Zoning District Dimensional Requirements:

General dimensional standards in LUC 20.20.010 do not apply as the development proposed is the construction of a new road that will be located within a City Transportation Department right of way.

B. Consistency with Critical Areas Performance Standards LUC 20.25H:

i. Performance Standards for New and Expanded Uses and Development LUC 20.25H.055.C.2.a - New or expanded facilities and systems are allowed within the critical area or critical area buffer only where no technically feasible alternative with less impact on the critical area or critical area buffer exists. A summary of compliance with required performance standards, including a feasibility analysis, prepared by the applicant's consultant is included as Attachment 1. A determination of technically feasible alternatives includes:

a. The location of existing infrastructure;

Finding: Wetland A is an 8,266-square foot depressional outflow wetland dominated by

willow, spirea, and bentgrass. It has been rated as a Category III wetland using the 2004 Washington State Department of Ecology's Wetland Rating System. More information on Wetland A can be found in the 120th Avenue NE Corridor Project Wetland and Stream Delineation Report (Shannon & Wilson, 2011a). Wetland A exists in and around an existing roadside depression just east of the existing profile of 120th Avenue NE. Existing buffer includes red alder and black cottonwood and pileated woodpecker use (pileated woodpeckers are considered keystone species and considered locally important) has been documented in the buffer area. Steep slopes rise above the wetland area along most of the frontage. (See Figure 2) The proposed widening will impact the entire length of Wetland A and much of its associated buffer. The required structure setback from toe-of-slope of existing steep slopes is also in the same area. The alignment of existing intersection to the south at NE 12th Street sets the alignment to the north and consequently the necessity to fill Wetland A.

b. The function or objective of the proposed new or expanded facility or system;

Finding: Widening of 120th Avenue NE is specifically identified as one of the key infrastructure improvements needed to implement the Bel-Red Subarea Plan. Part of the NE 4th Street / 120th Avenue Northeast Corridor Project, it will contribute to improved mobility, support economic development, and address the expected growth in travel demand brought about by the redevelopment of the western part of the Bel-Red Subarea. The improved corridor will provide critical missing links in the city's traffic distribution network, and ease congestion in other travel corridors. The proposal will provide pedestrian and bicycle facilities and connections to transit facilities including future East Link stations. Not widening 120th Avenue NE or shifting improvements to another corridor would compromise the functionality of the street system to provide the service required by the land use changes contemplated in the Bel-Red Subarea Plan.

c. Demonstration that no alternative location or configuration outside of the critical area or critical area buffer achieves the stated function or objective, including construction of new or expanded facilities or systems outside of the critical area;

Finding: Based on the applicant's analysis, there is no technically feasible alternative to widening 120th Avenue NE that would have less impact on Wetland A without creating additional and potentially more significant environmental impacts. This is true because the preferred road alignment immediately north of NE 12th Street is configured to match the alignment south of NE 12th Street. South of NE 12th Street, the preferred alignment for 120th Avenue NE recommended in the Alternatives Evaluation and Screening Technical Report (2011), is to shift the existing road centerline far enough to the east to minimize the need to over excavate the load-sensitive, highly compressible (peat) soils underlying the properties abutting Lake Bellevue and extending near the western edge of the existing two-lane road. In order to maintain road and intersection continuity with this easterly alignment south of NE 12th Street without compromising mandated safety and design criteria, the easterly alignment of 120 Avenue NE south of NE 12th Street was extended through the NE 12th Street intersection, resulting in an unavoidable impact to all of Wetland A immediately north of NE 12th Street. Attempts to center the road

widening south of NE 12th Street around the existing centerline to minimize impacts to Wetland A or to shift it even farther west to avoid impacts to Wetland A altogether, would result in the need to over excavate the identified peat soils to build the proposed road fills and retaining walls, or to bridge over this area.

d. Whether the cost of avoiding disturbance is substantially disproportionate as compared to the environmental impact of proposed disturbance; and

Finding: As suggested above, the cost of shifting the right-of-way to the west would result in significantly higher construction costs which, in the opinion of the applicant's consultant, would be disproportionate in relation to the environmental benefit of saving a low-value Type III wetland.

e. The ability of both permanent and temporary disturbance to be mitigated.

Finding: Mitigation of both permanent and temporary disturbance can be achieved. See Mitigation Report dated November 4, 2015 that outlines 66,080 square feet of enhancement to offset 8,260 square feet of wetland fill. Lost buffer will be compensated by enhancing additional wetland area as the proposed mitigation area is almost entirely wetland bringing the total area of enhancement to 86,841 square feet. The enhancement will take place on City of Bellevue Parks Property in the Lake Hills Greenbelt near Larsen Lake. Mitigation plans are included as Attachment 3. Areas of steep slope outside of the Phase I limits of construction will not be modified, nor is it anticipated that the proposed construction of this road will adversely affect these slopes. Subsequent development of the proposed Spring District proposal is anticipated to cause the future removal of these slopes as permitted by LUC 20.25H.

ii. Performance Standards for New and Expanded Uses and Development LUC 20.25H.055.C.2.b - If the applicant demonstrates that no technically feasible alternative with less impact on the critical area or critical area buffer exists, then the applicant shall comply with the following.

a. Location and design shall result in the least impacts on the critical area or critical area buffer;

Finding: As outlined above, avoidance was not an option and given the location of wetland abutting the right-of-way, minimization is limited by the constraints presented by the alignment to the south which is biased to the east because of the presence of peat soils around Lake Bellevue.

b. Disturbance of the critical area and critical area buffer, including disturbance of vegetation and soils, shall be minimized;

Finding: See discussion above.

c. Disturbance shall not occur in habitat used for salmonid rearing or spawning or by any

species of local importance unless no other technically feasible location exists;

Finding: The applicant's consultant discovered evidence of pileated woodpecker use on a standing snag within Wetland A. This strongly suggests the presence of habitat for species of local importance as noted at LUC 20.25H.150. Unfortunately as outlined above, there is no technically feasible alternative to the current proposal to fill the wetland.

d. Any crossing over of a wetland or stream shall be designed to minimize critical area and critical area buffer coverage and critical area and critical area buffer disturbance, for example by use of bridge, boring, or open cut and perpendicular crossings, and shall be the minimum width necessary to accommodate the intended function or objective; provided, that the Director may require that the facility be designed to accommodate additional facilities where the likelihood of additional facilities exists, and one consolidated corridor would result in fewer impacts to the critical area or critical area buffer than multiple intrusions into the critical area or critical area buffer;

Finding: Not applicable

e. All work shall be consistent with applicable City of Bellevue codes and standards;

Finding: The proposal requires application for Clearing and Grading Permit and must demonstrate compliance with City of Bellevue construction codes and standards.

f. The facility or system shall not have a significant adverse impact on overall aquatic area flow peaks, duration or volume or flood storage capacity, or hydroperiod;

Finding: The proposal is located in the Sturtevant Creek Basin, which because it has been 40 percent impervious for at least the last 20 years, is subject to the Department of Ecology's "40/20 Rule". As such, a Department of Ecology exemption allows for the use of actual land cover conditions in the sizing of the required flow control facilities. The end result is that the proposed road expansion gets a "credit" for the existing impervious surfaces. However, the proposal is still required to meet Minimum Requirement 7 (Flow Control) for: (1) new impervious surfaces; and, (2) converted pervious surfaces. Flow control is not required for replaced impervious surfaces. The design of the proposed public detention vault reflects this requirement.

g. Associated parking and other support functions, including, for example, mechanical equipment and maintenance sheds, must be located outside critical area or critical area buffer except where no feasible alternative exists; and

Finding: Not applicable.

h. Areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210.

Finding: The proposal includes a conceptual mitigation plan meeting the requirements of LUC 20.25H.210. The mitigation plan is designed to offset the impacts of converting Wetland A and its buffer to paved surface and slope easement.

j. Areas of new permanent disturbance and all areas of temporary disturbance shall be mitigated and/or restored pursuant to a mitigation and restoration plan meeting the requirements of LUC 20.25H.210.

Finding: The proposal includes a conceptual mitigation plan meeting the requirements of LUC 20.25H.210 and designed to offset the impacts of permanent conversion of Wetland A and associated buffer to road and associated improvements. See Mitigation Report dated November 4, 2015 that outlines 66,080 square feet of enhancement to offset 8,260 square feet of wetland fill. Lost buffer will be compensated by enhancing additional wetland area as the mitigation area is almost entirely wetland bringing the total to 86,841 square feet. The enhancement will take place on City of Bellevue Parks Property in the Lake Hills Greenbelt near Larsen Lake. Mitigation plans are included as Attachment 3.

iii. Performance Standards for Wetlands LUC 20.25H.100

This section contains performance standards design to limit impacts to existing wetlands. The standards do not apply because the wetland and associated buffer will be filled to construct the road improvements.

III. Public Notice and Comment

Application Date:	August 15, 2014
Public Notice (500 feet):	September 18, 2014
Minimum Comment Period:	October 2, 2014

The Notice of Application for this proposal was published in the City of Bellevue Weekly Permit Bulletin on September 18, 2014. It was mailed to agencies, tribes, and property owners within 500 feet of the proposal site. No public comment letters were received. Agency responses were specific to the terms of their approvals.

IV. Summary of Technical Reviews

Clearing and Grading: The Clearing and Grading Division of the Development Services Department has reviewed the proposed development for compliance with Clearing and Grading codes and standards. The Clearing and Grading staff found no issues with the proposed development.

V. State Environmental Policy Act (SEPA)

This proposal to fill a wetland critical area and buffer to allow for expansion of 120th Ave NE in the area described was included in the SEPA analysis and threshold determination for this corridor plan to boost mobility from downtown Bellevue east and north through the Bel-Red

corridor to Overlake. A SEPA DNS was issued on July 26, 2012 for this corridor plan and validated by the City's Hearing Examiner following an appeal hearing that concluded on January 18, 2013 under City of Bellevue Hearing Examiner's Office file number AAD 12-45. As identified in Section VI of this DNS, a Critical Areas Land Use Permit is required when impacts to critical areas are anticipated. The Environmental Checklist submitted with the SEPA application adequately disclosed expected environmental impacts associated with the broader corridor proposal and the analysis of this phase is consistent with information reviewed under the previously issued DNS.

VI. Decision Criteria

A. Critical Areas Land Use Permit Decision Criteria 20.30P

The Director may approve or approve with modifications an application for a critical areas land use permit if:

i. The proposal obtains all other permits required by the Land Use Code;

Finding: The proposed activity is required to obtain a clearing and grading permit and other ancillary permits as needed. See related Conditions of Approval in Section VIII.

ii. The proposal utilizes to the maximum extent possible the best available construction, design and development techniques which result in the least impact on the critical area and critical area buffer;

Finding: The proposal has been designed by qualified engineering professionals and has taken into account specific design requirements to address road design. The proposal has been designed to minimize impacts to the extent possible given the alignment constraints described above. Where impacts to wetland and buffer are proposed, mitigation has been included and designed to offset the impacts of filling a Category III wetland and preclusion of future vegetation growth in the footprint of the proposed road.

iii. The proposal incorporates the performance standards of Part 20.25H to the maximum extent applicable, and ;

Finding: Section II above discusses how the proposal design incorporates applicable performance standards.

iv. The proposal will be served by adequate public facilities including street, fire protection, and utilities; and;

Finding: The proposal is a new road and constitutes a public infrastructure service.

v. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC Section 20.25H.210; and

Finding: A mitigation and restoration plan consistent with the requirement of LUC 20.25H.210

has been prepared. The applicant is required to submit a final restoration and mitigation plan as part of the Clearing and Grading Permit application. See Section VII for related conditions of approval.

vi. The proposal complies with other applicable requirements of this code.

Finding: As discussed in Section IV & V of this report, the proposal complies with all other applicable requirements of the Land Use Code.

VII. Conclusion and Decision

After conducting the various administrative reviews associated with this proposal, including land use code consistency and city code and standard compliance reviews, the Development Services Director does hereby **approve with conditions** the proposal to fill a Category III wetland and buffer area necessary to expand 120th Avenue NE to four lanes with center turn lane and associated pedestrian improvements.

Note- Expiration of Approval: In accordance with LUC 20.30P.150 a Critical Areas Land Use Permit automatically expires and is void if the applicant fails to file for a Clearing and Grading Permit or other necessary development permits within two years of the effective date of the approval.

VIII. Conditions of Approval

The applicant shall comply with all applicable Bellevue City Codes and Ordinances including but not limited to:

Applicable Ordinances	Contact Person
Clearing and Grading Code- BCC 23.76	Savina Uzunow, 425-452-7860
Land Use Code- BCC 20.25H	Michael Paine, 425-452-2973
Noise Control- BCC 9.18	Michael Paine, 425-452-2973
Transportation Code	Transportation, 425-452-4236

The following conditions are imposed under the Bellevue City Code or SEPA authority referenced:

1) Clearing and Grading Permit: Before commencing any construction activity the applicant must apply for and obtain a Clearing and Grading Permit.

Authority: Bellevue City Code Section 23.76.025
Reviewer: Michael Paine, Development Services Department

2) Final Mitigation Plan Required: A mitigation plan for all areas of permanent new disturbance and temporary disturbance is required to be submitted for review and approval by the City of Bellevue prior to issuance of the required clearing and grading permit. The plan will include the following changes:

a. Space one gallon shrubs to 4 feet on center and adjust quantities accordingly**.**
b. Replace black swamp gooseberry with salmonberry
c. Add revised workload plan as detailed by Bellevue Parks Department

Authority: Land Use Code 20.25H.220, 20.25H.180.C.5
Reviewer: Michael Paine, Development Services Department

3) Monitoring Plan Required: To ensure the proposed restoration plan is successful, a 10 year monitoring plan shall be submitted as part of the underlying clearing and grading permit required to implement the project. In order to ensure the mitigation plantings successfully establish, the mitigation plan shall be updated to include the following performance standards for a period of five years following installation:

Year 1: 100% survival of all installed plants & 0% invasive coverage.

Year 2: 90% survival of all installed plants & <5% invasive coverage.

Year 3: 90% survival of all installed plants, >35% native coverage & <5% invasive coverage.

Year 4: >65% native coverage & <5% invasive coverage.

Year 5: 65% native coverage & <5% invasive coverage.

Year 10: 90% native coverage & <5% invasive coverage

Authority: Land Use Code 20.25H.220, 20.25H.180.C.5
Reviewer: Michael Paine, Development Services Department

4) Mitigation Installation: Mitigation installation shall commence immediately following permit issuance where technically feasible and shall be installed according to the mitigation plans submitted as part of this application within one year of proposal completion or as required by the City of Bellevue Parks Department.

Authority: Land Use Code 20.25H.220, 20.25H.180.C.5
Reviewer: Michael Paine, Development Services Department

5) Mitigation Maintenance: Maintenance of mitigation plantings shall include, at a minimum, three entries per year for a period of no less than 5 years. During each entry, plant growth will be evaluated, soils amended as needed, and invasive plants will be suppressed.

Authority: Land Use Code 20.25H.220, 20.25H.180.C.5
Reviewer: Michael Paine, Development Services Department

6) Submittal of Mitigation Maintenance and Monitoring Reports: As part of the required 5 years of mitigation maintenance and monitoring required by the LUC 20.25H.220, the applicant

shall submit annual monitoring reports to the Development Services Department Land Use Division at the end of the growing season by no later than November 30 for each year monitored.

Authority: Land Use Code 20.25H.220, 20.25H.180.C.5
Reviewer: Michael Paine, Development Services Department

7) Noise Control: Noise related to construction is exempt from the provisions of BCC 9.18 between the hours of 7 am to 6 pm Monday through Friday and 9 am to 6 pm on Saturdays, except for Federal holidays and as further defined by the Bellevue City Code. Noise emanating from construction is prohibited on Sundays or legal holidays unless expanded hours of operation are specifically authorized in advance. Requests for construction hour extension must be done in advance with submittal of a construction noise expanded exempt hours permit.

Authority: Bellevue City Code 9.18
Reviewer: Michael Paine, Development Services Department

8) Geotechnical Recommendations: The proposal shall be constructed per the recommended procedures and practices in the geotechnical report prepared by GeoEngineers and dated October June 12, 2015

Authority: Land Use Code 20.30P.140
Reviewer: Michael Paine, Development Services Department

Memorandum

Date: October 19, 2011

To: Paul Krawczyk and Marina Arakelyan
City of Bellevue Department of Transportation

From: Ken Oswell and Kenneth Loen
Parsons Brinckerhoff

Subject: Critical Areas Technically Feasible Alternatives Analysis Letter Report for the NE 4th Street/120th Avenue NE Corridor Project

CRITICAL AREA IMPACTS – TECHNICAL FEASIBILITY ANALYSIS

Applicable Land Use Codes

Pursuant to the *Bellevue City Code (BCC)*, as codified by *Land Use Code (LUC) 20.25H Critical Areas Overlay District,* the project is required to meet certain performance criteria as a result of impacts to identified critical areas.

Critical Area Types

LUC 20.25H identifies requirements related to impacts to the following Critical Areas (bold indicates Critical Areas addressed by this memo):

1. **Streams**
2. **Wetlands**
3. Shorelines
4. **Geologic hazard areas**
5. Habitat associated with species of local importance
6. Areas of special flood hazard

For reasons described below, this technical feasibility analysis will only address the following critical areas: Streams, Wetlands, and Gelogical Hazard Areas (specifically, Steep Slopes).

Allowable Uses

Allowable uses for all critical areas *except habitat areas* are outlined by LUC 20.25H.055. The NE 4th Street/120th Avenue NE Corridor Project falls within the allowable use identified as "New or expanded public rights-of-way, private roads, access easements and driveways." The LUC defines sets of performance standards that must be met, which vary for streams, wetlands, shorelines, geologic hazard areas, and areas of special flood hazard.

Allowable uses for habitat critical areas are defined by LUC 20.25H.050.B.1, which states that all uses allowable by zoning may be undertaken in habitat critical areas, so long as the performance standards of LUC 20.25H.160 are met. Those standards do not reference a requirement for a technical feasibility analysis, so habitat associated with species of local importance will not be addressed by this memo. Habitat impacts and mitigation related to the project are detailed in the *Significant Tree Reconnaissance Letter Report for the NE 4th Street/120th Avenue NE Corridor Project (Shannon and Wilson, October 2011)*.

Performance Standard Requiring Technical Feasibility Analysis

Subsection LUC 20.25H.055.C.2.a requires that a determination of technically feasible alternatives be prepared in order to demonstrate that no technically feasible alternative with less impact exists for streams, wetlands, shorelines, geologic hazard areas, and areas of special flood hazard. However, the NE 4th Street/120th Avenue NE Corridor Project has no impacts to shorelines or areas of special flood hazard, so those two types of critical areas will not be addressed by this memo. Furthermore, the project impacts only the sub-category of "steep slopes" in the geologic hazard areas category, so all further references to geologic hazard areas in this memo will refer specifically to steep slope critical areas.

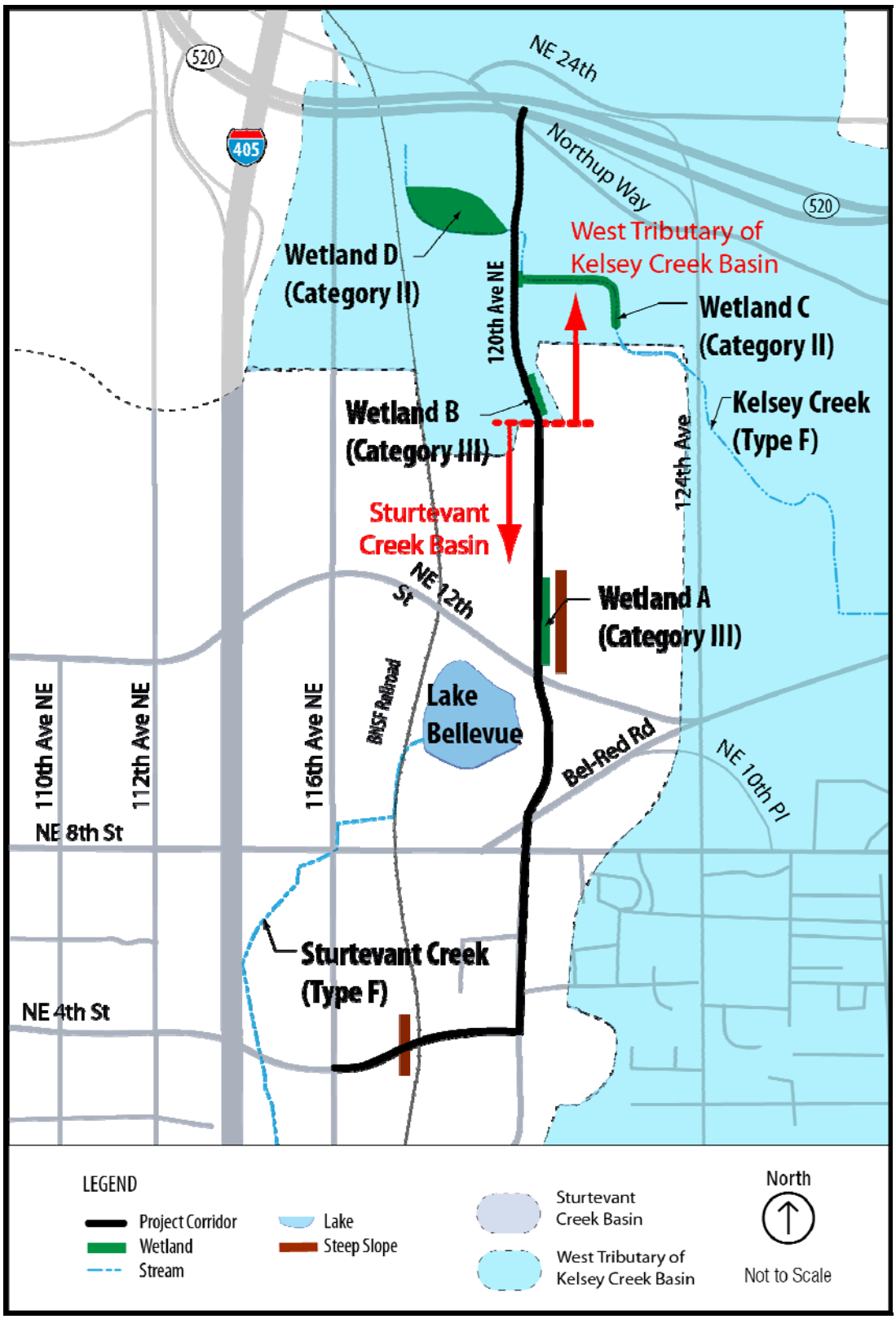
The purpose of this memo, therefore, is to meet the requirement of LUC 20.25H.055.C.2.a to provide a technical feasibility analysis with respect to project impacts on stream, wetland, and steep slope critical areas. These critical areas along the NE 4th Street/120th Avenue NE corridor are described below and shown on Figure 1. Further information concerning wetland and stream impacts can be found in the *NE 4th Street/120th Avenue NE Corridor Project, Wetland and Stream Delineation Technical Report (Revised Draft)(Shannon and Wilson, June 2011).*

STREAMS

Stream Location 1: West Tributary of Kelsey Creek Crossing 120th Avenue NE, South of Northup Way

The West Tributary of Kelsey Creek originates in Wetland D where it flows within a 5-foot-wide active channel with a bed comprised of 6 inches of silt. The tributary currently crosses perpendicularly beneath 120th Avenue NE through a buried 36-inch corrugated metal pipe to a manhole on the east side of the street. One other smaller culvert from the northwest also conveys water to this manhole. The tributary exits the manhole to the south in a second buried 36-inch corrugated metal pipe that runs parallel to 120th Avenue NE for approximately 250 feet and then daylights and outfalls into Wetland C adjacent to the roadway. Shortly after the outfall, the stream turns east and flows away from the project through Wetland C. The active channel in Wetland C is approximately 4 feet wide with a bed comprised of sand and well-rounded gravels. As the stream exits the second 36-inch pipe, the ordinary high water mark for the stream fans out above the banks of the active channel and adjacent portions of Wetland C (as shown in Figure 1).

Figure 1. NE 4th Street/120th Avenue NE Corridor Project Critical Areas Map



Analysis:

Widening of 120th Avenue NE is one of the infrastructure needs identified for the Bel-Red Subarea in the City of Bellevue Comprehensive Plan (Comp Plan). The transportation

improvements identified in the Comp Plan are intended to produce an integrated network of streets necessary to provide the transportation service needed to achieve the Comp Plan goals and objectives for the Bel-Red Subarea. Not widening 120th Avenue NE or shifting improvements to another corridor would compromise the functionality of the street system to provide the required service. There is no technically feasible alternative to widening 120th Avenue NE that would have less impact on this stream, for reasons described below.

The preferred roadway alignment for 120th Ave NE closely follows the centerline of the existing two-lane roadway. The widened roadway would have four lanes with a 10-foot bike trail and two variable width planter strips on the west side, a 5-foot planter on the east side, and 8-foot sidewalks on both sides.

The Preferred Alternative for widening 120th Avenue NE was chosen to minimize impacts to the stream crossing. The project proposes to widen 120th Avenue NE where it passes over the West Tributary of Kelsey Creek (and between Wetlands C and D as described below). As noted in the *Alternatives Evaluation and Screening Technical Report (Parsons Brinckerhoff, 2011)*, symmetrical widening of the roadway about the centerline of the existing roadway is preferred in this area for a variety of reasons such as favorable roadway geometry and not having to demolish an occupied building on the Granger property, and this alignment also works to minimize impacts between critical areas. Shifting the alignment to reduce impacts on one of the wetlands or stream would increase impacts on the other critical areas. The alignment as currently proposed impacts Wetland D's buffer but does not directly impact Wetland D. This is advantageous because Wetland D is considered the highest functional wetland in the project area.

Mitigation:

In order to mitigate stream impacts, the existing 36-inch storm sewer pipes and manhole would be replaced with two, open-bottom box culverts; one under 120th Avenue NE, and the second under a private driveway on the east side of 120th Avenue NE situated on the Safeway Property. Between the two box culverts, the stream would be conveyed along the east side of the roadway in a new open channel constructed with the project, and would tie in with the existing stream channel at the outlet of the second box culvert. The box culverts would be designed for the hydraulic flows and to be fish-passable, as well as to allow wildlife crossings, if possible.

All work for the stream crossing shall comply with all applicable City of Bellevue Codes and Standards and shall be conducted to minimize disturbance of the stream and stream buffer, including disturbance of vegetation and soils. It is anticipated that the stream enhancement features proposed for the project, including open-bottom box culverts, creating a reach of new open channel, and associated restoration and new plantings, would provide adequate mitigation for the stream and buffer impacts to satisfy the requirements of LUC 20.25H.210.

WETLANDS

Wetland Location 1: Wetland A

Wetland A is a Category III wetland located within the Wright Runstad property just north of NE 12th Street along the east side of 120th Avenue NE. The project proposes to widen the existing two-lane roadway along the entire length of Wetland A to five lanes with a 5-foot bike lane, 5-foot planter and 8-foot sidewalk on each side.

Analysis:

Widening of 120th Avenue NE is one of the infrastructure needs identified for the Bel-Red Subarea in the City of Bellevue Comprehensive Plan (Comp Plan). The transportation improvements identified in the Comp Plan are intended to produce an integrated network of streets necessary to provide the transportation service identified by the Comp Plan goals and objectives for the Bel-Red Subarea. Not widening 120th Avenue NE or shifting improvements to another corridor would compromise the functionality of the street system to provide the required service. There is no technically feasible alternative to widening 120th Avenue NE that would have less impact on this wetland without creating additional SEPA impacts, for reasons described below.

The preferred roadway alignment immediately north of NE 12th Street is configured to match the alignment south of NE 12th Street. South of NE 12th Street, the preferred alignment for 120th Avenue NE recommended in the *Alternatives Evaluation and Screening Technical Report (2011)* is to shift the existing roadway centerline far enough to the east to minimize the need to over excavate the load-sensitive, highly compressible (peaty) soils underlying the Lake Bellevue properties and extending close to the west edge of the existing two-lane roadway. In order to maintain roadway continuity with this easterly alignment south of NE 12th Street without compromising safety and design criteria, the alignment south of NE 12th Street would be extended straight through the NE 12th Street intersection, resulting in an unavoidable impact to all of Wetland A immediately north of NE 12th Street.

Efforts to align the roadway widening south of NE 12th Street to be centered about the existing roadway centerline, or to shift it even farther west, to avoid impacts to Wetland A would result in the need to over excavate the peat to build the proposed roadway fills and retaining walls, or to bridge over this area. Either of these options would result in greater construction and long-term maintenance risks and disproportionately high cost compared to the value of this Category III wetland.

Mitigation:

The NE 7th Street to NE 12th Street construction stage will impact 325 sf of Wetland A's buffer. This area equals less than two percent of Wetland A's total buffer and consists of grass, weedy shrubs, and a portion of a dirt or gravel pull-out/parking area along 120th Avenue NE. This buffer is considered to be poor-quality buffer that does not provide much functional value for protecting the wetland. Therefore, it is our opinion that this loss of 325 sf of wetland buffer is negligible and will not cause irreparable harm to Wetland A.

To mitigate for the buffer impact, we propose to enhance 325 sf of Wetland D's buffer by removing blackberries and installing native shrubs and trees along the southern boundary.

This mitigation would require an easement on the Granger property. The City would also require monitoring and achievement of performance standards based on BCC.

This mitigation would occur in the West Tributary of Kelsey Creek subbasin rather than in the Sturtevant Creek subbasin where the wetland buffer impact is occurring. However, we recommend this mitigation strategy because: (a) it would be inappropriate and counterproductive to enhance the remaining buffer of Wetland A since it will be cleared and filled during the NE 12th Street to NE 16th Street construction stage, and (b) no suitable wetland buffer creation or enhancement sites have currently been identified in the Sturtevant Creek subbasin.

With the construction of NE 112th Street to NE 16th Street, approximately 8,260 sf of Wetland A will be impacted. The following table quantifies the City's wetland mitigation requirements, and the Corps and Ecology wetland mitigation options, for the proposed Wetland A impacts.

Wetland A - Wetland Mitigation Requirements

Impacted Area	Impact Area (sf)	Bellevue R/C (sf)	U.S. Army Corps of Engineers/Department of Ecology Options (one required) R/C (sf)	RH (sf)	R/C and RH (sf)	R/C and E (sf)	E (sf)
Wetland A	8,260	16,520	16,520	33,040	8,260 R/C + 16,520 RH	8,260 R/C + 33,040 E	66,080
Wetland A Buffer	20,693	20,693	None specified				

Wetland Replacement Ratios Source: Wetland Mitigation in Washington State – Part 1: Agency Policies and Guidance (Version 1) (published by Ecology in 2006)

E = Wetland Enhancement; R/C = Wetland Re-establishment or Creation; RH = Wetland Rehabilitation

Based on Ecology's Wetland Rating System for Western Washington, Wetland A has high water-quality functions, low hydrologic functions, and moderate habitat functions. To compensate for the wetland water-quality functions that will be lost, the wetland mitigation would need to be located in an area that receives untreated stormwater runoff. To compensate for the hydrologic functions, the wetland mitigation would also need to be located in an area that drains to a river or stream that has flooding problems. The wetland mitigation would need to establish persistent vegetation by removing invasive species and/or installing native plants. The wetland mitigation also would need to create or restore areas of ponding in a wetland to slow down stormwater flow, to allow sediments to fall out of the water, and to reduce flooding and erosion downstream.

To mitigate for the habitat functions lost, the wetland mitigation area should have a minimum of two vegetation classes and include a variety of native species to emphasize species diversity. To mitigate for the known pileated woodpecker habitat in Wetland A, snags and native tree species should be installed in the mitigation area to provide immediate and future habitat for this species. Other potential ways to increase habitat function that may be used are to enhance existing wetlands, or create new wetlands, with different hydrologic regimes (e.g., permanently ponded areas, seasonally ponded areas, saturated-only areas, etc.), create habitat features (e.g., install woody debris, plant thin-stemmed emergent plants for amphibian habitat), and perform the wetland mitigation adjacent or near to other wetlands and/or a stream, if possible.

Because Wetland A will be cleared and filled during the NE 12th Street to NE 16th Street construction stage, on-site buffer mitigation is not recommended. Therefore, to mitigate for Wetland A buffer impacts, a minimum of 20,693 sf of wetland buffer will need to be enhanced around an existing wetland and/or be set aside around a new wetland creation area. The buffer should be dominated by native vegetation and be protected from clearing or mowing.

Wetland Locations 2, 3, and 4: Wetlands B, C, and D

Wetland B is a Category III wetland located north of NE 16th Street along the east side of 120th Ave NE. The project proposes to widen the existing 2-lane roadway past Wetland B to four lanes with a 10-foot bike trail and a variable width planter strip on the west side, a 5-foot planter on the east side, and 8-foot sidewalks on both sides.

Wetlands C and D are both Category II wetlands. Wetland C is located on the east side of 120th Avenue NE where the existing West Tributary of Kelsey Creek outfalls from the existing 36" storm sewer pipe that parallels the roadway. Wetland D is located on the west side of 120th Avenue NE where the existing West Tributary to Kelsey Creek enters the existing 36" storm sewer pipe that conveys the creek flows beneath the roadway. The project proposes to widen the 2-lane roadway past Wetlands C and D to four lanes with a 10-foot bike trail and a variable width planter strip on the west side, a 5-foot planter on the east side, and 8-foot sidewalks on both sides.

Impacts to the buffers of these wetlands are minimal.

Analysis – Wetland B:

The preferred roadway alignment for 120th Avenue NE widening recommended in the *Alternatives Evaluation and Screening Technical Report (2011*) closely follows the centerline of the existing roadway. Symmetrical widening of the roadway about the centerline of the existing roadway would impact Wetland B in its entirety. Any shift in the alignment to avoid or minimize impacts to Wetland B would result in other issues such as additional right-of-way take from the IP Eat property on the west, parking loss within the IP Eat property, an undesirable and potentially less safe alignment that has multiple curves in close proximity to each other, and close proximity of the roadway to the building on the IP Eat property.

The *Alternatives Evaluation and Screening Technical Report (2011*) determined that an alignment that would completely avoid impacts to Wetland B was not preferred. The key points of that recommendation are summarized in Table 1 below.

Table 1. Wetland B Impact Issues

ISSUE	PREFERRED ALIGNMENT	SHIFT ALIGNMENT WEST TO AVOID IMPACTS TO WETLAND B
Roadway Alignment	Roadway alignment meets 35 mph design criteria and is situated close to the existing roadway centerline for symmetrical widening.	Roadway alignment meets 35 mph design but is shifted 27.5 feet west of the existing roadway centerline, introducing an additional reverse curve in close proximity, thereby increasing the risk of crashes during low visibility and wet weather conditions.
Impacts to Parking	Loss of an estimated 3 customer parking spaces on International Paper site.	Loss of an estimated 10 out of an estimated 20 customer parking spaces (~50%). Loss of an estimated 30 employee parking spaces (~35%).
Impacts to Landscaping & Recreation	□mpacts to mature shrubs, trees, and landscaping along the entire east property line of International Paper property.	Increased Impacts to mature shrubs, trees, and landscaping along the entire frontage and in the vicinity of the buildings situated within the International Paper property.
Impacts to Building	Back edge of sidewalk would be approximately a minimum of 48 feet from the closest point along the International Paper Building.	Back edge of sidewalk would be approximately a minimum of 11 feet from the closes point along the International Paper building. Proximity would likely require that steps to front entrance be modified.

The potential cost to compensate adjacent property owners on the west side of the project for extensive right-of-way and parking impacts would be disproportionately high in comparison to the value of the size and function of this Category III wetland. This, along with safety concerns resulting from deviations to engineering standards, drove the decision to locate the alignment along the route identified by the project.

Analysis – Wetlands C and D:

Widening of 120th Avenue NE is one of the infrastructure needs identified for the Bel-Red Subarea in the City of Bellevue Comprehensive Plan (Comp Plan). The transportation improvements identified in the Comp Plan are intended to produce an integrated network of streets necessary to achieve the Comp Plan goals and objectives for the Bel-Red subarea. Not widening 120th Avenue NE or shifting improvements to another corridor would compromise the functionality of the street system to provide the required service. There is no technically feasible alternative to widening 120th Avenue NE that would have less impact on

these wetlands, for reasons described below and also summarized in the previous stream impacts discussion.

The project proposes to widen 120th Avenue NE where it passes between these wetlands. As noted in the *Alternatives Evaluation and Screening Technical Report (2011)*, symmetrical widening of the roadway about the centerline of the existing roadway is preferred in this area for a variety of reasons such as favorable roadway geometry and not having to demolish an occupied building on the Granger property, and would also work to minimize impacts to these wetlands. Any shifts in the alignment to reduce impacts on one of the wetlands would increase impacts on the other.

The alignment as currently proposed impacts Wetland D's buffer but does not directly impact Wetland D. This is because the proposed roadway alignment is also constrained on the west by an existing building situated in the northeast corner of the same property (Granger) that is largely occupied by Wetland D. This is advantageous, however, because Wetland D is likely the highest functional wetland in the project area.

Mitigation – Wetlands B, C, and D:

The following table quantifies the City's wetland mitigation requirements, and the Corps and Ecology wetland mitigation options, for the proposed Wetlands B, C, and D wetland and/or wetland buffer impacts.

Wetlands B, C, and D - Wetland Mitigation Requirements

Impacted Area	Impact Area (sf)	Bellevue	U.S. Army Corps of Engineers/Department of Ecology Options (one required)				
		R/C (sf)	R/C (sf)	RH (sf)	R/C and RH (sf)	R/C and E (sf)	E (sf)
Wetland B	4,510	9,020	9,020	18,040	4,510 R/C + 9,020 RH	4,510 R/C + 18,040 E	27,060
Wetland C	280	840	840	1,680	280 R/C + 1,120 RH	280 R/C + 2,240 E	3,360
Wetland B Buffer	8,915	8,915	None specified				
Wetland C Buffer	3,045	3,045	None specified				
Wetland D Buffer	2,195	2,195	None specified				

Wetland Replacement Ratios Source: Wetland Mitigation in Washington State – Part 1: Agency Policies and Guidance (Version 1) (published by Ecology in 2006)

E = Wetland Enhancement; R/C = Wetland Re-establishment or Creation; RH = Wetland Rehabilitation

Wetland impacts are proposed for Wetlands B and C. Based on Ecology's Wetland Rating System for Western Washington, Wetland B is a depressional system has moderate water quality functions, moderate hydrologic functions, and low habitat functions. Wetland C is a riverine system that has high water-quality functions, high hydrologic functions, and moderate habitat functions.

To compensate for wetland impacts in the West Tributary of Kelsey Creek subbasin, the project will need to create, restore, or enhance both a depressional wetland and a riverine wetland. This mitigation will be conducted on one or more sites, but both types of wetlands will need to part of the wetland mitigation.

To compensate for the wetland water-quality functions that will be lost, the wetland mitigation will be located in an area that receives untreated stormwater runoff. To compensate for the hydrologic functions, the wetland mitigation would also need to be located in an area that drains to a river or stream that has flooding problems. The wetland mitigation would need to establish persistent vegetation by removing invasive species and/or installing native plants. The wetland mitigation also will need to create or restore areas of ponding in a wetland to slow down stormwater flow, to allow sediments to fall out of the water, and to reduce flooding and erosion downstream.

To mitigate for the habitat functions lost, the wetland mitigation area will have a minimum of two vegetation classes and include a variety of native species to emphasize species diversity. Snags and large woody debris should be installed in the wetland mitigation site to mitigate for the snags and downed trees present in Wetland C. Other potential ways to increase habitat function that may be utilized are to enhance existing wetlands, or create new wetlands, with different hydrologic regimes (e.g., permanently ponded areas, seasonally ponded areas, saturated-only areas, etc.) and to create habitat features in the mitigation site (e.g., plant overhanging vegetation over a stream and/or plant thin-stemmed emergent plants in seasonally ponded areas for amphibian habitat).

To mitigate for buffer impacts, a minimum of 14,155 sf of wetland buffer will need to be enhanced around an existing wetland and/or be set aside around a new wetland creation area. Wetland B's buffer consists mainly of grass and weedy shrub species; however, the buffers of Wetlands C and D are forested. Therefore, the buffer mitigation area will be planted with native vegetation, include a forested component, and be protected from clearing or mowing.

STEEP SLOPE AREAS

<u>Steep Slope Location 1</u>: Proposed NE 4th Street Crossing the Western Embankment of the ex-BNSF Railroad Corridor.

<u>Analysis</u>:

There is no existing roadway infrastructure at this location. The new NE 4th Street extension would be created by a new roadway alignment that extends east and west between 116th

Avenue NE and 120th Avenue NE. The project proposes to construct five lanes with a 5- to 6-foot bike lane, 4-foot planter and 8-foot sidewalk on each side.

The steep slope on the western embankment of the ex-BNSF railroad corridor extends north and south within the project area, well beyond the limits of all feasible alignments for NE 4th Street. The new NE 4th Street alignment must traverse the steep slope at some location within the project area and, therefore, there must be some impact to the steep slope.

The proposed alignment minimizes the necessary impacts to the steep slope by crossing the slope at an angle near perpendicular, creating the smallest impact area possible. The roadway would be built on retained fill as it crosses the steep slope, thus eliminating the need for large fill embankments that would further impact the steep slope. The project would also include walls at the top of the slope for the sole purpose of preventing additional fill material from spilling back on the steep slope, thus further minimizing the steep slope impacts.

Therefore, there is no technically feasible alternative for constructing the NE 4th Street extension that has less impact on steep slopes.

Mitigation:

All impacts to the steep slope would be mitigated through the use of landscape enhancements at a nearby location per City of Bellevue codes and standards.

Steep Slope Location 2: East Side of Proposed 120th Ave NE Street Along the Wright Runstad Property, North of NE 12thStreet.

Analysis

There is a steep embankment that rises approximately 20 feet high from the roadway surface along the east side of 120th Ave NE behind Wetland A (mentioned above). The project proposes to widen the existing 3-lane/2-lane roadway that parallels the toe of this slope to five lanes with a 5-foot bike lane, 5-foot planter and 8-foot sidewalk on each side. The roadside grading for the proposed widening would require sliver cuts into the toe of this slope and construction of retaining walls.

The preferred roadway alignment immediately north of NE 12th Street is configured to match the alignment south of NE 12th Street. South of NE 12th Street, the preferred alignment for 120th Avenue NE recommended in the *Alternatives Evaluation and Screening Technical Report (2011)* is to shift the existing roadway centerline far enough to the east to eliminate or at least minimize the need to over excavate the load-sensitive, highly compressible (peaty) soils underlying the Lake Bellevue properties and extending close to the west edge of the existing two-lane roadway. In order to maintain roadway continuity with this easterly alignment south of NE 12th Street without compromising safety and design criteria, the alignment south of NE 12th Street would be extended straight through the NE 12th Street intersection, resulting in unavoidable impacts along the toe of this slope immediately north of NE 12th Street. As the alignment continues north from NE 12th Street, it can be brought back to the centerline of the existing roadway to balance impacts to properties on both side of the roadway. However, this shift cannot occur quickly enough to avoid impacts to this critical slope without compromising City design standards. All of the areas of steep slope impacts

anticipated here are also located within Wetland A's buffer. Alternative project alignments considered for south of NE 12th Street that might have reduced the steep slope impacts north of NE 12th Street would have substantially higher cost and undesirable risk for construction and long-term road maintenance based on the high potential for unstable soils underlying the other alternatives.

Mitigation:

Mitigation for impacts to the steep slope behind Wetland A would be covered by the mitigation provided for impacts to the underlying Wetland A and Wetland A's buffer noted above.

Critical Areas Report
120th Avenue NE Corridor Project
Bellevue, Washington

June 11, 2014

SHANNON & WILSON, INC.

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Excellence. Innovation. Service. Value.

Since 1954.

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120TH AVENUE NE CORRIDOR PROJECT
BELLEVUE, WASHINGTON

Shannon & Wilson, Inc. (Shannon & Wilson) was contracted by Parsons Brinckerhoff on behalf of the City of Bellevue (the City) to complete a critical areas report for Stage 3A of the proposed 120th Avenue NE Corridor Project. The entire 120th Avenue NE Corridor Project extends from the intersection of NE 4th Street and 116th Avenue NE eastward to 120th Avenue NE and then northward along 120th Avenue NE to Northup Way. Stage 3A includes the portion of this project from NE 12th Street to NE 15th/16th Street (Figure 1).

The 120th Avenue NE Corridor Project proposed five-lane roadway is being designed to meet City standards for an urbanized arterial that has four through travel lanes: two 11-foot-wide lanes in each direction and a center 11- to 12-foot-wide turn lane. A 5-foot-wide bike lane will be provided on each side of the roadway adjacent to the curb and a 5-foot-wide planter strip is proposed between the curb and the 8-foot-wide sidewalk. However, the size and location of the sidewalks, bicycle facilities, and planter strips will vary somewhat along the corridor to accommodate future roadway connection points.

The purpose of this critical areas report is to identify critical areas in the Stage 3A corridor and to demonstrate that the proposed project will lead to equivalent or better protection of critical area functions and values than would result from a no action alternative.

1.0 CRITICAL AREAS

1.1 Wetlands

One wetland, identified as Wetland A, is in the Stage 3A project corridor. The wetland is located northeast of the NE 12th Street/120th Avenue NE intersection (Figures 1 and 2). Wetland A is a 8,266-square-foot depressional outflow wetland dominated by willow, spirea, and bentgrass. Wetland A has been rated as a Category III wetland using the 2004 Washington State Department of Ecology's (Ecology's) Wetland Rating System, which the City has adopted.

The rationale for this rating was the following functions of Wetland A:

- High water quality functions score (24 points) due to its organic soils, persistent vegetation, unconstructed surface outlet, and opportunity to remove pollutants;

- Low hydrologic functions score (8 points) due to the high dead storage during wet periods, the moderate ratio of the wetland's area to its basin, but lack of opportunity to reduce flooding downstream as the wetland drains to Lake Bellevue; and
- Moderate habitat functions score (14 points) due to its low diversity of vegetation, moderate interspersion of hydroperiods, and the presence of other nearby wetlands in the developed landscape. Additionally, a standing snag was observed in the southern end of Wetland A with evidence that it has been used by pileated woodpeckers for foraging.

More information on Wetland A can be found in the 120th Avenue NE Corridor Project wetland and stream delineation report (Shannon & Wilson, 2011a).

1.2 Streams

No streams are located on or adjacent to the proposed project site. A ditch has been dug in Wetland A, adjacent to the fill slope of 120th Avenue NE, however, the ditch was not categorized as a stream because it is a wholly artificial channel that: (a) is not used by salmonids, and (b) does not convey a stream that occurred naturally before construction of the artificial channel. Wetland A drains into Lake Bellevue, which drains to Sturtevant Creek.

1.3 Shorelines

Lake Bellevue is located approximately 100 feet from the Stage 2 portion of the 120th Avenue NE project corridor, which is south of Stage 3A. However, it is located approximately 220 feet southwest of Stage 3A. Therefore, no shorelines are located in the Stage 3A project area.

1.4 Habitat Associated with Species of Local Importance

Pileated woodpecker use of a snag located in Wetland A was documented during the project State Environmental Policy Act review. Based on conversations with Mr. David Pyle, Senior Environmental/Land Use Planner at the City, we understand that the City will likely consider any natural significant trees (i.e., native tree species that meet the significant tree criteria and were not planted as part of landscaping) in the project corridor to be potential future pileated woodpecker habitat and require mitigation for these trees. However, it is our understanding that mitigation for removal of the trees that are within wetlands and wetland buffers will be satisfied by compliance with the City's wetland and wetland buffer mitigation requirements. Based on this information, an additional five natural significant trees (two red alder and three black cottonwoods) are located in the project area. These trees are located north and south of Wetland A but are located outside of the wetland buffer (Shannon & Wilson, 2011b).

No other habitat associated with species of local importance is known to occur in the project corridor.

1.5 Geologic Hazard Areas

A steep, 20-foot-high slope is located east of Wetland A (Figures 1 and 2). The slope has previously been classified as a steep slope. No landslide hazards, coal mine hazard areas, or other steep slopes have been identified in the project corridor (Parsons Brinkerhoff, 2011).

1.6 Areas of Special Flood Hazard

The 100-year floodplain of Lake Bellevue is located west of 120th Avenue NE, south of NE 12th Street. The proposed project improvements will not extend into the floodplain area.

2.0 IMPACTS

The Bellevue City code allows new or expanded public rights-of-way (ROWs) in critical areas where it is shown that the impacts cannot be avoided and have been minimized, and where temporary and permanent impacts can be mitigated.

2.1 Wetlands and Habitat Associated with Species of Local Importance

Project impacts to Wetland A, its buffer, documented pileated woodpecker habitat, and five natural significant trees are unavoidable. In order to minimize impacts, the design team looked at widening the roadway further to the west to avoid impacting Wetland A, its buffer, and the woodpecker habitat. However, this would also involve shifting the roadway south of Stage 3A toward Lake Bellevue. The existing roadway south of Stage 3A is currently about 100 feet from the lake shoreline; moving the roadway alignment to the west, closer to the lake, would infringe into the shoreline buffer.

In addition, load-sensitive, highly compressible (peaty) soils extend close to the west edge of the existing two-lane roadway. Moving the roadway further to the west would require overexcavating these peat soils to build the proposed roadway fills and retaining walls, or to bridge over this area. Either of these options would result in greater construction and long-term maintenance risks.

Because Wetland A is relatively small and narrow, and is constrained to the east by a steep slope and to the west by the existing roadway, we could not realign the road or design the project in a way that would preserve a portion of the wetland or associated pileated woodpecker habitat. The

additional natural significant trees are also located in a narrow strip of road ROW and could not be avoided.

No temporary impacts are anticipated. Permanent wetland, pileated woodpecker habitat, and natural significant tree impacts will be mitigated in accordance with Bellevue City Code, as detailed in Section 3.

2.2 Geologic Hazard Areas

The project includes fill at the base on the steep slope east of Wetland A. The project will also include cutting into the hillside between Wetland A and NE 12th Street and installing a soldier pile wall. Because these actions are anticipated to increase the stability of the steep slope, this is considered a positive impact. Therefore, no mitigation is proposed.

3.0 PROPOSED MITIGATION

3.1 Mitigation Requirements

In 2008, the U.S. Army Corps of Engineers identified their preferred approach to wetland mitigation to be wetland banking and/or in-lieu fee mitigation (Section 33, Parts 325 and 332 of the Code of Federal Regulations). Based on discussions with Paul Krawczyk, the Bellevue City Council has mandated that wetland mitigation be completed within the City limits. There are no approved wetland mitigation banks or in-lieu fee sites within the City limits; therefore, a project-specific mitigation site is required.

Table 1 summarizes the City, state, and federal wetland mitigation ratio requirements for the proposed wetland impacts during Stage 3A construction.

TABLE 1
STAGE 3A WETLAND MITIGATION REQUIREMENTS

Impacted Area	Impact Area (sf)	Bellevue	U.S. Army Corps of Engineers/ Washington State Department of Ecology Options * (one of the below options required)				
		R/C (sf)	R/C (sf)	RH (sf)	R/C and RH (sf)	R/C and E (sf)	E (sf)
Wetland A	8,266	16,532	16,532	33,064	8,266 R/C + 16,532 RH	8,266 R/C + 33,064 E	66,128
Wetland A Buffer	20,761	20,761	None specified				

Notes:
* Wetland replacement ratios source: Wetland Mitigation in Washington State – Part 1: Agency Policies and Guidance (Version 1) (published by the Washington State Department of Ecology in 2006).
E = Wetland Enhancement
R/C = Wetland Re-establishment or Creation
RH = Wetland Rehabilitation
sf = square feet

The Bellevue Municipal Code 20.25H.105 indicates the City's order of preference for location and type of mitigation for wetland impacts. For location, in-kind mitigation, either onsite or in the same sub-basin, is preferred. Mitigation may be conducted offsite and outside of the sub-basin if it can be demonstrated through a critical areas report that: (a) there are no reasonable on-site or in-sub-basin opportunities that have a high likelihood of success, (b) off-site mitigation has a greater likelihood of providing equal or better wetland functions, and (c) watershed goals for wetland functions have been established and strongly justify location of mitigation at another site.

As for type of mitigation, the Bellevue Municipal Code indicates that restoring wetlands on upland sites that were formerly wetlands is preferred. Creating wetlands on disturbed upland sites is considered second choice. Wetland enhancement is the City's last choice in wetland mitigation.

3.2 Mitigation Site Selection

On-site mitigation is not considered feasible since the project is located within road ROW. Shannon & Wilson conducted a wetland mitigation site selection study in July 2013 to determine whether a suitable site could be found in the sub-basin of the proposed wetland impacts (Sturtevant Creek) (Shannon & Wilson, 2011b). The potential sites considered in the project sub-basin could not provide sufficient mitigation, were slated for other City projects, and/or were

located on parcels where it was unclear whether the property owners would be willing to sell their properties.

Of the eight potential mitigation sites studied, the Benitez Properties location was considered the most suitable mitigation site for project wetland, wildlife, and buffer impacts because the City can mitigate for all impacts in one location, the property owners are willing to sell, and the cost of the property is relatively reasonable. Although not located in the sub-basin of the Stage 3A wetland impacts, the Benitez Properties site drains to the same receiving water (Mercer Slough) and would provide additional wetlands and buffer along a relatively large wetland/wildlife area in Bellevue.

3.3 Proposed Mitigation

The large existing wetland located on the south end of the Benitez Properties is a Category I wetland. Based the wetland's rating and habitat score, the Bellevue City Code would likely require a 110-foot buffer around this wetland. The wetland is a large complex of riverine and palustrine wetlands associated with Kelsey Creek. Based on our site observations, most of the wetland's hydrology is provided by a seasonally high groundwater table.

We designed the wetland mitigation to be in an area of the site that will not impose additional buffers on adjacent property owners and existing land uses. We also placed the wetland mitigation area in low-quality uplands that are dominated by invasive species (reed canarygrass, evergreen blackberry, and Himalayan blackberry). Mature native vegetation was omitted/ excluded from the wetland mitigation area where feasible. The proposed buffer mitigation will include demolishing existing sheds, removing invasive species, and establishing native woody vegetation in the lower-quality areas of the site buffer.

Our wetland mitigation approach includes excavating uplands adjacent to the large wetland system to an elevation suitable to create wetland conditions. A total of 22 pit-and-mound habitat features with logs will also be created to mimic downed trees (Figure 3). Brush piles, consisting of woody vegetation cleared during construction, will also be placed in the mitigation area to provide habitat for insects, small mammals, and passerine birds. A variety of shrubs and tree species are included in the mitigation plan to provide vegetation structure, and emergent plant species are proposed for the wetter areas that will have seasonal ponding.

We propose to mitigate the pileated woodpecker habitat and natural significant trees impacted by Stage 3A by installing seven snags in the Stage 3A mitigation area (Figure 3) and planting native tree species in both the wetland creation area and the buffer enhancement area.

See the project wetland mitigation plan report (Shannon & Wilson, 2014) for more details regarding the mitigation plan.

3.4 Wetland Functions Assessment

Based on Ecology's *Wetland Rating System for Western Washington*, Wetland A has high water-quality functions, low hydrologic functions, and moderate habitat functions. In accordance with the project wetland mitigation plan:

> "To compensate for the wetland water-quality and hydrologic functions that will be lost, the wetland mitigation will need to be located in an area that receives untreated stormwater runoff and drains to a river or stream that has flooding problems. The wetland mitigation will need to establish persistent vegetation with a minimum of two vegetation classes that includes a variety of native species. To mitigate for the known pileated woodpecker habitat in Wetland A, snags and native tree species should be installed in the mitigation area to provide immediate and future habitat for this species." (Shannon & Wilson, 2014).

Wetland A hydrologic and water quality functions will be mitigated at the Stage 3A project location and at the mitigation site. At the project location, stormwater detention will be added in the vicinity of Wetland A in an effort to mimic the existing stormwater flow patterns from the wetland. Flow rates, recurrence intervals, and frequencies are expected to closely match, and in some cases will even be below, the existing flow conditions. The proposed mitigation site receives untreated stormwater runoff and drains to Kelsey Creek, which has flooding problems. We expect that the mitigation site will provide additional flood storage and water quality functions.

For habitat functions, wetland vegetation proposed at the mitigation site includes three vegetation classes with a variety of native species. Snags and native tree species are included throughout the wetland mitigation site to provide immediate and future pileated woodpecker habitat.

4.0 CONCLUSIONS

Stage 3A of the 120th Avenue NE Corridor Project will have unavoidable impacts to Wetland A, its buffer, documented pileated woodpecker habitat, and five natural significant trees. The project design team evaluated whether the impacts could be avoided and/or minimized by moving the roadway; however, this would result in shoreline impacts and greater construction and long-term maintenance risks. Therefore, the resulting project impacts will be mitigated

according to Bellevue City Code. The proposed mitigation will replace the wetland hydraulic, water quality, and habitat functions. The project also includes installing snags and planting native tree species at the mitigation site to replace current and future pileated woodpecker habitat and natural significant trees.

5.0 CLOSURE

This report has been prepared for specific application to Stage 3A of the 120th Avenue NE Corridor Project and was prepared for the exclusive use of the City of Bellevue, Parsons Brinkerhoff, and their representatives. This report has been developed in a manner consistent with the level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area. The conclusions presented in this report incorporate professional opinions based on interpretation of information currently available to us and was completed within the operational scope, budget, and schedule constraints of this project. No warranty, express or implied, is made.

SHANNON & WILSON, INC.

Becki Kniveton, P.W.S.
Senior Principal Biologist

BSK:KLW/bsk

6.0 REFERENCES

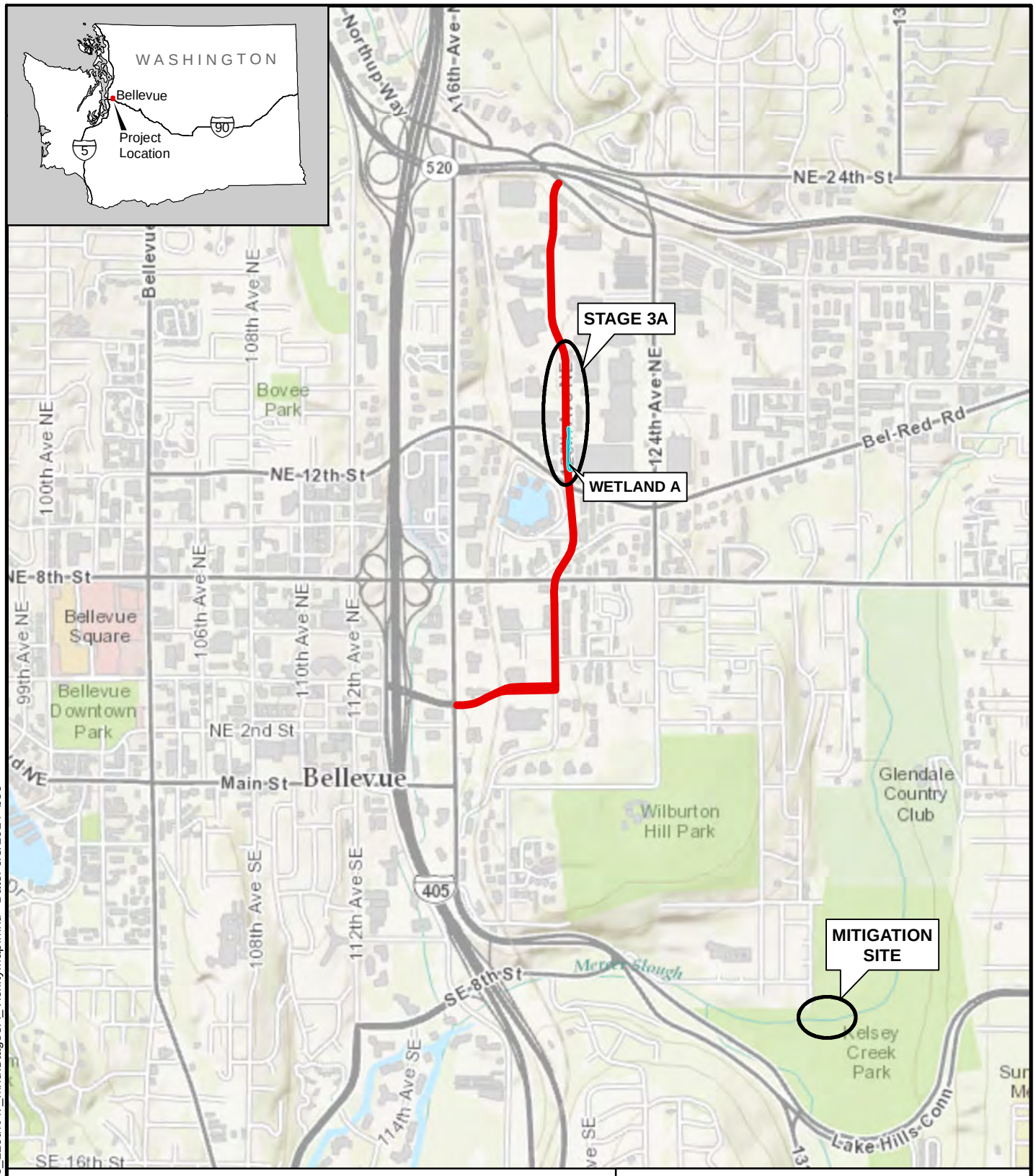
City of Bellevue, updated 2013, Bellevue land use code, Chapter 20.25H Critical Areas Overlay District: Bellevue, Wash., October 21.

Parsons Brinckerhoff, 2011, Critical areas technically feasible alternatives analysis letter report for the NE 4th Street/120th Avenue NE Corridor Project, Seattle, Wash., for City of Bellevue, Bellevue, Wash., October 19.

Shannon & Wilson, 2011a, NE 4th Street/120th Avenue NE Corridor Project, wetland and stream delineation technical report, Seattle, Wash., for City of Bellevue, Bellevue, Wash., June.

Shannon & Wilson, 2011b, Significant tree reconnaissance letter report for the NE 4th Street/120th Avenue NE Corridor Project, Bellevue, Wash., for Parsons Brinckerhoff, Seattle, Wash., October 20.

Shannon & Wilson, 2014, 120th Avenue NE Corridor Project, stages 3a and 3b, wetland mitigation plan, Bellevue, Washington, Seattle, Wash., for Parsons Brinckerhoff, Seattle, Wash., March 10.



120 Ave NE Corridor Project

N
W E
S

0 ½ 1
Miles

120th Ave NE Corridor Project, Stage 3A
Bellevue, Washington

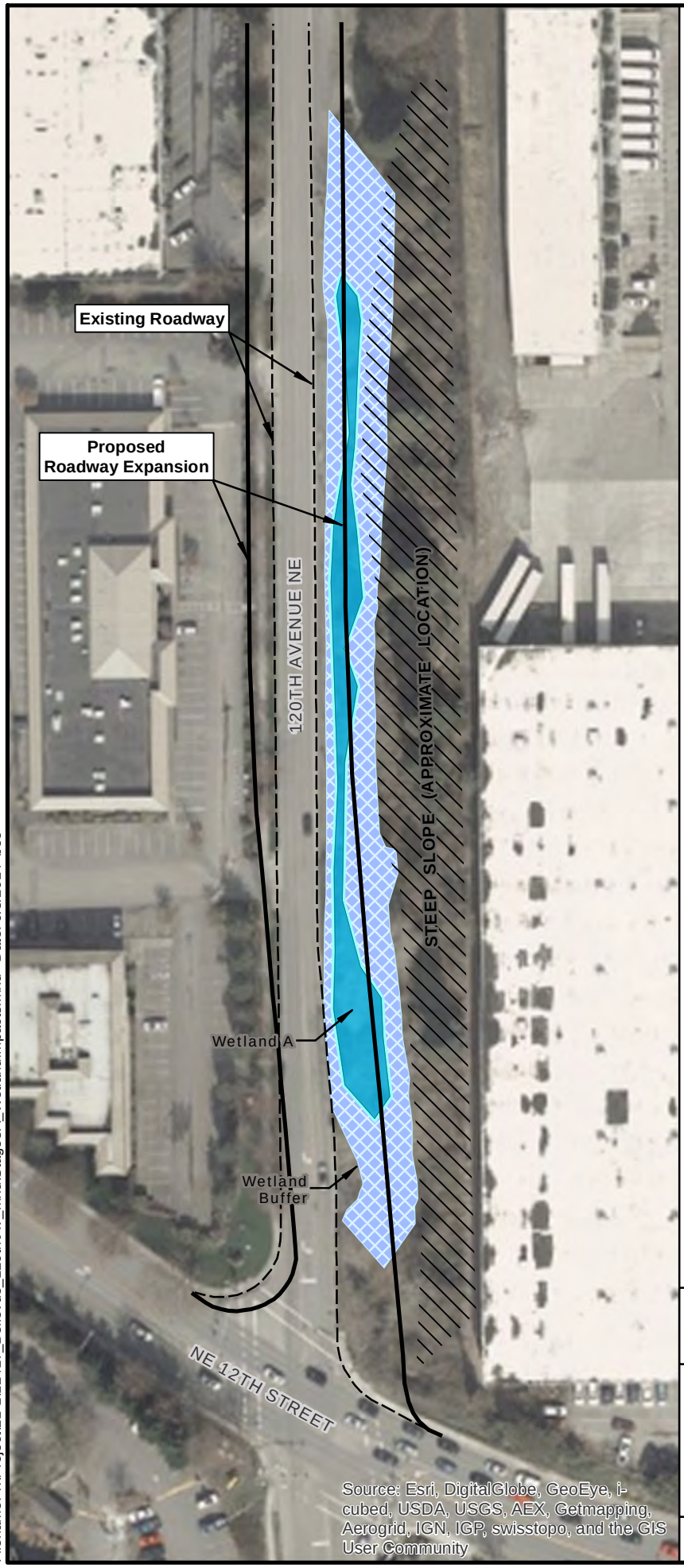
VICINITY MAP

June 2014 21-1-12417-102

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 1

Filename: T:\Project\21-1\12417_Bellevue_120thAV_mxd\Stage3A_VicinityMap.mxd Date: 6/3/2014 beo



LEGEND

- Existing Roadway
- Proposed Roadway Expansion
- Wetland Impacts
- Wetland Buffer Impacts
- Steep Slope (Approximate Location)

N
W E
S

0 150 300
Feet

Note: The wetland boundary is based on the NE 4th Street/120th Avenue NE Corridor Project Wetland and Stream Delineation Technical Report, dated June 2011. The wetland buffer impacts and proposed roadway expansion lines are based on a drawing recieved from Parsons Brinckerhoff, dated May 13, 2014. Steep slope areas are approximately located.

120th Ave NE Corridor Project, Stage 3A
Bellevue, Washington

STAGE 3A WETLAND IMPACTS

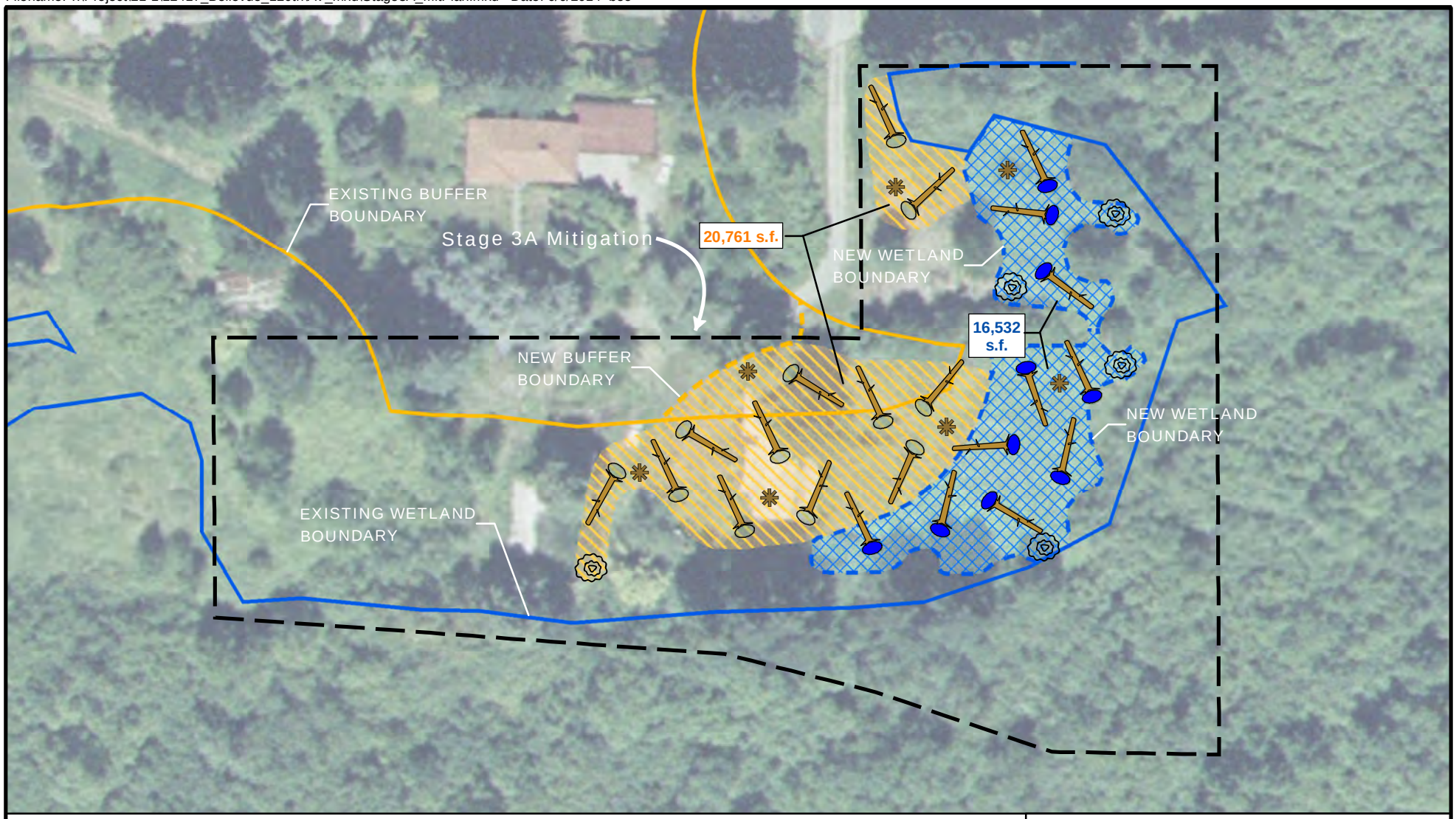
June 2014 21-1-12417-102

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2

Filename: T:\Project\21-1\12417_Bellevue_120thAV_mxd\Stage3A_WetlandImpacts.mxd Date: 6/3/2014 beo

Filename: T:\Project\21-1\12417_Bellevue_120th\AV_mxd\Stage3A_MitPlan.mxd Date: 6/6/2014 beo



LEGEND

- Pit and Mound Features (N.T.S)
- Brush Pile
- Snag
- Buffer Enhancement
- Wetland Creation - Woody Vegetation
- Wetland Creation - Emergent Vegetation

N W E S

0 80
Feet

FIG. 3

120th Ave NE Corridor Project, Stage 3A
Bellevue, Washington

STAGE 3A MITIGATION PLAN

June 2014 21-1-12417-004

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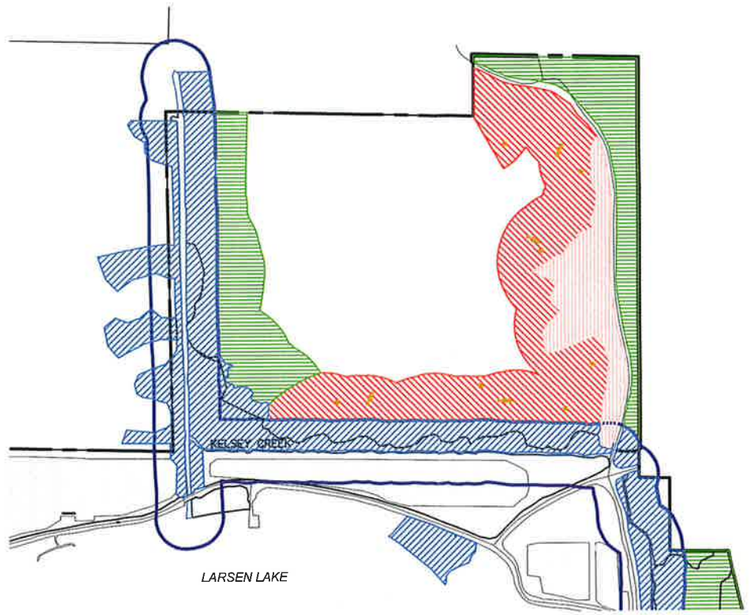
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 3

WETLAND MITIGATION AT LARSEN LAKE

CLEARING AND GRADING STANDARD NOTES

1. ALL CLEARING & GRADING CONSTRUCTION MUST BE IN ACCORDANCE WITH CITY OF BELLEVUE (COB) CLEARING & GRADING CODE, CLEARING & GRADING EROSION CONTROL STANDARD DETAILS (EC-1 THROUGH EC-23), DEVELOPMENT STANDARDS, LAND USE CODE, UNIFORM BUILDING CODE, PERMIT CONDITIONS, AND ALL OTHER APPLICABLE CODES, ORDINANCES, AND STANDARDS. THE DESIGN ELEMENTS WITHIN THESE PLANS HAVE BEEN REVIEWED ACCORDING TO THESE REQUIREMENTS. ANY VARIANCE FROM ADOPTED EROSION CONTROL STANDARDS IS NOT ALLOWED UNLESS SPECIFICALLY APPROVED BY THE CITY OF BELLEVUE DEPARTMENT OF PLANNING & COMMUNITY DEVELOPMENT (PCD) PRIOR TO CONSTRUCTION.
   IT SHALL BE THE SOLE RESPONSIBILITY OF THE APPLICANT AND THE PROFESSIONAL CIVIL ENGINEER TO CORRECT ANY ERROR, OMISSION, OR VARIATION FROM THE ABOVE REQUIREMENTS FOUND IN THESE PLANS. ALL CORRECTIONS SHALL BE AT NO ADDITIONAL COST OR LIABILITY TO THE COB. ALL DETAILS FOR STRUCTURAL WALLS, ROCKERIES OVER FOUR FEET IN HEIGHT, GEOGRID REINFORCED ROCKERIES AND GEOGRID REINFORCED MODULAR BLOCK WALLS, MUST BE STAMPED BY A PROFESSIONAL ENGINEER.
2. A COPY OF THE APPROVED PLANS MUST BE ON-SITE DURING CONSTRUCTION. THE APPLICANT IS RESPONSIBLE FOR OBTAINING ANY OTHER REQUIRED OR RELATED PERMITS PRIOR TO BEGINNING CONSTRUCTION.
3. ALL LOCATIONS OF EXISTING UTILITIES HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD, THEREFORE, BE CONSIDERED ONLY APPROXIMATE AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS AND TO DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN WHICH MAY BE AFFECTED BY THE IMPLEMENTATION OF THIS PLAN.
4. THE AREA TO BE CLEARED AND GRADED MUST FLAGGED BY THE CONTRACTOR AND APPROVED BY THE CLEARING AND GRADING INSPECTOR PRIOR TO BEGINNING ANY WORK ON THE SITE.
5. A REINFORCED SILT FENCE MUST BE INSTALLED IN ACCORDANCE WITH COB EC-5 AND SHALL BE LOCATED AS SHOWN ON THE APPROVED PLANS OR PER THE CLEARING AND GRADING INSPECTOR, ALONG SLOPE CONTOURS AND DOWN SLOPE FROM THE BUILDING SITE.
6. A HARD-SURFACE CONSTRUCTION ACCESS PAD IS REQUIRED PER CLEARING & GRADING STANDARD DETAIL EC-1 OR EC-2. THIS PAD MUST REMAIN IN PLACE UNTIL PAVING IS INSTALLED.
7. CLEARING SHALL BE LIMITED TO THE AREAS WITHIN THE APPROVED DISTURBANCE LIMITS. EXPOSED SOILS MUST BE COVERED AT THE END OF EACH WORKING DAY WHEN WORKING FROM OCTOBER 1ST THROUGH APRIL 30TH. FROM MAY 1ST THROUGH SEPTEMBER 30TH, EXPOSED SOILS MUST BE COVERED AT THE END OF EACH CONSTRUCTION WEEK AND ALSO AT THE THREAT OF RAIN.
8. ANY EXCAVATED MATERIAL REMOVED FROM THE CONSTRUCTION SITE AND DEPOSITED ON PROPERTY WITHIN THE CITY LIMITS MUST BE DONE IN COMPLIANCE WITH A VALID CLEARING & GRADING PERMIT. LOCATIONS FOR THE MOBILIZATION AREA AND STOCKPILED MATERIAL MUST BE APPROVED BY THE CLEARING AND GRADING INSPECTOR AT LEAST 24 HOURS IN ADVANCE OF ANY STOCKPILING.
9. TO REDUCE THE POTENTIAL FOR EROSION OF EXPOSED SOILS, OR WHEN RAINY SEASON CONSTRUCTION IS PERMITTED, THE FOLLOWING BEST MANAGEMENT PRACTICES (BMPS) ARE REQUIRED.
   - PRESERVE NATURAL VEGETATION FOR AS LONG AS POSSIBLE OR AS REQUIRED BY THE CLEARING AND GRADING INSPECTOR.
   - PROTECT EXPOSED SOIL USING PLASTIC (EC-14), EROSION CONTROL BLANKETS, STRAW OR MULCH (COB GUIDE TO MULCH MATERIALS, RATES, AND USE CHART), OR AS DIRECTED BY THE CLEARING AND GRADING INSPECTOR.
   - INSTALL CATCH BASIN INSERTS AS REQUIRED BY THE CLEARING AND GRADING INSPECTOR OR PERMIT CONDITIONS OF APPROVAL.
   - INSTALL A TEMPORARY SEDIMENT POND, A SERIES OF SEDIMENTATION TANKS, TEMPORARY FILTER VAULTS, OR OTHER SEDIMENT CONTROL FACILITIES. INSTALLATION OF EXPOSED AGGREGATE SURFACES REQUIRES A SEPARATE EFFLUENT COLLECTION POND ONSITE.



CLEARING AND GRADING STANDARD NOTES (CONT.)

10. FINAL SITE GRADING MUST DIRECT DRAINAGE AWAY FROM ALL BUILDING STRUCTURES AT A MINIMUM 2% SLOPE, PER THE UNIFORM BUILDING CODE.
11. THE CONTRACTOR MUST MAINTAIN A SWEEPER ON SITE DURING EARTHWORK AND IMMEDIATELY REMOVE SOIL THAT HAS BEEN TRACKED ONTO PAVED AREAS AS RESULT OF CONSTRUCTION.
12. TURBIDITY MONITORING MAY BE REQUIRED AS A CONDITION OF CLEARING AND GRADING PERMIT APPROVAL. IF REQUIRED, TURBIDITY MONITORING MUST BE PERFORMED IN ACCORDANCE WITH THE APPROVED TURBIDITY MONITORING PLAN AND AS DIRECTED BY THE CLEARING AND GRADING INSPECTOR. MONITORING MUST CONTINUE DURING SITE (EARTHWORK) CONSTRUCTION UNTIL THE FINAL SIGN-OFF BY THE CLEARING AND GRADING INSPECTOR.
13. ANY PROJECT THAT IS SUBJECT TO RAINY SEASON RESTRICTIONS WILL NOT BE ALLOWED TO PERFORM CLEARING AND GRADING ACTIVITIES WITHOUT WRITTEN APPROVAL FROM THE PCD DIRECTOR. THE RAINY SEASON EXTENDS FROM NOVEMBER 1ST THROUGH APRIL 30TH, AS DEFINED IN SECTION 23.76.093A OF THE CLEARING AND GRADING CODE.

MAP LEGEND	
	EXISTING TREES
	EXISTING BLUEBERRY FIELDS
	EXISTING FORESTED AREA
	OPEN STREAM CHANNEL
	COMPLETED WETLAND ENHANCEMENT AREA (27,522 SF, 0.63 AC)
	COMPLETED WETLAND MITIGATION AREA (179,460 SF, 4.12 AC)
	FUTURE WETLAND ENHANCEMENT AREA (229,634 SF, 5.27 AC)
	PROPOSED WETLAND MITIGATION AREA (94,062 SF, 2.16 AC)
	50'-0" STREAM BUFFER
	STANDING SNAG
	FALLEN TREE

N

0 250 500

Scale in Feet

TESC PLAN

SCALE: 1" = 250'

TITLE: TESC PLAN

CLIENT: PREPARED FOR CITY OF BELLEVUE TRANSPORTATION DEPT.
450 110TH AVENUE NE
BELLEVUE, WA 98004

S & W JOB NUMBER: 21-1-12417-005

BY	DATE	REVISIONS

WETLAND MITIGATION AT LARSEN LAKE

SHANNON & WILSON, INC.
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P.O. Box 300303
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DATE: October 2015
DRAWN: B. Cripe
CHECKED: A. Summe
JOB NO. 21-1-12417-005

SHT. 2
OF 5

Filename: J:\21\12417-005\21-1-12417-005 Plans.dwg Layout: Sheet 2 Date: 10-23-2015 Login: bac

WETLAND MITIGATION AT LARSEN LAKE

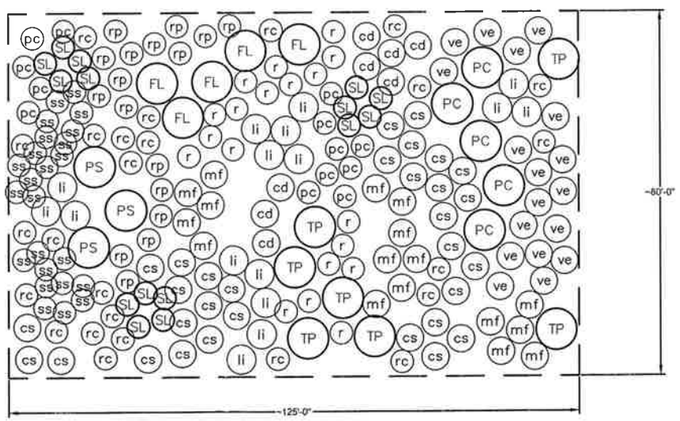
PLANTING LEGEND

	SCIENTIFIC / COMMON NAME	QTY per 10,000 SF	TOTAL QTY	SIZE / SPACING
TREES				
FL	FRAXINUS LATIFOLIA OREGON ASH	5	83	2 GAL (75%); 5 GAL (25%) ~9'-0" O.C. SPACING
PS	PICEA SITCHENSIS SITKA SPRUCE	5	50	5 GAL (75%); 10-20 GAL (25%) ~9'-0" O.C. SPACING
TP	THUJA PLICATA WESTERN RED CEDAR	10	116	5 GAL (75%); 10-20 GAL (25%) ~9'-0" O.C. SPACING
SL	SALIX LASIANDRA PACIFIC WILLOW	15	190	LIVE STAKES; (5 PER SYMBOL) 12" O.C. SPACING
SHRUBS				
cs	CORNUS SERICEA RED TWIG DOGWOOD	31	513	1 GAL ~6'-0" O.C. SPACING
cd	CRATAEGUS DOUGLASII DOUGLAS' HAWTHORNE	8	132	1 GAL ~6'-0" O.C. SPACING
li	LONICERA INVOLUCRATA BLACK TWINBERRY	16	265	1 GAL ~6'-0" O.C. SPACING
mf	MALUS FUSCA PACIFIC CRABAPPLE	17	281	1 GAL ~6'-0" O.C. SPACING
pc	PHYSOCARPUS CAPITATUS PACIFIC NINEBARK	13	215	1 GAL ~6'-0" O.C. SPACING
rp	ROSA PISOCARPA PEAFRUIT ROSE	17	281	1 GAL ~6'-0" O.C. SPACING
rc	RHAMNUS PURSHIANA CASCARA	11	182	1 GAL ~6'-0" O.C. SPACING
r	RIBES LACUSTRE BLACK SWAMP GOOSEBERRY	19	314	1 GAL ~6'-0" O.C. SPACING
ve	VIBURNUM EDULE HIGHBUSH CRANBERRY	18	298	1 GAL ~6'-0" O.C. SPACING
ss	SALIX SITCHENSIS SITKA WILLOW	24	305	LIVE STAKES (3 STAKES PER SYMBOL)

HABITAT FEATURES

FALLEN TREES SEE DETAIL B, SHEET 5	4	NOTE: GENERAL LOCATIONS SHOWN ON SHEETS 1 & 2, FIELD PLACE WITH CONSULTING BIOLOGIST AND CITY REPRESENTATIVE.
STANDING SNAG SEE DETAIL A, SHEET 5	7	

PLANTING PLAN TYPICAL



PLANTING NOTES

1. LOCATE ALL EXISTING UTILITIES WITHIN THE LIMIT OF WORK. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR ANY UTILITY DAMAGE AS A RESULT OF THE LANDSCAPE CONSTRUCTION.
2. PLANT INSTALLATION SHALL OCCUR DURING FROST-FREE PERIODS ONLY.
3. REMOVE ANY AND ALL INVASIVE WEEDS AND THEIR ROOTS FROM THE PLANTING AREA. SPECIES TARGETED FOR REMOVAL INCLUDE HIMALAYAN BLACKBERRY, ENGLISH HOLLY, ENGLISH IVY, SCOT'S BROOM, JAPANESE KNOTWEED, ENGLISH LAUREL, AND MORNING GLORY.
4. FOR REED CANARYGRASS, MOW GRASS TO THE GROUND. DISPOSE OF GRASS DEBRIS OFF-SITE AT AN APPROVED LOCATION. ONE MONTH LATER APPLY HERBICIDE USING A STATE LICENSED HERBICIDE APPLICATION PROVIDER.
5. LOOSEN ANY COMPACTED SOILS IN THE PLANTING AREA.
6. LAYOUT PLANT MATERIAL PER PLAN FOR INSPECTION BY THE CONSULTING BIOLOGIST OR CONSULTING BIOLOGIST. PLANT SUBSTITUTIONS WILL NOT BE ALLOWED WITHOUT THE APPROVAL OF THE CONSULTING BIOLOGIST.
7. INSTALL PLANTS PER PLANTING DETAILS.
8. ALL NEW PLANTING AREAS SHALL BE MULCHED WITH 3 INCHES OF COARSE WOOD CHIP MULCH.
9. WATER EACH PLANT THOROUGHLY TO REMOVE AIR POCKETS.

THE LANDSCAPE CONTRACTOR SHALL MAINTAIN ALL PLANT MATERIAL UNTIL FINAL INSPECTION AND APPROVAL BY THE OWNER OR OWNER'S REPRESENTATIVE. ALL PLANTINGS AND WORKMANSHIP SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING FINAL OWNER ACCEPTANCE

PLANTING PLAN TYPICAL

SCALE: NTS

Filename: J:\211\12417-005\21-1-12417-005 Plans.dwg Layout: Sheet 3 Date: 10-23-2015 Login: bac

TITLE: PLANTING PLAN TYPICAL

CLIENT: PREPARED FOR CITY OF BELLEVUE TRANSPORTATION DEPT.
450 110TH AVENUE NE
BELLEVUE, WA 98004

S & W JOB NUMBER: 21-1-12417-005

BY	DATE	REVISIONS

WETLAND MITIGATION AT LARSEN LAKE

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DATE: October 2015
DRAWN: B. Cripe
CHECKED: A. Summe
JOB NO.: 21-1-12417-005

SHT. 3
OF 5

WETLAND MITIGATION AT LARSEN LAKE

MITIGATION PLAN SUMMARY

CONSTRUCTION OF THE CITY OF BELLEVUE'S 120TH AVENUE NE CORRIDOR IMPROVEMENT PROJECT REQUIRES THE FILL OF WETLAND A, A CATEGORY III, PALUSTRINE EMERGENT/SCRUB-SHRUB WETLAND THAT PARALLELS 120TH AVENUE NE IN A ROAD-SIDE DITCH. WETLAND A IS LOCATED IN THE STURTEVANT CREEK SUB-BASIN, WHICH IS TRIBUTARY TO KELSEY CREEK. ALL 8,260 SQUARE FEET (SF) OF WETLAND A AND 20,761 SF OF WETLAND BUFFER WILL BE CLEARED AND FILLED. IN ADDITION, A SNAG USED BY PILEATED WOODPECKER IN WETLAND A AND FIVE SIGNIFICANT TREES (HEALTHY TREE GREATER THAN 8 INCHES IN DIAMETER AT BREAST HEIGHT) OUTSIDE OF WETLANDS AND BUFFERS WILL BE REMOVED AS PART OF THE PROJECT.

A MITIGATION PLAN FOR THE SITE HAD PREVIOUSLY BEEN APPROVED BY THE U.S. ARMY CORPS OF ENGINEERS AND THE WASHINGTON DEPARTMENT OF ECOLOGY. THAT MITIGATION SITE IS NO LONGER AVAILABLE; INSTEAD, MITIGATION IS PROPOSED AT THE KELSEY CREEK BLUEBERRY FARM, A CITY-OWNED PROPERTY. THIS PLAN IS AN ADAPTATION OF THE ORIGINAL K *ELSEY CREEK ENHANCEMENT AT LARSEN LAKE* PLAN (THE WATERSHED COMPANY 2011), AND WILL PROVIDE MITIGATION FOR PERMANENT IMPACTS TO WETLAND A, ITS BUFFER, AND SIGNIFICANT TREES. BASED ON STATE AND FEDERAL MITIGATION RATIOS FOR WETLAND COMPENSATION, ENHANCEMENT-ONLY MITIGATION FOR PERMANENT WETLAND IMPACTS MUST BE PROVIDED AT AN 8:1 RATIO. ACCORDINGLY, AT LEAST 66,080 SF OF WETLAND ENHANCEMENT IS REQUIRED. THE PROJECT WILL ALSO RESULT IN THE LOSS OF BUFFER ASSOCIATED WITH THE IMPACTED WETLAND A. ACCORDINGLY, THAT AREA WILL BE ADDRESSED THROUGH ENHANCEMENT AT A 1:1 RATIO. THE TOTAL MINIMUM REQUIRED ENHANCEMENT AREA IS 86,841 SF. THIS MITIGATION PLAN INCLUDES ENHANCEMENT OF 94,062 SF OF WETLAND, AND PLACEMENT OF FOUR FALLEN TREES AND SEVEN STANDING SNAGS.

1.0 ENHANCEMENT GOALS AND PERFORMANCE STANDARDS

1.1 GOALS.

1.1.1 ENHANCE 94,062 SQUARE FEET OF WETLAND ASSOCIATED WITH KELSEY CREEK THROUGH REED CANARYGRASS AND HIMALAYAN BLACKBERRY REMOVAL, AND REVEGETATION WITH NATIVE TREE AND SHRUB SPECIES, FOCUSING ON SPECIES WITH HIGH HABITAT VALUE FOR FOOD, FORAGE, NESTING AND SHELTER. CONTROL EFFORTS FOR REED CANARYGRASS WILL BE IMPLEMENTED AS DESCRIBED IN THIS PLAN, BUT THE PRESENCE OF REED CANARYGRASS IN CONTIGUOUS WETLAND AREAS AND THE HIGH SEED LOAD IN THE WETLAND SOILS LIKELY PREVENT PERMANENT ERADICATION. THE OBJECTIVE WILL BE TO REDUCE THE REED CANARYGRASS SUFFICIENTLY DURING THE MONITORING PERIOD TO ALLOW FOR ESTABLISHMENT OF A NATIVE TREE AND SHRUB COMPONENT.

1.1.2 INCREASE HABITAT VALUE FOR A VARIETY OF WILDLIFE SPECIES BY INSTALLING STANDING SNAGS AND DOWNED WOOD.

1.2 PERFORMANCE STANDARDS.

1.2.1 PLANT SURVIVAL. 100 PERCENT OF THE INSTALLED VEGETATION AT THE END OF YEAR 1, 90 PERCENT AT THE END OF YEAR 3. BECAUSE OF THE DIFFICULTY IDENTIFYING INDIVIDUAL INSTALLED PLANTS, SURVIVAL DATA WILL NOT BE COLLECTED AFTER YEAR 3.

1.2.2 PLANT COVER. NATIVE WOODY SPECIES COVER OF 65 PERCENT AT THE END OF YEAR 5, AND 90 PERCENT AT THE END OF YEAR 10. NATIVE VOLUNTEERS MAY BE INCLUDED IN THE PERCENT COVER CALCULATIONS.

1.2.3 INVASIVE COVER. NOT MORE THAN 10 PERCENT COVER BY NON-NATIVE INVASIVE SPECIES, OTHER THAN REED CANARYGRASS, IN ANY YEAR.

2.0 CONSTRUCTION SEQUENCE

CONSTRUCTION OF THIS PROJECT WILL BE IMPLEMENTED AS FOLLOWS:

2.1 PRE-CONSTRUCTION MEETING. A PRE-CONSTRUCTION MEETING WILL BE HELD ON-SITE PRIOR TO COMMENCEMENT OF PLAN IMPLEMENTATION. PARTICIPANTS MUST INCLUDE CITY REPRESENTATIVES, THE CONSULTING BIOLOGIST, AND THE CONTRACTOR. THE APPROVED PLANS AND SPECIFICATIONS WILL BE REVIEWED TO ENSURE THAT ALL PARTIES INVOLVED UNDERSTAND THE INTENT OF THE CONSTRUCTION DOCUMENTS, SPECIFICATIONS, SITE ENVIRONMENTAL CONSTRAINTS, SEQUENCES, AND INSPECTION REQUIREMENTS.

2.2 REED CANARYGRASS AND BLACKBERRY REMOVAL. ALL REED CANARYGRASS WILL BE MOWED DOWN TO GROUND LEVEL, IDEALLY IN JULY OR EARLY AUGUST, AND TREATED WITH AN AQUATIC-APPROVED HERBICIDE IN LATE AUGUST AND AGAIN IN LATE SEPTEMBER TO MINIMIZE REGENERATION. CUT PLANT MATERIAL WILL BE REMOVED FROM THE ENHANCEMENT AREA. ALL BLACKBERRY WILL BE HAND CUT AND TREATED WITH AN HERBICIDE TO PREVENT RE-GROWTH. BLACKBERRY DEBRIS WILL ALSO BE REMOVED FROM THE ENHANCEMENT AREA. HERBICIDE APPLICATION MUST BE COMPLETED BY A STATE LICENSED HERBICIDE APPLICATOR.

2.3 FALLEN TREES, SNAGS, AND PLANT MATERIAL INSTALLATION. ALL FALLEN TREES AND STANDING SNAGS WILL BE INSTALLED IN THE MITIGATION AREA AS SHOWN ON THE PLAN PRIOR TO PLANT INSTALLATION, PREFERABLY DURING THE MONTHS OF JUNE THROUGH SEPTEMBER. IF SOILS IN THE MITIGATION AREA ARE TOO SOFT FOR ACCESS WITH MECHANIZED EQUIPMENT AND THE WOOD CANNOT BE PLACED WITH A CRANE, MATS OR TEMPORARY FABRIC-SUPPORTED DRIVING SURFACES WILL BE PLACED TO ACCESS THE AREA WITH A SMALL TRACTOR OR SIMILAR MACHINE TO PLACE THE WOOD. ALL NON-BIODEGRADABLE MATERIALS USED TO SUPPORT DRIVING SURFACES SHALL BE REMOVED UPON COMPLETE INSTALLATION. ALL TEMPORARY ACCESS PATHS WILL BE RESTORED FOLLOWING PLACEMENT OF MATERIAL.

2.4 PLANT MATERIAL INSTALLATION. ALL PLANT MATERIAL WILL BE PLANTED BY HAND PER DETAIL AND CONSTRUCTION AND PLANTING NOTES. PLANT INSTALLATION SHOULD TAKE PLACE BETWEEN OCTOBER 1 AND MARCH 15, AT LEAST ONE MONTH FOLLOWING APPLICATION OF GLYPHOSATE. THE ENHANCEMENT PLAN SPECIFIES THE REQUIRED SIZE, SPECIES, QUANTITY, AND LOCATION OF PLANT MATERIALS TO BE INSTALLED. THE CONTRACTOR WILL RE-SEED OR OVER-SEED ALL HYDROSEEDED AREAS DISTURBED DURING THE PLANTING PROCESS. PLANT SUBSTITUTIONS OR MODIFICATIONS TO LOCATIONS SHALL BE APPROVED IN WRITING BY THE CONSULTING BIOLOGIST PRIOR TO INSTALLATION.

2.5 CONSTRUCTION INSPECTIONS AND DEMOBILIZATIONS. A MINIMUM OF FIVE INSPECTIONS WILL BE CONDUCTED BY THE CONSULTING BIOLOGIST AT THE FOLLOWING MILESTONES: 1) SITE PREPARATION, 2) PLANT MATERIALS DELIVERY, 3) SNAG AND FALLEN TREE PLACEMENT, 4) 50% PLANT INSTALLATION, AND 5) 100% PLANT INSTALLATION. DURING THESE INSPECTIONS, ANY CORRECTIONS, SUBSTITUTIONS OR MISSING ITEMS WILL BE IDENTIFIED IN A "PUNCH LIST." ITEMS OF PARTICULAR IMPORTANCE WILL BE FALLEN TREE AND SNAG PLACEMENT, MINIMIZATION OF SITE DISTURBANCE, PLANTING PIT SIZE, PLANT SPECIES, PLANT SIZE AND CONDITION, AND MULCH AROUND PITS.

2.6 AGENCY APPROVAL. UPON COMPLETION OF PLANTING, IF INSTALLATION OR MATERIALS VARY SIGNIFICANTLY FROM THE MITIGATION PLAN, THE CONTRACTOR WILL SUBMIT A REPRODUCIBLE "AS-BUILT" DRAWING TO THE CITY. DURING THE AS-BUILT INSPECTION, FIVE 100-FOOT-LONG SAMPLING TRANSECTS AND FIVE PHOTO POINTS WILL BE PERMANENTLY MARKED. FOLLOWING ACCEPTANCE OF THE INSTALLATION BY THE CONSULTING BIOLOGIST, A LETTER WILL BE SENT TO THE CITY REQUESTING APPROVAL OF THE INSTALLATION.

3.0 PROJECT INSTALLATION

3.1 SITE PREPARATION. THE EXISTING ENHANCEMENT AREA HAS SUITABLE SOILS FOR PLANTINGS, AND THE ONLY PREPARATION WILL BE THE REMOVAL OF THE INVASIVE BLACKBERRY AND REED CANARYGRASS AS DETAILED IN 2.2 ABOVE.

3.2 PLANT, SNAG AND FALLEN TREE MATERIALS. SEE *PLANT INSTALLATION SPECIFICATIONS* ON THE PLAN.

3.3 PLANT MATERIAL INSTALLATION.

3.3.1 ALL PLANT AND HABITAT MATERIALS MUST BE INSPECTED BY A CITY-DESIGNATED REPRESENTATIVE PRIOR TO INSTALLATION TO VERIFY CONFORMANCE OF THE MATERIALS WITH THE PLANT SCHEDULE INCLUDING SIZE, QUALITY, AND QUANTITY. ANY PLANT OR HABITAT MATERIALS DEEMED UNSATISFACTORY WILL BE REJECTED.

3.3.2 ALL PLANT MATERIALS DELIVERED AND ACCEPTED SHOULD BE PLANTED IMMEDIATELY, FOLLOWING THE INSTALLATION OF THE SNAGS AND FALLEN TREES DEPICTED ON THE PLAN. PLANT MATERIALS NOT PLANTED WITHIN 24 HOURS WILL BE HEELED-IN.

3.3.3 ALL PLANTING PITS WILL BE CIRCULAR WITH VERTICAL SIDES, AND WILL BE SIZED PER DETAIL ON THE PLAN.

3.3.4 CONIFER TREES IN SHALL BE INSTALLED PER THE *CONIFER HUMMOCK PLANTING* DETAIL.

3.3.5 ALL CONTAINERIZED PLANT MATERIALS WILL BE REMOVED FROM THEIR CONTAINERS CAREFULLY TO PREVENT DAMAGE TO THE PLANT AND ITS ROOTS. PLANTS REMOVED FROM THEIR CONTAINERS WILL BE PLANTED IMMEDIATELY.

3.3.6 ALL PLANT MATERIALS WILL BE PLACED IN THE GENERAL LOCATIONS SHOWN ON THIS PLAN. IF THE FINAL INSTALLATION VARIES FROM THIS PLAN, THE CONTRACTOR WILL PROVIDE AN AS-BUILT FOR THE INSTALLED CONDITIONS. ALL PLANT MATERIAL WILL BE FLAGGED BY THE CONTRACTOR.

3.3.7 WATER PLANTS THOROUGHLY WITH APPROXIMATELY 1 INCH OF WATER IMMEDIATELY AFTER PLANTING TO AVOID CAPILLARY STRESS.

3.4 PLANTING SCHEDULE AND WARRANTY.

3.4.1 A FALL-WINTER INSTALLATION SCHEDULE (OCTOBER 1 - MARCH 15) IS PREFERRED FOR THE LOWER MORTALITY RATES OF NEW PLANTINGS. IF PLANT INSTALLATION OCCURS DURING THE SPRING OR SUMMER (MARCH 15 - OCTOBER 1), THE PLANTINGS WILL BE IRRIGATED BY HAND OR TEMPORARY IRRIGATION SYSTEM FOR 15 MINUTES EVERY DAY UNTIL FALL RAINS CAN PROVIDE ADEQUATE MOISTURE TO SUPPORT PLANT MATERIALS.

3.4.2 THE INSTALLER WILL WARRANT ALL PLANT MATERIALS TO REMAIN HEALTHY AND ALIVE FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE. THE INSTALLER WILL REPLACE ALL DEAD OR UNHEALTHY PLANT MATERIALS PER THE APPROVED PLANS AND SPECIFICATIONS.

4.0 MAINTENANCE

4.1 THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING THE MITIGATION AREA FOR THE FIRST YEAR FOLLOWING CONSTRUCTION. THE CITY WILL BE RESPONSIBLE FOR MAINTAINING THE MITIGATION AREAS FOR THE REST OF THE TEN-YEAR MONITORING PERIOD.

4.2 MAINTENANCE WILL INCLUDE DEBRIS AND LITTER REMOVAL, WEEDING AROUND BASE OF INSTALLED PLANTS, PRUNING, REPLACING PLANTS TO MEET SURVIVAL REQUIREMENTS, REMOVING OR TREATING ALL CLASSES OF NOXIOUS WEEDS (SEE WASHINGTON STATE NOXIOUS WEEDS LIST, WASHINGTON ADMINISTRATIVE CODE 16-750-005), WATERING AS NEEDED, AND IMPLEMENTING ANY OTHER MEASURES NEEDED TO ENSURE PLANT SURVIVAL. ALL PROPOSED MAINTENANCE SHALL BE REVIEWED BY A CONSULTING BIOLOGIST.

4.3 MAINTENANCE WILL TAKE PLACE ONE TIME PER MONTH, FROM MAY THROUGH OCTOBER.

4.4 IF PLANTINGS ARE INSTALLED BETWEEN MARCH 15 AND OCTOBER 1, WATER SHALL BE PROVIDED TO INSTALLED TREES AND SHRUBS DURING THE DRY SEASON (JULY 1 THROUGH OCTOBER 15) BY A TEMPORARY, ABOVEGROUND IRRIGATION SYSTEM FOR 15 MINUTES EACH DAY. THE IRRIGATION SYSTEM MAY BE REMOVED AFTER YEAR 1 IF THE PLANTS ARE ESTABLISHED AND ACCLIMATED TO ON-SITE CONDITIONS.

4.5 UPON COMPLETION OF THE 10-YEAR MONITORING PROGRAM TO THE SATISFACTION OF THE CITY AND THE U.S. ARMY CORPS OF ENGINEERS, MAINTENANCE OF THE PROJECT WILL BE LIMITED TO REMOVAL OF LITTER AND DEBRIS, ONGOING MANAGEMENT OF INVASIVE SPECIES, AND REPAIR OF ANY VANDALIZED AREAS.

5.0 MONITORING PROGRAM

MONITORING SHALL BE CONDUCTED DURING FIVE YEARS OF THE 10-YEAR MONITORING PERIOD, IN YEARS 1, 3, 5, 7 AND 10. MONITORING SHOULD INCLUDE:

5.1. VEGETATION MONITORING. TRANSECTS WILL BE ESTABLISHED FOR VEGETATION MONITORING IN THE MITIGATION AREAS. PERMANENT TRANSECT LOCATIONS MUST BE IDENTIFIED IN A BASELINE MONITORING REPORT IMMEDIATELY AFTER CONSTRUCTION IS COMPLETE. MONITORING SHALL DETAIL HERB, SHRUB, AND TREE AERIAL COVER AT RADII OF 1, 5, AND 10 METERS, RESPECTIVELY. MONITORING OF VEGETATION SHALL OCCUR ANNUALLY BETWEEN MAY 15 AND SEPTEMBER 30 (PRIOR TO LEAF DROP), UNLESS OTHERWISE SPECIFIED.

5.2. PHOTO POINTS. PERMANENT PHOTO POINTS WILL BE ESTABLISHED AT THE ENDS OF EACH TRANSECT, AND WHERE NEEDED TO PROVIDE A PROJECT-AREA OVERVIEW. PHOTOGRAPHS WILL BE TAKEN FROM THESE POINTS TO VISUALLY RECORD THE CONDITION OF THE MONITORING AREAS. PHOTOS SHALL BE TAKEN ANNUALLY SOMETIME BETWEEN MAY 15 AND SEPTEMBER 30 (PRIOR TO LEAF DROP), UNLESS OTHERWISE SPECIFIED.

5.3. REPORTS. MONITORING REPORTS SHALL BE SUBMITTED BY DECEMBER 31 OF EACH YEAR DURING THE MONITORING PERIOD. AS APPLICABLE, MONITORING REPORTS MUST INCLUDE THE FOLLOWING DESCRIPTION/DATA:

1. SITE PLAN AND LOCATION MAP.
2. HISTORICAL DESCRIPTION OF PROJECT, INCLUDING DATE OF PLANT INSTALLATION, CURRENT YEAR OF MONITORING, AND RESTATEMENT OF MITIGATION GOALS AND PERFORMANCE STANDARDS.
3. PLANT SURVIVAL, VIGOR, AND AREAL COVERAGE ALONG EACH TRANSECT, AND EXPLANATION OF THE MONITORING METHODOLOGY IN THE CONTEXT OF ASSESSING PERFORMANCE STANDARDS.
4. ALL OBSERVED WILDLIFE, INCLUDING AMPHIBIANS AND BIRDS.
5. ASSESSMENT OF NUISANCE/EXOTIC BIOTA AND RECOMMENDATIONS FOR MANAGEMENT.
6. COLOR PHOTOGRAPHS TAKEN FROM PERMANENT PHOTO POINTS.
7. SUMMARY OF MAINTENANCE AND CONTINGENCY MEASURES PROPOSED FOR THE NEXT SEASON AND COMPLETED FOR THE PAST SEASON.

5.1. DEFICIENCIES. ANY DEFICIENCY DISCOVERED DURING ANY MONITORING OR INSPECTION VISIT MUST BE CORRECTED WITHIN 60 DAYS.

5.2. CONTINGENCY PLAN. IF ANY MONITORING REPORT REVEALS THAT THE MITIGATION HAS FAILED IN WHOLE OR IN PART, AND IF THAT FAILURE IS BEYOND THE SCOPE OF ROUTINE MAINTENANCE, A CONTINGENCY PLAN SHALL BE PREPARED AND SUBMITTED. CAREFUL ATTENTION TO MAINTENANCE IS ESSENTIAL IN ENSURING THAT THE MITIGATION IS SUCCESSFUL. ONCE APPROVED, CONTINGENCY MEASURES MAY BE COMPLETED AND THE MITIGATION PLAN REVISED. CONTINGENCY MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO, ADDITIONAL PLANT REPLACEMENT, PLANT SUBSTITUTIONS OF ANY PLANT WITH GREATER THAN 20 PERCENT MORTALITY, ADDITIONAL IRRIGATION, OR ALTERNATIVE INVASIVE WEED CONTROL METHODS. IF THE FAILURE IS SUBSTANTIAL, THE CITY AND/OR THE U.S. ARMY CORPS OF ENGINEERS MAY EXTEND THE MONITORING PERIOD FOR THE MODIFIED MITIGATION PLAN.

MITIGATION PLAN SUMMARY

SCALE: NTS

Filename: J:\211\12417-005\21-1-12417-005 Plans.dwg Layout: Sheet 4 Date: 10-23-2015 Login: bac

TITLE: MITIGATION PLAN SUMMARY

CLIENT: PREPARED FOR CITY OF BELLEVUE TRANSPORTATION DEPT.
450 110TH AVENUE NE
BELLEVUE, WA 98004

S & W JOB NUMBER: 21-1-12417-005

BY	DATE	REVISIONS

WETLAND MITIGATION AT LARSEN LAKE

SHANNON & WILSON, INC.
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DATE: October 2015
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JOB NO. 21-1-12417-005

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OF 5

WETLAND MITIGATION AT LARSEN LAKE

PLANT INSTALLATION SPECIFICATIONS

NOTE: THESE SPECIFICATIONS ARE A LEGALLY BINDING CONTRACT

GENERAL NOTES

QUALITY ASSURANCE

1. PLANTS SHALL MEET OR EXCEED THE SPECIFICATIONS OF FEDERAL, STATE, AND LOCAL LAWS REQUIRING INSPECTION FOR PLANT DISEASE AND INSECT CONTROL.
2. PLANTS SHALL BE HEALTHY, VIGOROUS, AND WELL-FORMED, WITH WELL DEVELOPED, FIBROUS ROOT SYSTEMS, FREE FROM DEAD BRANCHES OR ROOTS. PLANTS SHALL BE FREE FROM DAMAGE CAUSED BY TEMPERATURE EXTREMES, LACK OR EXCESS OF MOISTURE, INSECTS, DISEASE, AND MECHANICAL INJURY. PLANTS IN LEAF SHALL BE WELL FOLIATED AND OF GOOD COLOR. PLANTS SHALL BE HABITUATED TO THE OUTDOOR ENVIRONMENTAL CONDITIONS INTO WHICH THEY WILL BE PLANTED (HARDENED-OFF).
3. TREES WITH DAMAGED, CROOKED, MULTIPLE OR BROKEN LEADERS WILL BE REJECTED. WOODY PLANTS WITH ABRASIONS OF THE BARK OR SUNSCALD WILL BE REJECTED.

DEFINITIONS

1. PLANTS/PLANT MATERIALS. PLANTS AND PLANT MATERIALS SHALL INCLUDE ANY LIVE PLANT MATERIAL USED ON THE PROJECT. THIS INCLUDES BUT IS NOT LIMITED TO CONTAINER GROWN, B&B OR BAREROOT PLANTS.
2. CONTAINER GROWN. CONTAINER GROWN PLANTS ARE THOSE WHOSE ROOTBALLS ARE ENCLOSED IN A POT OR BAG IN WHICH THAT PLANT GREW.

SUBSTITUTIONS

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN SPECIFIED MATERIALS IN ADVANCE IF SPECIAL GROWING, MARKETING OR OTHER ARRANGEMENTS MUST BE MADE IN ORDER TO SUPPLY SPECIFIED MATERIALS.
2. SUBSTITUTION OF PLANT MATERIALS NOT ON THE PROJECT LIST WILL NOT BE PERMITTED UNLESS AUTHORIZED IN WRITING BY THE CONSULTING BIOLOGIST.
3. IF PROOF IS SUBMITTED THAT ANY PLANT MATERIAL SPECIFIED IS NOT OBTAINABLE, A PROPOSAL WILL BE CONSIDERED FOR USE OF THE NEAREST EQUIVALENT SIZE OR ALTERNATIVE SPECIES, WITH CORRESPONDING ADJUSTMENT OF CONTRACT PRICE.
4. SUCH PROOF WILL BE SUBSTANTIATED AND SUBMITTED IN WRITING TO THE CONSULTING BIOLOGIST AT LEAST 30 DAYS PRIOR TO START OF WORK UNDER THIS SECTION.

INSPECTION

1. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE CONSULTING BIOLOGIST FOR CONFORMANCE TO SPECIFICATIONS, EITHER AT TIME OF DELIVERY ON-SITE OR AT THE GROWER'S NURSERY. APPROVAL OF PLANT MATERIALS AT ANY TIME SHALL NOT IMPAIR THE SUBSEQUENT RIGHT OF INSPECTION AND REJECTION DURING PROGRESS OF THE WORK.
2. PLANTS INSPECTED ON SITE AND REJECTED FOR NOT MEETING SPECIFICATIONS MUST BE REMOVED IMMEDIATELY FROM SITE OR RED-TAGGED AND REMOVED AS SOON AS POSSIBLE.
3. THE CONSULTING BIOLOGIST MAY ELECT TO INSPECT PLANT MATERIALS AT THE PLACE OF GROWTH. AFTER INSPECTION AND ACCEPTANCE, THE CONSULTING BIOLOGIST MAY REQUIRE THE INSPECTED PLANTS BE LABELED AND RESERVED FOR PROJECT. SUBSTITUTION OF THESE PLANTS WITH OTHER INDIVIDUALS, EVEN OF THE SAME SPECIES AND SIZE, IS UNACCEPTABLE.

MEASUREMENTS OF PLANTS

1. PLANTS SHALL CONFORM TO SIZES SPECIFIED UNLESS SUBSTITUTIONS ARE MADE AS OUTLINED IN THIS CONTRACT.
2. HEIGHT AND SPREAD DIMENSIONS SPECIFIED REFER TO MAIN BODY OF PLANT AND NOT BRANCH OR ROOT TIP TO TIP. PLANT DIMENSIONS SHALL BE MEASURED WHEN THEIR BRANCHES OR ROOTS ARE IN THEIR NORMAL POSITION.
3. WHERE A RANGE OF SIZE IS GIVEN, NO PLANT SHALL BE LESS THAN THE MINIMUM SIZE AND AT LEAST 50% OF THE PLANTS SHALL BE AS LARGE AS THE MEDIAN OF THE SIZE RANGE. (EXAMPLE: IF THE SIZE RANGE IS 12" TO 18", AT LEAST 50% OF PLANTS MUST BE 15" TALL.)

SUBMITTALS

PROPOSED PLANT SOURCES

1. WITHIN 45 DAYS AFTER AWARD OF THE CONTRACT, SUBMIT A COMPLETE LIST OF PLANT MATERIALS PROPOSED TO BE PROVIDED DEMONSTRATING CONFORMANCE WITH THE REQUIREMENTS SPECIFIED. INCLUDE THE NAMES AND ADDRESSES OF ALL GROWERS AND NURSERIES.

PRODUCT CERTIFICATES

1. PLANT MATERIALS LIST - SUBMIT DOCUMENTATION TO CONSULTING BIOLOGIST AT LEAST 30 DAYS PRIOR TO START OF WORK UNDER THIS SECTION THAT PLANT MATERIALS HAVE BEEN ORDERED. ARRANGE PROCEDURE FOR INSPECTION OF PLANT MATERIAL WITH CONSULTING BIOLOGIST AT TIME OF SUBMISSION.
2. HAVE COPIES OF VENDOR'S OR GROWERS' INVOICES OR PACKING SLIPS FOR ALL PLANTS ON SITE DURING INSTALLATION. INVOICE OR PACKING SLIP SHOULD LIST SPECIES BY SCIENTIFIC NAME, QUANTITY, AND DATE DELIVERED (AND GENETIC ORIGIN IF THAT INFORMATION WAS PREVIOUSLY REQUESTED).

MATERIALS

1. TWO WEEKS PRIOR TO INSTALLATION, SUBMIT ONE CUBIC FOOT BAG OF COARSE WOOD CHIP MULCH.

DELIVERY, HANDLING, & STORAGE

NOTIFICATION

CONTRACTOR MUST NOTIFY CONSULTING BIOLOGIST 48 HOURS OR MORE IN ADVANCE OF DELIVERIES SO THAT CONSULTING BIOLOGIST MAY ARRANGE FOR INSPECTION.

PLANT MATERIALS

1. TRANSPORTATION - DURING SHIPPING, PLANTS SHALL BE PACKED TO PROVIDE PROTECTION AGAINST CLIMATE EXTREMES, BREAKAGE AND DRYING. PROPER VENTILATION AND PREVENTION OF DAMAGE TO BARK, BRANCHES, AND ROOT SYSTEMS MUST BE ENSURED.
2. SCHEDULING AND STORAGE - PLANTS SHALL BE DELIVERED AS CLOSE TO PLANTING AS POSSIBLE. PLANTS IN STORAGE MUST BE PROTECTED AGAINST ANY CONDITION THAT IS DETRIMENTAL TO THEIR CONTINUED HEALTH AND VIGOR.
3. HANDLING - PLANT MATERIALS SHALL NOT BE HANDLED BY THE TRUNK, LIMBS, OR FOLIAGE BUT ONLY BY THE CONTAINER, BALL, BOX, OR OTHER PROTECTIVE STRUCTURE, EXCEPT BAREROOT PLANTS SHALL BE KEPT IN BUNDLES UNTIL PLANTING AND THEN HANDLED CAREFULLY BY THE TRUNK OR STEM.
4. LABELS - PLANTS SHALL HAVE DURABLE, LEGIBLE LABELS STATING CORRECT SCIENTIFIC NAME AND SIZE. TEN PERCENT OF CONTAINER GROWN PLANTS IN INDIVIDUAL POTS SHALL BE LABELED. PLANTS SUPPLIED IN FLATS, RACKS, BOXES, BAGS, OR BUNDLES SHALL HAVE ONE LABEL PER GROUP.

WARRANTY

PLANT WARRANTY

1. PLANTS MUST BE GUARANTEED TO BE TRUE TO SCIENTIFIC NAME AND SPECIFIED SIZE, AND TO BE HEALTHY AND CAPABLE OF VIGOROUS GROWTH.

REPLACEMENT

1. PLANTS NOT FOUND MEETING ALL OF THE REQUIRED CONDITIONS MUST BE REMOVED FROM SITE AND REPLACED IMMEDIATELY AT THE CONSULTING BIOLOGIST'S DISCRETION.
2. PLANTS NOT SURVIVING AFTER ONE YEAR TO BE REPLACED.

PLANT MATERIAL

GENERAL

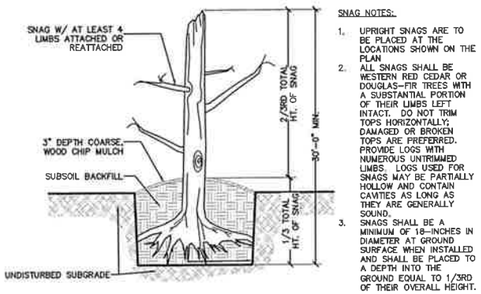
1. PLANTS SHALL BE NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES UNDER CLIMATIC CONDITIONS SIMILAR TO OR MORE SEVERE THAN THOSE OF THE PROJECT SITE.
2. PLANTS SHALL BE TRUE TO SPECIES AND VARIETY OR SUBSPECIES. NO CULTIVARS OR NAMED VARIETIES SHALL BE USED UNLESS SPECIFIED AS SUCH.

QUANTITIES

SEE PLANT LIST TABLE ON SHEET 3.

ROOT TREATMENT

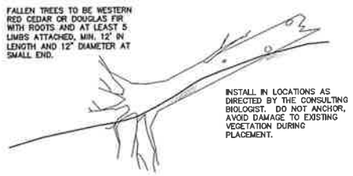
1. CONTAINER GROWN PLANTS: PLANT ROOT BALLS MUST HOLD TOGETHER WHEN THE PLANT IS REMOVED FROM THE POT, EXCEPT THAT A SMALL AMOUNT OF LOOSE SOIL MAY BE ON THE TOP OF THE ROOTBALL.
2. PLANTS MUST NOT BE ROOT-BOUND; THERE MUST BE NO CIRCLING ROOTS PRESENT IN ANY PLANT INSPECTED.
3. ROOTBALLS THAT HAVE CRACKED OR BROKEN WHEN REMOVED FROM THE CONTAINER SHALL BE REJECTED.



SNAG NOTES:

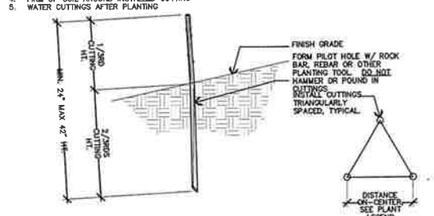
1. UPRIGHT SNAGS ARE TO BE PLACED AT THE LOCATIONS SHOWN ON THE PLAN
2. ALL SNAGS SHALL BE WESTERN RED CEDAR OR DOUGLAS-FIR TREES WITH A SUBSTANTIAL PORTION OF THEIR LIMBS LEFT INTACT. DO NOT TRIM TOPS HORIZONTALLY; DAMAGED OR BROKEN TOPS ARE PREFERRED. PROVIDE LOGS WITH NUMEROUS UNTRIMMED LIMBS. LOGS USED FOR SNAGS MAY BE PARTIALLY HOLLOW AND CONTAIN CAVITIES AS LONG AS THEY ARE GENERALLY SOUND.
3. SNAGS SHALL BE A MINIMUM OF 18-INCHES IN DIAMETER AT GROUND SURFACE WHEN INSTALLED AND SHALL BE PLACED TO A DEPTH INTO THE GROUND EQUAL TO 1/3RD OF THEIR OVERALL HEIGHT.

A STANDING SNAG DETAIL
NTS



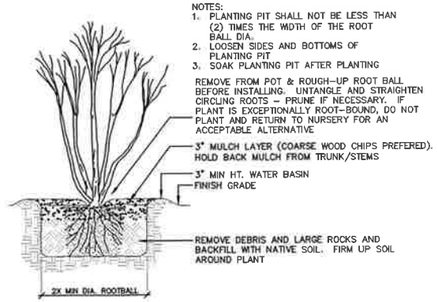
B FALLEN TREE INSTALLATION DETAIL
NTS

NOTES:
1. CUTTING SHOULD BE ANGLE CUT (45°) AT THE BASE AND PERPENDICULAR CUT JUST ABOVE A NODE (BUD)
2. INSTALL CUTTING A MIN. OF 2/3RDS INTO SOIL
3. INSURE THAT NODES (BUDS) ARE POINTING UP
4. FIRM UP SOIL AROUND INSTALLED CUTTING
5. WATER CUTTINGS AFTER PLANTING



C LIVE STAKE INSTALLATION
NTS

NOTES:
1. PLANTING PIT SHALL NOT BE LESS THAN (2) TIMES THE WIDTH OF THE ROOT BALL DIA.
2. LOOSEN SIDES AND BOTTOMS OF PLANTING PIT
3. SOAK PLANTING PIT AFTER PLANTING

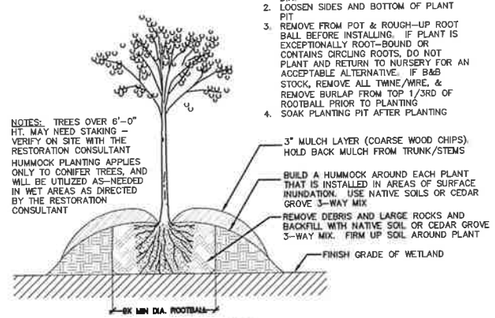


D SHRUB PLANTING DETAIL
NTS

NOTES:
1. PLANTING PIT SHALL NOT BE LESS THAN (2) TIMES THE WIDTH OF THE ROOT BALL DIA.
2. LOOSEN SIDES AND BOTTOM OF PLANT PIT
3. REMOVE FROM POT & ROUGH-UP ROOT BALL BEFORE INSTALLING. IF PLANT IS EXCEPTIONALLY ROOT-BOUND OR CONTAINS CIRCLING ROOTS, DO NOT PLANT AND RETURN TO NURSERY FOR AN ACCEPTABLE ALTERNATIVE. IF B&B STOCK, REMOVE ALL TWINE/WIRE, & REMOVE BURLAP FROM TOP 1/3RD OF ROOTBALL PRIOR TO PLANTING
4. SOAK PLANTING PIT AFTER PLANTING

NOTES: TREES OVER 6'-0" HT. MAY NEED STAKING - VERIFY ON SITE WITH THE RESTORATION CONSULTANT

HUMMOCK PLANTING APPLIES ONLY TO CONIFER TREES, AND WILL BE UTILIZED AS-NEEDED IN WET AREAS AS DIRECTED BY THE RESTORATION CONSULTANT



E CONIFER HUMMOCK PLANTING
NTS

SITE AND PLANTING DETAILS; PLANTING SPECIFICATIONS

SCALE: NTS

TITLE: SITE AND PLANTING DETAILS; PLANTING SPECIFICATIONS

CLIENT: PREPARED FOR CITY OF BELLEVUE TRANSPORTATION DEPT.
450 110TH AVENUE NE
BELLEVUE, WA 98004

S & W JOB NUMBER: 21-1-12417-005

REVISIONS | DATE | BY

WETLAND MITIGATION AT LARSEN LAKE

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OF 5

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