DEVELOPMENT SERVICES DEPARTMENT
ENVIRONMENTAL COORDINATOR
450 110th Ave NE., P.O. BOX 90012
BELLEVUE, WA 98009-9012

OPTIONAL DETERMINATION OF NON-SIGNIFICANCE (DNS) NOTICE MATERIALS

The attached materials are being sent to you pursuant to the requirements for the Optional DNS Process (WAC 197-11-355). A DNS on the attached proposal is likely. This may be the only opportunity to comment on environmental impacts of the proposal. Mitigation measures from standard codes will apply. Project review may require mitigation regardless of whether an EIS is prepared. A copy of the subsequent threshold determination for this proposal may be obtained upon request.

File No.	12-104350 LO	
Project Name/Address:	Bakker Stream Buffer Restoration	
Planner:	Kevin LeClair	
Phone Number and Email:	425-452-2928	kleclair@bellevuewa.gov
Minimum Comment Period:	February 23, 2012	

Materials included in this Notice:

- ☒ Blue Bulletin
- ☒ Checklist
- ☒ Vicinity Map
- ☐ Plans
- ☒ Other: Critical Areas Report with Restoration Plans

City of Bellevue Submittal Requirements	**27a**

ENVIRONMENTAL CHECKLIST

12/21/00

If you need assistance in completing the checklist or have any questions regarding the environmental review process, please visit or call the Permit Center (425-452-6864) between 8 a.m. and 4 p.m., Monday through Friday (Wednesday, 10 to 4). Our TTY number is 425-452-4636.

BACKGROUND INFORMATION

Bellevue file #12-104350 LO
Reviewed on February 6, 2012
Reviewer: Kevin LeClair, Senior Land Use Planner
Contact: 425-452-2928, kleclair@bellevuewa.gov

Property Owner: **Ernest and Verla Bakker**

Proponent: **Ernest and Verla Bakker**
16721 SE 18th Street
Bellevue, WA 98008

Contact Person: **Kenny Booth, The Watershed Company**
(If different from the owner. All questions and correspondence will be directed to the individual listed.)

Address: **750 Sixth Street South, Kirkland, WA 98033**

Phone: **(425) 822-5242**

Proposal Title: **Bakker Stream Buffer Restoration**

Proposal Location (Street address and nearest cross street or intersection) Provide a legal description if available:

Street Address:
16721 SE 18th Street
Bellevue, WA 98008

Parcel:
0124059056

Legal Description:
LOT A CITY OF BELLEVUE SHORT PLAT 76-35 REC AF #7608300513 SD PLAT DAF POR OF NW 1/4 OF SW 1/4 BEG NE COR LOT 1 LAKE MANOR ESTATES TH W ALG N LN SD PLAT 528 FT TH N 01-06-16 E 164.95 FT TH S 88-38-31 E 528 FT TAP ON WLY MGN 168TH AVE SE TH S ALG SD MGN 164.91 FT TO POB

Please attach an 8½" X 11" vicinity map that accurately locates the proposal site. **See last page.**

Give an accurate, brief description of the proposal's scope and nature:

The subject lot presently contains a single-family residence located approximately 15 feet from Phantom Creek at its nearest location. On October 7, 2011, City of Bellevue Code Compliance, under Case #11-124434-EA, issued a *Request for Voluntary Compliance* for the Bakker property. According to the summary of violation, the Bakker's cleared in a stream buffer, installed footings and a concrete slab within the buffer, and conducted greater than 1000 square feet of clearing outside the buffer. All of these activities occurred without obtaining the proper permits and approvals from the City. All work within the buffer has since been stopped.

The applicant proposes to continue work on the planned improvements, following issuance of all required

City permits and approvals.

The following improvements are proposed within the stream buffer of Phantom Creek:

1. **Remove the pre-existing concrete pad that supported the hot tub. The newly poured concrete pad would remain to support the repositioned hot tub.**
2. **Construct a new deck adjacent to the master bedroom, in the same area as the old deck. The new deck would measure approximately 221 square feet in size and would be positioned in nearly the identical area as the pre-existing deck.**
3. **Construct an eight-foot-tall wood fence along the eastern perimeter of the existing concrete slab. The fence will screen the concrete area and deck from view.**
4. **Install a new split rail fence along the top of the existing rock retaining wall. The fence will serve as a safety measure for pedestrians and also help to prohibit access into the stream corridor.**
5. **Remove the existing stone patio directly adjacent to the stream. The area will be restored with native plantings.**
6. **Install native plantings within the stream buffer. Some areas of English ivy will be removed to make room for native plantings. However, the majority of the ivy will remain as the presence of mountain beavers in this stream corridor would prevent native plantings from establishing in areas of existing ivy.**

In addition to the modifications within the stream buffer, planting of the cleared areas within and beyond the critical area structure setback is also proposed. Further, a wood deck, approximately 360 square feet in size, is to be constructed adjacent to the kitchen, in the southwest corner of the residence. The deck will replace the previously removed concrete patio. Approximately 292 square feet of the deck will fall within the 50-foot structure setback, while the remainder will be located outside the setback.

1. Acreage of site: **0.50 acre (21,769 square feet)**

2. Number of dwelling units/buildings to be demolished: **No dwelling units will be demolished.**

3. Number of dwelling units/buildings to be constructed: **No new dwelling units or buildings will be constructed.**

4. Square footage of buildings to be demolished: **N/A**

5. Square footage of buildings to be constructed: **N/A**

6. Quantity of earth movement (in cubic yards): **No cut is proposed. Approximately 10 cubic yards of mulch for native plantings.**

7. Proposed land use: **No changes are proposed to the existing land use.**

8. Design features, including building height, number of stories, and proposed exterior materials: **Proposed structures include a new deck adjacent to the master bedroom, a new deck adjacent to the living room, a six-foot-tall privacy fence along the perimeter of the concrete slab, and a split rail fence along the edge of the streamside retaining wall.**

10. Other

REVIEWED
By Kevin LeClair at 11:00 am, Feb 06, 2012

Estimated date of completion of the proposal or timing of phasing:

Completion of construction activities within the buffer, as well installation of mitigation plantings, is expected to occur in late spring 2012.

Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

Following issuance of a Critical Areas Land Use Permit, a Clearing and Grading Permit would be submitted.

List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

Critical Areas Report – Bakker Stream Buffer Restoration, Bellevue, WA. The Watershed Company. January 2012.
The Bakker Residence Stream Buffer Mitigation Plan. The Watershed Company. January 2012.

Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. List dates applied for and file numbers, if known.

No active proposals are pending on the subject property. The recent enforcement activity (11-124434-EA) is associated with predevelopment services #11-125560-DC.

List any government approvals or permits that will be needed for your proposal, if known. If permits have been applied for, list application date and file numbers, if known.

1. Critical Areas Land Use Permit (LO) – City of Bellevue - submitted concurrently with this SEPA Checklist.
2. Clearing and Grading Permit – City of Bellevue – to be applied for after issuance of the LO.

Please provide one or more of the following exhibits, if applicable to your proposal.
(Please check appropriate box(es) for exhibits submitted with your proposal):

☐ Land Use Reclassification (rezone)
Map of existing and proposed zoning

☐ Preliminary Plat or Planned Unit Development
Preliminary plat map

☑ Clearing & Grading Permit
Plan of existing and proposed grading
Development plans

☐ Building Permit (or Design Review)
Site plan

REVIEWED
By Kevin LeClair at 11:01 am, Feb 06, 2012

Clearing & grading plan

Shoreline Management Permit
Site plan

REVIEWED
By Kevin LeClair at 11:01 am, Feb 06, 2012

A. ENVIRONMENTAL ELEMENTS

1. EARTH

a. General description of the site (circle one): **Flat** Rolling Hilly **Steep slopes** Mountains Other:

b. What is the steepest slope on the site (approximate percent slope)?

The site is relatively flat with steeper slopes along the banks of Phantom Creek.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

According to Natural Resources Conservation Service (NRCS) soil maps, the project site is comprised of Arents, Alderwood material, 6 to 15 percent slopes.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

There are no indications or known history of unstable soils.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

No significant excavation or grading is proposed. Minimal ground disturbance will occur during the clearing of non-native species and installing native plantings.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

This proposal involves reconstruction of several appurtenance structures (deck, hot tub, concrete pad) and the planting of native vegetation. Limited clearing is proposed and erosion is not expected. However, measures described in 1h are aimed at minimizing the potential for erosion.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

On-site impervious surfaces will decrease by approximately 393 square feet as a result of the proposed project.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Implementation of the proposed erosion control measures would be conducted in accordance with the City of Bellevue Clearing & Grading Code (Chapter 23.76), permit conditions, and all other applicable codes, ordinances, and standards. Detailed plans are attached.

REVIEWED
By Kevin LeClair at 11:02 am, Feb 06, 2012

2. AIR

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

Minimal emissions from vehicle trips would occur during implementation of the proposed project. After project completion, no further emissions to the air would occur.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

No off-site sources of emissions or odor would affect the proposal.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

No measures are necessary.

3. WATER

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

The project site is located adjacent to Phantom Creek. No other waterbodies are on or in the immediate vicinity of the site.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

The entirety of the proposed project will occur within 200 feet of Phantom Creek. Detailed plans are attached.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

None.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

The proposal would not require surface water withdrawals or diversions.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

No.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

The proposal does not involve any discharges of waste materials to surface waters.

REVIEWED
By Kevin LeClair at 11:03 am, Feb 06, 2012

b. Ground

1. Will ground water be withdrawn, or will water be discharged to ground water? Give a general description, purpose, and approximate quantities if known.

No withdrawal of ground water or discharge of water to ground water would occur as part of this project.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No waste material from septic tanks or other sources would be discharged into the ground as part of this project.

c. Water runoff (including stormwater):

1. Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Runoff from the immediate project site is not expected except at natural, near pre-project rates. In general, precipitation is expected to infiltrate into vegetated soils.

2) Could waste materials enter ground or surface waters? If so, generally describe.

Waste materials are not expected to enter ground or surface waters.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

The erosion control measures described under question 1h would be implemented.

4. PLANTS

a. Check or circle types of vegetation found on the site:

- ☒ deciduous tree: alder, maple, aspen, other:
- ☒ evergreen tree: fir, cedar, pine, other:
- ☒ shrub: English ivy, laurel, arborvitae
- ☐ pasture
- ☐ crop or grain
- ☐ wet soil plants: cattail, buttercup, bulrush, skunk cabbage, other:
- ☐ water plants: water lily, eelgrass, milfoil, other
- ☒ other types of vegetation: lawn

b. What kind and amount of vegetation will be removed or altered?

Some areas of English ivy along the stream corridor will be grubbed out.

REVIEWED
By Kevin LeClair at 11:04 am, Feb 06, 2012

c. List threatened or endangered species known to be on or near the site.

No threatened or endangered plant species are known to be on or near the site.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

A detailed mitigation plan using only native species has been prepared for portions of the stream buffer (see attached plans). A total of 440 square feet of native trees, shrubs, and groudcover are proposed. Species include vine maple, red-osier dogwood, oceanspray, red-flowering currant, evergreen huckleberry, coastal strawberry, salal, dull Oregon-grape, false lily of the valley, and redwood sorrel.

5. ANIMALS

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: hawk, heron, eagle, songbirds, other:
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other

b. List any threatened or endangered species known to be on or near the site.

The on-site section of Phantom Creek is located approximately 1,500 feet upstream from Lake Sammamish at an elevation approximately 240 feet above the lake. Cascades and gradients greater than 25 percent in this section prevent upstream migration in Phantom Creek. Therefore, this prevents listed Chinook salmon and steelhead trout from accessing the project site. However, the on-site stream is still considered to have slight fish use due to its connectivity with Phantom Lake. Phantom Lake is known to contain warm-water fish species.

c. Is the site part of a migration route? If so, explain.

As described above, some warm water fish species may make their way to the site from Phantom Lake.

d. Proposed measures to preserve or enhance wildlife, if any:

A detailed mitigation plan using only native species has been prepared for the buffer of Phantom Creek (see attached plans). A total of 440 square feet of native trees, shrubs, and groudcover are proposed. Species include vine maple, red-osier dogwood, oceanspray, red-flowering currant, evergreen huckleberry, coastal strawberry, salal, dull Oregon-grape, false lily of the valley, and redwood sorrel. Native plantings will provide overhanging vegetation to supplement the stream with detritus and insects, benefiting aquatic species; filtered shade; future recruitment of large woody debris; and upland wildlife habitat.

6. ENERGY AND NATURAL RESOURCES

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

REVIEWED
By Kevin LeClair at 11:04 am, Feb 06, 2012

No forms of energy (beyond those already utilized by the site) are necessary for the completed project.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

The project would not affect the potential use of solar energy by adjacent properties.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

None.

7. ENVIRONMENTAL HEALTH

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

Typical hazards related to power tools and equipment fuels are associated with construction of the proposed project.

1) Describe special emergency services that might be required.

Emergency services are not anticipated at the site during implementation of the project. After project completion, emergency services would not be required, beyond those typical of a single-family residence.

2) Proposed measures to reduce or control environmental health hazards, if any:

Standard precautions would be taken to ensure the safety of the work crew.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

The type of noise in the area is that typical of a single-family neighborhood, and would not affect the project.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Noise associated with completion of the project would be restricted to use of power tools and construction vehicles. No heavy equipment is necessary for project implementation. There would be no long-term noise associated with the completed project.

3) Proposed measures to reduce or control noise impacts, if any:

No noise-control measures are necessary.

REVIEWED
By Kevin LeClair at 11:05 am, Feb 06, 2012

8. LAND AND SHORELINE USE

a. What is the current use of the site and adjacent properties?

The current use of the property is single-family residential. Additional single-family uses are found to the north, south, and west of the project site. Weowna Park is located east of the site.

b. Has the site been used for agriculture? If so, describe.

The site has not been used for agriculture.

c. Describe any structures on the site.

The property contains a single-family residence with associated appurtenant structures (deck, hot tub, concrete pad).

d. Will any structures be demolished? If so, what?

The deck has been removed from the site. The concrete pad has been removed and reconstructed.

e. What is the current zoning classification of the site?

The current zoning classification is R-3.5 (Single-Family Residential).

f. What is the current comprehensive plan designation of the site?

The current comprehensive plan designation is SF-M (Single Family, Medium Density).

g. If applicable, what is the current shoreline master program designation of the site?

N/A.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

Phantom Creek and its buffer are considered an “environmentally sensitive” area.

i. Approximately how many people would reside or work in the completed project?

N/A.

j. Approximately how many people would the completed project displace?

No people would be displaced as a result of this project.

k. Proposed measures to avoid or reduce displacement impacts, if any:

No measures are necessary.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

This project does not affect existing land use.

REVIEWED
By Kevin LeClair at 11:12 am, Feb 06, 2012

9. HOUSING

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

No new housing units are proposed.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

No housing units are proposed for elimination.

c. Proposed measures to reduce or control housing impacts, if any:

No measures are necessary.

10. AESTHETICS

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

No structures are proposed.

b. What views in the immediate vicinity would be altered or obstructed?

The proposed project calls for the removal of invasive species from within the stream buffer and replacement with native plantings. Views from 168th Avenue SE will be improved by partial screening of the property from passing vehicles.

c. Proposed measures to reduce or control aesthetic impacts, if any:

No such measures are necessary.

11. LIGHT AND GLARE

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

No light or glare is expected to result from implementation of the proposed project.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

No.

c. What existing off-site sources of light or glare may affect your proposal?

There are no known off-site sources of light or glare.

d. Proposed measures to reduce or control light and glare impacts, if any:

No reduction measures will be necessary.

12. RECREATION

a. What designated and informal recreational opportunities are in the immediate vicinity?

REVIEWED
By Kevin LeClair at 11:12 am, Feb 06, 2012

Weowna Beach Park is located just east of the site across 168th Avenue SE. The park offers trail access and wildlife viewing.

b. Would the proposed project displace any existing recreational uses? If so, describe.

The proposed project would not displace any existing recreational uses.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

No such measures are necessary.

13. HISTORIC AND CULTURAL PRESERVATION

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

No such places or objects are known to be on or next to the site.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

No such landmarks or evidence is known to be on or next to the site.

c. Proposed measures to reduce or control impacts, if any:

Should historic, archeological, scientific or culturally significant items be encountered during implementation of this project, work would be temporarily stopped while the appropriate agencies are notified.

14. TRANSPORTATION

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

The property is currently accessed via SE 18th Street. An alternate entrance can be accessed from 168th Avenue SE.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

The nearest King County Metro transit stop is located at the corner of SE 19th Street and 168th Avenue SE, approximately 300 feet away.

c. How many parking spaces would the completed project have? How many would the project eliminate?

This proposed project would not eliminate or add any parking spaces.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

The proposal would not require any new roads or streets, or improvements to existing roads or streets.

REVIEWED
By Kevin LeClair at 11:12 am, Feb 06, 2012

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

Water, rail, or air transportation would not be utilized by the completed project.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

The proposed project would not create any additional vehicle trips above those already generated by the existing residence. No increase in traffic generation is expected.

g. Proposed measures to reduce or control transportation impacts, if any:

No such measures are necessary.

15. PUBLIC SERVICES

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

No increase in public service needs would result from this project.

b. Proposed measures to reduce or control direct impacts on public services, if any.

No such measures are necessary.

16. UTILITIES

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

No new utilities are proposed as part of the project.

Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

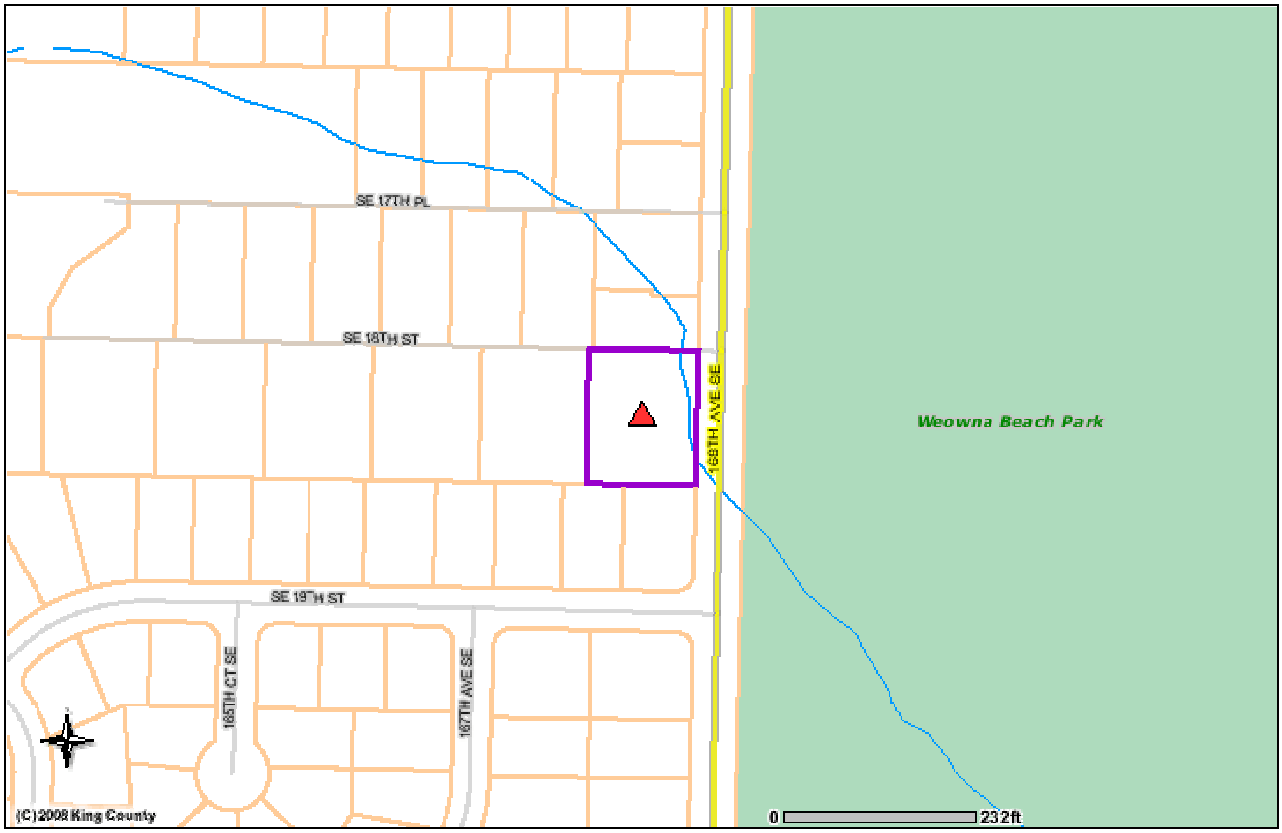
Signature

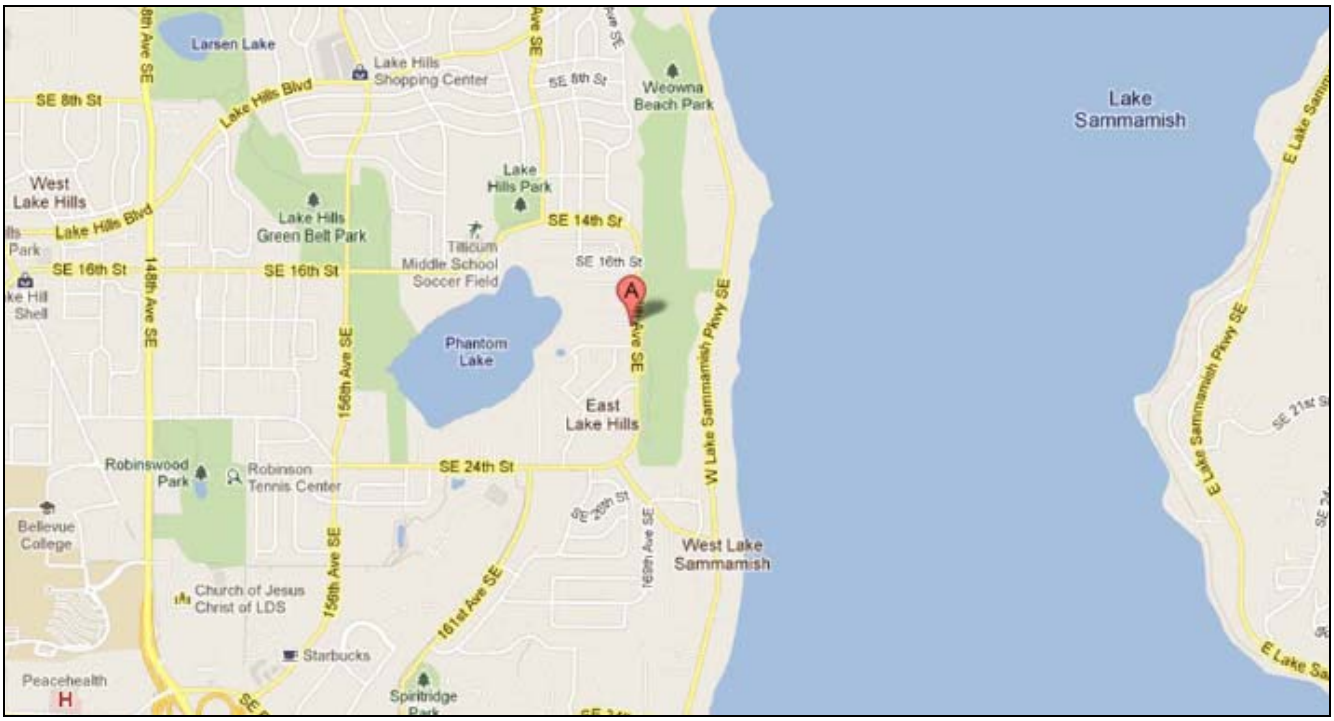
Kenny Booth, AICP
Associate Planner

Date Submitted: Submitted on January 24, 2012

REVIEWED
By Kevin LeClair at 11:13 am, Feb 06, 2012

<u>Vicinity Map</u> from iMAP (top) Google Maps (below)





CRITICAL AREAS REPORT

Bakker Residence – Bellevue, WA

Prepared for:

Ernest and Verla Bakker
16721 SE 18th Street
Bellevue, WA 98008

Prepared by:

THE WATERSHED COMPANY

750 Sixth Street South
Kirkland . WA 98033
p 425.822.5242
f 425.827.8136
watershedco.com

January 2012

The Watershed Company Reference Number:
111013

The Watershed Company Contact Person:
Kenny Booth

Cite this document as:
The Watershed Company. January 2012. Critical Areas Report: Bakker Residence, Bellevue, WA. Prepared for Ernest and Verla Bakker.

Printed on 30% recycled paper.

TABLE OF CONTENTS

Page #

1 Introduction 3

1.1 Background and Purpose 3

1.2 Description of Project Area 3

2 Local Regulations 8

3 Project Description 8

4 Impact Assessment / Lift Analysis 11

5 Critical Areas Report Criteria 13

6 Restoration Plan 21

6.1 Overview 21

6.2 Maintenance and Monitoring Plan 21

6.2.1 Goals 21

6.2.2 Performance Standards 22

6.2.3 Monitoring Methods 22

6.2.4 Construction Notes and Specifications 23

6.2.5 General Work Sequence 23

6.2.6 Material Specifications and Definitions 24

6.2.7 Contingencies 24

6.2.8 Maintenance 24

7 Summary 25

Appendix A: Restoration Plan

LIST OF EXHIBITS

Figure 1. Vicinity Map.....4

Figure 2. View of the dry stream corridor and adjacent stone patio (taken from the bridge - looking south) – photo taken 10-18-11.....6

Figure 3. View of the stream as it enters the property under SE 18th Street (looking north) – photo taken 10-18-11.....6

Figure 4. View of the stream corridor (looking north) – photo taken 10-18-11.....7

Figure 5. View of the existing concrete pad in relation to the stream bank and lower stone patio area – photo taken 10-18-11.....7

CRITICAL AREAS REPORT

BAKKER RESIDENCE – BELLEVUE, WA

1 INTRODUCTION

1.1 Background and Purpose

The purpose of this report is to document potential critical area impacts associated with proposed residential appurtenance construction within the buffer of Phantom Creek on the Bakker property in the City of Bellevue, Washington (Figure 1). The lot presently contains a single-family residence located approximately 15 feet from Phantom Creek at its nearest location. On October 7, 2011, City of Bellevue Code Compliance, under Case #11-124434-EA, issued a *Request for Voluntary Compliance* for the Bakker property. According to the summary of violation, the Bakker's cleared in a stream buffer, installed footings and a concrete slab within the buffer, and conducted greater than 1000 square feet of clearing outside the buffer. All of these activities occurred without obtaining the proper permits and approvals from the City. All work within the buffer has since been stopped.

The applicant proposes to continue work on the planned improvements within the stream buffer, following issuance of all required City permits and approvals. Work within the buffer will require issuance of a Critical Areas Land Use Permit, as well as approval of a critical areas report. Specifically, Bellevue Land Use Code (LUC) 20.25H.230 requires compliance with specific critical areas report criteria as part of any modification to a critical area or critical area buffer. This report fulfills these criteria and presents a detailed discussion of the habitat and vegetation on-site and how the proposal can be implemented with no net loss of on-site or off-site critical area functions and values.

1.2 Description of Project Area

The subject property is located at 16721 SE 18th Street (parcel 0124059056) in the City of Bellevue. 168th Avenue SE and Weowna Beach Park borders the site to the east, and single family residences are located to the north, south, and west of the site. The parcel is rectangular-shaped and approximately 0.50 acre in size. Phantom Creek bisects the eastern portion of the property from north to south. The property is relatively flat with steeper slopes along the banks of the stream. The lot presently contains a house (built in 1977) with attached garage and a driveway (see Section 3 for a description of hardened improvements within the stream buffer).

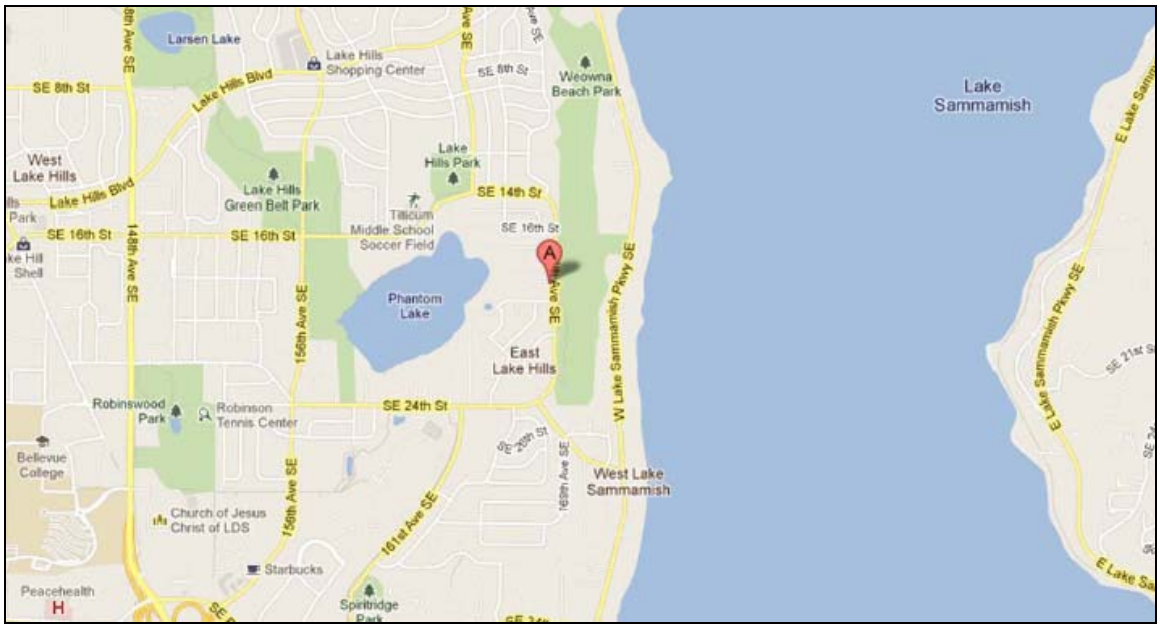


Figure 1. Vicinity Map.

No wetlands or streams other than Phantom Creek were noted on the property, nor do publicly available data indicate the presence of other aquatic areas.

Vegetation/Soils

Vegetation on the parcel consists of mixed native and ornamental landscaping, scattered trees, lawn and a forested riparian corridor. The riparian corridor on the east side of the property is shaded by mixed native coniferous and deciduous trees. The east bank has a relatively full native shrub understory; the west bank is more open and contains a few shrubs. Invasive English ivy blankets the banks, except for areas recently cleared. However, roots are still present and the ivy will re-sprout. Ornamental species, such as laurel and arborvitae, are also present. According to Natural Resources Conservation Service (NRCS) soil maps, the project site is comprised of Arents, Alderwood material, 6 to 15 percent slopes.

Habitat

The vegetation described above provides some habitat along the property fringes. Forest canopy along the riparian corridor and a few conifers throughout the property provide habitat for songbirds. Small mammals, such as mountain beaver, may find suitable habitat on-site. According to the current property owner, the steep stream banks were riddled with mountain beaver burrows. English ivy forms a dense groundcover along the stream. The ivy may provide cover for small mammals, but in suburban environments, these are usually limited to pest species (mice and rats). The lack of structural diversity limits food and cover opportunities for most wildlife species. There are a few native and non-

native nut- and berry-producing plants on the site, which provide a food source for songbirds and small mammals. However, these resources are not unique to the site or particularly rare in the vicinity.

The location of the property within the surrounding landscape is relevant in characterizing habitat, as it determines whether the opportunity for wildlife to use a site exists. The subject property is adjacent to Weowna Beach Park, an 85-acre park that contains old-growth forest, hiking trails and viewpoints. This park may act as a "source," providing the potential for wildlife to access and use nearby areas. Because this forested park is within a developed urban/suburban landscape, it has value as a refuge for urban wildlife. While its size is significant for an urban refuge, the Bakker property most likely supports only species common in developed areas (e.g., raccoons, coyotes, and "backyard species" of songbirds) and not those that depend on larger, undisturbed forest. Habitat in the adjacent park includes a generally denser and more diverse understory, as well as a higher concentration of large trees, and animals are more likely to choose forage, nest, and rest sites within the adjacent park than on the subject property.

The on-site section of Phantom Creek is located approximately 1,500 feet upstream from Lake Sammamish at an elevation approximately 240 feet above the lake. Cascades and gradients greater than 25 percent in this section prevent upstream migration in Phantom Creek. However, the on-site stream is still considered to have slight fish use due to its connectivity with Phantom Lake. Phantom Lake is known to contain warm-water fish species.

Figure 2. View of the dry stream corridor and adjacent stone patio (taken from the bridge - looking south) – photo taken 10-18-11.

Figure 3. View of the stream as it enters the property under SE 18th Street (looking north) – photo taken 10-18-11.

Figure 4. View of the stream corridor (looking north) – photo taken 10-18-11.

Figure 5. View of the existing concrete pad in relation to the stream bank and lower stone patio area – photo taken 10-18-11.

2 LOCAL REGULATIONS

In Bellevue, streams are governed by Critical Areas Ordinance No. 5680. According to LUC 20.25H.075(B), streams are designated as one of four categories based on size and potential for fish use. Due to its connection with fish-utilized Phantom Lake, the on-site section of Phantom Creek may contain fish and fish habitat. Therefore, it has been given a stream designation of 'Type F'. Type F streams on developed sites require a 50-foot buffer [LUC 20.25H.075(C)(1)(ii)] and a 50-foot structure setback [LUC 20.25H.075(D)(2)(a)(ii)]. However, because the project site contains an existing primary structure, the footprint of the existing structure is not located within the stream buffer or setback. Based upon these regulations and the corresponding buffers and setbacks, nearly all of the proposed appurtenance improvements are encumbered by the stream buffer and setback.

Stream buffers and setbacks can only be modified through an approved critical areas report. The applicant must demonstrate that the modifications to the stream buffer and setback, combined with any restoration efforts, will result in equivalent or better protection of stream functions and values than would result from adhering to the standard application of the regulations (LUC 20.25H.230). Restoration of the critical area may involve restoring the stream buffer by removing invasive plant species and/or planting native vegetation within the buffer. An approved restoration plan would require monitoring and maintenance in accordance with LUC 20.25H.220.

3 PROJECT DESCRIPTION

As mentioned, some work within the stream buffer has occurred without proper permits and approvals. The unpermitted work within the buffer occurred soon after the Bakker's recent purchase of the property on September 12, 2011. At the time of purchase and prior to any unpermitted work, the site contained the following elements within the 50-foot Phantom Creek buffer:

1. A wood deck constructed adjacent to the southeast corner of the house. The deck allowed access to the backyard from the master bedroom. The deck was built around a concrete slab which held a hot tub. The wood deck (not including the 40 square foot concrete pad for the hot tub) is estimated by the Bakker's to have been approximately 163 square feet in size.
2. A concrete slab adjacent to the eastern side of the house. The slab is estimated to have been approximately 299 square feet in size. The slab included a wood fence along the eastern perimeter of the slab.
3. A dilapidated guard rail fence was positioned approximately three feet east of the concrete slab, adjacent to the top of a rock retaining wall running along the

top of the stream bank. The fence was presumably positioned for safety purposes; however, it had become completely overgrown with ivy (see #4 below), was almost completely rotted, and had fallen down in several sections.

4. The banks along the stream corridor were completely overgrown with ivy.

After purchase of the property, the Bakker's proceeded to conduct the following work within the stream buffer without proper permits or approvals from the City:

1. The pre-existing 163 square foot deck was removed (the adjacent concrete pad that supported the hot tub was not removed).
2. The pre-existing 299 square foot concrete slab was removed. In its place, a smaller pad (measuring approximately 172 square feet) was poured. Additionally, a new 40 square foot concrete pad for the hot tub was poured and as mentioned, the pre-existing 40 square foot concrete pad remains on-site.
3. The guard rail fence along the top of the rock retaining wall was removed.
4. Areas of ivy along the stream corridor were trimmed back (but not grubbed out).

In addition to the modifications within the stream buffer, clearing has occurred within and outside of the critical area structure setback. Clearing consisted of removing non-native lawn and shrubs and slightly re-grading the area. Several small (< 2-feet in height) retaining walls were installed to provide a level planting area. Additionally, a concrete patio, approximately 200 square feet in size, was removed from an area adjacent to the southwest corner of the residence. 147 square feet of the patio was located within the 50-foot structure setback. Following issuance of the voluntary compliance order, work within the structure setback was stopped.

Based upon the condition of the property upon purchase and the work already conducted, the Bakker's propose the following elements within the stream buffer:

1. Remove the pre-existing concrete pad that supported the hot tub. The newly poured concrete pad would remain to support the repositioned hot tub.
2. Construct a new deck adjacent to the master bedroom, in the same area as the old deck. The new deck would measure approximately 221 square feet in size and would be positioned in nearly the identical area as the pre-existing deck.
3. Construct an eight-foot-tall wood fence along the eastern perimeter of the existing concrete slab. The fence will screen the concrete area and deck from view.
4. Install a new split rail fence along the top of the existing rock retaining wall. The fence will serve as a safety measure for pedestrians and also help to prohibit access into the stream corridor.
5. Remove the existing stone patio directly adjacent to the stream. The area will be restored with native plantings.

6. Install native plantings within the stream buffer. Some areas of English ivy will be removed to make room for native plantings. However, the majority of the ivy will remain as the presence of mountain beavers in this stream corridor would prevent native plantings from establishing in areas of existing ivy.

In addition to the modifications within the stream buffer, planting of the cleared areas within and beyond the critical area structure setback is also proposed. Further, a wood deck, approximately 360 square feet in size, is to be constructed adjacent to the kitchen, in the southwest corner of the residence. The deck will replace the previously removed concrete patio. Approximately 292 square feet of the deck will fall within the 50-foot structure setback, while the remainder will be located outside the setback.

Project Purpose

The primary purpose of the proposed project is to modify and update the existing hardened improvements adjacent to the southeast corner of the residence. Functionality will be enhanced by shifting the hot tub to the east and downsizing the concrete area. Specifically, the hot tub will be relocated slightly to the east in order to allow direct access from the master bedroom door to a private sitting area on the deck. The concrete pad will be reduced in size in order to allow native plantings around the perimeter of the hot tub. The overall goal of the project is to improve functionality and privacy. Also, as mentioned, a separate deck is proposed adjacent to the southwest corner of the residence. The deck will serve a separate function than the bedroom deck in that it will serve as a gathering and eating space adjacent to the kitchen and living areas of the home.

Mitigation Sequencing

Pursuant to LUC 20.25H.215, attempts to avoid and minimize impacts to the on-site stream buffer and structure setback have been taken.

Avoidance: As previously mentioned, the entire southeast corner of the residence is encumbered by the Phantom Creek stream buffer. Therefore, any construction in the area would result in impacts to the critical area buffers. Because the project purpose is to enhance functionality and privacy, building within the buffer is required, and therefore, full avoidance of critical area buffer impacts is not feasible. Further, without decking off the southeast end of the home, doors are several feet above ground-level, which renders them unusable or unsafe. Avoidance of all impacts to the structure setback is also not feasible, as the setback extends into the area of the proposed deck.

Minimization: Minimization techniques were utilized during the design process in order to limit impacts to the stream buffer and setback. Minimization measures included:

1. Reconstructing a concrete pad of the minimum size in order to store garbage cans and firewood. This includes a reduction in the total area and width

(moving it further from the stream) of the concrete pad over the pre-existing condition. In addition to reducing the total size, the pad would be located approximately two feet further from the stream than under the pre-existing condition.

2. Keeping the area around three sides of the hot tub in a pervious and planted condition.

3. Limiting the area of the western deck (adjacent to the kitchen) within the structure setback.

Mitigation: As mitigation for placing the proposed improvements within the stream buffer and structure setback, 440 square feet of degraded buffer will be enhanced (Appendix A). Enhancement will consist of planting native trees, shrubs and groundcover adjacent to the stream. Restoration will occur in areas currently occupied by non-native vegetation or void of vegetation. Additionally, the existing stone patio directly adjacent to the stream will be removed and planted with native vegetation. Proposed species for planting include vine maple, red-osier dogwood, oceanspray, red-flowering currant, evergreen huckleberry, coastal strawberry, salal, dull Oregon-grape, false lily of the valley, and redwood sorrel. The proposed restoration will provide an additional level of protection for the critical area and will offset the disturbance associated with modification of the appurtenant structures within the stream buffer. Overall, a net improvement in critical area functions is proposed.

4 IMPACT ASSESSMENT / LIFT ANALYSIS

For the purposes of this section, an assessment of the proposed impacts resulting from the project will compare the pre-existing condition (prior to unpermitted work) to the proposed condition. A summary of these impacts along with the proposed restoration is presented in the table below.

Table 1. Impact Assessment

Element	Pre-Existing Condition (Sq. Ft.)	Proposed Condition (Sq. Ft.)	Restoration Plantings (Sq. Ft.)
Stream Buffer			
Deck	163	221	---
Concrete hot tub pad	40	40	---
Concrete slab	299	172	---
Stone patio	119	0	---
Buffer Subtotal	621	433	---
Structure Setback			

Deck	0	292	---
Concrete patio	147	0	---
Setback Subtotal	147	292	---
Total	**768**	**725**	**440**

As can be seen in the above table, the total area of hardened improvements within the stream buffer will decrease from 621 square feet to 433 square feet. Improvements within the structure setback will increase from 147 square feet to 292 square feet; although the impervious concrete surface will be replaced by a pervious deck. Improvements within the buffer and setback combined will decrease from 768 square feet to 725 square feet, a net reduction of 43 square feet. As mitigation for the impacts associated with construction activities within the stream buffer and structure setback, a total of 440 square feet of native vegetation will be planted within the buffer, improving the overall functions and values of the on-site stream. An analysis of the specific functions and values provided by the pre-existing site and the post-project site is provided in Table 2.

Table 2. Functional Lift Analysis

Critical Area/ Buffer Functions	Existing Conditions	Proposed Conditions	Functional Improvement?
Water Quality	Most of the existing stream corridor is lined with invasive ivy. Ivy has shallow roots and prevents the growth of native plants, which are more efficient at filtering stormwater before it enters the stream.	While some of the ivy will remain, native trees, shrubs, and groundcover will be added to the stream buffer. The existing stone patio will also be removed.	Yes; water quality will be improved. New native plantings will help to filter storm water prior to it reaching the stream.
Hydrologic	The ditched stream segment is deeply incised and has the capacity to convey seasonal flows. The forest canopy shades the corridor, but understory is sparse.	Restore portions of the stream buffer with native trees, shrubs, and groundcover.	Yes; new native plantings will provide increased bank stability and native vegetation that could potentially reduce velocity of peak flows ; thereby improving stream buffer functions.
Habitat	The ivy provides cover for small mammals, particularly mountain beaver. The lack of structural diversity limits food and cover	While some of the ivy will remain, native trees, shrubs, and groundcover will be added to the stream buffer. The existing stone patio will also	Yes; 440 square feet of the site will be enhanced with new native plantings, which will provide a net increase in species and structural diversity.

	opportunities for most wildlife species.	be removed.	Further, new plantings will provide organic matter and foraging and nesting opportunities for terrestrial wildlife, including several songbird species.
Net Condition	Degraded stream buffer.	Invasive species are removed along a portion of the stream channel; native trees, shrubs, and groundcover are planted in buffer. The stone patio is removed.	Stream habitat restored with an increase in native vegetation; filtering of stormwater by native plantings; increased habitat structural and compositional complexity, and an increase in organic material to the food chain.

The only vegetation to be removed is a portion of the ivy along the stream corridor; therefore, temporal loss will be minimal. The change from existing state to restored state will represent an increase in the quality of habitat from the perspective of the site potential. A greater area of diverse, native habitat will result from the proposal. The property will be more suitable overall for urban songbird and small mammal species than it is presently; the understory will contain more woody vegetation and a greater structural complexity, which is more attractive to songbirds and small mammals than is low-growing, homogeneous vegetation. As well, a greater mix of flowering, fruiting and seeding plants will provide forage over a longer yearly timespan than the relatively uniform existing ivy vegetation. Wildlife species of the Pacific Northwest are also better adapted to forage provided by native plants than non-native species.

5 Critical Areas Report Criteria

As previously mentioned, stream buffers and structure setbacks may be modified pursuant to LUC 20.25H.230. The Director may approve modifications if it can be shown that, through restoration, the modification will result in equivalent or better protection of critical area functions and values. The existing project site contains areas of low functioning stream buffer. Non-native vegetation occupies a majority of the stream corridor. The proposal includes restoration of the stream buffer with native plantings. These restoration actions will serve as mitigation for the proposed improvements within the stream buffer. A total of 440 square feet of the site will be enhanced through the planting of native trees, shrubs, and groundcover within the stream buffer. The planting layout incorporates a diversity of native plant species. The restoration plan will provide

for substantially improved critical area and buffer functions and values relative to the existing condition. A monitoring and maintenance plan for the proposed restoration area is also included in this report.
Per the LUC, the critical areas report must meet specific decision criteria in order for the Director to approve a proposal to modify the regulated stream buffer. Compliance with the relevant critical areas report criteria listed in LUC 20.25H.250(B) is addressed below.

4. *An assessment of the probable cumulative impacts to critical areas resulting from development of the site and the proposed development.*

   Modifications within the buffer will result in a smaller total area of impervious surfaces/structures. Coupled with restoration of degraded portions of the stream buffer, long term cumulative impacts are expected to be beneficial. This includes an increase in species and structural diversity, improved stormwater quality function, and increased bank stability. Short term construction impacts may result in a minimal amount of temporal loss. Construction impacts would be minimized to the greatest extent feasible by utilizing applicable BMPs.

5. *An analysis of the level of protection of critical area functions and values provided by the regulations or standards of this Code, compared with the level of protection provided by the proposal. The analysis shall include:*

   a. A discussion of the functions and values currently provided by the critical area and critical area buffer on the site and their relative importance to the ecosystem in which they exist;

   A segment of Phantom Creek passes through the Bakker property as it flows seasonally from Phantom Lake. Southeast of the Bakker property the stream crosses under 168th Avenue SE and continues through Weowna Beach Park. Ultimately, it empties into Lake Sammamish. Weowna Beach Park is part of the City's Lake-to-Lake trail system. Given its close proximity to the park, the stream and vegetative cover on the Bakker property contributes to wildlife corridor connections within the City.

   The stream segment on the Bakker property is ditched and deeply incised. The stream banks are partially armored and a stone patio covers a small section of the west bank. A mix of coniferous and deciduous trees shade the channel, but the shrub understory is patchy and invasive ivy dominates the groundcover. Water quality functions are limited by the prevalence of shallow rooted ivy and sparse shrub understory. The deep stream channel functions hydrologically to provide water storage capacity. Under current

site conditions, wildlife use of the on-site critical area is likely limited to songbirds and small mammals.

See also Table 2.

b. A discussion of the functions and values likely to be provided by the critical area and critical area buffer on the site through application of the regulations and standards of this Code over the anticipated life of the proposed development;

The strict application of the regulations and standards of LUC 20.25H would prevent nearly all of the proposed improvements from being constructed, as the entirety of the main project area is located within the buffer.

Alternatively, compliance with regulations and standards could also result in the relocation of the concrete slab, deck, and hot tub, to an area outside of the buffer and structure setback. However, moving the appurtenant structures would not fulfill the project purpose. Specifically, the deck and hot tub must be located adjacent to the master bedroom in order to provide direct access to the master bath and afford the privacy necessary to enjoy a hot tub. Further, existing electrical and water hookups in the immediate vicinity complicated any proposal to relocate the facilities to an area outside the buffer.

Under either scenario (no improvements or relocation), the stream buffer would remain in its existing degraded condition, with partial water quality and hydrologic function, and limited habitat value.

c. A discussion of the functions and values likely to be provided by the critical area and critical area buffer on the site through the modifications and performance standards included in the proposal over the anticipated life of the proposed development; and

By requesting a critical area modification pursuant to LUC 20.25H.230, the applicant is provided the opportunity to restore portions of the on-site stream buffer. A restoration plan has been prepared (see Appendix A) that details the area proposed for restoration. This plan mitigates for the proposed improvements within the buffer. Restoration will involve the enhancement of 440 square feet of the buffer through the planting of native vegetation. The planting layout incorporates a diversity of native plant species. Proposed plantings include trees, shrubs, and groundcover. A monitoring and maintenance plan for the proposed mitigation is also included in this report. Overall, a net gain in critical area functions is proposed. Therefore, modification of the on-site stream buffer, and

subsequent restoration, will provide a substantially higher level of protection than provided through the application of the regulations of LUC 20.25H. [See also Table 2]

7. *A discussion of the mitigation requirements applicable to the proposal pursuant to LUC 20.25H.210, and a recommendation for additional or modified mitigation, if any.*

The proposed restoration plan has been developed in accordance with the standards of LUC 20.25H.210 through 20.25H.225. The project applicant proceeded through the design of the proposed project by first attempting to avoid impacts to the on-site critical area and buffer. However, because strict application of LUC 20.25H would result in the applicant being unable to improve functionality and privacy related to exterior appurtenances, the applicant proceeded to minimize impacts to the greatest extent possible. The applicant has compensated for modification within the stream buffer by proposing a restoration plan that will improve the critical area functions and values relative to the existing condition. A monitoring and maintenance plan for the proposed restoration area has also been prepared and is included in this report. The plan includes the components required by LUC 20.25H.220.

To allow a stream buffer modification through an approved critical areas report, the Director must also find compliance with the decision criteria established in LUC 20.25H.255(A) and (B). Compliance with the relevant sections listed in LUC 20.25H.255(A) and (B) is addressed below.

1. *The modifications and performance standards included in the proposal lead to levels of protection of critical area functions and values at least as protective as application of the regulations and standards of this code.*

A restoration plan that details the areas proposed for restoration as a result of the critical area buffer modifications has been prepared. The plan mitigates for the proposed modification and updating of residential appurtenant structures within the stream buffer and setback. Restoration will involve the planting of native vegetation (trees, shrubs, and groundcover) within the stream buffer. The overall planting layout incorporates a diversity of native plant species.

Within the buffer, proposed native plantings will increase species diversity, providing a variety of foraging resources for wildlife. An increase in structural diversity over existing conditions will also result, providing more suitable year-round cover conditions for wildlife, particularly songbirds. The proposed native plantings will also maintain stormwater functions

within the buffer, allowing filtration of stormwater adjacent to the stream and by helping to remove pollutants from stormwater.

Overall, the restoration plan will provide for substantially improved critical area and buffer functions and values relative to the existing condition. The monitoring and maintenance plan will ensure long-term success of the mitigation. [See also Table 2.]

2. *Adequate resources to ensure completion of any required mitigation and monitoring efforts.*

A comprehensive five-year maintenance and monitoring plan is included in this report (Section 6). The plan specifies appropriate species for planting and planting techniques, describes proper maintenance activities, and sets forth performance standards to be met yearly during monitoring. This will ensure that restoration plantings will be maintained, monitored, and successfully established within the first five years following implementation. Furthermore, to ensure that the proposed plantings are installed and that the five-year maintenance and monitoring plan is implemented, the applicant will post an Installation Assurance Device and a Maintenance Assurance Device prior to building permit issuance.

3. *The modifications and performance standards included in the proposal are not detrimental to the functions and values of critical area and critical area buffers off-site.*

The stream and stream buffer continue off-site to the north and east. Restoration of significant portions of the on-site stream buffer will provide improved water quality, erosion control, and habitat. The stream buffer is currently dominated by an English ivy monoculture. The native trees and shrubs included in the restoration plan will provide a more complex variety of vegetation, increasing the overall habitat function of the area, thereby improving habitat functions on adjacent properties.

4. *The resulting development is compatible with other uses and development in the same land use district.*

The proposed appurtenance improvements will be compatible with adjacent properties and surrounding development within the same land use district (Single Family R-3.5). Adjacent properties also contain single-family land uses, all of a similar size.

1. *The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in overall critical area or critical area buffer functions.*

See preceding paragraphs.

2. *The proposal includes plans for restoration of degraded critical area or critical area buffer functions which demonstrate a net gain in the most important critical area or critical area buffer functions to the ecosystem in which they exist.*

   The proposed buffer restoration and enhancement will increase vegetative cover and structure, improve bank stability, and better shelter the stream from adjacent land uses. Removing the stone patio and restoring that inner buffer area with native shrubs and groundcover will improve the continuity of this critical area, which is already fragmented by roads and other residential development. Additionally, reducing invasive cover and increasing native plant density and diversity in the targeted restoration areas will reduce erosion and improve biofiltration and water quality.

   The most important function provided by the riparian corridor is overall habitat complexity, through organic input and shading from riparian plantings and from shallow water conditions for salmonids and other fish species. The stream buffer in its current condition does not offer significant habitat complexity. With implementation of the restoration plan, complexity will be greatly improved through stone patio removal and the addition of native overhanging vegetation.

3. *The proposal includes a net gain in stormwater water quality function by the critical area buffer or by elements of the development proposal outside of the reduced regulated critical area buffer.*

   Modifications within the buffer will result in a smaller total area of impervious surfaces/structures than existed under pre-existing conditions. Further, the addition of native trees, shrubs, and groundcover adjacent to the stream is expected to result in increased stormwater quality function. The new native plantings adjacent to the stream will help to filter pollutants and infiltrate stormwater prior to it reaching the stream. Therefore, a net gain in stormwater quality function is proposed.

Modification of a critical area buffer requires the applicant to apply for and receive a Critical Areas Land Use Permit. Before issuing a Critical Areas Land Use Permit, the Director must find that the project meets specific decision criteria. Compliance with the applicable Critical Areas Land Use Permit decision criteria listed in LUC 20.30P.140 is addressed below.

A. *The proposal obtains all other permits required by the Land Use Code.*

The project applicant has applied for a Critical Areas Land Use Permit (LO) to modify the on-site stream buffer and structure setback. No other City of Bellevue land use permits will be required of the project at this time. A Clearing and Grading Permit will be applied for after approval of the LO.

B. *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.*

As mitigation for impacts of the proposed appurtenance improvements, the existing degraded stream buffer will be restored. The design of improvements constitutes the minimum necessary impact on the stream buffer by minimizing the total size of impervious elements and maximizing the distance of improvements from the stream. These development techniques, coupled with the planting of native vegetation, will result in the least possible impact on the critical area and critical area buffer.

C. *The proposal incorporates the performance standards of Part 20.25H LUC to the maximum extent applicable.*

See below for stream performance standard compliance (per LUC 20.25H.080.A).

D. *The proposal will be served by adequate public facilities including streets, fire protection, and utilities.*

The proposed project will be served by adequate public facilities. No new streets will be needed to serve the site and the project site will continue to utilize existing utilities available to the site. Additionally, fire and police protection are currently available at the site.

E. *The proposal includes a mitigation or restoration plan consistent with the requirements of LUC 20.25H.210; except that a proposal to modify or remove vegetation pursuant to an approved Vegetation Management Plan under LUC 20.25H.055.C.3.i shall not require a mitigation or restoration plan.*

A restoration plan has been prepared in accordance with the requirements of LUC 20.25H.210. See Section 6 and Appendix A.

F. *The proposal complies with other applicable requirements of this code.*

The proposed project complies with all other applicable City of Bellevue Land Use Codes.

Modification of a stream buffer requires the applicant to show compliance with the specific performance standards for streams as set forth in LUC 20.25H.080.A. Compliance with the applicable criteria listed in LUC 20.25H.080.A is addressed below.

Development on sites with a type S or F stream or associated critical area buffer shall incorporate the following performance standards in design of the development, as applicable:

1. *Lights shall be directed away from the stream.*

   No new lights are proposed as part of the project. However, the addition of an eight-foot-tall privacy fence will help to block spillover light from the master bedroom and deck area.

2. *Activity that generates noise such as parking lots, generators, and residential uses shall be located away from the stream or any noise shall be minimized through use of design and insulation techniques.*

   Proposed concrete and deck surfaces (and their associated activities) will be located slightly further from the stream than under existing conditions. The hot tub will be shifted slightly closer to the stream; however, a privacy fence constructed between the stream and hot tub will help to prevent noise from reaching the stream. Overall, noise levels are not expected to increase compared to pre-existing site conditions.

3. *Toxic runoff from new impervious area shall be routed away from the stream.*

   The proposed project will result in an overall decrease in impervious surfaces within close proximity to the stream. No pollution generating surfaces are proposed. The addition of 440 square feet of native plantings adjacent to the stream will help to filter any pollutants from on-site runoff, thereby resulting in a net increase of on-site stormwater functions.

4. *Treated water may be allowed to enter the stream critical area buffer.*

   No change in on-site runoff patterns or drainage facilities is proposed. However, new native plantings adjacent to the stream will help to filter pollutants and infiltrate stormwater prior to it reaching the stream.

5. *The outer edge of the stream critical area buffer shall be planted with dense vegetation to limit pet or human use.*

   A degraded portion of the stream buffer, 440 square feet in size, will be planted with native species. Native species include vine maple, red-osier

dogwood, oceanspray, red-flowering currant, evergreen huckleberry, coastal strawberry, salal, dull Oregon-grape, false lily of the valley, and redwood sorrel. Split-rail fencing will also be installed along a portion of the stream channel. The fencing will help to prevent human intrusion and disturbance.

6. *Use of pesticides, insecticides and fertilizers within 150 feet of the edge of the stream critical area buffer shall be in accordance with the City of Bellevue's "Environmental Best Management Practices," now or as hereafter amended.*

Generally, weed control efforts in the stream buffer will employ manual removal. If any persistent weed or pest problems require pesticide control, the City would be contacted to verify compliance with City of Bellevue BMPs and, if allowed, a licensed pesticide applicator would be hired.

6 RESTORATION PLAN

6.1 Overview

The proposed restoration plan fulfills the requirements of LUC 20.25H.220(B). The plan seeks to restore and enhance substantial portions of the Phantom Creek buffer. The existing stream-side stone patio will be removed and replaced with native plants. The stream buffer has a high potential for enhancement to increase several important functions, as it presently contains non-native vegetation and lacks significant native vegetation. To achieve this, the plan calls for the enhancement of 440 square feet of the buffer through the planting of native trees, shrubs and groundcover. The restoration plan can be found in Appendix A. Species include vine maple, red-osier dogwood, oceanspray, red-flowering currant, evergreen huckleberry, coastal strawberry, salal, dull Oregon-grape, false lily of the valley, and redwood sorrel.

6.2 Maintenance and Monitoring Plan

Appendix A includes details of the 5-year maintenance and monitoring plan, also detailed below.

6.2.1 Goals

1) Within the proposed restoration area, establish dense native vegetation that is appropriate to the eco-region and site.

2) Where indicated on the plan, areas within the restoration area will remain substantially vegetated with a preponderance of native plants and will contain little invasive or noxious weed cover.

3) Improve native vegetation structure in the riparian corridor.

6.2.2 Performance Standards

The standards listed below will be used to judge the success of the installation over time. If performance standards are met at the end of Year 5, the site will then be deemed successful and the performance security bond will be eligible for release by the City of Bellevue.

1) Survival: Achieve 100% survival of installed plants by the end of Year 1. This standard can be met through plant establishment or through replanting as necessary to achieve the required numbers.
2) Native cover:
   a. Achieve 60% understory cover of native shrubs by Year 3. Native volunteer species may count towards this cover standard.
   b. Achieve 80% understory cover of native shrubs by Year 5. Native volunteer species may count towards this cover standard.
3) Species diversity: Establish at least three native shrub species and two native groundcover species by Year 3 and maintain this diversity through Year 5. Native volunteer species may count towards this standard.
4) Invasive cover: Aerial cover for all non-native, invasive and noxious weeds within the planting areas will not exceed 10% at any year during the monitoring period. Invasive plants include ivy species (*Hedera* spp.), Himalayan blackberry (*Rubus armeniacus*), cut leaf blackberry (*Rubus laciniatus*) and English holly (*Ilex aquifolium*). Invasive plants are defined as those listed by the Washington State Noxious Weed Control Board as Class A, B, or C.

6.2.3 Monitoring Methods

This monitoring program is designed to track the success of the mitigation site over time and to measure the degree to which it is meeting the performance standards outlined in the preceding section.

An as-built plan will be prepared by the **restoration professional** (Watershed Company [(425) 822-5242] personnel, or other persons qualified to evaluate environmental restoration projects) prior to the beginning of the monitoring period. The as-built plan will be a mark-up of the planting plans included in this plan set. The as-built plan will document any departures in plant placement or other components from the proposed plan.

Monitoring will take place once annually in the fall for five years. Year-1 monitoring will commence in the first fall subsequent to installation.

The formal monitoring visit shall record and report the following in an annual report submitted to the City of Bellevue:

1) Visual assessment of the overall site.
2) Year-1 counts of live and dead plants by species. Year-2 through Year-5 counts of established native trees by species.
3) Counts of dead plants where mortality is significant in any monitoring year.
4) Visual estimate of native shrub cover.
5) Visual estimate of native groundcover.
6) Estimate of non-native, invasive weed cover within planting areas.
7) Tabulation of established native species, including both planted and volunteer species.
8) Photographic documentation from at least three fixed reference points.
9) Any intrusions into or clearing of the planting areas, vandalism, or other actions that impair the intended functions of the mitigation area.
10) Recommendations for maintenance or repair of any portion of the mitigation area.

6.2.4 Construction Notes and Specifications

Note: specifications for items in **bold** can be found below under "Material Specifications and Definitions."

Note: The Watershed Company [(425) 822-5242] personnel, or other persons qualified to evaluate environmental restoration projects, will monitor:

1. All site preparation
    a. Soil preparation.
    b. Mulch placement.
2. Plant material inspection
    a. Plant material delivery inspection.
    b. 100% plant installation inspection.

6.2.5 General Work Sequence

1. Prepare the planting areas: a) removing weeds and/or pavers; b) incorporate compost into the topsoil; c) roto-till as needed to incorporate compost and de-compact soil.
2. All plant installation is to take place during the dormant season (October 15th – March 1st), for best survival.

3. All plant installation is to take place during the dormant season (October 15th – March 1st), for best survival.
4. Prepare a planting pit for each plant and install per the planting details.
5. Mulch the entire planted area with **wood chip mulch**, four inches thick.
6. Install a temporary, above ground **irrigation system** to provide full coverage to all plants within the restoration area.

6.2.6 Material Specifications and Definitions

1. **Compost**: Cedar Grove Compost or equivalent product. 100% vegetable compost with no appreciable quantities of sand, gravel, sawdust, or other non-organic materials.
2. **Fertilizer**: Slow release, granular PHOSPHOROUS-FREE fertilizer. Follow manufacturer's instructions for application. Keep fertilizer in a weather-tight container while on site. Note that fertilizer is to be applied only in Years 2 through 5 and not in the first year.
3. **Irrigation system:** Automated system capable of delivering at least one inches of water per week from June 1 through September 30 for the first two years following installation.
4. **Restoration Professional**: Watershed Company [(425) 822-5242] personnel, or other persons qualified to evaluate environmental restoration projects.
5. **Wood chip mulch**: Arborist chips (chipped woody material) approximately 1 to 3 inches in maximum dimension (not sawdust or coarse hog fuel). This material is commonly available in large quantities from arborists or tree-pruning companies. This material is sold as "Animal Friendly Hog Fuel" at Pacific Topsoils [(800) 884-7645]. Mulch must not contain appreciable quantities of garbage, plastic, metal, soil, and dimensional lumber or construction/demolition debris.

6.2.7 Contingencies

If there is a significant problem with the restoration areas meeting performance standards, a contingency plan will be developed and implemented. Contingency plans can include, but are not limited to: soil amendment; additional plant installation; and plant substitutions of type, size, quantity, and location.

6.2.8 Maintenance

The site will be maintained in accordance with the following instructions for five years following completion of the construction.

1) Follow the recommendations noted in the previous monitoring site visit.
2) General weeding for all planted areas:
   a. At least twice yearly, remove all competing weeds and weed roots from beneath each installed plant and any desirable volunteer vegetation to a

distance of 18 inches from the main plant stem. Weeding should occur at least twice during the spring and summer. Frequent weeding will result in lower mortality, lower plant replacement costs, and increased likelihood that the plan meets performance standards by Year 5.

b. More frequent weeding may be necessary depending on weed conditions that develop after plan installation.
c. Do not weed the area near the plant bases with string trimmer (weed whacker/weed eater). Native plants are easily damaged or killed, and weeds easily recover after trimming.

3) Apply slow release granular fertilizer to each installed plant annually in the spring (by June 1) of Years 2 through 5.
4) Replace mulch as necessary to maintain a 4-inch-thick layer, retain soil moisture, and limit weeds.
5) Replace each plant found dead in the summer monitoring visits during the upcoming fall/winter dormant season (October 15 to March 1).
6) The homeowner will ensure that water is provided for the entire planted area with a minimum of 2 inches of water provided per week from June 1 through September 30 for the first two years following installation through the operation of a temporary irrigation system. Less water is needed during March, April, May and October.

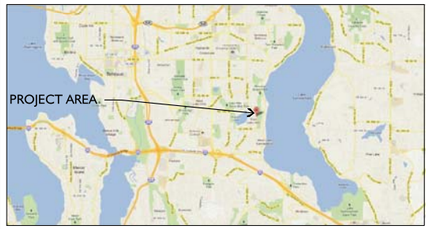
7 SUMMARY

Construction of the proposed residential appurtenance improvements will occur within the 50-foot standard buffer of Phantom Creek and within a portion of the structure setback. The closest edge of the proposed concrete pad will come within approximately 12 feet of the top of bank. This is an approximate two feet pullback of the pad from pre-existing conditions. As mitigation for the proposed improvements, the stream buffer will be restored with native vegetation. A total of 440 square feet of site enhancement is proposed. Native species include vine maple, red-osier dogwood, oceanspray, red-flowering currant, evergreen huckleberry, coastal strawberry, salal, dull Oregon-grape, false lily of the valley, and redwood sorrel.

The planting layout incorporates a diversity of native plant species. The restoration plan will provide significantly better protection of those stream functions and values than is provided by existing conditions and by what would be provided by the standard application of the stream critical area regulations. Therefore, an overall net gain in critical area buffer functions and values is proposed.

APPENDIX A

Restoration Plan



VICINITY MAP

IMPACTS LEGEND

- PRE-EXISTING IMPACTS: 768 SF
- PROPOSED IMPACTS: 725 SF
- FENCE
- APPROXIMATE NEW LANDSCAPE AREA: 2,136 SF
- MITIGATION AREA: 440 SF

SHEET INDEX

W1 IMPACT ANALYSIS
W2 PLANTING PLAN
W3 DETAILS AND NOTES

NOT FOR CONSTRUCTION

THESE PLANS HAVE BEEN SUBMITTED TO THE APPROPRIATE AGENCIES FOR REVIEW AND APPROVAL. UNTIL APPROVED, THESE PLANS ARE:

SUBJECT TO REVISION

NOTES

1. BASE MAP PRODUCED USING KING COUNTY IMAP AND FIELD MEASUREMENTS, NOT SURVEYED.

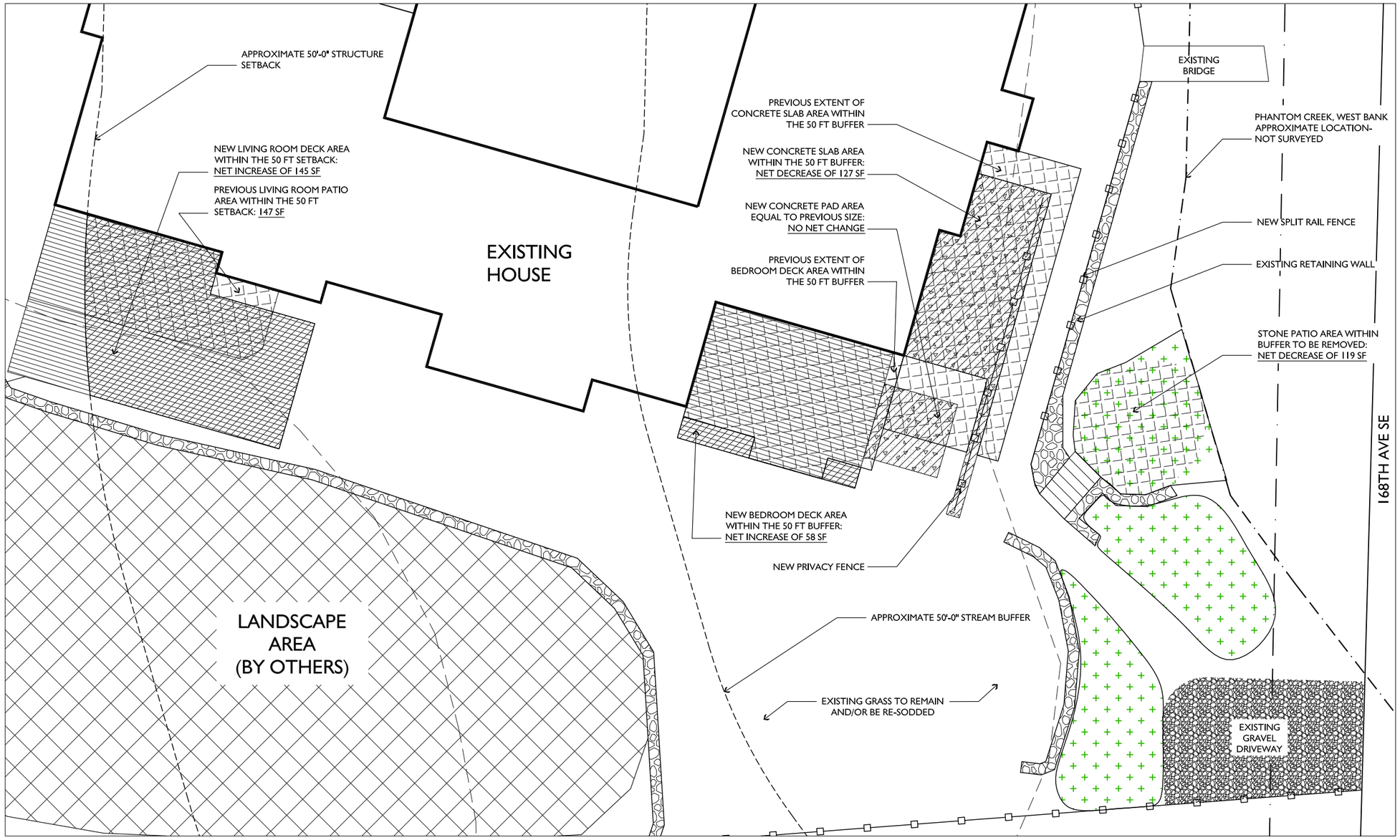
CONTACTS

PROPERTY OWNERS
ERNEST & VERLA BAKKER
16721 SE 18TH STREET
BELLEVUE, WA 98008

ENVIRONMENTAL CONSULTANT
THE WATERSHED COMPANY
750 SIXTH STREET SOUTH
KIRKLAND, WASHINGTON 98033
(425) 822-5242
CONTACT: KENNY BOOTH

LEGAL DESCRIPTION

LOT A CITY OF BELLEVUE SHORT PLAT 76-35 REC AF #7608300513 SD PLAT DAF POR OF NW 1/4 OF SW 1/4 BEG NE COR LOT 1 LAKE MANOR ESTATES TH W ALG N LN SD PLAT 528 FT TH N 01-06-16 E 164.95 FT TH S 88-38-31 E 528 FT TAP ON WLY MGN 168TH AVE SE TH S ALG SD MGN 164.91 FT TO POB



IMPACT ANALYSIS

SCALE: 1" = 5'-0"

0 5' 10' 20'

© Copyright- The Watershed Company

THE WATERSHED COMPANY
750 Sixth Street South
Kirkland WA 98033
p 425.822.5242 f 425.827.8136
www.watershedco.com
Science & Design

THE BAKKER RESIDENCE

STREAM BUFFER MITIGATION PLAN
PREPARED FOR ERNEST & VERLA BAKKER
16721 SE 18TH STREET
BELLEVUE, WA 98008

SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	10-25-11	PREVIOUS & PROPOSED SITE PLANS	MF
2	12-2-11	MITIGATION & PLANTING PLAN	MF

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34". SCALE ACCORDINGLY.

PROJECT MANAGER: KB
DESIGNED: MG
DRAFTED: MF
CHECKED: KB, MG
JOB NUMBER: 111013
SHEET NUMBER: 1 OF 3

DATE 1/20/2012 | PRINTED BY MARK GARFF | FILENAME BAKKER_MITIGATION2.DWG

MITIGATION NOTES

Executive Summary

The purpose of this mitigation plan is to fulfill the City of Bellevue issued Request *for Voluntary Compliance* (case #11-124434-EA, dated October 7, 2011) and to document potential critical area impacts associated with proposed residential appurtenance construction within the buffer of Phantom Creek on the Bakker property located at 16721 SE 18th Street. Both the pre-existing and proposed footprint of areas the Bakker's seek to improve is summarized on Sheet 1 of this plan set. To off-set a net impact of 104 SF within the stream buffer and setback, buffer restoration/enhancement totaling 440 SF is proposed. This figure includes removal of a pre-existing stone patio, which will be restored with native plantings. The proposed mitigation ratio is 4.2:1, restoration to impact.

Mitigation Approach

Avoidance: Since the proposed impacts are primarily improvements to pre-existing appendages (decking, concrete slabs) that were already within the buffer, complete avoidance was not considered practical. For example, without decking off the south end of the house, doors are several feet above ground-level, which renders them usable or unsafe.

Minimization: Under the pre-existing condition, appendage structures covered 621 SF of stream buffer. Under the proposed condition, that buffer impact figure would be reduced to 433 SF. While the proposed 292 SF decking within the setback, does result in a total of 725 SF for a net impact of 104 SF, impacts within the stream buffer are reduced by 188 SF. Therefore, direct buffer impacts are reduced under the proposed plan.

Mitigation: To mitigate for a net impact of 104 SF, stream restoration/enhancement totaling 440 SF is proposed. This is a 4.2:1 mitigation ratio. Proposed mitigation includes removing a stone patio from the interior buffer and restoring the identified areas with native shrubs and groundcovers.

Goals and Performance Standards

The following goals and performance standards will be used to measure project success over the monitoring period.

Goals

1) Within the proposed restoration area, establish dense native vegetation that is appropriate to the eco-region and site.
2) Where indicated on the plan, areas within the restoration area will remain substantially vegetated with a preponderance of native plants and will contain little invasive or noxious weed cover.
3) Improve native vegetation structure in the ripartian corridor.

Performance Standards

The standards listed below will be used to judge the success of the installation over time. If performance standards are met at the end of Year 5, the site will then be deemed successful and the performance security bond will be eligible for release by the City of Bellevue.

1) Survival: Achieve 100% survival of installed plants by the end of Year 1. This standard can be met through plant establishment or through replanting as necessary to achieve the required numbers.
2) Native cover:
   a. Achieve 60% understory cover of native shrubs by Year 3. Native volunteer species may count towards this cover standard.
   b. Achieve 80% understory cover of native shrubs by Year 5. Native volunteer species may count towards this cover standard.
3) Species diversity: Establish at least three native shrub species and two native groundcover species by Year 3 and maintain this diversity through Year 5. Native volunteer species may count towards this standard.
4) Invasive cover: Aerial cover for all non-native, invasive and noxious weeds within the planting areas will not exceed 10% at any year during the monitoring period. Invasive plants include ivy species (*Hedera* spp.), Himalayan blackberry (*Rubus armeniacus*), cut leaf blackberry (*Rubus laciniatus*) and English holly (*Ilex aquifolium*). Invasive plants are defined as those listed by the Washington State Noxious Weed Control Board as Class A, B, or C.

Maintenance and Monitoring Plan

This monitoring program is designed to measure progress towards the stated goals and performance standards within the required five-year monitoring period.

Monitoring Methods

This monitoring program is designed to track the success of the mitigation site over time and to measure the degree to which it is meeting the performance standards outlined in the preceding section.

An as-built plan will be prepared by the **restoration professional** (Watershed Company [(425) 822-5242] personnel, or other persons qualified to evaluate environmental restoration projects) prior to the beginning of the monitoring period. The as-built plan will be a mark-up of the planting plans included in this plan set. The as-built plan will document any departures in plant placement or other components from the proposed plan.

Monitoring will take place once annually in the fall for five years. Year-1 monitoring will commence in the first fall subsequent to installation.

The formal monitoring visit shall record and report the following in an annual report submitted to the City of Bellevue:

1) Visual assessment of the overall site.
2) Year-1 counts of live and dead plants by species. Year-2 through Year-5 counts of established native trees by species.
3) Counts of dead plants where mortality is significant in any monitoring year.
4) Visual estimate of native shrub cover.
5) Visual estimate of native groundcover.
6) Estimate of non-native, invasive weed cover within planting areas.
7) Tabulation of established native species, including both planted and volunteer species.
8) Photographic documentation from at least three fixed reference points.
9) Any intrusions into or clearing of the planting areas, vandalism, or other actions that impair the intended functions of the mitigation area.
10) Recommendations for maintenance or repair of any portion of the mitigation area.

Construction Notes and Specifications

Note: specifications for items in **bold** can be found below under "Material Specifications and Definitions."

Note: The Watershed Company [(425) 822-5242] personnel, or other persons qualified to evaluate environmental restoration projects, will monitor:

1. All site preparation
   a. Weed and stone paver removal
   b. Soil preparation.
   c. Mulch placement.
2. Plant material inspection
   a. Plant material delivery inspection.
   b. 100% plant installation inspection.

General Work Sequence

Site preparation and plant installation should follow the planting notes and installation specifications on Sheet 3 of this plan set.

Material Specifications and Definitions

1. **Compost**: Cedar Grove Compost or equivalent product. 100% vegetable compost with no appreciable quantities of sand, gravel, sawdust, or other non-organic materials. [approximately 7 cubic yards needed.]
2. **Fertilizer**: Slow release, granular PHOSPHOROUS-FREE fertilizer. Follow manufacturer's instructions for application. Keep fertilizer in a weather-tight container while on site. Note that fertilizer is to be applied only in Years 2 through 5 and not in the first year.
3. **Irrigation system:** Automated system capable of delivering at least one inches of water per week from June 1 through September 30 for the first two years following installation.
4. **Restoration Professional**: Watershed Company [(425) 822-5242] personnel, or other persons qualified to evaluate environmental restoration projects.
5. **Wood chip mulch**: Arborist chips (chipped woody material) approximately 1 to 3 inches in maximum dimension (not sawdust or coarse hog fuel). This material is commonly available in large quantities from arborists or tree-pruning companies. This material is sold as "Animal Friendly Hog Fuel" at Pacific Topsoils [(800) 884-7645]. Mulch must not contain appreciable quantities of garbage, plastic, metal, soil, and dimensional lumber or construction/demolition debris. [approximately 5 cubic yards needed.]

Contingencies

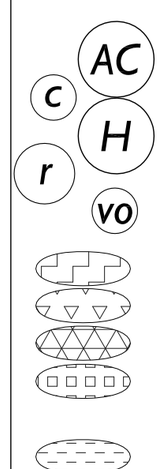
If there is a significant problem with the restoration areas meeting performance standards, a contingency plan will be developed and implemented. Contingency plans can include, but are not limited to: soil amendment; additional plant installation; and plant substitutions of type, size, quantity, and location.

Maintenance

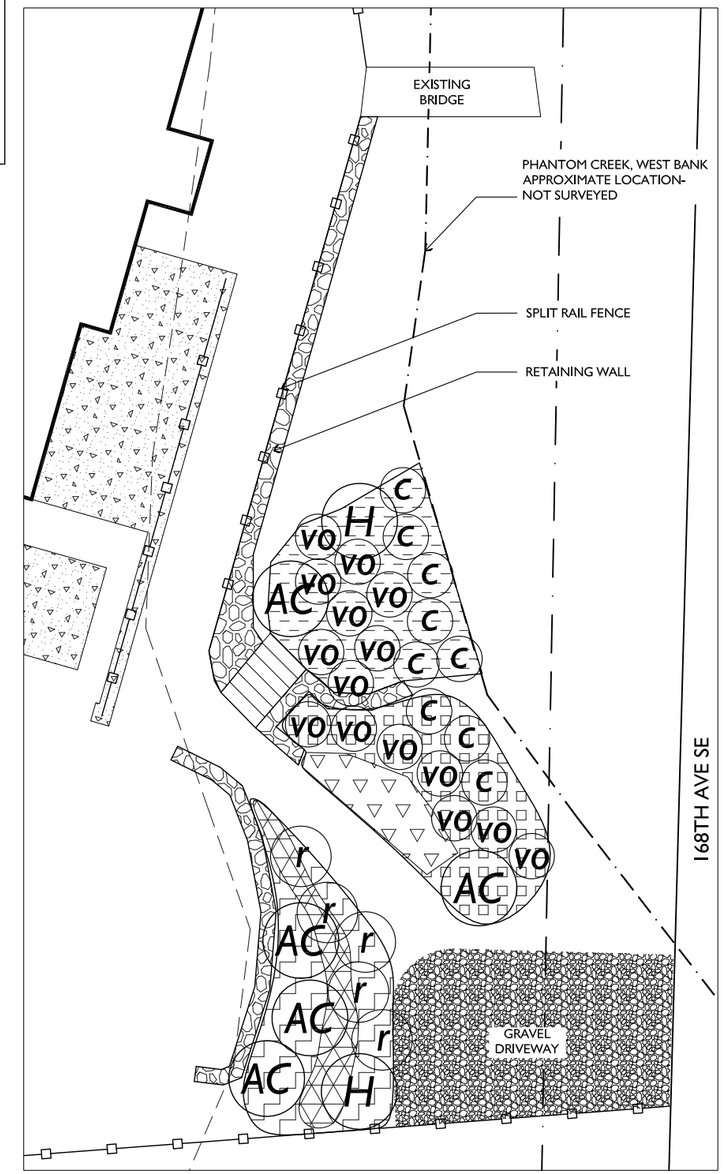
The site will be maintained in accordance with the following instructions for five years following completion of the construction.

1) Follow the recommendations noted in the previous monitoring site visit.
2) General weeding for all planted areas:
   a. At least twice yearly, remove all competing weeds and weed roots from beneath each installed plant and any desirable volunteer vegetation to a distance of 18 inches from the main plant stem. Weeding should occur at least twice during the spring and summer. Frequent weeding will result in lower mortality, lower plant replacement costs, and increased likelihood that the plan meets performance standards by Year 5.
   b. More frequent weeding may be necessary depending on weed conditions that develop after plan installation.
   c. Do not weed the area near the plant bases with string trimmer (weed whacker/weed eater). Native plants are easily damaged or killed, and weeds easily recover after trimming.
3) Apply slow release granular fertilizer to each installed plant annually in the spring (by June 1) of Years 2 through 5.
4) Replace mulch as necessary to maintain a 4-inch-thick layer, retain soil moisture, and limit weeds.
5) Replace each plant found dead in the summer monitoring visits during the upcoming fall/winter dormant season (October 15 to March 1).
6) The homeowner will ensure that water is provided for the entire planted area with a minimum of 2 inches of water provided per week from June 1 through September 30 for the first two years following installation through the operation of a temporary irrigation system. Less water is needed during March, April, May and October.

PLANTING SCHEDULE



SCIENTIFIC / COMMON NAME	QTY	SIZE / NOTES
SHRUBS *- ALL SHRUBS TO BE VIGOROUS & HEALTHY*		
ACER CIRCINATUM VINE MAPLE	5	5 GAL. / MULTI-TRUNKED
CORNUS SANGUINEA RED-OSIER DOGWOOD	9	5 GAL
HOLODISCUS DISCOLOR OCEANSPRAY	2	2 GAL
RIBES SANGUINEUM RED-FLOWERING CURRANT	5	2 GAL
VACCINIM OVATUM EVERGREEN HUCKLEBERRY	15	2 GAL
PERENNIALS & GROUNDCOVERS		
FRAGARIA CHILOENSIS COASTAL STRAWBERRY	30	1 GAL @ 24" OC
GAULTHERIA SHALLON SALAL	10	1 GAL @ 24" OC
MAHONIA NERVOSA DULL OREGON-GRAPE	12	1 GAL @ 24" OC
MAIANTHEMUM DILATATUM FALSE LILY OF THE VALLEY MIXED WITH VANCOUVERIA HEXANDRA INSIDE-OUT-FLOWER	17 17	1 GAL @ 24" OC 1 GAL @ 24" OC
OXALIS OREGANA REDWOOD SORREL	104	1 GAL @ 15" OC



PLANTING PLAN

SCALE: 1" = 5'-0"

0 2.5' 5' 10'

© Copyright- The Watershed Company

THE WATERSHED COMPANY
750 Sixth Street South
Kirkland WA 98033
p 425.822.5242 f 425.827.8136
www.watershedco.com
Science & Design

THE BAKKER RESIDENCE

STREAM BUFFER MITIGATION PLAN
PREPARED FOR ERNEST & VERLA BAKKER
16721 SE 18TH STREET
BELLEVUE, WA 98008

SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	10-25-11	PREVIOUS & PROPOSED SITE PLANS	MF
2	12-2-11	MITIGATION & PLANTING PLAN	MF

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34" .
SCALE ACCORDINGLY.

PROJECT MANAGER: KB
DESIGNED: MG
DRAFTED: MF
CHECKED: KB, MG
JOB NUMBER: 111013
SHEET NUMBER: 2 OF 3

DATE 1/20/2012 | PRINTED BY MARK GARFF | FILENAME BAKKER_MITIGATION2.DWG

PLANTING NOTES - ALL AREAS

1. Native plant installation shall occur during frost-free periods only.
2. Locate all existing utilities within the limit of work. The contractor is responsible for any utility damage as a result of the landscape construction.
3. Remove any and all invasive weeds and their roots from the planting area. Species targeted for removal include Himalayan blackberry, Evergreen blackberry, English holly, English ivy, Scot's broom, Japanese knotweed, English laurel, and morning glory.
4. Upon satisfactory completion of weed & root removal, soil shall be top-dressed with 6" of compost. Incorporate compost into existing site soil.
5. Loosen any compacted soils in the planting area.
6. Layout plant material per plan for inspection by the Landscape Architect. Plant substitutions will NOT be allowed without the approval of the Landscape Architect.
7. Where groundcover or perennials meet with proposed trees, the area shall be underplanted. Adjust planting to avoid tree roots.
8. Install plants per planting details. See this sheet for planting details and installation specifications.
9. Water each plant thoroughly to remove air pockets.
10. Install a 4" depth, coarse wood-chip mulch throughout the entire planting area.
11. Install a temporary irrigation system capable of delivering 2" of water per week to the entire planted area. Maintain irrigation system in working condition for two (2) summers after initial plant installation.

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.

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; LIVE STAKES AND FASCINES (WATTLES); TUBERS, CORMS, BULBS, ETC.; SPRIGS, PLUGS, AND LINERS.
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 LANDSCAPE ARCHITECT / CONSULTANT.
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 CONSULTANT AT LEAST 30 DAYS PRIOR TO START OF WORK UNDER THIS SECTION.

INSPECTION
1. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE CONSULTANT 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 CONSULTANT MAY ELECT TO INSPECT PLANT MATERIALS AT THE PLACE OF GROWTH. AFTER INSPECTION AND ACCEPTANCE, THE CONSULTANT 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 CONSULTANT 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 CONSULTANT 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).

DELIVERY, HANDLING, & STORAGE

NOTIFICATION
1. CONTRACTOR MUST NOTIFY CONSULTANT 48 HOURS OR MORE IN ADVANCE OF DELIVERIES SO THAT CONSULTANT 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.

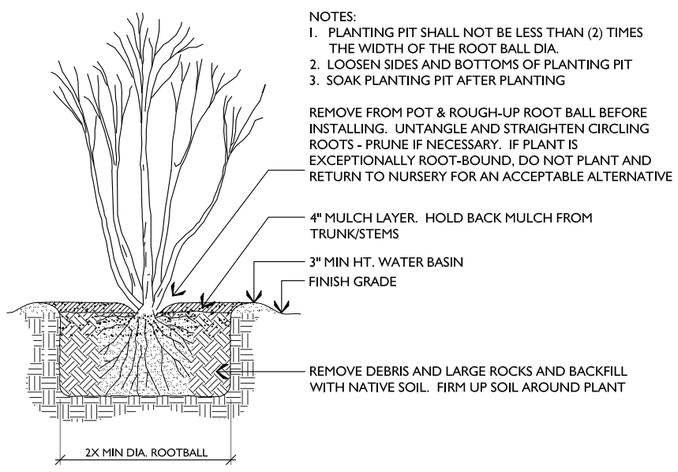
REPLACEMENT
1. PLANTS NOT FOUND MEETING ALL OF THE REQUIRED CONDITIONS MUST BE REMOVED FROM SITE AND REPLACED IMMEDIATELY AT THE CONSULTANT'S DISCRETION.
2. PLANTS NOT SURVIVING AFTER ONE YEAR TO BE REPLACED AT THE CONTRACTOR'S EXPENSE.

PLANT MATERIAL

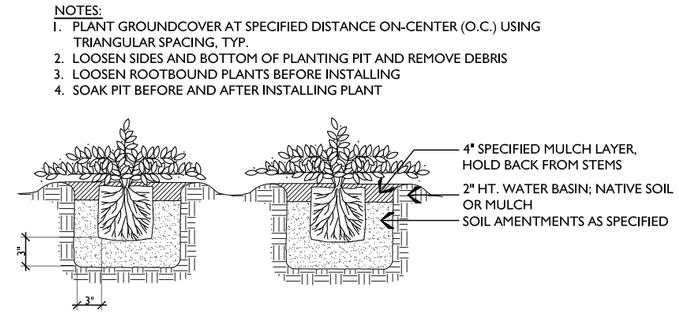
GENERAL
1. PLANTS SHALL BE NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES UNDER CLIMATIC CONDITIONS SIMILAR TO OR MORE SEVERE THAN THOSE OF THE PROJECT SITE.
2. PLANTS SHALL BE TRUE TO SPECIES AND VARIETY OR SUBSPECIES. NO CULTIVARS OR NAMED VARIETIES SHALL BE USED UNLESS SPECIFIED AS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

QUANTITIES
SEE PLANT LIST ON ACCOMPANYING PLANS.

ROOT TREATMENT
1. CONTAINER GROWN PLANTS (INCLUDES PLUGS): 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.



A TREE & SHRUB PLANTING DETAIL
NTS



B GROUNDCOVER & PERENNIAL PLANTING DETAIL
NTS

PLANTING NOTES AND DETAILS

© Copyright- The Watershed Company

THE WATERSHED COMPANY
750 Sixth Street South
Kirkland WA 98033
p 425.822.5242 f 425.827.8136
www.watershedco.com
Science & Design

THE BAKKER RESIDENCE
STREAM BUFFER MITIGATION PLAN
PREPARED FOR ERNEST & VERLA BAKKER
16721 SE 18TH STREET
BELLEVUE, WA 98008

SUBMITTALS & REVISIONS

NO.	DATE	DESCRIPTION	BY
1	10-25-11	PREVIOUS & PROPOSED SITE PLANS	MF
2	12-2-11	MITIGATION & PLANTING PLAN	MF

SHEET SIZE:
ORIGINAL PLAN IS 22" x 34" .
SCALE ACCORDINGLY.

PROJECT MANAGER: KB
DESIGNED: MG
DRAFTED: MF
CHECKED: KB, MG
JOB NUMBER: 111013
SHEET NUMBER: 3 OF 3

DATE 12/02/2012 | PRINTED BY MARK GARFF | FILENAME BAKKER_MITIGATION2.DWG