CITY OF KIRKLAND
ENVIRONMENTAL CHECKLIST

Purpose of Checklist:

The State Environmental Policy Act (SEPA), Chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the City identify impacts from your proposal, and to reduce or avoid impacts from the proposal, whenever possible

Instructions for Applicants:

This environmental checklist asks you to describe some basic information about your proposal. Answer the questions briefly with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the City staff can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The City may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impacts.

Use of Checklist for Non-project Proposals:

Complete this checklist for non-project proposals also, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NON-PROJECT ACTIONS (Part D).

For non-project actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable: Juanita Substation Rebuild

2. Name of applicant: Puget Sound Energy (PSE)

SEP08-00025 Memo
Enclosure 3

3. Tax parcel number: 2926059007

4. Address and phone number of applicant and contact person: (Please see Attachment)

5. Date checklist prepared: May 30, 2008

6. Agency requesting checklist: City of Kirkland Department of Planning and Community Development

7. Proposed timing or schedule (including phasing, if applicable): Construction of new substation-Early Spring 2009

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

(Please see Attachment)

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

(Please see Attachment)

10. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

No other such applications are known.

11. List any government approvals or permits that will be needed for your proposal, if known.

(Please see Attachment)

12. Give brief, complete description of your proposal, including the proposed uses, the size and scope of the project and site including dimensions and use of all proposed improvements. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page.

(Please see Attachment)

13. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

(Please see Attachment)

City of Kirkland Environmental Checklist
Attachment

Section A – Background

Item 4
Address and phone number of applicant and contact person.

Roque Bamba, 355 110th Avenue NE, EST-05E, Bellevue, Washington 98004, 425-462-3774

Item 8
Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal?

At some time in the future, two new transmission poles are expected to be located at the north end of the new substation. These poles would provide a connection to the substation from a new Juanita to Redmond transmission line that is expected to be separately permitted in the future. The substation rebuild is not dependent upon or required for the future Juanita to Redmond transmission line.

Item 9
List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

Sound Analysis Juanita Substation Kirkland, Washington, BRC Acoustics & Technology Consulting, September 26, 2007.
Geotechnical Engineering Services, Juanita Substation Improvements, GeoEngineers, Inc., February 29, 2007.

Item 11
List any government approvals or permits that will be needed for your proposal, if known.

City of Kirkland: Zoning Permit – Type 11A Use
Variance from Side Yard Setback Requirements
Variance from Landscape Buffer Requirements
Variance from Height Requirements
Clearing and Grading Permit
Building Permit
Right of Way Use Permit
Tree Removal Permit

City of Kirkland Environmental Checklist Attachment
Section A - Background

Item 12

Give brief, complete description of your proposal, including the proposed uses, size and scope of the project and site including dimensions and use of all proposed improvements. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page.

The proposed project is expanding and rebuilding the PSE Juanita electric distribution substation. The existing substation is located at the southern end of an existing long, narrow PSE-owned utility corridor measuring approximately 1,270 feet by 80 – 89 feet. The expanded and rebuilt substation will be located in the northern 400 feet of the corridor. Expansion of the substation is required to meet increased demand for electricity in the Juanita/Totem Lake area and to increase the reliability of the electrical system in the immediate service area. After the rebuild is complete, the substation will have a "looped" configuration due to the addition of a second transformer. These means that the substation can continue to function even if a transmission line to the north or to the south of the substation is disrupted.

The fenced area for the new substation will be 300 feet in length and 60 feet in width. An 18-foot high Durisol block sound wall will be constructed on the east side of the substation, and an 11-foot high Durisol block sound wall on the west side. A 12-foot landscaping strip, including trees and shrubs, will be located between the sound walls and the east and west property lines.

Vehicular access to the new substation will be via driveway to NE 132nd Street; an additional 12 feet of right of way will be dedicated along the property frontage. An existing 14-foot gravel road provides internal access within the PSE ownership.

Upon completion of the new substation, the existing substation will be dismantled and removed, and that portion of the site restored.

Item 13

Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map if reasonably available. While you submit any plans required by the agency, you are not required to duplicate maps or detail plans submitted with any permit applications related to this checklist.

The new substation will be located within the existing PSE utility corridor (10910 NE 132nd Street), within the City of Kirkland, Washington. The ownership lies between NE 132nd Street and NE 128th Street, between 109th Avenue NE and 110th Avenue NE. King County Parcel No. 2926059007. A vicinity map is included in the attached application.

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY
REVIEWED BY:

Tony Leavitt,
Associate Planner

B. ENVIRONMENTAL ELEMENTS

1. EARTH

a. General description of the site (circle one): Flat, rolling, hilly, steep, slopes, mountainous, other
(Please see Attachment)

b. What is the steepest slope on the site (approximate percent slope)?
The steepest slope on this site is approximately 6%.

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.
(Please see attachment)

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.
No unstable soils are known at the project site or in the immediate vicinity.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.
Construction of the south driveway will require a cut and fill totalling approximately 350 cubic yards.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.
(Please see Attachment)

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt, buildings)?
Approximately 16.6% of the site will be covered with impervious surfaces upon completion of the project.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:
(Please see Attachment)
Comply with Geotech Report Recommendations

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.
(Please see Attachment)

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 odors will affect the project.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:
Dust management will be included in the required Temporary Erosion and Sedimentation Control Plan.

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.
No surface water body is present either on the site or within the immediate vicinity.

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 project will not require any work to take place over, in, or adjacent to any surface water body.

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.

Not applicable

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

(Please see Attachment)

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

The proposed project does not lie within a 100-year floodplain.

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 proposed project does not involve any discharges of waste materials to surface waters.

b. Ground

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

(Please see Attachment)

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.

Not applicable

c. Water Runoff (including storm water):

1) Describe the source of runoff (include 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.

Stormwater runoff will be collected and infiltrated per an approved storm water management plan.

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

It is not anticipated that waste materials will enter ground or surface waters.

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

The storm drainage system will be designed and constructed per City of Kirkland requirements.

4. PLANTS

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

x deciduous tree: alder, maple, aspen, other
x evergreen tree: fir, cedar, pine, other
x shrubs
x grass
____ pasture
____ crop or grain

____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
____ water plants: water lily, eelgrass, milfoil, other
X other types of vegetation

b. What kind and amount of vegetation will be removed or altered?
(Please see Attachment)

c. List threatened or endangered species known to be on or near the site.
(Please see Attachment)

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

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 (hawk and songbirds)
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.
(Please see Attachment)

c. Is the site part of a migration route? If so, explain.
Site is not known to be part of a migration route.

d. Proposed measures to preserve or enhance wildlife, if any:
(Please see Attachment)

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.
(Please see Attachment)

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

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:
(Please see Attachment)

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.
(Please see Attachment)

1) Describe special emergency services that might be required.
No special emergency services will be required.

2) Proposed measures to reduce or control environmental health hazards, if any:
(Please see Attachment)

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?
Existing noise in the project area will not affect the new substation.

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.

(Please see Attachment)

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

No additional noise mitigation is required.

Sound Analysis Recomendations

8. LAND AND SHORELINE USE

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

(Please see Attachment)

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

The project site has not been used for agriculture.

c. Describe any structures on the site.

(Please see Attachment)

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

(Please see Attachment)

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

(Please see Attachment)

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

Not applicable

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

No portion of the project site has been classified as "environmentally sensitive."

h. Approximately how many people would reside or work in the completed project.
(Please see Attachment)

i. Approximately how many people would the completed project displace?
Not applicable

j. Proposed measures to avoid or reduce displacement impacts, if any:
No such measures are required.

k. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:
(Please see Attachment)

9. HOUSING

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.
No housing units will be provided.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.
No housing units will be eliminated.

c. Proposed measures to reduce or control housing impacts, if any:
No such measures are required.

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?
(Please see Attachment)

b. What views in the immediate vicinity would be altered or obstructed?
(Please see Attachment)

c. Proposed measures to reduce or control aesthetic impacts, if any:
(Please see Attachment)

11. LIGHT AND GLARE

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?
(Please see Attachment)

b. Could light or glare from the finished project be a safety hazard or interfere with views?
Light and glare from the completed project would not be a safety hazard or interfere with views.

c. What existing off-site sources of light or glare may affect your proposal?
No off-site sources of light or glare will affect the proposal.

d. Proposed measures to reduce or control light and glare impacts, if any:
(Please see Attachment)

12. RECREATION

a. What designated and informal recreational opportunities are in the immediate vicinity?
(Please see Attachment)

b. Would the proposed project displace any existing recreational uses? If so, describe.
No existing recreational uses will be displaced.

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 required.

13. HISTORICAL AND CULTURAL PRESERVATION

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

(Please see Attachment)

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

(Please see Attachment)

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

(Please see Attachment)

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.

(Please see Attachment)

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

Yes, the site is located on a Metro Transit route.

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

(Please see Attachment)

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 proposed project will not require any new roads or streets; however, a private access road will be maintained from city streets to the substation.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.
The project will not use or occur in the immediate vicinity of water, rail, or air transportation.

f. How many vehicular trips per day would be generated by the completed project? If know, indicate when peak volumes would occur.
(Please see Attachment)

g. Proposed measures to reduce or control transportation impacts, if any:
A plan for traffic control during construction will be approved by King County.

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.
The project would not result in an increased need for public services.

b. Proposed measures to reduce or control direct impacts on public services, if any.
No proposed measures to reduce or control public service impacts will be necessary.

16. UTILITIES

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

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.
See project description in Section A, Background.

C. 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: _____

Tony Leavitt

Date Submitted: 6.6.2008

9/29/2008

Section B – Environmental Elements

Section B.1 – Earth

Item 1.a
General description of the site (circle one): Flat, rolling, hilly, steep, slope, mountainous, other

The northern portion of the project site is relatively flat; the southern portion slopes down approximately 12 feet from the existing substation to NE 128th Street.

Item 1.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.

Subsurface conditions consist of topsoil overlying loose to medium dense recessional outwash overlying dense to very dense glacial till.

Item 1.f
Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Construction activities typically increase the potential for erosion, although the relatively flat nature of new substation site and the fact that much of the area has already been cleared will reduce this potential.

Item 1.h
Proposed measures to reduce or control erosion, or other impacts to the earth, if any.

A temporary erosion and sedimentation control plan (TESCP) will be prepared consistent with City of Kirkland requirements. The TESCP will be submitted at the time of application for a Building Permit.

Section B – Environmental Elements

Section B.2 – Air

Item 2.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.

Construction equipment will generate short-term dust, vehicle exhaust, and odors in the immediate work area, but these emissions will be temporary.

Section B – Environmental Elements

Section B.3 – Water

Item 3.a.(4)

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

No surface water withdrawal or diversions are needed for this project.

Item 4.b.(1)

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

No ground water will be withdrawn. Storm drainage will be infiltrated consistent with an approved surface water management plan.

Section B – Environmental Elements

Section B.4 – Plants

Item 4.b
What kind and amount of vegetation will be removed or altered?

Existing vegetation on the northern portion of the site will be cleared. This vegetation includes blackberries, grasses, two cedar trees, and two maple trees.

Item 4.c
List threatened or endangered species known to be on or near the site.

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

Item 4.d
Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any.

A 13-foot landscaping strip, including trees and shrubs, will be located along the east and west property lines in the vicinity of the new substation. A preliminary landscaping plan is attached to this application.

Section B – Environmental Elements

Section B.5 – Animals

Item 5.b

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

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

Item 5.d

Proposed measures to preserve or enhance wildlife, if any.

Landscaping strips, including trees and shrubs, will be located on the east and west sides of the substation. No additional measures to enhance or preserve wildlife are proposed because these enhancements are not typically encouraged in substation facilities.

Section B – Environmental Elements

Section B.6 – Energy

Item 6.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.

The proposed project is designed to respond to the demand for electrical service and improved reliability for the surrounding area. The new substation will be approximately three times larger than the existing substation, and will have two transformers to increase electric service capacity and improve reliability.

Item 6.b

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

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

Item 6.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.

PSE provides a broad array of services and programs to encourage energy conservation and efficient use of energy. Current energy conservation standards are incorporated into PSE construction projects.

Section B – Environmental Elements

Section B.7 – Environmental Health

Item 7.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, please describe.

The project will not create any known environmental health hazards. PSE's substations, transmission and distribution facilities are designed, constructed, and operated in accordance with all applicable federal, state, and local regulations and safety codes.

Electrical transmission lines, distribution lines, and substations create electric and magnetic fields (EMF). EMF also exists in nature and around all types of electrical devices and appliances. Electric fields are produced by the presence of electrical charges (voltage); the movement of these charges (current) produces magnetic fields. The electrical and magnetic fields around electrical appliances and utility facilities are referred to as extremely low frequency EMF. They have a significantly lower frequency (60 cycles per second, or Hz), than radio broadcast waves (0.5 to 100 million cycles per second) or electromagnetic energy from sunshine (1,000 trillion cycles per second). Extremely low frequency EMF does not have sufficient energy to break molecular bonds or damage DNA.

Substations are not a predominant source of magnetic fields for surrounding properties. The incoming transmission lines and the outgoing distribution lines mostly influence the magnetic fields associated with substations. These power lines exist and are located throughout the region and pass through the neighborhoods that the substation serves. The construction of the Juanita Substation will not significantly change the existing EMF conditions at the project site or the surrounding properties. The substation will be located adjacent to the existing transmission line already located on the property.

PSE relies on the independent scientific research community for information regarding EMF and potential health effects. The consensus of the scientific community is described in a number of reports that have been released by respected independent scientific groups representing a variety of disciplines including physics, epidemiology, and cellular biology. A review of these sources has found no causal relationship between exposure to extremely low frequency EMF associated with 60 Hz electrical facilities and adverse effects to human health. Currently the EPA or any other health agency of the state or federal government does not regulate electric and magnetic fields. This is consistent with the consensus of the scientific community that there is no basis from which to conclude the exposures to EMF cause adverse health effects.

The substation transformer contains synthetic or mineral oil for cooling. A Spill Prevention Concrete Curb (SPCC) facility system will be installed around the transformer to contain oil, in the unlikely event that a transformer leaked or spilled oil. SPCC facilities consist of a concrete curb, bentonite clay-lined bottom, crush rock fill, an oil stop float valve and manual gate valve. The containment is sized to hold the entire oil content of the transformer.

Section B – Environmental Elements

Section B.7 – Environmental Health (continued)

Item 7.a.(2)

Proposed measures to reduce or control environmental hazards, if any.

A spill prevention, countermeasure, and control (SPCC) plan will be prepared for the substation site. Additionally, secondary equipment will be installed at the substation with the capacity for containing transformer oil.

Item 7.b.(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.

A short-term increase in noise will result from the construction process which will include the use of track hoes, bulldozers, trucks and cranes. Construction will be confined to normal daytime weekday hours, with the possibility of some work on Saturdays.

A Sound Analysis was prepared for this project in order to evaluate future sound levels from the new electrical transformers proposed for this substation on adjacent residential properties. A copy of the Sound Analysis is attached to this application. Existing City of Kirkland/State of Washington noise regulations limit sound levels produced at the substation and received at nearby residences to 55 dBA during all hours. Most residential properties are subject to a nighttime noise limitation of 45 dBA; substations are exempt from this standard (WAC 173-60)

The Sound Analysis concluded that, without mitigation, "*...A-weighted sound levels produced by the proposed transformers would meet the State of Washington daytime and nighttime noise limit of 55 dBA at all Analysis Locations.*" The analysis also concluded that at the property-line locations closest to the two transformers, "*...the predicted sound levels are higher than existing nighttime sound levels by 5 to 9 dBA. These sound-level increases would be considered a significant noise impact according to EPA guidelines, and would be noticeable.*"

To address this noticeable increase, 300-foot long Durisol sound walls have been added to the east and west sides of the substation. With the addition of these sound walls (18 feet and 11 feet in height, respectively), the sound levels produced by the transformers "*...would be in the range of or lower than existing nighttime sound levels at the nearest Monitoring Locations, and would be below the nighttime noise limit of 45 dBA...*" that would apply to residential receiver properties if the substation was not exempt. Details regarding the specifications for the sound walls are contained in the attached Sound Analysis.

Section B – Environmental Elements

Section B.8 – Land and Shoreline Use

Item 8.a

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

The project site is currently occupied by an approximate 60-foot by 100-foot PSE single-bank electrical substation, located within the southern portion of the utility corridor. The remainder of the property is undeveloped except for an internal gravel access road which extends north to NE 132nd Street. The existing substation is accessed via the internal gravel access road to NE 132nd Street.

Properties to the east and west of the PSE corridor are developed with single-family detached homes, within the Juanita Hills subdivision. NE 132nd Street borders the property on the north, and NE 128th Street borders the property on the south.

Item 8.c

Describe any structures on the site.

The utility corridor is currently occupied by an existing approximate 100-foot by 60-foot, fenced PSE single-bank electrical substation. The substation is connected to transmission lines entering the substation from NE 128th Street and NE 132nd Street.

Item 8.d

Will any structures be demolished? If so, what?

After construction of the new substation is complete, the existing substation will be removed and that portion of the site restored.

Item 8.e

What is the current zoning classification of the site?

Both the project site and the adjacent residential properties are zoned Low Density Residential – RSX-7.2.

Item 8.h

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

None. Routine visits by PSE personnel will be needed for inspections and maintenance.

Section B – Environmental Elements

Section B.8 – Land and Shoreline Use (continued)

Item 8.k

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

The proposed substation expansion will increase electrical service capacity and improve reliability, consistent with the objectives of the *City of Kirkland Comprehensive Plan*. Section XI, Utilities, in the *Comprehensive Plan* states that *"The primary focus of the City in the coming years will be to continue to increase efficiency and to avoid maintenance problems associated with older facilities."* As also noted in the *Comprehensive Plan,* "*PSE's long-range plans through the year 2022 indicate the need for three new distribution substations in Kirkland and a new 115 kV line along the eastern and northern City boundaries to connect to the Sammamish substation in Redmond.*"

The expansion of the Juanita substation may delay the need for one of the three new substations.

Section B – Environmental Elements

Section B.10 – Aesthetics

Item 10.a

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

The transmission line termination structures are the tallest element at approximately 35 feet. The sound wall along the east side of the substation will be 18 feet in height, and the sound wall along the western side will be 11 feet in height. Existing transmission poles and transmission lines, at heights of approximately 70 feet and below, will remain.

The side of the sound wall facing residential lots will be textured, similar to brick or rocks. Periodic columns will divide the horizontal space; smooth vertical accents will also be located between columns.

Item 10.b

What views in the immediate vicinity would be altered or constructed?

Residents adjacent to the new substation in the northern portion of the site will view a landscaping planting, backed by an 11-foot or 18-foot sound wall, and the tops of electrical equipment as shown on the attached plans.

Approximately four residences each are located adjacent to the east and west sides of the new substation; the residences are oriented such that the rear yards face the substation.

Item 10.c

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

A 400-foot long landscaping strip, including 45 evergreen and deciduous trees (Vine Maple, Incense Cedar, Austrian Black Pine, Western Red Cedar, Cascara, and American Aborvitae) 5 to 8 feet in height, and shrubs (Serviceberry, Pacific Wax Myrtle, Tall Oregon Grape, and Snowberry) will be located along the east and west sides of the new substation. A conceptual landscaping plan is attached to the substation application.

The color of the new sound wall will be agreed upon with the adjacent property owners.

Four existing electric distribution poles, approximately 45 feet in height, will be removed, plus all above-ground electric distribution lines.

Section B – Environmental Elements

Section B.11 – Light and Glare

Item 11.a

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

The substation will be lighted for security purposes. Substation lighting is typically limited to two lights near the doors of the switchgear cabinet. The metal electrical equipment within substations typically has a matte finish in order to absorb, rather than reflect light.

Item 11.d

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

Security lighting will be shielded and directed downward to the extent feasible. The lighting will also be mounted below the level of the surrounding wall and landscaping, if possible.

Section B – Environmental Elements

Section B.12 – Recreation

Item 12.a

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

Juanita High School, with its associated sport and recreations facilities, is located in the vicinity of the project site. Construction of the new substation will not impact these facilities.

Section B – Environmental Elements

Section B.13 – Historical and Cultural Preservation

Item 13.a

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

No places or objects listed in or proposed for national, state, or local preservation registers are known to be on or next to the site.

Item 13.b

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

No landmarks or evidence of historic, archaeological, scientific, or cultural importance are known to be on or next to the site.

Item 13.c

Proposed measures to reduce or control impacts, if any.

Should historic, archaeological, scientific, or cultural items be uncovered during construction activities, the site would be isolated and the State Historic Preservation Office contacted for appropriate next steps.

City of Kirkland Environmental Checklist Attachment
Section B – Environmental Elements

Section B.14 – Transportation

Item 14.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 existing substation is accessed via a driveway to NE 132nd Street. The new substation will be accessed via driveway to NE 132nd and NE 128th Street.

Item 14.c

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

Parking within the rebuilt substation will be limited to four service vehicles used to maintain the facility on a monthly basis. Parking spaces within the existing substation will be eliminated.

Item 14.f

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

The project will not generate a great number of vehicle trips during construction as only daily commuting trips by the construction crew and delivery of materials would occur. When the substation is built, routine trips to the substation for inspection and maintenance would occur approximately once per week.

The following Enclosures are attachments to the Staff Advisory Report:

Enclosure 4:
Geotechnical Engineering Services Report prepared by GeoEngineers Inc. dated February 29, 2007 (See Attachment 14)

Enclosure 5:
Sound Analysis prepared by BRC Acoustics and Technology Consulting dated April 25, 2008 (See Attachment 13)

Enclosure 6:
Initial Public Comment Letters (See Attachment 8)

To the City of Kirkland and or whom it may concern

We the residents of: 13045 110th AVE. NE, Kirkland, WA. 98034 are hereby appealing the City of Kikland's determination of nonsignificance with regard to SEPA on the grounds that adequate consideration was not given to the effects and potential destruction of tress on our property as a result of this purposed project.

I have standing to appeal on the following grounds: 1.) This Proposed expansion and rebuilding of the existing PSE Juanita electric distribution substation threatens the Health of the trees on my property and several of my neighbor's trees on their property. These trees overhang the proposed setback variances by at least 10 feet. They would require extensive trimming to not fall with in the proposed setback variances. This trimming would result in serious detriment to the tree's health and ability to withstand wind and therefore present a toppling hazard. 2.) The trimming necessary to make these tree's limbs fall outside of the proposed setback variances for the substation's sound wall would create a hazard to my home with the potential for the tree or it's limbs to penetrate my house. 3.) The root systems of these trees are also within the setback variances proposed and would require cutting and containment. Because it would be necessary to cut or contain the root system of these three to four trees, ground erosion as a result of water runoff could undermined these root systems presenting a toppling hazard to my home. 4.) These trees also present a fire ignition source from wind blown limbs falling into the proposed substations boundaries which could threaten my home with fire.

Troy Freeman
10/16/2008

13045 110th AVE NE
Kirkand, WA. 98034

RECEIVED
OCT 16 2008
AM 4:30 PM
PLANNING DEPARTMENT
BY TL

Michael H. [mrh2001@comcast.net]
Sunday, August 10, 2008 2:27 PM
Tony Leavitt
Opposed to Permit No. ZON08-00010

High

Tony Leavitt
City of Kirkland
Planning and Community Development Department
123 5th Ave
Kirkland, WA 98033
425-587-3253

RE: Permit No. ZON08-00010

Dear Tony Leavitt and the City of Kirkland,

I am extremely opposed to the installation of a substation at the proposed location. Please note that I also expressed this opposition in writing to PSE on 10-25-2007 with absolutely no response from PSE.

I am also extremely opposed to the request for a zoning variance. It is bad enough they want to place this noisy dangerous eyesore behind my property but now they want to have it closer and higher than the Kirkland zoning currently permits. This is completely unacceptable. They are requesting more zoning variances on this proposed substation than they have ever done before on any other residential substation that they have ever built (This was confirmed by PSE). Not only that, but percentage wise the amount of variance they are asking for is HUGE (30% in one case). The current proposed location is obviously a bad fit for this substation but they are trying to push it though and cram it in the proposed space since it is easiest and cheapest for them. Does the city of Kirkland really want to set this president by approving this?

In talking with PSE this is the only location they looked even though it is the worst location for their customers surrounding this proposed substation, all of whom are opposed to it. At the community meeting they even admitted that there were other possible locations but they didn't look at these locations because the current proposed one is easiest and cheapest for them.

One of the locations that we all brought up with PSE was the green space south of 128th where there are NO houses, etc and their answer was it wasn't looked at more than likely due to cost, even though the location was much better and larger than the current proposed one. There are other options for PSE they just don't want to look due to the fact that those options will cost more money to implement. I speak for everyone involved that if our electricity costs a bit more every month but we don't have a substation located in our backyard we all would be fine with this.

In addition to the visual impacts there are also going to be substantial environmental impacts with placing the substation at the proposed location.
The current plan is to remove a substantial amount of trees from the property as well as cut trees/limbs located on our private property. This impact is not only limited to the trees but also the animals (raccoons, squirrels, birds, etc) residing in tress and greenery. Also the amount of noise, particulate material, and traffic that is going to be generated for 8-12 months is completely unacceptable.

I implore you to not only reject the proposed variances but reject the overall permit for the substation at the proposed location as PSE has other options that would be much better for the community and City of Kirkland.

Thank you,

Michael Heslop

13055 110th Ave NE
Kirkland, WA 98034
Email: mrh2001@comcast.net
Phone: 206-383-7279

Kirkland Permits Comment
Comments for Permit # ZON08-00010, PSE Juanita Substation

Mr. Leavitt,
This proposed site for the new PSE Juanita substation is adjacent to my property on 109th Ave NE in Kirkland. I am opposed to the project both as a resident of the neighborhood and as a Kirkland resident.

As a neighborhood resident I am mostly concerned with the fact that although this project represents the easiest, quickest and cheapest way for PSE to attain their goals of increasing distribution, it is not their only option. PSE has chosen to build what they admit is the largest substation they have ever attempted to put into a residential neighborhood and in two separate meetings, one last October and another on Wednesday August 6, 2008 the PSE Project Manager (Roque Bamba) admitted that this was the only option PSE has truly explored because it is far easier and cheaper than the alternatives. I also discussed some of the alternatives with him and there are other viable solutions such as rebuilding the current substation in place. It would be more expensive to rebuild in place but it is possible and the South end of the property is zoned for a substation. While I understand the need for more power distribution due to hospital expansions, rebuilding Totem Lake Mall and residential expansion I do believe PSE should expend all other options before putting a blight like this in the middle of a Kirkland neighborhood and feel that the City of Kirkland should demand as much. This is far different than building a structure that is within zoning requirements in an area properly zoned for the project. PSE wants Kirkland to change zoning requirements which will degrade the neighborhood and potentially cost the area residents hundreds of thousands of dollars in equity so they can save on construction and maintenance costs. Not a compelling argument in my opinion. These rules are in place for a reason and should not be changed solely so a private company can cut costs.

As a Kirkland resident, I am concerned by the precedent this would set for future development. The propose site (North end of property) is not zoned for this type of use. It has been used for access only and should remain as such. Zoning restrictions and setbacks are in place because as a community we have decided that we do not want tightly packed or industrial structures in our residential neighborhoods. This is very important to the character of our town. People have lived here and continue to purchase homes here for that reason. If the PSE application is approved, there is a very real chance that these setback changes as well as re-zoning of residential areas could, by the way of challenge and argument, become the new baseline for development and be eroded even further down the road. To prevent this, I feel that it is necessary for Kirkland to draw a line in the sand and reaffirm that zoning requirements are in place for a reason, it is the law and anyone who wishes to live or work within City limits must adhere to the rules.

Above all else, the burden for this project should not be on the City of Kirkland to change the rules for a private company, it should be on PSE to work within the rules every resident and business owner works within.

Kirkland is an exceptional community and we need to look after it. We are depending on you to look out for the best interests of our town, residents and homeowners.

Thank you,

Steve Ryan
13044 109th Ave
Kirkland, WA 98034
(425) 823-6799
steve-ryan@comcast.net

August 13, 2008

To: Tony Leavitt
Kirkland Planning Department

Re: ZON08-00010

Dear Sirs,

I am writing in request that the above noted zoning variance request be denied.

As a Kirkland citizen and homeowner along the Puget Power right of ways (ROW) just off of NE 132nd Ave., I have seen how much Puget Power's power lines and access road have disrupted the neighborhood. At all hours of the day there can be loud noises, explosions and trucks and cars driving up and down the right of ways. I knew of these disruptions when I bought the house so I have not complained. However, I am worried about what any new development (the proposed upgraded sub-station and upgrading of power lines) would do to our neighborhood and property values.

I don't believe it is any surprise that power lines have long been studied for their impact on the health of those living close to them. We closest to these lines are at the greatest risk. Any development to the substation and any increase in wattage carried on the lines is likely to pose more health concerns and is likely to make the houses along the ROW more difficult to sell because of these health concerns. These substations are also an unattractive addition to the neighborhood and make properties located near them less desirable. A prospective buyer can not be blamed for not wanting to purchase a property located next to or right in front of a substation.

Please take the above concerns into consider when evaluating ZON08-00010 and deny the request for the sake of those most highly impacted by the decision.

Barbara Ross

Barbara Ross
13012 109th Ave NE
Kirkland, WA 98034

Tony Leavitt
City of Kirkland
Planning and Community Development Department
123 5th Ave
Kirkland, WA 98033
425-587-3253

RE: Permit No. ZON08-00010

Dear Tony Leavitt and the City of Kirkland

I am opposed to the installation of a Sub Station at the proposed location.
I am herby making this know in writing thereby reserving my right to appeal any decision favorable to the proposed location and requested zoning variances. My neighbors, the surrounding community, and my self are fully prepared to utilize the media, and bring substantial legal, financial and environmental advocacies resources to bear on stopping this zoning transgression from taking place. Please stand with this community against a clear case of a large utility company doing what is best for its own financial gain at the expense of a beautiful, quiet, local community. The proposed Sub Station far exceeds acceptable parameters for the proposed location and should not be allowed to proceed. Please help us to force PSE to look at other options as they have clearly gone with the fastest, cheapest, easiest location for them, without consideration for this community.

I am also opposed to the requested zoning variances. It is clearly not an acceptable location for such a large industrial installation. Aside from the fact that it does not fit within the existing area's zoning - both in size and height, it is a dangerous eye sore of epic proportions very near multiple family residences and a high school. It is destined to seriously negatively affect property values in all surrounding residential homes as well as have substantial negative effects to the environment.

It is PSE's intention to remove several trees on their own property as well as substantially jeopardize the root systems and branches of the old growth trees on my property. There is no way they can proceed with this proposed Sub Station project without cutting into the root system of four trees located on my property. This Sub Station project would also require them to cut off a substantial amount of my Evergreen trees' branches to work on and place their proposed retaining wall. This root degradation and defoliation could at best, cause this tree to die, and at worst, up root and topple onto my house causing extreme financial and potentially fatal consequences. In either case I am already documenting the trees current condition and status in preparation for future litigation.

When I applied for a permit to build an addition onto my existing house, (Permit # BLD06-00428) I was forced to build within the height and boundary zoning set forth by the City of Kirkland. I was given by the City of Kirkland documentation stating the necessary precautions to safeguard existing trees on my property along with substantial restrictions on the removal of existing trees. I was forced by the City of Kirkland to build

a very expensive metal fence around the drip line of the trees on my property protecting them from my own construction. Am I to understand that PSE is going to be allowed to not only NOT protect them, but DAMAGE THEM or KILL THEM, as they see fit? Do these laws only apply to middle income residents of this community? Are they not applicable to large businesses with limitless financial resources? When I applied for my building permit from the City of Kirkland I was forced to look at the space I had available and build within the zoning parameters. I was forced to consider my structures' impact on my neighbors in terms of fire hazard, boundary, foliage, operating noise, and water run off. Do these zoning parameters not apply to PSE's proposed Sub Station? Are the same considerations not applicable to PSE's proposed Sub Station?

Please show that you care about us, our families, and this community. Please hold PSE to the same high standards that the City of Kirkland holds its residents to. This new larger Sub Station at its proposed location has PSE's best interest in mind, not this communities'. We need you to ask PSE to look at a location without respect to their cost, but rather a location that does have this community's best interests in mind.

Sincerely

8/8/08

Troy Freeman
13045 110th AVE. NE
Kirkland, WA. 98034

August 12, 2008

Tony Leavitt
City of Kirkland
Planning and Community Development Department
123 5th Ave
Kirkland, WA
98033

RE: Permit No. ZON08-00010. Juanita Substation.

Dear Mr. Leavitt:

I am very concerned about a permit filed by PSE (Roque Bamba) that proposes to build a transmission station of considerable width and height in the north end of the green belt located between 110th and 109th Ave NE. This proposed station would not only stand in an area that is not zoned for such structures but it would also be too tall, too close and too wide to be allowed, as it is specified by Kirkland building code.

I am also highly concerned about the magnitude of the construction that would have to take place in order for this substation to be built in such tight space. As a mother of a newborn who is very susceptible to air quality, and the wife of a cancer patient; I hope you can understand how concerning it is for me to have big amounts of dirt and noisy machinery right on my back yard. Not to mention how unpleasant the final product would be and the impact that it would have on the value of my property.

In order for PSE to be able to build this transmission station they would also be cutting down several trees and practically shaving in half a 45 year old tree that is in my property and that I had to protect when I did some remodel work at my house. I just don't believe the proposed space is the best location for the community; nowhere in the city or in King County is a substation of such size that is completely surrounded by houses. Transmission stations are not designed to be located so close (13 feet), to people's homes.

I respectfully urge you to not allow PSE to build this substation were proposed. PSE can look at other options that would be far more appropriate and that would not affect me and my neighbors so dramatically.

Sincerely,

Carolina Ayala de Freeman
13045 110th Ave NE
Kirkland, WA 98034

James Byrd [byrdguitars@yahoo.com]
Tuesday, August 19, 2008 8:09 PM
Tony Leavitt
Regarding the North Jaunita PSE substation expansion permit

Dear Mr. Leavitt

While we can all appreciate the desire of PSE to provide increased capacity to meet demand, as is almost always the case, that desire also appears to coincide with a desire to increase capacity as cheaply as possible, while minimizing the risks and/or damages to others for political purposes, to the end goal of reduced costs and increased profits.

At a time when the dangers of non-ionizing radiation to human health are today finally being recognized, rather than acting in accord with the evidence of increased risk by moving away from us, PSE is attempting to actually increase the public proximity to high level electromagnetic radiation fields. This is completely unacceptable.
Recent revelations:

Risk of explosion:

As it stands, the PSE substation is a serious threat to public safety were a fire and explosion to take place. Such a risk is not abstract. Video of the consequences can be found here:
http://video.google.com/videoplay?docid=-7110228179038150 72&q=explosion

Would you want this 13 feet from your house?
Were this the North Jaunita substation, there is little doubt that people living on the east side of 109th Ave NE, would be injured or dead.

Increased risk of cancers:
Excerpted from Midwest Today, April/May 1996 "Though it received scant attention from the mainstream press, a report leaked last October from the U.S. National Council on Radiation Protection said there is a powerful body of impressive evidence showing that even very low exposure to electromagnetic radiation has long-term effects on health.

The report cited studies that show EMFs can disturb the production of the hormone melatonin, which is linked with sleep patterns. It said there was strong evidence that children exposed to EMFs had a higher risk of leukemia……

…….At the heart of the matter is a relatively simple and well-understood physical phenomenon: When an electric current passes through a wire, it generates an electromagnetic field that exerts forces on surrounding objects. Electric fields arise from the strength of an electric charge; magnetic fields, from the charge's motion.

Unlike ionizing radiations such as x-rays -- which pack sufficient wallop to knock electrons out of the molecules that make up the human body -- EMFs do not produce charged particles, so experts always believed they posed no danger. Therefore, the Federal government has never regulated EMFs, and the electric industry was allowed to set its own standards.

But other recent experimental studies have shown that even weak magnetic fields can change the chemistry of the brain, impair the immune system, and inhibit the synthesis of melatonin, a hormone known to suppress several types of tumors and to be present in reduced amounts in men as well as women who develop breast cancer.

"The EPA Raises Questions

Concerns about so-called non-ionizing radiation began to mount in 1979, when a study of cancer rates among Colorado school children determined that those who lived near power lines had two or three times as much chance to develop cancer. The link seemed so improbable that power companies eagerly paid to have the study replicated. To their surprise, the subsequent scientific inquiry supported the original findings, which have since been buttressed by a variety of additional studies and reports of increased cancer rates among workers employed in the electric industry.

One such study, conducted by the Fred Hutchinson Cancer Research Center in Seattle, WA. confirmed that telephone linemen, electricians and electric-power workmen are developing breast cancer at six times the expected rate.

But it was the Environmental Protection Agency's scientific review that has had an explosive impact, lending the most credence to those who have been warning of EMF health hazards.

The report -- a 367-page document entitled "Evaluation of the Potential Carcinogenicity of Electromagnetic Fields" -- came to light in 1990, when someone in the agency leaked a draft version of it to Louis Slesin, editor of an influential newsletter called Microwave News.

Chief among the conclusions was one specifying that power line electromagnetic fields should be classified as a "probable human carcinogen." William Farland, then-director of the EPA's Office of Health and Environmental Assessment ordered this conclusion deleted from the report.

Then the Associated Press reported that the Bush administration tried to delay release of the EPA's findings. Robert E. McGaughy, the project manager and chief author of the report, was quoted as saying that the White House "was concerned not about the accuracy of the report...[but] about how people would react to the news and how it would affect the electric power industry."

Ultimately, after two major TV networks and newspapers throughout the country exposed the Bush administration's efforts at censorship, the report was released. It contained a disclaimer that asserted "the controversial and uncertain nature of the scientific findings of this report" and declared that it should not be construed as "representing Agency policy or position."

Recent reports regarding the long suspected link between cell phone use, and brain tumors, have confirmed that a causal relationship to cell phone use, and brain cancer exists:

Excerpted from The New York Times, June 3, 2008:

"The American Journal of Epidemiology published data from Israel finding a 58 percent higher risk of parotid gland tumors among heavy cellphone users. Also last year, a Swedish analysis of 16 studies in the journal Occupational and Environmental Medicine showed a doubling of risk for acoustic neuroma and glioma after 10 years of heavy cellphone use."

While cell phones are not electrical substations, what is important to note in these findings is that the radiation in question, is also non-ionizing. Just like the substation. While the specific mechanism for cellular damage from non-ionizing radiation has yet to be identified, but given recent findings, the fact of it's existence can no longer be in doubt.

The current 20 foot offset of the current substation was an arbitrary distance established at a time when public health concerns regarding electromagnetic fields were in their infancy. It's already an unsafe distance with regard to the risk of fire and explosion. Today, we know that these EMF poses a statistically demonstrable threat to people, especially children, yet PSE is attempting to actually move the threat closer to people. Given the current evidence showing direct relationships between non-ionizing radiation from magnetic fields and its clear implication in a number of human health problems and cancers, I believe PSE has the considerable burden of proof to demonstrate it's safe. I don't believe they can.

With all due respect, there is no reason for anyone residing in this neighborhood to believe the proposed expansion of the North Jaunita substation is anything but an extremely reckless imposition, which places at risk our health, the health of children in the neighborhood, our immediate safety, and yes, our property values. PSE needs to step up and purchase new property away from this neighborhood. I do not want this monstrosity an inch closer or a watt bigger than it already is.

Sincerely,

James F. Herbold PKA James Byrd

13043 109th AVE NE
Kirkland, WA 98034

Kevin Corbett
13036 109th Avenue NE
Kirkland, WA 98034

To: Mr. Tony Leavitt
City of Kirkland Project Planner
123 5th Avenue
Kirkland WA 98033

REGARDING: ZON08-00010- Zoning and Variance Permit Applications to expand and rebuild the existing PSE Juanita electric distribution substation.

Dear City of Kirkland & Mr. Tony Leavitt,

The purpose of this letter is to request that you reject the request for rezoning and variances by Puget Sound Energy to build a new "super-substation" in the Juanita area.

I attended the August 5th meeting at Kingsgate Library and was surprised to hear from Mr. Bamba and Mr. Swayne that this was going to be the largest PSE substation project to date.

I was angered to learn that the proposed 300 foot long, by 100 foot wide, by 35 foot tall electrical building was going to be not only directly behind our home but, that PSE is requesting that you and the City of Kirkland approve their ability to build it CLOSER to family and residential properties, then current set-backs allow by law.

To top it all off, I'm incensed to learn from PSE that this substation will be to supply electrical need/growth in UNINCORPORATED Kirkland, namely the Kingsgate area and beyond.

Please REJECT the rezoning of this area for construction of the PSE substation.

- Mr Swayne & Mr. Bamba admitted that PSE has NOT explored other options for alternative sites that would not require rezoning and variances.
- Please don't allow private businesses to change our neighborhoods with such drastic super-projects.

Please REJECT the variances PSE is requesting.

- Protect the children and families that live in our neighborhoods.
- Preserve the quality of living and beauty of our Kirkland neighborhoods in spite of pressures of growth.

Thank you for representing the citizens of Kirkland.

Respectfully,

Kevin Corbett

Kevin Corbett

Mr. Tony Leavitt
City of Kirkland Project Planner
123 5th Avenue, Kirkland WA 98033

Dear Mr. Leavitt,

I am writing in opposition to the proposed building of the PSE substation behind our home.

When we moved into our home nearly a decade ago, we knew we bordered on PSE property but were told that we'd never have to worry about anything more then "a few annoying power lines" because the area was an easement for the existing substation at the south end of the property at end of the block.

Now, with PSE asking the City of Kirkland for rezoning, we risk having a huge substation built behind our home.

I'm worried about the reduction of property values when realtor's are telling us we'll lose 10% valuation on our property with a substation behind our house.

Despite PSE's EMF literature, I'm concerned about the effects of electrical fields surrounding such a large structure and the related health risks to the families in the area. More so with a larger substation even CLOSER to homes!

In a time when the world community is embracing a Green Planet and living harmoniously with nature--preserving green areas for the health of all--the City of Kirkland does NOT need to rezone and grant variances that would allow an electrical substation to be crammed into a neighborhood.

Please protect our neighborhood and all the neighborhoods in Kirkland.

Please stop PSE's requests for rezoning and variances.

Thank you in advance for your consideration,

Peg Corbett

Steve and Nora [steveandnora@comcast.net]

Thursday, August 21, 2008 7:52 PM

Tony Leavitt

Juanita Substation Rebuild ZON08-00010

Mr. Leavitt,

I am writing regarding the proposed substation rebuild by PSE at 10910 NE 132nd Street. I am strongly opposed to this project for many reasons. This new substation will be directly behind my house. The current building plans call for an 11 foot wall to be placed 7 feet from my back property line and an 18 foot wall will be on the other side of the substation and still visible from my back yard. It is my understanding that PSE is trying to get a variance to decrease the set back from 10 feet to 7 feet. The view of these walls from my back yard will certainly decrease my enjoyment of my property as well as my resale value. When we bought our home it was with the understanding that we had a PSE access way behind our property. If PSE is going to rebuild the substation it should be built in the same space it occupies now. The houses at the South end of both 109th Ave and 110th Ave were all purchased with the knowledge and view of the PSE substation. They paid less for their houses because of the placement of the substation. By relocating the substation, PSE is devaluing our property and raising the value of the South end properties. One seller is already using the information about the substation move to help sell his house on the South end of 110th Ave NE.

The other variance PSE is asking for is a height variance. Again, to have to look at a pole 35ft in the air from my back yard is unacceptable. Kirkland is a desirable city to live in because the city has made a commitment to keep building under control. We have building codes for a reason and a big company should not be able to do what they want because it is the cheapest and easiest way. The PSE group said the grading at the South end of the property would make it more difficult and expensive to rebuild there. I don't feel I should have to pay the price for that. PSE should have to build on the current site that is zoned for a substation or find a more suitable site that does not hurt the current residents. As I have sat on my patio this summer I have looked at our backyard and envisioned what it would be like to be staring at an 11 foot wall just feet away and an 18 foot wall just beyond. It will certainly change the love for my house and yard.

I am asking the city not to approve the variances for height, set backs or zoning. These building codes were put in place to protect residents and should not be changed to make a large company have to spend less time and money to provide adequate service they are being paid generously for.

Thank you,

Nora Ryan
13044 109th Ave NE
Kirkland, WA 98034
425 823-6799

8/21/2008

Tony Leavitt
Project Planner
123 5th AVE
Kirkland, WA 98033

PSE Juanita Substation Rebuild and Variance
File number ZON08-00010

This letter serves as our opposition to the above project and the Zoning and Variance Permit asked for by PSE.

We have lived at 13052 109th AVE NE Kirkland, WA 98034 for the past 35 years. We feel that if the City of Kirkland grants these variances, it will grant special privilege to the subject property.

The variance for the setbacks should not be granted because this would move an 11 foot wall within 13 feet of my property. PSE states that they will install landscape buffers in that 13 feet but when asked in the past to do this, PSE has not been willing to put them in. At this time, there is a very large Blackberry patch in that area. PSE has previously been asked to remove that patch because it infringes on to my property but they have failed to do so.

PSE has said it will put into place sound walls to reduce the noise coming from the Proposed Sub Station, 18 feet tall on the East side and 11 feet tall on the west side. This is zoned for single family homes, with fence heights at a maximum of 6 feet tall. This would also fail the zoning under 120.20.3 and would grant PSE special privilege to the subject property, which is inconsistent with the general rights of other property owners in this Single Family Zoning area.

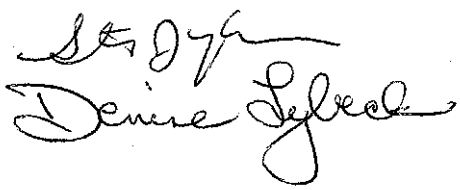
The variance for height should be denied for the same reason. On the West side where we live, there would be an 11 foot high wall and another 24 feet of material above that, for a total of 35 feet. When you look at this area, the Single Family homes are one or two stories high. This variance would turn this Single Family area into a Commercial area which is not consistent with the City of Kirkland Master Plan. This would also grant PSE special privilege to the subject property.

In a meeting with PSE on Aug. 6, 2008, at the Kingsgate Library, I asked Roque Bamba the applicant about access that has been granted to residents along the PSE property for the past 35 years. Roque Bamba told me that a new road would be built at the South end of the property for access. This entrance would require another variance because it would be a second entrance to the property. Why has this not been addressed and applied for by the applicant? Does this action not give some property owners special privilege to the applicant's property and deny the access to other property owners?

In conclusion we feel that this project violates the City of Kirkland Codes section 120.20 and 120.25. For these reasons and to retain the Zoning as a Single Family neighborhood, the Application must be denied.

Thank you,

Stephen and Denise Lybeck
13052 109th AVE NE
Kirkland, WA 98034



www.pse.com

PUGET SOUND ENERGY

Puget Sound Energy, Inc
P.O. Box 90868
Bellevue WA 98009-0868

September 30, 2008

Mr. Tony Leavitt
Project Planner
City of Kirkland
123 5th Avenue
Kirkland, WA 98033

Re: Application ZON 08-0010; PSE Response to Comments Received by City

Dear Mr. Leavitt:

On behalf of PSE, I'm responding to the comments submitted to the City by mail and e-mail during the comment period on this application. The comments are addressed by general subject area.

Zoning Compliance

Some comments state that the substation rebuild project involves a rezone, or is not allowed by the current zoning. This is not correct. The proposed substation rebuild does not involve a rezone. The zoning classification, RSX 7.2 remains the same. This zone explicitly provides a procedure for siting of public utility facilities, which is Type IIA Review. PSE's application narrative addresses compliance of the proposal with all of the review criteria of this permit procedure.

Substation Location

Many of the comments submitted to the City objected to relocation of the substation from the south part of the parcel to the proposed location at the north. As explained in our application materials, PSE decided to relocate the substation because the north area is wider and level and can better accommodate the required substation configuration. The variances are required because electrical safety codes require clearance between electrical components, and access is needed for the equipment used in repair and replacement. More extensive variances would be needed on the south location due to the narrower parcel width in that area.

As noted in the application, NE 128th Street is 12 feet lower than the existing substation. Due to the grade differential, a rebuilt substation at the southern location would require substantial retaining walls and a driveway slope of approximately 12% that would be problematic for access by the large vehicles needed to deliver equipment required for operation and maintenance. A tiered substation configuration would be required, which is considered a potential safety concern for crews working to restore power during storm conditions. The application materials contain additional narrative describing the National Electric Safety Code (NESC) and PSE Design Standards that require a minimum width for equipment and access clearance. Rebuilding the substation at the existing southerly location is not a viable option.

Some commenters stated that the substation should be moved to a different location entirely. Some have suggested other properties that are not owned by PSE, that include critical areas, or that would require demolition of existing housing. The comments do not recognize that a major consideration in substation placement is the location of existing transmission lines. Because the current PSE substation parcel is now served by existing transmission lines, no extension of transmission lines into new neighborhoods is required for rebuilding of the substation on the current parcel. Thus, impacts associated with development/extension of new transmission lines are avoided.

Aesthetic/View Impacts

Some comments state that the substation would be an unsightly structure visible from neighboring properties. Aesthetic/visual impacts is an area specifically addressed in the PSE application materials. As described in the application, the substation will be located behind sound mitigation walls which will shield most of the substation equipment from view, and a landscaped buffer area will be located between the sound walls and the property lines. Landscape materials consisting of 45 evergreen and deciduous plantings will be located in the buffer areas. The tree plantings will be five to eight feet in height at initial installation and will grow considerably over time, as shown in the landscape elevations included in the application.

The sound walls have a textured surface, similar to brick or stone facing, and can be painted to further mitigate visual impacts. PSE has offered to meet with adjoining property owners to discuss color treatment of the noise walls as well as additional mitigation which may be possible on individual properties, such as landscaping and/or fencing that would best address each property's situation.

Although the requested side yard variances reduce somewhat the distance of the substation from neighboring property lines, it must be noted that the configuration of the PSE parcel means that its side yards adjoin the rear yards of neighboring homes. This means that the substation is much further from the actual residences than would be the case if the substation were built without variances on a typical lot where side setbacks were directly adjoining. Also, as noted in Figure 1 of the application materials, "Profile Illustration Of Side Yard Variance Request", the noise walls and equipment within the

substation are lower than a utility structure that could be built without variances at a 30-foot height limit, 20 feet from the side property line.

In addition, the application notes that this utility infrastructure project will be an unstaffed passive facility with virtually no activity, traffic, or noise impacts affecting neighboring property owners. This should be taken into account in recognizing that the standard 20-foot setback established for public utility facilities is intended to include all utility facilities, including staffed facilities with activity, traffic and noise impacts that would be heard and seen from adjacent residential properties.

Substation Fires or Explosions

One comment message included an internet video of what appears to be a fire at an electrical substation, date and location not identified. PSE rarely experiences substation fires or explosions, PSE operates its substations safely with well maintained equipment. As such, the likelihood of a substation fire or explosion in the PSE electrical distribution system is negligible.

In the rare instance that a fire occurs at an electrical substation, circuit breaker failure is a likely cause. The Juanita Substation will utilize circuit breakers insulated with an inert gas (Sulphur Hexafluoride – SF6) instead of oil. This greatly reduces the risk of fire associated with a circuit breaker failure. Additionally, the Juanita Substation will be equipped with a Supervisory Controls and Data Acquisition (SCADA) system that provides real-time monitoring and reporting of equipment conditions, which allows PSE to quickly respond to problems or malfunctions. Note also that the substation will have solid barriers (18' and 11' tall) separating substation equipment from the adjacent properties to the west and east, and substantial separation distances from residences.

Electrical and Magnetic Fields (EMF)

Some commenters expressed a concern about EMF in connection with the substation rebuild. As noted in the application materials, this substation rebuild is at a location where electrical transmission lines are already located. The construction of an electrical substation at this location will not significantly change the existing EMF conditions at the project site or the surrounding properties. The substation project will not create any known environmental health hazard.

Damage to Trees

PSE's construction work will remove a minimum number of trees necessary for the substation project, as described in the application materials. PSE's construction work may require trimming of some overhanging branches from neighboring properties, but will not result in permanent damage or loss of trees on neighboring properties. PSE's arborist is available for consultation with any adjoining property owner who is concerned about how the construction may affect trees on a specific property.

CONCLUSION

PSE's application materials and application Narrative, which specifically addresses each of the decision criteria for the Type IIA process and the variance decision, demonstrate that the substation project is an essential utility infrastructure improvement that is designed to mitigate adverse impacts on neighboring properties and complies with all of the decision criteria for approval as set forth in the Kirkland Municipal Code.

Please let me know if you have any questions or require any additional information from PSE.

Sincerely,

Roque Bamba
Project Manager
Puget Sound Energy

EVALUATION OF SELECTED TREES AT THE PSE JUANITA SUB-STATION

109TH AVENUE NE BETWEEN NE 128TH & 132ND STREETS KIRKLAND, WA 98033

July 14, 2008
REVISED: October 7, 2008

PREPARED FOR:

Lyn Keenan, Senior Planner
GeoEngineers
Plaza 600 Building
600 Steward Street, Suite 1700
Seattle, WA 98101

PREPARED BY:

GILLES CONSULTING
Brian K. Gilles, Consulting Arborist
ISA Certified Arborist # PN-0260A
ASCA Registered Consulting Arborist # RCA-418
PNW-ISA Certified Tree Risk Assessor #148

CONTENTS

EXECUTIVE SUMMARY

23	**Trees were evaluated:**
- Off Property Trees:	
	- 11 trees are presumed to be off the property with canopies that overhang the subject property:
	- There are 3 trees, #'s 197, 198, & 199, are east of the east property line approximately centered on the proposed project.
	- There are 8 trees west of the west property line. They are #'s 300 to 307.
	- All 11 trees can be adequately protected as described in the Tree Protection Measures section below. This will include tree protection fencing and 12 inches of wood chips to protect the critical root zone and allow equipment to travel over the roots during construction.
- Subject Property Trees:	
	- 12 trees were evaluated on the subject property:
	- Status:
	- All 12 trees were found to be in Fair, Good, or Very Good health, vigor, structure, or a combination of factors.
	- Therefore, all 12 trees are *Viable.*
	- 2 trees were found to be *Non-Significant* because they are less than the required 6.0 inches in Diameter.
	- They are #'s 1299 & 226.
	- 10 Trees were found to be greater than 6.0 inches in diameter and are, therefore, *Significant.*
	They are #'s 1296, 1297, 1298, 1300, 460, 146, 216, 227, 195, & 196.
- Tree Retention requirements:	
	- In a Tree Plan II, the **City of Kirkland** does not require a specific minimum tree density; however, the code does say that the property "shall comply with the required landscaping pursuant to KZC 95.40 Required Landscaping." The code does allow for retained trees to be counted towards the landscaping requirements.

ASSIGNMENT

Lyn Keenan, Senior planner with GeoEngineers of Seattle, Washington, contracted with Gilles Consulting to evaluate the trees at the Juanita Sub-station located on NE 109th Avenue between NE 128th and NE 132nd Streets in Kirkland, Washington. The property

is being re-developed and a new sub-station is being proposed for construction at the northern end of the property. The City of Kirkland requires an analysis of the trees as part of the permit process. This report provides the analysis. The information in this report can be utilized to create a Tree Plan II as required by Chapter 95 of the Kirkland Code. The information required for the Tree Plan II can be found in section 95.35.2.B.2.a on Page 7 of 29 of the Code.

METHODOLOGY

To evaluate the trees and to prepare the report, I drew upon my 25+ years of experience in the field of arboriculture and my formal education in natural resources management, dendrology, forest ecology, plant identification, and plant physiology. I also followed the protocol of the International Society of Arboriculture (ISA) for Visual Tree Assessment (VTA) that includes looking at the overall health of the trees as well as the site conditions. This is a scientifically based process to look at the entire site, surrounding land and soil, as well as a complete look at the trees themselves.

In examining each tree, I looked at such factors as: size, vigor, canopy and foliage condition, density of needles, injury, insect activity, root damage and root collar health, crown health, evidence of disease-causing bacteria, fungi or virus, dead wood and hanging limbs. While no one can predict with absolute certainty which trees will or will not fail, we can, by using this scientific process, assess which trees are most likely to fail and take appropriate action to minimize injury and damage.

Tree Tags

The trees were tagged and randomly numbered. The tags are made of shiny aluminum approximately one inch by three inches in size and are attached to the tree with staples and a one foot strip of brightly colored survey tape. The tags were placed as high as possible to minimize their removal and were generally placed on the backsides of the trees on the subject property as inconspicuously as possible. The tags for the trees on adjacent properties were placed on the fences near the trunks. Please refer to *Attachment 1, Site Plan* for an orientation to the site and the approximate location of the trees.

Missing Trees

There were a few trees that were not included on the survey--both on and off the subject property. They were labeled their approximate location was indicated on the included site plan. Tags for the off site trees were attached to the property line fences near the trunks of the trees--also with a piece of brightly colored ribbon. These trees may need to be surveyed to determine their exact location in relation to the proposed site improvements and their retainability.

OBSERVATIONS

The location of the proposed sub-station is accessed from NE 132nd Street. There is a chain-link fence with a gate at the entrance. The proposed station is to be constructed along the northern 300 feet of the towards the northern property line. The current proposal is for a facility that is approximately 13 feet from the east and west property lines.

In an effort to present the information and conclusions for each tree in a manner that is clear and easy to understand, I have included a detailed spreadsheet, *Attachment 2, Tree Inventory/Condition Spreadsheet*. The descriptions on the spreadsheet were left brief in order to include as much pertinent information as possible and to make the report manageable. A detailed description of the terms used in the spreadsheet and in this report can be found in *Attachment 3, Glossary*. A brief review of these terms and descriptions will enable the reader to rapidly move through the spreadsheet and better understand the information.

Additional Testing

None of the trees presented symptoms or signs that would indicate internal decay or structural defects. Therefore, no additional tests were performed during this site visit.

DISCUSSION AND RECOMMENDATIONS

Trees on Adjacent Properties

The City of Kirkland requires that any trees with canopies that over-hang the subject property to be included in the inventory, evaluation, and tree protection measures as part of the Tree Plan II. In this case, there are 3 trees east of the east property line and eight trees west of the west property line.

All 11 trees can be adequately protected as described in the Tree Protection Measures section below. This will include tree protection fencing and 12 inches of wood chips to protect the critical root zone and allow equipment to travel over the roots during construction. Some limbing may be required to safely construct and install the elements of the sub-station. Those can be dealt with on a tree by tree basis once the project is under way.

Trees on the Subject Property

- There are 12 trees on the subject property.
- 10 Trees, numbers 1296 to 1300, 130, 420, 216, 146, 226 & 227 are located near the northeast corner of the property.
    - The line feeding the sub station will be coming in from the northeast property corner and these trees will likely be removed in the construction process.

- Trees # 195 and 196 are located inside the proposed facility.
  - They will need to be removed.

Right-of-Way Trees

Trees 1296 - 1299 may actually be in the right of way. I was not able to find property corner stakes. This may need to be verified, however; these four trees can be adequately protected during construction. Therefore, this may or may not be an important fact to verify.

Tree Protection Measures

In order for trees to survive the stresses placed upon them in the construction process, tree protection must be planned in advance of equipment arrival on site. If tree protection is not planned integral with the design and layout of the project, the trees will suffer needlessly and possibly die. With proper preparation, often costing little, or nothing extra to the project budget, trees can survive and thrive after construction. This is critical for tree survival because damage prevention is the single most effective treatment for trees on construction sites. Once trees are damaged, the treatment options available are limited.

The minimum Tree Protection Measures in *Attachment 4, Tree Protection Measures* are on three separate sheets that can be copied and introduced into all relevant documents such as site plans, permit applications and conditions of approval, and bid documents so that everyone involved is aware of the requirements. These Tree Protection Measures are intended to be generic in nature. They will need to be adjusted to the specific circumstances of your site that takes into account the location of improvements and the locations of the trees.

WAIVER OF LIABILITY

There are many conditions affecting a tree's health and stability, which may be present and cannot be ascertained, such as, root rot, previous or unexposed construction damage, internal cracks, stem rot and more which may be hidden. Changes in circumstances and conditions can also cause a rapid deterioration of a tree's health and stability. Adverse weather conditions can dramatically affect the health and safety of a tree in a very short amount of time. While I have used every reasonable means to examine these trees, this evaluation represents my opinion of the tree health at this point in time. These findings do not guarantee future safety nor are they predictions of future events.

The tree evaluation consists of an external visual inspection of an individual tree's root flare, trunk, and canopy from the ground only unless otherwise specified. The inspection may also consist of taking trunk or root soundings for sound comparisons to aid the evaluator in determining the possible extent of decay within a tree. Soundings are only

an aid to the evaluation process and do not replace the use of other more sophisticated diagnostic tools for determining the extent of decay within a tree.

As conditions change, it is the responsibility of the property owners to schedule additional site visits by the necessary professionals to ensure that the long-term success of the project is ensured. It is the responsibility of the property owner to obtain all required permits from city, county, state, or federal agencies. It is the responsibility of the property owner to comply with all applicable laws, regulations, and permit conditions. If there is a homeowners association, it is the responsibility of the property owner to comply with all Codes, Covenants, and Restrictions (CC&R's) that apply to tree pruning and tree removal.

This tree evaluation is to be used to inform and guide the client in the management of their trees. This in no way implies that the evaluator is responsible for performing recommended actions or using other methods or tools to further determine the extent of internal tree problems without written authorization from the client. Furthermore, the evaluator in no way holds that the opinions and recommendations are the only actions required to insure that the tree will not fail. A second opinion is recommended. The client shall hold the evaluator harmless for any and all injuries or damages incurred if the evaluator's recommendations are not followed or for acts of nature beyond the evaluator's reasonable expectations, such as severe winds, excessive rains, heavy snow loads, etc.

This report and all attachments, enclosures, and references, are confidential and are for the use of the client concerned. They may not be reproduced, used in any way, or disseminated in any form without the prior consent of the client concerned and Gilles Consulting.

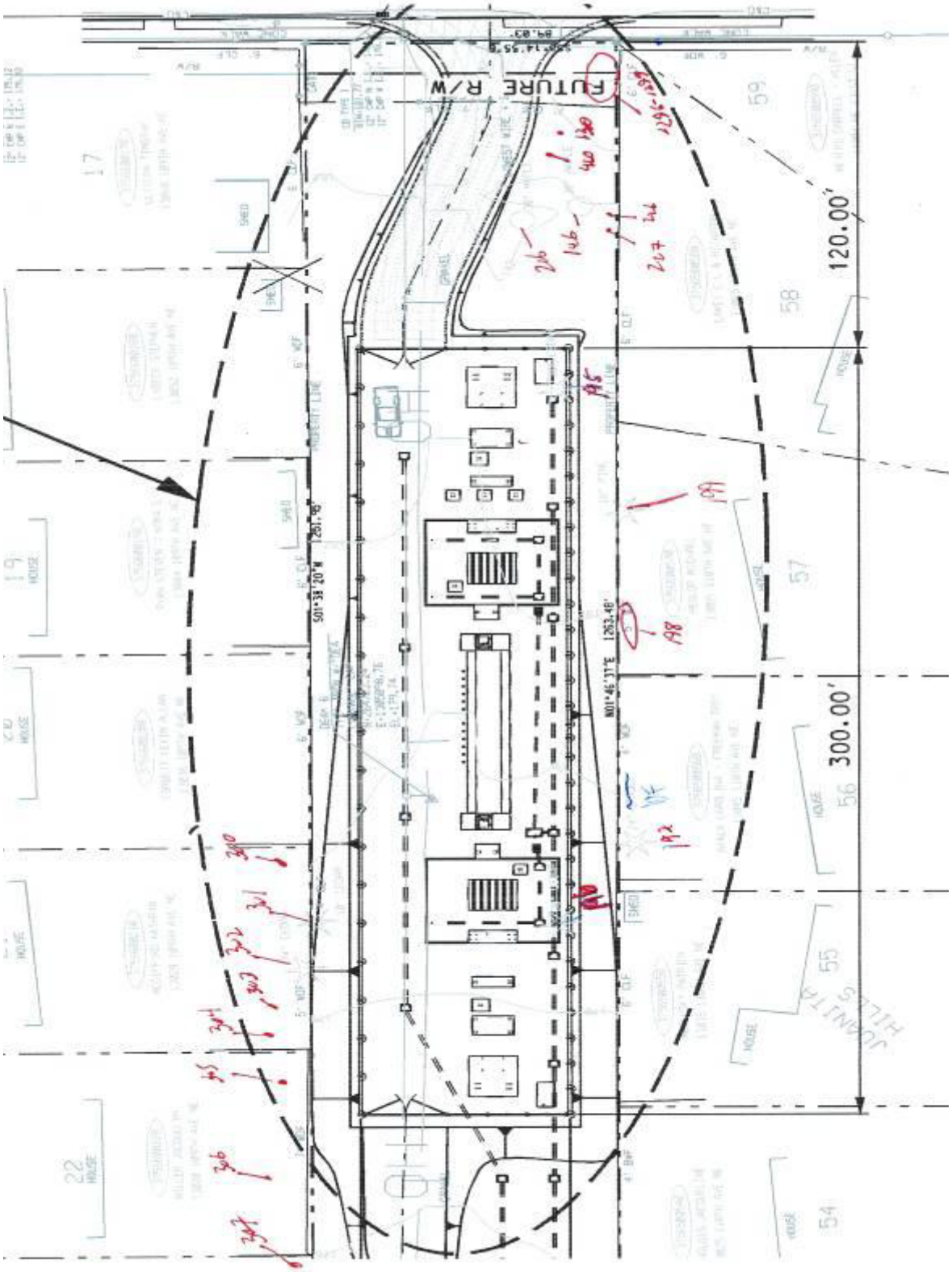
Thank you for calling Gilles Consulting for your arboricultural needs.

Sincerely,

Brian K. Gilles, Consulting Arborist
ISA Certified Arborist # PN-0260A
ASCA Registered Consulting Arborist # RCA-418
PNW-ISA Certified Tree Risk Assessor #148

ATTACHMENTS

ATTACHMENT 1 - SITE PLAN



ATTACHMENT 2 - TREE INVENTORY/CONDITIONS SPREADSHEET

SITE: PSE Juanita Substation
At 109th Ave NE, Betwen NE 128th & NE 132nd Streets, Kirkland, WA 98033

Date of Inspection: July 2, 2008

Tree Location: General location of tree on site, or whether tree is Off Project property.
Tree #: Individual tree number.
Species:

AYC/Cn	Alaska Yellow Cedar, *Chamaecyparis nootkatensis*
BCh/Pe	Bitter Cherry, *Prunus emarginata*
BLM/Am	Big Leaf Maple, *Acer macrophyllum*
DF/Pm	Douglas Fir, *Pseudotsuga menziesii*
EWB/Bp	European Weeping Birch,*Betula pendula*
NS/Pa	Norway Spruce, *Picea abies*
PP/Pp	Ponderosa Pine, *Pinus ponderosa*
WRC/Tp	Western Red Cedar, *Thuja plicata*

DBH: Trunk diameter @ 4.5' above average ground level.
Tree Credit: This is based upon Table 95.35.1, Page 12, Chapter 95 of the Kirkland Municipal Code.
Drip Line: The radius, the distance from the trunk to the furthest branch tips.

Limits of Disturbance: The boundary between the area of minimum protection around a tree and the allowable site disturbance as determined by a quilified professior
LCR: *Live Crown Ratio* - the amount of live canopy expressed as a % of the entire tree height
Symmetry: General shape of canopy and weight distribution of the tree around the trunk.
Foliage: General description of foliage density that indicates tree health and vigor.
Crown Condition: The most important external indication of tree health and vigor.
Trunk: Description of trunk condition or abnormalities if any.
Root Collar: The base of the tree where the trunk flares into the roots--deformities or problems are noted here.
Roots: Root problems are noted here.
Comments: Additional observations about the tree's condition.
Significance: A "significant" tree is at least 6" in diameter measured at 4.5' above the average ground level.
Current Health Rating: A description of general health ranging from dead, dying, hazard, poor, suppressed, fair, good, very good, to excellent.
Viability : A significant tree that is in good health with a low risk of failure due to structural defects, is relatively wind firm if isolated or remains as part of a grove, and is a species that is suitable for its location.
Recommendation: This is an estimate of whether or not the tree is of sufficient health, vigor, and structure to consider retaining.

North of north gate	1296	AYC/Cn	19.3"	5.0	16'	to Sidewalk	16'	to property line	16'	98%	Gen. sym.	Dense	Utility Pruned	fork at 18"	NAD	Restricted	Diameters are 15.2", 10.0" & 6.4" = single trunk of 19.3". Base is 6.5 feet south of raised sideewalk.	Significant	Good	Viable	Potential to Retain with Tree Protection Measures
North of north gate	1297	AYC/Cn	17.3"	4.0	17'	to Sidewalk	16'	to property line	16'	90%	Min. asym.	Dense	Utility Pruned	Straight	NAD	Restricted	Base is 5 feet west of east property line fence	Significant	Good	Viable	Potential to Retain with Tree Protection Measures
North of north gate	1298	BCh/Pe	11.3"	1.0	14'	14'	14'	to property line	14'	70%	Min. asym.	Dense	Healthy	fork at 1' with included bark to base	NAD	-	Trunk diameters are 7.3", 6.4" & 5.8" = single trunk of 11.3". Base is 8 feet west of the east property line fence and 2 feet north of entry gate fence.	Significant	Good	Viable	Potential to Retain with Tree Protection Measures
North of north gate	1299	BLM/Am	4.9"	0.5	12'	to Sidewalk	12'	to property line	12'	70%	Min. asym.	Dense	Average	Typical	Girdled	Girdling Root	Girdling root affects 50% of vascular cambium.	Not Significant	Fair	Viable	Potential to Retain with Tree Protection Measures
East Prop line	1300	NS/Pa	20.6"	6.0	16'	16'	16'	to property line	to edge of gravel drive way	95%	Min. asym.	Dense	Healthy	Straight	NAD	-		Significant	Very good	Viable	Potential to Retain with Tree Protection Measures
East Prop line	460	NS/Pa	17.4"	4.0	14'	14'	14'	to property line	to edge of gravel drive way	95%	Min. asym.	Dense	Healthy	Straight	NAD	-		Significant	Very good	Viable	Potential to Retain with Tree Protection Measures
East Prop line	146	BLM/Am	24.5"	8.0	22'	22'	24'	to property line	to edge of gravel drive way	65%	Min. asym.	Dense	Healthy	Typical	NAD	-	Base is 11 feet west of East property line fence.	Significant	Very good	Viable	Potential to Retain with Tree Protection Measures
East Prop line	216	BLM/Am	22.7"	7.0	22'	22'	22'	to property line	to edge of gravel drive way	95%	Min. asym.	Dense	Healthy	Typical	NAD	-		Significant	Very good	Viable	Potential to Retain with Tree Protection Measures
East Prop line	226	BCh/Pe	5.9"	0.5	12'	12'	12'	to property line	to edge of gravel drive way	35%	Maj. asym.	Dense	Healthy	Serpentine	NAD	-		Not Significant	Good	Viable	Potential to Retain with Tree Protection Measures
East Prop line	227	BCh/Pe	11.0"	1.0	10'	10'	10'	to property line	10'	60%	Min. asym.	Dense	Healthy	Typical	NAD	-	clump of 4 trees grwoing in a line 7 feet south of # 226 next to the east property line fence. Combined they total 3 tree credits.	Significant	Very good	Viable	Potential to Retain with Tree Protection Measures
East Prop line	195	WRC/Tp	31.9"	11.0	16'	16'	16'	to property line	to edge of gravel drive way	98%	Gen. sym.	Dense	Healthy	Fork at 22' with Included bark down 3'	NAD	-	Base is approximately 18 feet west of east property line fence and 21 feet west of gravel drive	Significant	Very good	Viable	Inside proposed sub-station facility - Remove
East Prop line	196	WRC/Tp	36.1"	14.0	17'	17'	17'	to property line	to edge of gravel drive way	98%	Gen. sym.	Dense	Healthy	Straight	NAD	-		Significant	Very good	Viable	Potential to Retain with Tree Protection Measures
Off Property, East of East Property Line	197	DF/Pm	est. 36"	0.0	26'	26'	26'	to property line	12' W of E PL	95%	Gen. sym.	Dense	Healthy	Straight	NAD	-	Canopy overhangs subject property by 22'. Advanced bark beetle infestation. Base is 4 feet east of the east property line fence.	Significant	Very good	Viable	Potential to Retain with Tree Protection Measures

SITE: PSE Juanita Substation
At 109th Ave NE, Betwen NE 128th & NE 132nd Streets, Kirkland, WA 98033

Off Property, East of East Property Line	198	EWB/Bp	3 trunks, 2 trees, est. 10-11"	0.0	16'	12'	12'	to property line	12' W of E PL	45%	Min. asym.	Average	Dead	Typical	NAD	-	Canopy overhangs subject property by 10 feet. Base is approximately 3 feet east of East property line fence.	Significant	Poor	Non-viable	Potential to Retain with Tree Protection Measures
Off Property, East of East Property Line	199	PP/Pp	est. 24"	0.0	18'	18'	18'	to property line	12' W of E PL	85%	Gen. sym.	Dense	Healthy	fork at 9'	NAD	-	Canopy overhangs subject property by 16 feet. Base is approximately 18-24 inches east of the east property line fence.	Significant	Good	Viable	Potential to Retain with Tree Protection Measures
Off Property, West of West Property Line	200	WRC/Tp	est. 12"	0.0	16'	16'	16'	12'	to W property line	90%	Min. asym.	Thin	Average	Bowed at base	NAD	-	Canopy overhangs subject property by 10 feet. Base is approximately 3 feet east of East property line fence.	Significant	Fair	Viable	Potential to Retain with Tree Protection Measures
Off Property, West of West Property Line	301	WRC/Tp	est. 12"	0.0	12'	12'	12'	12'	to W property line	90%	Min. asym.	Thin	Average	Straight	NAD	-	Canopy overhangs subject property by 8 feet. Base is just west of west property line fence.	Significant	Fair	Viable	Potential to Retain with Tree Protection Measures
Off Property, West of West Property Line	302	DF/Pm	est. 14"	0.0	14'	14'	14'	12'	to W property line	90%	Min. asym.	Average	Healthy	Straight	NAD	-	Canopy overhangs subject property by 10 feet. Base is approximately 4 feet west of the west property line fence.	Significant	Good	Viable	Potential to Retain with Tree Protection Measures
Off Property, West of West Property Line	303	WRC/Tp	est. 24"	0.0		16'	16'	12'	to W property line	95%	Min. asym.	Average	Average	Straight	NAD	-	Canopy overhangs subject property by 12 feet. Base is approximately 4 feet west of the wet property line fence.	Significant	Good	Viable	Potential to Retain with Tree Protection Measures
Off Property, West of West Property Line	304	WRC/Tp	est. 22"	0.0		20'	12'	12'	to W property line	85%	Min. asym.	Average	Average	Straight	NAD	-	Canopy overhangs subject property by 4 feet. Base is approximately 16 fet west of west property line fence.	Significant	Good	Viable	Potential to Retain with Tree Protection Measures
Off Property, West of West Property Line	305	BLM/Am	est. 28"	0.0		32'	20'	12'	to W property line	60%	Gen. sym.	Dense	Healthy	Typical	NAD	-	Canopy overhangs subject property by 8 feet. Base is approximately 26 feet west of the west proprty line fence. Recently crown raised.	Significant	Good	Viable	Potential to Retain with Tree Protection Measures
Off Property, West of West Property Line	306	DF/Pm	est. 16"	0.0		19'	18'	12'	to W property line	50%	Gen. sym.	Dense	Healthy	kik at 16' to 20'	NAD	-	Canopy overhangs subject property by 6 feet. Base is approximately 13 feet west of the west property line fence.	Significant	Very good	Viable	Potential to Retain with Tree Protection Measures
Off Property, West of West Property Line	307	DF/Pm	est. 21"	0.0		16'	16'	12'	to W property line	95%	Gen. sym.	Dense	Healthy	Straight	NAD	-	Canopy overhangs subject property by 5 feet. Base is approximately 5 feet wes of the west property line fence.	Significant	Good	Viable	Potential to Retain with Tree Protection Measures
				62.0																

23

- 11 trees are presumed to be off the property with canopies that overhang the subject property:
  - There are 3 trees, #'s 197, 198, & 199 are east of the east property line approximately centered on the proposed project.
  - There are 8 trees west of the west property line.. They are #'s 300 to 307.
  - All 11 trees can be adequately protected with a fence placed 12 feet west of the east property line.

- 12 trees were evaluated on the subject property:
  - All 12 trees were found to be in Fair, Good, or Very Good health, vigor, structure, or a combination of factors.
    - Therefore, all 12 trees are *Viable*.
  - 2 trees were found to be *Non-Significant* because they are less than the required 6.0 inches in Diameter.
    - They are #'s 1299 & 226.
  - 10 Trees were found to be greater than 6.0 inches in diameter and are, therefore, *Significant*.
    - They are #'s 1296, 1297, 1298, 1300, 460, 146, 216, 227, 195, & 196.

-

- In a Tree Plan II, the does not require a specific minimum tree density, however, the code does say that the property "shall comply with the required landscaping pursuant to KZC 95.40 Required Landscaping." The code does allow for retained trees to be counted towards the landscaping requirements.

ATTACHMENT 3 - GLOSSARY

Terms Used in This Report, on the Tree Condition / Inventory Spreadsheet, and Their Significance

In an effort to clearly present the information for each tree in a manner that facilitates the reader's ability to understand the conclusions I have drawn for each tree, I have collected the information onto a spreadsheet format. This spreadsheet was developed by Gilles Consulting based upon the *Hazard Tree Evaluation Form* from the book, *The Evaluation of Hazard Trees in Urban Areas*, by Matheney and Clarke. The descriptions were left brief on the spreadsheet in an effort to include as much pertinent information as possible, to make the report manageable, and, to not bore the reader with infinite levels of detail. A review of these terms and descriptions will allow the reader to rapidly move through the report and understand the information.

1) **TREE LOCATION--**indicates what general area of the site the tree is on, or whether the tree is Off the Project property.
2) **TREE #**—the individual number of each tree.
3) **SPECIES**—this describes the species of each tree with both most readily accepted common name and the officially accepted scientific name.
4) **DBH**—Diameter Breast Height. This is the standard measurement of trees taken at 4.5 feet above the average ground level of the tree base.
    i) Occasionally it is not practical to measure a tree at 4.5 feet above the ground. The most representative area of the trunk near 4.5 feet is then measured and noted on the spreadsheet. For instance, a tree that forks at 4.5 feet can have an unusually large swelling at that point. The measurement is taken below the swelling and noted as, '28.4" at 36"'.
    ii) Trees with multiple stems are listed as a "clump of x," with x being the number of trunks in the clump. Measurements may be given as an average of all the trunks, or individual measurements for each trunk may be listed.
        (1) Every effort is made to distinguish between a single tree with multiple stems and several trees growing close together at the bases.
5) **TREE CREDIT**—Tree Credit based on Trunk Diameter
6) **DRIP LINE**— the radius, the distance from the trunk to the furthest branch tips.
7) **LIMITS OF DISTURBANCE**— the boundary between the area of minimum protection around a tree and the allowable site disturbance as determined by a qualified professional.
8) **% LCR**—Percentage of Live Crown Ratio. The relative proportion of green crown to overall tree height. This is an important indication of a tree's health. If a tree has a high percentage of Live Crown Ratio, it is likely producing enough photosynthetic activity to support the tree. If a tree has less than 30 to 40% LCR it can create a shortage of needed energy and can indicate poor health and vigor.

9) **SYMMETRY**—is the description of the form of the canopy. That is, the balance or overall shape of the canopy and crown. This is the place I list any major defects in the tree shape—does the tree have all its foliage on one side or in one unusual area. Symmetry can be important if there are additional defects in the tree such as rot pockets, cracks, loose roots, weak crown etc. Symmetry is generally categorized as Generally Symmetrical, Minor Asymmetry or Major Asymmetry:
    i) Gen. Sym.—Generally Symmetrical. The canopy/foliage is generally even on all sides with spacing of scaffold branches typical for the species, both vertically and radially.
    ii) Min. Asym.—Minor Asymmetry. The canopy/foliage has a slightly irregular shape with more weight on one side but appears to be no problem for the tree.
    iii) Maj. Asym.—Major Asymmetry. The canopy/foliage has a highly irregular shape for the species with the majority of the weight on one side of the tree. This can have a significant impact on the tree's stability, health and hazard potential—especially if other defects are noted such as cracks, rot, root defects.
10) **FOLIAGE/BRANCH**—describes the foliage of the tree in relation to a perfect specimen of that particular species. First the branch growth and foliage density is described, and then any signs or symptoms of stress and/or disease are noted. The condition of the foliage, or the branches and buds for deciduous trees in the dormant season, are important indications of a tree's health and vigor.
    i) For Deciduous trees in the dormant season:
        (1) The structure of the tree is visible,
        (2) The quantity and quality of buds indicates health, and is described as good bud set, average bud set, or poor bud set. These are abbreviated in the spreadsheet as: gbs, abs, or pbs.
        (3) The amount of annual shoot elongation is visible and is another major indication of tree health and vigor. This is described as:
            a) Excellent, Good, Average, or Short Shoot Elongation. These are abbreviated in the spreadsheet as ESE, GSE, ASE, OR SSE.
    ii) For evergreen trees year round and deciduous trees in leaf, the color and density of the foliage indicates if the tree is healthy or stressed, or if an insect infestation, a bacterial, fungal, or viral infection is present. Foliage is categorized on a scale from:
        (1) Dense—extremely thick foliage, an indication of healthy vigorous growth,
        (2) Good—thick foliage, thicker than average for the species,
        (3) Normal/Average—thick foliage, average for the species, an indication of healthy growth,
        (4) Thin or Thinning—needles and leaves becoming less dense so that sunlight readily passes through; an indication that the tree is under

serious stress that could impact the long-term survivability and safety of the tree,

(5) Sparse—few leaves or needles on the twigs, an indication that the tree is under extreme stress and could indicate the future death of the tree

(6) Necrosis—the presence of dead twigs and branchlets. This is another significant indication of tree health. A few dead twigs and branches are reasonably typical in most trees of size. However, if there are dead twigs and branchlets all over a certain portion of the tree, or all over the tree, these are indications of stress or attack that can have an impact on the tree's long-term health.

(7) Hangers—A term to describe a large branch or limb that has broken off but is still hanging up in the tree. These can be particularly dangerous in adverse weather conditions.

11) **CROWN CONDITION**—the crown is uppermost portion of the tree, generally considered the top 10 to 20% of the canopy or that part of the canopy above the main trunk in deciduous trees and above the secondary bark in evergreen trees.

i) The condition of the tree's crown is a reflection of the overall health and vigor of the entire tree. The crown is one of the first places a tree will demonstrate stress and pathogenic attack such as root rot.

ii) If the **Crown Condition** is healthy and strong, this is a good sign. If the crown condition is weak, broken out, or shows other signs of decline, it is an indication that the tree is under stress. It is such an important indication of health and vigor that this is the first place a trained forester or arborist looks to begin the evaluation of a tree. Current research reveals that, by the time trees with root rot show significant signs of decline in the crown, fully 50% or more of the roots have already rotted away. **Crown Condition** can be described as:

(1) Healthy Crown—exceptional growth for the species.

(2) Average Crown—typical for the species.

(3) Weak Crown—thin spindly growth with thin or sparse needles.

(4) Flagging Crown—describes a tree crown that is weak and unable to grow straight up.

(5) Dying Crown—describes obvious decline that is nearing death.

(6) Dead Crown—the crown has died due to pathological or physical injury. The tree is considered to have significant stress and/or weakness if the crown is dead.

(7) Broken out—a formerly weak crown condition that has been broken off by adverse weather conditions or other mechanical means.

(8) Regenerated or Regenerating—formerly broken out crowns that are now growing back, Regenerating crowns may appear healthy, average, or weak and indicate current health of the tree.

(9) Suppressed—a term used to describe poor condition of an entire tree or just the crown. Suppressed crowns are those that are entirely below

the general level of the canopy of surrounding trees which receive no direct sunlight. They are generally in poor health and vigor. Suppressed trees are generally trees that are smaller and growing in the shade of larger trees around them. They generally have thin or sparse needles, weak or missing crowns, are prone to insect attack as well as bacterial and fungal infections.

12) **TRUNK**—this is the area to note any defects that can have an impact on the tree's stability or hazard potential. Typical things noted are:
    i) FORKED—bifurcation of branches or trunks that often occur at a narrow angle.
    ii) INCLUDED BARK—a pattern of development at branch or trunk junctions where bark is turned inward rather than pushed out. This can be a serious structural defect in a tree that can and often does lead to failure of one or more of the branches or trunks especially during severe adverse weather conditions.
    iii) EPICORMIC GROWTH—this is generally seen as dense thick growth near the trunk of a tree. Although this looks like a healthy condition, it is in fact the opposite. Trees with Epicormic Growth have used their reserve stores of energy in a last ditch effort to produce enough additional photosynthetic surface area to produce more sugars, starches and carbohydrates to support the continued growth of the tree. Generally speaking, when conifers in the Pacific Northwest exhibit heavy amounts of Epicormic Growth, they are not producing enough food to support their current mass and are already in serious decline.
    iv) INTERNAL STRUCTURAL WEAKNESS—a physical characteristic of the tree trunk, such as a **kink, crack, rot pocket, or rot column** that predisposes the tree trunk to failure at the point of greatest weakness.
    v) BOWED—a gradual curve of the trunk. This can indicate an Internal Structural Weakness or an overall weak tree. It can also indicate slow movement of soils or historic damage of the tree that has been corrected by the curved growth.
    vi) KINKED—a sharp angle in the tree trunk that indicates that the normal growth pattern is disrupted. Generally this means that the internal fibers and annual rings are weaker than straight trunks and prone to failure, especially in adverse weather conditions.
    vii) GROUND FLOWER—an area of deformed bark near the base of a tree trunk that indicates long-term root rot.
13) **ROOT COLLAR**—this is the area where the trunk enters the soil and the buttress roots flare out away from the trunk into the soil. It is here that signs of rot, decay, insect infestation, fungal or bacterial infection are noted. **NAD** stands for **N**o **A**pparent **D**efects.
14) **ROOTS**—any abnormalities such as girdling roots, roots that wrap around the tree itself that strangle the cambium layer and kill the tree, are noted here.

15) **COMMENTS**—this is the area to note any additional information that would not fit in the previous boxes or attributes about the tree that have bearing on the health and structure of the tree.
16) **SIGNIFICANCE**—a "significant" tree is at least 6" in diameter measured at 4.5' above the average ground level.
17) **CURRENT HEALTH RATING**— a description of general health ranging from dead, dying, poor, senescent, suppressed, fair, good, very good, to excellent.
18) **VIABILITY—** a significant tree that is in good health with a low risk of failure due to structural defects, is relatively wind firm if isolated or remains as part of a grove, and is a species that is suitable for its location.
    (1) Please note that many trees may be listed as "Non-Viable" due to poor health, poor structure, or the tree may be below the size threshold for a "Viable Tree." However, it is worth examining the Non-Viable Trees to determine if any or all of them can be left on the property. They can add significant benefit to the landscape and contribute to wildlife habitat.
19) **RECOMMENDATION**—this is an estimate of whether or not the tree is of sufficient health, vigor, and structure to consider retaining.

NOTE: TREES WITH THE SAME DESCRIPTION AND DIFFERENT RATINGS: Two trees may have the same descriptions in the matrix boxes, one may be marked "Significant," while another may be marked "Non-Significant." The difference is in the degree of the description—early necrosis versus advanced necrosis for instance. Again, these descriptions were left brief in an effort to include as much pertinent information as possible, to make the report manageable, and, not to bore the reader with infinite levels of detail.

ATTACHMENT 4 - TREE PROTECTION MEASURES

In order for trees to survive the stresses placed upon them in the construction process, tree protection must be planned in advance of equipment arrival on site. If tree protection is not planned integral with the design and layout of the project, the trees will suffer needlessly and will possibly die. With proper preparation, often costing little, or nothing extra to the project budget, trees can survive and thrive after construction. This is critical for tree survival because damage prevention is the single most effective treatment for trees on construction sites. Once trees are damaged, the treatment options available are limited.

The following minimum Tree Protection Measures are included on three separate sheets so that they can be copied and introduced into all relevant documents such as site plans, permit applications and conditions of approval, and bid documents so that everyone involved is aware of the requirements. These Tree Protection Measures are intended to be generic in nature. They will need to be adjusted to the specific circumstances of your site that takes into account the location of improvements and the locations of the trees.

TREE PROTECTION MEASURES:

1. Tree Protection Fences will need to be placed around each tree or group of trees to be retained.
    a. Tree Protection Fences are to be placed according to the attached drawing and as noted in the attached Tree Inventory/Conditions Spreadsheet, Column 6 - Limits of Disturbance.
    b. Tree Protection Fences must be inspected prior to the beginning of any construction work/activities.
    c. Nothing must be parked or stored within the Tree Protection Fences—no equipment, vehicles, soil, debris, or construction supplies of any sorts.

2. Cement trucks must not be allowed to deposit waste or wash out materials from their trucks within the Tree Protection Fences.

3. The Tree Protection Fences need to be clearly marked with the following or similar text in four inch or larger letters:

TREE PROTECTION AREA, ENTRANCE PROHIBITED
To report violations contact
City Code Enforcement
at 425-587-3225

4. The area within the Tree Protection Fencing must be covered with wood chips, hog fuel, or similar materials to a depth of 8 to 10 inches. The materials should be placed prior to beginning construction and remain until the Tree Protection Fencing is taken down.

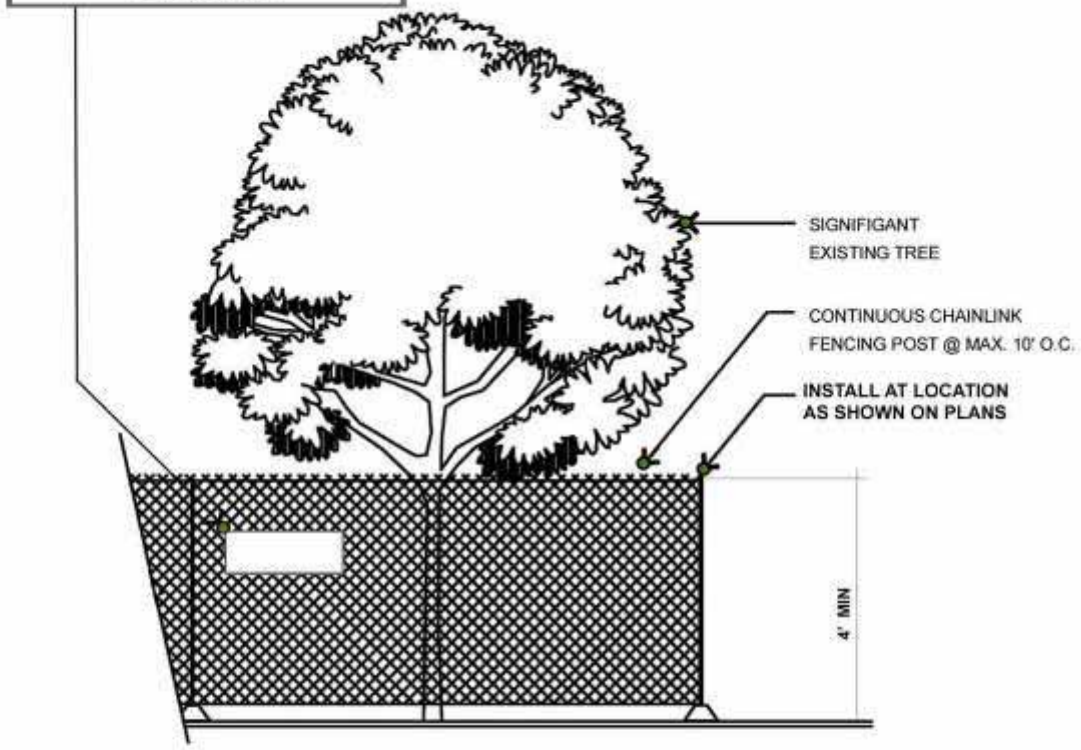
5. When excavation occurs near trees that are scheduled for retention, the following procedure must be followed to protect the long term survivability of the tree:
    a. An International Society of Arboriculture, (ISA) Certified Arborist must be working with all equipment operators.
        i. The Certified Arborist should be outfitted with a shovel, hand pruners, a pair of loppers, a handsaw, and a power saw (a "sawsall" is recommended).
    b. The hoe must be placed to "comb" the material directly away from the trunk as opposed to cutting across the roots.
        i. Combing is the gradual excavation of the ground cover plants and soil in depths that only extend as deep as the tines of the hoe.
    c. When any roots of one inch diameter or greater, of the tree to be retained, is struck by the equipment, the Certified Arborist should stop the equipment operator.

d. The Certified Arborist should then excavate around the tree root by hand/shovel and cleanly cut the tree root.
    i. The Certified Arborist should then instruct the equipment operator to continue.

6. Putting Utilities Under the Root Zone:
    a. Boring under the root systems of trees (and other vegetation) shall be done under the supervision of an ISA Certified Arborist. This is to be accomplished by excavating a limited trench or pit on each side of the critical root zone of the tree and then hand digging or pushing the pipe through the soil under the tree. The closest pit walls shall be a minimum of 7 feet from the center of the tree and shall be sufficient depth to lay the pipe at the grade as shown on the plan and profile.
    b. Tunneling under the roots of trees shall be done under the supervision of an ISA Certified Arborist in an open trench by carefully excavating and hand digging around areas where large roots are exposed. No roots 1 inch in diameter or larger shall be cut.
    c. The contractor shall verify the vertical and horizontal location of existing utilities to avoid conflicts and maintain minimum clearances; adjustment shall be made to the grade of the new utility as required.

7. Watering:
    a. The trees will require significant watering throughout the summer and early fall in order to survive long-term. An easy and economical watering can be done using soaker hoses placed three feet from the trunk of the tree and spiraled around the tree. One 75-foot soaker hose per tree is adequate. It is best to place the soakers using landscape staples, (available from HD Fowler in Bellevue for pennies apiece) then cover the area with two to three inches composed materials. The composted material will act as a mulch to minimize evaporation and will also stimulate the microbial activity of the soil which is another benefit to the health of the tree.
    b. Water the tree to a depth of 18 to 20 inches. I recommended leaving the water on the soaker hoses for six to eight hours and then digging down to determine how deep your water is penetrating. Then adjust accordingly. It may take a good two days of watering to reach the proper depth.
    c. Once the water reaches the proper depth, turn off the hoses for four weeks and then water again. Water more often when temperatures increase—every three weeks when temperatures exceed 80 degrees and every two weeks when temperatures exceed 90 degrees. This drying out of the soil in between watering is important to prevent soil pathogens from attacking the trees.

FENCING SIGN DETAIL



1. MINIMUM FOUR (4) FOOT HIGH TEMPORARY CHAINLINK FENCE SHALL BE PLACED AT THE CRITICAL ROOT ZONE OR DESIGNATED LIMIT OF DISTURBANCE OF THE TREE TO BE SAVED. FENCE SHALL COMPLETELY ENCIRCLE TREE (S). INSTALL FENCE POSTS USING PIER BLOCK ONLY. AVOID POST OR STAKES INTO MAJOR ROOTS. MODIFICATIONS TO FENCING MATERIAL AND LOCATION MUST BE APPROVED BY PLANNING OFFICIAL.

2. TREATMENT OF ROOTS EXPOSED DURING CONSTRUCTION: FOR ROOTS OVER ONE (1) INCH DIAMETER DAMAGED DURING CONSTRUCTION, MAKE A CLEAN STRAIGHT CUT TO REMOVE DAMAGED PORTION OF ROOT. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP TO PREVENT DRYING, AND COVERED WITH SOIL AS SOON AS POSSIBLE.

3. NO STOCKPILING OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE LIMIT OF THE FENCING. FENCING SHALL NOT BE MOVED OR REMOVED UNLESS APPROVED BY THE CITY PLANNING OFFICIAL. WORK WITHIN PROTECTION FENCE SHALL BE DONE MANUALLY UNDER THE SUPERVISION OF THE ON-SITE ARBORIST AND WITH PRIOR APPROVAL BY THE CITY PLANNING OFFICIAL.

4. FENCING SIGNAGE AS DETAILED ABOVE MUST BE POSTED EVERY FIFTEEN (15) FEET ALONG THE FENCE.

CITY OF KIRKLAND WASHINGTON

TREE PROTECTION FENCING DETAIL

ATTACHMENT 5 - REFERENCES

1. Dirr, Michael A. *Manual of Woody Landscape Plants, Their Identification, Ornamental Characteristics, Culture, Propagation, and Uses*. Champaign: Stipes Publishing Company, 1990.

2. Harris, Richard W. et al. *Arboriculture, Integrated Management of Landscape Trees, Shrubs, and Vines*. 4th ed. Upper Saddle River: Prentice Hall, 2004.

3. Matheney, Nelda P. and Clark, James R. *Evaluation of Hazard Trees*. 2nd ed. Savoy: The International Society of Arboriculture Press, 1994

4. Matheney, Nelda P. and Clark, James R. *Trees & Development, A Technical Guide to Preservation of Trees During Land Development*. Savoy: The International Society of Arboriculture Press, 1998.

5. Mattheck, Claus and Breloer, Helge. *The Body Language of Trees, A Handbook for Failure Analysis.* London: HMSO, 1994.

6. Pacific Northwest Chapter, ISA 2008. Tree Risk Assessment in Urban Areas and the Urban/Rural Interface. Course Manual. Release 1.2. PNW-ISA: Silverton, Oregon.

7. Watson, Gary W., and Neely, Dan, eds. *Trees & Building Sites*. Savoy: The International Society of Arboriculture Press, 1995.

NOTES

1. PURPOSE OF THIS SURVEY THIS BOUNDARY AND TOPOGRAPHIC SURVEY WAS PERFORMED DURING APRIL, 2007 IN SUPPORT OF A PUGET SOUND ENERGY SUBSTATION IMPROVEMENT PROJECT AND WAS INTENDED TO 1.) DETERMINE AND STAKE THE FOUR PROPERTY CORNERS, 2.) DETERMINE THE LOCATION OF PHYSICAL FEATURES ON OR NEAR SAID PROPERTY LINES AND; 3.) PERFORM TOPOGRAPHIC MAPPING OF THE SUBJECT PARCEL AND ADJOINING ROADWAYS.

2 BASIS OF BEARING WASHINGTON COORDINATE SYSTEM, NORTH ZONE, NAD-83/91. NOTE: DISTANCES SHOWN HEREON ARE STATE PLANE GRID DISTANCES BASED ON A COMBINED SCALE FACTOR OF 0.999959. TO CONVERT GRID DISTANCES TO GROUND VALUES, MULTIPLY DISTANCES SHOWN BY 1.000041.

3. VERTICAL DATUM NAVD-88
NOTE: NGVD 29 = NAVD 88 MINUS 3.6' SOURCE - CORPSCON FOR WINDOWS CONVERSION SOFTWARE VER 5.11.08

4. METHODOLOGY FIELD MEASUREMENT FOR THIS SURVEY WERE PERFORMED USING A LEICA TCRP 1201. THIS SURVEY COMPLIES WITH THE MINIMUM REQUIRED "ERROR OF CLOSURE" OF 1:10,000 FOR WASHINGTON STATE PLANE COORDINATES AS SET FORTH PER W.A.C. 332-130-090 (AND POSITIONAL TOLERANCE LEVELS OF LESS THAN 0.011 METERS)

5. PROPERTY LINES SHOWN HEREON ARE BASED ON FIELD LOCATED SURVEY MONUMENTS AND PUBLIC RECORDS SEE SHEET 2 OF 2 FOR SECTION BREAKDOWN AND PROPERTY DETAILS.

PROPERTY CORNERS WERE STAKED IN CONJUNCTION WITH THIS SURVEY.

6. MONUMENTATION VISITATION ALL SURVEY MONUMENTS AND OTHER SURVEY MARKERS SHOWN HEREON WERE VISITED DURING APRIL, 2007 UNLESS OTHERWISE INDICATED.

7. ENCUMBRANCES PACIFIC NORTHWEST TITLE COMPANY OF WASHINGTON INC. TITLE ORDER NO. 651223, DATED APRIL 12, 2007 USED FOR LAND DESCRIPTION AND EASEMENTS OF RECORD. NO FURTHER SEARCH INTO THE RECORD WAS REQUESTED OR PERFORMED. NOTE: SAID TITLE REPORT REVEALED SEVERAL SLOPE EASEMENTS THAT CONTAINED DESCRIPTIONS THAT WERE INSUFFICIENT TO DETERMINE THE LOCATION OF SAID EASEMENTS. OTHER ENCUMBRANCES LISTED IN SAID TITLE REPORT RELATE TO TAXES AND MORTGAGE TERMS AND CONDITIONS, NONE OF WHICH PERTAIN TO MATTERS DISCLOSED BY THIS SURVEY.

8. UNDERGROUND UTILITIES SHOWN REPRESENT FIELD SURVEYED PAINT MARKS AS PLACED ON THE GROUND BY A UTILITY LOCATE SERVICE. NO GUARANTEE IS MADE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED OR THAT THE UNDERGROUND UTILITIES ARE SHOWN IN THIER EXACT LOCATION. THE UTILITIES ARE SHOWN AS ACCURATELY AS POSSIBLE FROM AVAILABLE INFORMATION.

9. CONTOUR INTERVAL 2 FOOT

10. SUBSURFACE CONDITIONS WERE NOT EXAMINED OR CONSIDERED AS PART OF THIS SURVEY.

11. LOCATIONS OF HOUSES SHOWN HEREON WERE DERVIED FROM AERIAL PHOTOGRAMMETRY AND ARE RELIABLE TO PLUS OR MINUS 5 FEET.

12. 1-800-424-5555 MUST BE CALLED NOT LESS THAN 48 HOURS BEFORE BEGINNING EXCAVATION WHERE ANY UNDERGROUND UTILITIES MAY BE LOCATED. FAILURE TO DO SO COULD MEAN BEARING SUBSTANTIAL REPAIR COSTS. (UP TO THREE TIMES THE COST OF REPAIRS TO THE SERVICE).

BENCH MARKS

1 PROJECT BM POINT DESIGNATION DEA #3003 A COPPER PIN IN SQUARE CONCRETE MONUMENT LOCATED AT SOUTH QUARTER CORNER 29 AND AS SHOWN HEREON - ELEV = 256.528 FEET (NAVD 88)

2 TEMPORARY SITE BM'S POINT DESIGNATION DEA #6 A 1/2" IRON WITH "DEA CONTROL" CAP AND AS SHOWN HEREON - ELEV = 179.74 FEET (NAVD 88)

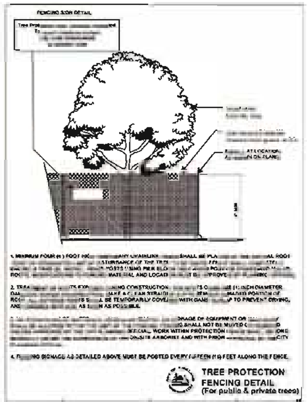
POINT DESIGNATION DEA #7 A 1/2" IRON WITH "DEA CONTROL" CAP AND AS SHOWN HEREON - ELEV = 165.58 FEET (NAVD 88)

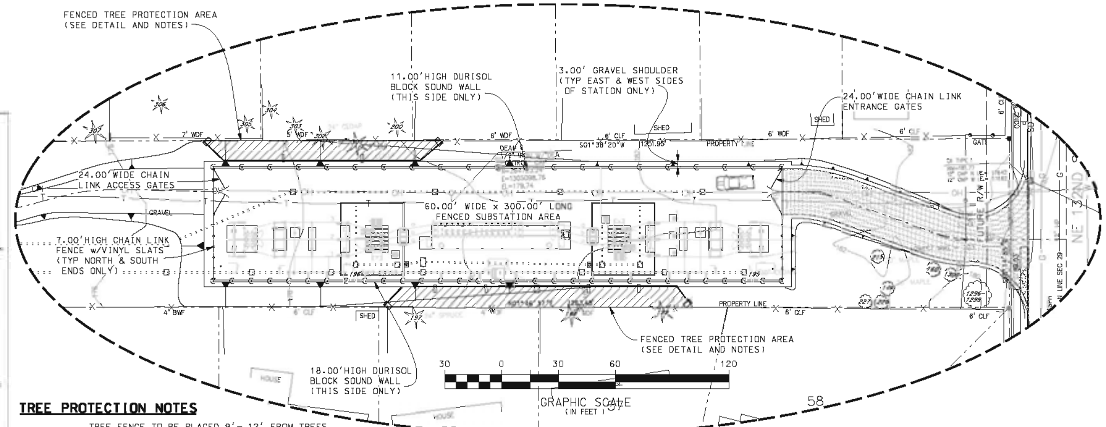
ADDRESS:
10910 NE 132nd ST.
KIRKLAND, WA.

LEGAL DESCRIPTION

PER PACIFIC NORTHWEST TITLE COMPANY OF WASHINGTON INC., TITLE ORDER NO. 651223, DATED APRIL 12, 2007

THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 29, TOWNSHIP 26 NORTH, RANGE 5 EAST, W.M., IN KING COUNTY, WASHINGTON;
EXCEPT THE WEST QUARTER;
EXCEPT THE EAST 900 FEET THEREOF;
EXCEPT THE NORTH 30 FEET THEREOF CONVEYED TO KING COUNTY FOR NORTHEAST 132ND STREET BY RECORDING NUMBER 2125699;
AND ALSO EXCEPT THE SOUTH 30 FEET THEREOF CONVEYED TO KING COUNTY FOR NORTHEAST 128TH STREET BY RECORDING NUMBER 5564777.





STATION DETAIL

SCALE: 1"=30'

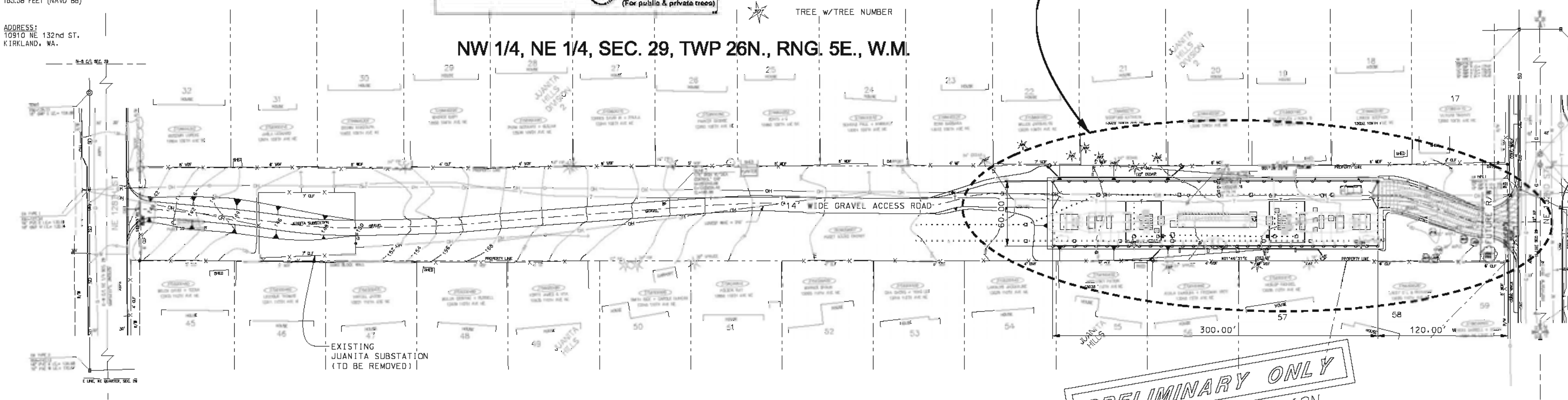
TREE PROTECTION NOTES

TREE FENCE TO BE PLACED 9'- 12' FROM TREES AS SHOWN ON PLAN. CONSTRUCTION LIMITS WILL DECTATE LOCATION OF FENCE.

12" OF WOOD CHIPS TO BE PLACED WITHIN BOUNDARY OF TREE FENCE AREA.

TREE w/TREE NUMBER

NW 1/4, NE 1/4, SEC. 29, TWP 26N., RNG. 5E., W.M.

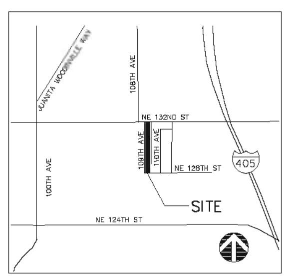


PRELIMINARY ONLY
NOT FOR CONSTRUCTION

TOPOG LEGEND

SECTION LINE
QUARTER SECTION LINE
EXISTING RIGHT-OF-WAY LINE
PROPERTY LINE
FENCE LINE (TYPE AS NOTED)
UTILITY POLE
WATER VALVE
WATER METER
CATCH BASIN
STORM DRAIN MANHOLE
TELEPHONE MANHOLE
TELEPHONE VAULT
CONIFEROUS TREE
DECIDUOUS TREE
SHRUB
SET REBAR AND CAP "DEA 38017"
KING COUNTY TAX PARCEL NUMBER

GRAPHIC SCALE
(IN FEET)
50 0 50 100 200



VICINITY MAP
NO SCALE

REFERENCE DRAWINGS:

D-14342 EROSION AND SEDIMENT CONTROL PLAN
D-14343 GRADING AND FENCING PLAN
D-14344 DRAINAGE PLAN
D-14345 FOUNDATION PLAN
D-14346 LANDSCAPE PLAN
D-14347 STRUCTURAL PLAN (REF ONLY)

CALL BEFORE YOU DIG
Call: TOLL FREE
1-800-CUT-SRVC

PSE ENGINEERING CONTACTS
355 NE 110TH AVE NE, BELLEVUE WA. 98009-0868

GROUP	NAME	PHONE
PROJECT MANAGEMENT	R. BAMBA	425-462-3774
CIVIL	J. RORABACHER	425-456-2446
ELECTRICAL	J. NEDRUD	425-462-3818
CONSTRUCTION MANAGEMENT	D. MOHN	425-456-2830
PERMITTING	A. MARKOS	253-476-6295

JOHN D RORABACHER
STATE OF WASHINGTON
44464
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES: Jan. 27.

REVISION DESCRIPTION:
ISSUED FOR PERMITTING

	APPROVAL	DATE (M/D/Y)
CADD	M TURNER	10 / 7 /08
		/ /
CIVIL ENGR		/ /
		/ /
REVIEW		/ /
		/ /

SITE PLAN
JUANITA SUBSTATION

PUGET SOUND ENERGY
SUBSTATION ENGINEERING DEPARTMENT

DRAWING NO D-14341
SHEET 1 OF 1
REV NO 0
SCALE: 1"= 50'-0"
CLASS: SITE
CADD NO: ...#01434101 Site.dgn
FILE NO

M D TURNER
10/8/2008

I:\electric\work\edt\Juanita (John, Jens) 101037444\01434101 Site.dgn