



CITY OF KIRKLAND
123 FIFTH AVENUE
KIRKLAND, WA 98033-6189
425.587.3225

Determination Of Nonsignificance

CASE #: SEP13-02089

DATE ISSUED: May 13, 2014

DESCRIPTION OF PROPOSAL: Proposal to subdivide five existing parcels (totaling 6.0 acres) into 36 separate lots in a RSA 8 Zone. Access to the lots will be provided via a new access road off of 136th Avenue NE. The new access road will also connect to the existing NE 129th Street right-of-way, to the west of the plat, to create a new through road.

APPLICANT: Jamie Waltier

PROJECT LOCATION: 12817 136TH AVE NE; 13505, 13511, 13419 & 13407 NE 129TH ST

LEAD AGENCY IS THE CITY OF KIRKLAND

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21.030 (2) (c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public upon request.

There is no comment period for this DNS.

Responsible Official:		<u>5/12/2014</u>
	Eric Shields, Director Department of Planning and Community Development 425-587-3225	Date
Address:	City of Kirkland 123 Fifth Avenue Kirkland, WA 98033-6189	

You may appeal this determination to the Planning Department at Kirkland City Hall, 123 Fifth Avenue, Kirkland, WA 98033 no later than 5:00 p.m., May 27, 2014 by WRITTEN NOTICE OF APPEAL.

You should be prepared to make specific factual objections. Contact the Planning Department at 425-587-3225 to read or ask about the procedures for SEPA appeals.

Please reference case # SEP13-02089

Publish in the Seattle Times (date): May 15, 2014

Distribute this form with a copy of the checklist to the following:

- Northshore Utility District
PO Box 82489
Kenmore, WA 98028-0489

- Ken Howe, PE, General Manager
Woodinville Water District
17238 NE Woodinville-Duvall Rd.
PO Box 1390
Woodinville, WA 98072-1390
Shirley Marroquin
Environmental Planning Supervisor
King County Wastewater Treatment Division
201 South Jackson Street, MS KSC-TR-0431
Seattle, WA 98104-3856

- Director of Support Services Center
Lake Washington School District No. 414
PO Box 97039

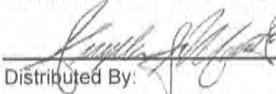
Redmond, WA 98073-9739

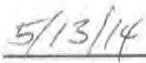
David B. Johnson and Lillian Cruz
Livengood, Fitzgerald and Alskog PLLC
PO Box 908
Kirkland WA 98083-0908

Owner: Jamie Waltier

cc: Case # SUB13-02088

Distributed to agencies along with a copy of the checklist (see attached).

Distributed By: 


Date:



CITY OF KIRKLAND

Planning and Community Development Department
123 Fifth Avenue, Kirkland, WA 98033
425.587.3225 - www.kirklandwa.gov

MEMORANDUM

To: Eric R. Shields, AICP, SEPA Responsible Official

From: Tony Leavitt, Associate Planner

Date: May 8, 2014

File: SEP13-02089, SUB13-02088

Subject: **ENVIRONMENTAL DETERMINATION FOR MERITAGE RIDGE
PRELIMINARY SUBDIVISION**

PROPOSAL

Harbour Homes LLC, the applicant, is requesting approval of a preliminary subdivision to subdivide five existing parcels (totaling 6.0 acres) into 36 separate lots in a RSA 8 Zone (see Enclosure 1 and 2). Access to the lots will be provided via a new access road off of 136th Avenue NE. The new access road will also connect to the existing NE 129th Street right-of-way, to the west of the plat, to create a new through road.

ENVIRONMENTAL ISSUES

I have had an opportunity to visit the site, review the environmental checklist (Enclosure 3), the Traffic Impact Analysis (Enclosure 4) and the revised Traffic Impact Analysis (Enclosure 5) prepared by the applicant's consultant, and the Traffic Impact Analysis Review Memo prepared by the City's Transportation Engineer (Enclosure 6). Based on a review of these materials, the main environmental issue related to the project is potential traffic impacts.

During the initial comment period for the SEPA determination and preliminary subdivision permit application, Staff received numerous public comments related to the potential traffic impacts of the development and the proposed NE 129th Street road connection. Based on these comments, Public Works Staff requested that the applicant's traffic engineer analyze potential impacts of the road connection on existing streets.

TRAFFIC IMPACTS

The Public Works Department has reviewed the Traffic Studies for the proposed development (see Enclosures 4 and 5) and concluded that the project will not have a significant adverse traffic impact on existing facilities. Public Works recommends approval of the project subject to the following conditions:

- Installation of traffic calming measures along the proposed NE 129th Street to discourage cut-through traffic.
- Installation of a stop sign at the new intersection of NE 129th Street and 136th Avenue NE.
- Installation of a stop sign at the new intersection of NE 129th Street and 133rd Place NE.

The applicant has reviewed the conditions and agrees to incorporate them into their proposal. The applicant has submitted plans showing the installation of a slotted speed hump within the NE 129th Street right-of-way. The City has the authority to require stop signs at the proposed locations and will be required to be included as part of the land surface modification permit application.

RECOMMENDATION

It will be necessary to further analyze certain aspects of the proposal to determine if the project complies with all the applicable City codes and policies. That analysis is most appropriately addressed within the review of the preliminary subdivision application. In contrast, State law specifies that this environmental review under the State Environmental Policy Act (SEPA) is to focus only on potential significant impacts to the environment that could not be adequately mitigated through the Kirkland regulations and Comprehensive Plan.¹

Based on my review of the submitted information, I have not identified any significant adverse environmental impacts. Therefore, I recommend that a Determination of Non-Significance be issued for this proposed action.

SEPA ENCLOSURES

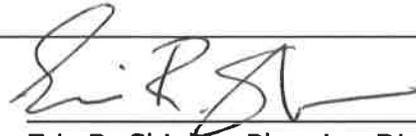
1. Vicinity Map
2. Site Plan
3. Environmental Checklist
4. Traffic Impact Analysis prepared by Northwest Traffic Experts dated November 6, 2013
5. Revised Supplemental Traffic Impact Analysis prepared by Northwest Traffic Experts dated March 26, 2014
6. Traffic Impact Analysis Review Memo prepared by Thang Nguyen

¹ESHB 1724, adopted April 23, 1995

Review by Responsible Official:

I concur I do not concur

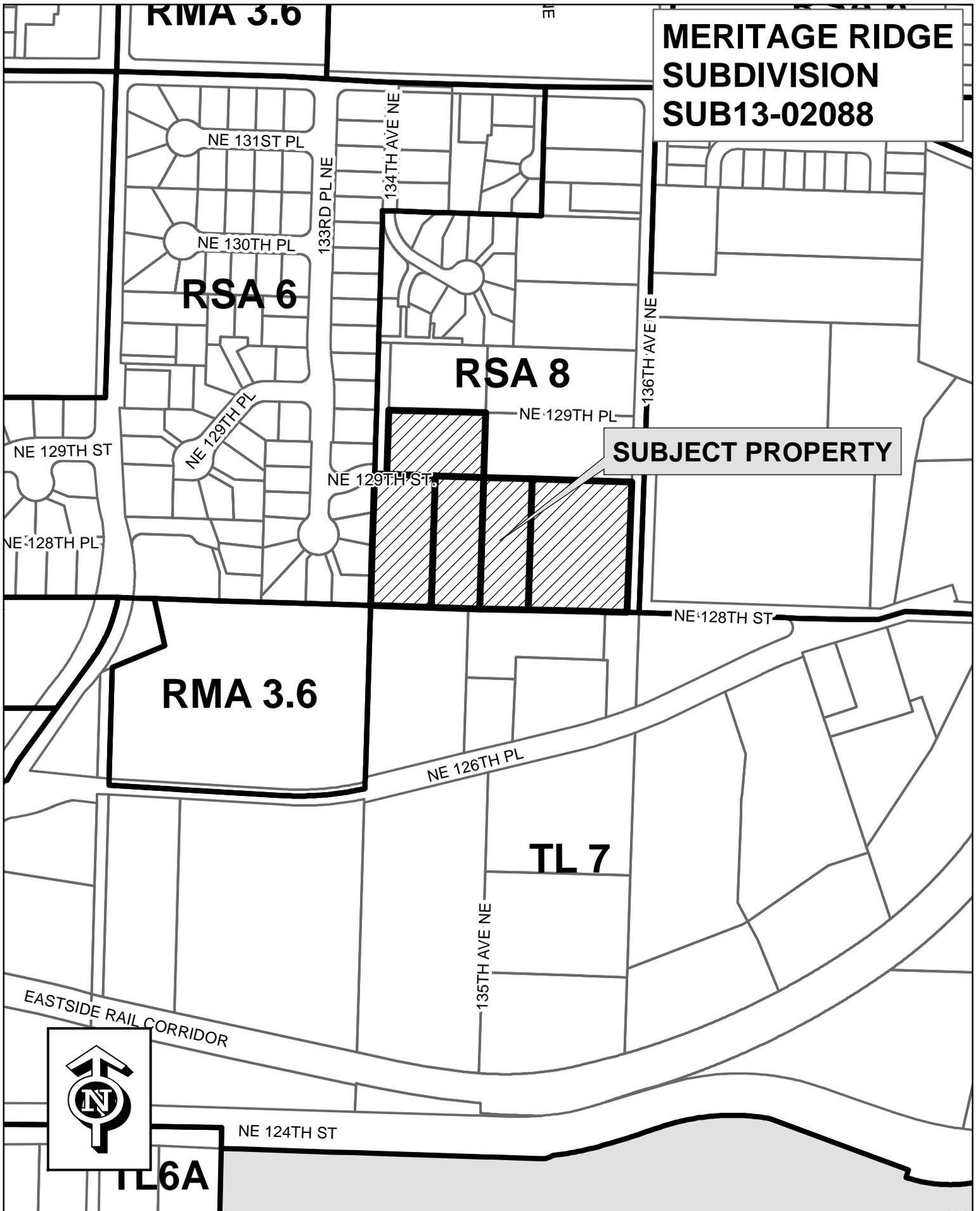
Comments: _____



Eric R. Shields, Planning Director

5/12/2014

Date





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, if it can be done) and to help the City decide whether an EIS is required.

Instructions for Applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant requiring preparation of an EIS. 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, 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: **The Vineyards**
2. Name of applicant: **Harbour Homes, LLC**

3. Address and phone number of applicant and contact person:
Contact: Jamie Waltier
Address: 1441 North 34th Street, Suite 200, Seattle, WA 98103
Phone: (206) 315-8130
4. Date checklist prepared: **October 30, 2013**
5. Agency requesting checklist: **City of Kirkland**
6. Proposed timing or schedule (including phasing, if applicable): **Plat construction is scheduled to start in Summer 2014 and Home construction is proposed to start in Fall 2014, subject to the approval process and market demands.**
7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

No
8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

Tree Inventory and Arborist Report: The Vineyards – Greenforest Incorporated, September 5, 2013
Geotechnical Engineering Study: Vineyards at Kirkland – Earth Solutions NW, LLC, October 3, 2013
Level One Downstream Analysis – D.R. STRONG, August 2013
Preliminary Traffic Information for Concurrency Application: Vineyards Plat – TraffEx, August 14, 2013
9. 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
10. List any government approvals or permits that will be needed for your proposal, if known.

Preliminary Plat
SEPA Determination
Forest Practices Permit (may be required)
Drainage Plan Approval
Grading Plan Approval
Water and Sewer Construction Plan Approval
NPDES Permit
Vault/Wall/Structural Permits
Final Plat Approval
Residential Building Permits
Right of Way Permits
Demolition Permit

11. 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.

This application proposes to subdivide five parcels totaling 5.98 acres into 36 single-family lots with one dwelling unit proposed on each. The dimensional requirements of the proposed lots and buildings shall meet those set forth in KZC 18.10 for the RSA 8 zone. The eastern portion of the site will remain undeveloped due to a 100-foot Olympic pipeline easement.

12. 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.

The location of the project is 12817 136th Avenue NE in Kirkland, Washington in the NW 1/4 of Section 27, Township 26 N, Range 5 E, W.M. The legal description and topographic survey have been included with the preliminary plat set. See Exhibit A for Vicinity Map.

B. ENVIRONMENTAL ELEMENTS

1. EARTH

a. General description of the site (circle one): Flat, rolling, hilly, steep, slopes, mountainous, other
Site slopes southeasterly from 10-20%.

b. What is the steepest slope on the site (approximate percent slope)? **+/-50% near the southeast corner of the site.**

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.
The Washington Soil Survey indicates Alderwood series gravelly sandy loam (AgC) with 6-15% slopes throughout the site; including within the sloped areas. The soil conditions observed during the Geotechnical Engineer's fieldwork were consistent with both the geologic map and soil survey designations

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.
None to our knowledge.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.
The purpose of the grading is to construct the proposed roadways and install plat infrastructure as required. Additionally, grading will be required to provide building pads for the residences. Anticipated required cut volume is 21,956 cy and approximate required fill volume is 8,615 cy. The excess structural fill will be used on site as site grading permits and soil may need to be exported as it cannot be used as structural fill.

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

Yes; Erosion control Best Management Practices (BMP's) will be used to minimize the effects of erosion during clearing and construction activities. BMP's such as perimeter protection, sediment retention, stockpiling and cover measures will be utilized to reduce potential erosion.

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

+/- 60%

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

A temporary erosion and sedimentation control plan (TESC plan) will be prepared and implemented prior to commencement of construction activities. During construction, erosion control measures may include: silt fences, temporary sediment traps, chemical treatment for water quality, stabilized construction entrances, and other measures in accordance with local and state requirements. At project completion, permanent measures will include storm detention and water quality facilities.

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.

Short-term emissions will be those associated with construction and site development activities. These will include dust and emissions from construction equipment. Long-term impacts will result from increased vehicle traffic, lawn equipment and others typical of a residential neighborhood.

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

Off-site sources of emissions or odors are those that are typical of residential neighborhoods. These will include automobile emissions from traffic on adjacent roadways and fireplace emissions from nearby homes.

- c. Proposed measures to reduce or control emissions or other impacts to air, if any:
The Washington Clean Air Act requires the use of all known, available, and reasonable means of controlling air pollution, including dust. Construction impacts will not be significant and could be controlled by measures such as washing truck wheels before exiting the site and maintaining gravel construction entrances, if required. In addition, dirt-driving surfaces will be watered during extended dry periods to control dust. Automobile and fireplace emission standards are regulated by the State of Washington.

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, none to our knowledge.

- 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.

No.

- 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.

No, there will be surface water withdrawals or diversions.

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

No.

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

No, a public sanitary sewer system will be installed to serve the future homes.

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.

No groundwater will be withdrawn, public water mains will be installed as part of the plat construction. No water will be discharged to groundwater, except through incidental infiltration of stormwater.

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.

The site will be served by gravity sanitary sewer (piped). There will be no waste material discharged to the ground from the development. Post development stormwater runoff from roadways and home sites will be collected and conveyed to drainage facilities which will settle out and/or separate automobile petroleum and other household waste materials to acceptable levels, then discharged to the existing City conveyance system. Requirements for water quality and runoff control will be met.

b. What kind and amount of vegetation will be removed or altered?
All vegetation within the developal area will be removed at the time of development. Landscaping will be installed in accordance with the provisions of the City Code.

c. List threatened or endangered species known to be on or near the site.
None known or documented within the project area.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:
Landscaping will be in conformance with City code.

5. ANIMALS

a. What kinds of birds and animals have been observed on or near the site or are known to be on or near the site?

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

b. List any threatened or endangered species known to be on or near the site.
None to our knowledge

c. Is the site part of a migration route? If so, explain.
Western King County as well as the rest of Western Washington, is in the migration path of a wide variety of non-tropical songbirds, and waterfowl, including many species of geese.

d. Proposed measures to preserve or enhance wildlife, if any:
None proposed.

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.

Electricity and/or natural gas will serve as the primary energy source for heating and cooling for each home. These forms of energy are immediately available to the site. The builder will provide the appropriate heating and cooling systems which will be energy efficient and cost effective for the home-buyer.

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

No.

- 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:

The required measures of the International Residential Code and State Energy Code will be incorporated in the construction. Energy conservation fixtures and materials are encouraged in all new construction.

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.

No. There is the Olympic Pipe Line that runs north/south across the eastern portion of the site. The road construction that will occur within the Olympic Pipeline easement will be done under the guidance and supervision of the pipeline operator. All work must be authorized by the pipeline operator before beginning.

- 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:

None.

b. Noise

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

The primary source of off-site noise in the area originates from vehicular traffic present on adjacent streets.

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.

Short-term impacts will result from the use of construction equipment during construction. Construction will occur during the day-light hours, and in compliance with all noise ordinances. Construction noise is generated by heavy equipment, hand tools and the transporting of construction materials and equipment. Long-term impacts will be those associated with typical urban residential areas and traffic.

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

Construction will be performed during normal daylight hours and/or per City of Kirkland requirements. Construction equipment will be equipped with noise mufflers and idling time will be encouraged to be kept at a minimum.

8. LAND AND SHORELINE USE

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

**Site: Single-family Residential
North: Single Family Residential
South: Industrial
East: Single Family Residential
West: Single Family Residential**

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

No.

c. Describe any structures on the site.

There are five single-family homes along with detached garages and sheds currently located on the site.

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

All existing structures will be removed.

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

RSA 8

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

LDR 8

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

Not applicable.

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

There exists a high landslide hazard area near the south east corner of the site.

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

Approximately 90 people (36 x 2.5 persons per dwelling unit)

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

Approximately 14 people will be displaced as a result of the completed project.

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

None proposed because the current property owners are a proponent of the redevelopment of the property.

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

The proposed development is compatible with the prescribed land use codes and designations for this site. Per the City Zoning Code, the development is consistent with the density requirements and land use of this property.

9. HOUSING

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

The project contains 36 new homes; these homes are anticipated to be in the middle income price range.

- b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.
Five middle income homes will be eliminated.
- c. Proposed measures to reduce or control housing impacts, if any:
None proposed because the current property owners are a proponent of the redevelopment of the property.

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?
The maximum building height will conform to City of Kirkland Standards. The exterior building materials may include any of the following: wood, hardwood, manonry, cedar shakes and/or asphalt shingles.
- b. What views in the immediate vicinity would be altered or obstructed?
Views in the vicinity are not likely to be enhanced, extended or significantly obstructed by development of this project.
- c. Proposed measures to reduce or control aesthetic impacts, if any:
Landscaping will be installed by the applicant and future residences to provide and additional visual buffer.

11. LIGHT AND GLARE

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur?
Light and glare will be produced from building lighting. Light will also be produced from vehicles using the site. The light and glare will occur primarily in the evening and before dawn.
- b. Could light or glare from the finished project be a safety hazard or interfere with views?
Not to our knowledge.
- c. What existing off-site sources of light or glare may affect your proposal?
The primary off-site source of light and glare will be from vehicles traveling along the area roadways. Also, the adjacent residential uses and streetlights may create light and glare.

- d. Proposed measures to reduce or control light and glare impacts, if any:
Street lighting will be installed in a manner that directs light downward when required.

12. RECREATION

- a. What designated and informal recreational opportunities are in the immediate vicinity?
132nd Square Park is less than one-half mile from the site. Sammamish Valley Park and Sammamish River Trail Site are within one mile of the site.
- b. Would the proposed project displace any existing recreational uses? If so, describe.
No.
- c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:
Park mitigation fees will be provided by the applicant.

13. HISTORICAL AND CULTURAL PRESERVATION

- a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.
None known.
- b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.
None known.
- c. Proposed measures to reduce or control impacts, if any:
None, there are no known impacts. If an archeological site is found during the course of construction, the State Historical Preservation Officer will be notified.

14. TRANSPORTATION

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

Access will be from 136th Avenue NE.

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

Transit Service is available to the site and is provided by Metro Transit. The nearest transit stop is approximately 0.5 miles from the Site at 132nd Avenue NE and NE 132nd Street.

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

The completed project will provide garage and driveway parking spaces. Each residence will have a minimum of two spaces for a total minimum of 72 spaces. Additional parking spaces will be available in each driveway as well. Parking spaces associated with the existing single family residence will be eliminated.

- 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).

A new 24-foot wide public plat access road is proposed. 136th Avenue NE will be widened to provide 16 feet of pavement from the existing road centerline (32 feet total). These new streets will total approximately 55,175 s.f.

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

No.

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

According to the Traffic Impact Analysis, a total of 297 net new trips would be generated by the completed project. Peaks hours will generally be between 7AM and 9AM and 4PM and 6PM.

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

None proposed.

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.

Yes, the need for public service such as fire, health, and police protection will typical of a single family development of this size. The school children originating from the homes in this development will attend schools in the the Lake Washington School District.

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

The roads and homes will be constructed to meet all applicable standards and codes of the County and the International Residential Code. The proposed development will contribute to the local tax base and provide additional tax revenue for the various public services. The impact to the schools, parks and traffic will be mitigated through the payment of impact fees.

16. UTILITIES

a. What utilities (e.g.: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other) are currently available at the site?

**Electricity
Natural gas
Water
Refuse service
Telephone
Sanitary sewer.**

- 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.

Electricity will be provided by Puget Sound Energy (PSE)

Natural Gas will be provided by PSE

Water Service will be provided by Woodinville Water District

Sanitary Sewer will be provided by Northshore Utility District

Telephone Service will be provided by Frontier Communications or Comcast

Refuse Service will be provided by Waste Management

Cable Television will be provided by Comcast

VINEYARDS PLAT TRAFFIC IMPACT ANALYSIS

CITY OF KIRKLAND

Prepared for

Jamie Waltier
Geonerco Properties WA, LLC
1441 N 34th St., #200
Seattle, WA 98103

Prepared by



11410 NE 124th St., #590
Kirkland, Washington 98034
Telephone: 425.522.4118

November 6, 2013

November 6, 2013

Jamie Waltier
Geonerco Properties WA, LLC
1441 N 34th St., #200
Seattle, WA 98103

Re: Vineyards Plat – City of Kirkland
Traffic Impact Analysis

Dear Mr. Waltier:

We are pleased to submit this traffic impact analysis for the proposed 36 lot Vineyards Plat located on the west side of 132nd Ave. NE in the City of Kirkland. Preliminary trip generation and project information was submitted to the City in a letter report dated August 14th, 2013. The project passed the traffic concurrency test per the October 9th, 2013 memo attached in the technical appendix. Subsequently the plat was revised from 35 to 36 lots. The City has determined the concurrency test is still valid since the net new trips for the 36 lots are less than the number of trips used for the concurrency test (once the trips generated by the existing five homes are subtracted from the total).

This TIA was prepared based on the City of Kirkland's current Traffic Impact Analysis Guidelines, the concurrency model trip distribution provided by the City and discussions with Thang Nguyen a Transportation Engineer on the City's staff.

PROJECT DESCRIPTION

Figure 1 is a vicinity map showing the location of the site and the surrounding major street network. The proposed Vineyards Plat is located at 12817 136th Ave. NE in the City of Kirkland.

Figure 2 shows a preliminary site plan. The project consists of 36 single family homes. Proposed access is NE 129th St. which is connected to 136th Ave. NE. NE 129th St. runs through the site and is stubbed to the west.

The site consists of five parcels that are currently occupied by five single family homes that will be removed with the development.

The anticipated build out and occupancy year of the Vineyards Plat is 2015.

TRIP GENERATION

The 36 single-family units in the proposed Vineyards Plat are expected to generate the vehicular trips during an average weekday and during the street traffic peak hours as shown in the following table. Existing trips currently generated from the five existing single family homes on the site were subtracted from the Vineyards trips resulting in the net new trips generated as a result of the project as shown below.

TRIP GENERATION FOR 36 LOT VINEYARDS PLAT

<i>Time Period</i>	<i>Trip Rate</i>	<i>Trips Entering</i>	<i>Trips Exiting</i>	<i>Total</i>
Average Weekday	9.57	172 50%	173 50%	345
AM Peak Hour	0.75	7 25%	20 75%	27
PM Peak Hour	1.01	23 63%	13 37%	36

MINUS TRIP GENERATION FOR FIVE EXISTING SINGLE FAMILY HOMES

<i>Time Period</i>	<i>Trip Rate</i>	<i>Trips Entering</i>	<i>Trips Exiting</i>	<i>Total</i>
Average Weekday	9.57	24 50%	24 50%	48
AM Peak Hour	0.75	1 25%	3 75%	4
PM Peak Hour	1.01	3 63%	2 37%	5

NET NEW TRIPS

<i>Time Period</i>	<i>Trip Rate</i>	<i>Trips Entering</i>	<i>Trips Exiting</i>	<i>Total</i>
Average Weekday		148	149	297
AM Peak Hour		6	17	23
PM Peak Hour		20	11	31

A vehicle trip is defined as a single or one direction vehicle movement with either the origin or destination (exiting or entering) inside the study site.

The trip generation is calculated using the average trip rates in the Institute of Transportation Engineers (ITE) Trip Generation, for Single Family Detached Housing (ITE Land Use Code 210). These trip generation values account for all site trips made by all vehicles for all purposes, including resident, visitor, and service and delivery vehicle trips.

ANALYSIS OF SIGNIFICANT INTERSECTIONS

Attached in the technical appendix is the concurrency test result table that shows PM peak hour site generated traffic volumes at City of Kirkland intersections. (Note these volumes are based on 35 units and should be reduced to reflect the net gain of 31 units). Those intersections that carry project volumes making up a proportional share greater than 1% are considered significant intersections. No intersections meet these criteria. Attached in the technical appendix are the pro rata calculation worksheets.

TRIP DISTRIBUTION AND ASSIGNMENT

Figure 3 shows the PM peak hour site generated traffic volumes and distribution at the NE 129th St. site access/136th Ave. NE and NE 132nd St./136th Ave. NE intersections. The trip distribution is based on the concurrency model output provided by the City of Kirkland. The City requested LOS calculations for the site access intersection of NE 129th St./136th Ave NE and NE 132nd St./136th Ave. NE intersection.

EXISTING PHYSICAL CONDITIONS

The existing five homes and associated structures on the project site will be removed with development.

Street Facilities

The primary roads in the study area are classified per the City of Kirkland, are as follows:

136 th Ave. NE	Collector
Site Access St. (NE 129 th St.)	Local Access

136th Ave NE has a posted speed limit of 25 mph and generally consists of two lanes with a narrow shoulder and a ditch. The Momco Plat is under construction on the east side of 136th Ave NE across from the proposed Vineyards. That plat is

constructing half street frontage improvements to 136th Ave NE including curb, gutter and sidewalks.

The proposed site access street to Vineyards plat is located at the existing NE 129th St. alignment and is directly across the street from the Momco Plat access thus forming a four leg intersection with stop sign controls on the side streets.

There is an ongoing road improvement project on NE 128th St. causing the closure of 136th Ave NE. south of the project site.

Sight Distance

136th Ave NE in this area is essentially straight and flat with a slight grade toward the south. The sight distance meets current City of Kirkland's recommended sight distance requirement of 280 feet looking in both the north and south directions from the side street. The sight distance requirement is for a posted speed limit of 25 mph with stop sign controlled side streets.

Accident History

City staff indicated their records show no accidents have been reported on 136th Ave NE in this area. We have field reviewed the site and surrounding street system. Based on our field observations, the lack of accident activity and the excellent sight distance, we conclude there are no readily apparent safety issues.

EXISTING TRAFFIC CONDITIONS

Traffic Volumes

A PM peak hour turning movement count was performed at the NE 132nd St./136th Ave NE intersection. The traffic volume turning movement count sheet is included in the Technical Appendix. At the time of the count, 136th Ave NE was closed south of the Vineyards site due to an ongoing construction project which may have affected the traffic volume counts. Therefore, the 2012 traffic volumes from the Momco TIA counts were used instead. Figure 3 shows existing PM peak hour traffic volumes at the study intersections.

Level of Service Analysis

LOS is a qualitative measure describing operational conditions within a traffic flow, and the perception of these conditions by drivers or passengers. These conditions include factors such as speed, delay, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. Levels of service are given letter designations, from A to F, with LOS A representing the best operating conditions (free flow, little delay) and LOS F the worst (congestion, long delays). Generally, LOS A and B are high, LOS C and D are moderate and LOS E and F are low.

Table 1 shows calculated levels of service (LOS) for existing conditions at the study intersection. The LOS's were calculated using the procedures in the Transportation Research Board Highway Capacity Manual. The LOS shown indicates overall intersection operation. At intersections, LOS is determined by the calculated average control delay per vehicle. The LOS and corresponding average control delay in seconds are as follows:

TYPE OF INTERSECTION	A	B	C	D	E	F
Signalized	≤ 10.0	>10.0 and ≤ 20.0	>20.0 and ≤ 35.0	>35.0 and ≤ 55.0	>55.0 and ≤ 80.0	>80.0
Stop Sign Control	≤ 10.0	>10 and ≤ 15	>15 and ≤ 25	>25 and ≤ 35	>35 and ≤ 50	>50

FUTURE TRAFFIC CONDITIONS WITHOUT THE PROJECT

Figure 3 shows projected future PM peak hour traffic volumes without the project. These volumes include the existing traffic volumes plus background traffic growth plus trips from the Momco Plat.

The City of Kirkland directed a 2.0% per year annual background growth factor be applied to existing traffic volumes to estimate future traffic volumes. The background growth rate factor includes traffic volumes generated from other approved but unbuilt developments (pipeline projects), other planned developments, and general growth in traffic traveling through the area.

136th Ave NE was closed south of the Vineyards site due to an ongoing construction project which may have affected the traffic volume counts. Therefore, the 2012 traffic volumes from the Momco TIA were used instead. These 2012 volumes were increased by 2% per year (for a total of 6%) and then the Momco trips were added to the total to estimate 2015 horizon year traffic volumes without the Vineyards project.

FUTURE TRAFFIC CONDITIONS WITH PROJECT

Figure 3 shows the projected PM peak hour traffic volumes with the proposed project. The site-generated peak hour traffic volumes were added to the projected future traffic volumes without project.

The site access-NE 129th St./NE 132nd St. and NE 132nd/136th Ave NE intersections are calculated to operate at LOS B in the PM peak hour including project traffic

TRAFFIC MITIGATION

The City of Kirkland requires a road impact fee of \$3,942 per each detached single family residential unit. Five existing residential units will be removed with this development, therefore the net new number of residential units is $36-5 = 31$ units. The current road impact fee is therefore estimated to be $31 \text{ units} \times \$3,942 = \$122,202$.

Full width street improvements are required on all internal plat streets and half street improvements to the 136th Ave NE frontage to City of Kirkland Standards including curb, gutter and sidewalk.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

We recommend that the Vineyards plat be constructed as shown on the site plan with the following traffic impact mitigation measures:

- Construct the full width street improvements on all internal plat streets and half street improvements to the 136th Ave. NE frontage to City of Kirkland Standards including curb, gutter and sidewalk.
- Contribute the road impact fee to the City of Kirkland estimated to be \$122,202 using the current fee for a single family unit.

No other traffic mitigation should be necessary. If you have any questions, please call 425-522-4118. You may also contact us via e-mail at vince@nwtraffex.com or larry@nwtraffex.com.

Very truly yours,



Vincent J. Geglia
Principal
TraffEx



Larry D. Hobbs, P.E.
Principal
TraffEx

TABLE 1
PM PEAK HOUR LEVEL OF SERVICE SUMMARY

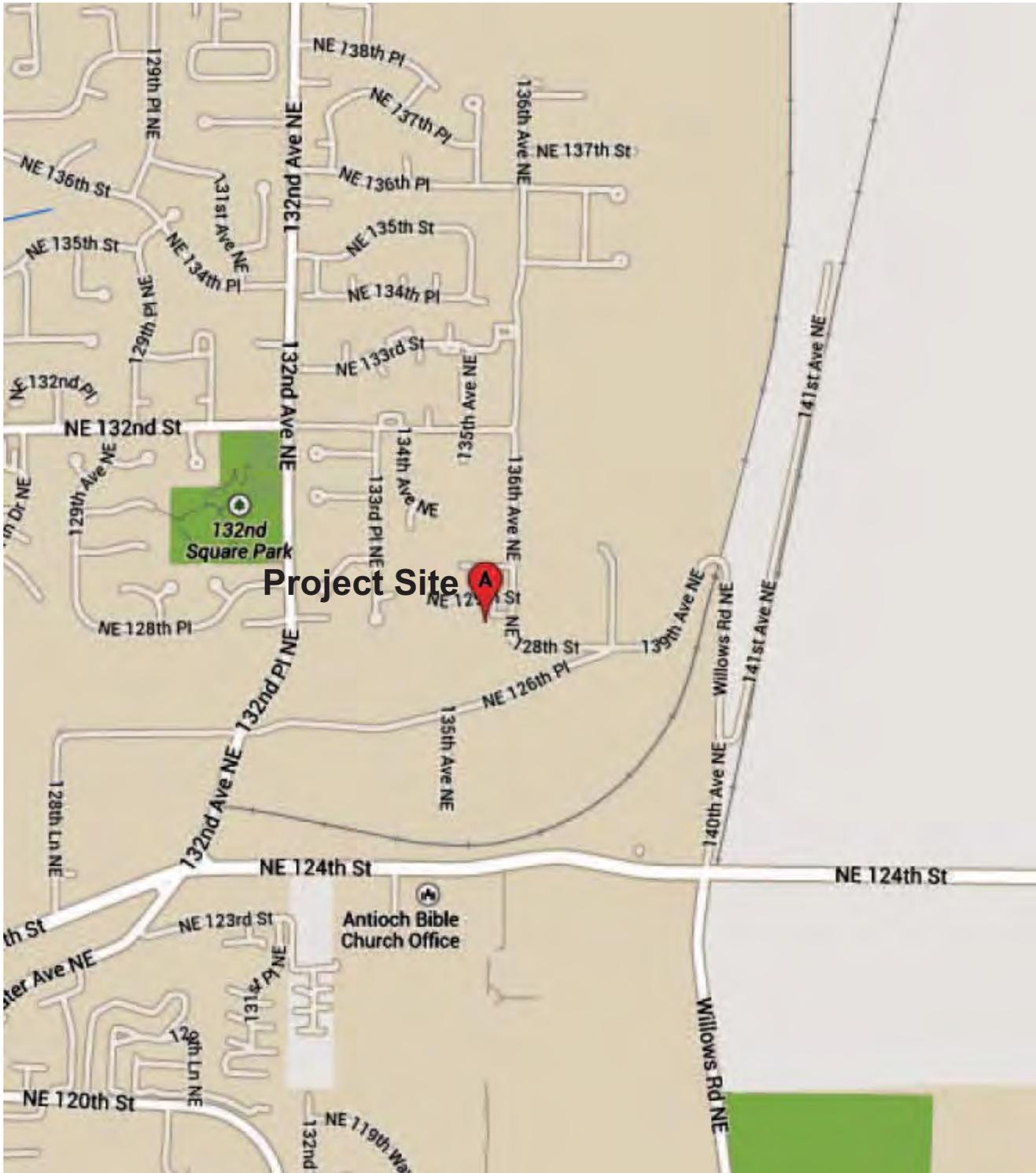
<i>INTERSECTION</i>	<i>EXISTING</i>	<i>2015 WITHOUT PROJECT</i>	<i>2015 WITH PROJECT</i>
NE 132 nd St./136 th Ave NE	B 10.1 SB	B 10.2 SB	B 10.3 SB
Site Access St./ NE 132 nd St.	NA	B 10.1 WB	B 10.3 WB

XX Number shown is the average control delay in seconds per vehicle for the intersection for **the minor approach for unsignalized** intersections, which determines the LOS for intersections per the Transportation Research Board Highway Capacity Manual

B Indicates calculated level of service

SB (southbound) Indicates direction of the minor approach for the unsignalized intersection

WB (westbound) Indicates direction of the minor approach for the unsignalized intersection



The Vineyards Plat
Vicinity Map

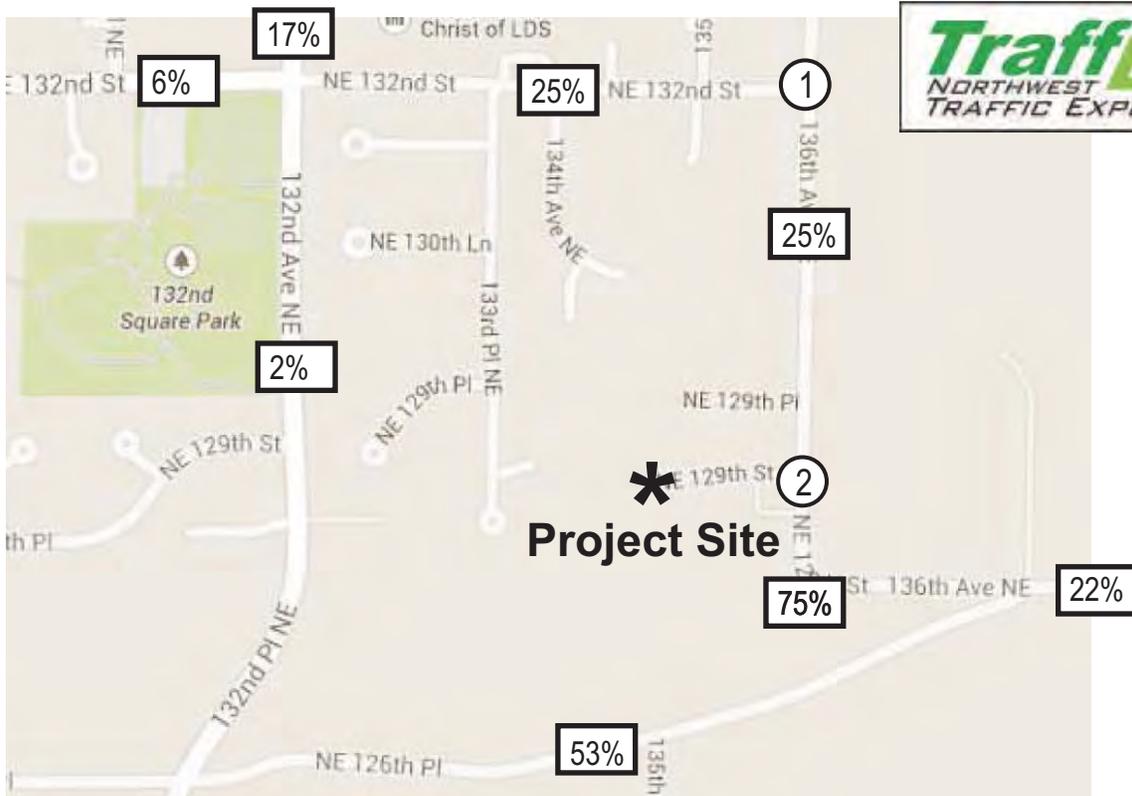
Figure
1

NW 1/4 SECTION 27, TOWNSHIP 26 N, RANGE 5 E, W.M.
THE VINEYARDS



The Vineyards Plat
 Site Plan

Figure
 2

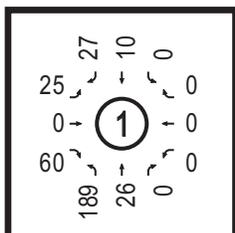


Existing Traffic Volumes

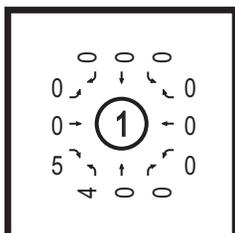
Project Generated Traffic Volumes

Future Without Project Traffic Volumes

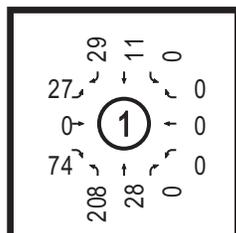
Future With Project Traffic Volumes



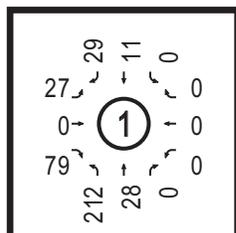
NE 132nd St / 136th NE



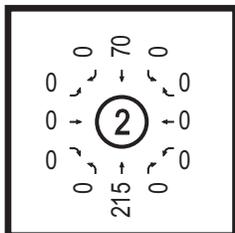
NE 132nd St / 136th NE



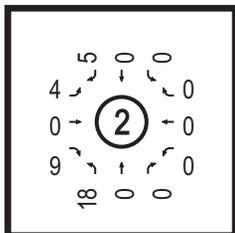
NE 132nd St / 136th NE



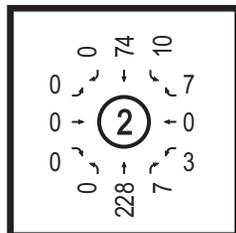
NE 132nd St / 136th NE



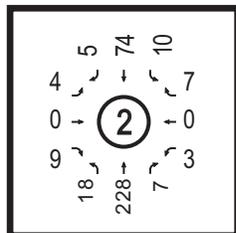
NE 129th St / 136th NE



NE 129th St / 136th NE



NE 129th St / 136th NE



NE 129th St / 136th NE

PM Peak Hour
 Project Volumes
 23 Enter
 13 Exit
 36 Total

Legend

15% Percentage of Project Traffic -PM Peak
 ← 15 Peak Hour Volume and Direction

Vineyards Plat

PM Peak Hour Traffic Volumes and Trip Distribution.

Figure 3

TECHNICAL APPENDIX



MEMORANDUM

To: Planning Department, Planner

From: Thang Nguyen, Transportation Engineer

Date: October 9, 2013

Subject: Vine Yard Residential Development Concurrency Test Notice,
Tran13-01516

This is to inform you that the current proposed Vine Yard Residential development has passed traffic concurrency. This memo will serve as the current concurrency test notice.

Project Description

The applicant is proposing to construct 35 single-family units on several parcels (272605-9035, -9095, -9098, -9099, and -9100) that currently have four single-family homes. It is anticipated that the project will be built out by the end of 2015 and full occupancy thereafter (2016). Access will be directly off 136th Avenue NE and via the Harbour Homes plat currently under design. The project is calculated to generate 335 daily, 26 AM Peak Hour and 35 PM Peak Hour net new trips.

The proposed project passed traffic concurrency. This memo will serve as the concurrency test notice for the proposed project. Per *Section 25.10.020 Procedures* of the KMC, this Concurrency Test Notice will expire in one year (October 9, 2014) unless a development permit and certificate of concurrency are issued or an extension is granted.

EXPIRATION

On a new concurrency test or a re-test for a revised project that generate more PM peak hour trips, the concurrency test notice shall expire and a new concurrency test application is required unless:

1. A complete SEPA checklist, traffic impact analysis and all required documentation are submitted to the City within 90 calendar days of the concurrency test notice.
2. A Certificate of Concurrency is issued or an extension is requested and granted by the Public Works Department within one year of issuance of the concurrency test notice. (A Certificate of Concurrency is issued at the same time a development permit or building permit is issued if the applicant holds a valid concurrency test notice.) Once the project has received an approved development permit or building permit, the project will receive a "certificate of concurrency" status. No actual certificate of concurrency will be given. An approved building or development permit shall represent attaining concurrency certification.

3. A Certificate of Concurrency shall expire six years from the date of issuance of the concurrency test notice unless all building permits are issued for buildings approved under the concurrency test notice.

APPEALS

In accordance with Chapter 25.23 Kirkland Municipal Code (KMC), the concurrency test decision may be appealed by the applicant, agency with jurisdiction or an individual or other entity who is specifically and directly affected by the proposed development. A notice of the concurrency test decision will be provided at the same time as the SEPA notice. An appeal must be filed within fourteen (14) calendar days of issuance of a determination of non-significance (DNS) or within seven (7) calendar days of the date of publication of a determination of significance (DS) under Title 24 KMC. An appeal of the concurrency test decision is heard before the Kirkland Hearing Examiner along with any applicable SEPA appeal if there is an appeal of SEPA.

For more information, refer to the Kirkland Municipal Code, Title 25. If you have any questions, please call me at x3869.

cc: Energov
Rob Jammerman, Development Engineer Manager

2015	Vineyard 35 SF	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
101	Lake WA Blvd/NE 38th Pl												
102	Lake WA Blvd/Lakeview Dr												
103	NE 68th St/State St												
104	NE 68th St/108th Ave NE												
105	Central Way/6th St												
106	Central Way/3rd St S												
107	Central Way/Lake St												
108	Lake St/Kirkland Ave												
109	NE 85th St/114th Ave NE												
110	6th St S/4th St												
111	Kirkland Ave/3rd Street												
112	Kirkland Way/6th Street												
201	NE 116th St/98th Ave NE												
202	NE 124th St/100th Ave NE												
203	NE 132nd St/100th Ave NE												
204	NE 132nd St/116th Way NE												
205	Forbes Creek Dr/Market St												
206	NE 120th Pl/100th Ave NE												
207	Juanita Dr/93rd Ave NE												
208	Juanita Dr/97th Ave NE												
209	n/a												
211	n/a												
301	NE 132nd St/120th Ave NE												
302	NE 130th St/120th Ave NE												
303	NE 128th St/120th Ave NE												
304	NE 132nd St/124th Ave NE		1				1						
306	NE 124th St/Slater Ave NE	10							3			2	4
307	Totem Lake Blvd/120th Ave NE		2				1						
310	NE 116th St/120th Ave NE		1			1							
311	NE 116th St/124th Ave NE		3			2			1				
312	NE 124th St/116th Way NE		1			1							
313	NE 124th St/113th Ave NE												
314	NE 120th St/Slater Ave NE								3			2	
315	NE 124th St/124th Ave NE		5		1	2	1			2	2		
316	NE 132nd St/Totem Lake Blvd												
317	NE 124th St/SB I-405 off Ramp		1			1					3		
318	NE 124th St/NB I-405 on/off Ramp		5			2				2			
319	NE 116th St/SB I-405 on Ramp												
320	NE 116th St/NB I-405 off Ramp		1			2				2			
323	NE 128th St/116th Way NE												
325	NE 124th St/128th Lane NE												
401	NE 85th St/132nd Ave NE												
402	NE 85th St/124th Ave NE												
403	NE 85th St/120th Ave NE												
404	NE 100th St/124th Ave NE												
406	NE 70th St/132nd Ave NE												
407	NE 70th St/116th Ave NE												
408	NE 90th St/124th Ave NE												
409	NE 85th St/122nd Ave NE												
410	116th Ave NE/I-405 NB off Ramp												
411	NE 70th St/I-405 SB off Ramp												
412	NE 85th St/128th Ave NE												
416	NE 80th St/132nd Ave NE												
999	NE 126th Pl/136th Ave NE	13					5				3		6
501	North Holmes Pt Dr NE/Juanita Dr NE												
502	South Holmes Pt Dr NE/Juanita Dr NE												
503	NE 141st Street/Juanita Dr NE												
504	Juanita-Woodinville Way/100th Ave NE												
505	NE 137th Street/100th Avenue NE												
506	Simonds Road/100th Avenue NE												
507	NE 145th street/100th Avenue NE												
508	NE 145th Street/Juanita-Woodinville Way												
509	NE 140th Street/132nd Avenue NE												
510	NE 132nd Street/132nd Avenue NE		1			1	3				3		
511	NE 144th Street/124th Avenue NE												
512	NE 124th Street/Willows Road NE						3		2		2	1	

2015	Future Background Growth	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
101	Lake WA Blvd/NE 38th Pl	27	7	23	105	2	159	6	1216	84	70	941	4
102	Lake WA Blvd/Lakeview Dr	59	117	127	319	30	14	83	650	594	8	426	38
103	NE 68th St/State St	304	387	4	9	262	316	5	30	41	214	9	146
104	NE 68th St/108th Ave NE	203	432	53	162	356	242	128	367	230	184	233	101
105	Central Way/6th St	31	558	70	198	899	195	169	266	327	95	85	59
106	Central Way/3rd St S	38	381	83	166	674	99	159	293	176	92	79	29
107	Central Way/Lake St	0	324	281	205	529	0	457	0	48	0	0	0
108	Lake St/Kirkland Ave	24	75	41	110	55	95	6	438	84	1	398	56
109	NE 85th St/114th Ave NE	9	974	5	333	1273	442	26	81	565	300	19	6
110	6th St S/4th St	0	0	0	0	0	0	0	0	0	0	0	0
111	Kirkland Ave/3rd Street	0	0	0	0	0	0	0	0	0	0	0	0
201	NE 116th St/98th Ave NE	105	246	216	74	420	85	519	820	141	164	347	101
202	NE 124th St/100th Ave NE	30	61	24	424	197	969	34	817	263	357	413	32
203	NE 132nd St/100th Ave NE	78	134	89	68	214	543	256	1289	119	224	617	78
204	NE 132nd St/116th Way NE	8	350	225	120	639	26	518	43	202	15	30	9
205	Forbes Creek Dr/Market St	5	1	1	57	1	28	5	1428	62	17	609	7
206	NE 120th Pl/100th Ave NE	0	0	0	0	0	0	0	0	0	0	0	0
301	NE 132nd St/120th Ave NE	4	412	66	139	411	4	131	6	380	1	4	7
302	NE 130th St/120th Ave NE	23	21	29	149	7	42	12	457	123	17	238	4
303	NE 128th St/120th Ave NE	139	145	140	145	208	22	84	440	92	19	277	161
304	NE 132nd St/124th Ave NE	407	314	15	55	299	273	25	232	149	113	76	201
306	NE 124th St/Slater Ave NE	172	919	94	203	1154	214	160	574	302	146	212	199
307	Totem Lake Blvd/120th Ave NE	28	290	47	147	618	347	257	266	17	427	104	63
310	NE 116th St/120th Ave NE	101	461	19	192	620	409	28	145	253	287	166	132
311	NE 1166th St/124th Ave NE	185	366	165	120	534	97	414	649	280	121	306	168
312	NE 124th St/116th Way NE	130	697	71	190	1194	303	220	252	198	405	150	123
313	NE 124th St/113th Ave NE	44	643	46	69	1406	139	191	18	172	107	15	66
314	NE 120th St/Slater Ave NE	2	3	2	386	0	543	1	553	141	159	328	1
315	NE 124th St/124th Ave NE	139	858	246	124	1138	424	305	566	184	235	281	223
316	NE 132nd St/Totem Lake Blvd	111	349	120	59	464	24	285	214	112	10	63	51
317	NE 124th St/SB I-405 off Ramp	0	738	581	0	1248	440	0	0	0	568	0	511
318	NE 124th St/NB I-405 on/off Ramp	0	1030	286	0	1191	396	463	0	210	0	0	0
320	NE 116th St/NB I-405 off Ramp	0	463	0	286	764	0	458	0	331	0	0	0
325	NE 124th St/128th Lane NE	67	1155	6	3	1514	37	12	0	4	50	2	164
401	NE 85th St/132nd Ave NE	130	1192	85	49	1319	774	55	335	30	143	96	48
402	NE 85th St/124th Ave NE	292	1304	25	16	982	242	135	415	20	197	130	191
403	NE 85th St/120th Ave NE	224	1472	126	28	1308	44	301	191	71	129	72	313
404	NE 100th St/124th Ave NE	8	9	29	49	22	164	28	1074	58	28	435	10
406	NE 70th St/132nd Ave NE	130	363	43	146	557	99	115	334	160	48	171	60
407	NE 70th St/116th Ave NE	215	412	437	222	419	47	289	560	240	17	94	171
408	NE 90th St/124th Ave NE	335	16	81	10	62	66	74	822	18	8	420	113
409	NE 85th St/122nd Ave NE	130	1497	57	35	1260	67	75	48	47	54	22	80
410	116th Ave NE/I-405 NB off Ramp	689	0	98	0	1	5	428	420	0	0	202	544
411	NE 70th St/I-405 SB off Ramp	0	0	0	261	0	261	0	809	127	175	688	0
999		0	0	0	0	0	0	0	0	0	0	0	0

2015	Future w/o Project	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
101	Lake WA Blvd/NE 38th Pl	29	9	23	113	2	177	6	1242	107	90	946	5
102	Lake WA Blvd/Lakeview Dr	61	117	130	333	30	14	85	673	614	11	452	38
103	NE 68th St/State St	315	394	4	9	266	326	5	30	41	228	9	156
104	NE 68th St/108th Ave NE	207	442	63	177	359	250	137	413	239	248	269	107
105	Central Way/6th St	32	615	66	201	1009	195	191	297	332	95	92	60
106	Central Way/3rd St S	42	401	83	168	685	109	159	306	183	107	82	30
107	Central Way/Lake St	2	328	290	205	530	0	476	0	52	0	0	0
108	Lake St/Kirkland Ave	24	75	41	121	55	95	6	461	84	2	408	56
109	NE 85th St/114th Ave NE	9	1029	2	345	1386	442	26	81	636	300	19	6
110	6th St S/4th St	0	0	2	1	0	1	4	57	2	1	14	0
111	Kirkland Ave/3rd Street	1	33	22	0	15	10	8	9	0	0	4	1
201	NE 116th St/98th Ave NE	105	247	224	75	422	85	538	852	146	164	358	101
202	NE 124th St/100th Ave NE	30	62	24	426	199	974	34	848	264	361	421	32
203	NE 132nd St/100th Ave NE	78	135	89	71	215	550	256	1322	122	226	624	78
204	NE 132nd St/116th Way NE	8	354	230	120	641	26	523	43	202	15	30	9
205	Forbes Creek Dr/Market St	5	1	1	59	1	28	5	1487	64	17	631	7
206	NE 120th Pl/100th Ave NE	0	0	0	0	0	0	0	26	0	0	3	0
301	NE 132nd St/120th Ave NE	4	413	67	139	412	4	131	6	382	1	4	7
302	NE 130th St/120th Ave NE	23	21	29	149	7	42	12	459	123	17	238	4
303	NE 128th St/120th Ave NE	139	145	140	145	208	22	84	442	94	19	277	161
304	NE 132nd St/124th Ave NE	408	318	15	55	300	275	25	234	149	113	76	201
306	NE 124th St/Slater Ave NE	189	975	94	205	1155	214	160	586	324	146	217	206
307	Totem Lake Blvd/120th Ave NE	28	304	47	147	624	351	257	266	17	428	104	63
310	NE 116th St/120th Ave NE	101	471	19	193	629	417	28	145	256	306	168	133
311	NE 1166th St/124th Ave NE	185	391	197	125	560	100	438	683	288	125	318	173
312	NE 124th St/116th Way NE	130	706	73	200	1205	307	221	254	198	410	152	123
313	NE 124th St/113th Ave NE	44	654	46	70	1416	139	194	18	174	107	15	66
314	NE 120th St/Slater Ave NE	3	3	2	387	0	545	1	582	141	160	356	1
315	NE 124th St/124th Ave NE	139	909	248	126	1174	430	312	575	196	249	289	223
316	NE 132nd St/Totem Lake Blvd	111	350	123	59	465	24	287	215	114	10	64	51
317	NE 124th St/SB I-405 off Ramp	0	749	581	0	1264	441	0	0	0	593	0	512
318	NE 124th St/NB I-405 on/off Ramp	0	1068	286	0	1209	396	465	0	214	0	0	0
320	NE 116th St/NB I-405 off Ramp	0	495	0	286	824	0	459	3	355	0	2	0
325	NE 124th St/128th Lane NE	67	1213	6	3	1555	37	12	0	4	50	2	164
401	NE 85th St/132nd Ave NE	131	1214	85	49	1344	775	56	336	30	143	96	49
402	NE 85th St/124th Ave NE	309	1330	25	16	1012	249	135	423	20	200	130	193
403	NE 85th St/120th Ave NE	238	1516	126	28	1347	44	305	191	71	131	72	314
404	NE 100th St/124th Ave NE	8	9	29	49	22	168	28	1120	60	29	441	10
406	NE 70th St/132nd Ave NE	130	378	43	146	557	99	115	334	160	48	171	60
407	NE 70th St/116th Ave NE	224	432	449	222	425	47	297	560	240	17	94	173
408	NE 90th St/124th Ave NE	342	16	81	10	62	66	74	831	18	10	422	113
409	NE 85th St/122nd Ave NE	130	1535	57	36	1288	67	76	49	47	54	25	80
410	116th Ave NE/I-405 NB off Ramp	694	0	98	0	1	5	428	420	0	0	207	548
411	NE 70th St/I-405 SB off Ramp	0	0	0	264	1	261	0	855	170	175	706	0
999													
501	North Holmes Pt Dr NE/Juanita Dr NE	0	0	0	67	0	11	0	763	151	20	403	0
502	South Holmes Pt Dr NE/Juanita Dr NE	27	0	42	0	0	0	94	900	0	0	433	22
503	NE 141st Street/Juanita Dr NE	33	15	12	82	34	78	17	646	74	67	403	49
504	Juanita-Woodinville Way/100th Ave NE	56	33	29	292	29	58	66	1404	404	46	640	23
506	Simonds Road/100th Avenue NE	285	0	365	0	0	0	572	742	0	0	315	350
507	NE 145th Street/100th Avenue NE	4	5	0	341	10	211	13	738	254	101	310	5
508	NE 145th Street/Juanita-Woodinville Way	279	18	57	19	20	34	169	424	27	43	392	438
510	NE 132nd Street/132nd Avenue NE	153	136	185	28	231	223	327	613	37	50	219	55
511	NE 144th Street/124th Avenue NE	60	82	16	133	102	269	38	591	153	155	307	20
512	NE 124th Street/Willows Road NE	8	988	421	114	606	68	810	358	406	120	110	30

Proportional Share Impact Worksheet

Input appropriate information in green cells

¹ See "Intersection Description" worksheet for descriptions

Project Name:	Vineyards (- 5 trips exist homes)		Through Lanes¹
Major Street¹	NE 124th St	# of Lanes* = 2	
Minor Street¹	Slater	# of Lanes* = 1	

¹ May Change without notice, call Thang Nguyen 425-587-3869 with questions

DATE:

11/6/2013

Daily Project Traffic Entering the Intersection

(Total of both approaches divided by two)

(Total of both approaches divided by two)

	Daily Volumes	Entering Leg Volumes *		
Major Street Volume $V_1 =$	45	90	0	Major
Minor Street Volume $V_2 =$	40	50	30	Minor

*Do not leave cell empty for zero volume

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
1	1	1	1

Calculate Base Percentages

$P_1 = V_1 / (10,000 \times f_1) =$	0.45%
$P_2 = V_2 / (5,000 \times f_2) =$	0.80%
$P_3 = V_1 / (15,000 \times f_3) =$	0.30%
$P_4 = V_2 / (2,500 \times f_4) =$	1.60%

Calculate Proportional Share

$S_1 = (P_1 + P_2) / 2 =$	0.63%
$S_2 = (P_3 + P_4) / 2 =$	0.95%

Intersection Proportional Share = Maximum of S1 and S2 = 0.95%
Significant Intersection? no

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: VJG
Company: TraffEx

Proportional Share Impact Worksheet

Input appropriate information in green cells

¹ See "Intersection Description" worksheet for descriptions

Project Name:	Vineyards		Through Lanes¹
Major Street¹	NE 132nd St	# of Lanes* = 1	
Minor Street¹	132nd Ave NE	# of Lanes* = 1	

¹ May Change without notice, call Thang Nguyen 425-587-3869 with questions

DATE:

11/6/2013

Daily Project Traffic Entering the Intersection

(Total of both approaches divided by two)

(Total of both approaches divided by two)

	Daily Volumes	Entering Leg Volumes *		
Major Street Volume $V_1 =$	25	10	40	Major
Minor Street Volume $V_2 =$	15	0	30	Minor

*Do not leave cell empty for zero volume

Determine Geometric Factors

Number of Lanes		Geometric Factors			
Major Street	Minor Street	f_1	f_2	f_3	f_4
2	2	1.000	1.330	1.000	1.330
2	1	1.000	1.000	1.000	1.000
1	2	0.833	1.330	0.833	1.330
1	1	0.833	1.000	0.833	1.000

f_1	f_2	f_3	f_4
0.833	1	0.833	1

Calculate Base Percentages

$P_1 = V_1 / (10,000 \times f_1) =$	0.30%
$P_2 = V_2 / (5,000 \times f_2) =$	0.30%
$P_3 = V_1 / (15,000 \times f_3) =$	0.20%
$P_4 = V_2 / (2,500 \times f_4) =$	0.60%

Calculate Proportional Share

$S_1 = (P_1 + P_2) / 2 =$	0.30%
$S_2 = (P_3 + P_4) / 2 =$	0.40%

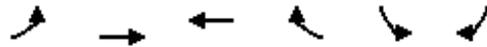
Intersection Proportional Share = Maximum of S1 and S2 = 0.40%
Significant Intersection? no

1. Number of through lanes. Do not count exclusive turn lanes. Use the smaller number of lanes if the number of lanes is unequal on two legs. For Example, if one minor leg has two lanes and one minor leg has one lane, the number of lanes on the minor leg is one.

Computed By: VJG
Company: TraffEx

Existing PM Peak
8: NE 132nd St & 136th Ave NE

11/6/2013



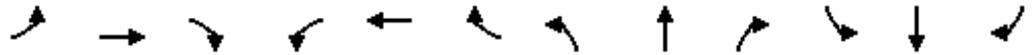
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	25	60	189	26	10	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	29	70	220	30	12	31
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			844			
pX, platoon unblocked						
vC, conflicting volume	250				363	235
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	250				363	235
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				98	96
cM capacity (veh/h)	1316				622	804

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	99	250	43
Volume Left	29	0	12
Volume Right	0	30	31
cSH	1316	1700	745
Volume to Capacity	0.02	0.15	0.06
Queue Length 95th (ft)	2	0	5
Control Delay (s)	2.4	0.0	10.1
Lane LOS	A		B
Approach Delay (s)	2.4	0.0	10.1
Approach LOS			B

Intersection Summary			
Average Delay		1.7	
Intersection Capacity Utilization	29.4%	ICU Level of Service	A
Analysis Period (min)	15		

Future Without Project PM Peak
5: NE 129th St (site access) & 136th Ave NE

11/6/2013



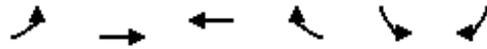
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	0	0	0	3	0	7	0	228	7	10	74	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	3	0	8	0	248	8	11	80	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	361	358	80	354	354	252	80			255		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	361	358	80	354	354	252	80			255		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	99	100			99		
cM capacity (veh/h)	585	564	980	597	567	787	1517			1310		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	11	255	91
Volume Left	0	3	0	11
Volume Right	0	8	8	0
cSH	1700	719	1517	1310
Volume to Capacity	0.00	0.02	0.00	0.01
Queue Length 95th (ft)	0	1	0	1
Control Delay (s)	0.0	10.1	0.0	1.0
Lane LOS	A	B		A
Approach Delay (s)	0.0	10.1	0.0	1.0
Approach LOS	A	B		

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		22.4%	ICU Level of Service
Analysis Period (min)		15	A

Future Without Project PM Peak
8: NE 132nd St & 136th Ave NE

11/6/2013



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	27	74	208	28	11	29
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	80	226	30	12	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			844			
pX, platoon unblocked						
vC, conflicting volume	257				380	241
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	257				380	241
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				98	96
cM capacity (veh/h)	1308				608	798

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	110	257	43
Volume Left	29	0	12
Volume Right	0	30	32
cSH	1308	1700	734
Volume to Capacity	0.02	0.15	0.06
Queue Length 95th (ft)	2	0	5
Control Delay (s)	2.2	0.0	10.2
Lane LOS	A		B
Approach Delay (s)	2.2	0.0	10.2
Approach LOS			B

Intersection Summary			
Average Delay		1.7	
Intersection Capacity Utilization		31.4%	ICU Level of Service
Analysis Period (min)		15	A

Future With Project PM Peak
5: NE 129th St (site access) & 136th Ave NE

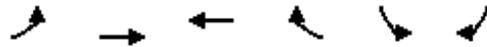
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	4	0	9	3	0	7	18	228	7	10	74	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	0	10	3	0	8	20	248	8	11	80	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	403	399	83	405	398	252	86			255		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	403	399	83	405	398	252	86			255		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	99	100	99	99			99		
cM capacity (veh/h)	543	527	976	541	528	787	1510			1310		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	14	11	275	97								
Volume Left	4	3	20	11								
Volume Right	10	8	8	5								
cSH	784	693	1510	1310								
Volume to Capacity	0.02	0.02	0.01	0.01								
Queue Length 95th (ft)	1	1	1	1								
Control Delay (s)	9.7	10.3	0.6	0.9								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.7	10.3	0.6	0.9								
Approach LOS	A	B										
Intersection Summary												
Average Delay			1.3									
Intersection Capacity Utilization			26.0%		ICU Level of Service					A		
Analysis Period (min)			15									

Future With Project PM Peak
8: NE 132nd St & 136th Ave NE

11/6/2013



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	27	79	212	28	11	29
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	86	230	30	12	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)			844			
pX, platoon unblocked						
vC, conflicting volume	261				390	246
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	261				390	246
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				98	96
cM capacity (veh/h)	1304				600	793

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	115	261	43
Volume Left	29	0	12
Volume Right	0	30	32
cSH	1304	1700	729
Volume to Capacity	0.02	0.15	0.06
Queue Length 95th (ft)	2	0	5
Control Delay (s)	2.1	0.0	10.3
Lane LOS	A		B
Approach Delay (s)	2.1	0.0	10.3
Approach LOS			B

Intersection Summary			
Average Delay		1.6	
Intersection Capacity Utilization		31.8%	ICU Level of Service A
Analysis Period (min)		15	



Prepared for: **Traffex**
Traffic Count Consultants, Inc.

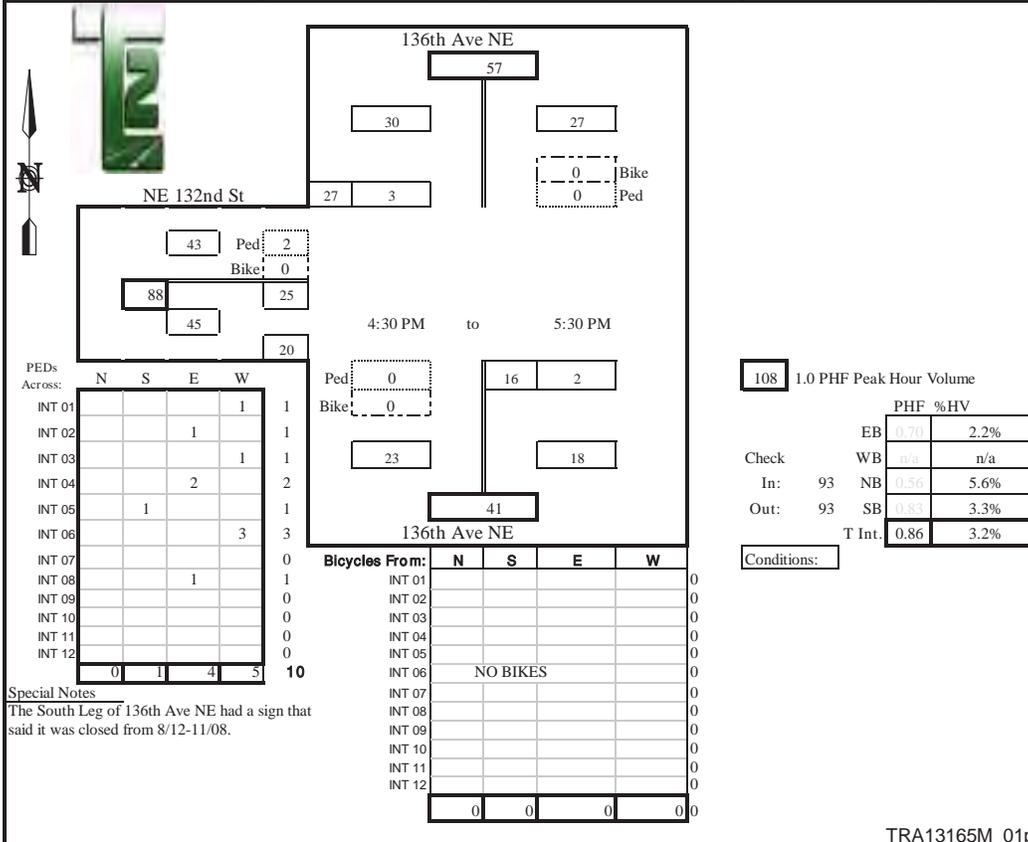
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: 136th Ave NE & NE 132nd St
Location: Kirkland, Washington

Date of Count: Tues 10/29/2013
Checked By: Jess

Time Interval Ending at	From North on (SB) 136th Ave NE				From South on (NB) 136th Ave NE				From East on (WB) 0				From West on (EB) NE 132nd St				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:45 P	0	0	1	8	0	4	1	0	0	0	0	0	0	6	0	3	23
5:00 P	0	0	2	7	0	2	0	0	0	0	0	0	1	8	0	8	27
5:15 P	1	0	0	5	1	7	1	0	0	0	0	0	0	4	0	2	19
5:30 P	0	0	0	7	0	3	0	0	0	0	0	0	0	7	0	7	24
5:45 P	0	0	0	1	0	2	0	0	0	0	0	0	0	6	0	1	10
6:00 P	0	0	0	6	0	3	0	0	0	0	0	0	0	8	0	4	21
6:15 P	0	0	0	2	0	1	0	0	0	0	0	0	0	6	0	0	9
6:30 P	0	0	0	9	0	1	0	0	0	0	0	0	0	7	0	2	19
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	1	0	3	45	1	23	2	0	0	0	0	0	1	52	0	27	152
Peak Hour: 4:30 PM to 5:30 PM																	
Total	1	0	3	27	1	16	2	0	0	0	0	0	1	25	0	20	93
Approach	30				18				0				45				93
%HV	3.3%				5.6%				n/a				2.2%				3.2%
PHF	0.83				0.56				n/a				0.70				0.86



**VINEYARDS PLAT
REVISED SUPPLEMENTAL TRAFFIC IMPACT ANALYSIS**

CITY OF KIRKLAND

Prepared for

**Jamie Waltier
Geonerco Properties WA, LLC
1441 N 34th St., #200
Seattle, WA 98103**

Prepared by



**11410 NE 124th St., #590
Kirkland, Washington 98034
Telephone: 425.522.4118**

March 26, 2014

March 26, 2014

Jamie Waltier
Geonerco Properties WA, LLC
1441 N 34th St., #200
Seattle, WA 98103

Re: Vineyards Plat – City of Kirkland
Revised Supplemental Traffic Impact Analysis (TIA)

Dear Mr. Waltier:

We are pleased to submit this revised supplemental traffic impact analysis for the proposed 36 lot Vineyards Plat located on the west side of 136th Ave. NE in the City of Kirkland. The revisions include AM and PM peak hour level of service calculations at the NE132nd St./133rd Pl. NE intersection and revisions to figures 1 and 2 regarding peak hour traffic counts. Preliminary trip generation and project information was submitted to the City in a letter report dated August 14th, 2013. The project passed the traffic concurrency test on October 9th, 2013. A TIA was submitted on November 6, 2013.

Since then, in accordance with City of Kirkland comprehensive Plan Policy T-4.3 and Policy T-4.5 which requires an interconnection of streets to support vehicle circulation and emergency vehicle access, it has been determined the NE 129th St. stub road terminating at the west side of the plat should be connected to the existing 129th St. NE thus providing a street connection from 136th Ave NE to 133rd Pl. NE.

An evaluation of traffic impacts with the NE 129th St. connection is required.

This supplemental TIA was prepared based on the City of Kirkland's request for additional information received after review of the original TIA by City of Kirkland staff.

Traffic Volumes and Conditions Without the NE 129th St. Connection

Figure 1 is an area map showing the location of the site and the proposed 129th St. NE connection. The average daily traffic volumes and PM peak hour volumes are also shown on the surrounding street network assuming there is no connection.

Daily traffic volumes on 133rd Ave. NE were collected with automatic tube counts on February 26 and 27, 2014 and are attached in the technical appendix. The counts show the average daily traffic volume of 665 vehicles per day on 133rd Pl. NE just south of NE 132nd St. and 340 vehicles per day between NE 130th Pl and NE 129th Place. Where no peak hour traffic count was available, the peak hour was estimated as 10% of the daily volume which is a generally accepted practice for traffic studies.

Speed counts were also collected and show an average speed of 21 mph in the northbound direction and 20 mph in the southbound direction on 133rd Ave NE. The speed counts are attached in the technical appendix.

AM and PM peak hour turning movement counts at the NE 132nd St./133rd Pl. NE intersection are also attached in technical appendix. The existing AM peak hour level of service is B with an average delay of 12.4 seconds for the minor approach. The existing PM peak hour level of service is B with an average delay of 12.6 seconds for the minor approach. The level of service calculations are attached in the technical appendix.

Traffic Volumes and Conditions With the NE 129th St. Connection

Figure 2 shows average daily traffic volumes and PM peak hour volumes with the NE 129th St. connection. From the original TIA, 25% of the 345 Vineyard generated daily trips are oriented to the northwest. It is anticipated these 86 daily trips, with the connection, would now travel on NE 129th St., 133rd Pl. NE and then NE 132nd Street.

Similarly, it is estimated approximately 25% of the 655 daily trips generated by the approximately 70 existing homes served by 133rd Pl. NE would be reoriented to the proposed NE 129th St. connection and then to 136th Ave. NE. This would be approximately 164 trips per day.

Since there are no stop signs for eastbound traffic on NE 132nd St. or northbound traffic on 136th Ave NE at the NE 132nd St./136th Ave NE intersection, it is anticipated very few, if any vehicles would “cut through” the NE 129th St. - 133rd Pl. NE route since there are stop signs encountered in both directions on that route. Also, both routes are approximately the same length and have the same 25 mph speed limit, so logically drivers will select the route without stop signs since there will be less delay.

As shown on Figure 2, daily volumes on 133rd Pl. NE are estimated to decrease from 655 to 577 trips per day and volumes on NE 129th St. are estimated to increase from 345 to 423 vehicles per day with the connection.

Summary and Conclusions

The NE 129th St. connection should have a minor impact on traffic volumes on either NE 129th St. or 133rd PI. NE.

The level of service at the NE 132nd St./133rd PI. NE intersection should improve since the projected traffic volumes on 133rd PI NE decrease.

There does not appear to be a speeding problem on 133rd Ave. NE since the average speed is 21 mph in the northbound direction and 20 mph in the southbound direction.

If a speeding problem or cut through traffic problem develops in the future, traffic calming measures can be implemented through the City of Kirkland programs.

If you have any questions, please call 425-522-4118. You may also contact us via e-mail at vince@nwtraffex.com or larry@nwtraffex.com.

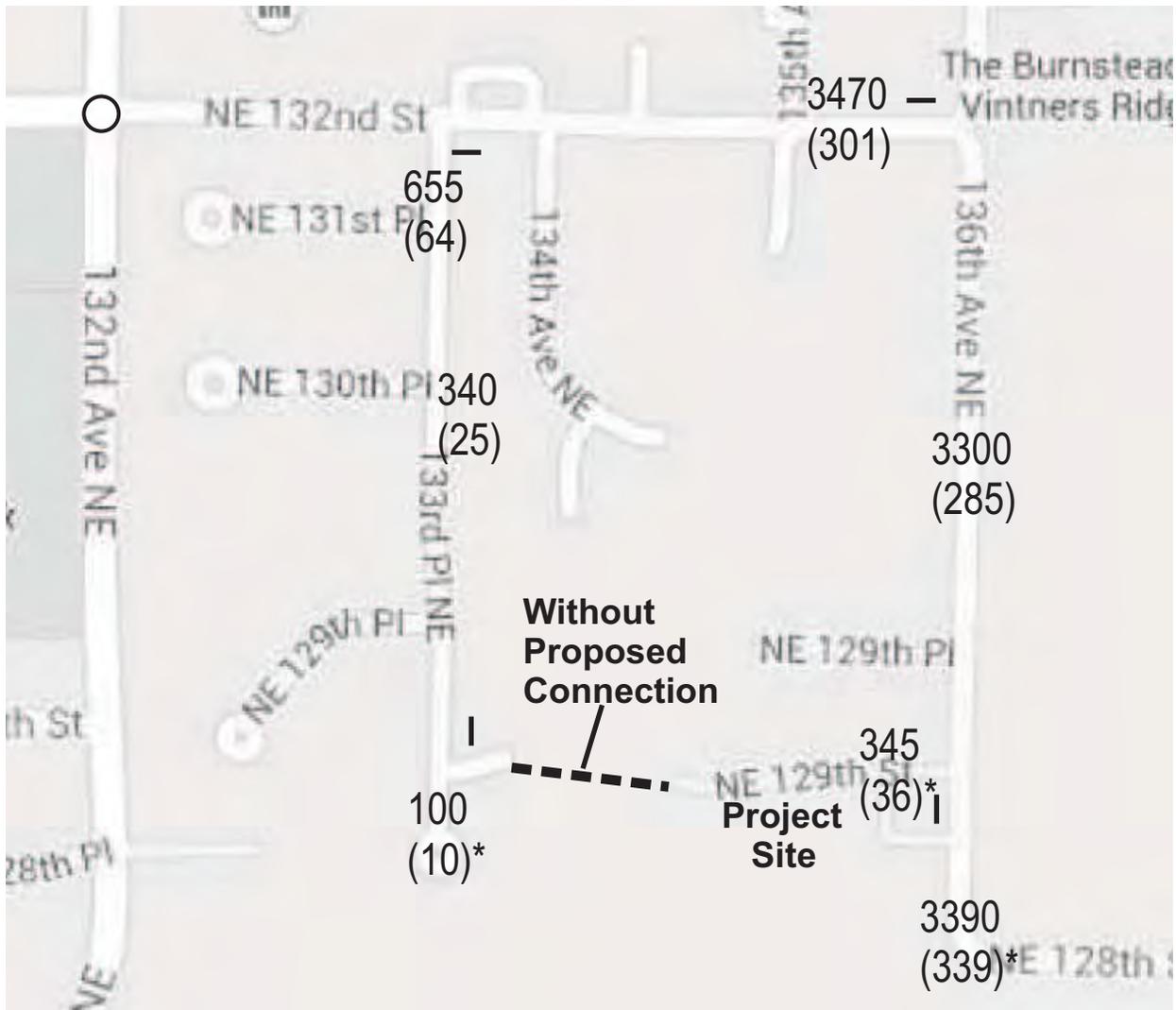
Very truly yours,



Vincent J. Geglia
Principal
TraffEx



Larry D. Hobbs, P.E.
Principal
TraffEx



○ Signalized intersection

┆ Stop Sign Control

345 Daily Traffic Volume

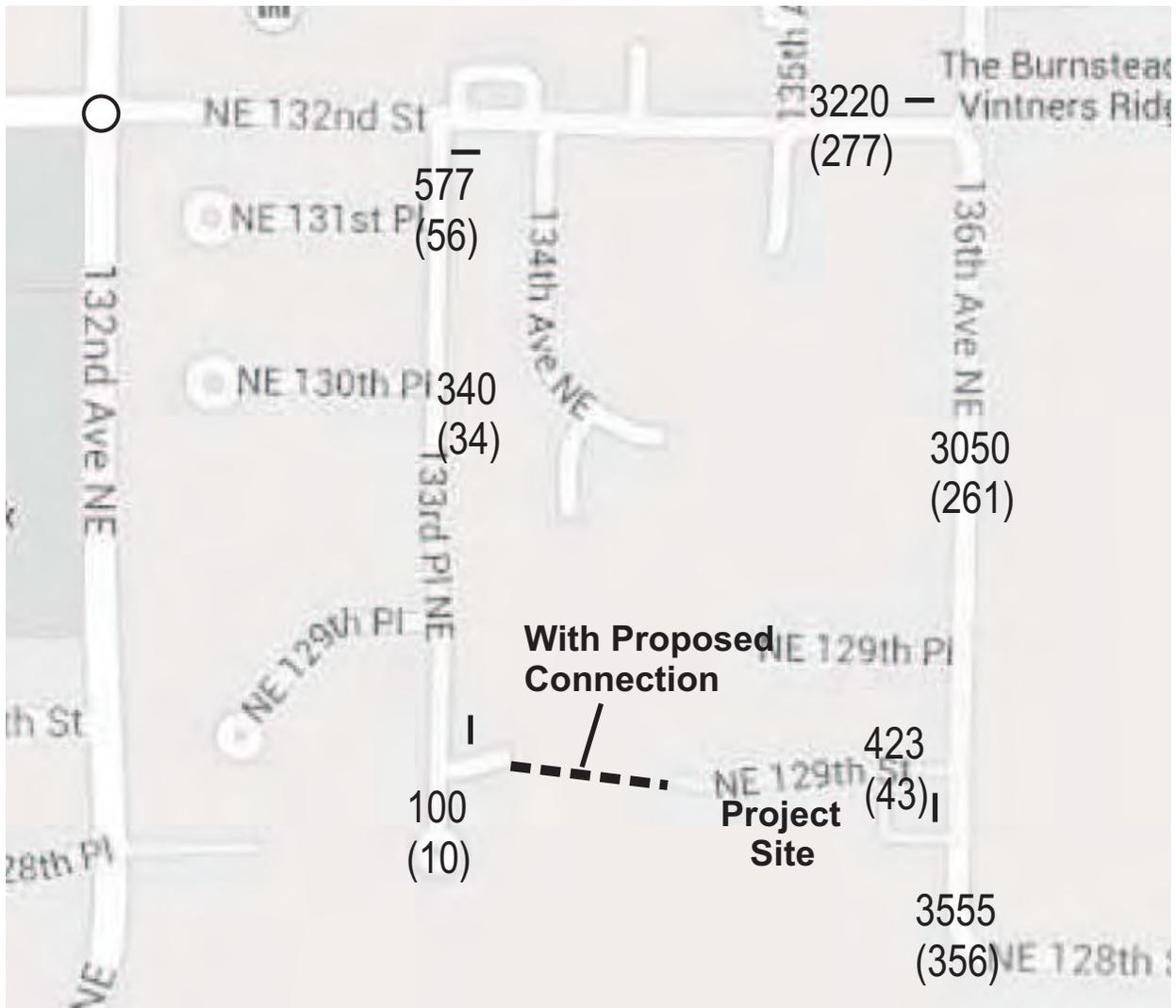
(64) PM Peak Hour Traffic Volume from counts

(36)* PM Peak Hour Volume Estimated as 10% of daily volume

Vineyards Plat

Daily and PM Peak Hour Traffic Volumes Without the NE 129th St. Connection

Figure
1



- Signalized intersection
- | Stop Sign Control
- 345 Daily Traffic Volume
- (36) PM Peak Hour Traffic Volume

Vineyards Plat

Daily and PM Peak Hour Traffic Volumes With the NE 129th St. Connection

Figure 2

TECHNICAL APPENDIX

TRAFFIC COUNT CONSULTANTS, INC.

Team@tc2inc.com
(253) 926-6009

Site Code: 01
Station ID:

KIRKLAND, WASHINGTON
133RD PL NE S/O
NE 132ND ST
LOC# 01 V TRA14022TM

Latitude: -999' 0.000 South

Start Time	24-Feb-14		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	*	*	2	2	1	1	*	*	*	*	*	*	2	2
01:00	*	*	*	*	1	2	2	5	*	*	*	*	*	*	2	4
02:00	*	*	*	*	0	1	1	1	*	*	*	*	*	*	0	1
03:00	*	*	*	*	0	2	2	2	*	*	*	*	*	*	1	2
04:00	*	*	*	*	7	2	2	3	*	*	*	*	*	*	4	2
05:00	*	*	*	*	11	4	10	5	*	*	*	*	*	*	10	4
06:00	*	*	*	*	21	8	29	9	*	*	*	*	*	*	25	8
07:00	*	*	*	*	33	12	31	9	*	*	*	*	*	*	32	10
08:00	*	*	*	*	31	17	23	11	*	*	*	*	*	*	27	14
09:00	*	*	*	*	16	12	22	15	*	*	*	*	*	*	19	14
10:00	*	*	*	*	14	14	22	7	*	*	*	*	*	*	18	10
11:00	*	*	*	*	13	17	20	20	*	*	*	*	*	*	16	18
12:00 PM	*	*	*	*	19	11	11	13	*	*	*	*	*	*	15	12
01:00	*	*	*	*	14	19	19	15	*	*	*	*	*	*	16	17
02:00	*	*	*	*	19	18	16	27	*	*	*	*	*	*	18	22
03:00	*	*	*	*	33	29	22	27	*	*	*	*	*	*	28	28
04:00	*	*	*	*	17	36	16	27	*	*	*	*	*	*	16	32
05:00	*	*	*	*	17	30	25	29	*	*	*	*	*	*	21	30
06:00	*	*	*	*	25	41	14	31	*	*	*	*	*	*	20	36
07:00	*	*	*	*	8	17	11	32	*	*	*	*	*	*	10	24
08:00	*	*	*	*	9	11	7	12	*	*	*	*	*	*	8	12
09:00	*	*	*	*	7	17	9	13	*	*	*	*	*	*	8	15
10:00	*	*	*	*	3	9	5	10	*	*	*	*	*	*	4	10
11:00	*	*	*	*	1	5	3	6	*	*	*	*	*	*	2	6
Lane Day	0	0	0	0	321	336	323	330	0	0	0	0	0	0	322	333
AM Peak Volume					657	657	653	653							655	655
PM Peak Volume					33	41	25	32							32	36

Comb. Total	0	0	657	653	0	0	0	655
ADT	Not Calculated							

TRAFFIC COUNT CONSULTANTS, INC.

Team@tc2inc.com
(253) 926-6009

Site Code: 02
Station ID:

KIRKLAND, WASHINGTON
133RD PL NE BETWEEN
NE 130TH PL & NE 129TH PL
LOC# 02 V TRA14022TM

Latitude: -999' 0.000 South

Start Time	24-Feb-14		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	*	*	2	0	1	1	*	*	*	*	*	*	2	0
01:00	*	*	*	*	0	1	1	2	*	*	*	*	*	*	0	2
02:00	*	*	*	*	0	0	1	1	*	*	*	*	*	*	0	0
03:00	*	*	*	*	0	0	2	1	*	*	*	*	*	*	1	0
04:00	*	*	*	*	7	2	1	2	*	*	*	*	*	*	4	2
05:00	*	*	*	*	4	1	8	2	*	*	*	*	*	*	6	2
06:00	*	*	*	*	9	1	15	4	*	*	*	*	*	*	12	2
07:00	*	*	*	*	17	7	14	6	*	*	*	*	*	*	16	6
08:00	*	*	*	*	19	6	8	2	*	*	*	*	*	*	14	4
09:00	*	*	*	*	9	10	7	5	*	*	*	*	*	*	8	8
10:00	*	*	*	*	9	6	9	3	*	*	*	*	*	*	9	4
11:00	*	*	*	*	5	7	11	9	*	*	*	*	*	*	8	8
12:00 PM	*	*	*	*	12	7	7	9	*	*	*	*	*	*	10	8
01:00	*	*	*	*	7	8	10	9	*	*	*	*	*	*	8	8
02:00	*	*	*	*	8	6	10	15	*	*	*	*	*	*	9	10
03:00	*	*	*	*	15	14	10	13	*	*	*	*	*	*	12	14
04:00	*	*	*	*	6	21	7	11	*	*	*	*	*	*	6	16
05:00	*	*	*	*	12	15	14	13	*	*	*	*	*	*	13	14
06:00	*	*	*	*	15	26	7	19	*	*	*	*	*	*	11	22
07:00	*	*	*	*	5	8	7	15	*	*	*	*	*	*	6	12
08:00	*	*	*	*	7	6	5	10	*	*	*	*	*	*	6	8
09:00	*	*	*	*	3	7	7	8	*	*	*	*	*	*	5	8
10:00	*	*	*	*	2	4	4	5	*	*	*	*	*	*	3	4
11:00	*	*	*	*	2	3	2	2	*	*	*	*	*	*	2	2
Lane Day	0	0	0	0	175	166	168	167	0	0	0	0	0	0	171	164
AM Peak Volume	0	0	0	0	341	335	335	335	0	0	0	0	0	0	335	335
PM Peak Volume					08:00	09:00	06:00	11:00							07:00	09:00
ADT	0	0	0	0	341	335	335	335	0	0	0	0	0	0	335	335
Comb. Total	0	0	0	0	341	335	335	335	0	0	0	0	0	0	335	335
ADT	Not Calculated															

TRAFFIC COUNT CONSULTANTS, INC.

KIRKLAND, WASHINGTON
 133RD PL NE BETWEEN
 NE 130TH PL & NE 129TH PL
 LOC# 02 S TRA14022TM
 NORTHBOUND SPEED

Team@tc2inc.com
 (253) 926-6009

Site Code: 02
 Station ID:

Latitude: -999' 0.000 South

Start Time	0	15	16	20	21	25	26	30	31	35	36	40	41	45	46	50	51	55	56	60	61	65	66	70	71	999	Total	85th Percent	95th Percent
02/26/14	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	21	21
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	4	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	22	23	
05:00	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	21	22	
06:00	0	1	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	27	28	
07:00	3	3	9	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	24	26	
08:00	1	4	11	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	25	27	
09:00	2	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	24	25	
10:00	0	1	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	24	25	
11:00	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	24	25	
12 PM	1	3	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	24	25	
13:00	0	3	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	26	27	
14:00	0	6	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	25	26	
15:00	1	4	6	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	27	28	
16:00	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	22	23	
17:00	3	1	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	26	27	
18:00	1	4	6	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	27	28	
19:00	0	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	22	26	
20:00	0	0	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	25	26	
21:00	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	22	22	
22:00	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	26	26	
23:00	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	22	22	
Total	17	39	93	24	2	0	175																						
Percent	9.7%	22.3%	53.1%	13.7%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%				
AM Peak	04:00	08:00	08:00	06:00	08:00																						08:00		
Volume	4	4	11	3	1																						19		
PM Peak	17:00	14:00	12:00	15:00	18:00																						15:00		
Volume	3	6	7	4	1																						15		

TRAFFIC COUNT CONSULTANTS, INC.

KIRKLAND, WASHINGTON
 133RD PL NE BETWEEN
 NE 130TH PL & NE 129TH PL
 LOC# 02 S TRA14022TM
 NORTHBOUND SPEED

Team@tc2inc.com
 (253) 926-6009

Site Code: 02
 Station ID:

Latitude: -999' 0.000 South

Start Time	0	15	16	20	21	25	26	30	31	35	36	40	41	45	46	50	51	55	56	60	61	65	66	70	71	999	Total	85th Percent	95th Percent		
02/27/14	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	21	21		
01:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	26	26		
02:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	21	21		
03:00	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	21	21		
04:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	16	16		
05:00	2	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	22	23		
06:00	2	6	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	23	24		
07:00	0	5	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	24	25		
08:00	0	2	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	26	27		
09:00	1	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	27	28		
10:00	0	2	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	27	28		
11:00	0	2	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	25	26		
12 PM	0	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	22	23		
13:00	1	4	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	23	24		
14:00	0	3	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	24	25		
15:00	1	3	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	24	25		
16:00	1	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	22	23		
17:00	1	5	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	24	25		
18:00	0	0	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	25	26		
19:00	1	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	20	26		
20:00	0	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	25	26		
21:00	0	3	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	23	26		
22:00	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	26	27		
23:00	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	21	21		
Total	10	58	78	22	0	168																									
Percent	6.0%	34.5%	46.4%	13.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						
AM Peak	05:00	06:00	07:00	09:00																											
Volume	2	6	8	3																								06:00			
PM Peak	13:00	17:00	17:00	22:00																									17:00		
Volume	1	5	7	2																									14		
Grand Total	27	97	171	46	2	0	343																								
Percent	7.9%	28.3%	49.9%	13.4%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%						

15th Percentile : 17 MPH
 50th Percentile : 22 MPH
 85th Percentile : 25 MPH
 95th Percentile : 29 MPH

Statistics
 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 268
 Percent in Pace : 78.1%
 Number of Vehicles > 25 MPH : 48
 Percent of Vehicles > 25 MPH : 14.0%
 Mean Speed(Average) : 21 MPH

TRAFFIC COUNT CONSULTANTS, INC.

KIRKLAND, WASHINGTON
 133RD PL NE BETWEEN
 NE 130TH PL & NE 129TH PL
 LOC# 02 S TRA14022TM
 SOUTHBOUND SPEED

Team@tc2inc.com
 (253) 926-6009

Site Code: 02
 Station ID:

Latitude: -999' 0.000 South

Start Time	0	16	21	26	31	36	41	46	51	56	61	66	71	999	Total	85th Percent	95th Percent	
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	80				
02/26/14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	26	26	
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*	
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*	
04:00	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2	26	26	
05:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	*	*	
06:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	16	16	
07:00	0	4	3	0	0	0	0	0	0	0	0	0	0	0	7	22	23	
08:00	1	2	2	1	0	0	0	0	0	0	0	0	0	0	6	22	26	
09:00	0	5	4	1	0	0	0	0	0	0	0	0	0	0	10	23	24	
10:00	0	3	3	0	0	0	0	0	0	0	0	0	0	0	6	22	23	
11:00	1	0	5	1	0	0	0	0	0	0	0	0	0	0	7	25	26	
12 PM	2	3	1	1	0	0	0	0	0	0	0	0	0	0	7	25	26	
13:00	1	3	3	1	0	0	0	0	0	0	0	0	0	0	8	23	26	
14:00	1	2	3	0	0	0	0	0	0	0	0	0	0	0	6	22	23	
15:00	2	8	3	1	0	0	0	0	0	0	0	0	0	0	14	22	23	
16:00	6	7	6	2	0	0	0	0	0	0	0	0	0	0	21	24	26	
17:00	2	4	7	2	0	0	0	0	0	0	0	0	0	0	15	25	26	
18:00	2	8	15	1	0	0	0	0	0	0	0	0	0	0	26	24	25	
19:00	1	2	3	2	0	0	0	0	0	0	0	0	0	0	8	26	27	
20:00	1	4	1	0	0	0	0	0	0	0	0	0	0	0	6	19	21	
21:00	0	3	2	0	2	0	0	0	0	0	0	0	0	0	7	31	32	
22:00	0	0	1	3	0	0	0	0	0	0	0	0	0	0	4	27	28	
23:00	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	23	23	
Total	22	59	65	18	2	0	166											
Percent	13.3%	35.5%	39.2%	10.8%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%				
AM Peak	04:00	09:00	11:00	01:00											09:00			
Volume	1	5	5	1											10			
PM Peak	16:00	15:00	18:00	22:00	21:00										18:00			
Volume	6	8	15	3	2										26			

TRAFFIC COUNT CONSULTANTS, INC.

KIRKLAND, WASHINGTON
 133RD PL NE BETWEEN
 NE 130TH PL & NE 129TH PL
 LOC# 02 S TRA14022TM
 SOUTHBOUND SPEED

Team@tc2inc.com
 (253) 926-6009

Site Code: 02
 Station ID:

Latitude: -999' 0.000 South

Start Time	0	16	21	26	31	36	41	46	51	56	61	66	71	999	Total	85th Percent	95th Percent
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	80			
02/27/14	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	26	26
01:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2	26	26
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	16	16
03:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	*	*
04:00	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	21	21
05:00	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	21	21
06:00	1	2	1	0	0	0	0	0	0	0	0	0	0	0	4	17	21
07:00	0	1	5	0	0	0	0	0	0	0	0	0	0	0	6	24	25
08:00	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2	31	31
09:00	0	0	4	1	0	0	0	0	0	0	0	0	0	0	5	24	26
10:00	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3	21	21
11:00	1	3	5	0	0	0	0	0	0	0	0	0	0	0	9	24	25
12 PM	0	2	4	3	0	0	0	0	0	0	0	0	0	0	9	27	28
13:00	0	3	4	2	0	0	0	0	0	0	0	0	0	0	9	26	27
14:00	0	8	5	1	1	0	0	0	0	0	0	0	0	0	15	25	30
15:00	2	7	4	0	0	0	0	0	0	0	0	0	0	0	13	22	23
16:00	0	6	5	0	0	0	0	0	0	0	0	0	0	0	11	23	24
17:00	0	6	6	1	0	0	0	0	0	0	0	0	0	0	13	24	25
18:00	2	9	7	1	0	0	0	0	0	0	0	0	0	0	19	23	25
19:00	3	3	7	1	1	0	0	0	0	0	0	0	0	0	15	25	30
20:00	0	7	3	0	0	0	0	0	0	0	0	0	0	0	10	21	22
21:00	2	3	2	1	0	0	0	0	0	0	0	0	0	0	8	22	26
22:00	1	1	0	3	0	0	0	0	0	0	0	0	0	0	5	27	28
23:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2	26	26
Total	14	65	67	18	3	0	167										
Percent	8.4%	38.9%	40.1%	10.8%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	03:00	11:00	07:00	00:00	08:00											11:00	
Volume	1	3	5	1	1											9	
PM Peak	19:00	18:00	18:00	12:00	14:00											18:00	
Volume	3	9	7	3	1											19	
Grand Total	36	124	132	36	5	0	333										
Percent	10.8%	37.2%	39.6%	10.8%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 16 MPH
 50th Percentile : 21 MPH
 85th Percentile : 25 MPH
 95th Percentile : 29 MPH

Statistics
 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 256
 Percent in Pace : 76.9%
 Number of Vehicles > 25 MPH : 41
 Percent of Vehicles > 25 MPH : 12.3%
 Mean Speed(Average) : 20 MPH



Prepared for: **Traffex**
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

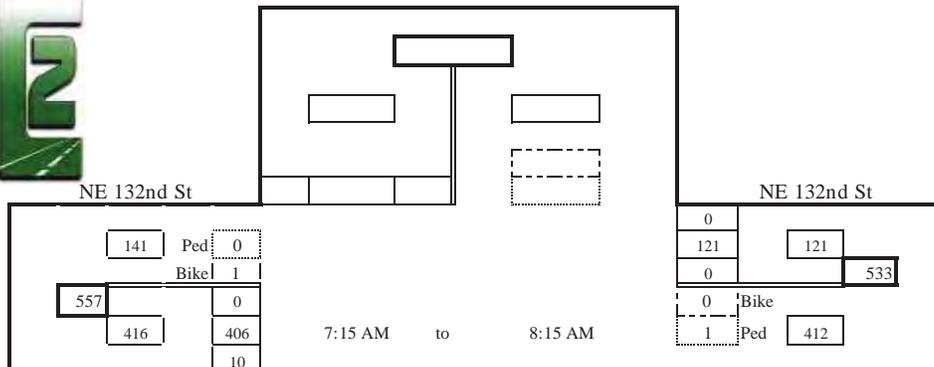
WBE/DBE

Intersection: 133rd Pl NE & NE 132nd St
Location: Kirkland, Washinton

Date of Count: Thurs 2/27/2014
Checked By: Jess

Time Interval Ending at	From North on (SB)				From South on (NB)				From East on (WB)				From West on (EB)				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	0	0	0	0	9	0	1	1	0	18	0	1	0	57	2	87
7:30 A	0	0	0	0	0	5	0	2	2	0	30	0	1	0	90	0	127
7:45 A	0	0	0	0	0	7	0	1	4	0	34	0	1	0	104	3	149
8:00 A	0	0	0	0	0	5	0	1	2	0	32	0	0	0	95	4	137
8:15 A	0	0	0	0	0	3	0	2	0	0	25	0	1	0	117	3	150
8:30 A	0	0	0	0	0	5	0	2	1	0	28	0	5	0	85	2	122
8:45 A	0	0	0	0	1	5	0	1	2	0	29	0	3	0	99	5	139
9:00 A	0	0	0	0	0	5	0	0	2	0	27	0	1	0	85	1	118
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Total Survey	0	0	0	0	1	44	0	10	14	0	223	0	13	0	732	20	1029
Peak Hour: 7:15 AM to 8:15 AM																	
Total	0	0	0	0	0	20	0	6	8	0	121	0	3	0	406	10	563
Approach	0				26				121				416				563
%HV	n/a				n/a				6.6%				0.7%				2.0%
PHF	n/a				0.81				0.89				0.87				0.94



PEDS Across:

	N	S	E	W
INT 01		1		1
INT 02				
INT 03			1	
INT 04				
INT 05				
INT 06				
INT 07				
INT 08				
INT 09				
INT 10				
INT 11				
INT 12				
	0	1	1	1

3

Bicycles From:

	N	S	E	W
INT 01				
INT 02				
INT 03				
INT 04				1
INT 05				
INT 06				
INT 07				
INT 08				
INT 09				
INT 10				
INT 11				
INT 12				
	0	0	0	1

PHF %HV

Check	PHF	%HV
EB	0.87	0.7%
WB	0.89	6.6%
In: 563	0.81	n/a
Out: 563	n/a	n/a
T Int.	0.94	2.0%

Conditions:

Special Notes



Prepared for: **Traffex**
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: 133rd Pl NE & NE 132nd St
Location: Kirkland, Washinton

Date of Count: Thurs 2/27/2014
Checked By: Jess

Time Interval Ending at	From North on (SB) 0				From South on (NB) 133rd Pl NE				From East on (WB) NE 132nd St				From West on (EB) NE 132nd St				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:45 P	0	0	0	0	0	3	0	0	0	1	90	0	1	0	33	4	131
5:00 P	0	0	0	0	1	5	0	1	1	2	112	0	1	0	36	4	160
5:15 P	0	0	0	0	0	3	0	1	0	1	101	0	0	0	34	7	147
5:30 P	0	0	0	0	1	9	0	1	2	0	93	0	0	0	26	8	137
5:45 P	0	0	0	0	0	2	0	0	0	1	110	0	0	0	25	4	142
6:00 P	0	0	0	0	0	9	0	0	0	0	73	0	0	0	26	8	116
6:15 P	0	0	0	0	0	4	0	1	1	2	83	0	0	0	23	9	122
6:30 P	0	0	0	0	0	0	0	0	0	0	85	0	0	0	25	8	118
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Total Survey	0	0	0	0	2	35	0	4	4	7	747	0	2	0	228	52	1073
Peak Hour: 4:45 PM to 5:45 PM																	
Total	0	0	0	0	2	19	0	3	3	4	416	0	1	0	121	23	586
Approach	0				22				420				144				586
%HV	n/a				9.1%				0.7%				0.7%				1.0%
PHF	n/a				0.55				0.92				0.88				0.92

NE 132nd St

NE 132nd St

133rd Pl NE

4:45 PM to 5:45 PM

PHF Peak Hour Volume: 640

Check	PHF %HV	
	EB	WB
In:	0.88	0.7%
Out:	0.92	0.7%
T Int.	0.55	9.1%
	n/a	n/a
	0.92	1.0%

Conditions:

INT	N	S	E	W
INT 01				0
INT 02				1
INT 03				0
INT 04				0
INT 05		1		1
INT 06				0
INT 07				0
INT 08				0
INT 09				0
INT 10				0
INT 11				0
INT 12				0
Total	0	1	0	1

Bicycles From:

INT	N	S	E	W
INT 01				0
INT 02				1
INT 03				0
INT 04				0
INT 05		1		1
INT 06				0
INT 07				0
INT 08				0
INT 09				0
INT 10				0
INT 11				0
INT 12				0
Total	0	1	0	1

PEDs Across:

INT	N	S	E	W
INT 01				0
INT 02				3
INT 03			1	1
INT 04				0
INT 05				3
INT 06				0
INT 07				0
INT 08			1	1
INT 09				0
INT 10				0
INT 11				0
INT 12				0
Total	0	0	2	6

Special Notes

AM Peak Hour Existing
3: NE 132nd & 133rd Pl

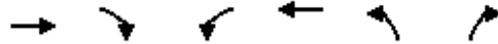
3/26/2014



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Volume (veh/h)	406	10	0	121	20	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	432	11	0	129	21	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			443		566	437
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			443		566	437
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		96	99
cM capacity (veh/h)			1128		489	624
Direction, Lane #						
	EB 1	WB 1	NB 1			
Volume Total	443	129	28			
Volume Left	0	0	21			
Volume Right	11	0	6			
cSH	1700	1128	515			
Volume to Capacity	0.26	0.00	0.05			
Queue Length 95th (ft)	0	0	4			
Control Delay (s)	0.0	0.0	12.4			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	12.4			
Approach LOS			B			
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			32.0%	ICU Level of Service		A
Analysis Period (min)			15			

PM Peak Hour Existing
3: NE 132nd & 133rd Pl

3/26/2014



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	121	23	4	416	19	3
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	132	25	4	452	21	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			157		605	144
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			157		605	144
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %						
cM capacity (veh/h)			1436		463	909
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	157	457	24			
Volume Left	0	4	21			
Volume Right	25	0	3			
cSH	1700	1436	496			
Volume to Capacity	0.09	0.00	0.05			
Queue Length 95th (ft)	0	0	4			
Control Delay (s)	0.0	0.1	12.6			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.1	12.6			
Approach LOS			B			
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			35.1%	ICU Level of Service		A
Analysis Period (min)			15			



CITY OF KIRKLAND
Department of Public Works
123 Fifth Avenue, Kirkland, WA 98033 425.587.3800
www.kirklandwa.gov

MEMORANDUM

To: Tony Leavitt, Planner

From: Thang Nguyen, Transportation Engineer

Date: April 10, 2014

Subject: Meritage Ridge (a.k.a. Vineyards) Residential Development Traffic Analysis Review, Tran13-01516

This memo is a summary of Public Works staff review of the Traffic Impact Analysis (TIA) report for the proposed Meritage Ridge Residential Development.

FINDINGS AND RECOMMENDATIONS

Public Works staff has reviewed the traffic impact analysis report for the proposed project and concluded that the project will not create significant traffic impact that will require specific off-site transportation mitigation. Based on the traffic impacts and mitigation documented in the traffic report dated November 6, 2013 prepared by TraffEx Northwest, staff recommends approval of the proposed project with the following conditions:

- Pay road impact fee per the current Transportation Impact Fee schedule.
- Construction traffic calming on NE 129th Street to discourage cut-through traffic.
- Install a STOP sign on the west leg of the new intersection of NE 129th Street/136th Avenue NE.
- Install a STOP sign on the east leg of the new intersection of NE 129th Street/133rd Place NE.

STAFF REVIEWS

Project Description- The applicant is proposing to construct 36 single-family units on five parcels (272605-9035, -9095, -9098, -9099, and -9100) that currently have five single-family homes. The project is located at 12817 136th Ave. NE. It is anticipated that the project will be built by the end of 2015 and full occupancy thereafter (2016). The extension of NE 129th Street through the northern part of the project site will provide a connection between 133rd Place NE and 136th Avenue NE as illustrated in Figure 1. The project is calculated to generate a net new of 297 daily, 23 AM Peak Hour and 31 PM Peak Hour trips. Figure 2 illustrates the proposed site plan.

Figure 1. Vicinity Map



Mitigation Threshold- For intersections that have 1% or more proportionate share impact, the City requires developers to mitigate traffic impacts when one of the following two conditions is met:

1. An intersection level of service is at E and the project has a proportional share of 15% or more at the intersection.
2. An intersection level of service is at F and the project has a proportional share of 5% or more at the intersection.

Based on the proportionate share calculation for the full build-out of the proposed project, no intersections meet the proportionate share criteria. Therefore, no intersections will trigger off-site intersection LOS mitigation.

The level of services at the intersection of NE 132nd Street/136th Avenue NE and at the project driveway was calculated to be LOS-B with the project traffic. This level of service does not trigger traffic mitigation.

Neighborhood Impact- Currently, 133rd Place NE carries approximately 665 trips per day and 66 trips during the PM peak hour north of NE 130th Place and 340 daily and 34 PM peak hour trips south of NE 130th Place.

Approximately 25% of the project trips are estimated to distribute to/from the north via 133rd Place NE or 136th Avenue NE and 75% of the project trips are estimated to distribute toward the south via 136th Avenue NE. The project distribution equates to approximately 9 PM peak hour trips would either use 133rd Place NE or 136th Avenue NE. In the worst case scenario, all 9 PM peak hour trips might use 133rd Place NE.

There are approximately 110 homes that access off 133rd Place NE. With the new through connection to 136th Avenue NE from 133rd Place NE, some existing traffic from 133rd Place NE heading south and east would most likely use the new connection instead of heading north on 133rd Place NE to NE 132nd Street then eastbound down to 136th Avenue NE.

Conservatively, it is estimated that at least 10% (11 PM peak hour trips) of the existing trips from 133rd Place NE would reroute to use the new NE 129th Street connection. Those 11 PM peak hour trips would off-set the impact of the estimated nine (9) project trips that might use 133rd Place NE. Thus, the overall net impact to 133rd Place NE will not be significant. Thus, no traffic mitigation is warranted.

Realistically, it is more convenient for drivers currently traveling on 136th Avenue NE to continue to use the same route instead of diverting to 133rd Place NE via the new NE 129th Street because drivers would have to stop from 133rd Place NE and because 136th Avenue NE is a more direct route with less left-turn maneuvers and no STOP signs. Therefore, no neighborhood traffic mitigation is warranted on 133rd Place NE.

The intersection of NE 132nd Street/133rd Place NE is currently operating at LOS-B during the AM and PM peak hours. It is calculated that the intersection will continue to operate at the same level of service with the proposed project and the NE 129th Street connection. The project impact to this intersection is not significant and does not warrant traffic mitigation.

The new NE 129th Street connection will be designed with traffic calming measures such as bulb-out and speed hump(s) to discourage cut-through traffic and speeding. A stop sign could be installed at the intersection of NE 129th Street/133rd Place NE help discourage pass-through traffic.

A speed survey was done for two days on 133rd Place NE. Based on a speed study survey the average speed is 21 mph. In reviewing the speed data, there is no pattern or consistent speeding on 133rd Place NE.

Traffic Safety- The traffic consultant measured the sight distance at the proposed driveway. Based on their measurements, the driveway meets the required sight distance of 280 feet in both directions. Based on historical crash data, there have very few accidents on 136th Avenue NE. Thus, no safety mitigation is required.

Transportation Impact Fees- Per City's Ordinance 3685, Transportation Impact Fees is required for all developments. Transportation impact fees are used to construct transportation improvements throughout the City. The transportation impact fee for single family is \$3,942 per single-family unit. The proposed project will have 31 net new single-family units (36 proposed units – 5 existing units). The calculated transportation impact fee is \$122,202 (31 x \$3,942). Transportation impact fee is paid at building permit issuance. Final transportation impact fee will be determined at building permit issuance.

Frontage Improvements- The project will be required to construct half-street frontage improvements on 136th Avenue NE in accordance to the City of Kirkland standards including curb, gutter and sidewalk.

Staff Recommendations- Public Works staff recommends approval of the proposed development project with the following conditions:

- Pay road impact fee per the current Transportation Impact Fee schedule.
- Construction traffic calming on NE 129th Street to discourage cut-through traffic.
- Install a STOP sign on the west leg of the new intersection of NE 129th Street/136th Avenue NE.
- Install a STOP sign on the east leg of the new intersection of NE 129th Street/133rd Place NE.

cc: Energov
Rob Jammerman, Development Engineer Manager



Greenforest Incorporated



Consulting Arborist

9/5/2013

Maher A. Joudi, P.E.
D R Strong, Consulting Engineers
620 7th Avenue
Kirkland, WA 98033

RE: Tree Inventory and Arborist Report
The Vineyards, 136th Ave NE, Kirkland WA

Dear Mr. Joudi:

You contacted me and contracted my services as a consulting arborist. My assignment is to prepare a tree inventory and report on the significant trees at the above referenced site. The purpose of this report is to satisfy City of Kirkland permit submittal requirements.

I received from you a Tree Retention Plan dated 8/12/2013 showing the location of the surveyed significant trees, both on site, and those on adjacent parcels near the shared property boundaries that have branches overhanging the subject property. I visited the site 8/19/2103 and inspected the surveyed trees.

TREE INSPECTION METHOD

I marked each onsite tree with 1" x 3.5" aluminum tag indicating tree number. I visually inspected each tree from the ground and rated both tree health and structure. A tree's structure is distinct from its health. This inspection identifies what is visible with both. Structure is the way the tree is put together or constructed, and identifying obvious defects can be helpful in determining if a tree is predisposed to failure. Health assesses disease, and insect infestation and old age. No invasive procedures were performed on any trees. The results of this inspection are based on what was visible at the time of the inspection.

The attached table (Tree Inventory) provides the following information for each tree:

Tree number as shown on tag in the field and on Tree Retention Plan.

Tree Species Common name.

DBH Stem diameter in inches measured 4.5 feet from the ground.

Dripline Average branch extension reported as radius in feet.

Condition rating ('1' indicates no visible health-related problems or structural defects, '2' indicates minor visible problems or defects that may require attention if the tree is retained, and '3' indicates significant visible problems or defects and tree removal is recommended.

Visible defects Obvious structural defects or diseases visible at time of inspection, which includes:

Tree Status Indicates if the tree is to be removed or retained, or if the tree is off site.

All the significant trees on this site are to be removed. Limits of disturbance are not calculated for any significant tree on the subject property, and there are no special instructions outlining any work proposed around the significant trees.

IMPACT TO NEARBY TREES

The removal of trees on this site will have minimal to no impact on trees on adjoining parcels. Immediately south is a forested steep slope already accustomed to bearing the full force of typical prevailing winds from the SW. The tall off site trees at the north end of the west boundary are already edge trees, and receive minimal shielding from trees on the subject parcel. The densest stands of trees are in the center of the site, and most of the surrounding land is already developed with few tall trees.

LIMITS OF DISTURBANCE

For off site trees, root protection is necessary to assure their stability. The limits of disturbance for these trees shall be equal to the tree's dripline. I recommend protection fencing installed at the driplines of all off site trees where canopy overhanging the subject property. Fencing shall be installed prior to any clearing or grading. The protection of the area defined by the dripline is adequate to protect sufficient roots to maintain both tree health and stability. For the larger trees, these limits are malleable and can be adjusted as necessary on an as needed basis.

PROTECTIVE FENCING

Minimum four (4) foot temporary chainlink fence shall be installed at the driplines of all off site trees or at the limits of disturbance. Fence shall completely encircle the retained trees. Install fence posts using pier block only. Any modifications to the fencing material and location must be approved by a City planner. Fencing signage as detailed (see attached) must be posted every fifteen (15) feet along the fencing.

No stockpiling of materials, vehicular or pedestrian traffic, material storage or use of equipment or machinery shall be allowed within the protective fencing. Fencing shall not be moved or removed

Maher A. Joudi, D R Strong, Consulting Engineers

RE: Tree Inventory and Arborist Report, The Vineyards, 136th Ave NE, Kirkland WA

9/5/2013

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unless approved by a City planner. Any work, activity or soil disturbance within the protection fencing, or critical root zone, shall be reviewed, approved and monitored by the project arborist.

SUPPLEMENTAL TREES

It is unknown to me if supplemental trees are required on this project. The suggested location and species of any supplemental trees are not part of this report.

TREE PRUNING

Low branches on some off site trees could interfere with proposed construction activities. Where conflict with branches is apparent, pruning specifications will be established, and a qualified arborist will be engaged to perform the necessary branch pruning. All pruning shall comply with ANSI A-300 Part 1 standards, and ISA BMPs.

Sincerely,

GreenForest, Inc.



By Favero Greenforest, M. S.

ISA Certified Arborist # PN -0143A

ASCA Registered Consulting Arborist® #379

PNW-ISA Certified Tree Risk Assessor #579

Attachments

1. Assumptions and Limiting Conditions
2. Tree Inventory
3. Tree Protection Detail

Attachment No. 1 - Assumptions & Limiting Conditions

1. A field examination of the site was made 8/19/2013. My observations and conclusions are as of that date.
2. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant/arborist can neither guarantee nor be responsible for the accuracy of information provided by others.
3. I am not a qualified land surveyor. Reasonable care was used to match the trees indicated on the sheets with those growing in the field.
4. Construction activities can significantly affect the condition of retained trees. All retained trees should be inspected after construction is completed, and then inspected regularly as part of routine maintenance.
5. Unless stated other wise: 1) information contained in this report covers only those trees that were examined and reflects the condition of those trees at the time of inspection; and 2) the inspection is limited to visual examination of the subject trees without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied that problems or deficiencies of the subject tree may not arise in the future.
6. All trees possess the risk of failure. Trees can fail at any time, with or without obvious defects, and with or without applied stress. A complete evaluation of the potential for this (a) tree to fail requires excavation and examination of the base of the subject tree. Permission of the current property owner must be obtained before this work can be undertaken and the hazard evaluation completed.
7. The consultant/appraiser shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made.
8. This report and any values/opinions expressed herein represent the opinion of the consultant/appraiser, and the consultant's/appraiser's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.

Attachment No. 2 – Tree Inventory

No.	DBH	Species	DL	Condition	Notes	Tree Status
101	7	Apple	8	2	Apple scab fungus	Remove
102	7	White fir	7	1		Remove
103	12	Scots Pine	8	1		Remove
104	6	Norway spruce	4	2	Aphid injury	Remove
105	28	Douglas-fir	16	1		Remove
5034	32	Western red-cedar	12	1		Remove
5036	20	Douglas-fir	16	1		Remove
5037	18	Douglas-fir	14	3	Leaning into adjacent tree	Remove
5039	22	Douglas-fir	16	1		Remove
5151	20	Bigleaf maple	21	2	Asymmetric canopy	Remove
5153	8	Western red-cedar	6	2	Sweep in trunk	Remove
5154	24	Western red-cedar	16	2	Asymmetric canopy	Remove
5155	16	Western red-cedar	12	2	Asymmetric canopy	Remove
5156	18	Western red-cedar	12	2	Asymmetric canopy	Remove
5157	36	Western red-cedar	18	1		Remove
5164	32	Douglas-fir	18	1		Remove
5184	42	Western red-cedar	16	1		Remove
5185	32	Bigleaf maple	25	1		Remove
5198	24	Western red-cedar	16	1		Remove
5199	24	Douglas-fir	15	1		Remove
5200	16	Douglas-fir	14	1		Remove
5201	12	Douglas-fir	16	2	Asymmetric canopy	Remove
5202	14	Bigleaf maple	20	2	Same tree as 5203, asymmetric	Remove
5204	28	Bigleaf maple	31	1		Remove
5206	16 18 18 22	Bigleaf maple	35	3	Wood decay in trunk	Remove
5207	28 12	Bigleaf maple	22	2	Dead	Remove
5208	24	Bigleaf maple	25	2	Asymmetric canopy	Remove
5209	24	Douglas-fir	16	1		Remove
5210	24	Douglas-fir	16	1		Remove
5214	6	Douglas-fir	10	1		Remove
5215	9	Douglas-fir	10	1		Remove
5216	18	Douglas-fir	14	2	Asymmetric canopy	Remove
5217	20	Douglas-fir	16	1		Remove
5218	14	Douglas-fir	16	1		Remove



No.	DBH	Species	DL	Condition	Notes	Tree Status
5219	24	Douglas-fir	16	1		Remove
5220	14	Douglas-fir	12	3	Crack in trunk	Remove
5221	22	Douglas-fir	16	1		Remove
5222	40	Bigleaf maple	35	2	Asymmetric canopy	Remove
5223	26	Bigleaf maple	18	2	Asymmetric canopy	Remove
5225	20	Douglas-fir	14	1		Remove
5226	32	Douglas-fir	18	1		Remove
5227	36	Douglas-fir	18	1		Remove
5229	36	Douglas-fir	20	1		Remove
5230	22	Douglas-fir	14	1		Remove
5231	9	Cherry	12	1		Remove
5232	36	Western red-cedar	14	1		Remove
5233	36	Douglas-fir	18	1		Remove
5234	22	Douglas-fir	16	1		Remove
5235	20	Douglas-fir	14	1		Remove
5236	24	Douglas-fir	14	1		Remove
5237	20	Douglas-fir	14	1		Remove
5238	15	Douglas-fir	12	1		Remove
5239	26	Douglas-fir	18	2	Asymmetric canopy	Remove
5240	10	Douglas-fir	8	3	Oozing resin, cankers on trunk	Remove
5241	18	Douglas-fir	14	1		Remove
5242	20	Douglas-fir	16	1		Remove
5243	18	Douglas-fir	16	3	Broken top	Remove
5244	34	Douglas-fir	18	1		Remove
5245	22	Douglas-fir	16	1		Remove
5246	28	Western red-cedar	16	1		Remove
5247	48	Western red-cedar	16	1		Remove
5369	36	Western red-cedar	18	2	Asymmetric canopy	Remove
5373	16	Bigleaf maple	18	2	Asymmetric canopy	Remove
5377	36	Western red-cedar	18	2	Declining vigor/health, ivy	Remove
5380	13	Bigleaf maple	18	3	Wood decay in trunk	Remove
5381	30	Douglas-fir	18	1		Remove
5382	36	Douglas-fir	18	2	Dead hanging/broken branches	Remove
5383	32	Douglas-fir	18	2	Dead hanging/broken branches	Remove
5385	18	Douglas-fir	16	1		Remove

No.	DBH	Species	DL	Condition	Notes	Tree Status
5386	30	Douglas-fir	20	3	Dog leg in upper trunk	Remove
5489	8	Apple	8	1		Remove
5490	6	Arbutus unedo	5	1		Remove
5491	8	Apple	10	2	Diseased	Remove
5560	8	Italian prune	6	2	Diseased	Remove
5561	6	Paper Bark Maple	7	1		Remove
5581	8	Apple	9	2	Diseased	Remove
5582	6	Flowering Cherry	6	2	Diseased	Remove
5583	6	Katsura	9	1		Remove
5667	6	Dogwood	10	1		Remove
5688	24	Douglas-fir	16	1		Remove
5689	36	Western red-cedar	18	1		Remove
5690	24	Western red-cedar	14	1		Remove
5691	26	Western red-cedar	16	1		Remove
5692	28	Western red-cedar	18	1		Remove
5839	14	Bigleaf maple	16	2	Ivy covering trunk	Remove
5840	36	Douglas-fir	18	1	Ivy covering trunk	Remove
5841	6	Bigleaf maple	8	2	Suppressed/ ivy	Remove
5842	14	Bigleaf maple	18	2	Asymmetric canopy	Remove
5843	12 14	Bigleaf maple	18	3	Multiple leader/ivy	Remove
5844	12 14 16	Bigleaf maple	20	2	Asymmetric canopy	Remove
5845	8 10 16	Bigleaf maple	16	2	Asymmetric canopy	Remove
5846	10 14 16 18	Bigleaf maple	21	2	Multiple leaders	Remove
5847	20	Douglas-fir	16	1	Ivy covering trunk	Remove
5848	10	Bigleaf maple	14	2	Ivy covering trunk	Remove
5849	12	Bigleaf maple	14	3	Crack in trunk	Remove
5850	10 10	Bigleaf maple	18	3	Top half of tree is dead	Remove
5851	6	Portugal Laurel	8	1		Remove
5924	8	Norway spruce	6	2	Needles thin from aphid injury	Remove
5925	8	Norway spruce	4	1		Remove
5926	12	Norway spruce	6	2	Tree leans north, self-corrected lean	Remove
5927	36	Douglas-fir	24	2	Asymmetric canopy	Remove
5928	40	Douglas-fir	24	2	Asymmetric canopy	Remove
5929	24	Douglas-fir	16	1		Remove
5930	13	Douglas-fir	12	2		Remove

No.	DBH	Species	DL	Condition	Notes	Tree Status
5931	12	Douglas-fir	8	2	Suppressed growth/vigor	Remove
5932	30	Douglas-fir	16	1		Remove
5933	22	Douglas-fir	12	1		Remove
5934	8	Douglas-fir	4	3	Suppressed growth/vigor	Remove
5935	8	Douglas-fir	6	3	Suppressed growth/vigor	Remove
5936	8	Douglas-fir	12	3	Suppressed growth/vigor	Remove
5937	18	Douglas-fir	14	2	Suppressed growth/vigor	Remove
5938	18	Douglas-fir	16	1		Remove
5939	26	Douglas-fir	18	1		Remove
5940	12	Douglas-fir	12	2	Suppressed growth/vigor	Remove
5941	10	Douglas-fir	10	3	Suppressed, internal decay	Remove
5942	13	Douglas-fir	14	2	Asymmetric canopy	Remove
5943	18	Douglas-fir	16	2	Asymmetric canopy	Remove
5944	20	Douglas-fir	16	1		Remove
5945	12	Douglas-fir	12	2	Suppressed growth/vigor	Remove
5946	10	Douglas-fir	12	2	Suppressed growth/vigor	Remove
5953	28	Douglas-fir	18	1		Remove
5954	26	Douglas-fir	16	1		Remove
5955	18	Douglas-fir	18	3	Trunk decay visible in open wound	Remove
5956	26	Douglas-fir	18	1		Remove
5957	28	Douglas-fir	16	2	Asymmetric canopy	Remove
5958	30	Douglas-fir	18	2	Asymmetric canopy, ivy covering trunk	Remove
5959	26	Douglas-fir	18	2	Asymmetric canopy, ivy covering trunk	Remove
5960	22	Douglas-fir	18	2	Asymmetric canopy	Remove
5961	18	Bigleaf maple	21	2	Asymmetric canopy, ivy covering trunk	Remove
5962	14 16	Bigleaf maple	20	3	Multiple leaders, ivy	Remove
5985	24	Western red-cedar	18	1		Remove
5986	10	Western red-cedar	10	2	Asymmetric canopy	Remove
5987	14	Western red-cedar	14	2	Asymmetric canopy	Remove
5988	14	Western red-cedar	14	2	Asymmetric canopy	Remove
5989	16	Western red-cedar	14	2	Asymmetric canopy	Remove
5990	14	Western red-cedar	12	1		Remove
5991	16	Western red-cedar	16	2	Asymmetric canopy	Remove
5992	10	Bigleaf maple	21	3	Wood decay in trunk	Remove
5995	22	Douglas-fir	14	1		Remove

No.	DBH	Species	DL	Condition	Notes	Tree Status
5996	36	Douglas-fir	16	1		Remove
5997	18	Douglas-fir	16	1		Remove
5998	18	Douglas-fir	16	2	Asymmetric canopy	Remove
5999	16	Douglas-fir	16	2	Asymmetric canopy	Remove
6000	26	Douglas-fir	18	1		Remove
6001	36	Douglas-fir	18	1		Remove
6002	7	Douglas-fir	6	2	Asymmetric canopy	Remove
6003	8	Douglas-fir	8	1		Remove
6043	18	Douglas-fir	14	1		Remove
6044	18	Douglas-fir	24	3	Wood decay in trunk	Remove
6045	20	Bigleaf maple	24	2	Included bark at attachments	Remove
6046	24	Douglas-fir	16	1		Remove
6047	7	Western red-cedar	6	1		Remove
6048	28	Douglas-fir	20	2	Ivy covering trunk	Remove
6125	26	Douglas-fir	16	1		Remove
6126	16	Douglas-fir	12	1		Remove
6127	40	Douglas-fir	22	1		Remove
6128	14	Douglas-fir	8	2	Suppressed growth/vigor	Remove
6129	8	Douglas-fir	6	2	Asymmetric canopy	Remove
6130	12	Douglas-fir	8	2	Asymmetric canopy	Remove
6131	10	Douglas-fir	6	3	Dog leg in upper trunk	Remove
6166	10	Apple	12	2	Diseased	Remove
6167	10	Apple	8	2	Diseased	Remove
6168	8	Blue Atlas Cedar	7	2	Diseased	Remove
6179	10	Birch	8	3	Top tree is dead and broken	Remove
6181	10	Birch	12	3	Top tree is dead and broken	Remove
6186	36	Douglas-fir	20	1		Remove
6187	28	Western red-cedar	14	1		Remove
6188	24	Douglas-fir	18	2	Sweep in trunk	Remove
6189	16	Cherry	16	1		Remove
6190	14	Bigleaf maple	20	1		Remove
6191	10 10 14 14	Bigleaf maple	25	2	Asymmetric canopy	Remove
6193	8	Flowering Cherry	12	3	Trunk is infested with CBT	Remove
6211	8	Alder	14	2	Asymmetric canopy	Remove
6240	8	Black Pine	8	2	Asymmetric canopy	Remove

No.	DBH	Species	DL	Condition	Notes	Tree Status
6241	14	Scots Pine	10	2	Asymmetric canopy	Remove
6252	8	Sweetgum	8	2	Asymmetric canopy	Remove
6272	16	Douglas-fir	16	1		Remove
6273	24	Douglas-fir	18	1		Remove
6275	22	Douglas-fir	18	1		Remove
6283	30	Douglas-fir	25	1		Remove
6284	20	Douglas-fir	16	1		Remove
6285	28	Douglas-fir	18	1		Remove
6304	6	Holly	10	1		Remove
6305	6	Alder	12	2	Tree leans west; self corrected	Remove
6313	30	Douglas-fir	18	1		Remove
6337	6	Hawthorne	10	1		Remove
6342	12	Douglas-fir	16	2	Asymmetric canopy, suppressed	Remove
6343	18	Douglas-fir	18	3	Dogleg in trunk, wound on trunk	Remove
5205	28	Bigleaf maple	20	3	Internal crack in trunk	Off Site
5368	32	Western red-cedar	20	2	Asymmetric canopy	Off Site
5370	36	Western red-cedar	16	2	Asymmetric canopy	Off Site
5371	26	Western red-cedar	16	3	Trunk decay, asymmetric canopy	Off Site
5372	26	Western red-cedar	18	2	Asymmetric canopy	Off Site
5374	20	Western red-cedar	0	3	Dead	Off Site
5375	24	Western red-cedar	12	3	Declining vigor/health	Off Site
5376	22	Western red-cedar	14	1		Off Site
5378	32	Western red-cedar	18	1		Off Site
5379	42	Western red-cedar	18	1		Off Site
5384	14	Douglas-fir	12	2	Internal crack in trunk	Off Site
5475	28	Douglas-fir	16	1		Off Site
5476	32	Douglas-fir	18	1		Off Site
5492	12 12 12	Birch	16	2	Included bark at attachments	Off Site
6133	7	Western red-cedar	8	1		Off Site
6239	12	Scots Pine	12	2	Large dia. Deadwood in canopy	Off Site
6249	12	Douglas-fir	14	2	Asymmetric canopy	Off Site
6250	8	Douglas-fir	12	2	Asymmetric canopy	Off Site
6251	18	Douglas-fir	14	2	Asymmetric canopy	Off Site
6253	26	Douglas-fir	20	2	Asymmetric canopy	Off Site
6254	18	Douglas-fir	16	2	Asymmetric canopy	Off Site

Maher A. Joudi, D R Strong, Consulting Engineers

RE: Tree Inventory and Arborist Report, The Vineyards, 136th Ave NE, Kirkland WA

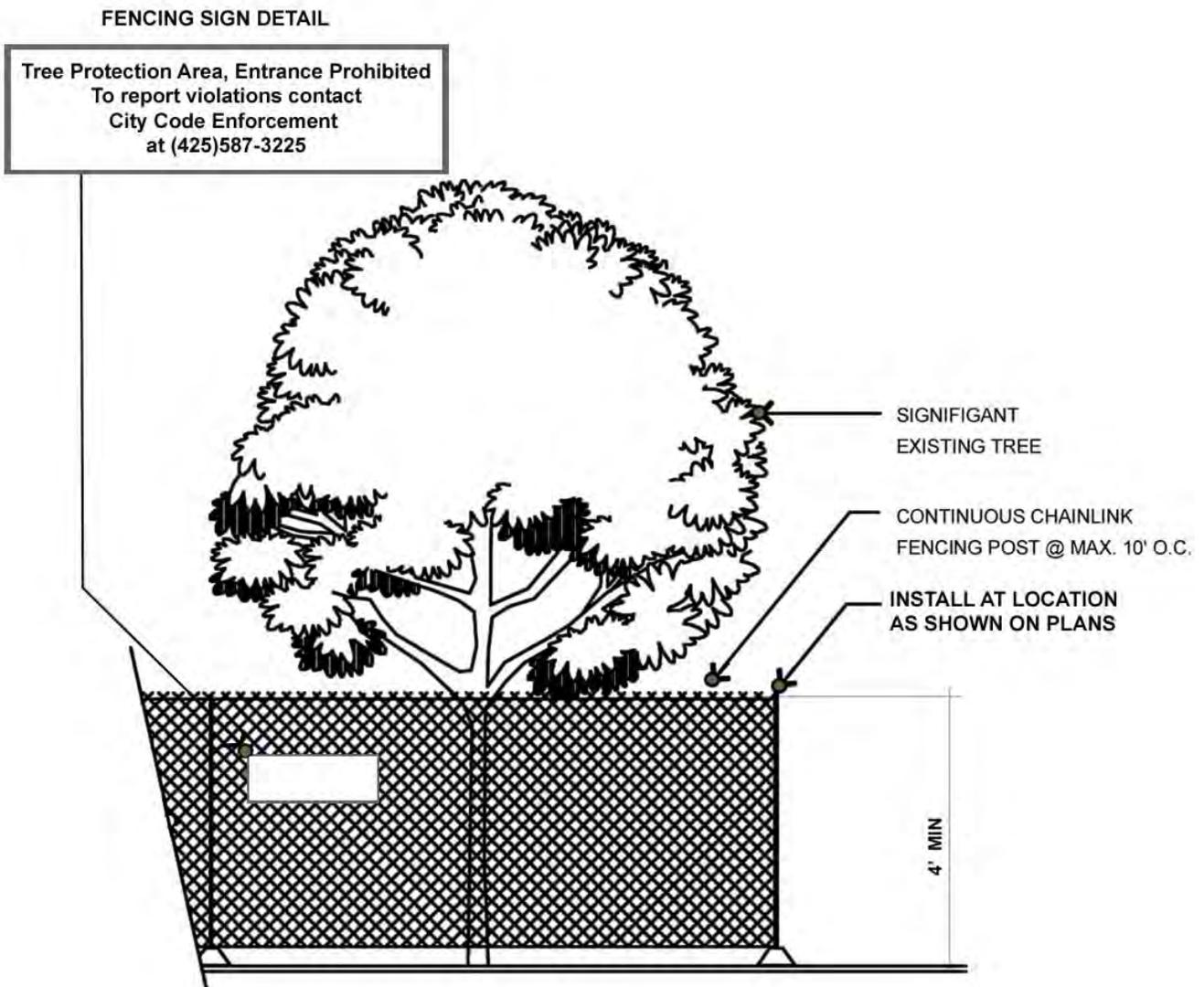
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No.	DBH	Species	DL	Condition	Notes	Tree Status
6274	16	Douglas-fir	16	1		Off Site
6309	30	Douglas-fir	22	2	Large dia. Deadwood in canopy	Off Site
6310	34	Douglas-fir	22	2	Large dia. Deadwood in canopy	Off Site
6312	30	Douglas-fir	21	2	Large dia. Deadwood in canopy	Off Site
6344	18	Douglas-fir	18	2	Asymmetric canopy	Off Site
6345	30	Douglas-fir	20	2	Asymmetric canopy	Off Site



Attachment No. 3 – Tree Protection Fencing Detail



IX. TRANSPORTATION

Policy T-3.5: Implement the Commute Trip Reduction (CTR) Plan to reduce single occupancy vehicle (SOV) use and vehicle miles traveled (VMT) as set forth in Kirkland's CTR Plan.

The State of Washington Commute Trip Reduction Efficiency Law requires local jurisdictions to develop and implement a plan to reduce both single occupancy vehicle trips and reduce overall vehicle miles traveled. Kirkland's Commute Trip Reduction Plan is a collection of adopted goals and policies, facility and service improvements and strategies about how we will help make progress for reducing drive alone trips and vehicle miles traveled. These strategies will encourage multi-modal transportation in Kirkland. The Plan encourages partnership and coordination with other agencies and employers.

The CTR Plan goals set targets for reductions at affected work sites. The work site must contain 100 or more employees. At a minimum, the City of Kirkland works with CTR affected employers to establish transportation demand management programs to reduce SOV and VMT to meet CTR goals. Kirkland must work cooperatively with the State, Metro, and other local jurisdictions to promote the success of the CTR program.

As part of the CTR program, urban centers may be voluntarily designated to further reduce SOV and/or VMT beyond the basic CTR requirements through a Growth and Transportation Efficiency Center (GTEC) Plan. Totem Lake, as a State designated urban center, is recognized as a GTEC. The purpose of the GTEC is to increase access to the employment and residential centers while reducing the number of drive alone trips. Within the GTEC plan, the pool of affected employers may be expanded beyond CTR affected employers and may also include selected residential uses.

MAINTAINING MOBILITY

The Comprehensive Plan promotes a new balance among the various modes of travel through an expansion of transit, ridesharing, walking, and bicycling opportunities on or adjacent to the existing vehicular system.

The plan supports the maintenance and enhancement of vehicular capacity on the existing system and recognizes the continued importance of vehicular circulation to local mobility, but not at the expense of other modes of travel or community character. This strategy is likely to result in higher levels of roadway congestion in specific areas, but provides more travel options for those who choose to use alternative modes of travel.

Goal T-4: Establish and maintain a roadway network which will efficiently and safely provide for vehicular circulation.

Policy T-4.1: Promote efficient use of existing rights-of-way through measures such as:

- ***Intersection improvements;***
- ***Time-of-day parking restrictions along congested arterials;***
- ***Signal timing optimization;***
- ***Added center left-turn lanes; and***
- ***Limiting left turns along congested arterials.***

The existing vehicular circulation system in Kirkland is largely complete, and improvements to this system should focus on maximizing the use of existing vehicle lane capacity, rather than physically adding new lane capacity. Road widening solely for general purpose use is generally not preferred.

This policy supports the use of transportation system management strategies to maximize the use of existing rights-of-way. These are relatively low-cost expenditures – for intersection or signal improvements, for example – which increase the efficiency of the system.

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Policy T-4.2: Consider improvements such as queue bypasses, time-of-day parking restrictions, transit signal priority and arterial transit lanes for transit or carpool use that will increase the people-carrying capacity of roadways.

When faced with a limited transportation system and financial resources, it becomes critical to make the best of what we have. One way the City can increase the people-carrying capacity of existing roadways and encourage alternative modes of transportation is by improving mobility for transit or carpools.

In Kirkland and most other cities, transit currently sits in traffic with other vehicles. The benefit of riding transit, consequently, is diminished considerably. Lanes on arterial streets dedicated to transit or carpools are not commonly found as yet. Before Kirkland can build arterial transit lanes or queue bypasses, study is needed to ensure that it is physically possible and will be safe. Another important consideration is the impact of these facilities on community character. Transit mobility will serve Kirkland residents, but the City will have to balance the desire for transit mobility with negative impacts when making the decision whether or not to proceed.

Policy T-4.3: Maintain a system of arterials, collectors, and local access streets that forms an interconnected network for vehicular circulation.

Traffic spread over a “grid” of streets, which is designed appropriate to neighborhood and system needs, flows smoothly. Kirkland has a number of existing cul-de-sacs, which help to create quiet and private residential areas. At the same time, however, cul-de-sacs and dead ends result in uneven traffic distribution and benefit some at the expense of others. Valuable emergency response time can also be lost when connections between arterials are missing. Pedestrian and bicycle traffic is also interrupted. Future street connections should be considered when the City reviews its Citywide road network system.

In addition, future street connections should be studied and determined with each neighborhood plan update. The neighborhood plan study should include looking at efficient and convenient road connections

to schools, parks and other public facilities, and commercial centers. Adding bicycle, pedestrian and other nonmotorized connections should also be considered.

Policy T-4.4: Minimize bypass traffic and safety impacts on neighborhood streets.

Cut-through traffic onto neighborhood streets from nearby congested arterials or collectors does occur. The intent of this policy is to minimize the amount of cut-through traffic and the impacts of this traffic when it does occur by the use of various forms of traffic-calming techniques.

Policy T-4.5: Maintain and improve convenient access for emergency vehicles.

Emergency vehicles need to access sites using the shortest route possible. Providing an interconnected street network is the best way to achieve direct access.

One major barrier to direct access in Kirkland is I-405. Consideration should be given to providing for emergency vehicle access when new nonmotorized crossings of I-405 are planned.

Policy T-4.6: Ensure adequate access to commercial and industrial sites.

The transportation needs of commercial and industrial uses are important to Kirkland’s future. For our economy to prosper, freight, employees, and customers must be able to move to and from businesses. This further supports the need to minimize congestion in the community.

Policy T-4.7: Maintain the road system in a safe and usable form for all modes of travel where possible.

A significant portion of the public’s investment in City infrastructure resides in the pavement of City streets. The City must protect this investment through regular road maintenance. The Public Works Department has operated a Pavement Management Program since 1990. The pavement condition of each road has been inventoried to allow for the strategic investment of maintenance funds. Besides pavement mainte-

IX. TRANSPORTATION

nance, Public Works has a regular program for pavement marking, storm drain cleaning, street sweeping, sign maintenance, and similar street maintenance.

With current funding levels and repair strategies, the overall condition of City streets is stable. If the level of funding does not stay constant or increase, the overall condition could fall off at a rate from which it would be impossible to recover without a very large investment. A higher level of funding would cause the overall condition to improve.

Policy T-4.8: Provide for local vehicular access to arterials, while minimizing conflicts with through traffic.

One problem along some arterials is the high number of driveways or places where vehicles can enter or leave traffic lanes. An excessive number of driveways is a safety concern for pedestrians on sidewalks. Also, traffic flow is unexpectedly interrupted when vehicles turn between intersections. However, properly located and spaced driveways can benefit traffic flow.

The intent of this policy is to permit the minimum number of curb cuts needed to adequately serve abutting uses. The end result will be minimizing conflicts with pedestrian and vehicular traffic.

Goal T-5: Establish level of service standards that encourage development of a multimodal transportation system.

Policy T-5.1: Develop an approach for measuring level of service based on the standards described below in Policies T-5.2, T-5.3 and T-5.5.

Developing level of service standards for a transportation system is a difficult task. After much study and discussion, the City decided that an intersection capacity technique was the best choice for Kirkland.

Mode split (the percentage of single-occupant vehicle use and transit or other mode use) is used as the level of service standard for transit (Policy T-5.2). For vehicular level of service, the City has developed an aggregated roadway level of service measure that

averages the capacity of signalized intersections within a geographic area (Policy T-5.3). Nonmotorized level of service is expressed in terms of miles of completed bicycle and pedestrian facilities and number of complete corridors and reflects the desire to create an interconnected system of bicycle and pedestrian routes (Policy T-5.5).

Policy T-5.2: By the year 2022, strive to achieve a mode split of 65 percent single-occupant vehicle (SOV) and 35 percent transit/other mode.

The mode splits described in this policy are the level of service standard for transit. They represent a long-term goal for the City to achieve through providing improved transit accessibility, transportation demand management programs, efficient nonmotorized systems, locating shops and services close to home, and other strategies to get people out of single-occupant vehicles. The standard is expressed in terms of a desired percentage of peak-hour home to work trips by single-occupant vehicles and transit/other mode.

Policy T-5.3: Utilize the peak-hour vehicular level of service standards shown in Table T-2 – a two-part standard for the transportation subareas and for individual system intersections.

This policy establishes a peak-hour level of service (LOS) standard for vehicular traffic based on 2022 land use and road network. It is a two-part standard, based on the ratio of traffic volume to intersection capacity (V/C) for signalized system intersections. Volume to capacity ratios were determined using the planning method from *Transportation Research Circular 212*.

The two standards are as follows:

- (1) Maximum allowed subarea average V/C for signalized system intersections in each subarea may not exceed the values listed in Table T-2.
- (2) No signalized system intersection may have a V/C greater than 1.40.



Geotechnical Engineering
Geology
Environmental Scientists
Construction Monitoring

A yellow excavator is shown in the process of constructing a stone retaining wall. The excavator's arm is extended, and it appears to be placing or adjusting a large stone. The wall is built with large, grey, irregular stones and is set on a bed of gravel. The background consists of a dense line of tall, thin evergreen trees under a clear blue sky.

**GEOTECHNICAL ENGINEERING STUDY
VINEYARDS AT KIRKLAND
12817 - 136TH AVENUE NORTHEAST
KIRKLAND, WASHINGTON**

ES-2756

1805 - 136th Place N.E., Suite 201 - Bellevue, WA 98005
(425) 449-4704 Fax (425) 449-4711
www.earthsolutionsnw.com

PREPARED FOR

GEONERCO

October 3, 2013



FOR:

Stephen H. Avril
Staff Geologist



Kyle R Campbell, P.E.
Principal

GEOTECHNICAL ENGINEERING STUDY
VINEYARDS AT KIRKLAND
12817 - 136TH AVENUE NORTHEAST
KIRKLAND, WASHINGTON

ES-2756

Earth Solutions NW, LLC
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Ph: 425-449-4704 Fax: 425-449-4711
Toll Free: 866-336-8710

Important Information About Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one—not even you*—should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that

have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely on Your ASFE-Member Geotechnical Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.



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e-mail: info@asfe.org www.asfe.org

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IIGER06045.0M



October 3, 2013
ES-2756

Earth Solutions NW LLC

Geonerco
1441 North 34th Street, Suite 200
Seattle, Washington 98103

- Geotechnical Engineering
- Construction Monitoring
- Environmental Sciences

Attention: Mr. Jamie Waltier

Dear Mr. Waltier:

Earth Solutions NW, LLC (ESNW) is pleased to present this report titled "Geotechnical Engineering Study, Vineyards at Kirkland, 12817 - 136th Avenue Northeast, Kirkland, Washington". We understand the proposed development will include the construction of 35 single-family residential structures, a storm drainage tract, access roads, and associated improvements to be located west of 136th Avenue Northeast; at the intersection with Northeast 129th Street. Steep slopes are located near the southern property boundary of the site.

In our opinion, development and construction of the proposed single-family residential development is feasible from a geotechnical standpoint. Following site preparation and grading activities, the proposed building structures can be supported on conventional foundations bearing on competent native or structural fill. Recommendations for site preparation and related earthwork activity, structural fill placement, foundation and retaining wall design, subsurface drainage, and other pertinent geotechnical recommendations are provided in this study.

We appreciate the opportunity to be of service to you on this project. If you have any questions regarding the content of this geotechnical engineering study, please call.

Sincerely,

EARTH SOLUTIONS NW, LLC

FVR: Stephen H. Avril
Staff Geologist

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**PRELIMINARY
GEOTECHNICAL ENGINEERING STUDY
VINEYARDS AT KIRKLAND
12817 - 136TH AVENUE NORTHEAST
KIRKLAND, WASHINGTON**

ES-2756

INTRODUCTION

General

This geotechnical engineering study was prepared for the proposed residential development to be located on the west side of 136th Avenue Northeast, and predominantly south of Northeast 129th Street in Kirkland, Washington. The approximate location of the subject property is illustrated on the Vicinity Map (Plate 1). The purpose of this study was to prepare geotechnical recommendations for the proposed residential development. Our scope of services for completing this geotechnical engineering study includes the following:

- Limited subsurface exploration to characterize soil and groundwater conditions within the proposed development area.
- Engineering analyses.
- Preparation of this geotechnical engineering study.

The following documents/maps were reviewed as part of our report preparation:

- Washington Web Soil Survey;
- The City of Kirkland Municipal Code;
- Geologic Map of Washington - Northwest Quadrant (by Dragovich et. al.), and;
- The Vineyards, Cover Sheet C1, by D.R. Strong Consulting Engineers, dated August 12, 2013.

Project Description

The subject property consists of a site comprised of several developed tax parcels located in the City of Kirkland, Washington. The planned development includes site grading, underground utility installation, access driveways and associated improvements to support construction of a series of 35 single-family residences. The site will be accessed off 136th Avenue Northeast, with a shared access roadway and new driveways. The approximate site boundaries and layout of the proposed residential development are illustrated on the Test Pit Location Plan (Plate 2).

The proposed residential structures will likely consist of relatively lightly-loaded wood-frame construction with slab-on-grade or wood joist flooring. Based on experience with similar projects, we anticipate footing loads on the order of one to two kips per lineal foot and slab-on-grade loads of 150 pounds per square foot (psf).

Based on the existing topographic relief, grading will likely require a series of cuts and fills to establish finish grade throughout the proposed building lot and access areas. The soils generated from site excavations will likely be used elsewhere on-site as fill to balance site grading.

If the above design estimates are incorrect or change, ESNW should be contacted to review the recommendations in this report. ESNW should review the final design to confirm that our geotechnical recommendations have been incorporated in the plans.

SITE CONDITIONS

Surface

The site is located west of 136th Avenue Northeast at the intersection with Northeast 129th Street in Kirkland, Washington. The approximate limits of the site are depicted on the Vicinity Map (Plate 1). The subject site is roughly rectangular in shape. The proposed development area is bordered to the south by a slope which descends towards commercial space at the base of the slope, to the north and west by residential development, and to the east by 136th Avenue Northeast. A utility easement runs through the eastern portions of the subject site, near 136th Avenue Northeast. The site is currently developed with single family residential structures; and topography generally descends from Northeast 129th Street elevation towards the south with approximately 20 feet of elevation change. The steep slope area on the subject site is located on the southern side of the site; where grades descend approximately 40 feet from the top-of-slope elevation on-site towards the south.

Subsurface

A representative of ESNW was onsite during April of 2013 to observe, log and sample five test pits excavated throughout the southern portions of the property. Please refer to the subsurface exploration soil logs provided in Appendix A for a more detailed description of the subsurface conditions. The excavation test sites are illustrated in the attached Test Pit Location Plan (Plate 2). The Subsurface exploration consisted of five hand excavations advanced to a maximum exploration depth of three to four feet below current grade elevations within the development envelope and sloped area. The hand excavations were sited at differing elevations within the sloped area to determine the density and type of soil present within the substrate of the slope.

Evidence of fill from previous grading activities was not observed at the test pit locations; however, we anticipate fills from previous grading activities may be encountered near the existing easements, residential structures, and adjacent to the access roads on the property.

Topsoil was encountered at all test sites extending to depths of approximately four to six inches below existing grades. Topsoil is not suitable for foundation or pavement support, and should not be mixed with soil to be used as structural fill. The topsoil can be considered for use in landscape or non-structural areas, if desired.

Underlying the topsoil horizon, medium dense to very dense native soil consisting of silty sand with gravel (Unified Soil Classification SM) was observed. Silty sand, identified as glacial till (Qgt) on the referenced geologic maps, was observed to a maximum excavation depth of four feet. Relative soil densities increased with depth at the test pit locations. In general, competent (medium dense) soil conditions suitable for foundation support was observed at depths of one foot below current grades at the test pit locations explored in April of 2013.

Geologic Setting

The referenced geologic map resource identifies the site and surrounding area to be underlain by glacial till (Qgt) soil deposits. The reviewed Washington Web Soil Survey identifies Alderwood series gravelly sandy loam (AgC) with 6 to 15 percent slopes throughout the site; including within the sloped areas. The Web Soil Survey indicates a slight to moderate erosion hazard for the Alderwood series soils.

The soil conditions observed during our fieldwork were generally consistent with both the geologic map and soil survey designations. Soils at the test pit locations were observed to be primarily consistent with glacial till soil characteristics.

Groundwater

Groundwater was not observed at the time of the fieldwork (April, 2013). However, perched groundwater seepage zones may be present at the interface between the weathered and unweathered till deposits or between isolated sand pockets within glacial till formations. During the wet season, perched seepage may be encountered at deeper site excavations depending on the time of the year excavations take place. Groundwater seepage rates and elevations fluctuate depending on many factors, including precipitation duration and intensity, the time of year, and soil conditions. In general, groundwater flow rates are higher during the wetter, winter months.

CRITICAL AREAS ASSESMENT

As part of this study, the City of Kirkland municipal code was reviewed with respect to critical areas onsite. A landslide hazard area, as described by the City of Kirkland municipal code, is an area sloping 40 percent or greater. Based on our review of the municipal code in conjunction with review of the available survey data for the subject site, the slope located at the southern property boundary meets the criteria for a landslide hazard area at several locations along the length of the slope descending to the south. However, the on-site soils in our opinion, demonstrate a low susceptibility to landslide events due to the highly cemented nature of glacial till soils; and the lack of surficial groundwater seeps on and around the sloped areas on-site.

In our opinion, the proposed development will not adversely affect slope stability provided the recommendations provided in this study are incorporated into final site designs. Furthermore, the proposed building setbacks described in the referenced site plan is suitable from a geotechnical standpoint given the relative stability of the on-site soils. Recommendations for site erosion control measures are provided within this report.

DISCUSSION AND RECOMMENDATIONS

General

Based on the results of our study, construction of the proposed residential development is feasible from a geotechnical standpoint. The primary geotechnical considerations associated with the proposed development include site grading and earthwork, foundation support, structural fill placement, and the suitability of the on-site soils for use as structural fill.

The proposed residential structures can be supported on conventional spread and continuous foundations bearing on competent native soils or structural fill. Throughout the proposed cut areas of the site, we anticipate competent native soil suitable for support of foundations will generally be exposed at the footing elevations. Where loose or unsuitable soil conditions are exposed at foundation subgrade elevations, compaction of the soils to the specifications of structural fill, or overexcavation and replacement with structural fill may be necessary.

Groundwater seepage was not observed at the test pit locations during our fieldwork (April 2013). During the wet season, the presence of perched groundwater seepage in utility and site excavations should be anticipated, particularly along the contact between weathered till and unweathered till deposits or within sandy layers of soil which may be present within the subgrade. Supplemental recommendations for controlling groundwater seepage can be provided by the ESNW if needed. However, based on the data obtained from the test sites, and our overall characterization of subsurface conditions, extensive site dewatering is not anticipated to be necessary for the proposed site development.

This study has been prepared for the exclusive use of Geonerco and their representatives. No warranty, expressed or implied, is made. This study has been prepared in a manner consistent with the level of care and skill ordinarily exercised by other members of the profession currently practicing under similar conditions in this area.

Site Preparation and Earthwork

The primary geotechnical considerations during the proposed site preparation and earthwork activities will involve structural fill placement and compaction, temporary erosion control, foundation subgrade preparation, retaining wall construction, and site drainage. We anticipate the mass grading will utilize a balanced approach, with cut soils used as structural fill elsewhere on-site.

Topsoil and organic-rich soil was encountered in the upper approximately four to six inches at test pit locations. The topsoil/duff is not suitable for foundation support, or for use as structural fill. Topsoil is suitable for use in landscaping areas, if desired.

In-situ Soils

From a geotechnical standpoint, the soils encountered at the test pit locations are generally suitable for use as structural fill. Successful use of the on-site soils will largely be dictated by the moisture content of the soils at the time of placement and compaction. The soils encountered were generally in a moist condition at the time of the exploration (April 2013). Soils encountered during site excavations that are excessively over the optimum moisture content will require moisture conditioning prior to placement and compaction.

During periods of dry weather, the on-site soils should generally be suitable for use as structural fill, provided the soil moisture content is at or near the optimum level at the time of placement. Successful placement and compaction of the on-site soils during periods of extended precipitation will be difficult. If the on-site soils cannot be successfully compacted, the use of an imported soil may be necessary. Imported soil intended for use as structural fill should consist of a well graded granular soil with a maximum aggregate grain size of six inches, and a moisture content that is at or near the optimum level. During wet weather conditions, imported soil intended for use as structural fill should consist of a well graded granular soil with a fines content of 5 percent or less defined as the percent passing the #200 sieve, based on the minus three-quarter-inch fraction.

Structural Fill Placement

In general, areas to receive structural fill should be stripped of organic matter and other deleterious material. The majority of the organic matter associated with trees, brush, root balls, and groundcover should be removed from the fill areas. A representative of ESNW should observe cleared and stripped areas of the site prior to structural fill placement.

Structural fill is defined as compacted soil placed in foundation, slab-on-grade, and roadway areas. Fills placed to construct permanent slopes and throughout retaining wall and utility trench backfill areas are also considered structural fill. Soils placed in structural areas should be placed in loose lifts of 12 inches or less and compacted to a relative compaction of 90 percent, based on the maximum dry density as determined by the Modified Proctor Method (ASTM D-1557). In pavement areas, the upper 12 inches of the structural fill should be compacted to a relative compaction of at least 95 percent. Utility trench backfill should be compacted to the specifications of the controlling jurisdiction, where applicable.

Permanent fill slopes should maintain a gradient of 2H:1V, or flatter, and should be planted with vegetation to enhance stability and to minimize erosion.

A representative of ESNW should observe temporary and permanent slopes and excavations to confirm that the inclination is suitable for the exposed soil conditions, and to provide additional grading recommendations.

Utility Trench Backfill

In our opinion, the soils observed at the test pit sites are generally suitable for support of utilities. Organic or highly compressible soils encountered in the trench excavations should not be used for supporting utilities. In general, the on-site soils observed at the test pit sites should be suitable for use as structural backfill in the utility trench excavations, provided the soil is at or near the optimum moisture content at the time of placement and compaction. Moisture conditioning of the soils may be necessary at some locations prior to use as structural fill. The presence of groundwater seepage should be expected in site excavations, such as the deeper utility trench excavations. Utility trench backfill should be placed and compacted to the specifications of structural fill provided in this report, or to the applicable specifications of the city or county jurisdictions.

Slab-On-Grade Floors

Slab-on-grade floors for the proposed buildings should be supported on a firm and unyielding subgrade consisting of competent native soil or at least one foot of structural fill. Unstable or yielding areas of the subgrade should be recompacted or overexcavated and replaced with suitable structural fill prior to construction of the slab. A capillary break consisting of a minimum of four inches of free draining crushed rock or gravel should be placed below the slab. The free draining material should have a fines content of 5 percent or less (percent passing the #200 sieve, based on the minus three-quarter inch fraction). In areas where slab moisture is undesirable, installation of a vapor barrier below the slab should be considered. If used, the vapor barrier should consist of a material specifically designed for use as a vapor barrier and should be installed in accordance with the manufacturers' recommendations.

Drainage

Groundwater seepage was not encountered at the time of our fieldwork (April 2013). However, the presence of isolated zones of perched seepage should be anticipated during deeper site and utility excavations. Temporary measures to control groundwater seepage and surface water runoff during construction will likely involve interceptor trenches and sumps, as necessary. In our opinion, the proposed residential structures should incorporate footing drains around the outside perimeter of the foundations. A typical footing drain detail is provided on Plate 4.

Rockeries

Rockeries are considered a facing to protect an excavated cut or reinforced earth fill that would stand near vertical, from weathering and erosion. Rockeries to be constructed in cut areas do not require geogrid reinforcement, provided the excavation for the rockery is observed by a representative of ESNW to confirm the soil conditions are suitable for a rockery. For rockeries over four feet in height constructed in front of fill, the fill must be reinforced with geogrid. Rockery construction details are included as Plates 5 and 6.

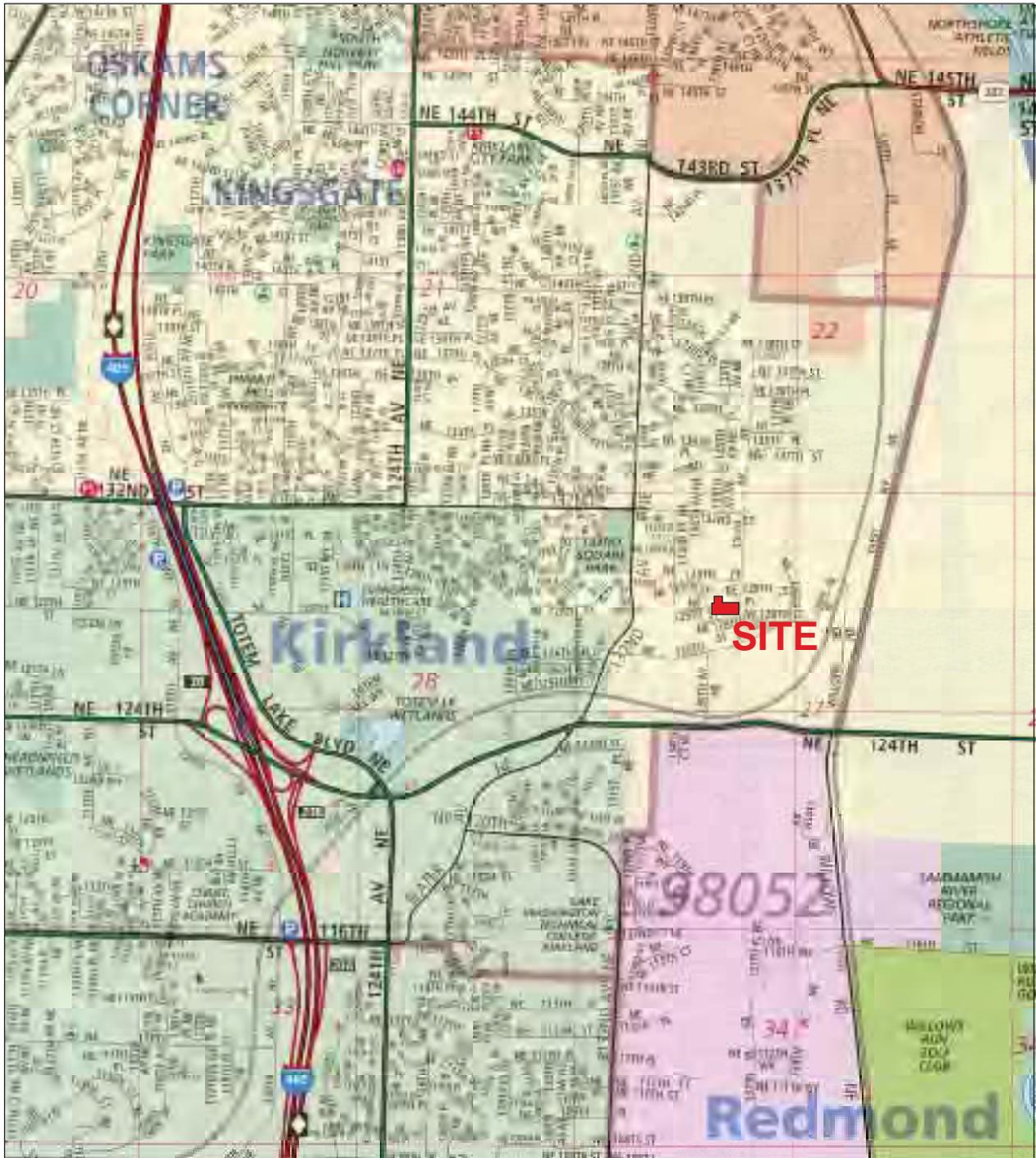
Rockeries may be located on the sloping areas of the site, provided the bottom of the rockery is founded in dense, native soil. A representative of ESNW must observe the excavation for the rockeries to confirm the soil conditions exposed by the excavation are as anticipated.

LIMITATIONS

The recommendations and conclusions provided in this geotechnical engineering study are professional opinions consistent with the level of care and skill that is typical of other members in the profession currently practicing under similar conditions in this area. A warranty is not expressed or implied. Variations in the soil and groundwater conditions observed at the test locations may exist, and may not become evident until construction. ESNW should reevaluate the conclusions in this geotechnical engineering study if variations are encountered.

Additional Services

ESNW should have an opportunity to review the final design with respect to the geotechnical recommendations provided in this report. ESNW should also be retained to provide testing and consultation services during construction.



Reference:
King County, Washington
Map 506
By The Thomas Guide
Rand McNally
32nd Edition



Earth Solutions NW LLC

Geotechnical Engineering, Construction Monitoring
and Environmental Sciences

Vicinity Map
The Vineyards at Kirkland
Kirkland, Washington

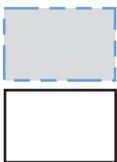
NOTE: This plate may contain areas of color. ESNW cannot be responsible for any subsequent misinterpretation of the information resulting from black & white reproductions of this plate.

Drwn. GLS	Date 10/03/2013	Proj. No. 2756
Checked KRC	Date Oct. 2013	Plate 1



LEGEND

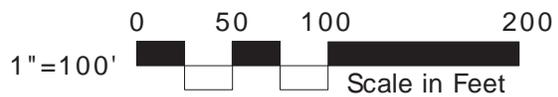
TP-1 — Approximate Location of ESNW Test Pit, Proj. No. ES-2756, April 2013



Subject Site

Existing Building

21 Proposed Lot Number



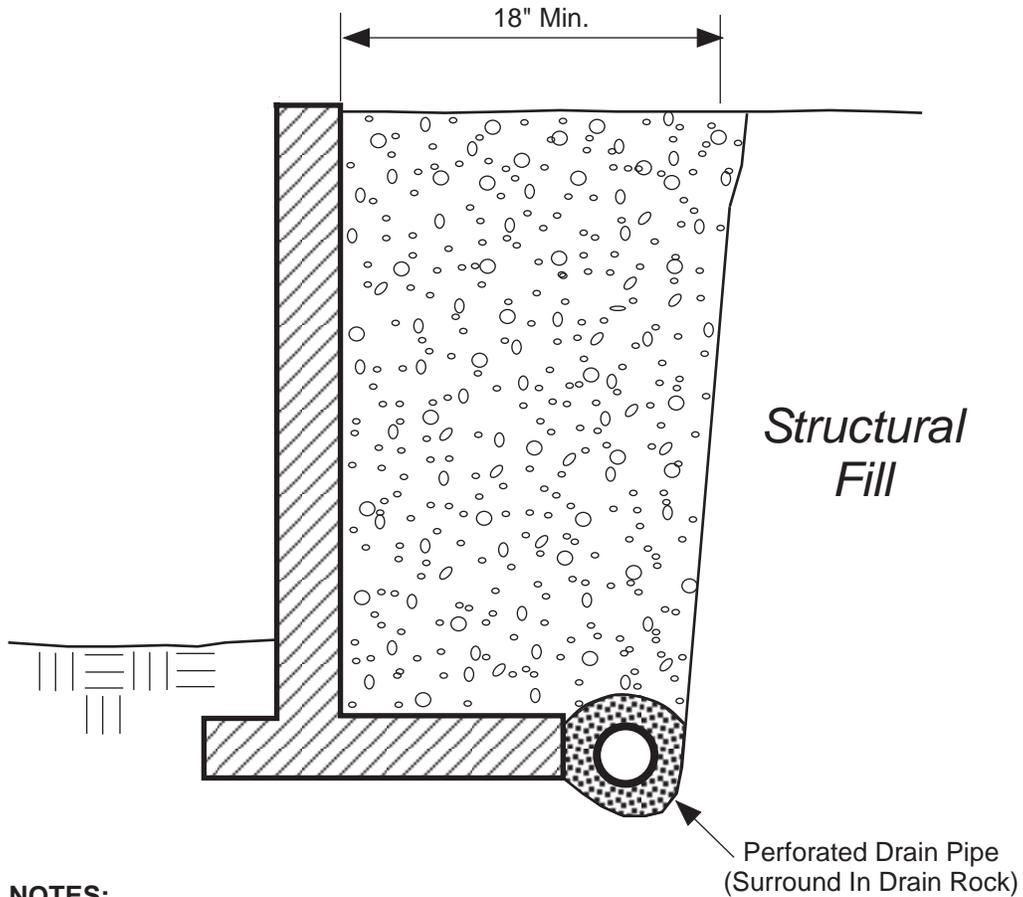
NOTE: The graphics shown on this plate are not intended for design purposes or precise scale measurements, but only to illustrate the approximate test locations relative to the approximate locations of existing and / or proposed site features. The information illustrated is largely based on data provided by the client at the time of our study. ESNW cannot be responsible for subsequent design changes or interpretation of the data by others.

NOTE: This plate may contain areas of color. ESNW cannot be responsible for any subsequent misinterpretation of the information resulting from black & white reproductions of this plate.

Earth Solutions NW LLC
Geotechnical Engineering, Construction Monitoring and Environmental Sciences

Test Pit Location Plan
The Vineyards at Kirkland
Kirkland, Washington

Drwn. GLS	Date 10/03/2013	Proj. No. 2756
Checked KRC	Date Oct. 2013	Plate 2



NOTES:

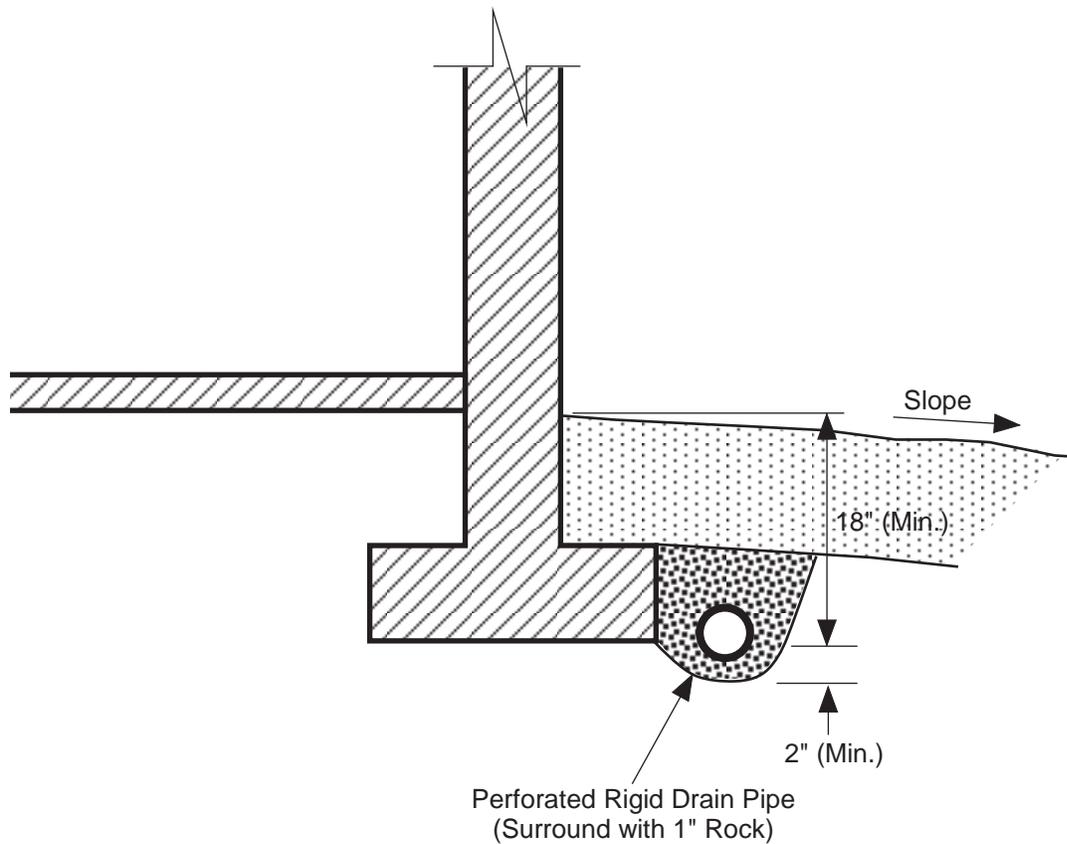
- Free Draining Backfill should consist of soil having less than 5 percent fines. Percent passing #4 should be 25 to 75 percent.
- Sheet Drain may be feasible in lieu of Free Draining Backfill, per ESNW recommendations.
- Drain Pipe should consist of perforated, rigid PVC Pipe surrounded with 1" Drain Rock.

SCHMATIC ONLY - NOT TO SCALE
NOT A CONSTRUCTION DRAWING

LEGEND:

-  Free Draining Structural Backfill
-  1 inch Drain Rock

 Earth Solutions NW_{LLC} Geotechnical Engineering, Construction Monitoring and Environmental Sciences		Earth Solutions NW_{LLC}	
RETAINING WALL DRAINAGE DETAIL The Vineyards at Kirkland Kirkland, Washington			
Drwn. GLS	Date 10/03/2013	Proj. No.	2756
Checked KRC	Date Oct. 2013	Plate	3

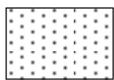
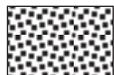


NOTES:

- Do NOT tie roof downspouts to Footing Drain.
- Surface Seal to consist of 12" of less permeable, suitable soil. Slope away from building.

SCHEMATIC ONLY - NOT TO SCALE
NOT A CONSTRUCTION DRAWING

LEGEND:

-  Surface Seal; native soil or other low permeability material.
-  1" Drain Rock

		Earth Solutions NW LLC Geotechnical Engineering, Construction Monitoring and Environmental Sciences	
FOOTING DRAIN DETAIL The Vineyards at Kirkland Kirkland, Washington			
Drwn. GLS	Date 10/03/2013	Proj. No.	2756
Checked KRC	Date Oct. 2013	Plate	4

GENERAL NOTES:

Rockery construction is a craft and depends largely on the skill and experience of the builder. A rockery is a protective system which helps retard the weathering and erosion process on an exposed soil face. While by its nature (mass, size and shape of rocks) it will provide some degree of retention, it is not a designed or engineered system in the sense a reinforced concrete retaining wall would be considered designed or engineered. The degree of retention achieved is dependent on the size of the rock used; that is, the mass or weight, and the height of the wall being constructed. The larger the rock, the more competent the rockery should be.

Rockeries should be considered maintenance items that will require periodic inspection and repair. They should be located so that they can be reached by a contractor if repairs become necessary.

- ...Maximum inclination of the slopes above and behind rockeries should be 2:1 (Horizontal : Vertical).
- ...Minimum thickness of rock filter layer behind rockery is 18 inches.
- ...Minimum of 12 inch embedment into undisturbed native soil or compacted fill placed in accordance with report recommendations.
- ...Maximum rockery height H = 8 feet.
- ...Rockeries greater than 8 feet in height to be installed under periodic or full time observation of the geotechnical engineer.

Unless otherwise specified in writing by the rockery "designers", all rocks placed in the lower two-thirds of the wall should be 5 to 6 man rock, 4,000 lbs. or larger. Rocks placed above this level should gradually decrease in size with increasing wall height using 3 to 5 man rock, 700 to 6,000 lbs.

The long dimension of the rocks should extend back towards the cut or fill face to provide maximum stability. Rocks should be placed to avoid continuous joint planes in vertical or lateral directions. Each rock should bear on two or more rocks below it, with good flat-to-flat contact.

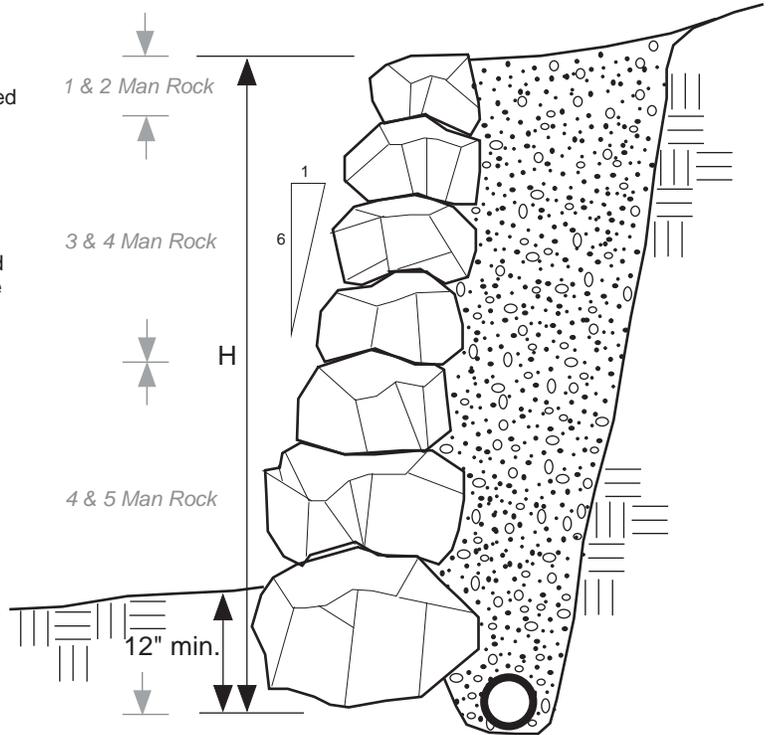
All rockeries over 4 feet in height should be constructed on basis of wall mass, not square footage of face.

Size	Approximate Weight - lbs.	Approximate Diameter
1 man	50-200	12-18"
2 man	200-700	18-28"
3 man	700-2,000	28-36"
4 man	2,000-4,000	36-48"
5 man	4,000-6,000	48-54"
6 man	6,000-8,000	54-60"

Reference: Local quarry weight study using average weights of no less than six rocks of each man size conducted in January 1988.

LEGEND:

-  Drainage materials to consist of clean angular well-graded quarry spalls, with 4-inch maximum size, or other material approved by the geotechnical engineer.
-  Undisturbed firm Native Soil.
-  Drain pipe; 4-inch minimum diameter, perforated or slotted rigid plastic PVC pipe, laid with a positive gradient to discharge under control, well away from the rockery.



**NOT TO SCALE - SCHEMATIC ONLY
NOT A CONSTRUCTION DRAWING**

NOTES:

Rockery construction to be completed in accordance with ARC Guidelines.
Earth Solutions NW representative to observe rockery construction and prepare final report.



Earth Solutions NW LLC

Geotechnical Engineering, Construction Monitoring and Environmental Sciences

NATIVE CUT ROCKERY DETAIL

The Vineyards at Kirkland

Kirkland, Washington

Drwn. GLS	Date 10/03/2013	Proj. No. 2756
Checked KRC	Date Oct. 2013	Plate 5

GENERAL NOTES:

Rockery construction shall be performed in accordance with the Associated Rockery Contractor Guidelines.

Rockery construction is a craft. The skill and experience of the builder will largely dictate the success of the construction.

A rockery is a protective system with respect to the weathering and erosion process on an exposed soil face.

Maximum rockery height H = 8 feet.

GEOGRID SOIL REINFORCEMENT

Geogrid shall be Marifi 5XT.

STRUCTURAL GEOGRID INSTALLATION

Geogrid shall be oriented with the highest strength axis perpendicular to the rockery alignment.

Geogrid Reinforcement shall be placed at the strengths, lengths and elevations shown on the construction design drawings or as directed by the Engineer.

The geogrid shall be laid horizontally on compacted backfill and extend to the back of the rockery. The geogrid shall be pulled taut, and anchored prior to backfill placement on the geogrid.

Geogrid Reinforcements shall be continuous throughout their embedment lengths and placed side-by-side to provide 100% coverage at each level. Spliced connections between shorter pieces of geogrid or gaps between adjacent pieces of geogrids are not permitted.

REINFORCED BACKFILL PLACEMENT

Reinforced Backfill shall be placed, spread and compacted in such a manner that minimizes the development of slack in the geogrid and installation damage.

Reinforced Backfill shall be placed and compacted in lifts not to exceed 6 inches where hand compaction is used, or 8 - 10 inches where heavy compaction equipment is used. Lift thickness shall be decreased to achieve the required density as required.

Reinforced Backfill shall be compacted to 90% of the maximum density as determined by ASTM D-1557-02. The moisture content of the backfill material prior to and during compaction shall be at or near the optimum moisture content.

Only lightweight hand-operated equipment shall be allowed within 3 feet of the back of the rockery.

LEGEND:



Drainage materials to consist of clean angular well-graded quarry spalls, with 4-inch maximum size, or other material approved by the geotechnical engineer.

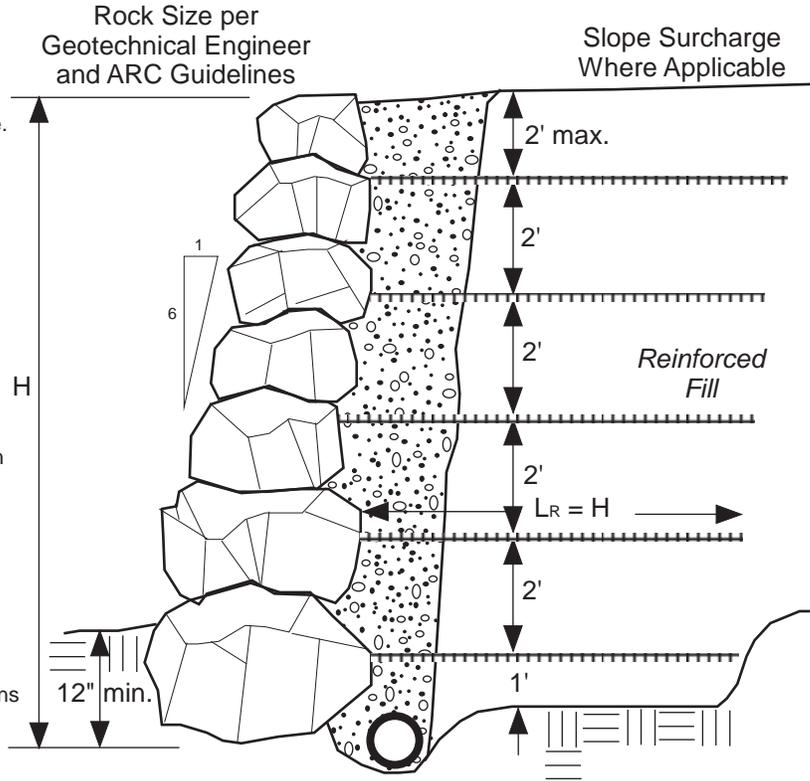


Undisturbed firm Native Soil.



Drain pipe; 4-inch minimum diameter, perforated or slotted rigid plastic PVC pipe, laid with a positive gradient to discharge under control, well away from the wall.

NOT TO SCALE - SCHEMATIC ONLY
NOT A CONSTRUCTION DRAWING



Tracked construction equipment shall not be operated directly upon the geogrid reinforcement. A minimum fill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Tracked vehicle turning should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid.

Rubber tired equipment may pass over geogrid reinforcement at slow speed, less than 10 mph. Sudden braking and sharp turning shall be avoided.

At the end of each day's operation, the Contractor shall slope the last lift of reinforced backfill away from the rockery to direct runoff away from wall face. The Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.

FIELD QUALITY CONTROL

The rockery construction shall be observed by the Geotechnical Engineer on a periodic or full-time basis as appropriate. Testing of the compacted backfill shall be performed by the Geotechnical Engineer.



Earth Solutions NW LLC

Geotechnical Engineering, Construction Monitoring and Environmental Sciences

REINFORCED FILL ROCKERY DETAIL

The Vineyards at Kirkland

Kirkland, Washington

Drwn. GLS	Date 10/03/2013	Proj. No. 2756
Checked KRC	Date Oct. 2013	Plate 6

Appendix A
Subsurface Exploration
ES-2756

The subsurface exploration at the site was conducted by Earth Solutions NW, LLC for the purpose of analyzing and characterizing the onsite soils. The approximate location of the test pits excavated throughout the subject site is illustrated on Plate 2 of this report. The subsurface exploration was completed in April 2013.

Logs of the test pit observations by ESNW are presented in this Appendix. The final logs represent the interpretations of the field logs and the results of laboratory analyses. The stratification lines on the logs represent the approximate boundaries between soil types. In actuality, the transitions may be more gradual.

Earth Solutions NW_{LLC}

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS	CLEAN SANDS		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		(LITTLE OR NO FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES		SM	SILTY SANDS, SAND - SILT MIXTURES
		(APPRECIABLE AMOUNT OF FINES)		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

DUAL SYMBOLS are used to indicate borderline soil classifications.

The discussion in the text of this report is necessary for a proper understanding of the nature of the material presented in the attached logs.



Earth Solutions NW
 1805 - 136th Place N.E., Suite 201
 Bellevue, Washington 98005
 Telephone: 425-449-4704
 Fax: 425-449-4711

TEST PIT NUMBER TP-1
 PAGE 1 OF 1

CLIENT Geonercio	PROJECT NAME The Vineyards at Kirkland
PROJECT NUMBER 2756	PROJECT LOCATION Kirkland, Washington
DATE STARTED 4/20/13	COMPLETED 4/20/13
EXCAVATION CONTRACTOR ESNW Rep	GROUND ELEVATION 238 ft
EXCAVATION METHOD	TEST PIT SIZE
LOGGED BY SHA	CHECKED BY KRC
NOTES Depth of Topsoil & Sod 4"	GROUND WATER LEVELS:
	AT TIME OF EXCAVATION ---
	AT END OF EXCAVATION ---
	AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				
		SM		(4" TOPSOIL) Brown silty SAND with gravel, dense, moist (Weathered Glacial Till) -becomes unweathered at 1.5'
				3.0
				235.0
				Test pit terminated at 3.0 feet below existing grade. No groundwater encountered during excavation. Bottom of test pit at 3.0 feet.

GENERAL BH / TP / WELL 2756.GPJ GINT US.GDT 10/2/13



Earth Solutions NW
 1805 - 136th Place N.E., Suite 201
 Bellevue, Washington 98005
 Telephone: 425-449-4704
 Fax: 425-449-4711

CLIENT Geonerc PROJECT NAME The Vineyards at Kirkland
 PROJECT NUMBER 2756 PROJECT LOCATION Kirkland, Washington
 DATE STARTED 4/20/13 COMPLETED 4/20/13 GROUND ELEVATION 246 ft TEST PIT SIZE _____
 EXCAVATION CONTRACTOR ESNW Rep GROUND WATER LEVELS:
 EXCAVATION METHOD _____ AT TIME OF EXCAVATION ---
 LOGGED BY SHA CHECKED BY KRC AT END OF EXCAVATION ---
 NOTES Depth of Topsoil & Sod 6": field grass AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0					
		TPSL		0.5 TOPSOIL	245.5
				Brown silty SAND with gravel, dense, moist (Weathered Glacial Till)	
		SM		-becomes unweathered at 1.5'	
				3.5	242.5
				Test pit terminated at 3.5 feet below existing grade. No groundwater encountered during excavation. Bottom of test pit at 3.5 feet.	

GENERAL BH / TP / WELL 2756 GPJ GINT US GDT 10/3/13



Earth Solutions NW
 1805 - 136th Place N.E., Suite 201
 Bellevue, Washington 98005
 Telephone: 425-449-4704
 Fax: 425-449-4711

CLIENT Geonenco	PROJECT NAME The Vineyards at Kirkland
PROJECT NUMBER 2756	PROJECT LOCATION Kirkland, Washington
DATE STARTED 4/20/13	COMPLETED 4/20/13
EXCAVATION CONTRACTOR ESNW Rep	GROUND ELEVATION 232 ft
EXCAVATION METHOD	TEST PIT SIZE
LOGGED BY SHA	CHECKED BY KRC
NOTES Depth of Topsoil & Sod 4"	GROUND WATER LEVELS:
	AT TIME OF EXCAVATION ---
	AT END OF EXCAVATION ---
	AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				
		SM		(4" TOPSOIL) Brown silty SAND with gravel, dense, moist (Weathered Glacial Till) -becomes unweathered at 1.5'
				3.0
				Test pit terminated at 3.0 feet below existing grade. No groundwater encountered during excavation. Bottom of test pit at 3.0 feet.
				229.0

GENERAL BH / TP / WELL - 2756 GPJ GINT US GDT 10/3/13



Earth Solutions NW
 1805 - 136th Place N.E., Suite 201
 Bellevue, Washington 98005
 Telephone: 425-449-4704
 Fax: 425-449-4711

TEST PIT NUMBER TP-4
 PAGE 1 OF 1

CLIENT <u>Geonerco</u>	PROJECT NAME <u>The Vineyards at Kirkland</u>
PROJECT NUMBER <u>2756</u>	PROJECT LOCATION <u>Kirkland, Washington</u>
DATE STARTED <u>4/20/13</u> COMPLETED <u>4/20/13</u>	GROUND ELEVATION <u>236 ft</u> TEST PIT SIZE _____
EXCAVATION CONTRACTOR <u>ESNW Rep</u>	GROUND WATER LEVELS:
EXCAVATION METHOD _____	AT TIME OF EXCAVATION <u>--</u>
LOGGED BY <u>SHA</u> CHECKED BY <u>KRC</u>	AT END OF EXCAVATION <u>--</u>
NOTES <u>Depth of Topsoil & Sod 4": duff</u>	AFTER EXCAVATION <u>---</u>

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				
		SM		(4" TOPSOIL) Brown silty SAND with gravel, dense, moist (Weathered Glacial Till) -becomes unweathered at 2.0'
				4.0 232.0
				Test pit terminated at 4.0 feet below existing grade. No groundwater encountered during excavation. Bottom of test pit at 4.0 feet.

GENERAL BH / TP / WELL 2756.GPJ GINT US GDT 10/3/13



Earth Solutions NW
 1805 - 136th Place N.E., Suite 201
 Bellevue, Washington 98005
 Telephone: 425-449-4704
 Fax: 425-449-4711

TEST PIT NUMBER TP-5

PAGE 1 OF 1

CLIENT <u>Geonerc</u>	PROJECT NAME <u>The Vineyards at Kirkland</u>
PROJECT NUMBER <u>2756</u>	PROJECT LOCATION <u>Kirkland, Washington</u>
DATE STARTED <u>4/20/13</u> COMPLETED <u>4/20/13</u>	GROUND ELEVATION <u>232 ft</u> TEST PIT SIZE _____
EXCAVATION CONTRACTOR <u>ESNW Rep</u>	GROUND WATER LEVELS:
EXCAVATION METHOD _____	AT TIME OF EXCAVATION <u>---</u>
LOGGED BY <u>SHA</u> CHECKED BY <u>KRC</u>	AT END OF EXCAVATION <u>---</u>
NOTES <u>Depth of Topsoil & Sod 6": duff</u>	AFTER EXCAVATION <u>---</u>

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0					
		TPSL		0.5 TOPSOIL	231.5
				Brown silty SAND with gravel, dense, moist (Weathered Glacial Till)	
		SM		-becomes unweathered at 2.0'	
				3.5	228.5
				Test pit terminated at 3.5 feet below existing grade. No groundwater encountered during excavation. Bottom of test pit at 3.5 feet.	

GENERAL BH / TP / WELL 2756.GPJ GINT US GDT 10/3/13

Report Distribution

ES-2756

EMAIL ONLY

**Geonerco
1441 North 34th Street, Suite 200
Seattle, Washington 98103**

Attention: Mr. Jamie Waltier

TOTEM VISTA

A Portion of the NW 1/4, NW 1/4 Sect. 27, T.26N., R.5E., W.M. King County, Washington

106-78

DEDICATION

KNOW ALL MEN BY THESE PRESENTS THAT William M. Conner and Marilyn Conner and Puget Sound Mutual Savings Bank, OWNERS IN FEE SIMPLE OF THE LAND HEREBY PLATTED, HEREBY DECLARE THIS PLAT AND DEDICATE TO THE USE OF THE PUBLIC FOREVER, ALL STREETS AND AVENUES SHOWN THEREON AND THE USE THEREOF FOR ALL PUBLIC PURPOSES NOT INCONSISTENT WITH THE USE THEREOF FOR PUBLIC HIGHWAY PURPOSES, ALSO THE RIGHT TO MAKE ALL NECESSARY SLOPES FOR CUTS AND FILLS UPON THE LOTS AND BLOCKS SHOWN ON THE FACE OF THIS PLAT IN THE ORIGINAL REASONABLE GRADING AND MAINTENANCE OF THE STREETS AND AVENUES SHOWN HEREON.

IN WITNESS WHERE WE HAVE HEREUNTO SET OUR HANDS AND SEALS.

William M. Conner Puget Sound Mutual Savings Bank
Marilyn Conner White, Treasurer

ACKNOWLEDGEMENT

STATE OF WASHINGTON S.S. COUNTY OF KING

THIS IS TO CERTIFY THAT ON THIS 31st DAY OF March, 1978, A.D. BEFORE ME, THE UNDERSIGNED, A NOTARY PUBLIC, PERSONALLY APPEARED William M. Conner AND Marilyn Conner TO ME KNOWN TO BE THE INDIVIDUALS WHO EXECUTED THE WITHIN INSTRUMENT AND ACKNOWLEDGED THAT THEY SIGNED AND SEALED THE SAME AS A FREE AND VOLUNTARY ACT AND DEED FOR THE USES AND PURPOSES, HEREIN MENTIONED.

WITNESS MY HAND AND OFFICIAL SEAL THE DAY AND YEAR FIRST ABOVE WRITTEN.

Sharon M. Nugum NOTARY PUBLIC IN AND FOR THE STATE OF WASHINGTON, RESIDING AT Medina

STATE OF WASHINGTON S.S. COUNTY OF KING

THIS IS TO CERTIFY THAT ON THIS 3RD DAY OF APRIL, 1978, A.D. BEFORE ME, THE UNDERSIGNED, A NOTARY PUBLIC, PERSONALLY APPEARED W.M. Conner AND Marilyn Conner

KNOWN TO BE THE Vice President AND respectively, of Puget Sound Mutual Savings Bank THE CORPORATION THAT EXECUTED THE WITHIN DEDICATION, AND WHO ACKNOWLEDGED TO ME THIS SAID INSTRUMENT TO BE A FREE AND VOLUNTARY ACT AND DEED OF SAID CORPORATION FOR THE USES AND PURPOSES THEREIN MENTIONED, AND ON WHOM I STATED THAT THEY WERE AUTHORIZED TO EXECUTE THE SAID DEDICATION AND THAT THE SEAL AFFIXED IS THE SEAL OF SAID CORPORATION.

WITNESS MY HAND AND OFFICIAL SEAL THE DAY AND YEAR FIRST ABOVE WRITTEN.

Sharon M. Nugum NOTARY PUBLIC IN AND FOR THE STATE OF WASHINGTON, RESIDING AT Medina

COMPTROLLER'S CERTIFICATE

I HEREBY CERTIFY THAT ALL PROPERTY TAXES ARE PAID, THAT THERE ARE NO DELINQUENT SPECIAL ASSESSMENTS CERTIFIED TO THIS OFFICE FOR COLLECTION AND THAT ALL SPECIAL ASSESSMENTS CERTIFIED TO THIS OFFICE FOR COLLECTION ON ANY OF THE PROPERTY HEREBY CONTAINED DEDICATED AS STREETS, ALLEYS OR FOR PUBLIC USE, ARE PAID IN FULL.

THIS 19TH DAY OF APRIL, 1978, A.D.

HUGH L. JAMES Deputy King County Comptroller

RECORDING CERTIFICATE 7804250805

FILED FOR RECORD AT THE REQUEST OF THE KING COUNTY COUNCIL THIS 25TH DAY OF APRIL 1978, A.D., AT 09 MINUTES PAST 10 O'CLOCK AM AND RECORDED IN VOLUME 106 OF PLATS OF RECORDS OF KING COUNTY, WASHINGTON. PAGE 78,79

DEPARTMENT OF RECORDS AND ELECTIONS CLINT G. ELSON SUPERINTENDENT OF RECORDS

APPROVALS

EXAMINED AND APPROVED THIS 17th DAY OF April 1978, A.D. DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT

EXAMINED AND APPROVED THIS 24th DAY OF April 1978, A.D. KING COUNTY COUNCIL

Chairman, King County Council Deputy King County Assessor

EXAMINED AND APPROVED THIS 10TH DAY OF APRIL 1978, A.D. DEPARTMENT OF PUBLIC WORKS

DIRECTOR

EXAMINED AND APPROVED THIS 17 DAY OF APRIL 1978, A.D. DEPARTMENT OF ASSESSMENTS

KING COUNTY ASSESSOR DEPUTY KING COUNTY ASSESSOR

DESCRIPTION

THE NORTH 547.17 FEET OF THE WEST HALF OF THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER 34, SECTION 27, TOWNSHIP 26 NORTH, RANGE 5 EAST, W.M., IN KING COUNTY WASHINGTON; EXCEPT THE WEST 30 FEET AS CONVEYED TO KING COUNTY FOR STREET BY DEED RECORDED UNDER AUDITOR'S FILE NO. 8156304 AND EXCEPT THAT PORTION WITHIN N.E. 132ND STREET, (N.W. UPPER COUNTY ROAD NO. 743).

SUBDIVISION CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAT OF TOTEM VISTA IS BASED UPON AN ACTUAL SURVEY OF A PORTION OF SECTION 27, T. 26 N., R. 5 E., W.M., KING COUNTY, WASHINGTON, THAT THE COURSES AND DISTANCES ARE SHOWN CORRECTLY THEREON, THAT THE MONUMENTS WILL BE SET AND THE LOT CORNERS STAKED CORRECTLY ON THE GROUND, AND THAT I HAVE FULLY COMPLIED WITH THE PROVISIONS AND STATUTES AND PLATTING REGULATIONS.

1/1/78

RESTRICTIONS AND COVENANTS

NO LOT OR PORTION OF A LOT IN THIS PLAT SHALL BE DIVIDED AND SOLD OR RESOLD OR OWNERSHIP CHANGED OR TRANSFERRED, WHEREBY THE OWNERSHIP OF ANY PORTION OF ANY LOT SHALL BE LESS THAN THE AREA REQUIRED FOR THE USE DISTRICT IN WHICH IT IS LOCATED.

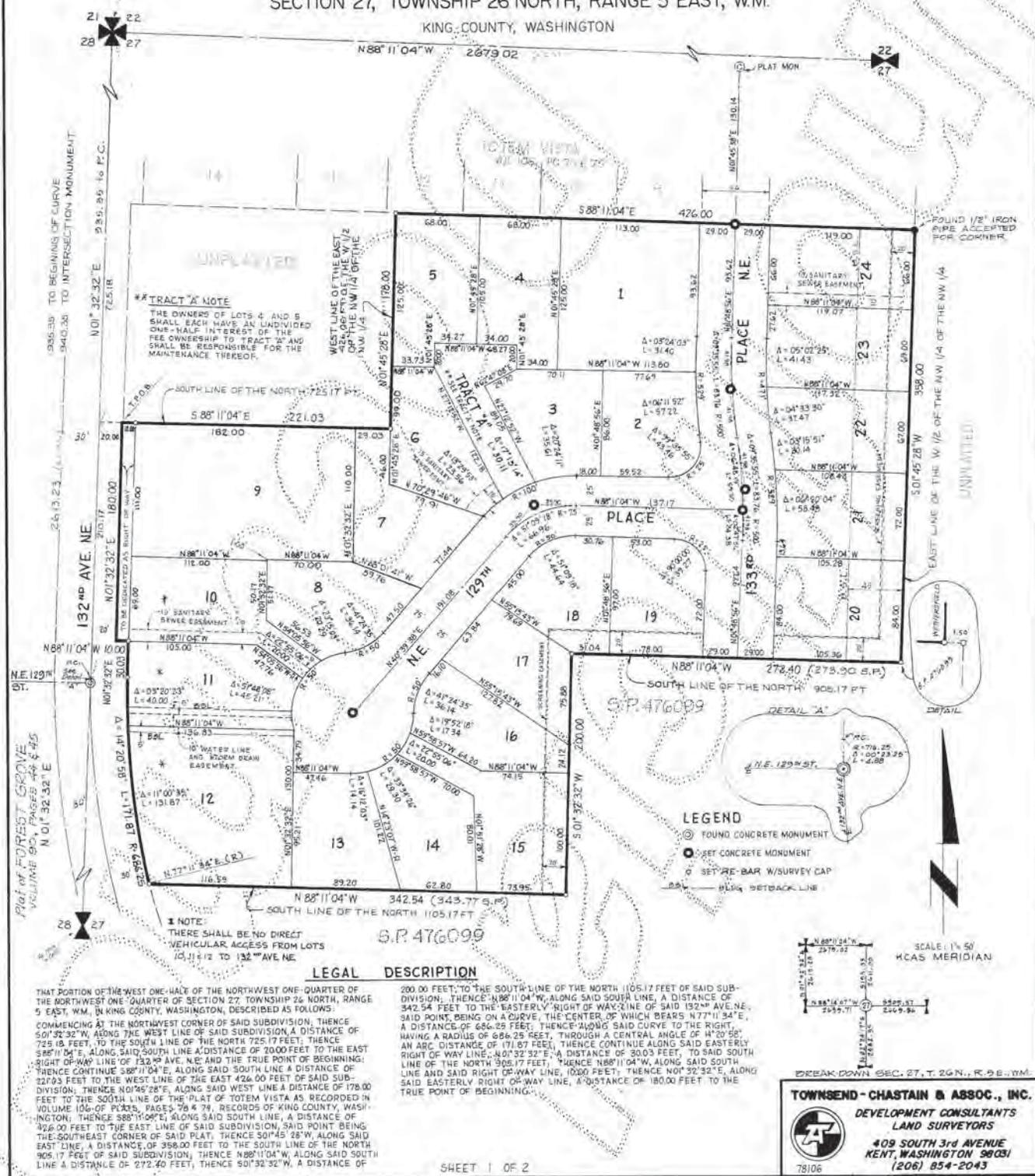
EASEMENT

AN EASEMENT IS HEREBY RESERVED FOR AND GRANTED TO PUGET SOUND POWER & LIGHT COMPANY AND GENERAL TELEPHONE COMPANY AND THEIR RESPECTIVE SUCCESSORS AND ASSIGNS, UNDER AND UPON THE EXTERIOR 2 FEET, PARALLEL WITH AND ADJOINING THE STREET FRONTAGE OF ALL LOTS IN WHICH TO BE INSTALLED, CONSTRUCTED, MAINTAINED, OPERATED AND MAINTAINED UNDERGROUND CONDUITS, CABLES AND WIRES WITH NECESSARY FACILITIES AND OTHER EQUIPMENT FOR THE PURPOSE OF SERVING THIS SUBDIVISION AND OTHER PROPERTY WITH ELECTRIC AND TELEPHONE SERVICE, TOGETHER WITH THE RIGHT TO ENTER UPON THE LOTS AT ALL TIMES FOR THE PURPOSES HEREBY STATED.

WETHERSFIELD

SECTION 27, TOWNSHIP 26 NORTH, RANGE 5 EAST, W.M.
KING COUNTY, WASHINGTON

115-31



1956.39 TO BEGINNING OF CURVE
9410.30 TO INTERSECTION MONUMENT
N01°32'32\"/>

132nd AVE. NE
N01°32'32\"/>

Plot of Forest Grove
VOLUME 92, PAGES 44 & 45
N01°32'32\"/>

TRACT A NOTE
THE OWNERS OF LOTS 4 AND 5 SHALL EACH HAVE AN UNDIVIDED ONE-HALF INTEREST OF THE FEE OWNERSHIP TO TRACT A AND SHALL BE RESPONSIBLE FOR THE MAINTENANCE THEREOF.

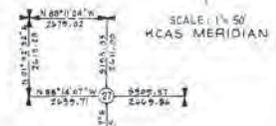
NOTE
THERE SHALL BE NO DIRECT VEHICULAR ACCESS FROM LOTS 13, 14 & 15 TO 132nd AVE. NE.

LEGAL DESCRIPTION

THAT PORTION OF THE WEST ONE-HALF OF THE NORTHWEST ONE-QUARTER OF THE NORTHWEST ONE-QUARTER OF SECTION 27, TOWNSHIP 26 NORTH, RANGE 5 EAST, W.M., IN KING COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:
COMMENCING AT THE NORTHWEST CORNER OF SAID SUBDIVISION, THENCE S01°32'32\"/>

200.00 FEET TO THE SOUTH LINE OF THE NORTH 1105.17 FEET OF SAID SUBDIVISION; THENCE N88°11'04\"/>

- LEGEND**
- FOUND CONCRETE MONUMENT
 - SET CONCRETE MONUMENT
 - SET RE-BAR W/SURVEY CAP
 - HING BACKLINE



TOWNSEND-CHASTAIN & ASSOC., INC.
DEVELOPMENT CONSULTANTS
LAND SURVEYORS
409 SOUTH 3rd AVENUE
KENT, WASHINGTON 98031
(206) 854-2043

78106

WETHERSFIELD

115-32

SECTION 27, TOWNSHIP 26 NORTH, RANGE 5 EAST, W.M.

KING COUNTY, WASHINGTON

RECORDER'S CERTIFICATE 8007080282

EASEMENT RESERVATIONS

AN EASEMENT IS HEREBY RESERVED FOR AND GRANTED TO WATER DISTRICT NO. 104 UNDER AND UPON THE EASEMENTS SHOWN ON THE PLAT AND DESCRIBED HEREIN AS "WATER LINE EASEMENT" TO INSTALL, MAINTAIN, REPLACE, REPAIR AND OPERATE WATER MAINS AND APPURTENANCES FOR THIS SUBDIVISION AND OTHER PROPERTY TOGETHER WITH THE RIGHT TO ENTER UPON SAID EASEMENTS AT ALL TIMES FOR THE PURPOSES STATED. STRUCTURES SHALL NOT BE CONSTRUCTED UPON ANY AREA RESERVED FOR THESE EASEMENTS.

AN EASEMENT IS ALSO HEREBY RESERVED FOR AND GRANTED TO PUGET SOUND POWER AND LIGHT COMPANY, GENERAL TELEPHONE CO., WASHINGTON NATURAL GAS COMPANY, ANY CABLE T.V. COMPANY AND THEIR RESPECTIVE SUCCESSORS AND ASSIGNS, UNDER AND UPON THE SEVEN FEET PARALLEL WITH AND ADJOINING THE STREET FRONTAGE OF ALL LOTS IN WHICH TO INSTALL, LAY, CONSTRUCT, RENEW, OPERATE AND MAINTAIN UNDERGROUND PIPE CONDUITS, CABLES AND WIRES WITH NECESSARY FACILITIES AND OTHER EQUIPMENT FOR THE PURPOSE OF SERVING THIS SUBDIVISION AND OTHER PROPERTY WITH ELECTRIC, TELEPHONE AND UTILITY SERVICE TOGETHER WITH THE RIGHT TO ENTER UPON THE LOTS AT ALL TIMES FOR THE PURPOSES HEREIN STATED. ALSO, EACH LOT SHALL BE SUBJECT TO AN EASEMENT 2.0 FEET IN WIDTH, PARALLEL WITH AND ADJACENT TO ALL INTERIOR LOT LINES FOR PURPOSES OF UTILITIES AND DRAINAGE.

THESE EASEMENTS ENTERED UPON FOR THOSE PURPOSES SHALL BE RESTORED AS NEAR AS POSSIBLE TO THEIR ORIGINAL CONDITION. NO LINES OR VARS FOR THE TRANSMISSION OF ELECTRIC CURRENT OR TELEPHONE USE OR CABLE TELEVISION SHALL BE PLACED OR PERMITTED TO BE PLACED UPON ANY LOT UNLESS THE SAME SHALL BE UNDERGROUND OR IN CONDUIT ATTACHED TO A BUILDING.

RESTRICTIONS

- THERE SHALL BE NO DIRECT VEHICULAR ACCESS TO 130TH AVENUE NEAR FROM LOTS 10, 11 AND 12.
- NO LOT OR PORTION OF A LOT IN THIS PLAT SHALL BE DIVIDED AND SOLD, OR RESOLD, OR OWNERSHIP CHANGED OR TRANSFERRED, WHEREBY THE OWNERSHIP OF ANY PORTION OF ANY LOT SHALL BE LESS THAN THE AREA REQUIRED FOR THE USE DICTATED IN WHICH IT IS LOCATED.
- PROTECTIVE COVENANTS AS RECORDED UNDER KING COUNTY AUDITOR'S FILE NO. 4902082.
- RESTRICTIONS CONTAINED IN KING COUNTY SHORT PLAT NO. 476003 UNDER RECORDING NO. 7702030583 APPLIED TO LOTS 10, 11 AND 12.

APPROVALS

EXAMINED AND APPROVED THIS 10th DAY OF JUNE, 1980.

DEPARTMENT OF PUBLIC WORKS
Paul C. Thompson, P.E.
COUNTY ROAD ENGINEER

EXAMINED AND APPROVED THIS 11th DAY OF JUNE, 1980.

DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT
J. P. [Signature]
MANAGER, BUILDING AND LAND DEVELOPMENT

EXAMINED AND APPROVED THIS [] DAY OF [], 19[].
DEPARTMENT OF ASSESSMENTS

KING COUNTY ASSESSOR DEPUTY COUNTY ASSESSOR

EXAMINED AND APPROVED THIS [] DAY OF [], 19[].

KING COUNTY COUNCIL
Bill Reams
CHAIRPERSON, KING COUNTY COUNCIL CLERK OF THE COUNCIL

LAND SURVEYOR'S CERTIFICATION

WAYNE E. CHASTAIN, HEREBY CERTIFY THAT THIS PLAT OF WETHERSFIELD IS BASED UPON AN ACTUAL SURVEY AND SUBDIVISION OF SECTION 27, TOWNSHIP 26 NORTH, RANGE 5 EAST, W.M., KING COUNTY, WASHINGTON, AND THE COURSES AND DISTANCES SHOWN HEREON CORRECTLY; THAT THE MONUMENTS WILL BE SET AND THE LOTS STAKED ON THE GROUND, AND THAT I HAVE FULLY COMPLIED WITH THE PROVISIONS OF THE STATUTES AND PLATTING REGULATIONS.

Wayne E. Chastain
WAYNE E. CHASTAIN, P.L.S.
CERTIFICATE NO. 10350

ACKNOWLEDGEMENTS

STATE OF WASHINGTON }
COUNTY OF KING }
THIS IS TO CERTIFY THAT ON THE [] DAY OF [] 19[], BEFORE ME, THE UNDERSIGNED, A NOTARY PUBLIC, HAVE PERSONALLY APPEARED [] OF WASHINGTON MUTUAL SAVINGS BANK, TO ME KNOWN TO ME KNOWN TO BE THE REPRESENTATIVE OF SAID CORPORATION, WHO EXECUTED THE WITHIN AND FOREGOING DEDICATION AND ACKNOWLEDGED THE SAID INSTRUMENT TO BE THE FREE AND VOLUNTARY ACT AND DEED OF SAID CORPORATION FOR THE USES AND PURPOSES THEREIN MENTIONED, AND ON OATH STATED THAT HE WAS THE INDIVIDUAL AUTHORIZED TO EXECUTE THE SAID INSTRUMENT AND THAT THE SEAL AFFIXED IS THE CORPORATE SEAL OF SAID CORPORATION.
WITNESS MY HAND AND OFFICIAL SEAL THE DAY AND YEAR FIRST MENTIONED ABOVE.

NOTARY PUBLIC IN AND FOR THE STATE OF WASHINGTON
RESIDING AT []

DEDICATION

KNOW ALL MEN BY THESE PRESENTS THAT THE UNDERSIGNED OWNERS IN FEE SIMPLE OF THE LAND HEREBY PLATTED, HEREBY DECLARE THIS PLAT AND DEDICATE TO THE USE OF THE PUBLIC FOREVER, ALL STREETS AND AVENUES SHOWN HEREON, AND THE USE THEREOF FOR ALL PUBLIC PURPOSES; ALSO, THE RIGHT TO MAKE ALL NECESSARY SLOPES FOR CUTS AND FILLS UPON THE LOTS AND BLOCKS SHOWN ON THIS PLAT IN THE ORIGINAL REASONABLE GRADINGS OF THE STREETS AND AVENUES SHOWN HEREON.

IN WITNESS WHEREOF WE HAVE SET OUR HANDS AND SEALS

ROBERT J. HOTCHKISS, PRES. FINER HOMES, INC.
BETHE HOTCHKISS, PUGET SOUND MUTUAL SAVINGS BANK
RICHARD T. FAVARO, SUSAN C. FAVARO
WASHINGTON MUTUAL SAVINGS BANK

ACKNOWLEDGEMENTS

STATE OF WASHINGTON }
COUNTY OF KING }
THIS IS TO CERTIFY THAT ON THE [] DAY OF [] 19[], BEFORE ME, THE UNDERSIGNED, A NOTARY PUBLIC, HAVE PERSONALLY APPEARED [] OF FINER HOMES, INC., TO ME KNOWN TO BE THE REPRESENTATIVE OF SAID CORPORATION, WHO EXECUTED THE WITHIN AND FOREGOING DEDICATION AND ACKNOWLEDGED THE SAID INSTRUMENT TO BE THE FREE AND VOLUNTARY ACT AND DEED OF SAID CORPORATION FOR THE USES AND PURPOSES THEREIN MENTIONED, AND ON OATH STATED THAT HE WAS THE INDIVIDUAL AUTHORIZED TO EXECUTE THE SAID INSTRUMENT AND THAT THE SEAL AFFIXED IS THE CORPORATE SEAL OF SAID CORPORATION.
WITNESS MY HAND AND OFFICIAL SEAL THE DAY AND YEAR FIRST MENTIONED ABOVE.

NOTARY PUBLIC IN AND FOR THE STATE OF WASHINGTON
RESIDING AT []

STATE OF WASHINGTON }
COUNTY OF KING }
THIS IS TO CERTIFY THAT ON THE [] DAY OF NOVEMBER, 19[], BEFORE ME, THE UNDERSIGNED, A NOTARY PUBLIC, HAVE PERSONALLY APPEARED [] OF PUGET SOUND MUTUAL SAVINGS BANK, TO ME KNOWN TO BE THE REPRESENTATIVE OF SAID CORPORATION AND EXECUTED THE WITHIN AND FOREGOING DEDICATION AND ACKNOWLEDGED THE SAID INSTRUMENT TO BE THE FREE AND VOLUNTARY ACT AND DEED OF SAID CORPORATION FOR THE USES AND PURPOSES THEREIN MENTIONED, AND ON OATH STATED THAT HE WAS THE INDIVIDUAL AUTHORIZED TO EXECUTE THE SAID INSTRUMENT AND THAT THE SEAL AFFIXED IS THE CORPORATE SEAL OF SAID CORPORATION.
WITNESS MY HAND AND OFFICIAL SEAL THE DAY AND YEAR FIRST MENTIONED ABOVE.

NOTARY PUBLIC IN AND FOR THE STATE OF WASHINGTON
RESIDING AT []

STATE OF WASHINGTON }
COUNTY OF KING }
THIS IS TO CERTIFY THAT ON THE [] DAY OF [] 19[], BEFORE ME, THE UNDERSIGNED, A NOTARY PUBLIC, HAVE PERSONALLY APPEARED RICHARD T. FAVARO & SUSAN C. FAVARO, TO ME KNOWN TO BE THE PERSONS WHO EXECUTED THE FOREGOING DEDICATION, AND WHO ACKNOWLEDGED TO ME THAT THEY SIGNED AND SEALED THE SAME AS THEIR FREE AND VOLUNTARY ACT AND DEED FOR THE USES AND PURPOSES THEREIN MENTIONED.
WITNESS MY HAND AND OFFICIAL SEAL THE DAY AND YEAR FIRST MENTIONED ABOVE.

NOTARY PUBLIC IN AND FOR THE STATE OF WASHINGTON
RESIDING AT []

STATE OF WASHINGTON }
COUNTY OF KING }
THIS IS TO CERTIFY THAT ON THE [] DAY OF [] 19[], BEFORE ME, THE UNDERSIGNED, A NOTARY PUBLIC, HAVE PERSONALLY APPEARED ROBERT J. HOTCHKISS, AND BETHE HOTCHKISS, KNOWN TO BE THE PERSONS WHO EXECUTED THE FOREGOING DEDICATION, AND WHO ACKNOWLEDGED TO ME THAT THEY SIGNED AND SEALED THE SAME AS THEIR FREE AND VOLUNTARY ACT AND DEED FOR THE USES AND PURPOSES THEREIN MENTIONED.
WITNESS MY HAND AND OFFICIAL SEAL THE DAY AND YEAR FIRST MENTIONED ABOVE.

NOTARY PUBLIC IN AND FOR THE STATE OF WASHINGTON
RESIDING AT []

COMPTROLLER CERTIFICATE
I HEREBY CERTIFY THAT ALL PROPERTY TAXES ARE PAID, THAT THERE ARE NO DELINQUENT SPECIAL ASSESSMENTS CURRENT, AND THAT ALL SPECIAL ASSESSMENTS CERTIFIED TO THIS OFFICE ARE COLLECTION QUANTUM.
THE PROPERTY HEREIN CONTAINED IS SUBJECT TO STATE, COUNTY, AND CITY TAXES, PUBLIC USES, AND DUES IN ACCORDANCE WITH THE DAY OF JULY, 1980.

KING COUNTY COMPTROLLER
[Signature]
DEPUTY COMPTROLLER

TOWNSEND-CHASTAIN & ASSOC., INC.
DEVELOPMENT CONSULTANTS
LAND SURVEYORS
409 SOUTH 3rd AVENUE
KENT, WASHINGTON 98031
(206) 854-2043

115/82

MEADOW VIEW

W/2 OF THE NW/4 OF THE NW/4, SEC 27, T26N, R6E, WM KING COUNTY, WASHINGTON

134/88

DEDICATION

KNOW ALL PEOPLE BY THESE PRESENTS that we, the undersigned Owners of the land hereby subdivided, hereby declare this plat to be the graphic representation of the subdivision made herein, and do hereby dedicate to the use of the public...

Further the undersigned owners of the land hereby subdivided, waive for themselves, their heirs and assigns and any person or entity title from the undersigned, and all claims for damages against King County, its successors and assigns...

Further, the undersigned owners of the land hereby subdivided, agree for themselves, their heirs and assigns to indemnify and hold King County, its successors and assigns harmless from any damage, including any costs of defense, claimed by persons within or without this subdivision to have been caused by alterations of the ground surface...

Kenneth D. Melton, Melton Homes, Inc., President; Melton Homes, Inc., Secretary

Beverly J. Gonzales, Sound Savings and Loan Association; Barbara J. Fox

EASEMENT PROVISIONS

An easement is hereby reserved for and granted to PUEBT SOUND POWER AND LIGHT COMPANY, GENERAL TELEPHONE COMPANY, (INC.), WASHINGTON NATURAL GAS, and KING COUNTY WATER DISTRICT NO. 104, LAKE WASHINGTON SEWER DISTRICT and their respective successors and assigns...

No lines or wires for the transmission of electric current or for telephone use, CATV, fire or police signals, or for other purposes shall be placed or permitted to be placed upon any lot outside the buildings thereon unless the same shall be underground or be attached to the building.

RESTRICTIONS

No lot or portion of a lot in this plat shall be divided and sold or resold or ownership changed or transferred whereby the ownership of any portion of this plat shall be less than the area required for the use district in which located.

APPROVALS

Examined and approved this 27th day of Sept, 1986, A.D. Department of Planning and Community Development.

Examined and approved this 27th day of Sept, 1986, A.D. Chairman, King County Council.

Examined and approved this 27th day of Sept, 1986, A.D. Department of Public Works.

Examined and approved this 27th day of Sept, 1986, A.D. County Road Engineer.

Examined and approved this 27th day of Sept, 1986, A.D. Department of Assessments.

Examined and approved this 27th day of Sept, 1986, A.D. King County Assessor.

BALD FILE 284-3

SHEET 1 OF 2

ACKNOWLEDGMENTS

STATE OF WASHINGTON COUNTY OF KING

On this 25th day of August, 1986, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared Kenneth D. Melton to me known to be the President and Neil Hennepacker Secretary, respectively, of Melton Homes, Inc. the corporation that executed the foregoing instrument...

Witness my hand and official seal hereto affixed the day and year first above written. Notary Public in and for the State of Washington, residing at Redmond.

STATE OF WASHINGTON COUNTY OF KING

On this 25th day of August, 1986, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared BEVERLY J. GONZALES & BARBARA A. FOX to me known to be the President and Vice President, respectively, of SOUND SAVINGS & LOAN ASSN the corporation that executed the foregoing instrument...

Witness my hand and official seal hereto affixed the day and year first above written. Notary Public in and for the State of Washington, residing at SILVERDALE.

FINANCE DIRECTORS CERTIFICATE

I hereby certify that all property taxes are paid, that there are no delinquent special assessments certified to this office for collection, and that all special assessments certified to this office for collection on any of the property herein contained, dedicated as streets, alleys or for other public use, are paid in full. This 27th day of Sept, 1986.

OFFICE OF FINANCE Director of Finance Deputy Director of Finance

RECORDING CERTIFICATE 8609090505

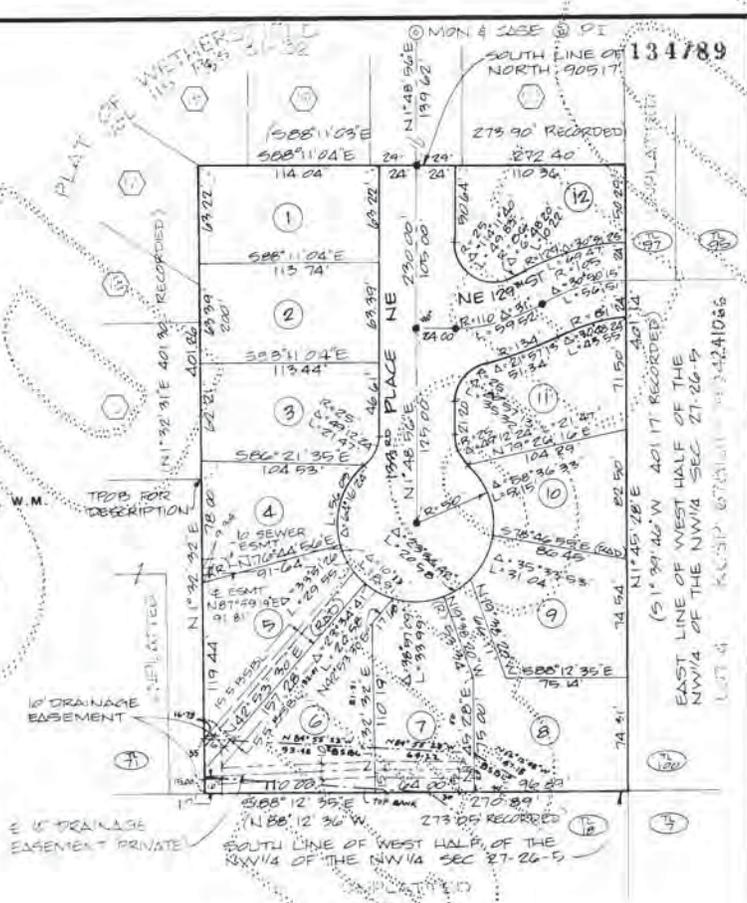
Filed for record at the request of the King County Council this 9th day of SEPTEMBER, 1986, A.D. at 10 minutes past 10 A.M. and recorded in Volume 134 of Plats, pages 88 thru 89, records of King County, Washington.

JANE HAGUE Manager JAMES S. WELLS Superintendent of Records

134/88

MEADOW VIEW

W 1/2 OF THE NW 1/4 OF THE NW 1/4, SECTION 27, T26N, R5E, W.M.
KING COUNTY, WASHINGTON



SECTION BREAKDOWN PER PLAT OF WETHERSFIELD
VOL 115 Pgs 31 & 32

- LEGEND**
- MET COUNTY STANDARD MONUMENT & CASE
 - ⊙ FOUND. MON. & CASE

- NOTES**
- The 10' drainage sewer easement across Lots 4 and 5 is granted to Northeast Lake Washington Sewer District, a Municipal Corporation of King County, Washington, upon recording of this plat.
 - All building, downspouts, and footing drains shall be collected at the street drainage system, unless otherwise approved by King County Department of Public Works.
 - Restriction: No structures, filling, grading or obstructions (including but not limited to decks, patios, outbuildings or overhangs) shall be permitted beyond the building setback line or within the drainage easements.

LEGAL DESCRIPTION

That portion of the west half of the northwest quarter of the northwest quarter of Section 27, Township 26 North, Range 5 East, W.M., King County, Washington, described as follows:

Commencing at the southeast corner of said Section 27, thence S 22° 22' 00" W along the west line (marked 405.17 feet) thence S 88° 11' 04" E 218.00 feet thence S 73° 27' 24" W 20.00 feet thence S 88° 11' 04" E 175.94 feet to the true point of beginning; thence S 12° 32' 27" W 35.00 feet thence S 89° 11' 04" E 272.48 feet to the southeast corner of said west half of the northwest quarter of the northwest quarter thence S 74° 57' 38" W along said east line 405.17 feet to the southeast corner of said west half thence S 88° 12' 35" W along the south line of said northwest quarter of the northwest quarter 272.48 feet to a point which is 175.94 feet from the true point of beginning thence S 11° 12' 35" E 175.94 feet to the true point of beginning.

SURVEYOR'S CERTIFICATE

I hereby certify that this plat of Meadow View is based upon an actual survey and subdivision of Section 27, Township 26 North, Range 5 East, W.M., the courses and distances are shown correctly thereon that the monuments will be set and the lot corners staked correctly on the ground, and that I have fully complied with all provisions of the statutes and Platting Act of this State.

R. M. H. 3615
Surveyor Washington - Licensed No. _____