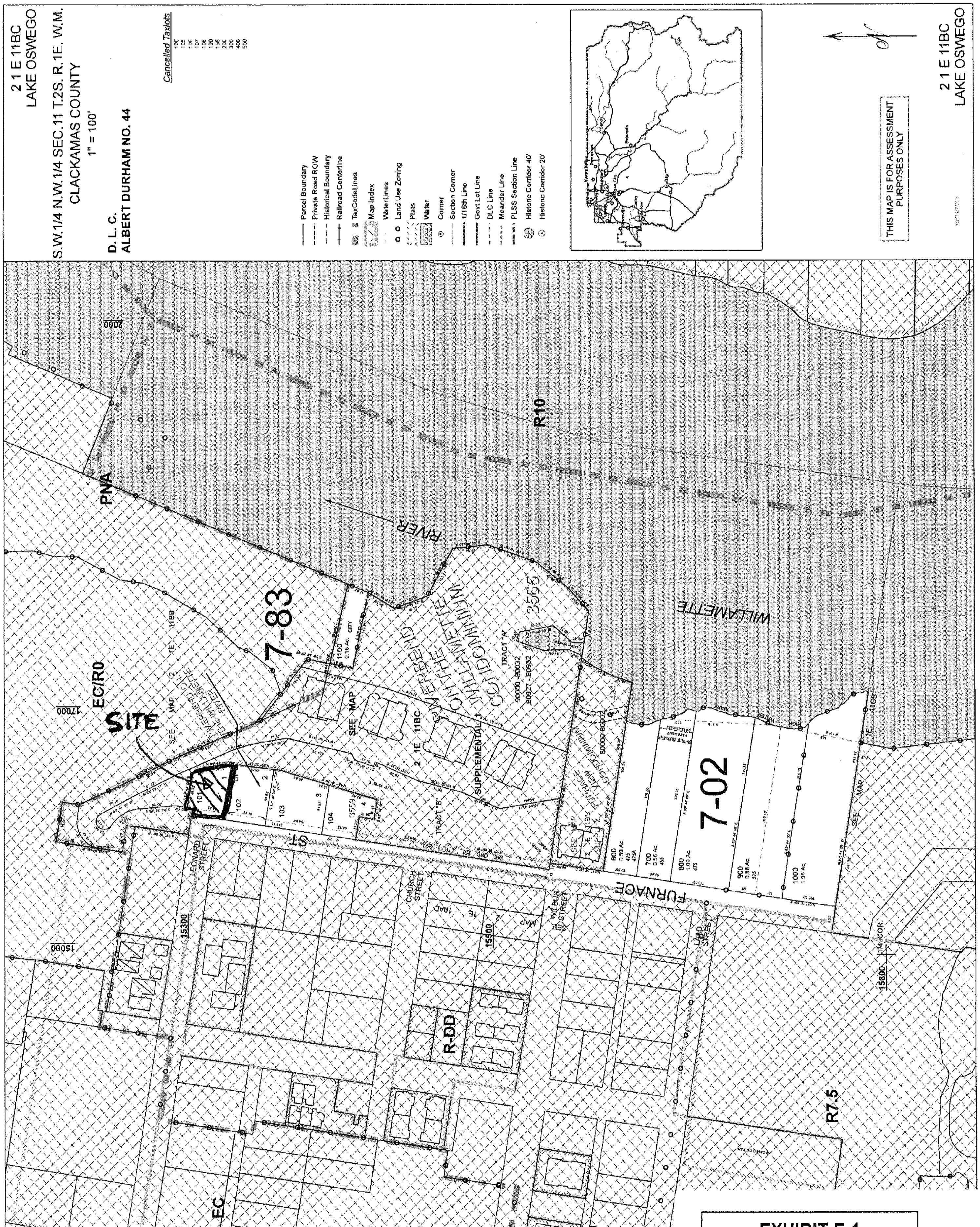


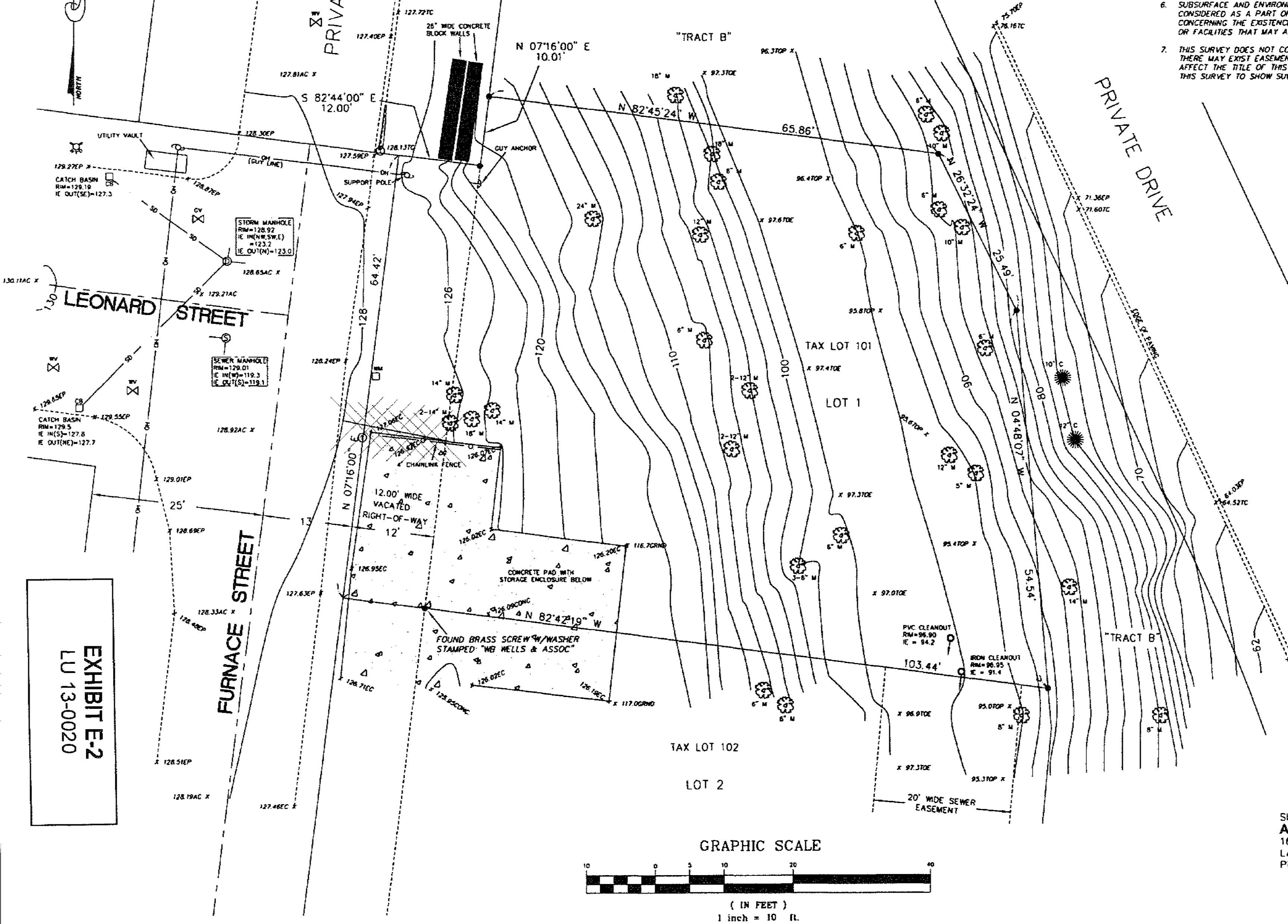

**EXHIBIT E-1**
LU 13-0020

# TOPOGRAPHIC/SITE SURVEY

FOR:
LINDA KITCHEN

BEING LOT 1, "RIVERBEND ON THE WILLAMETTE RIVER"
TOGETHER WITH A VACATED PORTION OF FURNACE STREET
IN THE NW 1/4 SEC. 11, T.2S., R.1E., W.M.
CITY OF LAKE OSWEGO
CLACKAMAS COUNTY, OREGON

NOVEMBER 23, 2011 MAP 2 1E 11BC




NOTES:

1. ELEVATION DATUM IS CITY OF LAKE OSWEGO FROM BENCH MARK 18J-2, A BRASS DISK IN THE CURB OF THE PARKING LOT AT GEORGE ROGERS PARK WITH AN NGVD 29 ELEVATION OF 66.145 FEET.
2. THE BOUNDARIES AS SHOWN ON THIS MAP ARE APPROXIMATE ONLY. THIS MAP DOES NOT REPRESENT A SURVEY TO BE RECORDED, BUT WAS DONE FOR SITE/TOPO INFORMATION ONLY.
3. THIS SURVEY IS MADE FOR THE ORIGINAL PURCHASER OF THE SURVEY ONLY. ANDY PARIS & ASSOCIATES, INC. ASSUMES NO LIABILITY FOR INFORMATION SHOWN HEREON TO ANY OTHER INSTITUTIONS OR SUBSEQUENT PURCHASERS OF THE PROPERTY.
4. SURVEY IS VALID ONLY IF PRINT HAS SEAL AND SIGNATURE OF SURVEYOR.
5. LOCATION OF UNDERGROUND UTILITIES IS UNKNOWN AND NOT SHOWN.
6. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT EXAMINED OR CONSIDERED AS A PART OF THIS SURVEY. NO STATEMENT IS MADE CONCERNING THE EXISTENCE OF UNDERGROUND OR OVERHEAD CONTAINERS OR FACILITIES THAT MAY AFFECT THE USE OR DEVELOPMENT OF THIS TRACT.
7. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY SURVEYOR. THERE MAY EXIST EASEMENTS, CONDITIONS, OR RESTRICTIONS THAT COULD AFFECT THE TITLE OF THIS PROPERTY. NO ATTEMPT HAS BEEN MADE IN THIS SURVEY TO SHOW SUCH MATTERS THAT MAY AFFECT TITLE.

LEGEND:

- FOUND 5/8" IRON ROD W/YPC STAMPED "WB WELLS ASSOC. INC." UNLESS NOTED OTHERWISE
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- SANITARY SEWER MANHOLE
- STORM MANHOLE
- CATCH BASIN
- GAS VALVE
- UTILITY POLE
- GUY ANCHOR
- TRAFFIC SIGN
- — SD — STORM DRAINAGE LINE
- — OH — OVERHEAD UTILITY LINES
- X0.0GRND SPOT ELEVATION GROUND
- X0.0EC SPOT ELEVATION EDGE OF CONCRETE
- X0.0CONC SPOT ELEVATION TOP OF CONCRETE
- X0.0TC SPOT ELEVATION TOP OF CURB
- X0.0EP SPOT ELEVATION EDGE OF PAVEMENT
- X0.0AC SPOT ELEVATION TOP OF ASPHALT
- X0.0TOE SPOT ELEVATION TOE OF SLOPE
- X0.0TOP SPOT ELEVATION TOP OF SLOPE

REGISTERED PROFESSIONAL LAND SURVEYOR

OREGON
JANUARY 15, 1987
HAROLD P. SALO
2264

EXPIRES: JUNE 30, 2012

SURVEYED BY:
**ANDY PARIS AND ASSOCIATES, INC.**
16057 BOONES FERRY ROAD
LAKE OSWEGO, OREGON 97035
PH: 503-636-3341

PROJECT: 11114
DRAWING: 11114TP1.DWG
DRAFTED: A.M. 112311

**EXHIBIT E-2**
LU 13-0020

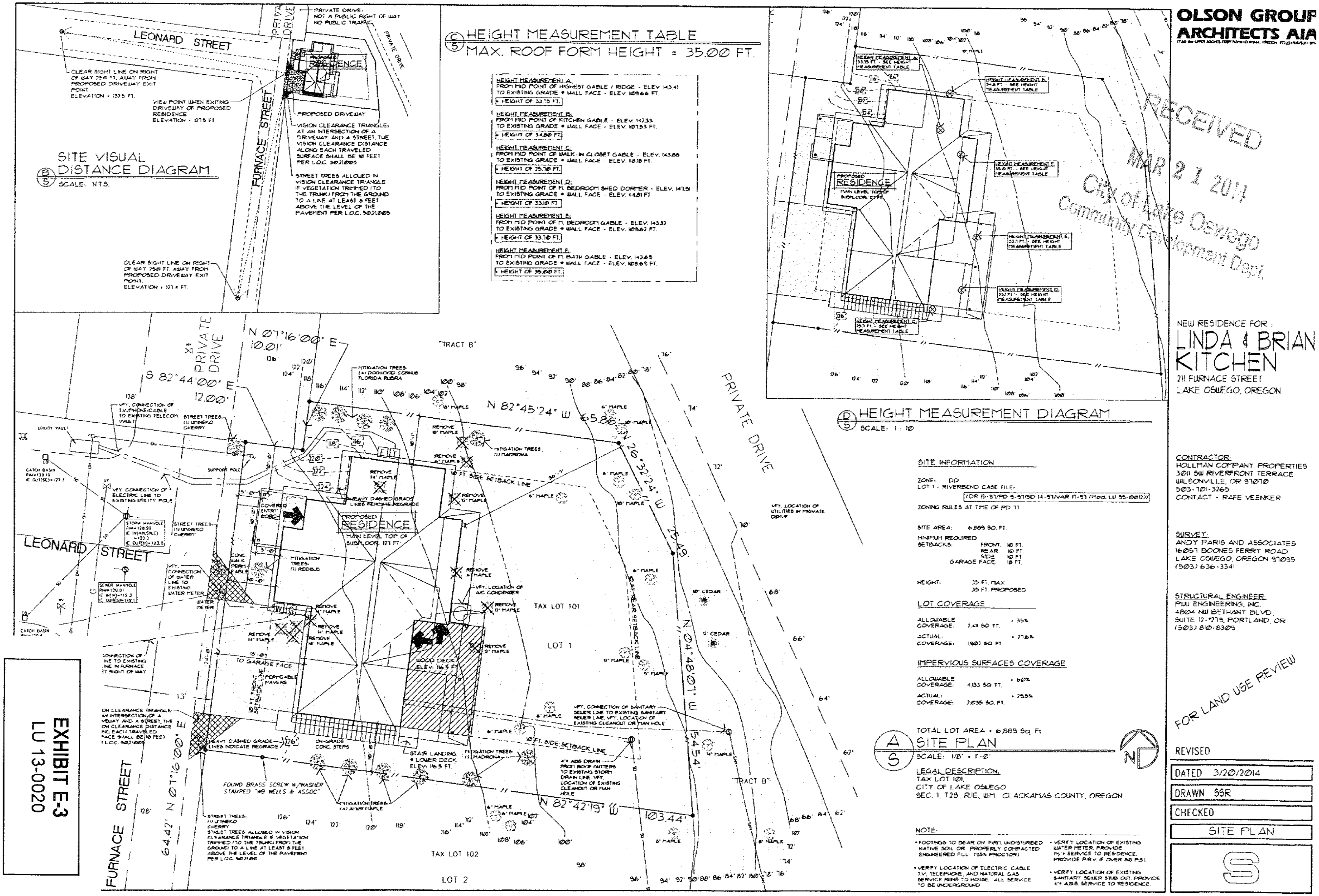
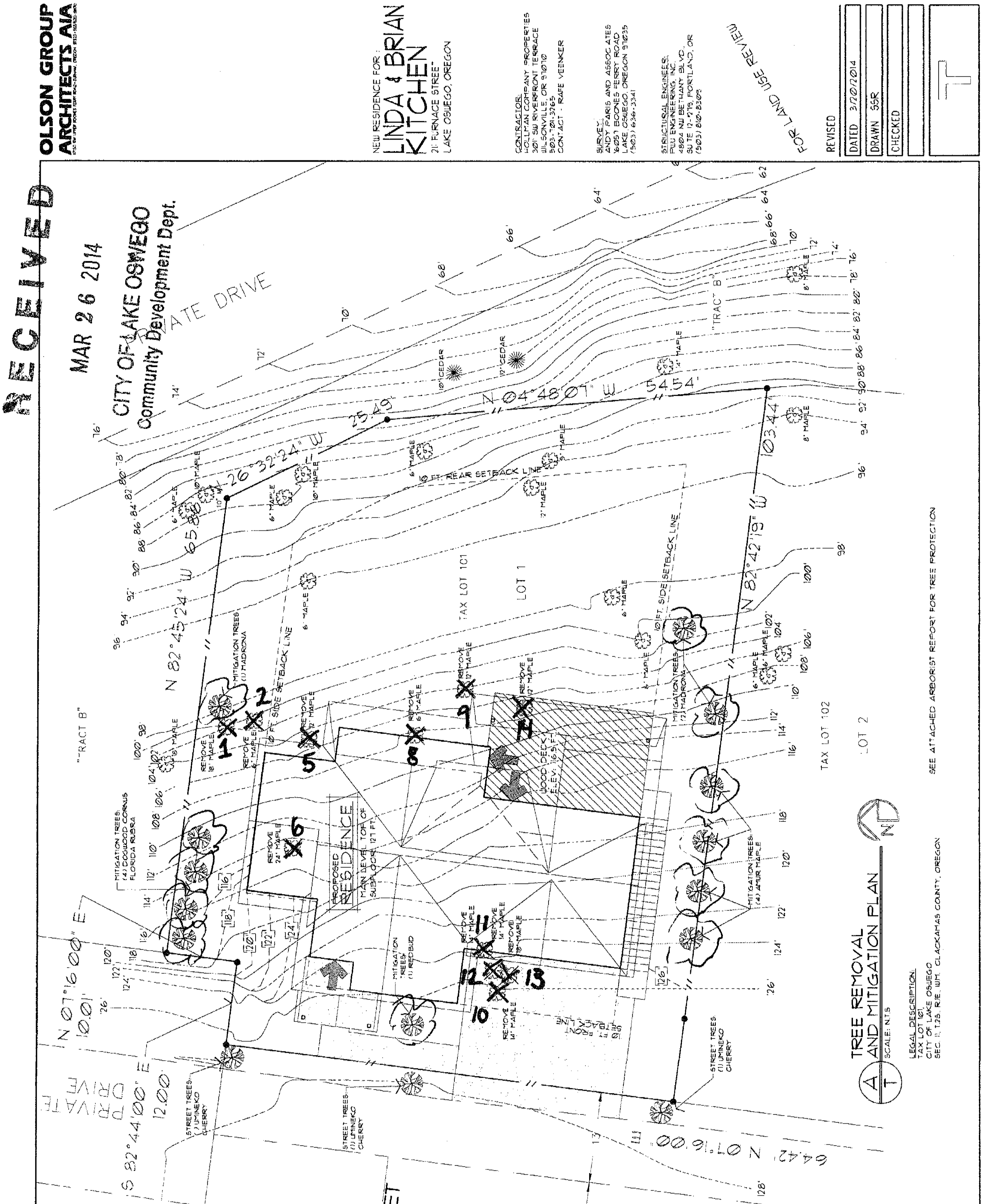



EXHIBIT E-3
LU 13-0020

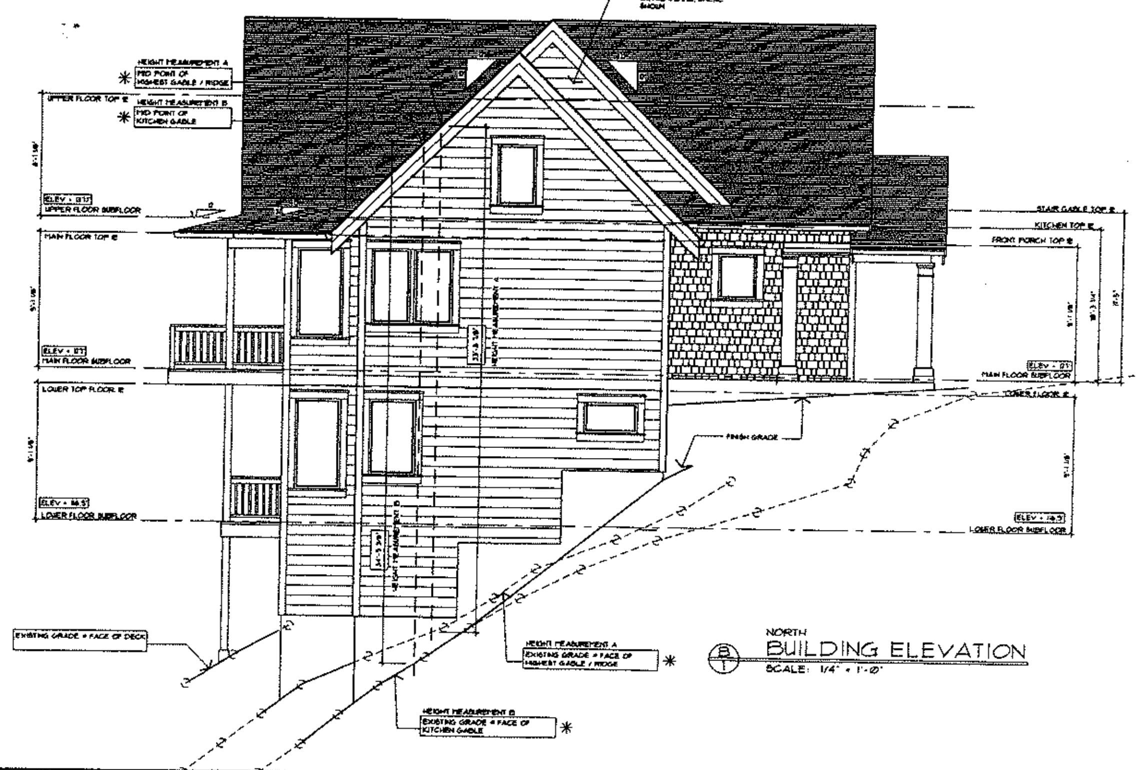



X -removed (See Exhibit F3 for Tree Inventory #s)

-mitigation

**EXHIBIT E-4**
LU 13-0020

WEST
BUILDING ELEVATION
SCALE: 1/4" = 1'-0"



NORTH
BUILDING ELEVATION
SCALE: 1/4" = 1'-0"

**OLSON GRO**
**ARCHITECTS A**

NEW RESIDENCE FOR:
LINDA & BRI
KITCHEN
211 FURNACE STREET
LAKE OSWEGO, OREGON

CONTRACTOR:
HOLLMAN COMPANY PROPERTI
3011 SW RIVERFRONT TERRACE
WILSONVILLE, OR 97070
503-701-3765
CONTACT - RAFE VEENKER

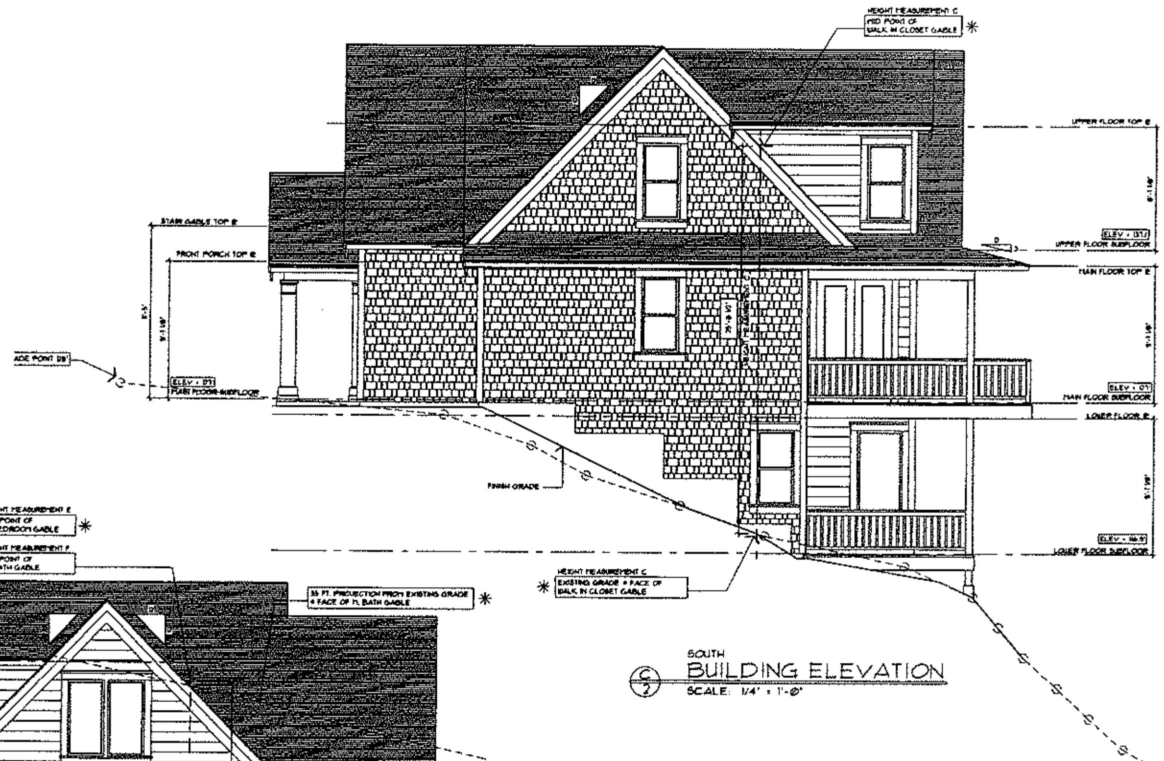
SURVEY:
ANDY PARIS AND ASSOCIATES
16057 BOONES FERRY ROAD
LAKE OSWEGO, OREGON 97035
(503) 636-3341

STRUCTURAL ENGINEER:
PWJ ENGINEERING, INC.
4804 NW BETHANY BLVD.
SUITE I2-279, PORTLAND, OR
(503) 810-8309

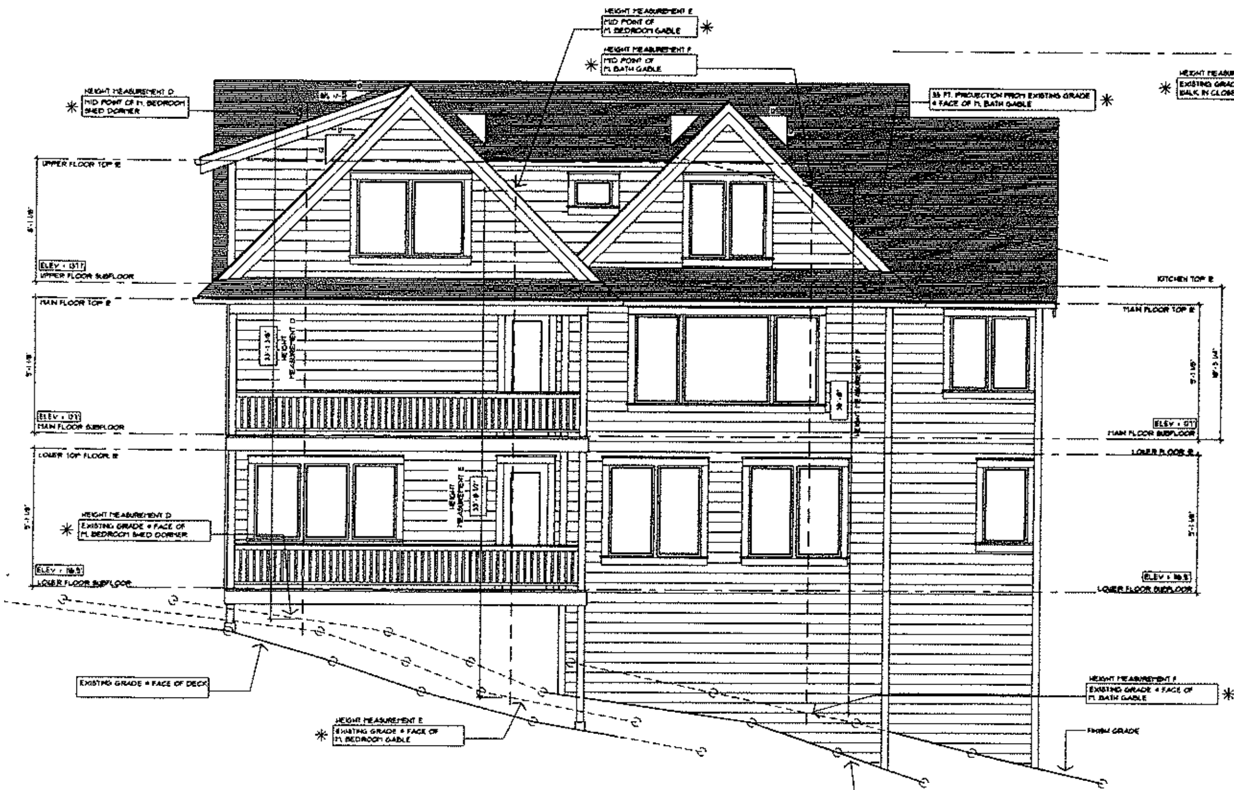
FOR LAND USE REVIEW

| | |
|---|---|
| REVISED | |
| DATED | 3/20/2014 |
| DRAWN | SSR |
| CHECKED | |
| ELEVATIONS | |
| 1 | |

EXHIBIT E-5
LU 13-0020
(2 PAGES)




SOUTH
BUILDING ELEVATION
SCALE: 1/4" = 1'-0"




EAST
BUILDING ELEVATION
SCALE: 1/4" = 1'-0"

**OLSON GROUP ARCHITECTS AIA**

NEW RESIDENCE FOR :
LINDA & BRIAN KITCHEN
211 FURNACE STREET
LAKE OSWEGO, OREGON

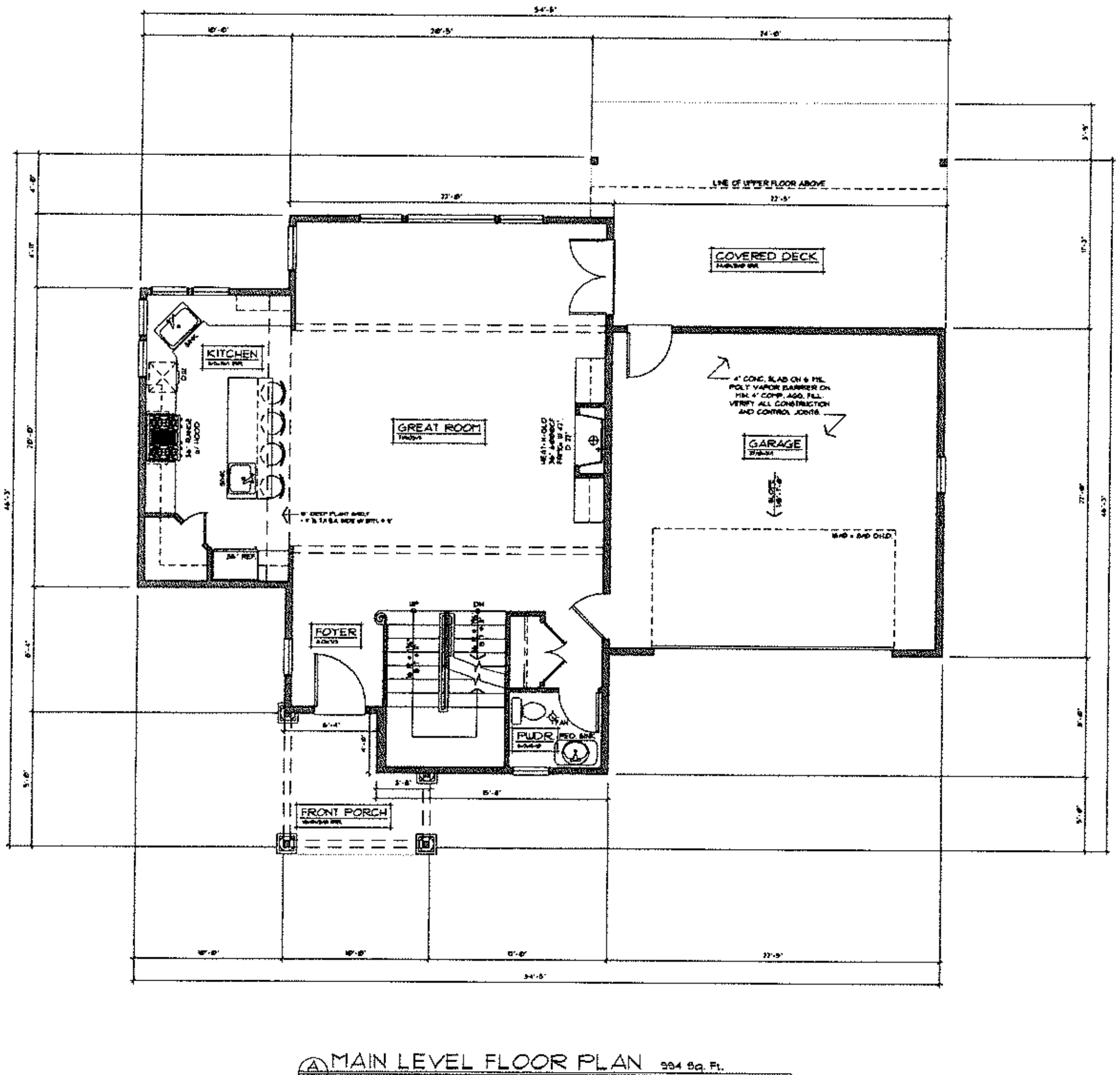
CONTRACTOR:
HOLLMAN COMPANY PROPERTIES
3011 SW RIVERFRONT TERRACE
WILSONVILLE, OR 97070
503-701-3265
CONTACT - RAFE VEENKER

SURVEY:
ANDY PARIS AND ASSOCIATES
16057 BOONES FERRY ROAD
LAKE OSWEGO, OREGON 97035
(503) 636-3341

STRUCTURAL ENGINEER:
PWJ ENGINEERING, INC.
4804 NW BETHANY BLVD.
SUITE 12-#279, PORTLAND, OR
(503) 810-8309

FOR LAND USE REVIEW

| | |
|---|---|
| REVISED | |
| DATED | 3/20/2014 |
| DRAWN | SSR |
| CHECKED | |
| ELEVATIONS | |
| 2 | |




MAIN LEVEL FLOOR PLAN 994 Sq. Ft.
SCALE: 1/4" = 1'-0"

**OLSON GROUP ARCHITECTS AIA**

NEW RESIDENCE FOR:
LINDA & BRIAN KITCHEN
211 FURNACE STREET
LAKE OSWEGO, OREGON

CONTRACTOR:
HOLLMAN COMPANY PROPERTIES
3011 SW RIVERFRONT TERRACE
WILSONVILLE, OR 97070
503-701-3265
CONTACT - RAFE VEENKER

SURVEY:
ANDY PARIS AND ASSOCIATES
16057 BOONES FERRY ROAD
LAKE OSWEGO, OREGON 97035
(503) 636-3341

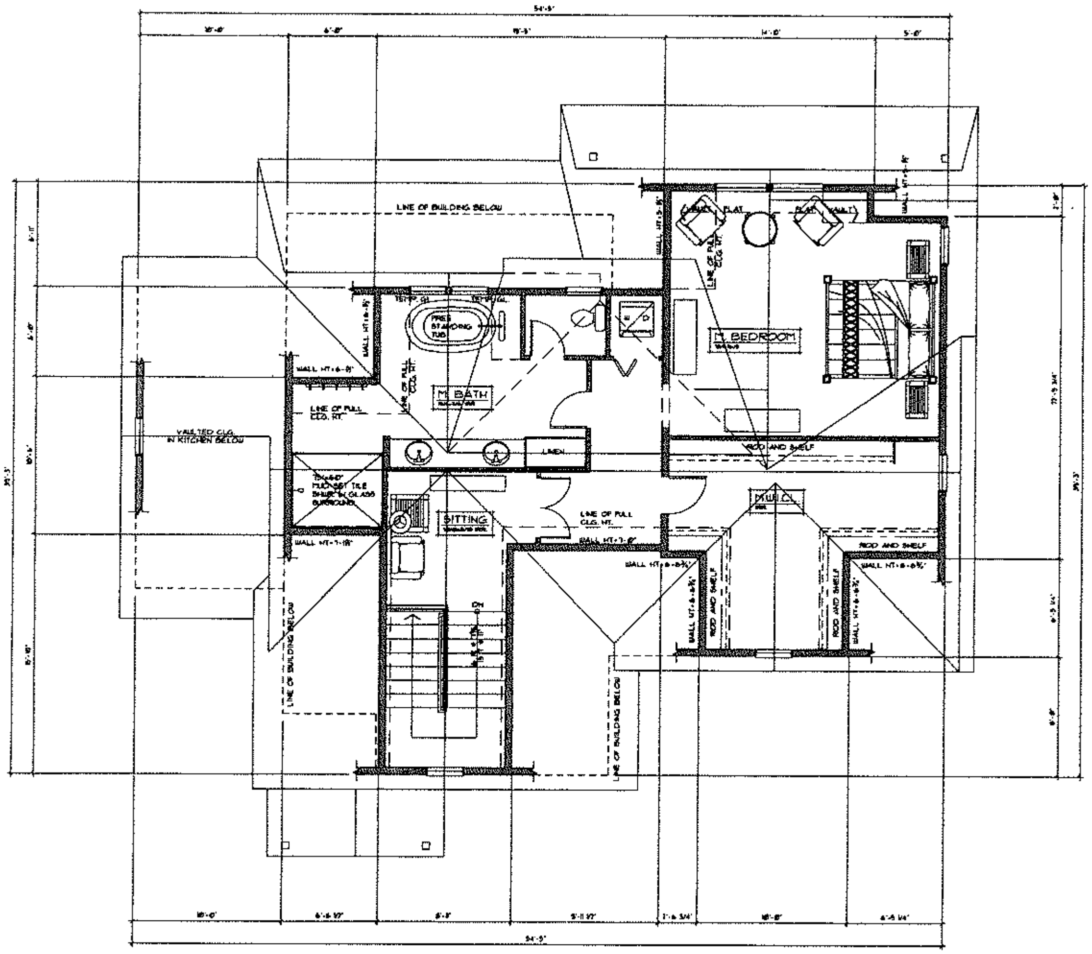
STRUCTURAL ENGINEER:
PWJ ENGINEERING, INC.
4804 NW BETHANY BLVD.
SUITE 12-#279, PORTLAND, OR
(503) 810-8309

FOR LAND USE REVIEW

REVISED
DATED 3/20/2014
DRAWN SSR
CHECKED
MAIN FLOOR PLAN
3

**EXHIBIT E-6**
LU 13-0020
(3 PAGES)

**OLSON GROUP ARCHITECTS AIA**




UPPER LEVEL FLOOR PLAN 962 Sq. Ft.
SCALE: 1/4" = 1'-0"

NEW RESIDENCE FOR:
LINDA & BRIAN KITCHEN
211 FURNACE STREET
LAKE OSWEGO, OREGON

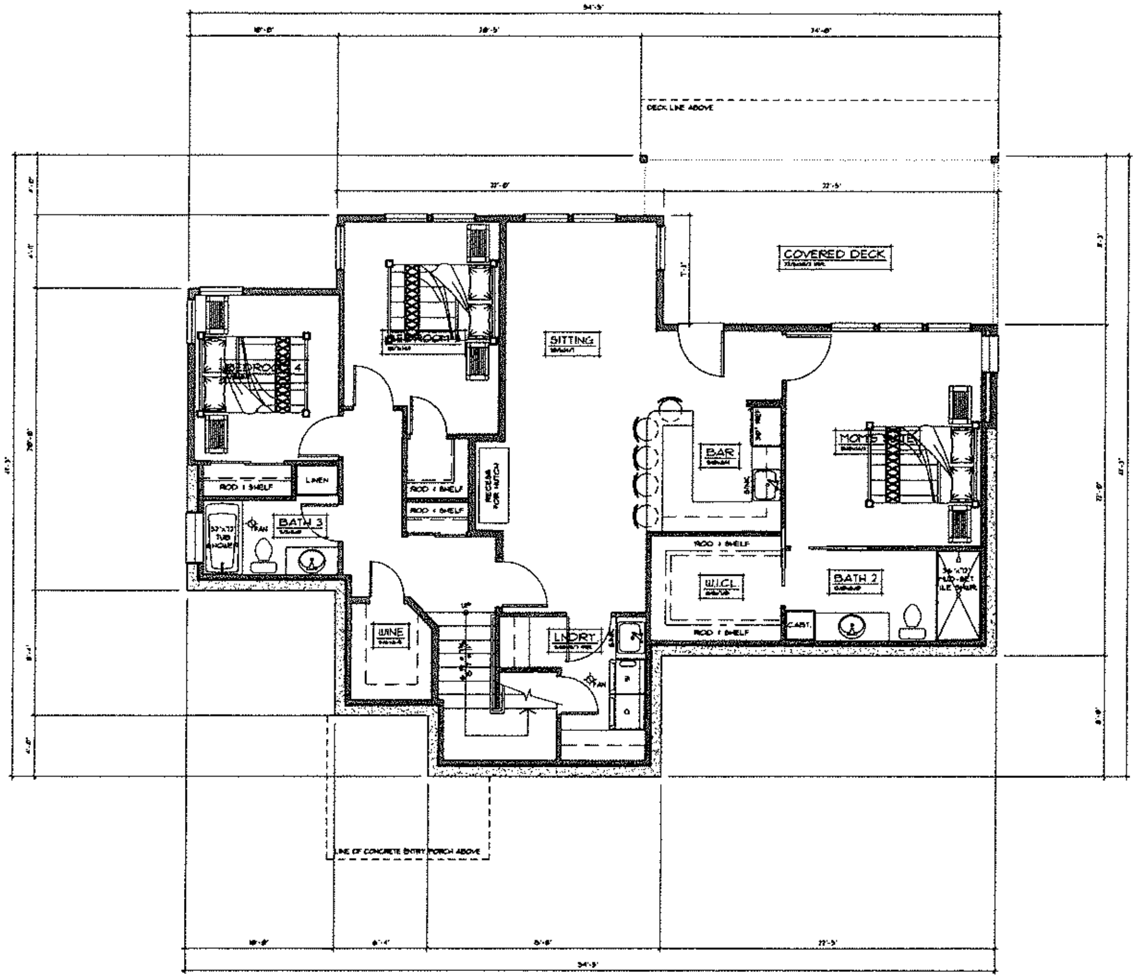
CONTRACTOR:
HOLLMAN COMPANY PROPERTIES
3011 SW RIVERFRONT TERRACE
WILSONVILLE, OR 97070
503-701-3265
CONTACT - RAFE VEENKER

SURVEY:
ANDY PARIS AND ASSOCIATES
16057 BOONES FERRY ROAD
LAKE OSWEGO, OREGON 97035
(503) 636-3341

STRUCTURAL ENGINEER:
PWJ ENGINEERING, INC.
4804 NW BETHANY BLVD.
SUITE 12-#279, PORTLAND, OR
(503) 810-8309

FOR LAND USE REVIEW

REVISED
DATED 3/20/2014
DRAWN SSR
CHECKED
UPPER FLOOR PLAN
4




LOWER LEVEL FLOOR PLAN 1345 Sq. Ft.

A/5 SCALE: 1/4" = 1'-0"

**OLSON GROUP ARCHITECTS AIA**

NEW RESIDENCE FOR:

LINDA & BRIAN KITCHEN

211 FURNACE STREET
LAKE OSWEGO, OREGON

CONTRACTOR:
HOLLMAN COMPANY PROPERTIES
3011 SW RIVERFRONT TERRACE
WILSONVILLE, OR 97070
503-701-3265
CONTACT - RAFE VEENKER

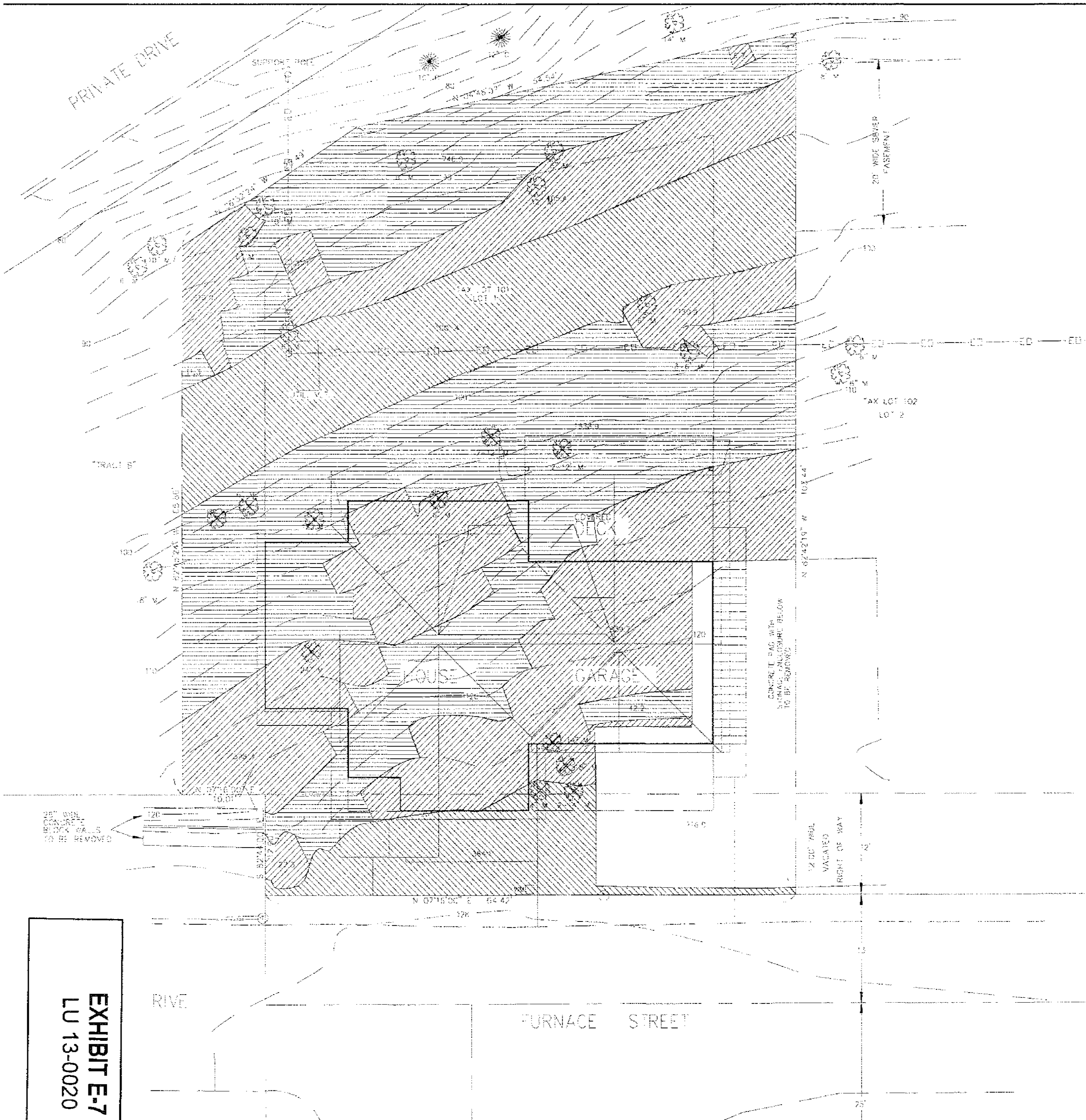
SURVEY:
ANDY PARIS AND ASSOCIATES
16057 BOONES FERRY ROAD
LAKE OSWEGO, OREGON 97035
(503) 636-3341

STRUCTURAL ENGINEER:
PWJ ENGINEERING, INC.
4804 NW BETHANY BLVD.
SUITE 12-279, PORTLAND, OR
(503) 810-8309

FOR LAND USE REVIEW

REVISED

| | |
|---|---|
| DATED | 3/20/2014 |
| DRAWN | SSR |
| CHECKED | |
| LOWER FLOOR PLAN | |
| 5 | |




RECEIVED

MAR 27 2014

City of Lake Oswego
Community Development Dept.

| SLOPE ANALYSIS | | SQ. FT. | % TOTAL LOT |
|---|---|---|---|
| < 12% | | 0 SF | 0 % |
| 12%-20% | | 1385 SF | 20.1 % |
| 20%-50% | | 2151 SF | 31.2 % |
| >50% | | 2638 SF | 38.3 % |
| EX. STRUCTURE | | 716 SF | 10.4 % |

TOTAL LOT AREA : 6,889 Sq. Ft.

A/Sa SITE PLAN

SCALE: NTS.

LEGAL DESCRIPTION:
TAX LOT 101,
CITY OF LAKE OSWEGO
SEC. 1, T.2S., R.1E., W.M. CLACKAMAS COUNTY, OREGON

NOTE:
- FOOTINGS TO BEAR ON FIRM, UNDISTURBED NATIVE SOIL OR PROPERLY COMPACTED ENGINEERED FILL (95% PROCTOR)
- VERIFY LOCATION OF ELECTRIC, CABLE T.V., TELEPHONE AND NATURAL GAS SERVICE RUNS TO HOUSE. ALL SERVICE TO BE UNDERGROUND
- VERIFY LOCATION OF EXISTING WATER METER. PROVIDE 1½" SERVICE TO RESIDENCE. PROVIDE PRV IF OVER 80 P.S.I.
- VERIFY LOCATION OF EXISTING SANITARY SEWER STUB OUT. PROVIDE 4" A.B.S. SERVICE TO RESIDENCE.

**OLSON GROUP ARCHITECTS AIA**

NEW RESIDENCE FOR:
LINDA & BRIAN KITCHEN
21 FURNACE STREET
LAKE OSWEGO, OREGON

CONTRACTOR:
HOLLMAN COMPANY PROPERTIES
30 SW RIVERFRONT TERRACE
WILSONVILLE, OR 97070
503-701-3265
CONTACT - RAFE VEENKER

SURVEY:
ANDY PARIS AND ASSOCIATES
16057 BOONES FERRY ROAD
LAKE OSWEGO, OREGON 97035
(503) 636-3541

STRUCTURAL ENGINEER:
PWU ENGINEERING, INC.
4804 NW BETHANY BLVD.
SUITE I2-278, PORTLAND, OR
(503) 810-8309

FOR LAND USE REVIEW

REVISED
DATED 3/20/2014
DRAWN SSR
CHECKED
SLOPE ANALYSIS
Sa

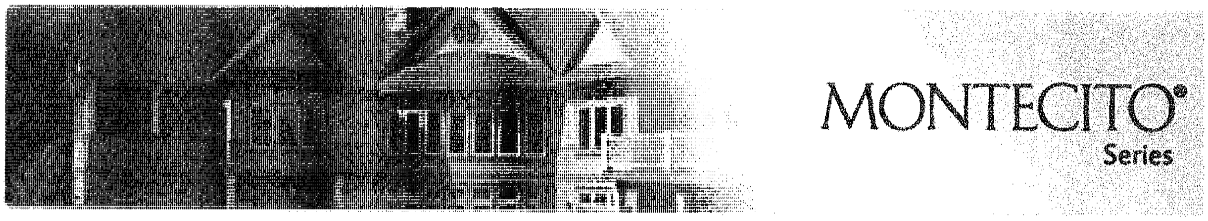
**EXHIBIT E-7**
LU 13-0020

# Casement Montecito® Series Vinyl Windows

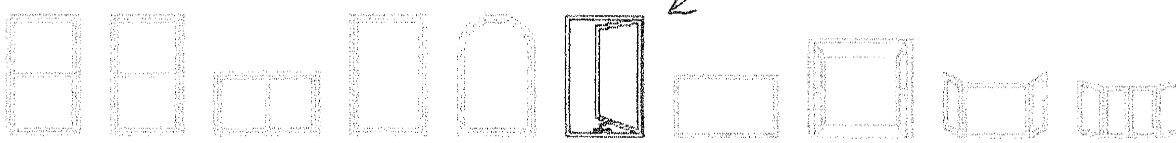
★★★★★ 5 / 5 Read 1 review Recommend Tweet



**Frame Materials**
**Milgard® Product Series**
**Operating Styles**
**Architectural Styles**

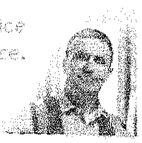



## Choose A Different Window Style For More Information:



## Expert Consultation

Getting the right advice makes all the difference. Schedule your free expert consultation.



- Download Brochure
- Request a Quote
- Help Me Budget
- Free Expert Consultation
- Consumer Financing
- Free Visualization Tool

## Where To Buy

ZIP Code

Find >

Advanced Search

## Details for Casement Montecito® Series Vinyl Windows:

Benefits | Hardware | Frame Color | Glass | More Options | Specs | Pricing | Reviews

All frames, grids, and hardware are available in coordinating colors.

Interior Frame Color[1] Interior and exterior colors must be the same.

White Tan

Exterior Frame Color[1] Available with matching tan or white interior.

White Tan

Exterior Frame Color - Premium[1] Available with white interior.

Silver Ivory Light Grey Taupe Chocolate

**EXHIBIT E-8**
LU 13-0020
(3 PAGES)

Milgard

Clearly the best

Windows | Doors | Milgard Advantages | Professional Resources

Learn About:

- Frame Materials
- Milgard® Product Series
- Operating Styles
- Architectural Styles

## Request a Quote

See Stores »

## Inspiration Center

See Stores »

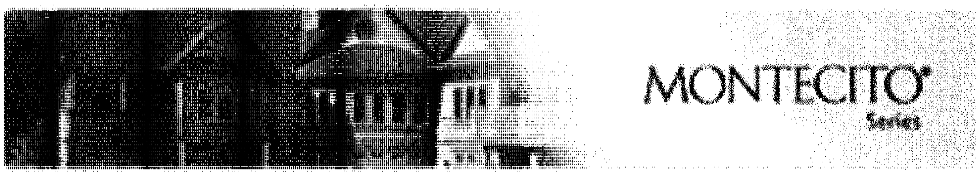
## Shopping Tools

## Where To Buy

Find »

# Casement Montecito® Series Vinyl Windows

Write the first review

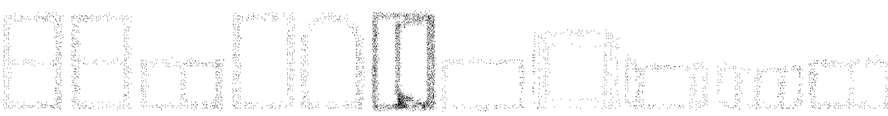



Milgard's vinyl casement window provides excellent ventilation, has no rail to obstruct views and puts the screen on the inside where it doesn't get as dirty.

*Every window and door purchase is different. Get pricing information and estimates on your project.*

REQUEST A QUOTE ›

**Choose A Different Window Style For More Information:**



**Details for Casement Montecito® Series Vinyl Windows:**

Benefits | Hardware | Frame Color | Glass | More Options | Specs | Pricing | Reviews

All frames, grids and hardware are available in coordinating colors.

Interior Frame Color[1] Interior and exterior colors must be the same.

White Tan

Exterior Frame Color[1] Available with matching tan or white interior.

White Tan

Exterior Frame Color - Premium[1] Available with white interior

# KITCHEN RESIDENCE

## PROPOSED LIGHT FIXTURES

LOCATION: 3: CENTERED ABOVE FRONT ENTRY, AT EITHER SIDE OF GARAGE
FIT WITH WALL MOUNTED POWER POINT HANGING BRACKET

TROY LIGHTING
Est. 1963

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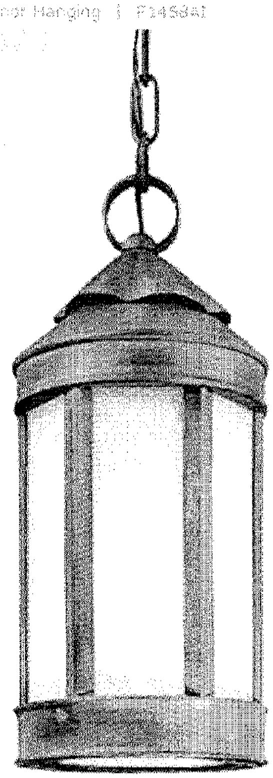
Wall
Post Fixtures
Flush
Posts & Pier Mounts
Environmental Series
Williamsburg
QUICK FIND
List All Collections
New Products
Troy Classic RLM
Search
ONLINE SERVICE
Find a Distributor
Sales Portal
Our Other Brands



Andersons Forge (W)
F1468AI <L>
9"W 18.5"H
1-100W Med Base
Ivory Seeded
Hand-Forged Iron
AI (Antique Iron)

BALANCE OF LIGHTING:
6" DIAMETER RECESSED DOWNLIGHTS IN PORCH CEILINGS
WHITE TRIM WITH Phillips 19.5 WATT PAR 38 SOFT WHITE DIMMABLE LED FLOOD
(1100 LUMENS, 45,000 HOUR LIFE)

211 FURNACE STREET

KITCHEN RESIDENCE

LU 13-0020

**EXHIBIT E-9**
LU 13-0020

# OLSON GROUP ARCHITECTS AIA



March 14, 2014

**LU 13-0020**

## Project Overview

Applicant is requesting design review approval for new single family home to be located at 211 Furnace Street in Old Town. The site is lot 1 of Riverbend on the Willamette which was originally approved through DR 15-97/PD 7-97/SD14-97/VAR17-97(MOD LU-99-0012). As such underlying dimensional standards in place at the time of that approval apply to this application.

## Site Description and Vicinity

The subject site ( 211 Furnace) is currently vacant. It fronts on Furnace Street and slopes steeply to the East and North. To the east is the Riverbend on the Willamette condominium buildings. Along Furnace street there is a pattern of single family homes of varying styles and age. Further to the South along Furnace street is a 2 unit townhome.

## Public Facilities and Services

The proposed home will be serviced with public water available in Furnace Street. Natural Gas is also available in the street. Electricity, telephone and cable TV will be brought to the site under ground from an existing utility pole at the Northwest corner of the intersection of Furnace and Leonard Streets. Sanitary sewer and storm sewer are both available at the Eastern edge of the site, installed as part of the initial Riverbend on the Willamette project.

## Conformance with Applicable Approval Criteria

The application is to be processed as a Minor Development ( LOC 50.07.003.14 ). Development Review Commission )DRC) hearing is required for Single Family Design Review Approval in the Residential Old Town Design District (DD). The applicant has provided the following response to the applicable approval criteria

17150 S.W. UPPER BOONES FERRY ROAD • DURHAM, OREGON 97224 • 503-620-9870 • FAX 503-620-4864 •

COMMUNITY DEVELOPMENT CODE

Zoning District: DD

**Zoning District Standards [DD per LOC 50.05.006]:**

Note that certain dimensional standards and methodologies of measurements reflect those in place at the time of the original PD approval (DR 15-97/PD 7-97/SD14-97/VAR17-97(MOD LU-99-0012). In particular, setbacks, lot coverage, impervious surface area, and maximum building height.

**Setbacks (required, primary structure)**

| | |
|---|---|
| Front Yard: | 10 feet |
| Side Yard : | 10 feet |
| Rear Yard: | 10 feet |
| Garage face to front lot line: | 18 feet |
| Minimum offset garage from primary building face: | 5 feet |

**Setbacks (proposed, primary structure)**

| | |
|---|---|
| Front Yard: | **10** feet |
| Side Yard : | **10** feet ( South)<br>**10** feet ( North) |
| Rear Yard: | **36.5** feet |
| Garage face to front lot line: | **18** feet |
| Offset garage face from primary building face: | **8** feet |

**Lot Coverage: ( maximum allowed)**

35% of Site Area:

**Lot Coverage: ( proposed)**

**27.6%** of Site Area: **1902** sq. ft.

**Impervious Surface Area ( maximum allowed)**

60% of Site Area:

.60 x 6889 sq. ft. Site Area= 4,133 sq. ft.

**Impervious Surface Area ( proposed)**

**29.5**% of Site Area: **2035** sq. ft.

**Height: ( maximum allowed)** 35 ft.

Note: Maximum allowed height is set by the original PD approval. The methodology in use at that time is to measure the average height of each gable or hip roof form vertically from the pre construction grade directly beneath that point

**Height: ( proposed)** **35.0** ft.

**Front Porch:**

Per LOC 50.04.003.3.b a projecting front porch is allowed as an exemption to standard yard requirements. The maximum projection allowed is 5 feet, maximum width of 10 feet and maximum height of 16 feet ( measured to the ridge). The proposed projecting front porch meets those standards.

**<u>Old Town Design Standards</u>(LOC 50.05.006):**

**4.Building Siting and Massing**

**a. Simple massing required.**

The block face where 211 Furnace is located contains a variety of building sizes and a mix of styles. The existing homes on the Eastern side of Furnace generally have a 1- 1 ½ story appearance from the street, eventhough they are multiple stories due to the steep sloping grade. The homes on the opposite side of Furnace ( West) are on essentially "flat" grade and the bulk of their mass is apparent from the street. The 3 homes directly across the street have a 2 ½ story appearance. The proposed home has a 1 ½ story design above street level and is of similar street frontage to the existing homes and would be consistent and compatible with the massing context along that portion of the street.

**b. Roof Form and Pitch.**

The proposed home consists primarily of gable roof forms with a couple of shed dormers as accents. The primary roof pitch is 12:12. This steeper pitch would be consistent with a 1 ½ story appearance associated with a Cape Cod style. The Roof forms ( gables and cross gables) is compatible with other single family homes on the street, particularly the homes directly across the street and the 1 ½ story design located at 267 Furnace.

## 5. Building Design and Materials

### a. Old Town Style Required

The proposed home employs stylistic characteristics from both the Vernacular and Cape Cod Styles. The home has a simple main ridge running North/South and two intersecting gables. The intersecting gable at the primary face of the home creates a "T" plan which is consistent with the Vernacular Style. The second intersecting gable is more of an extended dormer borrowing from an element found in Cape Cod Syle. The gable shape was chosen to relate to, but not mimic the dormer above the garage of the home located at 267 Furnace Street. That home also has a North/South ridge and a foreword facing gable for a "T" plan with a shed dormer over the garage. The design intent for 211 Furnace was to be compatible, but not identical. A projecting front porch is also planned which highlights the entry, provides architectural interest and is consistent with Cape Cod Style.

### b. Materials

#### i. Moldings

The propose window casings as shown in the architectural plans are to be painted 5/4 x 4 jamb trim with sloping sill and apron. Head trim to be 5/4 x 5 with drip edge flashing. The simple flat stock trim is consistent with window trim found on the home at 267 Furnace and many of the more recent home constructed in Old Town.

The front porch columns are simple square form with expressed capital and base. This is consistent with columns found at 397 A and 397 B Furnace street.

Rake, fascia, and Frieze board trims would be of painted flat stock material and are similar to those found on Vernacular Style and elements of the homes directly across the street.

#### ii. Siding

The proposed siding is a combination of painted plain sawn cedar shingles at the West and South facades and horizontal bevel lap siding at the East and North. These materials are consistent with the approved Old Town siding materials.

#### Iii. Prohibited Siding Materials

No prohibited siding materials are proposed.

#### iv. Roofing Materials

Roofing material to be composition shingles.

#### v. Chimneys

No Chimney is proposed.

#### vi. Windows

The proposed windows are a combination of vinyl frame single hung, casement and picture windows with the appearance of painted wood. They are generally of vertical rectangular orientation and where ganged are separated by a painted wood mullion. The window material and pattern is consistent with Old Town Style.

**Vii. Entrances and Stairs**

**(1) Entrances**

The proposed design incorporates a projecting front porch which clearly defines the main building entrance. The porch also is a visual focal point as it is the closest element to the street and has architectural elements such as columns and hanging light fixture to accentuate the entry point.

**(2) Stairs**

There are no stairs proposed at the front entry.

**6. FENCING AND LANDSCAPING**

**a. Fencing**

No fencing is proposed at this time.

**b. Trees and Landscaping**

**i. Mature Trees**

See tree removal plan along with Arborist report for trees to be removed for construction purposes and for health/hazard purposes.

The Arborist has recommended eventual removal of all 18 trees on the site due to poor or hazardous conditions.

We plan to remove the 11 trees circled on the provided Arborist Tree Plan and indicated on the list of 11 trees, under the Type II tree removal process, as these trees are in the proposed building footprint or are adjacent to construction.

We plan to remove the remaining 7 trees through a separate Hazardous Tree Removal Application at a later date.

See Site Plan for tree mitigation relating to the removal of the initial 11 trees. (Location of mitigation trees, number, and species is indicated on Site Plan)

We will provide additional tree mitigation for the removal of the remaining 7 trees at a later date.

**ii. Street Trees**

See Site Plan for location and species of 3 new street trees.

**7. GARAGES**

**a. Minimize the visual impact of garages**

The garage face is set back from the primary building face 8 feet. Due to the steep slope of the site the only feasible location for a garage is at the Southerly side of the lot, facing Furnace

Street. The garage face will be set back 18 feet from the front lot line.

**b.** Trellis feature is proposed over the garage door opening to mitigate the visual impact. The roof pitch of the garage matches the main pitch of the house. Note: This proposal should be exempt for this standard as average slope of lot exceeds 20%.

**<u>Building Design (LOC 50.06.001.5)</u>**

**5. Minor Development in DD zone**

**b. Design Standards**

The proposed single family home complements the existing pattern of structures in the vicinity. No existing buildings exist on site. No sidewalk or transportation features are included in this application. There is no public use on or through the site.

**i. Design buildings to be complementary...**

**(1)** Materials:

The proposed home uses materials that are consistent with other single family homes in the Old Town District. Specifically, horizontal lap siding, cedar shingles, composition shingles, windows with wood frame appearance, window trim.

**(2)** Setbacks:

The building setbacks are consistent with residential standards of the Old Town District. Specifically, 10 foot front yard setback for primary building face, 18 foot setback to face of garage that faces street.

**(3)** Rooflines:

The proposed building has similar rooflines to adjacent homes. The side to side gable with cross gables and dormer/gable accent features. Roof pitches are consistent with Old Town Style.

**(4)** Height:

The proposed design has similar height to other homes on the same side of Furnace Street and complies with the height limit in place at time of initial PD approval.

**(5)** Overall proportions:

The proposed design is similar in scale to homes along the Eastern side of Furnace Street as it is of similar width and height.

**ii. Where existing buildings are to remain...**

N.A. As there are no existing buildings on site.

**Iii. Design bus shelters, drinking fountains,...**

N.A. No Public Site features are proposed with this design.

**iv. Design those elements listed below to be complementary...**

**Awnings**

N.A. No awnings proposed.

**Chimneys**

N.A. No Chimneys proposed.

**Signs**

N.A. No Signs proposed.

**Decks and Railings**

Decks will be wood framed with spaced decking material. This is similar to other decks built in conjunction with single family homes. The railings will have a top cap at 36" above deck surface and will have intermediate rails of residential scale. This will be compatible to other residential homes in the vicinity.

**Doors**

The Entry door will be a single panel stained wood door with glass transom. This is an element that is consistent with residential design. The other doors of the building out to the deck will be single panel swinging doors with stile and rail format with single pane of glass in the center. The size of the doors is typical for residential construction and is compatible with the single family nature of Old Town Style.

**Downspouts**

Downspouts will be sheet metal painted to match body color. Size will be 2" x 3". This size and material is compatible with downspouts found on homes in the area.

**Foundations**

Foundations will be on poured in place concrete. As walls step to follow grade the siding material will step as well to have minimum amount of foundation exposed. This would be typical in residential construction.

**Lights**

Exterior lighting will be of single fixture, decorative in design. These will be residential in scale and fit within the context of exterior lighting on homes in the vicinity. Landscape lighting will be low level and primarily present at the front entrance of the home. No pole lighting is proposed.

**Mailboxes**

Mailbox will be single residential scale box for single family use on painted steel mount post. This is consistent with single family development in the area.

**Mechanical Equipment**

No roof top equipment is proposed. Air conditioning condenser will be place on concrete pad at rear of house, out of view from street.

**Stairs**

The only exterior stairs are an on grade concrete landscape stair along the South side of the building. The stair will be residential in scale and is similar and consistent with landscape paths and steps on homes in Old Town.

**Utility Connections and Meters**

All utilities will underground. Meter will be standard gas meter and wall mounted electrical meter. The location of those meter boxes in determined by the utility. Typically at the side of a structure in a non obvious location, yet readable by the utility. This is typical and standard for residential construction.

**Vents**

No decorative vents are proposed. Crawl space vents will be standard screened operable foundation vents, set near the top of the foundation wall. This is typical and standard in residential construction and compatible with the adjacent homes.

**Windows**

Windows will be vinyl frame with the appearance of painted wood. Windows on the West and South facades will be of single hung operation with a combination of casement and pictures windows at the East and North facades. The windows will be generally rectangular with a vertical orientation which is compatible with windows of the Old Town Style.

**Weathervanes, aerials,...**

No roof top equipment, or decorative roof top structures are proposed.

**v. Design awnings, signs, and lights to define...**

No awnings or signs proposed. Lighting will be placed on building to accentuate and define front entry, garage entrance. These are the first floor elements of the building.

**vi.Use trees and other natural elements to help define building proportion...**

Street trees will be used to set up scale of building as it relates to public way. Tree planted at the courtyard between driveway and entrance will create an area of focus and interest at the street elevation.

**vii. Limit the variety of styles of building elements.**

The proposed home uses building styles of the Vernacular and Cape Cod styles approved in Old Town. These 2 styles will compatible with other residential buildings in the vicinity.

**viii. Screen mechanical equipment from view, or place in locations...**

Mechanical equipment will be placed in rear yard below lower deck in an area that is not visible from the street.

**c. Buildings shall be designed and located to complement and preserve existing natural land forms, trees, shrubs and other natural vegetation.**

**i. Consider land forms and trees as design elements...**

The home is placed on the site to take into account the steep slopes. As such it is located as close to the street as possible. Minimal grading will take place below the building site and as such the as much of the natural land contour will remain as possible. The existing trees at the East and North sides of the property will remain with exception of health/hazard trees. The height of these trees exceeds the proposed home and will provide scale against the building.

**ii. Design foundations to match the scale of the building being supported.**

The proposed design will have concrete foundation stepping down hill to follow grade. Siding material will follow those steps as closely as possible to minimize exposed foundation.

**Iii. Use decks, railings, and stairs to relate a building to the contours of the land.**

The design use 2 decks at different elevations to break up the appearance of height at the rear of the structure. The landscape steps at the South side of the building give sense of the building following the natural grade.

**d. Building shall be designed and constructed to reduce noise impacts...**

**i. Use solid barriers such as fences, berms, natural land forms...**

No adverse sound sources exist at this site.

**ii. Minimize the window surface on sides facing adverse sound sources..**

No adverse sound sources exist at this site.

**Iii. Mechanical equipment, including heat pumps and air conditioning equipment...**

The air conditioning condenser will be located in the rear yard, below the lower deck. This location is not in the vicinity of living space of any adjacent properties.

**e. Buildings shall be designed and constructed with roof angles, overhangs, flashings, and gutters to direct water away from the structure.**

The proposed design has overhangs, pitched roofs, flashings, and gutters. The design intent is to direct water away from the structure. The roof water will be collected in the gutter and downspout system and directed via tight line to the existing storm water system.

**f. Buildings shall incorporate features such as arcades, roofs, alcoves, porticos and awnings to protect pedestrians from the elements...**

The proposed design has a covered front porch. Note: there is no public function of this building.

**g. Building orientation shall be designed to encourage pedestrian access from public streets and make the street pedestrian friendly.**

**ii. Building orientation shall include:**

**(1) Locating buildings within 30 ft. of a public street...**

The building is located 10 feet from public street.

**(2) Buildings located on sites with multiple frontages...**

N.A. Not multiple frontage site.

**(3) Buildings located on sites adjacent to a transit street...**

N.A. Not located adjacent to transit street.

**(4) Buildings that are within 30 ft. of a public street shall have a public entrance directly from the street.**

The proposed design has path from street to main building entry. Note: There is no public function of this building.

**h.Rooftop Decks**

No rooftop decks are proposed.

<u>**On-Site Circulation (LOC 50.06.003)**</u>

**2. On-Site Ciculation- Driveways and Fire Access Roads**

**b. Standards for Approval**

**i. Driveway Approaches – Locational Limitations and Restrictions**

**(4) All driveway approaches shall be located and designed so that the driver entering or exiting the driveway can see approaching traffic for a sufficient distance to make a safe entrance and exit. American Association of State Highway and Transportation Officials (AASHTO) standards shall be used in determining compliance with this standard.**

The driveway is designed for the only viable location on the site. This is at the Southerly side of the lot. Furnace and Leonard Streets are both local streets. The site distances from the driveway location are not obstructed by any natural features or vegetation. The location of the driveway near the intersection of Furnace and Leonard along with the relatively flat gradient allows sight distances well in excess of what is required for safe ingress and egress. A driver backing out the of the proposed driveway will be able to see south down Furnace for a distance of over 200 feet and down Leonard Street over 200 feet.

**(5) The maximum width of a driveway approach, measured where the edges of the driveway meet the right-of-way, shall be governed as follows:**

**(a) Single-family residential with garage door(s) facing the street: 12 ft. per garage or carport stall, or surface parking space, but not to exceed 30 ft.**

The proposed driveway width is 24 feet at intersection with street right of way. The garage is a 2 car garage. Therefore this standard is met.

<u>**Drainage (LOC 50.06.**</u>

**3. Draninage Standards**

**a. Drainage Standards for Minor Development Other Than Partitions, Subdivisions and Certain Structures**

**ii.Standards for Approval**

Development shall be conducted in such a manner that alterations of drainage patterns (streams, ditches, swales, and surface runoff) do not adversely affect:

**(1) Other property:**

The proposed development of this site will minimal effect on the existing drainage patterns. Outside of the building envelope, only minimal grading is planned. The existing pattern of surface drainage is sloping away from the street overland to the East and North. The existing ground has steep topography and is vegetated. The resulting conditions downhill of the proposed house will be essentially what current conditions are. No on site retention facilities are planned. The roof runoff will be collected in a gutter and downspout system and then hardpiped to the existing Storm sewer lateral located at the Eastern edge of the property. The driveway and front walkway will be constructed of pervious paver material, so there will be no sheet runoff from those areas. The result will actually reduce the amount of surface sheet feed that drains towards to the adjacent properties. The adjacent property is Tract "B" of Riverbend on the Willamette, which is a dedicated open space and is vegetated. Therefore there are no adverse affects from this proposal.

**Iii. Standards for Construction and Maintenance**

N.A. As no facilities are planned to be built.

**iv. Site Discharge**

The roof runoff will be collected and hardpiped to the existing Storm sewer system located at the Eastern edge of the property.

**Solar Balance Point (LOC 50.06.007.2)**

**2. Solar Balance Point**

**b. Applicability**

This section applies to an application for a building permit for all structures in the R-7.5, R-10 and R-15 zones and all single-family detached structures in any zone, except to the extent the City Manager finds the applicant has shown that one or more of the conditions listed in LOC 50.04.004.3, Exemption from the Maximum Shade Point Height Standard.

**LOC 50.04.004.3 Exemption from the Maximum Shade Point Height Standard**

**d. Insignificant Benefit**

**The proposed structure or non-exempt vegetation shades one or more of the following:**

**i. An undevelopable area**

The Adjacent property to the North is Tract "B" of Riverbend on the Willamette. This is a dedicated open space is not developable.

**Utilities (LOC 50.06.008)**

The proposed home will be serviced with public water available in Furnace Street. Natural Gas is also available in the street. Electricity, telephone and cable TV will be brought to the site under ground from an existing utility pole at the Northwest corner of the intersection of Furnace and Leonard Streets. Sanitary sewer and storm sewer are both available at the Eastern edge of the site, installed as part of the initial Riverbend on the Willamette project.

No public utilities are planned with this proposal.

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MAR 26 2014

CITY OF LAKE OSWEGO
Community Development Dept.

**Addendum to Narrative for Land Use Review Case # LU 13-0020**

**211 Furnace Street in Old Town**

March 26, 2014

**55.02.080 Criteria for Issuance of Type II Tree Cutting Permits.**

An applicant for a Type II tree cutting permit shall demonstrate that the following criteria are satisfied. The City Manager may require an arborist's report to substantiate the criteria for a permit.

1. The tree is proposed for removal for landscaping purposes or in order to construct development approved or allowed pursuant to the Lake Oswego Code or other applicable development regulations. The City Manager may require the building footprint of the development to be staked to allow for accurate verification of the permit application;

- The 11 trees to be removed during the construction phase are circled on the map provided in the arborist report and indicated on the Site Plan and Tree Removal and Mitigation Plan. These trees are clearly within the proposed building footprint or directly adjacent such that the construction process will necessitate their removal. The remaining 7 trees will be removed through a separate Hazardous Tree Removal Application at a later date.

2. Removal of the tree will not have a significant negative impact on erosion, soil stability, flow of surface waters, protection of adjacent trees, or existing windbreaks; and

- We will be adding approximately 2,035 SF of impervious surface to this previously undeveloped site. We will be managing the storm water run off of the impervious surfaces where before there was no storm water management on the site. The 11 trees to be removed during the construction phase are all in the area of the new impervious surfaces. Therefore the area of soil that was related to those trees will now be covered by impervious surfaces with managed storm water which will improve the overall impact of erosion on the site.

3. Removal of the tree will not have a significant negative impact on the character, aesthetics, or property values of the neighborhood. The City may grant an exception to this criterion when alternatives to the tree removal have been considered and no reasonable alternative exists to allow the property to be used as permitted in the zone. In making this determination, the City may consider alternative site plans or placement of structures or alternate landscaping designs that would lessen the impact on trees, so long as the alternatives continue to comply with other provisions of the Lake Oswego Code.

- The site at 211 Furnace Street is a steeply sloping lot and as such, many of the trees being removed are not visible from the Street. In addition, the site setback and height restrictions on this steeply sloping lot necessitate the building to be located where we have shown on the Site Plan with no reasonable alternative. As such, the 11 trees to be removed in the construction process that we have indicated, must be removed. Finally, the new mitigation trees that we have indicated on the Site Plan and Tree Removal and Mitigation Plan, will enhance the overall character and aesthetic of the site and view from Furnace Street.

**EXHIBIT F-2**
LU 13-0020

4. Removal of the tree is not for the sole purpose of providing or enhancing views.

- The 11 trees to be removed during the construction phase are NOT being removed solely for the purpose of providing or enhancing views. As stated in the above points, they are being removed for the necessity of the building location and the construction process. The remaining 7 trees are also NOT being removed solely for the purpose of providing or enhancing views. They have been deemed hazardous by the arborist (see attached arborist report) and will be removed through a separate Hazardous Tree Removal Application at a later date.

5. The City shall require the applicant to mitigate for the removal of each tree pursuant to LOC 55.02.084. Such mitigation requirements shall be a condition of approval of the permit.

- We will provide 12 mitigation trees to replace the 11 trees that will be removed during the construction phase. See the Site Plan and Tree Removal and Mitigation Plan for the location, number, and species of Mitigation Trees. We will provide additional tree mitigation for the removal of the remaining 7 trees in conjunction with the separate Hazardous Tree Removal Application at a later date.

NORTHWEST
TREE SPECIALISTS

March 22, 2014

Mrs. Linda Kitchen
211 Furnace St
Lake Oswego, Or 97034

Dear Mrs. Kitchen,

This report is provided to allow notification of trees located at above property as well as condition and tree protection if needed.

There are eighteen trees located at the site that are greater than 5" in diameter. All trees located at the above address were assigned an identification number moving from north to south. All eighteen trees were evaluated from the ground for any major visual defects.

Conclusion is that all eighteen trees should be removed and replaced for the long term health and safety of property owners. Replanting will also aid in erosion control as the construction lot has a considerable slope.

Trevor March
Certified Arborist 5740 AM
Certified Tree Risk Assessor 824

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MAR 26 2014

City of Lake Oswego
Community Development Dept.

EXHIBIT F-3
LU 13-0020

2074 NW Aloclek Dr. #403 Hillsboro, OR 97124 t. 503-645-2242 f. 503-645-9399
www.nwtreespecialists.com

TOTAL NUMBER OF TREES FOR EVENTUAL REMOVAL
(SEE NARATIVE)

| No. | Common Name | Species Name | DBH | Significant | Tree Condition | Comments | Treatment |
|---|---|---|---|---|---|---|---|
| 1 | Bigleaf Maple | Acer macrophyllum | 24" | y | hazardous | missing >50% canopy | Remove |
| 2 | Bigleaf Maple | Acer macrophyllum | 6" | y | poor | poor structure/prone to windthrow | Remove |
| 3 | Bigleaf Maple | Acer macrophyllum | 6" | y | poor | poor structure/prone to windthrow | Remove |
| 4 | Bigleaf Maple | Acer macrophyllum | 10" | y | poor | poor structure | Remove |
| 5 | Bigleaf Maple | Acer macrophyllum | 12" | y | hazardous | > 50% of tree is fallen | Remove |
| 6 | Bigleaf Maple | Acer macrophyllum | 24" | y | poor | tree is in new home footprint | Remove |
| 7 | Bigleaf Maple | Acer macrophyllum | 8" | y | poor | poor structure | Remove |
| 8 | Bigleaf Maple | Acer macrophyllum | 6" | y | hazardous | > 50% of tree is fallen | Remove |
| 9 | Bigleaf Maple | Acer macrophyllum | 18" | y | poor | poor structure/ivy/too close for new construction | Remove |
| 10 | Bigleaf Maple | Acer macrophyllum | 14" | y | poor | tree is in new home footprint | Remove |
| 11 | Bigleaf Maple | Acer macrophyllum | 14" | y | poor | tree is in new home footprint | Remove |
| 12 | Bigleaf Maple | Acer macrophyllum | 18" | y | poor | tree is in new home footprint | Remove |
| 13 | Bigleaf Maple | Acer macrophyllum | 24" | y | poor | tree is in new home footprint | Remove |
| 14 | Bigleaf Maple | Acer macrophyllum | 24" | y | poor | poor structure/ivy/too close for new construction | Remove |
| 15 | Bigleaf Maple | Acer macrophyllum | 12" | y | poor | prone to windthrow/poor structure | Remove |
| 16 | Bigleaf Maple | Acer macrophyllum | 5" | y | poor | poor structure | Remove |
| 17 | Bigleaf Maple | Acer macrophyllum | 6" | y | poor | poor structure | Remove |
| 18 | Bigleaf Maple | Acer macrophyllum | 24" | y | poor | multi stem with very weak attachments | Remove |

**DBH (diameter at breast height)- measured 4.5 feet above ground level**

**Significant-trees are greater than 5" in dbh per City of Lake Oswego, thus requiring a permit for removal**

**Tree Condition**

- **Good-tree is in good condition and should be retained if possible**
- **Fair-tree is in fair condition and could be retained if possible**
- **Poor-tree is in poor condition and will need continued monitoring if retained**
- **Hazardous-tree in poor condition that should not be retained if a target exists/will exist**

TREES TO BE REMOVED DURING CONSTRUCTION PROCESS UNDER TYPE II TREE REMOVAL (SEE NARRATIVE)

| No. | Common Name | Species Name | DBH | Tree Condition | Comments | Treatment |
|---|---|---|---|---|---|---|
| 1 | Bigleaf Maple | Acer macrophyllum | 24" | hazardous | missing >50% of canopy | Remove |
| 2 | Bigleaf Maple | Acer macrophyllum | 6" | poor | too close to footprint of new home | Remove |
| 5 | Bigleaf Maple | Acer macrophyllum | 12" | hazardous | too close to footprint of new home | Remove |
| 6 | Bigleaf Maple | Acer macrophyllum | 24" | poor | in footprint of new home | Remove |
| 8 | Bigleaf Maple | Acer macrophyllum | 6" | hazardous | in footprint of new home | Remove |
| 9 | Bigleaf Maple | Acer macrophyllum | 18" | poor | too close to footprint of new home | Remove |
| 10 | Bigleaf Maple | Acer macrophyllum | 14" | poor | in footprint of new home | Remove |
| 11 | Bigleaf Maple | Acer macrophyllum | 14" | poor | in footprint of new home | Remove |
| 12 | Bigleaf Maple | Acer macrophyllum | 18" | poor | in footprint of new home | Remove |
| 13 | Bigleaf Maple | Acer macrophyllum | 24" | poor | in footprint of new home | Remove |
| 14 | Bigleaf Maple | Acer macrophyllum | 24" | poor | too close to footprint of new home | Remove |

DBH (diameter at breast height) - measured 4.5 feet above ground level

Tree Condition

Good - tree is in good condition and should be retained

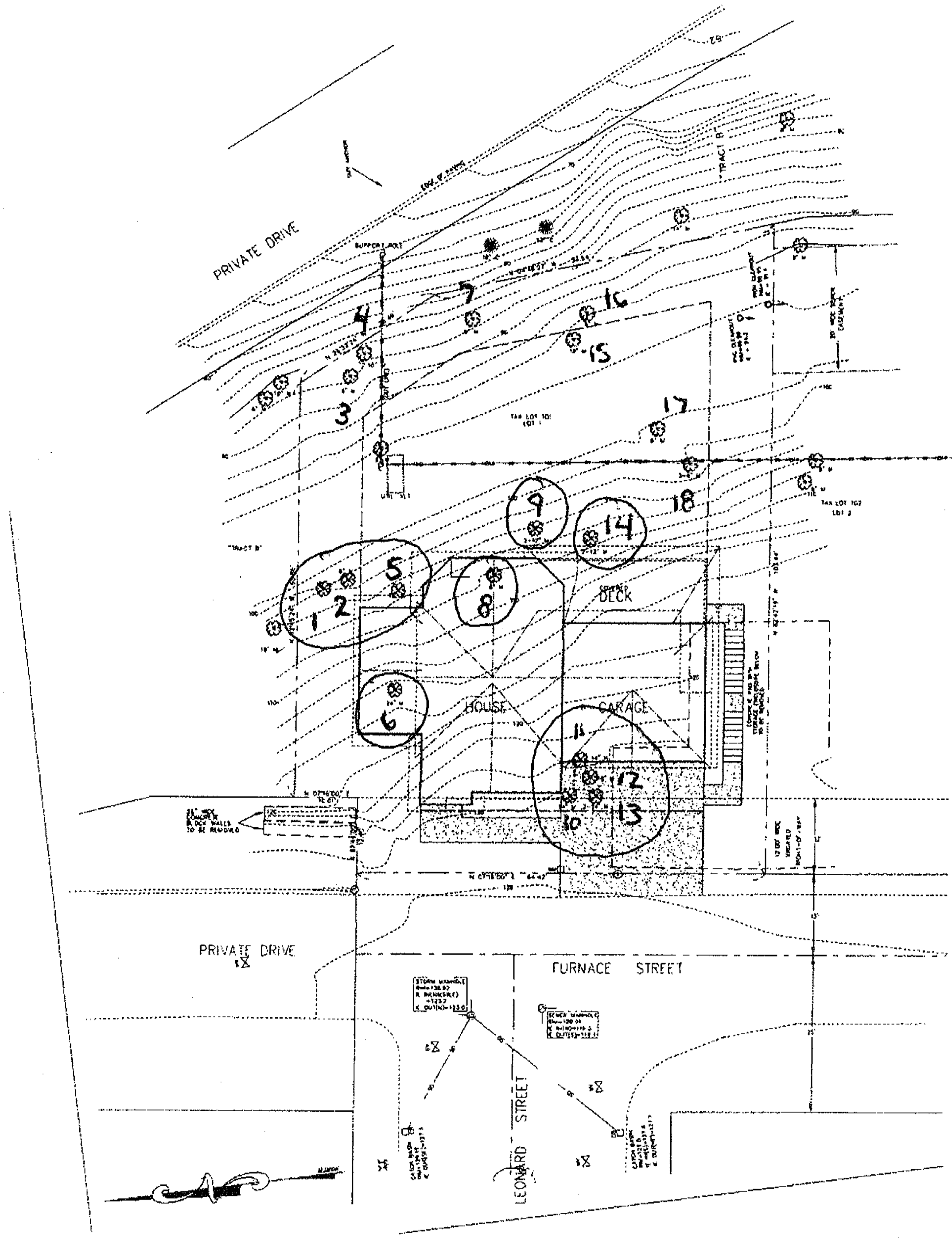
Fair- tree is in fair condition and could be retained

Poor - tree is in poor condition and could be removed

Hazardous - tree is in poor condition and can be considered dead, dying, or dangerous when tree has/will have a potential target

211 FURNACE ST., LAKE OSWEGO, 97034

CIRCLED TREES TO BE REMOVED DURING CONSTRUCTION PROCESS UNDER TYPE II TREE REMOVAL. (SEE NARATIVE)



NORTHWEST
TREE SPECIALISTS
2074 NW Aloclek Dr., Suite 403
Hillsboro, OR 97124



Office: 503-645-2242
Fax: 503-645-9399
CCB#164737

**Assignment:** Create a Tree Protection plan for construction at 211 Furnace St, Lake Oswego, Or 97034.

**Observations: There is one tree of concern on site in need of protection during construction. The tree of concern is a Bigleaf Maple (Acer macrophyllum). Tree is located on adjacent property to the north near property centerline.**

**Subject 1-18" DBH Maple- Protection fencing shall be placed at ten feet on center from the tree into the above property address.**

Tree protection fence for subject trees will be installed and maintained in accordance with Lake Oswego "Procedures for installation of Tree Protection Measures" attachment 1 and as shown on map.

**Tree Protection Zone Notes:**
The following tree protection strategies are recommended for the tree protections zones in this project. Strategies shall be applied to different zones as outlined below.

1. Contractor must adhere to the codes and requirements.
2. No adverse effects shall come to any tree and no adverse effects are anticipated. Damage must immediately be reported to Urban Forestry for mitigation.
3. Tree protection must be installed and approved by owner's representative prior to any site work and must remain in good condition, throughout the entire construction period. Construction activities and needed access that occur inside the tree protection zone must be approved in advance by owner's representative. Any changes to, disassembly of tree protection fencing, or entrance into the tree protection zone without prior approval is prohibited.
4. Tree protection zone includes all area inside the tree protection fence.

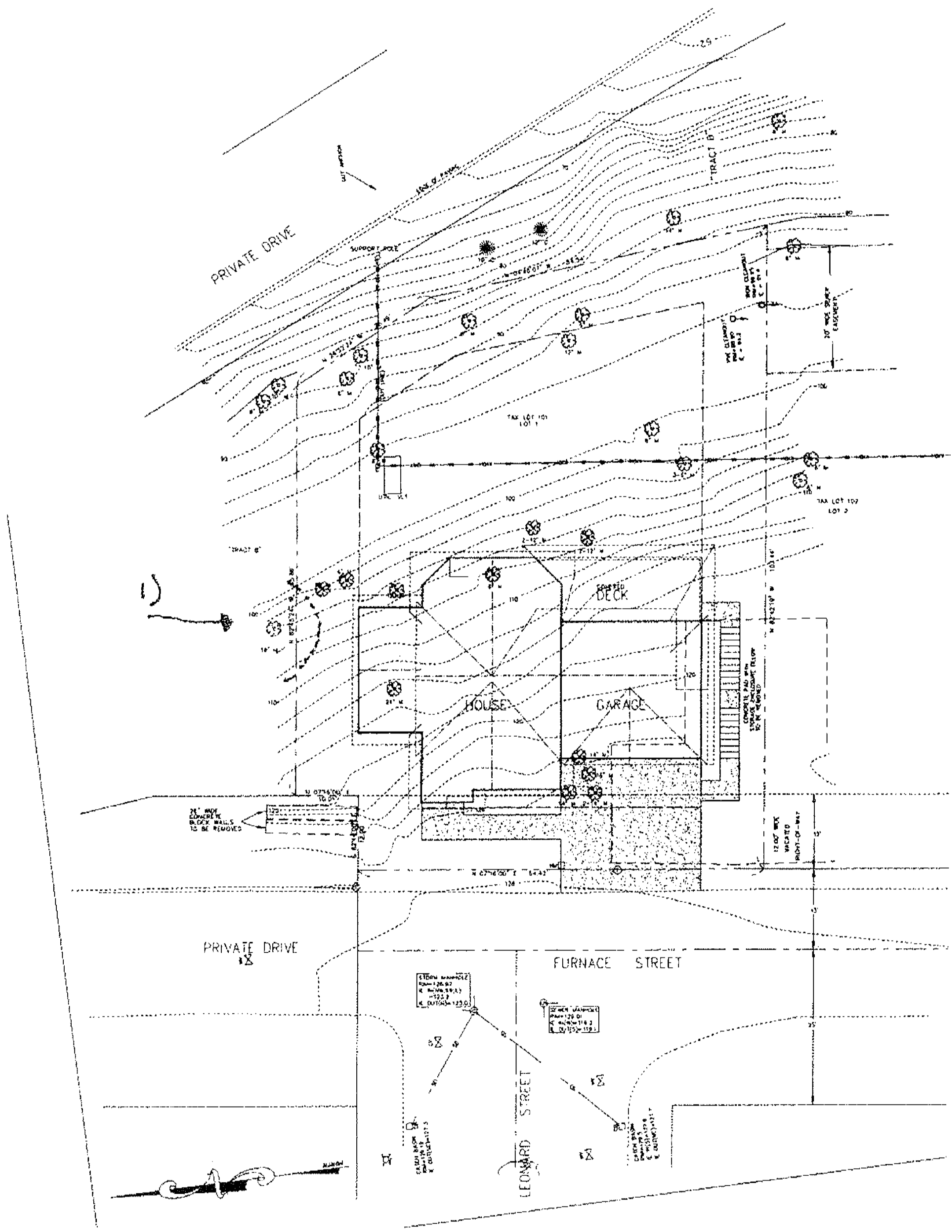
EXHIBIT F-4
LU 13-0020

5. Entrance into the tree protection zone is prohibited without prior approval of City Manager.
6. Temporary changes to tree protection zones may occur with prior consultation and approval of City Manager.
7. One each approved task is complete, tree protection fencing must be erected in erected in original approved location.
8. Contractor shall combine work tasks and re-sequence as necessary to minimize time periods working in tree protection zone.
9. Prior to entering any Tree protection zone, the contractor shall conduct a site meeting with City Manager or owner's representative.
10. "Hand tools" shall be used in areas designated as protection zones in this document to reduce root damage and compaction. Hand tools are defined as tools used by hand (shovels, rakes, wheel Barrow, etc.) air spade, dingo, vector hose, sod cutter and watering hoses. Heavy equipment is forbidden in these designations. Water truck and air compressors for the air spade cannot enter the tree protection zone.
11. All roots over 2" in diameter that need to be cut must first be inspected and approved by City Manager.
12. Post holes shall be adjusted if they come in contact with roots 2" in diameter or greater.

**Trevor March**

**Certified Arborist**

**5740AM**



PRIVATE DRIVE
TRACT B
TAX LOT 101
LOT 1
TAX LOT 102
LOT 2
"TRACT B"
1)
DECK
HOUSE
GARAGE
PRIVATE DRIVE
FURNACE STREET
LEONARD STREET

# Neighborhood Meeting Minutes

RECEIVED
MAR 29 2013
CITY OF LAKE OSWEGO
Community Development Dept.

March 26, 2013
7PM – Lakewood Center
The Kitchen Residence, 211 Furnace Street

Presenting: Ted Argo (Architect), Rafe Veenker (Builder), Brian Kitchen (Owner)

Attending: See sign in list.

7:05 pm Meeting Started

- Introduction
- Samples of paint, Roofing, windows, and stone are presented
- Ted Argo presented a color hand sketch as well as a full set of plans to all that attend.
- Ted explained setbacks, brief explanation of floor layout
- Ted described exterior surfaces: Natural Stone (Ledgestone, "Montana Mix") , Cedar Shakes, Lap Siding, Window and trim, Roofing (Landmark TL "Old Overton"). Brian gave direction to a building in LO that has the same roofing if anyone wanted to see it on a building.
- Window trim is described.
- Trees to be removed are pointed out, Remaining trees are discussed. It is pointed out that the large Fir Trees are not on this site and not going to be removed.
- Property lines are pointed out and described so everyone realizes where the property lines are located.
- It is brought up that some people do not have enough room to park on site and hang out onto the roadway. It is pointed out that there is approx 20' from the garage door to the traffic lane.
- It is brought to our attention that at least one person is happy with the use of natural stone on this project.
- A question is asked what style this home fits. The answer is there are some elements of the craftsman style. Wider trim around all windows and doors, using shake as siding.
- The height limit was discussed and observed on the set of plans.
- The question was asked if we had a plan for the storm water. It was explained that there was a storm water and sewer lateral existing on site.
- The question of construction staging was asked. It was explained that we had permission from Boni Halton to use her lot for staging.
- There was some discussion of soil conditions. It was explained that we had a Geotech come in and dig test pits to determine the soil condition was suitable for concrete foundation.
- The start date was discussed and the term of construction.

**EXHIBIT F-5**
LU 13-0020
(3 PAGES)

- It was asked if we would be blocking the road for any long periods of time. We explained that our scope would be limited to short interruptions in traffic during deliveries and excavation.
- The question came up about water and gas and it was explained the city would be installing the meter during construction.
- The question came about the energy efficiency with this home. It was explained that the home will have one of the alternative efficiency measures.
- The question was asked what the surface of the rear patio would be...We explained concrete or a deck of some type depending on the slope.
- A question came up about the vacant lot (Boni Halton's) next door and if she was going to build at the same time. We explained that she had shown interest and said she wanted to but we just were not sure.
- The question of noise was brought up. We explained that our subs do respect the neighborhood and if there were problems my name and number are posted on site. I also provided business cards for anyone who wanted one.

7:38 pm
The meeting ended

NEIGHBORHOOD MEETING – March 26, 2013, 7PM – Lakewood Center
for the Kitchen Residence, 211 Furnace Street

| name | address | email | phone |
|---|---|---|---|
| Jim & Penny WORTHAM | 133 Furnace St | JTW20K@Gmail.com | |
| Kim Castro | 177 Furnace St | gkcastro@msn.com | |
| Richard Renner | 398 Furnace St | RERENNER@COMCAST.NET | |
| Bob Jack | 208 Dunkan St. | campbellsue@mac.com. | |
| Ellie McPeake | 123 Furnace St. | elliemcpeake@comcast.net | |
| Henri Smit | 127 Furnace | | |
| Jeannie McGuire | 147 Wilbur | mcguire15@bex.net.com | 513-697-3327 |
| MARYLOU OLIVER | 68 LEONARD ST. | MARYLOUOLIVER@MAC.COM | 603 697-4433 |
| Corinne Campbell | 208 Dunkan | | |

GeoPacific Engineering, Inc.

Real-World Geotechnical Solutions
• Investigation
• Design
• Construction Support

RECEIVED MAR 29 2013 CITY OF LAKE OSWEGO Community Development Dept.

September 28, 2012
Project No. 12-2735

Linda and Brian Kitchen
10 Morning View Lane
Lake Oswego, Oregon 97035

**RE: GEOTECHNICAL INVESTIGATION
NEW SINGLE-FAMILY HOMESITE
211 FURNACE STREET
LAKE OSWEGO, OREGON**

This report presents the results of a geotechnical investigation conducted by GeoPacific Engineering, Inc. (GeoPacific) for a proposed single family home in Lake Oswego, Oregon. The scope of our investigation included field reconnaissance, exploratory test pits, field tests of soil strength, and preparation of this report. Our work was performed in accordance with GeoPacific proposal letter No. P4252, dated August 21, 2012.

## SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The study property is approximately 0.15 acres in size and is located on the west side of Furnace Street in the City of Lake Oswego, Oregon (Figure 1). The property is situated on a moderate to steep, east facing slope. The slope on the property is 48 feet high and inclines grades of 20 to 55 percent (Figure 2). The elevation of the property ranges from 80 feet to 128 feet above mean sea level. The slope is interrupted by an approximately 12 foot wide topographic bench cut into the hillside. This bench, which parallels Furnace Street over its entire length and beyond, was reportedly constructed as an old railroad bed. Vegetation consists of tall grasses, brambles and mature trees. The remnants of a former structure are present in the southwestern portion of the site and include a concrete slab and retaining walls.

The proposed redevelopment is construction of a three-level, wood-framed, single family home. The proposed foundation includes incorporated concrete retaining walls of about 10 feet in height. A slab on grade may be incorporated. A portion of the proposed footprint is situated on the old concrete slab, which will be removed. The foundation at the rear of the home is planned above the old railroac grade.

## REGIONAL GEOLOGY

Regional geologic mapping indicates that the subject site underlain by Quaternary age (last 1.6 million years) catastrophic flood sediments deposited during repeated episodes of glacial outburst flooding that inundated the Columbia and Willamette River Valleys, the last of which occurred about

EXHIBIT F-6
LU 13-0020

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10,000 years ago (Beeson et al., 1989; Madin, 1990). Regionally, these deposits consist of uncemented pebble to boulder sized gravel with a silt and coarse sand matrix. The clasts are poorly sorted, moderately rounded, consist of mostly basalt, and include both open framework and a fine-grained matrix. This deposit generally ranges from 5 feet to greater than 100 feet thick.

Underlying the catastrophic flood deposits is the Miocene age (about 14.5 to 16.5 million years ago) Columbia River Basalt, a thick sequence of lava flows which forms the crystalline basement of the Willamette Valley (Beeson et al., 1989; Yeats et al., 1996). These basalts are a dense, finely crystalline rock that is commonly fractured along blocky and columnar vertical joints. Individual basalt flow units typically range from 25 to 125 feet thick and interflow zones are typically vesicular, scoriaceous, and brecciated, and sometimes include sedimentary rocks. Where highly weathered, the upper portion of the basalt is altered to a distinctive red-brown clayey silt known as laterite or residual soil.

## SUBSURFACE CONDITIONS

On September 7, 2012, GeoPacific explored subsurface conditions in the vicinity of the proposed home by excavating three exploratory test pits to depths of 5 to 6.5 feet with a small trackhoe operated by Dan Fischer Excavating of Banks, Oregon. The approximate test pit locations are shown on Figure 2. It should be noted that test pit locations were located in the field by pacing or taping distances from apparent property corners and other site features shown on the plans provided. As such, the locations of the explorations should be considered approximate.

The observed subsurface conditions and soil properties are summarized below.

**Fill:** Fill was not encountered in our test pits. Fill may be present in the vicinity of the existing concrete slab and in the area due east of Furnace Street.

**Topsoil:** Topsoil was encountered directly at the ground surface in our test pits. The topsoil horizon was low to moderately organic with trace roots throughout. The topsoil extended to approximately 6 inches below the ground surface.

**Quaternary Catastrophic Flood Deposit:** Underlying the topsoil horizon in test pitas was Quaternary age coarse-grained catastrophic flood deposits. In test pits TP-1 through TP-3, this material consists of silty GRAVEL (GM) with cobbles and occasional small boulders. The clasts are subangular and consist predominantly of vesicular basalt. The consistency of the deposit is generally dense to very dense. Larger boulders are present in localized areas and practical refusal was reached at depths of 5 to 6.5 feet with a small excavator.

### Soil Moisture and Groundwater

On September 7, 2012, soil moisture conditions observed in test pits were generally damp to moist. No groundwater was encountered to a maximum exploration depth of 6.5 feet below the ground surface. The groundwater conditions reported above are for the specific date and locations indicated, and therefore may not necessarily be indicative of other times and/or locations. Furthermore, it is anticipated that groundwater conditions will vary depending on the season, local subsurface conditions, changes in land use and other factors.

## SLOPE STABILITY

For the purpose of evaluating slope stability, we: (1) reviewed published geologic mapping, (2) performed field reconnaissance, and (3) explored subsurface conditions in three exploratory test pits with a small trackhoe. No landslides and/or slope instability features, other than steep slopes, are shown in the site vicinity on published regional geologic and geologic hazard mapping (Schlicker and Finlayson, 1979; Beeson et al., 1989; Madin, 1990; Mabey et al., 1995). Seismic slope instability hazard mapping identifies the site vicinity as being in a moderate relative slope instability hazard zone based primarily on slope steepness (Mabey et al., 1995). The statewide landslide database indicates no mapped landslides are present at the site (SLIDO, 2012). Our review of lidar imagery (Dogami, 2012) indicates that the vicinity topography is smooth and uniform, consistent with relatively stable slope conditions.

The subject site is situated on a moderately-steep to steep slope inclining at grades of 20 to 55% grade. Our reconnaissance observations indicate that slope geomorphology at the site is smooth and uniform consistent with relatively stable slope conditions. No geomorphic evidence of prior, deep-seated slope instability (such as natural benches, scarps, groundcracks, etc.) was observed. Subsurface exploration indicates that the slope is underlain by an approximately a dense to very dense deposit of gravel, cobbles and boulders. These materials are considered to have a moderate to high shear strength and are generally resistant to deep-seated slope instability.

## CONCLUSIONS AND RECOMMENDATIONS

Our geotechnical investigation indicates that the subject site is suitable for construction of the proposed residential structure provided that the following recommendations are incorporated into the design and construction phases of the project. In our opinion, the potential for deep-seated slope failure is low and the home may be supported on spread footings. We recommend a 10 foot horizontal footing-to-slope setback. The potential for damage to the proposed building resulting from slope movement is considered to be low provided that our recommendations are incorporated in the project's design and construction.

We recommend that GeoPacific review the finalized foundation plan in order to verify that our recommendations are properly incorporated into the foundation design. GeoPacific should observe the foundation construction to verify construction in accordance with our recommendations, adequate subgrade strength and fill compaction. As with all hillside homesites, we recommend that the owner maintain this property in a manner appropriate to hillside development per the attached "Maintenance of Hillside Homesites".

### Foundations

The proposed residential structures may be supported on shallow foundations bearing on competent undisturbed, native soils and/or engineered fill, appropriately designed and constructed as recommended in this report. Foundation design, construction, and setback requirements should conform to the applicable building code at the time of construction. For maximization of bearing strength and protection against frost heave, spread footings should be embedded at a minimum depth of 12 inches below exterior grade. Minimum foundation reinforcement should consist of two

No. 4 bars at the tops of stem walls, and two No. 4 bars at the bottom of footings. Concrete slab-on-grade reinforcement should consist of No. 4 bars placed on 24-inch centers in a grid pattern.

The anticipated allowable soil bearing pressure is 2,500 lbs/ft$^2$ for footings bearing on competent, native soil and/or engineered fill. A maximum chimney and column load of 50 kips is recommended for the site. The recommended maximum allowable bearing pressure may be increased by 1/3 for short-term transient conditions such as wind and seismic loading. For heavier loads, the geotechnical engineer should be consulted. The coefficient of friction between on-site soil and poured-in-place concrete may be taken as 0.45, which includes no factor of safety. The maximum anticipated total and differential footing movements (generally from soil expansion and/or settlement) are 1 inch and ¾ inch over a span of 20 feet, respectively. We anticipate that the majority of the estimated settlement will occur during construction, as loads are applied. Excavations near structural footings should not extend within a 1H:1V plane projected downward from the bottom edge of footings.

Footing excavations should penetrate through topsoil and any loose soil to competent subgrade that is suitable for bearing support. All footing excavations should be trimmed neat, and all loose or softened soil should be removed from the excavation bottom prior to placing reinforcing steel bars. Due to the moisture sensitivity of on-site native soils, foundations constructed during the wet weather season may require overexcavation of footings and backfill with compacted, crushed aggregate.

Our recommendations are for house construction incorporating raised wood floors and conventional spread footing foundations. If living space of the structures will incorporate basements, a geotechnical engineer should be consulted to make additional recommendations for retaining walls, water-proofing, underslab drainage and wall subdrains. After site development, a Final Soil Engineer's Report should either confirm or modify the above recommendations.

## Retaining Walls

Lateral earth pressures against below-grade retaining walls will depend upon the inclination of any adjacent slopes, type of backfill, degree of wall restraint, method of backfill placement, degree of backfill compaction, drainage provisions, and magnitude and location of any adjacent surcharge loads. At-rest soil pressure is exerted on a retaining wall when it is restrained against rotation. In contrast, active soil pressure will be exerted on a wall if its top is allowed to rotate or yield a distance of roughly 0.001 times its height or greater.

If the subject retaining walls will be free to rotate at the top, they should be designed for an active earth pressure equivalent to that generated by a fluid weighing 35 pcf for level backfill against the wall. For restrained wall, an at-rest equivalent fluid pressure of 55 pcf should be used in design, again assuming level backfill against the wall. These values assume that the recommended drainage provisions are incorporated, and hydrostatic pressures are not allowed to develop against the wall.

During a seismic event, lateral earth pressures acting on below-grade structural walls will increase by an incremental amount that corresponds to the earthquake loading. Based on the Mononobe-Okabe equation and peak horizontal accelerations appropriate for the site location, seismic loading should be modeled using the active or at-rest earth pressures recommended above, plus an incremental rectangular-shaped seismic load of magnitude 5.5H, where H is the total height of the wall.

We assume relatively level ground surface below the base of the walls. As such, we recommend passive earth pressure of 390 pcf for use in design, assuming wall footings are cast against competent native soils or engineered fill. If the ground surface slopes down and away from the base of any of the walls, a lower passive earth pressure should be used and GeoPacific should be contacted for additional recommendations.

A coefficient of friction of 0.45 may be assumed along the interface between the base of the wall footing and subgrade soils. The recommended coefficient of friction and passive earth pressure values do not include a safety factor, and an appropriate safety factor should be included in design. The upper 12 inches of soil should be neglected in passive pressure computations unless it is protected by pavement or slabs on grade.

The above recommendations for lateral earth pressures assume that the backfill behind the subsurface walls will consist of properly compacted structural fill, and no adjacent surcharge loading. If the walls will be subjected to the influence of surcharge loading within a horizontal distance equal to or less than the height of the wall, the walls should be designed for the additional horizontal pressure. For uniform surcharge pressures, a uniformly distributed lateral pressure of 0.3 times the surcharge pressure should be added. Traffic surcharges may be estimated using an additional vertical load of 250 psf (2 feet of additional fill), in accordance with local practice.

The recommended equivalent fluid densities assume a free-draining condition behind the walls so that hydrostatic pressures do not build-up. This can be accomplished by placing a 12- to 18-inch wide zone of sand and gravel containing less than 5 percent fines against the walls. A 3-inch minimum diameter perforated, plastic drain pipe should be installed at the base of the walls and connected to a suitable discharge point to remove water in this zone of sand and gravel. The drain pipe should be wrapped in filter fabric (Mirafi 140N or other as approved by the geotechnical engineer) to minimize clogging.

GeoPacific should be contacted during construction to verify subgrade strength in wall keyway excavations, to verify that backslope soils are in accordance with our assumptions, and to take density tests on the wall backfill materials.

Structures should be located a horizontal distance of at least 1.5H away from the back of the retaining wall, where H is the total height of the wall. GeoPacific should be contacted for additional foundation recommendations where structures are located closer than 1.5H to the top of any wall.

## Concrete Slabs-On-Grade

Preparation of areas beneath concrete slab-on-grade floors should be performed as recommended in the *Site Preparation* section. Care should be taken during excavation for foundations and floor slabs, to avoid disturbing subgrade soils. If subgrade soils have been adversely impacted by wet weather or otherwise disturbed, the surficial soils should be scarified to a minimum depth of 8 inches, moisture conditioned to within about 3 percent of optimum moisture content, and compacted to engineered fill specifications. Alternatively, disturbed soils may be removed and the removal zone backfilled with additional crushed rock.

For evaluation of the concrete slab-on-grade floors using the beam on elastic foundation method, a modulus of subgrade reaction of 150 kcf (87 pci) should be assumed for the medium stiff native silt soils anticipated at subgrade depth. This value assumes the concrete slab system is designed and constructed as recommended herein, with a minimum thickness of crushed rock of 8 inches beneath the slab.

Interior slab-on-grade floors should be provided with an adequate moisture break. The capillary break material should consist of ODOT open graded aggregate per ODOT Standard Specifications Table 02630-2. The minimum recommended thickness of capillary break materials on re-compacted soil subgrade is 8 inches. The total thickness of crushed aggregate will be dependent on the subgrade conditions at the time of construction, and should be verified visually by proof-rolling. Under-slab aggregate should be compacted to at least 90% of its maximum dry density as determined by ASTM D1557 or equivalent.

In areas where moisture will be detrimental to floor coverings or equipment inside the proposed structure, appropriate vapor barrier and damp-proofing measures should be implemented. A commonly applied vapor barrier system consists of a 10-mil polyethylene vapor barrier placed directly over the capillary break material. With this type of system, an approximately 2-inch thick layer of sand is often placed over the vapor barrier to protect it from damage, to aid in curing of the concrete, and also to help prevent cement from bleeding down into the underlying capillary break materials. Other damp/vapor barrier systems may also be feasible. Appropriate design professionals should be consulted regarding vapor barrier and damp proofing systems, ventilation, building material selection and mold prevention issues, which are outside GeoPacific's area of expertise.

## Excavations and Temporary Stability

Subsurface exploration indicates that near-surface soils can generally be excavated using conventional heavy equipment such as a medium to large trackhoe. Localized large boulders may be encountered that would require heavy rock breaking equipment to reduce to excavatable size.

All temporary cuts in excess of 4 feet in height should be sloped in accordance with U.S. Occupational Safety and Heath Administration (OSHA) regulations (29 CFR Part 1926), or be shored. The existing native soils classify primarily as Type B or C Soil and temporary excavation side slope inclinations as steep as 1H:1V for Type B and 1.5H:1V for Type C may be assumed for planning purposes. This cut slope inclination is applicable to excavations up to 20 feet high above the water table only. Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the contractor. Actual slope inclinations at the time of construction should be determined based on safety requirements and actual soil and groundwater conditions.

Vibrations created by traffic and construction equipment may cause some caving and raveling of excavation walls. In such an event, lateral support for the excavation walls should be provided by the contractor to prevent loss of ground support and possible distress to existing or previously constructed structural improvements.

## Engineered Fill

We anticipate that, after demolition of the existing structures and removal of unsuitable fill (if present), placement of structural fill material will be necessary in localized areas in order to raise grades to meet plan footing elevations. Structural fill should consist of imported granular material such as ¾"-0 crushed aggregate (or similar material approved by GeoPacific) compacted in thin lifts to at least 90% of the maximum dry density obtained by ASTM D1557 or equivalent. Sufficient density testing should be performed during construction to verify that the specified compaction is being achieved.

## Stormwater Management and Drainage

Surface water drainage should be directed away from slopes and structures, and roof-drain water should be carried to a suitable discharge point. We recommend that stormwater from improvements on the property be conveyed downslope via enclosed pipe to the gentle slopes of the old railroad grade to the east of the proposed home. An approximate 15 $ft^3$ pod of 4-inch-to 6-inch-diameter rip-rap should be placed at the stormwater pipe outfall to retard erosion and/or the pipe should discharge to an on-site infiltration system on the gently sloping eastern portion of the property. In our opinion, conveyance pipelines may be installed in shallow, hand dug trenches on the slope without a significant adverse effect on slope stability.

A perimeter footing drain is recommended around the uphill side of the building foundation to intercept infiltrating surface water trapped against foundation walls, but is not necessary where it would be redundant to the retaining wall subdrain. Perimeter drains should consist of a minimum 3-inch diameter Schedule 40 or ADS Highway Grade, perforated, plastic pipe enveloped in a minimum of 1 $ft^3$ per lineal foot of 2"- ½", open-graded gravel (drain rock) wrapped with geofabric filter (Amoco 4545, Trevia 1120, or equivalent). A minimum 0.5 percent fall should be maintained throughout the drain and non-perforated pipe outlet. Given the expected low volume of water flow in the subdrain, the subdrain may outlet directly to the ground surface or be connected to the storm drain system. Limited groundwater seepage in crawlspaces is common in the Pacific Northwest and should be expected. A low point drain is recommended as standard construction practice to provide adequate crawlspace drainage.

Additional recommendations regarding maintenance of site drainage conditions on hillside homesites is outlined in the attached "Maintenance of Hillside Homesites".

## Seismic Design

As defined in the International Residential Code (IRC), the project site lies within Seismic Design Category $D_1$. Seismic Design Category $D_1$, which includes the non-coastal portions of western Oregon and southwestern Washington, represents an area of moderate to high seismic risk. Structures should be designed to resist earthquake loading in accordance with the methodology described in the 2006 International Residential Code (IRC) for One- and Two-Family Dwellings, with applicable Oregon Residential Specialty Code revisions. In our opinion, soils at the project site fall within Oregon Structural Specialty Code Site Class C (see Table 1613.5.2). Design values determined for the site using the USGS (United States Geological Survey) *Earthquake Ground Motion Parameters* utility are summarized in Table 1, presented on the following page.

**Table 1 - Recommended Earthquake Ground Motion Parameters (2006 IRC)**

| Parameter | Value |
|---|---|
| Location (Lat, Long), degrees | 45.415, -122.660 |
| Mapped Spectral Acceleration Values (MCE): | |
| Short Period, $S_s$ | 0.96 g |
| 1.0 Sec Period, $S_1$ | 0.34 g |
| Soil Factors for Site Class D: | |
| $F_a$ | 1.12 |
| $F_v$ | 1.73 |
| Residential Site Value = 2/3 x $F_a$ x $S_s$ | 0.71 g |
| Residential Seismic Design Category | $D_1$ |

Soil liquefaction is a phenomenon wherein saturated soil deposits temporarily lose strength and behave as a liquid in response to earthquake shaking. Soil liquefaction is generally limited to loose, granular soils located below the water table. Following development, on-site soils will consist predominantly of engineered fill or very well drained granular native soils, which are not considered susceptible to liquefaction. Therefore, it is our opinion that special design or construction measures are not required to mitigate the effects of liquefaction.

## UNCERTAINTY AND LIMITATIONS

We have prepared this report for the client, for use on this project only. The report should be provided in its entirety to prospective contractors for bidding and estimating purposes; however, the conclusions and interpretations presented in this report should not be construed as a warranty of the subsurface conditions. Experience has shown that soil and groundwater conditions can vary significantly over small distances. Inconsistent conditions can occur between explorations that may not be detected by a geotechnical study. If, during future site operations, subsurface conditions are encountered which vary appreciably from those described herein, GeoPacific should be notified for review of the recommendations of this report, and revision of such if necessary.

Within the limitations of scope, schedule and budget, GeoPacific attempted to execute these services in accordance with generally accepted professional principles and practices in the fields of geotechnical engineering and engineering geology at the time the report was prepared. No warranty, express or implied, is made. The scope of our work did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous or toxic substances in the soil, surface water, or groundwater at this site.

Sincerely,

**GEOPACIFIC ENGINEERING, INC.**

REGISTERED PROFESSIONAL ENGINEER
14743PE
OREGON
JAN. 23, 1990
JAMES D. IMBRIE
EXPIRES: 06/30/2013

Beth K. Rapp, G.I.T.
Project Geologist

James D. Imbrie, P.E., G.E., C.E.G.
Geotechnical Engineer

Attachments: References
Maintenance of Hillside Homesites
Figure 1 - Vicinity Map
Figure 2 - Site Plan
Test Pit Logs (TP-1 through TP-3)

**REFERENCES CITED**

Beeson, M.H., Tolan, T.L., and Madin, I.P., 1989, Geologic map of the Lake Oswego Quadrangle, Clackamas, Multnomah, and Washington Counties, Oregon: Oregon Department of Geology and Mineral Industries Geological Map Series GMS-59, scale 1:24,000.

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Schlicker, H.G. and Finlayson, C.T., 1979, Geology and Geologic Hazards of northwestern Clackamas County, Oregon: Oregon Department of Geology and Mineral Industries, Bulletin No. 99, 79 p., scale 1:24,000.

Yeats, R.S., Graven, E.P., Werner, K.S., Goldfinger, C., and Popowski, T., 1996, Tectonics of the Willamette Valley, Oregon: in Assessing earthquake hazards and reducing risk in the Pacific Northwest, v. 1: U.S. Geological Survey Professional Paper 1560, P. 183-222, 5 plates, scale 1:100,000.

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## MAINTENANCE OF HILLSIDE HOMESITES

All homes require a certain level of maintenance for general upkeep and to preserve the overall integrity of structures and land. Hillside homesites require some additional maintenance because they are subject to natural slope processes, such as runoff, erosion, shallow soil sloughing, soil creep, perched groundwater, etc. If not properly controlled, these processes could adversely affect your or neighboring properties. Although surface processes are usually only capable of causing minor damage, if left unattended, they could possibly lead to more serious instability problems.

The primary source of problems on hillsides is uncontrolled surface water runoff and blocked groundwater seepage which can erode, saturate and weaken soil. Therefore, it is important that drainage and erosion control features be implemented on the property, and that these features be maintained in operative condition (unless changed on the basis of qualified professional advice). By employing simple precautions, you can help properly maintain your hillside site and avoid most potential problems. The following is an abbreviated list of common Do's and Don'ts recommended for maintaining hillside homesites.

### Do List

1. Make sure that roof rain drains are connected to the street, local storm drain system, or transported via enclosed conduits or lined ditches to suitable discharge points away from structures and improvements. In no case, should rain drain water be discharged onto slopes or in an uncontrolled manner. Energy dissipation devices should be employed at discharge points to help prevent erosion.

2. Check your roof drains, gutters and spouts to make sure that they are clear. Roofs are capable of producing a substantial flow of water. Blocked gutters, etc., can cause water to pond or run off in such a way that erosion or adverse oversaturation of soil can occur.

3. Make sure that drainage ditches and/or berms are kept clear throughout the rainy season. If you notice that a neighbor's ditches are blocked such that water is directed onto your property or in an uncontrolled manner, politely inform them of this condition.

4. Locate and check all drain inlets, outlets and weep holes from foundation footings, retaining walls, driveways, etc. on a regular basis. Clean out any of these that have become clogged with debris.

5. Watch for wet spots on the property. These may be caused by natural seepage or indicate a broken or leaking water or sewer line. In either event, professional advice regarding the problem should be obtained followed by corrective action, if necessary.

6. Do maintain the ground surface adjacent to lined ditches so that surface water is collected in the ditch. Water should not be allowed to collect behind or flow under the lining.

### Don't List

1. Do not change the grading or drainage ditches on the property without professional advice. You could adversely alter the drainage pattern across the site and cause erosion or soil movement.

2. Do not allow water to pond on the property. Such water will seep into the ground causing unwanted saturation of soil.

3. Do not allow water to flow onto slopes in an uncontrolled manner. Once erosion or oversaturation occurs, damage can result quickly or without warning.

4. Do not let water pond against foundations, retaining walls or basements. Such walls are typically designed for fully-drained conditions.

5. Do not connect roof drainage to subsurface disposal systems unless approved by a geotechnical engineer.

6. Do not irrigate in an unreasonable or excessive manner. Regularly check irrigation systems for leaks. Drip systems are preferred on hillsides.

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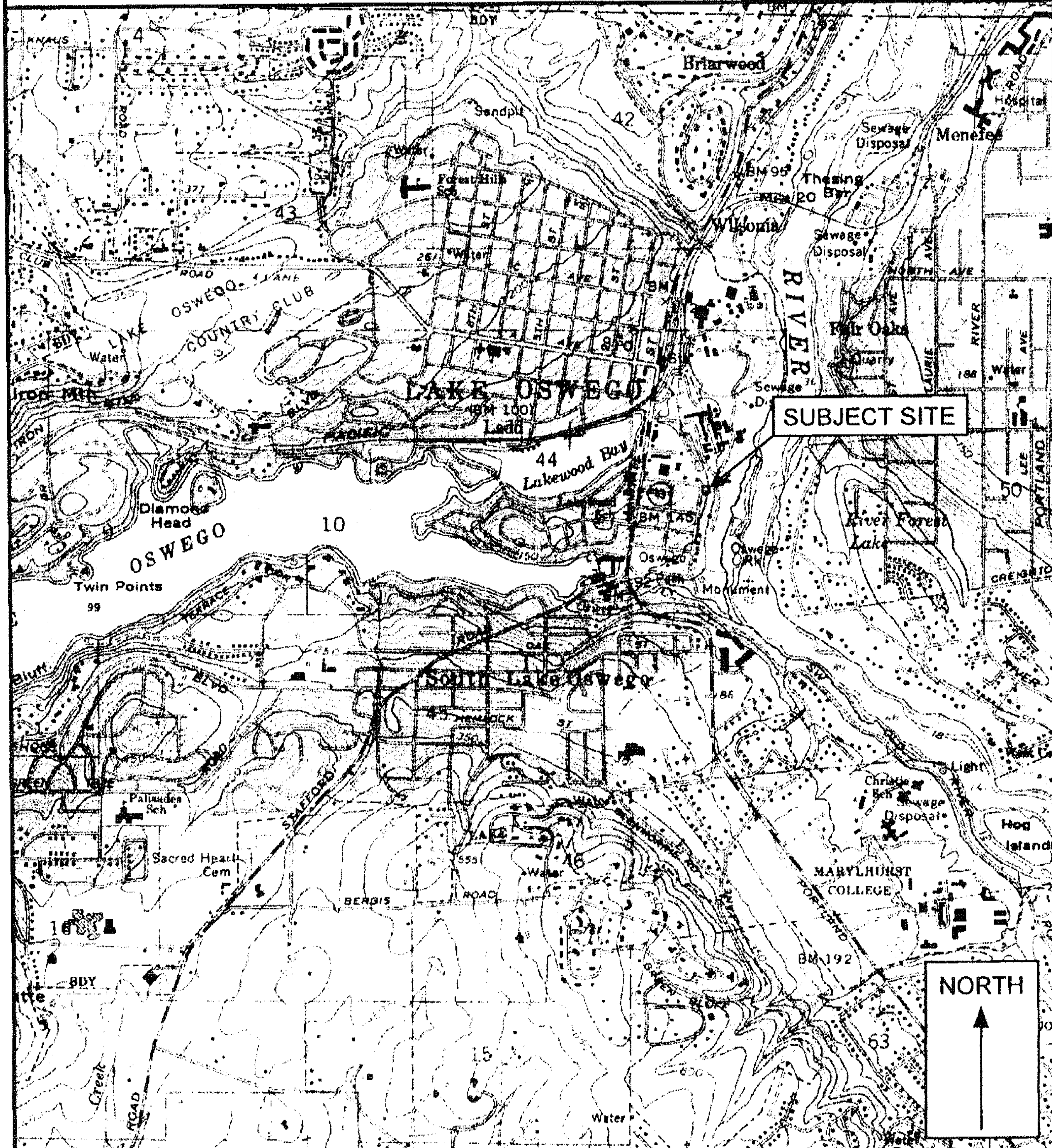
## VICINITY MAP



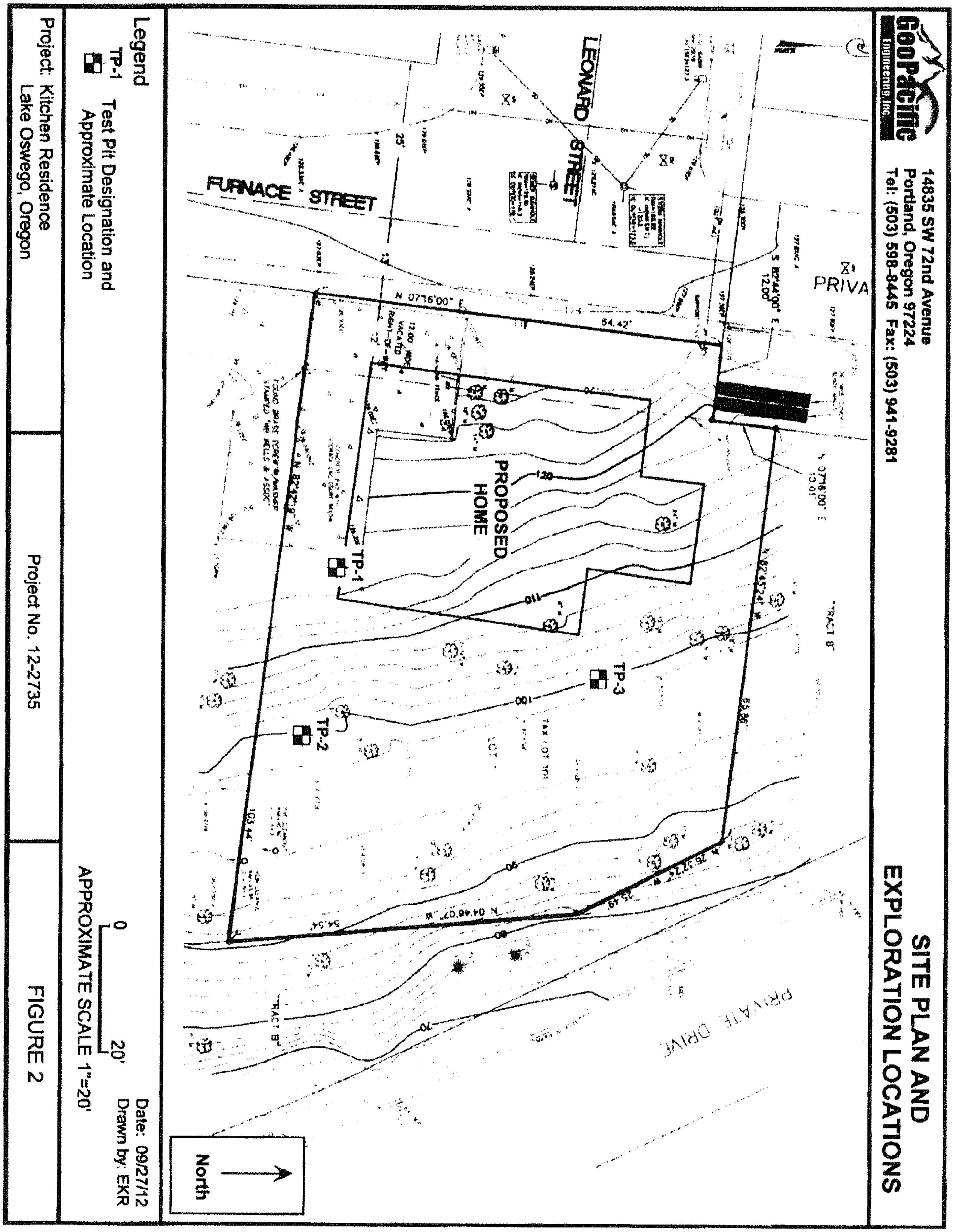

Legend

Approximate Scale 1 in = 2,000 ft

Date: 09/27/12
Drawn by: EKR

Base map: U.S. Geological Survey 7.5 minute Topographic Map Series, Lake Oswego, Oregon Quadrangle, 1961 (Photorevised 1984)

| Project: Kitchen Residence<br>Lake Oswego, Oregon | Project No. 12-2735 | FIGURE 1 |
|---|---|---|


GeoPacific Engineering Inc.
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SITE PLAN AND EXPLORATION LOCATIONS
LEONARD STREET
FURNACE STREET
PROPOSED HOME
TP-1
TP-2
TP-3
PRIVATE DRIVE
North
Legend
TP-1 Test Pit Designation and Approximate Location
Project: Kitchen Residence
Lake Oswego, Oregon
Project No. 12-2735
APPROXIMATE SCALE 1"=20'
0
20'
Date: 09/27/12
Drawn by: EKR
FIGURE 2

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# TEST PIT LOG

Project: Kitchen Residence
Lake Oswego, Oregon

Project No. 12-2735

Test Pit No. **TP- 1**

| Depth (ft) | Pocket Penetrometer (tons/ft²) | Sample Type | In-Situ Dry Density (lb/ft³) | Moisture Content (%) | Water Bearing Zone | Material Description |
|---|---|---|---|---|---|---|
| | | | | | | Low organic SILT (OL-ML), brown, roots throughout, moist (Topsoil) |
| 1 | 4.5 | | | | | |
| 2 | 4.5 | | | | | Very dense, silty GRAVEL (GM), light brown to gray, gravel is subrounded and up to 12 inches diameter, gravel percentage increases with depth, micaceous, trace roots throughout, subtle orange and gray mottling, damp (Catastrophic Flood Deposit) |
| 3 | 4.5 | | | | | |
| 4 | 4.5 | | | | | |
| 5 | | | | | | |
| 6 | | | | | | Practical Refusal on Large Boulder at 5 Feet. |
| 7 | | | | | | Note: No seepage or groundwater encountered. |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |
| 17 | | | | | | |

LEGEND

100 to 1,000 g — Bag Sample
5 Gal. Bucket — Bucket Sample
Shelby Tube Sample
Seepage
Water Bearing Zone
Water Level at Abandonment

Date Excavated: 9/07/2012
Logged By: B. Rapp
Surface Elevation:

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# TEST PIT LOG

| Project: Kitchen Residence, Lake Oswego, Oregon | Project No. 12-2735 | Test Pit No. **TP-2** |
|---|---|---|

| Depth (ft) | Pocket Penetrometer (tons/ft²) | Sample Type | In-Situ Dry Density (lb/ft³) | Moisture Content (%) | Water Bearing Zone | Material Description |
|---|---|---|---|---|---|---|
| | | | | | | Low organic SILT (OL-ML), brown, roots throughout, moist (Topsoil) |
| 1 | 4.5 | | | | | |
| 2 | 4.5 | | | | | Very dense, silty GRAVEL (GM), light brown to gray, gravel is subrounded and up to 12 inches diameter, micaceous, trace roots throughout, subtle orange and gray mottling, damp (Catastrophic Flood Deposit) |
| 3 | 4.5 | | | | | |
| 4 | 4.5 | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | Practical Refusal on Large Boulder at 6 Feet. |
| 8 | | | | | | Note: No seepage or groundwater encountered. |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |
| 17 | | | | | | |

LEGEND

100 to 1,000 g — Bag Sample
5 Gal. Bucket — Bucket Sample
Shelby Tube Sample
Seepage
Water Bearing Zone
Water Level at Abandonment

Date Excavated: 9/07/2012
Logged By: B. Rapp
Surface Elevation:

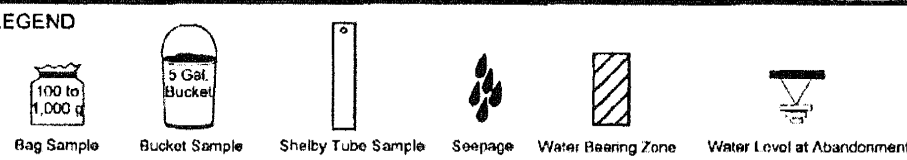
GeoPacific Engineering, Inc.
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

# TEST PIT LOG

| Project: Kitchen Residence, Lake Oswego, Oregon | Project No. 12-2735 | Test Pit No. TP-3 |
|---|---|---|

| Depth (ft) | Pocket Penetrometer (tons/ft²) | Sample Type | In-Situ Dry Density (lb/ft³) | Moisture Content (%) | Water Bearing Zone | Material Description |
|---|---|---|---|---|---|---|
| | | | | | | Moderately organic SILT (OL-ML), brown, roots throughout, loose, moist (Topsoil) |
| 1 | 4.5 | | | | | |
| 2 | 4.5 | | | | | Very dense, silty GRAVEL (GM), light brown to gray, gravel is subrounded and up to 9 inches diameter, micaceous, trace roots throughout, subtle orange and gray mottling, damp (Catastrophic Flood Deposit) |
| 3 | 4.5 | | | | | |
| 4 | 4.5 | | | | | |
| 5 | | | | | | |
| 6 | | | | | | Practical Refusal on Large Boulder at 6.5 Feet. |
| 7 | | | | | | |
| 8 | | | | | | Note: No seepage or groundwater encountered. |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |
| 17 | | | | | | |

LEGEND




Date Excavated: 9/07/2012
Logged By: B. Rapp
Surface Elevation:

# Fire Marshal's Office Memorandum

P.O. Box 369
Lake Oswego, OR 97034
503 635-0275
Zoutendijk@ci.oswego.or.us

To: Johanna Hastay, Associate Planner
From: Gert Zoutendijk, Deputy Fire Marshal
Date: April 4, 2013
Subject: LU 13-0020, 211 Furnace Street
Plans Received Date: April 1, 2013

## ACCESS

Access is adequate for emergency vehicles.

## WATER FLOW FOR FIRE PROTECTION

Hydrant location and water flow are adequate for a home up to 3,600 total square feet including all levels and any attached garage. If the home is proposed to be larger the applicant could propose an alternate method such as residential fire sprinklers.

**EXHIBIT F-7**
LU 13-0020