



CITY OF
West Linn

Memorandum

Date: September 30, 2020

To: West Linn Planning Commission

From: Jennifer Arnold, Associate Planner

Subject: SUB-20-01 – 6-Lot Subdivision at 4096 Cornwall Street

On September 29, 2020 Staff received a request by Pam Yokubaitis to include all submitted testimony from SUB-17-04 (Expedited Land Division: 6-Lot Subdivision at 4096 Cornwall Street) and testimony submitted at the most recent pre-application conference.

Memorandum

Date: December 13, 2017

To: West Linn Planning Commission

From: Jennifer Arnold, Associate Planner

Subject: Public Testimony for West Linn Planning Commission Public Meeting
SUB-17-04

On December 8, 2017 Staff received a letter addressed to all those who attended the neighborhood meeting for the proposed subdivision at 4096 Cornwall Street (SUB-17-04) from the applicant. This letter clarified some major changes between SUB-17-01 and SUB-17-04 and thanked the participants for attending. Two attachments to the letter included a color map of the proposal and the proposed layout of the subdivision.

On December 8, 2017 Staff received testimony from BHTNA VP Robert Jester, in response to the letter sent by the applicant regarding the neighborhood meeting for the above referenced subdivision. This testimony expressed appreciating to the applicant for meeting with the neighbors and noted that ICON listened to the concerns of neighbors with this new application.

On December 9, 2017 Staff received testimony from Pam Yokubaitis thanking the applicant for clarifying the changes from SUB-17-01 to SUB-17-04 and detailed the frustrations from the process of SUB-17-01. An attachment to this testimony was "The Citizens' Perspective", a proposal presented to the West Linn CCI addressing issues and solutions of the subdivision process.

On December 11, 2017 Staff Received testimony from the applicant's consultant, Rick Givens, suggesting modifications to the Staff recommended conditions of approval number 7. This testimony also clarified a couple aspects of their proposal.

On December 12, 2017 Staff received testimony from Christine Henry. This testimony is a resubmittal of testimony given during the SUB-17-01 process. A video of the stream running was also submitted into the record, and I have attached still shots from that video to this testimony.

On December 12, 2017 Staff received testimony from Edward A. Turkisher. This testimony is a resubmittal of testimony given during the SUB-17-01 process.

On December 12, 2017 Staff received testimony from Jon Gice. This testimony is a resubmittal of testimony given during the SUB-17-01 process.

On December 12, 2017 Staff received testimony from Dan and Jacque Eaton. This testimony discusses concerns with the traffic impact on Landis Street and Stonegate Lane. Also, Mr. and Mrs. Eaton express concerns over the sign posting for the notice. The sign for notice was placed on the frontage of the subject property at 4096 Cornwall Street and not at the end of Landis Street.

Memorandum

On December 12, 2017 Staff received testimony from Meredith Olmsted as president of the BHTNA on behalf of BHTNA. This testimony applauded ICON's efforts to address concerns expressed by members of the neighborhood association. Also, the BHTNA expressed concerns of landslide potential and requests individual geotechnical reports at the time of construction for each home.

On December 13, 2017 Staff received testimony from Steve Thornton. This testimony expressed concerns of traffic safety on Cornwall Street and Stonegate Lane.

On December 13, 2017 Staff received testimony from Pia Snyder. This testimony is a resubmittal of testimony submitted during the SUB-17-01 hearing process.

On December 13, 2017 Staff received testimony from Pam Yokubaitis on behalf of Jon Gice. This is testimony Pam previously presented and submitted during the SUB-17-01 hearing process.

On December 13, 2017 Staff received testimony from David Corey. Part of this testimony is a resubmittal of testimony submitted during the SUB-17-01 hearing process. The new testimony for SUB-17-04 expresses concerns about infill retention and if retaining walls will be used during the construction process.

On December 13, 2017 Staff received testimony from Patrick Noe. This testimony is a resubmittal of testimony submitted during the SUB-17-01 hearing process.

On December 13, 2017 Staff received testimony from Chelsea Diaz. This testimony is a resubmittal of testimony submitted during the SUB-17-01 hearing process.

On December 13, 2017 Staff received testimony from Pam Yokubaitis. This testimony is a resubmittal of testimony submitted during the SUB-17-01 hearing process. This testimony is a petition signed by neighbors near the proposed subdivision.

On December 13, 2017 Staff received testimony from Pam Yokubaitis. This testimony expresses concerns over the land use process that West Linn follows and references the "Citizens Perspective" letter previously entered into the record. There is also the wetlands information presented during the SUB-17-01 hearing process as a resubmittal including a power point presentation. Included in this testimony is the original application packet submitted by ICON from SUB-17-01. Pam also included an email with a list of individuals who have submitted testimony and which HOA or NA they are affiliated with. Pam also submitted testimony expressing traffic safety concerns.

On December 13, 2017 Staff received testimony from Pia Snyder. This testimony expresses concerns about significant tree removal and root damage to protected significant trees.

On December 13, 2017 Staff received testimony from Karie Oaks. This testimony includes concerns over compliance with the ORS Expedited Land Division standards and the Planning Managers decision to modify the HCA boundary.

Arnold, Jennifer

From: Darren Gusdorf <darren@iconconstruction.net>
Sent: Friday, December 08, 2017 12:09 PM
To: Ed Turkisher; 'Pam Yokubaitis'; 'Patrick Noe'; 'Richard Santee'; 'Pia Snyder'; 'Jon Gice'; 'Robert Jester'; 14.4volts@gmail.com; 'Travis Takano'; 'Steve Thornton'; 'Meredith Olmstead'
Cc: rickgivens@gmail.com; Mark Handris; Arnold, Jennifer
Subject: Willow Ridge - Proposed layout/design and how it's different from before...
Attachments: Willow Ridge ELD Colored Site Plan.pdf; Willow Ridge Storm Sewer Exhibit.pdf

Good afternoon neighbors of Willow Ridge,

I wanted to thank all of you who have been involved in continued discussions with us while we worked through the concerns voiced by our surrounding neighbors. For those of you who were present during the November 2nd pre-app meeting, and/or last evenings neighborhood meeting, I want to thank you for your time, and for allowing us an opportunity to go through our new plan with you in person. I think most of you already know, we have created a new plan, better suited for this site, that addresses the comments and concerns from what was originally proposed. To recap for those of you who could not be present during these meetings, I've highlighted what we've changed, and are now proposing within our new plan:

- The prior plan reflected a road connection through our project that connected Landis Street to Cornwall Street. Many objections were raised during the planning commission meeting with concerns of cut-through traffic, safety, and the poor current condition of Cornwall street that many stated couldn't support more traffic. We addressed this by NOT connecting Landis to Cornwall. Aside from a gated connection at the north corner of our site (for emergency vehicles only, and code required), our new design reflects no connectivity through our project.
- The prior plan had a storm pond placed off-site, on the city's property (tax lot 7100), fronting Fairhaven Way. Many objections were raised during the planning commission meeting with concerns of what the finished pond would look like, and converting a natural landscaped area into a detention pond. We addressed this by NOT placing a pond on this property. Storm is now addressed underground. The street on our project will capture all of it's run-off via catch basins that are hard piped into an existing sub-grade storm system in Landis to the west of our site. This system was oversized during the prior development to accommodate for future development and supports this connection. In addition, all impervious roof and driveway areas, affiliated with the 6 future homesites, will be collected and hard piped into individual rain gardens on site (water quality), with all overflow that is hard piped and conveyed to the existing creek south of Cornwall St. This will have no adverse impact to the park's tax lot 7100. The current aesthetics of it, as seen today, will remain unchanged.
- The concerns from our neighbors to the south, who have been dealing with hillside run-off for years, are being addressed via this design too. Currently (pre-development), all water from our site, and the sites to the north or our site, shed water down the hillside during heavy rain events that lead directly to the homes below us on Fairhaven Dr. Through geotechnical reporting, we know the soil base in this area is clay based, very dense, and doesn't perk well. That compounds the problem by not allowing the water to soak into the soils which currently sheets off the top layer, down the hillside, and to the properties below. With our current plan, we are capturing nearly ALL of the run-off coming down this hillside and across our project, BEFORE it gets to the properties on Fairhaven Dr. As mentioned above, the street on our site will act as a collector capturing everything to the north (including that on our lot #1) and taking it to the underground storm system to the west. The south boundary of the project will possess a new storm line that will collect all impervious water from the homes above, and convey this storm water underground, and out to the creek, south of Cornwall. Once these new storm

improvements are in place (post development), the majority of the hillside water will be captured and carried off to appropriate discharge points. Our neighbors to the south will see a decrease in saturated yards once this development is constructed and per these plans.

- There were concerns voiced about tree removal and impacts to land disturbances and/or added impacts to the water run-off. Per our plans, we are not removing any trees documented as significant by the city arborist. We are preserving trees on lot 1 (large cluster to the west), lot 2 (large cluster to the west), and trees along the southern property line. We like trees too, and are only removing those directly within the construction zones of the roadway and homesites. We will be replanting many new trees on site (as required by city mitigation code) and will be conscientious about planting them in areas to assist in providing continued privacy to both our exiting neighbors and future home owners. The removal of all trees will be mitigated for and replanted.

These were the main concerns voiced during the prior planning commission meeting and in other meetings from members of your neighborhood. I do apologize that we were not more proactive in organizing more community involvement with ALL of the neighboring communities during the first design and prior to our last planning commission hearing. Although we did meet with some of the neighborhoods, we should have reached out further and included others that we didn't realize would be impacted by this site. Working together during these recent lines of communication has been very helpful. We have listened, and have done our very best to address all concerns within our new design. We would be grateful for your support, in writing, and addressed to Jennifer Arnold at jarnold@westlinnoregon.gov before this Wednesday (December 13th) so it can be added to the record and presented to the planning commission before they meet on December 20th. Even a quick follow-up to this e-mail, that simply states you support this new design, would be greatly appreciated.

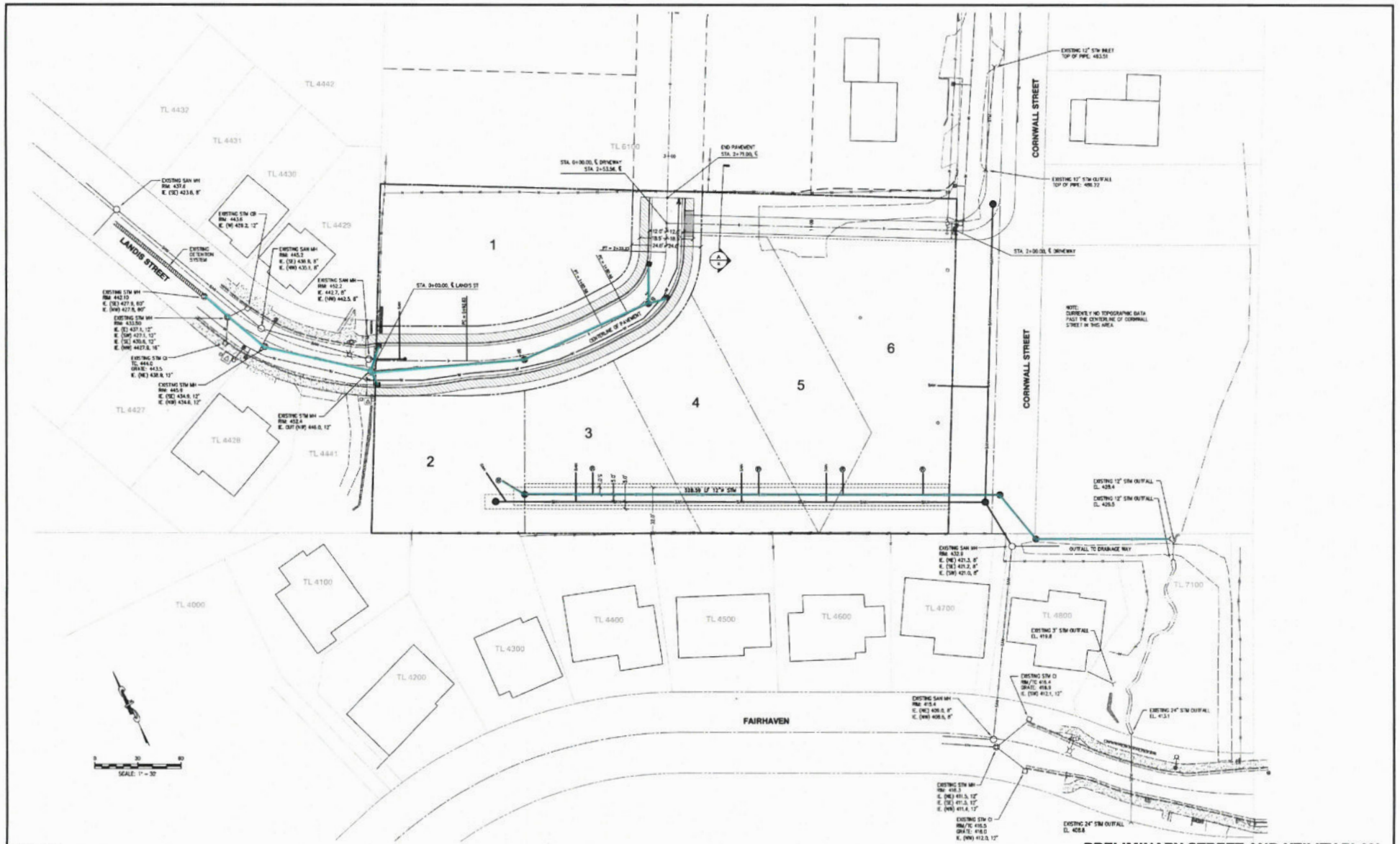
I've attached two exhibits reflecting the new layout and the items that I've mentioned within this e-mail. If you have any further questions, please feel free to contact me at 503-657-0406 or darren@iconconstruction.net. Thank you for all of your time and involvement with this project!

Darren Gusdorf

General Manager - Commercial & Residential Division
ICON Construction & Development, LLC #150499
1980 Willamette Falls Drive, Suite 200 | West Linn, OR 97068
503.657.0406 office | 503.655.5991 fax
darren@iconconstruction.net
www.iconconstruction.net







NOTE:
CONVEYER'S NO TOPOGRAHY DATA
PAST THE CENTERLINE OF CORNWALL
STREET IN THIS AREA.

DESIGNED: BDG			
DRAWN: BJS			
SCALE: 1" = 30'			
DATE: July, 2017	11/08/2017	1	APPLICATION
FILE: Cornwall Street Prelim	DATE	NO.	REVISION

Theta, llc

ENGINEERING • SURVEYING • PLANNING

PO Box 1265
Linn County, Oregon 97036

503-681-8822
email: info@thetainc.com

PRELIMINARY STREET AND UTILITY PLAN

Willow Ridge
West Linn, Oregon

SHEET:
1/3

2010-129L

Ivan Construction & Development, LLC
1980 Willamette Falls Drive, Suite 200
West Linn, Oregon 97068
Phone: (503) 657-0406

Arnold, Jennifer

From: jjtjester <jjtjester@comcast.net>
Sent: Friday, December 08, 2017 2:19 PM
To: Darren Gusdorf; Arnold, Jennifer; eileenstein@westlinnoregon.gov
Subject: Re: Willow Ridge - Proposed layout/design and how it's different from before...

Darren,

On behalf of BHTNA, I want to express my sincere appreciation for going above and beyond in addressing issues raised by residents and for your exceptional communication accompanying the new development plan for Willow Creek.

Based on the positive tenor, I believe everyone at last night's meeting would agree that ICON listened to the issues expressed during the first planning process and went back to the drawing board attempting to resolve them.

I also appreciate your willingness to stay until 9pm last night.

Happy holiday season to you and your family,

Robert
BHTNA VP

Sent from my Verizon, Samsung Galaxy smartphone

----- Original message -----

From: Darren Gusdorf <darren@iconconstruction.net>
Date: 12/8/17 12:08 PM (GMT-08:00)
To: Ed Turkisher <castle-wing@comcast.net>, 'Pam Yokubaitis' <pam@yokubaitis.com>, 'Patrick Noe' <art2noe@yahoo.com>, 'Richard Santee' <richardsantee@gmail.com>, 'Pia Snyder' <piasnyder@comcast.net>, 'Jon Gice' <jon_gice@sbcglobal.net>, 'Robert Jester' <jjtjester@comcast.net>, 14.4volts@gmail.com, 'Travis Takano' <travis_wp@yahoo.com>, 'Steve Thornton' <steve.thornton@localfresh.com>, 'Meredith Olmstead' <clubolmstead@comcast.net>
Cc: rickgivens@gmail.com, Mark Handris <handris@aol.com>, "Arnold, Jennifer" <jarnold@westlinnoregon.gov>
Subject: Willow Ridge - Proposed layout/design and how it's different from before...

Good afternoon neighbors of Willow Ridge,

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Darren Gusdorf

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Arnold, Jennifer

From: Pam Yokubaitis <pam@yokubaitis.com>
Sent: Saturday, December 09, 2017 12:26 PM
To: Darren Gusdorf
Cc: Ed Turkisher; Patrick Noe; Richard Santee; Pia Snyder; Jon Gice; Robert Jester; Scott Laroche; Travis Takano; Meredith Olmstead; rickgivens@gmail.com; Mark Handris; Arnold, Jennifer; Thomas Elin; Steve Thornton; Gary Eppelsheimer; Chelsea Diaz
Subject: Re: Willow Ridge - Proposed layout/design and how it's different from before...
Attachments: THE CITIZENS' PERSPECTIVE (CCI Proposal).pdf; ATT00001.htm

Hello, Darren (and everyone),

Thank you very much for summarizing the changes made between your first set of Willow Ridge plans and the second set more recently submitted. This is very helpful to inform those individuals who had schedule conflicts and couldn't attend your pre-app meeting and/or BHT's NA meeting this week. We really do appreciate you reaching out to us with your correspondence below, as well as having both you and Mark attend our BHTNA meeting on exceptionally short notice because of this expedited process.

We accept your apology for not meeting with BHTNA much earlier in this process. As I explained at the NA meeting to you and Mark this week, the tremendous amount of effort and time that has been invested by Icon in preparing two sets of proposed developments, in addition to the tremendous amount of time and effort spent by numerous residents to write testimony, supply evidence and testify has been nothing but exceptional. BHTNA residents were FORCED to communicate with you in a hearing because the city didn't mandate you meet with BHTNA before any hearings occurred. Additionally, there were problems experienced with BHTNA's leadership receiving notification from the city, and when BHT asked for a meeting with you (through Sunset leadership who already had an Icon contact), Icon demanded we supply a list of our questions within 5 hours to determine if you would meet with us. So Meredith, Ed and myself went into emergency overdrive to each draft a list of questions, and the next day, our Sunset contact told us Icon chose not to meet with BHTNA. So the door was slammed shut on all communications with our neighborhood residents, with no other way to be heard except to testify.

I must add that I did attend the second of the two Sunset meetings held because Sunset's President invited me, but the sketchy diagram that was presented there wasn't at all helpful, and we were told a retention facility was going to address the water issues, with *no mention of using the creek* as a detention pond. Needless to say, when we finally saw your detailed plans online turning Cornwall Creek (new name approved by City Council) into a detention pond, this major departure again FORCED us to testify about something that was never discussed with the residents. Such changes after meetings with NAs is a significant problem for the citizens of West Linn in general.

As a Past President of BHTNA, and having testified in the past, I fully understood the magnitude that BHTNA now faced to address the numerous concerns of surrounding residents, and the amount of work we now had to do. Because of Sunset School's nightmare to local residents that resulted in flooded basements of surrounding residents and LUBA's ruling not being honored by West Linn's City Council, many Sunset residents are left in deep debt or can't afford remediation and thus have lost their property value...all due to no fault of their own. BHTNA was not going to experience this same nightmare, so we united with Sunset NA to have an even louder voice. Additionally, Dogami pictures of the slope on this property is worrisome for landslide. If this hillside slides, Willow Creek, Hidden Creek Estates, Tanner Woods and Barrington Heights subdivisions all could get wiped out. Since homeowners insurance doesn't cover damage from acts of nature, and we know this

land is very wet with springs under all our homes, we are admittedly hypersensitive to the consequences that Sunset residents have already experienced. Who of many parties are liable if problems arise in any of the surrounding homes? It is therefore imperative that all parties (city staff and commissioners, residents and developer) be fully aware of what we're dealing with and question if building 6 homes at the expense of 60 homes below is worth this risk. If it is worth the risk, all necessary safety measures, optimum construction, special inspections, etc. must be incorporated in your proposed development.

I was angry BHT couldn't have an NA meeting with Icon because you forced us into doing a tremendous amount of work just to communicate. I then emailed Mayor Axelrod about my complaints with the process and provided solutions to improve the planning process. Russ replied by inviting me to attend the CCI (Committee for Citizen Involvement) to share my solutions, so I did. I thought this committee was charged to identify and solve land use problems, so I wrote the document below for the committee to consider the many concerns experienced by West Linn residents. This document was also distributed to all the Neighborhood Association Presidents to generate community discussion directly with their citizens. It was only *after* I submitted this 3 page document that I learned the CCI was created to identify the land use problems, and another *new group of people* would identify the solutions to the problems CCI identified. I am sharing this with you not only because you and Mark are West Linn citizens, but as a developer, your input on this topic is equally as important as it gains more traction. This document serves only as a starting point for discussion on this topic, but it is my hope that CCI's *new group of people* will include developers, citizens and city staff to solve the many issues experienced by each party, and done with a collaborative spirit.

THE CITIZENS' PERSPECTIVE

Prepared for the West Linn CCI Committee;
respectfully submitted by Pam Yokubaitis, MPH, RHIA, FAHIMA

EXECUTIVE SUMMARY

West Linn's land use planning process is currently under review to determine how to improve citizens' involvement in the land use process. Citizens have expressed deep frustration during public meetings which has necessitated the use of airport security screening equipment, and citizens are angered when damage occurs to their property as a result of new development nearby. These two examples demonstrate the necessity to improve citizens' involvement in the land use process. Review of the current planning process has revealed pitfalls, so suggested solutions have been provided herein. The citizens want to:

- 1) Have Mission Statements written to ensure the city's aims and values remain steadfast for the benefit of all citizens, city staff, city leaders and volunteers.
- 2) Be included in reviewing the plan drawings (formerly known as blueprints) of proposed developments with both the city and developer present, with all parties collaborating to resolve issues when identified, early in the development process.
- 3) Make the Neighborhood Association meetings more meaningful by reviewing the developer's plan drawings of a proposed development, instead of discussing concepts
- 4) Minimize the necessity and burden placed upon citizens to testify at Planning Commission hearings, often to be heard for the first time.
- 5) Not be required to identify code violations at Planning Commission hearings because city staff is most familiar with the codes.
- 6) Have city staff advocate for the citizens by putting CITIZENS FIRST always doing what is in the best interests of the city of West Linn and its citizens

PURPOSE AND CONTENT OF THIS DOCUMENT

The purpose of this document is to offer solutions to the CCI committee regarding how to fix identified problems. The Neighborhood Association presidents have also been sent this document for their input because a task has been suggested for their group. The content of this document presents a new approach to the planning process that would work significantly better for the community, from the citizen's perspective.

THE WEST LINN CITIZENS REPRESENTED

Serving on West Linn's CCI committee as an invited citizen by the mayor, this author has served as Past President of BHT Neighborhood Association, testified at least 4 times on land use development issues, is an 18 years West Linn resident, and has administrative experience in identifying solutions to existing problems. The information is a shared perception by numerous West Linn residents, not just the author's perception.

PROBLEMS WITH OUR CURRENT PLANNING PROCESS

West Linn's organization chart rightfully shows the citizens at the top of the chart with city staff below, but frustration mounts when the citizens can't effectively contribute to a process that affects them. Regrettably, tumultuous Planning Commission hearings and City Council meetings have occurred because there is a perception of "us versus them", citizens versus the city and developer. This is understandable because both parties are interested in generating revenue for themselves, but perception is everything. The use of airport security screening equipment to enter meetings is an unfriendly greeting to citizens. When damage occurs to private property by a developer, who advocates for the citizens? When routine turnover of elected positions, city staff, and volunteers occurs, this weakens the continuity of understanding and knowledge of the land use process. Perception can be changed, so solutions follow.

THE CITIZENS' PERSPECTIVE

RECOMMENDED SOLUTIONS

Write Mission Statements: It is necessary to agree on the overarching goals and intentions, or "big picture" so everyone has the same understanding. Writing a Planning Department Mission Statement would be very helpful because it includes: an organization's purpose; scope of its operations; what kind of product/service it provides, its primary customers or market; its geographical region of operation; the department's values and philosophies; and a business's main competitive advantages, or a desired future state (the vision). West Linn's Finance Department and the West Linn Library have mission statements posted online, but there isn't one posted for the Planning Department, nor is there a mission statement for the City of West Linn posted on the home page for the citizens to read. The Planning Department should consider drafting their mission statement, and the West Linn Neighborhood Association Presidents should also be drafting a mission statement for the City of West Linn because they represent their neighbors and have more time to dedicate to this project on behalf of West Linn's City Council. Once written, mission statements are rarely changed, so even with personnel changes over time, these mission statements afford a continuity of understanding for all community members.

Create a Development Team: The planning process of a development should be a collaborative effort; its participants being a developer, city staff, and West Linn citizens. For ease in communication, this group shall henceforth be referred to as the Development Team. Any citizen may participate on the Development Team. The Development Team determines how often, when and where meetings shall be held. If no citizens show up to participate in a meeting, then those present do their business and adjourn. Formal meeting minutes are not taken; a form is completed and posted online which reflects in bullet form: the names of the attendees; topics discussed; actions taken; revision date of plan drawing reviewed; and date of the meeting. A minimum of two meetings for citizen input on a proposed development should be scheduled for the citizens' convenience. Every updated plan drawing requires a new meeting for review.

The roles of each development team group is: the citizens inform and educate city staff and the developer of the neighborhoods issues that need to be addressed; the city advocates for the citizens, ensures code compliance, always keeping what is in the best interests of the community top priority, and the developer is to be accountable for high quality construction, legal compliance, and enhancing our community's livability.

RECOMMENDED PLANNING PROCESS

Knowing what the citizens want (see the Executive Summary on Page 1) requires process changes. Three phases of progression are suggested for consideration. In each of these phases, the Development Team should convene at *least* once to resolve issues and concerns. A timeline for each step below can be designated to keep momentum moving forward.

- A. *Planning Phase:* During this phase, several changes to the plan drawings may occur
1. *Pre- Application:* The developer's submission of the application, checklist compliance and concept documentation starts the Planning Phase process.
 2. *Call for Blue Prints:* When the pre-application material is considered acceptable, the developer will provide plan drawings for the Development Team to review. Each problem and concern identified by the Development Team will be discussed and resolved during Development Team meetings. Determining what testing is needed will also be determined (e.g. traffic study, hydrogeologist, etc.).
 3. *Call for NA Meeting(s):* After the Development Team agrees that the plan drawings are fully understood and issues and concerns are resolved, the date for NA meeting(s) is agreed upon and notices are mailed by the developer
 4. *Summary:* Plan drawings are needed early in the planning phase; without them, the staff and citizens have nothing meaningful to address.

THE CITIZENS' PERSPECTIVE

- B. *The NA Refinement Phase:* During this phase only one plan drawing revision *may* be necessary.
1. *NA Meeting Review:* Updated plan drawings are presented and explained by the developer to the citizens. This meeting shall be informational because due diligence has already been given to the plan drawings by the Development Team.
 2. *NA Meeting Feedback:* To ensure the citizens' concerns are addressed by the Development Team, the NA President shall complete an online form that summarizes the issues and concerns needing consideration. The documented information is orally read to the meeting attendees before the close of the meeting to ensure all issues and concerns have been accurately represented. The form is completed, then sent electronically to the planning department after the NA meeting. The Development Team convenes to address the NA(s) feedback and writes a response to each items on the form, before posting it online for all citizens to read the actions taken and explanations given. With the final approval of the plans by the Development Team, the application can now be approved, and Administrative Review Phase begins.
 3. *Summary:* Currently, only conceptual ideas are presented at NA meetings; no official plans are presented. This creates problems for citizens because discussing concepts is not equivalent to discussing the actual plans drawings on the plot of land proposed for development.
- C. *The Administrative Review Phase:*
1. *Testimonies:* The Planning Commissioners quasi-judicial hearing process is a good forum for resolving differences between the citizens, city and developer on unresolved matters of concern. But West Linn's hearings are really the only forum for citizens to express their concerns and issues, because plan drawings are currently released *after* NA meetings have been held. Preparing testimony, providing evidence, identifying unmet criteria, and attending the hearing is too burdensome on our citizens, when oral discussion would be far more effective and efficient. The current process demonstrates Citizens Last. By including citizens as part of the Development Team meetings early in the review process, then having the neighborhood association meetings would reduce both the need for and number of pubic testimonies given.
 2. *Identifying Code Violations:* Developers are required by law to meet building code standards, but expecting the citizens to identify code violations at a hearing is unrealistic because: city staff is very knowledgeable about code criteria; citizens pay taxes for city services, this being one of the services that staff is best at; and citizens do not understand code enough to challenge a developer's attorney about code compliance in a hearing. Therefore it is suggested that this expectation of the citizen be removed.

CONCLUSION

Making these changes is contingent upon acknowledging that the citizens' problems are real, perceived or not. Real change occurs from the top down in an organization, starting with the leadership. West Linn's Mayor Axelrod ran on a platform of Citizens First, which he is thankfully pursuing in this matter.

Since our government has elected officials, city employees and volunteer positions that experience routine personnel turnover, having Mission Statements are very important because they remain steadfast and provide a continuity of purpose through time and during leadership changes. Let it never be forgotten that the Citizens of West Linn come first because the primary role of government is to service its citizens in just and fair manner.



Rick Givens
Planning Consultant
18680 Sunblaze Dr.
Oregon City, Oregon 97045

December 11, 2017

Ms. Jennifer Arnold, Associate Planner
City of West Linn
PO Box 29
West Linn, OR 97068

RE: SUB-17-04 Staff Report

Dear Jennifer:

We have reviewed the staff report for Willow Ridge and would like to enter the following comments regarding proposed Condition 7 into the record:

- As you know, there has been much concern by the neighborhood regarding wanting to avoid cut-through traffic from Landis Street to Cornwall Street due to the poor condition of Cornwall Street. This is the reason why the Tentative Plan shows an emergency vehicle gate at the point of connection of the 12' paved drive with Cornwall Street. It is our understanding that Public Works has taken the position that CDC 48.030I precludes having a gate on a public alley. We disagree with this interpretation as that section specifically prohibits "gated accessways" to residential subdivisions. An alley is not an accessway in the context of this section. Access to the subdivision is provided via Landis Street, not the alley.
- Should the Planning Commission determine that the Public Works interpretation of CDC 48.030I is correct, in order to continue with our objective of satisfying neighborhood concerns about cut-through traffic from Landis to Cornwall Street, our response would be to revise Condition 7 as follows:
 7. The driveway from Landis Street to Cornwall Street shall be placed in a 25'-wide easement identified on the final plat for emergency vehicle and pedestrian access, as well as driveway access for Lot 6. An emergency vehicle gate shall be provided at the point of connection of the drive with Cornwall Street. The proposed property line between Lots 5 and lot 6 shall be extended to the north boundary line of the subdivision. Access to Lots 5 and 6 shall be from Landis Street. Lot 6 shall be accessed from Landis Street via the access easement. Lot 5 may have its own driveway onto Landis Street or may make use of the easement driveway.
- As a point of clarification, the staff version of Condition 7 incorrectly notes that there is a 25 foot strip north of the alley. The 25' dimension shown on the Tentative Plan is for the full width of what is identified as an alleyway, including the paved driveway. We apologize that the drawing is unclear with respect to the dimension.

Thank you for your assistance in this matter. Please let me know if you need anything further.

Sincerely yours,

Rick Givens

Cc: Mark Handris, Mike Robinson

My name is Christine Henry and I live at 3795 Fairhaven Drive in West Linn. I am adding more information to my first testimony, on a topic that I touched on but didn't respond to as thoroughly as I would have liked. Today I am focusing on the many reasons why the Unnamed creek next to my house should not be used as a detention pond, which all my neighbors on Fairhaven Drive in Hidden Creek Estates subdivision agree with, along with Barrington Heights neighbors.

OBJECTIONS TO A DETENTION POND IN THE UNNAMED CREEK TESTIMONY

1. **The developer needs to manage their water problems on their own property**, not in someone else's existing subdivision. This is like dumping your trash in another person's yard.
2. The proposed **detention pond needs to be out of the line of sight because they are not attractive**. They are an eyesore, so they should customarily be hidden because they detract from the beauty of our community.
3. Using the Unnamed Creek for a **detention pond would kill the trees and vegetation from being smothered with unhealthy, stagnant water**.
4. **This creek feeds into Tanner Woods known wetlands**, so it doesn't make sense to dam up this creek with crystal clear running water, and turn it into a stagnant, discolored pond.
5. Most detention ponds have an **eyesore chain link fence around the pond**, like Sunset school. A fence alone is an eyesore, and such a large, unsightly and noticeable fence would ruin the esthetics of this beautiful creek.
6. Stagnant water in a **detention pond can attract croaking frogs, mosquitos, heavy metals, and discolored, smelly water**. Having such undesirable water right next to a home, and the creek bridge where pedestrians walk pets, is a very bad idea. Passersby don't want to smell, hear or focus on a discolored body of water when strolling through our suburban neighborhood.

7. **Detention ponds devalue property because no one wants to look at an eyesore.** The best properties have lovely views, so taking a charming asset and turning it into an eyesore negatively impacts the entire neighborhood, and the West Linn community. Three realtors verified this, as evidence submitted with my first testimony.

8. The 2 creeks on both sides of Hidden Creek Estates (HCE) subdivision are our **most charming assets** because 11 out of 30 HCE homes are on the 2 creeks, which both lead to known wetlands in Tanner Woods subdivision below ours. These crystal clear creeks are a big attraction for living in our subdivision.

9. This **creek serves as a lovely entrance** into Barrington Heights and Hidden Creek Estates subdivisions. It gives both subdivisions a charming transition, unlike other neighborhoods where just a monument sign is the landmark.

These are many compelling reasons why the idea of turning this year round running creek into a detention pond is a horrible plan. Nothing good would come from destroying this beautiful asset in West Linn, which currently is a selling point for moving into the Barrington Heights Neighborhood Association. Photos below show the beauty of this creek and the amount of vegetation and trees that are *so worthy* of protecting. The truth is this detention pond needs to be placed where it is out of sight and out of mind so the least number of people have to look at it. Thus, the developer needs to address this issue on his own land where he can access his detention pond, rain gardens and his sewer from his own property.

Creek is on the right side at the bend as you enter Hidden Creek Estates.



My home with the Unnamed creek on the right side



Note the perimeter size of the proposed detention pond, from right next to the sidewalk at the creek bridge to almost half way to the back of the creek.



The creek from the middle of Fairhaven Drive, facing North East



The front half of the creek, facing the bridge on Fairhaven Drive



The middle of the creek, facing West towards my house.



The back of the Unnamed Creek, facing North West toward 4096 Cornwall.



Pia is measuring 7' between my fence and the midpoint of the creek; where the tape measure is indicates how far back the pond would be.



Pia is measuring 24' across, whereas 42' across is planned for the width of the pond. All ground vegetation and most if not all trees roots, would die from sitting in stagnant water perpetually.



These are just a few of the large trees on this property that would die in standing water. Look at the amount of trees and vegetation in photos 4-7 that would drown if this creek became a pond.



The detention pond below is on the corner of Bland and Salamo. Note the multi-color dead looking appearance. This is an eyesore, nothing can grow in this space, and it smelled terrible when this photo was taken.



Testimony to the Planning Commission

Resident Christine Henry 3795 Fairhaven Drive, West Linn, OR 97068

Water is a huge issue on my property. When I purchased this house almost three years ago, I learned upon inspection that there was standing water in the crawl space. This was mitigated at the time and haven't had issues in that part of the home since. My yard is very muddy throughout the rainy season, even with a substantial drainage system installed.

Diverting the water coming from the proposed sub division that is not even behind my house and putting it into a holding pond/eyesore in a neighboring subdivision isn't appropriate. Managing the water flow from the new development should be managed through infrastructure and water management that takes place on the developer's property. A detention pond is an eyesore, it can be smelly, attract mosquitos and ponding water will kill many of the trees in this beautiful creek because they can't thrive in standing water. This is a 365 days a year running creek. To dam it up as a holding pond would be tragic and destroy the natural beauty that draws people to purchase property In Hidden Creek Estates. Our 2 creeks bring charm to this subdivision with 11 properties out of 30 homes in our subdivision located on the creeks. The creeks beauty, rolling water, sounds, trees and colors will all be destroyed if this asset to our community is dammed up, including the value of my property. As you can see from the photos attached, my side fence is in close proximity to this Unnamed creek.

When walking through the neighborhood you see quite a few holding ponds, but they are generally not right on the street but behind homes. The holding ponds I have seen are an eyesore, and don't contribute to the aesthetic beauty of the neighborhood. Currently the stream and open space next to my home is beautiful and definitely weighed into my decision to buy this house. The impacts of putting in a holding pond in the middle of a running creek that leads to wetlands in Tanner Woods subdivision doesn't make any sense.

The stream is currently no more than 40 feet from my front porch. My daughter and her friends play in this area and the stream is very close to my front yard and back yard fence. I also received e-mails (attached) from three different West Linn real estate agents stating that putting a detention pond right next to my home will diminish the value of my home and the surrounding homes. They know that no one wants property with a detention pond on it unless it can be camouflaged, there would be no way to mitigate the impact of a detention pond where it is currently proposed. You would be eliminating a creek and open area that are currently community assets!

I don't have any issues with the property behind my home being developed. The people who own the property have every right to develop it, as long as the property can be safely developed and the development doesn't have any negative impact on the existing homes or their property values. We need this land to be validated as safe to build on because this steep, very wet land raises more questions of concern to area residents than flat land does. Too many homes are beneath this proposed development, so these major issues can't be casually ignored with so many homes that could be negatively affected. Only a professional who does water and soil analysis can determine how the surrounding subdivisions will be spared water or foundation damages so that this development is properly engineered for both the short and long term. This is a complex issue that requires a thorough investigation because jeopardizing 3 subdivisions for the sake of 6 new homes doesn't make sense. If a holding pond is necessary, it needs to be on the developer's property, camouflaged as best as possible

to make an eyesore unnoticeable. While 6 new residents are a benefit to the neighborhood, those living here have priority right to be protected.



Above: Unnamed Creek in Hidden Creek Estates Subdivision where a detention pond is proposed; located next to a home at 3795 Fairhaven Dr.

Below: Unnamed Creek in Hidden Creek Estates Subdivision. Shows proximity of creek to adjacent home's property at 3795 Fairhaven Dr.





Unnamed Creek in Hidden Creek Estates Subdivision. Shows view from backyard toward proposed detention pond adjacent home's property at 3795 Fairhaven Dr.



Unnamed Creek in Hidden Creek Estates Subdivision. Shows view from front yard toward the bridge, proposed detention pond would be in this area adjacent to home's property at 3795 Fairhaven Dr.



Unnamed Creek in Hidden Creek Estates Subdivision. Shows proximity of creek to adjacent home's property at 3795 Fairhaven Dr. from the bridge on Fairhaven Dr.



Unnamed Creek in Hidden Creek Estates Subdivision. Shows open space, street, and proximity of creek to adjacent home's property at 3795 Fairhaven Dr.



Unnamed Creek in Hidden Creek Estates Subdivision. View from street shows open space and proposed detention pond site proximity of creek to adjacent home's property at 3795 Fairhaven Dr.



Rebel Steirer <rebel4realestate@gmail.com>

Fwd: Fairhaven Drive Water Shed Collection

1 message

Rebel Steirer <rebel4realestate@gmail.com>
To: Rebel Steirer <rebel4realestate@gmail.com>

Tue, May 16, 2017 at 12:30 PM

Dear Icon Development and City of West Linn,

I feel that placing a watershed collection pond adjacent to the street and the front of any property on Fairhaven drive will negatively impact the market value of those homes and the neighborhood.

The home at 3795 Fairhaven Drive is adjacent to the Hidden Creek Estates neighborhood Entry. It is currently a pleasing entry, with a view of trees and the creek as you cross the bridge to enter.

Adding a retention pond with a chain link fence to this area would be unsightly and will diminish the value of the homes nearby.

I've viewed many of the retention ponds in the area and the developers have been very considerate of placing these behind properties.

-

REBEL STEIRER

M REALTY / LICENSED OREGON BROKER
17040 PILKINGTON RD. #200
LAKE OSWEGO, OR 97035



Rebel Steirer <rebelsteirer@gmail.com>

Proposed Retaining Pond

1 message

Marty Wells <martywells@kw.com>
To: rebelsteirer@gmail.com

Tue, May 16, 2017 at 11:02 AM

Hi Rebel,

I just learned that there is a proposed retaining pond at the entrance to your neighborhood, adjacent to the home by the bridge. Why can't the developer build the pond further back, away from the street like the three retaining ponds on the path between Summit and Beacon Hill? These ponds are usually unsightly since the city rarely maintains them, the black chain link fence creates an eyesore (and I'm sure would not be allowed by the HOA in the front of a dwelling) and in my view, will have a negative effect on the values of the homes adjacent to the pond.

What do you think?

Marty Wells

Principal Broker

Licensed in Oregon

Check Your Home's Value

www.MartyWellsSells.SmartHomePrice.com

Water Shed Run Off Fairhaven Drive

1 message

Kerri Miller <millerks@windermere.com>
To: Rebel Steirer <rebel4realestate@gmail.com>

Tue, May 16, 2017 at 11:24 AM

Hi,

I feel that any ground water retention pond off that is visible from Fairhaven Drive will diminish the value of the properties in that area.

The placement should be thoughtful of the surrounding property values.

Kerri Miller
Windermere Stellar
503-705-8386

220 A Avenue, Suite 200
Lake Oswego, OR 97034





Edward A. Turkisher, 4099 Cornwall Street, West Linn 6/7/2017

Testimony regarding the proposed six home development at 4096 Cornwall Street being planned by ICON Development and Construction.

A very short history: This proposed development has been officially recognized by the City of West Linn for approximately a year and a half...at least since the fall of 2015.

In that time, the plan has undergone a number of significant modifications and changes that reflect not only engineering and feasibility issues, but the dissemination of incomplete or even misinformation that impact this proposal. To date, most of the issues have yet to be resolved and it is with the formidable participation and objections raised by the residents of this greater area that we find ourselves at the impasse we have arrived at today.

These issues include a never conducted "wetland" assessment, the falling of nearly two dozen "heritage oaks" supposedly protected by city code, the construction of a "detention pond" on the unnamed creek, significant grading and filling of steep terrain exceeding 30% on much of the property for home foundation and road construction, the connection of Landis Street and Cornwall Street, and the impact of traffic changes on Cornwall Street and the surrounding neighborhoods. I intend to focus primarily on one small part of this entire equation (if this plan somehow gets approved) and that is the inattention to the intersection of Sunset Avenue and Cornwall Streets directly above the planned development at the top of Cornwall Street.



Sunset and Cornwall intersection

Why are we at this impasse at all? Why have many of the residents of these neighborhoods spent many many hours and months questioning the development of this land in the first place? Attaching blame may not bring satisfactory results for questions being asked, but perhaps investigating this process will avoid similar development issues in the future.

There are two major contributors to this discord and both share culpability for what amounts to a poorly conceptualized development. By far however, The City of West Linn is directly responsible for a plan that ignores much of city code, ignores county mandates, and ignores state regulation on different aspects of this multi-faceted development. Trying to muscle through an increase in city revenue by cutting corners, glossing over code parameters, excluding public participation and disregarding the long time residents; especially those on Cornwall Street, has created a clamor that the city could simply not ignore...try as they may. This seems to have been the modus-operandi of City planners for the last twenty years or so. (May I remind you of the recent Sunset School issues, the pipeline through Wilderness Park, the Salamo "vineyard", high school remodel cost overruns, diversion of voted funds from baseball field to football field, and even blatant theft of thousands of City dollars by unscrupulous employees)

By ignoring oversight intended to avoid such issues, the City has created a climate for developers to get "as much as they can for as little as they can" before the bubble bursts and accountability forces more responsible and feasible development. In that respect, it is no wonder that ICON Development has attempted to take advantage of a lax system that encourages misinformation and loopholes at the expense of residents. Had the City not exercised the policy of "don't ask don't tell" then ICON would not be in the position they are in today.

That being said, ICON is certainly not innocent in providing an incomplete and inaccurate analysis of a development that is full of holes. It has been the assumption of ICON, with the blessing of the City, that those holes can be "filled in later" as they kick the can down the street – Cornwall Street in this instance.

The City of West Linn continually defends decisions as part of the "MASTER PLAN"which curiously enough has never been seen. When was it written? Who wrote it? Designating an area for future development without input from the local residents is wrong. Designating an area for development that exceeds a slope of 35% is wrong. Designating an area for development that is rife with springs without hydro geologic analysis is wrong. Drawing a plat on a flat piece of paper with no contours or site analysis is wrong. Designating an area for development without a traffic study is wrong. And assuming that aging residents will die and forfeit their properties to future development is unequivocally and disgustingly wrong! At NO time were any of the impacted residents of this area asked or informed of the City policy to designate their homes as UNDERDEVELOPED. Underdeveloped according to whom?

Should this plan be accepted and a connection is made between Landis and Cornwall, what will be the impact of traffic on the intersection of Cornwall and Sunset?

Currently, this intersection is a remedial 4-way stop with traffic driving up Sunset allowed to make a right turn onto Cornwall towards the Little Store away from the development at the bottom of Cornwall. There are no sidewalks on any of the 4 intersecting streets. School Bus stops are on both corners of Cornwall Street east of Sunset. The pavement on lower Cornwall has failed. A large patch has been recently placed at the corner of the intersection on upper Cornwall. Upper Sunset was completely refurbished last year from the corner past Reed Street – an area of 8 to 10 homes. The pavement was dug up, refilled with new substrate, regraded and repaved. Why not Cornwall?

With an increase of approximately 500 auto trips a day (ICON's own traffic figures) on a street that sees about 20 auto trips a day a present, how is that minimal intersection going to accommodate the 1000% increase in traffic with NO sidewalks, NO school bus sheds, NO turn lanes, and NO way to avoid congestion to both vehicles and pedestrians. At present, everyone walks right down the middle of Cornwall Street because that is the only place to walk. All the neighbors respect our quiet street and we all observe a speed of about ten to fifteen miles an hour. We don't have auto accidents, speeding, bicycle collisions or other close encounters that an uncontrolled substandard intersection and street are certainly going to create. The same may be said for the residents of Landis Street as well (though at least they have sidewalks).

It may sound reactionary, and it may be too late, but the most equitable solution to this ill conceived development would be for the City of West Linn to admit that our foolhardy "Master Plan" needs a fresh look and serious modification. The City should refund the considerable capital ICON has invested and buy the property for future City use NEVER to be developed in such a haphazard manner until ALL the affected residents can be included in any new proposals – not that the properties, and indeed all of Cornwall, might be developed in the future.... But not like this, and not now.

Sincerely, Ed Turkisher, 4099 Cornwall. "The WatchDog of Cornwall"

ICON - CORNWALL Development

HISTORY :

The 2.17 acre plot located at the dead end of the south end of Cornwall Street in West Linn was purchased by ICON Construction (started and owned by Mark Handris of Handris Realty) sometime in 2015. The property has one single two story home that has been connected to the West Linn sewer system shortly after purchase by ICON as the existing septic system had failed beyond repair.

On November 24th, 2015 ICON submitted a pre-application proposal for a 7 lot development at the Cornwall site.

On April 26th, 2016 an informational meeting was held by the ICON consultant Rick Givens at Sunset Elementary Library regarding the Cornwall site. More than 50 residents attended this meeting and almost all of the questions being asked at present were put forth at this same meeting. Motioning for a vote on the feasibility of approving the development as presented, 50 out of 51 residents present rejected the proposed plan and asked for answers to the many questions and concerns.

On January 24th, 2017 another informational meeting was held by ICON at the Sunset Elementary Library regarding a new plan for the Cornwall site. No materials were distributed regarding the new plan but a presentation was held and basically the same questions asked in April 2016 were reiterated again by concerned residents.

On February 21st, 2017 ICON submitted a new proposal for development of the Cornwall site which modified the original plan. Basically, the new plan adjusted the plan from 7 lots to 6 lots and realigned the road connection between Landis Street and Cornwall Street.

To date, **NONE** OF THE MANY QUESTIONS ASKED BY RESIDENTS IMPACTED BY THE PROPOSED DEVELOPMENT HAVE BEEN ADDRESSED OR ANSWERED BY EITHER ICON Development **OR** THE CITY OF WEST LINN.

THE QUESTIONS: these questions are intended for both ICON ***and*** the CITY of West Linn as considerable overlap occurs deciding who has responsibility and accountability for meeting code or feasibility.

WATER; many many residents are concerned about the considerable presence of water on the site. The area is rife with UNDERGROUND springs as well as surface water and drainage to the two nearby creeks.

Is it possible that the site may be considered a designated "Wet Land"?

How will a Wet Land designation affect development?

Why has no qualified Hydro-Geologist or Hydrologist ever visited the site?

In fact, why has **NO** city representative ever visited the site? (ICON hired an engineering firm to visit the site and that firm produced a lengthy document germane to the site but made no reference to possible Wet Land designation)

Why have the presence of numerous underground springs been ignored in every proposal?

Why has ICON's engineering report identified the creek east of the site as seasonal when in fact it is a YEAR ROUND tributary of Tanner Creek and is NEVER dry?

How will the bulldozing of land for a road and the removal of some 25 significant trees going to affect runoff and the underground springs? (see page 91 of the current ICON proposal) Icon identifies 25% of the site as in excess of a 25 degree slope and 12 ½ % of the site in excess of 35% slope – some even 40%! 4 of the six homes are right in the middle of the 35% slopes and the proposed road also crosses to 35% slope. (reference page 91 of the ICON plan)

How is the proposed catchment basin proposed on the YEAR ROUND creek east of the site going to connect to the site?

What might be the result of either a substantial increase or decrease of water flow to the numerous homes downhill from the site along Fairhaven and into Barrington Heights neighborhoods?

FLORA and FAUNA:

What is going to be the effect of removing some 25 significant trees from the site? (see water question above and reference page 91 of the ICON report)

Turtles have been found on the site. How are these protected species going to be impacted by this development?

What is being done to address erosion on the site? The City Master Plan suggests that disturbed soils (bulldozing and land fill) and removal of trees and brush increase the potential for soil erosion by more than 1,000%! (see City of West Linn Master Plan erosion control)

TRAFFIC:

Why has every question regarding a possible cul-de-sac on Cornwall been ignored? It is legal and has many benefits for a development.

How is the bulldozing and modification of the steep slope for a through road to Landis going to affect the issues of water, possible land movement (see Map 11 Potential Landslides PDF) and new home foundations? Icon identifies 25% of the site as in excess of a 25 degree slope and 12 ½ % of the site in excess of 35% slope – some even 40%! 4 of the six homes are right in the middle of the 35% slopes and the proposed road also crosses to 35% slope. (reference page 91 of the ICON plan)

Why is the following being ignored? A through route connection between Landis and Cornwall has many unanswered conflicts. If permitted, the through route opens Cornwall Street as an arterial that cannot handle the increased traffic. ICON identifies the increased traffic of the 6 proposed new homes using Cornwall Street, but disregards the existing homes which would now have more direct access to I205 Northbound and Oregon City. These homes include Landis Street (20 homes), Willow Street (6 homes), existing Cornwall Street (9 homes), upper Beacon Hill (18 homes), Sabo Lane (32 homes) and other nearby residences which account for nearly one hundred homes that would now have shorter access to their destinations via Cornwall and Sunset. More residences would undoubtedly make use of the new connection as well. If we use ICON's estimate of 5 trips per day per household to various destinations, the approximate increase of traffic would go from about 30 or so car trips on the street today, to 500 additional trips on Cornwall – an increase of over a thousand percent?

New roads are required to be a minimum of 24' wide with two sidewalks 6' wide on either side. Why is this new road being connected to an obsolete Cornwall Street that is less than 18' wide with NO sidewalks?

Cornwall is rated with a PCI of 8 (Pavement Condition Index- Pavement Management Report for 2015). The average PCI in West Linn is 69. The report rates Cornwall with a "remaining life" estimate of ZERO! Why is this road condition being ignored? An overlay is being planned on Cornwall to widen the street to 20' – still woefully short of standard code.

Where is the formidable increase in pedestrian traffic going to walk with NO planned sidewalks?

What safety concerns are going to be proposed for our children with no sidewalks and no bus stops?

How is traffic going to enter Sunset Street at the uncontrolled intersection of Cornwall and Sunset with NO plans for improvement? (and Sunset is a substandard street as well)

Cornwall is going to be dug up to increase potable water infrastructure with a new "looped" water supply of greater diameter to feed the new homes. Six existing homes on Cornwall Street are still on septic systems. There is NO sewer line on Cornwall. If the street is going to be dug up to install new potable water service, why isn't a new sewer line being put in place at the same time? It is only too obvious that it would be much much less expensive to do the upgrade NOW than to wait and dig up the street at least three times again and again to try and save what?

Why isn't upgrading Cornwall Street being considered?

BUILDABLE LAND:

Why has the City ignored the existing residents on Cornwall Street and identified their homes as open for development when we all live here? (see Residential Buildable Lands chart PDF). In some cases the buildable lands chart completely ignores the existing homes on some of these lots or conveniently moves them out of the way on paper.

Other Questions:

Why does the city repeatedly ignore requests for information regarding this development? Too often I have gone up to city hall and requested information only to be told a file doesn't exist when in fact I can show them it does. This "lack of information" dates back to early 2016 when I was told no file existed regarding the plan even though the first proposal was marked "received": on 11/24/2015?

Why, when I went to City Hall on March 1st of this year, if the new plan was submitted on 2/21/17, was I told City Hall had not received it? I would not leave until City Hall located the plan even though it was posted on the city website.

Why did Jennifer Arnold (associate planner) sign the plan submitted on 2/21/17 when she never even saw it before March 1st when she was formally put in charge of reviewing the plan (which I was told didn't exist).

ICON submitted the new plan with charts from the old 7 lot plan (see page 77 of the ICON plan). I'm sure this must have been an oversight. Is this just another example of the city and developer not reading their own paperwork?

CONCLUSION:

Finally, there are many glaring examples of under-performance, stonewalling, denial, and misinformation regarding this proposed development. It is completely reasonable to expect answers to our many questions before accepting development that effects us ALL and we respectfully ask that ICON and the City of West Linn (and future developers) step up and accept responsibility for managing new projects in a transparent, inclusive, and responsible manner. Development is inevitable. We all accept that. But development needs to be done in the best interests of the greater public – not an arbitrary privileged few who have more interest in tax base or profits than the citizens at large.

My name is Jon Gice and I live at 2030 Tanner Creek Lane. I appreciate the opportunity to voice my concerns about the Cornwall/Landis Street development. My concerns are twofold:

1. Tanner Creek runs through my property and I can assure you that the creek is filled to capacity as well as the detention pond across the street. I have spoken with our neighbors who are very concerned about the quantity and quality of water that flows via Tanner Creek. People have lost trees, had to self-fund retaining walls and find their yard unusable due to the flow of water during the rainy season. Because water always seeks the lowest point, Tanner Woods will be the recipient of more water than we have now which raises increased flooding concerns that will result from the complete disruption of the natural absorption of the land on the site.
2. The development site appears to have many of the 13 conditions that designate a wetland. I have been in contact with the State of Oregon Wetlands and Waterways Division. They make it

clear that local governments are responsible to inventory wetlands. There is no record at the state that this has ever been done on this site. The developer submitted a report that ruled out 3 of the 13 conditions. I shared this report with the State as it is public record. Their reply, which I have in writing, upon reading the report was “... **you are right to suggest that the attached memo isn't a wetland delineation report. Delineation reports require considerably more background material and sampling point data.**”

We have photos to prove that the vegetation meets wetlands criteria the state provided. We ask that the City of West Linn engage an impartial qualified hydrogeological expert to conduct the thorough sampling necessary determine if the development site is a wetland and to formally determine the impact on Tanner Creek. West Linn must properly evaluate this property to protect its existing citizens' safety, security and property values affected by this proposed development.

Thank you very much for your time and anticipated agreement.

If you are asking about the background for a wetland consultant, that can be all over the board (including soil scientists, botanists, biologists, hydrologists, etc.).

If you are looking for someone to determine how water is moving down that hillside, a hydrogeologist may be a better choice. They tend to focus more on the movement of groundwater as opposed to surface water.

Peter Ryan, PWS

Jurisdiction Coordinator - Metro Region

Oregon Department of State Lands | 775 Summer Street, NE, Ste. 100, Salem, Oregon 97301-4844

503.986.5232 Monday-Wednesday | 503.779.4159 Thursday

Work Days: Monday-Thursday | Out of Office: Fridays

Arnold, Jennifer

From: Dan & Jacque Eaton <djeaton4849@comcast.net>
Sent: Tuesday, December 12, 2017 9:16 PM
To: Arnold, Jennifer
Subject: File NO. SUB-17-04

Greetings Jennifer;

With respect to the subject file (6-lot subdivision off Cornwall street), I object to the design of the traffic flow.

With respect to traffic patterns, the issue is still, six more lots, six more houses, maybe 12-24 more cars per day going around the existing blind curve on Landis Street (just after the intersection of Landis and Stone Gate Lane), six more houses trying to get out of Landis Street in case of an extraordinary event like a fire, earthquake etc. Landis Street already has 20 houses on it and only one way out. Not sure we need to increase the flow by 30%. If the project is going to be developed one needs an alternative route out of Landis street and not thought an alley connecting Cornwall to Landis Street.

The staff report states that, "The property was posted with a notice sign on November 29, 2017. The notice requirements of ORS 197.365 have been met." There is no posting at the end of Landis Street. One would think that would be a requirement since six more houses are going to be running down that road.

Please submit this e-mail to planning commission for insight on their December 20th meeting.

Sincerely,

Dan Eaton

BHTNA

December 12, 2017

Jennifer Arnold, Planning Department
City of West Linn, OR
Jarnold@westlinnoregon.gov

Re: ICON Development: Cornwall Street

Good Afternoon;

I write as President of BHTNA in response to the expedited application for development by ICON at the Cornwall site.

We applaud ICON's efforts to address concerns expressed by residents in BHTNA and Sunset NA's about the previously proposed subdivision. The revised plan shows considerable effort expended in addressing those concerns.

The largest remaining issue is that of the soil hydrology. While this plan states that no water runoff will feed into Tanner Creek, and also addresses water runoff along the upper side of Fairhaven Drive via rain gardens, residents still have ongoing fears that construction caused displacement of earth and vegetation on the hillside WILL negatively impact their homes and properties.

The only way to definitively determine the potential impact of construction on this hillside is with a qualified, independent hydrologist's evaluation. This must be done prior to approval of ANY home site on this plan. We ask that the City word any approval for this plan to include such requirements.

It is not unusual for a City or County to require individual geotech inspections prior to construction permits approvals. In this case, we implore you protect our residents' properties by including a required hydrogeologist's inspection as well for each lot prior to the inception of construction.

Adjoining residents, such as those along Fairhaven Drive, must have forewarning of potential impact on their homes. A hydrologist can determine, for example, whether the proposed construction could trigger landslides or a flooding of damaging water to those homes. The homeowners could, then, be prepared to obtain appropriate homeowners insurance to protect their investments against such occurrences.

We, at BHTNA, strongly urge the City to require the proper vetting of this property prior to granting building permits on ANY lot contained in this subdivision.

Sincerely,
Meredith Olmsted, President,
BHTNA
tronagirl@me.com
503.724.6259

Cc: Robert Jester, Larry Meese, Amy Reece, Pam Yokobaitis, Patrick Noe

I'm Steve Thornton and I live on Landis Street, in the Tanner Stonegate HOA. I am concerned about traffic safety should the proposed Willow Ridge development be approved. The city and developer have stated that no additional traffic will result because only 6 homes are being built. However, it is illogical to think that connecting Landis and Cornwall streets will not have an impact on traffic; it will increase without any doubt.

I have measured the width of Cornwall Street where it will connect with the extension to Landis Street. In most places it is only 15 feet wide and in one area where blackberry has taken over one side it is only 12 feet wide. There are no sidewalks on either side. In general, Cornwall is a one-one way street and I have heard of no plan to widen or improve the street.

Further, where Landis intersects with Stonegate Lane, the corner is blind. Even with Landis being a dead end street now it is unsafe. Once you turn onto Landis there is another blind corner.

I would respectfully ask the city to propose how these traffic safety issues will be mitigated before approving the Willow Ridge development. Thank you.

My name is Pia Snyder and I live at 3817 Fairhaven Drive, on the East side of the unnamed creek. I am elaborating on my first testimony by providing additional information in four areas about the land proposed for development:

- 1) Where are wetlands found? (note the red information)
- 2) How to identify wetlands & how this land meets wetlands criteria showing photographic evidence;
(our responses are noted in red)
- 3) Photos of 4096 Cornwall, the slope and the number of oak trees
- 4) Water concerns on this property
- 5) Summary

I. WHERE ARE WETLANDS FOUND?

https://www.oregon.gov/DSL/WW/Documents/DSL_wetlands_fact_march_2015_web.pdf (Page 2)

Wetlands are typically, but not exclusively, found in depressions or in the lowest part of the landscape. Expect to find wetlands in:

- Abandoned stream channels along river systems
- Valleys or other low areas with a high water table in winter and early spring
- Flat valleys or depressions where impervious soil layers create a “perched” water table
- Low areas on slopes where ground water emerges as springs or seeps
- Mountain meadows watered by gradual snow melt

What characteristics do wetlands share? (Same website source as above, on page 2)

Although there are many types of wetlands in Oregon, they share three essential characteristics: an abundance of water, hydric (wetland) soils, and plants that grow in wetland conditions. Prolonged saturation is what creates a wetland, no matter the source. A high water table, rain water “perched” over impenetrable layers in the soil, and frequent flooding are common examples. Wetland – or hydric – soils have distinctive, visible characteristics, such as brownish-red veining and rusty-colored splotches.

Saturated conditions support plants that have adapted to life in permanently or seasonally wet soils.

Some plant species are better indicators of wetlands than others. The US Army Corps of Engineers has compiled a list of thousands of plants that grow in wetlands, and assigned an "indicator status" to each plant based on the frequency with which they occur in wetlands. **Skunk cabbage, for example, only occurs in wetlands.** Other plants occur in wetlands sometimes, and still others occur in wetlands and in other soil types. Therefore, plants may or may not be a good indicator of the presence of wetlands. Wetland scientists use the plant indicator status to help determine if a site is a wetland.

Low area on slope where ground water emerges as springs or seeps; prolonged saturation is what creates a wetland, no matter the source.



Saturated conditions support plants that have adapted to life in permanently or seasonally wet soils.



Skunk Cabbage, which occurs only in wetlands, was found by the Unnamed creek in a back yard uphill from the proposed development.



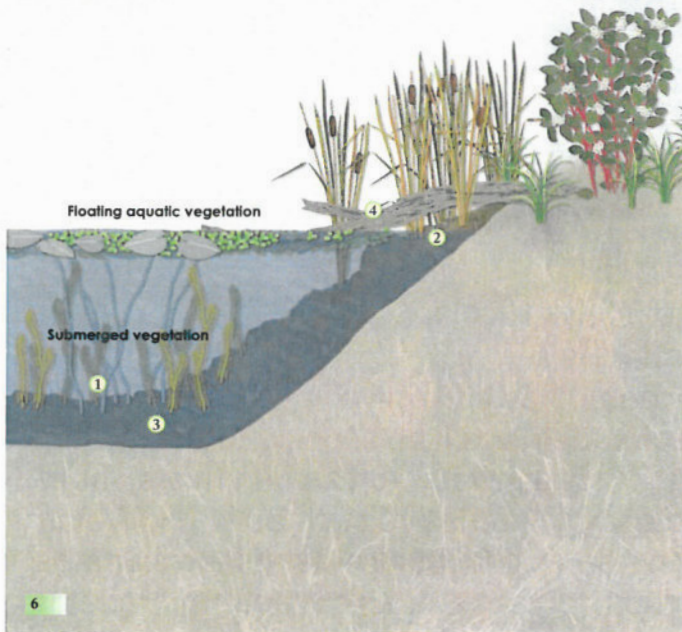
Five different turtles on 3 separate occasions were found in the back yard pond at 3745 Fairhaven Drive. As many as 6 have been present at the same time, per Chuck Nokes.



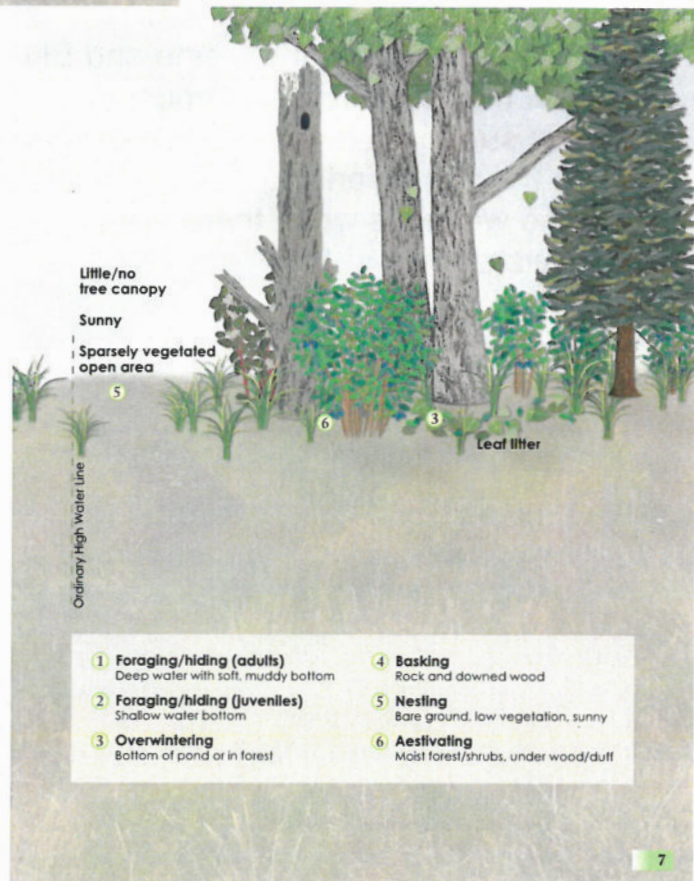


Figure 3.

WHERE TURTLES ARE FOUND



http://www.dfw.state.or.us/wildlife/living_with/docs/ODFW_Turtle_BMPs_March_2015.pdf



<http://www.environment.nsw.gov.au/wetlands/WetlandReptiles.htm>

Reptiles in wetlands



Eastern long-necked turtle. Photo: Rosie Nicolai, OEH

Why do some reptiles need wetlands?

Some reptiles need wetlands because they either live in water for much of their lives or largely rely on water for their survival, such as turtles, water skinks and the eastern water dragon. Freshwater turtles use rivers, lakes and billabongs for feeding and to escape predators such as birds. Water skinks have also adapted to relying on wetlands such as upland swamps for their food sources (insects, grubs, larvae) and as cover from predators.

Some species such as the alpine and Blue Mountains water skink can survive at high altitudes – an unusual feat for cold-blooded animals.

Wetlands support a range of animals that provide plentiful food sources for reptiles. It is not surprising that some snakes spend a lot of time around rivers and wetlands when there are edibles such as frogs and eggs laid by nesting waterbirds.

II. HOW TO IDENTIFY WETLANDS &

HOW THIS LAND MEETS WETLAND CRITERIA

The State of Oregon has a check list (below) to identify if property meets wetlands criteria. This list can be found at: https://www.oregon.gov/DSL/WW/Documents/DSL_wetlands_fact_march_2015_web.pdf (Page 4) The State of Oregon checklist (below) was used to determine if we had grounds for submitting a wetlands determination request to the State of Oregon. Upon completing the check list, with our responses noted in red, we believe we have more than adequate evidence that this land qualifies as wetlands, especially since we know all the underground ground springs in this land also drains under Hidden Creek Estates and Tanner Woods subdivisions, then directly into known wetlands in Tanner Woods, located below and adjacent to Hidden Creek Estates. Jon Gice in Tanner Woods was our liaison with the State of Oregon. (Photographic evidence is provided below that corresponds with the numbered criteria.)

How to identify wetlands

A “yes” answer to any of the questions below may indicate that the area is a wetland. A site inspection by a wetland scientist is the only way to verify whether an area is a wetland or not.

1. Does the National Wetlands Inventory or Local Wetlands Inventory map show a wetland on the property?

Not sure, but maps can be wrong, and are never changed until there is a reason to indicate a change. They can be altered at any point in time by anyone authorized or unauthorized so they aren't reliable evidence, as compared to photographic evidence. Since this land hasn't been tested, per the State of Oregon, the current map is only based on broad generalities and assumptions.

2. Does the county soil survey map show hydric soils within the site? **Again, maps can be wrong, and are never changed until there is a reason to indicate a change. They can be altered at any point in time by anyone authorized or unauthorized, so they aren't reliable evidence, as compared to photographic evidence. Since this land hasn't been tested, per the State of Oregon, the current map is only based on broad generalities and assumptions.**

3. Are there natural drainage channels or Swales? **Yes; natural drainage channels travel down the slope, through Fairhaven Drive yards below in Hidden Creek Estates subdivision, then into the sewer system. Is the ground soggy underfoot in the spring? Yes, due to natural springs all over this property, and as evidenced by the multiple wetland grass patches.**

4. Are there depressions where water pools for a week or more in the spring? **Yes**

5. Do you avoid the area with heavy equipment in the spring to keep from getting bogged down? **Yes (a back hoe "sunk" on adjacent property on this same hillside in the past; it stayed there for weeks until the land dried out enough for it to drive off, per Ed Turkisher, neighbor at the end of Cornwall.**
6. Would you need to ditch the site to dry it out for planting or building? **Most definitely! Photos of runoff water coming through Fairhaven Drive resident's properties shows water draining from this hill into Fairhaven Drive gutters.**
7. Are seeps or springs present? **Yes, ALL OVER THIS PROPERTY there are surface springs and underground springs.**
8. Dig an 18-inch deep hole and remove a clump of soil. Are there rusty red "veins" on a gray background? **To be determined.**
9. Is there evidence of surface scour from water flowing over the site? **Yes. This is also evident on the many properties directly below this land on Fairhaven Drive (see photos under #6).** Is there a drift line of leaves or debris caught in the stems of shrubs or lodged along an elevation contour? **Yes, water channels are visible under the brush from the surface springs draining.**
10. Do you see many clumps of grass-like rushes (round stems) or sedges (angular stems), skunk cabbage, willows or Oregon ash? (These are just a few of the many plants that grow in wetlands.) **Yes; willow trees grow on this property, skunk cabbage is present uphill from this property, and grass-like rushes (round stems) are present.**
11. If farmed, must you work the soil later than other areas because soils are poorly drained? **This land is not farmed.**
12. Did the area fail a septic system test and/or require a special system due to poorly draining soils? **Unknown; only the previous land owner would know this since they lived in the only home on this property.**

Photographic evidence that matches the wetlands criteria above is provided below.

#3, #6 & #9: Natural Drainage Channels through Fairhaven Drive residents yards: Need to ditch the site to dry it out: Evidence of surface scour from water flowing over this site

Note water erosion to the left of 3795 garage draining from Cornwall's land, ponding on the edge of the grass (1st photo), then traveling down the top of the neighbor's cement wall at 3785 Fairhaven Drive. (2nd photo) and onto Fairhaven Drive to enter the gutter.





#3, #6 & #9: Natural Drainage Channels through Fairhaven Drive residents yards; Need to ditch the site to dry it out; evidence of surface scour from water flowing over this site

Note water erosion from the Cornwall land draining down the property line of 3755 Fairhaven Drive, to the left of the white tree root (1st photo). This water then drains down the soil and cement divider to the stacked rocks below and **water falls** onto the neighbors property at 3745 Fairhaven Drive (2nd photo). The 3rd photo reveals that the volume and pace of the water draining is sufficient enough to not only clog the drain by the sidewalk, but **erode the gravel side yard into the street and gutter.**







#3, #6 & #9: Natural Drainage Channels through Fairhaven Drive residents yards; Need to ditch the site to dry it out; evidence of surface scour from water flowing over this site

Note water erosion between 3775 and 3765 Fairhaven Drive homes. Top photo shows water draining from the Cornwall slope down between these properties; bottom photo shows continued erosion to the retaining wall at 3755 Fairhaven Drive, which eventually drains into the gutter.



#3, #6 & #9: Natural Drainage Channels through Fairhaven Drive residents yards; Need to ditch the site to dry it out; evidence of surface scour from water flowing over this site

Note soil erosion between 3765 and 3775 Fairhaven Drive homes.



#4 Wetland criteria: Depressions where water pools at the bottom of the slope on the East corner behind 3795 Fairhaven Drive



#7. #10 Wetland Criteria: Seeps and Springs are Present where rush grasses grow and other types of wetland vegetation; evidence of clumps of grass-like rushes (round stems) or sedges (angular stems), skunk cabbage, willows or Oregon ash

Skunk grass, known to grow only in wetlands.



Rush grasses found in different locations on this property



Willow tree that has toppled over; more exist on this property



Ponding of spring water, very near where the sewer was installed after this photo was taken.



Photo reveals just how wet this land can get, and validates how a back hoe could get stuck!



III. PHOTOS OF 4096 CORNWALL, THE SLOPE AND NUMBER OF OAK TREES

Note wetlands rush grass (green) growing on this land at the end of Cornwall Street, and note the elevation difference between the grasslands and Cornwall Street above it.

How much landfill can safely be used given the steepness of this slope, and how will all the landfill will be secured from slipping and washing down hill?.



Note the drop in this land / cliff in the center of the right side of this picture.



View looking up the steep slope from the midpoint of the slope.



Note the gravel dumped at the end of Cornwall street by the Fairhaven fence for an unknown purpose



Trees have uprooted due to the wet lands; note they are leaning UPHILL.



More downed trees on the property due to uprooting.



The stand pipe for the sewer is in the middle of a spring with tall green grass rushes.



The vegetation and steepness of this property.



The presence of more than a dozen and a half very large Oak trees is at stake. The proposed removal of the Oaks is deemed necessary for the plan as several of them are in the proposed road extension and most of the others would fall into proposed home foundations. This is directly in conflict with City of West Linn policy identifying "significant" historic or valuable trees.

From Landis Street, looking down hill at oak trees Southeast towards Fairhaven Drive



From Landis Street, looking uphill at oak trees toward blue house.



Oak trees along the Fairhaven Drive fence.



IV. WATER CONCERNS ON THIS PROPERTY

The proposed development intends to collect and re-direct almost all the water from 4096 Cornwall Street into the Unnamed creek. While this may alleviate some erosion on the Fairhaven Drive properties, this capture and re-route plan presents several problems.

- 1) The old trees removed from this property has great significance:
 - 1a. With so many large trees being removed from this property, more water will run off this land due to the removal of so many old trees which use to absorb significant amounts of water.
 - 1b. The run off on this property will drain even faster because water that use to drain through soil will now flow quickly off of the smoother concrete street, sidewalks, driveways, and roof tops.
 - 1c. The presence of more than a dozen and a half very large Oak trees is planned for removal. This is directly in conflict with the City of West Linn policy identifying "significant" historic or valuable trees.
 - 1d. The Schott & Associates report makes no mention of the presence of Willows on the property. Two large old willows are already laying down. Other smaller willows remain on this property.
- 2) Due to the land being convex and thus draining most of the water to the East and West corners of this property, consideration should be given to draining this lands water into both the creeks on either side of this property because the water in both of these creeks empties into the same Tanner Woods wetlands pond. This is suggested only if deemed worthy, because both residents at 3745 and 3795 Fairhaven Drive have already testified about water problems they have on their properties, and because each corner of this property is low lands. It doesn't make sense not to do this if gravity can drain the water naturally on both corners of the land.
- 3) Tanner Woods wetlands in the Tanner Woods subdivision will be the recipient of almost all the water from this land when rerouted through the Unnamed creek. Currently, the majority of water that runs off this slope erodes *through* Fairhaven resident's yards adjacent to this property, emptying into the sewer, and doesn't drain into the Unnamed creek. The developer claims by rerouting the water they are doing a favor to dry up yards on Fairhaven Drive (yes), BUT they haven't considered the impact that all this additional re-routed water will have on the Tanner Woods wetlands, with potential overflow into their street.



4) The "reeds" identified by the Schott & Associates report (also representative of wetlands) are downplayed as "one small patch" when in fact there are several substantial "patches" of reeds on the property, all of which are associated with a free flowing spring at the base of each. These reeds are in the middle of the property closer to the Landis connection, directly below the vacant blue house where the sewer connection was established, and next to and into the Cornwall right of way on the steep slope beneath the dead end of Cornwall Street. Additionally, the State of Oregon stated the Schott & Associates report "isn't a wetland delineation report" and "it requires considerably more background material and sampling point data."

5) The root system of the trees along the Fairhaven fence line is a concern, in relation to the disturbance of the land and proximity to the water collection pipe. These old growth oak trees need a lot of water, yet the collection of most of the slope water could now be routed to the creek. So how will a balance of these needs be met? It has been discussed that rainwater gardens may also be placed at the bottom of the slope near the fence, which would be maintained by the city. If this is so, then a detention pond can also be placed on this land to be maintained by the city, with access via the Cornwall road easement that runs down to the Fairhaven fence line, with access to the sewer recently installed. *Disturbance of the oak trees root system is of great concern at the fence line because many changes are being proposed where their roots are already established.*

6) On the West corner, water drainage has been so heavy and prolonged in the street that city staff stopped to tell the homeowner at 3745 Fairhaven Drive that if he didn't stop wasting water he would be fined, only to be told by the homeowner that the water was draining from the Cornwall/Landis property above. This homeowner has also had a very wet crawl space under his home, managing the water on both the East and West corners is very necessary.

V. SUMMARY

Given all of the above evidence, it is very plausible to conclude this land is wetlands for the multitude of reasons presented here. Regrettably the wetlands report produced for the city omitted 3 critical tests: hydrophytic vegetation, hydric soils, and wetland hydrology. This is a very misleading "wetlands report" is since key data was omitted. In fairness to all parties, and most importantly for the sake of the 50+ surrounding homes whose homeowners insurance won't cover water or landslide damage once the soil has been disturbed on this property, we again request that a thorough and complete wetlands investigational report be completed by a neutral 3rd party to protect the existing homeowners and the known Tanner Woods wetlands beneath this property in question. Altering this land without an experienced hydrogeologist investigating this property is not just a financial decision, but a moral responsibility to ensure wetlands and the existing ~50 homes are protected from unforeseen water damage, like that which has occurred recently at Sunset school.



Wetlands in Oregon



Identifying Wetlands

Wetland Determinations and Delineations

Working with a Wetland Consultant

How to identify wetlands

Not all wetlands fit the “cattails and standing water” image. Oregon’s wetlands are as varied as its landscapes. They range from tidal salt marshes along the coast to seasonal prairie wetlands in the valleys to mossy mountain fens. Because wetlands are so varied, their identification is sometimes tricky. In fact seasonal wetlands – the most common – are very dry by mid-summer. Many wetlands also have been altered by activities such as farming, and no longer “look like” wetlands.

Because wetlands perform so many important natural functions, such as controlling floodwater, cleaning and storing water, and providing natural habitat for plants and animals, it’s best to avoid wetlands when planning a project. If avoidance is not possible, use the information here to help evaluate your site and plan your next steps.

Be sure to contact the Department of State Lands (DSL) before doing work in an area that might be a wetland. DSL administers the state’s removal-fill permit program to protect wetlands and their ecological functions. Many activities in or adjacent to wetlands are regulated by other local, state and federal laws, so a variety of permits may be required before any earth-moving activities may take place.





What characteristics do wetlands share?

Although there are many types of wetlands in Oregon, they share three essential characteristics: an abundance of water, hydric (wetland) soils, and plants that grow in wetland conditions.

Prolonged saturation is what creates a wetland, no matter the source. A high water table, rain water “perched” over impenetrable layers in the soil, and frequent flooding are common examples. Wetland – or hydric – soils have distinctive, visible characteristics, such as brownish-red veining and rusty-colored splotches. Saturated conditions support plants that have adapted to life in permanently or seasonally wet soils.

Some plant species are better indicators of wetlands than others. The US Army Corps of Engineers has compiled a list of thousands of plants that grow in wetlands, and assigned an “indicator status” to each plant based on the frequency with which they occur in wetlands. Skunk cabbage, for example, only occurs in wetlands. Other plants occur in wetlands sometimes, and still others occur in wetlands and in other soil types. Therefore, plants may or may not be a good indicator of the presence of wetlands. Wetland scientists use the plant indicator status to help determine if a site is a wetland.



Where are wetlands found?

Wetlands are typically, but not exclusively, found in depressions or in the lowest part of the landscape. Expect to find wetlands in:

- Abandoned stream channels along river systems
- Valleys or other low areas with a high water table in winter and early spring
- Flat valleys or depressions where impervious soil layers create a “perched” water table
- Low areas on slopes where groundwater emerges as springs or seeps
- Mountain meadows watered by gradual snow melt

How to identify wetlands

A “yes” answer to any of the questions below may indicate that the area is a wetland. A site inspection by a wetland scientist is the only way to verify whether an area is a wetland or not.

YES NO QUESTION

- Does the National Wetlands Inventory or Local Wetlands Inventory map show a wetland on the property?
- Does the county soil survey map show hydric soils within the site?
- Are there natural drainage channels or swales?
- Is the ground soggy underfoot in the spring?
- Are there depressions where water pools for a week or more in the spring?
- Do you avoid the area with heavy equipment in the spring to keep from getting bogged down?
- Would you need to ditch the site to dry it out for planting or building?
- Are seeps or springs present?
- Dig an 18-inch deep hole and remove a clump of soil. Are there rusty red “veins” on a gray background?
- Is there evidence of surface scour from water flowing over the site? Is there a drift line of leaves or debris caught in the stems of shrubs or lodged along an elevation contour?
- Do you see many clumps of grass-like rushes (round stems) or sedges (angular stems), skunk cabbage, willows or Oregon ash? (These are just a few of the many plants that grow in wetlands.)
- If farmed, must you work the soil later than other areas because soils are poorly drained?
- Did the area fail a septic system test and/or require a special system due to poorly draining soils?



Working with DSL

Wetlands staff provides **off-site wetland determinations** at no cost. By using existing wetland maps, aerial photographs, and other mapped information, it may be possible for the wetlands specialist to determine if there are wetlands on your property. This starts as a desk audit and may not involve a trip to the site. A form is available on the DSL website to get this process started.

Wetland consultants

It may be necessary to hire a consultant to evaluate your site and prepare a **wetland delineation** for DSL review and concurrence. Delineations are detailed maps of wetland boundaries that require specialized training to produce. They are an important part of the removal-fill permit application. Wetland scientists use the U.S. Army Corps of Engineers Wetlands Delineation Manual and Regional Supplements, the wetland plant list, and other state and federal agency guidance and rules for delineating wetlands.

Continued

Working with consultants

A wetland consultant should have:

- An educational background in science or ecology, with wetland-specific training, including wetland delineations
- A thorough knowledge of local, state and federal permit requirements and processes
- An understanding of development standards and options
- The ability to help develop workable solutions for challenging sites
- Good communication skills and professional ethics
- Good working relationships with DSL permit staff

An experienced consultant can facilitate the wetland permit process with minimal delays. DSL cannot provide specific recommendations, but the Society of Wetland Scientists keeps a current list of members on their website:

www.sws.org/Pacific-Northwest-Chapter/pacific-northwest-resources.html.

Professional Certification

The Society of Wetland Scientists administers the Professional Wetland Scientist (PWS) certification program for individuals who meet specific educational and experience requirements. The certification does not guarantee that an individual is qualified to provide a specific service; for example, a “wetland delineator” certification. Likewise, certification does not guarantee the quality of work, but it does identify those individuals who have the necessary academic background and wetland-specific experience to provide good service. Wetland specialists come from a variety of academic disciplines including botany, soil science, environmental studies, and wildlife management. Some may have additional professional certification, such as Professional Soil Scientist.

We suggest you contact at least three firms for a cost estimate, and ask for a Statement of Qualifications in the bid process. Ask for and check references, and inquire about the firm’s professional certifications. If it’s a larger firm, ask who will be doing your work, and about the consultant’s experience in such areas as wetland delineations, permit applications, and mitigation design and construction. Ask if the consultant has any

specialized experience that would apply to your project, such as agricultural wetland delineation.

Things to keep in mind

- Keep communication lines open. Provide all pertinent information about the site, including legal description, any previous studies and land uses, and your development objectives.
- Plan well in advance of when you want to start your project. Wetland delineations typically take several months from initiation to DSL approval, and permit applications can take up to 120 days for the most complex projects.
- The landowner or applicant is the legally responsible party for meeting permit requirements and conditions. The consultant often is the primary contact with DSL staff. Make sure you receive regular updates from your consultant on the permit process and timeline.

Obtaining a removal-fill permit

Oregon’s removal-fill law (ORS 196.795-990) requires people who plan to remove or fill material in waters of the state to obtain a permit from the Department of State Lands.

The purpose of the law, enacted in 1967, is to protect public navigation, fisheries and recreational uses of the waters. “Waters of the state” include wetlands on private and public land.

The Oregon Department of State Lands administers the removal-fill permit program, and has developed many resources for property owners and consultants. The Removal-Fill Guide (RFG), as well as forms and other resources, are available on the DSL website: www.oregon.gov/DSL/WW/Documents/Removal_Fill_Guide.pdf.

Oregon Department of State Lands
Aquatic Resource Management Program
775 Summer St. NE, Suite 100
Salem, Oregon 97301-1279
(503) 986-5200 | www.oregonstatelands.us



Arnold, Jennifer

From: dcorey00@gmail.com
Sent: Wednesday, December 13, 2017 9:46 AM
To: Arnold, Jennifer
Cc: Pam Yokubaitis
Subject: David Corey Testimony about Cornwall Development
Attachments: David Corey - Cornwall Testimony, May 17 2017.pdf

Hi Jennifer:

Please find the attached Testimony I submitted during the last Cornwall Development review process. Conditions haven't changed nor do I believe that my concerns have been addressed.

One other item I'd like the developer to address is how the infill will be retained? The Cornwall property directly behind my house at 3775 Fairhaven Drive appears to be about a 40% angle. Obviously fill will be required to build on that portion of the property. I did not see any mention of retaining walls or other methods of in fill retention. It would be disappointing to say the least if the fill ended up in my back yard since there is no physical stopping point on the slope.

Unfortunately I am traveling and cannot attend the meeting. It would be great to get the minutes to ensure that my concerns have been voiced.

Thank you for your attention to this matter,

David

David Corey 日美都 幸利
801.232.5579

May 17, 2017

David Corey
3775 Fairhaven Drive
West Linn, Oregon 97068

Attn: Planning Commission
c/o West Linn City
22500 Salamo Drive
West Linn, Oregon 97068

Subject: Testimony Submission for the 4096 Cornwall Street 6 Lot Subdivision Proposal

Dear Planning Commission:

My property at 3775 Fairhaven Drive borders the proposed subdivision. I have reviewed the Preliminary Storm Drainage Report for the proposed subdivision, found on pages 65 through 73 of the Staff Report and object to the proposed development of a Detention Pond on Fairhaven Drive. I request that all surface water and spring drainage be collected in a ditch behind the affected Fairhaven Drive properties routed into the city storm drain system on Fairhaven Drive.

The basis of my objection is as follows:

- Today, most of the drainage from the proposed subdivision flows through the Fairhaven Drive downhill properties and is collected by the city storm sewer system. While not the optimal solution, it has been that way for 20 years.
- The proposed subdivision has slopes up to 20+% has stated in the Report and produces a significant amount of runoff from rain as well as exposed and hidden springs on the property.
- The Report states that there is natural drainage way to the East. This is not accurate.
- The majority of the current runoff flows South and West. It flows south and West as it runs on the surface through Fairhaven Drive properties 3735 through 3775. These properties have curtain drains that attempt to collect the surface/spring water and route it to the storm sewer system on Fairhaven Drive. What is not collected by the curtain drains runs along the surface around the houses and down to the street where it is collected by the storm sewer system.
 - Included photograph #1, Concrete curb erosion in front of 3745 Fairhaven Drive resulting from West side surface water runoff from the proposed subdivision.
 - Included photograph #2, 3735 Fairhaven Drive, the West side storm drain that collects proposed subdivision runoff from properties 3745, 3755, 3765 and 3775 Fairhaven Drive.
- My property, 3775 Fairhaven Drive is the dividing line for the East/West flow due it's position at the crest of the hill for the affected properties. In my case surface and spring water flow both East and West from my property as evidenced by the attached photos.
 - Included photograph #3, 3775 Fairhaven Drive, West side yard erosion from surface water flow.

- Included photograph #4, 3775 Fairhaven Drive, South side back yard erosion from surface water flow.
- Included photograph #5, 3775 Fairhaven Drive, Southeast side back yard curtain drain with running surface water on May 17, 2017.
- Included photograph #6, 3775 Fairhaven Drive, Southeast side front yard 6" trench erosion from surface water flow.
- Included photograph #7, 3775 Fairhaven Drive, retaining wall 1 course height addition to stop the surface water and soil free flow over the original 7 course block wall.
- Included photograph #8, 3775 Fairhaven Drive, curtain residual drain discharge from yesterday afternoon's rain. During significant rain events this drain flows to capacity with surface water overflow, as do all of the drains from properties #3745 through #3795.
- Additional runoff flows South and Southeast through Fairhaven Drive properties #3785 and #3795 and is also collected by the storm sewer system.
 - Included photograph #9, 3795 Fairhaven Drive, the East side storm drain that collects proposed subdivision runoff from properties 3775, 3785 and 3795 Fairhaven Drive.
- The proposed retention pond will decrease the value of the Fairhaven Drive properties in the immediate vicinity. Letters from local real estate agents attesting to this fact are attached to this email.
 - Letters from Real Estate Agents can be found on pages 8, 9 and 10 of this testimony.

The evidence provided in this testimony shows that the current runoff from the proposed subdivision is in fact collected by the city's storm drains at 3735 and 3795 Fairhaven Drive. While not the optimal solution, it has been that way for 20 years. Creating a detention pond to accommodate the proposed Cornwall subdivision that devaluates all of the homes in the Hidden Creek Estates subdivision as well as additional homes in the Barrington Heights Subdivision is unfair to the affected parties and unacceptable.

Feel free to contact me at 801.232.5579.

Thank you for considering my input.

David Corey

The following pages 3 through 10 include the described photographs as well as the realtor statements with regards to property devaluation.



Photo #1 – Picture taken May 17, 2017

3745 Fairhaven Drive, concrete curb trench cut by erosion from West side runoff.



Photo #2– Picture taken May 17. 2017

3735 Fairhaven Drive, West side storm drain that collects proposed subdivision runoff from 3745, 3755, 3765 and 3775 Fairhaven Drive.



Photo #3 – Picture taken May 17, 2017

3775 Fairhaven Drive, West side yard erosion from surface water flow.

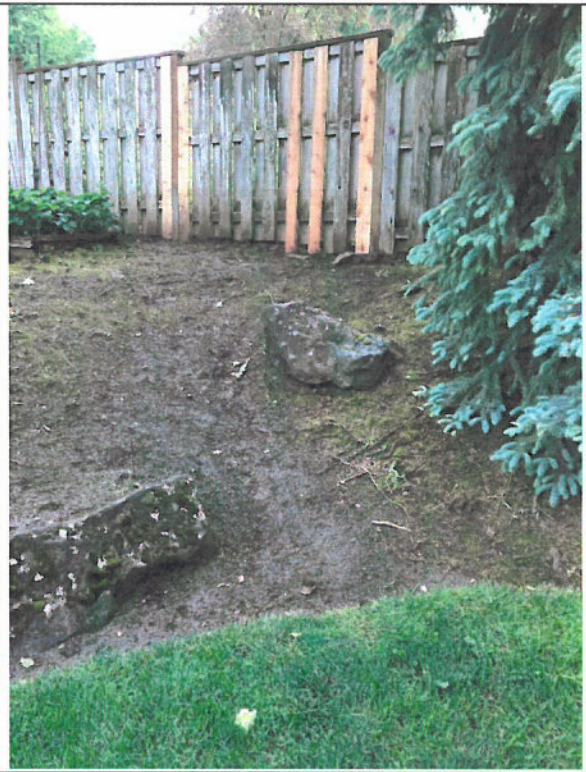


Photo #4– Picture taken May 17. 2017

3775 Fairhaven Drive, South side back yard erosion from surface water flow.



Photo #5 – Picture taken May 17, 2017

3775 Fairhaven Drive, Southeast side back yard
curtain drain with running surface water.



Photo #6 – Picture taken May 17, 2017

3775 Fairhaven Drive, Southeast side front yard
6" trench erosion from surface water flow.



Photo #7 – Picture taken May 17, 2017

3775 Fairhaven Drive, retaining wall 1 course height addition to stop the surface water and soil free flow over the original 7 course block wall.



Photo #8 – Picture taken May 17, 2017

3775 Fairhaven Drive, curtain residual drain discharge from afternoon rain on May 16. During significant rain events this drain flows to capacity and water is collected by the wall where it seeps through to the street.



Photo #9 – Picture taken May 17, 2017

3795 Fairhaven Drive, city storm sewer drain that collects proposed subdivision Southeast side runoff from 3775, 3785 and 3795 Fairhaven Drive.

Water Shed Run Off Fairhaven Drive

1 message

Kerri Miller <millerks@windermere.com>
To: Rebel Steirer <rebel4realestate@gmail.com>

Tue, May 16, 2017 at 11:24 AM

Hi,

I feel that any ground water retention pond off that is visible from Fairhaven Drive will diminish the value of the properties in that area.

The placement should be thoughtful of the surrounding property values.

Kerri Miller

Windermere Stellar

503-705-8386

220 A Avenue, Suite 200

Lake Oswego, OR 97034

eFax 971-230-7819

KerriMiller.mywindermere.com

Dear Icon Development and City of West Linn,

I feel that placing a watershed collection pond adjacent to the street and the front of any property on Fairhaven drive will negatively impact the market value of those homes and the neighborhood.

The home at 3795 Fairhaven Drive is adjacent to the Hidden Creek Estates neighborhood Entry. It is currently a pleasing entry, with a view of trees and the creek as you cross the bridge to enter.

Adding a retention pond with a chain link fence to this area would be unsightly and will diminish the value of the homes nearby.

I've viewed many of the retention ponds in the area and the developers have been very considerate of placing these behind properties.

—
REBEL STEIRER

M REALTY / LICENSED OREGON BROKER
17040 PILKINGTON RD #200
LAKE OSWEGO, OR 97035

📞 503-320-2233

🌐 Rebel4RealEstate.com

**West Linn - Wilsonville- Lake Oswego - Oregon City - Tualatin - Tigard
and the Portland Metro Area**

<http://oregonrealtors.org/resources/membership-resources/buyer-seller-advisories>
Click above links for Buyer & Seller Advisory and OREA Disclosure pamphlet
amphlet

Marty Wells <martywells@kw.com>
To: rebelsteiner@gmail.com

Tue, May 16, 2017 at 11:02 AM

Hi Rebel,

I just learned that there is a proposed retaining pond at the entrance to your neighborhood, adjacent to the home by the bridge. Why can't the developer build the pond further back, away from the street like the three retaining ponds on the path between Summit and Beacon Hill? These ponds are usually unsightly since the city rarely maintains them, the black chain link fence creates an eyesore (and I'm sure would not be allowed by the HOA in the front of a dwelling) and in my view, will have a negative effect on the values of the homes adjacent to the pond.

What do you think?

Marty Wells
Principal Broker
Licensed in Oregon

Check Your Home's Value
www.MartyWellsSells.SmartHomePrice.com

Direct: 503.699.6999
Fax: 503.924.3552

martywells@kw.com

www.MartyWellsSells.com

Keller Williams Realty, Portland Premiere
16365 Boones Ferry Road
Lake Oswego, OR 97035

INTRODUCTION TESTIMONY

(Patrick Noe, Sunset NA President)

HISTORY: The developer has a plan to construct a 6 home subdivision on a 2.17 acre site at the end of Cornwall Street, which the developer is calling "Willow Ridge". This property is situated on a ridge with significant water perpetually draining off its steep slope onto residents' property below along Fairhaven Drive, in Hidden Creek Estates subdivision.

The developer met with Sunset Neighborhood Association (NA) twice. It has not met with any other NA. Each of our meetings were held in the library of Sunset Primary School on Oxford Street in West Linn. The developer's planning consultant, Rick Givens addressed the first Sunset NA on April 26, 2016. From the minutes of that meeting there were (QUOTE) "concerns centered around water runoff to Fairhaven Drive. A few crawl spaces have already been flooded. To compensate for this, a bio swale is being proposed as part of the West Linn Storm Water Management Plan." (END QUOTE)

The second meeting with the Sunset NA took place on Jan. 24, 2017. Mr. Bruce Goldson, a design engineer for the developer addressed the group. Residents present were from Cornwall Street, Landis Street and residents from Fairhaven Drive. Many questions were raised regarding specific areas of concern not only from Sunset residents, but from other neighborhoods located in proximity of the site. This development will significantly affect the residents of Sunset, Stonegate, Barrington Heights, Hidden Creek Estates, and Tanner Woods subdivisions - Each subdivision has a representative who will testify tonight about issues that concern their own neighbors, but all subdivisions are united in their concerns. In brief some of these concerns are:

TRAFFIC: This development will connect Landis and Cornwall streets and result in easier access to and from Sunset Street for all residents to the West of Stonegate subdivision.

The developer's study only identifies the increased traffic of the 6 proposed new homes using Cornwall Street, but disregards other nearby residences which account for over one hundred homes that would now have shorter access to their destinations via Cornwall and Sunset and a more direct access to I-205 Northbound and Oregon City. The developer's own engineering report claims that NO traffic study is required because the six new homes would have minimal impact on existing traffic. This completely ignores the new access to Cornwall and Sunset Streets by more than a hundred homes.

There is also additional concerns for traffic management at the intersection of Cornwall and Sunset due to the increased volume of traffic.

CORNWALL STREET: is a minimal, narrow road in need of serious repair and infrastructure improvements. No section of Cornwall is without serious patches, pot holes, and cracked pavement. Heavy construction trucks will make this road even worse. It is proposed that Cornwall be widened to the minimal standard of 20 feet and topped with an asphalt overlay. This is inadequate considering the much higher percentage of road use by cars and now pedestrians. Sidewalks, curbs, upgrading water and sewer pipes, school children using this new shortcut, and school bus stops must all be taken into consideration.

Additionally, Cornwall is going to be dug up to increase potable water infrastructure with a new “looped” water supply of greater diameter to feed the new homes. There is no sewer line currently on Cornwall. If the street is going to be dug up to install new potable water service, why not upgrade the road foundation of Cornwall and put a sewer and stormwater line in place at the same time? This would prevent future upgrades from digging up the street at least three times again.



If the developer is not going to be held responsible for these improvements then the city should be held accountable and responsible to its existing citizens for improving our city streets.



WATER MANAGEMENT: Barrington Heights residents are very concerned about water issues. Since the land for this proposed development continuously sheds large volumes of water which runs downhill and collects in Tanner Woods wetlands, the 3 BHT subdivisions below this property have serious concerns about the management of the surface water and many underground springs.

What will the ramifications be from bulldozing this land with the numerous surface and underground springs already draining from it? The ~50 homes beneath this proposed development all sit on top of the same underground springs that run through this land. These springs run from this property all the way down to Beacon Hill Drive in Tanner Woods subdivision. When altering or redirecting these underground springs, the soil upon which these many homes already sit upon may shift due to underground water changes, thus causing house settling and cracking over the longer term.

Appendix 5A: Creeks and Development Site

The subject property is described as Tax Lot 6300 of Assessor's Map 21E38BA. The site is 2.18 acres (94,808 square feet) in area. It is presently developed with a single-family detached home. This home will be removed to allow for the construction of the extension of Landis Street to Cornwall Street. The subject property is zoned R-10.



The developer's engineering report identifies the springs as seasonal, yet NEITHER of the creeks on either side of this proposed development are ever dry. Both Tanner Creek on the West side and an Unnamed Creek on the East side of this land continuously drain water directly into a wetlands pond below in the Tanner Woods subdivision.

TREES: The removal of 25 significant, and water absorbing, trees will only *increase* water runoff on this property. Will the same number of trees removed from this land also be replaced with smaller trees in an effort to compensate for this water absorption loss?

STEEP SLOPES/LANDSLIDE: Residents adjacent to this property on Fairhaven Drive are concerned about the potential for a landslide. This is a serious issue that concerns all because the slope is steep and threatening. Should this land shift in an earthquake, HOMEOWNERS INSURANCE DOESN'T COVER ANY OF THESE RESIDENTS FOR WATER DAMAGE OR LANDSLIDES AS A RESULT OF THIS LAND BEING ALTERED/BULLDOZED. We live in earthquake country, so to casually dismiss this concern is not reasonable or ethical. Adding landfill to this property will only make matters worse; we all know landfill liquefies in an earthquake.

Our community recognizes it is not smart to jeopardize the foundations of ~50 BHT homes below this property for the sake of building 6 new homes.



Picturesque Unnamed Creek at Entrance into Hidden Creek Estates

A thorough vetting of this land's integrity is necessary to ensure it can be safely built upon to protect the surrounding established residences from water or structural damage.

DETENTION POND: A detention pond is planned in the middle of the unnamed creek *outside of the developers' property*. Many BHT residents oppose the intrusion of this pond in their beautiful neighborhood creek because this picturesque landmark with natural beauty serves as an attractive entrance into the Hidden Creek Estates subdivision.

IN CLOSING: We would like professionals with specific expertise and credentials to be hired to provide the developer, city and residents with in depth examination of this land. We need this land to be thoroughly evaluated by a hydrogeologist to determine if it is appropriate to safely build on, and a complete wetlands determination. Homeowners below this property need guarantees that their homes won't be damaged by rerouted water or cracking foundations due to soil changes that originate from the movement of land and underground springs on this property.

We all agree this development has significant, complex challenges to overcome because this property is surrounded by established homes. Traffic, Cornwall's poor road condition, sewer, water management of surface and underground springs, steep slopes, landslide potential, land fill instability, and a detention pond that affects neighborhood real estate values, all concern the surrounding residents.

As Neighborhood Association presidents we welcome 6 new neighbors to West Linn, however it is also our job to protect our existing residents, their property, and property values. We put our existing citizens first.

This project shows serious omissions in planning and potential hazards to our neighbors.

I urge this commission to acknowledge the seriousness of these concerns in your deliberations as explained with evidence in the following testimonials.

Thank you,

Patrick Noe

I'm Chelsea Diaz, I live within the Tanners Stonegate HOA, on Landis Street, here in West Linn. The concerns that come to mind regarding this proposed development is the lack of a hydrogeologist study, of the water runoff on the existing slope on the Cornwall / Landis Proposed Development.

After two homes behind and above us began construction located at 4191 Reed Street and 4197 Reed Street, I noticed water streaming between the boulders in my 25 foot retaining wall into my back yard. I then began an lengthy process of trying to find where the water was coming from. After a landscape developer investigated the issue, he determined that a new spring had formed in the upper tier of my back yard. I then had to hire a excavator to evaluate and install an extensive water management system. It involved 5 hand-dug, three foot deep french drains, plus replacement of existing drainage pipes with new larger gage pipes connected to a industrial grade sump and additional drainage lines. Parts of the property also had to be regraded due to erosion and the hydraulic pressure caused by the excess water.

It is my belief that the construction of just two homes on previously undeveloped land above my street was the cause of these issues. It is not hard to imagine the potential impact of a new subdivision on the same hill with the significant water runoff we experience in the neighborhood and the steep slope where the proposed development would occur. The hillside the proposed development is located on needs to be evaluated by a hydrogeologist to determine the impact of runoff, both above and below ground, on the homes located below.

3687 Landis Street, Stonegate Subdivision. This is taken at the second house



from the end of Landis Street, close to the proposed development. Continuous water drains from this property, coming through the back yard rock wall as a result of 2 homes built above it. Note the cars parked on each side of the street; is there enough room for through traffic on both sides at the level of 500 cars/day?

June 1, 2017

To: West Linn Planning Commissioners: Jim Farrell, Lamont King, Charles Mathews,
Joel Metten, Carrie Pellett, Bill Relyea, and Gary Walvatne
City of West Linn, Planning Department
22500 Salamo Road, #1000
West Linn, OR 97068

From: Patrick Noe, Sunset Neighborhood Association President
Meredith Olmsted, BHT Neighborhood Association President

Subject: Petition regarding any future development at 4096 Cornwall Street, West Linn, OR

The Sunset Neighborhood Association and Barrington Heights Neighborhood Association residents are united in our desire to have the land at 4096 Cornwall Street professionally evaluated, prior to any construction now or in the future. It is a moral and ethical responsibility of the city and developer to prevent all surrounding property from being negatively impacted by new construction. Preventing damage from water, landslide, landfill liquefaction, decreased real estate values, or jeopardizing structural integrity and our wetlands are the many issues which must be mitigated in this case, prior to any construction.

We must ensure that water and structural damage to the surrounding 50+ existing homes won't occur from altering this steep, spring infested property, and it is vital to determine if this land is wetlands. There is wetland vegetation present, and this water drains into known wetlands so this makes it incumbent upon this Planning Commission and city government to fully understand the designation of this land.

West Linn must "Put Citizens First" by requiring complex issues be professionally evaluated by a neutral, third party expert when there is sufficient cause to warrant it. As our city representatives, we ask you to be our advocate, always protecting the interests of *your neighbors* and West Linn's quality of life for generations to come.

We therefore request that the City of West Linn require 4096 Cornwall Street land be thoroughly vetted before any construction begins by requiring:

- 1) An independent hydrogeologist examination of the surface and underground springs to prevent water damage and structural damage to all surrounding homes where water may surface anew, or where underground springs may dry up.
- 2) A wetlands determination of this land that includes hydrophytic vegetation, hydric soils, and wetland hydrology sampling across the entire property to determine if this site meets wetland criteria.

Petition Regarding Development at 4096 Cornwall Street, West Linn, OR

I agree that any development, now or in the future, at 4096 Cornwall Street must have the land thoroughly vetted before construction is approved with:

- 1) a hydrogeologist's examination of the surface and underground springs to prevent water or structural damage to the many surrounding homes.
- 2) A wetland determination of this land, including hydrophytic vegetation, hydric soils, and wetland hydrology to protect the Tanner Woods wetlands.

In addition, no detention pond to collect the surface waters of the proposed site and road should be built between Barrington Heights and Hidden Creek Estates.

DATE SIGNATURE ADDRESS EMAIL PHONE

6/5/17 Bradley Carter 3822 Fairhaven Dr. bradley.carter@gmail.com 503.974.9766
 6/5/17 Sarah J. Carter 3822 Fairhaven Drive sarahcarter@gmail.com 503.974.9766
 6/5/17 Peggy Eurman 3828 Fairhaven Dr W.L. peggyeurman@comcast.net 503.650.0522
 6/5/17 Cherise Ems 3829 Fairhaven Dr. W.L. 503 657.6788
 6/5/17 Nedel Schmidt 3825 FAIRHAVEN DR (503) 557-5172
 6-5-17 Steve Williams 3821 Fairhaven Dr. West Linn 503-799-2275
 6-6-17 Jenny Morrison 3828 Fairhaven Dr. West Linn 503-709-5606
 6/6/17 Connie Cermak 3831 Fairhaven Dr. West Linn 503-957-7802
 6/6/17 Cheryl Fitch 3832 Fairhaven Dr West Linn 503-998-8954
 6/6/17 John J. Fisher 3817 Fairhaven Dr West Linn 503 655 3429
 6/6/17 Pam Yokubaitis 3760 Fairhaven Dr. West Linn pam@yokubaitis.com 503-656-5881
 6/6/17 Ma Yokubaitis 3760 Fairhaven Dr. 97068 503-720-7945
 6/6/17 Ma Yokubaitis 3760 Fairhaven Dr. 97068 503 367
 6/6/17 Nedel Schmidt " " " " 9603



Petition Regarding Development at 4096 Cornwall Street, West Linn, OR

I agree that any development, now or in the future, at 4096 Cornwall Street must have the land thoroughly vetted before construction is approved with:

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- 3) a traffic study conducted to estimate additional traffic caused by connecting Cornwall and Landis streets. Address safety issues due to blind corner at intersection of Stonegate Lane and Landis Street as well as substandard paving, lack of sidewalks and 16 foot non-standard width of Cornwall Street.
- 4) a proposed change to the City Master Plan to keep Landis St. a dead end street and have Icon develop the proposed new homes as part of a Cornwall cul-de-sac. This will reduce traffic and congestion on either street, and improve Cornwall.

DATE	SIGNATURE	ADDRESS	EMAIL	PHONE
6/15/17	MTR	362 Landis St	Queenobuzz@yahoo.com	503 756 6953
6/15/17	S.B. The	3612 Landis St	stevob@gmail.com	503-686-1563
6/15/17	DM	3606 Landis St	gmckivor@yahoo.com	
6/15/17	OH	3600 Landis St	duran-paulina@hotmail.com	
6/15/17	AKH	3624 Landis St.	david.lcc.weston@gmail.com	3038197034
6/15/17	Henry H. Hamilton	3624 Landis St.	hhamilton@ymail.com	305815434
6/15/17	JR	3648 Landis St.	lnatalcano@yahoo.com	503-557-2992
6/15/17	Kelly Rose	3636 Landis St	kellyandshilah@msn.com	503 737 7508
6/15/17	Ellen T. H.	3648 Landis St	ellianat88@gmail.com	503 557 2992
6/15/17	Mary Lynn	3648 Landis St.	Trans_wm@yahoo.com	97066
6/15/17	Glenn	3676 Landis St.	glenther@aol.com	503-650-5800
6/15/17	Isabel	3692 Landis St.	isabel@comcast.net	503-650-5800
6/15/17	Linda	3612 Landis St	lindanew@gmail.com	503-707-9999
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Petition Regarding Development at 4096 Cornwall Street, West Linn, OR

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<u>DATE</u>	<u>SIGNATURE</u>	<u>ADDRESS</u>	<u>EMAIL</u>	<u>PHONE</u>
6/16/17	<i>[Signature]</i>	3637 Landis	gillingham.jshua@gmail	341 401 7244
6/16/17	<i>[Signature]</i>	3649 Landis	ashley.cronn@gmail.com	603 752 5737
6/16/17	<i>[Signature]</i>	3669 Landis	DAVID@CONCAST.NET	360-907-2313
6/16/17	<i>[Signature]</i>	3669 Landis	melinda.piler@harsecht.com	971.645.1587
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Petition Regarding Development at
4096 Cornwall Street, West Linn, OR 97068

I agree that any development, now or in the future, at 4096 Cornwall Street must have the land thoroughly vetted before construction is approved with:

- 1) a hydrogeologist's examination of the surface and underground springs to prevent water or structural damage to the many surrounding homes.
- 2) a wetlands determination of this land, including hydrophytic vegetation, hydric soils, and wetland hydrology to protect the Tanner Woods wetlands.

DATE: June 6, 2017 SIGNATURE: M. J. Dark

ADDRESS: 2145 Fairhaven Ct. 97068 PHONE: 503-744-0786

EMAIL ADDRESS: magquintero00@gmail.com

DATE: June 6, 2017 SIGNATURE: M. J. Dark

ADDRESS: 2145 Fairhaven Ct. 97068 PHONE: 503-744-0786

EMAIL ADDRESS: threseeenergy@comcast.net

DATE: _____ SIGNATURE: _____

ADDRESS: _____ PHONE: _____

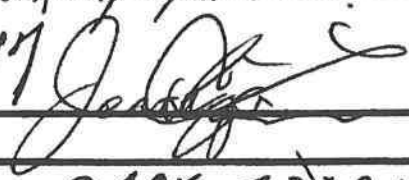
EMAIL ADDRESS: _____

DATE: _____ SIGNATURE: _____


ADDRESS: _____ PHONE: _____

EMAIL ADDRESS: _____

DATE 5/6/17 SIGNATURE  ADDRESS 3165 Fairhaven Dr.
EMAIL ShermanRPauly@yahoo.com PHONE 503 502 4034 West Linn 97068

May 16/2017  Jeannie C. Lee

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3165 FAIRHAVEN DRIVE
West Linn, Oregon, 97068

5/16/2017 
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SHERMAN R PAULY

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June 1, 2017

To: West Linn Planning Commissioners: Jim Farrell, Lamont King, Charles Mathews,
Joel Metten, Carrie Pellett, Bill Relyea, and Gary Walvatne
City of West Linn, Planning Department
22500 Salamo Road, #1000
West Linn, OR 97068

From: Patrick Noe, Sunset Neighborhood Association President
Meredith Olmsted, BHT Neighborhood Association President

Subject: Petition regarding any future development at 4096 Cornwall Street, West Linn, OR

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We must ensure that water and structural damage to the surrounding 50+ existing homes won't occur from altering this steep, spring infested property, and it is vital to determine if this land is wetlands. There is wetland vegetation present, and this water drains into known wetlands so this makes it incumbent upon this Planning Commission and city government to fully understand the designation of this land.

West Linn must "Put Citizens First" by requiring complex issues be professionally evaluated by a neutral, third party expert when there is sufficient cause to warrant it. As our city representatives, we ask you to be our advocate, always protecting the interests of *your neighbors* and West Linn's quality of life for generations to come.

We therefore request that the City of West Linn require 4096 Cornwall Street land be thoroughly vetted before any construction begins by requiring:

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- 2) A wetlands determination of this land that includes hydrophytic vegetation, hydric soils, and wetland hydrology sampling across the entire property to determine if this site meets wetland criteria.

6/6/17

Rebel + Joe Steiner 2110 Fairhaven Ct. West Linn
503.223.6382
Rebel Steiner Joseph S
rebelsteiner@gmail.com Joe.x.Steiner@GSK.com

Petition Regarding Development at
4096 Cornwall Street, West Linn, OR 97068

I agree that any development, now or in the future, at 4096 Cornwall Street must have the land thoroughly vetted before construction is approved with:
1) a hydrogeologist's examination of the surface and underground springs to prevent water or structural damage to the many surrounding homes.

2) a wetlands determination of this land, including hydrophytic vegetation, hydric soils, and wetland hydrology to protect the Tanner Woods wetlands.

DATE: 6.6.17 SIGNATURE: *M. Melin*

ADDRESS: 2125 Fairhaven Ct PHONE: 503 516 8289

EMAIL ADDRESS: mmELINW@AOL.com

DATE: _____ SIGNATURE: _____

ADDRESS: _____ PHONE: _____

EMAIL ADDRESS: _____

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EMAIL ADDRESS: _____

Petition Regarding Development at 4096 Cornwall Street, West Linn, OR

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DATE	SIGNATURE	ADDRESS	EMAIL	PHONE
6/14/17		3818 FAIRHAVEN	sludwigson@LHTS.com	503-329-0716
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61717 Chelsea Diaz 3687 Landis St., West Linn, OR 97068
61717 Chi G. 3687 Landis St., West Linn, OR 97068

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Petition Regarding Development at
4096 Cornwall Street, West Linn, OR 97068

I agree that any development, now or in the future, at 4096 Cornwall Street must have the land thoroughly vetted before construction is approved with:

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- 2) a wetlands determination of this land, including hydrophytic vegetation, hydric soils, and wetland hydrology to protect the Tanner Woods wetlands.

DATE: 6/6/17 SIGNATURE: Christina B. Henry
ADDRESS: 3795 Fairhaven Dr. PHONE: 503-303-
West Linn OR 97068
EMAIL ADDRESS: christinahenry1821@gmail.com

DATE: _____ SIGNATURE: _____

ADDRESS: _____ PHONE: _____

EMAIL ADDRESS: _____

DATE: _____ SIGNATURE: _____

ADDRESS: _____ PHONE: _____

EMAIL ADDRESS: _____

DATE: _____ SIGNATURE: _____

ADDRESS: _____ PHONE: _____

EMAIL ADDRESS: _____

ELECTRONIC PETITIONS RECEIVED

RE: The proposed development at 4096 Cornwall Street in West Linn, OR **From:** "Henry,

On Jun 6, 2017, at 8:04 AM, Roger Dillingham <dilly72@icloud.com> wrote:
<Petition About Cornwall Development copy.pages>

Petition Regarding Development at
4096 Cornwall Street, West Linn, OR 97068

I agree that any development, now or in the future, at 4096 Cornwall Street must have the land thoroughly vetted before construction is approved with:

- 1) a hydrogeologist's examination of the surface and underground springs to prevent water or structural damage to the many surrounding homes.
- 2) a wetlands determination of this land, including hydrophytic vegetation, hydric soils, and wetland hydrology to protect the Tanner Woods wetlands.

DATE: 6/6/2017 SIGNATURE: Jana Dillingham

ADDRESS: 3802 Fairhaven Dr, west linn OR 97068 PHONE:
651-245-9880

EMAIL ADDRESS: Dilly72@icloud.com

DATE: 6/6/2017 SIGNATURE: Roger Dillingham

ADDRESS: 3802 Fairhaven Dr, West Linn OR 97068
PHONE: 651-707-3129

EMAIL ADDRESS: Dilly72@icloud.com

From: Darin Stegemoller <Darin.Stegemoller@jedunn.com>
Subject: URGENT PLEASE SIGN THIS HCEN PETITION!.pdf
Date: June 5, 2017 at 8:35:18 PM PDT
To: Pam Yokubaitis <pam@yokubaitis.com>

From: Chuck Nokes <nokeschuck@gmail.com>
Subject: Re: URGENT: The Petition to Sign and Return, PLEASE
Date: June 6, 2017 at 7:25:37 PM PDT
To: Pam Yokubaitis <pam@yokubaitis.com>

Additional Requirements Development at
4096 Cornwall Street, West Linn, OR 97148

I agree that any development, now or in the future, of 4096 Cornwall Street must have the land thoroughly vetted before construction is approved with:

- 1) a hydrogeologist's examination of the surface and underground springs to prevent water or structural damage to the many surrounding homes.
- 2) a wetlands determination of this land, including hydrophytic vegetation, hydric soils, and wetland hydrology to protect the Turner Woods wetlands.

DATE: 6/5/17 SIGNATURE: 

ADDRESS: 3745 Fairview Dr PHONE: 503 776 7574

EMAIL ADDRESS: _____

DATE: 6/5/17 SIGNATURE: 

ADDRESS: 3745 Fairview Dr PHONE: 360 609 2938

EMAIL ADDRESS: nokeschuck@gmail.com

DATE: _____ SIGNATURE: _____

ADDRESS: _____ PHONE: _____

EMAIL ADDRESS: _____

DATE: _____ SIGNATURE: _____

From: <tim@timfreeman.com>
Subject: RE: URGENT: PLEASE SIGN THIS HCEN PETITION!
Date: June 1, 2017 at 7:29:23 PM PDT
To: "Pam Yokubaitis" <pam@yokubaitis.com>

Petition Regarding Development at 4096 Cornwall Street, West Linn, OR 97068

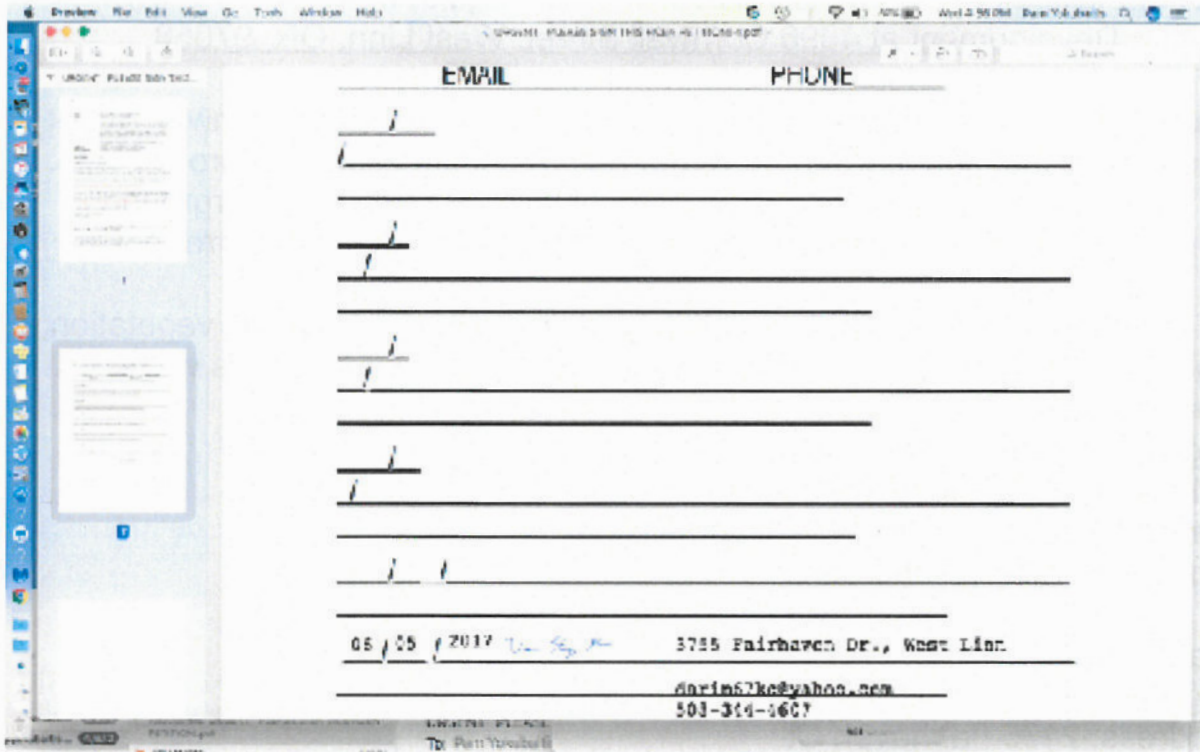
I agree that any development, now or in the future, at 4096 Cornwall Street must have the land thoroughly vetted before construction is approved with:
1) a hydrogeologist's examination of the surface and underground springs to prevent water or structural damage to the many surrounding homes.
2) a wetlands determination of this land, including hydrophytic vegetation, hydric soils, and wetland hydrology to protect the Tanner Woods wetlands.

____ DATE SIGNATURE ADDRESS EMAIL PHONE_____

__6__/_1_/2017 Tim freeman 3770 Fairhaven drive West Linn OR 97068
tim@timfreeman.com 5036571223

__6__/_1_/2017 Jeanne@JeanneFreeman.com 3770 Fairhaven Dr
West Linn OR 97068 503 657

On Jun 5, 2017, at 8:35 PM, Darin Stegemoller <darin.stegemoller@jedunn.com> wrote:



From: Misten Daniels <mistendaniels@gmail.com>

Subject: Re: URGENT: The Petition to Sign and Return, PLEASE

Date: June 6, 2017 at 3:49:30 PM PDT

To: Pam Yokubaitis <pam@yokubaitis.com>Petition Regarding

Development at 4096 Cornwall Street, West Linn, OR 97068

I agree that any development, now or in the future, at 4096 Cornwall Street must have the land thoroughly vetted before construction is approved with:

1) a hydrogeologist's examination of the surface and underground springs to prevent water or structural damage to the many surrounding homes.

2) a wetlands determination of this land, including hydrophytic vegetation, hydric soils, and wetland hydrology to protect the Tanner Woods wetlands.

Date: 6/6/17

Signature: Misten Daniels

Address: 2105 Fairhaven Ct

Email Address: mistendaniels@gmail.com

Home Phone: 503-853-3308

Date: 6/6/17

Signature: John I Gill

Address: 2105 Fairhaven Ct

Email Address: j.i.gill@comcast.net

Home Phone: 503-502-8076**From:** So Wong <sohinwong@gmail.com>

From: Leann MacMillan <leann.macmillan@gmail.com>
Subject: Re: URGENT: PLEASE SIGN THIS HCEN PETITION!
Date: June 2, 2017 at 10:55:33 AM PDT

To: Pam Yokubaitis <pam@yokubaitis.com>

___ DATE	SIGNATURE	ADDRESS	EMAIL	PHONE
----------	-----------	---------	-------	-------

6/2/17	Leann MacMillan	3715 Fairhaven Drive	leann.macmillan@gmail.com	
		503-351-4718		

6/2/17	Cameron MacMillan	3715 Fairhaven Drive	c.h.macmillan@comcast.net	
		503-351-4718		

6/2/17 Allison MacMillan (same address and phone)

6/2/17 Natalie MacMillan (same address and phone)

Thanks Pam! -Leann, Cam, Alli, Natalie

From: So Wong <sohinwong@gmail.com>
Subject: Re: URGENT: PLEASE SIGN THIS HCEN PETITION!

Date: June 4, 2017 at 3:01:02 PM PDT

To: Pam Yokubaitis <pam@yokubaitis.com>

DATE: 6/4/17	SIGNATURE: So H. Wong
<hr/>	
ADDRESS: 2135 Fairhaven Ct, West Linn, OR 97068	
<hr/>	
EMAIL: sohinwong@gmail.com	PHONE: 503-957-8082

On Jun 1, 2017, at 7:29 PM, tim@timfreeman.com wrote:

Thanks Pam for investing your time in this.

Jeanne & Tim

Petition Regarding Development at 4096 Cornwall Street, West Linn, OR 97068

I agree that any development, now or in the future, at 4096 Cornwall Street must have the land thoroughly vetted before construction is approved with:

- 1) a hydrogeologist's examination of the surface and underground springs to prevent water or structural damage to the many surrounding homes.
- 2) a wetlands determination of this land, including hydrophytic vegetation, hydric soils, and wetland hydrology to protect the Tanner Woods wetlands.

____ DATE SIGNATURE ADDRESS EMAIL PHONE _____

__6__/_1_/2017 Tim freeman 3770 Fairhaven drive West Linn OR 97068
tim@timfreeman.com 5036571223

__6__/_1_/2017 Jeanne@JeanneFreeman.com 3770 Fairhaven Dr
West Linn OR 97068 503 657
1223 _____

On Jun 2, 2017, at 7:37 AM, Jim Harrop <harropconsulting@comcast.net> wrote:

Petition Regarding Development at 4096 Cornwall Street, West Linn, OR 97068

I agree that any development, now or in the future, at 4096 Cornwall Street must have the land thoroughly vetted before construction is approved with:

- 1) a hydrogeologist's examination of the surface and underground springs to prevent water or structural damage to the many surrounding homes.
- 2) a wetlands determination of this land, including hydrophytic vegetation, hydric soils, and wetland hydrology to protect the Tanner Woods wetlands.

<u>DATE</u>	<u>SIGNATURE</u>	<u>ADDRESS</u>	<u>EMAIL</u>
<u>/ 7-2-17 /</u>	<u>Jim Harrop</u>	<u>3730 Fairhaven Dr.</u>	
	<u>harropconsulting@comacst.net</u>	<u>503-722-5210</u>	
<u>/ 7-2-17 /</u>	<u>Linda Harrop</u>	<u>3730 Fairhaven Dr.</u>	<u>lrharrop@comacst.net</u>
	<u>503-722-5210</u>		
<u>/ 7-2-17 /</u>	<u>Emmy Harrop</u>	<u>3730 Fairhaven Dr.</u>	
	<u>503-722-5210</u>		

Arnold, Jennifer

From: Pam Yokubaitis <pam@yokubaitis.com>
Sent: Wednesday, December 13, 2017 10:33 AM
To: Arnold, Jennifer
Subject: PA-17-43 6 lot ELD Subdivision at 4096 Cornwall Street
Attachments: THE CITIZENS' PERSPECTIVE (CCI Proposal).pdf; ATT00001.htm

Jennifer,

Please add this entire email as one part of my newly written testimony. Commissioners, read this email from the bottom up. The correspondence below was generated after less than 10 BHT residents finally met with Icon about this second proposed development. This meeting was an attempt to have an NA meeting with the developer, but due to the expedited review process, there was no time for postcards to be mailed to all residents; only emails were sent to specific neighbors with less the 72 hours notice.

The commissioners, city staff, developer, and residents have all invested an enormous amount of time to read evidence, deliberate on this proposed development in 2 hearings, and now resume this process in a second, expedited review. *All of this could have been avoided* by simply mandating and enforcing the developer meet with all affected NAs *before any hearings were held*.

Has this journey been worth all this effort? In hindsight, yes, because the developer has made changes to address some of our concerns; I have tried to be part of the solution to improve current processes by actively participating in CCI meetings; the residents have shared important information about the land so better planning could occur; and we now have a copious amount of documentation to support our concerns should such be needed in the future by any individual homeowner. However, I do believe that group meetings with the city, developer and residents all collaborating in the planning phase, and when major changes are made, fosters teamwork and goodwill with the citizens.

As a resident who has already identified multiple problems and offered solutions about this process to the CCI, it is apparent from this situation, and many others, that WL's land use process is not citizen friendly. I have tried to make a positive contribution to change this, and only hope that the solutions the CCI recommends are based on "Citizens First". We all live in West Linn, so all our decisions should be based on what is best for our community, long term so that generations to come will treasure West Linn like we all do.

Pam Yokubaitis

Begin forwarded message:

From: Pam Yokubaitis <pam@yokubaitis.com>
Subject: Re: Willow Ridge - Proposed layout/design and how it's different from before...
Date: December 9, 2017 at 12:26:28 PM PST
To: Darren Gusdorf <darren@iconconstruction.net>
Cc: Ed Turkisher <castle-wing@comcast.net>, Patrick Noe <art2noe@yahoo.com>, Richard Santee <richardsantee@gmail.com>, Pia Snyder <piasnyder@comcast.net>, Jon Gice

<jon_gice@sbcglobal.net>, Robert Jester <jitjester@comcast.net>, Scott Laroche <14.4volts@gmail.com>, Travis Takano <travis_wp@yahoo.com>, Meredith Olmstead <clubolmstead@comcast.net>, "rickgivens@gmail.com" <rickgivens@gmail.com>, Mark Handris <handris@aol.com>, "Arnold, Jennifer" <jarnold@westlinnoregon.gov>, Thomas Elin <elin.thomas.e@gmail.com>, Steve Thornton <stevo64@gmail.com>, Gary Eppelsheimer <garyepp@mac.com>, Chelsea Diaz <chelsead2864@gmail.com>

Reply-To: Pam Yokubaitis <pam@yokubaitis.com>

Hello, Darren (and everyone),

Thank you very much for summarizing the changes made between your first set of Willow Ridge plans and the second set more recently submitted. This is very helpful to inform those individuals who had schedule conflicts and couldn't attend your pre-app meeting and/or BHT's NA meeting this week. We really do appreciate you reaching out to us with your correspondence below, as well as having both you and Mark attend our BHTNA meeting on exceptionally short notice because of this expedited process.

We accept your apology for not meeting with BHTNA much earlier in this process. As I explained at the NA meeting to you and Mark this week, the tremendous amount of effort and time that has been invested by Icon in preparing two sets of proposed developments, in addition to the tremendous amount of time and effort spent by numerous residents to write testimony, supply evidence and testify has been nothing but exceptional. BHTNA residents were FORCED to communicate with you in a hearing because the city didn't mandate you meet with BHTNA before any hearings occurred. Additionally, there were problems experienced with BHTNA's leadership receiving notification from the city, and when BHT asked for a meeting with you (through Sunset leadership who already had an Icon contact), Icon demanded we supply a list of our questions within 5 hours to determine if you would meet with us. So Meredith, Ed and myself went into emergency overdrive to each draft a list of questions, and the next day, our Sunset contact told us Icon chose not to meet with BHTNA. So the door was slammed shut on all communications with our neighborhood residents, with no other way to be heard except to testify.

I must add that I did attend the second of the two Sunset meetings held because Sunset's President invited me, but the sketchy diagram that was presented there wasn't at all helpful, and we were told a retention facility was going to address the water issues, with *no mention of using the creek* as a detention pond. Needless to say, when we finally saw your detailed plans online turning Cornwall Creek (new name approved by City Council) into a detention pond, this major departure again FORCED us to testify about something that was never discussed with the residents. Such changes after meetings with NAs is a significant problem for the citizens of West Linn in general.

As a Past President of BHTNA, and having testified in the past, I fully understood the magnitude that BHTNA now faced to address the numerous concerns of surrounding residents, and the amount of work we now had to do. Because of Sunset School's nightmare to local residents that resulted in flooded basements of surrounding residents and LUBA's ruling not being honored by West Linn's City Council, many Sunset residents are left in deep debt or can't afford remediation and thus have lost their property value....all due to no fault of their own. BHTNA was not going to experience this same nightmare, so we united with Sunset NA to have an even louder voice. Additionally, Dogami pictures of the slope on this property is worrisome for landslide. If this hillside slides, Willow Creek, Hidden Creek Estates, Tanner Woods and Barrington Heights subdivisions all could get wiped out. Since homeowners insurance doesn't cover damage from acts of nature, and we know this land is very wet with springs under all our homes, we are admittedly hypersensitive to the consequences that Sunset residents have already experienced. Who of many parties are liable if problems arise in any of the surrounding homes? It is therefore imperative that all parties (city staff and commissioners, residents and developer) be fully aware of what we're dealing with and question if building 6 homes at the expense of 60

homes below is worth this risk. If it is worth the risk, all necessary safety measures, optimum construction, special inspections, etc. must be incorporated in your proposed development.

I was angry BHT couldn't have an NA meeting with Icon because you forced us into doing a tremendous amount of work just to communicate. I then emailed Mayor Axelrod about my complaints with the process and provided solutions to improve the planning process. Russ replied by inviting me to attend the CCI (Committee for Citizen Involvement) to share my solutions, so I did. I thought this committee was charged to identify and solve land use problems, so I wrote the document below for the committee to consider the many concerns experienced by West Linn residents. This document was also distributed to all the Neighborhood Association Presidents to generate community discussion directly with their citizens. It was only *after* I submitted this 3 page document that I learned the CCI was created to identify the land use problems, and another *new group of people* would identify the solutions to the problems CCI identified. I am sharing this with you not only because you and Mark are West Linn citizens, but as a developer, your input on this topic is equally as important as it gains more traction. This document serves only as a starting point for discussion on this topic, but it is my hope that CCI's *new group of people* will include developers, citizens and city staff to solve the many issues experienced by each party, and done with a collaborative spirit.

OFFSITE WETLAND DETERMINATION REPORT
OREGON DEPARTMENT OF STATE LANDS
775 Summer Street NE, Suite 100, Salem OR 97301-1279, Phone: (503) 986-5200

BATCH
WD#: 2017-0167

At your request, an offsite wetland determination has been conducted on the property described below.

County: Clackamas

City: West Linn

Other Address: Jon Gice, BHT Home Owners Association, 2030 Tanner Creek Lane, West Linn, OR 97068

Township: 2S Range: 1E Section: 36 Q/Q: BA Tax Lot: 6300

Project Name: Determination Request for Property at 4096 Cornwall Street

Site Address/Location: Cornwall St., West Linn, OR

- The National Wetlands Inventory shows wetland/waterways on or adjacent to the sites.
- The county soil survey shows hydric (wet) soils at one of the sites. Hydric soils indicate that there may be wetlands.
- It is unlikely that there are jurisdictional wetlands or waterways on the property based upon a review of wetlands maps, the county soil survey and other information. An onsite investigation by a qualified professional is the only way to be certain that there are no wetlands.
- There are waterways on or adjacent to some of the properties subject to the state Removal-Fill Law.
- A state permit is required for ≥ 50 cubic yards of fill, removal, or ground alteration in the wetlands or waterways.
- A state permit may be required for any amount of fill, removal, or other ground alteration in the Essential Salmonid Habitat and hydrologically associated wetlands.
- A state permit will be/will not be required for the project if _____.
- The proposed parcel division may create a lot that is largely wetland and thus create future development problems.
- A wetland determination or delineation may be needed prior to site development; the wetland delineation report should be submitted to the Department of State Lands for review and approval.
- A permit may be required by the Army Corps of Engineers: (503) 808-4373

Note: This report is for the state Removal-Fill Law only. City or County permits may be required for the proposed activity.

Comments: On April 19, 2017, DSL received a request from a representative of the BHT Home Owners Association, Jon Gice, to perform an offsite jurisdictional determination for a proposed residential development site at 4096 Cornwall St. Based on the information available in our office, it is unlikely that there are jurisdictional wetlands or waterways present on the property. An onsite inspection by a qualified professional is the only way to be certain whether wetlands are present.

Determination by:  Date: 04/26/2017

- This jurisdictional determination is valid for five years from the above date, unless new information necessitates a revision. Circumstances under which the Department may change a determination and procedures for renewal of an expired determination are found in OAR 141-090-0045 (available on our web site or upon request). The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months from the above date.
- This is a preliminary jurisdictional determination and is advisory only.

Copy To: Other jon_gice@sbcglobal.net Enclosures:
 _____, Planning Department
 , DSL

FOR OFFICE USE ONLY

Entire Lot(s) Checked? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Waters Present <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Maybe	Request Received: 04/19/2017
LWI Area: <u>West Linn</u> , LWI Code: <u>NA</u>	Latitude: <u>45.357039</u> Longitude: <u>-122.633436</u>	Related DSL File #: <u>NA</u>
Has Wetlands? <input type="checkbox"/> Y <input type="checkbox"/> N <input checked="" type="checkbox"/> Unk	ESH? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	Wild & Scenic? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N
State Scenic? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N	Coast Zone? <input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> Unk	
Adjacent Waterbody: <u>Tanner Creek</u>	NWI Quad: <u>Canby</u>	<input type="checkbox"/> Scanned <input type="checkbox"/> Mailings Completed <input checked="" type="checkbox"/> Data Entry Completed

EMAIL CORRESPONDENCE WITH THE STATE OF OREGON

On Apr 19, 2017, at 10:40 AM, RYAN Peter <peter.ryan@state.or.us> wrote:

Hi Jon,

I've attached a copy of the Department's Wetland Determination Request Form in two formats.

Choose one, fill it out completely, attach the presentation you mentioned and email it back.

Thanks.

-Pete

Peter Ryan, PWS

Jurisdiction Coordinator – Metro Region

Oregon Department of State Lands | 775 Summer Street, NE, Ste. 100,
Salem, Oregon 97301-4844

503.986.5232 Monday-Wednesday | 503.779.4159 Thursday

Work Days: Monday-Thursday | **Out of Office:** Fridays

<wetland_determ_req.pdf><wetland_determ_req.doc>

From: Jon Gice <jon_gice@sbcglobal.net>

Subject: Re: Wetland Determination Request Form

Date: April 19, 2017 at 10:57:04 AM PDT

To: RYAN Peter <peter.ryan@state.or.us>

Cc: Jon <jon_gice@sbcglobal.net>

Here is the completed form and the presentation that I talked about.
Please let me know if this came thru and if I am on the right track.

[Click to Download](#)

wetland_determ_req.pdf
105 KB

[Click to Download](#)

Wetland Determination Request - Final.pptx
25.2 MB

-----Original Message-----

From: Jon Gice [mailto:jon_gice@sbcglobal.net]

Sent: Wednesday, April 19, 2017 12:39 PM

To: RYAN Peter

Subject: On line completion of the form

Peter

I have tried to replicate what I ran into yesterday with that \$6 per month pdf service vendor and I can't seem to find any link on the State website where I can try and complete the Request on line. I am dumbfounded at this point.

On Apr 19, 2017, at 1:36 PM, RYAN Peter <peter.ryan@state.or.us> wrote:
Thanks for looking Jon.

In the future you can find the form at:

http://www.oregon.gov/dsl/WW/Documents/wetland_determ_req.pdf

-Pete

Peter Ryan, PWS

Jurisdiction Coordinator – Metro Region Oregon Department of State

Lands | 775 Summer Street, NE, Ste. 100, Salem, Oregon 97301-4844

503.986.5232 Monday-Wednesday | 503.779.4159 Thursday Work Days:

Monday-Thursday | Out of Office: Fridays

-----Original Message-----

From: Jon Gice [mailto:jon_gice@sbcglobal.net]

Sent: Wednesday, April 19, 2017 2:26 PM

To: RYAN Peter

Subject: Re: On line completion of the form

Very good

Any estimate on when I will hear back on my request?

Sent from my iPhone

From: RYAN Peter <peter.ryan@state.or.us>

Subject: RE: On line completion of the form

Date: April 19, 2017 at 3:22:22 PM PDT

To: "Jon Gice" <jon_gice@sbcglobal.net>

Needs to be logged in and then it should to take 1 to 2 weeks to works its way up the queue

-Pete

Peter Ryan, PWS

Jurisdiction Coordinator – Metro Region Oregon Department of State

Lands | 775 Summer Street, NE, Ste. 100, Salem, Oregon 97301-4844

503.986.5232 Monday-Wednesday | 503.779.4159 Thursday Work Days:

Monday-Thursday | Out of Office: Fridays

On Apr 20, 2017, at 7:19 AM, Jon Gice <jon_gice@sbcglobal.net> wrote:
Thank you so much. Please do keep in touch on the progress on this. I would love to be physically present for a site visit so I can assist on the walk thru in any possible. We are truly concerned about the environmental impact of this development.

-----Original Message-----

From: Jon Gice [mailto:jon_gice@sbcglobal.net]

Sent: Friday, April 28, 2017 9:52 AM

To: RYAN Peter

Subject: Re: On line completion of the form

Peter,

Any update on our request?

From: RYAN Peter <peter.ryan@state.or.us>

Subject: RE: On line completion of the form

Date: May 1, 2017 at 6:59:58 AM PDT

To: "Jon Gice" <jon_gice@sbcglobal.net>

Hi Jon,

I finished my part last Wednesday...and then it went to my supervisor for her to okay. You should get your copy soon.

-Pete

From: Jon Gice <jon_gice@sbcglobal.net>
Subject: Re: On line completion of the form
Date: May 1, 2017 at 7:20:42 AM PDT
To: RYAN Peter <peter.ryan@state.or.us>

Thank you so much. We just got notice that there will be a public hearing about this land on 5/17 so we feel the pressure to get the Determination done. I appreciate anything that can expedite.

From: Jon Gice <jon_gice@sbcglobal.net>
Subject: Wetlands Request
Date: May 8, 2017 at 8:10:13 AM PDT
To: RYAN Peter <peter.ryan@state.or.us>

Peter

We received the report and I need your guidance on my next step. I was under the impression that the State would send someone out to review the property. The report states that we need to secure a Wetlands expert.

Can you please call me this morning (Monday) at 503 882 2996?

Time is of the essence as we go to hearing next week.

THANK YOU!

From: Jon Gice <jon_gice@sbcglobal.net>
Subject: FINAL questions (I promise)
Date: May 10, 2017 at 7:12:54 AM PDT
To: RYAN Peter <peter.ryan@state.or.us>

Peter

I hate to bother you again but I have 3 more questions, 2 based on the attached report:

1. Is the attached report convincing as it only rules out 3 conditions to determine a wetland and there are many more conditions that need to be addressed?
2. Is Schoot & Associates a qualified firm, known to the State, that did this attached report?
3. How does the County interface with the State in wetland determination - can the County make it's own determination?

From: RYAN Peter <peter.ryan@state.or.us>
Date: May 10, 2017 at 9:16:54 AM PDT
To: "Jon Gice" <jon_gice@sbcglobal.net>
Subject: RE: FINAL questions (I promise)

Hi Jon,

No problem with the questions...that's our job. My answers are below:

1) I assume when you ask about the "3 conditions" used by the consultant you are referring to hydrophytic vegetation, hydric soils, and wetland hydrology. These are the 3 parameters that need to be sampled to determine if a site meets wetland criteria. However, you are right to suggest that the attached memo isn't a wetland delineation report. Delineation reports require considerably more background material and sampling point data.

2) Schott & Associates has been doing this work for some time.....you can check out their 2011-2015 summary data at: <http://www.oregon.gov/dsl/WW/Documents/ConsultSum2011-15.pdf>

3) Normally, a local government will notify the Department if a proposed development site is identified as wetland in a sensitive land overlay (see guidance for our Wetland Land Use Notice process on our Waterway & Wetland Planning page: <http://www.oregon.gov/dsl/WW/Pages/WetlandConservation.aspx>). However, we wouldn't have received a notice for this site because it wasn't identified in the City's LWI.

Hope this helps.

-Pete

Peter Ryan, PWS

Jurisdiction Coordinator – Metro Region

Oregon Department of State Lands | 775 Summer Street, NE, Ste. 100,
Salem, Oregon 97301-4844

503.986.5232 Monday-Wednesday | 503.779.4159 Thursday

Work Days: Monday-Thursday | Out of Office: Fridays

From: Jon Gice <jon_gice@sbcglobal.net>
Subject: Re: FINAL questions (I promise)
Date: May 10, 2017 at 12:55:51 PM PDT
To: RYAN Peter <peter.ryan@state.or.us>
Helps a lot again! Thank you once again!
Sent from my iPhone

-----Original Message-----

From: Jon Gice [mailto:jon_gice@sbcglobal.net]
Sent: Monday, May 15, 2017 9:31 AM
To: RYAN Peter
Subject: I'm back...

Peter

Does the state have a listing of qualified wetlands consultants that you can recommend?

On May 15, 2017, at 10:48 AM, RYAN Peter <peter.ryan@state.or.us> wrote:

Hi Jon,

Sorry but were not allowed to make recommendations. Instead here are three places to look.

1) on our website, we list all current delineation reports by county.

You can open reports and check see who prepared them:

<http://www.statelandsonline.com/index.cfm?fuseaction=Wetlands.SelectCounty>

2) that same consultant summary I sent last time lists the consultants who have submitted reports to the Department:

<http://www.oregon.gov/dsl/WW/Documents/ConsultSum2011-15.pdf>

3) the Pacific Northwest Chapter of the Society of Wetland Scientists maintains a list of consultants at:

http://sws.org/images/chapters/pacific_northwest/docs/2017-4-5-Consultant-List.pdf

Good luck

-Pete

-----Original Message-----

From: Jon Gice [mailto:jon_gice@sbcglobal.net]

Sent: Tuesday, May 16, 2017 6:47 AM

To: RYAN Peter

Subject: Re: I'm back...

I keep trying to end this yet another question popped up last night - do we need BOTH a Hydrologist and Hydrogeologist?

Sent from my iPhone

From: RYAN Peter <peter.ryan@state.or.us>

Subject: RE: I'm back...

Date: May 16, 2017 at 7:04:00 AM PDT

To: "Jon Gice" <jon_gice@sbcglobal.net>

If you are asking about the background for a wetland consultant, that can be all over the board (including soil scientists, botanists, biologists, hydrologists, etc.).

If you are looking for someone to determine how water is moving down that hillside, a hydrogeologist may be a better choice. They tend to focus more on the movement of groundwater as opposed to surface water.

Peter Ryan, PWS

Jurisdiction Coordinator - Metro Region

Oregon Department of State Lands | 775 Summer Street, NE, Ste. 100,
Salem, Oregon 97301-4844

503.986.5232 Monday-Wednesday | 503.779.4159 Thursday

Work Days: Monday-Thursday | Out of Office: Fridays

Arnold, Jennifer

From: Pam Yokubaitis <pam@yokubaitis.com>
Sent: Wednesday, December 13, 2017 12:56 PM
To: Arnold, Jennifer
Subject: Re: PA-17-43 6 lot ELD Subdivision at 4096 Cornwall Street

I want to re-confirming that you do have all 7 items of my wetlands presentation, including the keynote presentation, all of which you can open. Is that correct?

On Dec 13, 2017, at 12:11 PM, Arnold, Jennifer <jarnold@westlinnoregon.gov> wrote:

These two attachments have been added to the record. I have responded to all of your emails that included testimony. IF you do not have a response from me about a piece of testimony, please resubmit it. It is up to you to verify that all of your information has been submitted. I do understand this and I appreciate your many email confirmations. My list of testimonies is below as a checks and balances for us to be sure we're in sync. I am trusting that you are opening all documents/links to make sure they work (like the keynote), so please advise if something doesn't work. I need this assurance from you because I have no way of knowing that something is corrupted on your end.

New written testimony yet to be emailed to you will come today from Pia Snyder and myself. You might receive prior written testimony from Gary Eppelsheimer, but I think he only gave oral testimony.

Authors of Testimony and the Number of Their Submissions

1. Patrick Noe (1 overview document of our neighborhood concerns, and 1 with document including petition signatures) (*Sunset*)
2. Meredith Olmstead (0) (*BHT*)
3. Pia Snyder (1 already submitted; **one new testimony and one old testimony you will receive by 5 PM today**) (*BHT*)
4. Ed Turkisher (2 separate documents) (*Sunset/Cornwall*)
5. Chelsea Diaz (1 document with photo attachment) (*Stonegate*)
6. Steve Thornton (1) (*Stonegate*)
7. David Corey (1) (*Hidden Creek Estates*)
8. Christine Henry (2 documents with video attachment) (*Hidden Creek Estates*)
9. Jon Gice (2) (*Tanner Woods*)
10. Gary Eppelsheimer (I don't know for sure if he testified "in writing" so you may not receive anything from him) (*Sunset/Cornwall*)
11. Pam Yokubaitis (Citizens' Perspective; link to Icon's first application; full Wetlands Presentation (1-7) with keynote imbedded; my correspondence with Darren from Icon; this email (see underline below); **Traffic safety testimony you will receive by 5 PM**, and perhaps another document with comments about the applicants application if time permits) (*Hidden Creek Estates*)

Please include this email as part of my testimony so the Commissioners can readily see who all testified and what areas they represent in the listing above.

Thank you, Jennifer! Pam

Jennifer

From: Pam Yokubaitis [<mailto:pam@yokubaitis.com>]
Sent: Wednesday, December 13, 2017 11:26 AM

To: Arnold, Jennifer <jarnold@westlinnoregon.gov>
Subject: PA-17-43 6 lot ELD Subdivision at 4096 Cornwall Street

Jennifer,

This is the last part of my wetlands presentation that I have to email piecemeal because the file size is too large. Items 5-7 attached below.

I previously sent you an email with just items 1& 2 (which you can now discard) because I also sent you another email with items 1 through 4 (keynote) included. Please confirm that you now have 2 emails with 1-4 pieces of evidence in one email, and this email that has 5-7 pieces of evidence.

I do have just #4 (the keynote) in a separate email if that doesn't come through, so I await your feedback.

Thank you.

Pam Yokubaitis

Begin forwarded message:

From: Pam Yokubaitis <pam@yokubaitis.com>
Subject: Pam Yokubaitis 6/7/17 Testimony PART 2
Date: June 7, 2017 at 9:28:30 AM PDT
To: "Arnold, Jennifer" <jarnold@westlinnoregon.gov>
Cc: Jon Gice <jon_gice@sbcglobal.net>
Reply-To: Pam Yokubaitis <pam@yokubaitis.com>

Jennifer,

Due to 3 message delivery failures, I'm breaking up my testimony email into two parts because the file size was too big. Please look for two emails from me titled the same in the subject line, but with PART 1 and PART 2 indicated at the end.

Please have these emails available tonight on display so I can testify about it's contents as you scroll through them and click on key documents imbedded. Also double check that you can open the imbedded attachments as well, and confirm receipt as usual. Thank you.

Pam

Below is a continuation of Pam Yokubaitis's Testimony....

5) Received Offsite Wetlands Determination Report (document of findings) from the State of Oregon

Wetland Determination Request

On behalf of **Barrington Heights, Hidden Creek Estates & Tanner Woods**
Subdivisions
BHT Neighborhood Association
West Linn, OR 97068

April 19,2017

Contact: Jon Gice
503-882-2996

Background

Barrington Heights, Hidden Creek Estates and Tanner Woods (BHT) subdivisions are located in West Linn, OR and are collectively recognized by city government as the BHT Neighborhood Association (BHTNA). (*Appendix 1: BHTNA & Sunset Neighborhood Associations*) The 450 or so large homes in these 3 subdivisions share views of Oregon's Willamette River, Mt. Hood, and the beautiful Willamette Valley. These 3 subdivisions are physically adjacent or near to, and below a property in the Sunset Neighborhood that has been proposed for development. The developer has named this proposed 6 home development Willow Ridge. Unlike other properties, this property has some complex issues to address since it has a very steep slope across the entire property (*Appendix 2: Trees and Slope Analysis*), excessive amounts of surface and ground water springs, numerous old trees, and historical matters that raise some questions.

Tanner Creek is a wetlands body of water that flows through the 3 subdivisions, and is located to the West of the proposed development. (*Appendix 3: Tanner Creek Wetlands Map*) This creek water flows into the Tanner Woods subdivision's large wetland pond. (*Appendix 4: Tanner Creek Wetlands Pond, West Side*) To the East of the proposed development is another Unnamed creek which also flows into the Tanner Woods subdivision's large wetland pond. (*Appendix 5A: Creeks and Development Site & Appendix 5B Tanner Creek Wetlands Pond, East Side*)

Given the fact that this proposed development property:

- 1) has excessive water bubbling on the surface and numerous underground springs,
- 2) has 50+ homes beneath this property that are built on top of the same underground springs that run through this proposed development
- 3) has the developer wanting to convert the free flowing Unnamed creek into a detention pond, (*Appendix 6A: Detention Pond/Preliminary Utility Plan & Appendix 6B & 6C: Photo of Unnamed creek where detention pond would be*)
- 4) has water traveling to wetlands below are on either side of this property, and
- 5) meets several criteria identified by the state to be considered wetlands, it is being questioned if this proposed development land has been evaluated in the past.

These are the reasons why this Wetlands Determination Request is being made at this time.

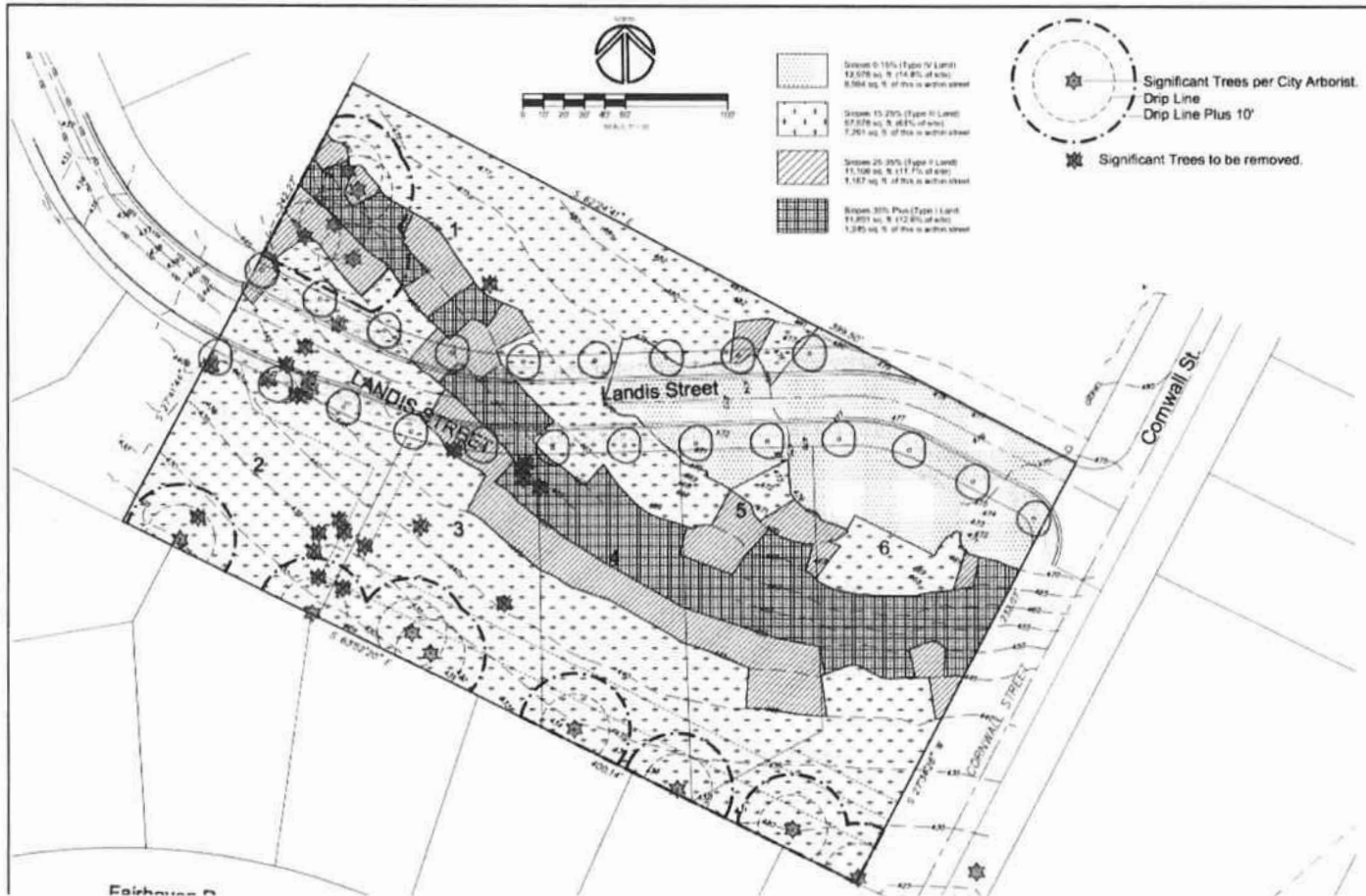
Request for a Wetland Determination

- We believe that the plot of land where six new homes are proposed to be built could be designated as a wetland because there are numerous surface and underground springs throughout the property; it is soggy underfoot; water pools; turtles and skunk cabbage occupy adjacent property; wetlands vegetation/grasses are present; and willow trees and hydric soils exist on the property. (*Photos available upon request.*)
- We believe that the numerous surface and underground springs on this land will negatively impact the currently unnamed creek on the East because the developer plans to build a detention pond in the unnamed creek to control the flow of rerouted water. Such a pond will dam up the creek, require maintenance, decrease the property value of the adjacent homesteads and destroy the natural beauty of this lovely creek.
- We believe that the *additional water* that will no longer be absorbed by older trees, nor be eroding soil on the properties below, will also negatively impact Tanner Creek wetlands because much of the surface and underground springs draining to the West will need to be directed into Tanner Creek wetlands and pond in Tanner Woods subdivision, which is currently at capacity.
- We believe that a failed septic system, previously used by the vacant blue home on this plot of land, is another unresolved issue of concern.
- We believe that as a result of rerouting the excessive surface water and underground springs, numerous homes adjacent to and below this property may be impacted with water seepage and/or foundation problems once this property's terrain has been altered.
- We believe that there is substantial evidence that this property meets wetlands criteria as outlined by the state of Oregon.

Appendix 1: BHTNA (bright pink) Sunset (bright yellow)



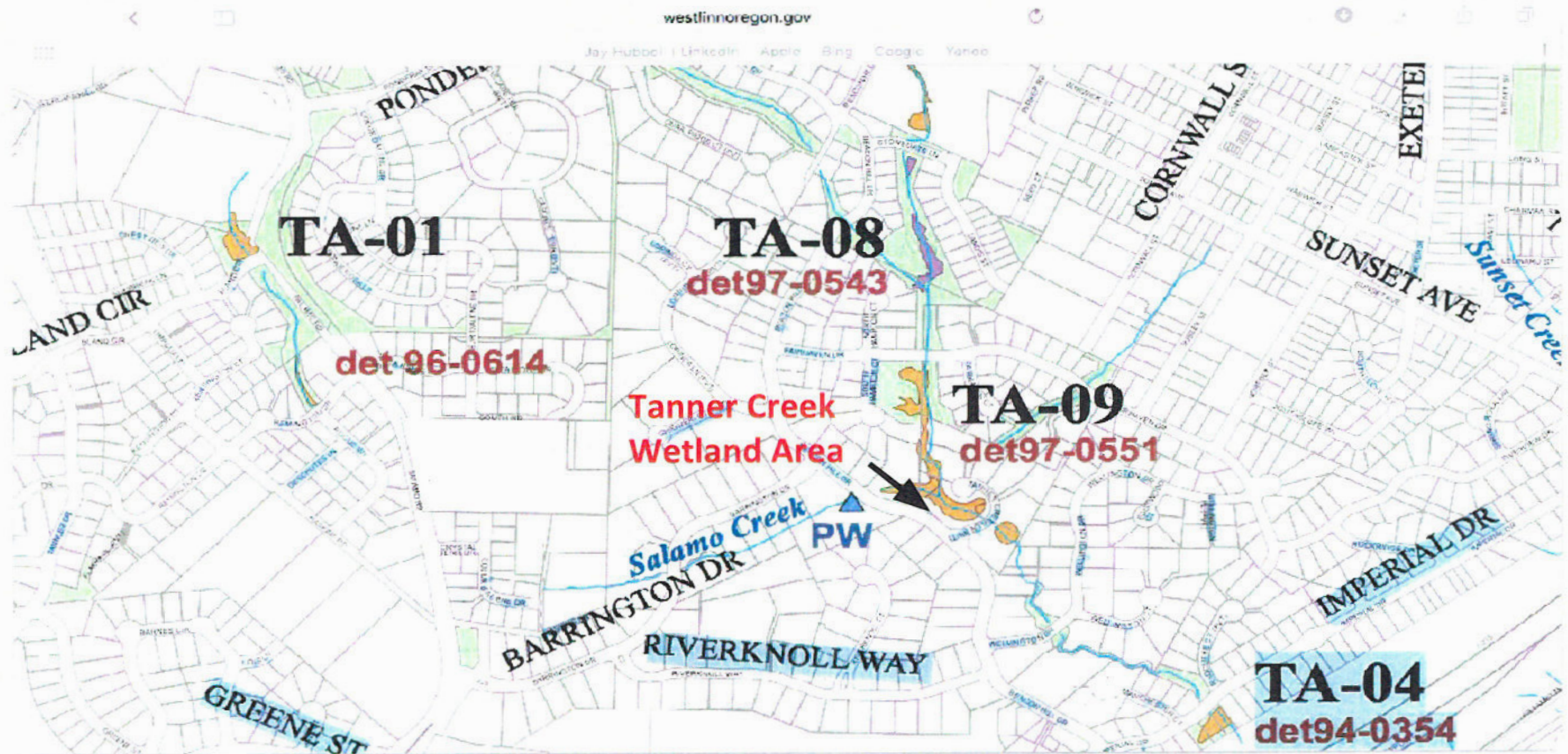
Appendix 2: Trees and Slope Analysis



Appendix 3: Tanner Creek Wetlands Map

Unnamed Creek (under TA-09)

Tanner Creek & Tanner Woods Pond (Wetlands in yellow)



Appendix 4: Tanner Creek Wetlands Pond,
West side of Tanner Woods Subdivision Creek Bridge



Appendix 5A: Creeks and Development Site

The subject property is described as Tax Lot 6300 of Assessor's Map 21E36BA. The site is 2.18 acres (94,808 square feet) in area. It is presently developed with a single-family detached home. This home will be removed to allow for the construction of the extension of Landis Street to Cornwall Street. The subject property is zoned R-10.

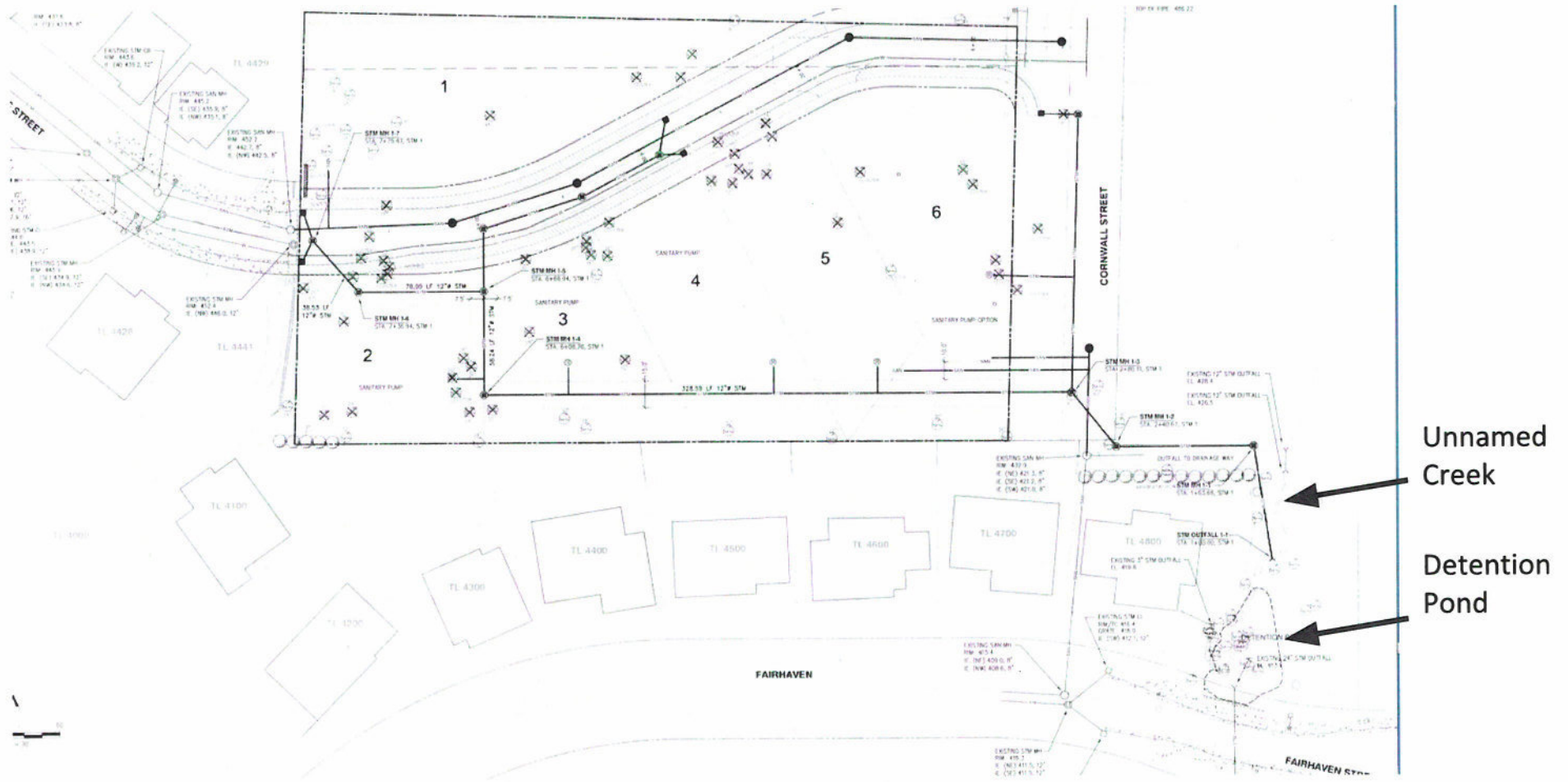


Figure 1: Vicinity Map

Appendix 5B– Tanner Creek Wetlands Pond
East side of Tanner Woods Subdivision Creek Bridge



Appendix 6A: Detention Pond/Preliminary Utility Plan



Appendix 6B: Unnamed Creek where the Detention Pond would be
(next to the bridge sidewalk)



Appendix 6C: Unnamed Creek where Detention Pond would be



**TESTIMONY FOR WEST LINN PLANNING COMMISSIONERS
REGARDING PA-17-43 6 lot ELD Subdivision at 4096 Cornwall Street**

Submitted by: Pam Yokubaitis

FOUR MAJOR TRAFFIC SAFETY ISSUES

I am testifying about multiple traffic safety issues that impacts Icon's proposed Willow Ridge development at the end of Cornwall Street in West Linn. The second set of plans submitted by Icon for expedited review no longer connects Landis Street to Cornwall Street, but now dead ends into private property. The original description of an "emergency vehicle road with a locked gate" has now also been labeled on maps as an "Alleyway", which connects the dead end of Landis Street to the end of Cornwall Street.

A. LOT 6 CONCERNS: THE EMERGENCY ROAD/ALLEYWAY

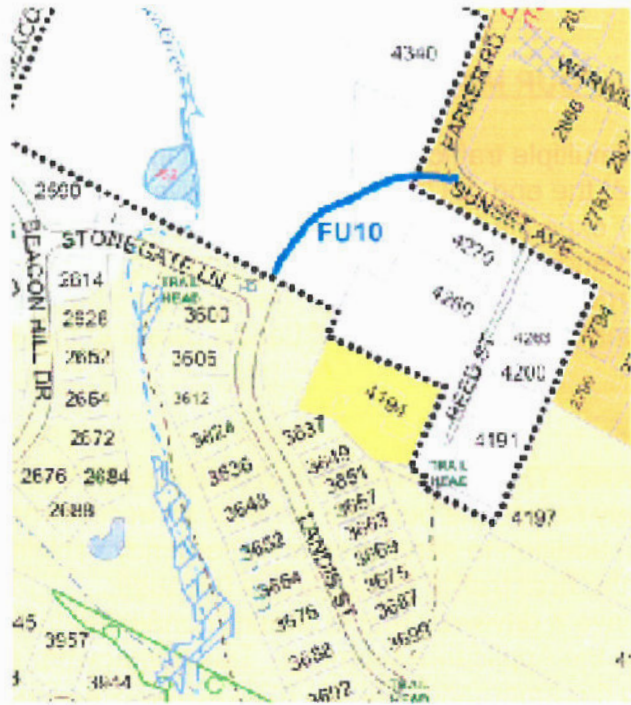
This new alleyway serves the purpose of being an access road to Willow Ridge's lot 6 driveway, in addition to serving as an emergency vehicle road. This arrangement is the **first traffic safety issue** because:

- 1) Lot 6 does *not* have a driveway that is directly connected to Landis Street, but this was not stated in the Applicants submittal. This homeowner must access his property utilizing the emergency vehicle road/alleyway just to get to his driveway.
- 2) The necessity to use this emergency road permanently for homestead access defeats the intended purpose of this being an emergency road (implying rarely used, and it was identified as having a *locked gate!*). Identifying this asphalt path now as an alleyway implies it's no longer just emergency access. Which is it? If it is providing connectivity, then Cornwall Street requires complete repaving because this now serves as a cut through. Read Ed Turkisher's 2 testimonies and Patrick Noe's about the extremely poor condition of Cornwall Road, with photos provided.
- 3) This homeowner has no street parking for guests at his home, which then creates traffic concerns of parked cars on Landis Street at a steep point in the slope, or on the Alleyway. It is unreasonable to deny street parking to any homeowner.

B. STONEGATE'S LOCATION FOR CONNECTIVITY MUST BE RE-EVALUATED

The proposed Landis Street stub out abutting private property near Cornwall implies that a road will eventually go through this land to Cornwall Street when this area is redeveloped. However, the issue of connecting Landis Street to Cornwall Street through Willow Ridge demands re-evaluation *because future connectivity of Stonegate's subdivision already exists, directly toward Sunset/Parker Roads*. This connectivity option was *not* previously mentioned. A Landis Street Road stub out is already built on the North side of Landis Street as you enter Stonegate's subdivision off of Beacon Hill onto Stonegate Lane. As you intersect with Landis Street, the stub out is immediately on your left. The existing (North) Landis Street road stub out is a far better option for connecting Stonegate to Sunset/Parker Roads for the numerous reasons listed below:

Connectivity from Landis Street to Sunset & Parker Roads



Stub out of (North) Landis Street, on left side at the end of Stonegate Lane.



Stonegate Lane bridge from Beacon Hill intersection, looking at Landis Street
(where van is seen)



Stonegate Lane bridge from in front of (North) Landis stub out, looking toward Beacon
Hill intersection (reverse view of above photo).



1. SHORT & COST EFFECTIVE CONNECTIVITY: The (North) Landis stub out offers a much shorter and direct access to Sunset/Parker Roads for future road connectivity. This connectivity location affords much less disruption to surrounding neighborhoods, and being shorter in distance makes it more cost effective to serve more residents. The (North) Landis Street stub out is next to a farm, which is very close to Sunset/Parker Roads than the Landis Street and Cornwall connection. This location affords greater connectivity for more homes.

2. STREET PARKING ON (SOUTH) LANDIS: One Stonegate resident floated the idea to their HOA Board of requiring parking only on one side of their street. This was not well received by the HOA President. The interference Street parking presents is a **second traffic safety issue**. Homeowners have the right to parking in front of their property for themselves and their guests. Removing this right is unreasonable, avoidable and would anger many residents if they lost this privilege. This is an HOA issue to address and enforce, not one that the city should dictate when there is a better and safer alternative available.

Begin forwarded message:

From: travis <travis_wp@yahoo.com>

Subject: Re: Width of Landis

Date: November 13, 2017 at 2:25:29 PM PST

To: Steve Thornton <steve.thornton@localfresh.com>, Thomas Elin <elin.thomas.e@gmail.com>, Richard Santee <richardsantee@gmail.com>

Cc: Pam Yokubaitis <pam@yokubaitis.com>

Reply-To: travis <travis_wp@yahoo.com>

Richard,

Closing one side of the street will help construction vehicles, but I think it will also cause issues with the open side for parking if the closed side homeowners start using the other side as extra parking in front of other people's homes which takes away their use for their guests. Is the intent to have all homeowners not park in the street at all?

I think another option is to have Icon punch the emergency access road from Cornwall to upper Landis and have construction vehicles access that way of a more direct route than through Barrington. Also since Cornwall is in much need of an upgrade, why not use it then have the City repair the entire street after? Two birds with one stone! :-). Thoughts?

- Travis

On Monday, November 13, 2017, 1:53:40 PM PST, Richard Santee <richardsantee@gmail.com> wrote

Per Pam's request, I've measured the width of Landis at a couple of points and it is 25 ft. One problem is that if two cars are parked on the street across from each other, that leaves only 8-9 feet between them--not enough for the constructions vehicles that will be traveling to the job site. Would it make sense to close off one side of Landis to street parking? Is so, our HOA will need to request that of the City.

Richard

View of street parking on Landis Street looking East towards Willow Ridge



3. HAZARDOUS BLIND SPOT: There is a massive rock retaining wall that poses a dangerous blind spot to oncoming traffic in both directions at a bend in the road near Stonegate's entrance. This is a **third traffic safety issue**. Stonegate residents have had accidents amongst their own neighbors on this bend, which validates that (South) Landis Street is a hazardous corner, undesirable for increased traffic, with a steep slope to travel, narrow streets with parked cars to contend with and many residential homes to pass by.

(South) Landis Street with cars park on blind spot curve



4. LANDIS STREET ROAD WIDTH: There clearly is no space available to widen Landis Street. This road is only 25' wide, whereas Fairhaven Drive is 31' 10" wide and 19' 8" wide on the bridge (for traffic calming purposes). Since Landis Street is only 25' wide, the 7' width discrepancy between these 2 streets is substantial if Landis and Cornwall were to become as trafficked as Fairhaven Drive is today. In comparison, Cornwall Street is 18 feet wide and 14 feet wide in the narrowest part. These road widths don't match, but most importantly, the 25 foot width of Landis Street makes it impassable for street parking and 2 way traffic. This is a **fourth traffic safety issue**.

Only one vehicle is able to safely pass when two cars are parked on opposite sides of this residential street. This is grossly inadequate for a future dual lane thoroughfare, not to mention very inadequate for construction access to build Willow Ridge.

Landis Street looking East toward Willow Ridge;
Two way traffic isn't feasible with street parking



5. BUYERS PREFER QUIET STREETS: The East side of Stonegate's subdivision located on Beacon Hill has only one street (Landis) with 20 homes on it. The Willow Ridge property was originally intended to be Phase II of Stonegate as noted on former plat maps (I received this notification). By extending Landis Street into Willow Ridge and making it a dead end road, the quiet residential atmosphere that all surrounding homeowners on Landis Street, Cornwall Street, and Fairhaven Drive currently treasure is retained. Dead end streets are highly desirable to West Linn buyers, especially with young children because they have minimal traffic and noise, like cul-de-sacs and private streets. The Alleyway could serve as a turn around like the one below currently at the end of Landis Street.

(South) Landis Street Turn Around



6. NEIGHBORHOOD EXPLOITATION: Connecting *both* ends of Landis Street as connectivity arteries will significantly alter the essence of all adjacent existing neighborhoods (Stonegate, Cornwall, and Hidden Creek Estates) due of increased traffic and noise. Adding through traffic exploits half of Stonegate's nestled subdivision for the city's needs and ignores all existing surrounding homeowners rights to their peaceful neighborhoods. Fairhaven Drive residents directly beneath Willow Ridge are sandwiched between Landis Street and Fairhaven Drive road noise. This would subject them to traffic noise in both their front and now back yards. If Landis connects to Cornwall which connects

to Sunset, which then connects back to (North) Landis through any number of ways, a large loop for traffic has been created. Landis Street was not intended to be heavily trafficked when Stonegate was originally being designed. Taking a long, meandering maze of roads through Stonegate, Willow Ridge then Cornwall, just to get to Sunset Road doesn't make sense when a shorter, more cost effective point of connectivity exists that provides a direct connection to two major roads (Sunset and Parker).

7. STONEGATE CONNECTIVITY THROUGH NORTH LANDIS STREET IS A WIN-WIN-WIN FOR ALL NEIGHBORHOODS AND THE CITY: Residents living on Landis Street in Stonegate and Willow Ridge, on Cornwall Street, and on Fairhaven Drive beneath Willow Ridge ALL can *retain* their quiet neighborhoods without additional traffic noise by utilizing the (North) Landis Street stub out for connectivity and not joining Landis Street to Cornwall. The city still retains neighborhood connectivity using a much shorter road, opens up traffic connectivity to more Parker Road and Sunset residents, and a proper size road from the existing stub out for the volume of traffic anticipated can be built, with no existing residents being affected by this buildout.

The above 7 points make a strong case for re-thinking Landis Street connectivity to Cornwall Street, because the shortest path for connectivity for the most residents to one of two major roads can best be accommodated from (North) Landis Street. Since Stonegate's connectivity can be easily modified at this juncture, *this alternative plan is worthy of serious consideration and examination.*

C) TRAFFIC VOLUMES ARE GROSSLY MISREPRESENTED IN DEVELOPER'S APPLICATION:

The traffic estimate in the developer's application grossly underestimates the volume of cars because it does NOT account for all the neighborhood traffic coming from Beacon Hill toward Sunset, nor does it account for traffic from Sunset going towards Landis Street. (Read Ed Turkisher's testimony.) The developer's numbers at best represent a *guesstimate* of additional traffic of just Willow Ridge and Stonegate residents passing through on Landis Street. Since a traffic study can't be conducted to statistically record traffic volume at this time because connectivity isn't established, the numbers presented in the developer's application fails to account for all through traffic coming from surrounding the neighborhoods of Cascade Summit, Barrington Heights, Sabo Lane, Winkel Way, Sunset, Parker Road, etc.

D) DEVELOPER INTENDS TO USE CORNWALL STREET AS THE ACCESS POINT TO WILLOW RIDGE DEVELOPMENT SITE

During our recent meeting with Icon and a few BHT neighbors, the developer explained to BHT's VP that all construction traffic will come down Cornwall Street because it is the most direct route. Thus, the risk of damage from trucks to Barrington Heights center islands will be zero. Ed Turkisher's testimony describes the current state of Cornwall

Street; also known as the street in the worst condition in West Linn. The developer has only committed to repave where he lays pipe down Cornwall Street. But this is grossly inadequate, so repaving of the entire street should be required for the current residents. It is naive to think heavy equipment can utilize this residential road of the poorest quality and only do patch repairs when finished.

Furthermore, it is also known that the developer has already platted lots for Cornwall Street redevelopment (See Willow Ridge Plat A) on the private property where they



propose to stub out Landis Street. This demonstrates the developer's serious interest in developing adjacent Cornwall property in the future. Cornwall Street will be destroyed when construction is finished, so the developer needs to take much greater responsibility to upgrade Cornwall Street than just do patch repairs.

To summarize, it is the desire of the surrounding residents to retain our quiet residential neighborhoods that we currently enjoy. Adding significant traffic noise past numerous homes affecting four surrounding neighborhoods is avoidable with a better solution, therefore the alternative option of using (North) Landis Street for future connectivity should be the chosen course of action.

Flag Lot 6 won't have direct street access to Landis, so the road to this home can't be called an emergency vehicle road (as was told to us at our recent BHT meeting), and an emergency vehicle road that is *locked* is a conflict of purpose. Of interest is that all the online maps now refer to this same road as Alleyway.

The attached Willow Ridge Offsite Shadow Plat A layout above reveals this developer is showing great interest now in buying the private Cornwall properties adjacent to Willow Ridge. *But we don't support connectivity between these two Willow Ridge developments for traffic safety reasons.*

Traffic volumes predicted by the developer are woefully inadequate. Logic reveals that connectivity that uses (North) Landis Street, the shortest path, is far less costly, more useful, and it minimally impacts surrounding residents, which makes this *the best solution.*

Lastly, Cornwall Street is in horrible condition and will further deteriorate with use from heavy construction equipment. The residents on this road deserve this street to be useable before, during and after any construction. Repairing Cornwall Street only where pipe has been laid will be very inadequate. Serious consideration for repaving this entire street properly should be a requirement of this developer, who obviously is already anticipating doing future development on Cornwall Street.

I thank you all for thoroughly examining these safety issues, viewing this matter not only as a West Linn resident and Planning Commissioner, but also as a judge who must decide what is in the best interests of our community long term. As the mayor says, "CITIZENS FIRST".

Arnold, Jennifer

From: PIA SNYDER <piasnyder@comcast.net>
Sent: Wednesday, December 13, 2017 4:26 PM
To: Arnold, Jennifer
Subject: Willow Ridge
Attachments: willow Ridge.docx

Hi Jennifer:

I hope all is well with you. I wanted to send you a quick e-mail to bring up some of my concerns after attending both the pre-application meeting and the meeting between Icon and our neighborhood association. Some of our questions have been answered, and improvements have been made to the original plan. I am attaching my testimony to share with the Planning Commission.

Thank you for all the work you do on behalf of the city and West Linn citizens.

Pia Snyder

3817 Fairhaven Drive

My name is Pia Snyder, and I live on 3817 Fairhaven Drive. I have given previous testimony regarding the Willow Ridge development. My concern with the potential water problems caused by the removal of significant trees as well as the consequences of moving soil around remaining significant trees remains.

1. Significant tree removal

According to the application, there are 38 significant trees on the property. 13 will remain. I understand that the developer will have to compensate for the removal of the trees on an inch to inch basis. (ex.: if a cut tree was 48", it would be replaced by 12 4" trees). We are talking about an abundance of new trees here. I would like to see some written explanation before the significant trees are cut as to how many trees will be planted. The city arborist needs to document the size of the downed trees. These trees would be in addition to the street trees that the city plants since that is a requirement.

2. Root damage

Storm and sewer lines will be installed on the south end of lots 3 – 6. The rear yard of lot 6 as well as the Cornwall Street right-a-way are Habitat Conservation Areas (HCA). This same area also demonstrates two of the three components necessary for land to be identified as wetlands (hydrophytic vegetation and wetland hydrology are present.) There are several significant trees in these areas. Extreme care needs to be taken to protect the root systems considering the nature of the soil.

Storm and sewer lines need to be adjusted to ensure that these trees will survive, not just one year after development, but many years to come. This soil disturbance must be closely monitored.

Even though this property has not been labeled as wetlands, I know the land well enough that I continue to be concerned because of the slope, the type of soil and the removal of 25 significant trees (plus all the trees which are not considered "significant") I urge the planning commission to take my concerns into serious consideration.

Thank you very much,

Pia Snydersa

Arnold, Jennifer

From: Karie Oakes <karieokee@aol.com>
Sent: Wednesday, December 13, 2017 4:58 PM
To: Arnold, Jennifer
Subject: Testimony for SUB 17-04, 4096 Cornwall ST

Dear Planning Commissioners:

I have two concerns regarding this application.

It appears as a six-lot subdivision, this application has not met the applicable criteria for an expedited land division.

197.360 “Expedited land division” defined; applicability. (1) As used in this section:

(b) “Expedited land division” includes land divisions that create three or fewer parcels under ORS 92.010 to 92.192 and meet the criteria set forth in paragraph (a) of this subsection.

ORS 92.010 and 92.192 provide for subdivisions and partitions.

(4) An application for an expedited land division submitted to a local government shall describe the manner in which the proposed division complies with each of the provisions of subsection (1) of this section.

I ask you to please consider if this is basis for denial of the application.

Secondly, I question the Planning Manager decision to redraw the boundaries of the HCA and the applicants response to the applicability of Chapter 28 on pages 20-21 of the application. The applicant contends Chapter 28 does not apply because after the boundaries are redrawn there are no HCA areas.

The Planning Managers decision reasons that the designated HCA land should be removed from the HCA inventory because it has been left to degrade with blackberries. CDC 28.040 does not provide an exception for blackberries. This HCA is associated with Cornwall Creek and we should be preserving and restoring HCA areas and not rewarding poor stewards of the land by removing protections.

197.015 Definitions for ORS chapters 195, 196, 197 and ORS 197A.300 to 197A.325. As used in ORS chapters 195, 196 and 197 and ORS 197A.300 to 197A.325, unless the context requires otherwise:

(22) “Wetlands” means those areas that are inundated or saturated by surface or ground water at a frequency and duration that are sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Please deny the boundary change for the HCA.

Thank you.

Sincerely,

Karie Oakes



4130 CORNWALL ST.
WEST LINN, OR 97068
SEPTEMBER 18, 2019

PLANNING COMMITTEE
CITY HALL
WEST LINN, OR 97068

DEAR SIRs:

I LIVE ON CORNWALL & I AM NOT IN
FAVOR OF THE NEW PROPOSED TENTATIVE
PLAN TO CONNECT CORNWALL TO LANDIS STREET.
THIS WOULD RESULT IN WIDENING CORNWALL
AND TAKING PROPERTY FROM CORNWALL HOME
OWNERS & PROBABLY INCREASE TAXES WITH
AN IMPROVED STREET.

THE PLANNING MEETING AT CITY HALL
ON JUNE 6, 2019 SHOWED AN EMERGENCY
EXIT TO CONNECT CORNWALL & LANDIS
WITH A GATE THAT RESIDENTS APPROVED.
PLEASE, STAY WITH THAT PLAN.

SINCERELY,

Charlene Imholt

P.S. I AM UNABLE TO ATTEND
THE SEPTEMBER 24, MEETING.

From: [Ed Turkisher](#)
To: [Arnold, Jennifer](#)
Cc: ["Pam Yokubaitis"](#)
Subject: ICON / Cornwall Plan
Date: Sunday, June 9, 2019 7:20:35 AM
Attachments: [SUMMARY OF ICON.docx](#)

Good Morning Jennifer,

Just a reminder, that as the development plan for ICON's 4096 Cornwall property moves forward, I request that the summary I drafted of the meeting on June 6th in the Bolton Room be provided to both ICON and the Planning Commission. I believe important information is opined in that letter and should be included in any decision making regarding this development.

Another copy of my summary is enclosed as an attachment with this email.

Thank You very much.

Respectfully, Edward Turkisher, 4099 Cornwall.

4096 Cornwall Street; Pre-app Meeting with Icon & City Staff

June 6, 2019

To: Icon Construction
City of West Linn Planning Department Staff

From: Pam Yokubaitis, on behalf of BHTNA, Cornwall Street residents, Stonegate residents, Tanner Woods residents, Barrington Heights residents, Reed Street residents, and Hidden Creek Estates residents

Thank you for allowing the residents surrounding 4096 Cornwall Street to express our concerns about the third proposed development of 4096 Cornwall Street. Collaboration at the pre-app meeting is extremely important so the city, developer, and citizens can jointly resolve matters of concern and share full transparency. This meeting is the *only* opportunity that citizens have to meet with city staff, thus the residents great interest in attending Icon's pre-app meeting today. With all 3 parties present, the exchange of ideas, intentions and concepts prevents time and money from being wasted. As already known, the residents intent is to inform and ensure that all surrounding properties to the proposed development are not negatively affected by the addition of a new development. We also want to be certain that the integrity of the construction at this property is of the highest quality due to the multiple issues previously addressed in testimony.

Residents from Stonegate and several surrounding subdivisions, now including Reed Road citizens, all agree that 4096 Cornwall Street should become the previously conceptualized "Phase 2" of Stonegate without traffic connecting to Cornwall Street. This matter requires city input at this juncture, which is exactly why *more than 65 residents* who couldn't attend today's meeting signed petitions expressing their support for this plan. We don't want Icon to waste time and money on preparing a plan without knowing that the surrounding neighborhood residents have another idea proposed for Landis Street, with reasons previously explained in written testimony with photos. **Landis Street not connecting with Cornwall and/or Sunset Streets is a popularly requested change for this proposed development, as evidenced by attached petition signatures. This matter must be addressed BEFORE this application is deemed complete.**

The purpose of this document is also to request that all loose ends be responded to by the city/Icon for the citizens to understand, such as:

1. Responses to the second round of testimony submitted
2. Responses to each item the Planning Commission and City Council cited
3. Responses to the referee's decisions

If documented responses are available online for each of these items to be read, this would be ideal for the citizens to know, because going forward is contingent on understanding these outcomes.

All of the citizens represented in this correspondence are requesting Icon invite their Geotechnical Professional Engineer to speak specifically with the citizens in a scheduled meeting. There are numerous questions and concerns that have been written in testimony that remain unanswered. Such a meeting could significantly reduce residents trepidation, educate and inform one another, and promote goodwill to support transparency. The residents want to learn what must be done and why, not what can't be done. Therefore, **we request a meeting with Icon's Geotechnical Professional Engineer BEFORE this application is deemed complete in an effort to afford transparency and establish a collaborative spirit.** Since the integrity of this land is in question due to the shear drop off at the end of Cornwall Street, explanations and solutions to our numerous divergent concerns expressed in prior testimony is vital BEFORE THE CORNWALL APPLICATION IS DEEMED COMPLETE.

In summary, it is the quality of life in the existing neighborhoods that must be maintained, and/or improved. With a collaborative spirit, transparency, education and good faith efforts, we all will contribute to making West Linn a better community for everyone.

Petition: 4096 Cornwall Street Become Phase 2 of Stonegate

TO: City of West Linn Representatives,

As residents living in Barrington Heights, Hidden Creek Estates, Reed Road, and/or Cornwall Street/Sunset, which all surround Stonegate subdivision and Landis Street, **we request that Landis Street NOT connect to the intersection of Sunset Ave. and/or Cornwall Street.**

With connectivity, the number of cars projected per day on Landis and Cornwall Streets, as previously testified, clearly exceed what is either beneficial, safe, or up to code for the surrounding subdivisions. As stated in ICON's own investigations, the increase in car trips per day increases from 500% to 1000%.

Again, our concerns are:

1) Landis Street is only 24 feet wide. Parts of Cornwall Street are less than 16 feet wide with NO sidewalks, while neighboring thoroughfares like Beacon Hill Drive and Sunset Avenue are 30 feet wide and were designed to accommodate significant through traffic.

Landis Street and Cornwall Streets were clearly not designed or built for such connectivity.

2) When cars are parked along both sides of Landis Street, it becomes a one way road and cannot safely accommodate a significant increase in daily trips that would result when connecting it to Sunset Avenue or Cornwall Street.

3) The intersection of Stonegate Lane and Landis Street is at the top of a steep hill. The view around this corner is completely blind from both directions.

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5) Stonegate Lane is currently a quiet, dead end street. Connection to any road North of the proposed development would significantly increase daily traffic in both directions, making it far more congested and likely for vehicle-related accidents on Landis Street (which has already occurred as testified).

Therefore, **we ask the city of West Linn to acknowledge that the proposed development of 4096 Cornwall Street become Phase 2 of Stonegate's subdivision, as was originally intended.** The many issues addressed in prior testimony justify that *4096 Cornwall Street and Landis Street are both inadequate to become one long thoroughfare.*

Brian Fuchs	3723 Fairhaven Dr.	(503) 680-9629	6/5/2019
Name	Address	Phone	Date
Leann MacMillan	3715 Fairhaven Dr.	503-351-4718	6/5/19
Name	Address	Phone	Date
Gary Brashear	3705 Fairhaven Dr.	(503) 209-5403	6/5/19
Name	Address	Phone	Date
Karla Brashear	3705 Fairhaven Dr.	503-701-7594	6/05/19
Name	Address	Phone	Date
Justin Mehner	3705 Fairhaven Dr.	503-830-5619	6/05/19
Name	Address	Phone	Date

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Christina B. Harty 3795 Fairhaven Dr 6/4/19
 Name Address Phone Date

Jeanne (: Lee 3765 Fairhaven Drive West Linn, OR 6/5/19
 Name Address Phone Date

SHERMAN R PAULY 3765 FAIRHAVEN DR 6/5/2019
 Name Address Phone Date

Kenneth Fuchs 3725 Fairhaven Dr 503-723-0781
 Name Address Phone Date

Carol Fuchs 3725 FAIRHAVEN DR 503-577-5298 6/5/2019
 Name Address Phone Date

WEST LINN OR 97068

Petition: 4096 Cornwall Street Become Phase 2 of Stonegate

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Name	Address	Phone	Date
<i>Rama Jester</i>	<i>3475 Riverview</i>	<i>503-320-3928</i>	<i>6-5-19</i>
<i>David J. Jester</i>	<i>3475 Keweenaw</i>	<i>503-320-3930</i>	<i>6, 5 2019</i>
<i>Connie Bear</i>	<i>3750 Fairhaven Dr</i>	<i>414-745-6251</i>	<i>6/5/2019</i>
<i>Jeff Bear</i>	<i>3750 Fairhaven Dr</i>	<i>414-759-8484</i>	<i>6, 5 / 2019</i>
<i>[Signature]</i>	<i>3755 FAIRHAVEN DR.</i>	<i>(816) 616-7999</i>	<i>6/5/2019</i>

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Angelina Sorenson	3780 Fairhaven Drive	503 320-2667	10/05/19
Name	Address	Phone	Date

Jon Sorenson	3780 Fairhaven Drive	503-349-0001	10/05/19
Name	Address	Phone	Date

Maquilda Campi	3565 Riverknoll	503-703-8024	10/05/19
Name	Address	Phone	Date

Law Sjo	3565 Riverknoll	(503) 701-1402	10/05/19
Name	Address	Phone	Date

Di Stegell	3755 FAIRHAVEN DR.	(503) 460-7723	10/05/19
Name	Address	Phone	Date

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Elizabeth Brashear 3705 Fairhaven Dr. ⁽⁵⁰³⁾ 860-0722 9/5/19

Name	Address	Phone	Date
Elizabeth Brashear	3705 Fairhaven Dr.	860-0722	9/5/19

Name	Address	Phone	Date
Gia Snyder	3817 Fairhaven Dr	503-319-5841	

Name	Address	Phone	Date
Jou Snyder	3817 Fairhaven Dr	503-319-5841	1/1

Name	Address	Phone	Date
Robin Henderson	3785 Fairhaven Dr	541 610 9179	

Name	Address	Phone	Date
ROC	3285 Fairhaven Dr	541 459 1724	

Name	Address	Phone	Date
Grant P	4987 Ireland Ln	714-916-7077	6/5/19

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Pam Yekubaitis 3760 Fairhaven Drive 503-656-5881 6/5/19
 Name Address Phone Date

M A Yekubaitis 3740 Fairhaven 503-720-7445 6/5/19
 Name Address Phone Date

[Signature] 3775 Fairhaven 801-232-5579 6/5/19
 Name Address Phone Date

[Signature] 3775 Fairhaven 801-824-7818 6/5/19
 Name Address Phone Date

 Name Address Phone Date

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Kendal Harrop 3730 Fairhaven Dr, West Linn 503-722-5210 6/5/19
 Name Address Phone Date

James Harrop 3730 FAIRHAVEN DR WEST LINN 503-722-5210 6/5/19
 Name Address Phone Date

 Name Address Phone Date

 Name Address Phone Date

 Name Address Phone Date

STONEGATE SUBDIVISION PETITION

Regarding Proposed Development at the End Cornwall Street

It is known that Icon's proposed development at the end of Cornwall Street, adjacent to the Stonegate subdivision of which I am a resident, was originally designated to be Phase 2 of Stonegate. Landis Street was built with a residential pavement width of only 24 feet. Our narrow street will only allow room for one car to pass between 2 parked cars opposite from each other, so Landis Street is inadequate in multiple ways as previously testified, to become a thoroughfare connected to Cornwall Street. It is therefore the desire of the Stonegate residents listed below to make Icon's proposed development below Cornwall Street solely an extension of the Stonegate subdivision, with entrance and exit only from either Cornwall Street or Beacon Hill Drive.

Name: Lee Weinstein
Address: 3624 Landis St. West Linn
Phone: 303-819-7034
Date: 6/4/19

Name: CAROLYN ROGERS
Address: 3636 LANDIS STREET
Phone: 971. 275. 2276
Date: 6/4/19

Name: CHUNG LEE
Address: 3652 Landis ST
Phone: 503-635-9046
Date: 6/4/19

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Name: Brittany Wolthuis

Address: 366A Landis Street, West Linn, OR 97068

Phone: 503-206-2202

Date: 6/4/19

Name: Lana Winther

Address: 3676 Landis Street, West Linn, OR 97068

Phone: 503-650-5800

Date: 6/4/19

Name: GLENDA WINTHER

Address: 3676 LANDIS ST, WEST LINN, OR 97068

Phone: 503-650-5800

Date: 6-4-2019

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Name: Stephen Thornton

Address: 3612 Landis St.

Phone: 503-686-1503

Date: 6/4/2019

Name: Linda Karup

Address: 3612 Landis St.

Phone: 503-707-9197

Date: 6/4/2019

Name: Michele Thornton

Address: 3612 Landis St

Phone: 503-756-6953

Date: 6/4/19

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Name: DAN & JACQUE EATON

Address: 3688 Landis ST,

Phone: 702-885-1178

Date: 6/4/19

Name: Tony & Jamey Taylor

Address: 3699 Landis St.

Phone: 503-277-8476

Date: 6/4/19

Name: Chris & Chelsea Diaz

Address: 3687 Landis St

Phone: 502-680-0249

Date: 6-4-19

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Name: Thomas Elin

Address: 2614 Beacon Hill Dr West Linn OR 97068

Phone: 661.345.8680

Date: 6/05/2019

Name: Bryan + Madeline Davis

Address: 2663 Beacon Hill Drive
West Linn

Phone: 503-655-5242

Date: 6/05/2019

Name: JEFF KRAUSE

Address: 2652 Beacon Drive

Phone: 503 969 2522

Date: 6/4/2019

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Name: Travis Takano
Address: 3648 LANDIS ST
Phone: 503-557-2992
Date: 6-05-19

Name: Tom Lambert
Address: 3657 LANDIS ST.
Phone: 617 827-3603
Date: 6-5-19

Name: Jane O'Malley
Address: 3600 Landis St.
Phone: 415 250 0584
Date: 6-5-19

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Name: DAN HASCALL

Address: 2688 BEACON HILL DR.

Phone: 503 805 4158

Date: 6/5/19

Name: ~~Geje~~ and Tom McKivor

Address: 3603 Landis St.

Phone: 206-295-4526

Date: 6/5/2019

Name:

Address:

Phone:

Date:

Petition: 4096 Cornwall Street Become Phase 2 of Stonegate

TO: City of West Linn Representatives,

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Name	Address	Phone	Date
<i>Edward A. ...</i>	4099 Cornwall		6/5/19
<i>David ...</i>	4110 W. Cornwall St.		6/5/19
<i>Charlene ...</i>	4130 Cornwall St.	503-656-0053	6/5/19
<i>[Signature]</i>	4195 Cornwall St		6/5/19
<i>Vicki ...</i>	4225 Cornwall St West Linn, Or		6/5/19
<i>Diana ...</i>	2690 Sunset	503-752-7957	6/5/19
<i>Jerry E. ...</i>	2708 Sunset Ave.	503-656-5084	6/5/19

Joe 2706 Sunset Ave. 503-656-5084 6-5-19
Jane S 2758 Sunset Ave 503-656-5084

Petition: ~~4~~096 Cornwall Street Become Phase 2 of Stonegate

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As residents living in Barrington Heights, Hidden Creek Estates, Reed ~~Road~~^{Street}, and Cornwall Street/Sunset, which all surround Stonegate subdivision and Landis Street, **we request that Landis Street NOT be connected to the intersection of Sunset Ave. and Cornwall Street.** With connectivity, the number of cars projected per day on Landis Street, as previously testified, will clearly exceed what is either beneficial or safe for the surrounding subdivisions. Again, our concerns are:

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- 2) When cars are parked along both sides of Landis Street, it becomes a one way road and cannot safely accommodate a significant increase in daily trips that would result when connecting it to Sunset Avenue.
- 3) The intersection of Stonegate Lane and Landis Street is at the top of a steep hill. The view around this corner is completely blind from both directions.
- 4) As you turn from Stonegate Lane onto Landis Street there is a 30 foot high rock wall immediately to your left (right if coming from Cornwall Street). This creates another blind spot from both directions.
- 5) Stonegate Lane is currently a quiet, dead end street. Connection to any road North of the proposed development would significantly increase daily traffic in both directions, making it far more congested and likely for vehicle-related accidents on Landis Street (which has already occurred as testified).

Therefore **we ask the city of West Linn to acknowledge that the proposed development of ~~4~~096 Cornwall Street become Phase 2 of Stonegate's subdivision, as was originally intended.** The many issues addressed in prior testimony justify that ~~4~~096 Cornwall Street and Landis Street are both inadequate to become one long thoroughfare.

Steven Vaughn 4270 Reed St 971 678 7007 6/5/19
 Name Address Phone Date

Kelsey Vaughn 4270 Reed St 503 278 0879 6/5/19
 Name Address Phone Date

Jane Kemsey 4191 Reed St. (253) 355-1607 6/5/19
 Name Address Phone Date

Paul King 4191 Reed St. (253) 548-7094 6/5/19
 Name Address Phone Date

 Name Address Phone Date

 Name Address Phone Date

 Name Address Phone Date

10 AM Thursday

Petition: ~~4~~096 Cornwall Street Become Phase 2 of Stonegate

TO: City of West Linn Representatives,

As residents living in Barrington Heights, Hidden Creek Estates, Reed Road, and Cornwall Street/Sunset, which all surround Stonegate subdivision and Landis Street, **we request that Landis Street NOT be connected to the intersection of Sunset Ave. and Cornwall Street.** With connectivity, the number of cars projected per day on Landis Street, as previously testified, will clearly exceed what is either beneficial or safe for the surrounding subdivisions. Again, our concerns are:

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John L. Whitler 4260 Reed Street, West Linn (503) 656-8398 6/6/19
 Name Address Phone Date

Susan Whitler 4260 Reed St 503 656 8398 6.6.2019
 Name Address Phone Date

Name Address Phone Date

Name Address Phone Date

Name Address Phone Date

Name Address Phone Date

Name Address Phone Date

SUMMARY OF ICON'S CORNWALL DEVELOPMENT PROPOSAL MEETING

Bolton Room, City Hall, 10:00 am June 6th, 2019

Prepared by Edward Turkisher 4099 Cornwall Street

It is encouraging to note that a meeting by ICON to present a proposal for development of their property at 4096 Cornwall Street was well attended by representatives from ICON, the City of West Linn, and several neighborhood residents directly impacted by proximity to the property in question. ICON demonstrated an open willingness to communicate and collaborate with citizens and that collaboration was appreciated and returned by these neighbors. Additionally, petitions were signed by more than 65 neighbors directly impacted by development and these petitions did NOT object to development, but instead, merely asked for inclusion and communication in the development process. It is a great credit to those present, and especially ICON, that this inclusion seemed endorsed and accepted by all.

A few concerns might justifiably be considered as a take-away from this meeting. Not looking for fault, none-the-less, it seems that a couple consistent themes influence the direction this development follows. The City of West Linn has repeatedly focused on the two ideas of "connectivity" (the preference of through streets to join neighborhoods), and adhering to "code" (the following and enforcement of state, county, and city codes and statutes determining construction and related policies and infrastructure). These two issues intertwine and influence each other repeatedly and directly influence what CAN or CANNOT be accomplished.

Unfortunately, the City has taken the position that they are constrained by the "black and white" nature of decision making and the only opportunity they have is a "yea or nay" choice dependent on written code. In fact, as I will briefly demonstrate, this is simply not true. This puts a potential developer like ICON at a serious disadvantage as they try (often unsuccessfully) to navigate a process that fluctuates as capitulations and variances are granted by the City that make compliance with code frustrating and unreasonable. Likewise, the impacted residents seem oftentimes left out of decision making even though these same neighbors are the ones who have to live with the results.

When "Stonegate" was built it was apparent that a street of the recommended code width would make it nearly impossible to develop a piece of land that rests on a steep hillside both above and below the development. Houses on the downside of the slope would effectively slide off the slope into Tanner Creek below. Houses on the upside of the slope would have a cliff for a backyard and inevitable rock, water, and soil erosion into their homes. Accordingly, the city approved a street width of 24 feet to accommodate more room for home construction. These are nice homes. The residents, who purchased them, like them. Unfortunately, the narrow Landis Street directly impacts the development of future lands (ICON's 4096 Cornwall property). The City's stated policy of "connectivity" CANNOT be safely, logically, or realistically incorporated into ICON's development. That is NOT to say that the property cannot be developed. As demonstrated by this three year process and the numerous petitions supported by these residents, ICON is willing to collaborate and the residents are willing to collaborate too. But "connectivity" is both undesirable and actually dangerous. NONE of the surrounding neighborhoods want connectivity. Connectivity would increase traffic by a minimum of 500% and more

likely 1000% on a narrow road that becomes a magnet for conflict and accidents where NO TWO CARS CAN SAFELY PASS (these are figures predicted by ICON's own analysis). Adding six homes to Landis Street onto the ICON property does not significantly impact Landis Street safety IF connectivity to Cornwall is eliminated. Landis doesn't want it, Cornwall doesn't want it, and the Barrington neighbors don't want connectivity either.

The City claims their hands are tied. It was the City that granted a variance for Landis Street in the first place (ignoring code) and creating the problem we have today. But the notion that "code" requires "connectivity" is hypocrisy. As a couple of examples:

Just over the hill on Rosemont Road near Oppenlander Fields, Miles Drive used to connect with Rosemont Road and allowed "connectivity" through the neighborhood to Horton Dr. and Santa Anita. Miles Drive is full code width (30') with full sidewalks, planter strips, and easily supports "connectivity"...which was the status quo for many years. Somehow, City planners allowed a barricade to be constructed with concrete curbs and anchored wooden construction across the access - closing that connection to Rosemont forever. No more "connectivity". There are 28 homes with a single egress on what is now the dead end street of Miles Drive.

Down in the Willamette District heading west, turning on Dollar Street would bend around parallel to Borland Road until Dollar Street intersected Borland Road again right before the "Fields Bridge" across the Tualatin River. Dollar Street is full code width and from Ostman Road to Fields Bridge, Dollar Street has woods to the south and fenced yards with fewer than six total homes opening to the street on either side. A full sidewalk with planting strips fronts the north side of the street. Dollar Street "connectivity" to Borland Road existed for **decades**. No more. Somehow, City planners dug up the end of Dollar Street right across from what used to be a small nursery and café, and made Dollar Street a dead end.

So much for "connectivity". I'm sure the City had their reasons for exceptions to "connectivity". I am also sure that I can find more exceptions.

Landis Street and Cornwall Street should be the next exception. Miles Drive and Dollar Street can support "connectivity". Both are code compliant. Yet both were allowed to "disconnect" in conflict with stated city plans. Landis Street is substandard and Cornwall Street is basically condemned with NO city plans for improvement in the foreseeable future.

In conclusion, the City **CAN** and **HAS** manipulated code and master plans to satisfy influence and input from divergent sources we, the residents near the ICON Cornwall property, are not privy too. We are not looking for a manufactured explanation as to why the City did what they did in those two cases (and many more). We are asking that the City disallow connectivity from Landis to Cornwall as unrealistic and unsafe. ICON would benefit from a consistent and predictable plan and not continually modify efforts to adapt to an unpredictable City.

Finally, in speaking with ICON representatives at yesterday's meeting, I was informed, in front of the attending citizens, that ICON had offered to sell the property to the city at cost. That offer

was either rejected or ignored. It is negligent by City representatives, and dubious, that this information has never been relayed to the neighborhood groups interested in these proceedings. I would suggest that citizens should have been both informed of this opportunity and had the further opportunity to lobby for, and vote city wide, to acquire the open land at the bottom of Cornwall Street for City use as open space, park land, or riparian access to what West Linn *used* to be before bureaucrats got a hold of our government.

I/We anxiously await a response to my observations and summary.

Sincerely, Edward Turkisher 4099 Cornwall Street (25 years and counting)



CITY OF West Linn

Memorandum

Date: October 2, 2020
To: West Linn Planning Commission
From: Jennifer Arnold, Associate Planner
Subject: SUB-20-01 – 6-Lot Subdivision at 4096 Cornwall Street

On September 30, 2020 Staff received testimony from Ed Turkisher expressing concern regarding the similarities between this application and previous applications, natural resources on the property (water, flora, fauna), and traffic.

On October 2, 2020 Staff received testimony from the Applicant regarding the Staff proposed conditions of approval.

From: [Edward A. Turkisher](#)
To: [Arnold, Jennifer](#)
Cc: [Planning Commission \(Public\); "Pam Yokubaitis"](#)
Subject: ICON Cornwall Development Proposals
Date: Wednesday, September 30, 2020 2:00:06 PM

CAUTION: This email originated from an External source. Do not click links, open attachments, or follow instructions from this sender unless you recognize the sender and know the content is safe. If you are unsure, please contact the Help Desk immediately for further assistance.

Jennifer Arnold
West Linn Planning Dept

September 30, 2020

Hello Jennifer,

Please accept my following written testimony regarding the October 7, 2020 meeting regarding ICON's latest development for Cornwall Street.

Thank You very much,

Sincerely, Ed Turkisher

ICON - CORNWALL Development

Ed Turkisher, 4099 Cornwall Street September, 2020

HISTORY:

The 2.17 acre plot located at the dead end of the south end of Cornwall Street in West Linn was purchased by ICON Construction in 2015. The property has one single two story home that has been connected to the West Linn sewer system at Fairview Avenue shortly after purchase by ICON as the existing septic system had failed beyond repair.

On November 24th, 2015 ICON submitted a pre-application proposal for a 7 lot development at the Cornwall site.

On April 26th, 2016 an informational meeting was held by the ICON consultant Rick Givens at Sunset Elementary Library regarding the Cornwall site. Motioning for a vote on the feasibility of approving the development as presented, 50 out of 51 residents present rejected the proposed plan and asked for answers to the many questions and concerns.

On January 24th, 2017 another meeting was held by ICON at the Sunset Elementary Library regarding a new plan for the Cornwall site. A presentation was held and basically the same questions asked in April 2016 were reiterated again by concerned residents.

On February 21st, 2017 ICON submitted a new proposal for development of the Cornwall site which modified the original plan. Basically, the new plan adjusted the plan from 7 lots to 6 lots and realigned the road connection between Landis Street and Cornwall Street.

Several years have gone by since this development has been proposed. By June 7th, 2017, testimony was asked for by the city to address concerns regarding this development. At least three times to

date, this development has been rejected by the City .Yet once again, ICON has resubmitted what basically amounts to nearly the same proposal. Because the City claims that this latest proposal is “new”, it must be treated as if no proposal was ever submitted in the first place. In other words, the same development with the same parameters, on the same piece of property, on the same streets, with the same problems must be treated as if no proposal was ever submitted in the first place. It doesn’t seem to matter that many of the original problems were never addressed since as a “new” proposal, no problems have been identified.

THIS IS SUBSTANTIALLY THE SAME PROPOSAL as submitted way back in 2015! It has the same problems and the same unanswered questions. This proposal received essentially the same testimony in 2017!

To date, MANY QUESTIONS STILL EXIST regarding water, flora and fauna, and traffic.

While others will undoubtedly address the issues of water, and flora, and fauna, I will focus predominantly on traffic as I live across the street from the proposed development and have been encouraged by ALL of my Cornwall neighbors to resist opening Cornwall Street to “connectivity”. That is not to suggest that the other issues are unimportant as I paraphrase those topics as well.

WATER and FLORA and FAUNA:

Presence of surface water on the site and UNDERGROUND will impact drainage to the two nearby creeks. (Tanner Creek and Cornwall Creek)

ICON hired an engineering firm (not a qualified hydro-geologist)to visit the site and that firm produced a lengthy document germane to the site but made no reference to possible Wet Land designation, underground springs, or surface water impact.

How will the bulldozing of land for a road and the removal of some 25 significant trees going to affect runoff and the underground springs? Icon identifies 25% of the site as in excess of a 25 degree slope and 12 ½ % of the site in excess of 35% slope – some even 40%! 4 of the six homes are right in the middle of the 35% slopes and the proposed road also crosses the 35% slope. (reference page 91 of the ICON plan)

What might be the result of either a substantial increase or decrease of water flow to the numerous homes downhill from the site along Fairhaven and into Barrington Heights neighborhoods?

I reiterate the question of removing some 25 significant trees.

How are animal species going to be impacted by this development?

The City Master Plan suggests that disturbed soils (bulldozing and land fill) and removal of trees and brush increase the potential for soil erosion by more than 1,000%!

TRAFFIC: TRAFFIC:TRAFFIC!

Not looking for fault, none-the-less, it seems that a couple consistent themes influence the direction this development follows. The City of West Linn has repeatedly focused on the two ideas of “connectivity” (the preference of through streets to join neighborhoods), and adhering to “code” (the following and enforcement of state, county, and city codes and statutes determining construction and related policies and infrastructure). These two issues intertwine and influence each other repeatedly and directly influence what SHOULD or SHOULD NOT be accomplished.

The City has taken the position that they are constrained by the “black and white” nature of decision making and the only opportunity they have is a “yea or nay” choice dependent on written code. In fact, as I will briefly demonstrate, this is simply not true.

A potential developer like ICON is disadvantaged as they try to navigate a process that fluctuates with capitulations and variances granted by the City that makes compliance with code frustrating and unreasonable and making the residents the ones who have to live with the results.

When “Stonegate” was built it was apparent that a street of the recommended code width would make it difficult to develop a piece of land that rests on a steep hillside both above and below the development. Houses on the downside of the slope might slide off the slope into Tanner Creek below. Houses on the upside of the slope would have a cliff for a backyard and inevitable rock, water, and soil erosion into their homes. Accordingly, the city approved a street width of 24 feet to accommodate more room for home construction. These are nice homes. The residents like them. Unfortunately, the narrow Landis Street directly impacts the development of future lands (ICON’s 4096 Cornwall property). The City’s stated policy of “connectivity” CANNOT be safely, logically, or realistically incorporated into ICON’s development. That is NOT to say that the property cannot be developed. As demonstrated by this multiple year process and the numerous petitions supported by these residents, everyone seems willing to collaborate. But **“connectivity” is both undesirable and actually dangerous**. NONE of the surrounding neighborhoods want connectivity. Connectivity would increase traffic by as much as 1000% on a narrow road that becomes a magnet for conflict and accidents where NO TWO CARS CAN SAFELY PASS (these are figures predicted by ICON’s own analysis). Adding six homes to Landis Street onto the ICON property does not significantly impact Landis Street safely **IF** connectivity to Cornwall is eliminated. Landis doesn’t want it, Cornwall doesn’t want it, and the Barrington neighbors don’t want connectivity either.

The City claims their hands are tied yet It was the City that granted a variance for Landis Street in the first place (ignoring code) and creating the problem we have today. But the notion that “code” requires “connectivity” is hypocrisy. As a couple of examples: Just over the hill on Rosemont Road near Oppenlander Fields, Miles Drive used to connect with Rosemont Road and allowed “connectivity” through the neighborhood to Horton Dr. and Santa Anita. Miles Drive is full code width (30’) with full sidewalks, planter strips, and easily supported “connectivity”...which was the status quo for many years. Somehow, City planners allowed a barricade to be constructed with concrete curbs and an anchored, locked, wooden construction across the access - closing that connection to Rosemont forever. No more “connectivity”. There are 28 homes with a single egress on what is now the dead end street of Miles Drive. Down in the Willamette District heading west, turning on Dollar Street would parallel Borland Road until Dollar Street intersected Borland Road again right before the “Fields Bridge” at the Tualatin River. Dollar Street is full code and from Ostman Road to Fields Bridge, Dollar Street has woods to the south and fewer than six total homes opening to the street on either side. A full sidewalk with planting strips fronts the north side of the street. Dollar Street “connectivity” to Borland Road existed for **decades**. No more. Somehow, City planners dug up the end of Dollar Street right across from what used to be a small nursery and café, and made Dollar Street a dead end.

So much for “connectivity”. I’m sure the City had their reasons for exceptions to “connectivity”. I am also sure that we can find more exceptions.

Landis Street and Cornwall Street should be the next exception. Miles Drive and Dollar Street can support “connectivity”. Both are code compliant. Yet both were allowed to “disconnect” in conflict with stated city plans. Landis Street is substandard and Cornwall Street is basically condemned with NO city plans for improvement in the foreseeable future.

The City **CAN** and **HAS** manipulated code and master plans to satisfy influence and input from divergent sources that **we**, the residents near the ICON Cornwall property, are not privy too.

We are not looking for a manufactured explanation as to why the City did what they did in those two cases (Miles St. and Dollar St. and more). We are asking that the City disallow connectivity from Landis to Cornwall as unrealistic and **unsafe**.

As another case in point, the ICON development along Rosemont Ridge Rd. was allowed to reconstruct several blocks of Rosemont Ridge Rd above their 50 home development. The two lane road, despite wide bicycle and pedestrian lanes off the main road itself, was made narrow with a slight bend just south of the intersection of Rosemont and Salamo near the Jr. High School. It was immediately apparent to any driver, that the narrow road would be a magnet for accidents. It was only a few weeks after completion that the first car failed to make the narrow bend and plowed off the road, over the curb and into the planter strip. Fortunately, no injuries occurred.

At the end of January this year in 2020 however, a serious head-on collision occurred along the same stretch of Rosemont Road between two cars which was so severe, the road was closed for several hours and multiple police cars barricaded each end of the road from Salamo to the south end of the head-on. Fire and EMT vehicles responded to extricate and otherwise clear the wrecked cars and treat and transport victims. Traffic was diverted around the accident onto other streets until investigations and towing could be completed. Is this what we have to look forward to on Cornwall or Landis Streets? Cornwall has NO sidewalks or bicycle paths and none are planned. Do we really want one of our children to be the next statistic for poor planning?

Why has every question regarding a possible cul-de-sac on Cornwall been ignored? It is legal and has many benefits for a development. There is NO law or code that says the streets must be connected – only a *preference* by the City to connect where reasonable. **This connection is NOT reasonable!**

Why are the neighbors being ignored?

Connectivity between Landis and Cornwall has many unanswered conflicts. If permitted, the through route opens Cornwall Street as an arterial that cannot handle the increased traffic. ICON identifies the increased traffic of the 6 proposed **new** homes using Cornwall Street, but disregards the homes from other neighborhoods which would now have more direct access to I-205 Northbound and Oregon City. These homes include Landis Street (20 homes), Willow Street (6 homes), existing Cornwall Street (9 homes), upper Beacon Hill (18 homes), Sabo Lane (32 homes) and other nearby residences which account for nearly one hundred homes that would now have shorter access to their destinations via Cornwall and Sunset . More residences would undoubtedly make use of the new connection as well. If we use ICON’s estimate of 5 trips per day per household to various destinations, the approximate increase of traffic would go from about 30 or so car trips on the street today, to **500** additional trips on Cornwall – an increase of over a thousand percent. That is correct...**1000% increase in traffic on Cornwall Street!**

New roads are required to be a minimum of 24’ wide with two sidewalks 6’ wide on either side. Why is this new road being connected to an obsolete Cornwall Street that is less than 16’ wide with NO sidewalks?

The average PCI in West Linn is 69. **Cornwall is rated with a PCI of 8!** (Pavement Condition Index-Pavement Management Report for 2015). **The report rates Cornwall with a “remaining life” estimate of ZERO!** Why is this road condition being ignored? An overlay is being planned on Cornwall to widen the street to 20’ but makes neither plan for sub-strata repair nor ANY sidewalks – still woefully short of standard code.

Where is the formidable increase in pedestrian traffic going to walk with NO planned sidewalks? What safety concerns are going to be proposed for our children with no sidewalks and no bus stops? How is traffic going to enter Sunset Street at the uncontrolled intersection of Cornwall and Sunset

with NO plans for improvement? (Sunset is a substandard street as well)

Cornwall is going to be dug up to increase potable water infrastructure with a new “looped” water supply of greater diameter to feed the new homes. Six existing homes on Cornwall Street are still on septic systems. There is NO sewer line on Cornwall. If the street is going to be dug up to install new potable water service, why isn't a new sewer line being put in place at the same time? It is only too obvious that it would be much less expensive to do the upgrade NOW than to wait and dig up the street at least three times again and again to try and save what?

Why isn't upgrading Cornwall Street being considered? The existing street is one of the WORST roads identified in all of West Linn yet this proposal will allow a development that comes nowhere near to meeting code and defers critical infrastructure repair into an uncertain and undefined future.

Quite frankly, without attention to substantial redesign and repair, this proposal is not only wrong; it is dangerous and opens a Pandora's Box of injury, infrastructure failure and liability.

-

BUILDABLE LAND:

Why has the City ignored the existing residents on Cornwall Street and identified their homes as open for development when we all live here and ***our properties are not for sale?*** (see Residential Buildable Lands chart PDF). In some cases the buildable lands chart completely ignores the existing homes on some of these lots or conveniently moves them out of the way on paper.

CONCLUSION:

It is completely reasonable to expect answers to our many questions before accepting development that effects us ALL and we respectfully ask that the City of West Linn (and future developers) step up and accept responsibility for managing new projects in a transparent, inclusive, and responsible manner. Development is inevitable. We all accept that. But development needs to be done in the best interests of the greater public – not an arbitrary privileged few who have more interest in tax base or profits than the citizens at large.

Respectfully, Edward A. Turkisher 4099 Cornwall St.



Rick Givens
Planning Consultant
18680 Sunblaze Dr.
Oregon City, Oregon 97045

October 2, 2020

Mr. Gary Walvatne
Chairman
City of West Linn Planning Commission
22500 Salamo Rd.
West Linn, OR 97068

RE: SUB-20-01, Willow Ridge Conditions of Approval

Dear Mr. Walvatne:

I am writing to suggest changes to several of the conditions of approval proposed in the staff report for the Willow Ridge subdivision application. I will be addressing these requested changes in the applicant's testimony on October 7th, but would like for the Planning Commission to have a written copy for your use in your deliberations. I have listed the affected conditions below, with our proposed changes in red text:

3. Public Utilities. The applicant shall upgrade the water main in Cornwall Street to serve this proposed subdivision. **The applicant shall not be responsible for the cost of connecting existing homes along Cornwall Street to the new water main.** The applicant shall extend the sanitary sewer mains to the north property lines in Landis Street and the unimproved Cornwall right-of-way to allow for future connection. All utilities shall be located within the public right-of-way or within recorded utility easements along property lines, as approved by the City Engineer. (See Staff Findings: 42 & 60)
4. Shared Access. The shared access shown on the Tentative Plan shall be widened to meet Public Works Standards for a future local street meeting the 28-foot local street standard. Lots 5 and 6 shall take access from the street. Per CDC 48.030(I) the proposed gate shall be removed from the Tentative Plan. A half-street plus travel lane for the local street shall be constructed to the City Engineering Standards and approved by the City Engineer prior to final plat approval. The applicant shall name the street and display the name on the surface of the plat prior to final plat approval. The applicant shall dedicate 32 feet of right-of-way for these improvements. (See Staff Findings: 4, 5, 8, 9, 11, 13, 14, 17, 18, 24, 25, 26, 29, 30-33, 36, 39, 47, 53, 55, 56, 61 & 63)

If the Planning Commission approves the Tentative Plan as submitted by the applicant, Condition 4 shall be stricken.

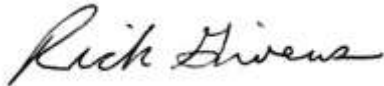
9. Fee in lieu. The applicant shall initiate vacate the unimproved right-of-way along Cornwall or submit an application for a fee in lieu for the cost to actually construct the improvements to the Public Works/Engineering Department and get approval by the City Engineer prior to approval of the Public Works public improvement permit. (See Staff Findings: 24, 35 & 61)

Condition 9. should be stricken in its entirety for the following reasons:

- A. The option of initiating a street vacation conflicts with Condition 7, which states that a “pedestrian trail shall be constructed **in the Cornwall Street right-of-way**” (emphasis added). It is appropriate that a public trail be within public right-of-way, rather than an easement on private lots, so that the City maintains the trail and assumes any liability that may occur for its use by the general public.
- B. The staff report acknowledges in Staff Finding 53 that, “The unimproved section of Cornwall Street cannot be constructed to full City Engineering Standards due to the topography of the site.” Collection of a fee-in-lieu of construction of a street improvement which is infeasible to actually build is not appropriate as the sole purpose of a fee-in-lieu of construction is to fund the actual improvement at a later date. That cannot happen here. Additionally, the applicant is required per Condition 7 to construct a pedestrian trail within the right-of-way. The requirement of a fee-in-lieu of construction of street improvements would result in the applicant being required to pay for two different and conflicting improvements within the same street right-of-way.
- C. The reasoning behind the imposition of the condition is that it is required per CDC 92.010. That provision relates to required improvement of street rights-of-way “**within subdivisions**” (emphasis added). Cornwall Street is an existing street right-of-way that abuts, but is not within, the proposed subdivision. For that reason, CDC 92.010 is inapplicable to the improvement of Cornwall Street.

Thank you for your consideration of these proposed modifications to the conditions of approval. We look forward to answering any questions you may have about these changes at the public hearing.

Sincerely yours,



Rick Givens

CC: Jennifer Arnold
Mark Handris
Mike Robinson
Darren Gusdorf



CITY OF
West Linn

Memorandum

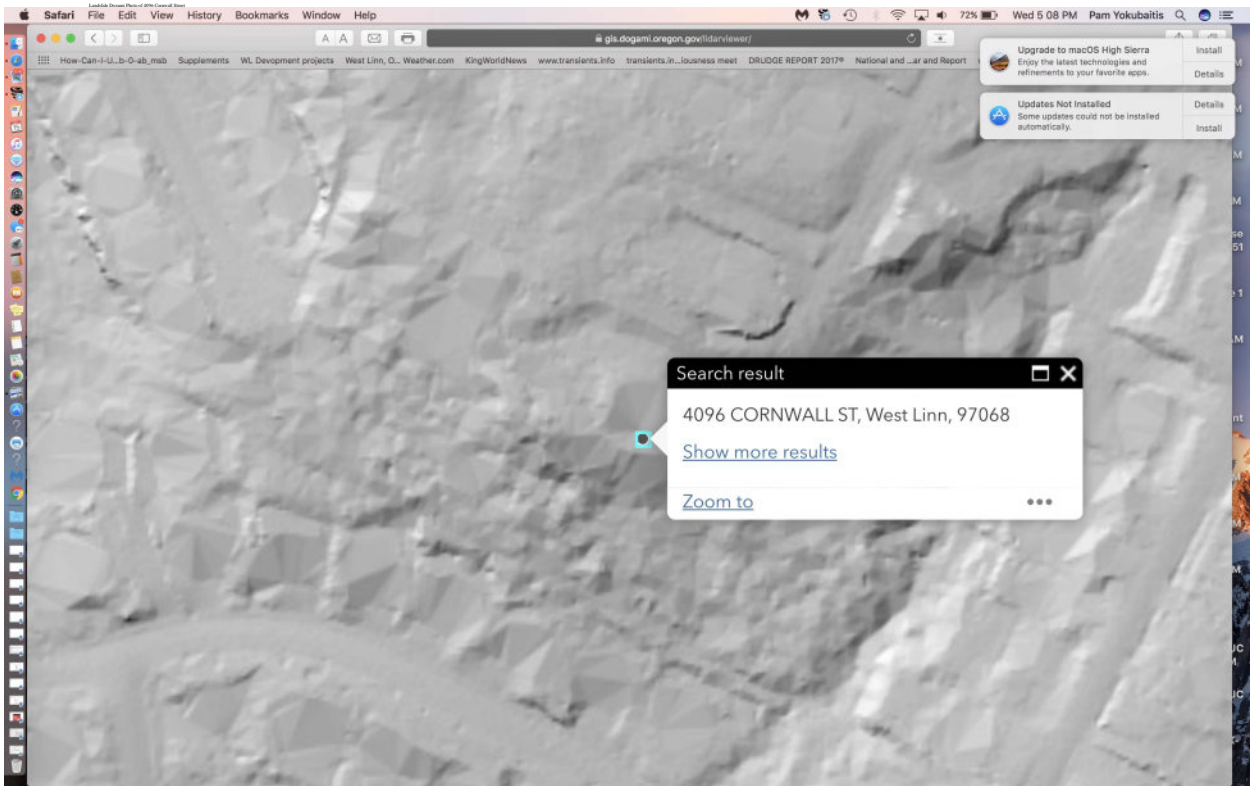
Date: October 5, 2020

To: West Linn Planning Commission

From: Jennifer Arnold, Associate Planner

Subject: SUB-20-01 – 6-Lot Subdivision at 4096 Cornwall Street

On October 5, 2020 Staff received an additional request by Pam Yokubaitis to include additional testimony not captured by the previous request from SUB-17-04 (Expedited Land Division: 6-Lot Subdivision at 4096 Cornwall Street).





HOMEOWNER'S GUIDE to LANDSLIDES

**RECOGNITION, PREVENTION, CONTROL,
and MITIGATION**

Compiled by
Dr. Scott F. Burns
Tessa M. Harden
Carin J. Andrew



Federal Emergency
Management Agency
Region 10





Laguna Beach, California (2007). Photo credit: USGS www.usgs.gov.

If you are in immediate danger:

- EVACUATE IMMEDIATELY
- Inform your neighbors
- Call the police or fire department
- Call a registered engineering geologist or a geotechnical engineer

Warning signs include:

- House is making noises
- Walls and floors are tilting
- Cracks in house are actively opening
- Cracks in ground are appearing
- Water in drainages becomes irregular or stops

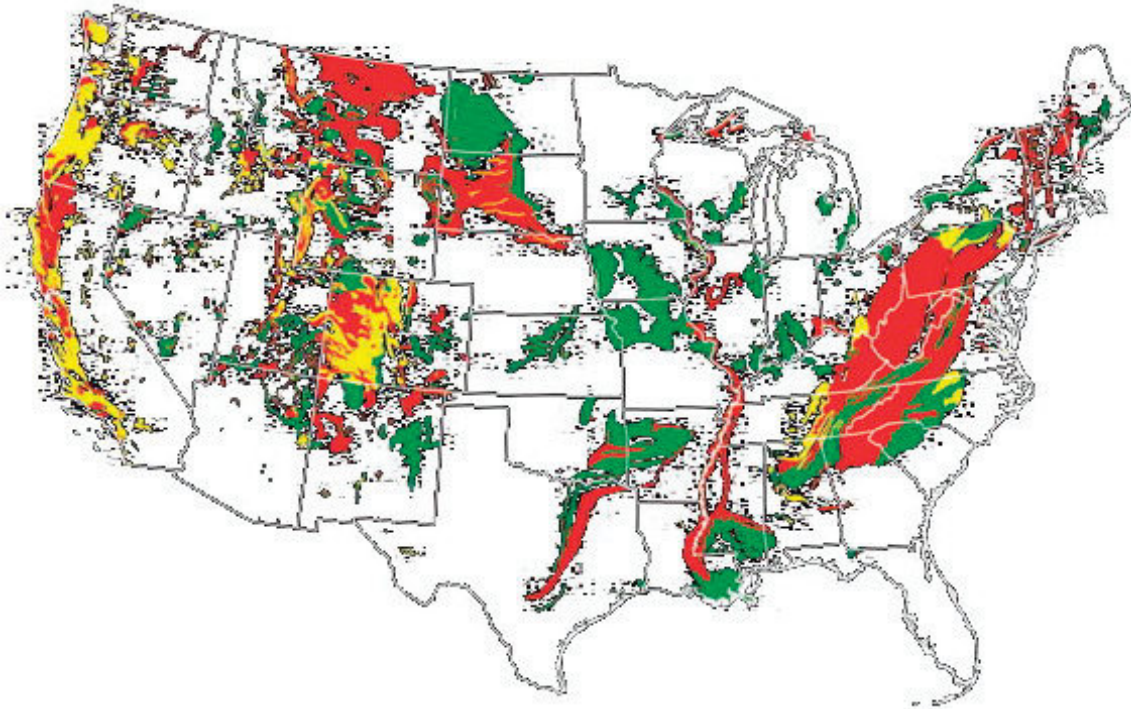
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Cover: Kelso, Washington (1998), site of America's second largest landslide disaster involving homes where 60 homes were destroyed. **Photo credit:** Scott Burns.

I. DEFINITION

Landslides occur when masses of rock, soil, or debris move down a slope under the force of gravity. The term landslide includes a wide range of ground movement such as rockfalls, mud and debris flows, and surface failures called slumps, earthflows, and translational slides. Landslides can occur in a matter of seconds or over the course of weeks and longer.



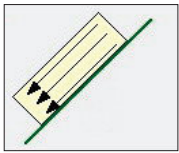
Landslide potential map - colors represent different levels of activity with red being highest, yellow moderate, green low, and white very low. **Credit:** USGS www.usgs.gov.

II. U.S. LANDSLIDE FACTS

- Landslides can occur in all 50 states
- Damages total approximately \$3.5 billion/year
- Landslides cause an average of 25-50 deaths/year
- Landslides reduce real estate value
- Landslides are generally not covered on homeowner's insurance policies

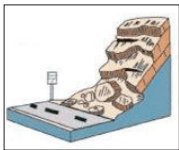
III. TYPES OF LANDSLIDES

SLIDES (translational or planar)



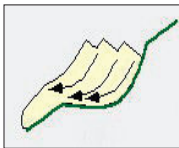
Down-slope movement of soil and/or rock on a plane of weak material can occur on relatively moderate to steep slopes, especially in weak geologic materials.

ROCKFALLS



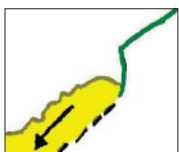
Rapid, near vertical, movement of rocks that involves free-falling, bouncing, and rolling; often occurs in areas with near vertical exposures of rock.

SLUMPS (rotational)



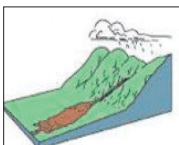
Unconsolidated materials (such as soil and debris) move down-slope in a distinctive rotational motion, usually occurs on moderate to steep slopes.

EARTH FLOWS



Unchannelized flow of water, soil, rock, and vegetation that moves down-slope, occurs on steep slopes. No failure surface at bottom.

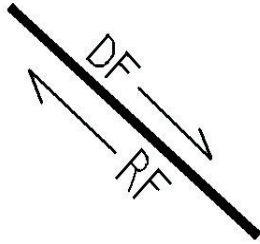
DEBRIS/ MUD FLOWS



Rapidly moving, channelized slurry flow of water, soil, rock, and vegetation; occurs mainly in drainage channels.

IV. CAUSES OF LANDSLIDES

Two forces affecting landslides are:



- 1) Driving Forces (DF) cause the slope to move
- 2) Resisting Forces (RF) stabilize the slope and prevent movement

When the driving forces exceed the resisting forces, landslides occur. To prevent or mitigate landslides, increase resisting forces or decrease driving forces.

Factors increasing driving forces:

- 1) Over-steepened slopes
- 2) Adding water to slope from landscape irrigation, roof downspouts, broken sewer and water lines, and poor stormwater drainage
- 3) Heavy rainfall and/or rapid snowmelt
- 4) Loading extra material at the top of the slope

Earthquakes and heavy precipitation can also trigger landslides on susceptible slopes.

Factors increasing resisting forces:

- 1) Removing excess water from slopes
- 2) Adding buttress material at base of a slope
- 3) Building retaining walls

V. LANDSLIDE RECOGNITION BEFORE YOU BUILD

SIGNS OF LANDSLIDE POTENTIAL OR ACTIVITY

Steep slopes – problems often occur on slopes steeper than 10-15 degrees.

Suspect landforms may indicate past ground movement. Landforms such as steep, curved scarps are common at the top of landslides. Hummocky (lumpy and bumpy) ground often indicates a former landslide. Trees that lean in different directions or have bent lower tree trunks (trees with knees) are also indicators.



Suspect landforms include: Scarps, sunken or down-dropped roads, and 'trees with knees'. Top left scarp **photo credit:** USGS www.usgs.gov. Middle road and trees top right **photo credits:** Scott Burns.

To learn where landslides have occurred in your area contact local officials, state geologic surveys, departments of natural resources, or university geosciences departments. ***Slopes where landslides have occurred in the past have a higher likelihood of movement in the future.***

WHEN YOU BUILD

Buildings should be located away from high risk areas such as steep slopes, rivers and streams (perennial or ephemeral), and fans at the mouth of mountain channels.

Consult a certified or licensed engineering geologist (**CEG** or **LEG**) or a registered/licensed geologist (**RG**) or a professional geotechnical engineer (**PE**) **if** you plan on building on a location that is a **high risk** area.

AREAS PRONE TO LANDSLIDES INCLUDE:

- Areas where previous landslides have occurred
- Steep natural slopes particularly in weak geologic materials
- Canyons and areas in or around drainages
- Developed hillsides where landscapes are irrigated
- Below cliffs or hills with outcrops of fractured rocks
- Steep slopes where surface runoff is directed onto the slope
- Areas where wildfires or human modification have removed vegetation from the slopes

VI. MONITORING YOUR HOUSE AND SURROUNDING PROPERTY

SIGNS OF LANDSLIDE ACTIVITY

STRUCTURES:



House cracks. **Photo credit:** Scott Burns.

- Newly cracked pavement, foundation, support walls, sidewalks
- Tilted or cracked chimney
- Doors or windows that stick or jam for the first time
- Outside walls, walkways, or stairs start pulling away from the house
- Soil moves away from the foundation
- Plumbing or gas lines develop leaks

PROPERTY:



Foundation cracks. **Photo credit:** FEMA www.fema.gov.

- Bulging ground at base of slope
- Leaning fence posts or retaining walls
- Springs, seeps, or saturated soil in areas that have been typically dry
- Cracks in the ground
- Tilted trees or utility poles



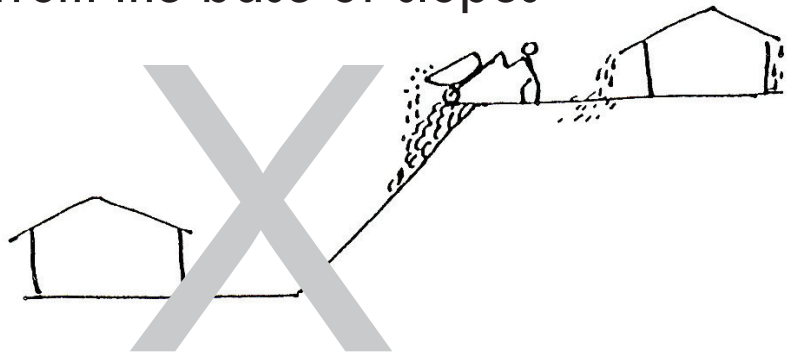
Street and ground cracks. **Photo credit:** Scott Burns.

If you have some of the above signs, your land may be slowly creeping. It may be an old landslide that has started to reactivate. Call a registered/licensed professional.

VII. REDUCE THE LIKELIHOOD OF A LANDSLIDE

- Minimize irrigation on slopes
- Make sure water and sewer lines do not leak
- Avoid removing material from the base of slopes

- **Avoid adding material or excess water to the top of slopes**



- Drain water from surface runoff, down-spouts, and driveways well away from slopes and into storm drains or natural drainages
- Plant ground cover with deep roots on slopes
- Build retaining walls at the base of the slope
- In debris/mud flow prone areas, in valley bottoms or on fans at the mouths of canyons, contact qualified professionals to determine how to best build channels and/or deflection walls to direct the flow around buildings (keeping in mind your neighbors)



Retaining wall at bottom of a slope.
Photo credit: Scott Burns.

VIII. QUICK GUIDE TO ASSESS LANDSLIDE POTENTIAL

- Have there been landslides in the area in the past?
- Is the house or site on or near a steep slope?
- Is there a cliff nearby?
- Is the ground cracked?
- Are there any old scarps on the slope?
- Is there a spring, seep or ponding water close by?
- Is there a drainage channel nearby?
- Are there any tilted or leaning trees, fences, or utility poles nearby?
- Do the trees have bent tree trunks?
- Is there any sign of cracking, or patched cracks in the walls or foundations
- Is the driveway or sidewalk cracked, patched, or down-dropped?
- Are any retaining walls cracked, tilted or off-set?
- Have any structures such as concrete steps moved away from the house?

If you have any of these signs your house could be susceptible to a landslide.

IX. ADDITIONAL INFORMATION

Federal Emergency Management Agency (FEMA) www.fema.gov
1-800-621-FEMA (3362)

United States Geological Survey (USGS) www.usgs.gov

National Landslide Info Center <http://landslides.usgs.gov>
1-800-654-4666

Important local phone numbers and agencies:

(Oregon) Nature of the Northwest Information Center: carries landslide hazard maps and other reports <http://www.naturenw.org> (503) 872-2750

Oregon Department of Geology and Mineral Industries (DOGAMI): maps landslides and issues reports www.oregongeology.com (971) 673-1555

Oregon Department of Forestry Debris flow Warning System: provides current forecasts and warnings <http://egov.oregon.gov/ODF>

Oregon: to check licensing for engineers (Oregon State Board of Examiners for Engineering and Land Surveying): <http://osbeels.org/>
(503) 566-2837

Oregon: to get lists of licensed geologists (Oregon State Board of Geology Examiners) www.oregon.gov/OSBGE/registrants (503) 566-2837

Washington State Department of Natural Resources: landslide information www.dnr.wa.gov/geology/hazards/lslides.htm

Washington State Department of Natural Resources: general information inquiries (360) 902-1000

Washington State Department of Licensing: to check professional license status www.dol.wa.gov/business/checkstatus.html

State of Oregon
Oregon Department of Geology and Mineral Industries
Vicki S. McConnell, State Geologist

OPEN-FILE REPORT O-13-08

Landslide Hazard and Risk Study of Northwestern Clackamas County, Oregon

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2013

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Oregon Department of Geology and Mineral Industries Open-File Report O-13-08
Published in conformance with ORS 516.030

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<http://www.naturenw.org>

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<http://egov.oregon.gov/DOGAMI/>

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Plate 2. Landslide inventory and shallow- and deep-landslide susceptibility overview maps of northwestern Clackamas County, Oregon

Plates 3–73 (odd numbers): Detailed shallow landslide susceptibility maps for NE, NW, SE, and SW quarter-quadrangle extents in the Canby, Damascus, Estacada, Gladstone, Lake Oswego, Oregon City, Redland, Sandy, and Sherwood U.S. Geological Survey 7.5-minute quadrangles

Plates 4–74 (even numbers): Detailed deep landslide susceptibility maps for NE, NW, SE, and SW quarter-quadrangle extents in the Canby, Damascus, Estacada, Gladstone, Lake Oswego, Oregon City, Redland, Sandy, and Sherwood U.S. Geological Survey 7.5-minute quadrangles

DIGITAL APPENDICES

Contents of the appendices are listed here. See the Appendices folder on the CD-ROM for files.

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Appendix B. DOGAMI Special Paper 42, Protocol for Inventory Mapping of Landslide Deposits from Light Detection and Ranging (Lidar) Imagery - report text only	DOGAMI-Special Paper-42-report-text-only.pdf
Appendix C. DOGAMI Special Paper 45, Protocol for shallow-landslide susceptibility mapping - report text only	DOGAMI-Special Paper-45-report-text-only.pdf
Appendix D. Geotechnical Material Properties	Geotechnical_Data.xlsx Reference_List_for_Geotechnical_Data.docx
Appendix E. Deep-Landslide Susceptibility GIS Method Details	Deep-Landslide_Susceptibility_GIS_Method_Details.docx
Appendix F. Exposure Analysis Process and Results Details	Exposure_Analysis_GIS_Processes.docx Exposure_Analysis_Results.xlsx
Appendix G. Historic Landslide Data	Historic_Landslides_in_NW_Clackamas_County.pdf Historic_Landslides_in_NW_Clackamas_County.xlsx
Appendix H. Hazus-MH Summary Reports	Cascadia_M9.0_earthquake_with_landslide_hazard.pdf Cascadia_M9.0_earthquake_with_no_landslide_hazard.pdf Crustal_Portland_Hills_M6.8_earthquake_with_landslide_hazard_set_to_9_out_of_10.pdf Crustal_Portland_Hills_M6.8_earthquake_with_landslide_hazard.pdf Crustal_Portland_Hills_M6.8_earthquake_with_no_landslide_hazard.pdf

GEOGRAPHIC INFORMATION SYSTEM (GIS) DATA

Geodatabases are in Esri v10.1 format.

Landslide Inventory Geodatabase:	Clackamas_landslides_10_1.gdb: feature classes: Deposits (polygons), Photos (points), Scarp_Flanks (polygons), Scarps (polylines)
Shallow-Landslide Susceptibility Geodatabase:	Shallow_Landslide_Suceptibility_Clackamas_10_1.gdb: shallow_landslide_susceptibility feature class (polygons)
Deep-Landslide Susceptibility Geodatabase:	Deep_Landslide_Susceptibility_Clackamas_10_1.gdb: deep_landslide_susceptibility feature class (polygons)
Assets Geodatabase:	Clackamas_Assets10_.gdb: feature classes: Building_Critical_Facilities (polygons), Buildings (polygons), clasck07da2_PopulationDensity (raster), Dam_Electric (polygons), major_substations (polygons), major_transmission_towers (points), Metro_Boundary (polygons), railroads (polylines), Study-Extent_wCities (polygons)

1.0 SUMMARY

Northwestern Clackamas County has significant landslide hazards in some of the most developed land in Oregon. The intersection of landslide hazard and dense development result in a relatively high level of risk. We performed this study to increase understanding of the landslide hazard and risk, so that targeted risk reduction could be continued and accelerated.

We found 370 historic landslides occurred in the study area during the period 1964–2009. We estimated annual direct losses from these landslides ranged from hundreds of thousands to millions of dollars for typical winter storm years in Oregon, and up to tens of millions to \$75 million in severe storm years, such as 1996.

A major part of this study was developing the lidar-based landslide inventory and shallow- and deep-landslide susceptibility maps. We mapped 2,885 existing landslides, which cover roughly 7% of the study area. Many of these are prehistoric or ancient landslides (that is, older than 150 years); however, these landslides should be considered just barely stable and in most cases would require only a small change in stability to reactivate. We found the large, deep landslides are a primary threat in the study area. Asset exposure to these large, deep landslides is significant — more than 7,000 residents and more than 3,000 buildings with a combined land and building value of \$832 million are located on large, deep landslides. Damage and losses alone from landslides induced by a local large crustal earthquake may be in the range of \$1 billion with ~4,500 buildings moderately to completely destroyed.

The next step after identifying hazard and risk is to work on landslide risk reduction. The three primary actions are 1) awareness, 2) regulation, and 3) planning. Making everyone aware of the hazard and associated risk is the first step, so that everyone can work on risk reduction. Fliers can be made available on websites and/or distributed to help educate land owners of activities individuals can work on to reduce landslide risk.

The landslide inventory and susceptibility maps produced as part of this project show areas of low, moderate, and high potential for landslides in the future and are suited for use in connection with landslide ordinances or building code regulation. The maps could also be used in short- and long-term development planning, comprehensive planning, and maintenance planning.

2.0 INTRODUCTION

Northwestern Clackamas County is plagued with landslide disasters. Not only is the landslide hazard high and extensive, but portions of the county are some of the most densely developed parts of Oregon (Figure 1). The high landslide hazard combined with dense development results in high risk and thus the primary reason for this study.



Figure 1. Study area location map (outlined in black).

The Federal Emergency Management Agency (FEMA) issued 28 major disaster declarations for Oregon for the period 1955–2012. Most of these are related to storm events that caused flooding and, commonly, landslides. During this time, at least six Presidential Disaster Declarations for Clackamas County noted landslides as part of the reason for the declaration (FEMA, 2012a):

- 1964 – FEMA DR184, Heavy Rains and Flooding
- 1996 – FEMA DR1099, Oregon Severe Storms/ Flooding, estimated \$50 million in damage from flood and landslides. Directly or indirectly affected three-quarters of the county’s residents
- 2003-2004 – FEMA DR1510, Severe Winter Storms, County received \$183,000
- 2005-2006 – FEMA DR1632, Oregon Severe Storms, Flooding, Landslides, and Mudslides, county received \$245,000
- 2009 – FEMA DR1824, Severe Winter Storm, Record and Near Record Snow, Landslides, and Mudslides, preliminary countywide per capita impact \$3.33
- 2011 – FEMA DR1956-DR, Severe Winter Storm, Flooding, Mudslides, Landslides, and Debris Flows, preliminary countywide per capita impact \$12

FEMA DR1824 was declared after the January 2009 severe storm. Much of northwestern Oregon experienced flooding and landslides. Many landslides occurred in Clackamas County, impacting infrastructure and homes. Several homes were completely destroyed in this event (Figure 2). Clackamas County submitted a mitigation planning grant proposal to FEMA. That proposal was accepted and was funded through the FEMA Hazard Mitigation Grant Program. This DOGAMI project, completed between 2012 and 2013, is partially funded by that grant.

The main purpose of this project is to help communities in this region become more resilient to landslide hazards by providing accurate, detailed, and up to date information about these hazards and community assets at risk.

The main objectives of this study are to:

- compile and incorporate existing data including previous geologic hazard reports and the county natural hazard mitigation plans
- create new databases of landslide hazards including landslide inventory and susceptibility
- compile and/or create a database of critical facilities and primary infrastructure, generalized land occupancy (land use/zoning), buildings, and population distribution data
- perform exposure and Hazus-MH–based risk analysis
- share the results through this report

The body of this report describes the methods and results for these objectives.



Figure 2. (left) Photograph showing a landslide in Paradise Park off Heiple Road that pushed a home off its foundation; the home then caught fire. (right) Photograph showing a landslide from Greenbluff Drive that slid down and through a home on Woodhurst Place. Both landslides occurred during January 2009 in northwestern Clackamas County.

3.0 STUDY AREA

The study covers an area of approximately 375 square miles in Clackamas County and includes small parts of Multnomah and Washington Counties. It is geographically bounded by the Willamette River Valley to the west and the Cascade Mountains to the east (Figure 3). The communities include the entire extents of Barlow, Canby, Damascus, Estacada, Gladstone, Happy Valley, Johnson City, Lake Oswego, Milwaukie, Oregon City, Sandy, West Linn, Wilsonville, and portions of unincorporated Clackamas County, Tualatin, River Grove, and Portland (Figure 3). For this study we combined the five small cities and/

or portions of cities into a single “other jurisdiction” category, mostly because the communities were only very small pieces or small entities. The combined communities include Barlow, Johnson City, Rivergrove, Tualatin, and Portland. We also included the Metro urban growth boundary as a community boundary in our analysis (green line on Figure 3). Metro is the regional government for the Portland metropolitan area. Oregon law requires each city or metropolitan area in the state to have an urban growth boundary that separates urban land from rural land. Metro is responsible for managing the Portland metropolitan region’s urban growth boundary (<http://www.oregonmetro.gov/index.cfm/go/by.web/id=277>).

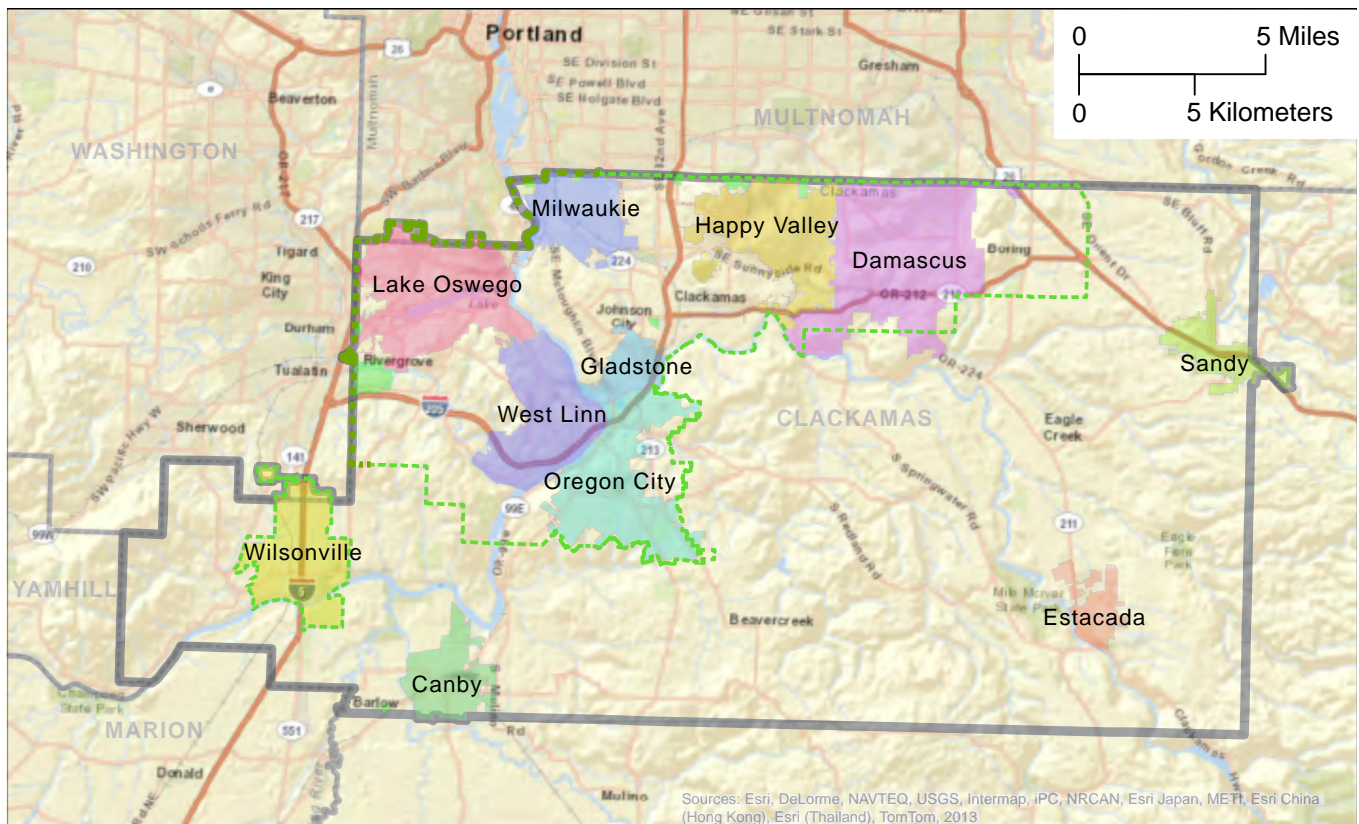
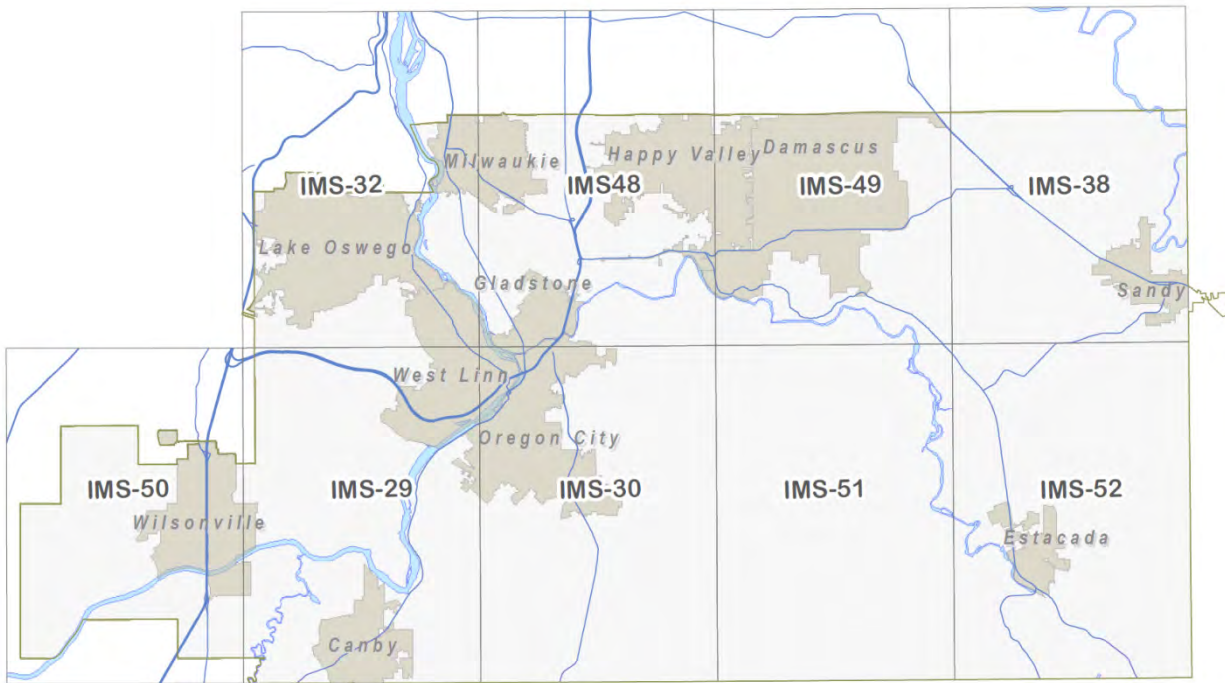


Figure 3. Map of the study area showing counties, cities, and communities. The dashed green line indicates the Metro urban growth boundary.

The geology, topography, and climate of the study area are all conducive to landslide hazards. An overview of the bedrock geology is provided in DOGAMI Bulletin 99 (Schlicker and Finlayson, 1979). The surficial geology was recently mapped and described in DOGAMI Open-File Report O-12-02 (Ma and others, 2012), and landslide inventory for all of the area was completed and published as DOGAMI Interpretive Maps IMS-29, -30, -32, -38, -48, -49, -50, -51, and -52 (Figure 4).



- IMS-29, Canby quadrangle (Burns, 2009)
- IMS-30, Oregon City quadrangle (Burns and Mickelson, 2010)
- IMS-32, Lake Oswego quadrangle (Burns and Duplantis, 2010)
- IMS-38, Sandy quadrangle (Burns and others, 2012a)
- IMS-48, Gladstone quadrangle (Burns and others, 2012b)
- IMS-49, Damascus quadrangle (Burns and others, 2012c)
- IMS-50, Sherwood quadrangle (Burns and others, 2012d)
- IMS-51, Redland quadrangle (Burns and others, 2012e)
- IMS-52, Estacada quadrangle (Burns, 2012f)

Figure 4. Index map of previously published DOGAMI landslide inventory maps for the study area. All maps are at scale 1:8,000.

4.0 PREVIOUS WORK

A number of previous geologic and geologic hazard studies have been conducted in or near the study area. We reviewed this body of work to assess the mapped hazards so we could decide if we needed to construct new data or redelineate the existing data. Among DOGAMI recently acquired very detailed topographic data derived from lidar, airborne laser scanning data that produces digital elevation models (DEMs) with a nominal resolution of 3 ft. The new lidar topography allows us to remap landslide and flood hazards with significantly greater accuracy (Burns, 2007). The previous studies we reviewed include:

- DOGAMI Bulletin 99 (Schlicker and Finlayson, 1979)
- DOGAMI Open-File Report O-12-02 surficial geology (Ma and others, 2012)
- DOGAMI IMS- IMS-29, 30, 32, 38, 48, 49, 50, 51, and 52 New Landslide Maps
- Clackamas County Natural Hazard Mitigation Plan (<http://www.clackamas.us/emergency/naturalhazard.html>)
- Statewide Landslide Information Database for Oregon (SLIDO), release 2 (Burns and others, 2011)
- Oregon Geologic Data Compilation (OGDC), release 5 (Ma and others, 2009)

In order to construct the database of assets, we followed similar process. We first compiled existing data and/or constructed new data or redelineated existing data where needed. We compiled and reviewed:

- Clackamas County GIS data sets
- Metro Regional Land Information Systems (RLIS) data set
- U.S. Census GIS data set
- Oregon Department of Geology and Mineral Industries (DOGAMI) GIS data sets

See Plate 1 for more details on asset data set sources.

5.0 METHODS

In order to study and evaluate landslide hazard and risk, we performed three primary tasks. First we created detailed data sets of the communities' assets. Next we created detailed landslide hazard data sets. Overview maps of the assets and landslide hazards are displayed on Plates 1 and 2. Finally, we analyzed the hazards and asset data sets together to evaluate potential risk.

5.1 Assets

Community assets are defined as the human artifacts necessary to support a community. Generally, this includes people, property, infrastructure, and economic resources. In this study, assets were limited to permanent population, land and buildings, critical facilities, and primary infrastructure, as detailed below.

5.1.1 Permanent population

People are undeniably the most important asset of a community. Permanent population figures are needed to accurately estimate losses from disasters; however, it is challenging to map this asset because people tend to migrate on yearly, seasonally, monthly, daily, and hourly basis. To assess and geographically distribute permanent population (residents) within the study area, a dasymetric population grid was created.

In the study area, U.S. Census population data are organized in spatial units called census block-groups. Block-groups are statistical divisions of census tracts and generally contain between 600 and 3,000 people. Blocks can be as small as 125 acres (50 hectares) and are typically bounded by streets, roads or creeks. In urban areas census blocks are small, usually defined by one city block, while in rural areas with fewer roads, blocks are larger and can be bound by other geographic features. Within each block-group the census provides no information on the spatial distribution of population. The census provides only one

population number per block-group. To estimate the size and distribution of permanent population for most of the study area, we used dasymetric mapping results developed by the U.S. Geological Survey (USGS) (Sleeter and Gould, 2007). Dasymetric mapping is a process that allocates population data to residential units. Data sets like land cover and census data are used in the dasymetric process to more precisely map population over an area. We attributed with no data those portions of the study area that had no results provided by the USGS. Figure 5 shows permanent population density as a raster with 30-m grid cells.

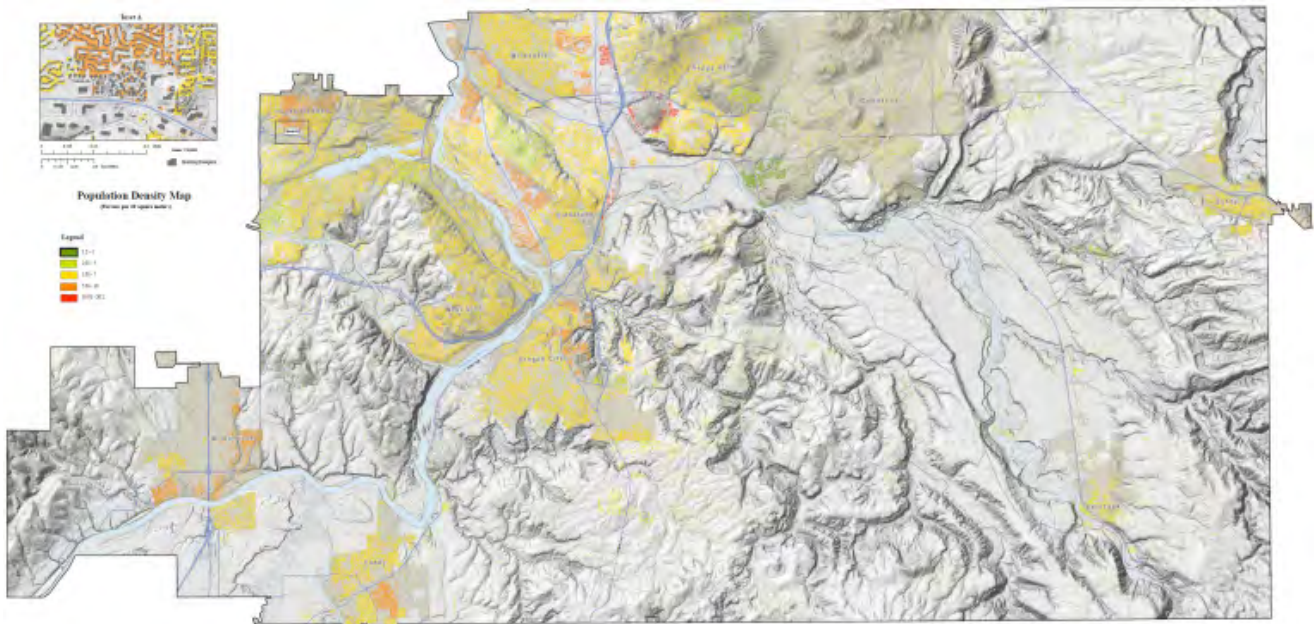


Figure 5. Permanent population in the study area (see Plate 1).

5.1.2 Buildings and land

DOGAMI acquired and edited building locations from Metro's Regional Land Information System (RLIS) (Metro, 2013). Parts of the study area were not covered by the RLIS data, so DOGAMI staff digitized the buildings for those areas. To do this, we converted digital elevation models (DEM derived from lidar first returns) to hillshades and used these in conjunction with orthophotos to locate building locations. After we finalized the generalized land-use layer (see details below), we transferred the improvement values and land-use categories into the building data set (Appendix A).

Zoning refers to the permitted land use designation such as agricultural, industrial, residential, recreational, or other purposes. Zoning data are commonly included in tax lot databases. Data from tax lot databases also include information about the dollar value of the land and any improvements, such as houses. To evaluate land assets for this project, we combined county and city tax lot databases to create a layer that identifies generalized zoning information for each piece of property.

We created the generalized zoning data set with available property tax code data file for Clackamas County acquired from RLIS. Starting with the generalized zoning data set, we then assigned each tax lot a generalized occupancy class used in the FEMA Hazus-MH program. The eight classes are agriculture, commercial, education,

government, industrial, single family, multi-family, and religion (Figure 6). We classified generalized occupancy classes from the parcel's defined chief zoning and land-use of the property. This methodology potentially introduces errors where the tax code for a parcel might not reflect real infrastructure or use at time of publication. We classified selected property that had no ownership information or property tax code according to occupancy class seen in orthophotos. We classified government and education occupancy parcels from existing critical facility data sets. Community (sometimes jurisdictional) boundaries were manually populated, so that parcel counts were not duplicated during inventory/exposure analysis. In scenarios where parcels crossed multiple community boundaries, we selected the boundary to which the parcel appeared to be most appropriately associated. See Appendix A for a detailed breakdown of the zoning, land-use, and occupancy classes.

We clipped the generalized land-use layer to the study area, thereby reducing the original size of some of the parcels along the study area boundary. In order to determine the real market value (RMV) of the clipped parcels, we divided the original parcel area by the new clipped area, resulting in a percent size of the original land. We then multiplied this percent by the original RMV value to obtain a more realistic RMV. The parcel RMV value includes only the land value of each parcel, not the value of any structures on the parcel (Burns and others, 2011).

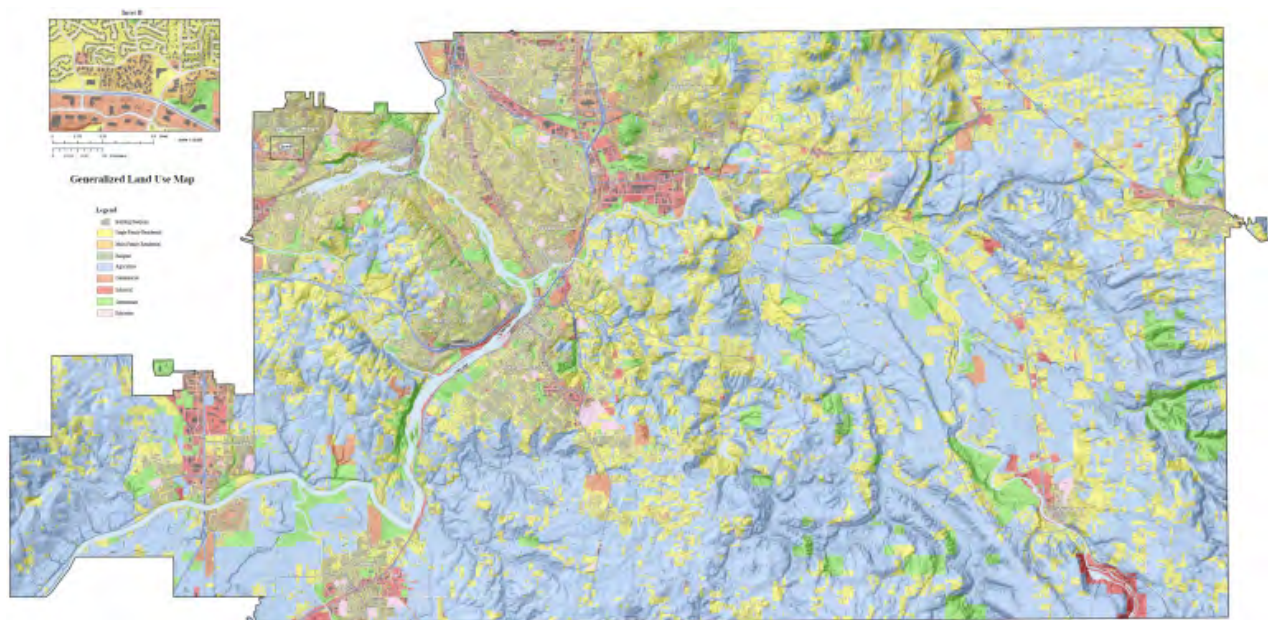


Figure 6. Buildings and land in the study area (see Plate 1).

5.1.3 Critical facilities and primary infrastructure

Critical facilities are typically defined as emergency facilities such as hospitals, fire stations, police stations, and school buildings (FEMA, 2012b). We used the definitions and data created in the DOGAMI Statewide Seismic Needs Assessment (SSNA) (Lewis, 2007) to identify most critical facilities. The critical facilities included in this project are schools, police stations, fire stations, and hospitals (Figure 7). We extracted critical facilities as points from the SSNA. We delineated the land under each critical facility using first-return lidar DEMs, 2009 National Agriculture Imagery Program (NAIP) orthophotos, and available tax lot data. Critical facility land includes any associated buildings, parking lots, leased lands, and land owned by the facility.

Primary infrastructure for this study includes roads, high voltage (approximately 230 kilovolts and greater) electric transmission line towers, substations, power-generating dams, and railroads (Figure 7). We selected this limited set of infrastructure because data were readily available and/or easy to produce from first return lidar or orthophotos. The following list summarizes the data sets:

Transportation (four data sets)

- freeways, highways, and major arterials – lines
- minor arterials and collectors/connectors – lines
- local streets – lines
- railroads – lines

Electric (three data sets)

- transmission line towers – points
- substations – polygons
- power generating dams – polygons

We acquired the road and railroad data from RLIS. We found the railroad data to have significant spatial error when compared to the lidar-based imagery, so DOGAMI staff spatially adjusted railroad lines.

DOGAMI staff digitized electric transmission towers, substations, and power-generating dams in GIS by using the first-return lidar DEMs and 2009 NAIP orthophotos.

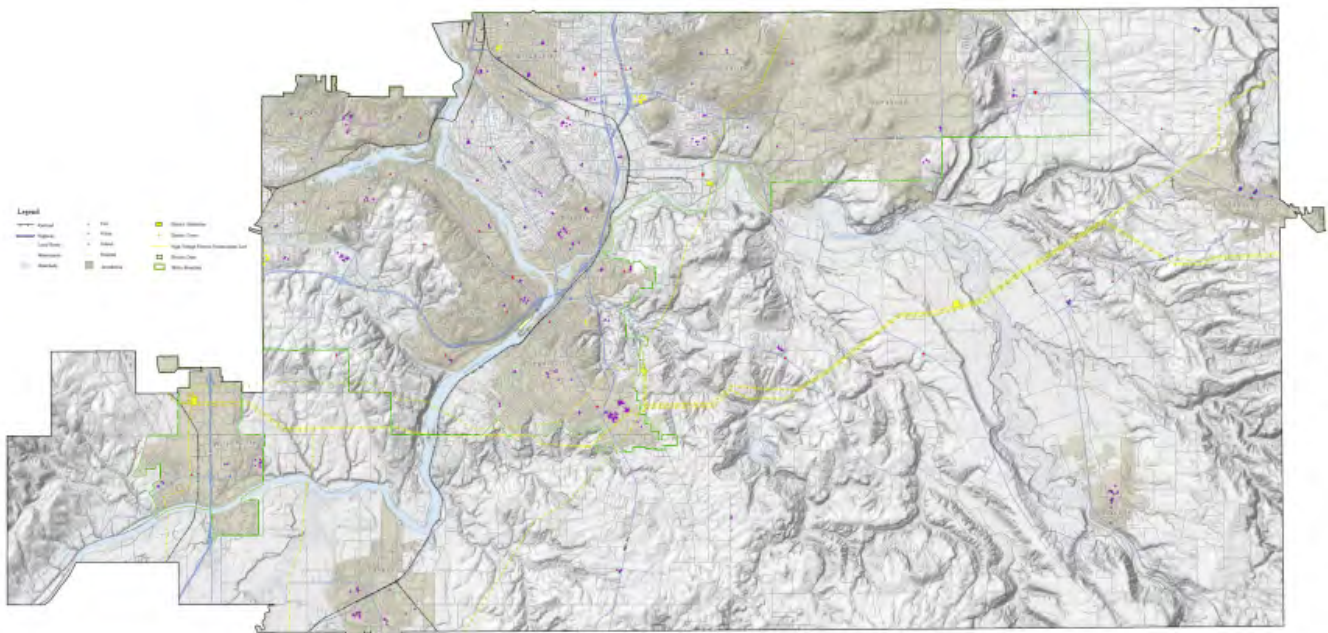


Figure 7. Critical facilities and primary infrastructure in the study area (see Plate 1).

5.2 Landslide hazards

The general term landslide refers to the movement of earth materials down slope. Landslide movement can be classified into six types: falls, topples, slides, spreads, flows, and complex (Turner and Schuster, 1996). Movement type is often combined with other landslide characteristics such as type of material, rate of movement, depth of failure, and water content in order to more fully describe the landslide behavior. Slope areas that have failed remain in a weakened state and are particularly important to identify as these areas may be susceptible to instability (Burns and Madin, 2009; Appendix B). Although water is the most common trigger for landslides, earthquakes can also induce landslides.

Channelized debris flows are one of the most potentially life-threatening types of slide due to their rapid movement down channel and because they can travel several miles down slope. Debris flows tend to initiate in the upper reaches of a drainage and pick up water, sediment, and speed as they come down the channel. As a debris flow

approaches the mouth of a channel, the material tends to fan out due to the lower slope gradient and lack of confinement. Debris flows are commonly mobilized by other types of landslides failing on slopes near the channel or from accelerated erosion during heavy rainfall or snow melt.

Landslides are often classified by their depth of failure as deep or shallow. Shallow landslides are generally defined as failing above the contact between bedrock and the overlying soil. In this study, shallow landslides are defined as having a failure depth less than 15 ft (Burns and Madin, 2009; Appendix B). Deep landslides have failure surfaces that cut into the bedrock and can cover large areas from acres to tens of square miles.

We separate landslide hazards into landslide inventory and landslide susceptibility data sets. In general, the inventory data show locations of existing landslides and the susceptibility data identify areas with relatively low, moderate, or high likelihood of future landslides. For this study we acquired or created landslide inventory and susceptibility data sets as detailed below.

5.2.1 Landslide inventory

Two landslide inventories are included in this project. The first is a compilation of previously released DOGAMI lidar-based 1:8,000-scale mapping following the methodology of Burns and Madin (2009; also see Appendix B): Canby (IMS-29); Oregon City (IMS-30); Lake Oswego (IMS-32); Sandy (IMS-38); Gladstone (IMS-48); Damascus (IMS-49); Sherwood (IMS-50); Redland (IMS-51); Estacada (IMS-52) (Figure 4).

The second landslide inventory is a compilation of historic landslide locations from the following data sets: historic points and landslide deposits (polygons) with historic dates from the Statewide Landslide Information Database (SLIDO, release 2 [Burns and others, 2011]); current Clackamas County and city (Canby, Damascus, Estacada, Gladstone, Happy Valley, Lake Oswego, Oregon City, Sandy, and Wilsonville) hazard mitigation plans; and limited photo analysis to locate landslides that occurred between 2005 and 2009.

5.2.2 Shallow-landslide susceptibility

To create the shallow-landslide susceptibility map, we followed the protocol developed by Burns and others (2012g; also see Appendix C). Following the method results in a map showing three relative shallow-landslide susceptibility hazard classes: low, moderate, and high.

When we examine the material properties and geometry of a slope, this simplified ratio becomes an equation called the factor of safety (FOS) against landsliding. A

FOS greater than 1 is theoretically a stable slope because the shear resistance (or strength) is greater than the shear stress. A FOS less than 1 is theoretically an unstable slope because the stress is greater than the shear strength. A critically stable slope has a FOS equal to 1 (Appendix C).

To calculate the factor of safety, we need geotechnical material properties. Instead of using existing generalized statewide values (Table 2 in Appendix C [Burns and others, 2012]), we created a new table of material properties (Table 1) for each of the primary surficial geologic units in this specific study area.

We estimated the new material properties from geotechnical reports and borings (Appendix D). In many reports, cohesion and phi (angle of internal friction) values were not tested and therefore were not directly available. Therefore, we estimated these values through empirical correlations from other tests such as standard penetration test blow counts following the method described by Das (1994).

After we acquired the values either directly from reports or through correlations for each surficial geologic unit, we averaged each set of values by geologic unit. DOGAMI and City of Portland geotechnical engineers then reviewed these semi-final ranges of values and averaged values in order to decide the final material properties to be used for this study. The final material properties are displayed in Table 1.

We created a new digital surficial geology/material properties map for the study area (Figure 8). This new map is based on the new lidar-based landslide inventory and previously mapped geology by Ma and others (2012). To

Table 1. Geotechnical material properties (modified from Burns and others [2012]).

	Angle of Internal Friction (ϕ), degrees	Cohesion (c)		Unit Weight (Saturated)		Slope Factor of Safety	
		kPa	lb/ft ²	kN/m ³	lb/ft ³	> 1.5	> 1.25
Landslide deposit (deep failure)	28	0	0	19	122	9.5	11.5
Fill	28	0	0	19	122	9.5	11.5
Alluvium (fine grained)	34	100	2,088	19	122	12.5	15.0
Alluvium (coarse grained)	34	0	0	19	122	12.0	14.5
Troutdale Formation (fine grained)	0	33	689	19	122	11.5	14.0
Troutdale Formation (coarse grained)	0	40	835	19	122	15.0	18.0
Missoula Flood Deposits (fine grained)	30	100	2,088	19	122	12.5	15.0
Missoula Flood Deposits (coarse grained)	34	0	0	19	122	12.0	14.5
Loess	30	100	2,088	19	122	12.5	15.0
Boring lava	28	500	10,440	19	122	12.0	14.5
Rhododendron Formation	30	500	10,440	19	122	20.5	25.0
Columbia River Basalt	40	750	15,660	19	122	30.0	36.0

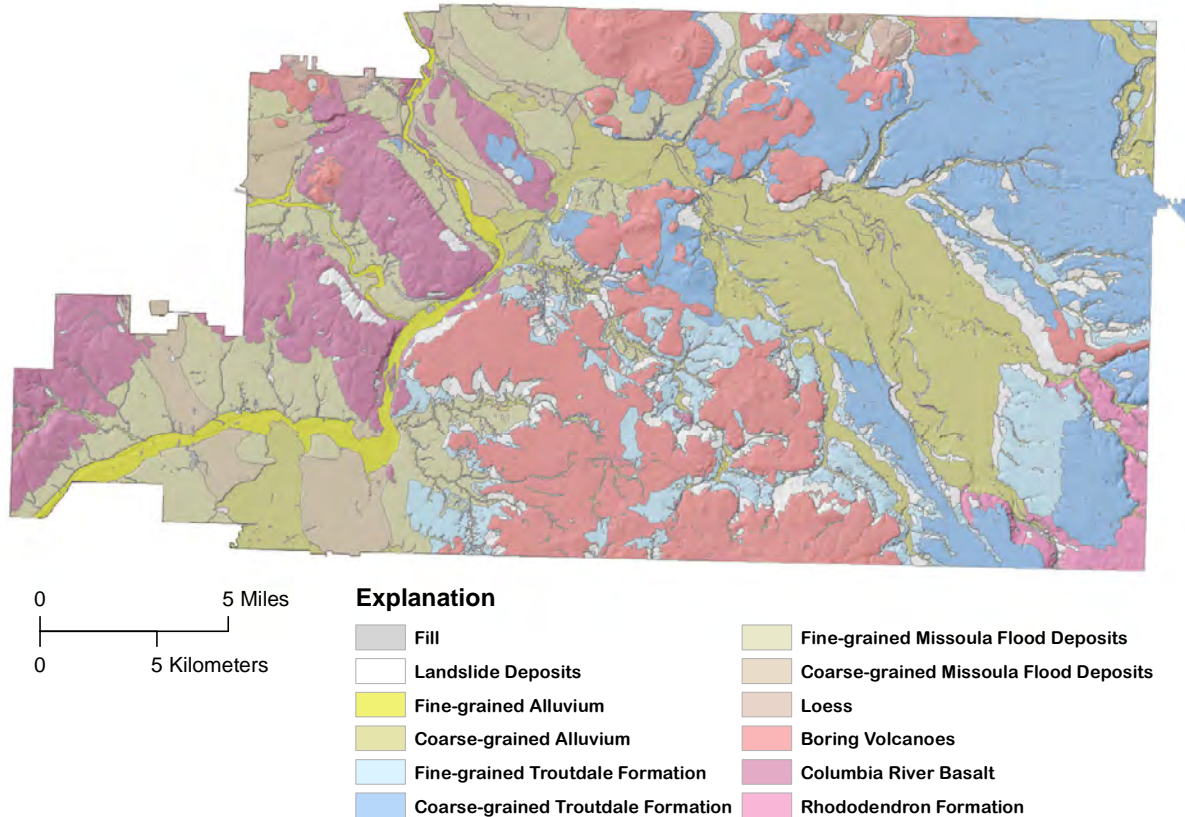


Figure 8. New digital surficial geology/material properties map for the study area.

make the map, we merged and simplified the previously mapped geologic units into 12 surficial geology/material properties units, except for landslide deposits taken directly from the landslide inventory.

5.2.3 Deep-landslide susceptibility

Deep landslides tend to be larger than shallow landslides and tend to move relatively slowly (sometimes less than an inch per year) but can lurch forward if shaken by an earthquake or if disturbed by removing material from the toe, by adding material to the head scarp, or by the addition of water into the slide mass. Reactivation often is focused upslope near the landslide head scarp and at the landslide toe (Turner and Schuster, 1996). To determine deep-landslide susceptibility in the study area, we followed and built on the method described by Burns (2008).

The method we used to identify areas susceptible to deep landslides combines several factors, many of which are derived from the deep landslides extracted from the

SP-42 inventory (Burns and Madin, 2009). We assign each factor a relative score and then combine them into a final data set, which we use to assign areas to low, moderate, or high susceptibility zones. The contributing factors are:

- High susceptibility zone
 - landslide deposits
 - head scarp–flank polygons
 - head scarp–flank polygons buffers
- Moderate susceptibility zone
 - susceptible geologic units
 - susceptible geologic contacts
 - susceptible slope angles for each engineering geology unit polygon
 - susceptible direction of movement for each engineering geology unit polygon
 - minimal landslide deposits and head scarp–flank polygon buffers
- Low susceptibility zone
 - areas not identified in the high or moderate

We created a standardized, blank Esri ArcGIS version 10.1 geodatabase called *Deep_Landslide_Susceptibility_Clackamas_10_1.gdb* to store working and final data. The geodatabase had the following working feature data sets, which can be thought of as subdatabases of the geodatabase:

- A_Landslide_Inventory
- B_Head_Scarp_Flank
- C_Geologic_Units
- D_Geologic_Contacts
- E_Slopes
- F_Direction

To explain the components of the method, we will use throughout this text images of the northwestern quarter of the U.S. Geological Survey Oregon City 7.5-minute quadrangle (Figure 9; Plate 52) The GIS method details are included in Appendix E.

5.2.3.1 High-susceptibility zone

In order to create the high-susceptibility zones, we needed a complete landslide inventory. We created this inventory by using the DOGAMI protocol (Burns and Madin, 2009). An example DOGAMI landslide inventory map made using this protocol is shown in Figure 9 (left).

We first queried all of the deep landslide deposit polygons from the inventory database and saved the data into the A_Landslide_Inventory feature data set in the *Deep_Landslide_Susceptibility.gdb*. We then converted this data set to a raster data set named *High_Deposits* and saved it in the same geodatabase. A portion of the raster data set is shown in Figure 9 (right).

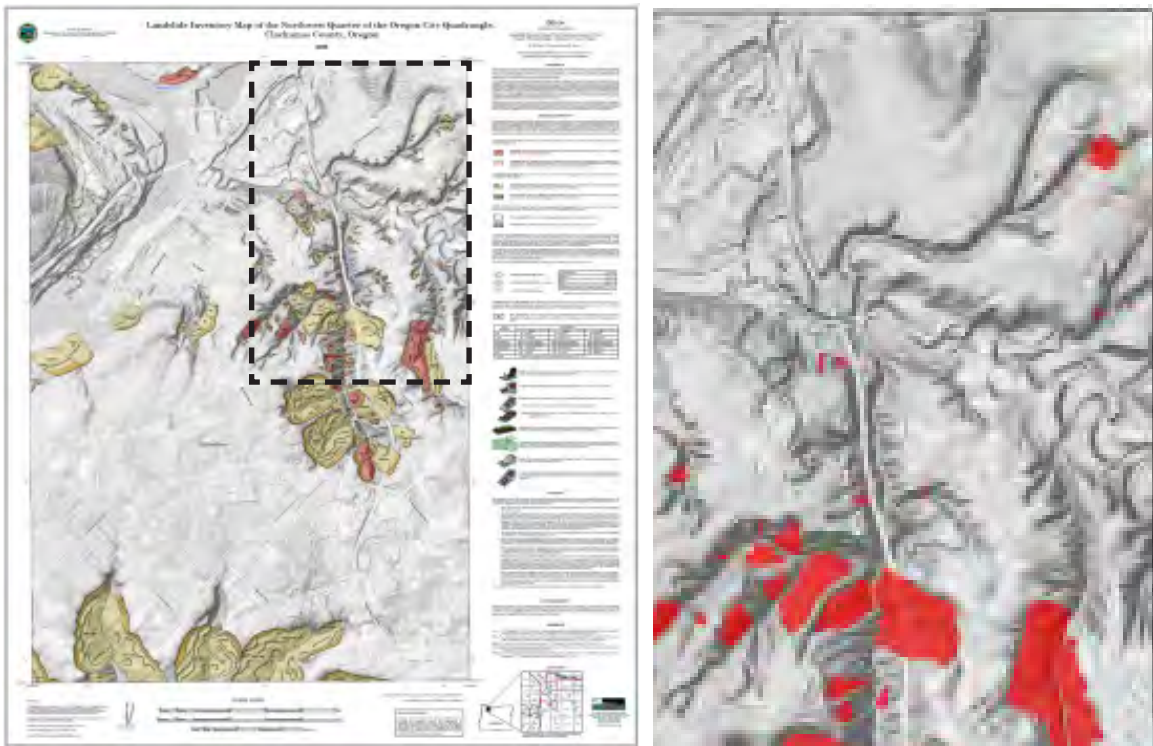


Figure 9. (left) Example of a lidar-based landslide inventory map (Burns and Mickelson, 2010). Dashed line indicates extent shown in figure on the right. (right) Example of deep landslide deposits converted to high-susceptibility zone (red areas on map) (Burns and Mickelson, 2010).

5.2.3.2 Head scarp–flank polygons and buffers

We queried out all deep head scarp–flank polygons from the inventory database and saved the data into the B_Head_Scarp_Flank feature data set in the Deep Landslide Susceptibility.gdb. We then considered these head scarp–flank polygons to be areas of high susceptibility and included them as part of the head scarp–flank polygon buffers, discussed next. Because the head scarp–flank areas are included in the buffer file, we did not process them individually.

There are many unknowns due to the lack of spatial geological data and spatial data with depth values involved in regional deep landslide susceptibility mapping, so to account for some of these unknowns we applied two buffers to the high-susceptibility zone: 1) 2H:1V buffer on all head scarp–flanks and 2) head scarp–flank retrogression buffer.

We applied these buffers to all deep head scarp–flank polygons from the landslide inventory. In most cases the head scarp–flank polygon buffer results in a minimal buffer distance, and the head scarp retrogression buffer results in the maximal buffer distance. In all cases we used the greater of the two distances as the buffer value.

5.2.3.2.1 Head scarp–flank polygon 2H:1V buffer

Most landslides tend to leave a near-vertical head scarp above the failed mass (Turner and Schuster, 1996). Commonly, this head scarp area fails retrogressively or a separate landslide forms above the head scarp, because of the loss of resisting forces. Generally, the area above the head scarp has a relatively low slope angle, possibly indicating a low susceptibility to future failure. In many cases, however, the opposite is true; that is, the flat area directly above the head scarp (crown) is highly susceptible to failure. In order to account for the increase in susceptibility of this area above the head scarp, which may be missed by using the slope alone or in case a particular deep landslide has no internal down-dropped blocks, we apply a 2H:1V head scarp buffer (Figure 10). This buffer is different for each head scarp and is dependent on head scarp height. For example, a head scarp height of 16.5 ft has a 2H:1V buffer equal to 33 ft.

The 2 horizontal to 1 vertical ratio (2H:1V) is commonly used in geotechnical engineering because the slope angle of a 2H:1V slope is equal to 26° (Figure 11) (Burns and others, 2013). This is important because most natural, intact (non-landslide) geologic units have an angle of internal friction or equivalent shear strength of at least 26° .

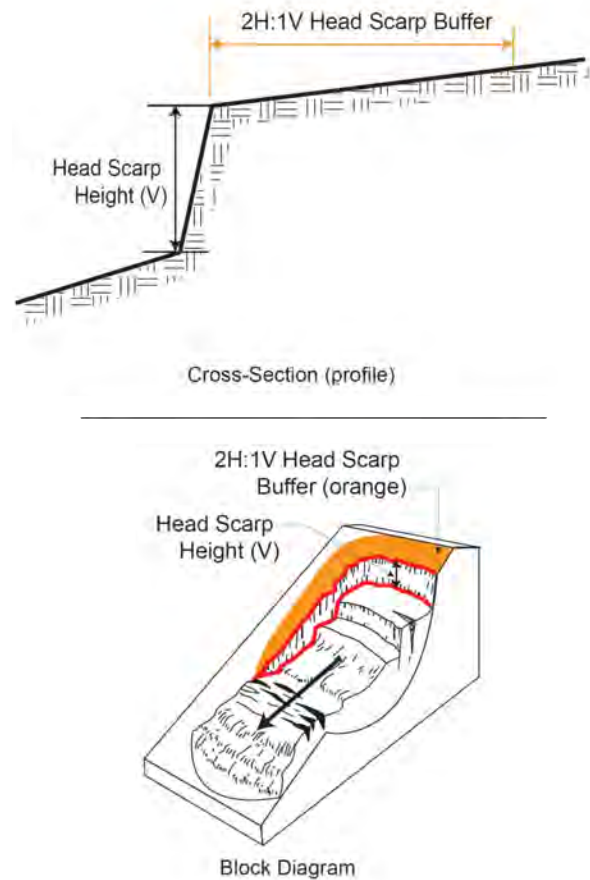


Figure 10. Diagram of the 2 horizontal to 1 vertical (2H:1V) head scarp buffer (orange on block diagram).

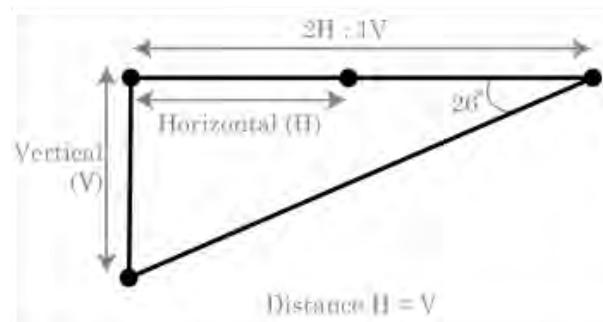


Figure 11. Diagram of the 2 horizontal to 1 vertical (2H:1V) ratio.

5.2.3.2.2 Head scarp–flank polygon retrogression buffer

Many deep landslides move repeatedly over hundreds or thousands of years, and many times the continued movement is through retrogressive failure (continued upslope failure) of the head scarp into the crown. In order to account for this potential upslope hazard, we applied a buffer to all the head scarp–flank polygons as shown in Figure 12. In order to calculate the head scarp retrogression buffer, we measure the horizontal distance of each of the internal down-dropped blocks (assumed to be previous retrogression failures) and use the average. The second buffer is also different for each head scarp and is dependent on the average of the horizontal distance between internal scarps.

After we created both buffers, we combined them and then converted them to a raster data set named High2 (see Appendix E) saved in the Deep Landslide Susceptibility.gdb. The finished data set is shown in Figure 13.

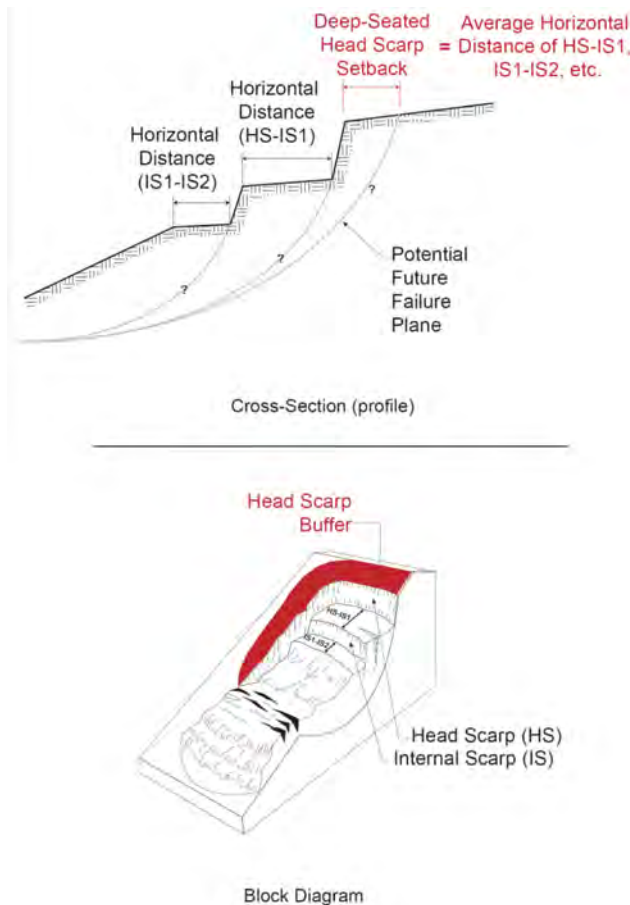


Figure 12. Head scarp retrogression buffer.

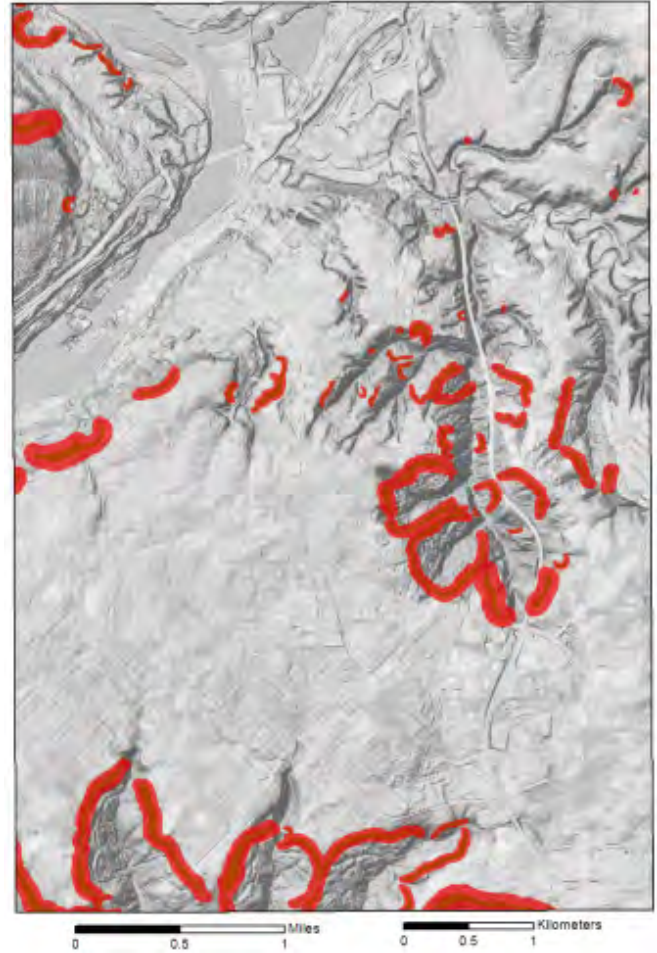


Figure 13. Example of the buffered deep-landslide head scarp–flank polygons converted to high-susceptibility zone (red areas on map). Brown areas are the mapped head scarp–flank polygons.

5.2.3.3 Moderate susceptibility zone

We created the moderate susceptibility zone by combining four maps made from four susceptibility factors described below and a minimal buffer around landslide deposits and head scarp–flank polygons. We used the four susceptibility factors and buffer to determine the boundary between the moderate and low susceptibility zones. (The high-susceptibility zone was defined in section 5.2.3.1.) The four factors are:

- susceptible geologic units
- susceptible geologic contacts
- susceptible slope angles for each engineering geology unit polygon
- susceptible direction of movement for each engineering geology unit polygon

These factors have been used or recommended by others to predict future landslide locations and/or susceptibility (Wilson and Keefer, 1985; Giraud and Shaw, 2007; Baum and others, 2008; Soeters and van Westen, 1996; Sidle and Ochiai, 2006; Schulz, 2007). We selected each of these factors for reasons explained below.

The first factor, geologic unit, has a relatively widespread correlation with surficial processes. For example, it is very common that certain geologic formations or units are more or less prone to landslides. This is generally due to the properties of the unit, such as material strength or planes of weakness within the unit.

The second factor, geologic contacts, we found to be significant in Oregon, especially after we started mapping landslide inventories using lidar. Many landslides occur along a contact, especially when a sedimentary unit is overlain by an igneous unit. For example, large, deep landslides are located next to each other along the contact between the Troutdale Formation and the Boring Lava (a sedimentary unit below an igneous unit) in the study area (Figure 14). Although it commonly appears that landslide failure occurs at the surface trace (that is, at the contact of the two units in plan view), the failure actually occurs entirely within the Troutdale Formation rather than along the plane between the two units. Very likely, in the distant past, the overlying Boring Lava covered and protected the Troutdale Formation. With time, streams eroded through the Boring Lava and into the Troutdale, exposing the Troutdale and creating low places in the topography (stream canyons) for Troutdale material to slide into. As Troutdale material formed landslides, in some places overlying Boring Lava material was dragged down slope along with the underlying Troutdale.

The third factor, slope angle, is commonly correlated with landslide susceptibility. Most landslide susceptibility maps use slope as the primary or as at least one of the factors to predict future landslide locations. For example, shallow landslides are commonly directly associated with steeper slopes. Deep landslides appear to have less of a direct correlation with slope steepness, which is one reason we included the other three factors (geologic unit, geologic contact, and direction of movement).

The fourth factor, direction of movement, is probably the least commonly used, likely because it is rarely recorded in landslide inventories. We record it at every landslide in our landslide inventory and therefore have data. A standard factor to examine during site-specific evaluations is the local bedding dip and dip direction, because deep

landslides tend to fail along bedding planes or other planes of weakness and in the direction of the dip of those planes. Because we do not have extensive dip and dip direction measurements, we decided to use the recorded direction of movement from the landslide inventory database as a proxy for dip direction or what we are calling preferred landslide direction of movement.

In order to create these four factor data sets, a geologic map is needed. We started with the best available geologic map, and then combine the units into engineering geologic units or units with similar engineering properties. We added a new field and assigned the new engineering geologic unit names, for example “Coarse Terrace Deposits” and saved result into the C_Geologic_Units feature data set in the Deep_Landslide_Susceptibility_Clackamas_10_1.gdb. The Oregon City portion of the final engineering geologic data set is shown in Figure 14.

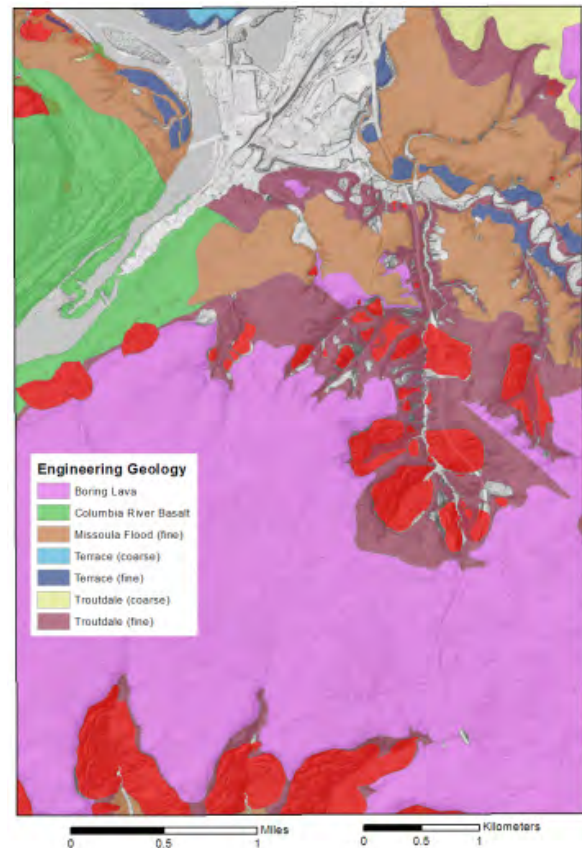


Figure 14. Engineering geology map of the Oregon City portion of the study area.

5.2.3.3.1 Susceptible geologic units

Next, we joined the landslide inventory to the engineering geology. We achieved this spatial join by matching the landslide location with the closest engineering geology unit polygon and matching each landslide one to one with a geologic polygon (see Appendix E). Then we calculated the number of landslides that joined to each engineering geologic unit (Figure 15).

We then used the frequency data to calculate the mean and standard deviation for each unit (Figure 16). We assigned a score of 0, 1, or 2 to each unit:

- score = 0, if less than the mean
- score = 1, if less than mean plus 1 standard deviation and greater than the mean
- score = 2, if equal or greater than mean plus 1 standard deviation

The Oregon City portion of the final map is displayed to Figure 17.

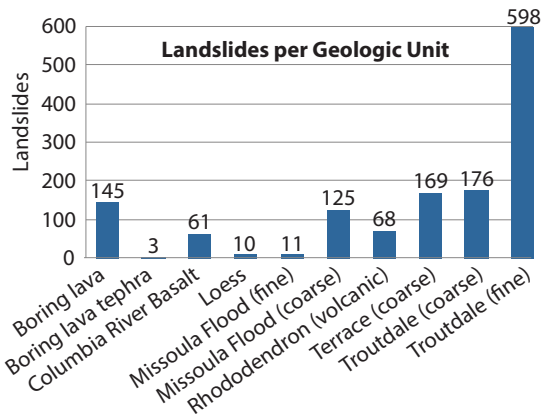


Figure 15. Landslides in each geologic unit in the study area.

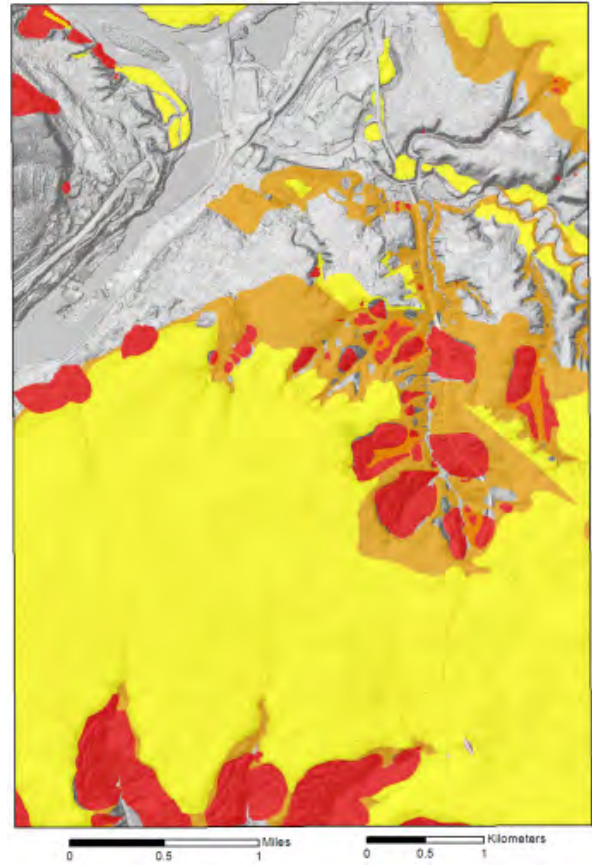


Figure 17. Map of susceptible geologic units factor with scores of zero (no color, gray), one (yellow), and two (orange). Red areas are landslide deposits.

Raw Statistics		Score Derived from Raw Statistics		Score Applied to Engineering Geology Unit		
Mean	137	Mean + 1 STD	312 equal or greater	2	Frequency	145
Standard Error	55	Mean + 1 STD	312 or less	1	Engineering Geology	Boring lava
Median	97	Mean	137 equal or greater	1	Score	1
Mode	N/A	Mean	137 or less	0		3
Standard Deviation (STD)	175					61
Sample Variance	30,641					10
Kurtosis	6					11
Skewness	2					125
Range	595					68
Minimum	3					169
Maximum	598					176
Sum	1,366					598
Count	10					

Figure 16. Frequency data summary statistics.

5.2.3.3.2 Susceptible geologic contacts

The first step was to identify geologic contacts in the study area that have landslides along them (Figure 14). We selected the units on each side of the contact used the overlapping area of the two polygons to create a new susceptible contact line. We then used this contact line to select landslides that touch or are near the contact (Figure 18). We saved the selected landslides to the D_Geologic_Contacts feature data set in the Deep_Landslide_Susceptibility_Clackamas_10_1.gdb.

After the landslides are selected and saved to a separate file, we executed the minimum bounding geometry (MBG) tool in the Esri ArcGIS™ version 10.1 3D Analyst™ or Spatial Analyst™ extension on the selected landslide file. One of the calculated outputs of this tool is the landslide (MBG) rectangle width, which is normally the length of the landslide from the head to the toe. The mean and standard deviation of the MBG width can be easily calculated for each set of landslides correlated to a particular contact (Figure 19).

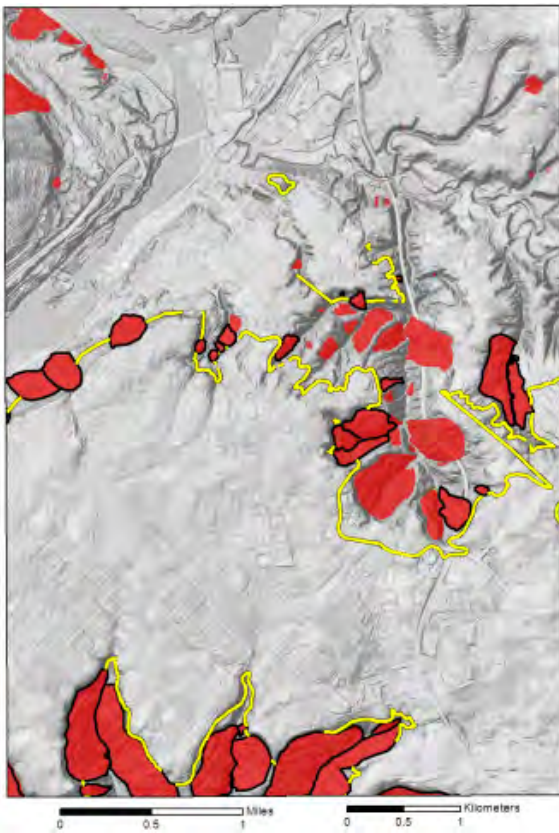


Figure 18. Map of the contact between Boring Lava and fine-grained Troutdale Formation (yellow line) showing landslide deposits (red) and the landslides that touch and are along the contact (red and outlined in black).

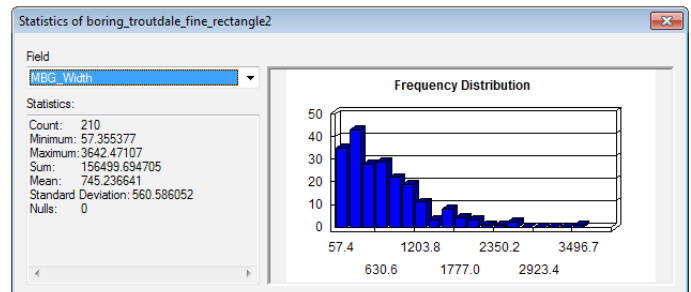
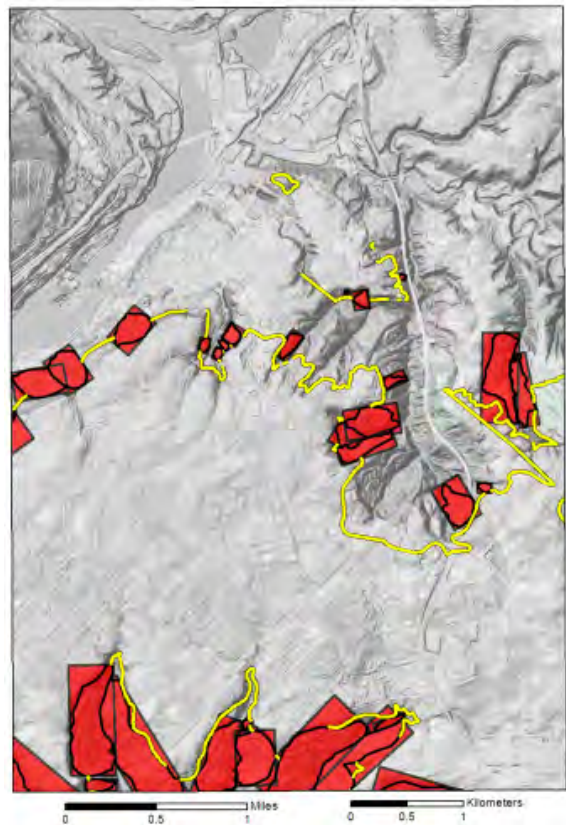


Figure 19. (top) Map of the minimum bounding geometry (MBG) rectangles (black outline and red fill) derived from landslide polygons (black outline inside rectangles). (bottom) Summary statistics of the minimum bounding geometry (MBG) width of landslides with along the contact between Boring Lava and Troutdale Formation.

We then used the mean MBG width distance to create a buffer around the contact line. We assigned this new buffer polygon a score of 2. We used the mean + 1 standard deviation MBG width distance to create a second buffer and we assigned this new polygon a score of 1 (Figure 20).

We repeated this same process for all susceptible contacts and then merged the results into a final susceptible contact factor score file.

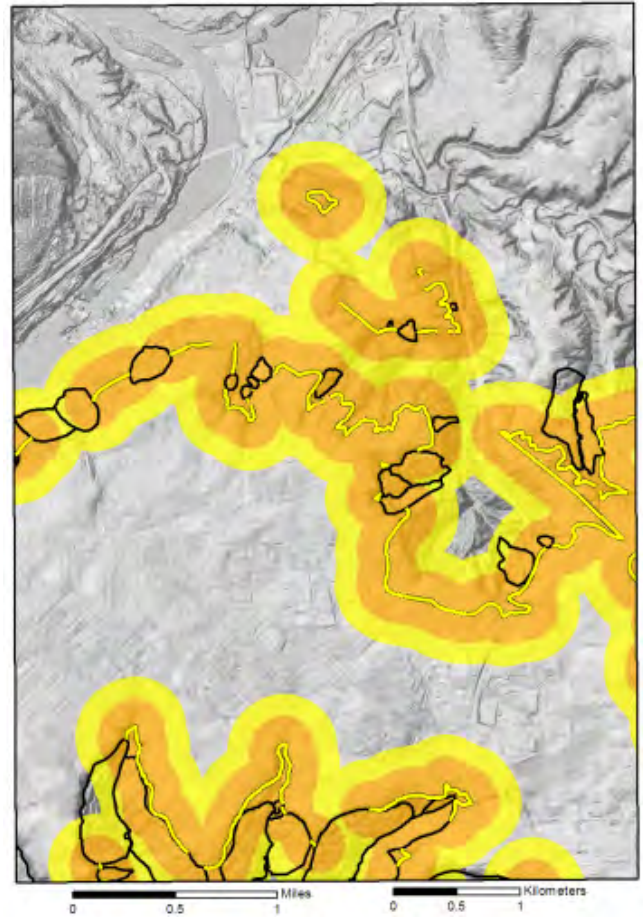


Figure 20. Map of the susceptible contact factor with scores of zero (no color, gray), one (yellow), and two (orange). The contact between the Boring Lava and fine-grained Troutdale Formation is the yellow line, and landslide deposits are outlined in black.

5.2.3.3 Susceptible slopes

Slope angles commonly correlate with landslide susceptibility. In the landslide inventory, the pre-failure slope angle is estimated at each landslide. We used these data to establish slope angle thresholds that have greater potential for future landslides within each engineering geology polygon. We started with the file of joined landslides and engineering geology from section 5.2.3.3.1 (Susceptible Geologic Units). Next we ran the summary statistics tool in ArcGIS and calculated the mean and standard deviation of each susceptible engineering geologic unit. We then joined this table back to the engineering geology file and converted the engineering geology table to a raster of mean slope (Figure 21) and a raster of mean slope plus two standard deviations.

We used the Esri ArcGIS raster calculator to evaluate where on the map the following situations occurred and to assign the following scores:

- score = 2, if slope greater than or equal to landslide mean slope
- score = 1, if slope greater than landslide mean slope and slope greater than mean minus 2 standard deviations slope

The two rasters were added together so that a final susceptible slope factor map is created (Figure 22).

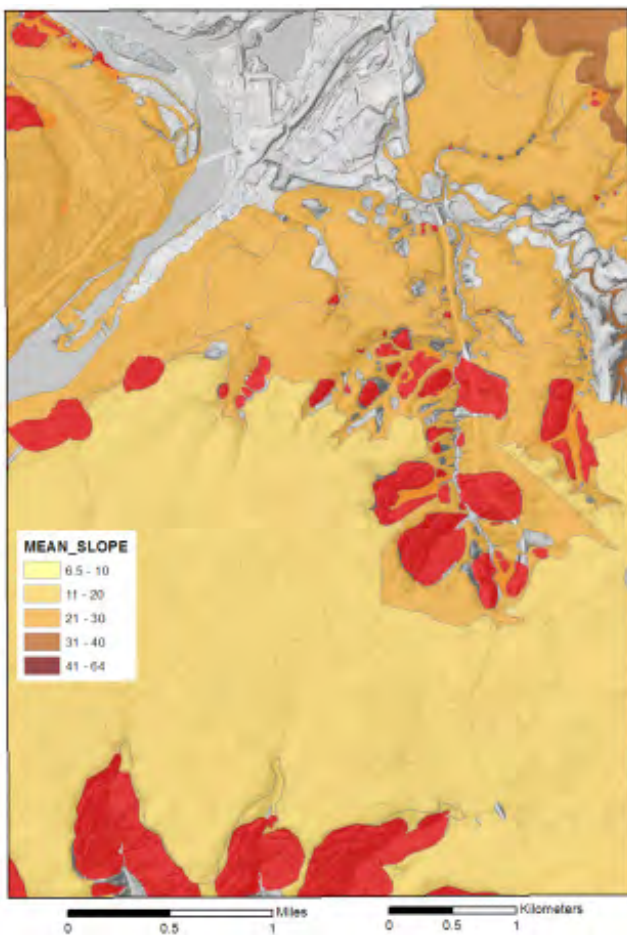


Figure 21. Map of the mean slope angle of each engineering geology polygon derived from landslides (red) located within each polygon.

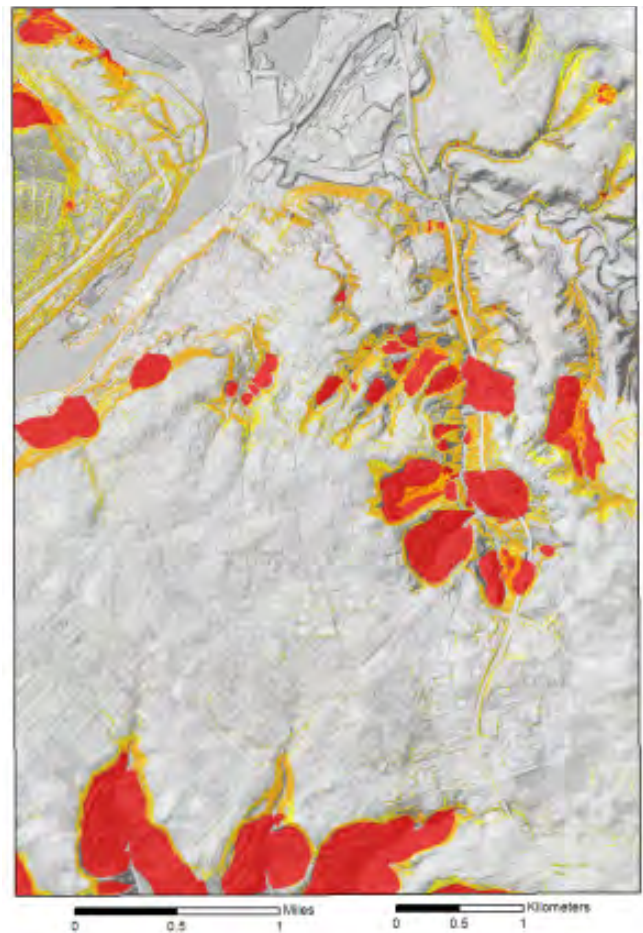


Figure 22. Map of the susceptible slopes factor with scores of zero (no color, gray), one (yellow), and two (orange). Landslides are shown in red.

5.2.3.3.4 Preferred direction of movement

Many deep landslides are partially controlled by subsurface geologic structure. However, structure is rarely factored into modeling due to the lack of detailed spatial understanding of the structure. We recorded the direction of movement at every landslide in our landslide inventory and recommend using these data as a proxy for the geologic structure or preferred direction of movement.

We first converted each landslide area to a grid of points with the direction attribute at each point. Next, we used the file described in section 5.2.3.3.2 (Susceptible Geologic Contacts) with the MBG width to establish the mean width for all landslides within the study area. Then, we interpolated a raster surface from these points using an inverse distance weighted (IDW) technique with a maxi-

mum distance set to the MBG width mean. Finally, we created a slope aspect file from the lidar DEM (Figure 23).

We then used the raster calculator to evaluate where on the map the following situations occur and assign the following scores (see Appendix E):

- score = 2, if [slope aspect less than or equal to (IDW direction of movement plus 22.5)] and [slope aspect greater than or equal to (IDW direction of movement minus 22.5)]
- score = 1, if [slope aspect less than or equal to (IDW direction of movement plus 45)] and [slope aspect greater than or equal to (IDW direction of movement minus 45)]

Because the slope aspect map is very detailed due to the lidar DEM and the map of interpolated landslide direction is very simplified (Figure 23), we decided to use a range

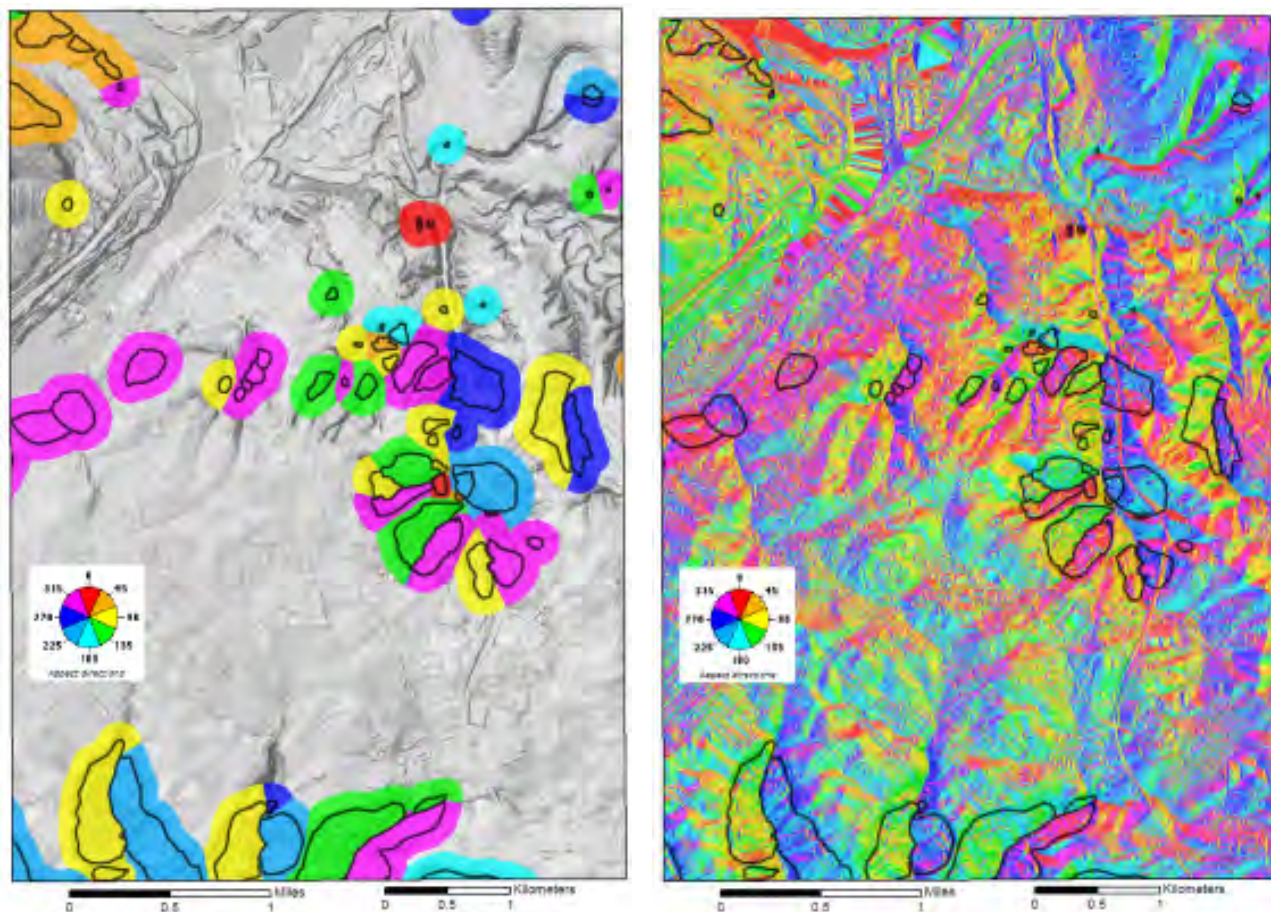


Figure 23. (left) Map of the interpolated landslide direction of movement. (right) Map of slope aspect derived from the lidar DEM. Landslides are outlined in black.

of slope direction. In the case of the higher score (2), any slope within ± 22.5 degrees (45 degrees total) of the interpolated slope is identified. Twice this amount, or ± 45 degrees (90 degrees total), is used for the medium score (1). We then added the two rasters together to create a final susceptible preferred direction factor map (Figure 24).

5.2.3.4 Combined moderate factors score

We then combined the four factor maps (geologic units, geologic contacts, slope angles, and direction of movement). Each factor map is made up of raster cells and each cell has a score of 0, 1, or 2, so the final combined map has a range of values from 0 to 8. A score of zero means none of the factors were present at a particular site, and a score of 8 means the maximum value for all four factors was present (Figure 25).

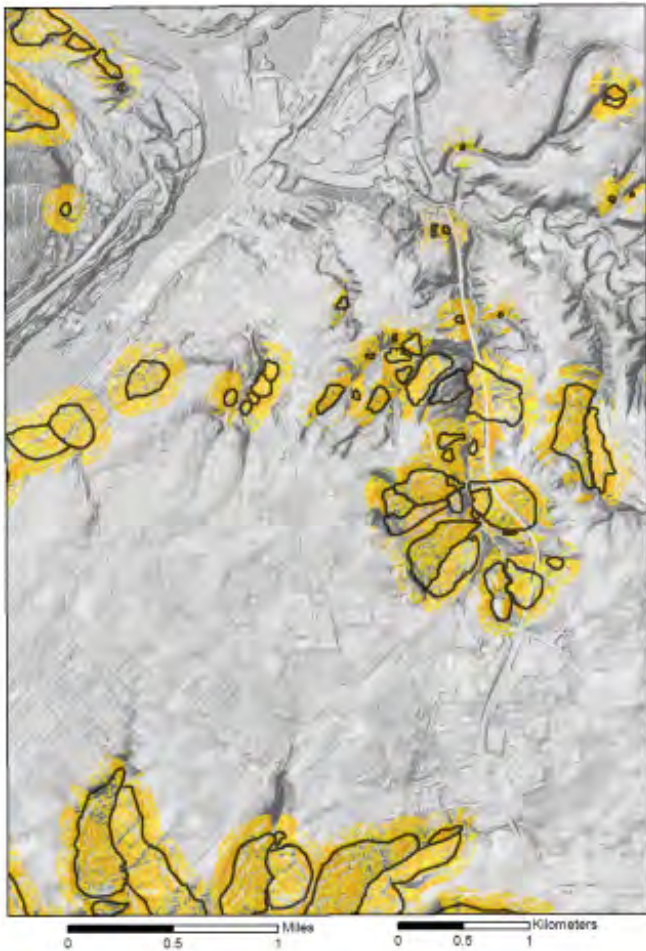


Figure 24. Map of the susceptible preferred direction factor with scores of zero (no color, gray), one (yellow), and two (orange). Landslides are outlined in black.

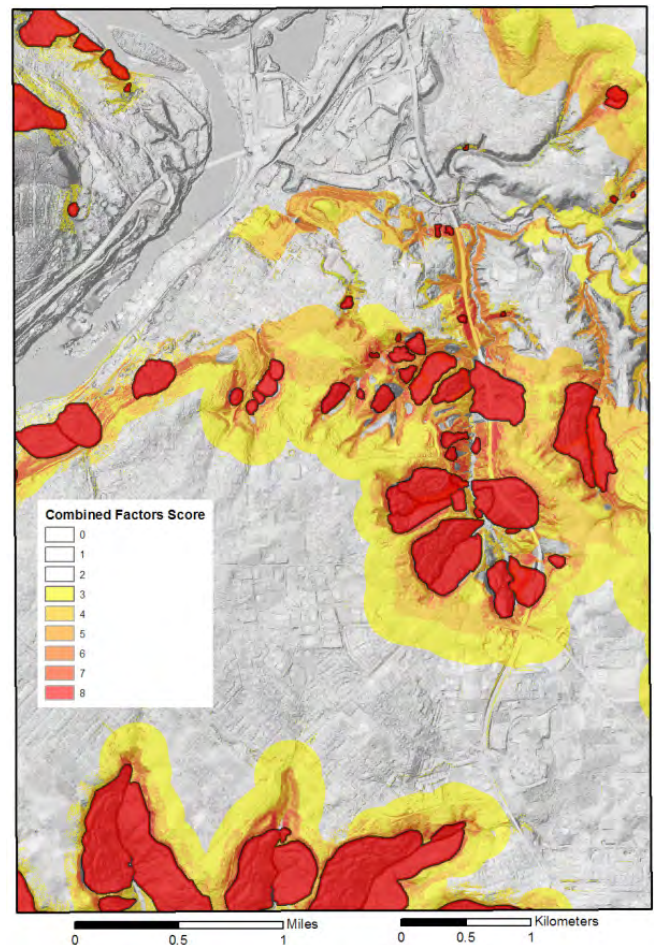


Figure 25. Map of the combined moderate factor scores with total scores ranging from zero (no color, gray) to eight (red). The high-susceptibility zone defined in section 5.2.3.1 is shown in red outlined in black.

5.2.3.5 Minimal landslide deposits and head scarp–flank buffers

To establish a minimal moderate susceptibility zone around the landslide deposits and head scarp–flank polygons, we multiplied the head-scarp height by two, just as we did in section 5.2.3.2 (Head scarp–flank polygons and buffers). This establishes a minimal distance for each landslide on the basis of individual landslide attributes (Figure 26, left).

5.2.3.6 Delineation of the moderate susceptibility zone

We used the minimal moderate susceptibility zone and the combined moderate factors map to delineate the line between the moderate and the low susceptibility zone. We used a minimal combined factor score threshold between 3 and 5 along with educated judgment to delineate the boundary between the low and moderate zones (Figure 26, right).

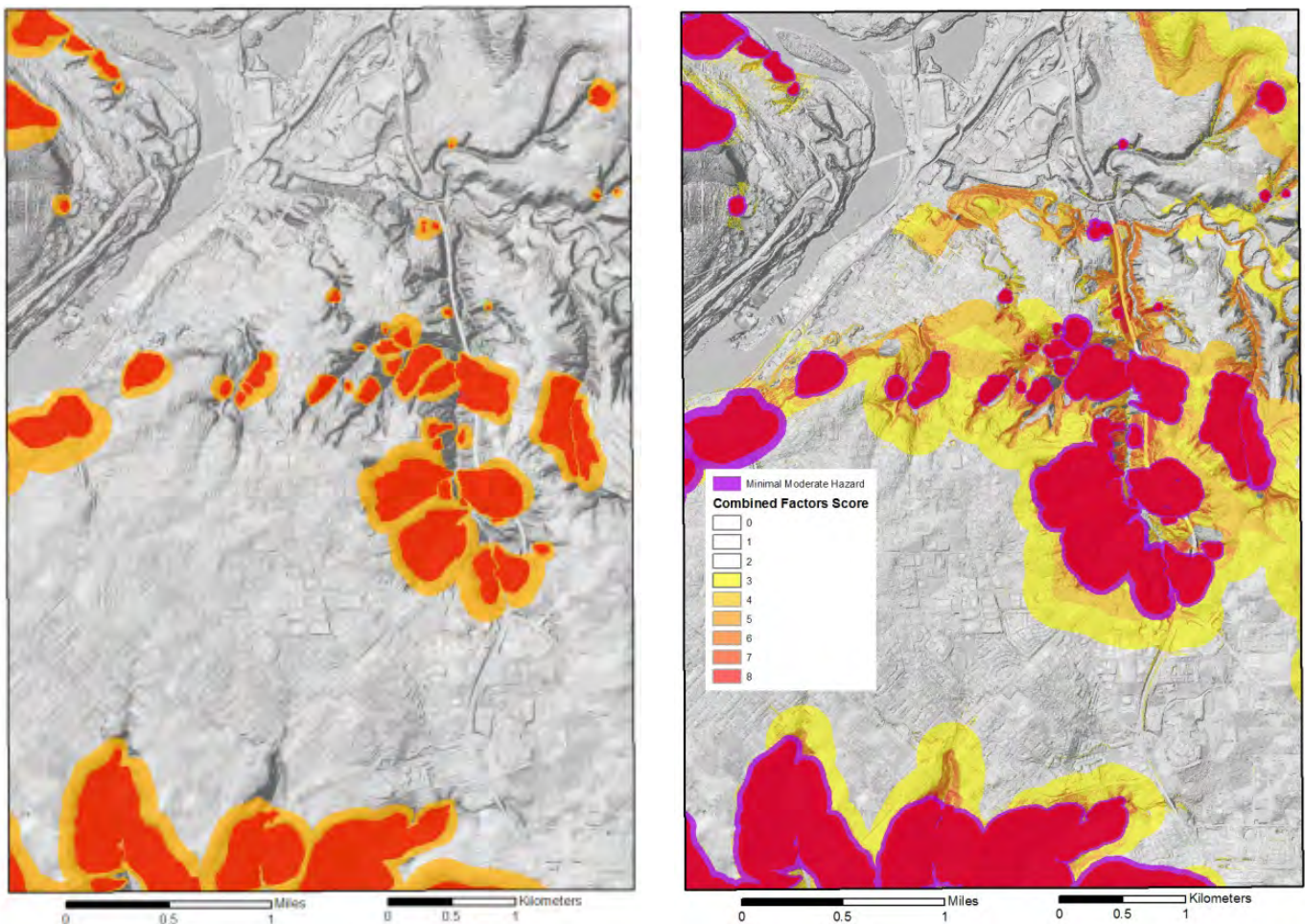


Figure 26. (left) Map of the minimal moderate susceptibility zone (orange) and landslide deposits (red). (right) Map of the high susceptibility zone (red), the combined moderate factors score (yellow to orange areas), and the minimal moderate zone (purple).

An example of educated judgment can be seen in the northwest portion of Figure 267. This area lacks moderate factors and minimal moderate zone; however, a known Columbia River Basalt soil interbed in this area called the Vantage Horizon is exposed at the surface. Just to the west of this area a large landslide, which very likely failed along the Vantage Horizon, occurred.

5.2.3.7 Final deep-landslide susceptibility zones

The final deep landslide susceptibility zones are a combination of contributing factors discussed in the previous section 5.2.3 and combined as shown in Table 2 (Figure 27).

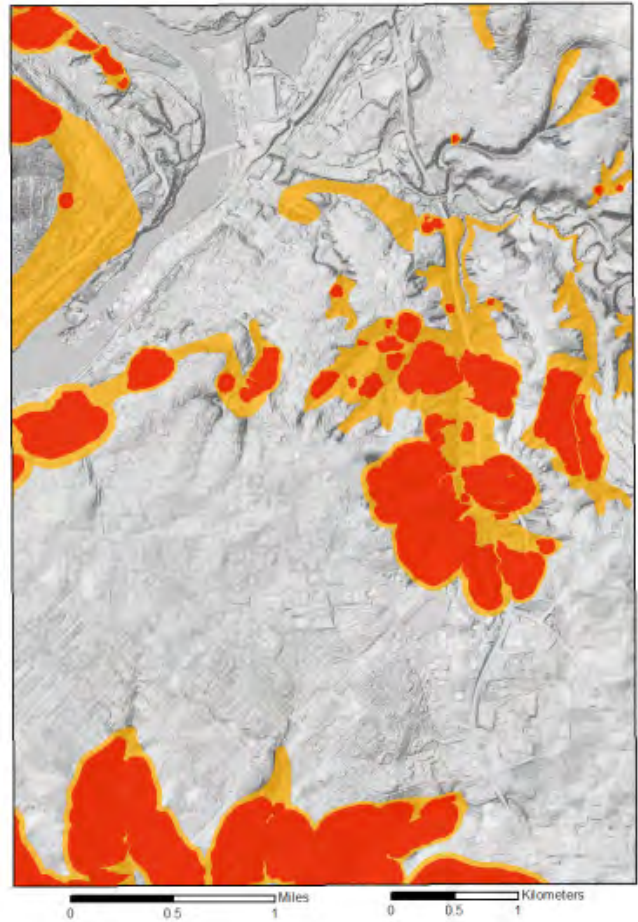


Figure 27. Map of high (red), moderate (orange), and low (no color, gray) deep-landslide susceptibility zones.

Table 2. Final deep-landslide hazard zone matrix.

Contributing Factors	Final Hazard Zone		
	High	Moderate	Low
Landslides, Head Scarp–Flanks, Buffers	included	—	—
Geologic Factors, High Zone Buffer	—	included	—
Minimal Geologic Factors	—	—	included

5.2.3.8 Deep-landslide susceptibility map

We developed a map template as part of the protocol described here. The map template provides a way to display deep-landslide susceptibility data in a consistent manner for any area in Oregon. An example of this template is shown in Figure 28.

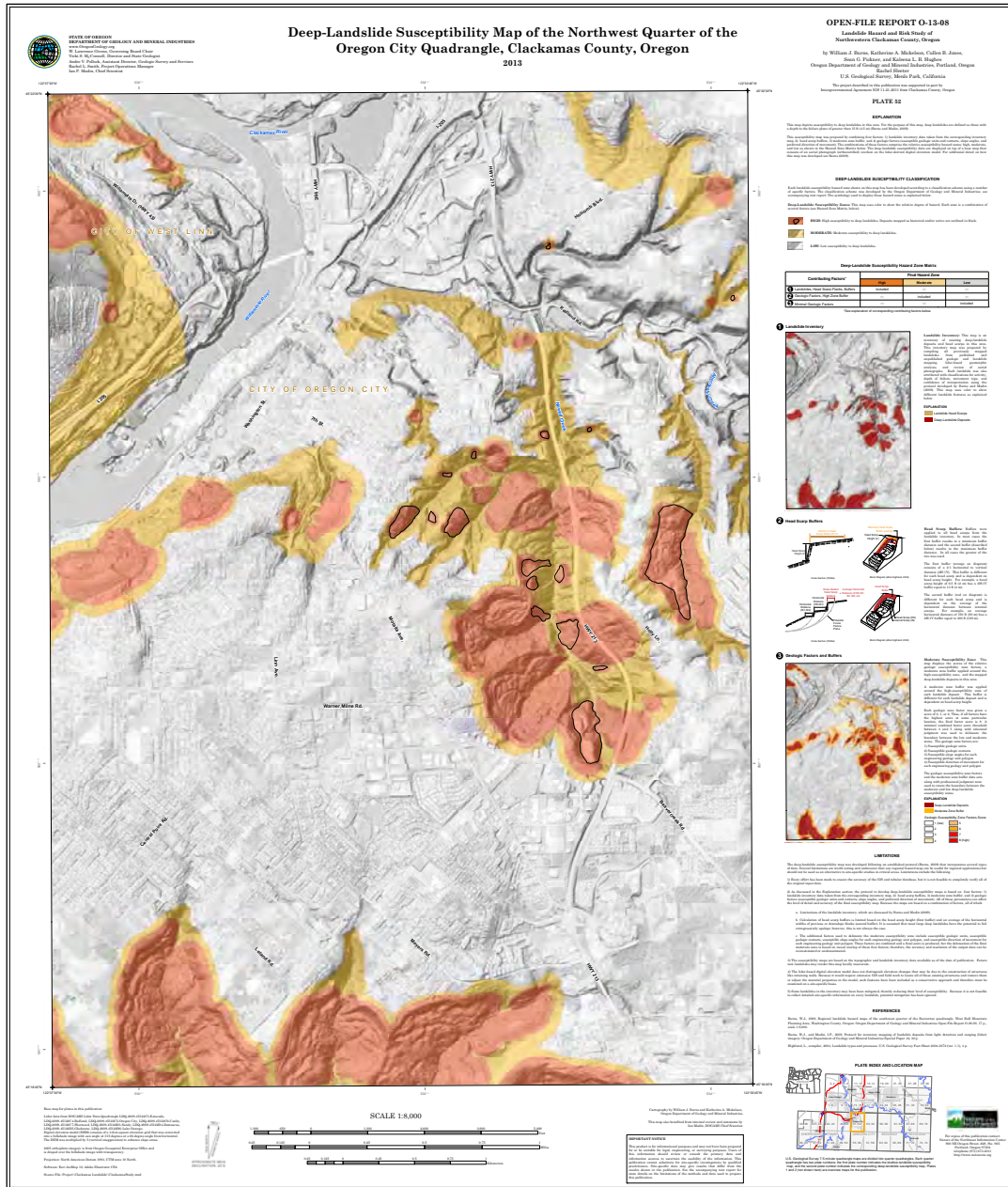


Figure 28. Example of the deep-landslide susceptibility map of the northwest quarter of the U.S. Geological Survey Oregon City 7.5-minute quadrangle, Clackamas County, Oregon (Plate 52).

5.3 Risk Analysis and Loss Estimation

When landslides affect humans, they become natural hazards. Natural hazard risk assessment is the characterization of the overlap of natural hazards and humans (assets).

Risk analysis can range from simple to complicated. In this project we selected two types of regional risk analysis: 1) hazard and asset exposure and 2) Hazus-MH, a multi-hazard analysis program that estimates physical, economic, and social impacts of a disaster (FEMA, 2011). In order to better understand the risk, we also collected historic landslide data for the study area and estimated actual historic losses.

5.3.1 Exposure analysis

Simply put, a building is considered to be exposed to the hazard if it is located within a selected hazard zone. We performed exposure analysis with Esri ArcGIS version 10.1 software. We determined exposure through a series of spatial and tabular queries between hazard zones and assets and reported by the community (spatial extents) as shown in Table 3.

Hazard zones used in the exposure analysis are:

- shallow landslides (inventory)
- deep landslides (inventory)

Table 3. Communities for exposure reporting.

Community	Area		Percent of Study Area
	mi ²	acres	
Metro urban growth boundary area*	136.65	87,456	36.7%
Clackamas County (non-city)	290.92	186,188	78.1%
Canby	4.39	2,811	1.2%
Damascus	16.09	10,295	4.3%
Estacada	2.29	1,465	0.6%
Gladstone	2.49	1,594	0.7%
Happy Valley	9.19	5,881	2.5%
Lake Oswego	11.59	7,415	3.1%
Milwaukie	5.16	3,304	1.4%
Oregon City	9.85	6,305	2.6%
Sandy	3.19	2,042	0.9%
West Linn	8.18	5,238	2.2%
Wilsonville	7.42	4,747	2.0%
Other jurisdictions**	1.60	1,024	0.4%
Total	372.36	238,308	—

*Metro values not included in totals.

**Johnson City, Rivergrove, Barlow, Portland (< 0.5 mi²), and Tualatin (< 0.8 mi²)

- debris flow fans (inventory)
- shallow landslide susceptibility (low)
- shallow landslide susceptibility (moderate)
- shallow landslide susceptibility (high)
- deep landslide susceptibility (low)
- deep landslide susceptibility (moderate)
- deep landslide susceptibility (high)

In other words, we used the GIS databases to find which community assets fell in which hazard zones. For example, we superimposed the buildings layer for the City of Lake Oswego on the deep-landslide high-susceptibility zone layer to determine which buildings are exposed to that level of hazard. The result of this analysis is both a map of the community assets exposed to the hazard and a table with the corresponding numbers of community assets exposed.

Asset data used in the exposure analysis are:

- population (people per 30 m² [323 ft²])
- buildings and land
 - merged into eight generalized occupancy classes (zoning/land use classes) used in FEMA Hazus-MH: single family residential, other residential, commercial, industrial, agriculture, religion, government, education
 - buildings reported by count, count percent of total, and value (dollars)
 - land reported by count, count percent of total, area (square feet), area (acres), area percent of total, value (dollars)
- critical facilities buildings and land
 - hospitals
 - fire stations
 - police stations
 - school buildings
 - buildings reported by count, count percent of total, and value (dollars)
 - land reported by count (parcel county), count percent of total, area (square feet), area (acres), area percent of total, value (dollars)
- transportation
 - freeways, highways and major arterials – lines
 - minor arterials and collectors/connectors – lines
 - local streets – lines
 - railroads – lines
 - report by length (feet), length (miles), and percent of total
- electric
 - major transmission line towers – points, reported by county and percent of total

- major substations – polygons, reported by count
- power generating dams – polygons, reported by count

Some assets were divided into the numbers of miles exposed to the hazard. These assets are generally the primary infrastructure lifelines or linear systems such as roads and rail lines. For the generalized occupancy classes asset layer, we multiplied the portion of the parcel exposed (percent of the total parcel size) by the parcel's total dollar value, so that a realistic exposed land dollar value could be obtained.

To accomplish the task of analyzing 2,093 different asset output values (including totals and per community numbers) for each of the nine hazard zones, we created a GIS model. The model resulted in 18,657 different output values. Details about the model and the exposure analysis process are included in Appendix F.

5.3.2 Hazus-MH analysis

We performed the second type of risk analysis with Hazus-MH, a risk modeling software package developed by FEMA, the National Institute of Building Sciences (NIBS), and other public and private partners (FEMA, 2011). Hazus-MH software can be used to model a variety of earthquake, flood, and wind probabilistic hazards and/or hazard event scenarios. Because there is no landslide module, we used the earthquake module with and without earthquake-induced landslide hazards. Then we subtracted the earthquake-without-landslides model from the earthquake-with-landslides model so that the earthquake-induced landslide damage and losses could be examined separately.

Default databases are included with the Hazus-MH program. Most data are based on national-scale information that generally does not accurately reflect local conditions. To better account for local variability, the software is designed to incorporate user-specific updates to the hazard and asset databases (FEMA, 2011). To update the asset database, much more detailed building-specific data must be collected. Although Hazus-MH has limitations, it is the only publicly available risk analysis program with data for the United States that can produce casualty and fatality estimates. This is one reason why we performed the two types of risk analysis (exposure and Hazus-MH). We also focused on loss ratios rather than absolute numbers, because we know that absolute numbers can be inaccurate at the local scale. For example, instead of examining the

absolute count of buildings at various levels of damage, we looked at the ratio of the estimated damaged buildings to the total buildings in the Hazus-MH database. Although the absolute numbers may be inaccurate, the ratios are very likely in the realistic range and could be applied to the much more accurate local database to obtain a realistic absolute number.

The smallest areal extent allowed for analysis in the Hazus-MH earthquake module is the census tract level. We chose this level for all analyses. We selected the 60 census tracts that best represent the study extent (Figure 29). Although the extent of the 60 tracts is in some places larger than the study area and in some places smaller, overall we felt it best represented the study area. One limitation of Hazus-MH is that census tract areas can be too coarse for small areas mapped as hazard zones.

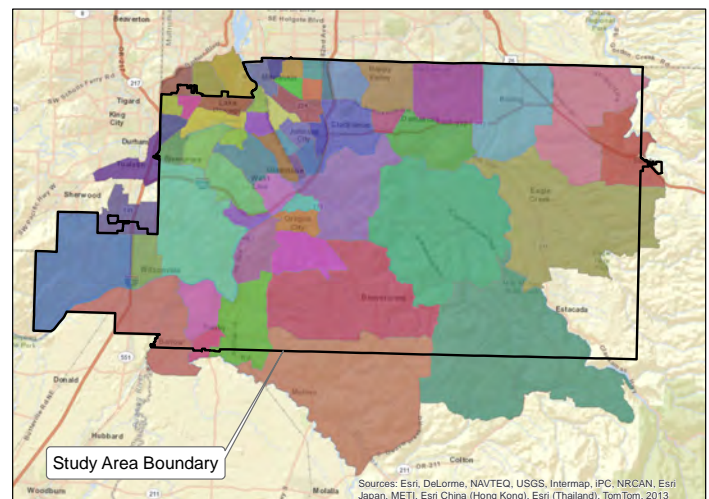


Figure 29. Map of the 60 selected census tracts in the study area used in the Hazus-MH analysis.

The goal was to estimate damage and losses from two kinds earthquakes (crustal and Cascadia Subduction Zone), both with and without earthquake-induced landslides, so that we could examine the damage and losses caused by just the earthquake-induced landslides. We also ran landslides set to 9 out of 10 (Table 4, IX values) for a single scenario to make sure the changes were continuing above the analysis level (detailed landslides). We performed five different Hazus-MH analyses (Table 5; Appendix H).

Table 4. Landslide susceptibility of geologic groups (Hazus-MH 2.0, Table 4-15 [FEMA, 2011]).

Geologic Group	Slope Angle, degrees					
	0–10	10–15	15–20	20–30	30–40	>40
(a) DRY (groundwater below level of sliding)						
A Strongly cemented rocks (crystalline rocks and well-cemented sandstone, $c' = 300$ psf, $\phi' = 35^\circ$)	none	none	I	II	IV	VI
B Weakly cemented rocks (sandy soils and poorly cemented sandstone, $c' = 0$, psf, $\phi' = 35^\circ$)	none	III	IV	V	VI	VII
C Argillaceous rocks (shales, clayey soil, existing landslides, poorly compacted fills, $c' = 0$, psf, $\phi' = 20^\circ$)	V	VI	VII	IX	IX	IX
(b) WET (groundwater level at ground surface)						
A Strongly cemented rocks (crystalline rocks and well-cemented sandstone, $c' = 300$ psf, $\phi' = 35^\circ$)	none	III	VI	VII	VIII	VIII
B Weakly cemented rocks (sandy soils and poorly cemented sandstone, $c' = 0$, psf, $\phi' = 35^\circ$)	V	VIII	IX	IX		X
C Argillaceous rocks (shales, clayey soil, existing landslides, poorly compacted fills, $c' = 0$, psf, $\phi' = 20^\circ$)	VII	IX	X	X	X	X

Table 5. Hazus-MH analyses for this study.

Hazus-MH Analysis	Earthquake Scenario	Earthquake-Induced Landslide Hazard Included?
1		no
2	crustal M6.8—Portland Hills Fault	yes, detailed (includes new susceptibility mapping)
3		yes, hazard set to 9 out of 10 (see Table 4, cells with IX values)
4		no
5	Cascadia M9.0	yes, detailed (includes new susceptibility mapping)

The generalized overall landslide hazard data layer (Figure 30) was created following the Hazus-MH methodology (FEMA, 2011). The method combines slope and geologic group as shown in Table 4 to create landslide susceptibility classes. Inside the study extent we combined the geology (Figure 8), the detailed landslide inventory, and the slope map derived from the lidar data. In the few areas of census tracts that extended outside the study area (Figure 29), we used the existing statewide landslide susceptibility values from Madin and Burns (2013).

5.3.3 Historic landslide data and loss estimation

In order to better understand the risk, we also collected historic landslide data for the study area and estimated actual historic losses; 370 historic landslide locations were compiled into a spreadsheet with the following fields:

- year
- damage and loss description
- slide name
- loss/repair costs (dollars)
- location
- comments

Note that not every landslide entry has data for every field; for example, only 299 had dates and only 76 had dollar values.

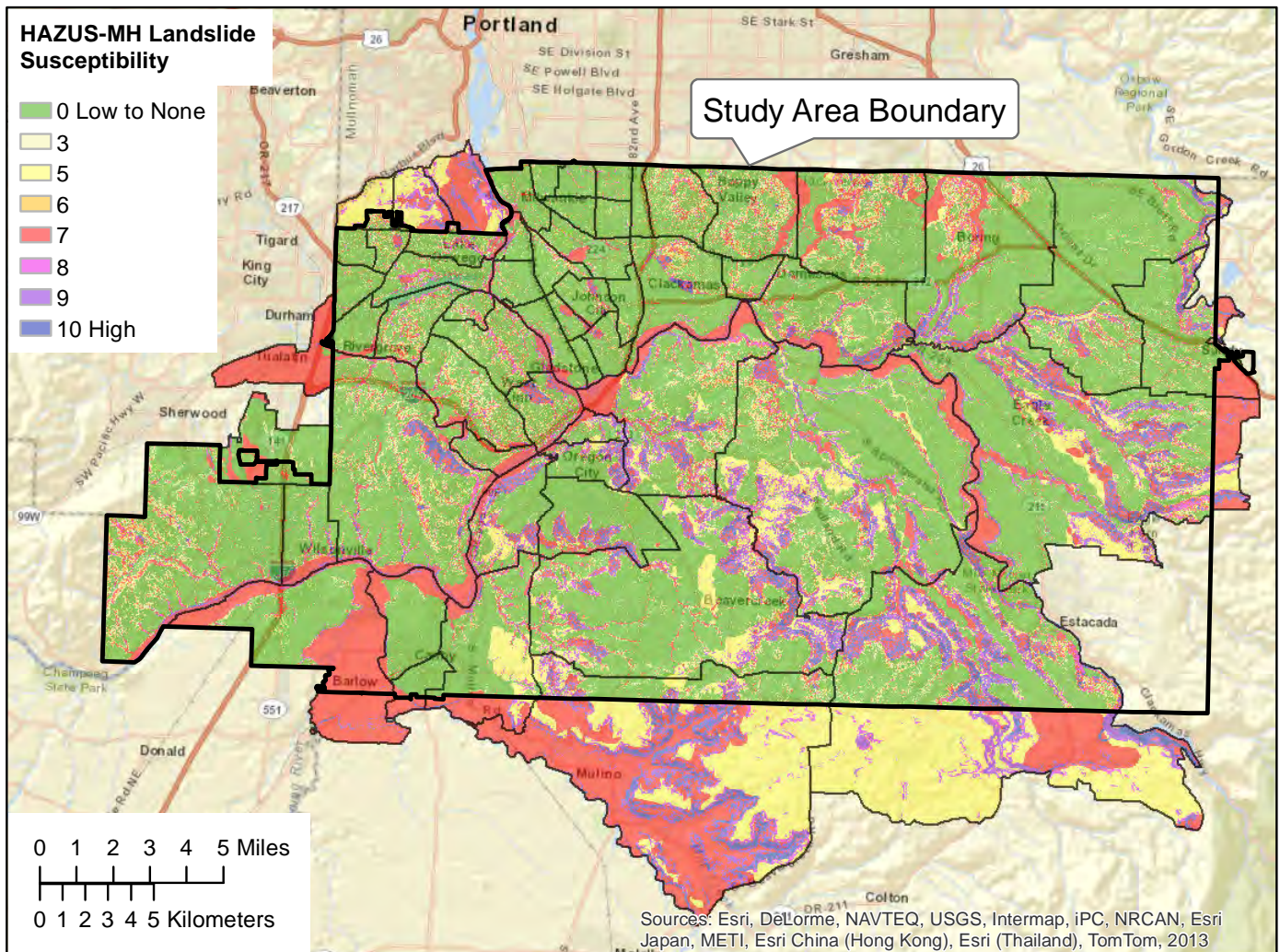


Figure 30. Landslide susceptibility map ranging from 0 (low) to 10 (high) for the Hazus-MH study extent.

6.0 RESULTS

The asset and hazard data sets were all created in ArcGIS and are therefore digital map layers. We acquired, created new, and/or combined published data to create the population, critical facilities and primary infrastructure, buildings and land, landslide inventory, shallow landslide susceptibility, and deep landslide susceptibility data sets.

These data sets are displayed on Plate 1 (asset overview map), Plate 2 (landslide hazards overview map), and Plates 3–74 (detailed susceptibility maps).

6.1 Permanent population results

We created a GIS data set of permanent population for the study area that displays permanent population density gridded at 90 ft (30 m) cell size. There are 339,240 residents in the study area (Table 6), mostly in cities and/or communities (Plate 1); 80% of the population (266,969) falls within the Metro boundary

6.2 Buildings and land results

We created a GIS data set of buildings and generalized occupancy (Figure 6 and Plate 1). There are 153,582 buildings in the study area database with a total real market value of roughly \$22.8 billion. Together, the buildings and land are worth roughly \$40 billion (Table 7, Appendix F).

The generalized land occupancy data set contains eight classes: single family residential, other residential, commercial, industrial, agriculture, religion, government, and education. The data set also identifies individual parcel size, land value in dollars, and improvement (building) value in dollars.

Table 6. Permanent population by community.

Community	Population
Metro urban growth boundary area*	266,969
Clackamas County (non-city)	139,719
Canby	16,334
Damascus	10,354
Estacada	2,794
Gladstone	11,081
Happy Valley	12,910
Lake Oswego	35,736
Milwaukie	21,815
Oregon City	32,506
Sandy	8,645
West Linn	26,132
Wilsonville	16,464
Other jurisdictions**	4,750
Total (Cities + County)	339,240

*Metro values not included in totals.

**Johnson City, Rivergrove, Barlow, Portland (< 0.5 mi²), and Tualatin (< 0.8 mi²)

Table 7. Building and land inventory summary.

Community	Buildings			Parcels	Land		
	Total Buildings	Percent of Total Buildings	Total Value (dollars)		Total Area (acres)	Percent of Total Area	Value (dollars)
Metro urban growth boundary area*	107,229	69.8%	\$18,880,236,254	98156	62473	31.7%	\$12,907,166,251
Clackamas County (non-city)	73,714	48.0%	\$8,206,862,935	50917	164532	80.5%	\$7,555,643,882
Canby	5,601	3.6%	\$775,826,237	5031	2031	1.0%	\$495,837,330
Damascus	6,377	4.2%	\$571,725,843	4379	9516	4.5%	\$497,736,180
Estacada	1,153	0.8%	\$119,127,897	1365	1135	0.5%	\$116,522,395
Gladstone	4,062	2.6%	\$446,203,737	3637	990	0.5%	\$359,239,424
Happy Valley	5,068	3.3%	\$1,097,313,105	6624	4637	2.4%	\$849,768,072
Lake Oswego	13,794	9.0%	\$4,409,759,556	15863	4927	2.6%	\$2,917,432,288
Milwaukie	8,539	5.6%	\$994,967,333	7569	2285	1.1%	\$766,365,219
Oregon City	15,524	10.1%	\$1,728,660,896	11639	4097	2.2%	\$1,037,600,847
Sandy	3,574	2.3%	\$425,193,227	3890	1520	0.8%	\$333,230,683
West Linn	9,273	6.0%	\$1,984,800,222	10311	3073	1.7%	\$1,228,067,655
Wilsonville	5,091	3.3%	\$1,683,958,505	5576	3221	1.8%	\$854,427,273
Other jurisdictions**	1,812	1.2%	\$327,317,776	1510	588	0.4%	\$225,232,317
Total (Cities + County)	153,582	—	\$22,771,717,269	128,310	202,550	—	\$17,236,964,281

*Metro values not included in totals.

**Johnson City, Rivergrove, Barlow, Portland (< 0.5 mi²), and Tualatin (< 0.8 mi²)

6.3 Critical facilities and primary infrastructure results

We created or acquired GIS data to create a data set of critical facilities, defined as hospitals and fire and police and school buildings. We found 424 of these buildings in the study area (Plate 1, Table 8). Most of these buildings were located within the Metro boundary, that is, closer to population centers.

We found roughly 2,300 miles of road and 767 high-voltage electric transmission line towers in the study area (Table 9, Plate 1, Appendix F).

Table 8. Critical facilities inventory summary.

Community	Buildings	Percent of Total Buildings
Metro urban growth boundary area*	340	80.2%
Clackamas County (non-city)	133	31.4%
Canby	21	5.0%
Damascus	4	0.9%
Estacada	16	3.8%
Gladstone	22	5.2%
Happy Valley	12	2.8%
Lake Oswego	32	7.5%
Milwaukie	31	7.3%
Oregon City	82	19.3%
Sandy	16	3.8%
West Linn	22	5.2%
Wilsonville	19	4.5%
Other jurisdictions**	14	3.3%
Total (Cities + County)	424	—

*Metro values not included in totals.

**Johnson City, Rivergrove, Barlow, Portland (< 0.5 mi²), and Tualatin (< 0.8 mi²)

Table 9. Roads and electric system inventory summary.

Community	Road Length		Electric Generating Plants (Dams)	Electric Substations	Electric Towers	
	Total (miles)	Percent of Total			Total	Percent of Total
Metro urban growth boundary area*	1,406	61.0%	2	2	197	25.7%
Clackamas County (non-city)	1,250	54.3%	3	3	640	83.4%
Canby	67	2.9%	0	0	0	0.0%
Damascus	90	3.9%	0	0	0	0.0%
Estacada	23	1.0%	0	0	0	0.0%
Gladstone	46	2.0%	0	0	0	0.0%
Happy Valley	97	4.2%	0	0	25	3.3%
Lake Oswego	182	7.9%	0	0	0	0.0%
Milwaukie	92	4.0%	0	0	0	0.0%
Oregon City	163	7.1%	0	0	34	4.4%
Sandy	46	2.0%	0	0	2	0.3%
West Linn	130	5.6%	1	0	0	0.0%
Wilsonville	94	4.1%	0	1	66	8.6%
Other jurisdictions**	26	1.1%	0	0	0	0.0%
Total (Cities + County)	2,304	—	4	4	767	—

**Metro values not included in totals.

**Johnson City, Rivergrove, Barlow, Portland (< 0.5 mi²), and Tualatin (< 0.8 mi²)

6.4 Landslide inventory results

We created two landslide inventories. The first is a compilation of landslides that were previously mapped by DO-GAMI staff following the methodology of Burns and Madin (2009). We found 2,885 landslides that cover roughly 7% of the study area (Figure 31, Plate 2). Details for each community are shown in Table 10. Of these, 1,367 are large deep landslides and 884 are smaller shallow landslides.

We prepared the following:

- landslide inventory overview map (scale 1:50,000) of the entire study area (Plate 2). Includes an index map to the detailed plates
- landslide inventory geodatabase (Clackamas_landslides_10_1.gdb), which includes 1:8,000-scale landslide inventory data of the entire study area (compiled from IMS-29, -30, -32, -38, -48, -49, -50, -51, and -52)

Table 10. Summary of the northwestern Clackamas County landslide inventory.

Community	Landslides	Area, acres	Percent of Total Area
Metro urban growth boundary area*	654	2,711	3.5%
Clackamas County (non-city)	2,609	15,226	8.2%
Canby	0	0	0.0%
Damascus	58	446	4.3%
Estacada	7	46	3.1%
Gladstone	3	50	3.1%
Happy Valley	20	31	0.5%
Lake Oswego	107	159	2.1%
Milwaukie	4	1	0.0%
Oregon City	62	255	4.0%
Sandy	24	45	2.2%
West Linn	53	265	5.1%
Wilsonville	20	19	0.4%
Other jurisdictions**	2	0	0.0%

*Metro values not included in totals.

**Johnson City, Rivergrove, Barlow, Portland (< 0.5 mi²), and Tualatin (< 0.8 mi²)

Note: Some landslides cross community boundaries and therefore may be counted multiple times; therefore totalling the values in this table will not provide accurate a accurate landslide count, area or percentage.

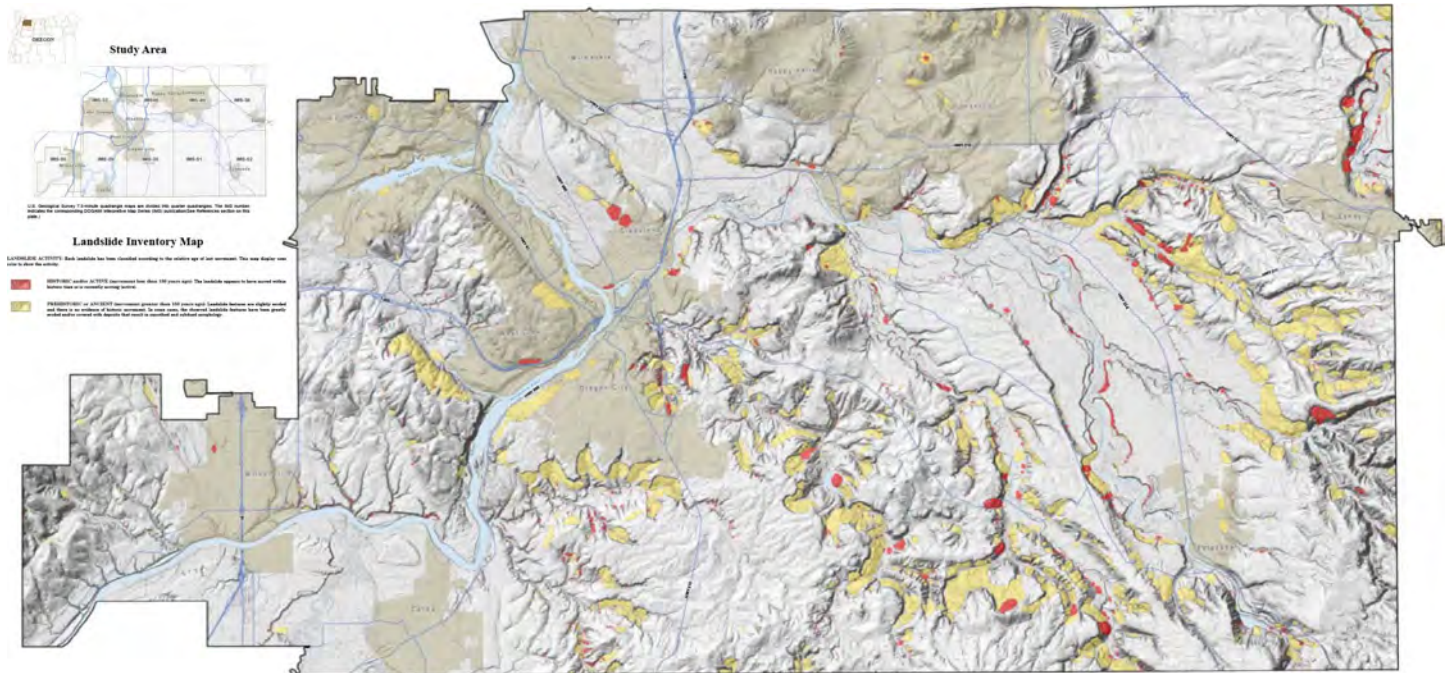


Figure 31. Overview map of the landslide inventory for the study area (see Plate 2).

The second landslide inventory is a compilation of documented historic landslide locations. We compiled 370 landslides that occurred in the study area during the period 1964–2009 (Figure 32; Appendix G). Many of these landslides (200) occurred during the 1996-1997 storm season when three major storms caused thousands of landslides across Oregon (Hofmeister, 2000). However, a significant number of landslides (54) occurred during the period 2006–2009, many (33) during the January 2009 storm (Figure 2).

Many of these historic landslides caused significant damage including homes destroyed as a result of the 1996-1997 landslides and a portion of an apartment complex destroyed in 2005 (Figure 33). Seventy-six of the 370 landslides in this data set had loss or repair costs that added up to \$27.5 million.

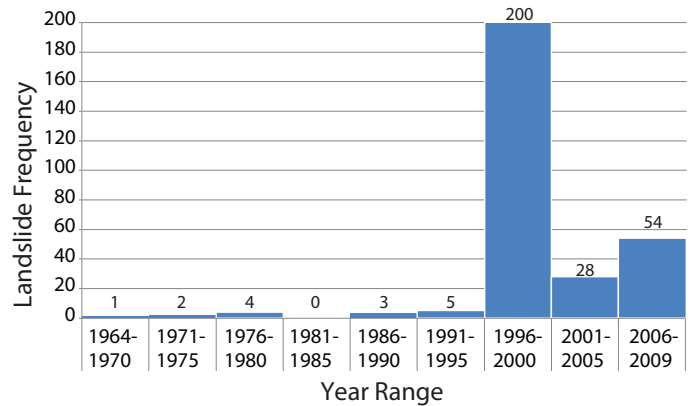


Figure 32. Graph of historic landslides grouped into 5-year bins.



Figure 33. Photographs of historic landslide damage.

(left) Residential home in Oregon City destroyed by a landslide in 1996 (photo from Burns [1998]).

(middle) Apartment complex in Oregon City at the early stages of landslide movement in 2005 (cracks in the foreground); this building was later severely damaged and then demolished.

(right) Landslides along Clackamas River Drive are common almost annually. This one occurred in 2005 and closed the road.

6.5 Shallow-landslide susceptibility results

We found 884 shallow landslides in the study area. The results of the shallow-landslide susceptibility mapping by community varied from 91% low shallow landslide hazard (Canby) to almost 50% combined moderate and high shallow landslide hazard (Happy Valley) (Table 11, Plate 2).

To assist communities in understanding the shallow-landslide susceptibility, we prepared the following:

- shallow-landslide susceptibility overview map (scale 1:50,000) of the study area (Plate 2). Includes an index map to the detailed plates.
- detailed shallow-landslide susceptibility maps (scale 1:8,000) of the study area (36 maps; Plates 3 to 73, odd numbers).
- shallow-landslide susceptibility geodatabase (Shallow_Landslide_Suceptibility_Clackamas_10_1.gdb)

Table 11. Summary of shallow-landslide susceptibility hazard zones by community.

Community	Percent Total Area of Community		
	Low	Moderate	High
Metro urban growth boundary area*	68%	24.7%	7.4%
Clackamas County (non-city)	68%	21.2%	11.0%
Canby	91%	7.5%	2.0%
Damascus	64%	27.7%	8.3%
Estacada	66%	23.9%	10.2%
Gladstone	79%	17.4%	3.7%
Happy Valley	50%	42.9%	6.9%
Lake Oswego	60%	32.1%	7.7%
Milwaukie	75%	21.4%	3.9%
Oregon City	78%	15.2%	7.3%
Sandy	60%	28.9%	10.8%
West Linn	59%	32.7%	8.1%
Wilsonville	79%	16.0%	4.9%
Other jurisdictions**	65%	29.2%	6.0%

*Metro values not included in totals.

**Johnson City, Rivergrove, Barlow, Portland (< 0.5 mi²), and Tualatin (< 0.8 mi²)

6.6 Deep-landslide susceptibility results

We found 1,367 deep landslides in the study area. These deep landslides were one of the primary factors in the deep-landslide susceptibility mapping. The results of the deep-landslide susceptibility mapping by community varied from 100% low deep landslide hazard (Canby and Milwaukie) to almost 20% combined moderate and high deep-landslide hazard (Clackamas County; non-city) (Table 12, Plate 2).

We prepared the following:

- deep-landslide susceptibility overview map (scale 1:50,000) of the study area (Plate 2). Includes an index map to the detailed plates.
- detailed deep-landslide susceptibility maps (scale 1:8,000) of the study area (36 maps; Plates 4 to 74, even numbers).
- deep-landslide susceptibility geodatabase (Deep_Landslide_Susceptibility_Clackamas_10_1.gdb)

Table 12. Summary of deep-landslide susceptibility hazards zones by community.

Community	Percent Total Area of Community		
	Low	Moderate	High
Metro urban growth boundary area*	92.3%	3.6%	4.1%
Clackamas County (non-city)	80.4%	9.2%	10.4%
Canby	100.0%	0.0%	0.0%
Damascus	89.9%	4.4%	5.7%
Estacada	90.0%	6.3%	3.6%
Gladstone	94.8%	1.6%	3.6%
Happy Valley	98.2%	1.2%	0.6%
Lake Oswego	94.5%	3.1%	2.4%
Milwaukie	99.8%	0.1%	0.1%
Oregon City	85.7%	7.9%	6.5%
Sandy	82.8%	8.3%	8.8%
West Linn	86.1%	7.8%	6.2%
Wilsonville	99.8%	0.1%	0.1%
Other jurisdictions**	100.0%	0.0%	0.0%

*Metro values not included in totals.

**Johnson City, Rivergrove, Barlow, Portland (< 0.5 mi²), and Tualatin (< 0.8 mi²)

6.7 Risk analysis and loss estimation results

We performed two types of risk analysis: 1) hazard and asset exposure and 2) Hazus-MH (FEMA, 2005).

6.7.1 Exposure analysis results

We performed hazard and community asset exposure analysis on the nine hazard data sets/zones (section 5.3.1 Exposure Analysis) and the three asset data sets: permanent population; critical facilities and primary infrastructure; and generalized occupancy and buildings (section 5.3.1 Exposure Analysis). Tables showing the results of this analysis are detailed in Appendix F.

Table 13 is a summary of the exposure of select assets to the three landslide types. We found approximately \$1 billion of land and buildings and almost 8,000 people are located on existing landslides.

Table 14 is a summary of exposure of select assets to the six landslide susceptibility classes from the deep and shallow susceptibility maps. We found approximately \$7.5 billion of land and buildings are located in and over 20,000 people live in high-susceptibility hazard zones for shallow and deep landslides in the study area.

Table 13. Summary of exposure of select assets to three landslide types.

Type	Permanent Population	Buildings	Building Value	Parcels	Land Value	Critical Facilities Parcels	Road, Total Miles	Electric Transmission Towers
Shallow Landslides	227	123	\$16,809,407	1,146	\$36,410,453	3	2	1
Deep Landslides	7,247	3,128	\$416,470,782	5,085	\$416,416,811	3	58	42
Fans	487	412	\$32,543,039	1,074	\$36,218,574	0	7	2

Table 14. Summary of the six landslide susceptibility hazard zones and study area wide exposure of select assets.

Hazard	Permanent Population	Buildings	Building Value	Parcels	Land Value	Critical Facilities Parcels	Road, Total Miles	Electric Transmission Towers
<i>Shallow Landslide Hazard</i>								
Low	253,824	140,848	\$20,922,093,084	121,188	\$12,127,096,572	228	1,626	590
Moderate	75,922	56,451	\$12,145,072,582	65,006	\$3,557,700,590	177	470	147
High	9,702	18,070	\$5,322,269,216	55,960	\$979,024,018	155	24	30
<i>Deep Landslide Hazard</i>								
Low	319,317	145,037	\$21,771,760,886	122,575	\$16,024,043,544	241	2,113	623
Moderate	9,360	6,043	\$721,424,575	10,298	\$574,759,967	11	105	57
High	10,580	5,145	\$690,387,089	7,051	\$610,167,445	5	87	85

6.7.2 Hazus-MH analysis results

To examine the estimated damage and losses from landslides triggered by an earthquake, we performed five different Hazus-MH analyses (Table 5):

- crustal M6.8 earthquake scenario: Portland Hills Fault – no landslides
- crustal M6.8 earthquake scenario: Portland Hills Fault – detailed landslides
- crustal M6.8 earthquake scenario: Portland Hills Fault – landslide hazard set to 9 out of 10
- Cascadia M9.0 earthquake scenario – no landslides
- Cascadia M9.0 earthquake scenario – detailed landslides

Detailed reports for each of the five analyses are provided in Appendix H. The results show that the earthquake-induced landslide hazard alone would result in total economic loss ranging from approximately \$290 million to over \$1 billion (Table 15). The Hazus-MH estimate for the replacement value for the study area is roughly \$38.8 bil-

lion (Appendix H). Hazus-MH estimates a replacement value for buildings at approximately \$31.5 billion, which is significantly more than the taxable improvements (building) value of \$22.8 billion we derived from tax lot data. (See Appendix F for details.) The reason for the difference in total building value between our database and the Hazus-MH database is unclear and points to the need to update the Hazus-MH standard inventory data with more accurate local data.

Total economic loss values are likely underestimates due to the low quality of the standard Hazus-MH asset data, especially the critical facilities and infrastructure data. However, the loss ratios are likely to be better estimates than the absolute numbers. For example, the total loss ratios found in this study (2% to 21%) are very close to the estimated commercial and residential lines of business loss ratios (1% to 30%) for a M7.9 event on the San Andreas Fault affecting the 19 counties in the San Francisco Bay area (RMS, 2006).

Table 15. Summary of Hazus-MH results for this study.

	Crustal M6.8 Earthquake—Portland Hills Fault				Cascadia M9.0 Earthquake		
	Landslides Not Included	Landslides Included, Detailed	Landslides Included, with Hazard Set to 9 out of 10	Landslides Only (Column 3 minus Column 2)	Landslides Not Included	Landslides Included, Detailed	Landslides Only (Column 7 minus Column 6)
Buildings—moderate damage	31,360	30,113	28,108	–1,247	6,026	6,261	235
Buildings—extensive damage	11,740	16,177	25,478	4,437	901	2,158	1,257
Buildings—destroyed	5,600	6,913	9,595	1,313	41	356	315
Total buildings—moderate to destroyed	48,700	53,203	63,181	4,503	6,968	8,775	1,807
Building damage count ratio	38%	41%	49%	—	5%	7%	—
Building loss (\$)	\$6,412,760,000	\$7,392,050,000	\$9,649,200,000	\$979,290,000	\$737,950,000	\$1,004,200,000	\$266,250,000
Building loss (\$) ratio	20%	23%	31%	—	2%	3%	—
Residents needing shelter	3,766	5,019	7636	1,253	176	469	293
Casualties (5 pm)*	4,282	4,513	5,097	231	159	214	55
Fatalities (5 pm)*	290	302	332	12	2	4	2
Total economic loss ratio	\$7,222,500,000	\$8,271,820,000	\$10,621,100,000	\$1,049,320,000	\$880,840,000	\$1,171,840,000	\$291,000,000
Total economic loss ratio	19%	21%	27%	—	2%	3%	—

*For an earthquake occurring at 5 pm; casualty and fatality values differ for different times during the day. See Appendix H.

The analysis estimates damage by landslides alone will result in roughly 4,503 buildings being moderately to completely damaged and 1,253 residents needing shelter (Table 15).

For comparison, Wang and Clark (1999) examined earthquake damage from a M8.5 Cascadia earthquake in Clackamas County and found 73 buildings would be moderately to completely damaged from earthquake shaking alone.

7.0 DISCUSSION AND CONCLUSIONS

Although we cannot predict when the next landslide events will occur or how big they will be, we were able to provide a detailed understanding of landslide events in the past (historic and prehistoric), the potential scale of a disaster, the areas more or less susceptible to future landslides, and an estimate of what the damage and losses might be. The main purpose of this project was to help communities in the study area become more resilient to landslide hazards by providing detailed, new digital databases describing the landslide hazards as well as community assets and the risk that exists where the two overlap.

Detailed results have been discussed in this report, and detailed data are provided in appendices and on map plates via GIS data. Three primary conclusions of the project are:

- Large, deep landslides are a primary threat in the study area, and asset exposure to these landslides is significant —more than 7,000 residents and more than 3,000 buildings.
- Historic landslide losses range from hundreds of thousands to millions of dollars in normal storm years to and tens of millions of dollars in severe storm years such as 1996.
- Damage and losses from landslides alone, induced by a local large crustal earthquake, may be in the range of \$1 billion, with ~4,500 buildings moderately to completely destroyed.

The next step is to work on landslide risk reduction. The three primary actions are: 1) awareness, 2) regulations, and 3) planning.

Making everyone aware of the hazard in their area is crucial to help them understand the associated danger and how they can prepare themselves. One of the main purposes of the new maps is to help accomplish education throughout northwestern Clackamas County. Once the hazard is understood better, the land owner can work on risk reduction. Fliers can be made available on web-

sites and/or distributed to help educate land owners of activities individuals can work on to reduce landslide risk. Examples of helpful flyers include Homeowners Guide to Landslides (Burns and others, n.d.) and DOGAMI fact sheet Landslide hazards in Oregon (DOGAMI, 2006).

It is also important for the public to be notified during times of increased landslide potential. Oregon currently has a landslide warning system operated in partnership by the NOAA National Weather Service, DOGAMI, ODOT, and OEM. NOAA initiates the system by sending out landslide watches, and the state agencies help citizens become aware of the heightened potential. In the future, this information could be streamlined to the local municipalities (county and cities) via RSS feeds and live web pages. During these periods of increased landslide potential, the public could then access hazard maps to find locations where this potential is most likely.

Because the exposure to large, deep landslides in the study area is significant and these landslides have a high potential to move again, the inventory and susceptibility maps produced as part of this project show areas of low, moderate, and high potential for landslides and are suited for use connected to a landslide ordinance or building code regulation. The maps could also be used in short- and long-term development planning and comprehensive planning and maintenance planning. Some planning results could result in avoidance in high hazard areas and even buyouts in very high or life-threatening areas. These large slides are often hard to mitigate and involve cooperation from several entities (city and land owners) as the slides can span entire neighborhoods. To reduce the likelihood of a slide reactivating, a public awareness campaign could be undertaken to educate homeowners and land owners about the landslide hazards in their areas and how to reduce their risk. Residents on mapped landslide areas should participate in a neighborhood risk reduction program where all affected land owners (city and public) help reduce to the overall risk. Risk reduction measures should include:

- minimizing irrigation on slopes;
- avoiding removing material from the base of slopes;
- avoiding adding material or excess water to top of slopes;
- draining water from surface runoff, down-spouts; and driveways well away from slope and into storm drains or natural drainages; and
- consulting an expert to conduct a site-specific evaluation if considering major construction.

8.0 ACKNOWLEDGMENTS

Funding for this project was provided in part by Clackamas County through Intergovernmental Agreement IGA 11-21-2011. Some funding in the IGA was provided by FEMA-OEM hazard mitigation planning grant DR-1824 and from cities (including Happy Valley, Lake Oswego, Wilsonville, and Oregon City) and Metro. We thank them and Dennis Sigrist at Oregon Emergency Management.

We also thank Jay Wilson and Steve Hanschka from Clackamas County. Finally, we thank DOGAMI staff who helped work on this project through technical assistance, review, and general assistance, especially Yumei Wang, Deb Schueller, and Ian Madin.

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My name is Pia Snyder, and I live on 3817 Fairhaven Drive. I have given previous testimony regarding the Willow Ridge development. My concern with the potential water problems caused by the removal of significant trees as well as the consequences of moving soil around remaining significant trees remains.

1. Significant tree removal

According to the application, there are 38 significant trees on the property. 13 will remain. I understand that the developer will have to compensate for the removal of the trees on an inch to inch basis. (ex.: if a cut tree was 48", it would be replaced by 12 4" trees). We are talking about an abundance of new trees here. I would like to see some written explanation before the significant trees are cut as to how many trees will be planted. The city arborist needs to document the size of the downed trees. These trees would be in addition to the street trees that the city plants since that is a requirement.

2. Root damage

Storm and sewer lines will be installed on the south end of lots 3 – 6. The rear yard of lot 6 as well as the Cornwall Street right-a-way are Habitat Conservation Areas (HCA). This same area also demonstrates two of the three components necessary for land to be identified as wetlands (hydrophytic vegetation and wetland hydrology are present.) There are several significant trees in these areas. Extreme care needs to be taken to protect the root systems considering the nature of the soil.

Storm and sewer lines need to be adjusted to ensure that these trees will survive, not just one year after development, but many years to come. This soil disturbance must be closely monitored.

Even though this property has not been labeled as wetlands, I know the land well enough that I continue to be concerned because of the slope, the type of soil and the removal of 25 significant trees (plus all the trees which are not considered "significant") I urge the planning commission to take my concerns into serious consideration.

Thank you very much,

Pia Snydersa

Wetland Determination Request

On behalf of **B**arrington Heights, **H**idden Creek Estates & **T**anner Woods
Subdivisions

BHT Neighborhood Association
West Linn, OR 97068

April 19,2017

Contact: Jon Gice
503-882-2996

Background

Barrington Heights, Hidden Creek Estates and Tanner Woods (BHT) subdivisions are located in West Linn, OR and are collectively recognized by city government as the BHT Neighborhood Association (BHTNA). (*Appendix 1: BHTNA & Sunset Neighborhood Associations*) The 450 or so large homes in these 3 subdivisions share views of Oregon's Willamette River, Mt. Hood, and the beautiful Willamette Valley. These 3 subdivisions are physically adjacent or near to, and below a property in the Sunset Neighborhood that has been proposed for development. The developer has named this proposed 6 home development Willow Ridge. Unlike other properties, this property has some complex issues to address since it has a very steep slope across the entire property (*Appendix 2: Trees and Slope Analysis*), excessive amounts of surface and ground water springs, numerous old trees, and historical matters that raise some questions.

Tanner Creek is a wetlands body of water that flows through the 3 subdivisions, and is located to the West of the proposed development. (*Appendix 3: Tanner Creek Wetlands Map*) This creek water flows into the Tanner Woods subdivision's large wetland pond. (*Appendix 4: Tanner Creek Wetlands Pond, West Side*) To the East of the proposed development is another Unnamed creek which also flows into the Tanner Woods subdivision's large wetland pond. (*Appendix 5A: Creeks and Development Site & Appendix 5B Tanner Creek Wetlands Pond, East Side*)

Given the fact that this proposed development property:

- 1) has excessive water bubbling on the surface and numerous underground springs,
- 2) has 50+ homes beneath this property that are built on top of the same underground springs that run through this proposed development
- 3) has the developer wanting to convert the free flowing Unnamed creek into a detention pond, (*Appendix 6A: Detention Pond/Preliminary Utility Plan & Appendix 6B & 6C: Photo of Unnamed creek where detention pond would be*)
- 4) has water traveling to wetlands below are on either side of this property, and
- 5) meets several criteria identified by the state to be considered wetlands, it is being questioned if this proposed development land has been evaluated in the past.

These are the reasons why this Wetlands Determination Request is being made at this time.

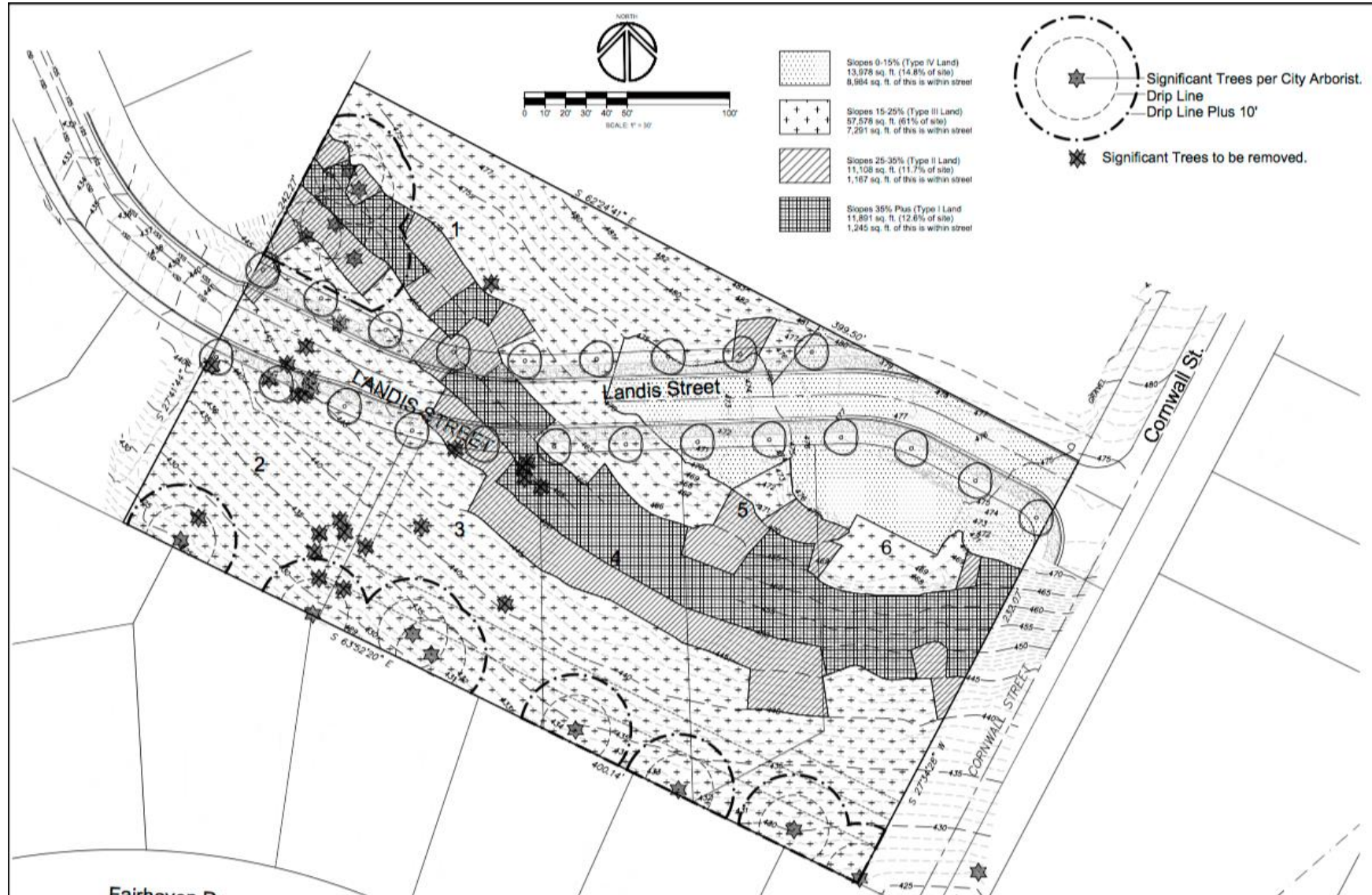
Request for a Wetland Determination

- We believe that the plot of land where six new homes are proposed to be built could be designated as a wetland because there are numerous surface and underground springs throughout the property; it is soggy underfoot; water pools; turtles and skunk cabbage occupy adjacent property; wetlands vegetation/grasses are present; and willow trees and hydric soils exist on the property. (*Photos available upon request.*)
- We believe that the numerous surface and underground springs on this land will negatively impact the currently unnamed creek on the East because the developer plans to build a detention pond in the unnamed creek to control the flow of rerouted water. Such a pond will dam up the creek, require maintenance, decrease the property value of the adjacent homesteads and destroy the natural beauty of this lovely creek.
- We believe that the *additional water* that will no longer be absorbed by older trees, nor be eroding soil on the properties below, will also negatively impact Tanner Creek wetlands because much of the surface and underground springs draining to the West will need to be directed into Tanner Creek wetlands and pond in Tanner Woods subdivision, which is currently at capacity.
- We believe that a failed septic system, previously used by the vacant blue home on this plot of land, is another unresolved issue of concern.
- We believe that as a result of rerouting the excessive surface water and underground springs, numerous homes adjacent to and below this property may be impacted with water seepage and/or foundation problems once this property's terrain has been altered.
- We believe that there is substantial evidence that this property meets wetlands criteria as outlined by the state of Oregon.

Appendix 1: BHTNA (bright pink) Sunset (bright yellow)



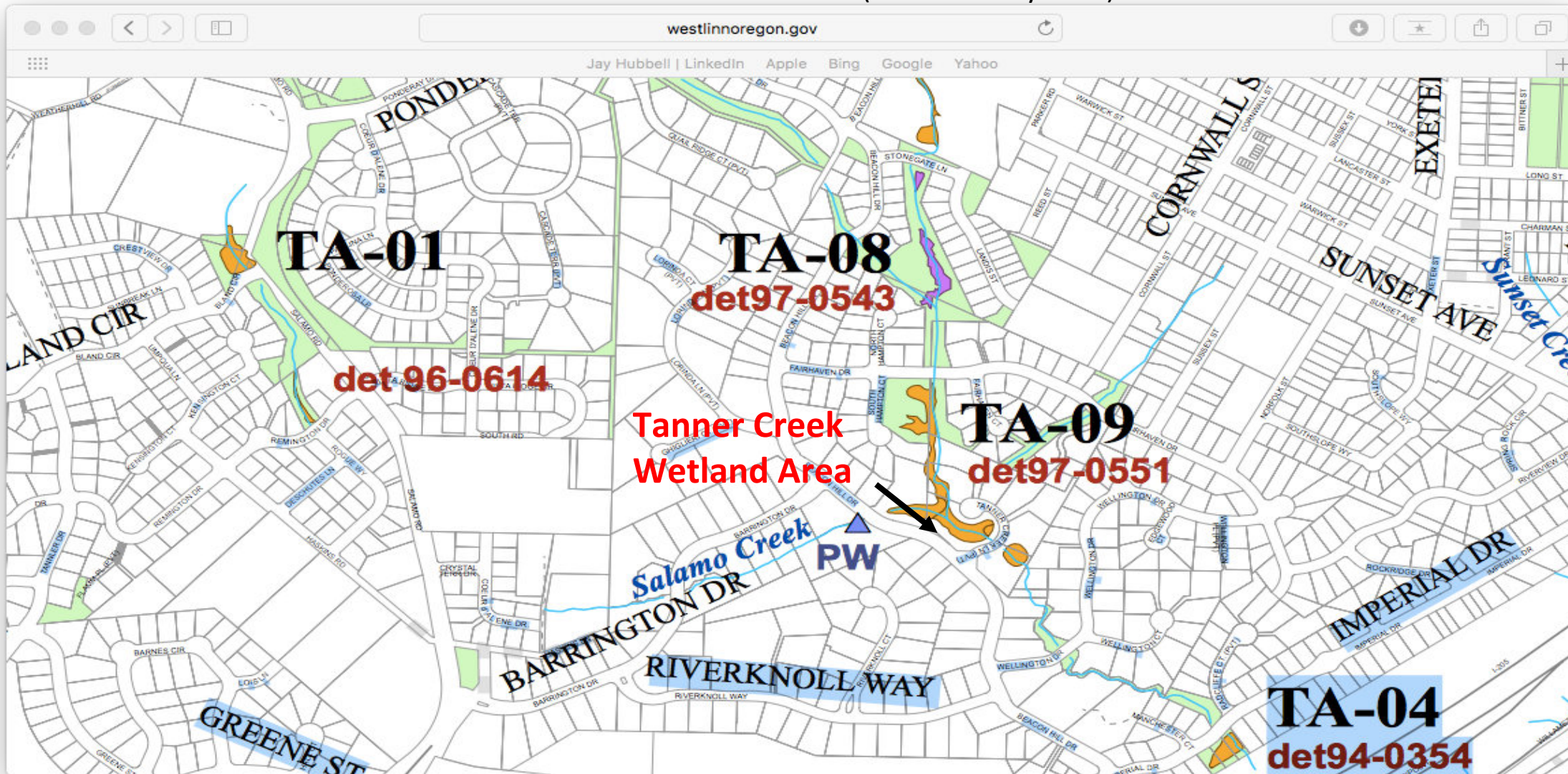
Appendix 2: Trees and Slope Analysis



Appendix 3: Tanner Creek Wetlands Map

Unnamed Creek (under TA-09)

Tanner Creek & Tanner Woods Pond (Wetlands in yellow)



Appendix 4: Tanner Creek Wetlands Pond,
West side of Tanner Woods Subdivision Creek Bridge



Appendix 5A: Creeks and Development Site

The subject property is described as Tax Lot 6300 of Assessor's Map 21E36BA. The site is 2.18 acres (94,808 square feet) in area. It is presently developed with a single-family detached home. This home will be removed to allow for the construction of the extension of Landis Street to Cornwall Street. The subject property is zoned R-10.

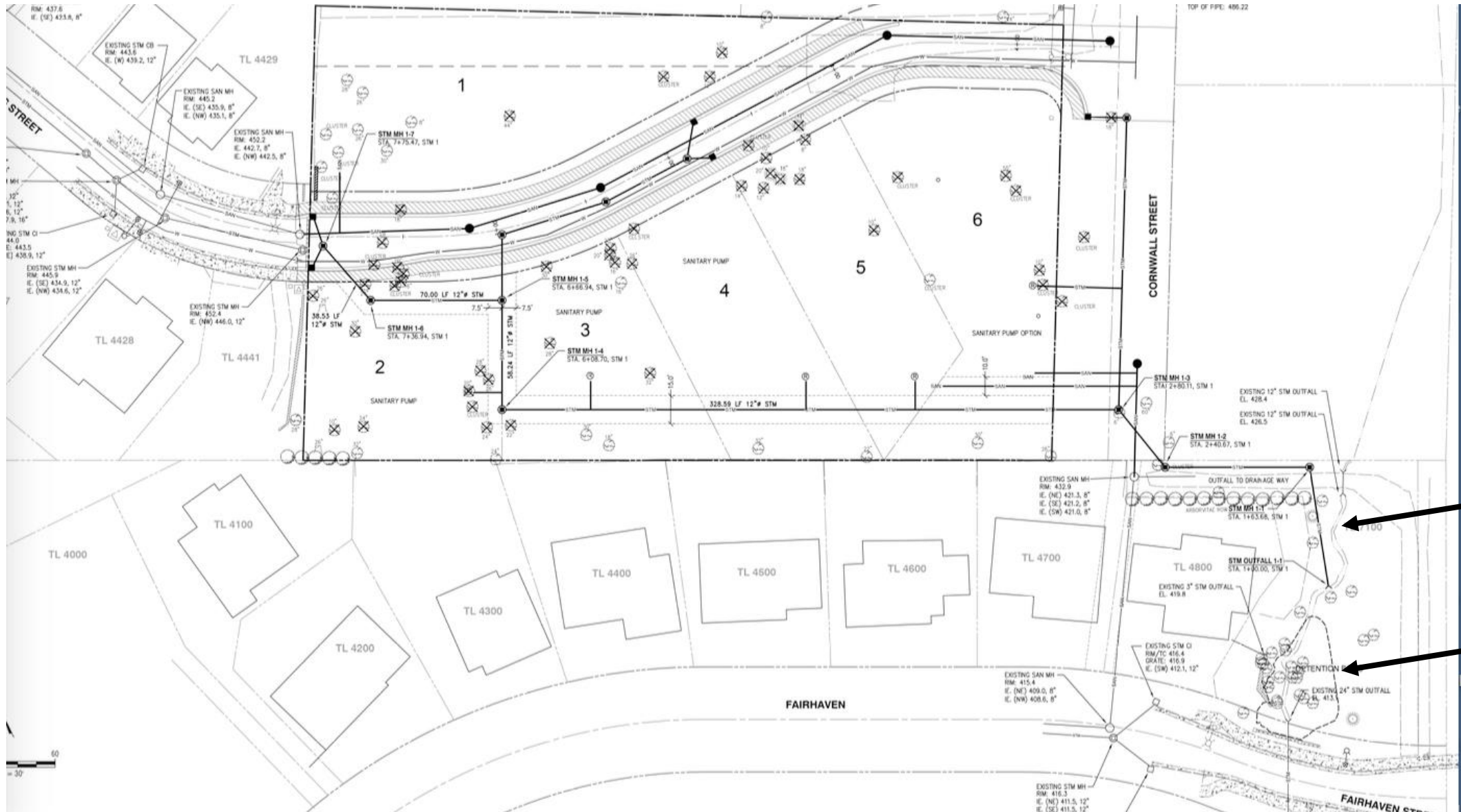


Figure 1: Vicinity Map

Appendix 5B– Tanner Creek Wetlands Pond
East side of Tanner Woods Subdivision Creek Bridge



Appendix 6A: Detention Pond/Preliminary Utility Plan



Unnamed Creek

Detention Pond

Appendix 6B: Unnamed Creek where the Detention Pond would be
(next to the bridge sidewalk)



Appendix 6C: Unnamed Creek where Detention Pond would be



From: RYAN Peter <peter.ryan@state.or.us>
Date: May 10, 2017 at 9:16:54 AM PDT
To: "Jon Gice" <jon_gice@sbcglobal.net>
Subject: RE: FINAL questions (I promise)

Hi Jon,
No problem with the questions...that's our job. My answers are below:

1) I assume when you ask about the "3 conditions" used by the consultant you are referring to hydrophytic vegetation, hydric soils, and wetland hydrology. These are the 3 parameters that need to be sampled to determine if a site meets wetland criteria. However, you are right to suggest that the attached memo isn't a wetland delineation report. Delineation reports require considerably more background material and sampling point data.

2) Schott & Associates has been doing this work for some time.....you can check out their 2011-2015 summary data at: <http://www.oregon.gov/dsl/WW/Documents/ConsultSum2011-15.pdf>

3) Normally, a local government will notify the Department if a proposed development site is identified as wetland in a sensitive land overlay (see guidance for our Wetland Land Use Notice process on our Waterway & Wetland Planning page: <http://www.oregon.gov/dsl/WW/Pages/WetlandConservation.aspx>). However, we wouldn't have received a notice for this site because it wasn't identified in the City's LWI.

Hope this helps.
-Pete

Peter Ryan, PWS
Jurisdiction Coordinator – Metro Region
Oregon Department of State Lands | 775 Summer Street, NE, Ste. 100, Salem, Oregon 97301-4844
503.986.5232 Monday-Wednesday | 503.779.4159 Thursday
Work Days: Monday-Thursday | Out of Office: Fridays

-----Original Message-----

From: Jon Gice [mailto:jon_gice@sbcglobal.net]
Sent: Wednesday, May 10, 2017 7:13 AM
To: RYAN Peter
Subject: FINAL questions (I promise)

Peter
I hate to bother you again but I have 3 more questions, 2 based on the attached report:

1. Is the attached report convincing as it only rules out 3 conditions to determine a wetland and there are many more conditions that need to be addressed?
2. Is Schott & Associates a qualified firm, known to the State, that did this attached report?
3. How does the County interface with the State in wetland determination - can the County make it's own determination?

**Wetland Determination Request
Wetlands Program**

**BATCH
WD#:** _____

Oregon Department of State Lands
775 Summer Street, NE, Suite 100, Salem, OR 97301-1279

The Department of State Lands (DSL) conducts *offsite* wetland determinations upon request. There is no fee for this service. An offsite determination consists of reviewing wetlands and soils maps, aerial photos and other information to determine if wetlands or other regulated water bodies (such as creeks) are present, likely to be present, or unlikely to be present. Only an *onsite* check can verify whether or not there are regulated wetlands on a site. As time allows, DSL staff may be able to conduct a site visit to verify an offsite determination. Please allow 2-3 weeks for an initial response.

If wetlands are present or likely to be present on a parcel or near a project area, a wetland delineation by a qualified wetland consultant may be needed. Wetland delineation reports and the required fee should then be submitted to DSL for review and agency approval.

Please provide the following information:

1. Vicinity map (like a city map) with the precise parcel location indicated.
2. Large scale map (1" = 100' if possible) of the parcel showing existing buildings, property boundaries, any creeks and other features. An annotated tax assessor's map is fine, and a hand-drawn map is acceptable.
3. City, County, and site address. Please fill in below.
City West Linn (or nearest town if outside City limits)
County Clackamas
Site address (see power point presentation) (or nearest cross streets if no address)
4. Township, Range, Section, Quarter/Quarter Section and Tax Lot number(s) (Tax Map number is equivalent). Please fill in below.
Township _____ Range _____ Section _____ QQ _____ Tax Lot (s) (see ppt presentation)

Property owner Legal representative Other (specify): _____

Name: Jon Gice on behalf of BHT Home Owners Association

Firm: _____

Mailing Address: 2030 Tanner Creek Lane, West Linn, OR 97068

Phone: 503 882 2996 Fax: _____ E-Mail jon_gice@sbcglobal.net

I either own or have legal authority to allow access to the property for which this request is made. My signature below authorizes DSL staff to conduct a wetland determination and to access the property to confirm the wetland determination, as needed. (DSL will phone prior to conducting a site visit.)

Signature:  _____ Date: 4/19/17

Print Name: _____



SCHOTT & ASSOCIATES
Ecologists & Wetlands Specialists

21018 NE Hwy 99E • P.O. Box 589 • Aurora, OR 97002 • (503) 678-6007 • FAX: (503) 678-6011



MEMO

RE: Willow Ridge at Cornwall Street HCA Mapped Boundaries

March 30, 2017

This memo is being provided as the applicant believes that the Metro HCA mapped boundaries are in error on the subject property containing Tax lot 6300 located at the street address of 4096 Cornwall Street, West Linn, Oregon.

The City of West Linn uses the Metro's Urban Growth Management Functional Plan (UGMFP) Title 13 Habitat Conservation Areas (HCA) map to identify habitat conservation areas in the City. The above subject property contains HCA mapped as Riparian Class II within the southeastern corner of the tax lot.

Per Chapter 28 Willamette and Tualatin River Protection 28.070 Planning Director Verification of Metro Habitat Protection Map Boundaries:

- A) *The HCA Map is the basis for identifying and designating the habitat conservation areas in the City. It is inevitable, given the large area that Metro's HCA Map covers, that there may be some errors. In cases where, for example, three properties share the same contours and the same natural features but the map shows the middle lot with an HCA designation on it, it is reasonable to question the accuracy of that HCA designation. Using tree overstory as the sole basis for HCA designation will also allow a change in designation since trees are already protected in the municipal code and Chapters 55 and 85 CDC.*
- B) *The planning director shall verify the appropriate HCA or non-HCA designation by site visits or consultations with Metro or by other means. Determination is based on whether the Metro criteria are met or whether the Metro designation was based solely on tree overstory in which case a re-designation is appropriate. In cases where the determination is that the map is incorrect, the Planning Director will make a written finding of this as well as the site conditions that led to that conclusion.*

Metro designation was based solely on tree overstory and a boundary correction is appropriate. A site visit and delineation were completed by Schott & Associates, Inc. on March 10, 2017 on the subject property. The entire property was walked and a natural resource assessment was done to determine the actual extent of the HCA overlay.

The rectangular shaped tax lot is situated at the terminus of Cornwall Street, west of Sessex Street and north of Fairhaven Drive. Residential houses are located on all sides of the project area. An

existing house is located in the northeastern corner of the lot, with associated outbuildings to the west. The southern half of the lot is steeply sloped to the south.

The vegetation in the undeveloped portion of the lot was dominated by Himalayan blackberry (*Rubus armeniacus*). There was a small patch of reed canary grass (*Phalaris arundinacea*) within the middle of the sloped hill in the southern half of the lot. Sample plots were taken and conditions did not meet the three wetland criteria; hydrophytic vegetation, hydric soils and wetland hydrology. For an area to be a wetland it has to meet all three criteria. The soils on this site were not hydric. Rose (*Rosa pisocarpa*) was prevalent along the southeastern extent of the lot where the slopes level out. A few larger locust trees were located on the property.

An unidentified tributary to Salamo Creek is located east of the site. The landscape surrounding the tributary was steeply sloped and dominated by non-native Himalayan blackberry. The tributary is approximately 170 feet off site to the southeast located in the bottom of a draw. Slopes within 50 feet of the creek were digitally measured and found to range from 16 to 28 percent.

Per Metro Title 13: Nature in Neighborhoods

3.07.1340 (d.) Administering the Habitat Conservation Areas Map and Site Level Verification of Habitat Location

(4.) Habitat Boundaries

(A.) Locating riparian habitat and determining its habitat class is a five step process.

(i) Step 1. Locate the water feature that is the basis for identifying riparian habitat:

1) Locate the top of bank of all streams, rivers, and open water within 200 feet of the property.

No access was obtained for the adjacent property. The creek was identified as approximately 170 feet south east of the site, outside of the tax lot boundary.

2) Locate all flood areas within 100 feet of the property.

Slopes surrounding the creek ranged from 16 to 28 percent. No flood areas were identified within 100 feet of the property.

3) Locate all wetlands within 150 feet of the property based on the local wetland inventory map (if completed) and on the Metro 2004 Wetland Inventory Map. Identified wetlands shall be further delineated consistent with methods currently accepted by the Oregon Division of State Lands and the US Army Corps of Engineers.

No wetlands were located within the study area boundary. An unidentified tributary to Salamo Creek is located approximately 170 feet to the southeast of the site. The tributary is offsite and

identified on the Significant Riparian Corridors map for West Linn Goal 5 Inventory. The landscape surrounding the tributary was steeply sloped ranging from 16 to 28 percent slopes and dominated by non-native Himalayan blackberry.

(ii.) Step 2. Identify the vegetative cover status of all areas on the property that are within 200 feet of the top of bank of streams, rivers and open water, are wetlands or are within 150 feet of wetlands, and are flood areas and within 100 feet of flood areas.

Only a small portion of the property in the southeastern corner is identified as HCA habitat. The HCA defines the area as within 200 feet of the top of bank to the offsite stream. No wetlands were identified within the HCA mapped corner of the lot. The vegetation was dominated by Himalayan blackberry. The slopes were steep and sloped off site to the southeast.

- 1.) Vegetative cover status shall be as identified on the Metro Vegetative Cover Map, attached hereto and incorporated herein by reference. The vegetative cover type assigned to any particular area was based on two factors: The type of vegetation observed in aerial photographs and the size of the overall continuous area of vegetative cover to which a particular piece of vegetation belonged. As an example of how the categories were assigned, in order to qualify as "forest canopy" the forested area had to be part of a larger patch of forest of at least one acre in size; and*
- 2.) In terms of mapping the location of habitat, the only allowed corrections to the vegetative cover status of a property are those based on an area being developed prior to the local program effective date and those based on errors made at the time the vegetative cover status was determined based on analysis of the aerial photographs used to create the Metro Vegetative Cover Map (for the original map, the aerial photos used were Metro's summer 2002 photos) and application of the vegetative cover definitions provided in the footnotes to Table 3.07-13d.*

Through observation of the summer 2002 Google Earth aeriels we believe the HCA boundary was mapped using the vegetative cover of the scrub/shrub canopy. The shape of the boundary basically matches the aerial (see Figure 1: Metro HCA, Figure 4: 2002 Aerial Photo). While the

mapping of the habitat may be scrub/shrub, the cover was predominantly Himalayan Blackberry, which is considered an invasive species and offers little ecological function. Additionally, the area was not found to be a Riparian Zone. Adjacent properties identified within the HCA overlay had existing buildings.

In conclusion, the mapped HCA is low quality due to the non-native, invasive vegetation and lack of significant tree cover. The tributary to Salamo Creek is approximately 170 feet from the eastern tax lot boundary. A request is being made to correct the boundary within the tax lot boundary based the lack of significant habitat and lack of tree habitat associated with the tributary to the southeast of the site. The vegetation is non-native, invasive and of very low value and these areas should not be mapped as HCA.

Attachments:

- Figure 1. Metro HCA
- Figure 2. HCA Stream Detail Area
- Figure 3. Stream Detail with Topographic
- Figure 4. Overall existing Conditions
- Figure 5. 2002 Aerial Photograph

Figure 1. Metro HCA

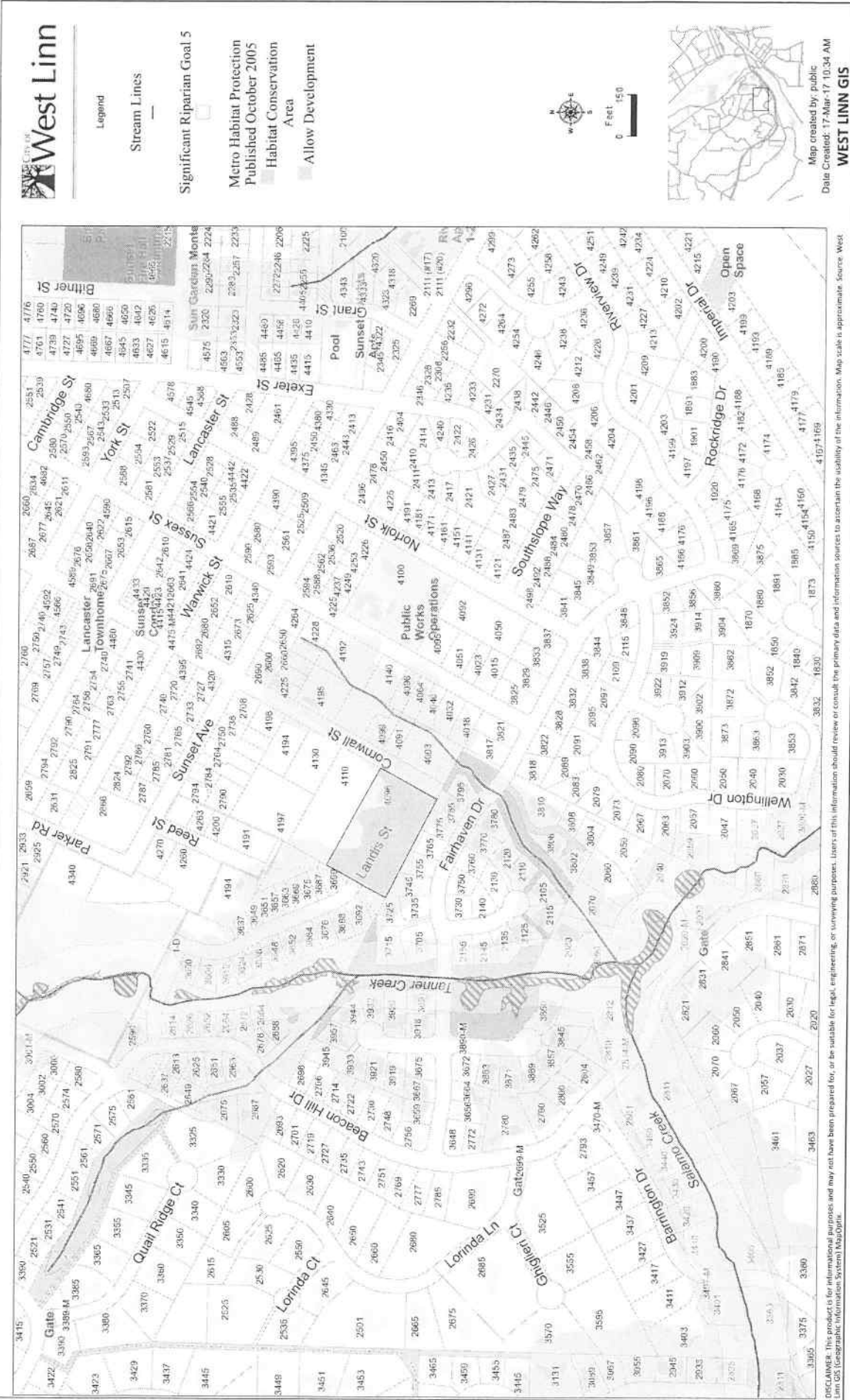


Figure 2. HCA Stream Detail Area



Note: Off-Site contours from City GIS.

SCALE 1" = 40'

Willow Ridge

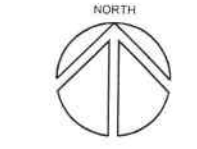
Off-Site Stream Corridor

Icon Construction & Development, LLC

Figure 3. Stream Detail with Topographic



Note: Off-Site contours from City GIS.



SCALE 1" = 40'

Willow Ridge
Off-Site Stream Corridor

Icon Construction & Development, LLC

Figure 3. 2002 Aerial Photograph
8/2002



Image © 2016 Metro, Portland Oregon

1994

Imagery Date: 7/31/2002

lat 45.356515° lon -122.632558°

eye alt 1661ft

Google Earth

From: Jon Gice [mailto:jon_gice@sbcglobal.net] **Sent:** Thursday, May 18, 2017 9:14 AM **To:** Arnold, Jennifer <jarnold@westlinnoregon.gov> **Subject:** Re: Sunset and BHT Testimonies You Should Receive Today

Jennifer

I am not sure if you received this for last night. It is another important fact. The developer's rebuttal last night stated there is no need for a hydrogeologist. You can see that the State Wetland Division would not agree as they are clearly stating the need for the hydrogeologist.

I again implore the City of West Linn to engage the services of a qualified impartial hydrogeologist prior to our next hearing. The developer's rebuttal stated that he plans to bring his expert to the next hearing. This continues to be a one-sided argument by the developer that is unfair and will only sustain rather than resolve the strong concern of the existing citizens of West Linn.

Please let me know if there is anything that I can do to help here.

Hello,

I did not present this information to the Planning Commission last night. I'm not sure if I just didn't get it or if it got lost with all the last minute testimony coming in. It has been added to the record and the Planning Commission will have this information presented ahead of the next meeting June 7th. Thank you for your testimony.

Jennifer

Jennifer Arnold
Associate Planner
Planning

22500 Salamo Rd.
West Linn, Oregon 97068
jarnold@westlinnoregon.gov
westlinnoregon.gov
503-723-2542



CITY OF
West Linn

[Click to Connect!](#)

My name is Pia Snyder, and I live on 3817 Fairhaven Drive. I have given previous testimony regarding the Willow Ridge development. My concern with the potential water problems caused by the removal of significant trees as well as the consequences of moving soil around remaining significant trees remains.

1. Significant tree removal

According to the application, there are 38 significant trees on the property. 13 will remain. I understand that the developer will have to compensate for the removal of the trees on an inch to inch basis. (ex.: if a cut tree was 48", it would be replaced by 12 4" trees). We are talking about an abundance of new trees here. I would like to see some written explanation before the significant trees are cut as to how many trees will be planted. The city arborist needs to document the size of the downed trees. These trees would be in addition to the street trees that the city plants since that is a requirement.

2. Root damage

Storm and sewer lines will be installed on the south end of lots 3 – 6. The rear yard of lot 6 as well as the Cornwall Street right-a-way are Habitat Conservation Areas (HCA). This same area also demonstrates two of the three components necessary for land to be identified as wetlands (hydrophytic vegetation and wetland hydrology are present.) There are several significant trees in these areas. Extreme care needs to be taken to protect the root systems considering the nature of the soil.

Storm and sewer lines need to be adjusted to ensure that these trees will survive, not just one year after development, but many years to come. This soil disturbance must be closely monitored.

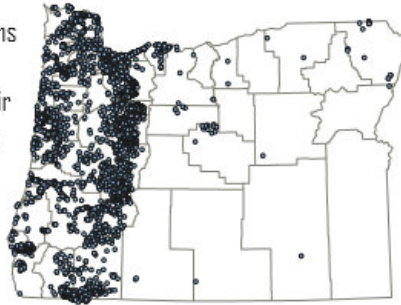
Even though this property has not been labeled as wetlands, I know the land well enough that I continue to be concerned because of the slope, the type of soil and the removal of 25 significant trees (plus all the trees which are not considered "significant") I urge the planning commission to take my concerns into serious consideration.

Thank you very much,

Pia Snyder

Landslides affect thousands of Oregonians every year. Protect yourself and your property by knowing landslide types, their triggers and warning signs, how you can help prevent landslides, and how to react when one happens.

9,500 landslides were reported in Oregon in winter 1998-97



Common landslide triggers in Oregon

- intense rainfall
- rapid snow melt
- freeze/thaw cycles
- earthquakes
- volcanic eruptions
- human
 - changing the natural slope
 - concentrating water
- combinations of the above

COMMON LANDSLIDE TYPES	TRIGGERS AND CONDITIONS	EXAMPLES
<p>SLIDES — downslope movement of soil or rock on a surface of rupture (failure plane or shear-zone). Commonly occurs along an existing plane of weakness or between upper, relatively weak and lower, stronger soil and/or rock. The main modes of slides are translational and rotational.</p> <p><i>translational</i> <i>rotational</i></p>	<p>Slides are commonly triggered by heavy rain, rapid snow melt, earthquakes, grading/removing material from bottom of slope or adding loads to the top of the slope, or concentrating water onto a slope (for example, from agriculture/landscape irrigation, roof downspouts, or broken water/sewer lines).</p> <p>Slides generally occur on moderate to steep slopes, especially in weak soil and rock.</p>	<p><i>translational slide</i> (most slides are combinations of translational and rotational movement)</p> <p><i>rotational slide</i></p>
<p>FLOWS — mixtures of water, soil, rock, and/or debris that have become a slurry and commonly move rapidly downslope. The main modes of flows are unchanneled and channeled. Avalanches and lahars are flows.</p> <p><i>unchanneled flows—left: earth flow; right: debris avalanche</i></p> <p><i>channelized flow</i></p> <p>initiation transportation deposition</p>	<p>Flows are commonly triggered by intense rainfall, rapid snow melt, or concentrated water on steep slopes. Earth flows are the most common type of unchanneled flow. Avalanches are rapid flows of debris down very steep slopes.</p> <p>A channelized flow commonly starts on a steep slope as a small landslide, which then enters a channel, picks up more debris and speed, and finally deposits in a fan at the outlet of the channel.</p> <p>Debris flows, sometimes referred to as rapidly moving landslides, are the most common type of channelized flow. Lahars are channelized debris flows caused by volcanic eruptions.</p>	<p><i>debris avalanche (unchanneled flow)</i> <i>earth flow (unchanneled flow)</i></p> <p><i>channelized debris flow</i> <i>lahar aftermath (note the flow height indicated by stained trees)</i></p>
<p>SPREADS — extension and subsidence of commonly cohesive materials overlying liquefied layers.</p>	<p>Spreads are commonly triggered by earthquakes, which can cause liquefaction of an underlying layer. Spreads usually occur on very gentle slopes near open bodies of water.</p>	<p><i>spread</i></p>
<p>TOPPLES / FALLS — rapid, nearly vertical, movements of masses of materials such as rocks or boulders. Toppling failures are distinguished by forward rotation about some pivotal point below or low in the mass.</p> <p><i>topple</i> <i>fall</i></p>	<p>Topples and falls are commonly triggered by freeze-thaw cycles, earthquakes, tree root growth, intense storms, or excavation of material along the toe of a slope or cliff. Topples and falls usually occur in areas with near vertical exposures of soil or rock.</p>	<p><i>topple</i> <i>fall</i></p>

Landslide diagrams modified from USGS Landslide Fact Sheet FS2004-3072. Photos — Translational slide: Johnson Creek, OR (Landslide Technology). Rotational slide: Oregon City, OR, January 2006. Debris avalanche flow: Cape Lookout, OR, June 2005 (Ancil Nance). Earth flow: Portland, OR, January 2006 (Gerrit Huizenga). Channelized debris flow: Dodson, OR, 1996 (Ken Cruikshank, Portland State University). Lahar: Mount St. Helens, WA, 1980 (Lyn Topinka, USGS/Cascades Volcano Observatory). Spread: induced by the Nisqually earthquake, Sunset Lake, Olympia, WA, 2001 (Steve Kramer, University of Washington). Fall: Portland, OR (DOGAMI). Topple: I-80 near Portland, OR, January 2006 (DOGAMI).



Signs of possible landslide problems:

- Structural deformation such as large foundation cracks, misaligned doors and windows, tilted floors, or sagging decks
- Large, open cracks in driveways, curbs, and roads
- Falling retaining walls
- Arc-shaped cracks in the ground

What can I do to reduce landslide risk around my home?

- If you are looking for or are building a home, avoid siting the structure in a hazardous location.
- Consult a registered geologist or licensed geotechnical engineer if you are considering building or buying on a location with high-risk characteristics.
- Control road or driveway water so it flows away from steep slopes and into storm drains or natural drainages where it will not harm you or your neighbors.

Who should I consult if I have questions about a specific site?

Contact the **Oregon Board of Geologist Examiners** (<http://www.osbge.org/>; phone 503-566-2837) or the **Oregon State Board of Examiners for Engineering and Land Surveying** (<http://osbeels.org/>; phone 503-362-2666) for lists of registered professional consultants available for site-specific evaluations.

When are slides most likely to happen?

- Most recent slides and flows have occurred after several hours or, in some cases, several days of heavy rain or rapid snow melt. Flows may occur hours after the period of the heaviest rain in a storm.
- Earthquakes can cause landslides; if you are on sloping ground or near a riverbank during an earthquake, be alert for landslides.

What should I do during dangerous weather?

- During intense, prolonged rainfall, listen for advisories and warnings over local radio or TV or National Oceanic and Atmospheric Administration (NOAA) weather radio. In western Oregon "intense" rainfall is considered 4% of your average annual rainfall in a 12-hour period during the wet season. East of the Cascade Range "intense" rainfall is 2 inches in 4 hours. Debris flows may occur if such rainfall rates continue.
- Be aware that you may not be able to receive local warning broadcasts in canyons. Isolated, very intense rain may occur outside warning areas. You may want to invest in your own rain gauge. Don't assume highways are safe. Be alert when driving, especially at night.
- Watch carefully for collapsed pavement, mud, fallen rock, and other debris. Be particularly careful in areas marked as slide or rockfall areas. Watch for signs with warnings or road closures.
- Plan your evacuation route prior to a big storm. If you have several hours advance notice, drive to a location well away from steep slopes and narrow canyons.
- Once storm intensity has increased, it may be unsafe to leave by vehicle.



RESOURCES – Where can I get additional information?

- **Nature of the Northwest Information Center** (<http://www.naturenw.org/>), operated by the Oregon Department of Geology and Mineral Industries, carries earthquake and landslide hazard maps and other reports. 800 NE Oregon St., #5, Portland, OR 97232, phone 503-872-2750.
- **Oregon Department of Geology and Mineral Industries** (<http://www.OregonGeology.com>) maps landslides and issues reports and maps.
- **Local city or county emergency managers or planners** may have landslide mitigation information.
- **Association of Oregon Counties** (<http://www.aocweb.org/>) and the **League of Oregon Cities** (<http://www.orcities.org/>) work with local government and state agencies to coordinate these efforts.
- **Oregon Department of Forestry** (http://www.oregon.gov/ODF/PRIVATE_FORESTS/PCFPubIndex.shtml) publishes technical papers on landslides.
- **Oregon Natural Hazards Workgroup, Partners for Disaster Resistance and Resilience** (<http://www.oregonshowcase.org/>) provides pre-disaster mitigation planning information.
- **Oregon Department of Transportation** maintains highways and issues 24-hour information about road conditions and road closures. For current conditions, call 1-800-977-6368 or visit <http://www.tripcheck.com>.
- **Oregon Department of Land Conservation and Development** maintains policies that guide local planning for development away from hazardous areas including landslide-prone areas (<http://www.oregon.gov/LCD/HAZ/landslides.shtml>) and also maintains the **Oregon Coast Management Program – Coastal Atlas Hazards Map** (<http://www.coastalatlant.net/learn/topics/hazards/landslides/>).
- **Oregon Department of Consumer and Business Services, Building Codes Division** (<http://www.cbs.state.or.us/bcd/>) provides guidelines for foundations of structures on or adjacent to slopes.
- **USGS National Landslide Information Center** (<http://landslides.usgs.gov/>) has educational information and publications.
- Geology and engineering departments at **Portland State University** (<http://www.pdx.edu>), **Oregon State University, Corvallis** (<http://www.oregonstate.edu>), and **University of Oregon, Eugene** (<http://www.uoregon.edu>) research landslide hazards.

Other Agencies and Societies

- Oregon Emergency Management, <http://egov.oregon.gov/OOHS/OEM/>
- Federal Emergency Management Agency (FEMA), <http://www.fema.gov/hazards/landslides/>
- USDA Forest Service Pacific Northwest Research Station, <http://www.fs.fed.us/pnw/>
- USDA Natural Resources Conservation Service, Soils, <http://soils.usda.gov/>
- Association of Engineering Geologists, Oregon section, <http://www.aegoregon.org/>
- American Society of Civil Engineers, Oregon section, <http://www.asceor.org/>

- Plan your evacuation route prior to a big storm. If you have several hours advance notice, drive to a location well away from steep slopes and narrow canyons.
 - Once storm intensity has increased, it may be unsafe to leave by vehicle. Stay alert and awake; you may need to evacuate by foot.
 - Listen for loud, unusual sounds. If you think there is danger of a landslide, evacuate immediately—don't wait for an official warning.
 - Get away from your home if it is in an unsafe area. Be careful but move quickly. Move away from stream channels.
- Association of Engineering Geologists, Oregon section, <http://www.aegoregon.org/>
 - American Society of Civil Engineers, Oregon section, <http://www.asceor.org/>
 - Bureau of Land Management, Oregon section, <http://www.blm.gov/or/>

Oregon Department of Geology and Mineral Industries 800 NE Oregon St., Suite 965 Portland, OR 97232 971-673-1555 www.OregonGeology.com

1.652 REVISED 11-12-2008





CITY OF West Linn

Memorandum

Date: October 7, 2020
To: West Linn Planning Commission
From: Jennifer Arnold, Associate Planner
Subject: Written Testimony: SUB-20-01 – 6-Lot Subdivision at 4096 Cornwall Street

On October 5, 2020 Staff received a report from William House on geologic and hydrologic risk parameters.

On October 5, 2020 Staff received testimony from Robert Jester, representing the Barrington Heights HOA and Neighborhood Association expressing concerns regarding access and connectivity, safety on Landis, preservation of habitat, trees and stability of the land.

On October 6, 2020 Staff received testimony from the Pam Yokubaitis expressing concerns regarding landslides, road connectivity, traffic, and lack of a report from a hydrogeological study.

On October 6, 2020 Staff received testimony from Bib Mendel, representing the Tanner Stonegate HOA expressing concerns regarding a traffic impact analysis and stormwater drainage.

On October 7, 2020 Staff received additional written testimony from Pam Yokubaitis representing the BHT NA and Hidden Creek Estates Subdivision.

Public Testimony: Willow Ridge Geologic and Hydrologic Risk Parameters

Willow Ridge Proposed Development 4096 Cornwall St., West Linn, OR Tax Lot: 6300

This document provides an assessment of geologic and hydrologic risk related to the proposed Icon Construction and Development (ICON) project on Tax Lot 6300 (Willow Ridge Development). The testimony provided herein was produced by William House on a pro gratis basis for the residents of various communities surrounding the proposed Willow Ridge development. The testimony provides an assessment of available technical data to determine geological and hydrological risk parameters associated with the development and assess risk mitigation plans.

This document does not provide the following:

- 1) A technical basis for the design of any physical structures.
- 2) An exhaustive assessment of local geologic and hydrologic conditions

Interpretations of data provided in this document represent the informed opinion of William House based on the resources cited under Data Sources.

William House is a retired professional geologist with an academic background that includes an MS Degree in Geology and a BA Degree in Environmental Sciences. He has extensive experience in subsurface geology from working as an exploration geologist in the petroleum industry for 34 years. He currently resides at 3483 Cascade Terrace, West Linn, OR.

Executive Summary

A geological and hydrological risk assessment of the Willow Ridge Development was undertaken at the request of local residents. The assessment was based on publicly available data.

The two key findings of the study are:

1. The ICON application does not recognize the presence of a perched water table outcropping on the Willow Ridge slope at approximately 460 feet above sea level (ASL). Flooding and slope stability risks associated with this geological feature are not addressed in the Willow Ridge Development application (Exhibit 7).
2. Geological risk from shallow landslides is discussed in the application, but these discussions do not include an analysis of how groundwater flow from the perched water table may affect slope stability, nor do they specifically address slope instability issues related to the excavation of slope-toe materials along the perched water table (Exhibit 10).

Hydrologic Risk:

Available geological mapping in the area indicates that the rocks below ground level consist of flat tabular basalts associated with two units of Frenchman Springs member of the Wanapum Basalts. The geological formation contact between these two units is interpreted to occur at approximately 460 feet above sea level, based on well data and offset geological mapping (Geologic map of the Oregon City 7.5' quadrangle, Clackamas County, Oregon, by Ian P. Madin, 2009 – Exhibit 1). The formation contact is important because hydrologic systems in basalts are heavily influenced by contacts between basalt flow units.

Subsurface descriptions support this interpretation based on the well log from the Clackamas County water well CLAC 69447 drilled on the property with an address of 4197 Reed St., West Linn, OR (approximately 123 feet from the north corner of the Willow Ridge plot – Exhibits 2 & 3). This well identifies a perched water zone between 462 feet and 481 feet ASL (Exhibit 5). The base of the perched water zone is consistent with the projected formation contact. This perched water zone outcrops on the Willow Ridge slope and appears to feed springs along that slope (Exhibits 6, 7, & 7a).

Ground disturbance from construction or increased ground water percolation above an elevation of 460 feet ASL will affect the perched water zone and may result in either increased flow from existing springs or the formation of new springs. These changes in groundwater flow may pose increased flooding risk to the properties at the base of the Willow Ridge slope and may also create slope stability issues.

A history of flooding on these properties has been previously noted in past public testimony. Both flooding of backyards with surface waters and flooding of crawl spaces with ground water

seepage have been noted. Construction along the water table discharge zone needs to mitigate risk for both surface runoff and flow from the existing ground water drainage system where it outcrops on the Willow Ridge slope.

The letter from GeoPacific dated December 18, 2019 states that “*No groundwater was encountered in any of the test pits.*” This is inconsistent with the 2016 Carlson Geotechnical report showing groundwater seepage in three of the seven test pits (TP-4, TP-5, & TP-6). Two of these pits (TP-5 & TP-6) are located on the SW lower slope below the perched water table outcrop, and they experienced ground water seepage at about 4 feet BGS, demonstrating lower slope water flow in the soils. This is interpreted to be part of the groundwater drainage from the perched water table. Plans to mitigate crawl space flooding risk from changes in the groundwater drainage system on the Willow Ridge property are not address in the application.

(Note: The GeoPacific Letter also referenced geotechnical work from December 10, 2019. This work could not be located and the reference is assumed to be for the December 10, 2015 work done by Carlson Geotechnical)

Previous public testimony from Stonegate residents has demonstrated the relationship between drainage changes due to upslope construction and increased water flow from the perched water zone (2017 testimony by Chelsea Diaz). The perched water table outcrops behind the Diaz home, and flooding problems from that zone coincided with upslope construction (Exhibit 8).

Landslide Risk:

The eastern half of the Willow Ridge Development plot is shown on Oregon State Department of Geology and Mineral Industries Shallow Landslide maps as having a moderate to high susceptibility to shallow landslides (Exhibit 9). Any construction activities resulting in increased soil water content or removal of slope-toe materials will increase this risk.

Two types of shallow landslide risk are identified:

1. Shallow rockslide risk on the steep slopes between 467 and 480 feet ASL. This risk will increase if construction either removes the materials at the base of this slope or causes increased ground water flowage from the existing seeps between 460 and 467 feet ASL (Exhibit 10).
2. The risk of mud flows or rotational soil slumps on the lower slopes will increase if construction results in increased ground water seepage on the Willow Ridge slopes.

The Willow Ridge property contains geologic and hydrologic conditions not usually encountered with residential construction in this area. The fact that a perched water table outcrops on this slope is not addressed in the application. The groundwater hydrology of this property is particularly important since homes are planned for construction along this perched water table. Construction may also increase the risk of groundwater related flooding and slope instability unless engineering solutions are designed and implemented to mitigate these risks.

Data Sources:

A full description of the proposed development is provided in the ICON January 7, 2020 Development Review Application, received January 13, 2020 by the City of West Linn. This application was used as a source of technical information regarding geotechnical and hydrological investigations carried out in support of ICON's proposed development.

Additional sources of data include:

- 1) Clackamas County water well CLAC 69447 drilled on the property with an address of 4197 Reed St., West Linn, OR.(Reed Street Well)
- 2) Geologic map of the Oregon City 7.5' quadrangle, Clackamas County, Oregon, by Ian P. Madin, 2009
- 3) Statewide Landslide Information Database for Oregon (SLIDO): earthquake and landslide maps
- 4) Shallow-Landslide Susceptibility Map of the Northeast Quarter of the Canby Quadrangle, Clackamas County, Oregon; 2013; OPEN-FILE REPORT O-13-08 – Plate 45
- 5) City of West Linn GIS resources in the online MapOptix tool
- 6) Public testimony from previous hearings

Local Geology

The shallow subsurface geology of the area consists of Columbia River Basalts. These rocks include basaltic magma flows originating in Eastern Oregon or Idaho and deposited as tabular sheets in the West Linn area about 15.5 million year ago. The Frenchman Springs member of the Wanapum Basalts is interpreted to be present in the Willow Ridge Development project area based on projecting the mapped geology of the Oregon City Quadrangle. The eastern corner of the Willow Ridge property is located approximately 1570 feet from the edge of the mapped areas of the Oregon City Quadrangle geologic map (Exhibit 1).

The Frenchman Springs member is divided into the upper Sandy Hollow Unit (Twfs) and the lower Gingko Unit (Twfg) (Exhibit 1a). The contact between this units occurs at 460' ASL on the western edge of the Oregon City Quadrangle geological map. The tabular nature of these units allows a reasonable interpretation that the contact will be at the same level 1,570 feet to the west of the geologic map in the Willow Ridge development (Exhibit 1).

Well Data

Clackamas County water well CLAC 69447 drilled on the property with an address of 4197 Reed St., West Linn, OR.(Reed Street Well). The Reed Street Well log report was retrieved from the Oregon Water Resources Department's public domain files (Exhibit 2). The well was reviewed to understand the subsurface geology in the vicinity of the Willow Ridge Development. The well is located approximately 123 feet from the north corner of the Willow Ridge Development property (Exhibit 3). The well was drilled in 2013, reached a total depth of 422 feet below ground level (BGL), and it was completed at a depth of 388 feet BGS. The top 100-foot section of the well is relevant to the Willow Ridge Development analysis.

The well elevation at ground surface is estimated at 508 feet ASL (Exhibit 4). The well initially drilled 27 feet of clay and weathered basalt. This was followed by a 13 foot zone of loose gray and brown basalt and 6 foot zone of multi-colored basalt. These two zones, from 27 feet to 46 feet BGL, form a 19 foot flowable, water-bearing interval (Exhibit 5). The well was projected onto the West Linn City MapOptix terrain map at a surface level of 508 feet ASL (Exhibit 4). The terrain map uses contour data from a 2014 survey.

The base of the water-bearing zone is 462 feet ASL. This correspond closely with the projected geological contact between the upper and lower Frenchman Springs units. Below this contact gray basalts followed by gray/brown fractured basalts were encountered. The next water zone in the well was encountered between 216 – 280 feet ASL.

Well Data Interpretation

Observations from the water well demonstrate the existence of a perched water layer between approximately 460 feet asl and 480 feet ASL. The term perched refers to an aquifer that is located above a deeper primary water bearing formation. Given the tabular nature of the basalt layers, this water would be expected to exit to the surface in locations where the topography cuts lower than the water zone.

The steep slopes of the Willow Ridge Development represent an area where the topography cuts through the Frenchman Springs basalts and exposes the perched water unit to the surface. The water zone cuts across the development area in a generally NW-SE line, following the topography between 460 – 480 feet asl (Exhibit 6).

The water zone map in Exhibit 6 was constructed using the MapOptix contours. The exhibit denotes differences between the MapOptix 460 foot contour and the ICON maps used in their original planning application.

A cross sectional representation of the local geology and the perched water zone is shown in Exhibits 7 & 7a. The diagram shows the natural water flow from the subsurface to the surface

along the Willow Ridge slope. The zone of flow corresponds to the noted presence of live springs and water loving Willow trees that occur naturally along the length of the ridge.

The dynamics of this natural water flow system are such that water enters the system via precipitation on the ground surfaces above the 460 foot contour. The water migrates vertically into the soils until it reaches the top of the gray basalt layer at about 460 feet ASL. This layer forms a permeability barrier and the water accumulates as a perched aquifer. The free surface along the Willow Ridge slope provides an exit point for the water and allows the aquifer to drain (Exhibit 7).

Water Flow in Basalts

Subsurface water movement can occur in two types of systems:

- Pore system networks: These types of networks rely on rocks like sandstones that are composed of many individual rock grains or fragments. The space between grains is referred to as pore space, and water can move through this pore space
- Fracture system networks: In rocks that have no intergranular porosity water must move through fractures in the rocks. Basalts are generally considered to be fracture network flow systems.

The distinction between these two types of systems is important because pore system networks will more evenly distribute water flow throughout the rock unit and are thus more predictable. Fracture system networks rely on fracture distribution patterns, which can be unpredictable. Fracture system networks have the capacity to concentrate flow into a limited number of conduits.

The practical difference between the two types of systems can be envisioned by considering the discharge of 100 gallons of water over an hour period through both types of systems, each with 100 square feet of slope exposure. Over the 1 hour period, one gallon of water would discharge from each square foot of the pore network system. If we assume 2 exposed fractures in the fracture network system, then over the hour period 50 gallons of water would discharge from each fracture. Fracture systems concentrate flow.

This distinction is important in the Willow Ridge area since the perched water aquifer is in basalts. The expectation is that flow will be concentrated in local areas and increased water flow into the aquifer, or disruption from construction will result in either increased flow from existing springs or the formation of new springs.

Observational Support for the Proposed Hydrologic System

Previous testimony regarding the Willow Ridge Development has pointed out the flooding problems currently experienced by the residents with properties on the SW edged of the development plot. The natural subsurface flow of water creates a series of springs on the slopes of the Willow Ridge Development. Surface development of the area will change the existing surface and subsurface water flow patterns.

Public testimony in 2017 by Chelsea Diaz demonstrated a clear connection between upslope changes in drainage cause by construction and the subsequent increased water flow from the same geological formations that occupy the Willow Ridge Development slopes. The location of this incident was immediately to the NW of the Willow Ridge plot in the Stonegate community. The perched water table outcrops behind the Diaz home, and flooding problems from that zone coincided with upslope construction (Exhibit 8).

Landslide Risk

The eastern half of the Willow Ridge Development plot is shown on Oregon State Department of Geology and Mineral Industries Shallow Landslide maps as having a moderate to high susceptibility to shallow landslides (Exhibit 9). Activities resulting in increased soil water content or removal of slope-toe materials will increase this risk.

The Oregon Department of Geology and Mineral Industries document “A Homeowner’s Guide to Landslides” is used as a reference for defining landslide types. A landslide refers to any downslope movement of soil, rock, or slope debris. Mudslides, mudflows, debris flows, rock falls, and slumps are all terms describing landslides. The types of landslides of concern in the discussion of Willow Ridge Development risk factors are rockfalls, and slumps.

A rotational slide occurs when a large section of earth is transported downslope by sliding on a discrete detachment surface. The mass of soil and rock will partially disaggregate as it moves downslope. Rotational slides can occur when slopes are too steep or in areas where the base of the slope is undercut by either natural or man-made processes. Any changes to the current Willow Ridge slope that affect the base of the steepest slopes will increase the risk of a rotational slump or rockslide. The controlling factor is removal or destabilization of existing material at the toe of the slope.

The two factors to evaluate for this risk are: planned removal of material during construction, or increased water flow (surface or subsurface) at the base of the slope. The current understanding of the geology is that water is currently exiting the toe of the steepest slope in the form of springs. Any changes above this seep zone that result in increased ground water will cause increased water flow from the existing seeps or the formation of new seeps at the toe of

the slope. This increased flow could destabilize the slope toe and result in increased risk of landslide (Exhibit 10).

Based on the geology of the Reed Street Well the steepest portions of the existing slope are composed of loose, gray/brown basalt. The next zone of gray/brown basalt approximately 20 feet deeper is described as fractured. Loose or fractured basalt indicates a degree of disaggregation in the rock unit. Removal of structural support at the base of this unit on the slope could result in near surface collapse of the overlying unit and disaggregation of the mass into a shallow rockslide.

Mud flows or shallow slumps are the second type of landslide risk. These types of movement are not historically noted on the Willow Ridge Plot or in the properties below the slopes. However, increased ground water on the lower slopes would result in a higher risk with regards to these types of shallow landslide risk, but the degree of increased risk cannot be quantified with the data available and more studies are required.

Comment on the ICON Willow Ridge Development Application

The ICON January 7, 2020 Development Review Application, received January 13, 2020 by the City of West Linn., provides a geotechnical report on the Willow Ridge property. The application notes the potential for perched water aquifers in basalts but does not discuss the risk implications of the proven perched aquifer encountered in the Reed Street Well, nor does it specifically address mitigation of that risk.

The geotechnical report is dated Jan 7, 2016 and thus does not address the public testimony presented in 2017 by Chelsea Diaz. The Stonegate homes are exposed to the same geological and hydrological conditions that exist on the Willow Ridge property. The homes are below the base of the water flow zone just like the Fairhaven homes on the SW edge of the Willow Ridge property. Flooding risk from a new development due to changes in ground water flow is a proven risk that is not specifically discussed in the application, and needs to be addressed to understand what control measures will be considered for mitigating ground water discharge from the perched water table.

The geotechnical report provides a representative review of the near surface geology and the seven test excavation pits show geology similar to the uppermost portion of the Reed Street Well with silts and clays underlain by weathered basalts. These pits excavated up to 10 feet of material, but in general sampled 6 – 8 feet below the ground surface. Three of test pits (TP-4, TP-5, & TP-6) encountered ground water seepage. Two of these pits (TP-5 & TP-6) are located on the lower slope below the perched water table outcrop, and they experienced ground water seepage at about 4 feet BGL, demonstrating lower slope water flow in the soils. This groundwater flow system is not discussed in the application, and no plans are presented for mitigation.

The report notes that the native surface soils on the slope are sensitive to small changes in moisture content and present stability issues for earth work performed during wet weather. The report does not specifically address the potential for shallow landslides due to undercutting slope bases, over steepening existing slopes, or increasing the shallow ground water flow. Given that the Oregon State Department of Geology and Mineral Industries Shallow Landslide maps identify the Willow Ridge property as having moderate to high susceptibility to shallow landslides, plans to mitigate this risk should be part of the planning process.

The report does state that under current conditions the risk of seismically induced slope instability is low. Well planned drainage control to maintain the current ground saturation conditions is part of the process of insuring that current slope stability conditions are maintained. While surface water drainage is discussed in the application, ground water drainage is not, and plans should be in place to mitigate the risk posed by this element of the hydrologic system.

The steepest portions of the Willow Ridge slopes between 467 feet and 481 feet ASL are interpreted to be composed of loose, gray/brown basalt based on the Reed Street Well. The application does not specifically address this zone or measures needed to ensure that, during construction, slope stability will be maintained to prevent shallow rockslides.

William House

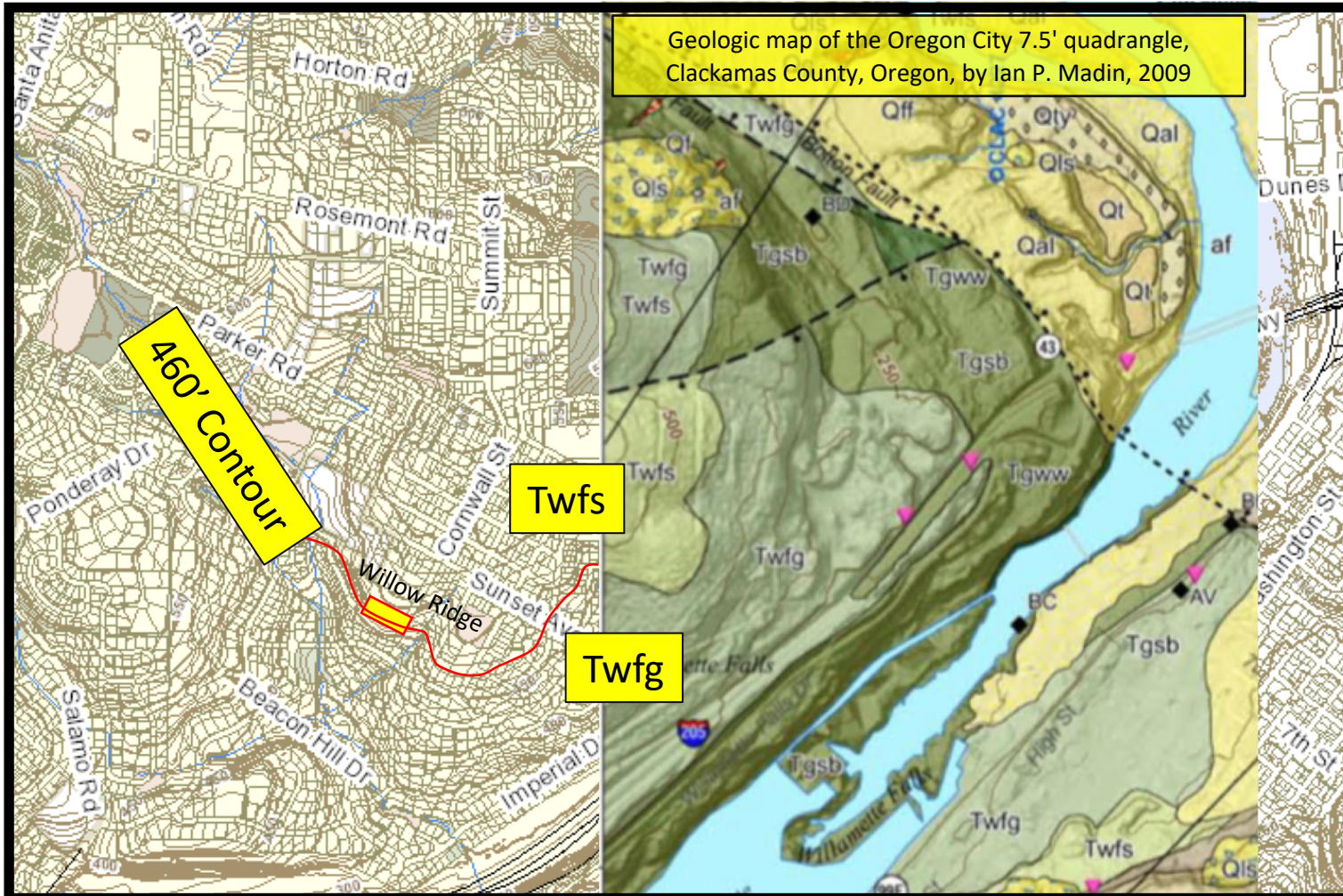
William House is a retired professional geologist with an academic background that includes an MS Degree in Geology and a BA Degree in Environmental Sciences. He has extensive experience in subsurface geology from working as an exploration geologist in the petroleum industry for 34 years.

EXHIBITS

- 1 Geologic Map
 - a. Local Stratigraphy
- 2 Well Report: Clackamas County water well CLAC 69447
- 3 Reed Street Well Location Map 1
- 4 Reed Street Well Location Map 2
- 5 Reed Street Wellbore Profile
- 6 Map: Outcrop of Perched Water Flow Zone
- 7 Geologic Profile Across Willow Ridge Property
 - a. Location Map for Geologic Profile
- 8 Public Testimony: Stonegate Ground Water Drainage Issue
- 9 Map: Shallow Landslide Risk
- 10 Schematic of Rock Slide Risk Factors

Exhibit 1

Maps showing the extension of the contact between the Sandy Hollow and Gingko units of the Frenchman Springs member of the Wanapum Basalts



Legend provided in Exhibit 1a

Local Stratigraphy

Miocene Columbia River Basalt Group lavas

- | | |
|------|---|
| Twfs | Wanapum Basalt, Frenchman Springs Member, basalt of Sand Hollow (Miocene) — Black medium-grained basalt flows with sparse plagioclase phenocrysts, well developed columnar jointing. |
| Twfg | Wanapum Basalt, Frenchman Springs Member, basalt of Gingko (Miocene) — Black medium-grained basalt flows with abundant plagioclase phenocrysts, well developed columnar jointing. |
| Tgsb | Grande Ronde Basalt, Sentinel Bluffs Member (Miocene) — Sentinel Bluffs Member (middle Miocene) — black fine-grained basalt flows with sparse plagioclase phenocrysts, well developed columnar jointing. |
| Tgww | Grande Ronde Formation, basalt of Winter Water (Miocene) — Flow or flows of fine-grained basalt. |

The Columbia River Basalt flows are considered to be generally tabular and undeformed, thus their exposure elevations on the Oregon City Quadrangle geologic map are probably very close to their elevations on Willow Ridge

Well Report:

Clackamas County well CLAC-69447

4197 Reed Street

(Reed Street Well)

Retrieved from the Oregon
Water Resources Department

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)
Instructions for completing this report are on the last page of this form

CLAC 69447
SKYLES DRILLING, INC.
503-656-2683

WELL ID # L **110853**
START CARD # **W208221**

(1) OWNER: Well Number: **01**
Name: **Pacific Lifestyle Homes**
Address: **11875 NE 99th St., Suite 1200**
City: **Vancouver** State: **WA** Zip: **98662**

(2) TYPE OF WORK:
 New Well Deepening Alteration (repair/recondition) Abandonment

(3) DRILL METHOD: **RECEIVED BY OWRD**
 Rotary Air Rotary Mud Cable Auger
Other: _____

(4) PROPOSED USE:
 Domestic Community Industrial Irrigation
Thermal Injection Livestock Other: **SALEM, OR**

(5) BORE HOLE CONSTRUCTION:
Special Construction approval Yes No Depth of Completed Well: **388** ft.
Explosives used Yes No Type _____ Amount _____

HOLE		SEAL		Amount	
Diameter	From To	Material	From To	sacks or pounds	
10	0 78	Cement w/5%	78		
6	78 422	bentonite	18	62 Sacks	
		Bentonite	18	0 8 Sacks	

How was seal placed: Method A B C D E
 Other: **Poured bentonite**
Backfill placed from _____ ft. to _____ ft. Material _____
Gravel placed from _____ ft. to _____ ft. Size of gravel _____

(6) CASING/LINER:

Diameter	From To	Gauge	Steel	Plastic	Welded	Threaded
Casing: 6	+2 78	.250	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Liner: 4	68 388	Sch40	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Drive Shoe used Inside Outside None
Final location of shoe(s) _____

(7) PERFORATIONS/SCREENS:
 Perforations Method **Saw**
Screens Type _____ Material _____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
367	387	1/8x3	72				<input checked="" type="checkbox"/>

(8) WELL TESTS: Minimum testing time is 1 hour
Pump Bailor Air Flowing Artesian
Yield gal/min **10** Drawdown **387** Drill stem at **1 hr.** Time _____

Temperature of Water **58** Depth Artesian Flow found _____
Was a water analysis done? Yes No By whom _____
Did any strata contain water not suitable for intended use? Too little
 Salty Muddy Odor Colored Other _____
Depth of strata: **27' to 46'**

(9) LOCATION OF WELL by legal description:
County: **Clackamas** Latitude _____ Longitude _____
Township: **25SOUTH** N or S. Range **1EAST** E or W of WM
Section: **36BA** NE **1/4** NW **1/4**
Tax lot: **06000** Lot _____ Block _____ Subdivision _____
Street Address of Well (or nearest address): **4197 Reed St, West Linn, OR**

(10) STATIC WATER LEVEL:
216 ft. below land surface. Date: **2/8/2013**
Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:
Depth at which water was first found: **27'**

From	To	Estimated Flow Rate	SWL
27	46	5	21
216	280	8	216
381	384	2	216

(12) WELL LOG:

Material	From	To	SWL
Clay, brown	0	6	
Basalt, weathered w/clay, brown	6	27	
Basalt, gray & brown loose	27	40	
Basalt, multicolored	40	46	
Basalt, gray	46	60	
Basalt, gray & brown fractured	60	71	
Basalt, gray	71	96	
Basalt, black fractured @times	96	168	
Basalt, gray fractured	168	186	
Basalt, black fractured	186	216	
Basalt, mc fractured & porous	216	219	216
Basalt, black fractured	219	257	216
Basalt, gray & brown fractured	257	265	216
Basalt, black semi-fractured	265	272	
Basalt, gray	272	286	
Basalt, gray & black fract @times	286	381	
Basalt, gray & brown fract&porous	381	384	216
Basalt, gray & black	384	408	
Basalt, gray	408	422	
Void	422		
Cemented up bottom w/ 11sacks cement & bentonite	422	388	

Date started **2/1/2013** Completed **2/8/2013**

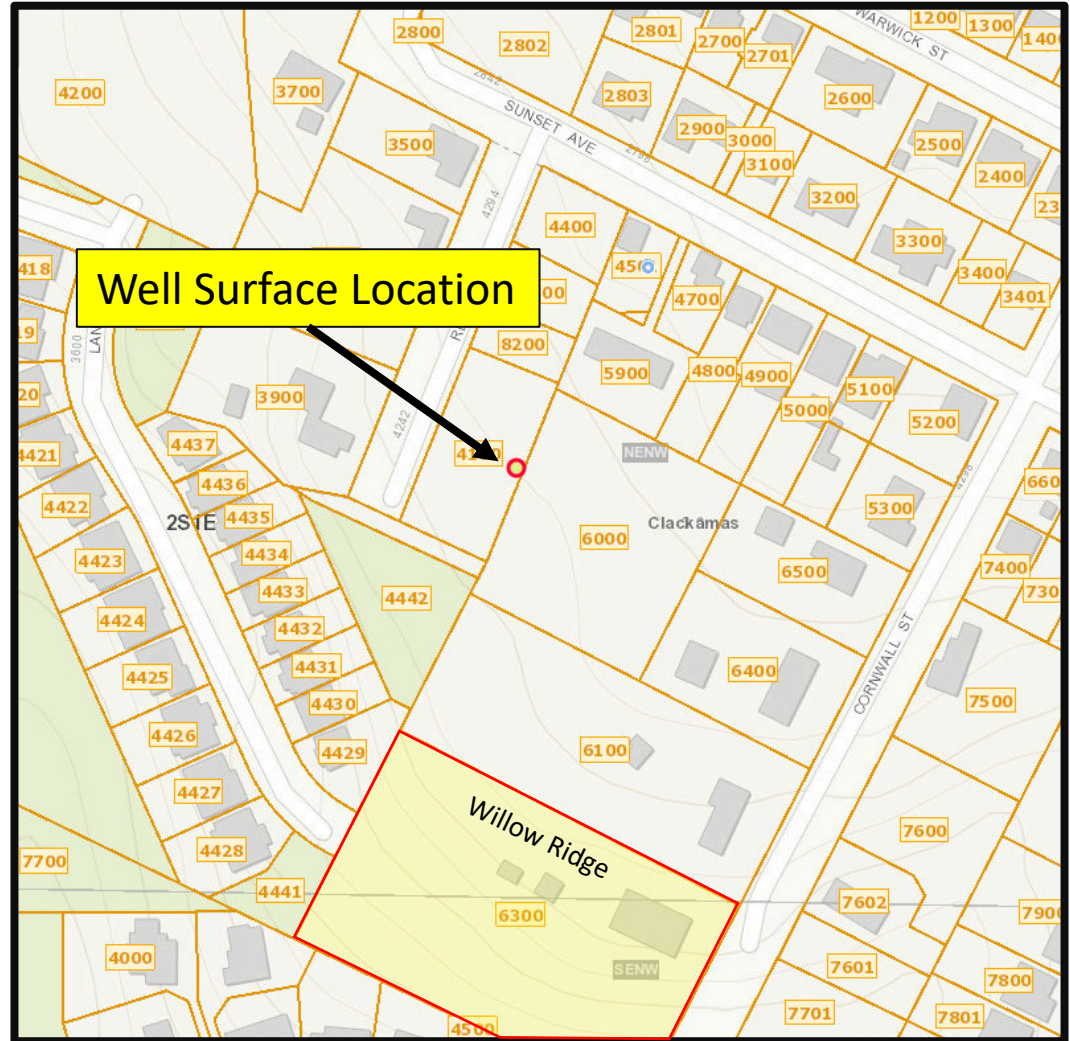
(unbonded) Water Well Constructor Certification:
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
Signed: _____ WWC Number **1884**
Date **2/11/2013**
Skyles Drilling, Inc.

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.
Signed: _____ WWC Number **1592**
Date **2/11/2013**
Skyles Drilling, Inc.

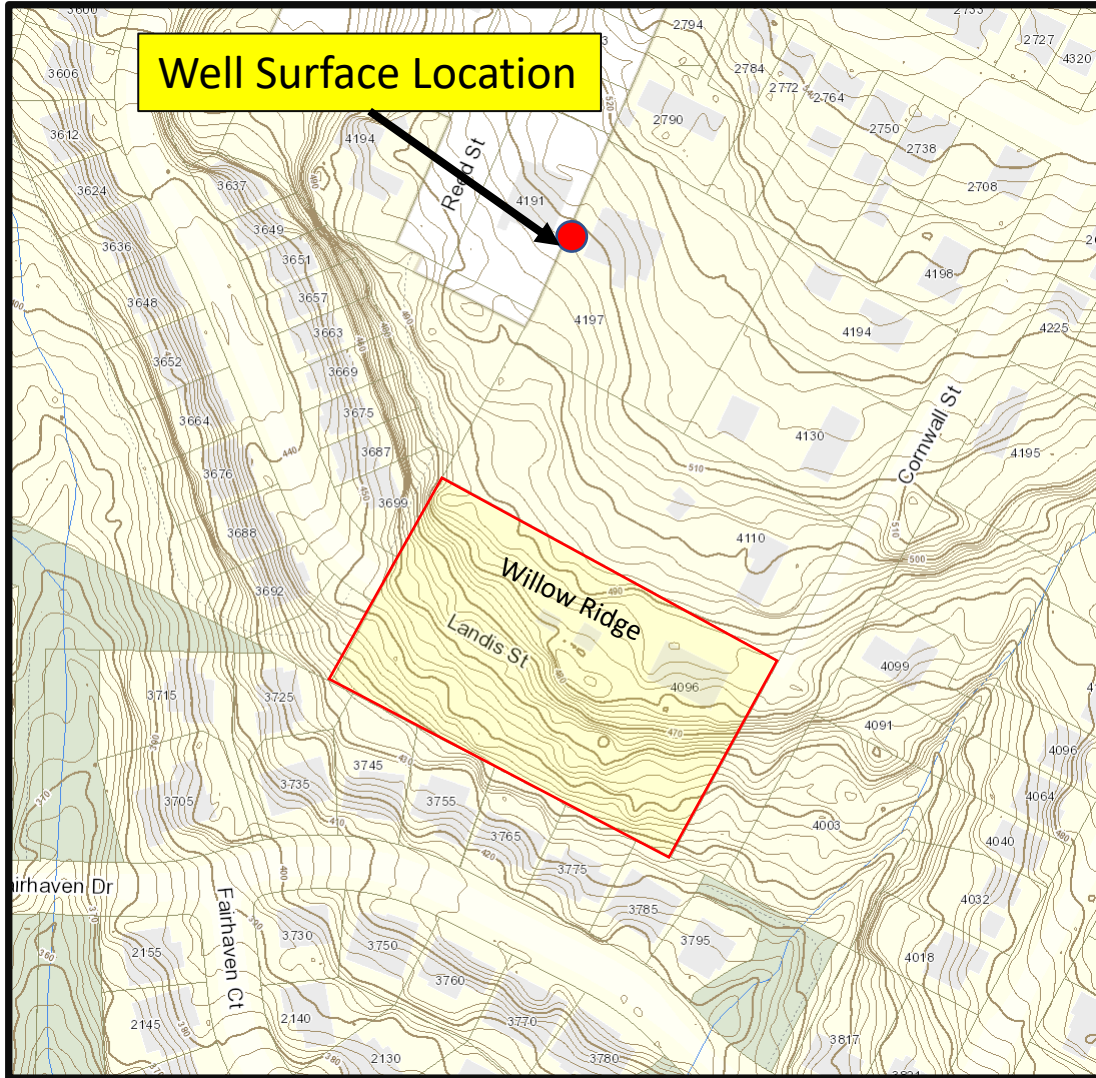
ORIGINAL - WATER RESOURCES DEPARTMENT FIRST COPY - CONSTRUCTOR SECOND COPY - CUSTOMER

Reed Street Well Location Map 1

- Type: Water Well
- Completion Date: Feb. 8, 2013
- Company: Skyles Drilling
- TD: 422 ft
- Completion Depth: 388 ft



Reed Street Well Location Map 2



Surface Elevation approximated at 508 ft. ASL based on maps from the West Linn City Government MapOptix platform using terrain contours from a 2014 topographic survey

Exhibit 5

Wellbore Profile: 4197 Reed Street

Perched water was encountered in this well with a floor at 46 feet below ground level or an elevation of 462 feet asl

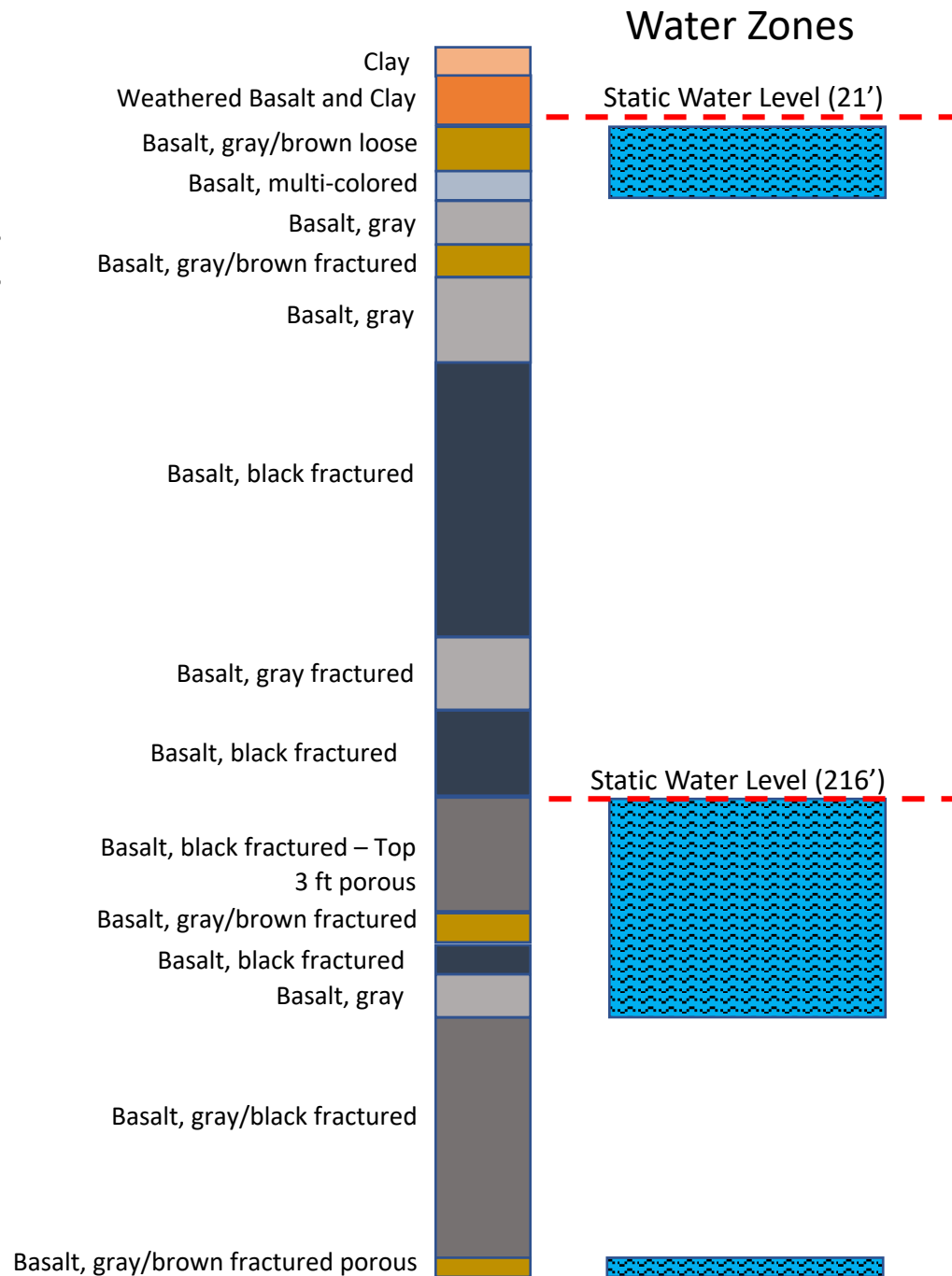
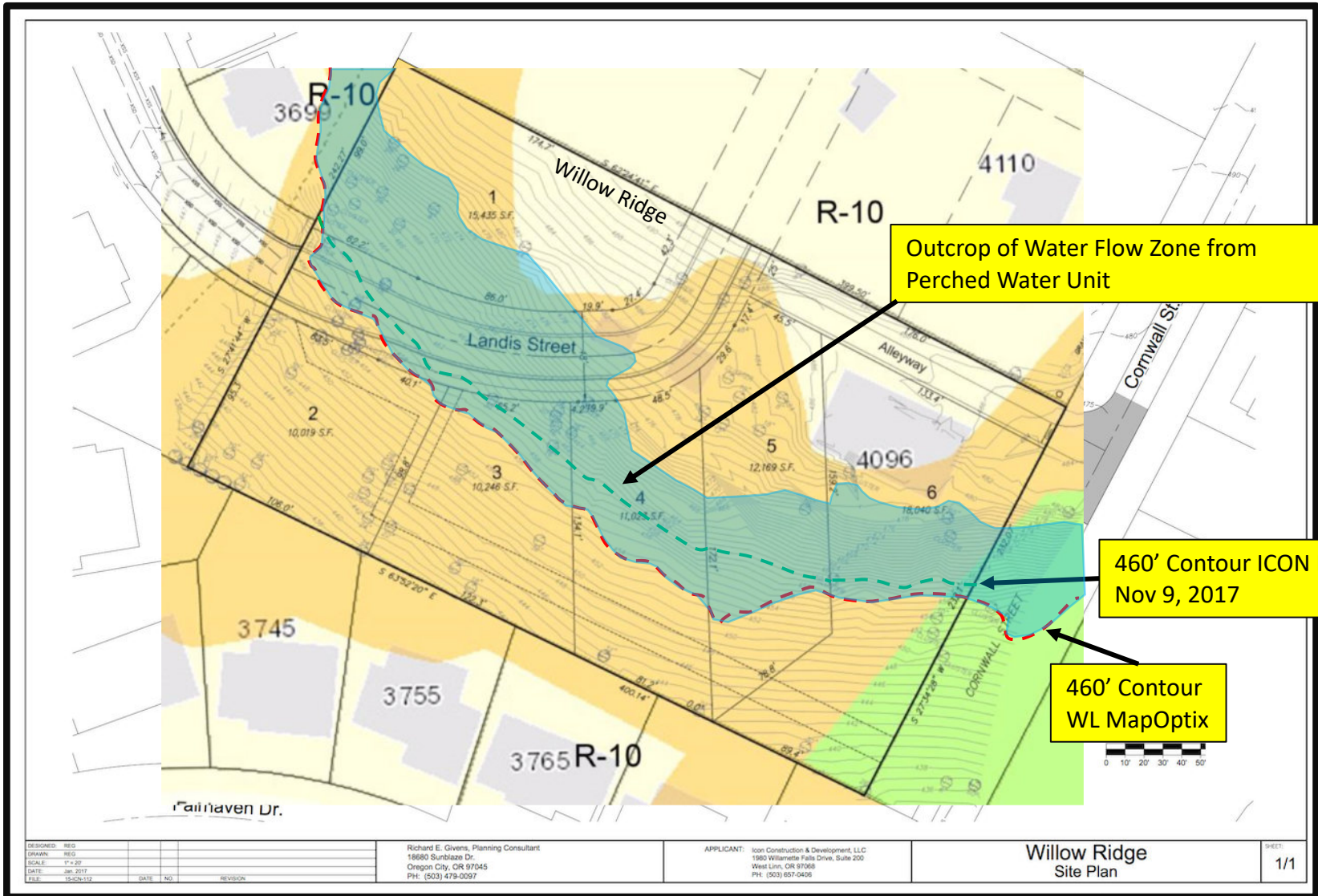


Exhibit 6

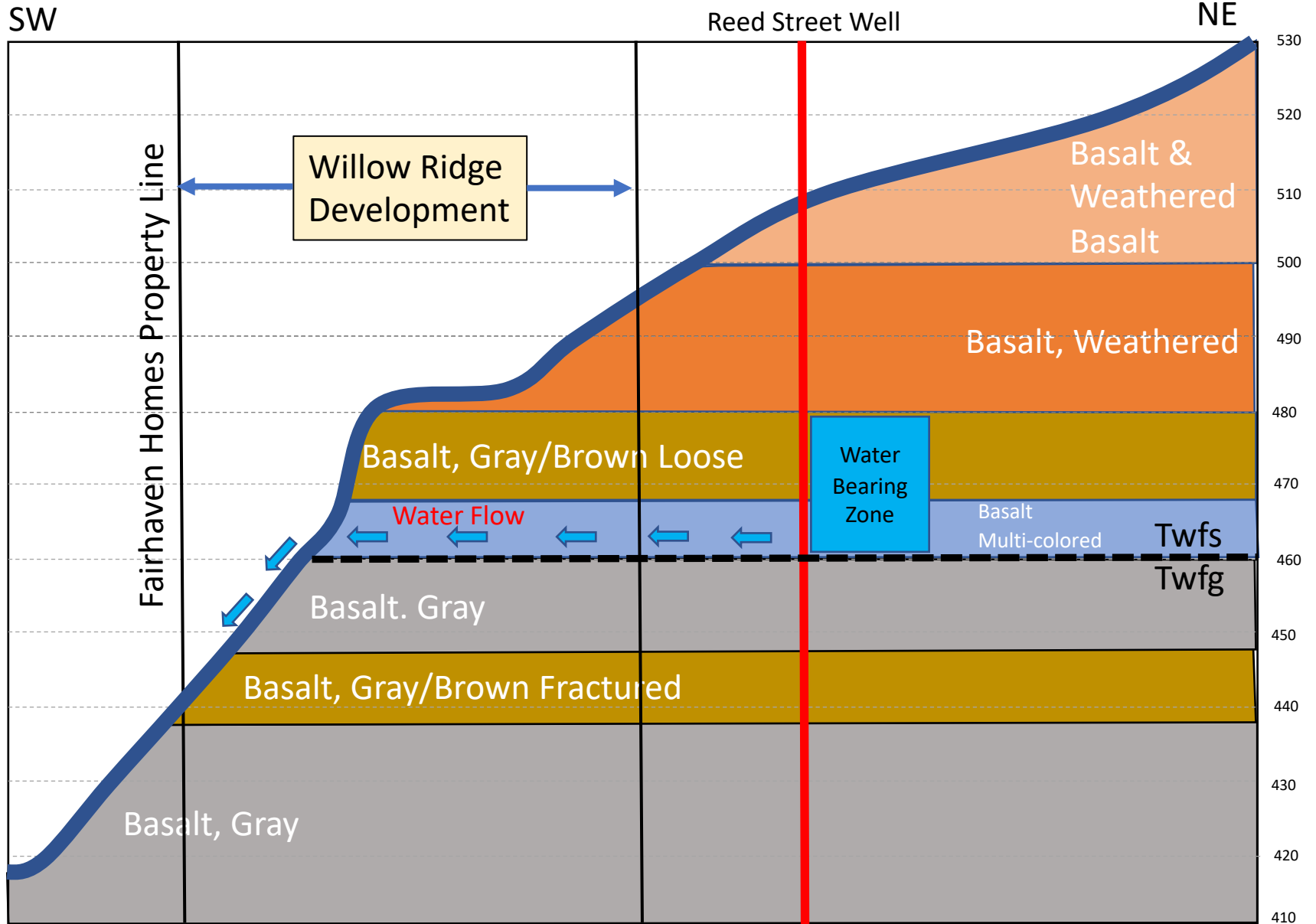
Estimated Water Flow Zone based on the Reed Street Well (Uses terrain contours from MapOptix)

Reasons for differences between the ICON map contours and the MapOptix terrain contours are unknown

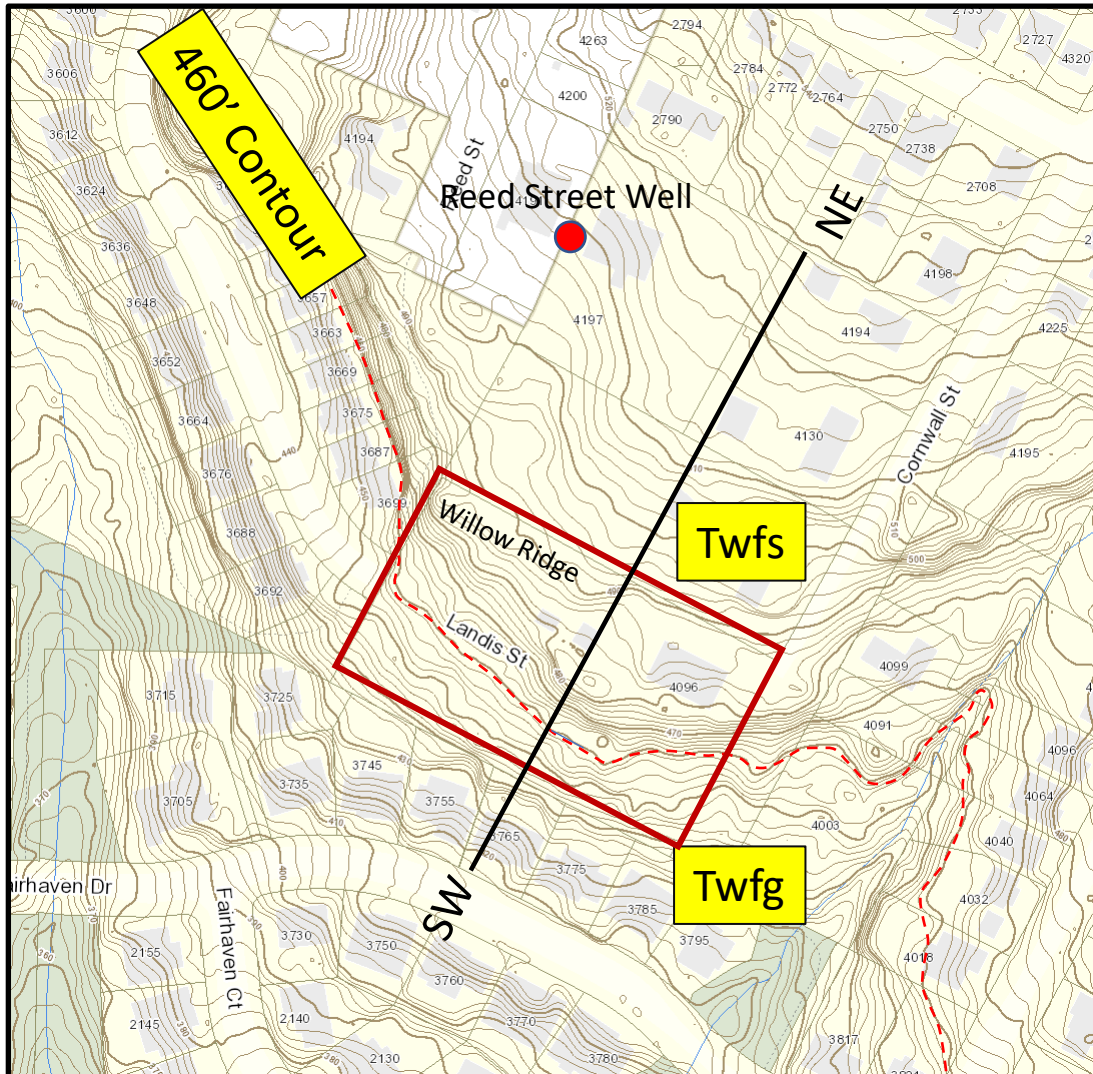


Geologic Cross Section (Profile)

Elevation
(feet asl)



Location map for geologic cross section



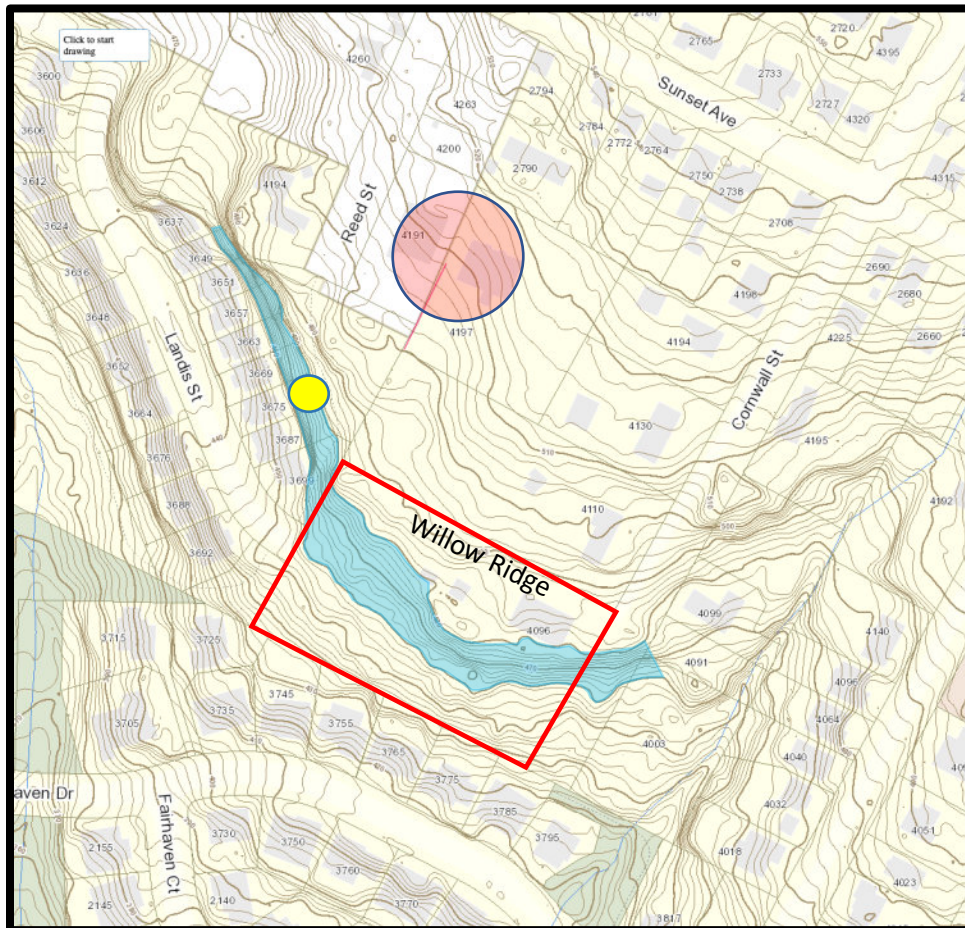
This map shows the location of a geologic cross section that runs in a NE-SW line across the center of the proposed Willow Ridge development.

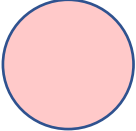

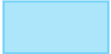
The Reed Street Well is projected into the cross section based on a ground surface elevation of 508' ASL

Public Testimony Dec. 2017:

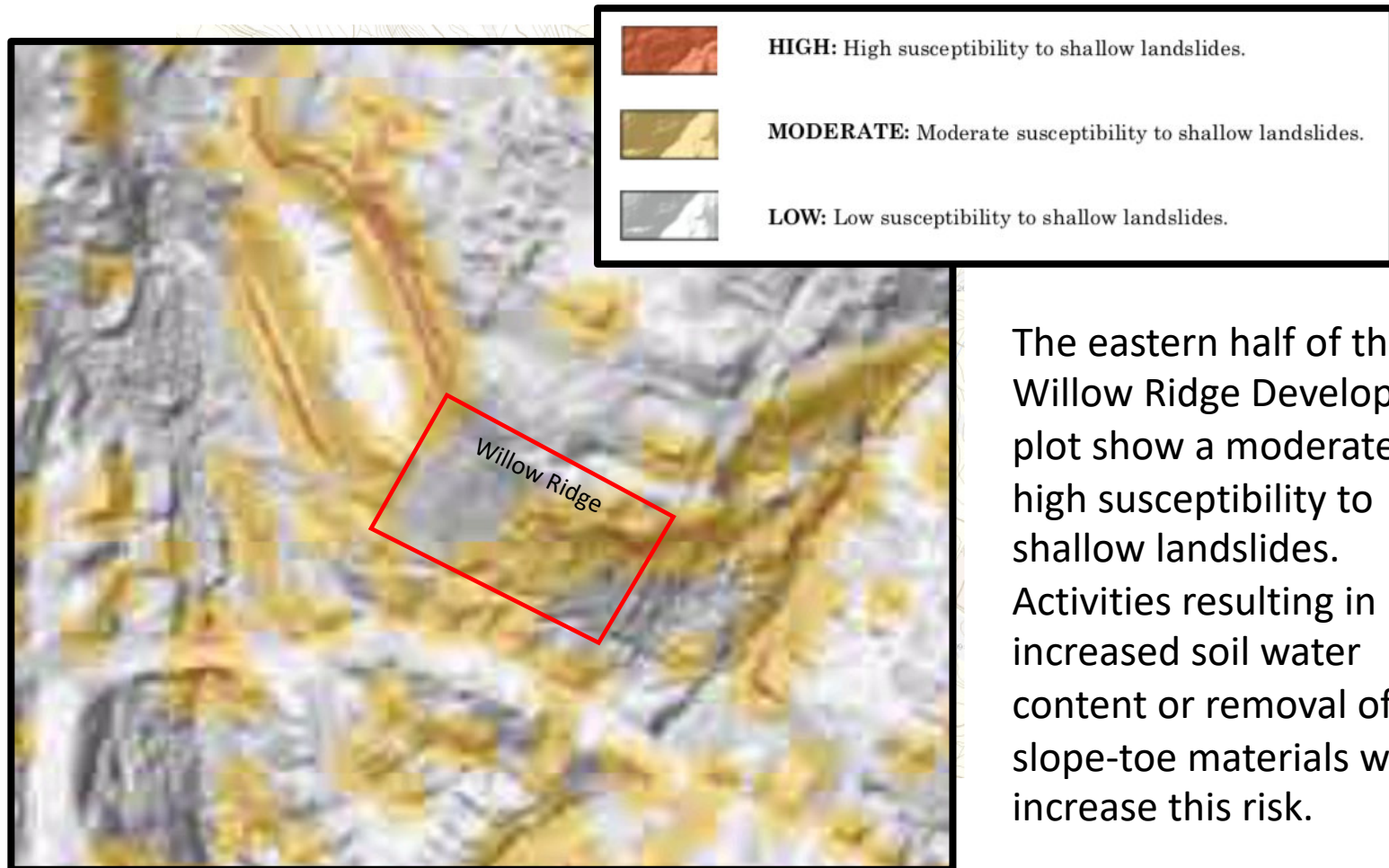
“After two homes behind and above us began construction located at 4191 Reed Street and 4197 Reed Street, I noticed water streaming between the boulders in my 25 foot retaining wall into my back yard. I then began an lengthy process of trying to find where the water was coming from. After a landscape developer investigated the issue, he determined that a new spring had formed in the upper tier of my back yard.”

This demonstrates the clear connection between construction and changes in drainage above the slope and increased water flow through the “water flow zone” marked in blue.



-  New construction
-  New spring location
-  Outcrop of water flow zone

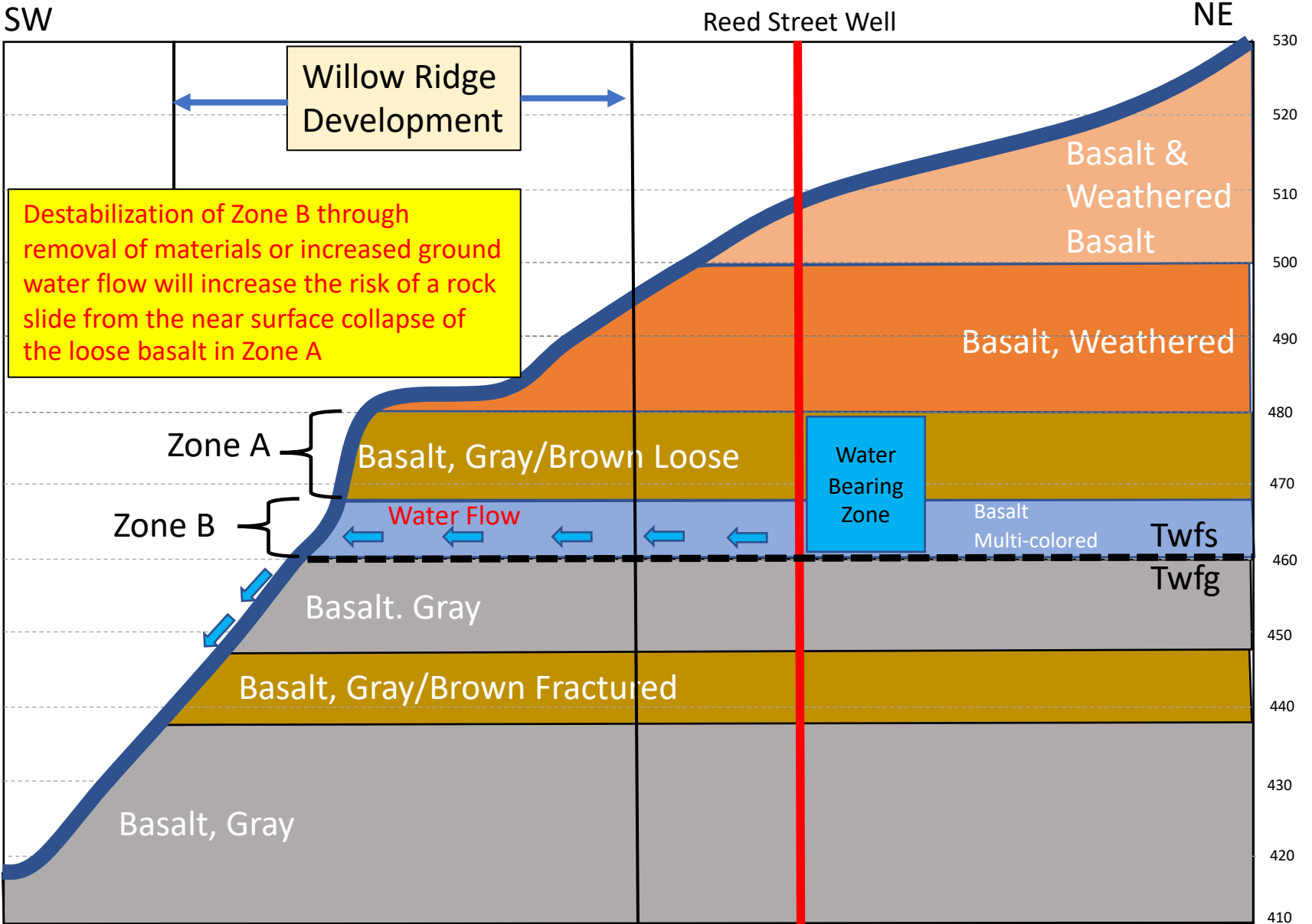
Shallow Landslide Risk – Oregon State Department of Geology and Mineral Industries



The eastern half of the Willow Ridge Development plot show a moderate to high susceptibility to shallow landslides. Activities resulting in increased soil water content or removal of slope-toe materials will increase this risk.

Rock Fall Risk

Elevation
(feet asl)



From: [jjtjester](#)
To: [Schroder, Lynn](#); [Arnold, Jennifer](#)
Subject: Testimony for hearing on ICON development proposal; Cornwall St., West Linn
Date: Monday, October 5, 2020 5:54:59 PM
Importance: High

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MEMBERS OF THE PLANNING COMMISSION

Tonight you are hearing from the ICON representatives and their legal council. They are once again moving forward with another plan to build six homes on a steep piece of property with inherent:

- |access and connectivity concerns
- |safety due to the narrow Landis St.
- |water runoff issues
- |preservation of wildlife habitat
- |preservation of trees
- |preservation of the integrity of
Tanner Creek
- |stability and integrity of the land
due to underground water sources

The Barrington Heights HOA expressed concerns to ICON at our last meeting about construction trucks coming through our neighborhood. We have experienced damage to the HOA maintained islands from trucks unable to navigate around them. We are responsible for costs to repair them if no one comes forward.

If the land is buildable, our request would be to have all construction trucks use Sunset and Cornwall to access this property.

As the president of the BHT Neighborhood Association, I view this as an attempt to squeeze a round peg in a square hole. Many of the concerns expressed by the homeowners adjacent to this property have not changed or been adequately addressed.

Thank you in advance for including my testimony in your official records and deliberations.

Best,
Robert Jester
BHT Neighborhood Association President
3475 Riverknoll Way,

West Linn, 97068

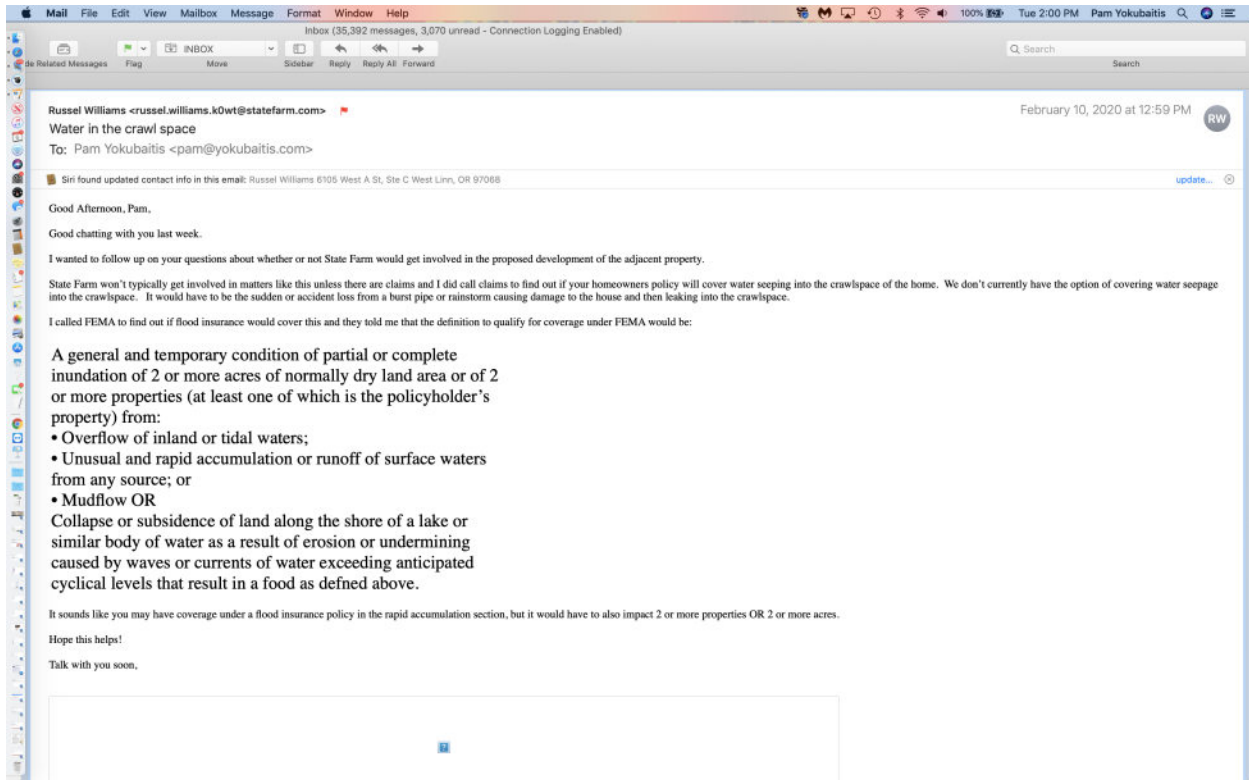
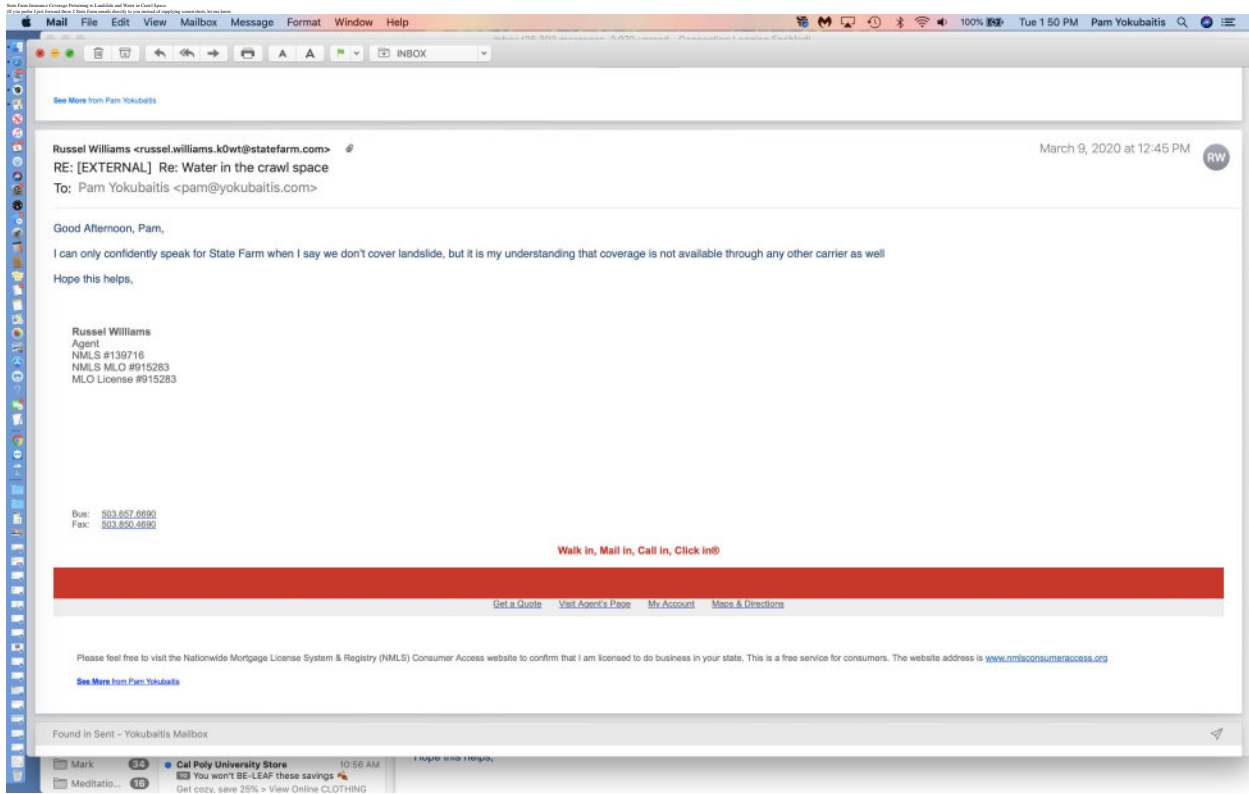
Sent from my Verizon, Samsung Galaxy smartphone

From: Russel Williams
Sent: Tuesday, March 9, 2020 12:45 PM
To: Pam Yokubaitis <pam@yokubaitis.com>
Subject: RE: [EXTERNAL] Re: Water in the crawl space

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Include links in the following 3 full mail messages. (After this, see you go?)

Here are the Attachments referenced in my previous email to accompany my previous message:
Bill Board's West Coast Energy Audit



Testimony Regarding ICON's Proposed Development: SUB-20-01
Presented to the West Linn Planning Commissioners
October 7th, 2020

Written by: Pam Yokubaitis, MPH, RHIA, FAHIMA
BHT NA Secretary & Hidden Creek Estates Subdivision Representative

WATER AND LANDSLIDES: This is the residents third Planning Commissioners hearing with ICON regarding their proposed development located at 4096 Cornwall Street in West Linn, OR. A significant reason for having multiple hearings is due to the visible evidence and known hazards this land possesses. An enormous amount of information in written testimony continues to be provided by surrounding neighbors with hundreds of photographs and supporting documentation to educate and inform both the city staff and builder of the concerns and questionable integrity of this property to be built upon. This property is completely surrounded by established homes and subdivisions. This rectangular piece of land has very unique qualities: it's sloped; it has a cliff at the end of Cornwall Street; it has numerous significant trees; there are springs on the surface of the land that bubble up; ponding occurs at the bottom of the slope; there is significant water that constantly drains on the properties below; there is a 40% grade at the top of the lot ripe for landslide; and there is a sizable soggy patch of ground in the center of the property that oozes water. These many issues make building on this property more costly and challenging than building on a flat piece of land, because higher construction standards *must* be met to accommodate the complexities of this property. When Sunset School was relocated to a corner of the park, instead of building on the original footprint as was agreed to by popular vote, springs popped up in residents yards and crawl spaces when the school's footprint was moved elsewhere. Sunset residents had to pay for expensive water remediation repairs because no one was held accountable for the damage that occurred on private property as a result of land disturbance. A similar situation, but more serious applies here, because there are 60+ homes surrounding this land with a significant majority of homes located beside and below this slope's address. We don't want what happened at Sunset School to repeat itself here because Sunset homeowners had no recourse for the water damage that occurred to their property. Additionally, homeowners insurance does not cover for landslides or crawl space flooding coming from the soil. Already 2 houses on Fairhaven Drive and one on Landis Street have experienced water filled crawl spaces, so the property at 4096 Cornwall Street IS a real hydrogeological threat to surrounding property. Thus, it is a major concern IF the natural state of this property is altered. Furthermore, insurance won't pay for either water or landslide damages to homeowners. **So who will reimburse residents if water and/or landslide damages occur to any of the surrounding homes after ICON's construction is completed?** It sure won't be an insurance company! [See State Farm Attachments](#)

ROAD CONNECTIVITY: Residents from five surrounding subdivisions (Stonegate, Cornwall Street, Reed Road, Hidden Creek Estates and Barrington Heights) are all united in opposition of connecting Cornwall Street to Landis Street. More than 65

*residents signed a petition to emphasize this, which was presented at ICON's pre-app meeting. Road connectivity has been thrust upon the citizens, which disturbs everyone. Many testimonies on traffic and connectivity have already been presented by Ed Turkisher, Pam Yokubaitis, Bob Mendel, Steve Thornton, and Patrick Noe. Patrick Noe's testimony written June 1, 2017 clearly stated NO STREET CONNECTIVITY at the onset of these hearings. Other testimony explains that 1) multiple safety issues exist, 2) the current quality of life for Fairhaven Drive, and Cornwall and Landis Street residents will no longer be quiet neighborhoods with significant traffic noise, and 3) our neighborhoods will become less desirable due to significant daily traffic, therefore diminishing our property values. There is a smarter, shorter and more cost effective alternative route for connection in the future, because there is no urgency for such connectivity now. Sunset can directly connect to Stonegate Lane at a future date. So to be very clear, our **5 subdivisions are united in stating WE DO NOT WANT CORNWALL AND LANDIS STREET CONNECTIVITY.** We have signed petitions, we have proven there are safety concerns, and we have presented an acceptable and doable alternative solution.*

TRAFFIC: Landis Street is in a quiet, charming subdivision, nestled amongst trees, a running creek and a large monolith. It was *never intended* to become a thoroughfare of traffic within West Linn because ICON's property was originally suppose to become Phase II of Stonegate. Landis Street was constructed only 24 feet wide, so it *cannot* accommodate 400+ cars/day (according to ARD Engineering Traffic Analysis report supplied by ICON) traveling in both directions. Only one car can pass between 2 parked cars on each side of the street, so **a two lane heavily trafficked road on this snug residential street IS NOT feasible.** The idea of eliminating the residents street parking privileges or mandating parking only on one side of the street is highly offensive. It is issues like these, that are not discussed at the NA meetings but get mentioned *after the fact as if certain*, that angers West Linn residents. Usurping property owners street parking privileges would negatively impact home sales and property values.

WE HAVE REPEATEDLY ASKED FOR AN IN DEPTH HYDROGEOLOGICAL STUDY:

At the very first Planning Commissioner's hearing in 2016, neighbors testimonies provided pertinent information to share knowledge and concerns about this property with the city and ICON. We knew there were issues that everyone needed to understand. Only with transparency and a collaborative spirit would we collectively arrive at an intelligent and mutually agreeable decision. A considerable amount of testimony and photos were provided to share what we knew. From the onset, we exposed that the 4096 Cornwall Street property had complexities that made us question if this land could be developed. We knew that only an in-depth expert analysis could provide the answers we needed. We repeatedly asked for a Professional Engineer hydrogeologist to explore the complexity of this land. The cliff, steep slopes on this property and constant water drainage were red flags. Analysis was done by a Geotechnical firm, but 10 feet deep of exploration is insufficient given the evidence presented of known water and landslide hazards. The geotech's results didn't reflect

the magnitude of exploration the residents felt was needed. Then ICON withdrew their application to build after this first hearing, so we started all over again a year later, bringing forward our copious amount of testimony and evidence.

At the second Planning Commissioner's hearing, we again voiced the need for in-depth analysis of this land by experts, but the geotechnical reports remained the same. The Planning Commissioners again denied the builders application, so ICON appealed and obtained a third party referee's decision. The referee also issued a denial. All this necessary bureaucracy delayed focusing on the real issue at hand:

Is the entire 4096 Cornwall property safe, buildable land, or not, for the plat map designed?

At this third Planning Commissioner's hearing today, we again ask: Is the entire 4096 Cornwall property safe, buildable land, or not, for the plat map designed?

This answer *can't be known* until more extensive geotechnical data is provided, along with responses to issues and obstacles presented by Geologist, Bill House in his 20+ page report, presented in testimony today. We don't know where or how excavation, landfill, tree removal, water obstacles, landslide of soils, or removal of tree tumps will affect the stability of the soil, and hence the design of a plat map. The cart is being put before then horse here. **ICON must first understand where the hazards are in the land, then identify how the hazards can be worked with/around before a plat map can be drawn.** The geotechnical report in ICON's current application has already expired (it was only good for 3 years), and it lacks the necessary extensive, in-depth analysis required for this land to determine if it's safe or not to build on.

CONCLUSION: Frustrated by not getting our questions answered, perseverance, determination and luck prevailed. Pia Snyder gave me an April 5, 2018 West Linn Tidings article titled: Landslides: What Homeowners Should Know by William House. [See Bill's Article attached.](#) I kept this article, knowing that I would eventually try to track down the author in the future to pick his brain for testimony writing. When I recently did the research to find him, I learned he was a West Linn resident who lived in Cascade Summit that backs up to Stonegate. When I called Bill about our plight, he was interested in learning more so we met to discuss our situation. Bill expressed interest in helping us because he loves geology and problem solving, so we then planned another meeting to walk the land and meet with key neighbors to give him insight to known problems. After touring and asking questions, he volunteered to conduct research, write a report free of charge, and testify as a community service for his West Linn neighbors. (He also serves our community as HOA President for his subdivision.)

Bill House has supplied 20+ pages of testimony and diagrams that FINALLY identifies the obstacles that 4096 Cornwall Street presents, using public information to connect dots. He points out hazards, discrepancies and deficiencies in documentation provided by experts in ICON'S application, and cites specific issues that need to be addressed. Like the rest of us, he shares his information freely for the benefit of our West Linn

community. With his new information, we expect his recommendations to be acted upon, more in-depth analysis of the land to occur, and scrutiny of where the land is capable or not capable of new construction. Anything can be built for a price, but at what point does it become unaffordable, given the additional requirements and higher standards that constrained lands demand? That is for ICON to determine, while the Planning Commissioners must:

- 1) Ensure this land is thoroughly vetted/acceptable to build on before approval for development is granted
- 2) Due to the fact that there are mostly only constrained lands left in West Linn to build on, which presents very unique obstacles for construction, there is a need for the Planning Commissioners to determine stricter new building codes. We therefore ask the Commissioners to have these codes reviewed for changes and additions on their docket.

Wednesday, April 11, 2018

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Tuesday, May 1

2018 ANNUAL MEETING



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Landslides: What homeowners should know

William House

Thursday, April 05, 2018

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While landslides are unpredictable in some respects, homeowners can help protect themselves



PAMPLIN MEDIA GROUP FILE PHOTO - Homeowners can begin to protect themselves from landslides by understanding how they work. This southwest Portland landslide occurred near a planned development.

In 2009, a million-dollar home in the Marylhurst area was destroyed by a local landslide. The landslide was triggered by heavy rains, and a subsequent lawsuit claimed that the removal of trees on the slopes above the house decreased soil stability and caused the landslide.

Damage from landslides is not covered under normal homeowner's insurance, so this is an area where the average homeowner is often "on his or her own."

While landslides are unpredictable in some respects, that doesn't mean there is nothing homeowners can do to help protect themselves.

The starting point for protecting yourself is to understand what is meant by the term "landslide," and what can trigger one.

The Oregon Department of Geology and Mineral Industries has published an excellent educational document entitled "A Homeowner's Guide to Landslides."

A landslide refers to any downslope movement of soil, rock or slope debris. Mudslides, mudflows, debris flows, rock falls and slumps are all

terms describing landslides. The two most common types of landslides are rotational slides and earthflows.

A rotational slide occurs when a large section of earth is transported downslope by sliding on a discrete detachment surface. The mass of soil and rock will partially disaggregate as it moves downslope. Rotational slides can occur when slopes are too steep or in areas where the base of the slope is undercut by either natural or man-made processes.

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The developing landslide at Rattlesnake Ridge near Union Gap in Washington state is an example of a slow-moving, rotational slide that may have been initiated by quarrying activity, which undercut the base of the slope.

An earthflow occurs when water mixes with soil or debris, and the liquid-like mixture flows rapidly downslope.

The devastating mudslides in Southern California this winter are good examples of earthflow type landslides. Two of the common conditions that

trigger this type of landslide are water-saturated ground and a loss of vegetation cover. In the case of the California mudslides, the late 2017 wildfires removed the vegetation cover, and heavy rain in January 2018 saturated the soil with water.

Earthquakes can also initiate both types of landslides. So, what can homeowners do to protect themselves?

When you buy a home

The ideal time to start thinking about landslide risk is when you are purchasing a home.

The presence of previous landslides in an area is an indicator of higher risk. The City of West Linn website contains natural hazard maps that show both areas of high landslide risk and areas where historic landslides have been mapped.

Consult these maps to understand if your prospective home is in a higher risk zone. If you get serious about buying in a higher risk area, then you may want to consider contacting a licensed engineering geologist or geotechnical engineer.

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When you are viewing a home ask yourself several questions: Is the home on a steep slope? Is the slope forested, and are there any activities that are removing trees or vegetation from the slope above or below the house? Tree roots play a vital role in stabilizing a slope and preventing landslides.

Are the bases of the trees on the slopes around the house consistently curved and bending in a downslope direction? This type of curvature is an indicator that slow soil movement is occurring.

Is the base of the slope below the home being undercut by natural or man-made activities?

If the answer to any of these questions is "yes," then you should put a warning flag in your notes that a deeper investigation may be needed.

You should have a good look at the inside and outside of the home. On the inside check for cracked floors, water seeping into the basement or crawl space, bulging walls, or fixtures and windows that are out of alignment with the walls. On the outside look for open cracks in the soil, sidewalks, foundations, or driveways. Also look for tilted retaining walls or broken utility pipes. These signs all indicate potential problems related to soil movement or slope instability.

If you already own a home

Current homeowners may still want to check the West Linn City hazard maps. Even though the chances of a landslide are low in most areas, you should be vigilant for key warning signs and engage in proactive planting across your property.

Maintain healthy vegetation using trees and shrubs that take up water efficiently. Examine your drainage and direct water away from slopes when possible.

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You need to be aware of landscape alterations both upslope and downslope from your property. Removal of trees and other vegetation on steep slopes creates a significant risk since it can destabilize the slopes, even in an established neighborhood.

If you notice any changes to drainage like new springs/seeps or newly forming drainage gullies, then you should be cautious since this is reflecting a change in the sub-surface hydrology. Soils that are oversaturated with water increase the chance of earthflows, and new springs indicate increased water in the local soil.

Remember that just because you live on steep slopes or in an old landslide area, it does not imply imminent danger. However, don't get so complacent that you fail to observe changes in the local neighborhood that could affect you.

Stay informed and observant, and if you suspect a problem contact the City at 503-657-0311 or by using the YourGOV app (<http://westlinnoregon.gov/YourGOV>). Contact the police or fire department in an emergency situation.

William House is an earth scientist and writer in West Linn.

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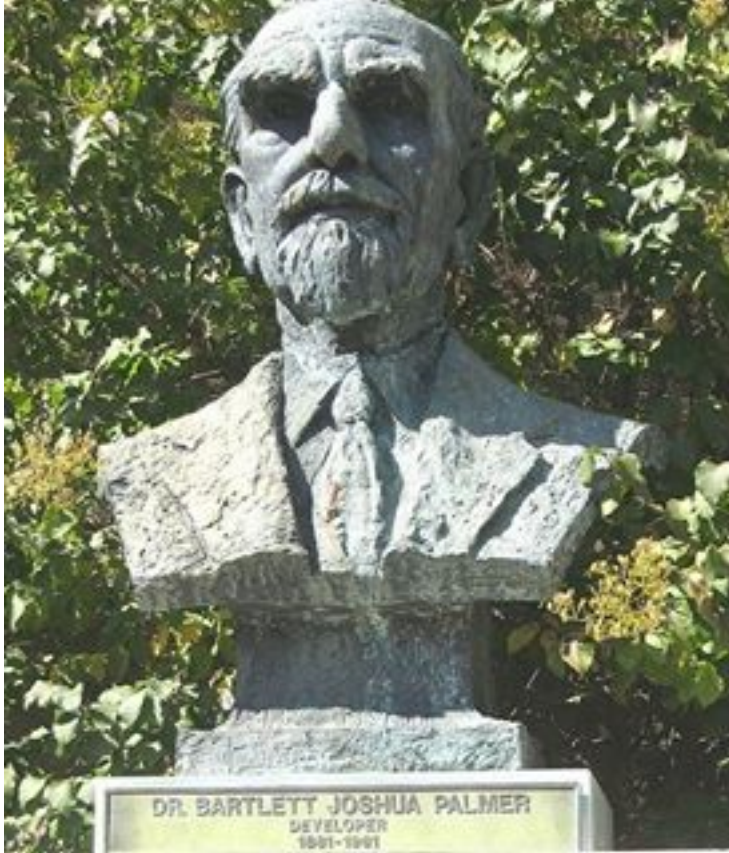
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4/6/2018, 10:43 AM



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Its like another language. ([View photo](#))

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**ICON'S PROPOSED DEVELOPMENT 4096 CORNWALL STREET
PUBLIC TESTIMONY
TRAFFIC IMPACT ANALYSIS AND DRAINAGE ANALYSIS**

**ROBERT MENDEL
TANNER STONEGATE BOARD OF DIRECTORS MEMBER
OCTOBER 7, 2020**

**1. ARD ENGINEERING TRAFFIC MEMORANDUM
WILLOW RIDGE TRAFFIC IMPACT ANALYSIS
JUNE 25, 2020**

The addition of 6 houses for the Willow Ridge Development will add 30% more traffic to Landis. The Ard Engineering Technical Memorandum dated June 25, 2020, Willow Ridge Traffic Impact Analysis, Table 1, Trip Generation Trip Summary, page 2 of 6, is based on the Alternative Plan, which connects Landis to Cornwall. There is no traffic impact analysis for the Tentative Plan, which is the hammer termination of Landis for the Willow Ridge Development. The Tentative plan is the preferred plan and a Traffic Impact Analysis must be developed. Using Table 1 numbers for the 6 Family Homes Total Trips, 56, which defines 6 houses accessing Landis Street with no Cornwall Access, that results in 9.3 trips per day per house. Multiply that by 26 homes using Landis Street results in 242 trips per day, which is significant. However, there is no definition of what is a "trip" and this must be stated in the impact analysis.

The Tanner Stonegate Board of Directors believe the trip numbers may not necessarily correct and be understated. There is considerably more online shopping resulting in more deliveries from USPS, Amazon, UPS, FedEx, grocery stores, restaurants plus city and homeowner service vehicles, friend and family visits, etc. which we feel have not been properly identified. The trip definition and number of daily trips per household must be revised.

There is a school bus stop at Stonegate Lane and Beacon Hill Drive and parents wait in the cars during drop off and pick up creating congestion. Increased Willow Ridge traffic will elevate risk for students and add more congestion in that area during the school year. The Traffic Impact Analysis must define total impact on Landis Street, Stonegate Lane and Beacon Hill Drive, address increased traffic and congestion related issues and plan for student safety for the Alternative Plan and Tentative Plan.

Heading east on Stonegate Lane there is a slight hill where it intersects with Landis Street and the corner is blind. Also, heading north on Landis Street, starting at the north end at lot 37, there is a large stone retaining wall and a right curve in the road that presents a blind turn. The road also narrows at the large retaining wall and cars parking on the west side of Landis Street across from the retaining wall further decreases street width at the blind curve.

Children safety on Landis Street is an issue. Due to relatively small yards, children are riding bikes, scooters, and generally playing, etc. on their driveway, sidewalk and sometimes the street. The increased traffic is a neighborhood concern for the safety of children.

The Tanner Stonegate BOD would respectively ask the city to propose how traffic safety issues will be mitigated for blind spots and children safety before approving the Willow Ridge development. Future development of the farm property north of Stonegate Lane should be considered when developing the mitigation plan.

Tanner Stonegate BOD is asking if the city would review the Master Plan and not have Landis Street connect to Cornwall Street. The would create a short cut to Susnsset Avenue and put an unnecessary traffic burden on Landis Street and Cornwall Street.

2. THETA ENGINEERING STORM WATER REPORT DRAINAGE ANALYSIS JUNE, 2020

There are 6 large drains on Landis Street with huge cisterns below that all feed to the cistern at the low point of the street in front of Lot 23. Storm water flows from that cistern to another large catch drain and cistern at the west end of Lot 23 that feeds into the bio swale. The bio swale runs along the north side of Lots 24, 25 and 26 parallel to the walking path. At the southern end is a drainage area (just above the walking path bridge) that finally drains under the walking path into the wetland area north of the walking path. This drainage area must be kept free of debris and flow correctly. The specified grasses and plantings within the bio swale area help with the filtering process and must be maintained. There are also public drainage easements from Lot 22 thru Lot 26.

Maintenance of the bio swale and drainage area needs to be performed every 2 - 3 years, which means removing any dead leaves, branches and debris using rakes and shovels so water flows through and into the wetland area without any obstruction and is able to filter out the pollutants as designed. The Storm Water Report has not defined how Willow Ridge residents will support the Landis Street bio swale and drainage area.

The Drainage Analysis depicts only the Alternative Plan, however, the Tentative Plan is the preferred plan. The Drainage Analysis shows that only Lot 1 will divert storm water to the Landis storm water system. However, without the Cornwall Street revision as identified in the Drainage Analysis, what is the impact on the Landis Street storm water system for the Tentative Plan. The Drainage Analysis must include the effect to the Tanner Stonegate bio swale and drainage area for the Tentative Plan and Alternative Plan.

ICON plans to divert storm water in the Landis Street storm water system and there has been no contact between ICON and Tanner Stonegate HOA regarding their proposed Willow Ridge Development storm water tie-in and potential impact on the Tanner Stonegate bio swale and drainage area. Tanner Stonegate HOA has no interest in adding Willow Ridge liability to our bio swale and drainage system. Tanner Stongate also has no interest in adding the Willow Ridge development liability to the Tanner Stonegate Homeowners Association.

3. SUMMARY

1. The Traffic Impact Analysis and Drainage Analysis needs to address the Tentative Plan and the Alternative Plan
2. Define what is a "trip"
3. The number of daily trips per household must be revised with regards to total impact on Landis Street
4. The Traffic Impact Analysis must define total impact on Landis Street, Stongate Lane and Beacon Hill Drive, address increased traffic and congestion related issues and plan for student safety at the bus stop for the Alternative Plan and Tentative Plan.
5. West Linn should evaluate how traffic safety issues will be mitigated on Landis Street for blind spots and children safety before approving the Willow Ridge development.
6. What is the impact on the Landis Street storm water system for the Tentative Plan.

7. The Drainage Analysis must include the effect to the Tanner Stonegate bio swale and drainage area for the Tentative Plan and Alternative Plan.
8. There is no plan how Willow Ridge residents will support the bio swale and drainage system maintenance
9. Tanner Stonegate HOA has no interest in adding Willow Ridge liability to our bio swale and drainage system
10. Tanner Stongate also has no interest in adding Willow Ridge liability to the Tanner Stonegate Homeowners Association

2nd Testimony Regarding ICON's Proposed Development:
SUB-20-01 Presented to the West Linn Planning Commissioners
October 7th, 2020

Written by: Pam Yokubaitis, MPH, RHIA, FAHIMA
BHT NA Secretary & Hidden Creek Estates Subdivision
Representative

Below is a listing of comments about the **City's Staff report**, for the proposed Development at 4096 Cornwall Street in West Linn.

1. Report Name: WL Staff Report, page 5, #10 Building Sites: Not *just* the building sites exceeding 25% slopes should require geotechnical conformation. **THE ENTIRE PROPERTY** at 4096 Cornwall Street must be hydrologically and geologically reevaluated to determine *if* this land is buildable, and *where* on this land houses can be "safely built". Bill House's new geology report sheds light about the questionable integrity of this land and its 2 major hazards. Significant geotechnical work *must* be completed *first* to identify where it is safe to build on this property, and only *then* should a plat map be drafted. **NO CURRENT GEOTECHNICAL REPORT EXISTS WITH IN-DEPTH ANALYSIS INDICATING IF THIS LAND IS SAFE TO BUILD UPON.**
2. Report Name: WL Staff Report, page 5, #5, Utilities, minor: The term stormwater "facilities" is not explained; are these shed like structures on the property or underground water holding structures? This was not explained at the NA meeting. Visible eyesores are not wanted by Fairhaven Drive residents, like the past retention pond idea.
3. Report Name: WL Staff Report, page 8, #1, Traffic Impact Analysis: ICON's ARD report states IF there is a Landis/ Cornwall Street connection, over 400+ cars/day will travel on these 2 roads. Ed Turkisher claims *more* than this volume of

traffic would pass through. These projections justify the need for a traffic impact analysis, especially since the intersection of Cornwall Street, Summit Street and Sunset will have to be completely re-designed if road connectivity occurs (read Ed's testimony). Furthermore, reference to Landis/Cornwall Street connectivity is *unwanted* by all "affected" local residents on Cornwall Street, Landis Street and Fairhaven Drive. There is a shorter and more cost effective alternative, directly from Sunset to Stonegate Bridge, and there is NO NECESSITY for this connection at this time. There is substantial historical and current testimony citing safety issues, traffic constraints, etc., clearly justifying the hazards of connectivity. **CITIZENS FIRST!**

4. Report Name: WL Staff Report, page 10, C, Again, Street connectivity of Landis and Cornwall IS NOT what the surrounding homeowners want. A 65+ signature petition was presented at ICON's pre-app meeting indicating NO CONNECTIVITY. Furthermore, Patrick Noe's June 1, 2017 testimony included resident's signatures against connectivity, making this *clear* at the VERY FIRST Planning Commissioner's hearing.
5. Report Name: WL Staff Report, page 11, Staff Finding 15: All references to homes on lots at 4096 Cornwall Street is irrelevant at this time UNTIL this parcel of land is deemed buildable with a detailed hydrogeological report indicating WHERE construction can safely occur on this property. With a new geology report introduced as testimony today about this land, the proposed plat map may no longer be suitable due to hazardous areas under multiple homes. This is putting the horse before the cart. There is no point in reviewing a plat map which may need to be completely redesigned due to known geological hazards on this lot, so more extensive work must be done first, to prove this land is buildable.
6. Report Name: WL Staff Report, page 14, Staff Finding 23: Until an in-depth geotechnical report addresses the integrity of

this land to be built upon, *and* the dismissal of road connectivity is agreed to, only then should a new plat map be designed to determine what trees can stay or must go, where the road and homes will be, etc.

7. Report Name: WL Staff Report, page 17, Staff Finding 30: A cul-de-sac was originally planned for this parcel of land as Phase 2 of Stonegate. Reconsideration of a variance to allow this should be re-explored, only *after* the integrity of the land is deemed safe to built on.
8. Report Name: WL Staff Report, page 19, Staff Finding 33: Again, street connectivity of Landis to Cornwall IS NOT WHAT THE RESIDENTS WANT. This was made vey clear at the start in 2017, and again recently with 65+ signatures from 5 surrounding subdivisions.
9. Report Name: WL Staff Report, page 23, Staff Finding 44, and pg 25, #9 Heritage trees/significant tree and cluster protection. The link below explains what a lined rain garden is. <https://www.3riverswetweather.org/green/green-solution-rain-garden>. It sounds like the excess ground water in heavy rain will end up in the drainage. Icon calls it a "natural drainage way". So, is it a pipe (not natural) or a gully? How close is it to the end of the properties by the old oak trees along the fence, and how will their roots be protected? Where does it flow into? Cornwall Creek and ultimately Tanner Creek? It would seem that their circumference should be measured once the 27 have been identified; so depending on the size of them, wouldn't over a hundred 4" trees be required to be replanted? Also, what kind of trees would be planted in the areas with springs? Weeping willows? With all the trees getting cut as well as the blackberries which absorb water too, how will all the water during heavy rains will be caught when it runs down the hill? And without the tree roots left in the soil, how do you prevent landslides with this major alteration to the land? A more in

depth and all encompassing explanation is needed to address these issues and to make this self explanatory.

10. Report Name: WL Staff Report, page 26, Staff Finding 53: This property DOES contain “very wet land” as evidenced by numerous photos of water draining between residents properties, ponding at then bottom of the slope, bubbling springs, soggy mud, reed grass, etc. Bill House’s geology report proves there are 2 large bodies of water underneath this property with landslide potential. Until an in depth hydrological and geotechnical report of this land is completed by Professional Engineers (whose reputation and career is at stake for misrepresentation and errors), we really don’t know if this land is safely buildable because this is constrained land. It is not in West Linn’s best interest to proceed with this proposed development until the integrity of this property is first deemed buildable by experts.

SUMMARY OF STAFF FINDINGS: Both historical and current testimony from the 5 subdivisions surrounding 4096 Cornwall Street indicates 1) the residents have *repeatedly* requested the need for an IN DEPTH geotechnical hydrogeologist PE (Professional Engineer) analysis of this land, and 2) *repeatedly* voiced strong opposition to street connectivity and traffic concerns. The residents have extensively explained and provided photographs of this constrained land with obvious symptoms of water and land slide hazards. **Without an in-depth geotechnical analysis of this property, the proposed development as presented can not be ruled on with any confidence at this time because we still don’t know if and where this constrained land is safe to build on with its 2 major, natural hazards.** Only then might we be able to amend this proposed plan, or perhaps a new plat map design may be necessary, but until expert geotechnical analysis is understood, we can’t make intelligent decisions about building on 4096 Cornwall Street.

2nd Testimony Regarding ICON's Proposed Development:
SUB-20-01 Presented to the West Linn Planning Commissioners
October 7th, 2020
Written by: Pam Yokubaitis, MPH, RHIA, FAHIMA
BHT NA Secretary & Hidden Creek Estates Subdivision
Representative

Below is a listing of comments about **ICON's application**, for the proposed Development at 4096 Cornwall Street, West Linn

My comments and Summary noted in the City's Staff report also applies to ICON's application documentation because both parties address the same subjects (although from different perspectives). Since my responses to ICON on then same topic would mirror what was already written in the City's staff report (and vice versa), to avoid redundancy, I am responding here to different topics and key issues noted in ICON's application.

1. Report Name: Willow Ridge Tentative Plan Plat Map, page 54. Because here is no Landis/Cornwall connectivity in this plan, the residents clearly prefer this option. However, this plat map leaves the door open for connectivity in the future, so we would need a design that shows permanency of no future connectivity between Landis & Cornwall Streets, except for perhaps emergency reasons.
2. Report Name: Willow Ridge Plan B- Alternative Plan Plat Map, page 55. This plan was previously denied because there're wasn't enough land to build the road to due the cliff and required 90 degree turn. Also encroachment on private property was necessary, so it's puzzling why this option would be resubmitted again.

3. Report Name: Willow Ridge Subdivision Application: #13
Grades and Curves, page 60: “The centerline radius of Landis Street where it bends back to connect with Cornwall Street is tighter than typically allowed, but this radius was agreed to by the City Engineer in order to allow for the connection to be made.” This statement contradicts the denial ruling made by the WL Planning Commissioner’s and is a public safety issue!
4. Cornwall Street is tighter than typically allowed, but this radius was agreed to by the City Engineer in
5. order to allow for the connection to be made.
6. Report Name: Willow Ridge Subdivision Application, #11,
page 59: Further exploration and discussion about the use of a cul-de-sac should be explored again, as this might be the best option for this constrained land.
7. Report Name: ARD Engineering, page 105: This report confirms that road connectivity of Landis and Cornwall Streets would result in 400+ trips per day. Landis Street clearly can’t handle this volume of two way traffic safely, as residents have documented in multiple testimonies.
8. Report Name: ARD Engineering: Tentative Plan - operational and Safety Analysis, page 104, paragraph 2: It is clear that West Linn has multiple street connection options available, so there is no necessity that Landis and Cornwall Streets have to be connected at this time or in the future.
9. Report Name: GeoPacific Engineering, page 116: This document states a change in the Geotechnical Engineer of Record/Company used, but it doesn’t mean the data generated by Carlson Geotechnical has been *validated* as accurate. This correspondence is only a notification of changing companies to do business with. It does not suffice for the very much needed in-depth analysis required to determine if 4096 Cornwall is buildable land. Secondly, this

report states: “we recommend updating the information regarding seismic design from the original report”. This confirms the data supplied to date requires reanalysis, so it’s apparent more work needs to be done. Third, stating “ it is our opinion that onsite infiltration is not feasible and in fact is more likely to increase runoff potential from Lots 2 through 6...”, so again, there are more problems to be resolved. This document is NOT a geotechnical report because many recommendations are made, but no data is presented nor are solutions offered. The last paragraph on page 116 also recommends updating the information regarding seismic design for the original report, but this has not been addressed by ICON. Lastly, a peer report review is just that: a review, without any testing, analysis and problem resolution completed. ICON has not responded to all the concerns and recommendations cited here.

7. Report Name: Carlson Geotechnical, page 122. **This report was written 1/7/2016, four and a half years ago. On page 141, the last sentence states: “This report is subject to review and should not be relied upon after a period of 3 years.” Therefore Carlson’s report is no longer valid. With the GeoPacific Engineering “letter” not being an in-depth report about this property, this means ICON’s application does NOT supply an in-depth geotechnical analysis of their property. This is THE MOST ESSENTIAL DOCUMENTATION REQUIRED when building on constrained lands to determine if the land is buildable. Nor is there any assurance that the plat map is ideally designed, taking into consideration geological hazards present.**

Summary of ICON’s Findings: The fact that this proposed development application lacks a current, in-depth, detailed Geotechnical report (#7 above) is unquestionably a major problem and a SIGNIFICANT reason for denying this application. It is highly disturbing that ICON wants to pursue

construction now, without this critical information available to them. This is a recipe for disaster! ICON not only ignored recommendations made by GeoPacific, but their lack of interest in wanting to understand the complexity and hazards on their property is *completely irresponsible*. Apparently Icon is more interested in making money than doing the right thing for their buyers, the surrounding subdivisions, and the City of West Linn. Thankfully the residents and Planning Commissioners ARE concerned about our community to pursue the truth, and do what is in the best interests for West Linn's future.



CITY OF West Linn

Memorandum

Date: November 4, 2020
To: West Linn Planning Commission
From: Jennifer Arnold, Associate Planner
Subject: SUB-20-01 – 6-Lot Subdivision at 4096 Cornwall Street

On October 12, 2020 Staff received testimony from Alice Richmond expressing support for the proposal.

On October 29, 2020 Staff received testimony from Robert Jester on behalf of BHT NA with a resolution from the Neighborhood Association expressing concerns regarding the geotechnical report, traffic/road connection, Stormwater, and the emergency gate.

On November 3, 2020 Staff received additional testimony from William House expressing concern regarding geological interpretations.

On November 3, 2020 Staff received testimony from Darin Stegemoller expressing concerns regarding the subject application and asked many questions.

On November 3, 2020 Staff received testimony from Bob Mendel expressing concerns regarding traffic and drainage.

On November 4, 2020 Staff received a corrected geotechnical report from the applicant. This does not include new information but corrects a typo in the previously submitted materials.

On November 4, 2020 Staff received additional testimony from Pam Yokubaitis expressing her concerns regarding this application.

I am familiar with this site -
6 lots is agreeable for family
residency. nearby school a
perfect location for children too
as this school has been
improved to absorb more
children - Alice Richmond

Alice Richmond
P.C.N.A Pres.
503 723 010
Oct 1st 2020

CITY OF WEST LINN PLANNING COMMISSION
PUBLIC HEARING NOTICE
FILE NO. SUB-20-01

The West Linn Planning Commission will hold a virtual public hearing on **Wednesday, October 7, 2020 at 6:30 pm** to consider a 6-lot subdivision request in the R-10 zone at 4096 Cornwall Street.

The Planning Commission will decide the application based on criteria applicable to Subdivision Review in Chapters 11: Single-Family Residential (R-10), Chapter 48: Access, Egress and Circulation, Chapter 85: Land Division General Provisions, Chapter 92: Required Improvements, and 99 of the Community Development Code (CDC).

You have been notified of this proposal because County records indicate that you own property within 500 feet of the subject property (Clackamas County Assessor's Map 2S-2E-36BA, tax lot 6300), or as otherwise required by Chapter 99: Procedures for Decision Making: Quasi-Judicial of the CDC.

The complete application is posted on the City's website, <https://westlinnoregon.gov/planning/4096-cornwall-street-6-lot-subdivision-0>. Alternatively, the complete application is available for inspection at no cost at City Hall, or copies can be obtained for a minimal charge. The staff report will be posted on the website and available for inspection at City Hall ten days before the hearing.

It is important to submit all testimony in response to this notice. All comments submitted for consideration of the application should relate specifically to the applicable criteria. Failure to raise an issue at the hearing or by written comment, or failure to provide sufficient specificity to respond to the issue, precludes raising the issue on appeal or before the Land Use Board of Appeals.

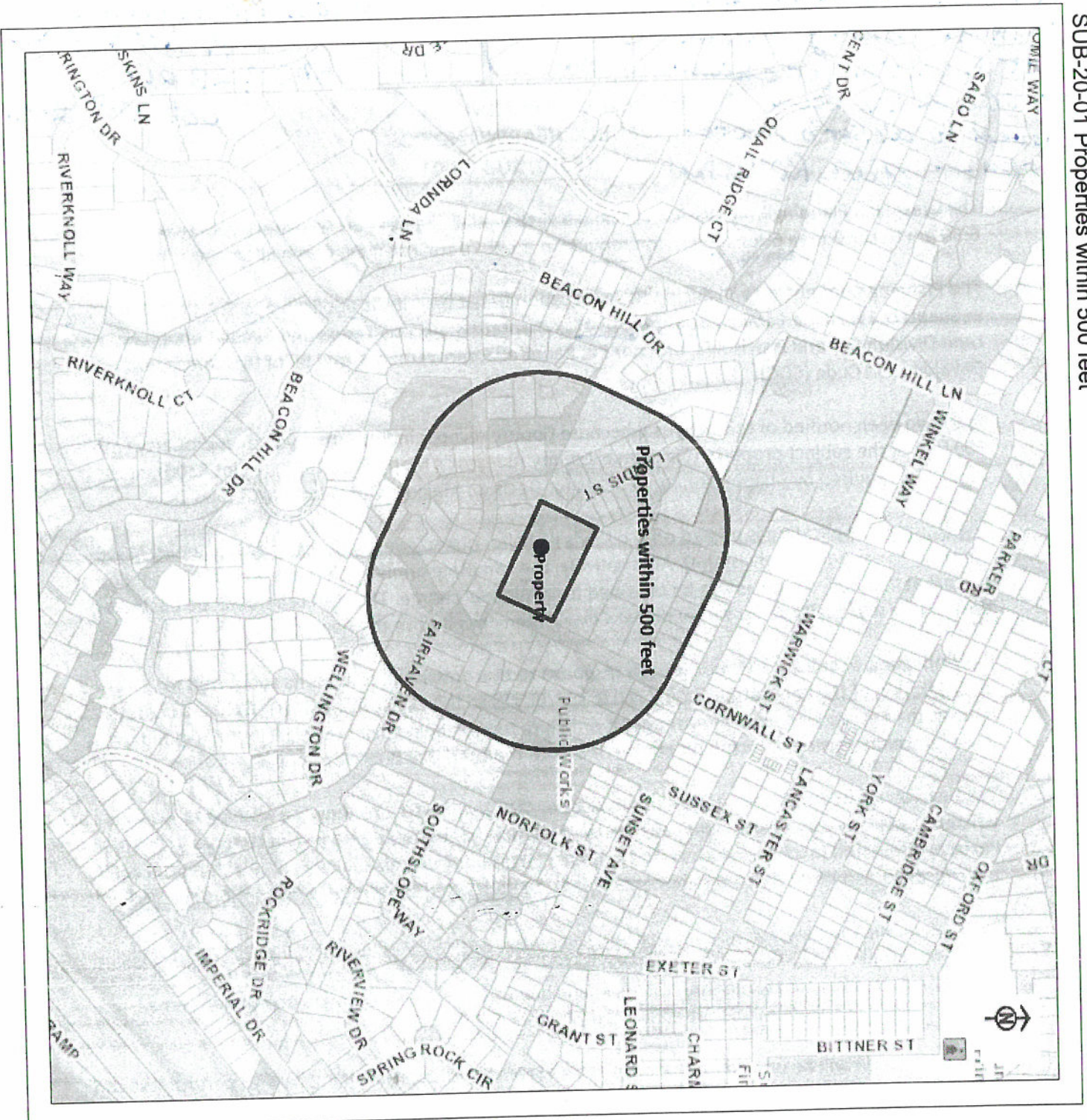
The hearing will be conducted following the rules of CDC Section 99.170. **Anyone wishing to present written testimony for consideration shall submit all material before 12:00 pm on October 7, 2020.** Persons interested in party status should submit a letter outlining all concerns about the proposal by the comment deadline. **Written comments should be submitted to jarnold@westlinnoregon.gov.**

To speak during the meeting, go to <https://westlinnoregon.gov/citycouncil/meeting-request-speak-signup> to complete the speaker sign-up form before 12:00 pm on the day of the meeting. Instructions on how to access the virtual meeting will be emailed before the meeting. If you do not have email access, please call 503-742-6061 for assistance 24 hours before the meeting.

The final decision will be posted on the website and available at City Hall. Persons with party status can appeal the decision by submitting an appeal application to the Planning Department within 14 days of the final decision date.

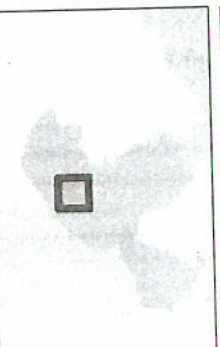
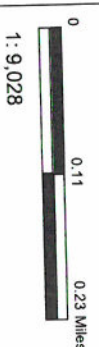
Contact Jennifer Arnold, Associate Planner, City Hall, 22500 Salamo Rd., West Linn, OR 97068, 503-742-6057 for additional information.





Legend

- City Limit
- Parks and Open Space
- City Owned Property



Notes

This map was automatically generated using Geocortex Essentials.

From: [jjtjester](#)
To: [Planning Commission \(Public\)](#); [Arnold, Jennifer](#)
Cc: [Cargni, Grace](#); [Pia Snyder](#)
Subject: BHTNA RESOLUTION ATTACHMENT To Planning Commissioners
Date: Thursday, October 29, 2020 1:49:07 PM
Attachments: [BHT NA Resolution #02-27 HP0002.pdf](#)

CAUTION: This email originated from an External source. Do not click links, open attachments, or follow instructions from this sender unless you recognize the sender and know the content is safe. If you are unsure, please contact the Help Desk immediately for further assistance.

Sent from my Verizon, Samsung Galaxy smartphone

Members of the Planning Commission

Please allow me to introduce myself, Robert Jester, BHTNA President. I am a native Oregonian born in Astoria and I have been an active community homeowner in West Linn since 1997.

At our annual meeting of the BHTNA on Wednesday 10-22, after extensive discussion and consideration we unanimously passed the attached resolution. In addition we elected Pam Yokubaitis as BHTNA leader and official representative "to address all matters pertaining to any proposed development at 4096 Cornwall St. on behalf of the BHTNA.

I reached out to Sunset NA President, Legion Anders to coordinate any joint concerns but got no response.

In addition to my role on the neighborhood association, I am also on the board of the Barrington Heights HOA. The HOA meets on the same day and time as the Planning Commission.

If it were not for this conflict, I along with the NA VP Grace Cargni, would be testifying before the committee next week.

I submit the above resolution and this email to be included as part of the official record.

I thank each of you in advance for your thoughtful consideration of our resolution.

Best,
Robert Jester
BHTNA President

Barrington Heights, Hidden Creek Estates and Tanner Woods
Neighborhood Association (BHT NA)
Virtual Annual Neighborhood Association Meeting via Zoom
October 22, 2020 6:30 -7:30 PM
BHT NA RESOLUTION # 02-27

**This BHT NA Resolution Finds DEFICIENCIES in ICON's Proposed Development SUB-20-01
located at 4096 Cornwall Street in West Linn, Oregon 97068**

Whereas it is the responsibility of the Barrington Heights, Hidden Creek Estates and Tanner Woods Neighborhood Association (BHT NA) Board of Directors to protect the livability, quality of life, safety and property values of the residents within our the BHT Neighborhood Association (NA).

Whereas BHT NA collaborates with other NA's and their residents outside of our own NA boundary when similar concerns are shared about issues that affect West Linn residents and our community at large.

Geotechnical Issues

Whereas ICON submitted Carlson's Geotechnical 1/7/2016 report for a third time, in this new application. The last sentence in this report states: "This report is subject to review and should not be relied upon after a period of 3 years". Thus, Carlson's geotechnical report is no longer valid for ICON's newest application. The application does not satisfy the approval criteria CDC 85.200 requiring a geotechnical report and the supplemental requirements of 85.170. Whereas Mark Handris did not submit the promised hydrogeological report the stated the would provide when attending the joint BHT and Sunset NA meeting in January 2020 at Sunset School. Mr. Handris misrepresented the application to the neighborhoods and the application must be deemed incomplete until compliance with the WL CDC 99.038 is demonstrated.

Whereas ICON failed to act on 2 recommendations in a 12/18/19 letter from their new Engineer of Record, GeoPacific Engineering, who reviewed the outdated Carlson Engineering geotechnical report. GeoPacific instructed ICON to "update the information regarding seismic design from the original report", and "onsite infiltration is not feasible and in fact is more likely to increase runoff potential from LOTS 2 through 6". There is no evidence to support the two proposed plat maps are designed to mitigate the full extent of the hydrogeological risks on the site.

Whereas the "Public Testimony: Willow Ridge Geologic and Hydrologic Risk Parameters" report written by geologist Bill House, MS has two key findings:

1. The ICON application does not recognize the presence of a perched water table outcropping on the Willow Ridge slope at approximately 460 feet above sea level (ASL). Flooding and slope stability risks associated with this geological feature are not addressed in the Willow Ridge Development application (Exhibit 7).
2. Geological risk from shallow landslides is discussed in the application, but these discussions do not include an analysis of how groundwater flow from the perched water table may affect slope stability, nor do they specifically address slope instability issues related to the excavation of slope-toe materials along the perched water table (Exhibit 10).

Whereas ICON has no responsibility for mitigating water or landslide damages incurred to any surrounding homes. The fact that home owners insurance doesn't insure customers for water or landslide damage puts not only the residents at risk, but the West Linn community as well. These are justifiable reasons, as well as a moral responsibility, to require a Hydrogeologist, Professional Engineer (PE) to evaluate constrained land with known hazards.

Barrington Heights, Hidden Creek Estates and Tanner Woods
 Neighborhood Association (BHT NA)
 Virtual Annual Neighborhood Association Meeting via Zoom
 October 22, 2020 6:30 -7:30 PM
 BHT NA RESOLUTION # 02-27

Traffic/Road Connectivity

Whereas, multiple safety issues make the Landis/Cornwall Street connection hazardous for traffic. Landis Street can't be built to the end of Cornwall Street, and make a 90 degree turn because the land drops off/is too narrow, and encroachment onto private property would be required. Blindspots in both directions exist on Landis Street near the Stonegate Lane bridge due to a massive rock wall. Landis Street in Stonegate is only 24' wide and is not able to safely accommodate 400+ cars/day with 2 lane traffic and parked cars on either side. Cornwall and Landis were *never intended* to connect because 4096 Cornwall was designated to become Phase 2 of Stonegate. Road connectivity is *strongly objected to* by all surrounding residents because Sunset road can instead connect in the future to the Stonegate Lane bridge through the North Landis Street stub out. This offers a much shorter and direct path to Stonegate Lane Bridge.

Emergency Gate

Whereas the fire department /EMS is the authority on what is/isn't acceptable for an emergency gate. The fact that there isn't enough land to build the width of Landis Street to Cornwall Street and make a 90 degree turn onto the end of Cornwall Street is problematic. Although a narrower emergency access path is an alternative, it is clearly an inferior option because the end of Cornwall Street currently doesn't have *any* space to turn a car around in, without using someone's private driveway. NO blockade exists to stop travelers from driving off the cliff, except heavy brush. Landslide hazards are also a serious consideration in this location where the soil has dropped significantly.

Stormwater

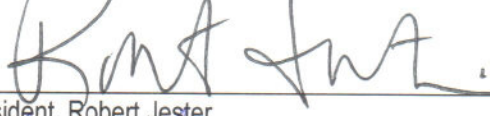
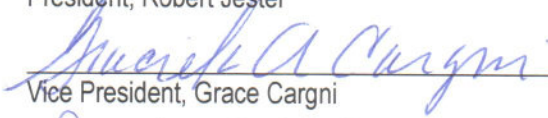
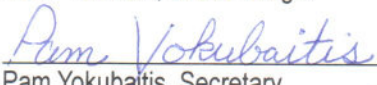
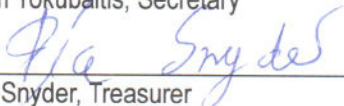
Whereas until this property is scrutinized by a Hydrogeologist PE to determine IF and WHERE it is safe to build, and how to manage the 2 aquifers and steep slopes that drain water into protected wetlands below in the Tanner Woods subdivision is identified, only then can a new plat map be designed for consideration.

NOW, THEREFORE, BHT NA RESOLVES that ICON's proposed development at 4096 Cornwall Street (SUB-20-01) be denied by the West Linn Planning Commissioners for multiple deficiencies noted in ICON's application. Of note: ICON submitted 2 plat maps under one application for SUB-20-01. Both maps were previously submitted and denied.

VOTING TABULATION FOR RESOLUTION APPROVAL:

YES: 7 NO: 0 ABSTAIN: 0

BHT NA Board of Directors and its Members PASSED AND APPROVED THIS RESOLUTION
 on the 22nd DAY OF October 2020 during our BHT NA Virtual Annual Meeting

 _____ President, Robert Jester	Deny 10/22/2020 _____ Vote Date
 _____ Vice President, Grace Cargni	Deny 10/22/2020 _____ Vote Date
 _____ Pam Yokubaitis, Secretary	Deny 10/22/2020 _____ Vote Date
 _____ Pia Snyder, Treasurer	Deny 10/22/2020 _____ Vote Date

Planning Commission Hearing: 4096 Cornwall Street- 6 Lot Subdivision

Hearing Date: 11/04/2020

Public Testimony by William House

Reference: Applicant Supplemental Submittal for 11/4/20 Hearing

Geological interpretations are, by nature, extrapolations of existing data points. Because of geological uncertainties the question is not one of right or wrong, but rather, which interpretation is most reasonable. Studies by Icon and its contractors state that the local prevalence of flat-lying basalts is not applicable to the Willow Ridge Estates property. They also interpret that the nearest well to the property is not sufficiently representative of the Willow Ridge Estates' very local conditions. Specifically, they interpret that the perched water table document by a water well just north of the property line does not extend to the Willow Ridge property, and they conclude that "*the aquifer theorized to outcrop on the site is not present.*"

Their interpretation presumes an anomalous break in the subsurface geology, but hard evidence for this interpretation is lacking. Additional geological mapping and an exploratory borehole on the property would be the most effective way to understand actual subsurface conditions at Willow Ridge Estates and determine if seasonal subsurface flow in the known adjacent perched aquifer is a threat to either existing or planned homes.

Exhibits from original testimony by William House are referenced below and attached to this document.

Exhibit 6 shows where the perched aquifer outcrops if the basalt layers are horizontal, as they are immediately to the east of this area.

Exhibit 7 shows a geological cross-section based on horizontal strata.

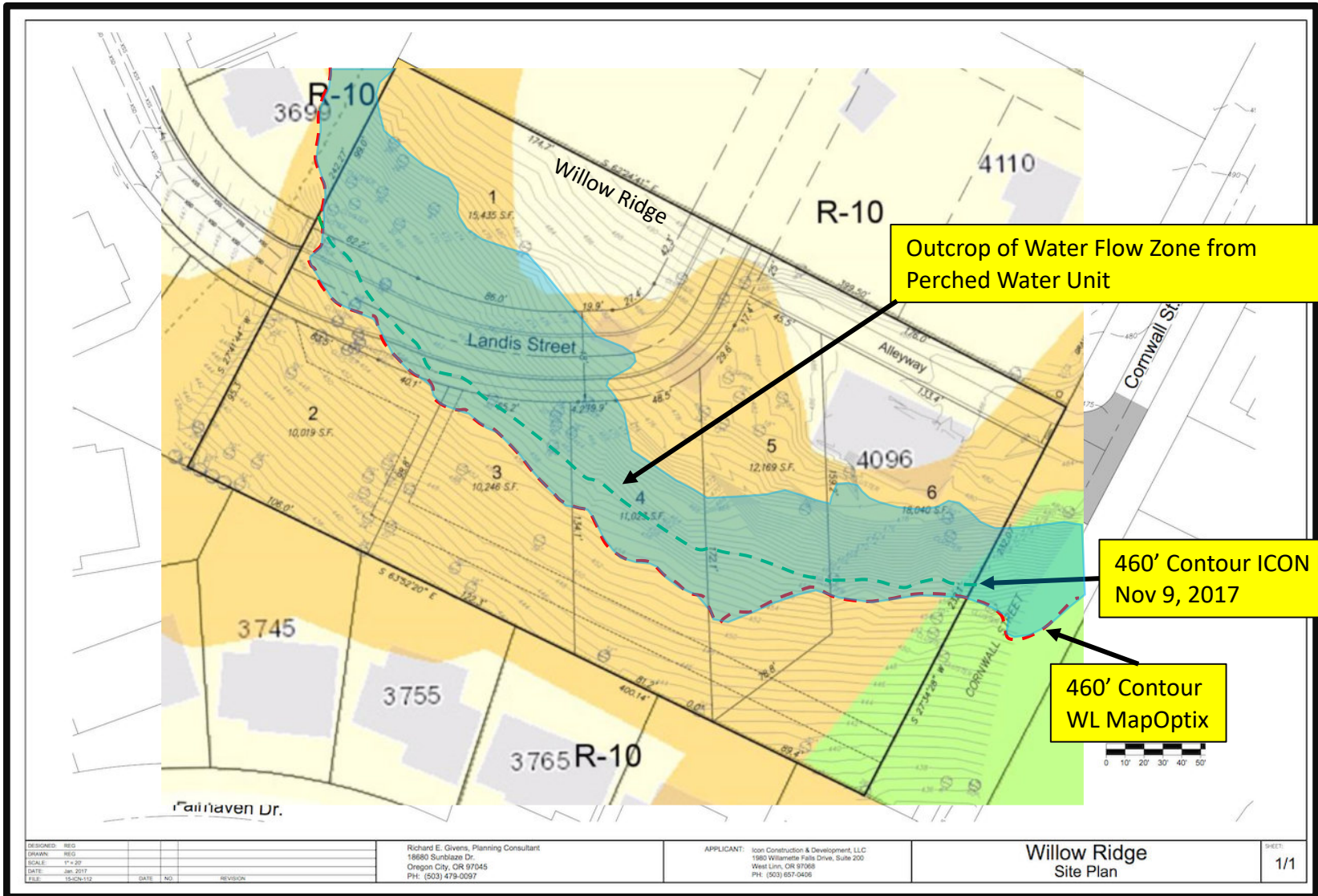
Exhibit 7a shows the close proximity of the Reed Street Well to Willow Ridge Estates.

Exhibit 8 shows where water from a new spring flooded the property of Chelsea Diaz (Public Testimony Dec. 2017). The blue is the interpreted outcrop of the perched aquifer. Evidence supporting a major change in the subsurface geology between Willow Ridge Estates and the adjacent properties a mere 100 feet away does not exist. Without additional data, a perched aquifer outcropping on the Willow Ridge slope is the most reasonable geological interpretation.

Exhibit 6

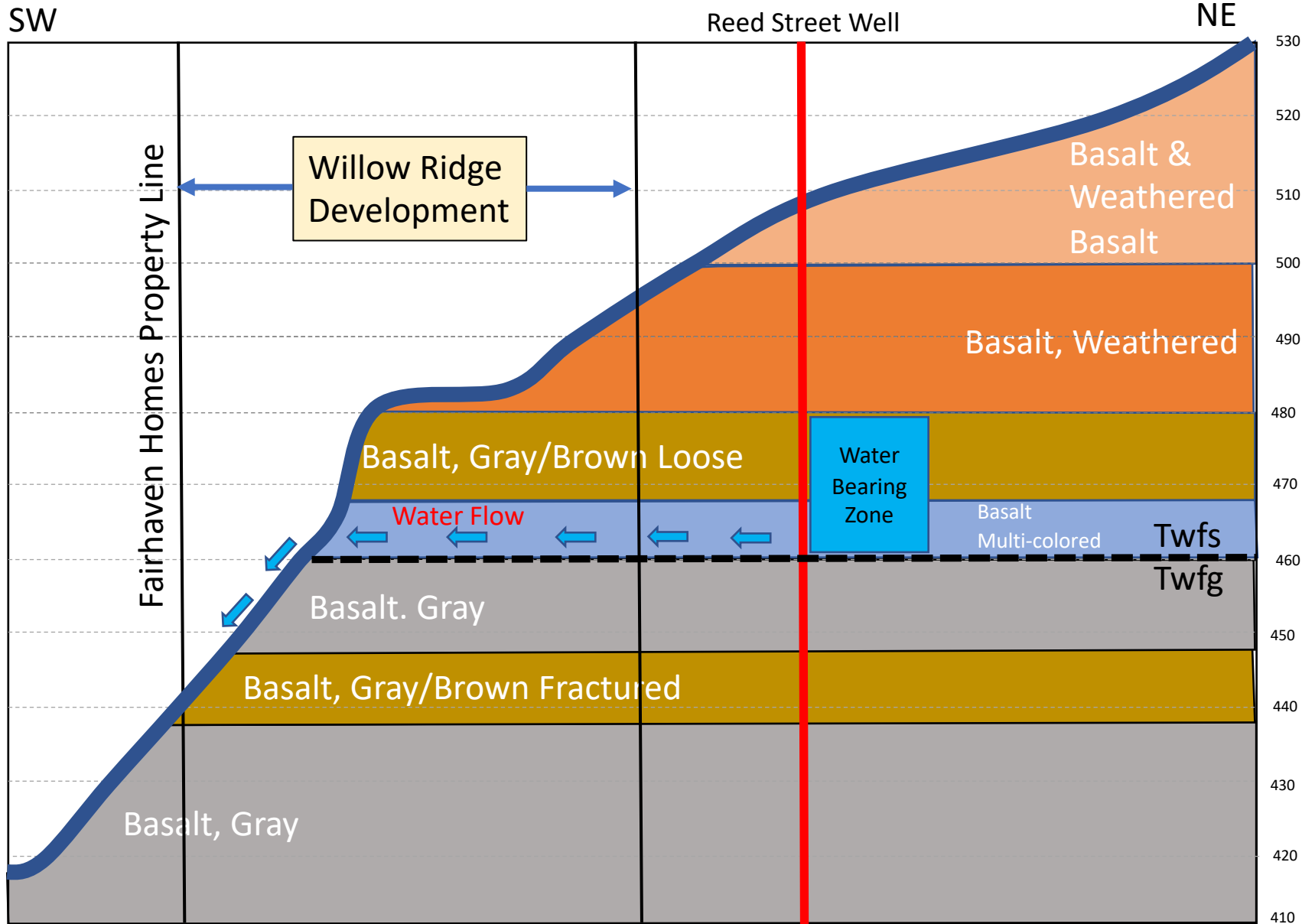
Estimated Water Flow Zone based on the Reed Street Well (Uses terrain contours from MapOptix)

Reasons for differences between the ICON map contours and the MapOptix terrain contours are unknown

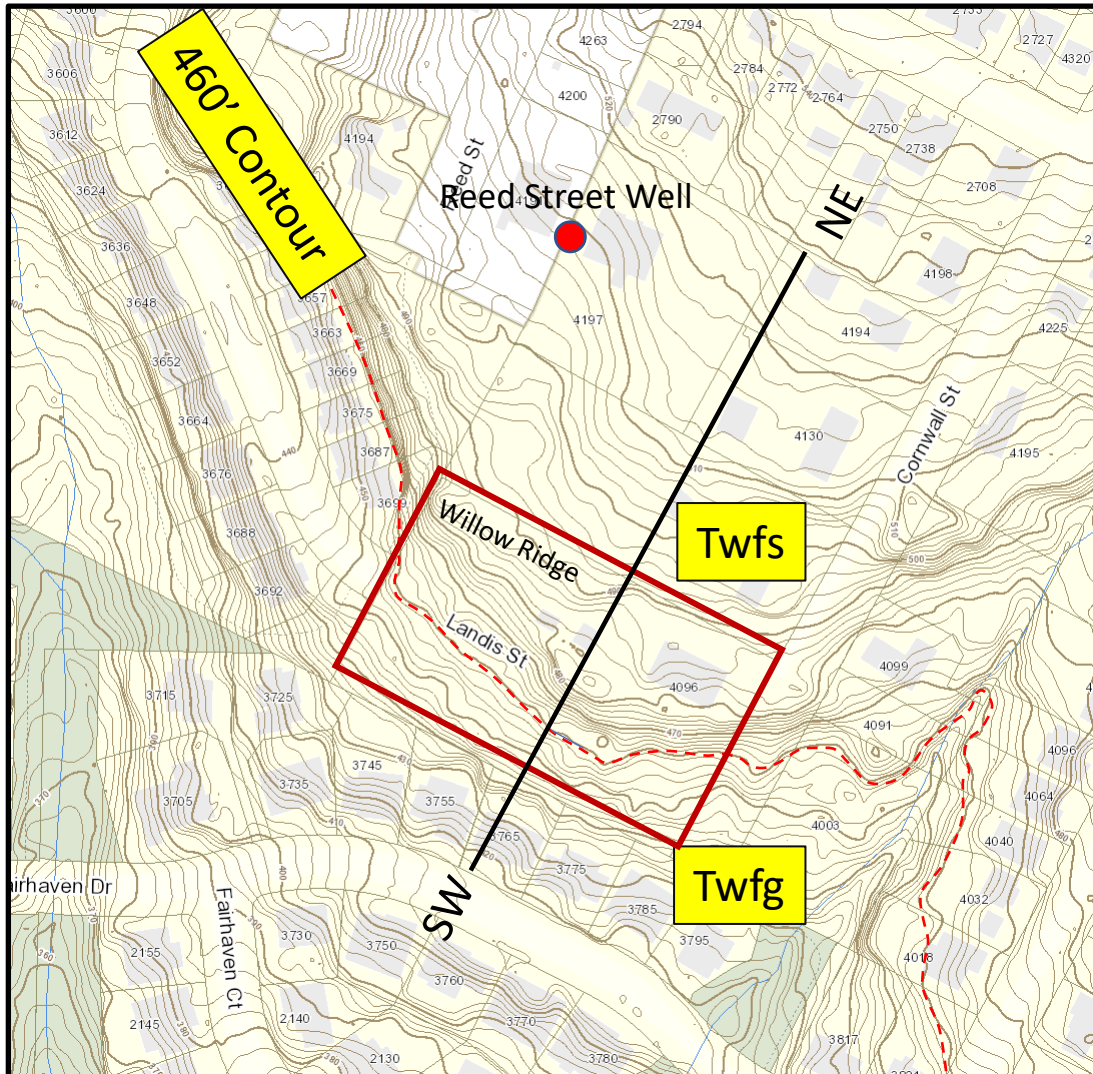


Geologic Cross Section (Profile)

Elevation
(feet asl)



Location map for geologic cross section



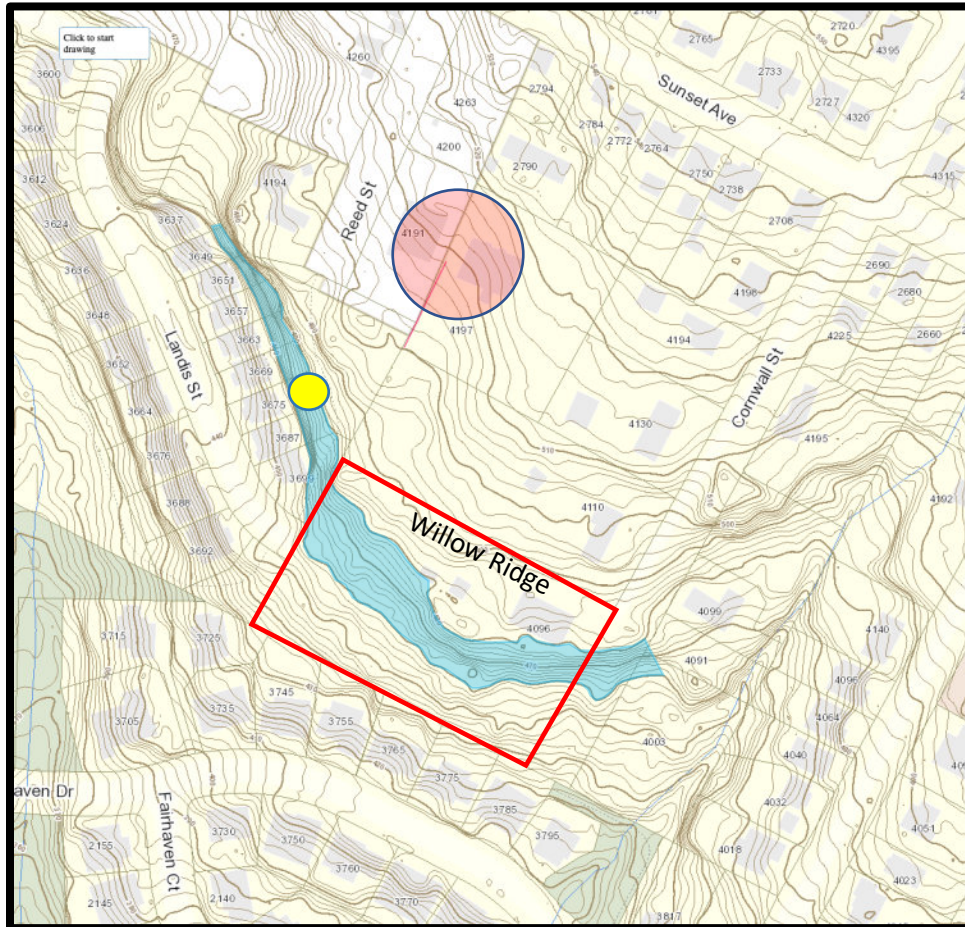
This map shows the location of a geologic cross section that runs in a NE-SW line across the center of the proposed Willow Ridge development.

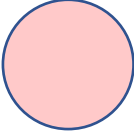

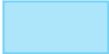
The Reed Street Well is projected into the cross section based on a ground surface elevation of 508' ASL

Public Testimony Dec. 2017:

“After two homes behind and above us began construction located at 4191 Reed Street and 4197 Reed Street, I noticed water streaming between the boulders in my 25 foot retaining wall into my back yard. I then began an lengthy process of trying to find where the water was coming from. After a landscape developer investigated the issue, he determined that a new spring had formed in the upper tier of my back yard.”

This demonstrates the clear connection between construction and changes in drainage above the slope and increased water flow through the “water flow zone” marked in blue.



-  New construction
-  New spring location
-  Outcrop of water flow zone

November 3, 2020

Testimony for 11/4/20 PC Hearing
ICON Development Concerns
SUB – 20 – 01
4096 Cornwall Street
West Linn

TO THE WEST LINN PLANNING COMMISSIONERS:

As a homeowner of 3755 Fairhaven Drive, I have several concerns / questions regarding the proposed ICON development adjacent to our home. I request that the City respond to my questions and concerns prior to considering review and approval of the pending Development Review Application submitted by ICON.

1. Why is ICON submitting two plans under one application? It is my understanding ICON has previously been directed by the City to submit separate applications. Should this application be rejected per previous direction provided by the City, it is necessary to clarify exactly what ICON is proposing Tentative Plan or Plan B? Did ICON do this to save application fees in lieu of submitting separately?
2. If the City does approve this application will only one plan be approved or both? I assume only one plan would be approved so there is absolutely no confusion. This application should be rejected and resubmitted with only one proposed plan.
3. Waterline service – I am concerned we will experience water pressure issues with additional homes added to the City system. What testing has been completed to verify and confirm the existing capacity and will we experience any change in water pressure? Have flow calculations been completed by a PE? If so, please provide a copy of the report.
4. Sewer capacity – What impact will this have on our existing sewer systems? Why is the City paying for this improvement with our tax dollars? Typically, the developer pays for these utility modifications.
5. Light pollution plan – I have 3 bedrooms and a bathroom on the backside of my home facing the proposed development. How will ICON guarantee there will not be flood lights from the new homes invading privacy, disturbing sleep, etc. I suggest that flood lights not be allowed on any of the new homes or have a limitation such as no more than x candle lights.
6. Page 26 of the application, Chapter 55 – Design Review, B. Relationship to the natural and physical environment, 2.b – There is a discrepancy in the quantity of significant trees with this designation. The City Arborist states 38, however ICON states 40 in their “Comment”. I assume

the City Arborist data is correct, thus ICON is proposing to remove 65.8% of the significant trees. Please clarify.

7. Why are the 7 significant trees along proposed lot 2 & 3 being destroyed when these trees provided natural shade, reduce light pollution and increase privacy between the proposed development and the existing homes?
8. What is ICON's plan for replacing trees to restore the natural landscape destroyed? Is a landscape plan available for review by surrounding neighbors?
9. The edge of the easement for the Tentative Plan to the Sanitary Sewer and Storm Sewer is 35' from the fence line of the existing homeowners, however this is reduced to 0' on the Plan B proposal. This means the centerline of the sewer line will be 42.5' from the existing fence line on the Tentative Plan but only 12.5'. Is the City okay with this reduced easement? What is the depth of the excavation for this sewer line / SAN MH 1-2 and how will ICON protect the adjacent fence line?
10. What is ICON's proposed plan to protect our adjacent properties during construction? Note my fence has already been damaged by activity on this slope pushing debris up against my fence.

See photos below:





11. Will ICON be replacing the entire existing fence line after construction? If their plan is to only do repairs, then it will stand out and not be aesthetically appealing.
12. The proposed location for the Silt Fence runs through the drip line of the significant trees. Please have the City Arborist address this issue during review. It is my understanding the silt fence should not encroach the drip line.
13. It is my understanding there are still several unanswered questions regarding the potential land slide hazards and if the site is even a Buildable Site because of the existing below grade water conditions. Due to these concerns if this application is approved, then as a homeowner I believe ICON should be required to provide at ICON's expense each homeowner an insurance policy against flooding and land slide damage for a minimum of 10 years. The homeowners would be the named insured on the policy and ICON would be required to escrow the funds required for premium payments prior to the City issuing a permit to start construction. The policy terms and conditions shall be mutually agreeable between the Homeowners and ICON. This is necessary because, the developer must be held accountable for damages to surrounding property.

Darin Stegemoller, Hidden Creek Estates Subdivision

**ICON'S PROPOSED DEVELOPMENT SUB-20-01
4096 CORNWALL STREET
PUBLIC TESTIMONY
TRAFFIC IMPACT ANALYSIS AND DRAINAGE ANALYSIS**

**ROBERT MENDEL
TANNER STONEGATE BOARD OF DIRECTORS MEMBER
NOVEMBER 4, 2020**

**1. ARD ENGINEERING TECHNICAL MEMORANDUM
WILLOW RIDGE TRAFFIC IMPACT ANALYSIS-UPDATE
OCTOBER 28,2020**

The ARD Willow Ridge Impact Analysis-Update, October 28, 2020 uses the Institute of Transportation Engineer's Trip Generation Manual, 10th Edition. The study should use the supplement Multimodal Transportation Impact Assessment for Site Development, which addresses pedestrian, bicycle automotive and truck traffic.

The West Linn Planning Commission favors the "Alternative Plan". Ard's report states on page 5 of 7 of the Traffic Impact Analysis that 25% or 15 trips from Willow Ridge will use Cornwall Street which means 45 trips per day would use Landis Street. Landis Street would generate 200 trips per day. Using your logic, then 25% of the Cornwall Street would use Landis Street or 23 daily trips, which would mean 268 daily trips on Landis Street. Add 320 trips per day from surrounding areas to proposed 268 trips per day equals 588 trips per day, a 294% increase in traffic. If you take a 12 hour "traffic day", which could be 90% of traffic or 540 trips. This means 45 trips per hour or a vehicle every 1.3 minutes. Think of children safety, noise and congestion. Landis is a residential street not a major artery.

The impact on Cornwall does not address how much Landis Traffic will add to daily trips. It addresses the additional 320 trips, plus 15 trips from Willow Ridge, 90 from Cornwall, which is 425 trips but no impact from Landis Street vehicles.

2. THETA DRAINAGE ANALYSIS OCTOBER, 2020

The Drainage Analysis depicts only the Alternative Plan, however, the Tentative Plan is the preferred plan. The Drainage Analysis shows that only Lot 1 will divert storm water to the Landis storm water system. However, without the Cornwall Street revision as identified in the Drainage Analysis, what is the impact on the Landis Street storm water system for the Tentative Plan. The Drainage Analysis must include the effect to the Tanner Stonegate bio swale and drainage area for the Tentative Plan and Alternative Plan.

ICON plans to divert storm water in the Landis Street storm water system and there has been no contact between ICON and Tanner Stonegate HOA regarding their proposed Willow Ridge Development storm water tie-in and potential impact on the Tanner Stonegate bio swale and drainage area. Tanner Stonegate HOA has no interest in adding Willow Ridge liability to our bio swale and drainage system. Tanner Stongate also has no interest in adding the Willow Ridge development liability to the Tanner Stonegate Homeowners Association.

3. SUMMARY

1. Landis Street is a problem street because West Linn Planning Department allowed narrowing of the road close to Stonegate Lane. There are no mitigation plans addressing traffic flow and safety issues for two blind spots. Heading east on Stonegate Lane at Landis Street and heading north on Landis Street by the narrowed portion at 3637 Landis Street.
2. The Traffic Impact Analysis Update is flawed in that it does not address how traffic flows from Landis Street to Cornwall Street and from Cornwall Street and Willow Ridge residents to Landis Street as well as the additional 320 daily trips.
3. The Traffic Impact Analysis must define total impact on Cornwall Street, Landis Street, the intersection of Stonegate Lane and Beacon Hill Drive, address increased traffic and congestion related issues and plan for student safety at the bus stop for the Alternative Plan.
4. The Traffic Impact Analysis does not address what a “trip” is.
5. The Traffic Impact Analysis does not use ITE Trip Generation Manual 10th Edition, Supplement, Multimodal Transportation Impact Assessment for Site Development. ITE states the Supplement’s “significantly expanded database includes a description of walk, bicycle, transit, motor vehicle and truck trip generation associated with an individual development site or land use.”
6. The Drainage Analysis needs to address the Tentative Plan and the Alternative Plan
7. The Drainage Analysis must include the effect to the Tanner Stonegate bio swale and drainage area for the Tentative Plan and Alternative Plan.
8. There is no plan how Willow Ridge residents will support the Tanner Stonegate bio swale maintenance.
9. What is the plan to monitor the Willow Ridge “planters”?
10. What is the mitigation plan if “planters” fail or are removed by Willow Ridge homeowners? What is the impact to the Tanner Stonegate bio swale?
11. Tanner Stonegate HOA has no interest in adding Willow Ridge liability to our bio swale.
12. Tanner Stonegate HOA has no interest in adding Willow ridge liability to our HOA.
13. If the Willow Ridge development is approved, it is required that the city take responsibility of the Tanner Stonegate bio swale and Tract C of Tanner Stonegate development.

Commented [BM1]:



Real-World Geotechnical Solutions
Investigation • Design • Construction Support

November 4, 2020
Project No. 19-5378

Icon Construction
1980 Willamette Falls Drive, #200
West Linn, OR 97068
Phone 503-657-0406
Email: darren@iconconstructino.net; rickgivens@gmail.com

**SUBJECT: GEOTECHNICAL REPORT CORRECTION
WILLOW RIDGE ESTATES AKA CORNWALL STREET SUBDIVISION
WEST LINN, OREGON**

Reference: GeoPacific Engineering, Inc., Geotechnical Report, Willow Ridge Subdivision, 4096 Cornwall Street, West Linn, Oregon, October 23, 2020.

This letter corrects the date on Page 3 of the above-referenced report from October 14, 2018 to October 14, 2020. Please note that the explorations were recently conducted.

We appreciate this opportunity to be of service.

Sincerely,

GEO PACIFIC ENGINEERING, INC.



James D. Imbrie, G.E.
Geotechnical Engineer

TESTIMONY FOR WEST LINN PLANNING COMMISSIONERS
Regarding ICON's Proposed Development: SUB -20-01 at 3096 Cornwall Street
November 4, 2020
by Pam Yokubaitis, MPH, RHIA, FAHIMA
BHT NA Secretary and Hidden Creek Estates Subdivision Representative

RESPONSE TO APPLICANT'S WRITTEN DOCUMENTATION ABOUT 4 TOPICS
THIS IS A CONTINUATION OF THE HEARING THAT STARTED ON 10/7/20

GEOTECHNICAL ISSUES

1. WHY are we reviewing 2 plat maps for this one application when *both maps were previously reviewed by this Planning Commission for consideration and were denied!* It is not reasonable nor appropriate to discuss two different options in one application. This is confusing, against application rules, and is a pointless exercise to discuss issues that were previously rejected. Historically speaking, the tentative version plat map was withdrawn by the applicant at the first hearing. The Alternate plan was presented in the second hearing, which was not only denied by the Planning Commission, but it was *also* denied by a third party referee when ICON appealed the Planning Commissions decision. Given these circumstances, it is expected that a NEW PLAN would be provided with a different design for consideration. **A RESUBMISSION OF THE SAME PLAT PLANS PREVIOUSLY WITHDRAWN & DENIED MEANS THE APPLICANT'S 2 PLAT MAPS HAVE ALREADY BEEN REVIEWED AND REJECTED, so there is no further need for discussion. PERIOD.**

2. As pointed out in the first half of this hearing on 10/7/20, this application was deficient because it didn't include an updated geotechnical report. No one was aware the Carlson Engineering report had expired four and a half years ago. The very last sentence in their report, written 1/7/16, stated on page 141 declared: "This report is subject to review and should not be relied upon after a period of 3 years." **THE LACK OF SUPPLYING THIS REQUIRED DOCUMENTATION ON 10/7/20 IS GROUNDS FOR DENYING THIS APPLICATION.** Although a new report was supplied by GeoPacific Engineering, Inc., during this 3 week lapse in time between the first and second half of this hearing, we now stand at a cross road of 2 different geological opinions from William House (representing the residents) and GeoPacific Engineering, with others (representing the applicant). What truly lies beneath the surface of this property (1-2 aquifers?) has yet to be determined with hard evidence. "Geological mapping and an exploratory borehole on the property would be the most effective way to understand actual subsurface conditions at Willow Ridge Estates and determine if seasonal subsurface flow in the known adjacent perched aquifer is a threat to either existing or planned homes" states William House. (Planning Commission Hearing Testimony: 4096 Cornwall Street - 6 Lot Subdivision, Hearing date 11/4/20, second paragraph). **Neither GeoPacific nor the hydrologist, Roger N. Smith pursued hard evidence to prove or disprove the suggested existence of aquifer(s) on this property, which is the key to understanding this water draining and landslide prone hazardous land. As such, this makes their reports inconclusive and incomplete in performing a thorough evaluation of this property as a geotechnical report.** With 60+ surrounding properties at risk of repeating a Sunset School nightmare with springs popping up on private property, such exploration must be completed to vet this land and determine its suitability to be built upon. As GeoPacific stated under "Uncertainties and Limitations on page 15: "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." Hard evidence that probes much deeper than 15 feet into this land is necessary to vet this property properly and to learn if and where it's safe to build.

3. GeoPacific's report is informative, thorough and the expertise of the many Professional Engineer contributors is impressive. Regrettably, these professionals have only been hired to "prepare this report for the owner and their consultants for use in design of this project only," (Uncertainties and Limitations

first paragraph), or in other words, just make the applicant compliant so their application is approved after their gross omission was brought to their attention. What is noticeably lacking and of greater importance is GeoPacific's future role and involvement in the construction of this development, because "Sufficient geotechnical monitoring, testing and consultation should be provided during construction to confirm that the conditions encountered are consistent with those indicated by explorations.... Recommendations for design changes will be provided should conditions revealed during construction differ from those anticipated, and to verify that the geotechnical aspects of construction comply with the contract plans and specifications. (Uncertainties and Limitations, pg 15, second paragraph). To be clear, there is deep concern shared by the surrounding residents that with constrained land, extra precautions and frequent monitoring IS NECESSARY. Without the builder securing such oversight throughout construction, there is concern that cutting corners, negligence, oversights, carelessness, and lack of compliance to required standards could very easily lead to property damage to surrounding homes - *which is not covered by homeowners insurance!* **"For the record, let it be known that should property damage occur to any surrounding homes outside of 4096 Cornwall Street, (as happened with Sunset School), a class action lawsuit was already mentioned to the applicant at the joint Sunset and BHT NA meeting in January 2020 to express the seriousness of this matter, and emphasize the need to be very diligent about this proposed development.** Residents are fearful of property damage because many homes are below and beside this property where springs could pop up. This is exactly why professional expertise has been repeatedly requested...the stakes are high for numerous homeowners *and* our community.

4. In the GeoPacific Report and hydrologist's report it was mentioned that not much water was found in the test pits. Given the fact that 4096 Cornwall's land is entirely covered with black berry bushes right now, and there are numerous thirsty significant trees, minimal water found in the test pits at this time of year should be of no surprise because there is extensive vegetation across this entire property consuming water, as compared to grasses in the summer. Testimony from Pia Snyder in June, 2017 can be found online. Within her testimony are numerous photos of springs on 4096 Cornwall property, ponding water, erosion of soil between houses on Fairhaven Drive, and Pia's boots are stuck in mud over her ankles in the center of the 4096 Cornwall, where a pond was originally located, per Ed Turkisher. Ed Turkisher testified a tractor sunk on this property in the past and the ground had to dry out before it could be dug out to drive away. All this history and photographic evidence substantiates that water is coming from somewhere from the land above, which is why William House's findings are worthy of further investigation. We have shared everything we know about this property to be fully transparent for the benefit of everyone. Everyone involved in this is matter is our West Linn neighbor. This our collective community, so we have worked in good faith to do what's in the best interests of our neighbors and West Linn as a whole.

STORM WATER/RAIN GARDENS

1. Rain gardens are suggested at the bottom of the slope for each yard.
2. Who will confront a homeowner who rips it out because they want something else to look at in their back yard?
3. What happens if the plants die? Who will replace them?
4. Since these function as water cleaners, who will ensure the maintenance of these gardens so they all function equally well and that they are serving their purpose prior to releasing water into Cornwall Creek and and Tanner Creek?
5. When can the residents review the drawings for the entire water management system? This is a genuine concern of the residents directly below 4096 Cornwall Street.

RNSA Report, page 3: Regarding Test Pit 1, top paragraph: The groundwater appears to be moving *laterally* rather than vertically until it intercepts the permeable top soil and root permeable zone 3 to 4 feet thick then flowing downslope.... **This statement supports William House's theory.** *But this statement*

conflicts with the last paragraph in the RNSA conclusion: “No springs were seen on the property during site work and there does not appear to be any groundwater flowing horizontally through an underlying basalt interflow zone as suggested by William House’s cross section.” (Public testimony October 7, 2020)

TRAFFIC AND ROAD CONNECTIVITY/ARD REPORT

1. Both plat maps promote road connectivity of Landis to Cornwall Street (eventually), so *neither plat map is acceptable to any of the residents*. It is a ruse to think one plan benefits the residents and the other may be more desirable to the Planning Commissioners. Both plat maps were *denied*, so start over and create a new plan.
2. **CITY STAFF: ALL OF THE SURROUNDING RESIDENTS STRONGLY OPPOSE LANDIS AND CORNWALL STREETS CONNECTING! HOW MANY MORE SIGNATURES DO WE NEED TO SUPPLY TO MAKE THIS UNDERSTOOD AT EVERY HEARING WE’VE TESTIFIED AT???? DO YOU HEAR US????? This idea is as ill thought out as turning Cornwall Creek into a retention pond! You have multiple other options, so pursue those ideas and stop altering YOUR NEIGHBORS quality of life and affecting our property values! Citizens First!!!!**
3. ARD Report: Page 2, 1st paragraph: *Correction*: Landis Street has a width of 25 feet, NOT 28.
4. ARD Report: Page 2, 1st paragraph: *Correction*: Continuous curb-tight sidewalks are in place along the west (*SOUTH, not West*) side of the roadway...
5. ARD Report: Page 2, 1st paragraph: *Correction*: Partial sidewalks are also in place along the east (*NORTH not East*) side of Landis Street, but...
6. ARD Report: Page 2, 1st paragraph: *Correction*: Existing partial sidewalks are also in place along the north (*SOUTH, not North*) side of Stonegate Lane. (See Pam Yokubaitis past testimony titled FOUR MAJOR TRAFFIC SAFETY ISSUES (in Stonegate, with photos)
7. *Correction*: The width and design of Landis Street is typical of a queuing street, which may (*DOES NOT, not may not*) fully accommodate simultaneous two-way travel at all points. (See photo of single car passing between 2 parked cars in prior testimony as justification for this correction.)
8. ARD Report: Page 2, 3rd paragraph: *Correction*: The street (Cornwall) has a paved width of 15 to 20’ (no, 14’ -18’ feet wide), with no sidewalks on either side of the roadway.
9. ARD Report: Page 4, 1st paragraph, Tentative Plan states: Under the tentative site plan, Landis Street would be extended through the site, connecting to the southern end of Cornwall Street. **This street connection is contemplated in the city’s Transportation System Plan as project LSC-16 “Landis Street extension to Cornwall Street” and is indicated as having priority “low”. SO THE LANDIS CORNWALL CONNECTION IS NOT A PRIORITY CONCERN!**
10. ARD Report: Page 4, 2nd paragraph Alternative Plan states: **Several other local street connections are also indicated in the project vicinity, including LSC-15 (Landis Street extension from Stonegate Lane to Winkel Way), LSC-19 (New east-west connection from Reed Street to Cornwall Street), LSC-21 (New north-south connection from the Landis Street extension to the new east-west connection) and LSC-26 (Sabo Lane extension from Beacon Hill to Sunset Avenue). SO THE LANDIS CORNWALL CONNECTION IS NOT A PRIORITY CONCERN!**
11. ARD Report: Page 4, 3rd paragraph Alternative Plan states: **Since the proposed Willow Ridge development would construct the Landis Street connection to Cornwall Street without the benefit of the several other local street connections anticipated in the city’s Transportation System Plan, it is appropriate to examine the potential impacts of making this street connection without the support of the other street connections planned for the future. SO THE LANDIS CORNWALL CONNECTION IS NOT A PRIORITY CONCERN!**
12. ARD Report: Page 6, 2nd paragraph states: Notably, the guidelines include three recommended cross-sections for neighborhood streets. These consist of a 28-foot paved width with parking on both sides, a 24-foot paved width with parking on one side, and a 20-foot road width with no parking. The 24-foot and 28-foot cross-sections are described as “queuing streets” since vehicles may need to pull to one side to allow opposing traffic to pass, thereby limiting the effective traffic capacity of these roadways to 1,000 vehicles per day or less. This is less than ideal because Landis Street in Stonegate is only 25 feet wide and can’t accommodate 2 lanes of traffic with parked cars on both sides. But

Willow Ridge would be 28 feet wide. Such width inconsistency on the same road that winds through 2 adjacent subdivisions next to each other but narrows down to 25 feet wide in Stonegate is not only unexpected, but potentially hazardous because driving through Stonegate is more restrictive.

13. ARD Report: Page 7, last paragraph states: **Once a new street connection is provided between the east side of Stonegate Lane and Parker Road (using portions of LSC-15 and LSC-26), this street connection will provide a faster, more efficient travel route than the Cornwall Street/Landis Street connection. THIS IS EXACTLY WHAT THE RESIDENTS HAVE BEEN ASKING FOR!!**
14. REREAD Pam Yokubaitis's previously submitted testimony titled FOUR MAJOR TRAFFIC SAFETY ISSUES as it pertains to this issue of connectivity and safety hazards that exist on Landis Street in Stonegate. Numerous photos have been provided.