



AGENDA

REVISED

MILWAUKIE PLANNING COMMISSION Tuesday, July 25, 2017, 6:30 PM

MILWAUKIE CITY HALL
10722 SE MAIN STREET

1.0 Call to Order - Procedural Matters

2.0 Planning Commission Minutes – Motion Needed

2.1 May 23, 2017 *(sent 7/21/17)*

3.0 Information Items

4.0 Audience Participation – This is an opportunity for the public to comment on any item not on the agenda

5.0 Worksession Items

5.1 Summary: Vision and Comprehensive Plan Update
Staff: David Levitan

6.0 Public Hearings – Public hearings will follow the procedure listed on reverse

6.1 Summary: Logus Road Subdivision
Applicant/Owner: Julian Illingworth
Address: 4543 SE Logus Rd
File: S-2016-002, VR-2016-010, PLA-2016-002
Staff: Brett Kelper/Mary Heberling

6.2 Summary: Rusk Rd Planned Development
Applicant/Owner: Brownstone Development, Inc. / Turning Point Church
Address: 13333 SE Rusk Rd
File: PD-2017-001 (master file)
Staff: Brett Kelper
Continued from 5/25/17

7.0 Planning Department Other Business/Updates

8.0 Planning Commission Committee Updates and Discussion Items – This is an opportunity for comment or discussion for items not on the agenda.

9.0 Forecast for Future Meetings:

August 8, 2017 1. TBD

August 22, 2017 1. Public Hearing: DR-2017-001 2036 SE Washington St *tentative*
2. Public Hearing: CSU-2017-004 10670 SE 52nd Ave *tentative*
3. Public Hearing: WG-2017-002 Kellogg Creek Bridge Replacement

Milwaukie Planning Commission Statement

The Planning Commission serves as an advisory body to, and a resource for, the City Council in land use matters. In this capacity, the mission of the Planning Commission is to articulate the Community's values and commitment to socially and environmentally responsible uses of its resources as reflected in the Comprehensive Plan

1. **PROCEDURAL MATTERS.** If you wish to speak at this meeting, please fill out a yellow card and give to planning staff. Please turn off all personal communication devices during meeting. For background information on agenda items, call the Planning Department at 503-786-7600 or email planning@ci.milwaukie.or.us. Thank You.
2. **PLANNING COMMISSION MINUTES.** Approved PC Minutes can be found on the City website at www.cityofmilwaukie.org
3. **CITY COUNCIL MINUTES** City Council Minutes can be found on the City website at www.cityofmilwaukie.org
4. **FORECAST FOR FUTURE MEETING.** These items are tentatively scheduled, but may be rescheduled prior to the meeting date. Please contact staff with any questions you may have.
5. **TIME LIMIT POLICY.** The Commission intends to end each meeting by 10:00pm. The Planning Commission will pause discussion of agenda items at 9:45pm to discuss whether to continue the agenda item to a future date or finish the agenda item.

Public Hearing Procedure

Those who wish to testify should come to the front podium, state his or her name and address for the record, and remain at the podium until the Chairperson has asked if there are any questions from the Commissioners.

1. **STAFF REPORT.** Each hearing starts with a brief review of the staff report by staff. The report lists the criteria for the land use action being considered, as well as a recommended decision with reasons for that recommendation.
2. **CORRESPONDENCE.** Staff will report any verbal or written correspondence that has been received since the Commission was presented with its meeting packet.
3. **APPLICANT'S PRESENTATION.**
4. **PUBLIC TESTIMONY IN SUPPORT.** Testimony from those in favor of the application.
5. **NEUTRAL PUBLIC TESTIMONY.** Comments or questions from interested persons who are neither in favor of nor opposed to the application.
6. **PUBLIC TESTIMONY IN OPPOSITION.** Testimony from those in opposition to the application.
7. **QUESTIONS FROM COMMISSIONERS.** The commission will have the opportunity to ask for clarification from staff, the applicant, or those who have already testified.
8. **REBUTTAL TESTIMONY FROM APPLICANT.** After all public testimony, the commission will take rebuttal testimony from the applicant.
9. **CLOSING OF PUBLIC HEARING.** The Chairperson will close the public portion of the hearing. The Commission will then enter into deliberation. From this point in the hearing the Commission will not receive any additional testimony from the audience, but may ask questions of anyone who has testified.
10. **COMMISSION DISCUSSION AND ACTION.** It is the Commission's intention to make a decision this evening on each issue on the agenda. Planning Commission decisions may be appealed to the City Council. If you wish to appeal a decision, please contact the Planning Department for information on the procedures and fees involved.
11. **MEETING CONTINUANCE.** Prior to the close of the first public hearing, *any person* may request an opportunity to present additional information at another time. If there is such a request, the Planning Commission will either continue the public hearing to a date certain, or leave the record open for at least seven days for additional written evidence, argument, or testimony. The Planning Commission may ask the applicant to consider granting an extension of the 120-day time period for making a decision if a delay in making a decision could impact the ability of the City to take final action on the application, including resolution of all local appeals.

The City of Milwaukie will make reasonable accommodation for people with disabilities. Please notify us no less than five (5) business days prior to the meeting.

Milwaukie Planning Commission:

Greg Hemer, Chair
Adam Argo, Vice Chair
Shannah Anderson
John Henry Burns
Sherry Grau
Scott Jones
Kim Travis

Planning Department Staff:

Denny Egner, Planning Director
David Levitan, Senior Planner
Brett Kolver, Associate Planner
Vera Kolas, Associate Planner
Mary Heberling, Assistant Planner
Alicia Martin, Administrative Specialist II

**CITY OF MILWAUKIE
PLANNING COMMISSION
MINUTES
Milwaukie City Hall
10722 SE Main Street
TUESDAY, MAY 23, 2017
6:30 PM**

COMMISSIONERS PRESENT

Greg Hemer, Chair
John Burns
Scott Jones
Kim Travis

STAFF PRESENT

Denny Egner, Planning Director
Brett Kelper, Associate Planner
Alex Roller, Engineering Tech II
Tim Ramis, City Attorney

COMMISSIONERS ABSENT

Adam Argo, Vice Chair
Shannah Anderson
Sherry Grau

1.0 Call to Order – Procedural Matters*

Chair Hemer called the meeting to order at 6:30 p.m. and read the conduct of meeting format into the record.

Note: The information presented constitutes summarized minutes only. The meeting video is available by clicking the Video link at <http://www.milwaukieoregon.gov/meetings>.

2.0 Planning Commission Minutes

2.1 March 28, 2017

It was moved by Commissioner Burns and seconded by Commissioner Jones to approve the Planning Commission minutes for March 28, 2017 as presented. The motion passed unanimously.

3.0 Information Items

Denny Egner, Planning Director, reported City Council would end its study sessions at 6:15 pm to accommodate televising the Planning Commission meetings at 6:30 pm. He noted the Commission's worksession on the North Milwaukie Industrial Area Plan this Thursday.

4.0 Audience Participation –This is an opportunity for the public to comment on any item not on the agenda. There was none.

5.0 Public Hearings

5.1 Summary: Rusk Rd Planned Development
Applicant/Owner: Brownstone Development, Inc. / Turning Point Church
Address: 13333 SE Rusk Rd
File: PD-2017-01 (master file)
Staff: Brett Kelper

Chair Hemer called the public hearing to order and read the conduct of the quasi-judicial hearing format into the record.

Chair Hemer declared a potential conflict of interest in that he had worked with Ernie Green of Brownstone Development at Milwaukie Lumber five or six years ago. He did not feel he had a true conflict of interest, and could be impartial. No other conflicts of interest or ex parte contacts were declared.

Brett Kelder, Associate Planner, presented the staff report- and reviewed key elements of the project and the requested variances. He noted the differences between the original proposal and the alternative plan submitted last week in response to suggestions and concerns from staff and public comments received. He addressed key issues as follows:

- The Habitat Conservation Area (HCA) designation would be corrected to include the entire White Oak grove, which the alternative plan accommodated. The applicant's topographic survey of the site revealed a greater floodplain area than shown on the FEMA map.
- Stormwater issues could be addressed onsite and traffic impacts would be addressed through the conditions of approval. Both site plans presented impacts to the natural resource area, which the applicant argued was necessary to provide more needed housing for the city. The applicant needed to show that alternatives with fewer impacts to the natural resources had been explored.
- The maximum base density allowed on the site was 80 units. The Commission would need to determine if the proposed plan for 92 units met the standard for "outstanding design" and "exceptional amenities" to warrant the applicant's requested 15% density bonus increase allowed through the planned development process.
- Staff believed the alternative plan was an improvement, but more information was needed for it to be thoroughly vetted and to better assess the impacts. The Commission was asked to identify any issues, questions, or concerns for staff to address at the continued hearing.

Staff addressed questions from the Commission with these key comments:

- Oregon Department of Transportation (ODOT) was aware of the intersection issues at Hwy 224 and Rusk Rd, but it was not a priority project. ODOT did not allow adjustments to signal times to mitigate traffic impacts. The increased traffic from the proposed development may increase the intersection's priority for ODOT, but a condition to add a right turn lane could help mitigate the impacts.
- The Planned Development designation was essentially a zone change that established the program and rules governing development on the site. The scope of the Commission's review included not only the site itself, but also the discretionary categories of "outstanding design" and "extraordinary amenities"; these features were intended to allow for increased density.
- Staff would have to research any requirements or liability related to previous fill on the site.
- Development review often required the balancing of conflicting policies, like affordable housing and the desire to protect habitat or the environment, as exemplified in this project. The Housing Needs Analysis found the City needed housing in this price range, but whether the project was too much development for the site was a valid question.
 - **Tim Ramis, City Attorney**, urged deciding the case based on the actual criteria before the Commission rather than a general discussion of policy. The key issue with respect to density was whether the "extraordinary design" features justified the density increase. He confirmed the design feature could be the extra affordable housing provided by the project.
- Staff confirmed that the proposed development would increase traffic on Rusk Rd during peak hours by a small percentage.

- If affordability of the units was part of why the development merited a density bonus, the Commission could recommend a condition for all or a certain percentage of the units be sold at a certain percentage of median income, adjusted over time, for example.
 - **Mr. Ramis** confirmed that if the applicant claimed a feature was a basis for approval, the feature became a de facto condition. He suggested asking the applicant to craft a condition that would be usable.
- For a Planned Development, the Commission could recommend shifting some of the development out of the floodplain into a more vertical development and using a mix of housing types, including multifamily and rowhouses, that would not ordinarily be allowed. During the preapplication process, staff suggested that the applicant look at alternative housing options.

Mr. Kelper noted comments received since the meeting materials were posted. He distributed a letter from Oregon Department of Fish & Wildlife (ODFW) received before the meeting, and noted he would research what “Oregon White Oak habitat are identified as strategy or priority habitat” as written in the letter meant.

Chair Hemer called for the applicant’s presentation.

Serah Breakstone and Scott Emmens, DOWL, presented the applicant’s proposal, and reviewed the features and benefits of the revised site plan.

- Eight of the 46 Oregon white oaks had to be removed to accommodate the street frontage improvements along Kellogg Creek Drive as required by the City. With the revised site plan, all the remaining trees would be retained.
- The floodplain mitigation proposed in the original site plan provided approximately 600 cu ft more of storage space than currently existed. The revised site plan would have much less impact to the floodplain and require less mitigation.

Jerry Johnson, Johnson Economics, stated he authored the City of Milwaukie’s Housing Needs Analysis (HNA) and had reviewed the applicant’s site plan for consistency with the HNA findings. He noted that with more people working in Milwaukie than living in Milwaukie, the area had an inherent demand for housing. The proposed attached housing development would provide more affordable housing to better match demand. He addressed Commissioner questions as follows:

- Guidelines for determining affordability of owner-occupied units were not available. – Instituting a program to require affordable units was difficult given a need to clearly define “affordable,” administering the program over time, and shared appreciation mortgage issues. Ultimately, product pricing becomes what the market would bear. Attached housing was less desirable than detached housing, but was more affordable.
- His finding was that about 68% of the housing demand in Milwaukie was for housing priced at \$380,000 and below.
- Providing 92 units at a lower price for affordable housing for moderate incomes was better than 80 units at a higher price, due to the lower land cost per lot and because the developer would have more flexibility to lower the price or to make more margin if the price stayed the same.
- The HNA calculation included 80 units on the R-3 portion of the property. Less than one-third of the city’s housing capacity was on vacant property, and most was assumed as infill redevelopment of other properties.

Zach Horowitz, Kittleson & Associates, confirmed the traffic impact study had a problem with

respect to the right-turn lane at the Rusk Road/Hwy 224 intersection. However, regardless of how the northbound approach on Rusk Rd was configured, it would meet ODOT's capacity standard under both AM and PM peak hour conditions.

- Kittleson collected additional traffic data at the Hwy 224/Webster Rd intersection. He described the results of the study, noting an 8% increase in traffic. This count was done while school was in session, unlike the prior traffic study. He was confident the 6-8% increase was reflective of typical traffic conditions at the site.
- Congestion levels would depend on which direction one was traveling. For example, westbound travelers on Hwy 224 during the morning peak hour experienced significantly more delay than eastbound traffic.
- The development would increase traffic on Rusk Rd, both north and southbound traffic south of Hwy 224, by approximately 10% during the AM peak hour and approximately 6% during the PM peak hour.
- He confirmed the traffic increase rates included a yearly inflation assumption of a .61% increase as identified in the City's Transportation System Plan (TSP).

Ms. Breakstone continued the applicant's presentation, noting several concerns about the conditions of approval and requested revisions as follows:

- Reevaluate or remove the condition requiring a turn lane on Rusk Rd at Hwy 224. Based on the Kittleson analysis and review by the City and DKS, the applicant understood there was some disagreement about whether the turn lane was warranted.
- Condition 2.C.f required a public easement on the soft surface trail through the site. The trail was specifically designed to minimize impacts to the natural area with its pervious surface and 30-in width. While the applicant did not object to making it a public easement, the trail design did not meet the City's standards for a public pedestrian connection.
 - The applicant would be willing to discuss North Clackamas Parks & Recreation District (NCPRD) taking ownership or maintaining the trail and adjacent habitat longterm as opposed to the HOA doing so, as had been discussed.
 - She confirmed the trail was one of the outstanding and exceptional design amenities of the planned development. There was no intention to close off the path to the public. The question was whether making the trail a public easement would change the design.
- **Mr. Emmens** commented:
 - He had received clarification about the necessary FEMA map revisions discussed in Condition 4.A.
 - Condition 6.A discussed a six-month expiration date of the approval and a potential Planning Commission review to consider whether an approval extension was in the public interest. With an October approval, six months was a tight deadline to begin construction. Since the other approvals were good for two years, it seemed reasonable to remove the condition or revise the deadline to match the two-year expiration period for the other applications.

The applicant's team responded to questions from the Commission.

- **Mr. Emmens** described how the stormwater runoff from all impervious surfaces, including rooftops, roadways, and sidewalks, would be collected and delivered to the biofiltration ponds, and then discharged into the wetlands.
- **Mr. Emmens** preferred the revised site plan because of its ability to save the white oaks and provide visual access to the wetlands and natural area.
- The range of unit values had been redistributed but not changed with the revised site plan because while the number of units backing up to the open space was reduced, the natural

space was also opened up to the central units.

- **Ms. Breakstone** explained the developer retained the 92 units in the revised plan because that number made the project economically feasible. Although the team looked at scenarios to reduce the number of lots, the revised site plan balanced all the different interests without losing additional units.
- Commissioners expressed concerns about whether the proposal met the character of the neighborhood and community. Illustrations showing how the various design elements interacted within the site and the context of the surrounding neighborhoods were requested. Fewer units would provide more break-up between the masses that might possibly integrate better with the community.
 - **Ms. Breakstone** acknowledged the development was denser than the surrounding neighborhood; however, the site was well-buffered from the adjacent residential neighborhoods by the natural area buffers, the church, and the roads. She believed the site's design and its natural location addressed the impacts to the neighborhood's character pretty well.
- **Mr. Emmens** clarified that site would be constructed in one phase, which would eliminate the need to construct a temporary road for the church, although construction of the homes could be spread out over two seasons.
- **Mr. Emmens** said that stormwater elements like rain gardens or pervious pavement were considered "outstanding" and "exceptional" and went beyond the minimum requirements.
 - **Mr. Emmens** explained the stormwater facilities were modeled after the City of Portland requirements, which incorporated the latest treatment technology, but would remain outside the flood elevations. He confirmed pervious pavement was an option.
- Regarding ODFW concern about the development's impact on the critical salmon and steelhead spawning habitat in Mt Scott Creek, the applicant's water resource engineer followed the Standard Local Operating Procedures for Endangered Species (SLOPES)) V process and all the criteria set forth by the National Marine and Fisheries Service.
- **Ms. Breakstone** was unsure whether consideration had been given to green building design elements. Doing so would potentially impact the price point to the extent that the homes would become a different product.

Chair Hemer called for public testimony.

In Support – None

In Opposition

Dorothea Van Bockel, 13391 SE Ruscliff Ln, stated she was not opposed to the development but had a number of concerns. She valued affordable housing in general, but encouraged the Commission to continue asking questions about design, the homes' quality in construction, access, and what was truly affordable. She also noted flooding and traffic issues, given the limited capacity of the floodplain and the school bus traffic throughout the day.

Allison Lutt-Markwart, 13430 SE Ruscliff Ln, expressed concern about the limited space for queuing when turning right off Ruscliff Ln to cross the highway, the impact on the flood zones, and the existing traffic congestion that already existed due to multiple activities at the church, athletic fields, dog park, and the Milwaukie Center.

Vince Alvarez, 12671 SE Where Else Ln, Chair, Lake Road Neighborhood District Association (NDA). He liked the revised site plan but was concerned about flooding issues. He

said impacting the flood zones needed to be a priority as increased development in the area would only make it worse. Traffic issues were also a concern for the NDA, so it was important to consider and possibly do more traffic studies.

Steve Tandy, 13330 SE Rusk Rd, expressed concern about the impact of additional traffic on the existing traffic from the three churches, athletic fields, and school buses traveling to Rusk Rd each day. He was concerned about emergency vehicle accessibility as well as the impact of the development given the inadequate Rusk Rd/Hwy 224 intersection. He believed in affordable housing, but did not see \$400,000 as affordable housing.

Steve Sterhan, 14000 SE Rusk Rd, noted that Rusk Rd had been used as a bypass since ODOT's updates on I-205. He had talked to Troy Johnson at Clackamas County about how narrow Rusk Rd was, noting he and his wife had witnessed more than 20 accidents in eight years at the "Deadman's Corner" intersection. With an additional 200 cars on the road a traffic-related death was inevitable. He confirmed he believed in affordable housing.

Dick Shook, 5418 SE Casa Del Rey Dr, read a statement expressing concerns as a 40-year resident on Mt Scott Creek about the impacts of additional impervious surface on Mt Scott and Camas Creeks, wetlands, and local springs, as well as increased flooding. With additional housing, parks must be maintained to provide outdoor recreation. The subject area should have been and still could be added to NCPRD. He felt the proposed number of units far exceeded the number that could be accommodated.

Lois Herring, 8945 SE 29th Ave, discussed her concerns with the November traffic study, and asked that it be redone when the nearby schools were in session. The applicant assumed townhouses would generate half the traffic of single-family detached housing, but she believed the proposed units would have at least one to two cars each. No public transit was available unless one crossed Rusk Rd, which was not pedestrian-friendly. The number of units should be reduced.

Judy Sherley, 5804 SE Kellogg Creek Dr, agreed NCPRD should take over the wetlands. She discussed traffic issues for Kellogg Creek Dr residents. She urged the Commission to require new traffic studies, both when school was in session and on a summer weekend, and asked for traffic signal improvements to Kellogg Creek Dr and at the Rusk Rd/Hwy 224 intersection. She believed the proposal should be reduced to 50 to 80 units.

Joseph Edge, Director, Oak Grove Community Council, stated the Council was the Clackamas County Community Planning Organization (CPO) representing the unincorporated residents across from the proposed development. The existing traffic study understated the actual traffic impacts considering the context of the site, transportation alternatives available, and destinations accessible through alternate modes. An alternative traffic impact study should be done that treated the townhouse units as single-family homes, or at least assign one vehicle per dwelling unit, given the proposed price point could likely require vehicle commuting. He also requested a recalculation of the stormwater facility needs based on the site in its predevelopment.

- The CPO had understood that development was technically feasible in the R-3 zone, but they were not convinced the proposal met the standard of "outstanding design". The CPO wanted to see some creative alternative plans in accordance with the variance request, including multifamily housing, which would be more affordable as workforce housing.

Erica Toussaint, 12399 SE Oatfield Rd, agreed with the concerns expressed about the white oaks and traffic, noting nothing was discussed about the traffic impacts on Aldercrest and Oatfield Rds. She was concerned about fill, noting flooding occurred on her property after the 1995 fill on this property. She did not believe the proposed homes addressed the need for affordable housing in Milwaukie. With one access road, residents of the proposed development would have worse traffic issues than current residents. She was concerned about the impacts on North Clackamas Park, adding the City needed to consider the use of nearby places. After construction was completed, she hoped there was some guarantee that NCPRD would take over the wetlands and trails instead of the HOA.

Andrew Collins-Anderson, Executive Director, North Clackamas Urban Watershed Council (NCUWC), 2416 SE Lake Rd, noted the subject property represented some of the last remaining quality wetlands for Mt Scott Creek, which had been highly developed. NCUWC had worked with Turning Point Church to do site restoration work through the Streamside Stewards Program funded through the Oregon Watershed Enhancement Board (OWEB) and Metro. It did not believe the applicant's proposed mitigation was adequate, as it seemed redundant. Management of these natural areas was critical, and HOAs did not have the necessary resources. He asked that the applicant be required to provide alternatives that did not impact the irreplaceable HCA or water quality resources (WQRs).

Laura Hickman, 13786 SE Briarfield Ct, noted Alder Creek Middle School let out at 4:05 pm, which contributed to the traffic impacts. She discussed concerns about bicycle and pedestrian safety, noting the North Clackamas School District's assessment of Rusk Rd's walkability as the most hazardous walking route in the Alder Creek area. She urged the Commission to look at the existing conditions. She confirmed she believed in affordable housing, but not in moving families into an already hazardous walking and biking situation.

Chris Runyard, 2325 NE 32nd Ct, Portland, explained he did habitat restoration on streams and wetlands in the region, and worked on this property for NCUWC. He concurred with the ODFW and -opposed cutting down any of the old growth Oregon white oaks, which were irreplaceable and sat on the remnants of an old wetland forest. There should be no impact to the wetland, HCA, WQR, or the lowlands. The applicant was aggressive about retaining 92 units, but 70 units could all be outside of the natural resource. He discussed the flooding issues. He noted some of the applicant's proposed mitigation had already been done. He believed the lowlands should be managed by NCPRD; HOAs did not have the expertise to do it right.

Greg Baartz-Bowman, 10677 SE 28th Ave, Milwaukie, acknowledged the need for housing but argued it should not be at the expense of the wetlands and old growth Oregon white oaks. He noted that Milwaukie citizens had chosen to protect old growth oaks in the recent past, and added 97% of old growth Oregon white oaks had been cut down in the valley over the last 150 years. The community wanted affordable housing, the Oregon white oaks, and the wetlands

Chair Hemer noted all the public testimony cards that were submitted would be retained and public testimony would continue at the next meeting.

It was moved by Commissioner Travis and seconded by Commissioner Burns to continue the public hearing for PD-2017-001 for 13333 SE Rusk Rd to a date certain of May 25, 2017. The motion passed unanimously.

6.0 Worksession Items - None

7.0 Planning Department Other Business/Updates - None

8.0 Planning Commission Committee Updates and Discussion Items – This is an opportunity for comment or discussion for items not on the agenda.

9.0 Forecast for Future Meetings:

- May 25, 2017 1. Special Session: North Milwaukie Industrial Area Framework Plan and Implementation Strategy
- June 23, 2017 1. Public Hearing: PD-2017-002 13333 SE Rusk Rd- *continued tentative*
2. Public Hearing: DEV-2017-006/VR-2017-002 29th Ave Triplex
3. Public Hearing: S-2017-002 4217 SE Railroad Ave
4. Public Hearing: VR-2017-004 11630 SE 27th Ave ADU

Meeting adjourned at approximately 10:06 pm.

Respectfully submitted,

Alicia Martin, Administrative Specialist II

Greg Hemer, Chair



MILWAUKIE

Dogwood City of the West

To: Planning Commission
From: David Levitan, Senior Planner
Denny Egner, Planning Director
Date: July 18, 2017, for July 25, 2017, Worksession
Subject: Community Vision and Comprehensive Plan Update

ACTION REQUESTED

No formal action is requested. This worksession is intended to provide an update on the Community Vision, which is scheduled for adoption by the City Council on September 5, and to discuss the proposed public involvement and work plan for the Comprehensive Plan Update, including the creation of a Comprehensive Plan Advisory Committee (CPAC). Staff is proposing that the CPAC include a Planning Commissioner as a member, either to be appointed by the Commission or selected through the general application process.

HISTORY OF PRIOR ACTIONS AND DISCUSSIONS

January 10, 2017: Staff provided an update on upcoming public events for the Community Vision, including the second Town Hall on February 15.

October 25, 2016: Staff briefed the Planning Commission on Phase I of the public outreach for the Community Vision that had occurred to date, and provided an overview of the November 2 Town Hall.

April 26, 2016: Staff provided the Planning Commission with a brief update on the Comprehensive Plan and the Community Vision, including the Request for Proposals (RFP) for consultant services and a proposal to form a Project Action Group (since renamed the Vision Advisory Committee) and a Steering Committee.

February 23, 2016: Staff briefed the Planning Commission on the proposed process and community outreach for the Community Vision, summarizing the presentation that visioning consultant Steven Ames gave to the City Council on February 18 and the feedback that the City Council provided.

January 12, 2016: Staff provided the Planning Commission with an overview of the history and planned approach for the Comprehensive Plan Update and the feedback that the City Council provided on the approach at their December 15, 2015 meeting.

BACKGROUND

The City of Milwaukie is currently in the final of three phases to develop a Community Vision, which will feed into the upcoming update to the Comprehensive Plan. On October 25, the

Planning Commission was briefed on Phase I (Inquiry), which was designed to gather input from the Milwaukie community through a series of stakeholder interviews, summer outreach events, community surveys, and Vision Advisory Committee (VAC) and Steering Committee meetings. Staff returned on January 10 to provide an update to the Planning Commission on Phases II and III, which involve the development of a Vision Statement (Attachment 1) that describes the ideal Milwaukie in the year 2040 and an Action Plan (Attachment 2) that lists action items to help achieve that vision.

Since staff last updated the Planning Commission about the Community Vision on January 10, a number of meetings, events, and online surveys have occurred that have resulted in the current versions of the Vision Statement and Action Plan. Full details can be found on the Milwaukie Vision website (<http://www.milwaukievision.org>), and a summary is included below.

Town Hall 2: The February 15 Vision Town Hall was attended by over 100 Milwaukie community members, including all five City Councilors. The event focused on developing and refining items for the Action Plan, and resulted in dozens of new ideas as well as confirmation of numerous Action Plan items that were developed by the Vision Advisory Committee (VAC) or submitted through the online survey.

Vision Advisory Committee (VAC) Meetings: The VAC has met four times over the last six months, with their seventh and final meeting occurring on June 21. The VAC was integral in developing the language for the Vision Statement and Action Plan and helping to sift through the hundreds of comments received from the community and help elevate and describe community priorities. Commissioner Anderson is a member of the VAC, and Chair Hemer has attended several meetings, in addition to his portrayal of Lot Whitcomb at the first Town Hall in November.

Community Conversations: In late March and early April, staff and its consultants held a series of “Community Conversations” to solicit feedback on the VAC’s revised version of the Action Plan. Staff met with all 7 neighborhood district associations (NDA’s), the Milwaukie Rotary Club, three classes of Milwaukie High School students, and Hillside Manor residents. A total of approximately 225 people attended the Community Conversations, representing a broad cross-section of Milwaukie residents, business owners, and other stakeholders.

May Online Survey: Prioritizing the Action Plan: On May 10, staff distributed an online survey via its 400-person email list and the City’s social media channels. The survey asked respondents to rank their top 2 action item priorities for each of the 12 goal areas, as well as their top priority overall. A total of 216 people filled out the survey, which, given the length and complexity of the survey, was an encouraging response.

DISCUSSION

Format and Status of the Action Plan

In reviewing the priority Action Plan items that were identified by the community in the May online survey and earlier public events, staff worked with the consultant team and VAC to organize community priorities into eight major categories, which staff is referring to as “Super Actions”. These Super Actions included the City Council’s three goals for 2017/2018: Improving Housing Affordability, Developing a Climate Action Plan, and Completing Milwaukie Bay Park. When taken as a whole, these Super Actions reflect a set of action items that the Milwaukie community believes the City should establish as priorities when seeking to achieve the ideal Milwaukie of 2040.

On June 21, the VAC made its final edits to the Action Plan, and voted to recommend it for approval by the City Council. The Action Plan was reviewed by the City Council during a work session on July 5. At that meeting, the Council requested that the Council goals be removed as separate Super Actions, and that the action items related to Council goals be folded into the other 5 Super Actions. The City Council also proposed several other revisions, which staff has incorporated into the draft included in Attachment 2 to this staff report. The City Council will be holding a final work session on the Action Plan during its regular meeting on August 1, and is currently scheduled to adopt the Vision and Action Plan on September 5.

The Action Plan is developed around a quadruple bottom line (QBL) framework that considers the “4 P’s”- People, Place, Planet and Prosperity. Each Super Action includes action items that cover one or more of the 4 P’s. There are four status categories for action items:

- Complete, of which there is currently only one (development of a food composting program);
- Underway, meaning actions that the City is already doing, but which may need additional resources or funding;
- Future, meaning actions that will require new programs and/or work plans; and
- Initiate with Comprehensive Plan, meaning actions that staff will look to start (but not necessarily complete) during the Comprehensive Plan.

The main Action Plan document (Attachment 2) is focused on priorities established by the Milwaukie community through the final online survey and earlier outreach events, as well as some additional action items that were elevated by the City Council and the VAC. That leaves a number of additional action items that were developed and recommended by the community but that represent a slightly less urgent set of community priorities. These items will be included in Appendix A to the Action Plan, which is included as Attachment 3 to this staff report.

It is envisioned that the City Council will assess these items during biennial Action Plan updates, most likely during their biennial goal setting process. A process will be developed to allow the community to elevate existing action items from the appendix to the main Action Plan for that two-year period, as well as to propose additional action items for either the main Action Plan or for the appendix. The group of Super Actions could then be updated or strengthened to reflect future Council goals and the other major priorities identified by the community during an Action Plan report-out and update process.

The inaugural version of the Action Plan is unique in that it is being developed immediately prior to a major update to the Comprehensive Plan. By the time the Action Plan is updated in 2019, staff is expecting to have completed its work on the Comprehensive Plan. As such, the first update to the Action Plan will include an assessment of those action items that were addressed through the Comprehensive Plan.

Transition to the Comprehensive Plan

As we near the completion of the Community Vision, staff has begun developing the public involvement and work plan for the Comprehensive Plan Update. The Comprehensive Plan Update is expected to take approximately two years to complete, and staff is proposing that it build upon the QBL framework created for the Community Vision. Individual topic areas such as Housing and Transportation will be grouped under “Core Areas” that are further organized by the 4 P’s of the Community Vision, with the recognition that topic areas are not confined to one individual “P”.

The City of Hillsboro has taken a similar approach with their Comprehensive Plan Update, and their Core Areas and individual topic areas can be found in Attachment 4 (both for their Community Vision and their Comprehensive Plan). Milwaukie’s “Core Areas” will be derived

from the Super Actions and Goal Area Statements included in the Community Vision and Action Plan. Staff will be meeting in August with a representative from the Oregon Department of Land Conservation and Development (DLCDD) to ensure that this approach is consistent with state rules and adequately addresses Statewide Planning Goals.

One of the central themes that came out of the visioning work was the concept of Milwaukie as a community of strong, unique, and interconnected neighborhoods. There was extensive discussion of the concept of “neighborhood hubs” being located throughout the city, which would serve to provide a range of uses and amenities that residents could walk or bike to. Staff is proposing that the first phase of the Comprehensive Plan Update work plan include a task related to identifying potential locations for these neighborhood hubs, and evaluating different scenarios for future growth and development at the neighborhood level. This type of analysis would look at how each neighborhood can address topics such as housing, economic development, transportation, open space, neighborhood character, and natural resource protection at the neighborhood level, and how this will influence growth in the City as a whole.

Staff sees the Planning Commission as an integral component of the Comprehensive Plan work, and expects to hold work sessions on a nearly monthly basis once the update gets underway. The Planning Commission will be responsible for reviewing technical background information and helping to develop goals and policies, in conjunction with the Comprehensive Plan Advisory Committee (CPAC) and technical advisory groups (TAG’s) created for topics such as housing, the economy, and natural resources.

Staff briefly spoke with the City Council at their July 11 work session about the selection process and make-up of the CPAC, and will be discussing the Comprehensive Plan Update with the City Council at their August 1 meeting. Staff is developing the application process for the CPAC, and preliminary guidance from the City Council is to have an open recruitment similar to what was done for the Vision Advisory Committee, while also targeting and encouraging specific stakeholders to apply, such as business owners, youth, and representatives of community organizations. Staff will be discussing the selection process at the August 1 Council meeting, and hopes to advertise for the CPAC shortly after that.

During the July 5 Council work session, staff proposed, and the City Council was in agreement, that the CPAC should have a designated liaison from both the Planning Commission and the City Council. As such, staff is requesting that the Planning Commission decide whether they would like to appoint a member to the CPAC, or have members apply through the general application process.

RECOMMENDATION

There is no formal staff recommendation. Staff is requesting that the Planning Commission review the Vision Statement and Action Plan, and provide feedback on the proposed approach to updating the Comprehensive Plan. Staff would like one commissioner to serve on the CPAC, to be chosen either by Planning Commission consensus or through the general application process.

ATTACHMENTS

Attachments are provided as indicated by the checked boxes. All material is available for viewing upon request.

	PC Packet	Public Copies	E-Packet
1. Attachment 1 – Vision Statement, July 2017 Draft	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2. Attachment 2 – Action Plan, July 2017 Draft	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3. Attachment 3 – Action Plan Appendix 1, July 2017 Draft	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4. Attachment 4 – Hillsboro Core Areas and Topic Areas	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Key:

PC Packet = paper materials provided to Planning Commission 7 days prior to the hearing.

Public Copies = paper copies of the packet available for review at City facilities and at the Planning Commission meeting.

E-Packet = packet materials available online at <http://www.milwaukieoregon.gov/planning/planning-commission-174>.

VISION

Based on feedback from the community and the Vision Advisory Committee, the City of Milwaukie's vision for 2040 is:

In 2040, Milwaukie is a flourishing city that is entirely equitable, delightfully livable, and completely sustainable. It is a safe and welcoming community whose residents enjoy secure and meaningful work, a comprehensive educational system, and affordable housing. A complete network of sidewalks, bike lanes, and paths along with well-maintained streets and a robust transit system connect our neighborhood centers. Art and creativity are woven into the fabric of the city.

Milwaukie's neighborhoods are the centers of daily life, with each containing amenities and community-minded local businesses that meet residents' needs. Our industrial areas are magnets for innovation, and models for environmentally-sensitive manufacturing and high wage jobs. Our residents can easily access the training and education needed to win those jobs.

Milwaukie nurtures a verdant canopy of beneficial trees, promotes sustainable development, and is a net-zero energy city. The Willamette River, Johnson Creek, and Kellogg Creek are free flowing, and accessible. Their ecosystems are protected by a robust stormwater treatment system and enhanced by appropriate riparian vegetation. Milwaukie is a resilient community, adaptive to the realities of a changing climate, and prepared for emergencies, such as the Cascadia Event.

Milwaukie's government is transparent and accessible, and is committed to promoting tolerance and inclusion and eliminating disparities. It strongly encourages engagement and participation by all and nurtures a deep sense of community through celebrations and collective action. Residents have the resources necessary to access the help they need. In this great city, we strive to reach our full potential in the areas of education, environmental stewardship, commerce, culture, and recreation; and are proud to call it home.



MILWAUKIE ALL ABOARD

**July 25 Planning
Commission Review Draft**

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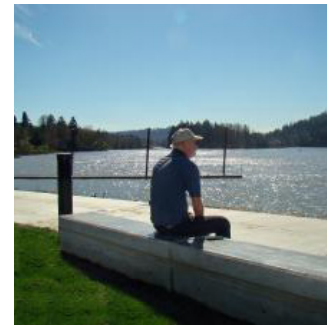
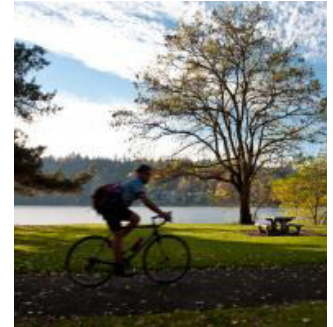
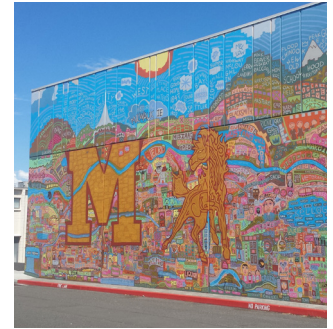


INTRODUCTION

Along with the rest of the Portland Region, the City of Milwaukie is growing. By 2040, Milwaukie’s population is expected to increase by 12 percent—an additional 2,500 new residents. While growth can be a positive, it also means change. The challenge—and opportunity—is to create strategies to accommodate change while preserving community assets like Milwaukie’s small town character, rivers, creeks, parks, schools, thriving local businesses and public spaces. The City of Milwaukie is committed to managing growth in a planned and cost-effective way to retain and enhance those Milwaukie attributes that community members value.

In 2016, the City of Milwaukie launched a community-wide engagement process to develop a Vision and Action Plan. The intent of this Vision and Action Plan is twofold: to describe what Milwaukie residents, business owners and employees want the community to be like in the year 2040, and to help guide investments in the years to come. Working within the framework of sustainable community planning, the Vision and Action Plan uses a “quadruple bottom line” approach to identify strategies and priorities that manage growth in a considerate, equitable and cost-effective way. The quadruple bottom line refers to maximizing results for every dollar spent for community, environment, economy and culture. The focus is on City services in collaboration with partner service providers such as North Milwaukie Parks and Recreation District and North Clackamas School District. The results of the process also will help inform the update of the Comprehensive Plan, the City’s primary long-range physical planning document.

To guide the process, a citizen-based Vision Advisory Committee (VAC) was formed and made up of volunteer community members. Over 30 applications were submitted for 15 positions. Committee representation was diverse in terms of age, interests and background, and neighborhood representation. Supported with community feedback, the VAC was instrumental in helping shape the topics and themes in the vision and developing action items, metrics and partners.



The results in this document reflect significant community outreach that occurred over the course of a year. A thousand community members were engaged through various events and activities. A Youth Vision Action Team, made up of four Milwaukie High School students, helped extend the impact of these efforts. This included:

- 15 Summer Fairs and Events
- 20 Stakeholder Interviews
- 18 Community Conversations in Fall 2016
- 4 Web-Based Surveys
- 2 Town Halls
- 3 Place it! Workshops with Urban Designer James Rojas
- 7 Vision Advisory Committee meetings
- 5 Steering Committee/ Department Leadership meetings
- 10 Community Conversations in Spring 2017

Quadruple Bottom Line

Creating strategies that frame a sustainable vision and manage growth in a considerate, equitable and cost-effective way ensures that Milwaukie will continue to be a healthy, thriving community for generations to come. Using a quadruple bottom line approach to guide decision-making fosters innovative thinking about how the Milwaukie community can be improved to achieve multiple objectives and provide the greatest benefits for People, Place, Planet and Prosperity. The Vision and Action Plan applies this approach to frame the development of action items and identify priorities.



Development Process

Based on community guidance, Vision Advisory Committee members worked closely with staff and the consulting team to develop (3) three major goal area statements for each of the (4) elements of the quadruple bottom line (People, Place, Planet and Prosperity) for a total of 12 goals. From these goals, VAC members generated a list of 6-10 action items to help implement that goal. This work was based upon the extensive feedback from web-based surveys, community conversations, Town Hall events and Vision Advisory Committee deliberations. A matrix of all these action items, organized by goal within the quadruple bottom line framework, can be found in Appendix A. The matrix in Appendix A also includes implementing partners and agencies, as well as potential metrics for evaluation over time.



Intended use of document

The Vision and Action Plan is intended to serve as a resource of near-term community priorities that was established through the visioning process. The vision and action plan process informed the City Council’s biennial goal setting process. Going forward, the City Council, City Manager and Department Heads will utilize the Action Plan to develop and expand programs and policies that help meet the identified Vision for Milwaukie in 2040. Future updates are expected to be completed in conjunction with annual citizen surveys, biennial updates to the City Council’s goal setting process and should draw upon the complete set of leading Goals and Actions included in Appendix A.

2017-2018 Council Goal Setting

In April 2017, the City Council held a retreat to establish its Council goals for the 2017-2018 biennium. Working from drafts of the Vision Statement and Action Plan at that time, the Council established three goals for 2017-2018. Aspects of all three goals- improving housing affordability, completing a climate action plan, and finishing development of Milwaukie Bay Park- have been frequently mentioned by Milwaukie community members over the past year. Accordingly, these three Council Goals are included with the Vision and Action Plan “super action” items in the Action Plan that follows.

VISION

Based on feedback from the community and the Vision Advisory Committee, the City of Milwaukie's vision for 2040 is:

In 2040, Milwaukie is a flourishing city that is entirely equitable, delightfully livable, and completely sustainable. It is a safe and welcoming community whose residents enjoy secure and meaningful work, a comprehensive educational system, and affordable housing. A complete network of sidewalks, bike lanes, and paths along with well-maintained streets and a robust transit system connect our neighborhood centers. Art and creativity are woven into the fabric of the city.

Milwaukie's neighborhoods are the centers of daily life, with each containing amenities and community-minded local businesses that meet residents' needs. Our industrial areas are magnets for innovation, and models for environmentally-sensitive manufacturing and high wage jobs. Our residents can easily access the training and education needed to win those jobs.

Milwaukie nurtures a verdant canopy of beneficial trees, promotes sustainable development, and is a net-zero energy city. The Willamette River, Johnson Creek, and Kellogg Creek are free flowing, and accessible. Their ecosystems are protected by a robust stormwater treatment system and enhanced by appropriate riparian vegetation. Milwaukie is a resilient community, adaptive to the realities of a changing climate, and prepared for emergencies, such as the Cascadia Event.

Milwaukie's government is transparent and accessible, and is committed to promoting tolerance and inclusion and eliminating disparities. It strongly encourages engagement and participation by all and nurtures a deep sense of community through celebrations and collective action. Residents have the resources necessary to access the help they need. In this great city, we strive to reach our full potential in the areas of education, environmental stewardship, commerce, culture, and recreation; and are proud to call it home.

GOAL STATEMENTS



People: Arts, Community, Education, Happiness, Health, Innovation, Safety

1

Milwaukie is an inclusive community of diverse people from a variety of backgrounds that honors our differences and shared similarities. We are engaged and come together in many ways through various events and community gathering places, where we can celebrate our interests and passions.

2

Milwaukie is a diverse community that provides opportunities and support for all of its residents through a variety of resources and enriching activities. We encourage and support a vibrant local economy that contributes to a high quality of life where residents can live, work, learn, and play.

3

The City of Milwaukie is an open portal where information is readily available, easily exchanged, and responsive. Residents feel empowered and have opportunities to engage and share ideas.



Place: Housing, Infrastructure, Mobility, Neighborhoods, Parks

1

Milwaukie has a complete, clean and attractive network of sidewalks, bike lanes and paths that enable accessibility, mobility, and safety for all. Streets are tree-lined, well-lit and designed to promote a healthy and active lifestyle. There is a seamless transition between walking, biking, and transit to key amenities and neighborhood centers.

2

Milwaukie invests in housing options that provide affordability, high quality development and good design, promoting quality living environments. It maintains the small neighborhood feel through creative use of space with housing options that embrace community inclusion and promote stability.

3

Milwaukie collaborates with community partners to create and preserve spaces to inspire the public to be engaged with the city's past and future. Art and innovation is weaved into the fabric of the city.



Planet: Ecosystems, Energy, Environment, Resilience

- 1 The entire city nurtures a connected canopy of trees planted and stewarded by its residents. Smart and focused development honors and prioritizes life-sustaining natural resources.
- 2 Milwaukie has free flowing, accessible, pristine waterways that are protected by a robust stormwater treatment system. The Willamette waterfront is easily accessed by the public and offers a wide variety of activities and events that can be enjoyed by all.
- 3 Milwaukie is a model city that produces more energy through renewable sources than it uses. It is a prepared and resilient community, adaptive to the realities of a changing climate.



Prosperity: Business, Entrepreneurship, Income, Innovation, Investment, Jobs

- 1 Milwaukie offers numerous pathways to prosperity through an excellent education system and training programs that are connected to local business. Residents of all ages and backgrounds feel supported to pursue and attain success in our local community.
- 2 Milwaukie's neighborhoods are the center of daily life, with amenities and community-minded local businesses that meet the daily needs of residents. They form a network of unique, interconnected local hubs that together make Milwaukie the livable, equitable, and sustainable community that it is.
- 3 Downtown Milwaukie is a vibrant destination for both residents and visitors from throughout the region. Our industrial areas provide a high density of living-wage jobs across a number of different industries. The City is nimble and responsive to the needs of residents and businesses, with programs and policies that are financially sound, encourage job creation, and help support a strong and resilient local economy.

SUPERACTIONS

Building from a comprehensive action matrix, the community, City department heads and partner agencies identified priority action items under each goal statement. These priority actions were elevated into five Superactions (numbering does not indicate prioritization). These Superactions are cross-cutting, unifying 2017 City Council Goals with leading 2040 Vision and Action Plan Items across the Quadruple Bottom Line framework.

1

Make Milwaukie a Model of Resiliency, Environmental Stewardship and Disaster-Preparedness

2

Continually Improve our Transportation System so that it Provides Safety and Connectivity for All Users

3

Create Complete Neighborhoods that Offer a Range of Housing Types and Amenities and Enhance Local Identity and Character

4

Support Local Businesses and Entrepreneurship through Training, Programs and Partnerships

5

Cultivate a Sense of Community, Culture, and Belonging by Encouraging Public Involvement, Diversity, Equity, and Inclusion

The following tables present action items to support the implementation of the Superaction. These are recommended by the Vision Advisory Committee and/or prioritized by the community in the May 2017 survey, in which 240 community members participated by indicating their first and second top priorities among the 12 goal statements across People, Place, Planet and Prosperity. The status of these actions are defined as follows:

- **Future:** Actions to implement the 2040 vision that were recommended for near term implementation by the Vision Advisory Committee. They may be taken up during the City Council's biannual goal-setting process or initiated earlier as opportunities arise. These items are not currently funded.
- **Underway:** Actions that are currently underway within City departments but need more amplification and/or additional resources.
- **Initiate w/ Comprehensive Plan:** Actions that may be initiated with the City's Comprehensive Plan Update beginning in 2017.
- **Complete:** Actions passed and funded by City Council in the time since the last review of the Action Plan.



1

Make Milwaukie a Model of Resiliency, Environmental Stewardship and Disaster-Preparedness

Matrix Reference	Associated Priority Actions (Established by Town Halls, Survey, Council)	Status
Planet 1.1	Implement city programs, incentives and development code amendments that promote sustainable development and help to better integrate the built environment and natural environment	Initiate with Comprehensive Plan
Planet 1.2	Create a citywide composting program for residents and businesses	Complete
Planet 1.4	Develop a strong tree ordinance that incentivizes tree protection, has equitable tree replacement standards, and provides adequate flexibility for property owners	Initiate with Comprehensive Plan
Planet 2.1	Develop a Natural Resource Plan and examine funding mechanisms for the restoration of Kellogg and Johnson Creeks and the removal of the Kellogg Dam	Initiate with Comprehensive Plan
Planet 2.2	Implement a plan and funding strategy for stormwater improvements that focuses on natural stormwater management and ensures that by 2040 all stormwater is treated before it is discharged into our creeks and river	Initiate with Comprehensive Plan
Planet 3.1	Encourage energy and water efficiency and the use of renewable sources by offering rebates, incentives, and permit fee reduction or waivers	Future
Planet 3.2	Develop a Climate Action and Energy Plan that aims to reduce the impacts of city activities on climate change and by 2040 make Milwaukie a Net-Zero energy community that produces more energy than it consumes	Underway; 2017-18 Council Goal
Planet 3.5	Ensure that the City's infrastructure and facilities can reasonably withstand natural or man-made disasters and that the City can continue to provide services during an emergency event	Underway
Planet 3.7	Promote household and neighborhood-level emergency preparedness by expanding the role and capacity of Community Emergency Response Teams (CERTs)	Underway

2

Continually Improve our Transportation System so that it Provides Safety and Connectivity for All Users

Matrix Reference	Associated Priority Actions (Established by Town Halls, Survey, Council)	Status
Place 1.1	Improve walkability and bikeability within the network by creating dedicated bike paths and walking trails that connect transit, neighborhood business hubs and public spaces, including Milwaukie Bay Park	Underway
Place 1.2	Utilize the Safe Access for Everyone (SAFE) Program to fill in sidewalk gaps and construct Americans with Disabilities Act (ADA) improvements in support of the Safe Routes to School Program and encourage alternative construction materials for permeability and aesthetics	Underway
Place 1.4	Research and consider developing a Vision Zero program that seeks to eliminate traffic deaths and life-changing injuries on Milwaukie's streets	Future
Place 1.6	Implement road paving and funding strategies that improve road maintenance in Milwaukie	Underway
Place 1.9	Research and examine funding strategies for innovative local transit options that complement the regional transit network and help connect residents and employees to local amenities, employment areas and neighborhoods throughout the city	Future

3

Create Complete Neighborhoods that Offer a Range of Housing Types and Amenities and Enhance Local Identity and Character

Matrix Reference	Associated Priority Actions (Established by Town Halls, Survey, Council)	Status
Prosperity 2.1	Identify and support the development of neighborhood economic hubs that are walkable and provide amenities and commercial services for neighborhood residents	Initiate with Comprehensive Plan
Prosperity 2.2	Incentivize development of opportunity sites and other vacant and underutilized properties that can help meet the needs of neighborhood residents	Underway
Prosperity 2.3	Examine ways to partner with local vendors to provide access to healthy, fresh food throughout Milwaukie's neighborhoods	Future
Place 2.1	Aim to provide improved housing affordability and stability for all City residents, with a variety of housing types, price ranges, and subsidized units available in all neighborhoods	Underway; 2017-18 Council Goal
Place 2.2	Streamline permitting and examine ways to adjust system development charges to encourage creative uses of space such as Accessory Dwelling Units, Tiny Homes, and Cottage Clusters	Future
Place 2.5	Create neighborhood plans that define neighborhood character, identify community needs and priorities, and develop strategies for better integrating infill housing into neighborhoods	Initiate with Comprehensive Plan
Place 2.7	Update the Development Code to allow more "missing middle" housing types (duplexes, triplexes and cottage clusters, tiny houses) in established neighborhoods, and permit mixed-use buildings in neighborhood hubs	Initiate with Comprehensive Plan
Place 3.1	Assess our parks and green spaces to ensure that they are safe, green and clean, with amenities like restrooms, seating areas, play structures, walking paths, parking and covered recreational facilities	Initiate with Comprehensive Plan

4

Support Local Businesses and Entrepreneurship through Training, Programs and Partnerships

Matrix Reference	Associated Priority Actions (Established by Town Halls, Survey, Council)	Status
People 2.1	Promote small business development through mentoring, incubation and entrepreneurial programs as well as loans and grants distributed across Milwaukie's neighborhoods	Underway
People 2.2	Encourage businesses that provide family-wage jobs	Underway
People 3.1	Expand the role of the Ledding Library as an integral community resource center and examine the creation of a city concierge position that provides information about programs and resources, services offered by partner agencies, and local employment opportunities and application assistance	Future
Prosperity 1.1	Partner with local schools and businesses to create an internship and career development program that highlights Milwaukie industries and helps students develop skills that meet the needs of Milwaukie businesses	Future
Prosperity 1.2	Market the city as a center for business incubation, and target businesses that are a good match for Milwaukie's established and emerging industry clusters and business space	Underway
Prosperity 1.3	Create incentives for Milwaukie businesses that hire local residents and provide job training and continuing education opportunities for their employees	Future
Prosperity 3.1	Support and retain existing small businesses in our downtown and other business districts and attract new businesses that contribute to an open, inviting, and diverse atmosphere	Underway

5

Cultivate a Sense of Community, Culture, and Belonging by Encouraging Public Involvement, Diversity, Equity, and Inclusion

Matrix Reference	Associated Priority Actions (Established by Town Halls, Survey, Council)	Status
People 1.1	Continue to support neighborhood block parties, tool libraries, book exchanges, community gardens, “barn-raising” type activities and other neighborhood events and resources that serve to bring residents together	Underway
People 1.2	Continue to provide city staff support and funding for events and celebrations that showcase the community, such as the Sunday Parkways, Umbrella Parade, Earth Day/Arbor Day, and the NDA summer concert series	Underway
People 1.3	Develop additional Police Department programs that help build relationships with the community	Future
People 2.4	Expand the City’s volunteer program to organize and promote community volunteer events, projects and other opportunities, connecting volunteers and resources with those in need	Underway
People 3.2	Update the City’s comprehensive city-wide communications strategy to encourage community engagement and employ a variety of methods for exchanging information, from large Town hall meetings to emerging online tools	Initiate with Comprehensive Plan
People 3.6	Increase the number of City informational materials translated into Spanish and other languages	Underway
Prosperity 3.4	Develop a new public plaza in the south downtown area that can be used for year-round events and enhance the Milwaukie Farmer’s Market	Future
Place 3.2	Complete Phase 3 of Milwaukie Bay Park to create spaces for community gathering and the arts and promote the park as a community destination with year-round programming	Underway; 2017-18 Council Goal
Place 3.4	Make improvements to Milwaukie Bay Park in a manner that celebrates the river and increases opportunities for waterfront events and access for boats and other water-related recreational activities	Underway; 2017-18 Council Goal

APPENDICES

Appendix A. Vision and Action Plan Matrix

Appendix B. Town Hall Reports

Appendix C. Community Conversations Reports

Appendix D. Final Survey Results (May 2017)

Appendix E. List of Acronyms



People Theme 1

Goal Area Statement	Category	Goal #	Action	Status	Lead City Department(s)	Potential Partners	Metric
<p><i>Milwaukie is an inclusive community of diverse people from a variety of backgrounds that honor our differences and shared similarities. We are engaged and come together in many ways through various events and community gathering places, where we can celebrate our interests and passions.</i></p>	Events and Sense of Community	1.1	Continue to support neighborhood block parties, tool libraries, book exchanges, community gardens, “barn-raising” type activities and other neighborhood events and resources that serve to bring residents together	Underway	CMO	Neighborhood District Associations (NDA’s), Milwaukie Parks and Recreation Board	# of events, transactions or exchanges
		1.2	Continue to provide city staff support and funding for events and celebrations that showcase the community, such as the Umbrella Parade, Earth Day/Arbor Day, Sunday Parkways, and the NDA summer concert series	Underway	CMO	Downtown Milwaukie Business Association (DMBA), Clackamas County Arts Alliance, NDA’s, artMOB, Regional Arts and Culture Council, Milwaukie Rotary Club	# of events held # of staff support hours
		1.3	Develop additional Police Department programs that help build relationships with the community	Future	Police	Police Department, NDAs, NCSD, Waldorf School, Churches, Ledding Library	Police satisfaction survey results.
		1.4	Continue efforts to engage children, teenagers and seniors in community events	Underway	CMO, Planning, Library	NDA’s, MFS, Milwaukie Senior Center, North Clackamas School District (NCSD), Waldorf School, AARP, Age Friendly Coalition	# of programs and/or participants
	Diversity, Equity and Inclusion	1.5	Develop City procurement practices that prioritize regional vendors and products and businesses owned by women, veterans, people of color, those with disabilities, and the LGBTQ community	Future	Finance	State OMWESB, Metro	% of OMWESB contracts Distance (# of miles) between vendors and City
		1.6	Encourage and financially support cultural events that reflect and celebrate the diversity of the community	Future	CMO	Latino network, Metropolitan Family Services NW (MFS), CAUSA, Clackamas County Equity, Diversity and Inclusion Council, Metro	# of events per year categorized as “Cultural Event” (Add to Temporary Event Permit application form)
		1.7	Form a committee dedicated to equity, diversity, and inclusion that evaluates City decisions and actions based on City standards and reviews programs and policies for protected classes	Initiate with Comprehensive Plan	CMO	MFS, Metro	# of committee meetings # of participants from minority groups



People Theme 2

Goal Area Statement	Category	Goal #	Action	Status	Lead City Department(s)	Potential Partners	Metric
<p><i>Milwaukie is a diverse community that provides opportunities and support for all of its residents through a variety of resources and enriching activities. We encourage and support a vibrant local economy that contributes to a high quality of life where residents can live, work, learn, and play</i></p>	Business Support and a Vibrant Local Economy	2.1	Promote small business development through mentoring, incubation and entrepreneurial programs as well as loans and grants distributed across Milwaukie's neighborhoods	Underway	Economic Development, CMO	Clackamas Workforce Partnership, local credit unions, NDA's, Business Oregon, Clackamas Community College (CCC) Small Business Development, Mercy Corps Northwest, Ascent Funding, Microenterprise Services of Oregon, Hispanic Chamber of Commerce	# of entrepreneurs funded
		2.2	Encourage businesses that provide family-wage jobs	Underway	Economic Development	DMBA, large industrial employers, Chamber of Commerce, Clackamas County Economic Development	% of City firms that pay family wage jobs
		2.3	Encourage and promote shared co-working spaces for small and sole proprietorship local businesses	Future	Economic Development	DMBA, large industrial building owners, Chamber of Commerce	SF of co-working spaces in City
	Public Participation and Community Involvement	2.4	Expand the City's volunteer program to organize and promote community volunteer events, projects and other opportunities, connecting volunteers and resources with those in need.	Underway	CMO	Hands-on Portland, Ledding Library, NCPRD, Historical Society, Habitat for Humanity, NDA's, Rotary Club, artMOB	Volunteer hours
		2.5	Provide a welcome guide for Milwaukie newcomers that lists City resources, community-based organizations and activities and volunteer opportunities	Future	CMO, Library	Chamber of Commerce, NCSD, NDA's, NCPRD, Ledding Library, MFS, Rotary Club, Wichita Center, Realtors	# of welcome guides distributed
		2.6	Create a Youth Advisory Council that serves to educate and provide input on issues affecting Milwaukie's youth	Future	CMO	NCSD, NCPRD, other local schools	# of meetings and participants



People Theme 3

Goal Area Statement	Category	Goal #	Actions	Status	Lead City Department(s)	Potential Partners	Metric
<p><i>The City of Milwaukie is an open portal where information is readily available, easily exchanged, and responsive. Residents feel empowered and have opportunities to engage and share ideas.</i></p>	Accessible and Transparent Information	3.1	Expand the role of the Ledding Library as an integral community resource center and examine the creation of a city concierge position that provides information about programs and resources, services offered by partner agencies, and local employment opportunities and application assistance	Future	Library	Ledding Library, NCS D, Waldorf School, Clackamas County, State of Oregon, Chamber of Commerce, Northwest Housing Alternatives (NHW A), Microenterprise Services of Oregon (MESO), IRCO	# of people served
		3.2	Update the City's comprehensive city-wide communications strategy to encourage community engagement and employ a variety of methods for exchanging information, from large Town Hall meetings to emerging online tools	Initiate with Comprehensive Plan	CMO, Planning	NDA's, Waldorf School, NCS D, Willamette Falls Media Center, IAP2, Metro, social media	# of community meetings held # FB/Twitter/IG followers
		3.3	Continually improve the City's website to be transparent, simple, user-friendly and interactive, with information easy to obtain	Underway	CMO, ISD	Social media platforms	Website traffic metrics Community survey results on website quality.
		3.4	Place information kiosks and booths in parks, public spaces and neighborhood centers throughout the City.	Future	CMO	NCPRD, NDA's, Farmer's Market, Ledding Library, Clackamas County, Wichita Center	# of kiosks
	Engagement Opportunities for Everyone	3.5	Provide childcare services and activities for children at City meetings and events	Future	CMO, Planning	MFS, Wichita Center, Waldorf School, NCS D	# of City events with childcare
		3.6	Increase the number of City informational materials translated into Spanish and other languages	Underway	CMO, Community Development, Public Works, Library	Hispanic Metropolitan Chamber, Wichita Center, International Refugee Center of Oregon (IRCO)	# of pages translated
		3.7	Ensure continued City government transparency and accessibility through an ongoing evaluation program, incorporated into the Citizen Involvement Section of the Comprehensive Plan.	Initiate with Comprehensive Plan	CMO, Planning	[City], NDA's	Community survey results (% rating good or very good)



Place Theme 1

Goal Area Statement	Category	Goal #	Actions	Status	Lead City Department(s)	Potential Partners	Metric
<p><i>Milwaukie has a complete, clean and attractive network of sidewalks, bike lanes and paths that enable accessibility, mobility, and safety for all. Streets are tree-lined, well-lit and designed to promote a healthy and active lifestyle. There is a seamless transition between walking, biking, and transit to key amenities and neighborhood centers.</i></p>	Walkability, Bikeability, and Safety	1.1	Improve walkability and bikeability within the network by creating dedicated bike paths and walking trails that connect transit, neighborhood business hubs and public spaces, including Milwaukie Bay Park	Underway	Public Works (Streets), Engineering, CMO	Safe Routes to School partners, SAFE, Clackamas County, NCPRD, NDAs, Bike Loud, Better Block PDX, The Streets Trust, Oregon Walks, TriMet, ODOT, PSAC, PARB	Miles of bike paths and sidewalks % of b paths within ½ mile of identified hubs
		1.2	Utilize the Safe Access for Everyone (SAFE) Program to fill in sidewalk gaps and construct ADA improvements in support of the Safe Routes to School Program and encourage alternative construction materials for permeability and aesthetics	Underway	Engineering, Public Works (Streets)	ODOT, TriMet, Safe Routes to School partners, SAFE, Metro, NCSD, NDA's, PSAC	% of sidewalk gaps closed # of students that walk or bike to school
		1.3	Make pedestrian and bicycle safety improvements along and across the 224 and 99E corridors and major arterials, such as separated paths, bridges and tunnels	Underway	Engineering, Public Works (Streets), Planning	ODOT, Oregon Walks, Clackamas County, NCPRD, NDAs, Bike Loud, Better Block PDX, The Streets Trust, Oregon Walks, TriMet, ODOT, PSAC	# of designated crossings of 99/224 Linear feet of bike lanes or multi-use paths added
		1.4	Research and consider developing a Vision Zero program that seeks to eliminate traffic deaths and life-changing injuries on Milwaukie's streets	Future	Engineering, Public Works (Streets)	TriMet, ODOT, Metro, The Streets Trust, Oregon Walks, NDAs, Portland, Clackamas County, Public Safety Advisory Committee (PSAC)	# of serious accidents and traffic fatalities
		1.5	Develop walking and cycling tour maps connecting points of interest such as parks, plazas, art installations and historical markers.	Underway	CMO, Engineering, Planning	artMOB, NDAs, Milwaukie Historical Society Museum, NCPRD, Bike Milwaukie, Metro	# of maps
	Complete Streets that are Well Maintained	1.6	Implement road paving and funding strategies that improve road maintenance in Milwaukie	Underway	Engineering, Public Works (Streets)	PSAC, Urban Renewal Program, Street Surface Management Program (SSMP), Clackamas County	Dollars spent on SAFE/SSMP improvements Miles of roads paved
		1.7	Establish a street tree planting program and provide opportunities for residents to purchase and maintain appropriate trees on public rights of way and required planter strips	Future	Engineering, Public Works (Streets), CMO	Milwaukie Tree Board, Friends of Trees, NCPRD, Audubon Society, Columbia Land Trust	# of trees planted
		1.8	Incorporate "Dark Sky" friendly street lighting to minimize light pollution	Future	Public Works (Streets)	Oregon Planners Network, Dark Sky Alliance, Portland General Electric (PGE), City of Portland (PBOT)	% of street lights that are dark skies compliant
		1.9	Research and examine funding strategies for innovative local transit options that complement the regional transit network and help connect residents and employees to local amenities, employment areas, and neighborhoods throughout the city	Initiate with Comprehensive Plan	Planning, Engineering	TriMet, Clackamas County, large employers, large apartment complexes	Cost per mile for service # of partners interested



Place Theme 2

Goal Area Statement	Category	Goal #	Actions	Status	Lead City Department(s)	Potential Partners	Metric
<p><i>Milwaukie invests in housing options that provide affordability, high quality development and good design, promoting quality living environments. It maintains the small neighborhood feel through creative use of space with housing options that embrace community inclusion and promote stability.</i></p>	<p>Housing Affordability Housing Diversity, Quality Design, and Neighborhood Compatibility</p>	2.1	Aim to provide improved housing affordability and stability for all City residents, with a variety of housing types, price ranges, and subsidized units available in all neighborhoods	Underway (2017-2018 Council Goal)	Planning, Community Development	Clackamas County, Habitat for Humanity, NHPA, Portland Housing Center, Portland for Everyone, State, Oregon Opportunity Network, Clackamas Housing Authority, Metro, Catholic Charities, Reach CDC, Network for Oregon Affordable Housing, AARP, Neighborhood Economic Development Corporation	# of units at 0-120% AMI built per neighborhood % residents that are housing cost burdened
		2.2	Streamline permitting and examine ways to adjust system development charges to encourage creative uses of space such as Accessory Dwelling Units, Tiny Homes, and Cottage Clusters	Future	Building, Planning, Engineering	Oregon Planners Network, Department of Land Conservation and Development (DLCD), Metro, Portland for Everyone, OON	# ADUs, tiny homes and college clusters
		2.3	Create city programs that encourage more affordable housing, such as land banking and the collection of a construction excise tax, and continuously evaluate their impacts on housing costs	Underway (2017-2018 Council Goal)	Planning, Community Development	League of Oregon Cities, Metro, Clackamas County	CET funds created, homes underwritten
		2.4	Annex land within the City’s Urban Growth Management Area land that helps meet the Milwaukie’s housing and employment needs	Underway	Planning	Clackamas County, Metro, State of Oregon, DLCD	Acres annexed, # of homes and businesses
		2.5	Create neighborhood plans that define neighborhood character, identify community needs and priorities, and develop strategies for better integrating infill housing into neighborhoods	Initiate with Comprehensive Plan	Planning	NDA’s, Creative architects and planning and design consultants, Milwaukie residents, Milwaukie homeowners, Milwaukie renters, 50+ housing; LGBTQ housing; accessibility for disabled persons	# neighborhood or district plans
		2.6	Ensure quality housing design standards that include energy efficiency, shared greenspace and community garden development	Initiate with Comprehensive Plan	Planning	Model planning and building code agencies, Oregon Opportunity Network (OON), Oregon Housing and Community Services (OHCS)	# energy efficient homes, # of community gardens
		2.7	Update the Development Code to allow more “missing middle” housing types (duplexes, triplexes and cottage clusters, tiny houses) in established neighborhoods, and permit mixed-use buildings in neighborhood hubs	Initiate with Comprehensive Plan	Planning, Community Development	NDA’s, small local businesses	# of missing middle housing types, mixed use buildings in neighborhood hubs
		2.8	Update the City’s historic resources inventory and develop local incentives for preservation and restoration	Initiate with Comprehensive Plan	Planning, Community Development	Milwaukie Historical Society Museum, State Historic Preservation Office (SHPO), Clackamas County	# of resources added, protected, and lost
		2.9	Support the development of more senior, veterans and special needs housing, including Aging in Place Villages and transitional and safe-house communities	Initiate with Comprehensive Plan	Planning, Community Development	AARP, Clackamas County, Milwaukie Center, Habitat for Humanity, NW Housing Alternatives, Rebuilding Center, Restore, Age Friendly Coalition, NOAA, OHCS	# of senior and special needs housing



Place Theme 3

Goal Area Statement	Category	Goal #	Actions	Status	Lead City Department(s)	Potential Partners	Metric
<p><i>Milwaukie collaborates with community partners to create and preserve spaces to inspire the public to be engaged with the city's past and future. Art and innovation is weaved into the fabric of the city.</i></p>	Parks and Gathering Spaces, including Milwaukie Bay Park	3.1	Improve parks and green spaces that are safe, green and clean, with amenities like restrooms, seating areas, play structures, walking paths, parking and indoor recreational facilities	Initiate with Comprehensive Plan	CMO (Parks), Planning	NDA's, NCPRD, PARB	# of parks built out to their master plan Acres of parks/places per neighborhood
		3.2	Complete Phase 3 of Milwaukie Bay Park to create spaces for community gathering and the arts and promote the park as a community destination with year-round programming	Underway (2017-2018 Council Goal)	CMO	PARB, NCSD, Landscape architects, NCPRD	# of programs
		3.3	Create a program to fund the development of community gathering places and improvements to neighborhood plazas and parks that offer diverse programming (education, sports, arts, history) in public spaces.	Future	CMO, Community Development	Business Community, Large Employers, Parks Committee, NDA's, Milwaukie High School, Waldorf School, Clackamas Arts Alliance, Oregon Arts Commission, Milwaukie Academy of the Arts, Confederated Tribe of the Grand Ronde, Native American Youth and Family Center (NAYA), NCPRD	# of gathering places in each neighborhood
		3.4	Make improvements to Milwaukie Bay Park in a manner that celebrates the river and increases opportunities for waterfront events and access for non-motorized boats and other water-related recreational activities	Underway (2017-2018 Council Goal)	CMO, Engineering, Planning	PARB, NCPRD, Clackamas County, NDA's, OMB	Periodic one day tallies of park visitors and motorized and non-motorized boat launches
	Milwaukie Supports the Arts	3.5	Encourage partnerships between local businesses and artists to provide opportunities for art installations	Underway	Economic Development, CMO (artMOB liaison)	artMOB, Chamber of Commerce, DMBA, CCAA, RACC	# of art installations in area businesses
		3.6	Engage the community when creating programs and spaces for public art	Future	CMO	Performing arts organizations, music and dance schools, Oregon Bluegrass Association, Old Time Fiddlers, Chamber Music NW, CCAA, artMOB, MAA, NCSD, RACC	# of community-based processes around public art
		3.7	Expand art programming throughout the City of Milwaukie through grants, scholarships and funding	Future	CMO	artMOB, Business Community, NCSD, RACC, CCAA	# of dollar amounts toward arts
		3.8	Support space acquisition for open art studios that pool resources and promote local artists	Future	CMO, Economic Development	artMOB, CCAA, RACC, DMBA	# of spaces Dollars allocated for acquisition



Planet Theme 1

Goal Area Statement	Category	Goal #	Actions	Status	Lead City Department(s)	Potential Partners	Metric
<i>The entire city nurtures a connected canopy of trees planted and stewarded by its residents. Smart and focused development honors and prioritizes life-sustaining natural resources.</i>	Sustainable Development and Environmental Stewardship	1.1	Implement city programs, incentives and development code amendments that promote sustainable development and help to better integrate the built environment and natural environment	Initiate with Comprehensive Plan	Planning, CMO	Planning Commission, Tree Board, NDA leadership, PGE	% open space in development projects #/% trees preserved # and \$ amount of incentives awarded
		1.2	Create a citywide composting program for residents and businesses	Complete	City Manager's Office/Finance	Metro, local garbage franchises, NDA's	# and % of households and businesses that compost
		1.3	Develop educational programs for city residents and businesses that focus on native vegetation, landscaping basics, and the economic and environmental value provided by native trees and plants	Future	Public Works (Storm), Planning, CMO	Tree Board, PARB, Friends of Trees, local arborists and permaculturists, Audubon Society, Columbia Land Trust	# of classes offered # of residents served # of properties participating
	Trees, Garden and Vegetation	1.4	Develop a strong tree ordinance that incentivizes tree protection, has equitable tree replacement standards, and provides adequate flexibility for property owners	Initiate with Comprehensive Plan	Planning, CMO	Tree Board, Planning Commission, Friends of Trees, UO/OSU	% of trees over 6" DBH preserved in subdivision and partition applications
		1.5	Create a robust urban forestry plan that inventories the city's tree canopy and vegetation and implements a community-driven tree planting program	Initiate with Comprehensive Plan	Planning, Engineering, CMO	Tree Board, UO/OSU, NCPRD, Friends of Trees, Tree City USA, Watershed Council, NCSD and other local schools	Tree canopy percentage (initial and periodic updates) # of trees planted
		1.6	Support the creation of more community gardens and urban orchards across all neighborhoods	Future	CMO, Planning	PARB, Tree Board, NDA's, Milwaukie Community Gardens, NCPRD, Portland Fruit Tree Program, Schoolyard Farms, Clackamas County Gleaners, NCSD	#/sf of community gardens and urban orchards created
		1.7	Expand the Backyard Habitat program and pursue other ecosystem programs that support local wildlife.	Underway	CMO	Backyard Habitats, Audubon Society, Columbia Land Trust	# of certified homes



Planet Theme 2

Goal Area Statement	Category	Goal #	Actions	Status	Lead City Department(s)	Potential Partners	Metric
<p><i>Milwaukie has free flowing, accessible, pristine waterways that are protected by a robust stormwater treatment system. Stewardship over the Willamette waterfront ensures that this natural resource can be enjoyed for generations.</i></p>	Protect the Willamette and our Local Creeks	2.1	Develop a Natural Resource Plan and examine funding mechanisms for the restoration of Kellogg and Johnson Creeks and the removal of the Kellogg Dam	Initiate with Comprehensive Plan	Planning, Engineering, Public Works (Storm), CMO	PSU Engineering program, Johnson Creek Watershed Council, Metro, Clackamas County, NCU Watershed Council, state and federal agencies, NCSD, NCPRD	Development and adoption of plan # of restoration/clean-up events
		2.2	Implement a plan and funding strategy for stormwater improvements that focuses on natural stormwater management and ensures that by 2040 all stormwater is treated before it is discharged into our creeks and river	Initiate with Comprehensive Plan	Public Works (Storm), Engineering	Clackamas County	MS4 Permit Effluent Concentrations (TSS, Nitrates, Lead, Zinc) # Outreach Events # Catch Basin Screenings # Street Sweeping Days # of bioswales
		2.3	Restore wetlands and riparian vegetation adjacent to our creeks and river	Underway	Public Works (Storm), CMO	Johnson Creek Watershed Council, North Clackamas Urban Watersheds Council, Wetlands Conservancy	SF of wetlands/riparian restored # of clean-up days
		2.4	Educate and address the impacts that local industries have on water and air quality	Underway	Public Works (Storm), Planning, CMO	DEQ, local businesses	# air and water quality monitoring stations Youth asthma cases (%)
		2.5	Encourage stewardship of our local creeks through educational programs and civic events such as clean-up days	Underway	Public Works (Storm), CMO	PARB, Tree Board, JC/NCU Watershed Councils, North Clackamas Schools, Waldorf School, NCPRD	# clean-up days # volunteers # educational events



Planet Theme 3

Goal Area Statement	Category	Goal #	Actions	Status	Lead City Department(s)	Potential Partners	Metric
<p><i>Milwaukie is a model city that produces more energy through renewable sources than it uses. It is a prepared and resilient community, adaptive to the realities of a changing climate.</i></p>	Energy and Conservation, including Adoption of a Climate Action Plan	3.1	Encourage energy and water efficiency and the use of renewable sources by offering rebates, incentives, and permit fee reduction or waiver	Future	Finance, Planning	PGE, Metro, NW Natural	# rebates issued to City residents and businesses # fee reductions and waivers
		3.2	Develop a Climate Action and Energy Plan that aims to reduce the impacts of city activities on climate change and by 2040 make Milwaukie a Net- Zero energy community that produces more energy than it consumes	Underway (2017-2018 Council Goal)	CMO, Planning	TriMet, Metro, National Renewable Energy Laboratory, PGE, NW Natural	Net energy consumption/sf for homes and businesses (set benchmarks for every 5 years)
		3.3	Work with local property owners to solarize the city's industrial parks and other large buildings with the potential to provide large-scale renewable energy	Future	Economic Development, CMO	OSCEA, Energy Trust, Business owners, property owners, PGE, Metro, Solar Oregon	Kilowatt-hours of solar energy panels installed per year
		3.4	Create a program that focuses on ways individual households and businesses can reduce their carbon footprint	Future	CMO, Planning	PGE, NW Natural, Vancouver BC Green Block Initiative	# of households and businesses participating
	Milwaukie is a Resilient Community	3.5	Ensure that the City's infrastructure and facilities can reasonably withstand natural or man-made disasters and that the City can continue to provide services during an emergency event	Underway	Engineering, Planning, Building	Clackamas Fire, Metro, Clackamas County, Clackamas River Water, PGE, NW Natural	# of facilities/utilities that have been assessed and improved Miles/Feet of pipes with mechanical connections # of wells that have been hardened
		3.6	Develop programs that improve the resiliency of City residents and businesses in the event of a major disaster such as the Cascadia Earthquake	Initiate with Comprehensive Plan	Public Works, Engineering, Planning, CMO	PGE, NW Natural, Clackamas Fire, State of Oregon, FEMA, NDA's, CERT program	# of rooftop solar systems (with backup batteries)
		3.7	Promote household and neighborhood-level emergency preparedness by expanding the role and capacity of Community Emergency Response Teams (CERTs)	Underway	CMO, Police	NDA's, Clackamas Fire, CERT program	# of CERT graduates # of CERT trainings offered



Prosperity Theme 1

Goal Area Statement	Category	Goal #	Actions	Status	Lead City Department(s)	Potential Partners	Metric
<p><i>Milwaukie offers numerous pathways to prosperity through an excellent education system and training programs that are connected to local business. Residents of all ages and backgrounds feel supported to pursue and attain success in our local community.</i></p>	Partnerships, Education and Training	1.1	Partner with local schools and businesses to create an internship and career development program that highlights Milwaukie industries and helps students develop skills that meet the needs of Milwaukie businesses	Future	Economic Development, CMO	CCC, NCSO, Wichita Center, local businesses, North Clackamas Chamber of Commerce, NWFS, Clackamas Workforce Partnership	# of students and businesses involved in internship program
		1.2	Market the city as a center for business incubation, and target businesses that are a good match for Milwaukie's established and emerging industry clusters and business space	Underway	CMO, Economic Development	Chamber of Commerce, Industry Groups, local business incubators and accelerators, Clackamas County Economic Development, NWFS, Greater Portland Inc.	# of businesses added in Milwaukie's identified business clusters/strengths
		1.3	Create incentives for Milwaukie businesses that hire local residents and provide job training and continuing education opportunities for their employees	Future	Economic Development	Clackamas County, Clackamas Workforce Partnership, B Lab (B Corps), DMBA, Chamber of Commerce	\$ amount of incentives awarded # Milwaukie residents hired
		1.4	Host Career Connections Conventions that connect local residents to resources that enrich their professional lives	Future	Economic Development	CCC, Worksource Oregon, Clackamas Workforce Partnership, NCSO, Chamber of Commerce, NDA's, Recruiting Agencies, Rotary, Veterans Groups, Northwest Family Services (NWFS), Small Business Administration (SBA)	# of events, participants, vendors/partners, types of services offered



Prosperity Theme 2

Goal Area Statement	Category	Goal #	Actions	Status	Lead City Department(s)	Potential Partners	Metric
<p><i>Milwaukie's neighborhoods are the center of daily life, with amenities and community-minded local businesses that meet the daily needs of residents. They form a network of unique, interconnected local hubs that together make Milwaukie the livable, equitable, and sustainable community that it is.</i></p>	Complete Neighborhood Hubs	2.1	Identify and support the development of neighborhood economic hubs that are walkable and provide amenities and commercial services for neighborhood residents	Initiate with Comprehensive Plan	Planning, Economic Development	Metro and State Grant Programs	% of city housing units within 20-minute walkshed or bikeshed of neighborhood hub or other commercially zoned property
		2.2	Incentivize development of opportunity sites and other vacant and underutilized properties that can help meet the needs of neighborhood residents	Underway	Economic Development, Finance, Planning	Clackamas County Economic Development, Metro, ODOT, Clackamas County, NCPRD, private property owners	# of housing units developed SF of open space added
		2.3	Examine ways to partner with local vendors to provide access to healthy, fresh food throughout Milwaukie's neighborhoods	Future	Economic Development	Food businesses, brokers, developers, produce growers, farmers, property owners	% of homes within one mile of businesses selling fresh fruits and vegetables
		2.4	Allow increased residential density and commercial development in neighborhood hubs that respects neighborhood character and provides affordable housing, open/green space, a wide mix of uses, and neighborhood amenities	Initiate with Comprehensive Plan	Planning, Community Development	NDA's, developers	% of affordable units in project proposals SF of community space/plazas in proposals



Prosperity Theme 3

Goal Area Statement	Category	Goal #	Actions	Status	Lead City Department(s)	Potential Partners	Metric
<i>Downtown Milwaukie is a vibrant destination for both residents and visitors from throughout the region. Our industrial areas provide a high density of living-wage jobs across a number of different industries. The City is nimble and responsive to the needs of residents and businesses, with programs and policies that are financially sound, encourage job creation, and help support a strong and resilient local economy.</i>	City Programs and Marketing	3.1	Support and retain existing small businesses in our downtown and other business districts and attract new businesses that contribute to an open, inviting, and diverse atmosphere	Underway	Economic Development	DMBA, Chamber of Commerce	# of businesses helped by Economic Development Department
		3.2	Formalize a city economic development program that emphasizes job retention and supports development of locally owned businesses	Underway	Economic Development	B Lab (B Corps), DMBA, Chamber of Commerce, NWFS, Clackamas Workforce Partnership	# of Family wage jobs
		3.3	Create a “Buy Local” or “Best for Milwaukie” initiative that encourages residents to support local businesses	Future	Economic Development, CMO	Chamber of Commerce, DMBA, NDA's	# of participating businesses
	Downtown and Industrial Areas	3.4	Develop a new public plaza in the south downtown area that can be used for year-round events and enhance the Milwaukie Farmer’s Market	Future	CMO, Planning, Community Development	Celebrate Milwaukie Inc, TriMet, DMBA, private developers	# of events held in downtown plaza
		3.5	Work to increase the amount of housing in Downtown Milwaukie and other mixed use zones	Underway	Planning, Economic Development, Community Development	Developers	# of new housing units in mixed use zones
		3.6	Preserve and enhance the city’s manufacturing and industrial areas along Highway 99-E, Highway 224, and Johnson Creek Blvd	Underway	Economic Development, Community Development, Planning	Clackamas County, large industrial users, Chamber of Commerce	# of businesses and employees in industrial areas



Focus Areas



Hillsboro 2035 Focus Areas are comprised as follows:

- Goal Statement – describes desired future conditions within a focus area by 2035
- Community Initiatives – outline focused approaches to achieving goals
- Actions – specific steps that will be implemented to help achieve initiatives
- Community Partners – organizations that share implementation responsibility for actions

Core Areas

Hillsboro's updated Comprehensive Plan is organized around seven core topic areas. These core areas cover broad, interconnected subjects that help define and guide the future growth and development of Hillsboro. Each core area reflects community preferences identified in the [Hillsboro 2035 Community Plan](#) and fulfills elements of Oregon's [Statewide Planning Goals](#).



Bolstering Community Involvement

[Public Involvement](#)



Enhancing Livability and Recreation

[Design and Development](#) | [Historic Resources](#) | [Housing](#) | [Library Services](#) | [Recreation](#) | [Urbanization](#)



Building Economy and Infrastructure

[Economic Development](#) | [Public Facilities](#) | [Water Supply and Distribution](#)



Promoting Health, Wellness and Safety

[Access to Healthy Food](#) | [Natural Hazards](#) | [Noise Management](#) | [Police and Fire Protection](#)



Fostering Healthy Ecosystems

[Natural Resources](#) | [Stormwater Management](#)



Advancing Environmental Sustainability

[Air Quality](#) | [Energy and Climate Change](#) | [Wastewater](#)



Cultivating Transportation Choices

[Transportation](#)

Staff is currently preparing the background reports that will inform Planning Commission discussions relating to these core areas.



MILWAUKIE

Dogwood City of the West

To: Planning Commission

Through: Dennis Egner, Planning Director

From: Mary Heberling, Assistant Planner & Brett Kelper, Associate Planner

Date: July 18, 2017, for July 25, 2017, Public Hearing

Subject: **File:** S-2016-002, VR-2016-010, PLA-2016-002
Applicant: Julian Illingworth
Address: 4543 SE Logus Rd
Legal Description (Map & Tax Lot): 12E30CB12000
NDA: Lewelling

ACTION REQUESTED

Approve applications S-2016-002, VR-2016-010, and PLA-2016-002 and adopt the recommended Findings and Conditions of Approval found in Attachments 1 and 2. This action would allow the subject property to be subdivided to establish 4 lots, with variance approvals for lot depth of Lot 4 and setbacks for existing accessory structures on Lots 1 and 2, as well as a property line adjustment to the boundary between what would become Lot 2 on the subject property and the adjacent property at 4521 SE Logus Rd.

BACKGROUND INFORMATION

A. Site and Vicinity

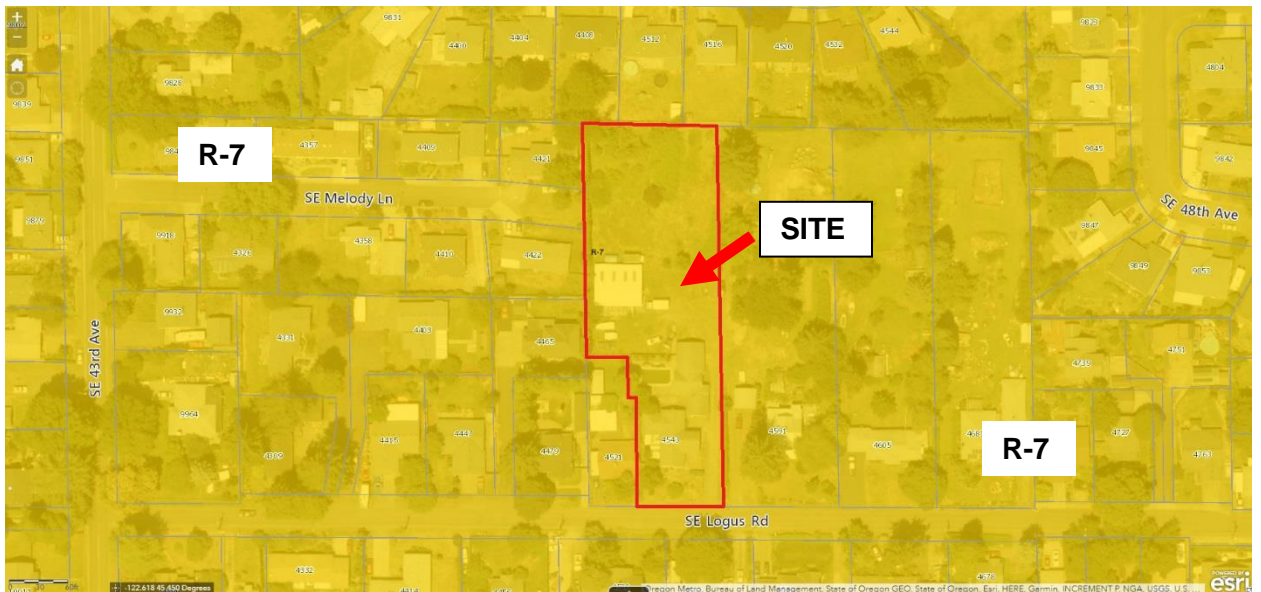
The site is located at 4543 SE Logus Rd. It is approximately 46,600 sq ft in area and contains a single-family house and 2 detached accessory structures. Access is taken from Logus Rd.

The surrounding area is occupied by other residential properties. A few lots to the east are of similar size; most of the other residential properties are smaller in size, ranging from around 8,000 sq ft to the north and east and 7,000 to 10,000 sq ft to the west. The surrounding area is zoned Residential R-7 with a small section of R-3 to the northwest of the site (see Maps 1 and 2).

Map 1



Map 2



B. Zoning Designation

R-7 – Low Density Residential

C. Comprehensive Plan Designation

LD – Low Density Residential

D. Land Use History

City records indicate no previous land use actions for this site.

E. Proposal

The applicant is seeking land use approvals to subdivide the subject property into 4 lots, with a property line adjustment to the boundary between Lot 2 and 4521 SE Logus Rd. The proposal includes variance requests for lot depth (Lot 4) and setbacks for existing accessory structures on Lots 1 and 2.

The applicant proposes an extension of Melody Ln to the east through the site. Lots 2, 3, and 4 will take access from the extension of Melody Ln and Lot 1 will continue to take access from Logus Rd.

The current site is a single lot fronting on Logus Rd, with an existing single-family home and two accessory structures. The owner of this lot is the applicant for the subdivision, variance, and property line adjustment applications. The owner intends to retain the single-family home and one of the accessory structures on Lot 1. Lot 2 contains a metal clad utility building which will either be dismantled upon sale of the lot or retained and sold along with vacant Lot 3, which borders it to the east. There are no existing structures on the proposed Lots 3 and 4.

The applicant's submittal materials includes the following:

1. Narrative
2. Site Plans
3. Preapplication Conference Report
4. Stormwater Report

The project requires approval of the following applications:

1. Subdivision – S-2016-002
2. Variance – VR-2016-010
3. Property Line Adjustment – PLA-2016-002

KEY ISSUES

Summary

Staff has identified the following key issues for the Planning Commission's deliberation. Aspects of the proposal not listed below are addressed in the Findings (see Attachment 1) and generally require less analysis and discretion by the Commission.

Street Connectivity Requirements

As part of the proposal for the subdivision of 4543 SE Logus Rd, the Milwaukie Planning and Engineering Departments are requiring that the applicant provide an extension of Melody Ln through the northern portion of the site and provide right-of-way (ROW) dedication for a future connection between Melody Ln and Logus Rd along the property's eastern boundary.

The applicant has proposed to dedicate 15 ft of ROW along the eastern property boundary between the extension of Melody Ln to Logus Rd. The neighboring property to the east, if/when it redevelops, will dedicate 25 ft of ROW along its western boundary. Together with the subject property's dedication, a 40-ft wide ROW will be available for a future street.

The applicant is also proposing a 40-ft wide extension of the Melody Ln ROW, stretching west to east across the northern third of the subject property. That is consistent with the current ROW for the existing Melody Ln, which is 40 ft wide. It will include, from the north fronting property line, construction of a 5-ft wide setback sidewalk, 5-ft wide planter strip, curb and gutter, 25 ft of asphalt (28-ft wide travel way).

Per MMC 19.708.E.3, streets shall be extended to the boundary lines of the developing property where necessary to give access to or allow for future development of adjoining properties. The intent of the street extension and ROW dedication is to provide the groundwork for future street connectivity in the area between Melody Ln and Logus Rd and possibly between Melody Ln and 48th Ave. The 15-ft wide ROW dedication on the eastern property line of the site will become a future 40 ft wide street when the lot next to the site redevelops. A 15 ft wide ROW dedication is consistent with the standards for more narrow lots, like the applicant's site, and takes into consideration the existing structures on both the applicant's lot and the lot to the west. A proportionality analysis was completed for this development and determined that improvements would only be required for the Melody Lane right-of-way. The value of the 4,796 sq ft of land dedicated and the additional improvements being constructed between the end of existing Melody Lane and the west edge were deemed proportional to the effect of 3 additional new lots.

While the extension of Melody Ln could possibly connect with 48th Ave in the distant future, the main intent is to provide opportunities for the larger lots to the east of the site to redevelop in the nearer term, similar to the current subdivision proposal. If any of these larger lots were to redevelop, the applicant will run into difficulty meeting the minimum density requirement. These lots will likely have a minimum density requirement of 4 units, and without the extension of Melody Ln, it will be impossible to create 4 lots that meet the R-7 standards. All proposed lots will need access from a street, and the extension of Melody Ln will provide that access, similar to how the current subdivision proposal is planned. The street extension will also limit the possibility of these larger lots opting to partition their back portions into large flag lots and potentially never actually reaching the minimum density.

CONCLUSIONS

A. Staff recommendation to the Planning Commission is as follows:

1. Approve the Subdivision of 4543 SE Logus Rd. This will result in the creation of 4 lots on the site.
2. Approve the Variances for lot depth of Lot 4, rear yard setback for the accessory structure on Lot 1, and side yard setback for the accessory structure on Lot 2.
3. Approve the Property Line Adjustment between the subject property and the adjacent property at 4521 SE Logus Rd. This will result in the 4521 SE Logus Rd property gaining an additional 529 sq ft and result in a more regular rectangular-shaped lot.
3. Adopt the attached Findings and Conditions of Approval.

B. Staff recommends the following key conditions of approval (see Attachment 2 for the full list of Conditions of Approval):

- Dedicate 7-feet on Logus Rd frontage of development property.
- Dedicate 40-feet of right-of-way on for the extension of SE Melody Ln fronting the proposed development property.

- Dedicate 15-feet of right-of-way along the east side of development property from SE Logus Rd to newly dedicated Melody Ln right-of-way.
- Construct all sidewalks, ramps and driveways on SE Melody Ln.

CODE AUTHORITY AND DECISION-MAKING PROCESS

The proposal is subject to the following provisions of the Milwaukie Municipal Code (MMC).

- Milwaukie Municipal Code (MMC) Title 17 Land Division
- MMC Title 12 Streets, Sidewalks, and Public Places
- MMC Section 19.301 Low Density Residential Zones (incl. R-7)
- MMC Chapter 19.500 Supplementary Development Regulations
- MMC Chapter 19.600 Off-Street Parking and Loading
- MMC Chapter 19.700 Public Facility Improvements
- MMC Section 19.911 Variances
- MMC Section 19.1006 Type III Review
- MMC Chapter 19.1200 Solar Access Protection

This application is subject to Type III review, which requires the Planning Commission to consider whether the applicant has demonstrated compliance with the code sections shown above. In Type III reviews, the Commission assesses the application against review criteria and development standards and evaluates testimony and evidence received at the public hearing.

The Commission has 4 decision-making options as follows:

- A. Approve the application subject to the recommended Findings and Conditions of Approval.
- B. Approve the application with modified Findings and Conditions of Approval. Such modifications need to be read into the record.
- C. Deny the application upon finding that it does not meet approval criteria.
- D. Continue the hearing to August 8, 2017. This option requires that the applicant provide a waiver to the 120-day clock. If the applicant is not willing to provide a waiver to the 120-day clock, the Planning Commission may need to deny the application.

The final decision on these applications, which includes any appeals to the City Council, must be made by September 28, 2017, in accordance with the Oregon Revised Statutes and the Milwaukie Zoning Ordinance. The applicant can waive the time period in which the application must be decided.

COMMENTS

Notice of the proposal was given to the following agencies and persons: City of Milwaukie Building and Engineering Departments, Lewelling Neighborhood District Association (NDA), and Clackamas County Fire District #1. The following is a summary of the comments received by the City. See Attachment 4 for further details.

- **Matt Amos, Fire Inspector, Clackamas Fire District #1:** Clackamas Fire has no comments for this proposal.
- **Alex Roller, Engineering Technician II, City of Milwaukie Engineering Department:** Comments reflected recommended conditions for ROW dedication, street construction, access management, and clear vision standards. Findings and conditions have been incorporated into Attachments 1 and 2.

Public notice of the proposal was sent to all property owners within 300 ft of the site. Below are public comments received by the City. See Attachment 4 for further details.

- **Don and Virginia Seitz, Property Owners at 4591 SE Logus Rd:**

As property owners of the site directly east to the proposed subdivision, they provided comments stating not to approve the application, without their suggested amendments, due to two concerns:

1. The donation of land and construction costs for public roads as proposed are inequitable.

The main concern is that if/when they choose to redevelop their property they would be required to build 25 ft of the proposed 40 ft street connection between Melody Ln and Logus Rd on the west end of their property. The current applicant is being required to dedicate 15 ft of ROW for that proposed street connection and will not be required build or pave any of the dedication. They feel this is not equitable and would cost them more money to build 25 ft of road versus the 15 ft ROW dedication from the applicant.

They are asking for an alternative which specifies that the Logus connector will not be required to have utilities and may be only as wide as needed for fire trucks, which they believe is 20 ft. They feel the purpose of the connection between Melody Ln and Logus Rd is only for fire access and this alternative better meets the needs of the street versus a 40 ft road.

2. The creation of a 15 ft gravel road along the edge of their property will have negative impacts on their current use and enjoyment of their property, whether or not they decide to subdivide in the future.

Their concerns are that opening a graveled public street along the whole length of our property will open the whole property to public view, to issues of trespass, and to issues of litter and trash, plus concern that it may become a shortcut for people on Melody Ln to drive to and from the east along Logus Rd.

They are asking that the City require the applicant to build a fence along the eastern edge of the 15 ft graveled ROW from their hedge in front yard to the extension of Melody Ln. They further ask for the fence to be wood, 6 ft in height, with a 20 ft farm gate at an appropriate place for access in the back of their property.

Staff Response:

Staff Response will be in supplementary staff report.

See Map 3 for depiction of where the properties are located on Logus Rd.

Map 3



- **Leslie Schockner, Property Owners at 4681 SE Logus Rd**

As the property owner to the farthest west lot of the four large lots next to the applicant’s property, the commenter provided the same concerns as the Seitz’s comments above. In particular, the concern was surrounding the fairness in cost comparison with the amount the current applicant for the subdivision would be paying for roads/dedication and potential cost to the property owners directly east at 4591 SE Logus Rd (the Seitz’s).

Ms. Schockner also made a similar comment on how they were not sure why a 40 ft road is being proposed to connect Melody Ln and Logus Rd if it will not be connecting to any other streets to the north or south. They feel it is only needed for fire access and therefore does not need to be 40 ft wide.

Staff Response:

Staff response will be in supplementary staff report.

ATTACHMENTS

Attachments are provided as indicated by the checked boxes. All material is available for viewing upon request.

	PC Packet	Public Copies	E-Packet
1. Recommended Findings in Support of Approval	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2. Recommended Conditions of Approval	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3. Applicant's Narrative and Supporting Documentation dated June 9, 2017.			
a. Narrative	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
b. Site Plan	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

	PC Packet	Public Copies	E-Packet
c. Pre-Application Conference Report	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
d. Stormwater Report (hard copies available by request)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Comments Received	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Key:

Early PC Mailing = paper materials provided to Planning Commission at the time of public notice 20 days prior to the hearing.

PC Packet = paper materials provided to Planning Commission 7 days prior to the hearing.

Public Copies = paper copies of the packet available for review at City facilities and at the Planning Commission meeting.

E-Packet = packet materials available online at <https://www.milwaukieoregon.gov/planning/planning-commission-174>.

Recommended Findings in Support of Approval
File #S-2016-002, VR-2016-010, PLA-2016-002, Julian Illingworth Subdivision

Sections of the Milwaukie Municipal Code not addressed in these findings are found to be inapplicable to the decision on this application.

1. The applicant, Julian Illingworth, has applied for approval to subdivide the site into 4 parcels at 4543 SE Logus Rd. This site is in the R-7 Zone. The land use application file numbers are S-2016-002, VR-2016-010, and PLA-2016-002.
2. The proposal is to subdivide the subject project to establish 4 lots including a property line adjustment (PLA) to the boundary between Lot 2 and 4521 SE Logus Rd. The proposal includes variance requests for lot depth (Lot 4) and setbacks for existing accessory structures on Lots 1 and 2.

The applicant extend Melody Ln across the northernmost portion of the site. Lots 2, 3, and 4 will take access from the extension of Melody Ln and Lot 1 will continue to take access from Logus Rd.

The current site is a single lot fronting on Logus Rd, with an existing single-family home and two accessory structures. The owner of this lot is the applicant for the subdivision, variance, and property line adjustment applications. The owner intends to retain the single-family home and one of the accessory structures on Lot 1. Lot 2 contains a metal clad utility building which will either be dismantled upon sale of the lot or retained and sold along with vacant Lot 3, which borders it to the east. There are no existing structures on proposed Lots 3 and 4.

3. The proposal is subject to the following provisions of the Milwaukie Municipal Code (MMC):
 - Milwaukie Municipal Code (MMC) Title 17 Land Division
 - MMC Title 12 Streets, Sidewalks, and Public Places
 - MMC Section 19.301 Low Density Residential Zones (incl. R-7)
 - MMC Chapter 19.500 Supplementary Development Regulations
 - MMC Chapter 19.600 Off-St Parking and Loading
 - MMC Chapter 19.700 Public Facility Improvements
 - MMC Section 19.911 Variances
 - MMC Section 19.1006 Type III Review
 - MMC Chapter 19.1200 Solar Access Protection
4. The application has been processed and public notice provided in accordance with MMC Section 19.1006 Type III Review. A public hearing was held on July 25, 2017, as required by law.
5. MMC 17.12030 Application Procedure and Approval Criteria for Property Line Adjustments
 MMC 17.12.030 contains approval criteria for a property line adjustment (PLA). The criteria are addressed below.
 - A. MMC 17.12.030.A.1 requires the PLA be in compliance with this title and Title 19.
Part of the proposed application is a PLA between Taxlot 12000 (site) and Taxlot 11800 (4521 SE Logus Rd). The PLA will affect the shared lot line on the north of

Taxlot 11800 by shifting the line 12.6 ft to the north. This would grant the owners of Taxlot 11800 an additional 529 sq ft. Both lots will meet all standards for lot size and setbacks in the R-7 zone after the PLA. (See Table 2 below)

Table 2

PLA Compliance with Residential Zone R-7 Development Standards			
Standard	Required	Proposed	Staff Comment
1. <i>Minimum Lot Size</i>	7,000 sq ft	7,809 sq ft	<i>Complies with standard.</i>
2. <i>Minimum Lot Width</i>	60 ft	<i>Front: 50 ft Rear: 42 ft.</i>	<i>Existing legal non-conforming lot width that is not affected by the PLA. Complies with standard.</i>
3. <i>Minimum Lot Depth</i>	80 ft	164 ft	<i>Complies with standard.</i>
4. <i>St Frontage</i>	35 ft	50 ft	<i>Complies with standard.</i>
5. <i>Density</i>	5.0-6.2 units/net acre	<i>No new dwelling units proposed</i>	<i>Not Applicable.</i>

- B. MMC 17.12.030.A.2 requires that the boundary change will allow reasonable development of the affected lots and will not create the need for a variance of any land division or zoning standard.

The proposed PLA does not affect setbacks and other development requirements for the existing single-family residence on Taxlot 11800 or single-family residence and detached accessory structures on Taxlot 12000.

- C. MMC 17.12.030.A.3 requires that the boundary change shall not reduce residential density below minimum density requirements of the zoning district. See Table 3 below.

Table 3

PLA Compliance with Residential Zone R-7 Development Standards			
Standard	Minimum Density Requirement	Density Available after PLA	Staff Comment
<i>Density</i>	<i>Taxlot 11800: 1 unit Taxlot 12000: 4 units (5 units per acre)</i>	<i>Taxlot 11800: 1 unit Taxlot 12000: 4 units</i>	<i>The boundary change will not reduce residential density below the minimum requirements.</i>

Planning Commission finds that the approval criteria is met for the PLA.

6. MMC 17.12.040 Approval Criteria for a Preliminary Plat.

These criteria are met as described below.

- A. MMC 17.12.040.A.1 requires that the proposed preliminary plat complies with Title 19 of this code and other applicable ordinances, regulations, and design standards.

The findings presented below in sections 7 through 13 demonstrate that the proposed subdivision and preliminary plat comply with the applicable ordinances, regulations, and design standards in the Milwaukie Municipal Code.

- B. MMC 17.12.040.A.2 requires that the proposed land division will allow reasonable development and will not create the need for a variance of any land division or zoning standard.

The buildable areas for the primary structures on the parcels are all adequate to accommodate the uses allowed in the R-7 zone. Per MMC 19.301.4, minimum lot depth for the R-7 zone is 80 ft. Lot 4 requires a variance for lot depth. The lot depth of Lot 4 is proposed to be 62.38 ft which will be deep enough to allow construction of a house without additional variances to lot setbacks. The variance is needed due to the location of the SE Melody Ln extension. Minimum density requirements for the site require 4 dwelling units. Without Lot 4, the applicant would not be able to meet the density requirements. The other parcels meet all of the standards and criteria.

The findings for the approval of the variance can be found in Finding 13. As proposed with the approval for the variance, the standards are met for MMC 17.12.040.A.2.

- C. MMC 17.12.040.A.3 requires that the proposed subdivision plat name is not duplicative and the plat otherwise satisfies the provisions of ORS 92.090(1).

The proposed subdivision plat name of "Rosebank Estates" is not duplicative in this jurisdiction and will satisfy the provisions of ORS 92.090(1).

- D. MMC 17.12.040.A.4 requires that the streets and roads are laid out so as to conform to the plats of subdivisions already approved for adjoining property as to width, general direction, and in all other respects unless the City determines it is in the public interest to modify the street or road pattern.

The extension of Melody Ln would allow for future access and development of neighboring properties to the east. This would be a continuation of current direction of Melody Ln to the east. This criterion is satisfied.

- E. MMC 17.12.040.A.5 requires a detailed narrative description demonstrating how the proposal conforms to all applicable code sections and design standards.

The applicant has submitted this information in the materials for the land use application.

Planning Commission finds that the approval criteria is met for the Subdivision Preliminary Plat.

7. MMC 17.20 contains the information required for a preliminary plat application.

The materials submitted by the applicant satisfy the requirements of this chapter.

8. MMC 17.28 contains design standards for land divisions and boundary changes.

The proposed subdivision satisfies these as described below.

- A. MMC 17.28.010 requires that partitions and subdivisions shall conform with any development plans of the City and shall take into consideration any preliminary plans made in anticipation thereof and shall conform with the requirements of state laws and with the standards established by the City.

As demonstrated by these findings, the subdivision conforms with all applicable city criteria and standards.

- B. MMC 17.28.020 requires that all land divisions and boundary changes that increase the number of lots shall be subject to the requirements and standards contained in Chapter 19.700 Public Facility Improvements and the Public Works Standards for improvements to streets, sidewalks, bicycle facilities, transit facilities, and public utilities.

As described elsewhere in these findings, the proposed subdivision complies with Chapter 19.700. Utilities and work within the right-of-way will be reviewed by the Milwaukie Engineering Department for conformance with Public Works Standards.

- C. MMC 17.28.040 contains standards for lot design.

- (1) MMC 17.28.040.A requires that the lot size, width, shape, and orientation shall be appropriate for the location and the type of use contemplated. Minimum lot standards shall conform to Title 19.

The proposed parcels have adequate size and dimensions for development and uses allowed in the R7 zone. All lots conform to the standards of Title 19, except for Lot 4 which requires approval of a lot depth variance (see section 14 below).

- (2) MMC 17.28.040.B requires that lot shape shall be rectilinear, except where not practicable due to location along a street radius, or existing lot shape. The sidelines of lots, as far as practicable, shall run at right angles to the street upon which the lots face. As far as practicable, the rear lot line shall run parallel to the street.

The proposed parcels are rectilinear in shape, with side lot lines at right angles and the rear lot lines parallel to the street.

- (3) MMC 17.28.040.C limits compound lot lines for side or rear lot lines.

Compound lot lines have been avoided as much as possible, the few that could not be avoided have been arranged to fall under the allowed 10% lateral shift requirement.

- (4) MMC 17.28.040.D allows lot shape standards to be varied pursuant to MMC 19.911.

No variance is requested in this application for lot shape standards.

- (5) MMC 17.28.040.E states that double frontage and reversed frontage lots should be avoided except in certain situations.

None of the parcels in the proposed partition have frontage on more than 1 public right-of-way.

- (6) MMC 17.28.040.F requires that pursuant to the definition and development standards contained in Title 19 for frontage, required frontage shall be measured along the street upon which the lot takes access.

This standard applies when a lot has frontage on more than 1 street. All parcels in the proposed partition have only 1 street frontage. As established in Finding 8, these frontages meet the minimum required street frontage in the R7 zone.

- D. MMC 17.28.080 contains criteria for public open spaces.

The Milwaukie Comprehensive Plan does not identify any planned park or open space for the site. As such, no dedication for public open space is required.

9. MMC 19.301 Low Density Residential Zones

- A. MMC 19.301.4 establishes the development standards that are applicable to this site.

The proposed subdivision would create 4 lots that range in size between 7,070 sq ft to 12,414 sq ft. The minimum lot size for a single-family detached home in the R-7 zone is 7,000 sq ft. (Table 1 demonstrates how the proposed lots comply with the R-7 development standards)

Table 1

Compliance with Residential Zone R-7 Development Standards					
	Minimum Lot Size (sq ft)	Minimum Lot Depth (ft)	Minimum Lot Width (ft)	Minimum St Frontage (ft)	Staff Comment
<i>R-7 Requirements</i>	<i>7,000 sq ft</i>	<i>80 ft</i>	<i>60 ft</i>	<i>35 ft</i>	
<i>Lot 1</i>	<i>12,414 sq ft</i>	<i>167.55 ft</i>	<i>72.61 ft</i>	<i>72.61 ft</i>	<i>Complies with standards.</i>
<i>Lot 2</i>	<i>7,348 sq ft</i>	<i>122.25 ft</i>	<i>60.04 ft</i>	<i>60.04 ft</i>	<i>Complies with standards.</i>
<i>Lot 3</i>	<i>7,070 sq ft</i>	<i>111.4 ft</i>	<i>62.65 ft</i>	<i>62.65 ft</i>	<i>Complies with standards.</i>
<i>Lot 4</i>	<i>8,592 sq ft</i>	<i>62.35 ft¹</i>	<i>137.7 ft</i>	<i>137.7 ft</i>	<i>Variance requested for lot depth.</i>

¹*The applicant is requesting a variance for lot depth on Lot 4 due to the location of the extension of SE Melody Ln.*

The minimum density requirement for the R-7 zone is 5 dwellings per acre and the maximum density requirement for the R-7 zone is 6.2 dwellings per acre. The parent parcel totals 35,424 sq ft, which results in required minimum of 4 dwellings. The maximum is 5 dwelling units. The proposal meets the minimum density requirement.

The Planning Commission finds that the proposal complies with the applicable standards of the R-7 zone, per the approval of the variance request for lot depth of Lot 4.

- B. MMC 19.301.2 establishes the allowed residential uses that are applicable to this site.

The site has an existing accessory structure with kitchen facilities. It is used as a recreational room, a studio room with a bathroom, and a 2 car garage. Currently kitchen facilities exist in the studio room. An accessory use with kitchen facilities is considered an accessory dwelling unit (ADU) versus an accessory use. Both are permitted uses in the R-7 zone, but an ADU would require further review and possible variances due to the size of the accessory structure.

The applicant has proposed to remove the existing electric stovetop from the studio and treat the space as an accessory use to the primary structure.

As conditioned, the Planning Commission finds that this standard is met.

10. MMC 19.504 Site Design Standards

- A. MMC 19.504.2 Maintenance of Minimum Ordinance Requirements

MMC 19.504.2 states that no lot area, yard, other open space, or off-street parking or loading area shall be reduced by conveyance or otherwise below the minimum requirements of this title, except by dedication or conveyance for a public use.

The existing single-family residence on Lot 1 would be closer than 20 ft for the street side-yard setback after the dedication of 15 ft for a road to connect Melody Ln and Logus Rd. Since the 15 ft is for a public road, the street side-yard setback is not an issue with meeting the minimum requirements.

The Planning Commission finds that the standard is met.

11. MMC 19.607 Off-St Parking Standards for Residential Areas

MMC 19.607 establishes off-street parking standards for residential areas.

The applicant's materials indicate awareness of these requirements and will address compliance during the development permit process. The existing single-family home on the proposed Lot 1 has 2 off-street parking spaces per the 2 car garage.

The Planning Commission finds that the proposal meets the off-street parking standards.

12. MMC 19.700 contains regulations for Public Facility Improvements.

The proposal complies with these regulations as described in this finding.

A. MMC Chapter 19.700 applies to partitions, subdivisions, new construction, and modification or expansion of an existing structure or a change or intensification in use that result in any projected increase in vehicle trips or any increase in gross floor area on the site.

The applicant proposes to subdivide the existing parcel into 4 new lots. The subdivision triggers the requirements of MMC Chapter 19.700.

MMC 19.700 applies to the proposed development.

B. MMC 19.703 contains the requirements for the review process for all proposed developments subject to Chapter 19.700.

- a. MMC 19.703.1 requires a pre-application conference for proposals that require a land use application. *The requirement was satisfied on September 17, 2015.*
- b. MMC 19.703.3.B requires that development shall provide transportation improvements and mitigation at the time of development in rough proportion to the potential impacts of the development per MMC 19.705.

The applicant is proposing to dedicate a 7-ft frontage ROW along SE Logus Rd. This will upgrade the existing ROW to a width of 40 as requested by Milwaukie Engineering Department. The existing ROW on Melody Ln is 40 ft. The required ROW is 40 ft. The proposed site plan and improvement plan show a proposed ROW of 40 ft along the projected alignment of the continuation of Melody Ln. The proposed ROW dedication and improvement will be from the west property line to the east property line of the boundary of the subdivision. Driveway curb cuts and ADA rams will be required to meet the Milwaukie Public Works Standards.

As conditioned, the proposal is consistent with MMC 19.703.3

C. MMC 19.704 requires submission of a transportation impact study documenting the development impacts on the surrounding transportation system.

All of the trips for Lot 1 of the proposed development affect SE Logus Rd. All of the trips for Lots 2, 3, and 4 will affect the new extension of SE Melody Ln. The proposed development will not trigger a significant increase in trip generation on either neighborhood streets and therefore the subdivision itself does not require a transportation impact study.

MMC 19.704 does not apply to the proposed development.

- D. MMC 19.705 requires that transportation impacts of the proposed development be mitigated in rough proportion of the impacts.

The proposed development does not trigger mitigation of impacts beyond the required frontage improvements. The impacts are minimal and the surrounding transportation system will continue to operate at the level of service previous to the proposed development.

MMC 19.705 does not apply to the proposed development.

- E. MMC 19.708 Transportation Facility Requirements

This section contains the City's requirements and standards for improvements to public streets, including pedestrian, bicycle, and transit facilities.

1. MMC 19.708.1.A states all development to Chapter 19.700 shall comply with access management standards contained in Chapter 12.16.

Access requirements shall comply with access management standards contained in Chapter 12.16.

As conditioned, the Planning Commission finds that the standard is met.

2. MMC 19.708.1.B states that all development to Chapter 19.700 shall comply with access management standards contained in Chapter 12.24.

Clear vision requirements shall comply with clear vision requirements contained in Chapter 12.24.

As conditioned, the Planning Commission finds that the standard is met.

3. MMC 19.708.D states that development in a non-downtown zone that has frontage on a street section shown in the Public Area Requirements (PAR) is subject to the requirements of the Milwaukie Public Works Standards.

The proposed development, as conditioned, is consistent with 19.708.D.

As conditioned, the Planning Commission finds that the standard is met.

4. MMC 19.708.1.E.3 states that streets shall be extended to the boundary lines of the developing property where necessary to give access to or allow for future development of adjoining properties.

The Milwaukie Planning and Engineering Department is requiring the applicant to dedicate a 15-ft wide ROW on the east side of the site to allow the future creation of a road to connect Melody Ln down to Logus Rd. A 15 ft ROW dedication will allow for future development and dedication by the property to the east if/when they wish to develop the rear of that lot. A 15-ft ROW dedication is consistent with the standards for more narrow lots, like the applicant's site, and takes into consideration the existing structures.

The applicant is also proposing an extension of Melody Ln on the north end of the site to the property boundary on the east. This will allow for future development to the east if/when they choose to redevelop those lots.

Planning Commission finds that the standard is met.

5. MMC 19.708.1.F Intersection Design and Spacing

The proposed street will be located outside of the required 530 ft for maximum intersection spacing on a neighborhood street (Logus Road). The City has asked for the dedication for this eventual street connection, and will not require a variance for this location. Per 19.703.4.B – Street Design, the engineering director has determined that the location of this road will most effectively serve infill development without precluding adjacent properties from developing.

The Planning Commission finds that the standard is met.

6. MMC 19.708.2 establishes standards for street design and improvement.

To satisfy MMC 19.708.2, the applicant shall construct frontage improvements for the extension of SE Melody Lane. The street improvements include, from the north fronting property line, construction of a 5-ft wide setback sidewalk, 5-ft wide planter strip, curb and gutter, 25 feet of asphalt (28-ft travel way), curb & gutter.

The existing right-of-way width of SE Logus Road fronting the proposed development is 30 ft. The Milwaukie Transportation System Plan and Transportation Design Manual classify the fronting portions of SE King Road as a Neighborhood Route. According to Table 19.708.2 Street Design Standards, the required right-of-way width for a neighborhood route is between 20 ft and 68 ft depending on the required street improvements. The required right-of-way needed for the required street improvements is 37 ft. The applicant is responsible for 7 ft of right-of-way dedication along SE Logus Road fronting the development property.

Through conformance with MMC 17.28.050 15 ft of dedication is required on the east side of the development property for future access and creation of a new north/south road connecting Logus Road to Melody Lane.

The proposed cross section for Melody Lane conforms to requirements consistent with MMC Section 19.708.2.

As conditioned, the Planning Commission finds that the standard is met.

7. MMC 19.708.3 Sidewalk Requirements and Standards states sidewalks shall be provided on the public street frontage of all development per the requirements of this chapter. Sidewalks shall generally be constructed within the dedicated public right-of-way, but may be located outside of the right-of-way within a public easement with the approval of the Engineering Director.

The construction of sidewalks along the proposed development property abutting all public rights-of-way is included in the street frontage requirements. The applicant will construct the required cross section for Melody Lane which is sidewalk only on the north side of the road. Melody lane will be the access road for all three new lots. A proportionality analysis was completed for this development and determined that improvements would only be required for the Melody Lane right-of-way. The value of the 4,796 sq ft of land dedicated and the additional improvements being constructed between the end of existing Melody

Lane and the west edge were deemed proportional to the effect of 3 additional new lots.

19.708.3.A.2 requires that public sidewalks shall conform to ADA standards.

As conditioned, the Planning Commission finds that the standard is met.

F. MMC Section 19.709 Public Utility Requirements

This section establishes standards for public utility improvements. They are required for proposed development that would have a detrimental effect on existing public utilities, cause capacity problems for existing public utilities, or fail to meet standards in the Public Works Standards.

The extension of SE Melody Ln will consist of a 28-ft wide asphalt concrete section, standard curbs and gutters on both sides, 4.5-ft wide infiltration planter (consistent with City of Portland Storm Water Standards), and a 5 ft wide sidewalk on the north side of Melody Ln. The roadway will provide parking on one side only.

There will be a transition zone as part of this development that will cover the roadway improvements from the terminus point of existing improvements on SE Melody Ln to the western boundary line of the subdivision. The proposed transition will provide curbs, asphalt, and sidewalk on the north side only due to ROW restrictions in existing Melody Ln.

The Engineering Department calculated a proportionality analysis and determined that the necessary improvements along SE Logus Rd would not be proportional to the potential impacts of the proposed development. No road improvements are required along SE Logus Rd. An additional 7 ft of ROW along Logus Rd is being dedicated as recommended by the Milwaukie Engineering Department.

The proposed development, as conditioned, is consistent with MMC Section 19.709.

13. MMC 19.1200 Solar Access Protection

A primary purpose of MMC 19.1200 is to orient new lots and parcels to allow utilization of solar energy. In particular, MMC Section 19.1203 establishes solar access provisions for new development. In particular, MMC Subsection 19.1203.2 establishes the applicability of MMC Subsection 19.1203.3 as applications for the creation of lots in single-family zones. Exceptions are allowable to the extent the Planning Director finds that the applicant has shown one or more of the conditions listed in MMC Subsections 19.1203.4 and 19.1203.5 exist and that exemptions or adjustments are warranted.

A. MMC 19.1203.2 states that the standards of Chapter 19.1200 apply to applications for a development to create lots in single-family zones, and are applicable to the proposed subdivision.

1. MMC 19.1203.3 states that at least 80% of the lots in a development subject to these provisions shall comply with one or more of the basic requirement options:
 1. Has a north-south dimension of 90 ft more; and
 2. Has a front lot line that is oriented within 30 degrees of a true east-west axis.

Lots 1, 2, and 3 meet the design standards of 19.1203.3 by having over 90 ft of north-south dimension, and are within 30 degrees of the east-west axis.

2. MMC 19.1203.3.C provides alternatives to the design standards in 19.1203.3.

1. Habitable structures built on that lot will have their long axis oriented within 30 degrees of a true east-west axis, and at least 80% of their ground floor south wall will be protected from shade by structures and nonexempt trees using appropriate deed restrictions; or
2. Habitable structures built on that lot will orient at least 32% of their glazing, and at least 500 sq ft of their roof area, to face within 30 degrees east or west of true south, and that glazing and roof area are protected from shade by structures and nonexempt trees using appropriate deed restrictions.

Lot 4 complies with design standard 19.1203.C.1. The lot will have a deed restriction placed on it that forces any habitable building to meet 1 of the alternative design standards in MMC 19.1203.3.C (listed above). The applicant feels these alternative design standards can easily be achieved considering the lot dimensions and layout.

The Planning Commission finds that the standards are met.

14. MMC Title 12 Streets, Sidewalks, and Public Places

Title 12 refers to standards that address street and sidewalk excavations, construction, and repair; access management; clear vision at intersections; and other work or entities within the public right-of-way.

The proposal has been reviewed by the City of Milwaukie Engineering Department for compliance with Title 12. Appropriate requirements relating to Title 12 have been addressed in Attachment 2 Recommended Conditions.

As Conditioned, the Planning Commission finds that the standards are met.

15. MMC 19.911 Variances

The applicant has requested approval of three variances for the subdivision:

- (1) Variance to the lot depth for Lot 4.

The lot depth of Lot 4 is proposed to be 62.38 ft versus the required 80 ft. The City's land division standards require the applicant to extend Melody Ln to the east in order to provide access and facilitate future development. Due to the location of the extended Melody Ln, the resulting proposed width of Lot 4 will be less than the required amount in the R-7 zone.

- (2) Variance to the rear yard setback for the existing accessory structure on Lot 1.

Lot 1 has an existing accessory structure. With the proposed layout of the subdivision, the rear yard setback for the accessory structure on Lot 1 is 9.51 ft versus the required setback of 20 ft for the R-7 zone.

- (3) Variance to the side yard setbacks for the existing accessory structure on Lot 2.

Lot 2 has an existing accessory structure that is a utility building. With the proposed layout of the subdivision, the structure on Lot 2 will have side yard setbacks of 3 ft and 7 ft. The R-7 zone requires the setbacks to be 5 ft or 10 ft. The proposed 7 ft setback meets the requirement, but the 3 ft setback does not.

A. 19.911.3 Review Process

Variance applications shall be evaluated through either a Type II or Type III review, depending on the nature and scope of the variance request and the discretion involved in the decision-making process.

Each variance will be reviewed through the Type III review process. All variance applications are larger and more complex than what is permitted under Type II review. The side yard setback variance is greater than 40% of the requirement for a Type II review. The rear yard setback is greater than 25% of the requirement for a Type II review. The lot depth variance is greater than the 10% lot width requirement for a Type II review.

Planning Commission finds that all variance applications will be reviewed through a Type III procedure.

B. 19.911.4 Approval Criteria

Type III variances can be reviewed through two different approval criteria: Discretionary Relief Criteria or Economic Hardship Criteria. The applicant proposed the Discretionary Relief Criteria to review the variance applications. The Discretionary Relief Criteria is addressed below:

1. The applicant's alternative analysis provides, at a minimum, an analysis of the impacts and benefits of the variance proposal as compared to the baseline code requirements.

Variance 1 (Lot depth): The location for the extension of Melody Ln causes Lot 4 to not meet the minimum lot depth requirements. The applicant's alternative would be to move the extension of Melody Ln farther south to meet the lot depth standards. The concerns of the applicant regarding the alternative are:

1. *The bend in the road to move it further south may cause safety issues for fire trucks and other response vehicles. This road would be used as a turnaround for them.*
2. *Moving the road farther south prevents Lots 2 and 3 from meeting the lot area requirements in the R-7 zone. This would reduce the number of lots and fail to meet the minimum density requirement for the site, which is 4 dwelling units.*

Variance 2 (Rear yard setback): The proposed rear yard property line for Lot 1 only allows a 9.51 ft setback from the existing accessory structure. The applicant's alternative would be to move the rear yard property line north another 11 ft to meet the required 20 ft setback in the R-7 zone. The concerns from the applicant regarding this alternative are:

1. *Moving the rear yard property line for Lot 1 would reduce the lot area of Lot 3 to be below the 7,000 sq ft requirement in the R-7 zone. This would reduce the number of lots to be below the minimum required density for the site.*
2. *It would also exacerbate the lateral shift of the rear property line, causing it to be much greater than 10%, which is the allowed maximum shift. The applicant has moved the rear lot line as far north as possible without breaking the 10% lateral shift, which is prohibited.*

Variance 3 (Side yard setback): The existing Utility Building on Lot 2 is too close to the proposed east side yard property line. One of the applicant's alternative is to move the east side property line further east to meet the required side yard setback in R-7. The concerns from the applicant with this alternative are:

1. *Moving the side property line further east is unfeasible due to the required 15 ft ROW on the east side of Lot 3. This limits the ability to shift Lot 3 further east to have Lot 2 meet the side yard setback requirements.*
2. *Shifting Lot 2's eastern side property line would decrease Lot 3's area below the minimum lot area requirements, which would cause the applicant to lose Lot 3 and be below the minimum density requirement for the site.*
3. *The movement of the eastern side property line of Lot 2 causes problems with the requirements to limit compound lot lines on the north property line of Lot 1.*

Another alternative for the side yard setback variance on Lot 2 would be to dismantle or demolish the utility building. The applicants felt that this was an undesirable option since there is significant use and value in the utility building. It is well maintained and in good shape. A future owner of Lot 3 may be interested in acquiring both properties jointly and keeping the utility building in place.

Due to the concerns from the alternatives analysis for the variances, the applicant felt that the alternatives were not a viable option to consider.

Planning Commission finds that the applicant has provided a thorough analysis of alternatives and the criteria is satisfied.

2. The proposed variance is determined by the Planning Commission to be both reasonable and appropriate, and it meets one or more of the following criteria:
 1. The proposed variance avoids or minimizes impacts to surrounding properties.
 2. The proposed variance has desirable public benefits.
 3. The proposed variance responds to the existing built or natural environment in a creative and sensitive manner.

The Planning Commission finds that each variance will have minimal impact to surrounding properties. The findings are listed below:

Variance 1 (Lot depth): There will be little to no impact on the 3 adjoining properties to the north of Lot 4 on Howe Ln (Tax lots 4408, 4512, and 4516). These lots are all roughly 125 ft deep and the houses are located close to the front of their lots and subsequently have large rear yard setback spaces behind the houses. Lot 4 is also over 8,000 sq ft with over 130 ft of lot width. Any proposed development on the lot will be able to meet side yard setbacks and have minimal impacts on any lots to the east or west of the property.

Variance 2 (Rear yard setback): The primary recreation and outdoor gather area for the existing single-family home on Lot 1 is located in and around the pool/patio, which is located to the west side of the accessory structure. There is a total of approximately 3,500 sq ft in that area, thus the impact of the accessory structure's proximity to the rear of the lot is minimal. The proposed Lot 3 is also over 100 ft deep and has ample area to build a structure on Lot 3 farther from the rear property line if the new property owner wants to be farther from the accessory structure on Lot 1.

Variance 3 (Side yard setback): With the requirement that the Utility Building share ownership with Lot 3 or be dismantled with a change of ownership, the requirement is minimal impact from granting the variance.

Planning Commission finds that the criteria is met.

3. Impacts from the proposed variance will be mitigated to the extent practicable.

Impacts from the proposed variances are minimal given the size of the surrounding properties. The variances are the best options to meet density requirements for the site, limit compound lot lines, and provide an extension of Melody Ln to increase the possibility for future development on the property to the east of the site.

Planning Commission finds that the criteria is met.

Planning Commission finds that the Type III Variance requests by the applicant meets the Discretionary Relief Criteria and approves all three variances.

16. The application was referred to the following departments and agencies on June 12, 2017:

- Milwaukie Building Division
- Milwaukie Engineering Department
- Clackamas County Fire District #1
- Lewelling Neighborhood District Association Chairperson and Land Use Committee

The comments received are summarized as follows:

1. Matt Amos, Fire Inspector, Clackamas County Fire District #1: Clackamas Fire has no comments for this proposal.
2. Alex Roller, Engineering Technician II, City of Milwaukie Engineering Department: Comments reflected recommended conditions for ROW dedication, street construction, access management, and clear vision standards. Findings and conditions have been incorporated into Attachments 1 and 2

Recommended Conditions of Approval
Master File #S-2016-002, Julian Illingworth Subdivision

Conditions

1. At the time of submission of the final plat application, the following shall be resolved:
 - a. Submit a storm water management plan to the City of Milwaukie Engineering Department for review and approval. The plan shall be prepared in accordance with Section 2 – Stormwater Design Standards of the City of Milwaukie Public Works Standards. Private properties may only connect to public storm system if percolation tests show that infiltration cannot be obtained on site. In the event the storm management system contains underground injection control devices, submit proof of acceptance of the storm system design from the Department of Environmental Quality.
 - b. Submit full-engineered plans for construction of all required public improvements, reviewed and approved by the City of Milwaukie Engineering Department.
 - c. Obtain a right-of-way permit for construction of all required public improvements listed in these recommended conditions of approval.
 - d. Pay an inspection fee equal to 5.5% of the cost of the public improvements.
 - e. Provide a payment and performance bond for 100 percent of the cost of the required public improvements.
 - f. Provide an erosion control plan and obtain an erosion control permit.
 - g. Construct 8-in wastewater main to the east end of development property in Melody Lane right-of-way. A new sanitary manhole is required at the end of wastewater main.
 - h. Extend 6-in water main to east end of development property in Melody Ln right-of-way. Move existing blowoff to the east end of water main extension.
 - i. Install all underground utilities, including stubs for utility service prior to surfacing any streets. Relocate or provide a private utility easement for all utilities encroaching onto adjacent properties.
 - j. Dedicate 7 ft on the SE Logus Rd frontage of development property.
 - k. Dedicate 40 ft of right-of-way on for the extension of SE Melody Ln fronting the proposed development property.
 - l. Dedicate 15 ft of right-of-way along the east side of development property from SE Logus Rd to newly dedicated Melody Ln right-of-way.
 - m. Construct all sidewalks, ramps and driveways on SE Melody Lane.
 - n. Construct a driveway approach to meet all guidelines of the Americans with Disabilities Act (ADA) to each new lot. The driveway approach aprons shall be between 9 ft and 20 ft in width and least 7.5 ft from the side property line. Driveway approach is also required for 4422 SE Melody Ln.
 - o. Dedicate reserve strip to the City of Milwaukie at the end of Melody Ln. The reserve strip will be 1-ft wide and will run from the southeast corner of Lot 4, and will extend to the SE Logus Rd right-of-way fronting Taxlot 12100.

- p. Clear vision areas shall be maintained at all driveways and accessways and on the corners of all property adjacent to an intersection.
 - q. Provide a final approved set of Mylar and electronic PDF “As Constructed” drawings to the City of Milwaukie prior to final inspection.
 - r. Remove all signs, structures, or vegetation in excess of three feet in height located in “vision clearance areas” at intersections of streets, driveways, and alleys fronting the proposed development.
2. Prior to approval of the final plat, the following shall be resolved:
- a. Establish a deed restriction for Lot 2 to ensure that, within 24 months of final plat approval for this land division, the existing accessory structure on Lot 2 shall be removed unless:
 - (1) Lot 2 is maintained in mutual ownership with an adjacent lot (Lot 3) containing a primary structure and shall remain in mutual ownership with that adjacent lot. If Lot 2 is sold without Lot 3, the accessory structure will be dismantled upon sale.
 - b. Remove the existing electric stove-top from the pool-house studio and treat the space as an accessory use.
3. Prior to final inspection for any building on the proposed development, the following shall be resolved:
- a. Connect all residential roof drains to private drywell or other approved structure.

+

June 9, 2017

 Development Name: J.I. Subdivision
 Project ID#15-018PA

NARRATIVE
Proposed 4 Lots Subdivision: Rosebank Estates
Per Milwaukie Municipal Code (MMC)

File Number: 15-018PA

Location: 4543 SE Logus Road, Milwaukie, OR 97222

Area: 1 ACRE

Zone: R-7 Residential

Use: Single Family

Proposal: 4 lots Subdivision, Type III

Applicant's Representative: BMP Design LLC/ Bogdan Popescu, PE, PLS
 12214 SE Mill Plain Blvd. #203, Vancouver, WA 98684.
 T: 360-936-8426, Email: bogdan@bmpdesign.us

Owner: Julian Illingworth. 6334 N Curtis Ave. Portland, OR 97217
 T: 503-349-9733, Email: Julian.Illingworth@gmail.com

Applicable Criteria: Milwaukie Municipal Code 17.12; 17.16; 17.20; 17.28;
 19.301; 19.600; 19.700; Oregon Fire Code (OFC); 19.911;
 19.502;

MMC 17.12.020.E

Application for a subdivision falls under a Type III review and will be processed in accordance with Section 19.1006.

The proposed project had a Pre-Application Conference on 09/17/2015 and we are submitting a Type III application. The Project will be subject to a Type III Public Notice, the Review Authority will be the Planning Commission and the Decision and Appeal will follow MMC 19.1006.

The property has frontage on Logus Road and the gross area is 1 acre. It is located in the Lewelling Neighborhood District. Upon submission of the Preliminary Plat, the project will develop 3 additional Single Residence lots on the North side of the property. Melody Lane will be extended as a continuation of the existing roadway within a 40 ft ROW and a

28 ft pavement section. There will be a 15 ft ROW dedication along the east side of the property from Logus Rd up to Melody Ln. This will allow for future dedication and eventual connection between Logus and Melody upon development of the lot to the east of ours (4591 SE Logus Rd).

Lot 1 will retain the existing single family dwelling, Lot 2 contains a Metal Clad Utility Building which will either be dismantled upon sale of the lot, or retained and sold along with vacant lot 3 which borders it to the east. There are no existing structures on proposed lots 3 and 4. The Utility Building is a non conforming Type C auxiliary structure and is talked about in further detail in Variance 3 later in this document.

MMC 17.12.040

1. The proposed preliminary plat complies with Title 19.
2. The proposed subdivision will allow for reasonable 4 lot development. All proposed lots will meet R7 zoning standards for size, and allow residential development standards to be met. All proposed lots will all meet the general lot design standards as set in 17.28.040.
3. The proposed name of the subdivision is “Rosebank Estates”, and the plat will satisfy ORS 92.090. This subdivision name has been approved by the Clackamas County Surveyors office.
4. The proposed streets and roads conform with the recommendation of the Milwaukie Municipal Planning Department that Melody Lane be continued through to the eastern border of the property to allow for future access and development of neighboring properties to the east. This would be a continuation of current direction of Melody Lane east.
5. The attached Narrative addresses the conformity to all applicable codes and standards.

Property Line Adjustment:

MMC 17.12.030; As part of the proposed subdivision contained in this application, we are proposing a Property Line Adjustment between the TL 12000 and TL 11800. We are proposing a Property Line adjustment that will affect the shared lot line on the north of TL 11800 by 12.6', thereby granting the owners of

tax lot 11800 an additional 529 S.F. This proposal is shown in detail on the preliminary plat map. The owners of TL 11800 are supportive of this PLA proposal. The boundary change will allow for reasonable development and will not create the need for a variance. The boundary change will not reduce the residential density below the minimum density requirements for this zone.

With the proposed PLA, TL 11800 will meet all standards for lot size and setbacks.

	Area	Depth (ft)	Width (ft)	Street frontage (ft)	Rear setback from existing utility shed at rear of property (ft)
Current TL 11800	7280 sq ft	152	50 front 42 rear	50	12 ft
Proposed TL 11800	7809 sq ft	164	50 front 42 rear	50	24 ft

MMC 17.16.060

This application and proposal will include all owners signatures, and will be submitted with all required application fees, and completed and signed subdivision checklist forms as appropriate.

MMC 17.20

This application for a subdivision will be accompanied by a Preliminary Plat and Existing Conditions Map. The plans are prepared at a standard scale that offers convenience to read and represents all proposed details. The Preliminary Plat will show information per 17.20.030. At this time we are not showing proposed structures or buildings on plans. The Existing Conditions Plan will be prepared in accordance with MMC 17.20.050. The Proposed Conditions Plan will be prepared per MMC 17.20.060. A drainage plan and report will be part of the material submitted.

MMC 17.28.040 GENERAL LOT DESIGN

All proposed lots meet the general lot design standards. The size, shape and orientation of the lots is consistent with the area, and all lots are rectilinear. Compound lot lines have

been avoided as much as possible, the few that could not be avoided have been arranged to fall under the allowed 10% lateral shift as explained further below.

MMC 19.301.2

The existing single family detached dwelling meets the permitted use for this R7 low density residential zone. All proposed lots would allow similar development.

The property is part of the Low Residential zone R-7. The Minimum Lot sizes for Single family detached is 7,000 SF, the minimum depth is 80 feet, the minimum width is 60 ft, and the minimum street frontage is 35 ft. All proposed lots meet all these requirements except Lot 4 which does not have the required depth, and is addressed in variance #1 later in this document.

MMC 19.301.4

Lot coverage, Landscaping and minimum vegetation requirements for lots 2, 3, and 4 shall be addressed at the time of the building permit/ final plat, and we don't see any issues with meeting those requirements.

R7	Lot area (sq ft)	Depth (ft)	Width (ft)	Street frontage (ft)
Lot 1	12414	167.55	72.61	72.61
Lot 2	7348	122.25	60.04	60.04
Lot 3	7070	111.4	62.65	62.65
Lot 4	8592	62.35	137.7	137.7

Proposed Lot 1 with the existing structure meets the R7 residential development standards as per MMC 19.301.4 for maximum building height, side yard height plane limit, maximum lot coverage, minimum vegetation, and all minimum yard requirements, except it has a rear yard setback of only 9 ft instead of the prescribed 20 ft. This is addressed further in variance #2 later in this document.

Parent Lot 1 has an additional yard requirement of 25' from the center line of Logus rd as per MMC 19.501.2A. This requirement is met with the existing placement of the SFR.

All lots will meet the requirements of MMC 17.28.040 in size and shape. Lot 1 will have a complex shape on the side and rear lines due to the irregular shape of the existing lot and existing structures. The Property Line Adjustment mentioned prior in this application allows us to design Lot 1 to fall within the limits for lateral shift on rear and side lot lines.

Lot 1 will have a linear shift on its rear lot line of 8.00 ft, and the distance between the 2 rear opposing lot corners is 81 ft, for a shift of 9.9%. The west side of lot 1 would have a linear shift of 8 ft, and the distance between the 2 opposing lot corners on that side is 164 ft, for a shift of 4.8%. These fall below the limits set by MMC 17.28.040 item C of less than a 10% shift.

TL 11800 also contains an existing lateral shift on its east boundary of 8 ft, which is currently 5.2% of the 152 ft distance between the 2 opposing lot corners. The proposed PLA would take reduce the lateral shift to 4.8% of proposed 164 ft distance between the new 2 opposing lot corners.

19.120 – Solar Access for New Development

Lots 1, 2 & 3, meet design standard 19.1203.3A by having over 90' of north-south dimension, and are within 30 degrees of the east-west axis.

Lot 4 complies with design standard 19.1203.3.C.1. The lot will have a deed restriction placed on it that forces any habitable building to meet 1 of the following requirements, either of which we think is an easily achievable design standard considering the lot dimensions and layout;

A) This lot will have the habitable structure's long axis oriented within 30 degrees of a true east-west axis, and 80% of it's ground floor south wall will be protected from shade using an appropriate deed restriction OR

B) Habitable structures built on this lot will orient at least 32% of the glazing, and at least 500 sq ft of the roof area, to face within 30 degrees east or west of true south, and that glazing and roof area are protected from shade by structures and nonexempt trees using an appropriate deed restriction.

MMC 19.301.5.D

Residential Densities: the density calculation reveals the following:

Total Net Area: +/- 35,424 SF.

Minimum Density Dwellings per acre: 5.0

Maximum Density Dwellings per acre: 6.2

Calculated Minimum Site Density: 4.1 units.

Calculated Maximum Site Density: 5.0 units.

Proposed: 4 units.

Density Requirement: Met.

MMC 19.600

The existing structure on proposed lot 1 has off street parking in the form of a 2 car garage.

MMC 19.700. Public Facilities Improvements

19.702. This proposed subdivision is subject to MMC 19.700. We are submitting a Development Permit Application as required.

19.703.3.

Streets: ROW on Logus Road. The applicant is proposing to dedicate a 7 ft. frontage ROW along SE Logus Road. This will upgrade the Existing ROW to the prescribed amount as requested by Milwaukie Engineering Dept.

The existing ROW in Melody Lane is 40 ft. The required ROW is 40 ft. The proposed Site Plan and Proposed Improvements plan show a proposed ROW of 40 ft. along the projected alignment of the continuation of SE Melody Lane. The proposed ROW will be from the west property line to the east property line of the boundary of the subdivision. Driveway curb cuts and ADA rams will be proposed to meet the Milwaukie Public Works Standards.

19.704. Per pre-application conference with the city, a Traffic Impact Study was not required.

19.708.

As stated in MMC 19.708.1.E.4, Melody Lane as a road ending in a turnaround is limited to 400 ft in length. This proposed development will increase the length of Melody Lane to around 600 ft. As advised by Milwaukie Planning and Engineering Department, we have dedicated a 15ft ROW on the east side of the property to allow the future creation of a road to connect Melody Lane down to Logus Road. A 15 ft ROW dedication will allow for a future development and dedication by the property to the east if/when they wish to develop the rear of their lot, and 15 ft would be generally consistent with the fact that our lot is

narrower than the lot the east is at that point, and takes into consideration the existing structures.

As advised by Milwaukie Engineering Department, sidewalk improvements on Logus frontage was deemed disproportional to the scope of the project, however sidewalks will be installed on the continuation of Melody Lane as per below.

19.709. The extension of SE Melody Lane will consist in a 28 ft asphalt concrete section, standard curbs and gutters on both sides, 4.5 ft. wide infiltration planter (per City of Portland Storm Water Standards) and 5 ft. sidewalk on the north side of Melody. The roadway will provide parking on one side only.

There will be a transition zone as part of this development that will cover the roadway improvements from the terminus point of existing improvements on SE Melody to the westerly boundary line of the subdivision. The proposed transition will provide curbs, asphalt and sidewalk on the north side only due to ROW restrictions in existing Melody Lane.

Engineering Department calculated a proportionality analysis and determined that the necessary improvements along SE Logus Road would not be proportional to the potential impacts of the proposed development. No road improvements are required along SE Logus Road. A 7 ft ROW along Logus Road has been dedicated as advised by Milwaukie Engineering Department.

MMC 16.28.020. Erosion Control

The proposed development will install temporary and permanent Erosion Control Measures per applicable codes.

Public Works Utilities:

The proposed development will provide Water, Sanitary Sewer, Storm water drainage and Fire access/ protection to all proposed lots.

The proposed lots to the North will be served by a proposed 6 inch water line as a continuation of the existing 6 inch in SE Melody Lane. The development will end the water line with a blow off at the easterly boundary line.

The proposed lots to the north will be served by an extension of the existing 6 inch sewer in SE Melody Lane. Each lot will be provided a gravity fed sewer lateral.

The proposed impervious area under the new roadway and new houses roofs will generate an increase in the storm water runoff. A Geo-technical Report was conducted in April 2016 by Redmond Geotechnical Services and the report revealed a field infiltration rate of 16 inches/hour. The existing soils in the area are suitable for storm water infiltration. The Storm water report will consider a factor of two, hence use a design rate of 8 inches/hour for infiltration facilities. The Storm water quality design is prepared per City of Portland 2008 Storm Water Manual and the Infiltration facilities shall be designed per Clackamas County WES Standards.

We have done a PAC Report calculation for the runoff requirements and have included that which shows the minimum water treatment facility size for both the North and South side of Melody Lane. The final location and positioning of the facilities is still to be determined, but the spaces available for their use has been noted on the plat and we have excess available area on both the north and south sides.

Oregon Fire Code (OFC)

The city of Milwaukie Engineering Department has advised that the creation of a hammerhead turnaround will not be required on Melody Lane, as there is an existing turnaround located on Melody Lane.

MMC 19.911, Variances

In accordance with MMC 19.911, we are hereby requesting approval of the following Variances Applications:

Variance 1. MMC Table 19.301.4. Minimum Lot Depth Standard Not Met. Type III variance.

Proposed lot #4 will have a depth of 62.5 ft. The R7 development standard is a minimum lot depth of 80 ft.

19.911.4.B.1.

The master plan of the area requires us to extend Melody Lane to the east in order to provide access and facilitate future development. The resulting proposed lot #4 to the north of Melody Lane while meeting the area requirements for R7 zoning does not have the required depth due to the continuation of the existing alignment of Melody Lane. In

comparison to the lots located west of our boundary line along Melody Lane, the proposed lot 4 is designed to be slightly larger in area and have more depth. With an area of 8,592 sq ft, it is a large lot for the area, and subsequently a very wide lot. With 62 ft in depth, there is enough room to build a house within the residential development standards requiring 20ft of front yard and 20 ft of rear yard.

Alternatives analysis might included bringing Melody Lane further south to create greater depth for Lot 4, however we feel having a bend in a turnaround road may cause safety issues for fire trucks and other response vehicles. Taking this approach would also prevent Lots 2 & 3 from meeting the lot area requirements, and/or reduce the number of lots allowed to below the minimum density requirements for this area.

We feel there will be little to no impact on the 3 adjoining properties to the north of lot 4 on Howe Ln (4408, 4512, 4516 Howe Ln). These lots all are roughly 125ft deep, and the houses are located close to the front of their lots and subsequently have a large rear setback space behind their houses. This was likely planned in case of future development to the rear of their properties.

We believe that this variance will allow the possible future development of the similarly large existing properties to the east, and have a desirable effect of increasing the density of dwellings of this particular plat to the present day intended ratio for this area.

Variance 2. MMC Table 19.301.4. Rear Yard Development Standard Not Met. Type III variance

The residential accessory structure at the rear of Lot 1 would minimum distance of 9.03 ft to the rear of the proposed lot line. The R7 development standard requests a minimum rear yard setback of 20 ft.

19.911.4.B.1.

Alternatives analysis might include pushing the rear lot line of proposed Lot 1 north another 11 feet from what we have proposed, to meet the lot design standard of 20 ft rear setback. Doing so would reduce the area of proposed lot 3 to below 7000sq ft, as required by the R7 zoning, which could reduce the number of lots to below the minimum required density for this area. It would also exacerbate the lateral shift of the rear property line, causing it to be much greater than 10% which as outlined earlier in the document is

the maximum allowed shift. We have moved the lot line as far north as we can without breaking the 10% lateral shift, which is prohibited.

The primary recreation and outdoor gathering area for this house is located in and around the pool/patio which is located to the west side of the accessory structure. There is a total of approximately 3500 sq ft in that gathering area, thus we see the impact of this accessory structure's proximity to the rear of the lot as minimal. Because of these existing factors, as well as the fact that Proposed Lot #3 is over 100ft deep, we see the impact on neighboring proposed lot 3 as minimal. The existing garage structure is a 2 car garage and removing 10 ft. from it would prohibit the existing use to continue as a garage.

19.502.2 The residential accessory structure located at the rear of Lot #1 is a type C accessory structure, and is 20 ft tall and has a 1720 sq ft footprint. It is lower than the highest point of the primary structure, and its footprint is equal to 95% of the footprint of the primary structure (footprint of 1810 sq ft). This accessory structure consists of a recreational room, a studio room with a bathroom, and a 2 car garage. As part of this application, we propose to remove the existing electric stove-top from the pool-house studio, and to treat this space as an accessory space to the main house.

Variance 3.

MMC 19.301.4 . Side yard development standard not met. Type 3 variance.

The Utility Building that sits on proposed lot 2 is a non-conforming Type C residential accessory structure as defined in table 19.502.2.1.1.a . As such, it requires setbacks equal to the base zone of R7. The side setbacks are 7 ft and 3 ft respectively, and do not meet the 5 and 10 ft as required by 19.301.4.

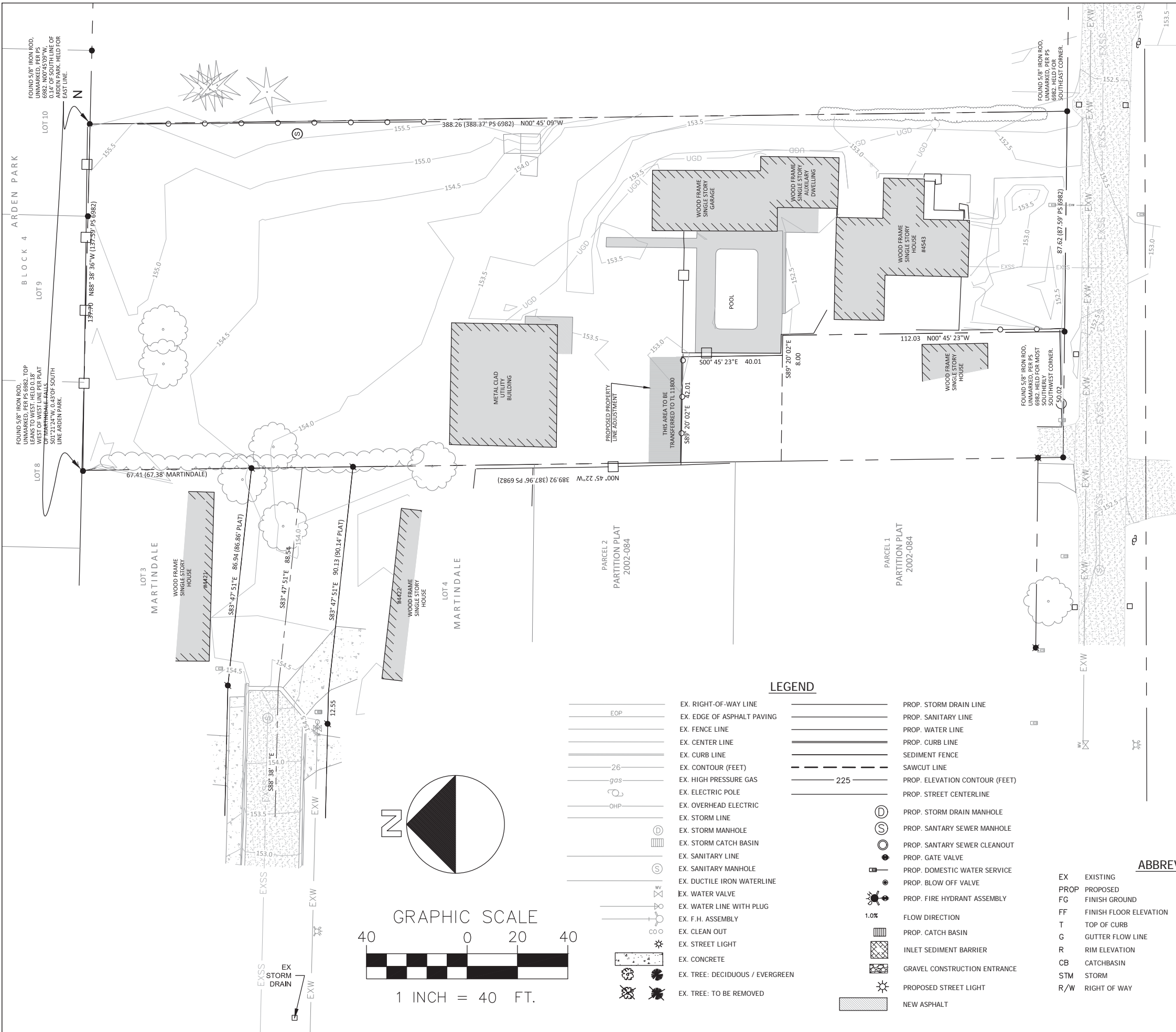
19.911.4.B.1.

Alternatives analysis might include pushing the east side lot line of lot 2 further east, to make the lot wide enough to accommodate the zoning setback requirements. This is deemed unfeasible due of the required 15 ft ROW on the far east side of the property, which has limited our available width, as well as measures that have been taken to solve and meet requirements regarding compound lot lines on the north of Lot 1, as well as rear setbacks on Lot 1.

Another alternative analysis would be to simply dismantle or demolish the utility building. We think this is undesirable at this point in time, as there is significant use and value in this utility structure that is well maintained and in good shape, and a future owner of Lot 3 may be interested in acquiring both properties jointly and keeping the Utility Structure in place.

With the requirement that the utility building share ownership with lot 3, or be dismantled with a change of ownership, we see there being little impact from granting this variance.

--END--



VICINITY MAP
SCALE 1" = 200'



ROSE BANK ESTATES

PROPERTY LEGAL DESCRIPTION:
1.06 ACRES NW ¼ SW ¼ SEC 30, T1S, R2E, W.M.

OWNER / APPLICANT:
JULIAN ILLINGWORTH
4543 SE LOGUS ROAD, MILWAUKIE OR 97202
PH: 503-349-9733
EMAIL: JULIAN.ILLINGWORTH@GMAIL.COM

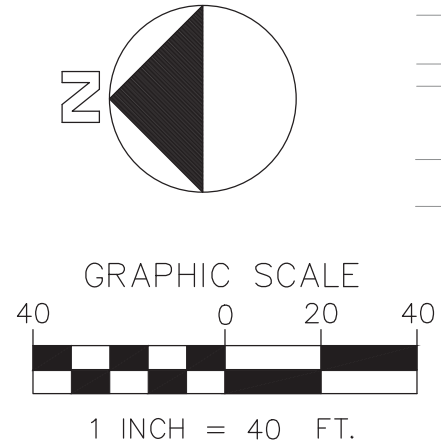
ENGINEER / SURVEYOR:
BMP DESIGN LLC
ATTN: BOGDAN POPESCU, P.E., P.L.S.
12214 SE MILL PLAIN BLVD SUITE 203
VANCOUVER WA 98684-6019
PH: 360-936-8426
EMAIL: BOGDAN@BMPDESIGN.US

LEGEND

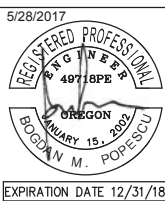
- | | | | |
|--|---------------------------------|--|--------------------------------|
| | EX. RIGHT-OF-WAY LINE | | PROP. STORM DRAIN LINE |
| | EX. EDGE OF ASPHALT PAVING | | PROP. SANITARY LINE |
| | EX. FENCE LINE | | PROP. WATER LINE |
| | EX. CENTER LINE | | PROP. CURB LINE |
| | EX. CURB LINE | | SEDIMENT FENCE |
| | EX. CONTOUR (FEET) | | SAWCUT LINE |
| | EX. HIGH PRESSURE GAS | | PROP. ELEVATION CONTOUR (FEET) |
| | EX. ELECTRIC POLE | | PROP. STREET CENTERLINE |
| | EX. OVERHEAD ELECTRIC | | PROP. STORM DRAIN MANHOLE |
| | EX. STORM LINE | | PROP. SANITARY SEWER MANHOLE |
| | EX. STORM MANHOLE | | PROP. SANITARY SEWER CLEANOUT |
| | EX. STORM CATCH BASIN | | PROP. GATE VALVE |
| | EX. SANITARY LINE | | PROP. DOMESTIC WATER SERVICE |
| | EX. SANITARY MANHOLE | | PROP. BLOW OFF VALVE |
| | EX. DUCTILE IRON WATERLINE | | PROP. FIRE HYDRANT ASSEMBLY |
| | EX. WATER VALVE | | FLOW DIRECTION |
| | EX. WATER LINE WITH PLUG | | PROP. CATCH BASIN |
| | EX. F.H. ASSEMBLY | | INLET SEDIMENT BARRIER |
| | EX. CLEAN OUT | | GRAVEL CONSTRUCTION ENTRANCE |
| | EX. STREET LIGHT | | PROPOSED STREET LIGHT |
| | EX. CONCRETE | | NEW ASPHALT |
| | EX. TREE: DECIDUOUS / EVERGREEN | | |
| | EX. TREE: TO BE REMOVED | | |

ABBREVIATIONS

- | | | | |
|------|------------------------|--------|-------------------------------|
| EX | EXISTING | SW | SIDEWALK SPOT ELEVATION |
| PROP | PROPOSED | DS | DOWNSPOUT |
| FG | FINISH GROUND | TW | TOP OF WALL |
| FF | FINISH FLOOR ELEVATION | BW | BACK OF WALL |
| T | TOP OF CURB | AC | ASPHALT/CONCRETE FG ELEVATION |
| G | GUTTER FLOW LINE | MH | MANHOLE |
| R | RIM ELEVATION | SS,SAN | SANITARY |
| CB | CATCHBASIN | WAT | WATER |
| STM | STORM | SD | STORM DRAIN |
| R/W | RIGHT OF WAY | ℙ | PROPERTY LINE |
| | | ℄ | CENTER LINE |



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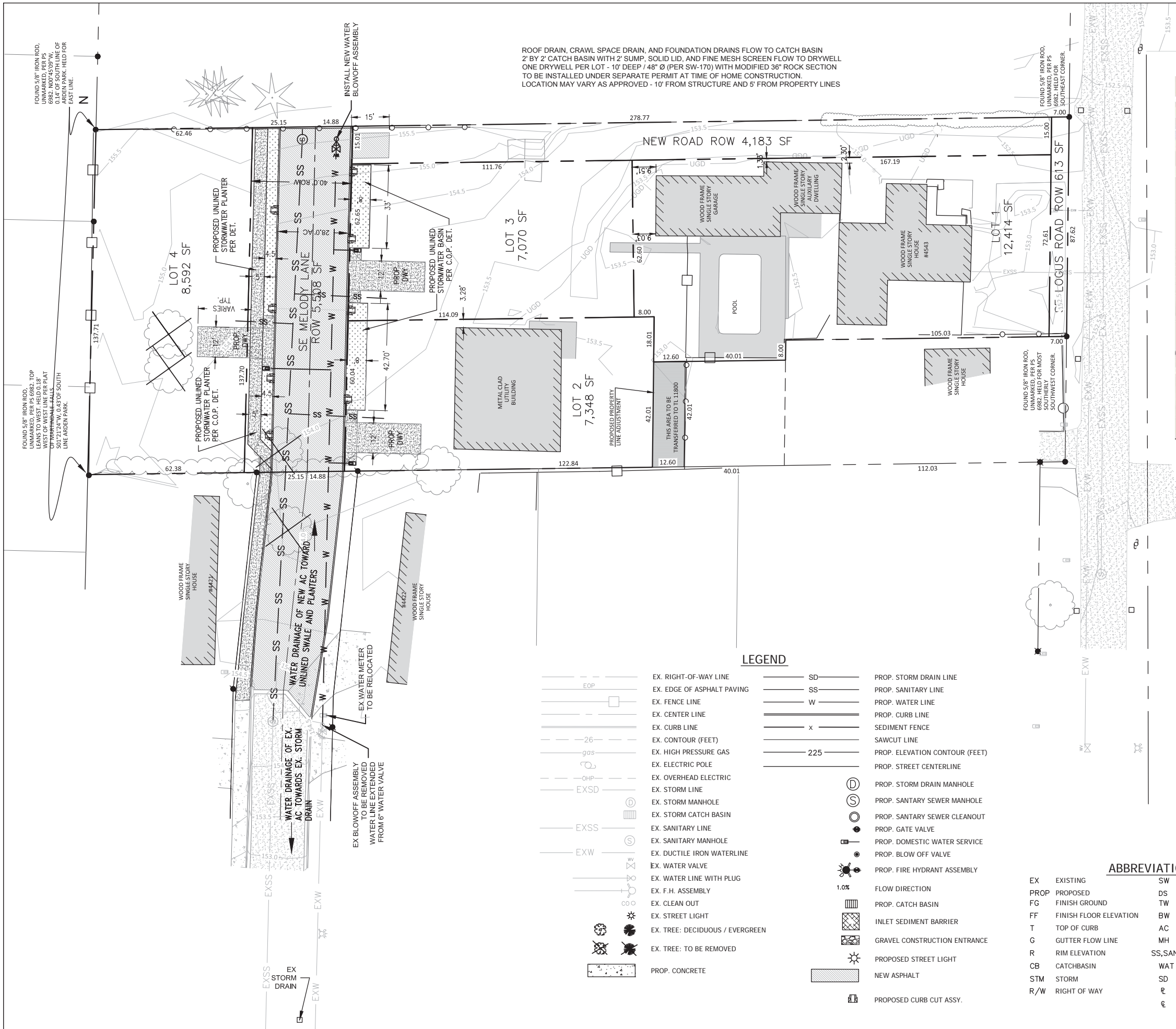
ROSE BANK ESTATES, MILWAUKIE OREGON
EXISTING CONDITIONS
4543 LOGUS ROAD, MILWAUKIE, CLACKAMAS COUNTY, OREGON
NW ¼ SW ¼ SECTION 30, T1S, R2E, W.M.

PRELIMINARY, SUBJECT TO REVIEWS AND REVISIONS, NOT FOR CONSTRUCTION

REVISION/DATE	DESCRIPTION	DRAFT BY	DESIGN BY	CHECK BY

SHEET **1** OF

PROJECT No. 15122
15122_BASE.dwg



VICINITY MAP
 SCALE 1" = 200'



ROSE BANK ESTATES

PROPERTY LEGAL DESCRIPTION:
 1.06 ACRES NW ¼ SW ¼ SEC 30, T1S, R2E, W.M.

OWNER / APPLICANT:
 JULIAN ILLINGWORTH
 4543 SE LOGUS ROAD, MILWAUKIE OR 97202
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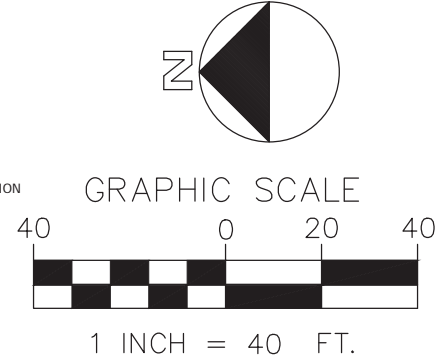
ENGINEER / SURVEYOR:
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 12214 SE MILL PLAIN BLVD SUITE 203
 VANCOUVER WA 98684-6019
 PH: 360-936-8426
 EMAIL: BOGDAN@BMPDESIGN.US

LEGEND

	EX. RIGHT-OF-WAY LINE		PROP. STORM DRAIN LINE
	EX. EDGE OF ASPHALT PAVING		PROP. SANITARY LINE
	EX. FENCE LINE		PROP. WATER LINE
	EX. CENTER LINE		PROP. CURB LINE
	EX. CURB LINE		SEDIMENT FENCE
	EX. CONTOUR (FEET)		SAWCUT LINE
	EX. HIGH PRESSURE GAS		PROP. ELEVATION CONTOUR (FEET)
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	EX. SANITARY MANHOLE		PROP. BLOW OFF VALVE
	EX. DUCTILE IRON WATERLINE		PROP. FIRE HYDRANT ASSEMBLY
	EX. WATER VALVE		1.0% FLOW DIRECTION
	EX. WATER LINE WITH PLUG		PROP. CATCH BASIN
	EX. F.H. ASSEMBLY		INLET SEDIMENT BARRIER
	EX. CLEAN OUT		GRAVEL CONSTRUCTION ENTRANCE
	EX. STREET LIGHT		PROPOSED STREET LIGHT
	EX. TREE: DECIDUOUS / EVERGREEN		NEW ASPHALT
	EX. TREE: TO BE REMOVED		PROPOSED CURB CUT ASSY.
	PROP. CONCRETE		

ABBREVIATIONS

EX	EXISTING	SW	SIDEWALK SPOT ELEVATION
PROP	PROPOSED	DS	DOWNSPOUT
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R/W	RIGHT OF WAY	ℓ	PROPERTY LINE
		℄	CENTER LINE



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BMP DESIGN LLC
 Civil Engineering & Land Surveying
 12214 SE MILL PLAIN BLVD, # 203, VANCOUVER, WA 98684
 PH: 360.936.8426, FAX: 360.253.6054
 www.bmpdesign.us

5/28/2017
 REGISTERED PROFESSIONAL ENGINEER
 BOGDAN M. POPESCU
 BOGDAN M. POPESCU
 EXPIRATION DATE 12/31/18

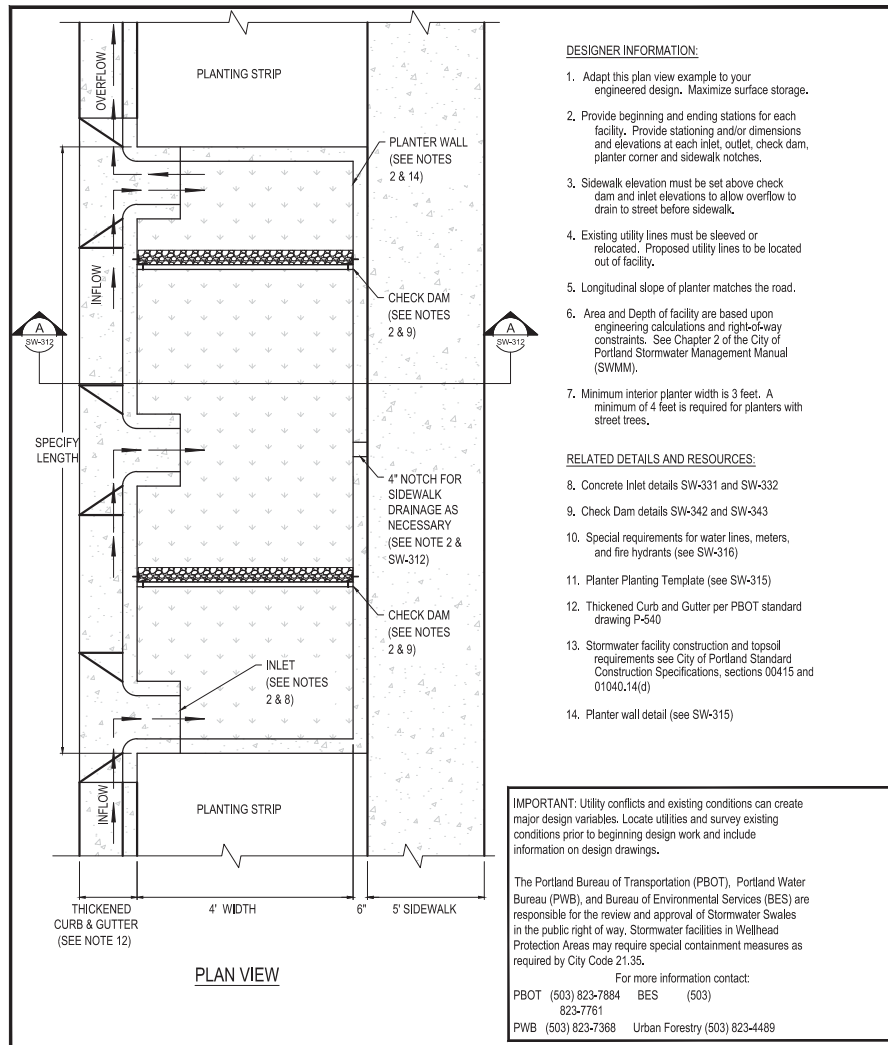
ROSE BANK ESTATES, MILWAUKIE OREGON
PRELIMINARY PLAT
 4543 LOGUS ROAD, MILWAUKIE, CLACKAMAS COUNTY, OREGON
 NW ¼ SW ¼ SECTION 30, T1S, R2E, W.M.

PRELIMINARY, SUBJECT TO REVIEWS AND REVISIONS, NOT FOR CONSTRUCTION

REVISION/DATE	DESCRIPTION	DRAFT BY	DESIGN BY	CHECK BY

SHEET 2 OF

PROJECT No. 15122
 15122_BASE.dwg



- DESIGNER INFORMATION:**
- Adapt this plan view example to your engineered design. Maximize surface storage.
 - Provide beginning and ending stations for each facility. Provide stationing and/or dimensions and elevations at each inlet, outlet, check dam, planter corner and sidewalk notches.
 - Sidewalk elevation must be set above check dam and inlet elevations to allow overflow to drain to street before sidewalk.
 - Existing utility lines must be sleeved or relocated. Proposed utility lines to be located out of facility.
 - Longitudinal slope of planter matches the road.
 - Area and Depth of facility are based upon engineering calculations and right-of-way constraints. See Chapter 2 of the City of Portland Stormwater Management Manual (SWMM).
 - Minimum interior planter width is 3 feet. A minimum of 4 feet is required for planters with street trees.
- RELATED DETAILS AND RESOURCES:**
- Concrete Inlet details SW-331 and SW-332
 - Check Dam details SW-342 and SW-343
 - Special requirements for water lines, meters, and fire hydrants (see SW-316)
 - Planter Planting Template (see SW-315)
 - Thickened Curb and Gutter per PBOT standard drawing P-540
 - Stormwater facility construction and topsoil requirements see City of Portland Standard Construction Specifications, sections 00415 and 01040.14(d)
 - Planter wall detail (see SW-315)

IMPORTANT: Utility conflicts and existing conditions can create major design variables. Locate utilities and survey existing conditions prior to beginning design work and include information on design drawings.

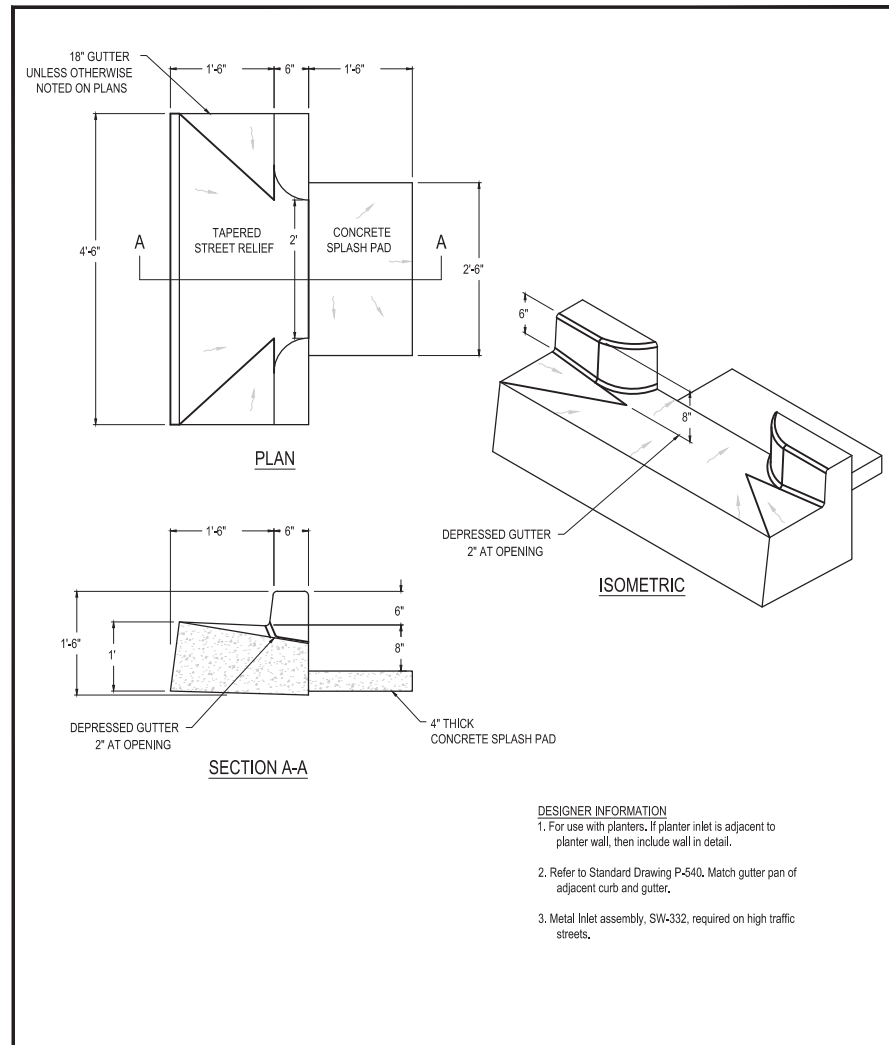
The Portland Bureau of Transportation (PBOT), Portland Water Bureau (PWB), and Bureau of Environmental Services (BES) are responsible for the review and approval of Stormwater Swales in the public right of way. Stormwater facilities in Wellhead Protection Areas may require special containment measures as required by City Code 21.35.

For more information contact:
 PBOT (503) 823-7884 BES (503) 823-7761
 PWB (503) 823-7368 Urban Forestry (503) 823-4489

STORMWATER MANAGEMENT MANUAL TYPICAL DETAILS

- Green Streets -
Plan View without Parking
Planters

NUMBER
SW-310

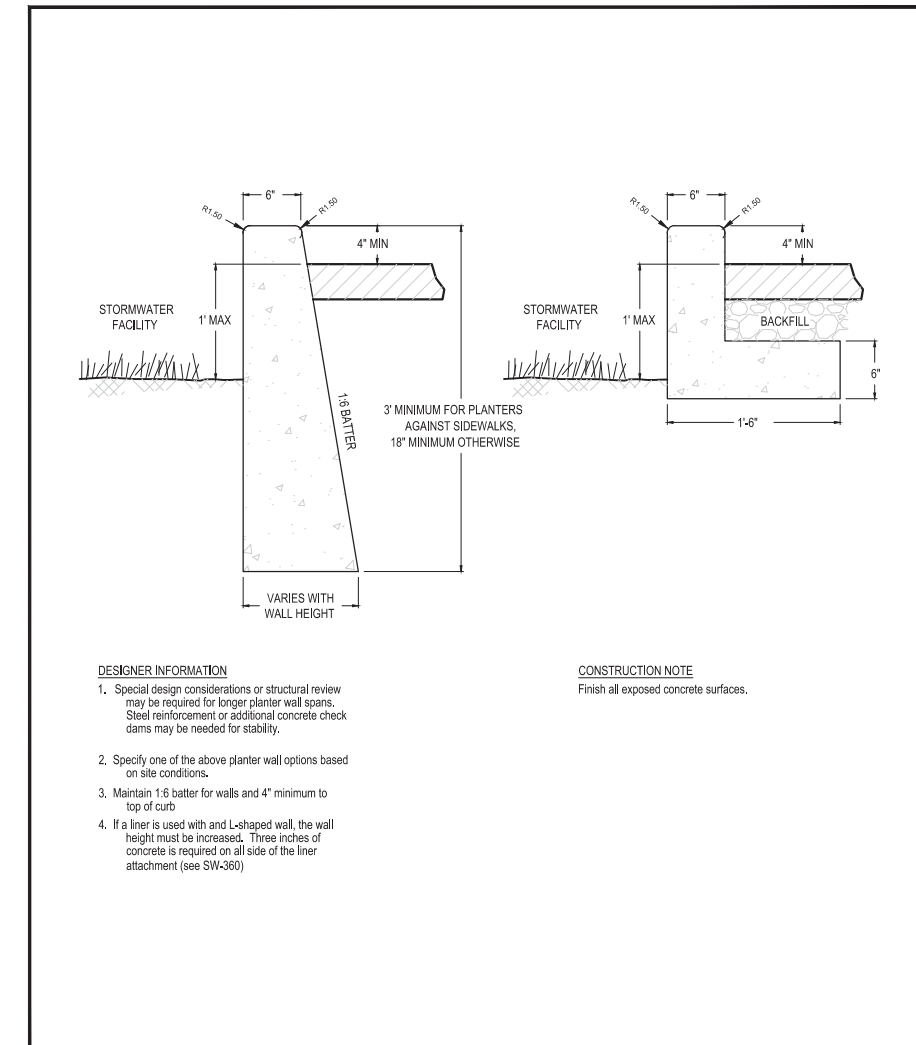


- DESIGNER INFORMATION:**
- For use with planters. If planter inlet is adjacent to planter wall, then include wall in detail.
 - Refer to Standard Drawing P-540. Match gutter pan of adjacent curb and gutter.
 - Metal Inlet assembly, SW-332, required on high traffic streets.

STORMWATER MANAGEMENT MANUAL TYPICAL DETAILS

- Green Streets -
Concrete Inlet
Curb Inlets

NUMBER
SW-331

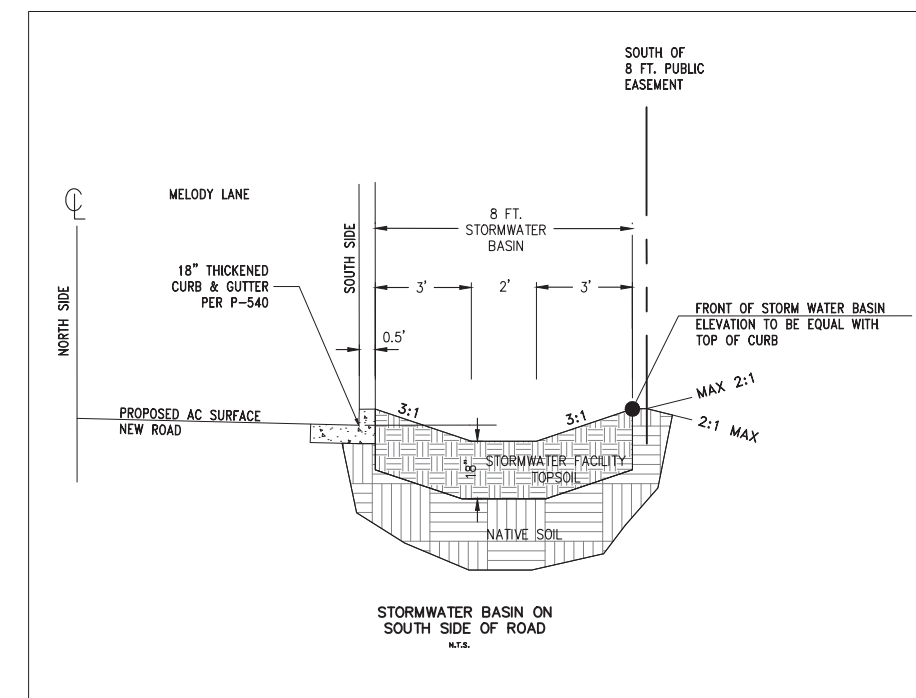


- DESIGNER INFORMATION:**
- Special design considerations or structural review may be required for longer planter wall spans. Steel reinforcement or additional concrete check dams may be needed for stability.
 - Specify one of the above planter wall options based on site conditions.
 - Maintain 1:6 batter for walls and 4" minimum to top of curb
 - If a liner is used with an L-shaped wall, the wall height must be increased. Three inches of concrete is required on all side of the liner attachment (see SW-360)
- CONSTRUCTION NOTE:**
Finish all exposed concrete surfaces.

STORMWATER MANAGEMENT MANUAL TYPICAL DETAILS

- Green Streets -
Planter Wall Details
Planters

NUMBER
SW-313



STORMWATER BASIN ON SOUTH SIDE OF ROAD

M.T.A.

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 www.bmpdesignplus.com

5/28/2017
 REGISTERED PROFESSIONAL ENGINEER
 49718PPE
 BOGDAN M. POPESCU
 EXPIRATION DATE 12/31/18

ROSE BANK ESTATES, MILWAUKIE OREGON
STORMWATER DETAILS
 4543 LOGUS ROAD, MILWAUKIE, CLACKAMAS COUNTY, OREGON
 NW 1/4 SW 1/4 SECTION 30, T1S, R2E, W1M.

REVISION/DATE	DESCRIPTION	DRAFT BY	DESIGN BY	CHECK BY

PRELIMINARY, SUBJECT TO REVIEWS AND REVISIONS, NOT FOR CONSTRUCTION

SHEET **3** OF

PROJECT No. 15122
15122_BASE.dwg

PRE-APPLICATION CONFERENCE REPORT

This report is provided as a follow-up to a meeting that was held on 9/17/2015 at 10:00am

Applicant Name: Julian Illingworth

Company:

Applicant 'Role': Owner

Address Line 1: 6334 N Curtis Ave

Address Line 2:

City, State Zip: Portland OR 97217

Project Name: Subdivision

Description: Develop property: subdivide 1 acre property to create 3 additional lots.

ProjectAddress: 4543 SE Logus Rd

Zone: Residential Zone R-7.

Occupancy Group:

ConstructionType:

Use: Single-family residential.

Occupant Load:

AppsPresent: Andrew Lightcap, Julian Illingworth, Joyce Illingworth

Staff Attendance: Li Alligood, Samantha Vandagriff, Chrissy Dawson, Matt Amos, Stacy Stubblefield

BUILDING ISSUES

ADA:

Structural:

Mechanical:

Plumbing:

Plumb Site Utilities:

Electrical:

Notes:

Please note all drawings must be individually rolled. If the drawings are small enough to fold they must be individually folded.

FIRE MARSHAL ISSUES

- Fire Sprinklers:** Fire Sprinklers may be required depending on location of house on lot. A fire department turn around will be required at the end of melody lane.
- Fire Alarms:**
- Fire Hydrants:**
- Turn Arouds:**
- Addressing:**
- Fire Protection:**
- Fire Access:**
- Hazardous Mat.:**
- Fire Marshal Notes:**

PUBLIC WORKS ISSUES

- Water:** A City of Milwaukie 6-inch water main on SE Melody Lane will need to be extended to the east property line to serve the proposed development, and to facilitate future development. The water System Development Charge (SDC) is based on the size of water meter serving the property. The corresponding water SDC will be assessed with installation of a water meter. Water SDC credit will be provided based on the size of any existing water meter serving the property removed from service. The water SDC will be assessed and collected at the time the building permits are issued.
- Sewer:** A City of Milwaukie 6-inch wastewater main on SE Melody Lane will need to be extended to the west property line to serve the proposed development, and to facilitate future development. Currently, the wastewater System Development Charge (SDC) is comprised of two components. The first component is the City’s SDC charge of \$893.00 and the second component is the County’s SDC for treatment of \$5,970 that the City collects and forwards to the County. Both SDC charges are per connection unit. The wastewater SDC is assessed using a plumbing fixture count from Table 7-3 of the Uniform Plumbing Code. The wastewater SDC connection units are calculated by dividing the fixture count of new plumbing fixtures by sixteen. The wastewater SDC will be assessed and collected at the time the building permits are issued.
- Storm:** Submission of a storm water management plan by a qualified professional engineer is required as part of the proposed development. The plan shall conform to Section 2 - Stormwater Design Standards of the City of Milwaukie Pubic Works Standards.
The storm water management plan shall demonstrate that the post-development runoff does not exceed the pre-development, including any existing storm water management facilities serving the development property. Also, the plan shall demonstrate compliance with water quality standards. The City of Milwaukie has adopted the City of Portland 2008 Stormwater Management Manual for design of water quality facilities.
All new impervious surfaces, including replacement of impervious surface with new impervious surfaces, are subject to the water quality standards. See City of Milwaukie Public Works Standards for

design and construction standards and detailed drawings.

The storm SDC is based on the amount of new impervious surface constructed at the site. One storm SDC unit is the equivalent of 2,706 square feet of impervious surface. The storm SDC is currently \$844 per unit. The storm SDC will be assessed and collected at the time the building permits are issued.

Street:

The proposed development is adjacent to City of Milwaukie right of way for an unimproved extension of SE Melody Lane, a local road. The portion of SE Melody Lane adjacent to the proposed development has a right-of-way width of 40 feet and is unimproved.

Frontage:

Chapter 19.700 of the Milwaukie Municipal Code, hereafter referred to as "Code", applies to partitions, subdivisions, and new construction.

Transportation Facility Requirements, Code Section 19.708, states that all rights-of-way, streets, sidewalks, necessary public improvements, and other public transportation facilities located in the public right-of-way and abutting the development site shall be adequate at the time of development or shall be made adequate in a timely manner.

SE LOGUS ROAD

According to Code Table 19.708.2 and the Transportation Design Manual, the neighborhood route cross section includes the following:

- 10-foot travel lanes
- 6-foot parking strips with curb
- 5-foot landscape strips
- 5-foot setback sidewalks

The City of Milwaukie Engineering Department has completed a rough proportionality analysis and has determined that requiring construction of the necessary improvements to Logus Road would not be proportional to the potential impacts of the proposed development.

SE MELODY LANE

According to Code Table 19.708.2 and the Transportation Design Manual, the local street cross section includes the following:

- 10-foot travel lanes
- 8-foot parking strip (one side) with curb and gutter (both sides)
- 5-foot landscape strips
- 5-foot setback sidewalks

The Melody Lane improvements include a 28 foot wide asphalt paved street, with curb and gutter, 5 foot planter strips, and 5 foot setback sidewalks on both sides. The Melody Lane improvements will need to extend the existing street from its current termination point to the east property line to serve the proposed development, and to facilitate future development.

Right of Way:

The existing right-of-way on SE Logus Road fronting the proposed development is 30 feet in width. According to Code Table 19.708.2, the required right-of-way width for a local road is 50 feet. The applicant is responsible for a right-of-way dedication, 10 feet in width, along the entire portion of SE Logus Road fronting the proposed development.

The existing right-of-way width on SE Melody Lane adjacent to the proposed development is 40 feet in width. According to Code Table 19.708.2, the required right-of-way width for a local road is 50 feet. The applicant is responsible for a right-of-way dedication, 50 feet in width, along the projected

alignment of the continuation of SE Moldy Lane of a sufficient length to span the property west to east.

Driveways:

Code Section 12.16.040.A states that access to private property shall be permitted with the use of driveway curb cuts and driveways shall meet all applicable guidelines of the Americans with Disabilities Act (ADA). Driveway approaches shall be improved to meet the requirements of Milwaukie's Public Works Standards.

Erosion Control:

Per Code Section 16.28.020(C), an erosion control permit is required prior to placement of fill, site clearing, or land disturbances, including but not limited to grubbing, clearing or removal of ground vegetation, grading, excavation, or other activities, any of which results in the disturbance or exposure of soils exceeding five hundred square feet.

Code Section 16.28.020(E) states that an erosion control permit is required prior to issuance of building permits or approval of construction plans. Also, Section 16.28.020(B) states that an erosion control plan that meets the requirements of Section 16.28.030 is required prior to any approval of an erosion control permit.

Traffic Impact Study: N/A

PW Notes:

TRANSPORTATION SDC

The Transportation SDC will be based on the increase in trips generated by the new use per the Trip Generation Handbook from the Institute of Transportation Engineers. The SDC for transportation is \$1,920 per trip generated. Credits will be given for any demolished structures, which shall be based upon the existing use of the structures.

PARKS & RECREATION SDC

The parks & recreation System Development Charge (SDC) is triggered when application for a building permit on a new dwelling is received. Currently, the parks and recreation SDC for each Single-Family Residence is \$3,985.00. Credit is applied to any demolished structures and is based upon the existing use of the structures. The parks and recreation SDC will be assessed and collected at the time the building permits are issued.

REQUIREMENTS AT FINAL PLAT

- Engineered plans for public improvements (street, sidewalk, and utility) are to be submitted and approved prior to start of construction. Full-engineered design is required along the frontage of the proposed development.

- The applicant shall pay an inspection fee of 5.5% of the cost of public improvements prior to start of construction.

- The applicant shall provide a payment and performance bond for 100% of the cost of the public improvements prior to the start of construction.

- The applicant shall provide a final approved set of Mylar "As Constructed" drawings to the City of Milwaukie prior to the final inspection.

- The applicant shall provide a maintenance bond for 100% of the cost of the public improvements prior to the final inspection

PLANNING ISSUES

Setbacks:

Residential zone R-7: front yard 20 ft; side yard 10 ft/5ft; rear yard 20 ft. Accessory structures (sheds,

detached garages, etc.) cannot be located in the required front yard or street side yard. Cornices, eaves, canopies, sunshades, gutters, steps, unroofed landings, and flues may project up to 24 inches into a required side yard and up to 36 inches into a required front or rear yard.

Landscape:

The R-7 zone requires that 30% of the total area of the lot be left or planted in trees, grass, shrubs, planting beds, etc. No more than 20% of the required vegetation area shall be covered in mulch or bark dust.

At least 40% of the front yard shall be vegetated. The front yard vegetation area required by this subsection counts toward the minimum required vegetation for the lot. A property may provide less than the 40% of the front yard vegetation requirement if it is necessary to provide a turnaround area so that vehicles can enter a collector or arterial street in a forward motion.

Please refer to MMC 19.504.8 regarding required landscaping for flag lots.

Parking:

Single-family residential uses require a minimum of 1 off-street parking space per dwelling unit (minimum 9 ft by 18 ft) upon development. Required spaces cannot be located in a required front or street side yard. Parking and maneuvering areas must be paved or otherwise hard, durable, dust-free surfaces. The use of pervious materials is allowed and encouraged. See MMC Section 19.607 for more details.

Transportation Review:

The City's transportation requirements are located in MMC 19.700. The Engineering Department has determined that this chapter will be triggered by the proposed project. See 'Public Works' notes for details.

Application Procedures:

The applicant is interested in subdividing the property to create 3 additional lots in addition to the parent lot at 4543 SE Logus Rd. The 3 new lots would front on an extension of Melody Ln. The existing single-family home on the lot would remain. The creation of 4 lots is considered a subdivision. If a total of 3 lots are proposed, then the application would be for a minor land partition. The minimum density for the R7 zone is 5.0 dwelling units per acre. Per MMC 19.301.5.D the application must show how the proposal meets this requirement.

Application procedures are described below.

Minor Land Partition: Minor land partition is required for projects that create 3 or fewer lots. Per MMC 17.12.020.D, the application for a subdivision is reviewed through a Type II review per MMC 19.1005, and the application fee is \$1,000. The following sections of the Milwaukie Municipal Code apply to a minor land partition: 17.12 Application Procedure and Approval Criteria; 17.16 Application Requirements and Procedures; 17.28 Design Standards; 17.20 Preliminary Plat; 17.24 Final Plat; 19.301 Residential Zone R-7; 19.1200 Solar Access Protection, and 19.700 Public Facility Improvements.

Subdivision: Subdivision approval is required for projects that create 4 or more lots. Per MMC 17.12.020.E, the application for a subdivision is reviewed through a Type III review per MMC 19.1006, and the application fee is \$2,000. The following sections of the Milwaukie Municipal Code apply to a subdivision: 17.12 Application Procedure and Approval Criteria; 17.16 Application Requirements and Procedures; 17.28 Design Standards; 17.20 Preliminary Plat; 17.24 Final Plat; 19.301 Residential Zone R-7; 19.1200 Solar Access Protection, and 19.700 Public Facility Improvements.

Title 17 Land Division Ordinance is available online at <http://www.qcode.us/codes/milwaukie/view.php?topic=17&frames=off>. The section specific to lot design (including compound lot lines) is here:

http://www.qcode.us/codes/milwaukie/view.php?topic=17-17_28-17_28_040&frames=off.

Final Plat (Type I): FP approval is required prior to development permit submittal. The application is reviewed through a Type I review per MMC 19.1004, and the application fee is \$200. The following sections of the Milwaukie Municipal Code would apply to the final plat for a subdivision: 17.12 Application Procedure and Approval Criteria; 17.16 Application Requirements and Procedures; 17.24 Final Plat; and 19.700 Public Facility Improvements.

Variance Review: The submitted drawing shows a lot that is only 62 ft in depth; 80 ft minimum is required. Based on the amount of variance required, this proposal may require a Type III review per MMC 19.911.3.C. Each Variance Review application can include 3 variance requests. The submitted narrative should address the following sections of the Milwaukie Municipal Code: 19.911 Variances; 19.301 Low-Density Residential Zones. In particular, the applicant should review the approval criteria for variances, found in MMC 19.911.4.

The applicant asked about the possibility of rezoning the property to Residential Zone R-5. This would require amendments to the Comprehensive Plan and the Zoning Map. An amendment to the comprehensive plan is a Type V review process (MMC 19.1008). A zoning map amendment is either a Type III or a Type V review process, as determined by the City Attorney per MMC 19.902.6.A.1.

For multiple applications, the most expensive fee is collected in full, with a 25-percent discount for each additional application. For the current fiscal year (until June 30, 2016), the following fees are in effect for the various levels of land use application review: Type I (\$200), Type II (\$1,000), Type III (\$2,000), and Type V (\$5,000). Application fees are based on the current fee schedule. Fees are typically updated on July 1st of each year.

For the City's initial review, the applicant should submit 5 complete copies of the application, including all required forms and checklists. A determination of the application's completeness will be issued within 30 days. If deemed incomplete, additional information will be requested. If deemed complete, additional copies of the application will be required for referral to other departments, the Neighborhood District Association (NDA), and other relevant parties and agencies. City staff will inform the applicant of the total number of copies needed.

Land use application submission materials are listed below for your convenience. Please refer to the handouts distributed at the pre-application conference for more detailed information.

1. All applicable land use applications forms with signatures of property owners.
2. All applicable land use application fees.
3. Completed and signed "Submittal Requirements" and "Preliminary Plat Checklist and Procedures" or "Final Plat Checklist and Procedures" forms.
4. 5 copies of an existing conditions and a proposed conditions site plan, both to scale. These two site plans can be combined onto one site plan. Once the application is deemed complete, additional copies will be requested for distribution to City departments, applicable governmental agencies, and the neighborhood district association for review.
5. Detailed narrative describing compliance with all applicable code sections.

Type III applications are quasi-judicial in nature and are decided by the Planning Commission at a public hearing. The Planning Commission hears land use applications on the second and fourth Tuesdays of every month, and completed applications need to be submitted to the Planning Department no later than 45 days prior to the target Planning Commission hearing. In general, staff recommends that applications be submitted one to two weeks before the 45-day deadline in order to ensure that there is time to make the applications complete if they are initially deemed incomplete. Once the Planning

Commission renders a decision, there is a fifteen calendar-day appeal period. Building permits will be accepted for review only after the appeal period for all land use decisions has expired.

Type II applications are administrative in nature and are decided by the Planning Director. A decision cannot be issued sooner than 14 days after mailing of the public notice and referral.

Type I applications are administrative in nature and are decided by the Planning Director. A decision is generally issued within 14 days of the application being deemed complete.

Natural Resource Review: The property does not contain any mapped natural resource areas.

Lot Geography: The property consists of one tax lot and is generally rectilinear in shape.

Planning Notes:

1. The preapplication conference is valid for purposes of submitting future land use applications as described in MMC 19.1002.4. A preapplication conference is valid for 2 years.
2. The sites are located in the Lewelling Neighborhood District Association (NDA) boundary. Staff strongly encourages the applicant to present any proposed land partition to the NDA and/or its Land Use Committee, as well as to the immediate property owners. The NDA's webpage is on-line at www.ci.milwaukie.or.us/communityservices/lewelling-nda. Their meetings are held at 7:00pm on the second Wednesday of the month at Lewelling Elementary, 5325 SE Logus St. The NDA Chairperson is Bryan Trotter (971-295-0393, LewellingTrotter@outlook.com). Please contact the Chair to coordinate a meeting to discuss the proposal.
3. The preliminary plat does not need to be stamped by an engineer. However, it is advisable to have an engineer prepare the preliminary plat in order to avoid inaccuracies that could impact the applicant's ability to divide the property.
4. The applicant is strongly advised to check with the Clackamas County Surveyor prior to preparation of a survey to identify the documents the County will require for recording the final plat.
5. Design of single-family homes is subject to design standards. See MMC Section 19.505.1 for more details.
6. The Milwaukie Municipal Code is located online at <http://www.qcode.us/codes/milwaukie/>. Land use application forms are located online at <http://www.milwaukieoregon.gov/planning/land-use-application>.

ADDITIONAL NOTES AND ISSUES

County Health Notes:

Other Notes:

This is only preliminary preapplication conference information based on the applicant's proposal and does not cover all possible development scenarios. Other requirements may be added after an applicant submits land use applications or building permits. City policies and code requirements are subject to change. If you have any questions, please contact the City staff that attended the conference (listed on Page 1). Contact numbers for these staff are City staff listed at the end of the report.

Sincerely,

City of Milwaukie Development Review Team

BUILDING DEPARTMENT

Tom Larsen - Building Official - 503-786-7611

Bonnie Lanz - Permit Specialist - 503-786-7613

ENGINEERING DEPARTMENT

Gary Parkin - City Engineer - 503-786-7601

Brad Albert - Civil Engineer - 503-786-7609

Zach Weigel - Civil Engineer - 503-786-7610

Jason Rice - Civil Engineer - 503-786-7605

Matt Palmer - Associate Engineer - 503-786-7602

COMMUNITY DEVELOPMENT DEPARTMENT

Jeanne Garst - Administrative Supervisor - 503-786-7655

Marcia Hamley - Admin Specialist - 503-786-7656

Blanca Marston - Admin Specialist - 503-786-7600

Alicia Martin - Admin Specialist - 503-786-7600

PLANNING DEPARTMENT

Stephen Butler - Planning Director - 503-786-7652

Ryan Marquardt - Senior Planner - 503-786-7658

Brett Kelter - Associate Planner - 503-786-7657

Li Alligood - Associate Planner - 503-786-7627

Kari Svanstrom - Associate Planner - 503-786-7653

CLACKAMAS FIRE DISTRICT

Mike Boumann - Lieutenant Deputy Fire Marshal - 503-742-2673

Clackamas County Fire District #1

Fire Prevention Office



E-mail Memorandum

To: City of Milwaukie Planning Department
From: Matt Amos, Fire Inspector, Clackamas Fire District #1
Date: 10/1/2015
Re: 4543 SE Logus Rd. 15-018PA

This review is based upon the current version of the Oregon Fire Code (OFC), as adopted by the Oregon State Fire Marshal's Office. The scope of review is typically limited to fire apparatus access and water supply, although the applicant must comply with all applicable OFC requirements. When buildings are completely protected with an approved automatic fire sprinkler system, the requirements for fire apparatus access and water supply may be modified as approved by the fire code official. The following items should be addressed by the applicant:

COMMENTS:

Access:

- 1) Fire apparatus access roads shall have an unobstructed driving surface width of not less than 20 feet (26 feet adjacent to fire hydrants) and an unobstructed vertical clearance of not less than 13 feet 6 inches.
- 2) Provide an approved turnaround for dead end access roads exceeding 150 feet in length.

Water Supply:

- 3) Dwellings, their garages, and any accessory structures larger than 3,600 square feet in area must be reviewed for compliance with the water supply requirements of the Fire Code. Residential fire sprinklers may substitute for a water supply.
- 4) For one and two family dwellings located in areas with reliable municipal fire fighting water supply the following shall apply:
 - <3,600 square feet (including attached garage)
 - a) 1,000 gpm @ 20 psi with hydrant within 600 feet of furthest portion of new residential construction, (OFC Section B105.2)

Stormwater Report

DATE: May 28, 2017

FROM: Bogdan Popescu, P.E., P.L.S.

RE: Rose Bank Estates – 4 lots Residential Subdivision

LEGAL DESCRIPTION: 1.06 ACRES NW ¼ SW ¼ SEC 30, T1S, R2E, W.M.
ADDRESS: 4543 LOGUS ROAD, MILWAUKIE, CLACKAMAS COUNTY, OREGON

DESIGN CRITERIA:

- Design Storms: Design storms are based on total rainfall (inches) and rainfall distribution, per Clackamas County and State of Oregon Standards.
- Rainfall Intensity: The following are rainfall intensities for the respective storm events. The values were obtained from Milwaukie Stormwater Master Plan, which recorded the values from NOAA Atlas 2 Volume X. Storms are SCS 24HR TYPE IA.

Water quality event	1.0 inches
2-year event	2.4 inches
5-year event	3.0 inches
10-year event	3.5 inches
25-year event	4.0 inches
100-year event	4.7 inches

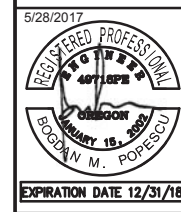
- Hydrological Soil Type: The soils report for the project area classifies the soil as hydrologic soil group "B".
- Curve Number (CN): The CN values were determined using Stormwater Management Manual.
- Drainage Basin Areas: total area 1.06 acres

INFILTRATION / WATER QUALITY DESIGN:

- Infiltration Rate: An ultimate infiltration rate of 16.0 inches/hour was measured in the layers of soil at depths of 3 and 5' below ground. Soil was medium brown, very moist, slightly clayey, fine sandy silt. A design infiltration rate of 8.0 inches/hour was used for the design of the subdivision's infiltration system, on the recommendation of the geotechnical engineer, to account for silting and variability of existing soil conditions.
- Water Quality: Water quality for the roof infiltration systems will be provided by a catch basin sump with fine wire mesh on the outlet to the trench system, per Clackamas standard detail and in agreeance with City of Portland stormwater management manual. The public roadway on site will be crowned and drain to street side infiltration planters, per City of Portland. The amended soil mixture used will need to also provide 8.0 inches/hr for these planters. All drainage basins on site within the public ROW or public Easement shall be sized per COP Presumptive Approach Method for both street and sidewalk
- Infiltration Drywell: The roof infiltration drywell was modified from the standard detail to have a larger rock section. The standard detail shows a 48" manhole with 12" of rock surrounding the concrete structure for a roof this size. The proposed infiltration drywell will have a rock section of 36" to accommodate the site conditions of soil infiltration, lot sizes, and lack of acceptable overflow route.

See attached Storm water Basin Map for Areas Calculations.
See attached Presumptive Approach Report for Calculations.

THESE DRAWINGS ARE THE PROPERTY OF BMP DESIGN LLC. NO REPRODUCTION IS ALLOWED IN ANY MANNER EXCEPT WITH THE WRITTEN PERMISSION OF BMP DESIGN LLC.



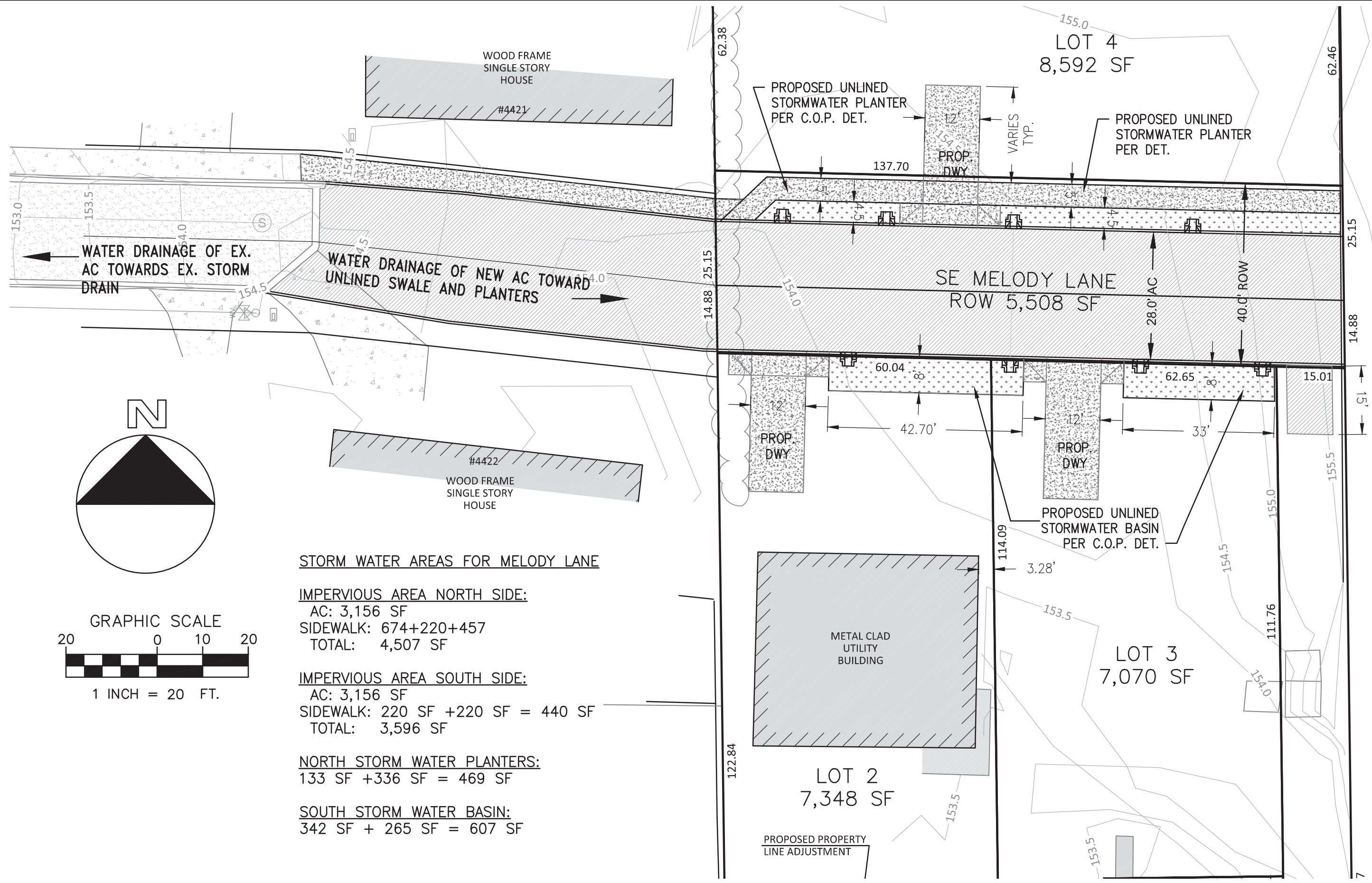
ROSE BANK ESTATES, MILWAUKIE OREGON
STORM BASINS AREAS
 4543 LOGUS ROAD, MILWAUKIE, CLACKAMAS COUNTY, OREGON
 NW 1/4 SW 1/4 SECTION 30, T15, R2E, W.M.

PRELIMINARY, SUBJECT TO REVIEWS AND REVISIONS, NOT FOR CONSTRUCTION

REVISION/DATE	DESCRIPTION	DRAFT BY	DESIGN BY	CHECK BY

SHEET _____ OF _____

PROJECT No. 15122
 15122_BASE.dwg



STORM WATER AREAS FOR MELODY LANE

IMPERVIOUS AREA NORTH SIDE:

AC: 3,156 SF
 SIDEWALK: 674+220+457
 TOTAL: 4,507 SF

IMPERVIOUS AREA SOUTH SIDE:

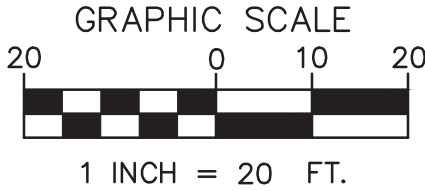
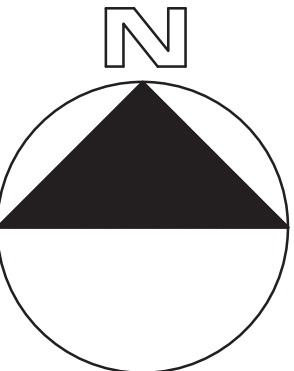
AC: 3,156 SF
 SIDEWALK: 220 SF + 220 SF = 440 SF
 TOTAL: 3,596 SF

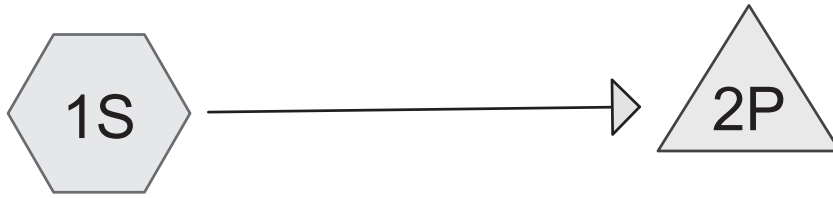
NORTH STORM WATER PLANTERS:

133 SF + 336 SF = 469 SF

SOUTH STORM WATER BASIN:

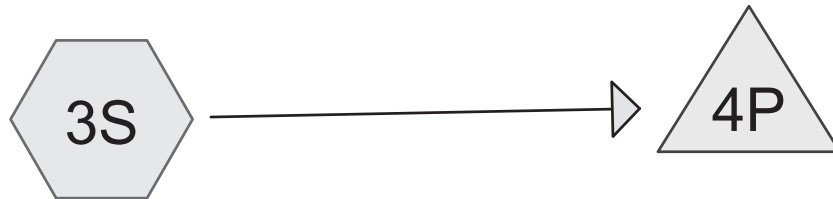
342 SF + 265 SF = 607 SF





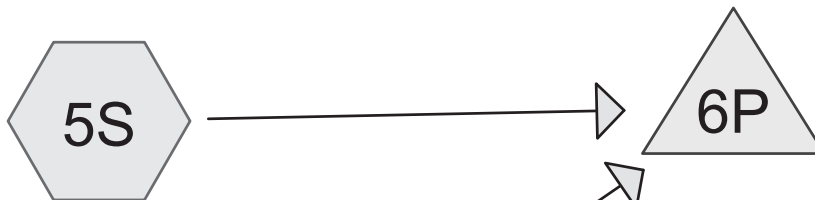
NORTH SIDE STREET

NORTH SIDE
PLANTER



SOUTH SIDE STREET

SOUTH SIDE
PLANTER

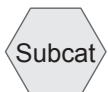


LOT 4 ROOF

RESIDENTIAL
DRYWELL



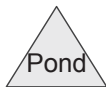
LOT 4 LANDSCAPING



Subcat



Reach



Pond



Link

Routing Diagram for 15122 LOGUS ROAD STORM

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15122 LOGUS ROAD STORM

Prepared by {enter your company name here}

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.115	61	>75% Grass cover, Good, HSG B (7S)
0.147	98	IMPERVIOUS AREA (1S, 3S)
0.011	100	PLANTER SURFACE (1S, 3S)
0.083	98	Unconnected roofs, HSG B (5S)
0.355	86	TOTAL AREA

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Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.197	HSG B	5S, 7S
0.000	HSG C	
0.000	HSG D	
0.158	Other	1S, 3S
0.355		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.115	0.000	0.000	0.000	0.115	>75% Grass cover, Good	7S
0.000	0.000	0.000	0.000	0.147	0.147	IMPERVIOUS AREA	1S, 3S
0.000	0.000	0.000	0.000	0.011	0.011	PLANTER SURFACE	1S, 3S
0.000	0.083	0.000	0.000	0.000	0.083	Unconnected roofs	5S
0.000	0.197	0.000	0.000	0.158	0.355	TOTAL AREA	

15122 LOGUS ROAD STORM

Type IA 24-hr 2 YEAR Rainfall=2.40"

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Time span=0.00-28.00 hrs, dt=0.01 hrs, 2801 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: NORTH SIDE STREET Runoff Area=3,291 sf 100.00% Impervious Runoff Depth=2.17"
 Tc=5.0 min CN=98 Runoff=0.04 cfs 0.014 af

Subcatchment 3S: SOUTH SIDE STREET Runoff Area=3,580 sf 100.00% Impervious Runoff Depth=2.17"
 Tc=5.0 min CN=98 Runoff=0.05 cfs 0.015 af

Subcatchment 5S: LOT 4 ROOF Runoff Area=3,600 sf 100.00% Impervious Runoff Depth=2.17"
 Tc=5.0 min CN=98 Runoff=0.05 cfs 0.015 af

Subcatchment 7S: LOT 4 LANDSCAPING Runoff Area=5,000 sf 0.00% Impervious Runoff Depth=0.17"
 Tc=5.0 min CN=61 Runoff=0.00 cfs 0.002 af

Pond 2P: NORTH SIDE PLANTER Peak Elev=0.02' Storage=2 cf Inflow=0.04 cfs 0.014 af
 Outflow=0.04 cfs 0.014 af

Pond 4P: SOUTH SIDE PLANTER Peak Elev=0.07' Storage=12 cf Inflow=0.05 cfs 0.015 af
 Outflow=0.04 cfs 0.015 af

Pond 6P: RESIDENTIAL DRYWELL Peak Elev=1.75' Storage=0.001 af Inflow=0.05 cfs 0.017 af
 Outflow=0.02 cfs 0.017 af

Total Runoff Area = 0.355 ac Runoff Volume = 0.045 af Average Runoff Depth = 1.52"
32.32% Pervious = 0.115 ac 67.68% Impervious = 0.240 ac

15122 LOGUS ROAD STORM

Type IA 24-hr 2 YEAR Rainfall=2.40"

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Summary for Subcatchment 1S: NORTH SIDE STREET

Runoff = 0.04 cfs @ 7.86 hrs, Volume= 0.014 af, Depth= 2.17"

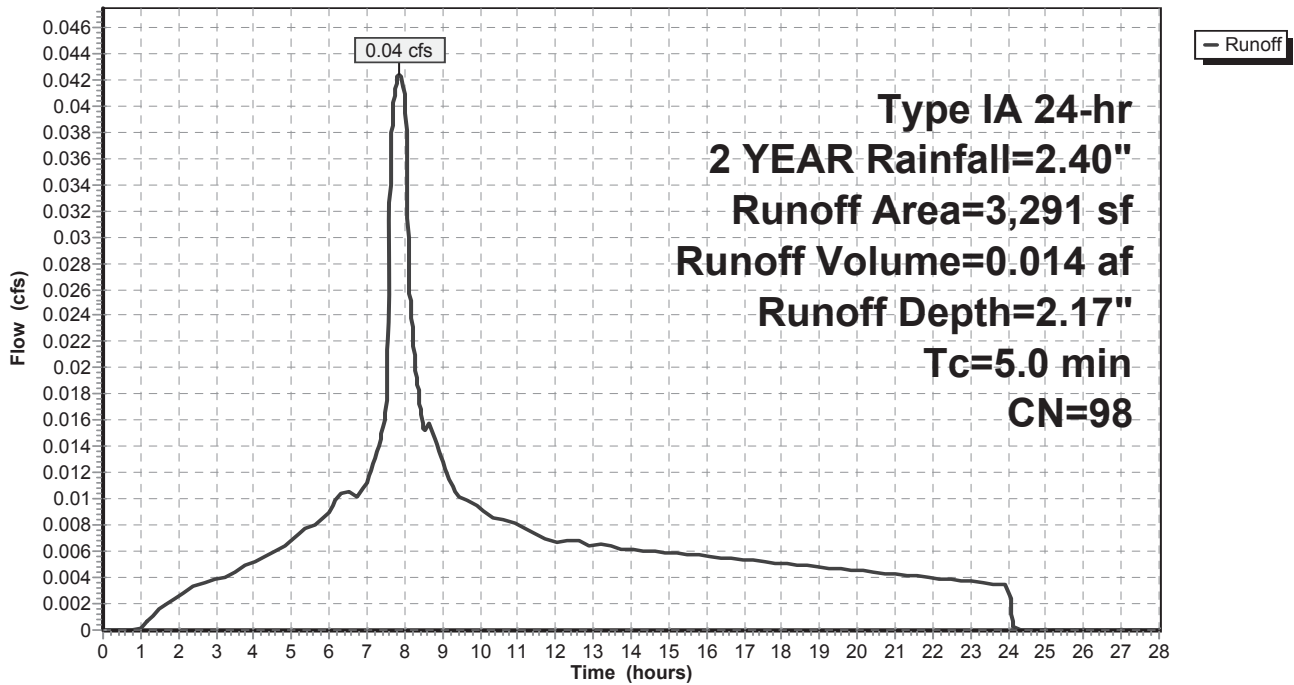
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2 YEAR Rainfall=2.40"

	Area (sf)	CN	Description
*	3,012	98	IMPERVIOUS AREA
*	279	100	PLANTER SURFACE
	3,291	98	Weighted Average
	3,291		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MIMIMUM FLOW TIME

Subcatchment 1S: NORTH SIDE STREET

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 2 YEAR Rainfall=2.40"

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Hydrograph for Subcatchment 1S: NORTH SIDE STREET

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	2.40	2.17	0.00
0.50	0.02	0.00	0.00	27.00	2.40	2.17	0.00
1.00	0.05	0.00	0.00	27.50	2.40	2.17	0.00
1.50	0.08	0.01	0.00	28.00	2.40	2.17	0.00
2.00	0.12	0.02	0.00				
2.50	0.16	0.04	0.00				
3.00	0.20	0.07	0.00				
3.50	0.24	0.09	0.00				
4.00	0.28	0.13	0.01				
4.50	0.32	0.16	0.01				
5.00	0.37	0.21	0.01				
5.50	0.43	0.26	0.01				
6.00	0.49	0.31	0.01				
6.50	0.57	0.38	0.01				
7.00	0.64	0.45	0.01				
7.50	0.74	0.55	0.02				
8.00	1.02	0.81	0.04				
8.50	1.15	0.94	0.02				
9.00	1.25	1.03	0.01				
9.50	1.32	1.10	0.01				
10.00	1.38	1.17	0.01				
10.50	1.44	1.22	0.01				
11.00	1.50	1.28	0.01				
11.50	1.55	1.33	0.01				
12.00	1.59	1.37	0.01				
12.50	1.64	1.42	0.01				
13.00	1.68	1.46	0.01				
13.50	1.73	1.50	0.01				
14.00	1.77	1.54	0.01				
14.50	1.81	1.58	0.01				
15.00	1.85	1.62	0.01				
15.50	1.88	1.66	0.01				
16.00	1.92	1.70	0.01				
16.50	1.96	1.73	0.01				
17.00	1.99	1.77	0.01				
17.50	2.03	1.80	0.01				
18.00	2.06	1.84	0.01				
18.50	2.10	1.87	0.00				
19.00	2.13	1.90	0.00				
19.50	2.16	1.93	0.00				
20.00	2.19	1.96	0.00				
20.50	2.22	1.99	0.00				
21.00	2.25	2.02	0.00				
21.50	2.28	2.05	0.00				
22.00	2.30	2.07	0.00				
22.50	2.33	2.10	0.00				
23.00	2.35	2.12	0.00				
23.50	2.38	2.15	0.00				
24.00	2.40	2.17	0.00				
24.50	2.40	2.17	0.00				
25.00	2.40	2.17	0.00				
25.50	2.40	2.17	0.00				
26.00	2.40	2.17	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr 2 YEAR Rainfall=2.40"

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Summary for Subcatchment 3S: SOUTH SIDE STREET

Runoff = 0.05 cfs @ 7.86 hrs, Volume= 0.015 af, Depth= 2.17"

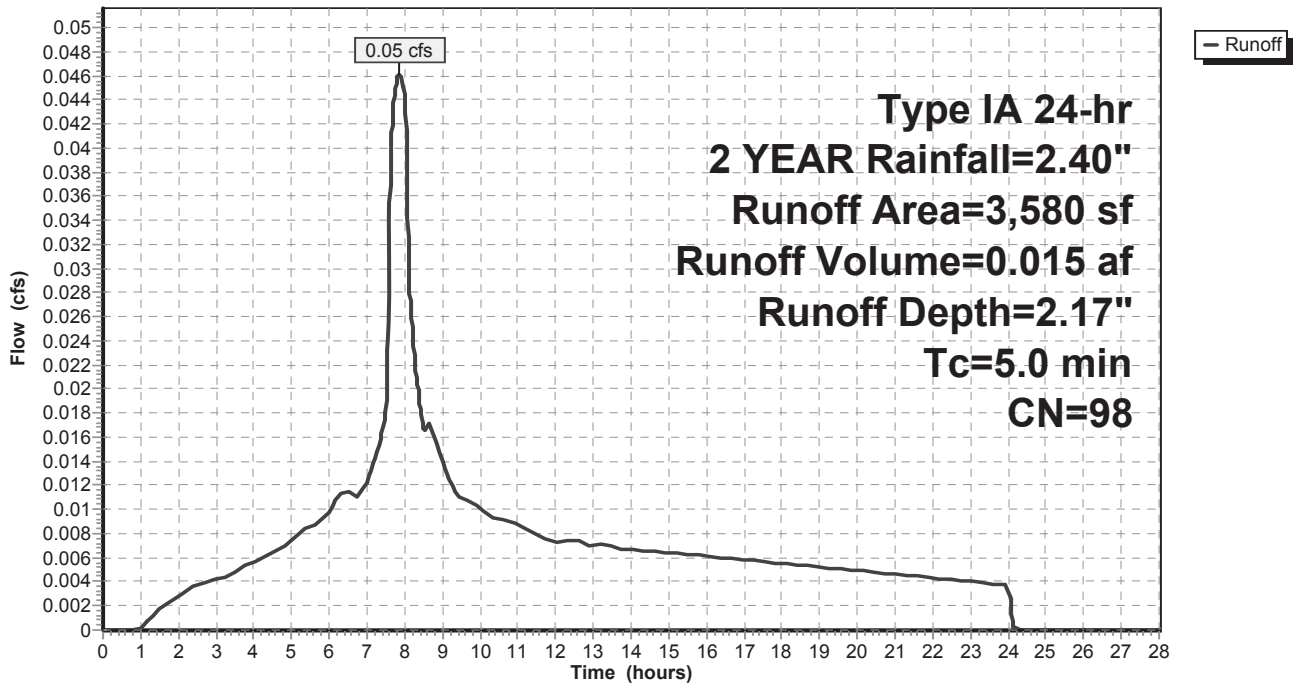
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2 YEAR Rainfall=2.40"

	Area (sf)	CN	Description
*	3,377	98	IMPERVIOUS AREA
*	203	100	PLANTER SURFACE
	3,580	98	Weighted Average
	3,580		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MIMIMUM FLOW TIME

Subcatchment 3S: SOUTH SIDE STREET

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 2 YEAR Rainfall=2.40"

Prepared by {enter your company name here}

Printed 6/1/2016

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Hydrograph for Subcatchment 3S: SOUTH SIDE STREET

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	2.40	2.17	0.00
0.50	0.02	0.00	0.00	27.00	2.40	2.17	0.00
1.00	0.05	0.00	0.00	27.50	2.40	2.17	0.00
1.50	0.08	0.01	0.00	28.00	2.40	2.17	0.00
2.00	0.12	0.02	0.00				
2.50	0.16	0.04	0.00				
3.00	0.20	0.07	0.00				
3.50	0.24	0.09	0.00				
4.00	0.28	0.13	0.01				
4.50	0.32	0.16	0.01				
5.00	0.37	0.21	0.01				
5.50	0.43	0.26	0.01				
6.00	0.49	0.31	0.01				
6.50	0.57	0.38	0.01				
7.00	0.64	0.45	0.01				
7.50	0.74	0.55	0.02				
8.00	1.02	0.81	0.04				
8.50	1.15	0.94	0.02				
9.00	1.25	1.03	0.01				
9.50	1.32	1.10	0.01				
10.00	1.38	1.17	0.01				
10.50	1.44	1.22	0.01				
11.00	1.50	1.28	0.01				
11.50	1.55	1.33	0.01				
12.00	1.59	1.37	0.01				
12.50	1.64	1.42	0.01				
13.00	1.68	1.46	0.01				
13.50	1.73	1.50	0.01				
14.00	1.77	1.54	0.01				
14.50	1.81	1.58	0.01				
15.00	1.85	1.62	0.01				
15.50	1.88	1.66	0.01				
16.00	1.92	1.70	0.01				
16.50	1.96	1.73	0.01				
17.00	1.99	1.77	0.01				
17.50	2.03	1.80	0.01				
18.00	2.06	1.84	0.01				
18.50	2.10	1.87	0.01				
19.00	2.13	1.90	0.01				
19.50	2.16	1.93	0.01				
20.00	2.19	1.96	0.00				
20.50	2.22	1.99	0.00				
21.00	2.25	2.02	0.00				
21.50	2.28	2.05	0.00				
22.00	2.30	2.07	0.00				
22.50	2.33	2.10	0.00				
23.00	2.35	2.12	0.00				
23.50	2.38	2.15	0.00				
24.00	2.40	2.17	0.00				
24.50	2.40	2.17	0.00				
25.00	2.40	2.17	0.00				
25.50	2.40	2.17	0.00				
26.00	2.40	2.17	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr 2 YEAR Rainfall=2.40"

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Summary for Subcatchment 5S: LOT 4 ROOF

Runoff = 0.05 cfs @ 7.86 hrs, Volume= 0.015 af, Depth= 2.17"

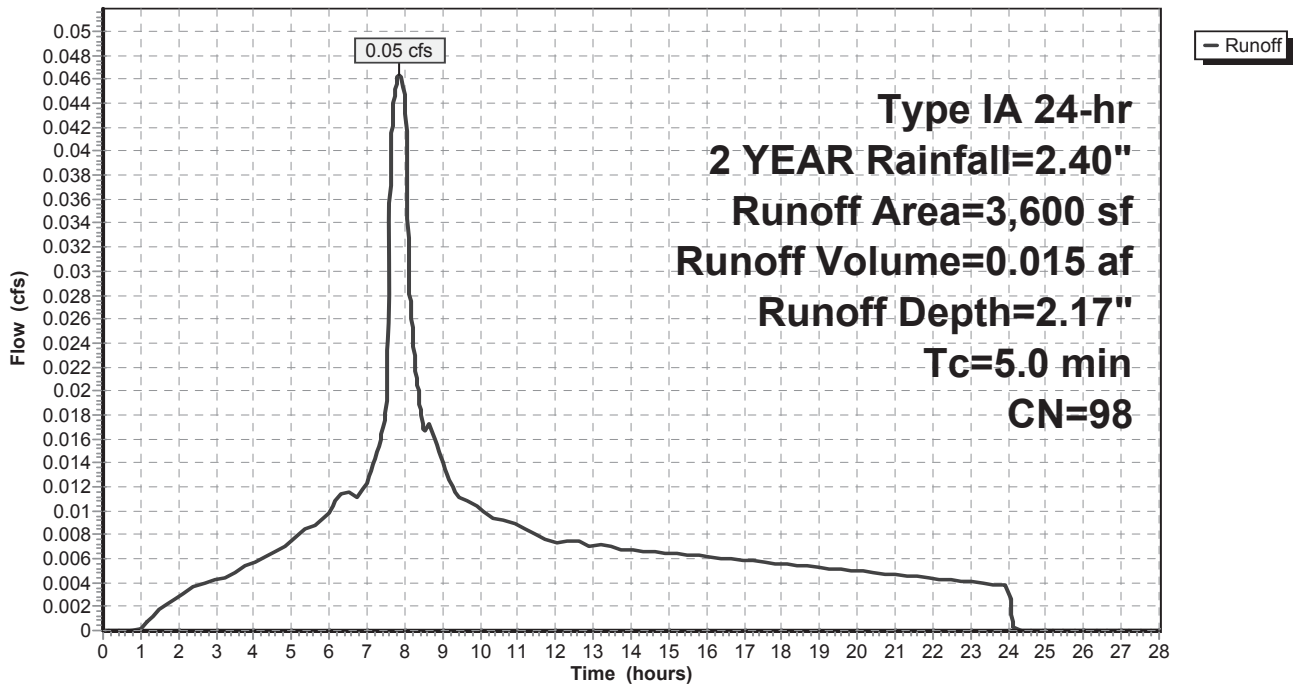
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2 YEAR Rainfall=2.40"

Area (sf)	CN	Description
3,600	98	Unconnected roofs, HSG B
3,600		100.00% Impervious Area
3,600		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MINIMUM TC

Subcatchment 5S: LOT 4 ROOF

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 2 YEAR Rainfall=2.40"

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Hydrograph for Subcatchment 5S: LOT 4 ROOF

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	2.40	2.17	0.00
0.50	0.02	0.00	0.00	27.00	2.40	2.17	0.00
1.00	0.05	0.00	0.00	27.50	2.40	2.17	0.00
1.50	0.08	0.01	0.00	28.00	2.40	2.17	0.00
2.00	0.12	0.02	0.00				
2.50	0.16	0.04	0.00				
3.00	0.20	0.07	0.00				
3.50	0.24	0.09	0.00				
4.00	0.28	0.13	0.01				
4.50	0.32	0.16	0.01				
5.00	0.37	0.21	0.01				
5.50	0.43	0.26	0.01				
6.00	0.49	0.31	0.01				
6.50	0.57	0.38	0.01				
7.00	0.64	0.45	0.01				
7.50	0.74	0.55	0.02				
8.00	1.02	0.81	0.04				
8.50	1.15	0.94	0.02				
9.00	1.25	1.03	0.01				
9.50	1.32	1.10	0.01				
10.00	1.38	1.17	0.01				
10.50	1.44	1.22	0.01				
11.00	1.50	1.28	0.01				
11.50	1.55	1.33	0.01				
12.00	1.59	1.37	0.01				
12.50	1.64	1.42	0.01				
13.00	1.68	1.46	0.01				
13.50	1.73	1.50	0.01				
14.00	1.77	1.54	0.01				
14.50	1.81	1.58	0.01				
15.00	1.85	1.62	0.01				
15.50	1.88	1.66	0.01				
16.00	1.92	1.70	0.01				
16.50	1.96	1.73	0.01				
17.00	1.99	1.77	0.01				
17.50	2.03	1.80	0.01				
18.00	2.06	1.84	0.01				
18.50	2.10	1.87	0.01				
19.00	2.13	1.90	0.01				
19.50	2.16	1.93	0.01				
20.00	2.19	1.96	0.00				
20.50	2.22	1.99	0.00				
21.00	2.25	2.02	0.00				
21.50	2.28	2.05	0.00				
22.00	2.30	2.07	0.00				
22.50	2.33	2.10	0.00				
23.00	2.35	2.12	0.00				
23.50	2.38	2.15	0.00				
24.00	2.40	2.17	0.00				
24.50	2.40	2.17	0.00				
25.00	2.40	2.17	0.00				
25.50	2.40	2.17	0.00				
26.00	2.40	2.17	0.00				

Summary for Subcatchment 7S: LOT 4 LANDSCAPING

Runoff = 0.00 cfs @ 19.45 hrs, Volume= 0.002 af, Depth= 0.17"

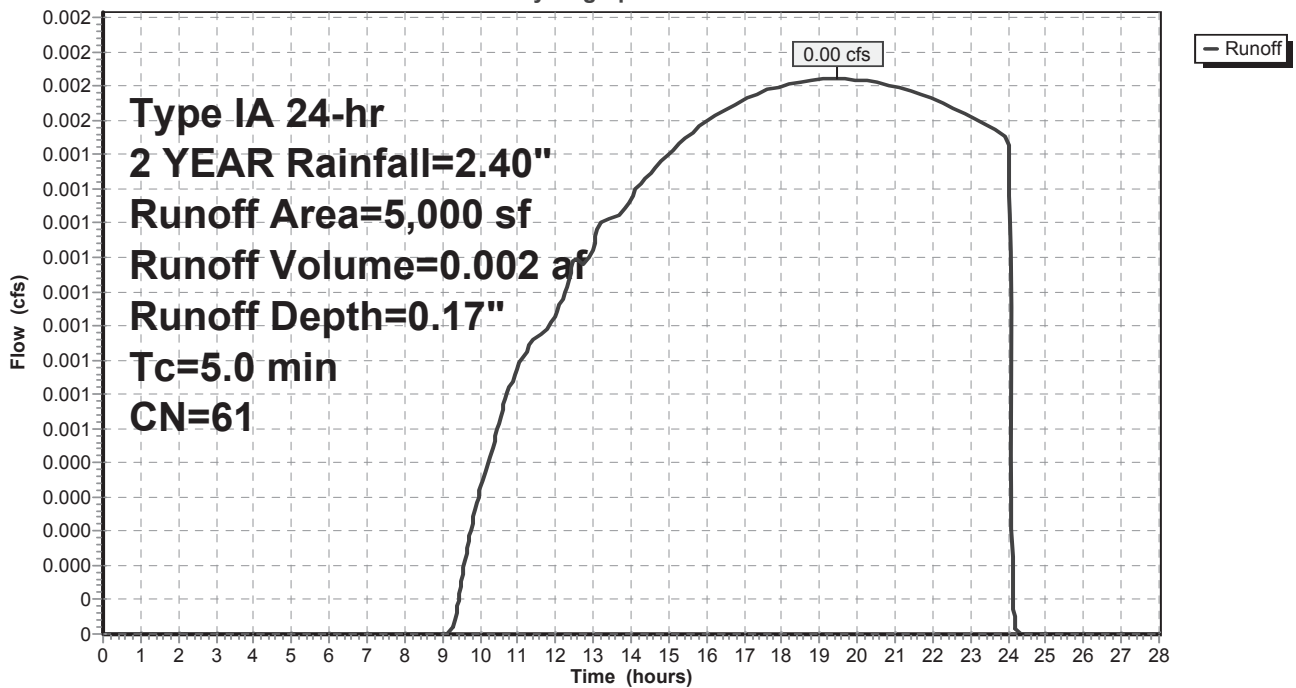
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2 YEAR Rainfall=2.40"

Area (sf)	CN	Description
5,000	61	>75% Grass cover, Good, HSG B
5,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MINIMUM TC

Subcatchment 7S: LOT 4 LANDSCAPING

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 2 YEAR Rainfall=2.40"

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Hydrograph for Subcatchment 7S: LOT 4 LANDSCAPING

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	2.40	0.17	0.00
0.50	0.02	0.00	0.00	27.00	2.40	0.17	0.00
1.00	0.05	0.00	0.00	27.50	2.40	0.17	0.00
1.50	0.08	0.00	0.00	28.00	2.40	0.17	0.00
2.00	0.12	0.00	0.00				
2.50	0.16	0.00	0.00				
3.00	0.20	0.00	0.00				
3.50	0.24	0.00	0.00				
4.00	0.28	0.00	0.00				
4.50	0.32	0.00	0.00				
5.00	0.37	0.00	0.00				
5.50	0.43	0.00	0.00				
6.00	0.49	0.00	0.00				
6.50	0.57	0.00	0.00				
7.00	0.64	0.00	0.00				
7.50	0.74	0.00	0.00				
8.00	1.02	0.00	0.00				
8.50	1.15	0.00	0.00				
9.00	1.25	0.00	0.00				
9.50	1.32	0.00	0.00				
10.00	1.38	0.00	0.00				
10.50	1.44	0.00	0.00				
11.00	1.50	0.01	0.00				
11.50	1.55	0.01	0.00				
12.00	1.59	0.01	0.00				
12.50	1.64	0.02	0.00				
13.00	1.68	0.02	0.00				
13.50	1.73	0.03	0.00				
14.00	1.77	0.03	0.00				
14.50	1.81	0.04	0.00				
15.00	1.85	0.05	0.00				
15.50	1.88	0.05	0.00				
16.00	1.92	0.06	0.00				
16.50	1.96	0.07	0.00				
17.00	1.99	0.07	0.00				
17.50	2.03	0.08	0.00				
18.00	2.06	0.09	0.00				
18.50	2.10	0.09	0.00				
19.00	2.13	0.10	0.00				
19.50	2.16	0.11	0.00				
20.00	2.19	0.11	0.00				
20.50	2.22	0.12	0.00				
21.00	2.25	0.13	0.00				
21.50	2.28	0.13	0.00				
22.00	2.30	0.14	0.00				
22.50	2.33	0.15	0.00				
23.00	2.35	0.15	0.00				
23.50	2.38	0.16	0.00				
24.00	2.40	0.17	0.00				
24.50	2.40	0.17	0.00				
25.00	2.40	0.17	0.00				
25.50	2.40	0.17	0.00				
26.00	2.40	0.17	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr 2 YEAR Rainfall=2.40"

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Summary for Pond 2P: NORTH SIDE PLANTER

Inflow Area = 0.076 ac, 100.00% Impervious, Inflow Depth = 2.17" for 2 YEAR event
 Inflow = 0.04 cfs @ 7.86 hrs, Volume= 0.014 af
 Outflow = 0.04 cfs @ 7.88 hrs, Volume= 0.014 af, Atten= 0%, Lag= 1.3 min
 Discarded = 0.04 cfs @ 7.88 hrs, Volume= 0.014 af

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Peak Elev= 0.02' @ 7.88 hrs Surf.Area= 229 sf Storage= 2 cf

Plug-Flow detention time= 0.3 min calculated for 0.014 af (100% of inflow)
 Center-of-Mass det. time= 0.3 min (673.6 - 673.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	151 cf	PLANTER FREEBOARD (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	1	0	0
0.02	279	3	3
0.55	279	148	151

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = -20.00'

Discarded OutFlow Max=0.04 cfs @ 7.88 hrs HW=0.02' (Free Discharge)
 ↑1=Exfiltration (Controls 0.04 cfs)

15122 LOGUS ROAD STORM

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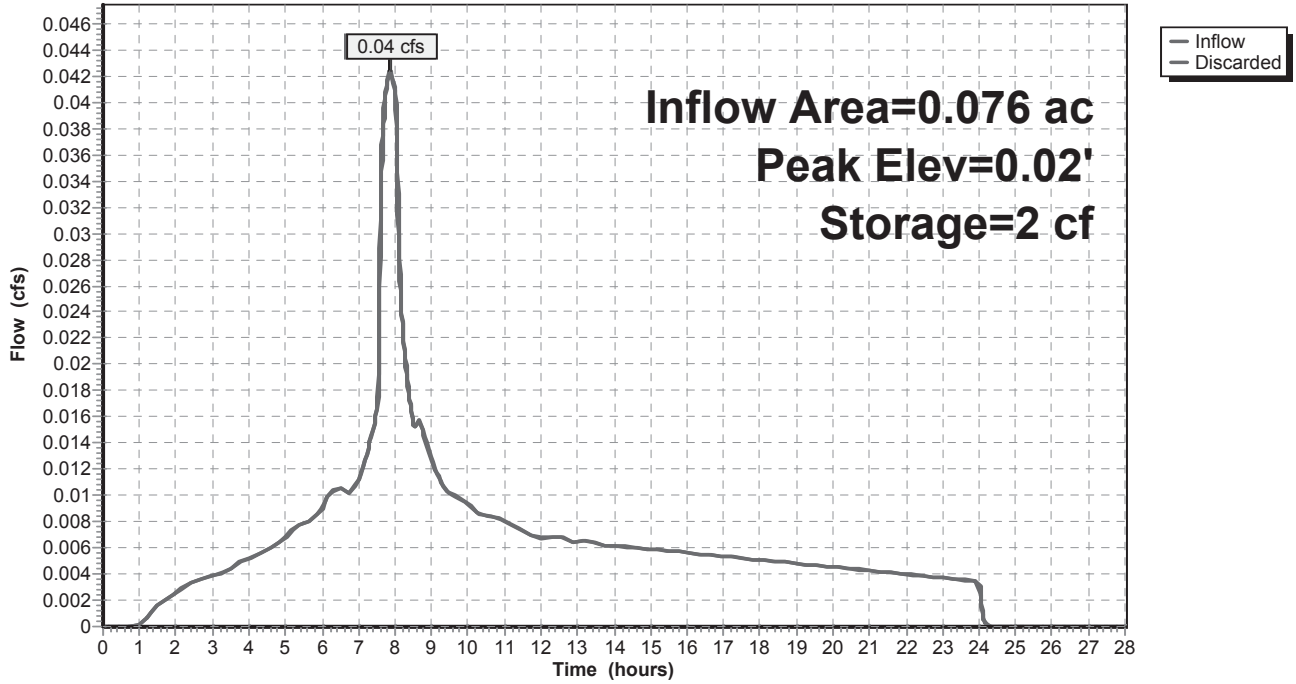
Type IA 24-hr 2 YEAR Rainfall=2.40"

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Pond 2P: NORTH SIDE PLANTER

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 2 YEAR Rainfall=2.40"

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Hydrograph for Pond 2P: NORTH SIDE PLANTER

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	0.00	0.00
1.00	0.00	0	0.00	0.00
2.00	0.00	0	0.00	0.00
3.00	0.00	0	0.00	0.00
4.00	0.01	0	0.00	0.01
5.00	0.01	0	0.00	0.01
6.00	0.01	0	0.00	0.01
7.00	0.01	0	0.00	0.01
8.00	0.04	2	0.02	0.04
9.00	0.01	0	0.00	0.01
10.00	0.01	0	0.00	0.01
11.00	0.01	0	0.00	0.01
12.00	0.01	0	0.00	0.01
13.00	0.01	0	0.00	0.01
14.00	0.01	0	0.00	0.01
15.00	0.01	0	0.00	0.01
16.00	0.01	0	0.00	0.01
17.00	0.01	0	0.00	0.01
18.00	0.01	0	0.00	0.01
19.00	0.00	0	0.00	0.00
20.00	0.00	0	0.00	0.00
21.00	0.00	0	0.00	0.00
22.00	0.00	0	0.00	0.00
23.00	0.00	0	0.00	0.00
24.00	0.00	0	0.00	0.00
25.00	0.00	0	0.00	0.00
26.00	0.00	0	0.00	0.00
27.00	0.00	0	0.00	0.00
28.00	0.00	0	0.00	0.00

15122 LOGUS ROAD STORM

Type IA 24-hr 2 YEAR Rainfall=2.40"

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Summary for Pond 4P: SOUTH SIDE PLANTER

Inflow Area = 0.082 ac, 100.00% Impervious, Inflow Depth = 2.17" for 2 YEAR event
 Inflow = 0.05 cfs @ 7.86 hrs, Volume= 0.015 af
 Outflow = 0.04 cfs @ 8.06 hrs, Volume= 0.015 af, Atten= 18%, Lag= 12.0 min
 Discarded = 0.04 cfs @ 8.06 hrs, Volume= 0.015 af

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Peak Elev= 0.07' @ 8.06 hrs Surf.Area= 203 sf Storage= 12 cf

Plug-Flow detention time= 0.7 min calculated for 0.015 af (100% of inflow)
 Center-of-Mass det. time= 0.7 min (674.0 - 673.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	134 cf	PLANTER FREEBOARD (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	1	0	0
0.02	203	2	2
0.67	203	132	134

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = -20.00'

Discarded OutFlow Max=0.04 cfs @ 8.06 hrs HW=0.07' (Free Discharge)
 ↑1=Exfiltration (Controls 0.04 cfs)

15122 LOGUS ROAD STORM

Type IA 24-hr 2 YEAR Rainfall=2.40"

Prepared by {enter your company name here}

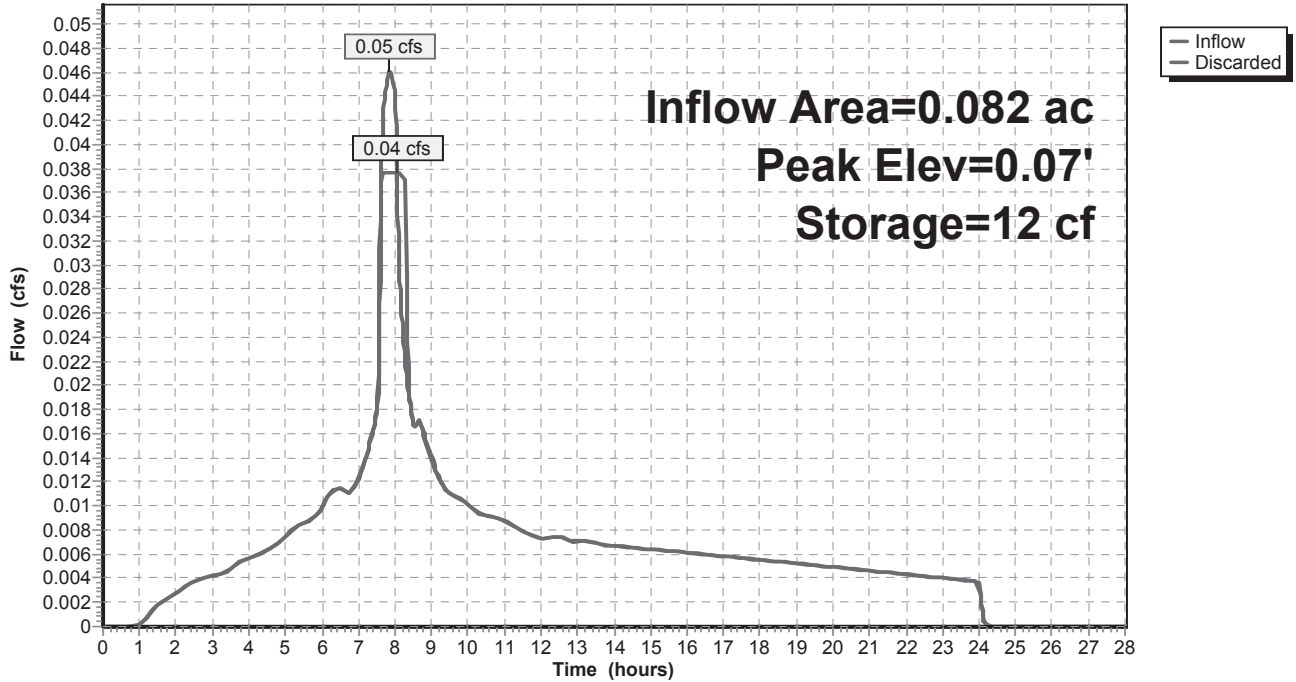
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Pond 4P: SOUTH SIDE PLANTER

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 2 YEAR Rainfall=2.40"

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Hydrograph for Pond 4P: SOUTH SIDE PLANTER

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	0.00	0.00
1.00	0.00	0	0.00	0.00
2.00	0.00	0	0.00	0.00
3.00	0.00	0	0.00	0.00
4.00	0.01	0	0.00	0.01
5.00	0.01	0	0.00	0.01
6.00	0.01	0	0.01	0.01
7.00	0.01	0	0.01	0.01
8.00	0.04	11	0.06	0.04
9.00	0.01	0	0.01	0.01
10.00	0.01	0	0.01	0.01
11.00	0.01	0	0.00	0.01
12.00	0.01	0	0.00	0.01
13.00	0.01	0	0.00	0.01
14.00	0.01	0	0.00	0.01
15.00	0.01	0	0.00	0.01
16.00	0.01	0	0.00	0.01
17.00	0.01	0	0.00	0.01
18.00	0.01	0	0.00	0.01
19.00	0.01	0	0.00	0.01
20.00	0.00	0	0.00	0.00
21.00	0.00	0	0.00	0.00
22.00	0.00	0	0.00	0.00
23.00	0.00	0	0.00	0.00
24.00	0.00	0	0.00	0.00
25.00	0.00	0	0.00	0.00
26.00	0.00	0	0.00	0.00
27.00	0.00	0	0.00	0.00
28.00	0.00	0	0.00	0.00

15122 LOGUS ROAD STORM

Type IA 24-hr 2 YEAR Rainfall=2.40"

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Summary for Pond 6P: RESIDENTIAL DRYWELL

Inflow Area = 0.197 ac, 41.86% Impervious, Inflow Depth = 1.01" for 2 YEAR event
 Inflow = 0.05 cfs @ 7.86 hrs, Volume= 0.017 af
 Outflow = 0.02 cfs @ 8.46 hrs, Volume= 0.017 af, Atten= 62%, Lag= 36.2 min
 Discarded = 0.02 cfs @ 8.46 hrs, Volume= 0.017 af

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Peak Elev= 1.75' @ 8.46 hrs Surf.Area= 0.002 ac Storage= 0.001 af

Plug-Flow detention time= 15.3 min calculated for 0.017 af (100% of inflow)
 Center-of-Mass det. time= 15.3 min (726.2 - 710.9)

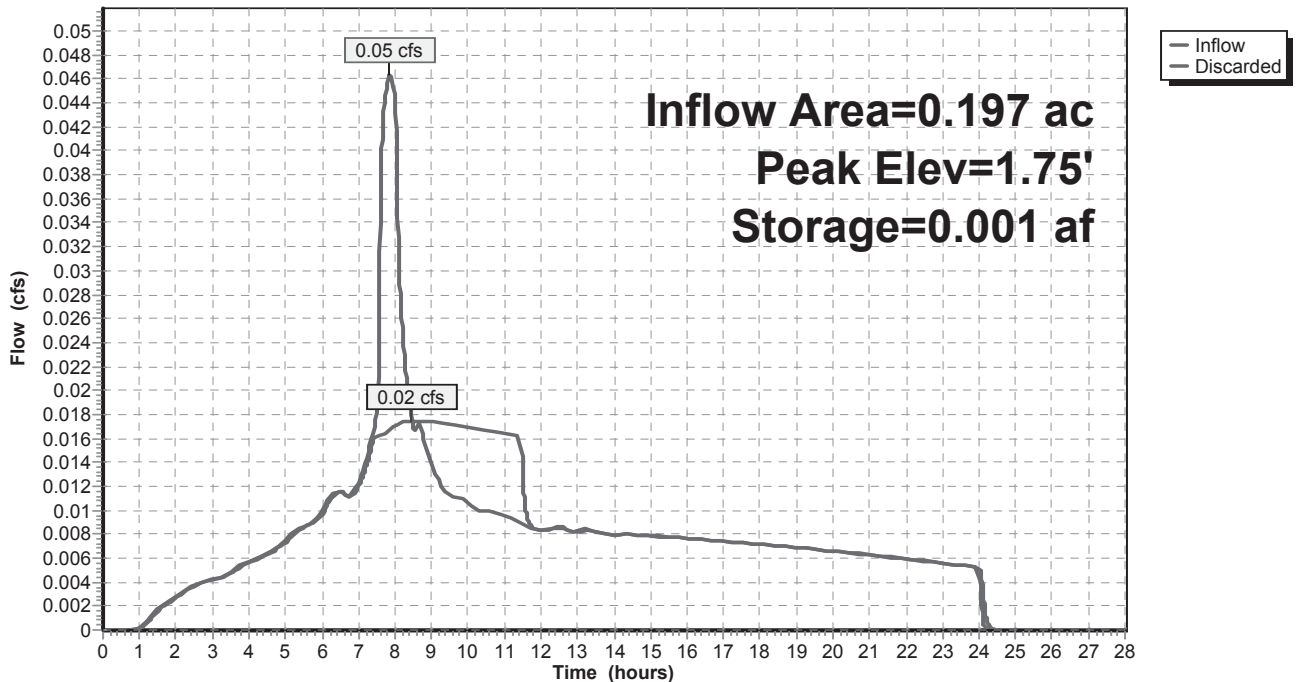
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	0.006 af	10.50'D x 10.50'H ROCK SECTION 0.021 af Overall - 0.004 af Embedded = 0.017 af x 33.0% Voids
#2	0.00'	0.003 af	4.00'D x 10.00'H DRYWELL Inside #1 0.004 af Overall - 4.0" Wall Thickness = 0.003 af
		0.008 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = -20.00'

Discarded OutFlow Max=0.02 cfs @ 8.46 hrs HW=1.75' (Free Discharge)
 ↑1=Exfiltration (Controls 0.02 cfs)

Pond 6P: RESIDENTIAL DRYWELL

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 2 YEAR Rainfall=2.40"

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Hydrograph for Pond 6P: RESIDENTIAL DRYWELL

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0.000	0.00	0.00
1.00	0.00	0.000	0.00	0.00
2.00	0.00	0.000	0.02	0.00
3.00	0.00	0.000	0.03	0.00
4.00	0.01	0.000	0.04	0.01
5.00	0.01	0.000	0.05	0.01
6.00	0.01	0.000	0.06	0.01
7.00	0.01	0.000	0.08	0.01
8.00	0.04	0.001	1.33	0.02
9.00	0.01	0.001	1.67	0.02
10.00	0.01	0.001	1.11	0.02
11.00	0.01	0.000	0.43	0.02
12.00	0.01	0.000	0.05	0.01
13.00	0.01	0.000	0.05	0.01
14.00	0.01	0.000	0.05	0.01
15.00	0.01	0.000	0.05	0.01
16.00	0.01	0.000	0.05	0.01
17.00	0.01	0.000	0.05	0.01
18.00	0.01	0.000	0.05	0.01
19.00	0.01	0.000	0.04	0.01
20.00	0.01	0.000	0.04	0.01
21.00	0.01	0.000	0.04	0.01
22.00	0.01	0.000	0.04	0.01
23.00	0.01	0.000	0.04	0.01
24.00	0.01	0.000	0.03	0.01
25.00	0.00	0.000	0.00	0.00
26.00	0.00	0.000	0.00	0.00
27.00	0.00	0.000	0.00	0.00
28.00	0.00	0.000	0.00	0.00

15122 LOGUS ROAD STORM

Type IA 24-hr 5 YEAR Rainfall=3.00"

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Time span=0.00-28.00 hrs, dt=0.01 hrs, 2801 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: NORTH SIDE STREET Runoff Area=3,291 sf 100.00% Impervious Runoff Depth=2.77"
 Tc=5.0 min CN=98 Runoff=0.05 cfs 0.017 af

Subcatchment 3S: SOUTH SIDE STREET Runoff Area=3,580 sf 100.00% Impervious Runoff Depth=2.77"
 Tc=5.0 min CN=98 Runoff=0.06 cfs 0.019 af

Subcatchment 5S: LOT 4 ROOF Runoff Area=3,600 sf 100.00% Impervious Runoff Depth=2.77"
 Tc=5.0 min CN=98 Runoff=0.06 cfs 0.019 af

Subcatchment 7S: LOT 4 LANDSCAPING Runoff Area=5,000 sf 0.00% Impervious Runoff Depth=0.37"
 Tc=5.0 min CN=61 Runoff=0.00 cfs 0.003 af

Pond 2P: NORTH SIDE PLANTER Peak Elev=0.02' Storage=4 cf Inflow=0.05 cfs 0.017 af
 Outflow=0.05 cfs 0.017 af

Pond 4P: SOUTH SIDE PLANTER Peak Elev=0.17' Storage=32 cf Inflow=0.06 cfs 0.019 af
 Outflow=0.04 cfs 0.019 af

Pond 6P: RESIDENTIAL DRYWELL Peak Elev=2.94' Storage=0.002 af Inflow=0.06 cfs 0.023 af
 Outflow=0.02 cfs 0.023 af

Total Runoff Area = 0.355 ac Runoff Volume = 0.059 af Average Runoff Depth = 1.99"
32.32% Pervious = 0.115 ac 67.68% Impervious = 0.240 ac

15122 LOGUS ROAD STORM

Type IA 24-hr 5 YEAR Rainfall=3.00"

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Summary for Subcatchment 1S: NORTH SIDE STREET

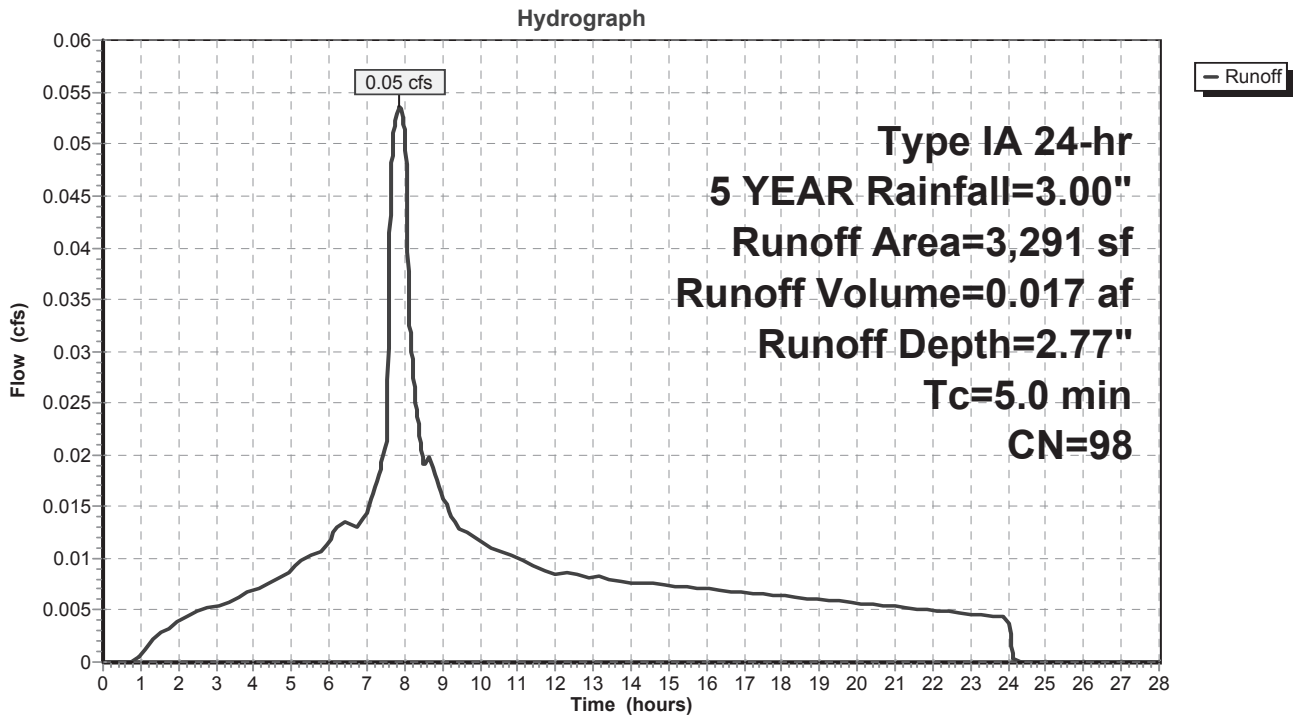
Runoff = 0.05 cfs @ 7.86 hrs, Volume= 0.017 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5 YEAR Rainfall=3.00"

	Area (sf)	CN	Description
*	3,012	98	IMPERVIOUS AREA
*	279	100	PLANTER SURFACE
	3,291	98	Weighted Average
	3,291		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MIMIMUM FLOW TIME

Subcatchment 1S: NORTH SIDE STREET



15122 LOGUS ROAD STORM

Type IA 24-hr 5 YEAR Rainfall=3.00"

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Hydrograph for Subcatchment 1S: NORTH SIDE STREET

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	3.00	2.77	0.00
0.50	0.03	0.00	0.00	27.00	3.00	2.77	0.00
1.00	0.06	0.00	0.00	27.50	3.00	2.77	0.00
1.50	0.10	0.02	0.00	28.00	3.00	2.77	0.00
2.00	0.15	0.04	0.00				
2.50	0.20	0.07	0.00				
3.00	0.25	0.10	0.01				
3.50	0.29	0.14	0.01				
4.00	0.35	0.18	0.01				
4.50	0.40	0.23	0.01				
5.00	0.47	0.29	0.01				
5.50	0.54	0.35	0.01				
6.00	0.62	0.43	0.01				
6.50	0.71	0.51	0.01				
7.00	0.80	0.60	0.01				
7.50	0.93	0.72	0.02				
8.00	1.28	1.06	0.05				
8.50	1.44	1.22	0.02				
9.00	1.56	1.34	0.02				
9.50	1.65	1.43	0.01				
10.00	1.73	1.51	0.01				
10.50	1.80	1.58	0.01				
11.00	1.87	1.65	0.01				
11.50	1.94	1.71	0.01				
12.00	1.99	1.77	0.01				
12.50	2.05	1.82	0.01				
13.00	2.10	1.88	0.01				
13.50	2.16	1.93	0.01				
14.00	2.21	1.98	0.01				
14.50	2.26	2.03	0.01				
15.00	2.31	2.08	0.01				
15.50	2.36	2.13	0.01				
16.00	2.40	2.17	0.01				
16.50	2.45	2.22	0.01				
17.00	2.49	2.26	0.01				
17.50	2.54	2.31	0.01				
18.00	2.58	2.35	0.01				
18.50	2.62	2.39	0.01				
19.00	2.66	2.43	0.01				
19.50	2.70	2.47	0.01				
20.00	2.74	2.51	0.01				
20.50	2.77	2.54	0.01				
21.00	2.81	2.58	0.01				
21.50	2.84	2.61	0.01				
22.00	2.88	2.65	0.00				
22.50	2.91	2.68	0.00				
23.00	2.94	2.71	0.00				
23.50	2.97	2.74	0.00				
24.00	3.00	2.77	0.00				
24.50	3.00	2.77	0.00				
25.00	3.00	2.77	0.00				
25.50	3.00	2.77	0.00				
26.00	3.00	2.77	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr 5 YEAR Rainfall=3.00"

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Summary for Subcatchment 3S: SOUTH SIDE STREET

Runoff = 0.06 cfs @ 7.86 hrs, Volume= 0.019 af, Depth= 2.77"

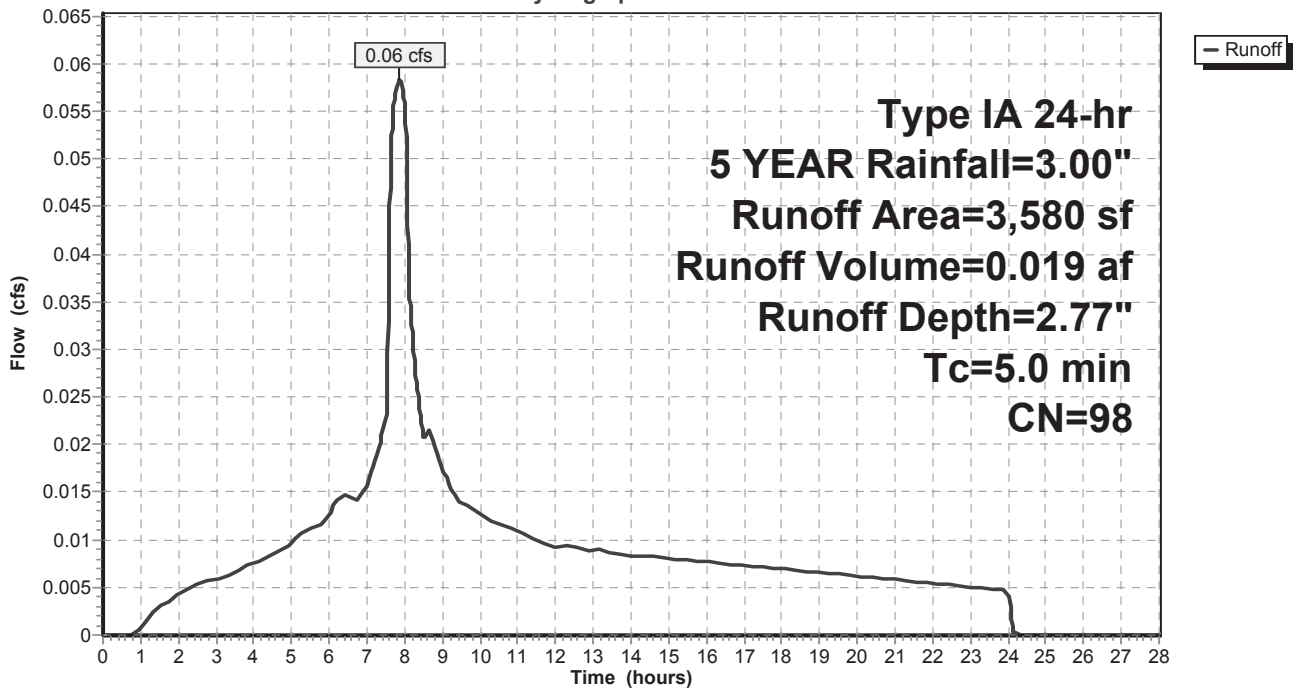
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5 YEAR Rainfall=3.00"

	Area (sf)	CN	Description
*	3,377	98	IMPERVIOUS AREA
*	203	100	PLANTER SURFACE
	3,580	98	Weighted Average
	3,580		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MIMIMUM FLOW TIME

Subcatchment 3S: SOUTH SIDE STREET

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 5 YEAR Rainfall=3.00"

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Hydrograph for Subcatchment 3S: SOUTH SIDE STREET

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	3.00	2.77	0.00
0.50	0.03	0.00	0.00	27.00	3.00	2.77	0.00
1.00	0.06	0.00	0.00	27.50	3.00	2.77	0.00
1.50	0.10	0.02	0.00	28.00	3.00	2.77	0.00
2.00	0.15	0.04	0.00				
2.50	0.20	0.07	0.01				
3.00	0.25	0.10	0.01				
3.50	0.29	0.14	0.01				
4.00	0.35	0.18	0.01				
4.50	0.40	0.23	0.01				
5.00	0.47	0.29	0.01				
5.50	0.54	0.35	0.01				
6.00	0.62	0.43	0.01				
6.50	0.71	0.51	0.01				
7.00	0.80	0.60	0.02				
7.50	0.93	0.72	0.02				
8.00	1.28	1.06	0.06				
8.50	1.44	1.22	0.02				
9.00	1.56	1.34	0.02				
9.50	1.65	1.43	0.01				
10.00	1.73	1.51	0.01				
10.50	1.80	1.58	0.01				
11.00	1.87	1.65	0.01				
11.50	1.94	1.71	0.01				
12.00	1.99	1.77	0.01				
12.50	2.05	1.82	0.01				
13.00	2.10	1.88	0.01				
13.50	2.16	1.93	0.01				
14.00	2.21	1.98	0.01				
14.50	2.26	2.03	0.01				
15.00	2.31	2.08	0.01				
15.50	2.36	2.13	0.01				
16.00	2.40	2.17	0.01				
16.50	2.45	2.22	0.01				
17.00	2.49	2.26	0.01				
17.50	2.54	2.31	0.01				
18.00	2.58	2.35	0.01				
18.50	2.62	2.39	0.01				
19.00	2.66	2.43	0.01				
19.50	2.70	2.47	0.01				
20.00	2.74	2.51	0.01				
20.50	2.77	2.54	0.01				
21.00	2.81	2.58	0.01				
21.50	2.84	2.61	0.01				
22.00	2.88	2.65	0.01				
22.50	2.91	2.68	0.01				
23.00	2.94	2.71	0.01				
23.50	2.97	2.74	0.00				
24.00	3.00	2.77	0.00				
24.50	3.00	2.77	0.00				
25.00	3.00	2.77	0.00				
25.50	3.00	2.77	0.00				
26.00	3.00	2.77	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr 5 YEAR Rainfall=3.00"

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Summary for Subcatchment 5S: LOT 4 ROOF

Runoff = 0.06 cfs @ 7.86 hrs, Volume= 0.019 af, Depth= 2.77"

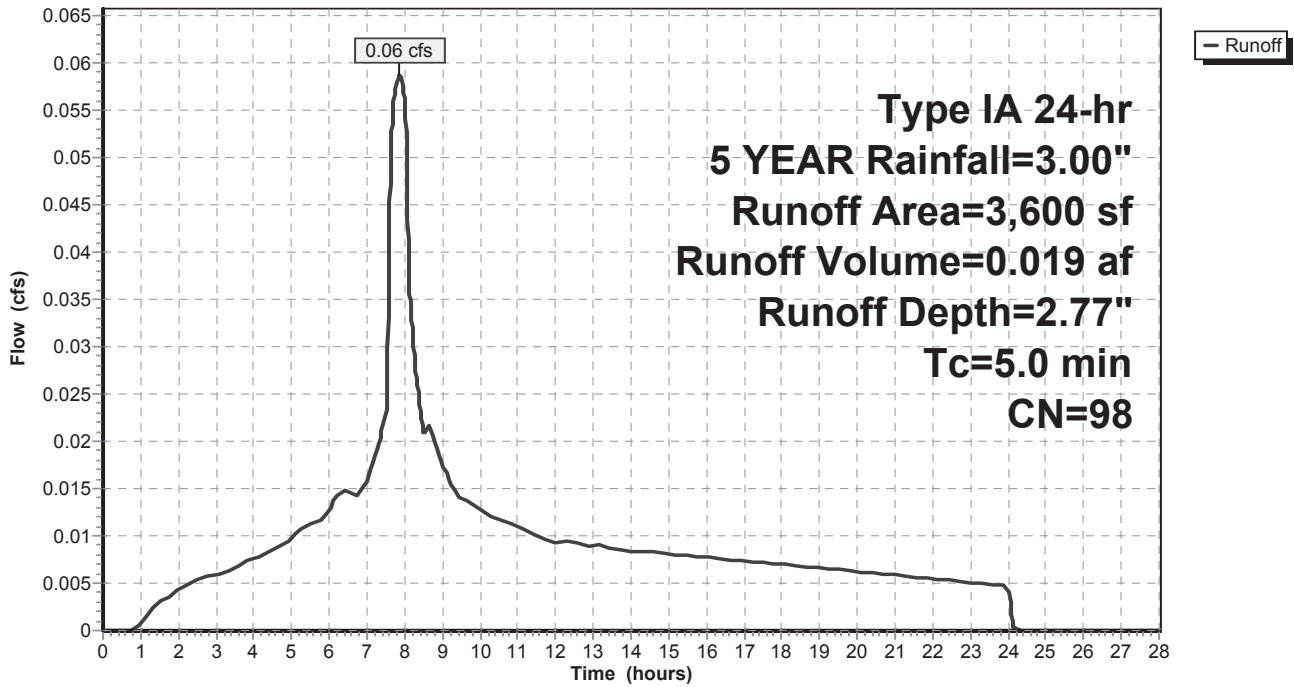
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5 YEAR Rainfall=3.00"

Area (sf)	CN	Description
3,600	98	Unconnected roofs, HSG B
3,600		100.00% Impervious Area
3,600		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MINIMUM TC

Subcatchment 5S: LOT 4 ROOF

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 5 YEAR Rainfall=3.00"

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Hydrograph for Subcatchment 5S: LOT 4 ROOF

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	3.00	2.77	0.00
0.50	0.03	0.00	0.00	27.00	3.00	2.77	0.00
1.00	0.06	0.00	0.00	27.50	3.00	2.77	0.00
1.50	0.10	0.02	0.00	28.00	3.00	2.77	0.00
2.00	0.15	0.04	0.00				
2.50	0.20	0.07	0.01				
3.00	0.25	0.10	0.01				
3.50	0.29	0.14	0.01				
4.00	0.35	0.18	0.01				
4.50	0.40	0.23	0.01				
5.00	0.47	0.29	0.01				
5.50	0.54	0.35	0.01				
6.00	0.62	0.43	0.01				
6.50	0.71	0.51	0.01				
7.00	0.80	0.60	0.02				
7.50	0.93	0.72	0.02				
8.00	1.28	1.06	0.06				
8.50	1.44	1.22	0.02				
9.00	1.56	1.34	0.02				
9.50	1.65	1.43	0.01				
10.00	1.73	1.51	0.01				
10.50	1.80	1.58	0.01				
11.00	1.87	1.65	0.01				
11.50	1.94	1.71	0.01				
12.00	1.99	1.77	0.01				
12.50	2.05	1.82	0.01				
13.00	2.10	1.88	0.01				
13.50	2.16	1.93	0.01				
14.00	2.21	1.98	0.01				
14.50	2.26	2.03	0.01				
15.00	2.31	2.08	0.01				
15.50	2.36	2.13	0.01				
16.00	2.40	2.17	0.01				
16.50	2.45	2.22	0.01				
17.00	2.49	2.26	0.01				
17.50	2.54	2.31	0.01				
18.00	2.58	2.35	0.01				
18.50	2.62	2.39	0.01				
19.00	2.66	2.43	0.01				
19.50	2.70	2.47	0.01				
20.00	2.74	2.51	0.01				
20.50	2.77	2.54	0.01				
21.00	2.81	2.58	0.01				
21.50	2.84	2.61	0.01				
22.00	2.88	2.65	0.01				
22.50	2.91	2.68	0.01				
23.00	2.94	2.71	0.01				
23.50	2.97	2.74	0.00				
24.00	3.00	2.77	0.00				
24.50	3.00	2.77	0.00				
25.00	3.00	2.77	0.00				
25.50	3.00	2.77	0.00				
26.00	3.00	2.77	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr 5 YEAR Rainfall=3.00"

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Summary for Subcatchment 7S: LOT 4 LANDSCAPING

Runoff = 0.00 cfs @ 17.45 hrs, Volume= 0.003 af, Depth= 0.37"

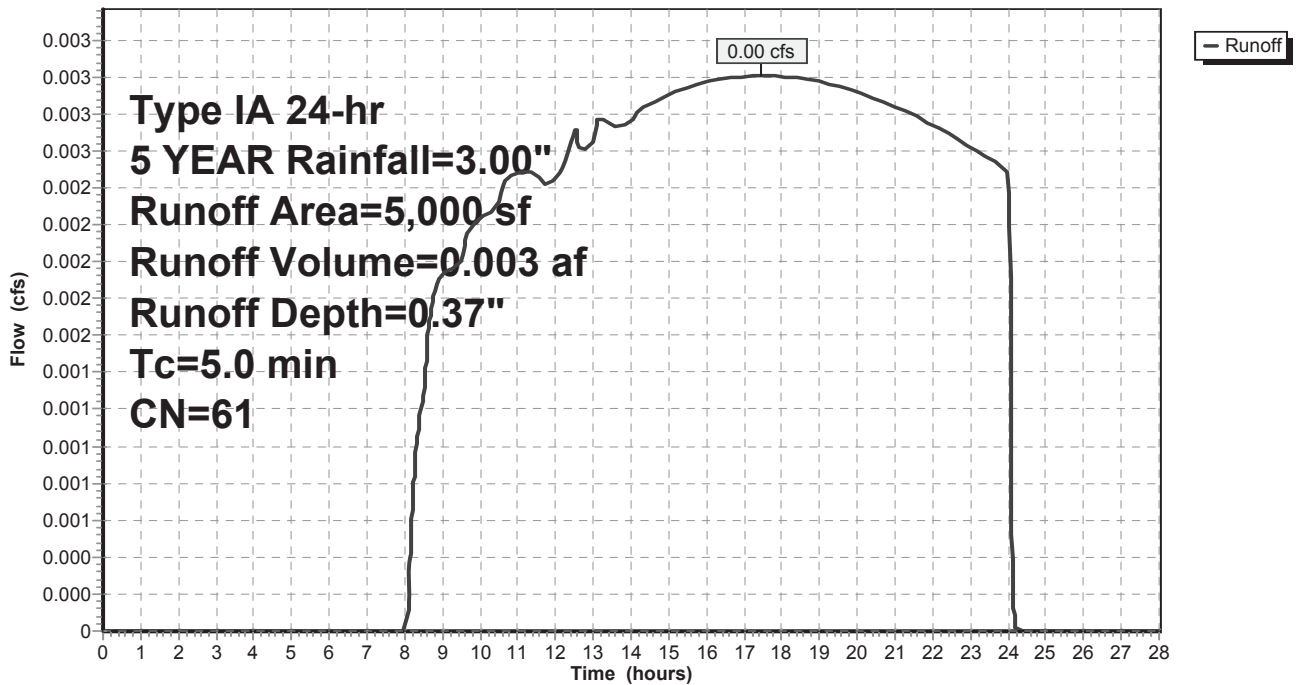
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type IA 24-hr 5 YEAR Rainfall=3.00"

Area (sf)	CN	Description
5,000	61	>75% Grass cover, Good, HSG B
5,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MINIMUM TC

Subcatchment 7S: LOT 4 LANDSCAPING

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 5 YEAR Rainfall=3.00"

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Hydrograph for Subcatchment 7S: LOT 4 LANDSCAPING

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	3.00	0.37	0.00
0.50	0.03	0.00	0.00	27.00	3.00	0.37	0.00
1.00	0.06	0.00	0.00	27.50	3.00	0.37	0.00
1.50	0.10	0.00	0.00	28.00	3.00	0.37	0.00
2.00	0.15	0.00	0.00				
2.50	0.20	0.00	0.00				
3.00	0.25	0.00	0.00				
3.50	0.29	0.00	0.00				
4.00	0.35	0.00	0.00				
4.50	0.40	0.00	0.00				
5.00	0.47	0.00	0.00				
5.50	0.54	0.00	0.00				
6.00	0.62	0.00	0.00				
6.50	0.71	0.00	0.00				
7.00	0.80	0.00	0.00				
7.50	0.93	0.00	0.00				
8.00	1.28	0.00	0.00				
8.50	1.44	0.00	0.00				
9.00	1.56	0.01	0.00				
9.50	1.65	0.02	0.00				
10.00	1.73	0.03	0.00				
10.50	1.80	0.04	0.00				
11.00	1.87	0.05	0.00				
11.50	1.94	0.06	0.00				
12.00	1.99	0.07	0.00				
12.50	2.05	0.08	0.00				
13.00	2.10	0.09	0.00				
13.50	2.16	0.11	0.00				
14.00	2.21	0.12	0.00				
14.50	2.26	0.13	0.00				
15.00	2.31	0.14	0.00				
15.50	2.36	0.16	0.00				
16.00	2.40	0.17	0.00				
16.50	2.45	0.18	0.00				
17.00	2.49	0.19	0.00				
17.50	2.54	0.21	0.00				
18.00	2.58	0.22	0.00				
18.50	2.62	0.23	0.00				
19.00	2.66	0.25	0.00				
19.50	2.70	0.26	0.00				
20.00	2.74	0.27	0.00				
20.50	2.77	0.28	0.00				
21.00	2.81	0.30	0.00				
21.50	2.84	0.31	0.00				
22.00	2.88	0.32	0.00				
22.50	2.91	0.33	0.00				
23.00	2.94	0.34	0.00				
23.50	2.97	0.35	0.00				
24.00	3.00	0.37	0.00				
24.50	3.00	0.37	0.00				
25.00	3.00	0.37	0.00				
25.50	3.00	0.37	0.00				
26.00	3.00	0.37	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr 5 YEAR Rainfall=3.00"

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Summary for Pond 2P: NORTH SIDE PLANTER

Inflow Area = 0.076 ac, 100.00% Impervious, Inflow Depth = 2.77" for 5 YEAR event
 Inflow = 0.05 cfs @ 7.86 hrs, Volume= 0.017 af
 Outflow = 0.05 cfs @ 7.98 hrs, Volume= 0.017 af, Atten= 4%, Lag= 7.6 min
 Discarded = 0.05 cfs @ 7.98 hrs, Volume= 0.017 af

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Peak Elev= 0.02' @ 7.98 hrs Surf.Area= 279 sf Storage= 4 cf

Plug-Flow detention time= 0.4 min calculated for 0.017 af (100% of inflow)
 Center-of-Mass det. time= 0.4 min (666.7 - 666.4)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	151 cf	PLANTER FREEBOARD (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	1	0	0
0.02	279	3	3
0.55	279	148	151

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = -20.00'

Discarded OutFlow Max=0.05 cfs @ 7.98 hrs HW=0.02' (Free Discharge)
 ↑1=Exfiltration (Controls 0.05 cfs)

15122 LOGUS ROAD STORM

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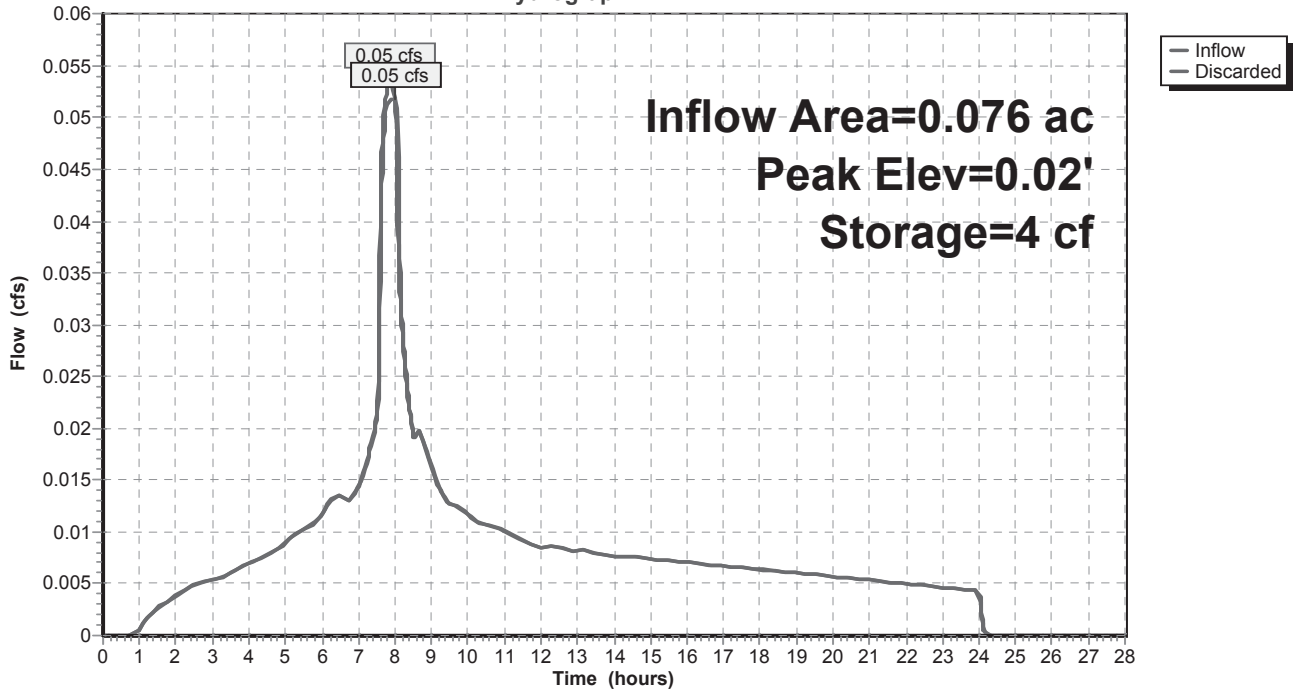
Type IA 24-hr 5 YEAR Rainfall=3.00"

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Pond 2P: NORTH SIDE PLANTER

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 5 YEAR Rainfall=3.00"

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Hydrograph for Pond 2P: NORTH SIDE PLANTER

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	0.00	0.00
1.00	0.00	0	0.00	0.00
2.00	0.00	0	0.00	0.00
3.00	0.01	0	0.00	0.01
4.00	0.01	0	0.00	0.01
5.00	0.01	0	0.00	0.01
6.00	0.01	0	0.00	0.01
7.00	0.01	0	0.01	0.01
8.00	0.05	4	0.02	0.05
9.00	0.02	0	0.01	0.02
10.00	0.01	0	0.00	0.01
11.00	0.01	0	0.00	0.01
12.00	0.01	0	0.00	0.01
13.00	0.01	0	0.00	0.01
14.00	0.01	0	0.00	0.01
15.00	0.01	0	0.00	0.01
16.00	0.01	0	0.00	0.01
17.00	0.01	0	0.00	0.01
18.00	0.01	0	0.00	0.01
19.00	0.01	0	0.00	0.01
20.00	0.01	0	0.00	0.01
21.00	0.01	0	0.00	0.01
22.00	0.00	0	0.00	0.00
23.00	0.00	0	0.00	0.00
24.00	0.00	0	0.00	0.00
25.00	0.00	0	0.00	0.00
26.00	0.00	0	0.00	0.00
27.00	0.00	0	0.00	0.00
28.00	0.00	0	0.00	0.00

15122 LOGUS ROAD STORM

Type IA 24-hr 5 YEAR Rainfall=3.00"

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Summary for Pond 4P: SOUTH SIDE PLANTER

Inflow Area = 0.082 ac, 100.00% Impervious, Inflow Depth = 2.77" for 5 YEAR event
 Inflow = 0.06 cfs @ 7.86 hrs, Volume= 0.019 af
 Outflow = 0.04 cfs @ 8.11 hrs, Volume= 0.019 af, Atten= 35%, Lag= 15.3 min
 Discarded = 0.04 cfs @ 8.11 hrs, Volume= 0.019 af

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Peak Elev= 0.17' @ 8.11 hrs Surf.Area= 203 sf Storage= 32 cf

Plug-Flow detention time= 1.9 min calculated for 0.019 af (100% of inflow)
 Center-of-Mass det. time= 1.9 min (668.3 - 666.4)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	134 cf	PLANTER FREEBOARD (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	1	0	0
0.02	203	2	2
0.67	203	132	134

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = -20.00'

Discarded OutFlow Max=0.04 cfs @ 8.11 hrs HW=0.17' (Free Discharge)
 ↑1=Exfiltration (Controls 0.04 cfs)

15122 LOGUS ROAD STORM

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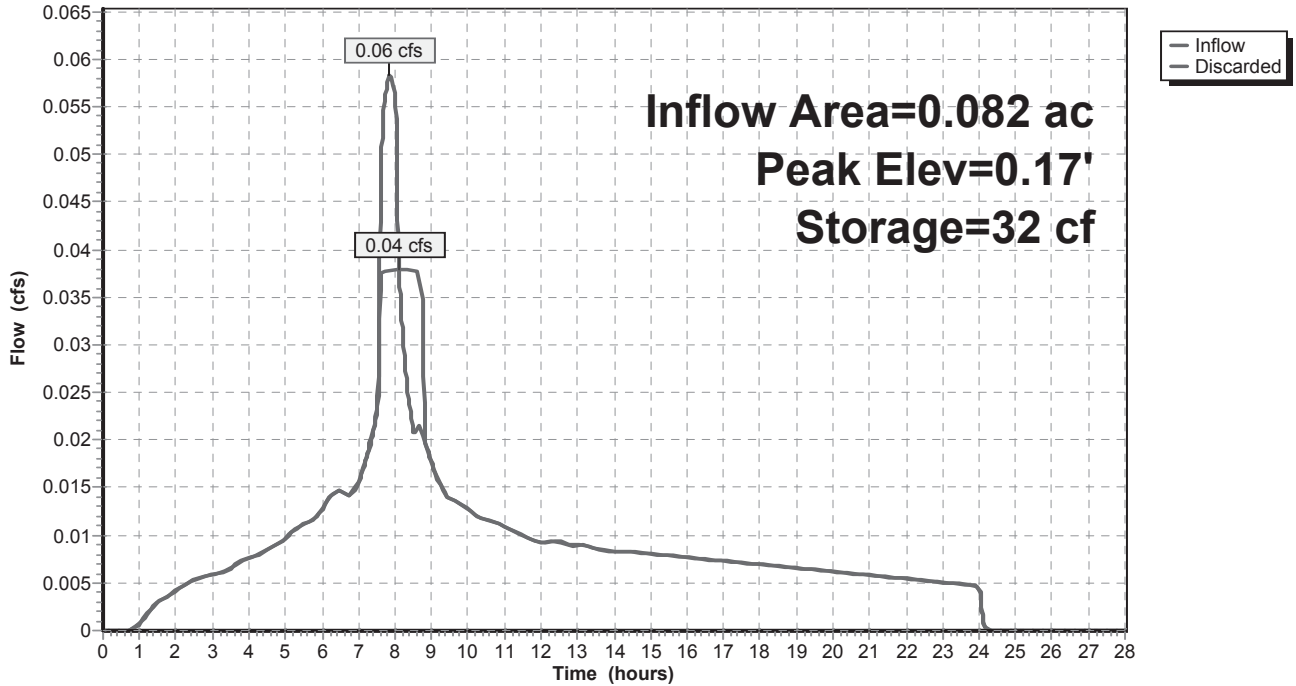
Type IA 24-hr 5 YEAR Rainfall=3.00"

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Pond 4P: SOUTH SIDE PLANTER

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 5 YEAR Rainfall=3.00"

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Hydrograph for Pond 4P: SOUTH SIDE PLANTER

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	0.00	0.00
1.00	0.00	0	0.00	0.00
2.00	0.00	0	0.00	0.00
3.00	0.01	0	0.00	0.01
4.00	0.01	0	0.00	0.01
5.00	0.01	0	0.01	0.01
6.00	0.01	0	0.01	0.01
7.00	0.02	0	0.01	0.02
8.00	0.06	28	0.15	0.04
9.00	0.02	1	0.01	0.02
10.00	0.01	0	0.01	0.01
11.00	0.01	0	0.01	0.01
12.00	0.01	0	0.00	0.01
13.00	0.01	0	0.00	0.01
14.00	0.01	0	0.00	0.01
15.00	0.01	0	0.00	0.01
16.00	0.01	0	0.00	0.01
17.00	0.01	0	0.00	0.01
18.00	0.01	0	0.00	0.01
19.00	0.01	0	0.00	0.01
20.00	0.01	0	0.00	0.01
21.00	0.01	0	0.00	0.01
22.00	0.01	0	0.00	0.01
23.00	0.01	0	0.00	0.01
24.00	0.00	0	0.00	0.00
25.00	0.00	0	0.00	0.00
26.00	0.00	0	0.00	0.00
27.00	0.00	0	0.00	0.00
28.00	0.00	0	0.00	0.00

15122 LOGUS ROAD STORM

Type IA 24-hr 5 YEAR Rainfall=3.00"

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Summary for Pond 6P: RESIDENTIAL DRYWELL

Inflow Area = 0.197 ac, 41.86% Impervious, Inflow Depth = 1.37" for 5 YEAR event
 Inflow = 0.06 cfs @ 7.86 hrs, Volume= 0.023 af
 Outflow = 0.02 cfs @ 9.11 hrs, Volume= 0.023 af, Atten= 69%, Lag= 74.9 min
 Discarded = 0.02 cfs @ 9.11 hrs, Volume= 0.023 af

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Peak Elev= 2.94' @ 9.11 hrs Surf.Area= 0.002 ac Storage= 0.002 af

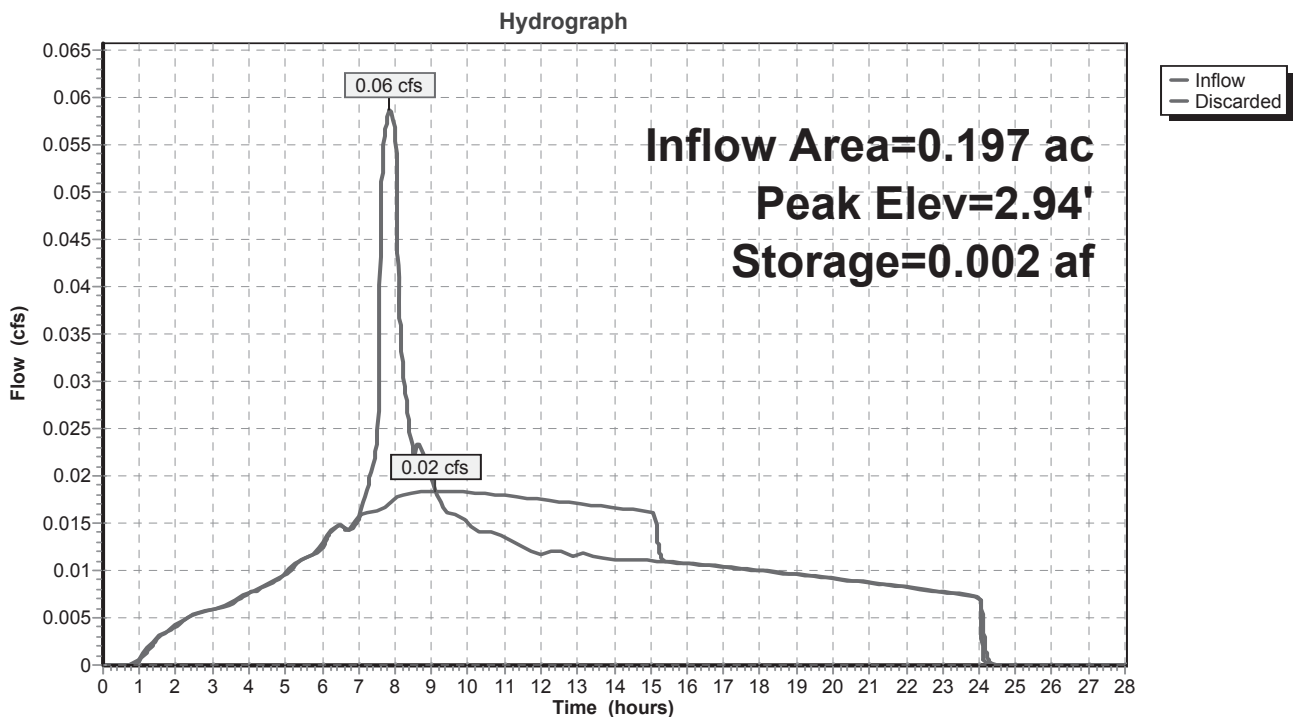
Plug-Flow detention time= 31.7 min calculated for 0.023 af (100% of inflow)
 Center-of-Mass det. time= 31.6 min (748.4 - 716.7)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	0.006 af	10.50'D x 10.50'H ROCK SECTION 0.021 af Overall - 0.004 af Embedded = 0.017 af x 33.0% Voids
#2	0.00'	0.003 af	4.00'D x 10.00'H DRYWELL Inside #1 0.004 af Overall - 4.0" Wall Thickness = 0.003 af
		0.008 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = -20.00'

Discarded OutFlow Max=0.02 cfs @ 9.11 hrs HW=2.94' (Free Discharge)
 ↑1=Exfiltration (Controls 0.02 cfs)

Pond 6P: RESIDENTIAL DRYWELL



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Type IA 24-hr 5 YEAR Rainfall=3.00"

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Hydrograph for Pond 6P: RESIDENTIAL DRYWELL

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0.000	0.00	0.00
1.00	0.00	0.000	0.00	0.00
2.00	0.00	0.000	0.03	0.00
3.00	0.01	0.000	0.04	0.01
4.00	0.01	0.000	0.05	0.01
5.00	0.01	0.000	0.06	0.01
6.00	0.01	0.000	0.08	0.01
7.00	0.02	0.000	0.10	0.02
8.00	0.06	0.002	1.99	0.02
9.00	0.02	0.002	2.93	0.02
10.00	0.02	0.002	2.74	0.02
11.00	0.01	0.002	2.34	0.02
12.00	0.01	0.001	1.81	0.02
13.00	0.01	0.001	1.26	0.02
14.00	0.01	0.001	0.71	0.02
15.00	0.01	0.000	0.18	0.02
16.00	0.01	0.000	0.07	0.01
17.00	0.01	0.000	0.07	0.01
18.00	0.01	0.000	0.07	0.01
19.00	0.01	0.000	0.06	0.01
20.00	0.01	0.000	0.06	0.01
21.00	0.01	0.000	0.06	0.01
22.00	0.01	0.000	0.05	0.01
23.00	0.01	0.000	0.05	0.01
24.00	0.01	0.000	0.05	0.01
25.00	0.00	0.000	0.00	0.00
26.00	0.00	0.000	0.00	0.00
27.00	0.00	0.000	0.00	0.00
28.00	0.00	0.000	0.00	0.00

15122 LOGUS ROAD STORM

Type IA 24-hr 10 YEAR Rainfall=3.50"

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Time span=0.00-28.00 hrs, dt=0.01 hrs, 2801 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: NORTH SIDE STREET Runoff Area=3,291 sf 100.00% Impervious Runoff Depth=3.27"
 Tc=5.0 min CN=98 Runoff=0.06 cfs 0.021 af

Subcatchment 3S: SOUTH SIDE STREET Runoff Area=3,580 sf 100.00% Impervious Runoff Depth=3.27"
 Tc=5.0 min CN=98 Runoff=0.07 cfs 0.022 af

Subcatchment 5S: LOT 4 ROOF Runoff Area=3,600 sf 100.00% Impervious Runoff Depth=3.27"
 Tc=5.0 min CN=98 Runoff=0.07 cfs 0.022 af

Subcatchment 7S: LOT 4 LANDSCAPING Runoff Area=5,000 sf 0.00% Impervious Runoff Depth=0.57"
 Tc=5.0 min CN=61 Runoff=0.00 cfs 0.005 af

Pond 2P: NORTH SIDE PLANTER Peak Elev=0.07' Storage=16 cf Inflow=0.06 cfs 0.021 af
 Outflow=0.05 cfs 0.021 af

Pond 4P: SOUTH SIDE PLANTER Peak Elev=0.26' Storage=51 cf Inflow=0.07 cfs 0.022 af
 Outflow=0.04 cfs 0.022 af

Pond 6P: RESIDENTIAL DRYWELL Peak Elev=4.47' Storage=0.004 af Inflow=0.07 cfs 0.028 af
 Outflow=0.02 cfs 0.028 af

Total Runoff Area = 0.355 ac Runoff Volume = 0.071 af Average Runoff Depth = 2.40"
32.32% Pervious = 0.115 ac 67.68% Impervious = 0.240 ac

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Type IA 24-hr 10 YEAR Rainfall=3.50"

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Summary for Subcatchment 1S: NORTH SIDE STREET

Runoff = 0.06 cfs @ 7.86 hrs, Volume= 0.021 af, Depth= 3.27"

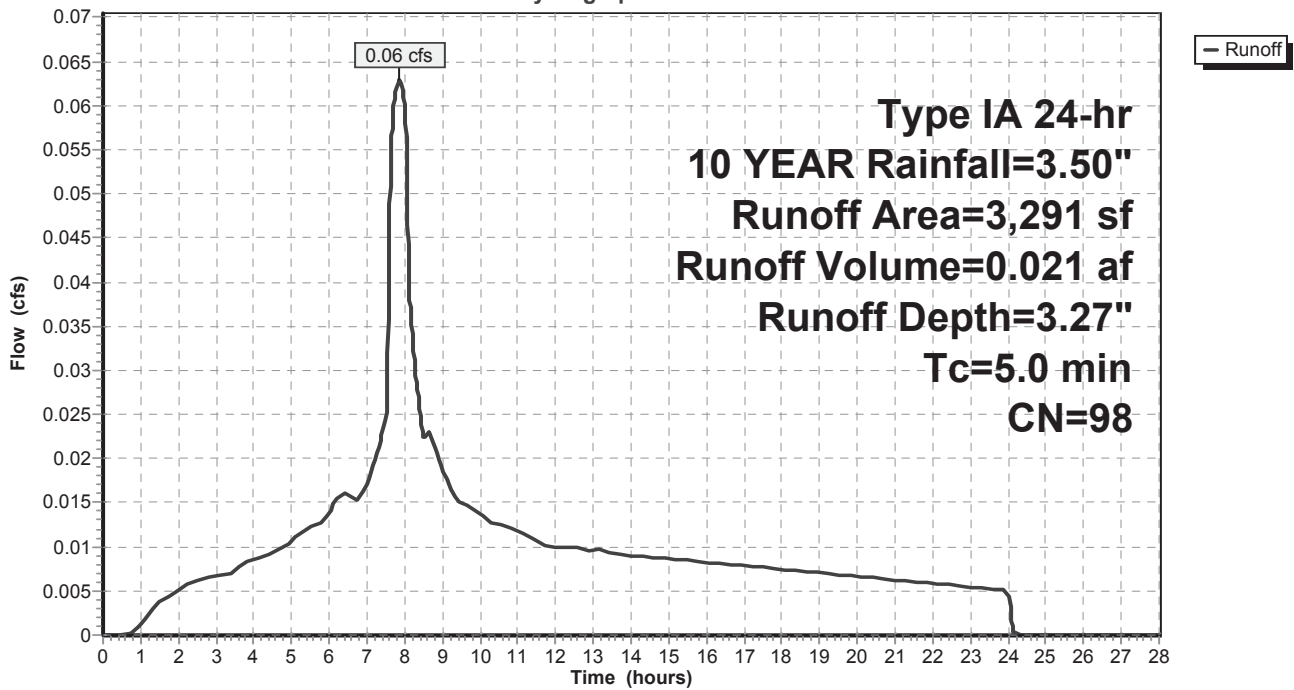
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 YEAR Rainfall=3.50"

	Area (sf)	CN	Description
*	3,012	98	IMPERVIOUS AREA
*	279	100	PLANTER SURFACE
	3,291	98	Weighted Average
	3,291		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MIMIMUM FLOW TIME

Subcatchment 1S: NORTH SIDE STREET

Hydrograph



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Type IA 24-hr 10 YEAR Rainfall=3.50"

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Hydrograph for Subcatchment 1S: NORTH SIDE STREET

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	3.50	3.27	0.00
0.50	0.03	0.00	0.00	27.00	3.50	3.27	0.00
1.00	0.07	0.00	0.00	27.50	3.50	3.27	0.00
1.50	0.12	0.02	0.00	28.00	3.50	3.27	0.00
2.00	0.18	0.05	0.01				
2.50	0.23	0.09	0.01				
3.00	0.29	0.13	0.01				
3.50	0.34	0.18	0.01				
4.00	0.41	0.23	0.01				
4.50	0.47	0.29	0.01				
5.00	0.55	0.36	0.01				
5.50	0.63	0.44	0.01				
6.00	0.72	0.52	0.01				
6.50	0.83	0.63	0.02				
7.00	0.94	0.73	0.02				
7.50	1.09	0.87	0.02				
8.00	1.49	1.27	0.06				
8.50	1.68	1.46	0.02				
9.00	1.82	1.60	0.02				
9.50	1.92	1.70	0.01				
10.00	2.02	1.79	0.01				
10.50	2.10	1.88	0.01				
11.00	2.18	1.96	0.01				
11.50	2.26	2.03	0.01				
12.00	2.32	2.10	0.01				
12.50	2.39	2.16	0.01				
13.00	2.45	2.22	0.01				
13.50	2.52	2.29	0.01				
14.00	2.58	2.35	0.01				
14.50	2.63	2.40	0.01				
15.00	2.69	2.46	0.01				
15.50	2.75	2.52	0.01				
16.00	2.80	2.57	0.01				
16.50	2.86	2.63	0.01				
17.00	2.91	2.68	0.01				
17.50	2.96	2.73	0.01				
18.00	3.01	2.78	0.01				
18.50	3.06	2.83	0.01				
19.00	3.10	2.87	0.01				
19.50	3.15	2.92	0.01				
20.00	3.19	2.96	0.01				
20.50	3.24	3.00	0.01				
21.00	3.28	3.05	0.01				
21.50	3.32	3.09	0.01				
22.00	3.36	3.12	0.01				
22.50	3.40	3.16	0.01				
23.00	3.43	3.20	0.01				
23.50	3.47	3.23	0.01				
24.00	3.50	3.27	0.01				
24.50	3.50	3.27	0.00				
25.00	3.50	3.27	0.00				
25.50	3.50	3.27	0.00				
26.00	3.50	3.27	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr 10 YEAR Rainfall=3.50"

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Summary for Subcatchment 3S: SOUTH SIDE STREET

Runoff = 0.07 cfs @ 7.86 hrs, Volume= 0.022 af, Depth= 3.27"

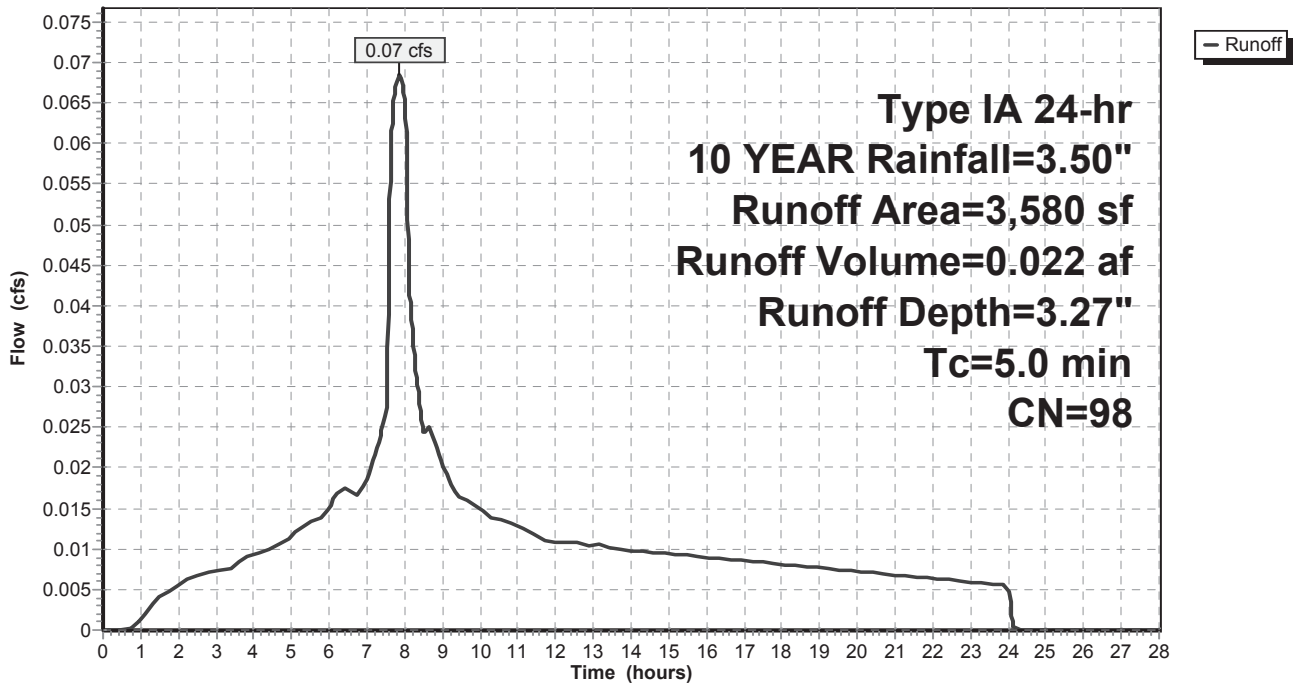
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 YEAR Rainfall=3.50"

	Area (sf)	CN	Description
*	3,377	98	IMPERVIOUS AREA
*	203	100	PLANTER SURFACE
	3,580	98	Weighted Average
	3,580		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MIMIMUM FLOW TIME

Subcatchment 3S: SOUTH SIDE STREET

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 10 YEAR Rainfall=3.50"

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Hydrograph for Subcatchment 3S: SOUTH SIDE STREET

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	3.50	3.27	0.00
0.50	0.03	0.00	0.00	27.00	3.50	3.27	0.00
1.00	0.07	0.00	0.00	27.50	3.50	3.27	0.00
1.50	0.12	0.02	0.00	28.00	3.50	3.27	0.00
2.00	0.18	0.05	0.01				
2.50	0.23	0.09	0.01				
3.00	0.29	0.13	0.01				
3.50	0.34	0.18	0.01				
4.00	0.41	0.23	0.01				
4.50	0.47	0.29	0.01				
5.00	0.55	0.36	0.01				
5.50	0.63	0.44	0.01				
6.00	0.72	0.52	0.01				
6.50	0.83	0.63	0.02				
7.00	0.94	0.73	0.02				
7.50	1.09	0.87	0.03				
8.00	1.49	1.27	0.07				
8.50	1.68	1.46	0.02				
9.00	1.82	1.60	0.02				
9.50	1.92	1.70	0.02				
10.00	2.02	1.79	0.01				
10.50	2.10	1.88	0.01				
11.00	2.18	1.96	0.01				
11.50	2.26	2.03	0.01				
12.00	2.32	2.10	0.01				
12.50	2.39	2.16	0.01				
13.00	2.45	2.22	0.01				
13.50	2.52	2.29	0.01				
14.00	2.58	2.35	0.01				
14.50	2.63	2.40	0.01				
15.00	2.69	2.46	0.01				
15.50	2.75	2.52	0.01				
16.00	2.80	2.57	0.01				
16.50	2.86	2.63	0.01				
17.00	2.91	2.68	0.01				
17.50	2.96	2.73	0.01				
18.00	3.01	2.78	0.01				
18.50	3.06	2.83	0.01				
19.00	3.10	2.87	0.01				
19.50	3.15	2.92	0.01				
20.00	3.19	2.96	0.01				
20.50	3.24	3.00	0.01				
21.00	3.28	3.05	0.01				
21.50	3.32	3.09	0.01				
22.00	3.36	3.12	0.01				
22.50	3.40	3.16	0.01				
23.00	3.43	3.20	0.01				
23.50	3.47	3.23	0.01				
24.00	3.50	3.27	0.01				
24.50	3.50	3.27	0.00				
25.00	3.50	3.27	0.00				
25.50	3.50	3.27	0.00				
26.00	3.50	3.27	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr 10 YEAR Rainfall=3.50"

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Summary for Subcatchment 5S: LOT 4 ROOF

Runoff = 0.07 cfs @ 7.86 hrs, Volume= 0.022 af, Depth= 3.27"

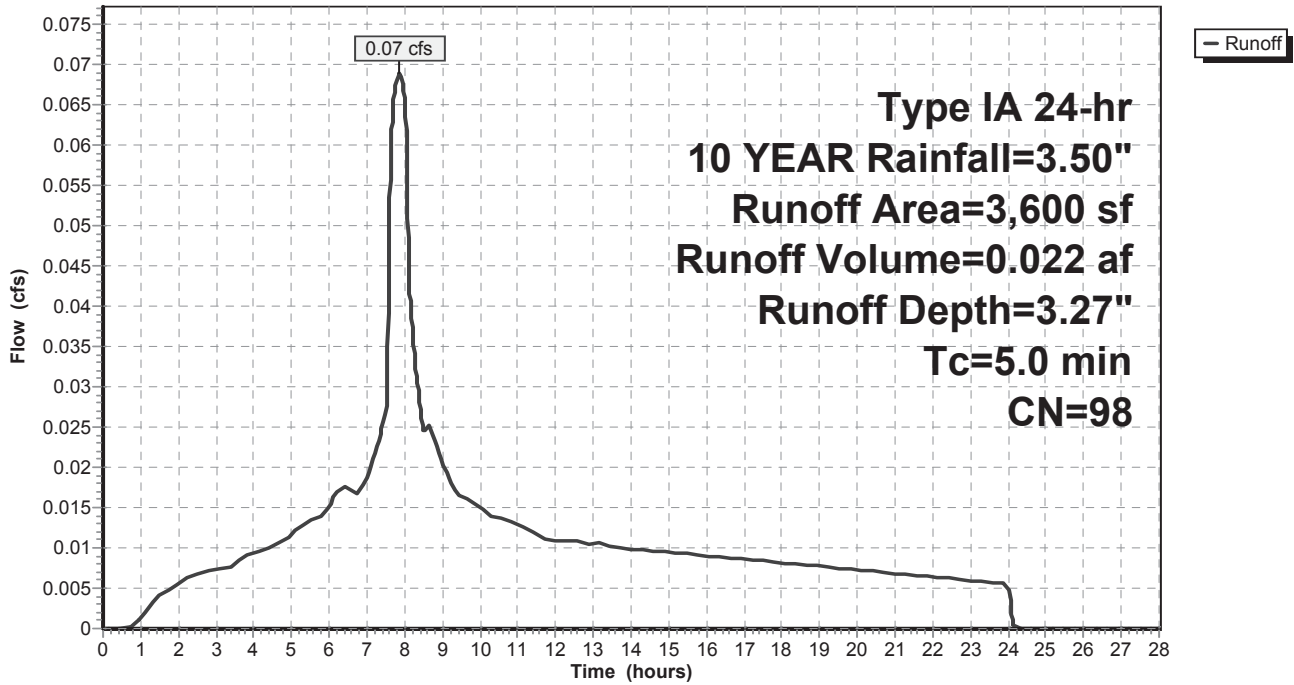
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10 YEAR Rainfall=3.50"

Area (sf)	CN	Description
3,600	98	Unconnected roofs, HSG B
3,600		100.00% Impervious Area
3,600		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MINIMUM TC

Subcatchment 5S: LOT 4 ROOF

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 10 YEAR Rainfall=3.50"

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Hydrograph for Subcatchment 5S: LOT 4 ROOF

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	3.50	3.27	0.00
0.50	0.03	0.00	0.00	27.00	3.50	3.27	0.00
1.00	0.07	0.00	0.00	27.50	3.50	3.27	0.00
1.50	0.12	0.02	0.00	28.00	3.50	3.27	0.00
2.00	0.18	0.05	0.01				
2.50	0.23	0.09	0.01				
3.00	0.29	0.13	0.01				
3.50	0.34	0.18	0.01				
4.00	0.41	0.23	0.01				
4.50	0.47	0.29	0.01				
5.00	0.55	0.36	0.01				
5.50	0.63	0.44	0.01				
6.00	0.72	0.52	0.02				
6.50	0.83	0.63	0.02				
7.00	0.94	0.73	0.02				
7.50	1.09	0.87	0.03				
8.00	1.49	1.27	0.07				
8.50	1.68	1.46	0.02				
9.00	1.82	1.60	0.02				
9.50	1.92	1.70	0.02				
10.00	2.02	1.79	0.02				
10.50	2.10	1.88	0.01				
11.00	2.18	1.96	0.01				
11.50	2.26	2.03	0.01				
12.00	2.32	2.10	0.01				
12.50	2.39	2.16	0.01				
13.00	2.45	2.22	0.01				
13.50	2.52	2.29	0.01				
14.00	2.58	2.35	0.01				
14.50	2.63	2.40	0.01				
15.00	2.69	2.46	0.01				
15.50	2.75	2.52	0.01				
16.00	2.80	2.57	0.01				
16.50	2.86	2.63	0.01				
17.00	2.91	2.68	0.01				
17.50	2.96	2.73	0.01				
18.00	3.01	2.78	0.01				
18.50	3.06	2.83	0.01				
19.00	3.10	2.87	0.01				
19.50	3.15	2.92	0.01				
20.00	3.19	2.96	0.01				
20.50	3.24	3.00	0.01				
21.00	3.28	3.05	0.01				
21.50	3.32	3.09	0.01				
22.00	3.36	3.12	0.01				
22.50	3.40	3.16	0.01				
23.00	3.43	3.20	0.01				
23.50	3.47	3.23	0.01				
24.00	3.50	3.27	0.01				
24.50	3.50	3.27	0.00				
25.00	3.50	3.27	0.00				
25.50	3.50	3.27	0.00				
26.00	3.50	3.27	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr 10 YEAR Rainfall=3.50"

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Summary for Subcatchment 7S: LOT 4 LANDSCAPING

Runoff = 0.00 cfs @ 8.04 hrs, Volume= 0.005 af, Depth= 0.57"

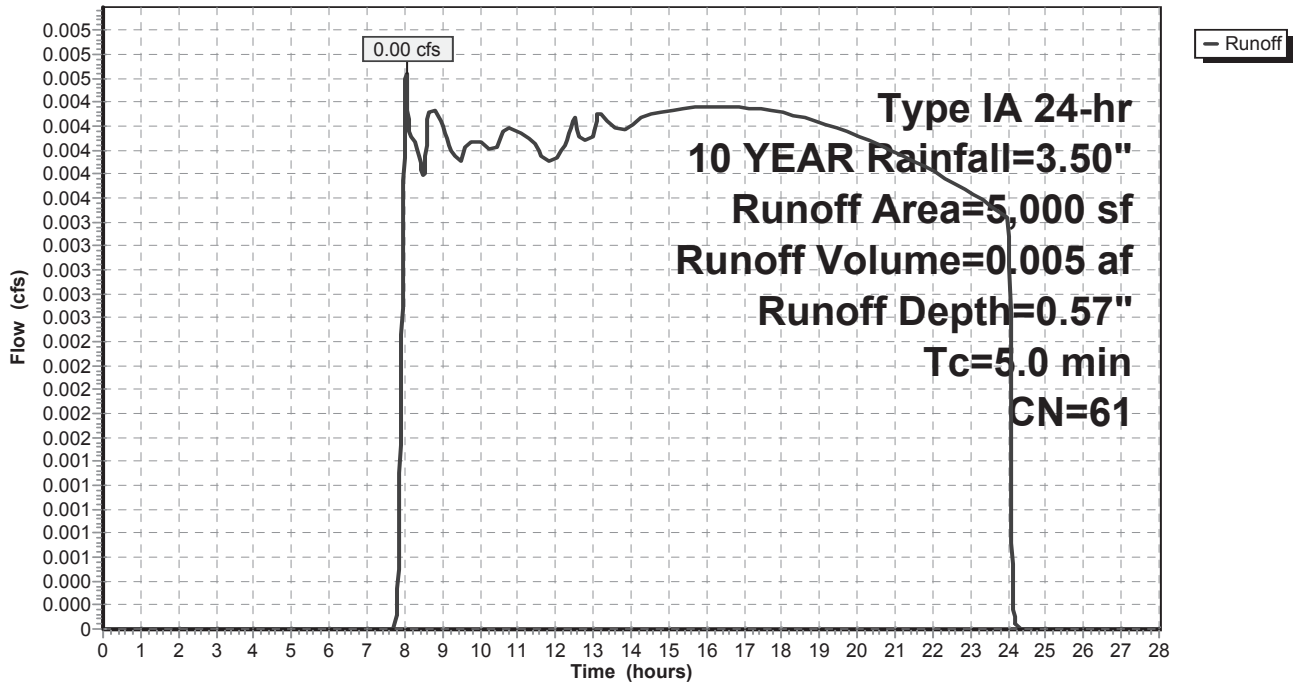
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10 YEAR Rainfall=3.50"

Area (sf)	CN	Description
5,000	61	>75% Grass cover, Good, HSG B
5,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MINIMUM TC

Subcatchment 7S: LOT 4 LANDSCAPING

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 10 YEAR Rainfall=3.50"

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Hydrograph for Subcatchment 7S: LOT 4 LANDSCAPING

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	3.50	0.57	0.00
0.50	0.03	0.00	0.00	27.00	3.50	0.57	0.00
1.00	0.07	0.00	0.00	27.50	3.50	0.57	0.00
1.50	0.12	0.00	0.00	28.00	3.50	0.57	0.00
2.00	0.18	0.00	0.00				
2.50	0.23	0.00	0.00				
3.00	0.29	0.00	0.00				
3.50	0.34	0.00	0.00				
4.00	0.41	0.00	0.00				
4.50	0.47	0.00	0.00				
5.00	0.55	0.00	0.00				
5.50	0.63	0.00	0.00				
6.00	0.72	0.00	0.00				
6.50	0.83	0.00	0.00				
7.00	0.94	0.00	0.00				
7.50	1.09	0.00	0.00				
8.00	1.49	0.01	0.00				
8.50	1.68	0.02	0.00				
9.00	1.82	0.04	0.00				
9.50	1.92	0.06	0.00				
10.00	2.02	0.08	0.00				
10.50	2.10	0.09	0.00				
11.00	2.18	0.11	0.00				
11.50	2.26	0.13	0.00				
12.00	2.32	0.15	0.00				
12.50	2.39	0.16	0.00				
13.00	2.45	0.18	0.00				
13.50	2.52	0.20	0.00				
14.00	2.58	0.22	0.00				
14.50	2.63	0.24	0.00				
15.00	2.69	0.26	0.00				
15.50	2.75	0.27	0.00				
16.00	2.80	0.29	0.00				
16.50	2.86	0.31	0.00				
17.00	2.91	0.33	0.00				
17.50	2.96	0.35	0.00				
18.00	3.01	0.37	0.00				
18.50	3.06	0.39	0.00				
19.00	3.10	0.41	0.00				
19.50	3.15	0.42	0.00				
20.00	3.19	0.44	0.00				
20.50	3.24	0.46	0.00				
21.00	3.28	0.48	0.00				
21.50	3.32	0.49	0.00				
22.00	3.36	0.51	0.00				
22.50	3.40	0.53	0.00				
23.00	3.43	0.54	0.00				
23.50	3.47	0.56	0.00				
24.00	3.50	0.57	0.00				
24.50	3.50	0.57	0.00				
25.00	3.50	0.57	0.00				
25.50	3.50	0.57	0.00				
26.00	3.50	0.57	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr 10 YEAR Rainfall=3.50"

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Summary for Pond 2P: NORTH SIDE PLANTER

Inflow Area = 0.076 ac, 100.00% Impervious, Inflow Depth = 3.27" for 10 YEAR event
 Inflow = 0.06 cfs @ 7.86 hrs, Volume= 0.021 af
 Outflow = 0.05 cfs @ 8.06 hrs, Volume= 0.021 af, Atten= 18%, Lag= 12.2 min
 Discarded = 0.05 cfs @ 8.06 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Peak Elev= 0.07' @ 8.06 hrs Surf.Area= 279 sf Storage= 16 cf

Plug-Flow detention time= 0.7 min calculated for 0.021 af (100% of inflow)
 Center-of-Mass det. time= 0.7 min (662.9 - 662.2)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	151 cf	PLANTER FREEBOARD (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	1	0	0
0.02	279	3	3
0.55	279	148	151

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = -20.00'

Discarded OutFlow Max=0.05 cfs @ 8.06 hrs HW=0.07' (Free Discharge)
 ↑1=Exfiltration (Controls 0.05 cfs)

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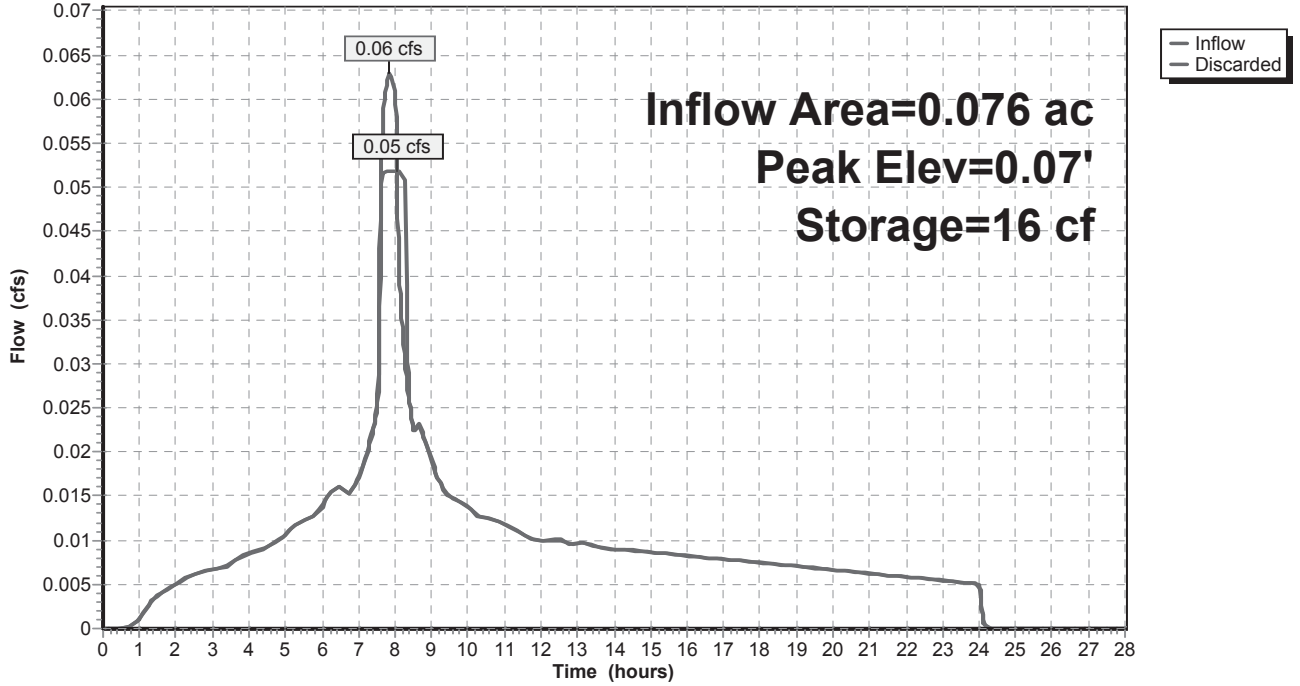
Type IA 24-hr 10 YEAR Rainfall=3.50"

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Pond 2P: NORTH SIDE PLANTER

Hydrograph



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Type IA 24-hr 10 YEAR Rainfall=3.50"

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Hydrograph for Pond 2P: NORTH SIDE PLANTER

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	0.00	0.00
1.00	0.00	0	0.00	0.00
2.00	0.01	0	0.00	0.00
3.00	0.01	0	0.00	0.01
4.00	0.01	0	0.00	0.01
5.00	0.01	0	0.00	0.01
6.00	0.01	0	0.01	0.01
7.00	0.02	0	0.01	0.02
8.00	0.06	15	0.06	0.05
9.00	0.02	0	0.01	0.02
10.00	0.01	0	0.01	0.01
11.00	0.01	0	0.00	0.01
12.00	0.01	0	0.00	0.01
13.00	0.01	0	0.00	0.01
14.00	0.01	0	0.00	0.01
15.00	0.01	0	0.00	0.01
16.00	0.01	0	0.00	0.01
17.00	0.01	0	0.00	0.01
18.00	0.01	0	0.00	0.01
19.00	0.01	0	0.00	0.01
20.00	0.01	0	0.00	0.01
21.00	0.01	0	0.00	0.01
22.00	0.01	0	0.00	0.01
23.00	0.01	0	0.00	0.01
24.00	0.01	0	0.00	0.01
25.00	0.00	0	0.00	0.00
26.00	0.00	0	0.00	0.00
27.00	0.00	0	0.00	0.00
28.00	0.00	0	0.00	0.00

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Type IA 24-hr 10 YEAR Rainfall=3.50"

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Summary for Pond 4P: SOUTH SIDE PLANTER

Inflow Area = 0.082 ac, 100.00% Impervious, Inflow Depth = 3.27" for 10 YEAR event
 Inflow = 0.07 cfs @ 7.86 hrs, Volume= 0.022 af
 Outflow = 0.04 cfs @ 8.18 hrs, Volume= 0.022 af, Atten= 44%, Lag= 19.6 min
 Discarded = 0.04 cfs @ 8.18 hrs, Volume= 0.022 af

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Peak Elev= 0.26' @ 8.18 hrs Surf.Area= 203 sf Storage= 51 cf

Plug-Flow detention time= 3.3 min calculated for 0.022 af (100% of inflow)
 Center-of-Mass det. time= 3.3 min (665.5 - 662.2)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	134 cf	PLANTER FREEBOARD (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	1	0	0
0.02	203	2	2
0.67	203	132	134

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = -20.00'

Discarded OutFlow Max=0.04 cfs @ 8.18 hrs HW=0.26' (Free Discharge)
 ↑1=Exfiltration (Controls 0.04 cfs)

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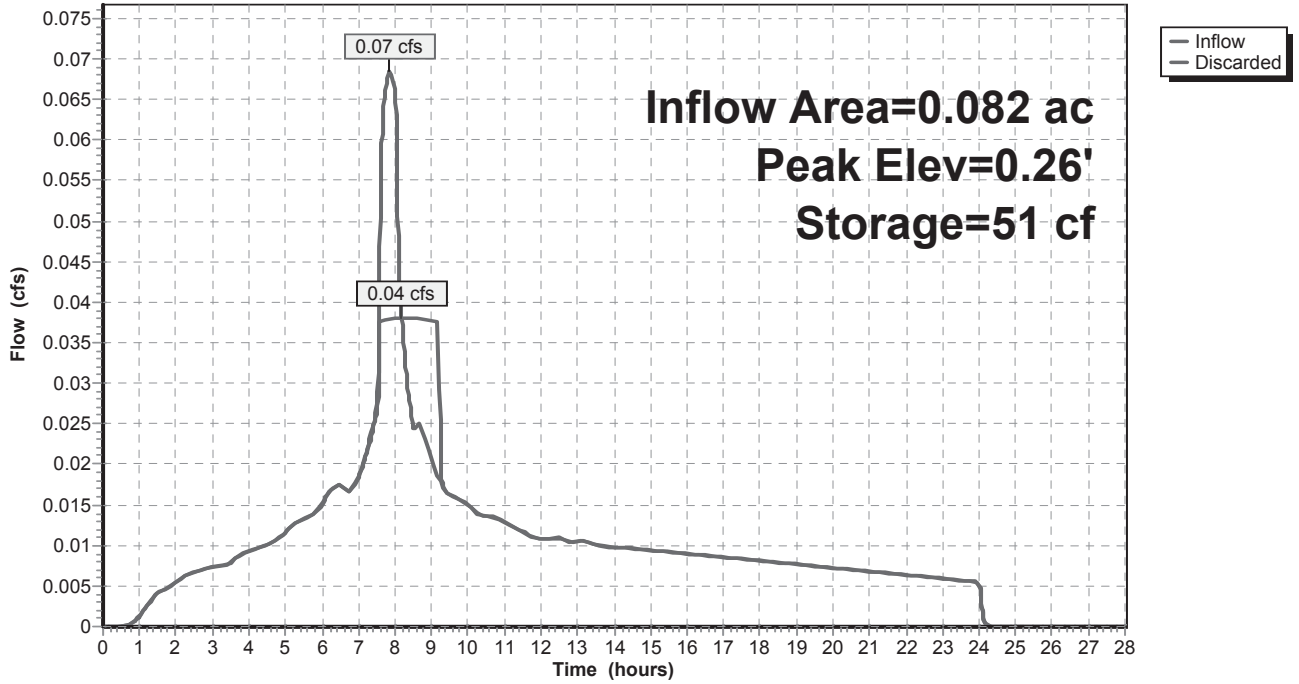
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Pond 4P: SOUTH SIDE PLANTER

Hydrograph



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Type IA 24-hr 10 YEAR Rainfall=3.50"

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Hydrograph for Pond 4P: SOUTH SIDE PLANTER

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	0.00	0.00
1.00	0.00	0	0.00	0.00
2.00	0.01	0	0.00	0.01
3.00	0.01	0	0.00	0.01
4.00	0.01	0	0.00	0.01
5.00	0.01	0	0.01	0.01
6.00	0.01	0	0.01	0.01
7.00	0.02	1	0.01	0.02
8.00	0.07	43	0.22	0.04
9.00	0.02	16	0.09	0.04
10.00	0.01	0	0.01	0.01
11.00	0.01	0	0.01	0.01
12.00	0.01	0	0.01	0.01
13.00	0.01	0	0.01	0.01
14.00	0.01	0	0.01	0.01
15.00	0.01	0	0.00	0.01
16.00	0.01	0	0.00	0.01
17.00	0.01	0	0.00	0.01
18.00	0.01	0	0.00	0.01
19.00	0.01	0	0.00	0.01
20.00	0.01	0	0.00	0.01
21.00	0.01	0	0.00	0.01
22.00	0.01	0	0.00	0.01
23.00	0.01	0	0.00	0.01
24.00	0.01	0	0.00	0.01
25.00	0.00	0	0.00	0.00
26.00	0.00	0	0.00	0.00
27.00	0.00	0	0.00	0.00
28.00	0.00	0	0.00	0.00

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Type IA 24-hr 10 YEAR Rainfall=3.50"

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Summary for Pond 6P: RESIDENTIAL DRYWELL

Inflow Area = 0.197 ac, 41.86% Impervious, Inflow Depth = 1.70" for 10 YEAR event
 Inflow = 0.07 cfs @ 7.93 hrs, Volume= 0.028 af
 Outflow = 0.02 cfs @ 9.85 hrs, Volume= 0.028 af, Atten= 72%, Lag= 115.1 min
 Discarded = 0.02 cfs @ 9.85 hrs, Volume= 0.028 af

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Peak Elev= 4.47' @ 9.85 hrs Surf.Area= 0.002 ac Storage= 0.004 af

Plug-Flow detention time= 62.4 min calculated for 0.028 af (100% of inflow)
 Center-of-Mass det. time= 62.4 min (781.5 - 719.1)

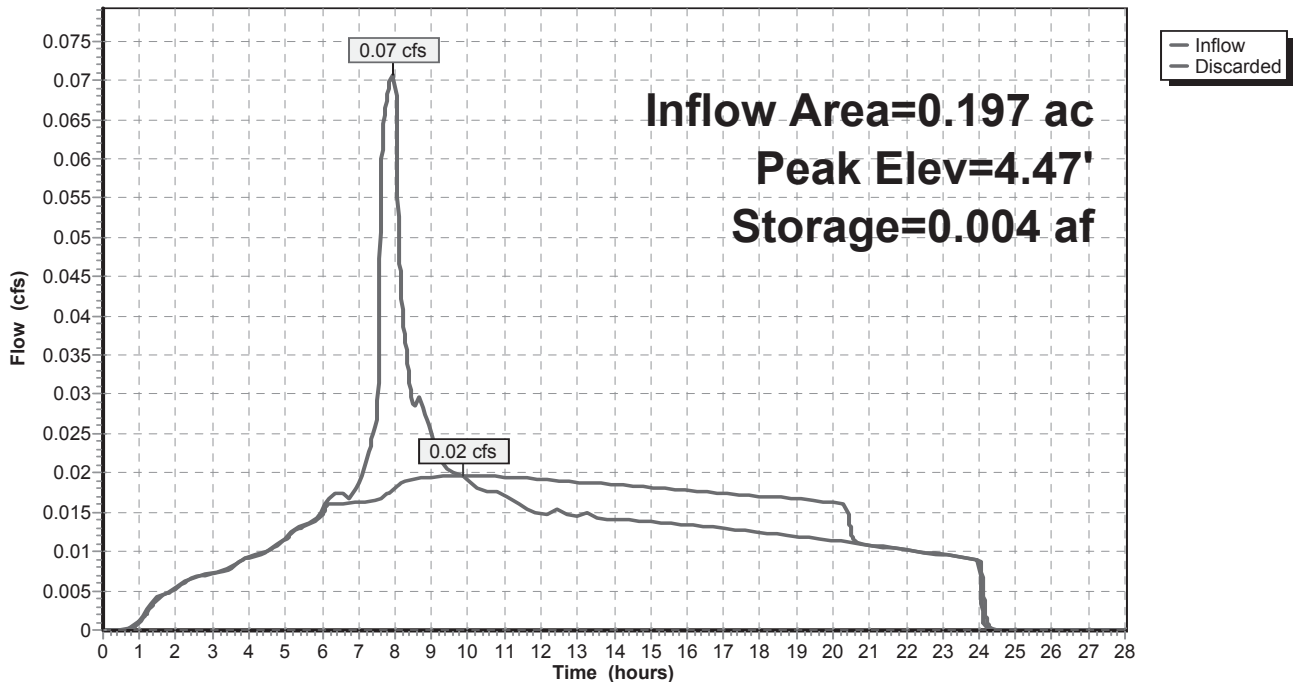
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	0.006 af	10.50'D x 10.50'H ROCK SECTION 0.021 af Overall - 0.004 af Embedded = 0.017 af x 33.0% Voids
#2	0.00'	0.003 af	4.00'D x 10.00'H DRYWELL Inside #1 0.004 af Overall - 4.0" Wall Thickness = 0.003 af
		0.008 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = -20.00'

Discarded OutFlow Max=0.02 cfs @ 9.85 hrs HW=4.47' (Free Discharge)
 ↑1=Exfiltration (Controls 0.02 cfs)

Pond 6P: RESIDENTIAL DRYWELL

Hydrograph



15122 LOGUS ROAD STORM

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Hydrograph for Pond 6P: RESIDENTIAL DRYWELL

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0.000	0.00	0.00
1.00	0.00	0.000	0.01	0.00
2.00	0.01	0.000	0.03	0.01
3.00	0.01	0.000	0.05	0.01
4.00	0.01	0.000	0.06	0.01
5.00	0.01	0.000	0.07	0.01
6.00	0.02	0.000	0.10	0.01
7.00	0.02	0.000	0.20	0.02
8.00	0.07	0.002	2.72	0.02
9.00	0.02	0.004	4.33	0.02
10.00	0.02	0.004	4.46	0.02
11.00	0.02	0.003	4.29	0.02
12.00	0.01	0.003	3.92	0.02
13.00	0.01	0.003	3.50	0.02
14.00	0.01	0.003	3.07	0.02
15.00	0.01	0.002	2.63	0.02
16.00	0.01	0.002	2.18	0.02
17.00	0.01	0.001	1.73	0.02
18.00	0.01	0.001	1.27	0.02
19.00	0.01	0.001	0.80	0.02
20.00	0.01	0.000	0.31	0.02
21.00	0.01	0.000	0.07	0.01
22.00	0.01	0.000	0.07	0.01
23.00	0.01	0.000	0.06	0.01
24.00	0.01	0.000	0.06	0.01
25.00	0.00	0.000	0.00	0.00
26.00	0.00	0.000	0.00	0.00
27.00	0.00	0.000	0.00	0.00
28.00	0.00	0.000	0.00	0.00

15122 LOGUS ROAD STORM

Type IA 24-hr 25 YEAR Rainfall=4.00"

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Time span=0.00-28.00 hrs, dt=0.01 hrs, 2801 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: NORTH SIDE STREET Runoff Area=3,291 sf 100.00% Impervious Runoff Depth=3.77"
 Tc=5.0 min CN=98 Runoff=0.07 cfs 0.024 af

Subcatchment 3S: SOUTH SIDE STREET Runoff Area=3,580 sf 100.00% Impervious Runoff Depth=3.77"
 Tc=5.0 min CN=98 Runoff=0.08 cfs 0.026 af

Subcatchment 5S: LOT 4 ROOF Runoff Area=3,600 sf 100.00% Impervious Runoff Depth=3.77"
 Tc=5.0 min CN=98 Runoff=0.08 cfs 0.026 af

Subcatchment 7S: LOT 4 LANDSCAPING Runoff Area=5,000 sf 0.00% Impervious Runoff Depth=0.81"
 Tc=5.0 min CN=61 Runoff=0.01 cfs 0.008 af

Pond 2P: NORTH SIDE PLANTER Peak Elev=0.12' Storage=31 cf Inflow=0.07 cfs 0.024 af
 Outflow=0.05 cfs 0.024 af

Pond 4P: SOUTH SIDE PLANTER Peak Elev=0.36' Storage=72 cf Inflow=0.08 cfs 0.026 af
 Outflow=0.04 cfs 0.026 af

Pond 6P: RESIDENTIAL DRYWELL Peak Elev=6.55' Storage=0.005 af Inflow=0.09 cfs 0.034 af
 Outflow=0.02 cfs 0.034 af

Total Runoff Area = 0.355 ac Runoff Volume = 0.083 af Average Runoff Depth = 2.81"
32.32% Pervious = 0.115 ac 67.68% Impervious = 0.240 ac

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Type IA 24-hr 25 YEAR Rainfall=4.00"

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Summary for Subcatchment 1S: NORTH SIDE STREET

Runoff = 0.07 cfs @ 7.86 hrs, Volume= 0.024 af, Depth= 3.77"

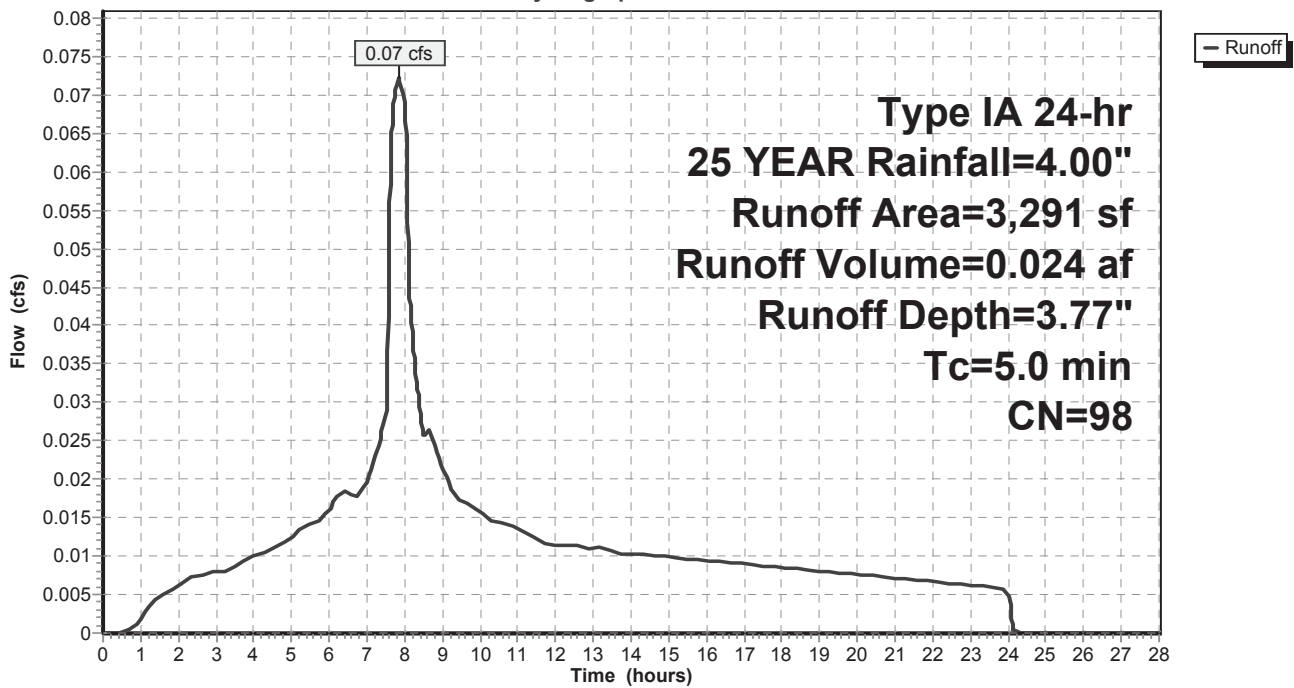
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25 YEAR Rainfall=4.00"

	Area (sf)	CN	Description
*	3,012	98	IMPERVIOUS AREA
*	279	100	PLANTER SURFACE
	3,291	98	Weighted Average
	3,291		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MIMIMUM FLOW TIME

Subcatchment 1S: NORTH SIDE STREET

Hydrograph



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Type IA 24-hr 25 YEAR Rainfall=4.00"

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Hydrograph for Subcatchment 1S: NORTH SIDE STREET

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	4.00	3.77	0.00
0.50	0.04	0.00	0.00	27.00	4.00	3.77	0.00
1.00	0.08	0.01	0.00	27.50	4.00	3.77	0.00
1.50	0.14	0.03	0.00	28.00	4.00	3.77	0.00
2.00	0.20	0.07	0.01				
2.50	0.26	0.12	0.01				
3.00	0.33	0.17	0.01				
3.50	0.39	0.22	0.01				
4.00	0.46	0.29	0.01				
4.50	0.54	0.35	0.01				
5.00	0.62	0.43	0.01				
5.50	0.72	0.52	0.01				
6.00	0.82	0.62	0.02				
6.50	0.95	0.74	0.02				
7.00	1.07	0.86	0.02				
7.50	1.24	1.02	0.03				
8.00	1.70	1.48	0.07				
8.50	1.92	1.70	0.03				
9.00	2.08	1.85	0.02				
9.50	2.20	1.97	0.02				
10.00	2.31	2.08	0.02				
10.50	2.40	2.18	0.01				
11.00	2.50	2.27	0.01				
11.50	2.58	2.35	0.01				
12.00	2.66	2.43	0.01				
12.50	2.73	2.50	0.01				
13.00	2.80	2.57	0.01				
13.50	2.88	2.64	0.01				
14.00	2.94	2.71	0.01				
14.50	3.01	2.78	0.01				
15.00	3.08	2.84	0.01				
15.50	3.14	2.91	0.01				
16.00	3.20	2.97	0.01				
16.50	3.26	3.03	0.01				
17.00	3.32	3.09	0.01				
17.50	3.38	3.15	0.01				
18.00	3.44	3.21	0.01				
18.50	3.49	3.26	0.01				
19.00	3.55	3.31	0.01				
19.50	3.60	3.37	0.01				
20.00	3.65	3.42	0.01				
20.50	3.70	3.47	0.01				
21.00	3.75	3.51	0.01				
21.50	3.79	3.56	0.01				
22.00	3.84	3.60	0.01				
22.50	3.88	3.65	0.01				
23.00	3.92	3.69	0.01				
23.50	3.96	3.73	0.01				
24.00	4.00	3.77	0.01				
24.50	4.00	3.77	0.00				
25.00	4.00	3.77	0.00				
25.50	4.00	3.77	0.00				
26.00	4.00	3.77	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr 25 YEAR Rainfall=4.00"

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Summary for Subcatchment 3S: SOUTH SIDE STREET

Runoff = 0.08 cfs @ 7.86 hrs, Volume= 0.026 af, Depth= 3.77"

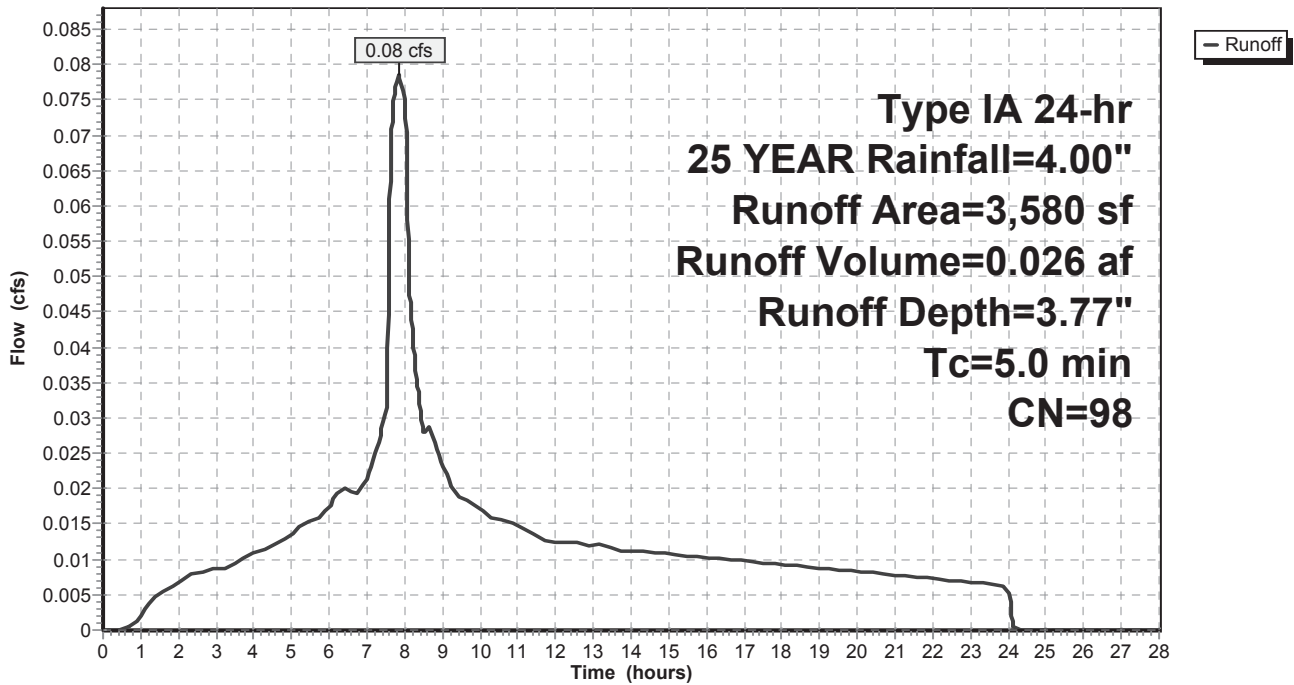
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25 YEAR Rainfall=4.00"

	Area (sf)	CN	Description
*	3,377	98	IMPERVIOUS AREA
*	203	100	PLANTER SURFACE
	3,580	98	Weighted Average
	3,580		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MIMIMUM FLOW TIME

Subcatchment 3S: SOUTH SIDE STREET

Hydrograph



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Type IA 24-hr 25 YEAR Rainfall=4.00"

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Hydrograph for Subcatchment 3S: SOUTH SIDE STREET

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	4.00	3.77	0.00
0.50	0.04	0.00	0.00	27.00	4.00	3.77	0.00
1.00	0.08	0.01	0.00	27.50	4.00	3.77	0.00
1.50	0.14	0.03	0.01	28.00	4.00	3.77	0.00
2.00	0.20	0.07	0.01				
2.50	0.26	0.12	0.01				
3.00	0.33	0.17	0.01				
3.50	0.39	0.22	0.01				
4.00	0.46	0.29	0.01				
4.50	0.54	0.35	0.01				
5.00	0.62	0.43	0.01				
5.50	0.72	0.52	0.02				
6.00	0.82	0.62	0.02				
6.50	0.95	0.74	0.02				
7.00	1.07	0.86	0.02				
7.50	1.24	1.02	0.03				
8.00	1.70	1.48	0.07				
8.50	1.92	1.70	0.03				
9.00	2.08	1.85	0.02				
9.50	2.20	1.97	0.02				
10.00	2.31	2.08	0.02				
10.50	2.40	2.18	0.02				
11.00	2.50	2.27	0.01				
11.50	2.58	2.35	0.01				
12.00	2.66	2.43	0.01				
12.50	2.73	2.50	0.01				
13.00	2.80	2.57	0.01				
13.50	2.88	2.64	0.01				
14.00	2.94	2.71	0.01				
14.50	3.01	2.78	0.01				
15.00	3.08	2.84	0.01				
15.50	3.14	2.91	0.01				
16.00	3.20	2.97	0.01				
16.50	3.26	3.03	0.01				
17.00	3.32	3.09	0.01				
17.50	3.38	3.15	0.01				
18.00	3.44	3.21	0.01				
18.50	3.49	3.26	0.01				
19.00	3.55	3.31	0.01				
19.50	3.60	3.37	0.01				
20.00	3.65	3.42	0.01				
20.50	3.70	3.47	0.01				
21.00	3.75	3.51	0.01				
21.50	3.79	3.56	0.01				
22.00	3.84	3.60	0.01				
22.50	3.88	3.65	0.01				
23.00	3.92	3.69	0.01				
23.50	3.96	3.73	0.01				
24.00	4.00	3.77	0.01				
24.50	4.00	3.77	0.00				
25.00	4.00	3.77	0.00				
25.50	4.00	3.77	0.00				
26.00	4.00	3.77	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr 25 YEAR Rainfall=4.00"

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Summary for Subcatchment 5S: LOT 4 ROOF

Runoff = 0.08 cfs @ 7.86 hrs, Volume= 0.026 af, Depth= 3.77"

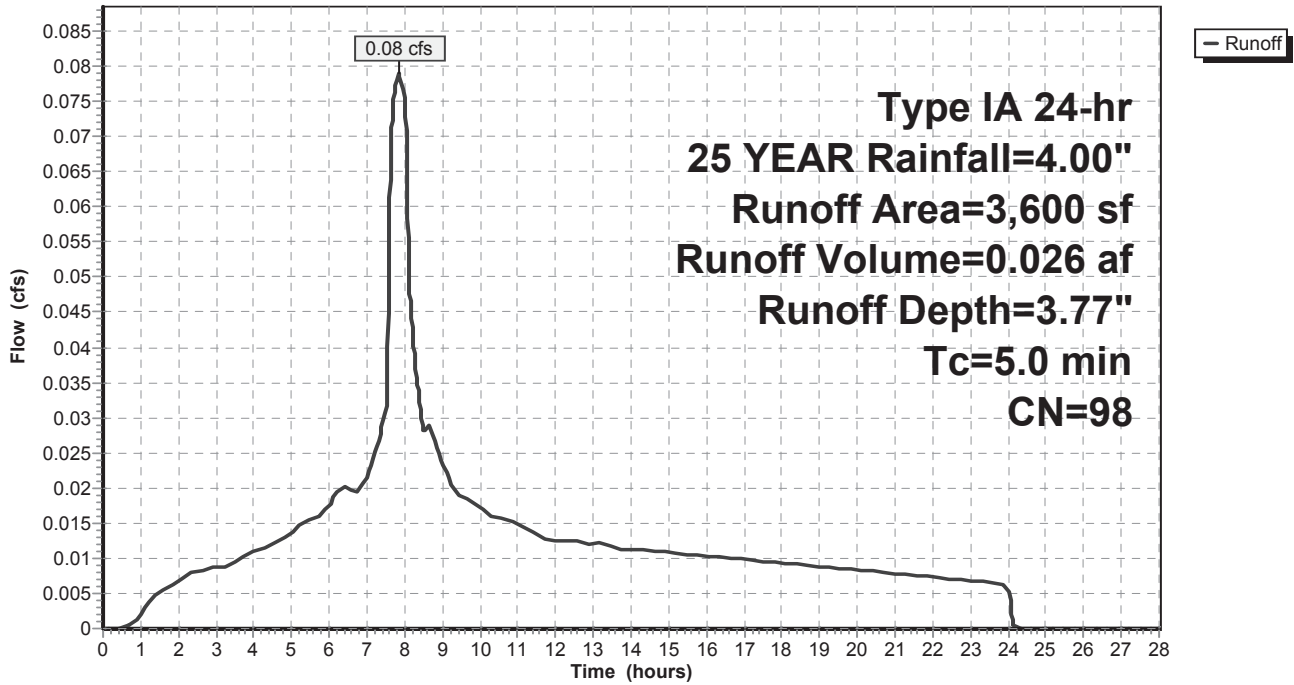
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25 YEAR Rainfall=4.00"

Area (sf)	CN	Description
3,600	98	Unconnected roofs, HSG B
3,600		100.00% Impervious Area
3,600		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MINIMUM TC

Subcatchment 5S: LOT 4 ROOF

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 25 YEAR Rainfall=4.00"

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Hydrograph for Subcatchment 5S: LOT 4 ROOF

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	4.00	3.77	0.00
0.50	0.04	0.00	0.00	27.00	4.00	3.77	0.00
1.00	0.08	0.01	0.00	27.50	4.00	3.77	0.00
1.50	0.14	0.03	0.01	28.00	4.00	3.77	0.00
2.00	0.20	0.07	0.01				
2.50	0.26	0.12	0.01				
3.00	0.33	0.17	0.01				
3.50	0.39	0.22	0.01				
4.00	0.46	0.29	0.01				
4.50	0.54	0.35	0.01				
5.00	0.62	0.43	0.01				
5.50	0.72	0.52	0.02				
6.00	0.82	0.62	0.02				
6.50	0.95	0.74	0.02				
7.00	1.07	0.86	0.02				
7.50	1.24	1.02	0.03				
8.00	1.70	1.48	0.08				
8.50	1.92	1.70	0.03				
9.00	2.08	1.85	0.02				
9.50	2.20	1.97	0.02				
10.00	2.31	2.08	0.02				
10.50	2.40	2.18	0.02				
11.00	2.50	2.27	0.01				
11.50	2.58	2.35	0.01				
12.00	2.66	2.43	0.01				
12.50	2.73	2.50	0.01				
13.00	2.80	2.57	0.01				
13.50	2.88	2.64	0.01				
14.00	2.94	2.71	0.01				
14.50	3.01	2.78	0.01				
15.00	3.08	2.84	0.01				
15.50	3.14	2.91	0.01				
16.00	3.20	2.97	0.01				
16.50	3.26	3.03	0.01				
17.00	3.32	3.09	0.01				
17.50	3.38	3.15	0.01				
18.00	3.44	3.21	0.01				
18.50	3.49	3.26	0.01				
19.00	3.55	3.31	0.01				
19.50	3.60	3.37	0.01				
20.00	3.65	3.42	0.01				
20.50	3.70	3.47	0.01				
21.00	3.75	3.51	0.01				
21.50	3.79	3.56	0.01				
22.00	3.84	3.60	0.01				
22.50	3.88	3.65	0.01				
23.00	3.92	3.69	0.01				
23.50	3.96	3.73	0.01				
24.00	4.00	3.77	0.01				
24.50	4.00	3.77	0.00				
25.00	4.00	3.77	0.00				
25.50	4.00	3.77	0.00				
26.00	4.00	3.77	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr 25 YEAR Rainfall=4.00"

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Summary for Subcatchment 7S: LOT 4 LANDSCAPING

Runoff = 0.01 cfs @ 8.03 hrs, Volume= 0.008 af, Depth= 0.81"

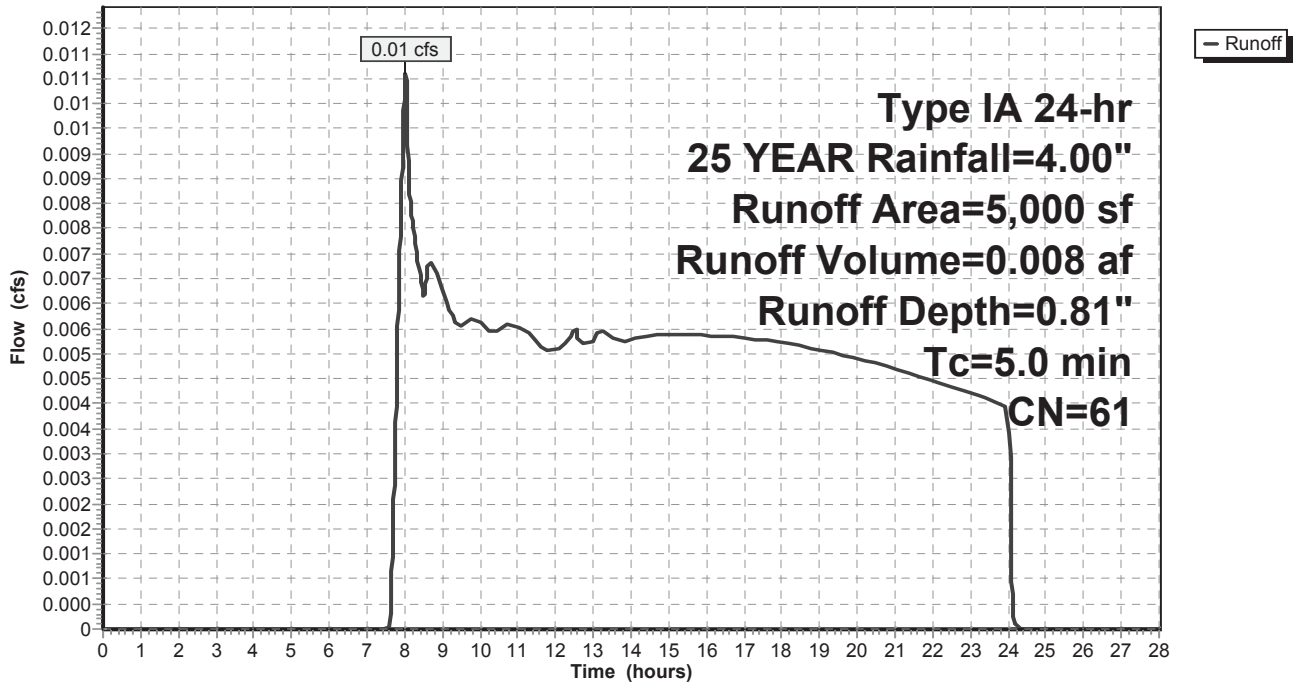
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25 YEAR Rainfall=4.00"

Area (sf)	CN	Description
5,000	61	>75% Grass cover, Good, HSG B
5,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MINIMUM TC

Subcatchment 7S: LOT 4 LANDSCAPING

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 25 YEAR Rainfall=4.00"

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Hydrograph for Subcatchment 7S: LOT 4 LANDSCAPING

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	4.00	0.81	0.00
0.50	0.04	0.00	0.00	27.00	4.00	0.81	0.00
1.00	0.08	0.00	0.00	27.50	4.00	0.81	0.00
1.50	0.14	0.00	0.00	28.00	4.00	0.81	0.00
2.00	0.20	0.00	0.00				
2.50	0.26	0.00	0.00				
3.00	0.33	0.00	0.00				
3.50	0.39	0.00	0.00				
4.00	0.46	0.00	0.00				
4.50	0.54	0.00	0.00				
5.00	0.62	0.00	0.00				
5.50	0.72	0.00	0.00				
6.00	0.82	0.00	0.00				
6.50	0.95	0.00	0.00				
7.00	1.07	0.00	0.00				
7.50	1.24	0.00	0.00				
8.00	1.70	0.03	0.01				
8.50	1.92	0.06	0.01				
9.00	2.08	0.09	0.01				
9.50	2.20	0.12	0.01				
10.00	2.31	0.14	0.01				
10.50	2.40	0.17	0.01				
11.00	2.50	0.19	0.01				
11.50	2.58	0.22	0.01				
12.00	2.66	0.24	0.01				
12.50	2.73	0.27	0.01				
13.00	2.80	0.29	0.01				
13.50	2.88	0.32	0.01				
14.00	2.94	0.34	0.01				
14.50	3.01	0.37	0.01				
15.00	3.08	0.39	0.01				
15.50	3.14	0.42	0.01				
16.00	3.20	0.45	0.01				
16.50	3.26	0.47	0.01				
17.00	3.32	0.50	0.01				
17.50	3.38	0.52	0.01				
18.00	3.44	0.55	0.01				
18.50	3.49	0.57	0.01				
19.00	3.55	0.59	0.01				
19.50	3.60	0.62	0.01				
20.00	3.65	0.64	0.01				
20.50	3.70	0.66	0.01				
21.00	3.75	0.69	0.01				
21.50	3.79	0.71	0.01				
22.00	3.84	0.73	0.00				
22.50	3.88	0.75	0.00				
23.00	3.92	0.77	0.00				
23.50	3.96	0.79	0.00				
24.00	4.00	0.81	0.00				
24.50	4.00	0.81	0.00				
25.00	4.00	0.81	0.00				
25.50	4.00	0.81	0.00				
26.00	4.00	0.81	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr 25 YEAR Rainfall=4.00"

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Summary for Pond 2P: NORTH SIDE PLANTER

Inflow Area = 0.076 ac, 100.00% Impervious, Inflow Depth = 3.77" for 25 YEAR event
 Inflow = 0.07 cfs @ 7.86 hrs, Volume= 0.024 af
 Outflow = 0.05 cfs @ 8.09 hrs, Volume= 0.024 af, Atten= 28%, Lag= 13.8 min
 Discarded = 0.05 cfs @ 8.09 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Peak Elev= 0.12' @ 8.09 hrs Surf.Area= 279 sf Storage= 31 cf

Plug-Flow detention time= 1.2 min calculated for 0.024 af (100% of inflow)
 Center-of-Mass det. time= 1.2 min (660.1 - 658.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	151 cf	PLANTER FREEBOARD (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	1	0	0
0.02	279	3	3
0.55	279	148	151

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = -20.00'

Discarded OutFlow Max=0.05 cfs @ 8.09 hrs HW=0.12' (Free Discharge)
 ↑1=Exfiltration (Controls 0.05 cfs)

15122 LOGUS ROAD STORM

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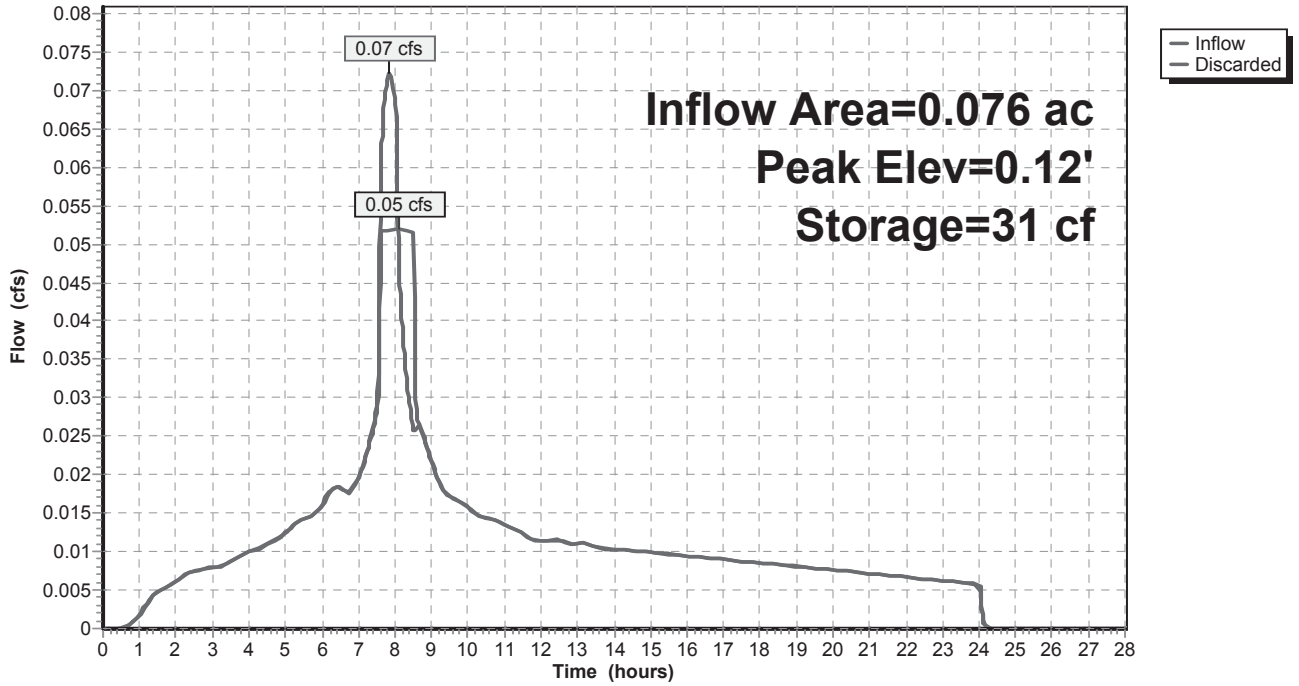
Type IA 24-hr 25 YEAR Rainfall=4.00"

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Pond 2P: NORTH SIDE PLANTER

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 25 YEAR Rainfall=4.00"

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Hydrograph for Pond 2P: NORTH SIDE PLANTER

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	0.00	0.00
1.00	0.00	0	0.00	0.00
2.00	0.01	0	0.00	0.01
3.00	0.01	0	0.00	0.01
4.00	0.01	0	0.00	0.01
5.00	0.01	0	0.00	0.01
6.00	0.02	0	0.01	0.02
7.00	0.02	0	0.01	0.02
8.00	0.07	27	0.11	0.05
9.00	0.02	1	0.01	0.02
10.00	0.02	0	0.01	0.02
11.00	0.01	0	0.01	0.01
12.00	0.01	0	0.00	0.01
13.00	0.01	0	0.00	0.01
14.00	0.01	0	0.00	0.01
15.00	0.01	0	0.00	0.01
16.00	0.01	0	0.00	0.01
17.00	0.01	0	0.00	0.01
18.00	0.01	0	0.00	0.01
19.00	0.01	0	0.00	0.01
20.00	0.01	0	0.00	0.01
21.00	0.01	0	0.00	0.01
22.00	0.01	0	0.00	0.01
23.00	0.01	0	0.00	0.01
24.00	0.01	0	0.00	0.01
25.00	0.00	0	0.00	0.00
26.00	0.00	0	0.00	0.00
27.00	0.00	0	0.00	0.00
28.00	0.00	0	0.00	0.00

15122 LOGUS ROAD STORM

Type IA 24-hr 25 YEAR Rainfall=4.00"

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Summary for Pond 4P: SOUTH SIDE PLANTER

Inflow Area = 0.082 ac, 100.00% Impervious, Inflow Depth = 3.77" for 25 YEAR event
 Inflow = 0.08 cfs @ 7.86 hrs, Volume= 0.026 af
 Outflow = 0.04 cfs @ 8.26 hrs, Volume= 0.026 af, Atten= 51%, Lag= 24.6 min
 Discarded = 0.04 cfs @ 8.26 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Peak Elev= 0.36' @ 8.26 hrs Surf.Area= 203 sf Storage= 72 cf

Plug-Flow detention time= 5.2 min calculated for 0.026 af (100% of inflow)
 Center-of-Mass det. time= 5.2 min (664.1 - 658.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	134 cf	PLANTER FREEBOARD (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	1	0	0
0.02	203	2	2
0.67	203	132	134

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = -20.00'

Discarded OutFlow Max=0.04 cfs @ 8.26 hrs HW=0.36' (Free Discharge)
 ↑1=Exfiltration (Controls 0.04 cfs)

15122 LOGUS ROAD STORM

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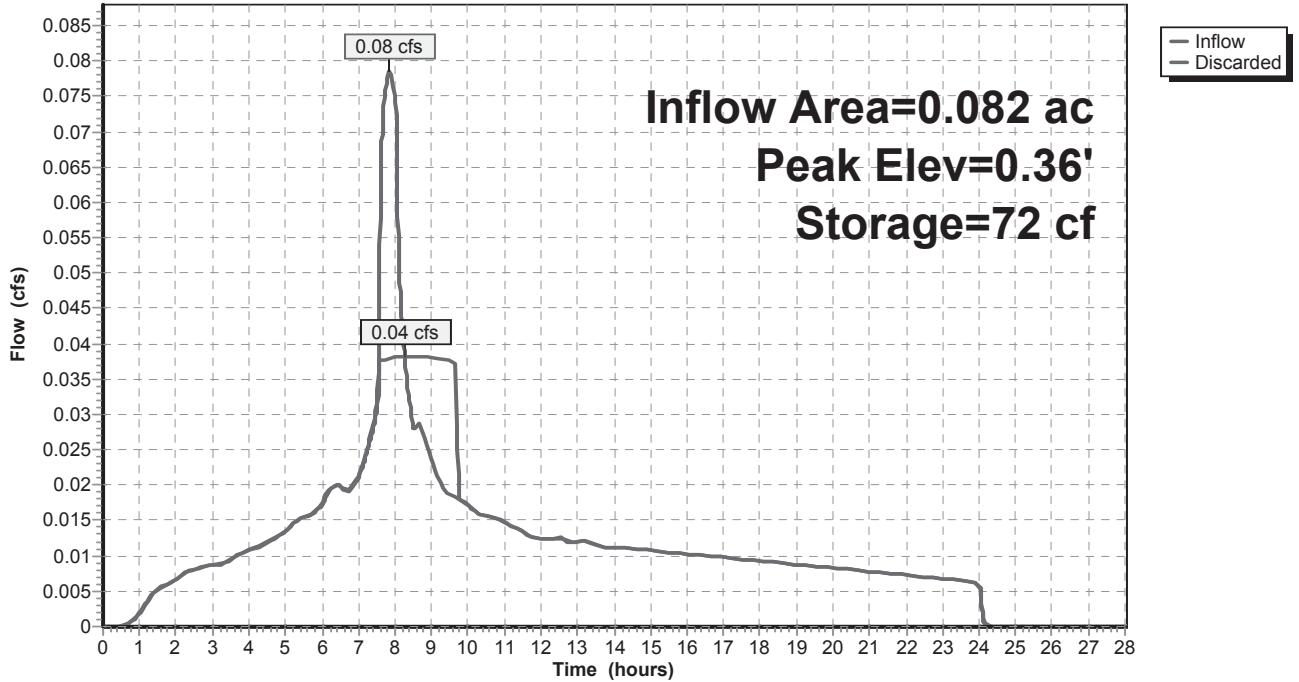
Type IA 24-hr 25 YEAR Rainfall=4.00"

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Pond 4P: SOUTH SIDE PLANTER

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 25 YEAR Rainfall=4.00"

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Hydrograph for Pond 4P: SOUTH SIDE PLANTER

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	0.00	0.00
1.00	0.00	0	0.00	0.00
2.00	0.01	0	0.00	0.01
3.00	0.01	0	0.00	0.01
4.00	0.01	0	0.01	0.01
5.00	0.01	0	0.01	0.01
6.00	0.02	0	0.01	0.02
7.00	0.02	1	0.01	0.02
8.00	0.07	58	0.30	0.04
9.00	0.02	47	0.24	0.04
10.00	0.02	0	0.01	0.02
11.00	0.01	0	0.01	0.01
12.00	0.01	0	0.01	0.01
13.00	0.01	0	0.01	0.01
14.00	0.01	0	0.01	0.01
15.00	0.01	0	0.01	0.01
16.00	0.01	0	0.01	0.01
17.00	0.01	0	0.01	0.01
18.00	0.01	0	0.00	0.01
19.00	0.01	0	0.00	0.01
20.00	0.01	0	0.00	0.01
21.00	0.01	0	0.00	0.01
22.00	0.01	0	0.00	0.01
23.00	0.01	0	0.00	0.01
24.00	0.01	0	0.00	0.01
25.00	0.00	0	0.00	0.00
26.00	0.00	0	0.00	0.00
27.00	0.00	0	0.00	0.00
28.00	0.00	0	0.00	0.00

15122 LOGUS ROAD STORM

Type IA 24-hr 25 YEAR Rainfall=4.00"

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Summary for Pond 6P: RESIDENTIAL DRYWELL

Inflow Area = 0.197 ac, 41.86% Impervious, Inflow Depth = 2.05" for 25 YEAR event
 Inflow = 0.09 cfs @ 7.93 hrs, Volume= 0.034 af
 Outflow = 0.02 cfs @ 10.84 hrs, Volume= 0.034 af, Atten= 76%, Lag= 174.8 min
 Discarded = 0.02 cfs @ 10.84 hrs, Volume= 0.034 af

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Peak Elev= 6.55' @ 10.84 hrs Surf.Area= 0.002 ac Storage= 0.005 af

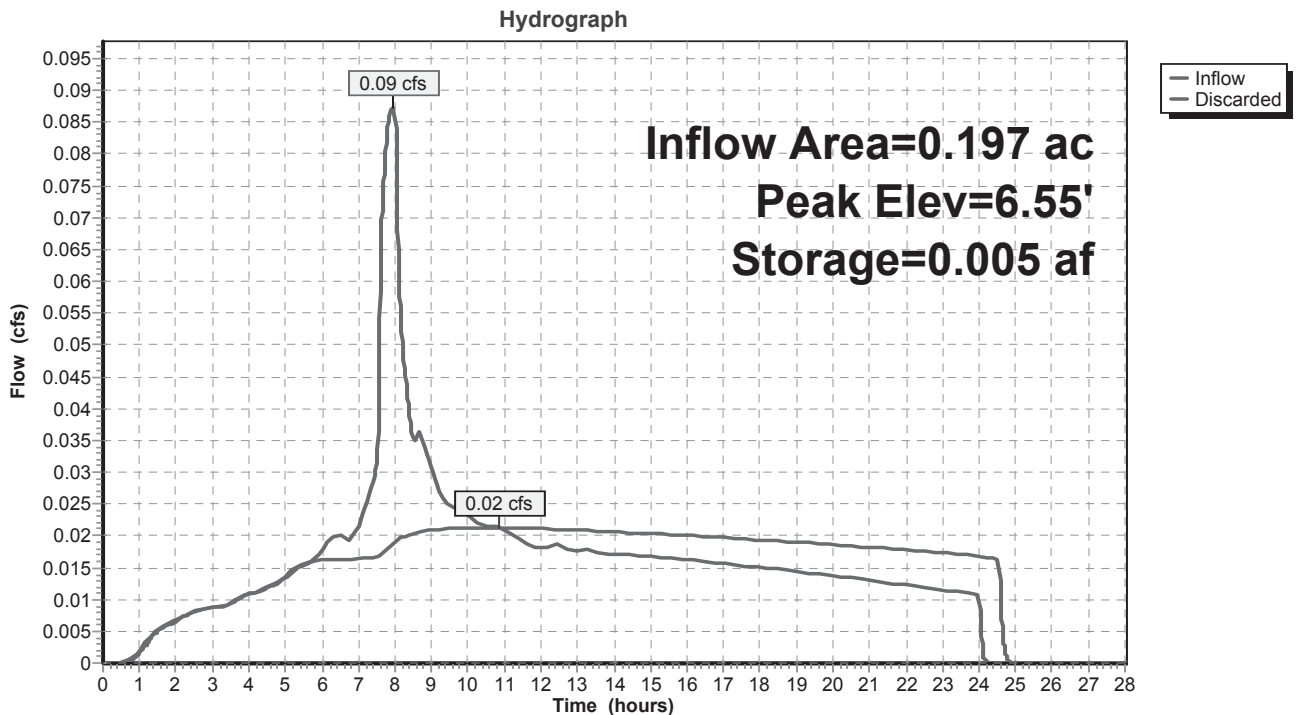
Plug-Flow detention time= 108.5 min calculated for 0.034 af (100% of inflow)
 Center-of-Mass det. time= 108.4 min (828.5 - 720.1)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	0.006 af	10.50'D x 10.50'H ROCK SECTION 0.021 af Overall - 0.004 af Embedded = 0.017 af x 33.0% Voids
#2	0.00'	0.003 af	4.00'D x 10.00'H DRYWELL Inside #1 0.004 af Overall - 4.0" Wall Thickness = 0.003 af
		0.008 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = -20.00'

Discarded OutFlow Max=0.02 cfs @ 10.84 hrs HW=6.55' (Free Discharge)
 ↑1=Exfiltration (Controls 0.02 cfs)

Pond 6P: RESIDENTIAL DRYWELL



15122 LOGUS ROAD STORM

Type IA 24-hr 25 YEAR Rainfall=4.00"

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Hydrograph for Pond 6P: RESIDENTIAL DRYWELL

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0.000	0.00	0.00
1.00	0.00	0.000	0.01	0.00
2.00	0.01	0.000	0.04	0.01
3.00	0.01	0.000	0.06	0.01
4.00	0.01	0.000	0.07	0.01
5.00	0.01	0.000	0.09	0.01
6.00	0.02	0.000	0.12	0.02
7.00	0.02	0.000	0.46	0.02
8.00	0.09	0.003	3.74	0.02
9.00	0.03	0.005	6.04	0.02
10.00	0.02	0.005	6.50	0.02
11.00	0.02	0.005	6.55	0.02
12.00	0.02	0.005	6.34	0.02
13.00	0.02	0.005	6.04	0.02
14.00	0.02	0.005	5.71	0.02
15.00	0.02	0.004	5.35	0.02
16.00	0.02	0.004	4.97	0.02
17.00	0.02	0.004	4.57	0.02
18.00	0.02	0.003	4.15	0.02
19.00	0.01	0.003	3.69	0.02
20.00	0.01	0.003	3.21	0.02
21.00	0.01	0.002	2.70	0.02
22.00	0.01	0.002	2.16	0.02
23.00	0.01	0.001	1.59	0.02
24.00	0.01	0.001	0.98	0.02
25.00	0.00	0.000	0.00	0.00
26.00	0.00	0.000	0.00	0.00
27.00	0.00	0.000	0.00	0.00
28.00	0.00	0.000	0.00	0.00

15122 LOGUS ROAD STORM

Type IA 24-hr 100 YEAR Rainfall=4.70"

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Time span=0.00-28.00 hrs, dt=0.01 hrs, 2801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: NORTH SIDE STREET Runoff Area=3,291 sf 100.00% Impervious Runoff Depth=4.46"
Tc=5.0 min CN=98 Runoff=0.09 cfs 0.028 af

Subcatchment 3S: SOUTH SIDE STREET Runoff Area=3,580 sf 100.00% Impervious Runoff Depth=4.46"
Tc=5.0 min CN=98 Runoff=0.09 cfs 0.031 af

Subcatchment 5S: LOT 4 ROOF Runoff Area=3,600 sf 100.00% Impervious Runoff Depth=4.46"
Tc=5.0 min CN=98 Runoff=0.09 cfs 0.031 af

Subcatchment 7S: LOT 4 LANDSCAPING Runoff Area=5,000 sf 0.00% Impervious Runoff Depth=1.19"
Tc=5.0 min CN=61 Runoff=0.02 cfs 0.011 af

Pond 2P: NORTH SIDE PLANTER Peak Elev=0.20' Storage=53 cf Inflow=0.09 cfs 0.028 af
Outflow=0.05 cfs 0.028 af

Pond 4P: SOUTH SIDE PLANTER Peak Elev=0.52' Storage=103 cf Inflow=0.09 cfs 0.031 af
Outflow=0.04 cfs 0.031 af

Pond 6P: RESIDENTIAL DRYWELL Peak Elev=10.21' Storage=0.008 af Inflow=0.11 cfs 0.042 af
Outflow=0.02 cfs 0.042 af

Total Runoff Area = 0.355 ac Runoff Volume = 0.101 af Average Runoff Depth = 3.41"
32.32% Pervious = 0.115 ac 67.68% Impervious = 0.240 ac

15122 LOGUS ROAD STORM

Type IA 24-hr 100 YEAR Rainfall=4.70"

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Summary for Subcatchment 1S: NORTH SIDE STREET

Runoff = 0.09 cfs @ 7.85 hrs, Volume= 0.028 af, Depth= 4.46"

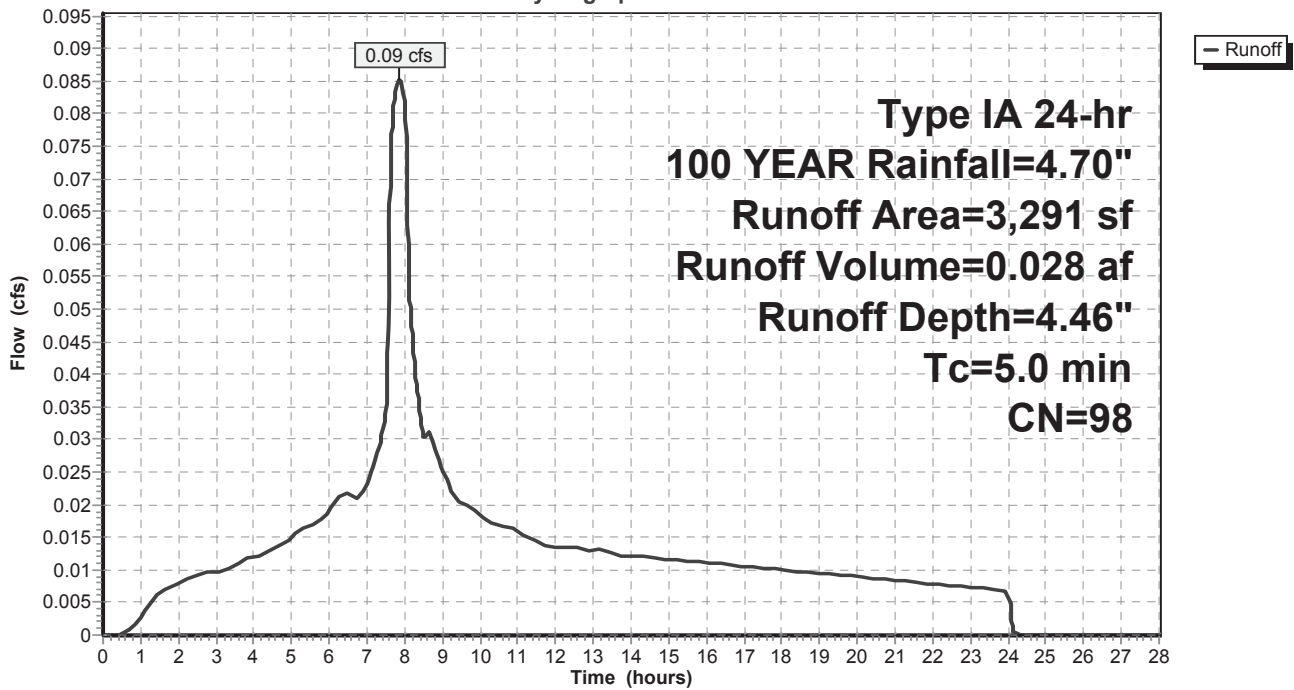
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100 YEAR Rainfall=4.70"

	Area (sf)	CN	Description
*	3,012	98	IMPERVIOUS AREA
*	279	100	PLANTER SURFACE
	3,291	98	Weighted Average
	3,291		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MIMIMUM FLOW TIME

Subcatchment 1S: NORTH SIDE STREET

Hydrograph



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Type IA 24-hr 100 YEAR Rainfall=4.70"

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Hydrograph for Subcatchment 1S: NORTH SIDE STREET

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	4.70	4.46	0.00
0.50	0.05	0.00	0.00	27.00	4.70	4.46	0.00
1.00	0.09	0.01	0.00	27.50	4.70	4.46	0.00
1.50	0.16	0.05	0.01	28.00	4.70	4.46	0.00
2.00	0.24	0.09	0.01				
2.50	0.31	0.15	0.01				
3.00	0.39	0.22	0.01				
3.50	0.46	0.28	0.01				
4.00	0.55	0.36	0.01				
4.50	0.63	0.44	0.01				
5.00	0.73	0.53	0.01				
5.50	0.85	0.64	0.02				
6.00	0.97	0.76	0.02				
6.50	1.11	0.90	0.02				
7.00	1.26	1.04	0.02				
7.50	1.46	1.24	0.03				
8.00	2.00	1.77	0.08				
8.50	2.26	2.03	0.03				
9.00	2.44	2.22	0.03				
9.50	2.58	2.36	0.02				
10.00	2.71	2.48	0.02				
10.50	2.82	2.59	0.02				
11.00	2.93	2.70	0.02				
11.50	3.03	2.80	0.01				
12.00	3.12	2.89	0.01				
12.50	3.21	2.98	0.01				
13.00	3.29	3.06	0.01				
13.50	3.38	3.15	0.01				
14.00	3.46	3.23	0.01				
14.50	3.54	3.30	0.01				
15.00	3.62	3.38	0.01				
15.50	3.69	3.46	0.01				
16.00	3.76	3.53	0.01				
16.50	3.84	3.60	0.01				
17.00	3.91	3.67	0.01				
17.50	3.97	3.74	0.01				
18.00	4.04	3.81	0.01				
18.50	4.11	3.87	0.01				
19.00	4.17	3.93	0.01				
19.50	4.23	3.99	0.01				
20.00	4.29	4.05	0.01				
20.50	4.35	4.11	0.01				
21.00	4.40	4.17	0.01				
21.50	4.46	4.22	0.01				
22.00	4.51	4.27	0.01				
22.50	4.56	4.32	0.01				
23.00	4.61	4.37	0.01				
23.50	4.65	4.42	0.01				
24.00	4.70	4.46	0.01				
24.50	4.70	4.46	0.00				
25.00	4.70	4.46	0.00				
25.50	4.70	4.46	0.00				
26.00	4.70	4.46	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr 100 YEAR Rainfall=4.70"

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Summary for Subcatchment 3S: SOUTH SIDE STREET

Runoff = 0.09 cfs @ 7.85 hrs, Volume= 0.031 af, Depth= 4.46"

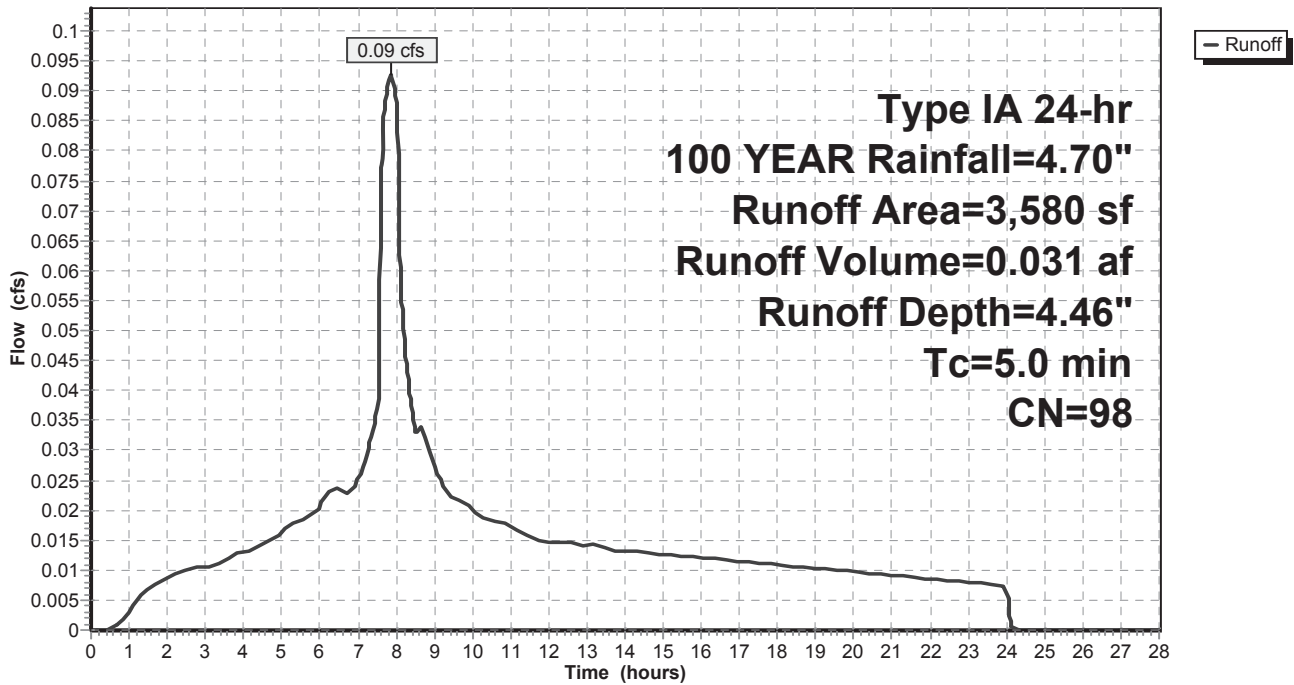
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100 YEAR Rainfall=4.70"

	Area (sf)	CN	Description
*	3,377	98	IMPERVIOUS AREA
*	203	100	PLANTER SURFACE
	3,580	98	Weighted Average
	3,580		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MIMIMUM FLOW TIME

Subcatchment 3S: SOUTH SIDE STREET

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 100 YEAR Rainfall=4.70"

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Hydrograph for Subcatchment 3S: SOUTH SIDE STREET

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	4.70	4.46	0.00
0.50	0.05	0.00	0.00	27.00	4.70	4.46	0.00
1.00	0.09	0.01	0.00	27.50	4.70	4.46	0.00
1.50	0.16	0.05	0.01	28.00	4.70	4.46	0.00
2.00	0.24	0.09	0.01				
2.50	0.31	0.15	0.01				
3.00	0.39	0.22	0.01				
3.50	0.46	0.28	0.01				
4.00	0.55	0.36	0.01				
4.50	0.63	0.44	0.01				
5.00	0.73	0.53	0.02				
5.50	0.85	0.64	0.02				
6.00	0.97	0.76	0.02				
6.50	1.11	0.90	0.02				
7.00	1.26	1.04	0.03				
7.50	1.46	1.24	0.04				
8.00	2.00	1.77	0.09				
8.50	2.26	2.03	0.03				
9.00	2.44	2.22	0.03				
9.50	2.58	2.36	0.02				
10.00	2.71	2.48	0.02				
10.50	2.82	2.59	0.02				
11.00	2.93	2.70	0.02				
11.50	3.03	2.80	0.02				
12.00	3.12	2.89	0.01				
12.50	3.21	2.98	0.02				
13.00	3.29	3.06	0.01				
13.50	3.38	3.15	0.01				
14.00	3.46	3.23	0.01				
14.50	3.54	3.30	0.01				
15.00	3.62	3.38	0.01				
15.50	3.69	3.46	0.01				
16.00	3.76	3.53	0.01				
16.50	3.84	3.60	0.01				
17.00	3.91	3.67	0.01				
17.50	3.97	3.74	0.01				
18.00	4.04	3.81	0.01				
18.50	4.11	3.87	0.01				
19.00	4.17	3.93	0.01				
19.50	4.23	3.99	0.01				
20.00	4.29	4.05	0.01				
20.50	4.35	4.11	0.01				
21.00	4.40	4.17	0.01				
21.50	4.46	4.22	0.01				
22.00	4.51	4.27	0.01				
22.50	4.56	4.32	0.01				
23.00	4.61	4.37	0.01				
23.50	4.65	4.42	0.01				
24.00	4.70	4.46	0.01				
24.50	4.70	4.46	0.00				
25.00	4.70	4.46	0.00				
25.50	4.70	4.46	0.00				
26.00	4.70	4.46	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr 100 YEAR Rainfall=4.70"

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Summary for Subcatchment 5S: LOT 4 ROOF

Runoff = 0.09 cfs @ 7.85 hrs, Volume= 0.031 af, Depth= 4.46"

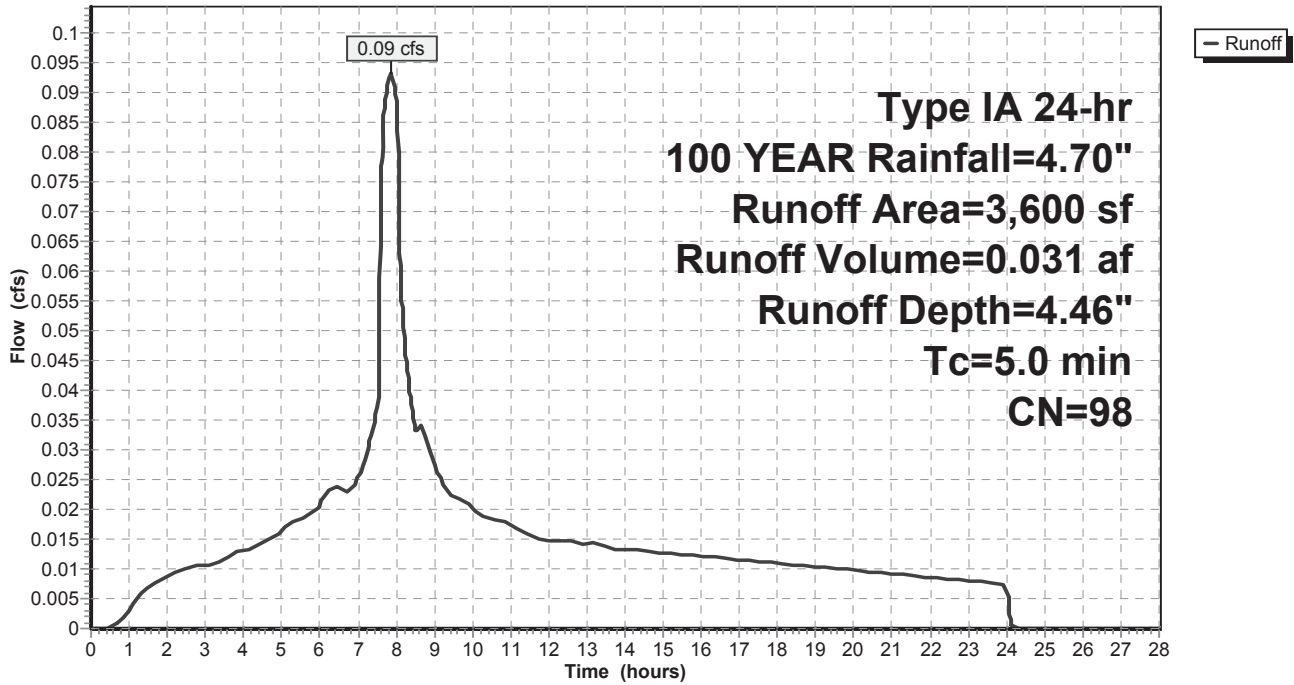
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type IA 24-hr 100 YEAR Rainfall=4.70"

Area (sf)	CN	Description
3,600	98	Unconnected roofs, HSG B
3,600		100.00% Impervious Area
3,600		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MINIMUM TC

Subcatchment 5S: LOT 4 ROOF

Hydrograph



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Type IA 24-hr 100 YEAR Rainfall=4.70"

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Hydrograph for Subcatchment 5S: LOT 4 ROOF

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	4.70	4.46	0.00
0.50	0.05	0.00	0.00	27.00	4.70	4.46	0.00
1.00	0.09	0.01	0.00	27.50	4.70	4.46	0.00
1.50	0.16	0.05	0.01	28.00	4.70	4.46	0.00
2.00	0.24	0.09	0.01				
2.50	0.31	0.15	0.01				
3.00	0.39	0.22	0.01				
3.50	0.46	0.28	0.01				
4.00	0.55	0.36	0.01				
4.50	0.63	0.44	0.01				
5.00	0.73	0.53	0.02				
5.50	0.85	0.64	0.02				
6.00	0.97	0.76	0.02				
6.50	1.11	0.90	0.02				
7.00	1.26	1.04	0.03				
7.50	1.46	1.24	0.04				
8.00	2.00	1.77	0.09				
8.50	2.26	2.03	0.03				
9.00	2.44	2.22	0.03				
9.50	2.58	2.36	0.02				
10.00	2.71	2.48	0.02				
10.50	2.82	2.59	0.02				
11.00	2.93	2.70	0.02				
11.50	3.03	2.80	0.02				
12.00	3.12	2.89	0.01				
12.50	3.21	2.98	0.02				
13.00	3.29	3.06	0.01				
13.50	3.38	3.15	0.01				
14.00	3.46	3.23	0.01				
14.50	3.54	3.30	0.01				
15.00	3.62	3.38	0.01				
15.50	3.69	3.46	0.01				
16.00	3.76	3.53	0.01				
16.50	3.84	3.60	0.01				
17.00	3.91	3.67	0.01				
17.50	3.97	3.74	0.01				
18.00	4.04	3.81	0.01				
18.50	4.11	3.87	0.01				
19.00	4.17	3.93	0.01				
19.50	4.23	3.99	0.01				
20.00	4.29	4.05	0.01				
20.50	4.35	4.11	0.01				
21.00	4.40	4.17	0.01				
21.50	4.46	4.22	0.01				
22.00	4.51	4.27	0.01				
22.50	4.56	4.32	0.01				
23.00	4.61	4.37	0.01				
23.50	4.65	4.42	0.01				
24.00	4.70	4.46	0.01				
24.50	4.70	4.46	0.00				
25.00	4.70	4.46	0.00				
25.50	4.70	4.46	0.00				
26.00	4.70	4.46	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr 100 YEAR Rainfall=4.70"

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Summary for Subcatchment 7S: LOT 4 LANDSCAPING

Runoff = 0.02 cfs @ 8.02 hrs, Volume= 0.011 af, Depth= 1.19"

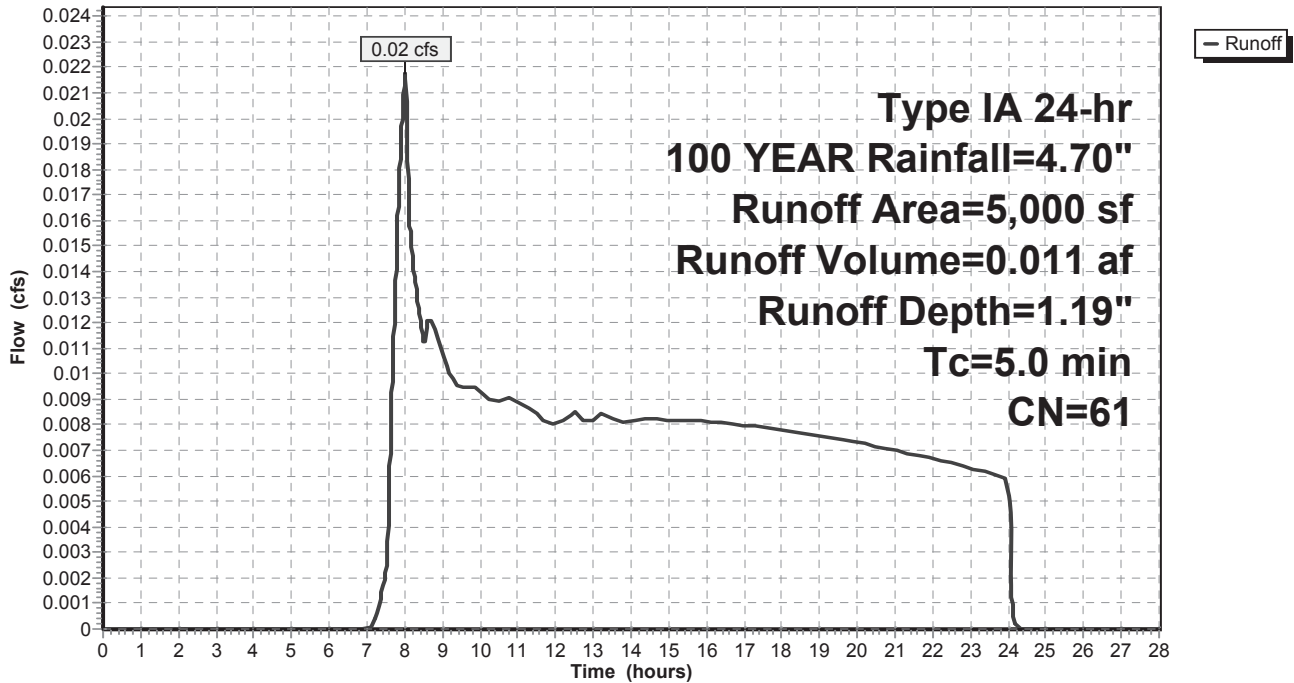
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 100 YEAR Rainfall=4.70"

Area (sf)	CN	Description
5,000	61	>75% Grass cover, Good, HSG B
5,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MINIMUM TC

Subcatchment 7S: LOT 4 LANDSCAPING

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr 100 YEAR Rainfall=4.70"

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Hydrograph for Subcatchment 7S: LOT 4 LANDSCAPING

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	4.70	1.19	0.00
0.50	0.05	0.00	0.00	27.00	4.70	1.19	0.00
1.00	0.09	0.00	0.00	27.50	4.70	1.19	0.00
1.50	0.16	0.00	0.00	28.00	4.70	1.19	0.00
2.00	0.24	0.00	0.00				
2.50	0.31	0.00	0.00				
3.00	0.39	0.00	0.00				
3.50	0.46	0.00	0.00				
4.00	0.55	0.00	0.00				
4.50	0.63	0.00	0.00				
5.00	0.73	0.00	0.00				
5.50	0.85	0.00	0.00				
6.00	0.97	0.00	0.00				
6.50	1.11	0.00	0.00				
7.00	1.26	0.00	0.00				
7.50	1.46	0.00	0.00				
8.00	2.00	0.07	0.02				
8.50	2.26	0.13	0.01				
9.00	2.44	0.18	0.01				
9.50	2.58	0.22	0.01				
10.00	2.71	0.26	0.01				
10.50	2.82	0.30	0.01				
11.00	2.93	0.34	0.01				
11.50	3.03	0.38	0.01				
12.00	3.12	0.41	0.01				
12.50	3.21	0.45	0.01				
13.00	3.29	0.48	0.01				
13.50	3.38	0.52	0.01				
14.00	3.46	0.55	0.01				
14.50	3.54	0.59	0.01				
15.00	3.62	0.63	0.01				
15.50	3.69	0.66	0.01				
16.00	3.76	0.70	0.01				
16.50	3.84	0.73	0.01				
17.00	3.91	0.77	0.01				
17.50	3.97	0.80	0.01				
18.00	4.04	0.83	0.01				
18.50	4.11	0.87	0.01				
19.00	4.17	0.90	0.01				
19.50	4.23	0.93	0.01				
20.00	4.29	0.96	0.01				
20.50	4.35	1.00	0.01				
21.00	4.40	1.03	0.01				
21.50	4.46	1.06	0.01				
22.00	4.51	1.08	0.01				
22.50	4.56	1.11	0.01				
23.00	4.61	1.14	0.01				
23.50	4.65	1.17	0.01				
24.00	4.70	1.19	0.01				
24.50	4.70	1.19	0.00				
25.00	4.70	1.19	0.00				
25.50	4.70	1.19	0.00				
26.00	4.70	1.19	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr 100 YEAR Rainfall=4.70"

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Summary for Pond 2P: NORTH SIDE PLANTER

Inflow Area = 0.076 ac, 100.00% Impervious, Inflow Depth = 4.46" for 100 YEAR event
 Inflow = 0.09 cfs @ 7.85 hrs, Volume= 0.028 af
 Outflow = 0.05 cfs @ 8.13 hrs, Volume= 0.028 af, Atten= 39%, Lag= 16.8 min
 Discarded = 0.05 cfs @ 8.13 hrs, Volume= 0.028 af

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Peak Elev= 0.20' @ 8.13 hrs Surf.Area= 279 sf Storage= 53 cf

Plug-Flow detention time= 2.3 min calculated for 0.028 af (100% of inflow)
 Center-of-Mass det. time= 2.3 min (657.6 - 655.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	151 cf	PLANTER FREEBOARD (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	1	0	0
0.02	279	3	3
0.55	279	148	151

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = -20.00'

Discarded OutFlow Max=0.05 cfs @ 8.13 hrs HW=0.20' (Free Discharge)
 ↑1=Exfiltration (Controls 0.05 cfs)

15122 LOGUS ROAD STORM

Type IA 24-hr 100 YEAR Rainfall=4.70"

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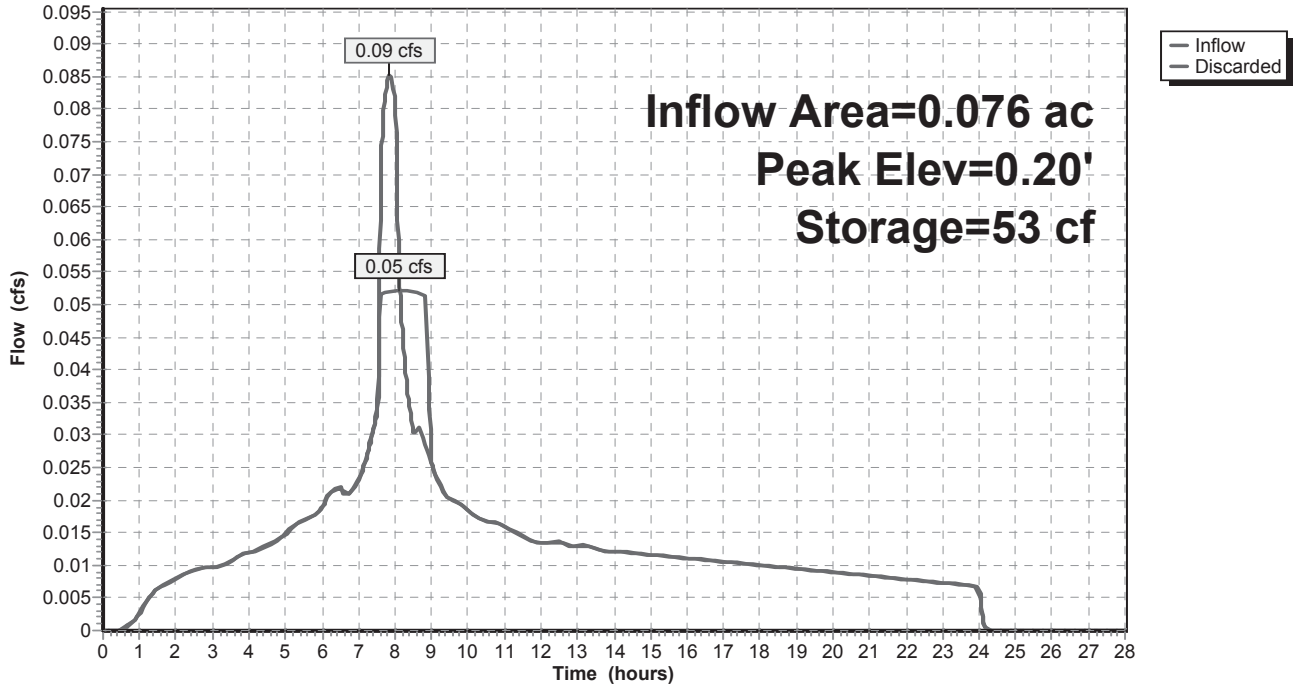
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Pond 2P: NORTH SIDE PLANTER

Hydrograph



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Hydrograph for Pond 2P: NORTH SIDE PLANTER

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	0.00	0.00
1.00	0.00	0	0.00	0.00
2.00	0.01	0	0.00	0.01
3.00	0.01	0	0.00	0.01
4.00	0.01	0	0.00	0.01
5.00	0.01	0	0.01	0.01
6.00	0.02	0	0.01	0.02
7.00	0.02	1	0.01	0.02
8.00	0.08	46	0.17	0.05
9.00	0.03	1	0.01	0.03
10.00	0.02	0	0.01	0.02
11.00	0.02	0	0.01	0.02
12.00	0.01	0	0.01	0.01
13.00	0.01	0	0.00	0.01
14.00	0.01	0	0.00	0.01
15.00	0.01	0	0.00	0.01
16.00	0.01	0	0.00	0.01
17.00	0.01	0	0.00	0.01
18.00	0.01	0	0.00	0.01
19.00	0.01	0	0.00	0.01
20.00	0.01	0	0.00	0.01
21.00	0.01	0	0.00	0.01
22.00	0.01	0	0.00	0.01
23.00	0.01	0	0.00	0.01
24.00	0.01	0	0.00	0.01
25.00	0.00	0	0.00	0.00
26.00	0.00	0	0.00	0.00
27.00	0.00	0	0.00	0.00
28.00	0.00	0	0.00	0.00

15122 LOGUS ROAD STORM

Type IA 24-hr 100 YEAR Rainfall=4.70"

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Summary for Pond 4P: SOUTH SIDE PLANTER

Inflow Area = 0.082 ac, 100.00% Impervious, Inflow Depth = 4.46" for 100 YEAR event
 Inflow = 0.09 cfs @ 7.85 hrs, Volume= 0.031 af
 Outflow = 0.04 cfs @ 8.38 hrs, Volume= 0.031 af, Atten= 58%, Lag= 31.3 min
 Discarded = 0.04 cfs @ 8.38 hrs, Volume= 0.031 af

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Peak Elev= 0.52' @ 8.38 hrs Surf.Area= 203 sf Storage= 103 cf

Plug-Flow detention time= 8.7 min calculated for 0.031 af (100% of inflow)
 Center-of-Mass det. time= 8.7 min (664.0 - 655.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	134 cf	PLANTER FREEBOARD (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	1	0	0
0.02	203	2	2
0.67	203	132	134

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = -20.00'

Discarded OutFlow Max=0.04 cfs @ 8.38 hrs HW=0.52' (Free Discharge)
 ↑1=Exfiltration (Controls 0.04 cfs)

15122 LOGUS ROAD STORM

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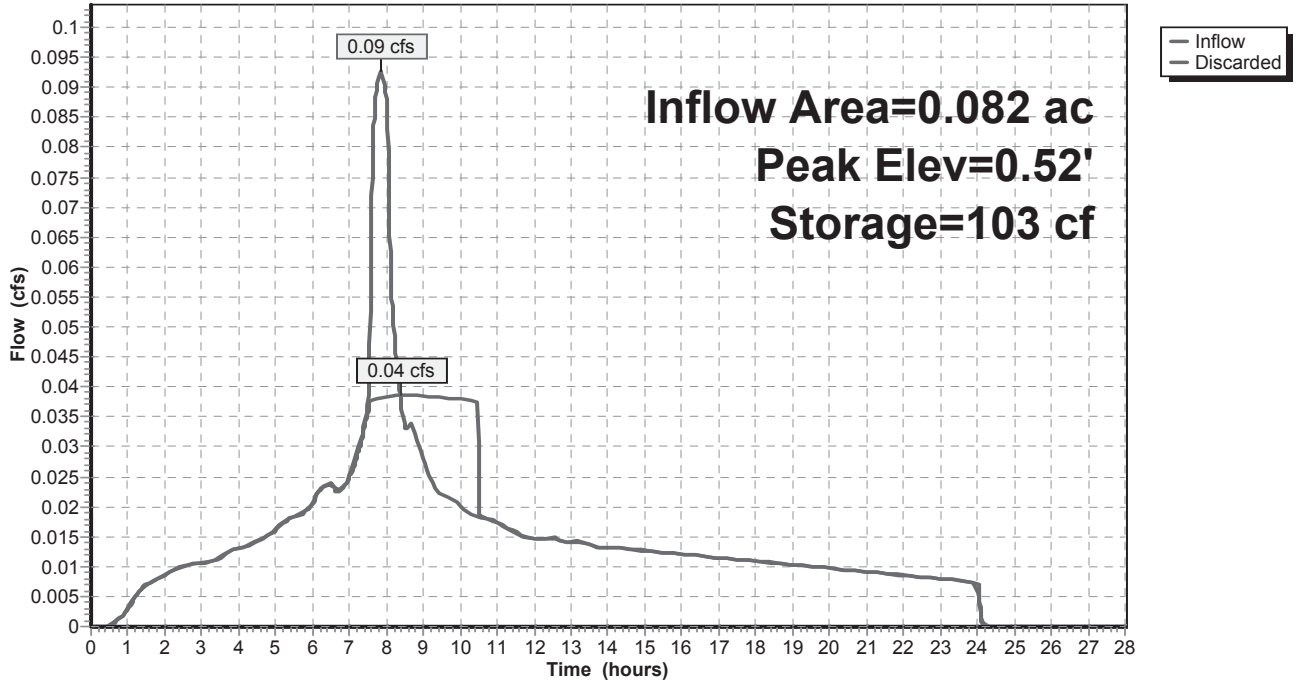
Type IA 24-hr 100 YEAR Rainfall=4.70"

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Pond 4P: SOUTH SIDE PLANTER

Hydrograph



15122 LOGUS ROAD STORM*Type IA 24-hr 100 YEAR Rainfall=4.70"*

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Hydrograph for Pond 4P: SOUTH SIDE PLANTER

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	0.00	0.00
1.00	0.00	0	0.00	0.00
2.00	0.01	0	0.00	0.01
3.00	0.01	0	0.01	0.01
4.00	0.01	0	0.01	0.01
5.00	0.02	0	0.01	0.02
6.00	0.02	1	0.01	0.02
7.00	0.03	1	0.01	0.03
8.00	0.09	80	0.40	0.04
9.00	0.03	90	0.45	0.04
10.00	0.02	34	0.18	0.04
11.00	0.02	0	0.01	0.02
12.00	0.01	0	0.01	0.01
13.00	0.01	0	0.01	0.01
14.00	0.01	0	0.01	0.01
15.00	0.01	0	0.01	0.01
16.00	0.01	0	0.01	0.01
17.00	0.01	0	0.01	0.01
18.00	0.01	0	0.01	0.01
19.00	0.01	0	0.01	0.01
20.00	0.01	0	0.01	0.01
21.00	0.01	0	0.00	0.01
22.00	0.01	0	0.00	0.01
23.00	0.01	0	0.00	0.01
24.00	0.01	0	0.00	0.01
25.00	0.00	0	0.00	0.00
26.00	0.00	0	0.00	0.00
27.00	0.00	0	0.00	0.00
28.00	0.00	0	0.00	0.00

15122 LOGUS ROAD STORM

Type IA 24-hr 100 YEAR Rainfall=4.70"

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Summary for Pond 6P: RESIDENTIAL DRYWELL

Inflow Area = 0.197 ac, 41.86% Impervious, Inflow Depth = 2.56" for 100 YEAR event
 Inflow = 0.11 cfs @ 7.92 hrs, Volume= 0.042 af
 Outflow = 0.02 cfs @ 11.51 hrs, Volume= 0.042 af, Atten= 78%, Lag= 215.3 min
 Discarded = 0.02 cfs @ 11.51 hrs, Volume= 0.042 af

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Peak Elev= 10.21' @ 11.51 hrs Surf.Area= 0.002 ac Storage= 0.008 af

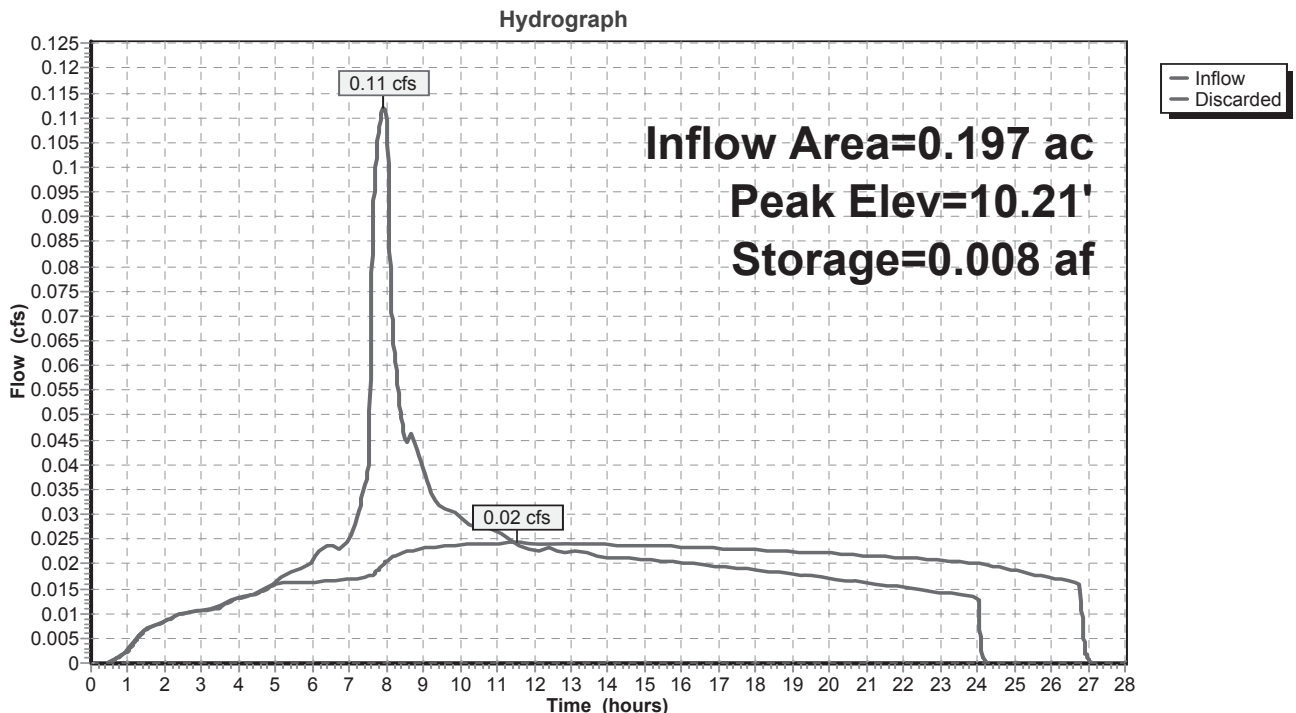
Plug-Flow detention time= 169.7 min calculated for 0.042 af (100% of inflow)
 Center-of-Mass det. time= 169.7 min (889.9 - 720.2)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	0.006 af	10.50'D x 10.50'H ROCK SECTION 0.021 af Overall - 0.004 af Embedded = 0.017 af x 33.0% Voids
#2	0.00'	0.003 af	4.00'D x 10.00'H DRYWELL Inside #1 0.004 af Overall - 4.0" Wall Thickness = 0.003 af
		0.008 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = -20.00'

Discarded OutFlow Max=0.02 cfs @ 11.51 hrs HW=10.21' (Free Discharge)
 ↑1=Exfiltration (Controls 0.02 cfs)

Pond 6P: RESIDENTIAL DRYWELL



15122 LOGUS ROAD STORM

Type IA 24-hr 100 YEAR Rainfall=4.70"

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Hydrograph for Pond 6P: RESIDENTIAL DRYWELL

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0.000	0.00	0.00
1.00	0.00	0.000	0.02	0.00
2.00	0.01	0.000	0.05	0.01
3.00	0.01	0.000	0.07	0.01
4.00	0.01	0.000	0.09	0.01
5.00	0.02	0.000	0.10	0.02
6.00	0.02	0.000	0.33	0.02
7.00	0.03	0.001	1.01	0.02
8.00	0.11	0.005	5.55	0.02
9.00	0.04	0.007	8.86	0.02
10.00	0.03	0.008	9.76	0.02
11.00	0.03	0.008	10.15	0.02
12.00	0.02	0.008	10.15	0.02
13.00	0.02	0.008	9.98	0.02
14.00	0.02	0.008	9.78	0.02
15.00	0.02	0.008	9.52	0.02
16.00	0.02	0.008	9.22	0.02
17.00	0.02	0.007	8.87	0.02
18.00	0.02	0.007	8.48	0.02
19.00	0.02	0.007	8.05	0.02
20.00	0.02	0.006	7.56	0.02
21.00	0.02	0.006	7.03	0.02
22.00	0.02	0.005	6.45	0.02
23.00	0.01	0.005	5.82	0.02
24.00	0.01	0.004	5.15	0.02
25.00	0.00	0.003	3.28	0.02
26.00	0.00	0.001	1.46	0.02
27.00	0.00	0.000	0.00	0.00
28.00	0.00	0.000	0.00	0.00

15122 LOGUS ROAD STORM

Type IA 24-hr WQ Rainfall=1.00"

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Time span=0.00-28.00 hrs, dt=0.01 hrs, 2801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: NORTH SIDE STREET Runoff Area=3,291 sf 100.00% Impervious Runoff Depth=0.79"
Tc=5.0 min CN=98 Runoff=0.02 cfs 0.005 af

Subcatchment 3S: SOUTH SIDE STREET Runoff Area=3,580 sf 100.00% Impervious Runoff Depth=0.79"
Tc=5.0 min CN=98 Runoff=0.02 cfs 0.005 af

Subcatchment 5S: LOT 4 ROOF Runoff Area=3,600 sf 100.00% Impervious Runoff Depth=0.79"
Tc=5.0 min CN=98 Runoff=0.02 cfs 0.005 af

Subcatchment 7S: LOT 4 LANDSCAPING Runoff Area=5,000 sf 0.00% Impervious Runoff Depth=0.00"
Tc=5.0 min CN=61 Runoff=0.00 cfs 0.000 af

Pond 2P: NORTH SIDE PLANTER Peak Elev=0.01' Storage=0 cf Inflow=0.02 cfs 0.005 af
Outflow=0.02 cfs 0.005 af

Pond 4P: SOUTH SIDE PLANTER Peak Elev=0.01' Storage=0 cf Inflow=0.02 cfs 0.005 af
Outflow=0.02 cfs 0.005 af

Pond 6P: RESIDENTIAL DRYWELL Peak Elev=0.12' Storage=0.000 af Inflow=0.02 cfs 0.005 af
Outflow=0.02 cfs 0.005 af

Total Runoff Area = 0.355 ac Runoff Volume = 0.016 af Average Runoff Depth = 0.54"
32.32% Pervious = 0.115 ac 67.68% Impervious = 0.240 ac

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Type IA 24-hr WQ Rainfall=1.00"

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Summary for Subcatchment 1S: NORTH SIDE STREET

Runoff = 0.02 cfs @ 7.88 hrs, Volume= 0.005 af, Depth= 0.79"

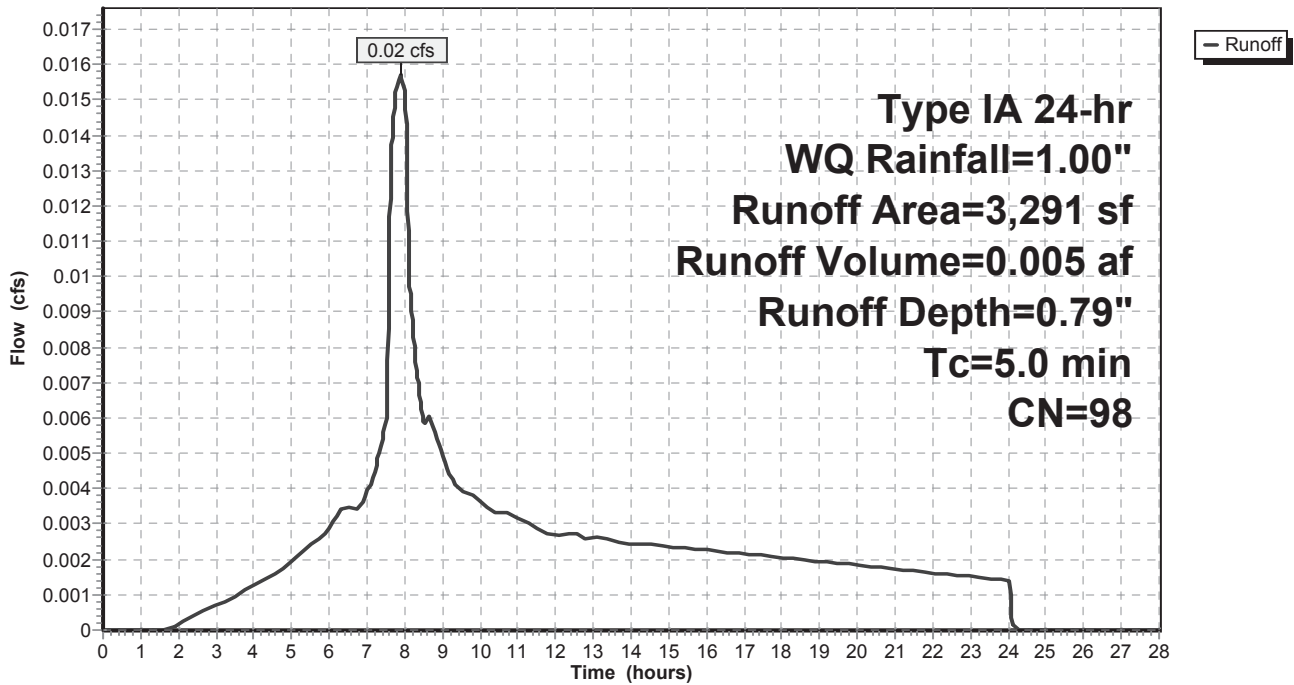
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=1.00"

	Area (sf)	CN	Description
*	3,012	98	IMPERVIOUS AREA
*	279	100	PLANTER SURFACE
	3,291	98	Weighted Average
	3,291		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MIMIMUM FLOW TIME

Subcatchment 1S: NORTH SIDE STREET

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr WQ Rainfall=1.00"

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Hydrograph for Subcatchment 1S: NORTH SIDE STREET

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	1.00	0.79	0.00
0.50	0.01	0.00	0.00	27.00	1.00	0.79	0.00
1.00	0.02	0.00	0.00	27.50	1.00	0.79	0.00
1.50	0.03	0.00	0.00	28.00	1.00	0.79	0.00
2.00	0.05	0.00	0.00				
2.50	0.07	0.00	0.00				
3.00	0.08	0.01	0.00				
3.50	0.10	0.01	0.00				
4.00	0.12	0.02	0.00				
4.50	0.13	0.03	0.00				
5.00	0.16	0.04	0.00				
5.50	0.18	0.06	0.00				
6.00	0.21	0.07	0.00				
6.50	0.24	0.10	0.00				
7.00	0.27	0.12	0.00				
7.50	0.31	0.15	0.01				
8.00	0.43	0.25	0.02				
8.50	0.48	0.30	0.01				
9.00	0.52	0.34	0.00				
9.50	0.55	0.36	0.00				
10.00	0.58	0.39	0.00				
10.50	0.60	0.41	0.00				
11.00	0.62	0.43	0.00				
11.50	0.64	0.45	0.00				
12.00	0.66	0.47	0.00				
12.50	0.68	0.49	0.00				
13.00	0.70	0.50	0.00				
13.50	0.72	0.52	0.00				
14.00	0.74	0.54	0.00				
14.50	0.75	0.55	0.00				
15.00	0.77	0.57	0.00				
15.50	0.79	0.58	0.00				
16.00	0.80	0.60	0.00				
16.50	0.82	0.61	0.00				
17.00	0.83	0.63	0.00				
17.50	0.85	0.64	0.00				
18.00	0.86	0.66	0.00				
18.50	0.87	0.67	0.00				
19.00	0.89	0.68	0.00				
19.50	0.90	0.69	0.00				
20.00	0.91	0.71	0.00				
20.50	0.92	0.72	0.00				
21.00	0.94	0.73	0.00				
21.50	0.95	0.74	0.00				
22.00	0.96	0.75	0.00				
22.50	0.97	0.76	0.00				
23.00	0.98	0.77	0.00				
23.50	0.99	0.78	0.00				
24.00	1.00	0.79	0.00				
24.50	1.00	0.79	0.00				
25.00	1.00	0.79	0.00				
25.50	1.00	0.79	0.00				
26.00	1.00	0.79	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr WQ Rainfall=1.00"

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Summary for Subcatchment 3S: SOUTH SIDE STREET

Runoff = 0.02 cfs @ 7.88 hrs, Volume= 0.005 af, Depth= 0.79"

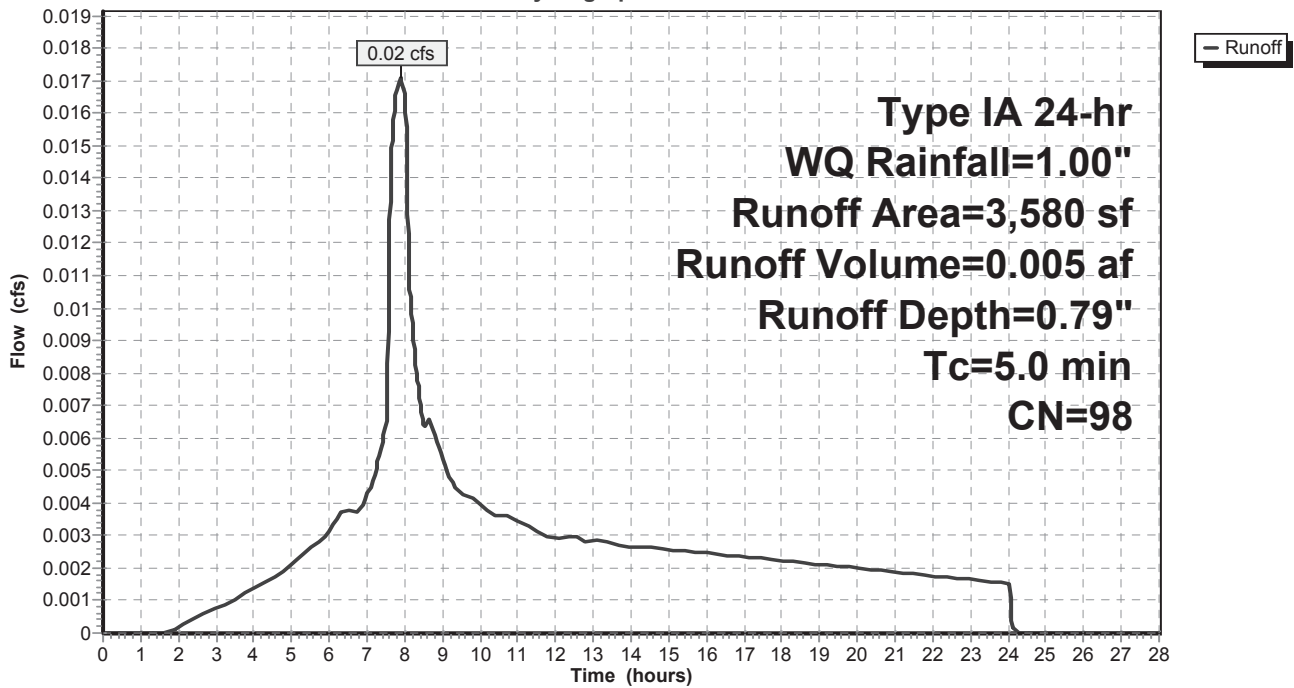
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=1.00"

	Area (sf)	CN	Description
*	3,377	98	IMPERVIOUS AREA
*	203	100	PLANTER SURFACE
	3,580	98	Weighted Average
	3,580		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MIMIMUM FLOW TIME

Subcatchment 3S: SOUTH SIDE STREET

Hydrograph



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Type IA 24-hr WQ Rainfall=1.00"

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Hydrograph for Subcatchment 3S: SOUTH SIDE STREET

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	1.00	0.79	0.00
0.50	0.01	0.00	0.00	27.00	1.00	0.79	0.00
1.00	0.02	0.00	0.00	27.50	1.00	0.79	0.00
1.50	0.03	0.00	0.00	28.00	1.00	0.79	0.00
2.00	0.05	0.00	0.00				
2.50	0.07	0.00	0.00				
3.00	0.08	0.01	0.00				
3.50	0.10	0.01	0.00				
4.00	0.12	0.02	0.00				
4.50	0.13	0.03	0.00				
5.00	0.16	0.04	0.00				
5.50	0.18	0.06	0.00				
6.00	0.21	0.07	0.00				
6.50	0.24	0.10	0.00				
7.00	0.27	0.12	0.00				
7.50	0.31	0.15	0.01				
8.00	0.43	0.25	0.02				
8.50	0.48	0.30	0.01				
9.00	0.52	0.34	0.01				
9.50	0.55	0.36	0.00				
10.00	0.58	0.39	0.00				
10.50	0.60	0.41	0.00				
11.00	0.62	0.43	0.00				
11.50	0.64	0.45	0.00				
12.00	0.66	0.47	0.00				
12.50	0.68	0.49	0.00				
13.00	0.70	0.50	0.00				
13.50	0.72	0.52	0.00				
14.00	0.74	0.54	0.00				
14.50	0.75	0.55	0.00				
15.00	0.77	0.57	0.00				
15.50	0.79	0.58	0.00				
16.00	0.80	0.60	0.00				
16.50	0.82	0.61	0.00				
17.00	0.83	0.63	0.00				
17.50	0.85	0.64	0.00				
18.00	0.86	0.66	0.00				
18.50	0.87	0.67	0.00				
19.00	0.89	0.68	0.00				
19.50	0.90	0.69	0.00				
20.00	0.91	0.71	0.00				
20.50	0.92	0.72	0.00				
21.00	0.94	0.73	0.00				
21.50	0.95	0.74	0.00				
22.00	0.96	0.75	0.00				
22.50	0.97	0.76	0.00				
23.00	0.98	0.77	0.00				
23.50	0.99	0.78	0.00				
24.00	1.00	0.79	0.00				
24.50	1.00	0.79	0.00				
25.00	1.00	0.79	0.00				
25.50	1.00	0.79	0.00				
26.00	1.00	0.79	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr WQ Rainfall=1.00"

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Summary for Subcatchment 5S: LOT 4 ROOF

Runoff = 0.02 cfs @ 7.88 hrs, Volume= 0.005 af, Depth= 0.79"

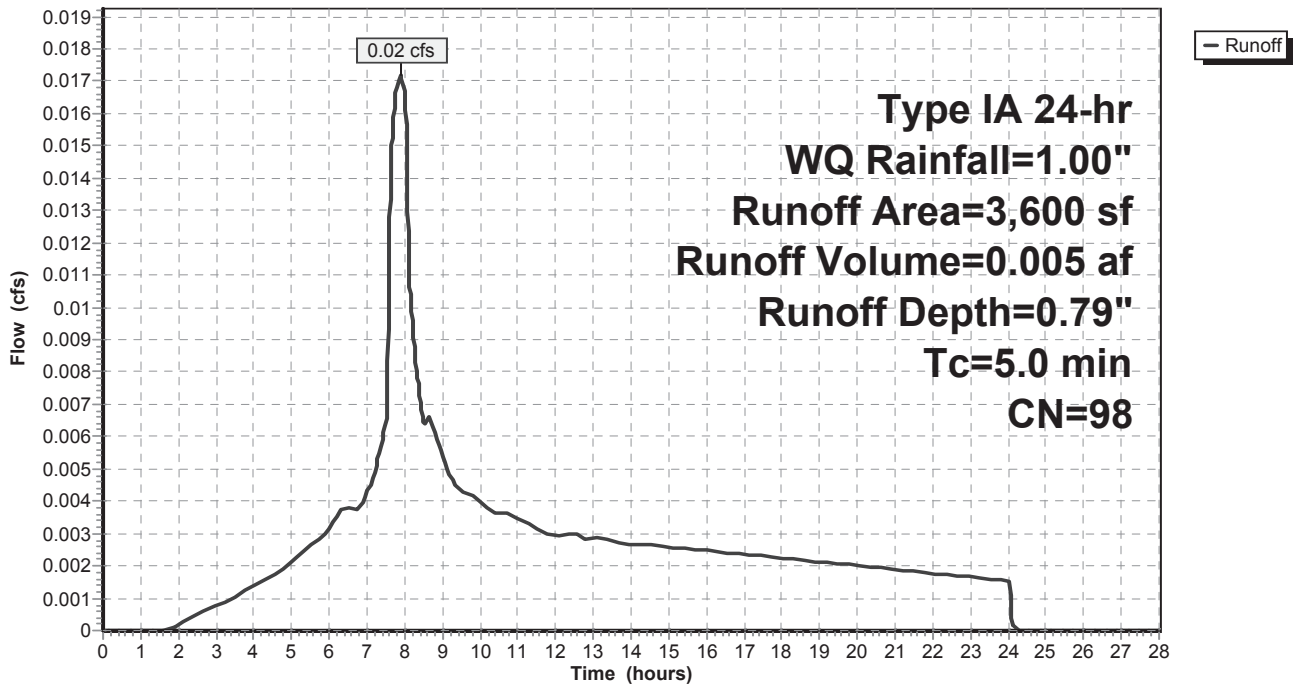
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=1.00"

Area (sf)	CN	Description
3,600	98	Unconnected roofs, HSG B
3,600		100.00% Impervious Area
3,600		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MINIMUM TC

Subcatchment 5S: LOT 4 ROOF

Hydrograph



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Type IA 24-hr WQ Rainfall=1.00"

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Hydrograph for Subcatchment 5S: LOT 4 ROOF

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	1.00	0.79	0.00
0.50	0.01	0.00	0.00	27.00	1.00	0.79	0.00
1.00	0.02	0.00	0.00	27.50	1.00	0.79	0.00
1.50	0.03	0.00	0.00	28.00	1.00	0.79	0.00
2.00	0.05	0.00	0.00				
2.50	0.07	0.00	0.00				
3.00	0.08	0.01	0.00				
3.50	0.10	0.01	0.00				
4.00	0.12	0.02	0.00				
4.50	0.13	0.03	0.00				
5.00	0.16	0.04	0.00				
5.50	0.18	0.06	0.00				
6.00	0.21	0.07	0.00				
6.50	0.24	0.10	0.00				
7.00	0.27	0.12	0.00				
7.50	0.31	0.15	0.01				
8.00	0.43	0.25	0.02				
8.50	0.48	0.30	0.01				
9.00	0.52	0.34	0.01				
9.50	0.55	0.36	0.00				
10.00	0.58	0.39	0.00				
10.50	0.60	0.41	0.00				
11.00	0.62	0.43	0.00				
11.50	0.64	0.45	0.00				
12.00	0.66	0.47	0.00				
12.50	0.68	0.49	0.00				
13.00	0.70	0.50	0.00				
13.50	0.72	0.52	0.00				
14.00	0.74	0.54	0.00				
14.50	0.75	0.55	0.00				
15.00	0.77	0.57	0.00				
15.50	0.79	0.58	0.00				
16.00	0.80	0.60	0.00				
16.50	0.82	0.61	0.00				
17.00	0.83	0.63	0.00				
17.50	0.85	0.64	0.00				
18.00	0.86	0.66	0.00				
18.50	0.87	0.67	0.00				
19.00	0.89	0.68	0.00				
19.50	0.90	0.69	0.00				
20.00	0.91	0.71	0.00				
20.50	0.92	0.72	0.00				
21.00	0.94	0.73	0.00				
21.50	0.95	0.74	0.00				
22.00	0.96	0.75	0.00				
22.50	0.97	0.76	0.00				
23.00	0.98	0.77	0.00				
23.50	0.99	0.78	0.00				
24.00	1.00	0.79	0.00				
24.50	1.00	0.79	0.00				
25.00	1.00	0.79	0.00				
25.50	1.00	0.79	0.00				
26.00	1.00	0.79	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr WQ Rainfall=1.00"

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Summary for Subcatchment 7S: LOT 4 LANDSCAPING

[45] Hint: Runoff=Zero

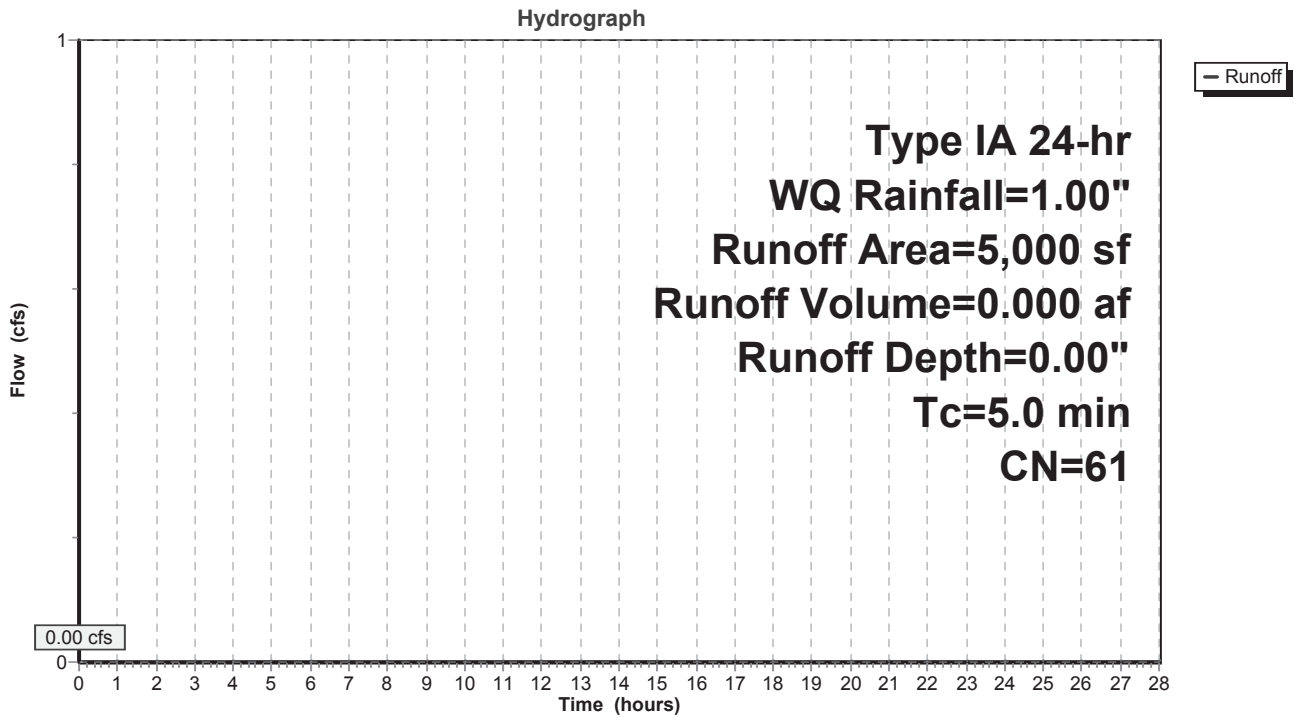
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
Type IA 24-hr WQ Rainfall=1.00"

Area (sf)	CN	Description
5,000	61	>75% Grass cover, Good, HSG B
5,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, MINIMUM TC

Subcatchment 7S: LOT 4 LANDSCAPING



15122 LOGUS ROAD STORM*Type IA 24-hr WQ Rainfall=1.00"*

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Hydrograph for Subcatchment 7S: LOT 4 LANDSCAPING

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	26.50	1.00	0.00	0.00
0.50	0.01	0.00	0.00	27.00	1.00	0.00	0.00
1.00	0.02	0.00	0.00	27.50	1.00	0.00	0.00
1.50	0.03	0.00	0.00	28.00	1.00	0.00	0.00
2.00	0.05	0.00	0.00				
2.50	0.07	0.00	0.00				
3.00	0.08	0.00	0.00				
3.50	0.10	0.00	0.00				
4.00	0.12	0.00	0.00				
4.50	0.13	0.00	0.00				
5.00	0.16	0.00	0.00				
5.50	0.18	0.00	0.00				
6.00	0.21	0.00	0.00				
6.50	0.24	0.00	0.00				
7.00	0.27	0.00	0.00				
7.50	0.31	0.00	0.00				
8.00	0.43	0.00	0.00				
8.50	0.48	0.00	0.00				
9.00	0.52	0.00	0.00				
9.50	0.55	0.00	0.00				
10.00	0.58	0.00	0.00				
10.50	0.60	0.00	0.00				
11.00	0.62	0.00	0.00				
11.50	0.64	0.00	0.00				
12.00	0.66	0.00	0.00				
12.50	0.68	0.00	0.00				
13.00	0.70	0.00	0.00				
13.50	0.72	0.00	0.00				
14.00	0.74	0.00	0.00				
14.50	0.75	0.00	0.00				
15.00	0.77	0.00	0.00				
15.50	0.79	0.00	0.00				
16.00	0.80	0.00	0.00				
16.50	0.82	0.00	0.00				
17.00	0.83	0.00	0.00				
17.50	0.85	0.00	0.00				
18.00	0.86	0.00	0.00				
18.50	0.87	0.00	0.00				
19.00	0.89	0.00	0.00				
19.50	0.90	0.00	0.00				
20.00	0.91	0.00	0.00				
20.50	0.92	0.00	0.00				
21.00	0.94	0.00	0.00				
21.50	0.95	0.00	0.00				
22.00	0.96	0.00	0.00				
22.50	0.97	0.00	0.00				
23.00	0.98	0.00	0.00				
23.50	0.99	0.00	0.00				
24.00	1.00	0.00	0.00				
24.50	1.00	0.00	0.00				
25.00	1.00	0.00	0.00				
25.50	1.00	0.00	0.00				
26.00	1.00	0.00	0.00				

15122 LOGUS ROAD STORM

Type IA 24-hr WQ Rainfall=1.00"

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Summary for Pond 2P: NORTH SIDE PLANTER

Inflow Area = 0.076 ac, 100.00% Impervious, Inflow Depth = 0.79" for WQ event
 Inflow = 0.02 cfs @ 7.88 hrs, Volume= 0.005 af
 Outflow = 0.02 cfs @ 7.90 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.8 min
 Discarded = 0.02 cfs @ 7.90 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Peak Elev= 0.01' @ 7.90 hrs Surf.Area= 85 sf Storage= 0 cf

Plug-Flow detention time= 0.3 min calculated for 0.005 af (100% of inflow)
 Center-of-Mass det. time= 0.3 min (712.2 - 712.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	151 cf	PLANTER FREEBOARD (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	1	0	0
0.02	279	3	3
0.55	279	148	151

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = -20.00'

Discarded OutFlow Max=0.02 cfs @ 7.90 hrs HW=0.01' (Free Discharge)
 ↑1=Exfiltration (Controls 0.02 cfs)

15122 LOGUS ROAD STORM

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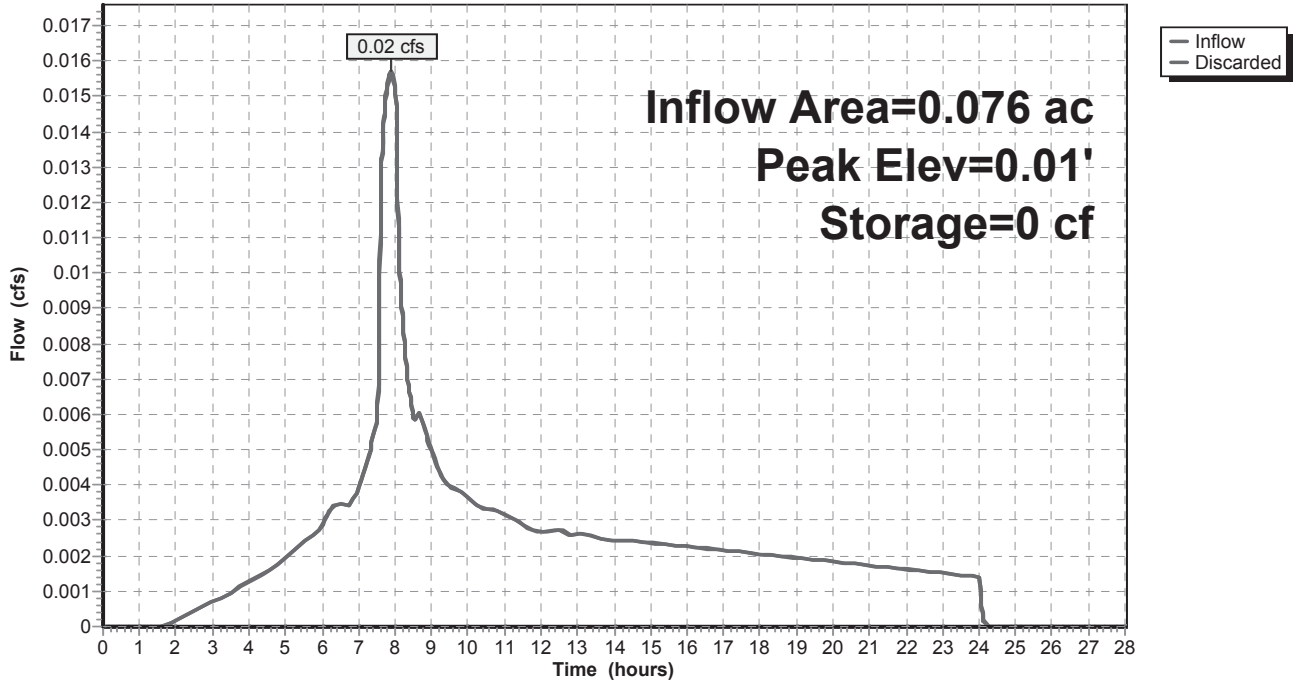
Type IA 24-hr WQ Rainfall=1.00"

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Pond 2P: NORTH SIDE PLANTER

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr WQ Rainfall=1.00"

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Hydrograph for Pond 2P: NORTH SIDE PLANTER

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	0.00	0.00
1.00	0.00	0	0.00	0.00
2.00	0.00	0	0.00	0.00
3.00	0.00	0	0.00	0.00
4.00	0.00	0	0.00	0.00
5.00	0.00	0	0.00	0.00
6.00	0.00	0	0.00	0.00
7.00	0.00	0	0.00	0.00
8.00	0.02	0	0.01	0.02
9.00	0.00	0	0.00	0.00
10.00	0.00	0	0.00	0.00
11.00	0.00	0	0.00	0.00
12.00	0.00	0	0.00	0.00
13.00	0.00	0	0.00	0.00
14.00	0.00	0	0.00	0.00
15.00	0.00	0	0.00	0.00
16.00	0.00	0	0.00	0.00
17.00	0.00	0	0.00	0.00
18.00	0.00	0	0.00	0.00
19.00	0.00	0	0.00	0.00
20.00	0.00	0	0.00	0.00
21.00	0.00	0	0.00	0.00
22.00	0.00	0	0.00	0.00
23.00	0.00	0	0.00	0.00
24.00	0.00	0	0.00	0.00
25.00	0.00	0	0.00	0.00
26.00	0.00	0	0.00	0.00
27.00	0.00	0	0.00	0.00
28.00	0.00	0	0.00	0.00

15122 LOGUS ROAD STORM

Type IA 24-hr WQ Rainfall=1.00"

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Summary for Pond 4P: SOUTH SIDE PLANTER

Inflow Area = 0.082 ac, 100.00% Impervious, Inflow Depth = 0.79" for WQ event
 Inflow = 0.02 cfs @ 7.88 hrs, Volume= 0.005 af
 Outflow = 0.02 cfs @ 7.90 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.9 min
 Discarded = 0.02 cfs @ 7.90 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Peak Elev= 0.01' @ 7.90 hrs Surf.Area= 92 sf Storage= 0 cf

Plug-Flow detention time= 0.3 min calculated for 0.005 af (100% of inflow)
 Center-of-Mass det. time= 0.3 min (712.3 - 712.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	134 cf	PLANTER FREEBOARD (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	1	0	0
0.02	203	2	2
0.67	203	132	134

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = -20.00'

Discarded OutFlow Max=0.02 cfs @ 7.90 hrs HW=0.01' (Free Discharge)
 ↑1=Exfiltration (Controls 0.02 cfs)

15122 LOGUS ROAD STORM

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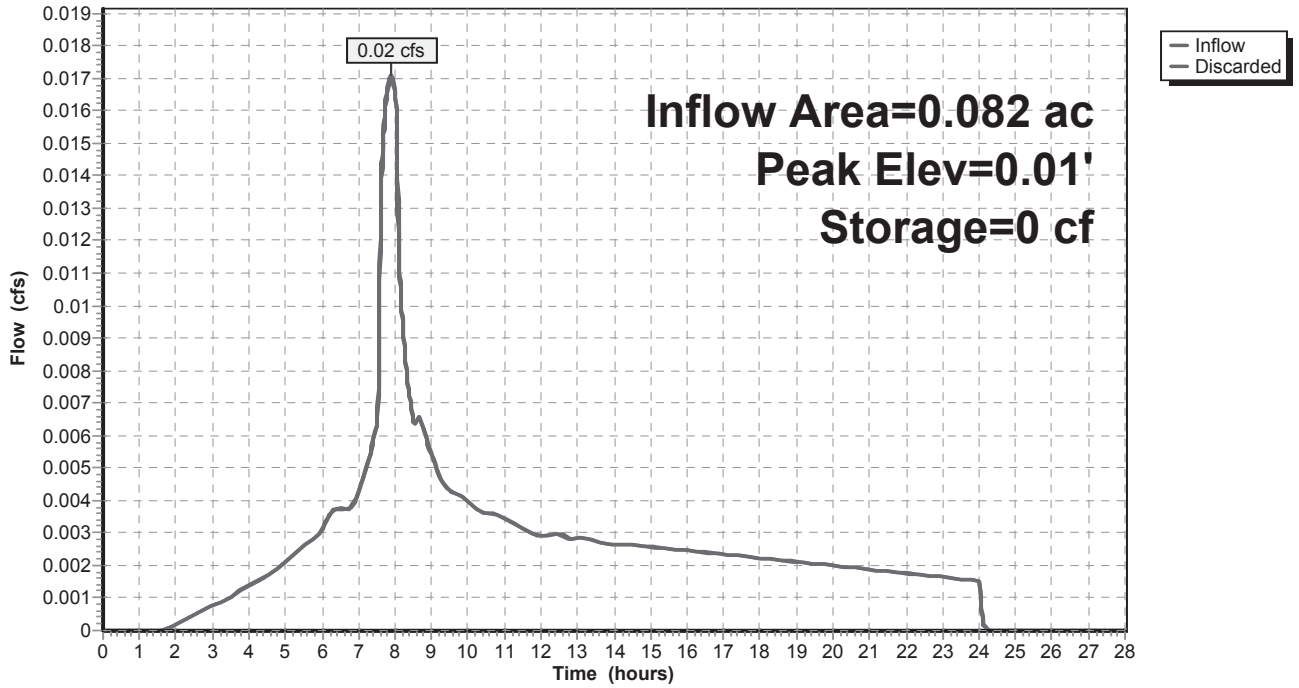
Type IA 24-hr WQ Rainfall=1.00"

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Pond 4P: SOUTH SIDE PLANTER

Hydrograph



15122 LOGUS ROAD STORM

Type IA 24-hr WQ Rainfall=1.00"

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Hydrograph for Pond 4P: SOUTH SIDE PLANTER

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	0.00	0.00
1.00	0.00	0	0.00	0.00
2.00	0.00	0	0.00	0.00
3.00	0.00	0	0.00	0.00
4.00	0.00	0	0.00	0.00
5.00	0.00	0	0.00	0.00
6.00	0.00	0	0.00	0.00
7.00	0.00	0	0.00	0.00
8.00	0.02	0	0.01	0.02
9.00	0.01	0	0.00	0.01
10.00	0.00	0	0.00	0.00
11.00	0.00	0	0.00	0.00
12.00	0.00	0	0.00	0.00
13.00	0.00	0	0.00	0.00
14.00	0.00	0	0.00	0.00
15.00	0.00	0	0.00	0.00
16.00	0.00	0	0.00	0.00
17.00	0.00	0	0.00	0.00
18.00	0.00	0	0.00	0.00
19.00	0.00	0	0.00	0.00
20.00	0.00	0	0.00	0.00
21.00	0.00	0	0.00	0.00
22.00	0.00	0	0.00	0.00
23.00	0.00	0	0.00	0.00
24.00	0.00	0	0.00	0.00
25.00	0.00	0	0.00	0.00
26.00	0.00	0	0.00	0.00
27.00	0.00	0	0.00	0.00
28.00	0.00	0	0.00	0.00

15122 LOGUS ROAD STORM

Type IA 24-hr WQ Rainfall=1.00"

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Summary for Pond 6P: RESIDENTIAL DRYWELL

Inflow Area = 0.197 ac, 41.86% Impervious, Inflow Depth = 0.33" for WQ event
 Inflow = 0.02 cfs @ 7.88 hrs, Volume= 0.005 af
 Outflow = 0.02 cfs @ 8.03 hrs, Volume= 0.005 af, Atten= 6%, Lag= 8.7 min
 Discarded = 0.02 cfs @ 8.03 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.01 hrs
 Peak Elev= 0.12' @ 8.03 hrs Surf.Area= 0.002 ac Storage= 0.000 af

Plug-Flow detention time= 3.9 min calculated for 0.005 af (100% of inflow)
 Center-of-Mass det. time= 3.9 min (715.9 - 712.0)

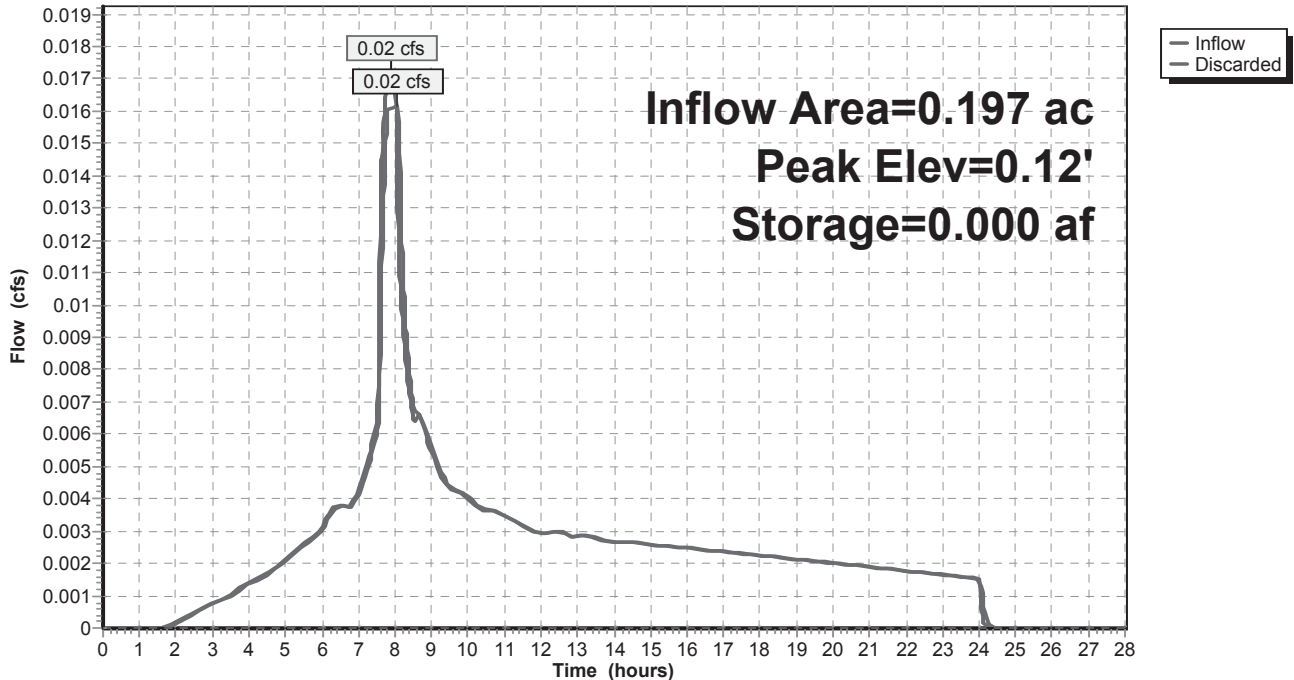
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	0.006 af	10.50'D x 10.50'H ROCK SECTION 0.021 af Overall - 0.004 af Embedded = 0.017 af x 33.0% Voids
#2	0.00'	0.003 af	4.00'D x 10.00'H DRYWELL Inside #1 0.004 af Overall - 4.0" Wall Thickness = 0.003 af
		0.008 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	8.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = -20.00'

Discarded OutFlow Max=0.02 cfs @ 8.03 hrs HW=0.12' (Free Discharge)
 ↑1=Exfiltration (Controls 0.02 cfs)

Pond 6P: RESIDENTIAL DRYWELL

Hydrograph



15122 LOGUS ROAD STORM*Type IA 24-hr WQ Rainfall=1.00"*

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Hydrograph for Pond 6P: RESIDENTIAL DRYWELL

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0.000	0.00	0.00
1.00	0.00	0.000	0.00	0.00
2.00	0.00	0.000	0.00	0.00
3.00	0.00	0.000	0.00	0.00
4.00	0.00	0.000	0.01	0.00
5.00	0.00	0.000	0.01	0.00
6.00	0.00	0.000	0.02	0.00
7.00	0.00	0.000	0.03	0.00
8.00	0.02	0.000	0.12	0.02
9.00	0.01	0.000	0.04	0.01
10.00	0.00	0.000	0.03	0.00
11.00	0.00	0.000	0.02	0.00
12.00	0.00	0.000	0.02	0.00
13.00	0.00	0.000	0.02	0.00
14.00	0.00	0.000	0.02	0.00
15.00	0.00	0.000	0.02	0.00
16.00	0.00	0.000	0.02	0.00
17.00	0.00	0.000	0.02	0.00
18.00	0.00	0.000	0.01	0.00
19.00	0.00	0.000	0.01	0.00
20.00	0.00	0.000	0.01	0.00
21.00	0.00	0.000	0.01	0.00
22.00	0.00	0.000	0.01	0.00
23.00	0.00	0.000	0.01	0.00
24.00	0.00	0.000	0.01	0.00
25.00	0.00	0.000	0.00	0.00
26.00	0.00	0.000	0.00	0.00
27.00	0.00	0.000	0.00	0.00
28.00	0.00	0.000	0.00	0.00

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MAY 31 2017

CITY OF MILWAUKIE
PLANNING DEPARTMENT

PAC Report

Project Name Logus Road	Permit No.	Created 5/28/17 12:19 PM
Project Address 4543 Logus Rd. Milwaukie, OR 97222	Designer BP	Last Modified 5/28/17 1:23 PM
	Company BMP Design LLC	Report Generated 5/28/17 1:23 PM

Project Summary

4 lots partition

Catchment Name	Impervious Area (sq ft)	Native Soil Design Infiltration Rate	Hierarchy Category	Facility Type	Facility Config	Facility Size (sq ft)	Facility Sizing Ratio	PR Results	Flow Control Results
North Side Melody	4507	16.00	1	Planter (Flat)	A	460	10.2%	Pass	Not Used
South Side Melody	3600	16.00	1	Basin	A	150	19%	Pass	Not Used

Catchment North Side Melody

Site Soils & Infiltration Testing Data

Infiltration Testing Procedure

Open Pit Falling Head

Native Soil Infiltration Rate (I_{test})

16.00

Correction Factor

CF_{test}

2

Design Infiltration Rates

Native Soil (I_{dsgn})

8.00 in/hr

Imported Growing Medium

2.00 in/hr

Catchment Information

Hierarchy Category

1

Hierarchy Description

On-site infiltration with a surface infiltration facility

Pollution Reduction Requirement

Pass

10-year Storm Requirement

Pass

Flow Control Requirement

Pass

Impervious Area

4507 sq ft
0.103 acre

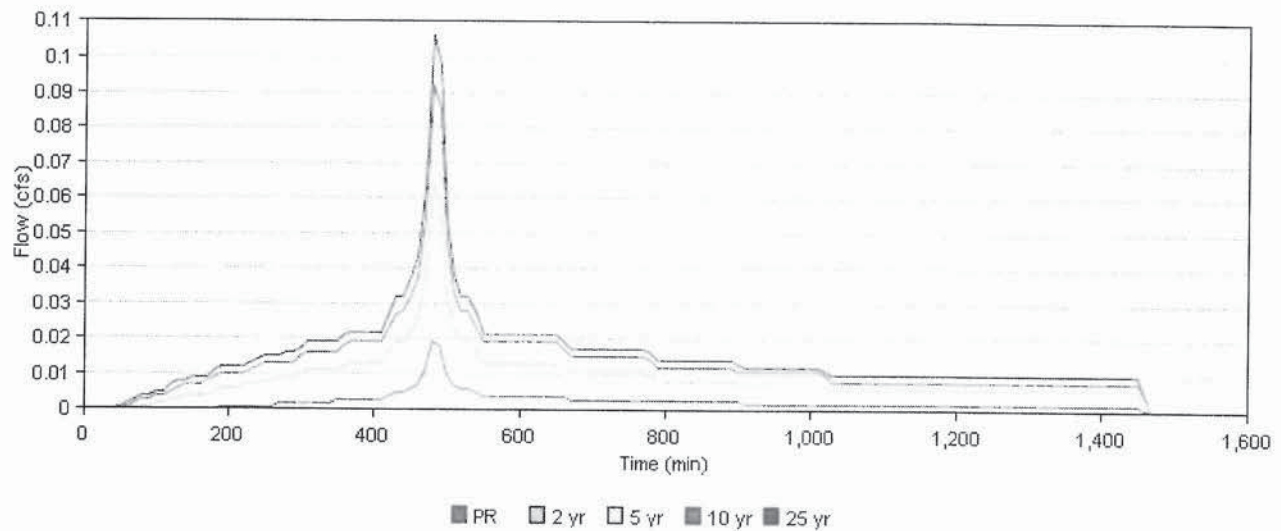
Time of Concentration (T_c)

5

Post-Development Curve Number (CN_{post})

98

SBUH Results



	Peak Rate (cfs)	Volume (cf)
PR	0.019	235.503
2 yr	0.064	815.523
5 yr	0.078	1002.319
10 yr	0.092	1189.394

25 yr

0.106

1376.645

Facility North Side Melody

Facility Details

Facility Type	Planter (Flat)
Facility Configuration	A: Infiltration (Infl.)
Facility Shape	Planter

Above Grade Storage Data

Bottom Area	460 sq ft
Bottom Width	5.00 ft
Storage Depth 1	6.0 in
Growing Medium Depth	18 in
Surface Capacity at Depth 1	230.0 cu ft
Design Infiltration Rate for Native Soil	0.085 in/hr
Infiltration Capacity	0.021 cfs

Facility Facts

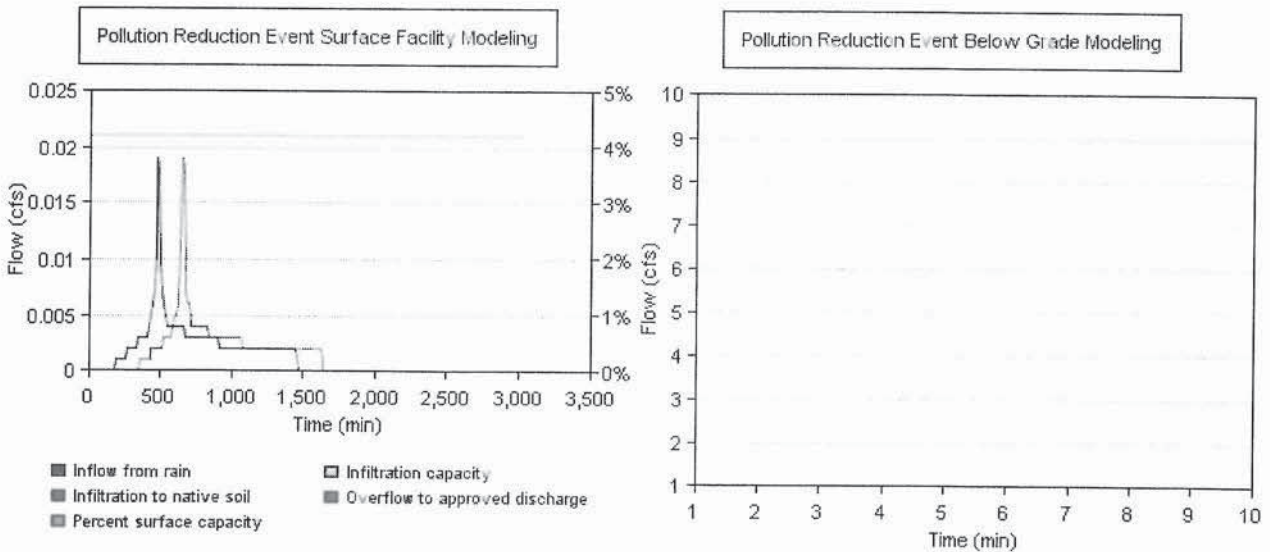
Total Facility Area Including Freeboard	460.00 sq ft
Sizing Ratio	10.2%

Pollution Reduction Results

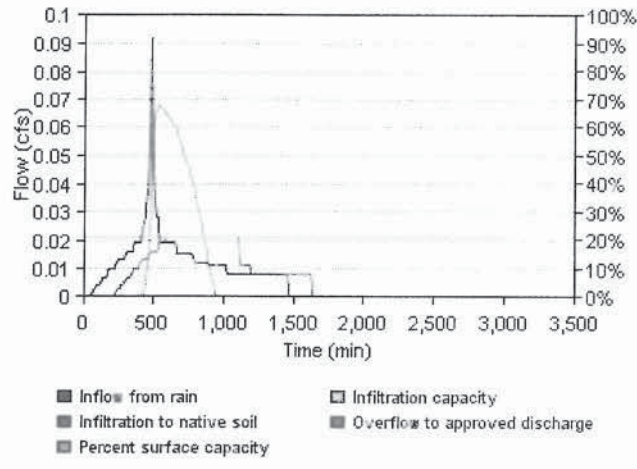
Pollution Reduction Score	Pass
Overflow Volume	0.000 cf

10 Year Results

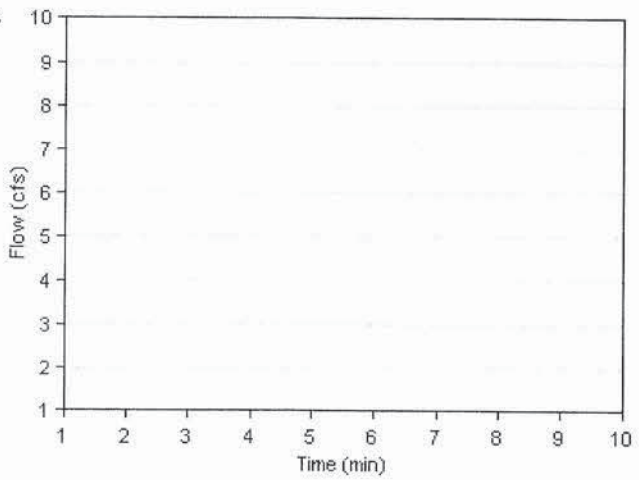
10 Year Score	Pass
Overflow Volume	0.000 cf
Surface Capacity Used	0%



10 Year Event Surface Facility Modeling



10 Year Event Below Grade Modeling



Catchment South Side Melody

Site Soils & Infiltration Testing Data

Infiltration Testing Procedure

Open Pit Falling Head

Native Soil Infiltration Rate (I_{test})

16.00

Correction Factor

CF_{test}

2

Design Infiltration Rates

Native Soil (I_{design})

8.00 in/hr

Imported Growing Medium

2.00 in/hr

Catchment Information

Hierarchy Category

1

Hierarchy Description

On-site infiltration with a surface infiltration facility

Pollution Reduction Requirement

Pass

10-year Storm Requirement

Pass

Flow Control Requirement

Pass

Impervious Area

3600 sq ft
0.083 acre

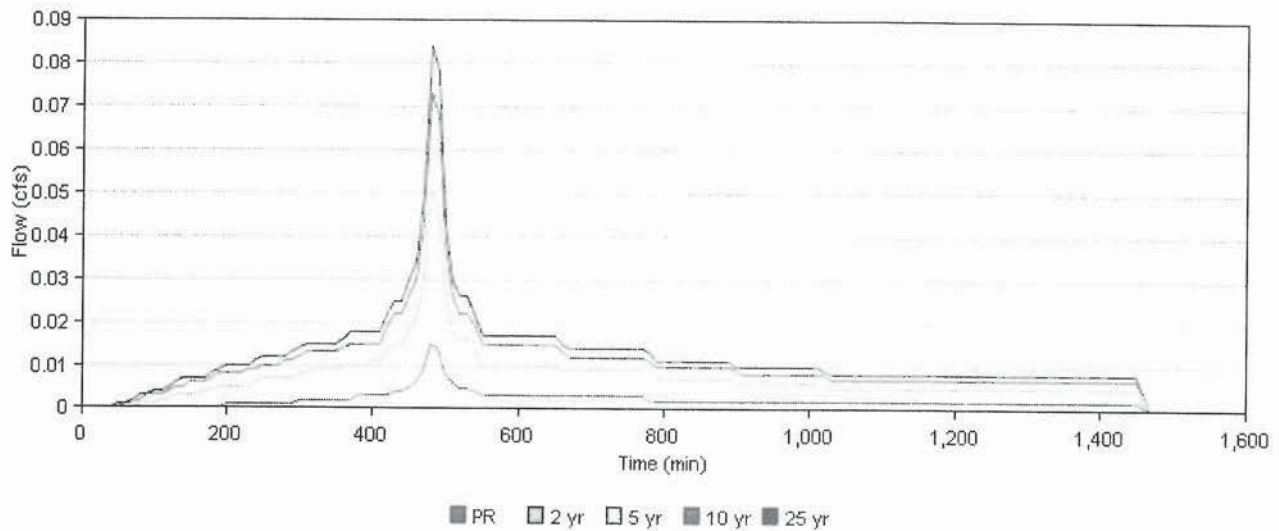
Time of Concentration (T_c)

5

Post-Development Curve Number (CN_{post})

98

SBUH Results




	Peak Rate (cfs)	Volume (cf)
PR	0.015	188.11
2 yr	0.051	651.405
5 yr	0.062	800.61
10 yr	0.073	950.037

25 yr

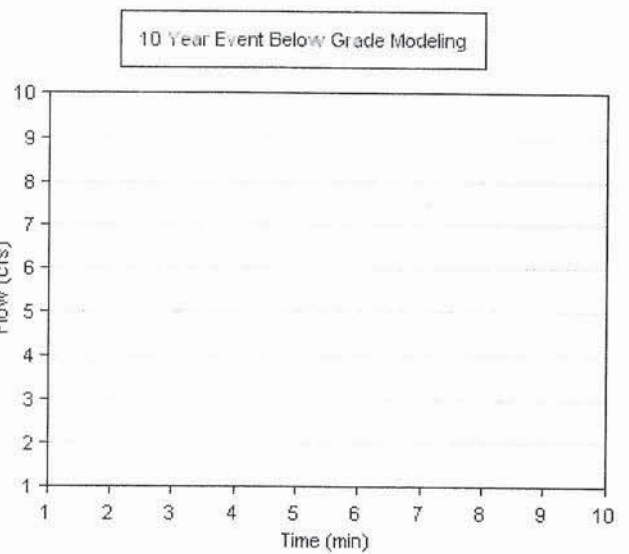
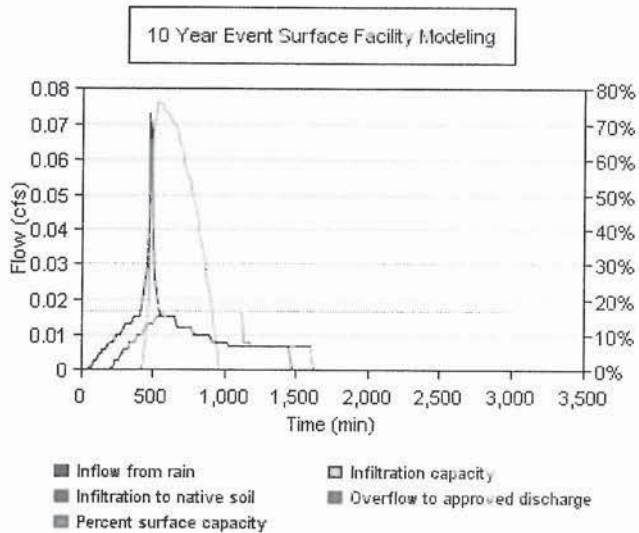
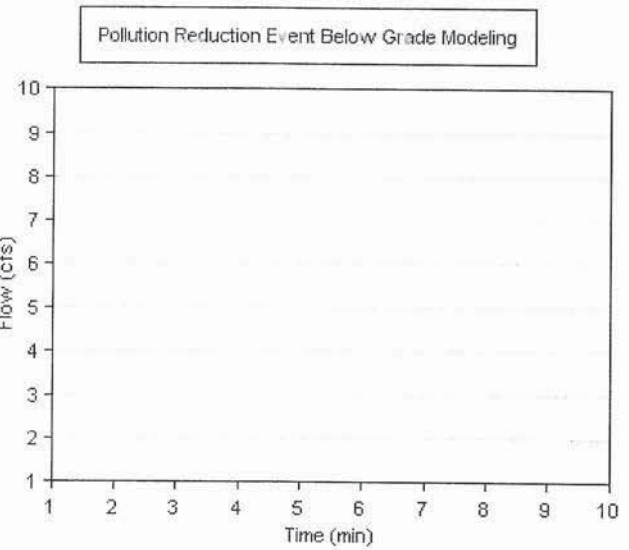
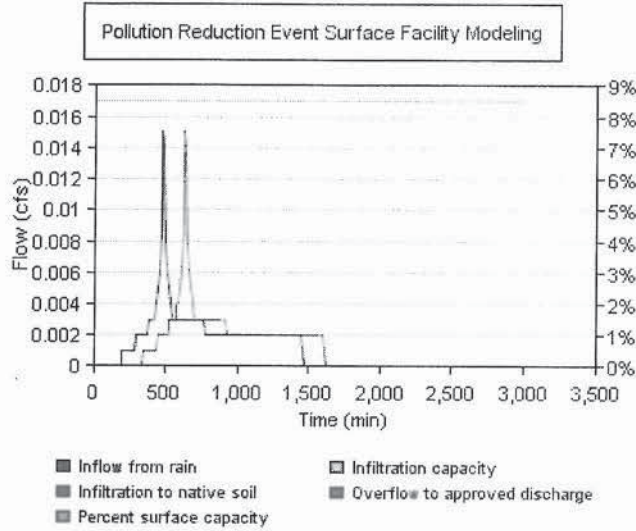
0.084

1099.606

Facility South Side Melody

Facility Details	Facility Type	Basin
	Facility Configuration	A: Infiltration (Infl.)
	Facility Shape	Rectangle
Above Grade Storage Data		
	Bottom Area	150 sq ft
	Bottom Width	2.00 ft
	Side Slope	3.0:1
	Storage Depth 1	7.0 in
	Growing Medium Depth	16 in 
	Freeboard Depth	6.00 in
	Surface Capacity at Depth 1	168.0 cu ft
	Design Infiltration Rate for Native Soil	0.066 in/hr
	Infiltration Capacity	0.017 cfs
Facility Facts	Total Facility Area Including Freeboard	683.68 sq ft
	Sizing Ratio	19%
Pollution Reduction Results	Pollution Reduction Score	Pass
	Overflow Volume	0.000 cf
	Surface Capacity Used	0%
10 Year Results	10 Year Score	Pass
	Overflow Volume	0.000 cf
	Surface Capacity Used	0%

 Indicates value is outside of recommended range





April 19, 2016

Mr. Julian Illingworth
4543 SE Locus Road
Milwaukie, Oregon 97222

Dear Mr. Illingworth:

**Re: Geotechnical Consultation and Field Infiltration Testing Services, 4543 SE Locus Road,
Milwaukie (Clackamas County), Oregon**

In accordance with the request of Mr. Bogdan Popescu of BMP Design, LLC, we have completed our evaluation of the soil infiltration rate at the above subject existing and/or proposed residential development property (see Site Vicinity Map, Figure No. 1).

Specifically, we understand that present plans are to partition the subject property into four (4) separate and/or three (3) new residential building lots. In this regard, disposal of on-site storm water from all hard and/or impervious surface areas is to be collected and disposed of within a suitable storm water system based on the City of Milwaukie and/or Clackamas County standards.

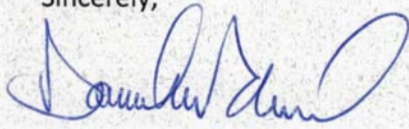
On April 8, 2016, we were present at the site and performed two (2) field infiltration tests within the northerly portion of the subject property (see attached Site Exploration Plan). The testing consisted of a falling head open pit infiltration test in accordance with current EPA and/or the City of Milwaukie/Clackamas County standards. Specifically, two (2) relatively shallow infiltration tests were performed at a depth of approximately three (3) and five (5) feet below existing surface grades. The subgrade soils encountered within the open pit test holes excavated at the site consisted of medium brown, very moist, slightly clayey, fine sandy silt to the maximum depth explored of approximately five (5) feet beneath existing surface grades.

The subgrade soils in the open pit infiltration test hole were then presoaked and allowed to saturate over time. Following the saturation period, the test holes were again filled with approximately 12 inches of water and the rate at which the water level dropped was monitored and recorded. The test was repeated three (3) times until consistent infiltration test results were obtained.

The results of the field infiltration testing at the site revealed that the ultimate soil infiltration rate of the underlying slightly clayey, fine sandy silt subgrade soil is on the order of 16 inches per hour (in/hr). Based on the EPA and/or City of Milwaukie/Clackamas County requirements for open pit infiltration testing, a factor of safety of 2.0 is to be applied to the results of the field infiltration rate used in the design of a storm water collection and/or disposal system. In this regard, we recommend an allowable infiltration rate of approximately 8.0 inches per hour (in/hr) be used for design of the storm water infiltration system.

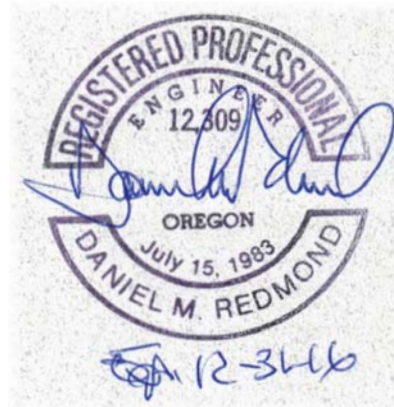
We appreciate this opportunity to be of service to you at this time and trust that the above information is suitable to your present needs. Should you have any questions regarding the above information or if you require any additional information and/or assistance with this project, please do not hesitate to call.

Sincerely,



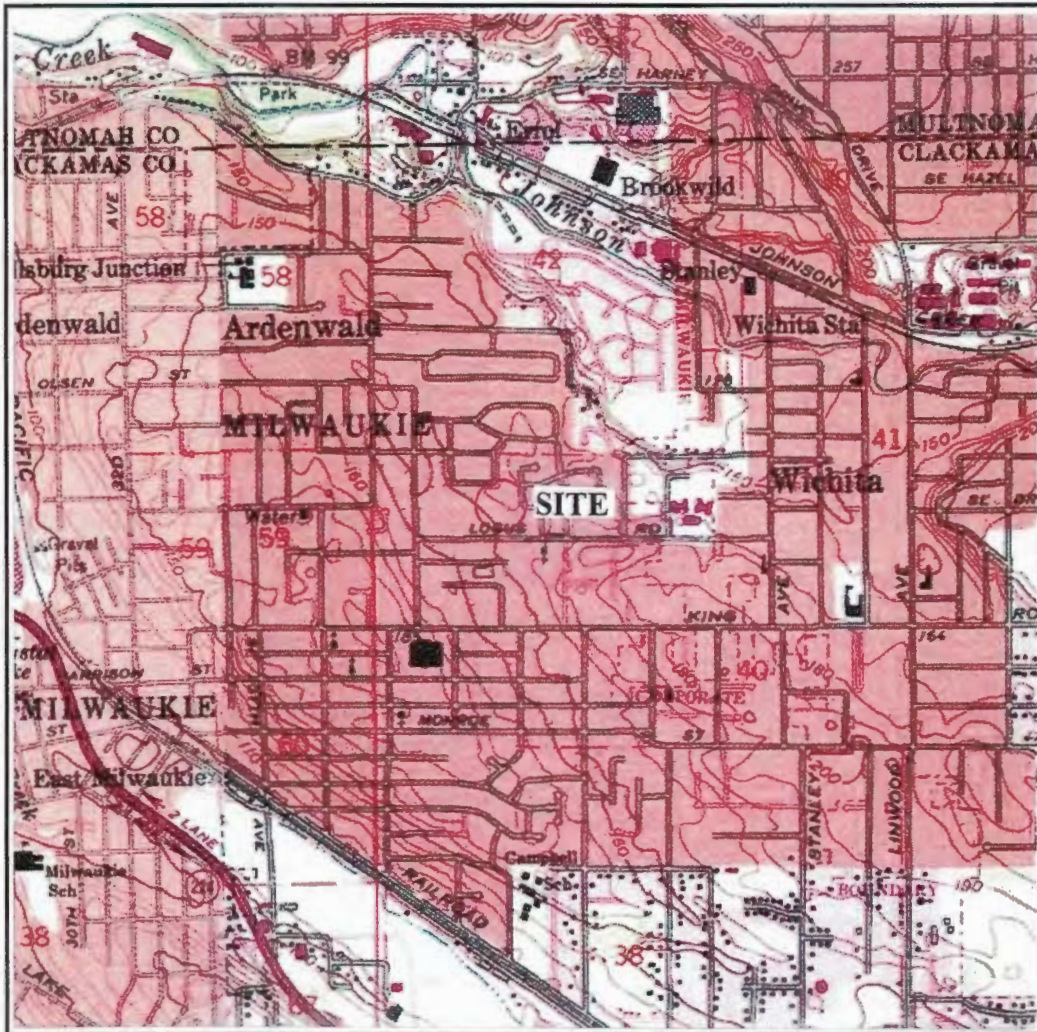
Daniel M. Redmond, P.E., G.E.
President/Principal Engineer

Cc: Mr. Bogdan Popescu, PE, PLS
BMP Design, LLC



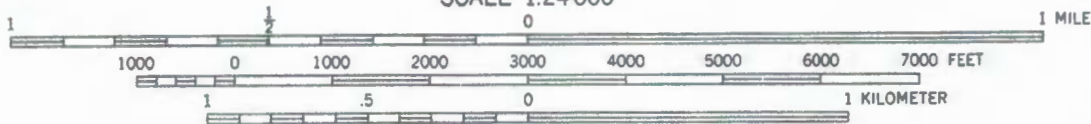
Attachments:

- Figure No. 1 - Site Vicinity Map
- Figure No. 2 - Site Exploration Plan



GLADSTONE QUADRANGLE
 OREGON
 7.5 MINUTE SERIES (TOPOGRAPHIC)

SCALE 1:24 000



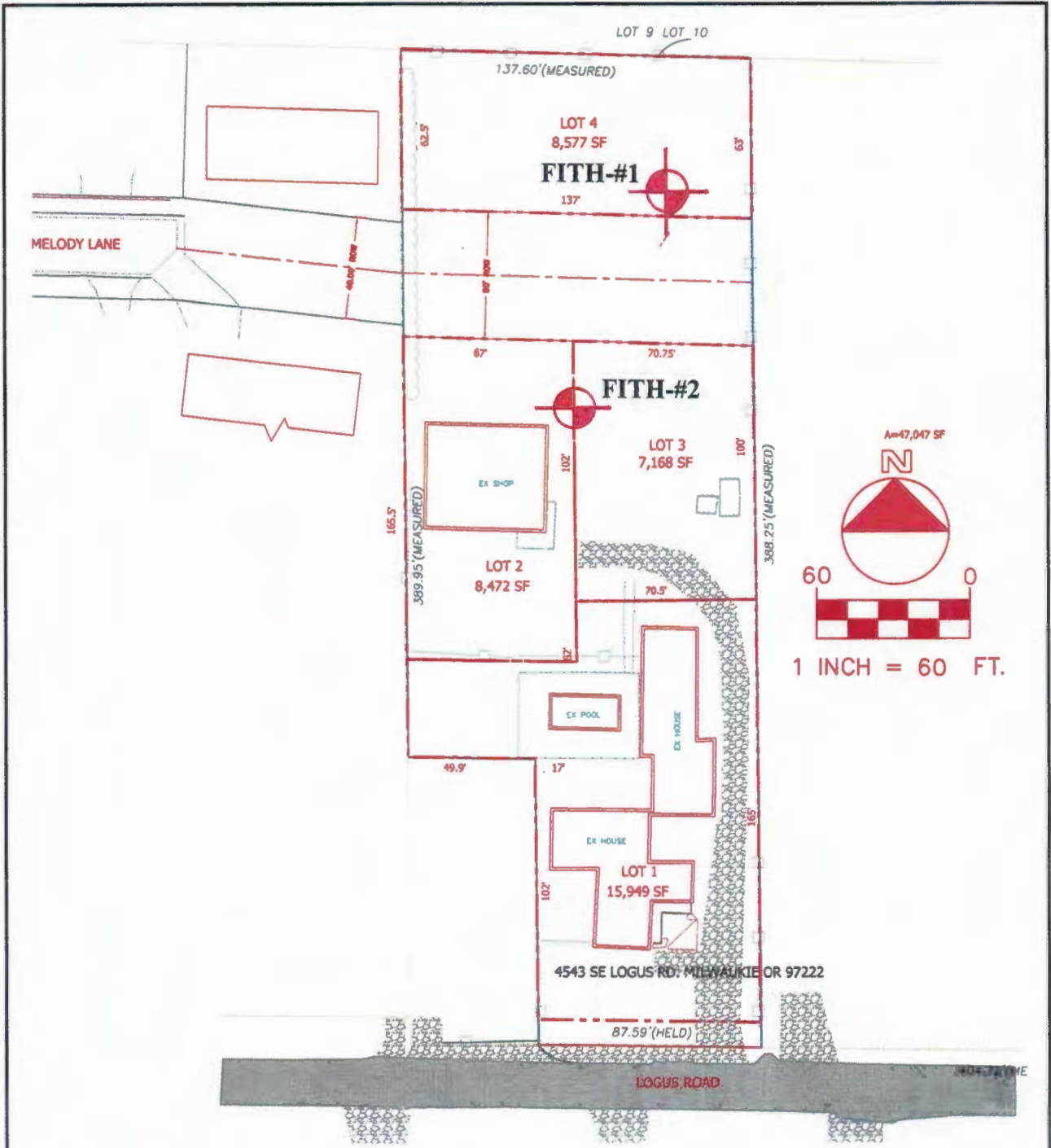
CONTOUR INTERVAL 10 FEET
 NATIONAL GEODETIC VERTICAL DATUM OF 1929
 DEPTH CURVES AND SOUNDINGS IN FEET—COLUMBIA RIVER DATUM


SITE VICINITY MAP

Project No. 1523.001.G

4543 SE LOGUS ROAD

Figure No. 1



 **FITH-#1** Indicates approximate location of field infiltration test hole

SITE EXPLORATION PLAN

Kelver, Brett

From: Amos, Matt <Matt.Amos@clackamasfire.com>
Sent: Friday, June 16, 2017 2:13 PM
To: Kelver, Brett
Subject: 4543 Logus Rd. VR-2016-010

Good afternoon Brett,

Clackamas Fire has no additional comments for this proposal.

Thank you,

Matt Amos

Fire Inspector | Fire Prevention

direct: [503.742.2661](tel:503.742.2661)

main: [503.742.2600](tel:503.742.2600)



*To Safely Protect & Preserve
Life & Property*

CLACKAMAS FIRE DISTRICT #1

www.clackamasfire.com

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To: City of Milwaukie Planning Commission
From: Don and Virginia Seitz
Subject: Subdivision Proposal for 4543 SE Logus Rd

My name is Don Seitz and I am speaking on behalf of my wife Virginia and myself against this proposal as presented. We have owned and lived in the house on the lot adjacent to this lot for over 45 years. The proposal as presented would impose significant adverse effects on the value of our property should we choose to sell, or develop it ourselves, as well as on our privacy and private enjoyment of our property, even if we never choose to subdivide.

We appreciate the time and expertise provided by City staff to help us understand the proposal and its implications. Unfortunately, the more we understand, the more it seems that approval of this application would be highly inequitable to us in particular.

1. Donation of land and construction costs for public roads as proposed are inequitable. The heart of the issue for us is that the proposal imposes on us, who are not even part of the application, almost half a million dollars in costs to provide public roads, should we decide to subdivide and develop our lot in the same way as the applicant. It has always been my belief that the City should be equitable in the way it applies its policies.

That is not the case here. The applicant is only having to provide a 15 ft right of way compared to the imposition of a 25 ft land donation on us to the City for the Logus connector road. In addition, we would be expected to provide ALL of the construction costs to connect Melody to Logus. Using the in-lieu costs provided by the City, that would cost us \$330,000, which added to the Melody extension we would have to do, would total over \$440,000 just for roads. To state it slightly differently, this application will incur only \$96,000 in construction costs donated to the City to extend Melody to the subject property line, while we would be obligated to incur \$330,000 in construction costs to build the Logus connector, in addition to the 25 ft land donation strip. A 25 ft strip, by the way, would mean that we would have to tear down and rebuild our garage, which would be a further expense. And our property is smaller than the applicant property. It is simply not fair for the City to insist on land and construction donations for public streets that are so widely varying in the costs to individual landowners.

We are therefore asking for an alternative which specifies that the Logus connector will not be required to have utilities, and may be only as wide as needed for Fire trucks, which we understand is 20 feet¹ This would meet the need for access by emergency equipment, which is what we understand to be the justification for the connector since Melody is too long for a turn-around. It is clear from looking at the map that this extension will never connect up with another road to become a true local road – its only purpose is for fire access. That would bring the costs to us back in line with what the applicant has contributed to the City under this proposal. We would of course, under

¹ “To accommodate the need to move the vehicles and access equipment on them quickly, the Uniform Fire Code calls for a 20-foot wide clear passage.” <http://www.oregon.gov/LCD/docs/publications/neighborstreet.pdf>

this scenario, commit to putting in the required utilities and parking off Melody, if we subdivided our property, just as the applicant here is proposing.²

2. The creation of a 15-foot gravel road along the edge of our property will have negative impacts on our current use and enjoyment of our property, whether or not we ever decide to subdivide. In addition to our concerns with the costs this application would impose on us, should we choose to subdivide at some time in the future, this application will have immediate and ongoing effects on our current use of our property. Opening a graveled public street along the whole length of our property will open the whole property to public view, to issues of trespass, and to issues of litter and trash, not to mention that it is likely to become a shortcut for people on Melody to drive to and from the east along Logus. And who will be maintaining that road, since we all know what the rains do to gravel roads?

None of these 4 large lots have been fenced in the back so the access issue applies to all three of the properties east of the Logus connector. All of these properties have been used historically for truck farming, and are not maintained to residential front yard standards. This road will open them up to public view, thereby creating pressure to change the way the property has been used and maintained. I operate a sawmill for myself in the back. I also compost large amounts of organic material for my garden, some of which is dumped by large trucks. None of this is “pretty” but all of it is useful and restorative to the land I have been working for a long time. I also have other heavy equipment that I use on occasion for myself, and for helping out friends.

In order to address these issues related to the graveled Logus connector on the applicant property, we ask that you require the applicant to build a fence along the eastern edge of the 15 ft graveled right of way from our hedge in front back to Melody. We further ask for privacy and access reasons, that the fence be wood, 6 ft in height, and with a 20 foot farm gate at an appropriate place for access in the back so I can get my equipment in and out.

In summary, as a matter of simple equity, I ask that you not approve this application without our two suggested amendments.

² As an aside I don't get why the Logus connector has to be 40 ft, when Logus itself is not that wide, nor will it be made that wide if the City ever gets around to putting in sidewalks on the western length from 49th to 43rd to match the improved eastern section of Logus. See attached aerial map of the intersection of the improved and unimproved Logus at 49th.

Kelver, Brett

From: Leslie Schockner <leslieschockner@gmail.com>
Sent: Tuesday, July 18, 2017 7:32 AM
To: Kelver, Brett
Cc: Don Seitz; Virginia Seitz
Subject: Comments on the Land Use Application for 4345 SE Logus Rd
Attachments: 4543 Land Use Comparison for D&V.xlsx

I am sorry that I did not get this in sooner, but Monday was a little hectic for me. Hopefully these comments will still make it into the packet going to the Milwaukie Planning Commission today.

To the Milwaukie Planning Commission:

First let me say that I wholly support the comments submitted by my neighbors Don and Virginia Seitz, and in fact worked with them on their submission. It is clear to me that the sort of off-hand imposition on the Seitz's for building a full 40 foot road connecting Logus Rd to Melody , plus the donation of a 25x300 ft wide strip of land, in exchange for the ability to develop three new lots - at most - on their property is shocking.

It was not clear to us how onerous a requirement was hiding in the innocuous sentence "This will allow for the future dedication and eventual connection between Logus and Melody upon development of the lot to the east of ours (4591 SE Logus Rd)." In order to clarify what that sentence meant, I went with Don and Virginia to meet with City staff, who stated that indeed the requirement to donate 25 ft of land and build a 300 ft connector road would in fact be imposed on their land should they ever decide to develop it.

Once I prepared a chart we learned what the actual costs of that innocent-sounding requirement actually would be - \$330,000 just for the Logus connector road! Imposed on one piece of property! Tell me how that burden wouldn't significantly reduce the value of their property. Not to mention it would virtually guarantee, even in the current market, that their

property would be undevelopable. I attached the chart so you can see the calculations, which are based, for both properties on the City's in lieu of costs.

It appears that there are two main arguments for requiring this connection road. The first is that extending Melody any farther than the subject property would require better emergency access because the extension would be too long (although a pre-app meeting with Planning in 2005 related to the possible development of all four of the large lots required only a bike path connection from Melody to Logus). The emergency access issue could be addressed without imposing this onerous obligation on 4591 Logus, if the City agreed that the connector road would not have to have utilities and could be reduced to in width sufficient to meet the emergency code, but not require conformance with the City's 40 ft requirement. Taken together, a reduction in both width and utility requirements would bring the street within an affordable cost to development. Reducing the utilities cost without reducing the width would not.

The second argument is that the City is trying to complete a grid of cross streets which are currently lacking in many areas of the city. If you look at the map however, it is clear that the street being mandated between the applicant and the Seitz's land will in fact never become part of a cross street, as the houses to the north don't connect up to any cross street. And as City staff stated, the City doesn't have funds to buy up houses to create cross streets anyway. It is therefore clear that the only function of this street would be to provide emergency access for an extension of Logus that would then be too long for Fire vehicles. The emergency access requirements are substantially less in terms of width of the road.

Therefore, if the Planning Commission approved conditions at this time specifying the smaller width of the road, and that it will not have to include any utilities (except maybe for stormwater drainage associated with the impervious surface), then the development costs to the Seitz's

would be in line with what the applicant is contributing to the City in terms of extending Melody on property he does not own.

As a further point with regard to the width of the Logus connector road, it does not make sense to me for the City to insist on a 40 ft road to connect up 3 additional houses, or perhaps 6 if our neighbor in between Seitz's and me were to go in with them, when Logus Rd itself, which carries a lot of traffic, is smaller than that. Logus Rd in front of my house is 20 ft and it has no sidewalks. Logus Rd east of 49th where it has been improved is 20 ft with sidewalks and water capture basins that take it to 30 ft. Why then is it necessary to have a 40 ft road for a few houses in the back?

The second point in the Seitz's request to the Planning Commission in fact affects me directly, as I own the lot farthest to the east in this four-lot block. Opening a public access road along the eastern edge of the applicant property will undoubtedly mean that my property is even more subject to trespass and open view. I already find clothing in the back of my lot, or other evidence of strangers on my land, and my lot is currently the most inaccessible of all to those on foot. All four of the landowners, until the applicant property was sold out of an estate, have always maintained that back space as open space. We mow for each other, haul equipment around and otherwise have enjoyed not having to fence that space. That would all change once there is public access to the back. Therefore I am in full support of a request for a fence along the eastern side of the public access road specified in this application. I think it should not be vegetation because that is too wide, and also it is subject to being neglected or trimmed back or otherwise not maintained as the barrier it is supposed to be. For example, the end of Melody right now has a full growth of trees blocking access to the back, but such a barrier along this edge would take up the whole right of way.

And finally I would like to make a larger point, which I recognize is not directly before the Planning Commission in your consideration of this application. That point is that it appears to me that what the City Council

is doing highlighting the need for more affordable housing in Milwaukie so it can maintain a varied and diverse demographic population, is being undercut by City requirements of such large amounts to build the City's roads for it - almost \$450,000 for this one property. The result is we get the piecemeal infill of half-million dollar houses such as are sprouting and crowding each other left and right on the eastern part of Logus. We will become nothing more than a rich bedroom community for Portland if something is not done at the operational level to implement the talk at the policy level. For example, I have no desire to develop my own lot for various reasons. But as someone who spent many years managing public sector human services delivery, I might in fact be open to working with a non-profit developer on some sort of affordable cluster housing in back that could include community gardens and such like. Such an idea would never even make it to consideration at this point, because, as we were told in our meeting with City staff, the City never down zones. So all that land in back, which is walking distance to stores and Trimet, is reserved for big bucks homes, which are the only developments that can afford to donate hundreds of thousands of dollars to the City, and still show a profit.

I appreciate the opportunity to provide my comments. As an affected landowner, a long-time Milwaukie resident - 20 years this year, and someone who is committed to the long-term health and sustainability of Milwaukie, I urge you to modify this application. I urge the Planning Commission to seriously consider, and then approve, a decision that would grant both of the requests made by my friends Don and Virginia Seitz.

--

"It Takes a Choir To Raise a Song" - Everyone Welcome Community Choir, Anne Weiss, Director
Extraordinaire (www.anneweiss.com)

Leslie Schockner
Milwaukie, OR
[503/659-1371](tel:5036591371)
leslieschockner@gmail.com

Burden of Public Costs of 4543(this app) to 4591 (not part of the app)

Excess costs to 4591 for Logus connection
 Excess Construction costs = \$170,800
 Excess cost as % of App's Costs= 62.7%
 Excess Public Land Donation 62.7%

4543 Logus		Notes	4591 Logus		Notes
Melody Donated Lft	87	\$95,700			
Melody on App Property Lft	138	\$151,800		103	\$113,300
Logus Connection Lft	300	\$25,000	15 ft public easement w	300	\$330,000
					25 ft public land + construction costs
Ttl		\$272,500			\$443,300
Comparison					
Logus Base Cost only (40')				300	\$120,000
Logus Base+Storm (40')				300	\$180,000

Planning costs base on City In-Lieu Fees per lineal foot	All	Base+ Storm
Base Rate	\$400	\$400
Water	\$300	
Sewer	\$200	
Stormwater	\$200	\$200
Total	\$1,100	\$600

MEMORANDUM

TO: Community Development Department
THROUGH: Charles Eaton, Director of Engineering
FROM: Alex Roller, Engineering Technician II
RE: 4-Lot Subdivision – 4543 SE Logus Rd
 S-2016-002
DATE: July 7, 2017

Subdivide 1 existing parcel into 4 lots.

1. MMC Chapter 12.08 – Street & Sidewalk Excavations, Construction, and Repair
 - A. This will apply to all construction that is completed in the right-of-way that is eventually dedicated to the City. The public improvement process will follow MMC 12.08.020.

2. MMC Chapter 12.16 – Access Management

The Planning Commission finds that the following complies with applicable criteria of MMC Chapter 12.16.

- A. MMC Chapter 12.16.040 establishes standards for access (driveway) requirements.

12.16.040A: requires that all properties be provided street access with the use of an accessway.

The proposed development is consistent with MMC 12.16.040A.

12.16.040C: Accessway Locations

3: Distance from property line

Proposed driveways will conform to 12.16.040.C.3 through Condition of Approval N.

4: Distance from Intersection

a: Proposed lot layout allows for the siting of houses that will facilitate the required 45 ft accessway spacing from intersections.

The proposed development appears to be very close to conforming to MMC 12.16.040.C.4.a. Plans show accessway approximately 39 ft from the east property line of lot 3. Spacing from intersection is measured from edge of asphalt, so minor adjustments to the proposed driveway may be needed.

12.16.040D: Number of Accessway Locations

1: Safe access

Applicant has proposed the minimum number of accessway locations.

The proposed development is consistent with MMC 12.16.040.D.1.

12.16.040E & 12.16.040F: Accessway Design - ADA standards & Width

Proposed driveways will conform to 12.16.040.E & 12.16.040.F through Condition of Approval N.

3. MMC Chapter 12.24 – Clear Vision at Intersections

The Planning Commission finds that the following complies with applicable criteria of MMC Chapter 12.24

A. 12.24.030: clear vision requirements

Proposed driveways, accessways and intersections will conform to 12.24.030 through Condition of Approval N.

4. MMC Chapter 19.700 – Public Facility Improvements

The Planning Commission finds that the following complies with applicable criteria of MMC Chapter 19.700.

A. MMC Chapter 19.700 applies to partitions, subdivisions, new construction, and modification or expansion of an existing structure or a change or intensification in use that result in any projected increase in vehicle trips or any increase in gross floor area on the site.

The applicant proposes to subdivide the existing 1 parcel into 4 new lots. The subdivision triggers the requirements of MMC Chapter 19.700.

MMC 19.700 applies to the proposed development.

B. MMC Section 19.703 Approval Criteria

19.703.1 Preapplication Conference

Requirement for a preapplication conference was satisfied on September 17th 2015.

19.703.2 Application Submittal

Development will not require a Transportation Facilities Review so MMC 19.703.2 will not apply.

19.703.3

Applicant will provide transportation improvements and mitigation in rough proportion to the potential impacts of the development.

The proposed development, as conditioned, is consistent with MMC 19.703.3.

C. MMC Section 19.704 requires submission of a transportation impact study documenting the development impacts on the surrounding transportation system.

Three additional lots will not have a significant increase in trip generation and therefore does not require a transportation impact study.

MMC 19.704 does not apply to the proposed development.

- D. MMC Section 19.705 requires that transportation impacts of the proposed development be mitigated.

The proposed development does not trigger mitigation of impacts beyond the required frontage improvements. The impacts are minimal and the surrounding transportation system will continue to operate at the level of service previous to the proposed development.

The proposed development, as conditioned, is consistent with MMC 19.705.

- E. MMC Section 19.708.1 requires all development shall comply with access management, clear vision, street design, connectivity, and intersection design and spacing standards.

19.708.1.A – Access Management

Access requirements shall comply with access management standards contained in Chapter 12.16.

19.708.1.B – Clear Vision

Clear vision requirements shall comply with clear vision requirements contained in Chapter 12.24.

19.708.1.C – Development in downtown zones

Does not apply to this development

19.708.1.D – Development in Non-Downtown Zones

The proposed development, as conditioned, is consistent with MMC 19.708.1.D.

19.708.1.E – Street Layout & Connectivity

MMC 19.708.1.E.3.c

Reserve strip will be required:

1. Along east edge of dedicated right-of-way along taxlot 12100, including the east edge of Melody Lane right-of-way.

The proposed development, as conditioned, is consistent with the remainder of MMC 19.708.3.E.

19.708.1.F – Intersection Design and Spacing

Proposed street will be located outside of the required 530-feet for maximum intersection spacing on a neighborhood street (Logus Road). The City has asked for the dedication for this eventual street connection, and will not require a variance for this location. Per 19.703.4.B – Street Design, the engineering director has determined that the location of this

road will most effectively serve infill development without precluding adjacent properties from developing.

- F. MMC Section 19.708.2 establishes standards for street design and improvement.

The applicant shall construct frontage improvements for the extension of SE Melody Lane. The street improvements include, from the north fronting property line, construction of a 5-foot wide setback sidewalk, 5-foot wide planter strip, curb and gutter, 25-feet of asphalt (28-feet travel way), curb & gutter.

The existing right-of-way width of SE Logus Road fronting the proposed development is 30 feet. The Milwaukie Transportation System Plan and Transportation Design Manual classify the fronting portions of SE King Road as a Neighborhood Route. According to Table 19.708.2 Street Design Standards, the required right-of-way width for a neighborhood route is between 20 feet and 68 feet depending on the required street improvements. The required right-of-way needed for the required street improvements is 37 feet. The applicant is responsible for 7 feet of right-of-way dedication along SE Logus Road fronting the development property.

Through conformance with MMC 17.28.050 15-feet of dedication is required on the east side of the development property for future access and creation of a new north/south road connecting Logus Road to Melody Lane.

The proposed cross section for Melody Lane conforms to requirements consistent with MMC Section 19.708.2.

- G. MMC Section 19.708.3 requires sidewalks to be provided on the public street frontage of all development.

The construction of sidewalks along the proposed development property abutting all public rights-of-way is included in the street frontage requirements. The applicant will construct the required cross section for Melody Lane which is sidewalk only on the north side of the road. Melody lane will be the access road for all three new lots. A proportionality analysis was completed for this development and determined that improvements would only be required for the Melody Lane right-of-way. The value of the 4796 square ft of land dedicated and the additional improvements being constructed between the end of existing Melody Lane and the west edge were deemed proportional to the effect of 3 additional new lots.

19.708.3.A.2 requires that public sidewalks shall conform to ADA standards.

The proposed development is consistent with MMC Section 19.708.3.

- H. MMC Section 19.708.4 establishes standards for bicycle facilities.

SE Logus and SE Melody Lane are not classified as a bike route in the Milwaukie Transportation System Plan. Bicycle facility improvements are not required for the proposed development.

MMC 19.708.4 does not apply to the proposed development.

- I. MMC Section 19.708.5 establishes standards for pedestrian and bicycle paths.

The proposed development property is surrounded by single family residences. The proposed development does not present an opportunity to provide a pedestrian or bicycle path and is not required to provide one.

MMC 19.708.5 does not apply to the proposed development.

Recommended Conditions of Approval

1. Prior to approval of the final plat, the following shall be resolved:
 - A. Submit a storm water management plan to the City of Milwaukie Engineering Department for review and approval. The plan shall be prepared in accordance with Section 2 – Stormwater Design Standards of the City of Milwaukie Public Works Standards. Private properties may only connect to public storm system if percolation tests show that infiltration cannot be obtained on site. In the event the storm management system contains underground injection control devices, submit proof of acceptance of the storm system design from the Department of Environmental Quality.
 - B. Submit full-engineered plans for construction of all required public improvements, reviewed and approved by the City of Milwaukie Engineering Department.
 - C. Obtain a right-of-way permit for construction of all required public improvements listed in these recommended conditions of approval.
 - D. Pay an inspection fee equal to 5.5% of the cost of the public improvements.
 - E. Provide a payment and performance bond for 100 percent of the cost of the required public improvements.
 - F. Provide an erosion control plan and obtain an erosion control permit.
 - G. Construct 8-inch wastewater main to the east end of development property in Melody Lane right-of-way. A new sanitary manhole is required at the end of wastewater main.
 - H. Extend 6-inch water main to east end of development property in Melody Lane right-of-way. Move existing blowoff to the east end of water main extension.
 - I. Install all underground utilities, including stubs for utility service prior to surfacing any streets. Relocate or provide a private utility easement for all utilities encroaching onto adjacent properties.
 - J. Dedicate 7-feet on Logus frontage of development property.

- K. Dedicate 40-feet of right-of-way on for the extension of SE Melody Lane fronting the proposed development property.
 - L. Dedicate 15-feet of right-of-way along the east side of development property from SE Logus to newly dedicated Melody Lane right-of-way.
 - M. Construct all sidewalks, ramps and driveways on SE Melody Lane.
 - N. Construct a driveway approach to meet all guidelines of the Americans with Disabilities Act (ADA) to each new lot. The driveway approach aprons shall be between 9 feet and 20 feet in width and least 7.5 feet from the side property line. Driveway approach is also required for 4422 SE Melody Lane.
 - O. Dedicate reserve strip to the City of Milwaukie at the end of Melody Lane. The reserve strip will be 1-foot wide and will run from the southeast corner of Lot 4, and will extend to the Logus right-of-way fronting Taxlot 12100.
 - P. Clear vision areas shall be maintained at all driveways and accessways and on the corners of all property adjacent to an intersection.
 - Q. Provide a final approved set of Mylar and electronic PDF "As Constructed" drawings to the City of Milwaukie prior to final inspection.
 - R. Remove all signs, structures, or vegetation in excess of three feet in height located in "vision clearance areas" at intersections of streets, driveways, and alleys fronting the proposed development.
2. Prior to final inspection for any building on the proposed development, the following shall be resolved:
- A. Connect all residential roof drains to private drywell or other approved structure.



To: Planning Commission

Through: Dennis Egner, Planning Director

From: Mary Heberling, Assistant Planner & Brett Kolver, Associate Planner

Date: July 20, 2017, for July 25, 2017, Public Hearing

Subject: Supplemental Staff Report

File: S-2016-002, VR-2016-010, PLA-2016-002

This supplemental staff report addresses comments that were reviewed from David and Virginia Seitz and Leslie Schnocker. The staff report issued on July 18, 2017 did not address these comments.

COMMENTS

Don and Virginia Seitz, Property Owners at 4591 SE Logus Rd:

As property owners of the site directly east to the proposed subdivision, they provided comments requesting the City not approve the application without their suggested amendments. They have two concerns:

1. The donation of land and construction costs for public roads as proposed are inequitable.

The main concern is that if/when they choose to redevelop their property, they would be required to build 25 ft of the proposed 40-ft wide street connection between Melody Ln and Logus Rd on the west side of their property. The current applicant is being required to dedicate 15 ft of ROW for that proposed street connection and will not be required build or pave any of the dedication. They feel this is not equitable and would cost them more money, almost half a million dollars, to build 25 ft of road versus the 15 ft of ROW dedication from the applicant, which they believe is cheaper.

They are asking for an alternative which specifies that the Logus connector will not be required to have utilities and may be only as wide as needed for fire truck access (20 ft). They feel the purpose of the connection between Melody Ln and Logus Rd is only needed for fire access and this alternative better meets the needs of the area versus a 40 ft road.

2. The creation of a 15-ft gravel road along the edge of their property will have negative impacts on their current use and enjoyment of their property, whether or not they decide to subdivide in the future.

Their concerns are that opening a graveled public street along the 300-ft length of the property will open the whole property to public view, trespass, and litter and trash. They are also concerned that it may become a shortcut for people on Melody Ln to drive to and from the east along Logus Rd.

They are asking that the City require the applicant to build a fence along the eastern edge of the 15 ft graveled ROW from their hedge in front yard to the extension of Melody Ln. They further ask for the fence to be wood, 6 ft in height, with a 20 ft farm gate at an appropriate place for access in the back of their property.

Staff Response:

1. The City of Milwaukie Engineering Department based their recommendation to require a 15-ft ROW dedication for the street connection between Melody Ln and Logus Rd on:
 - a. Location of the existing structures on both sites.
 - b. Width of existing property frontage on Logus Road.
 - c. The proportionality analysis required for development exactions.

The existing single family structure on 4543 SE Logus Rd (the subdivision site) is closer to their east property line than the existing single family structure on 4591 SE Logus Rd is to their west property line. (See Map 3 below) Without needing to move or demolish the current single family structure on the subdivision site, requiring 15 ft of ROW will allow both of the existing single family structures to remain intact.

In order to require public improvements on exactions, MMC 19.700 requires that the City do a proportional analysis to ensure that the improvement value is roughly in proportion to the impact of the development. The proportionality analysis completed for this development determined that improvements would only be required for the Melody Ln right-of-way. The value of the 4,796 sq ft of land dedicated and the additional improvements being constructed between the end of existing Melody Lane and the west edge were deemed proportional to the effect of 3 additional new lots.

The applicant is also proposing to build Melody Ln from where it currently ends to the east property line of the site. It will be consistent with the current conditions of Melody Ln and include construction of a 5-ft wide setback sidewalk, 5-ft wide planter strip, curb and gutter, and 25 ft of asphalt. Currently, Melody Ln ends farther west than the applicant's property line. Without building this stretch of unimproved street, cars would not be able to access the required extension of Melody Ln. The City can only require the extension of two 8-ft travel lanes of Melody Ln to the applicant's property, but the applicant is choosing to build more of Melody Ln to better create the connection. These extra improvements on the Melody Lane extension are taken into account during the proportionality analysis. Given the extra cost for the applicant to connect Melody Ln with a street segment meeting full city street standards, the City cannot require improvements to a proposed new North/South street that would connect Melody Ln and Logus Rd. Rather, 15 ft ROW dedication is the best option due to the proportionality of the cost. Note that this connection is needed given that Melody Ln is a dead-end street and without the connection it will exceed the length allowed for a dead-end street.

The City would prefer a full 40-ft ROW for the new north/south street, however there are provisions in the code that allow alternate widths and road cross sections. The code allows for components to be located in easements and for narrower ROW. The

final width for this new street is undetermined at this time. The property owners (the commenters) to the east of the applicant at 4591 SE Logus Rd, at the time of redevelopment, will be required to dedicate 25 ft of ROW to complete the proposed 40-ft road between Melody Ln and Logus Rd.

The amount of road that will need to be built by the property owners at 4591 SE Logus Rd will depend on the amount of money the current applicant for the subdivision will be paying to build/dedicate roads. The owners of 4591 SE Logus Rd state that they will have an inequitable burden for the improvement of roads when and if they choose to develop their property. As noted above, the development of their property will be subject to improvements and exactions that will be proportional to the impact of the development. A quick analysis of the property indicates that 4 lots could be created out of the parent property. In concept, a proportionality analysis would find that 2 lots would likely be responsible for covering the dedication and cost of improvements for the extension of Melody Lane. The 3rd lot would be responsible for ROW and half street improvements along the frontage of the new north-south street. The 4th lot, with the existing house, would not be responsible for any improvements because it currently exists and will not have any new impact on the street system. The remaining improvements required along the north-south street would need to be paid out of the City street fund since there is no additional development that would occur along its frontage. Another option, would be to create a local improvement district that would encompass all of the lots that might benefit from the north-south street (including potential lots to the east) and access those lots for the cost of the north-south improvements.

2. The City is not requiring a gravel road on the 15-ft ROW dedication between Melody Ln and Logus Rd. The lots should remain as they currently exist until the road between Melody Ln and Logus Rd is being built and paved. The extension of Melody Ln will have physical barriers to prevent cars from going further east on Melody Ln and south to connect to Logus Rd. Until full improvements are made, there should be no traffic between Melody Ln and Logus Rd on that 15 ft ROW dedication. The reserve strip on the east side of the 15-foot dedication will limit access to this ROW until it is fully constructed.

See Map 3 (below) for depiction of where the properties are located on Logus Rd.

Map 3

- **Leslie Schockner, Property Owners at 4681 SE Logus Rd**

Leslie Schockner is the property owner of the large lot farthest to the east of the 3 large lots east of the applicant's property. Ms. Schockner provided the same concerns as the Seitz's comments above. In particular, the concern was surrounding the fairness in cost comparison with the amount the current applicant for the subdivision would be paying for roads/dedication and potential cost to the property owners directly east at 4591 SE Logus Rd (the Seitz's). Ms. Schockner provided a spreadsheet comparing the costs of developing the property at 4591 SE Logus Rd versus the property at 4543 SE Logus Rd. The spreadsheet shows that the applicant would be paying \$272,500 in cost versus \$443,300 for the property owners to the east at 4591 SE Logus Rd to develop the street connections for their site.

Ms. Schockner also made a similar comment on how they were not sure why a 40 ft road is being proposed to connect Melody Ln and Logus Rd if it will not be connecting to any other streets to the north or south. She stated it is only needed for fire access and therefore does not need to be 40 ft wide.

Staff Response:

The response made to the Seitz comments above are similar to the response for Ms. Schockner's comments. See the response above.

Additionally, the comments received claimed that the cost to build the Logus/Melody connection road would be roughly \$330,000, in total \$443,000 for all improvements. It appears that this estimate was created using the City's fee in lieu of construction (FILOC) values. These values have been set above what market value would be for the applicant to construct the improvements themselves, partially because any City initiated project must include contractors that meet all the requirements of Oregon's Bureau of Labor Industries (BOLI). In many cases, with the higher FILOC cost, the applicant will elect to construct, as it would be cheaper. The FILOC values are not a method of cost estimation. Approximate cost estimates completed by the Engineering Department indicate a value between \$90,000 and \$140,000 if 4591 SE Logus Rd constructs a 25 ft to 40-ft wide street for 300

ft. However, 4591 SE Logus Rd would not be required to build the full 40 ft of road because this would not be proportional to the 3 lots that are being created.

The 40-ft road between Melody Ln and Logus Rd is being required by the Engineering Department due to the increase in the number of units that will be accessing the extension of Melody Ln, especially when all of the lots (including the 3 large lots to the east of the applicant’s site) will be developed. There is potential for 9 new dwelling units (not including the subdivision proposal) that will be taking access from the new extension of Melody Ln. The connection between Melody Ln and Logus Rd is also important because the extension of Melody Ln will be a dead-end street when it reaches the farthest east lot. As mentioned before, without the connection Melody Ln will exceed the length allowed for a dead-end street.

ATTACHMENTS

Attachments are provided as indicated by the checked boxes. All material is available for viewing upon request.

	PC Packet	Public Copies	E- Packet
1. Revised Recommended Findings in Support of Approval (pages 6-8)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2. Revised Recommended Conditions of Approval	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
3. Additional Comment Received for Attachment 4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Key:

Early PC Mailing = paper materials provided to Planning Commission at the time of public notice 20 days prior to the hearing.

PC Packet = paper materials provided to Planning Commission 7 days prior to the hearing.

Public Copies = paper copies of the packet available for review at City facilities and at the Planning Commission meeting.

E-Packet = packet materials available online at <https://www.milwaukieoregon.gov/planning/planning-commission-174>.

10. MMC Chapter 19.500 Supplementary Development Regulations

MMC 19.500 establishes various supplementary regulations for development.

A. MMC Section 19.502 Accessory Structures

MMC 19.502 establishes standards for accessory structures. In particular, MMC Subsection 19.502.2.A establishes specific provisions for residential accessory structures, including development standards, design standards, and requirements related to roof pitch.

(1) MMC Subsection 19.502.2.A.1 Development Standards

MMC 19.502.2.A.1 establishes height, footprint, and setback standards for residential accessory structures.

The subject property includes two existing detached accessory structures, both of which are proposed to remain in place. A recreational room and garage will remain on Lot 1 and a utility building will remain on Lot 2. Table 2 presents the relevant data for each structure with respect to the applicable standards of MMC 19.502.2.A.1.

Table 2 – Residential Accessory Structures			
Height and Footprint Standards			
Standard	Requirement (for Type C Structures)	Structure on Lot 1	Structure on Lot 2
Maximum Building Height	<u>Lesser of 25 ft OR not taller than highest point of primary structure (allowed at least 15 ft regardless)</u>	<u>20 ft</u>	<u>15 ft</u>
Maximum Building Footprint	<u>Lesser of 75% of primary structure OR 1,500 sq ft (allowed at least 850 sq ft if lot area > 10,000 sq ft)</u>	<u>1,720 sq ft *</u>	<u>1,500 sq ft *</u>
Required Rear Yard	<u>Base zone requirement = 20 ft for R-7</u>	<u>9.51 ft **</u>	<u>50 ft</u>
Required Side Yard	<u>Base zone requirement = 5 ft or 10 ft for R-7</u>	<u>1.33 ft ***</u>	<u>3 ft ****</u>
Required Front Yard	<u>Not allowed in front yard unless structure is at least 40 ft from front lot line</u>	<u>83 ft</u>	<u>45 ft</u>
Building Separation	<u>Minimum of 5 ft between exterior wall of accessory structure and any other structure on site</u>	<u>5 ft</u>	<u>NA</u>

* Both structures were constructed prior to the 2002 adoption of size restrictions for accessory structures.

** The applicant is proposing a variance for the rear yard setback on Lot 1.

*** The side yard setback would be met, but the City Engineering Department has required 15 ft ROW dedication, which causes the side yard setback requirement to not be met. Since the City is requiring the ROW dedication, the side yard requirement does not need a variance.

**** The applicant is proposing a variance for the side yard setback on Lot 2.

The size and height allowances for the accessory structure on Lot 1 are dependent on the existing primary structure, which is a two-story house with a footprint of approximately 1,810 sq ft and a building height of approximately 20 ft. The accessory structure on Lot 1 meets the height standard, but is

nonconforming with respect to the standards for the maximum allowed footprint and side yard setback. For those aspects, Lot 1 is subject to the applicable provisions of MMC Chapter 19.800 Nonconforming Uses and Development.

The accessory structure on Lot 2 is located within the front yard and is at least 40 ft from the front lot line; the height and footprint standards are impossible to evaluate without a primary structure on the lot. According to the definition established in MMC Section 19.201, an accessory structure is one that is “incidental and subordinate to the main use of property and located on the same lot as the main use.” The existence of an accessory structure on Lot 2 without a primary structure creates a nonconforming situation that will require an approved variance request to remain in conjunction with development of a primary structure. A condition has been established to require that the existing accessory structure on Lot 2 be removed unless it becomes accessory to a primary structure.

The existing nonconforming aspects of the accessory structures on both lots are subject to the provisions of MMC 19.800. As conditioned, the applicable standards of MMC 19.502.2.A.1 are met for Lot 2.

(2) MMC Subsection 19.502.2.A.2 Design Standards

MMC 19.502.2.A.2 establishes design standards for accessory structures. Metal siding is prohibited on structures more than 10 ft high or with a footprint greater than 200 sq ft, unless the siding replicates the siding on the primary dwelling or has the appearance of siding commonly used for residential structures. In addition, structures located in a front, side, or street-side yard that are visible from the right-of-way at a pedestrian level shall use exterior siding and roofing materials that are commonly used on residential structures.

Both existing accessory structures were constructed prior to the 2002 adoption of design standards for accessory structures. Both accessory structures are nonconforming with respect to the prohibition on metal siding and are subject to the applicable provisions of MMC 19.800.

The Planning Commission finds that the existing nonconforming aspects on both parcels are subject to the provisions of MMC 19.800. As conditioned, the Planning Commission finds that the proposed partition meets the applicable standards of MMC 19.502.2.A.2 for Parcel 2.

C.B. MMC Section 19.504 Site Design Standards

MMC 19.504 establishes standards for site design, including clear vision areas, transition area measures, and flag lot design and development standards. Specifically, MMC Subsection 19.504.2 Maintenance of Minimum Ordinance Requirements

MMC 19.504.2 states that no lot area, yard, other open space, or off-street parking or loading area shall be reduced by conveyance or otherwise below the minimum requirements of this title, except by dedication or conveyance for a public use.

The existing single-family residence on Lot 1 would be closer than 20 ft for the street side-yard setback after the dedication of 15 ft for a road to connect Melody Ln and Logus Rd. Since the 15 ft is for a public road, the street side-yard setback is not an issue with meeting the minimum requirements.

The Planning Commission finds that the standard is met.

As conditioned, the Planning Commission finds that the applicable standards of MMC 19.500 are met.

40-11. MMC 19.607 Off-St Parking Standards for Residential Areas

MMC 19.607 establishes off-street parking standards for residential areas.

The applicant's materials indicate awareness of these requirements and will address compliance during the development permit process. The existing single-family home on the proposed Lot 1 has 2 off-street parking spaces per the 2 car garage.

The Planning Commission finds that the proposal meets the off-street parking standards.

44-12. MMC 19.700 contains regulations for Public Facility Improvements.

The proposal complies with these regulations as described in this finding.

- A. MMC Chapter 19.700 applies to partitions, subdivisions, new construction, and modification or expansion of an existing structure or a change or intensification in use that result in any projected increase in vehicle trips or any increase in gross floor area on the site.

The applicant proposes to subdivide the existing parcel into 4 new lots. The subdivision triggers the requirements of MMC Chapter 19.700.

MMC 19.700 applies to the proposed development.

- B. MMC 19.703 contains the requirements for the review process for all proposed developments subject to Chapter 19.700.

- a. MMC 19.703.1 requires a pre-application conference for proposals that require a land use application. *The requirement was satisfied on September 17, 2015.*
- b. MMC 19.703.3.B requires that development shall provide transportation improvements and mitigation at the time of development in rough proportion to the potential impacts of the development per MMC 19.705.

The applicant is proposing to dedicate a 7-ft frontage ROW along SE Logus Rd. This will upgrade the existing ROW to a width of 40 as requested by Milwaukie Engineering Department. The existing ROW on Melody Ln is 40 ft. The required ROW is 40 ft. The proposed site plan and improvement plan show a proposed ROW of 40 ft along the projected alignment of the continuation of Melody Ln. The proposed ROW dedication and improvement will be from the west property line to the east property line of the boundary of the subdivision. Driveway curb cuts and ADA rams will be required to meet the Milwaukie Public Works Standards.

As conditioned, the proposal is consistent with MMC 19.703.3

- C. MMC 19.704 requires submission of a transportation impact study documenting the development impacts on the surrounding transportation system.

All of the trips for Lot 1 of the proposed development affect SE Logus Rd. All of the trips for Lots 2, 3, and 4 will affect the new extension of SE Melody Ln. The proposed development will not trigger a significant increase in trip generation on either neighborhood streets and therefore the subdivision itself does not require a transportation impact study.

MMC 19.704 does not apply to the proposed development.

Revised Recommended Conditions of Approval
Master File #S-2016-002, Julian Illingworth Subdivision

Conditions

1. At the time of submission of the final plat application, the following shall be resolved:
 - a. A written narrative describing all changes made to the final plat that are not related to these conditions of approval.
 - b. A final plat that substantially conforms to the plans received by the Planning Department on May 31, 2017 and approved by this action, except as modified by these conditions of approval.
 - c. The final plat shall include spaces for signatures by the Milwaukie Planning Director and Milwaukie Engineering Director, and a note indicating that this subdivision is subject to the requirements of City of Milwaukie Land Use Application S-2016-001; VR-2016-007.
2. Prior to approval of the final plat, the following shall be resolved:
 - a. Establish a deed restriction for Lot 2 to ensure that, within 24 months of final plat approval for this land division, the existing accessory structure on Lot 2 shall be removed unless:
Lot 2 is maintained in mutual ownership with an adjacent lot containing a primary structure and shall remain in mutual ownership with that adjacent lot. If Lot 2 is sold without an adjacent lot, the accessory structure will be dismantled upon sale.
 - b. Remove the existing electric stove-top from the pool-house studio and treat the space as an accessory use structure, not an accessory dwelling unit.
 - ~~c.~~ Submit a storm water management plan to the City of Milwaukie Engineering Department for review and approval. The plan shall be prepared in accordance with Section 2 – Stormwater Design Standards of the City of Milwaukie Public Works Standards. Private properties may only connect to public storm system if percolation tests show that infiltration cannot be obtained on site. In the event the storm management system contains underground injection control devices, submit proof of acceptance of the storm system design from the Department of Environmental Quality.
 - ~~d.~~ Submit full-engineered plans for construction of all required public improvements, reviewed and approved by the City of Milwaukie Engineering Department.
 - ~~e.~~ Obtain a right-of-way permit for construction of all required public improvements listed in these recommended conditions of approval.
 - ~~f.~~ Pay an inspection fee equal to 5.5% of the cost of the public improvements.
 - ~~g.~~ Provide a payment and performance bond for 100 percent of the cost of the required public improvements.
 - ~~h.~~ Provide an erosion control plan and obtain an erosion control permit.
 - ~~i.~~ Construct 8-in wastewater main to the east end of development property in Melody Lane right-of-way. A new sanitary manhole is required at the end of wastewater main.

- j. Extend 6-in water main to east end of development property in Melody Ln right-of-way. Move existing blowoff to the east end of water main extension.
- k. Install all underground utilities, including stubs for utility service prior to surfacing any streets. Relocate or provide a private utility easement for all utilities encroaching onto adjacent properties.
- l. Dedicate 7 ft on the SE Logus Rd frontage of development property.
- m. Dedicate 40 ft of right-of-way on for the extension of SE Melody Ln fronting the proposed development property.
- n. Dedicate 15 ft of right-of-way along the east side of development property from SE Logus Rd to newly dedicated Melody Ln right-of-way.
- o. Construct all sidewalks, ramps and driveways on SE Melody Lane.
- p. Construct a driveway approach to meet all guidelines of the Americans with Disabilities Act (ADA) to each new lot. The driveway approach aprons shall be between 9 ft and 20 ft in width and least 7.5 ft from the side property line. Driveway approach is also required for 4422 SE Melody Ln.
- q. Dedicate reserve strip to the City of Milwaukie at the end of Melody Ln. The reserve strip will be 1-ft wide and will run from the southeast corner of Lot 4, and will extend to the SE Logus Rd right-of-way fronting Taxlot 12100.
- r. Clear vision areas shall be maintained at all driveways and accessways and on the corners of all property adjacent to an intersection.
- s. Provide a final approved set of Mylar and electronic PDF “As Constructed” drawings to the City of Milwaukie prior to final inspection.
- t. Remove all signs, structures, or vegetation in excess of three feet in height located in “vision clearance areas” at intersections of streets, driveways, and alleys fronting the proposed development.

2. ~~Prior to approval of the final plat, the following shall be resolved:~~

- a. ~~Establish a deed restriction for Lot 2 to ensure that, within 24 months of final plat approval for this land division, the existing accessory structure on Lot 2 shall be removed unless:~~
 - (1) ~~Lot 2 is maintained in mutual ownership with an adjacent lot (Lot 3) containing a primary structure and shall remain in mutual ownership with that adjacent lot. If Lot 2 is sold without an adjacent lot Lot 3, the accessory structure will be dismantled upon sale.~~
- b. ~~Remove the existing electric stove top from the pool house studio and treat the space as an accessory use, not an accessory dwelling unit.~~

3. Prior to final inspection for any building on the proposed development, the following shall be resolved:

- a. Connect all residential roof drains to private drywell or other approved structure.

To: City of Milwaukie Planning Commission
From: Don and Virginia Seitz
Subject: Subdivision Proposal for 4543 SE Logus Rd

My name is Don Seitz and I am speaking on behalf of my wife Virginia and myself against this proposal as presented. We have owned and lived in the house on the lot adjacent to this lot for over 45 years. The proposal as presented would impose significant adverse effects on the value of our property should we choose to sell, or develop it ourselves, as well as on our privacy and private enjoyment of our property, even if we never choose to subdivide.

We appreciate the time and expertise provided by City staff to help us understand the proposal and its implications. Unfortunately, the more we understand, the more it seems that approval of this application would be highly inequitable to us in particular.

1. Donation of land and construction costs for public roads as proposed are inequitable. The heart of the issue for us is that the proposal imposes on us, who are not even part of the application, almost half a million dollars in costs to provide public roads, should we decide to subdivide and develop our lot in the same way as the applicant. It has always been my belief that the City should be equitable in the way it applies its policies.

That is not the case here. The applicant is only having to provide a 15 ft right of way compared to the imposition of a 25 ft land donation on us to the City for the Logus connector road. In addition, we would be expected to provide ALL of the construction costs to connect Melody to Logus. Using the in-lieu costs provided by the City, that would cost us \$330,000, which added to the Melody extension we would have to do, would total over \$440,000 just for roads. To state it slightly differently, this application will incur only \$96,000 in construction costs donated to the City to extend Melody to the subject property line, while we would be obligated to incur \$330,000 in construction costs to build the Logus connector, in addition to the 25 ft land donation strip. A 25 ft strip, by the way, would mean that we would have to tear down and rebuild our garage, which would be a further expense. And our property is smaller than the applicant property. It is simply not fair for the City to insist on land and construction donations for public streets that are so widely varying in the costs to individual landowners.

We are therefore asking for an alternative which specifies that the Logus connector will not be required to have utilities, and may be only as wide as needed for Fire trucks, which we understand is 20 feet¹ This would meet the need for access by emergency equipment, which is what we understand to be the justification for the connector since Melody is too long for a turn-around. It is clear from looking at the map that this extension will never connect up with another road to become a true local road – its only purpose is for fire access. That would bring the costs to us back in line with what the applicant has contributed to the City under this proposal. We would of course, under

¹ “To accommodate the need to move the vehicles and access equipment on them quickly, the Uniform Fire Code calls for a 20-foot wide clear passage.” <http://www.oregon.gov/LCD/docs/publications/neighborstreet.pdf>

this scenario, commit to putting in the required utilities and parking off Melody, if we subdivided our property, just as the applicant here is proposing.²

2. The creation of a 15-foot gravel road along the edge of our property will have negative impacts on our current use and enjoyment of our property, whether or not we ever decide to subdivide. In addition to our concerns with the costs this application would impose on us, should we choose to subdivide at some time in the future, this application will have immediate and ongoing effects on our current use of our property. Opening a graveled public street along the whole length of our property will open the whole property to public view, to issues of trespass, and to issues of litter and trash, not to mention that it is likely to become a shortcut for people on Melody to drive to and from the east along Logus. And who will be maintaining that road, since we all know what the rains do to gravel roads?

None of these 4 large lots have been fenced in the back so the access issue applies to all three of the properties east of the Logus connector. All of these properties have been used historically for truck farming, and are not maintained to residential front yard standards. This road will open them up to public view, thereby creating pressure to change the way the property has been used and maintained. I operate a sawmill for myself in the back. I also compost large amounts of organic material for my garden, some of which is dumped by large trucks. None of this is “pretty” but all of it is useful and restorative to the land I have been working for a long time. I also have other heavy equipment that I use on occasion for myself, and for helping out friends.

In order to address these issues related to the graveled Logus connector on the applicant property, we ask that you require the applicant to build a fence along the eastern edge of the 15 ft graveled right of way from our hedge in front back to Melody. We further ask for privacy and access reasons, that the fence be wood, 6 ft in height, and with a 20 foot farm gate at an appropriate place for access in the back so I can get my equipment in and out.

In summary, as a matter of simple equity, I ask that you not approve this application without our two suggested amendments.

² As an aside I don't get why the Logus connector has to be 40 ft, when Logus itself is not that wide, nor will it be made that wide if the City ever gets around to putting in sidewalks on the western length from 49th to 43rd to match the improved eastern section of Logus. See attached aerial map of the intersection of the improved and unimproved Logus at 49th.

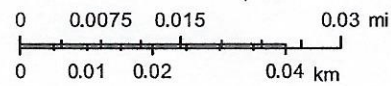
Map showing how *Connector* would not connect up with *another* *cross street*
 City of Milwaukie Zoning



July 19, 2017

1:1,128

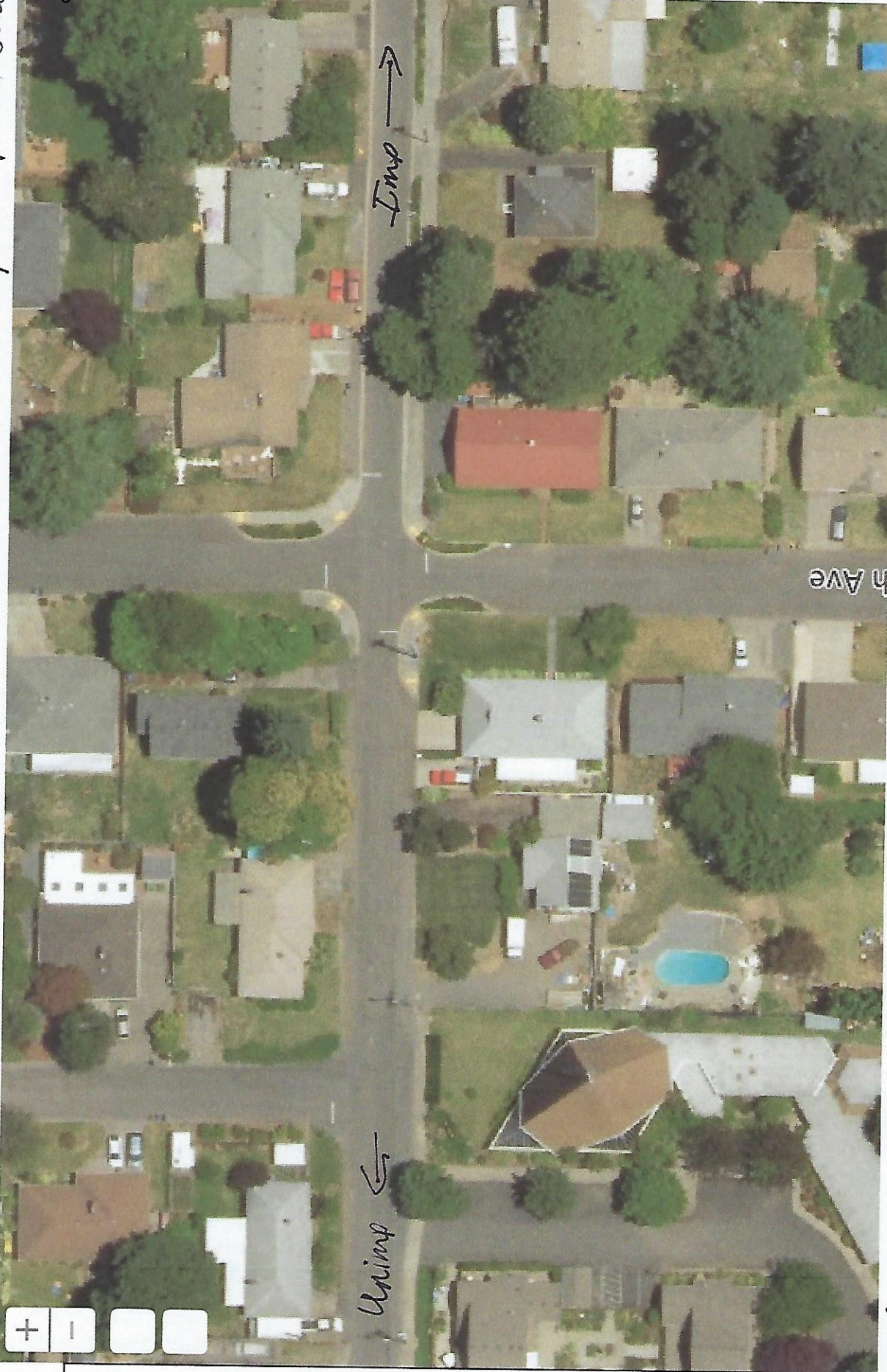
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| Red: Band_1 | Blue: Band_3 | Red: Band_1 | Blue: Band_3 |
| Green: Band_2 | 1s1e25u.tif | Green: Band_2 | 1s1e36u.tif |
| Blue: Band_3 | Red: Band_1 | Blue: Band_3 | Red: Band_1 |
| 1s1e24u.tif | Green: Band_2 | 1s1e35u.tif | Green: Band_2 |
| Red: Band_1 | Blue: Band_3 | Red: Band_1 | Blue: Band_3 |



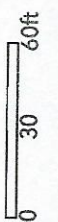
Data Resource Center/Metro



Logan Road - Milwaukee Zoning 30' Ro W - Smaller paving for improved section



Logan @ 49th - Improved section to right (18'-20' roadway + sidewalks = 30')
- Unimproved to left - 20' roadway in front of 4 large properties



-122.612 45.450 Degrees



MILWAUKIE

Dogwood City of the West

To: Planning Commission

Through: Dennis Egner, Planning Director

From: Brett Kelter, Associate Planner

Date: July 18, 2017, for July 25, 2017, Public Hearing

Subject: File: PD-2017-001 (master file)
Applicant: Brownstone Development, Inc.
Owner(s): Turning Point Church
Address: 13333 SE Rusk Rd
Legal Description (Map & Tax Lot): 2S2E06AD, lots 600, 700, 900, 901
NDA: Lake Road NDA

ACTION REQUESTED

Reopen the public hearing for land use application master file #PD-2017-001 and consider the new information provided regarding the proposed final development plan. Forward a recommendation to City Council based on the revised recommended Findings and Conditions of Approval found in Attachments 1 and 2, respectively. Pending Council approval, this action would allow for development of a 92-unit planned development subdivision, including some disturbance to the designated natural resource areas and floodplain on the site.

BACKGROUND INFORMATION

The Planning Commission opened the public hearing on the proposed development on May 23 and heard presentations from City staff and the applicant as well as some public testimony. The hearing was continued to May 25 to complete the public testimony portion and begin Commission discussion. The Commissioners identified the following items about which they needed more information before deliberating in earnest to arrive at a recommendation:

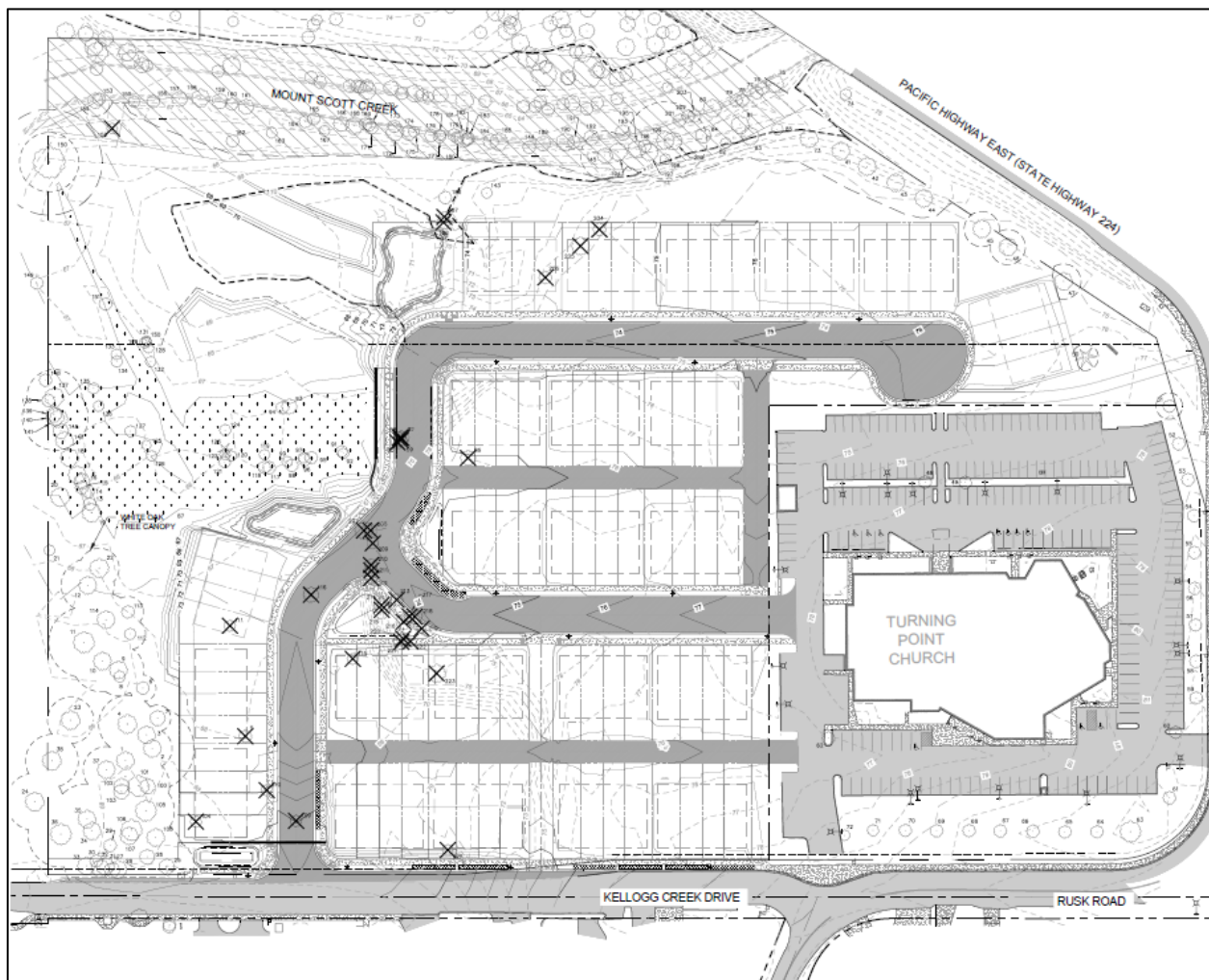
- **White oak trees** – Confirmation from the applicant's arborist that the existing white oak trees in the southwestern corner of the site would not be removed or significantly disturbed for this project, especially the oaks that would remain in the public right-of-way (ROW) near where the required street improvements would be installed.
- **Traffic impacts** – Refresh the traffic counts in the submitted Traffic Impact Study (TIS), using new counts conducted on a day school was in regular session (e.g., no in-service or late start). Clarify the width of the ROW available on Rusk Road for a formal right-turn lane at Highway 224. Confirm whether the North Clackamas School District (NCSD) bus barn currently at Alder Creek Middle School will be relocated and, if so, on what timeline.

- **Management of open space tract** – Determine whether the North Clackamas Parks & Recreation District (NCPRD) would be able to either take ownership of the proposed open space tract or manage it if the City took ownership.
- **History of fill and impacts to floodplain** – Confirm whether there is any history of enforcement action related to fill activity on the site. Determine whether the historical fill has been accounted for in the current mapping of floodplain areas.

A few days before the initial May 23 hearing, the applicant submitted a revised site plan that shifted the development to the west to avoid impacts to the existing white oak trees in the southwestern corner of the site (see Figure 1). The number of units remained at 92 as originally proposed, but the street layout changed to include only 1 street connection to Kellogg Creek Drive instead of 2. An alley connection suitable for fire access was proposed between Street B and Kellogg Creek Drive.

See Attachment 3 for a list of the revised materials received from the applicant.

Figure 1. Revised site plan showing trees



A. Recap of Proposal

The applicant is proposing a subdivision to create 92 lots for 4-unit rowhouse development, setting aside much of the floodplain and designated natural resource areas on the site within a large open space tract. The project requires approval of the following applications:

1. Planned Development (master file, #PD-2017-001)
2. Zoning Map Amendment (ZA-2017-001)
3. Subdivision, preliminary plat (S-2017-001)
4. Natural Resource Review (NR-2017-001)
5. Transportation Facilities Review (TFR-2017-001)
6. Variance Request (VR-2017-003)

Note: With the revised site plan, the requested variances have been amended accordingly. The request to vary the driveway spacing standard for Lot 72 is no longer necessary. The number of lots that do not provide adequate buildable area outside the Water Quality Resource (WQR) and Habitat Conservation (HCA) has dropped from 31 to 23. In addition, a variance request to allow more than 20 dwelling units to be served by a closed-loop street system has been added as a result of the revised plan.

7. Community Service Use, minor modification (CSU-2017-001)

B. Land Use Review Process

As per Milwaukie Municipal Code (MMC) Section 19.311, consideration of a Planned Development proposal involves Type IV review and the procedures of MMC Section 19.1007. The Planning Commission is charged with reviewing the proposed development plan and making a recommendation to City Council for consideration in a separate public hearing. At that point, the Council has several decision-making options:

- Adopt an ordinance to apply the Planned Development (PD) zone designation to the site, with the development plan establishing the standards that will apply to the property. Council may adopt the development plan recommended by the Planning Commission or make additional changes.
- Continue the review and refer the matter back to the Planning Commission with recommendations for amendment.
- Reject the proposed development plan and deny the requested zone change.

Although the Commission closed the public testimony portion of the hearing on May 25, since new information will be provided for the July 25 continuation the Commission is required to re-open the hearing for any testimony related to the new information.

The Commission indicated a clear preference for the applicant's revised site plan versus the original site plan. Staff has updated the recommended Findings and Conditions as necessary to reflect the revised site plan (see Attachments 1 and 2, respectively). Depending on the Commission's deliberations, additional adjustments to the Findings and Conditions may be necessary.

KEY ISSUES

Summary

Staff has identified the following key issues for the Planning Commission's deliberation. Aspects of the proposal not listed below will be addressed in the Findings (see Attachment 1, to follow under separate cover) and generally require less analysis and discretion by the Commission.

- A. Options for public ownership of open space tract
- B. Preservation of white oak trees in southwestern corner of site
- C. Floodplain issues and history of fill on the site
- D. Updated traffic counts for Transportation Impact Study
- E. Summary of revised NR impacts
- F. Variance for 92 lots on a closed-loop street system

Analysis

A. Options for public ownership of open space tract

In a memo provided to City staff, the North Clackamas Parks and Recreation District (NCPRD) has confirmed that it is willing to acquire and manage the proposed open space tract (see Attachment 4-c). NCPRD recognizes that the open space tract includes sensitive wetlands and a conservation area that require specialized care and maintenance oversight that are not usually within the capacity of a typical Home Owners' Association (HOA). No funds are available for NCPRD position to purchase the open space tract or to provide System Development Charge (SDC) credits in exchange, but NCPRD would accept the tract if offered at no cost. The District's interest extends only to the open space tract and not to the community garden or play area.

If acquired, NCPRD would manage the tract to be compatible with the master plan for North Clackamas Park, including approval of the location and specifications of the trail. The District would want to review the mitigation plan to ensure compatibility with its approach to wetland restoration, so some changes to the proposed mitigation might be necessary. NCPRD would either accept the tract after the mitigation plantings had been installed and approved by the City or could implement the mitigation plan itself with the funding provided by the developer. The District is also amenable to having the City take ownership of the tract and amending the Intergovernmental Agreement (IGA) as needed to have NCPRD manage and maintain the tract.

The City agrees that an HOA is not the entity best equipped to maintain the site over time. The City Manager's office has confirmed that the City has no funds available to purchase the property but would accept it if donated. The preference is that the City would take ownership of the open space tract (rather than NCPRD) but would have NCPRD manage the area.

If the open space tract remains under control of an HOA, a condition is needed to require Covenants, Conditions, and Restrictions (CC&Rs) and an HOA that will ensure proper maintenance of the tract. The documents shall include a management plan and shall specify that if proper maintenance does not occur, the City has the right to undertake maintenance and may put a lien on all of the properties within the development to pay for all maintenance costs.

B. Preservation of white oak trees in southwestern corner of site

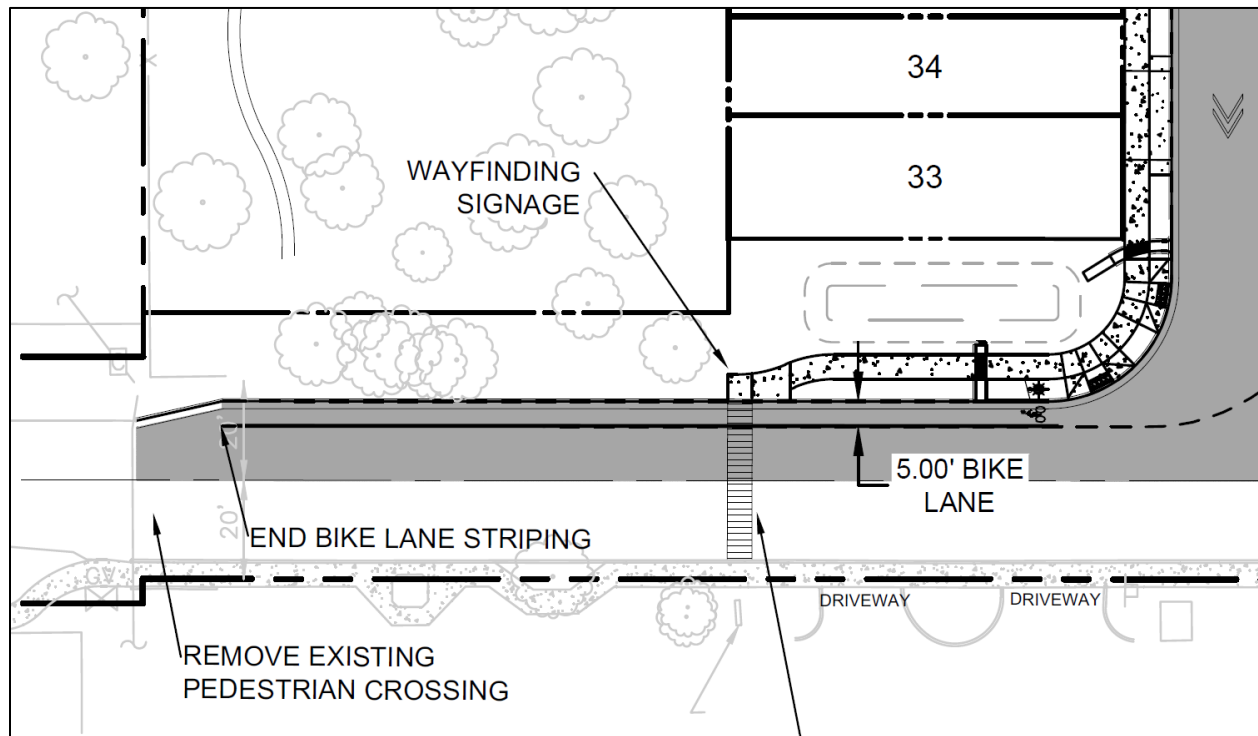
The revised site plan provided by the applicant in advance of the May 23 hearing shifts the development away from the existing white oak trees in the southwestern corner of the site and preserves many of the trees within the proposed open space tract. A retaining wall is proposed along the western edge of Lots 33 to 44. As per the revised plan, development activity on the property itself would not result in any of the white oaks being removed.

The street improvements required along the Kellogg Creek Drive frontage are considered apart from any specific development on the site. Usually, the specific design is worked out at a later stage in the process, when more engineering details are available. In this case, because the oak trees have been a point of public concern it seems appropriate to establish some expectation and/or intention regarding a final design, although a final decision will depend on more detailed information closer to the time of development.

City staff notes that the street improvements originally required along Kellogg Creek Drive—6-ft bike lane, 8-ft parking strip, curb and gutter, 4-ft landscape planter, and 5-ft set-back sidewalk—would have resulted in the removal of 7 or 8 of the white oak trees. However, staff has determined that it is acceptable to eliminate the parking strip, landscape planter, and sidewalk from the northern side of the Kellogg Creek Drive frontage west of the proposed new Street A. The minimum acceptable improvements are a bike lane and curb and gutter along this portion of the Kellogg Creek Drive frontage.

The existing curb-tight sidewalk along this frontage ends where the western property boundary meets the entrance to North Clackamas Park, with a crosswalk to connect pedestrians to the existing sidewalk on the south side of Kellogg Creek Drive. The existing crosswalk would be removed and a new crosswalk constructed just west of the intersection of Street A to connect to the existing sidewalk on the south side of Kellogg Creek Drive. These revisions would preserve the remaining oak trees in the open space tract north of the existing sidewalk and still provide the essential transportation facilities (see Figure 2).

Figure 2. Tree preservation along Kellogg Creek Drive



One creative question from the public was whether the existing 5-ft curb-tight sidewalk could be used as an elevated bike lane, to minimize the need for excavation and the potential for damage to existing tree roots. Elevated bicycle facilities require a way for bikes to enter and exit smoothly at any point, so the existing hard curb would need to be replaced with a mountable curb. A hard curb would be required on the north (tree) side of the existing sidewalk to separate the bike lane from the adjacent space. Most importantly, the minimum width for a bike lane is 6 ft, and the City's engineering standards will not allow the needed width to simply be added on to the existing sidewalk. The sidewalk would need to be removed and replaced and so is essentially unusable as a bicycle facility.

Some excavation near the oak trees will be needed to remove the existing sidewalk and install the bike lane and new curb. There is a chance that the work could damage tree roots near or under the edge of the sidewalk, which might impact long-term health of individual trees. As noted in the applicant's arborist's supplemental memo, some preliminary excavation could be conducted to determine whether any critical roots would be affected (see Attachment 3-f). Given that there is no certainty that any root damage would be substantial enough to directly result in tree mortality, staff believes that the revised public improvement plan presents an acceptably low risk to the white oak trees that will remain in the public right-of-way.

C. Floodplain issues and history of fill on the site

Planning Commissioners and others presenting public testimony raised concerns about the proposal to add fill material within the floodplain, including a question about whether the existing fill on the site was the result of permitted or unpermitted activity that had not been sufficiently mitigated. City staff inquired with staff at the Department of State Lands (DSL), Army Corps of Engineers (ACOE), and Oregon Department of Environmental Quality (DEQ) about a history of permits or enforcement action related to fill activity on the subject property. There is no record of permits issued or enforcement action taken by any of these agencies.

The City's Title 18 establishes flood hazard regulations that require a balancing of fill with removal of an equal volume of material ("cut") from within the floodplain to prevent increased flooding downstream. As part of the later development review process, the applicant will be required to achieve the necessary cut-and-fill balance. The applicant has submitted a floodplain mitigation exhibit showing that there are two different flood zones on the site, with two different base flood elevations (see Attachment 3-d). The exhibit indicates that the volume of proposed fill within the designated floodplain is less than originally thought and demonstrates that it will be balanced as required. The assessment of City staff is that the site provides ample area to adequately balance cut and fill and that the relevant requirements for mitigating flood hazards as per MMC Title 18 can be met.

D. Updated traffic counts for Transportation Impact Study

Both the traffic data and the anecdotes presented at the previous hearings confirm that there are existing traffic problems in the vicinity. As requested by the Commission, the applicant's traffic consultant obtained new counts for three critical intersections (Rusk Road and Highway 224, Rusk Road and Ruscliffe Road, and Rusk Road and Kellogg Creek Drive) on a day that North Clackamas School District (NCSD) schools were open on a regular schedule. The traffic consultant summarized the results of their revised analysis and maintained its previous conclusion that the proposed development will not significantly impact the existing transportation system (see Attachment 3-e).

A review of the supplemental traffic memo by the City's traffic consultant is pending and should be available at the July 25 hearing if not before. In the meantime, staff's assessment continues to be that the anticipated number of trips from the proposed development are consistent with the standard methodology for attached rowhouses. It would be inconsistent with accepted practices of traffic engineering to attribute an adjusted trip generation formula to the proposed rowhouses simply because the developer has asserted that they are intended to be for "workforce housing" or young families or some other specific demographic. It is appropriate to use the estimates and methodology established in the Institute of Transportation Engineers (ITE) Trip Generation manual. Using that methodology, new trips from the proposed development are not forecast to trigger a great enough impact to warrant more than the addition of the right-turn lane on Rusk Road at the intersection with Highway 224.

The narrowest portion of the existing public right-of-way (ROW) on Rusk Road within 75 to 100 ft south of the Highway 224 intersection is approximately 54 or 55 ft, and it widens further as one approaches the intersection. There are approximately 30 ft from the centerline to the eastern ROW boundary, which provides adequate space for 12-ft travel and right-turn lanes.

Regarding the estimated timeline for relocation of the existing bus barn at Alder Creek Middle School, staff has confirmed with NCSD officials there is money allocated to purchase property for a new location for the bus barn. However, a property has not yet been obtained and no money has been allocated to build any facilities on a new site. It appears most likely that the process of relocating the bus barn will be a long and phased one, so it appears most realistic to expect the facility to remain in place for the foreseeable future.

E. Summary of revised NR impacts

In conjunction with the revised site plan, the applicant's natural resources consultant has adjusted the assessment of disturbance to the Water Quality Resource (WQR) and Habitat Conservation Area (HCA) on the site. Taken from Figure 5 of the applicant's revised natural resources report (see Attachment 3-g), Table 1 shows the revised WQR and HCA disturbance figures.

Table 1— WQR and HCA disturbance figures		
Impact Type	Original Proposal	Revised Proposal
Permanent WQR	34,732 sq ft	31,799 sq ft
Wetland Impact (w/i WQR)	3,527 sq ft	1,557 sq ft
Temporary WQR	19,183 sq ft	8,356 sq ft
Permanent HCA	46,355 sq ft	40,684 sq ft
Temporary HCA	15,421 sq ft	5,508 sq ft

The revised proposal presents smaller impacts to the designated resources on the site. City staff continues to disagree with the applicant's division of mitigation areas into one where new native plantings are installed (Mitigation Area A from Figure 9 in Attachment 3-g) and one where only debris and noxious weeds are removed (Mitigation Area B). Although Mitigation Area B includes WQR deemed to be in "Good" condition due to having at least 80% coverage by trees, shrubs, and groundcover, the number of trees 6-in

diameter and greater south of Mount Scott Creek is between 50% and 60%. It seems that there are opportunities within Mitigation Area B for new native trees and shrubs. The three proposed additional enhancement areas are generally farther from the creek and wetland, where additional shade is not as likely to help lower water temperatures. Staff continues to recommend a condition of approval that some of the proposed mitigation plantings be installed within Mitigation Area B.

F. Variance for 92 lots on a closed-loop street system

The revised site plan eliminates one of the original full-street connections between the proposed development and Kellogg Creek Drive and so makes the entire internal street system a closed one served by a single public street. The general standards for streets limit the number of lots served by a closed-end system to 20 (MMC Subsection 19.708.1.E.5). The revised proposal presents all 92 units as being served by a closed-end system, so a variance has been requested.

City staff is not enthusiastic about the closed-end aspect of the revised proposal. It directs all trips in and out of the development to a single access at Kellogg Creek Drive. This could result in extended queuing to exit the development, as well as some cut-through trips into the development through the Turning Point Church parking lot. Fire and emergency access have several ways to get in and out of the development as needed, but an incident closing the single new street at Kellogg Creek Drive would create significant problems for access.

Staff would prefer to see the widening of the proposed 22-ft fire access linking Street B to Kellogg Creek Drive, to reduce these potential conflicts. The recommended widening (to 54 ft, similar to Street A) would result in the loss of approximately 4 additional housing units, but it would be a worthwhile improvement in access and would eliminate the need for a variance. If the Commission agrees, a condition of approval will need to be added.

CONCLUSIONS

Staff's recommendation to the Planning Commission is as follows:

At the May 25 hearing, the Planning Commission asked staff to return with findings for approval of the project with the revised site plan. The recommended Findings and Conditions of Approval (Attachments 1 and 2, respectively) are written with this in mind. At the July 25 hearing, the Commission should deliberate as necessary to come to agreement about what action to recommend the City Council take on the proposed development plan.

Staff believes that the latest iteration of the proposal is generally approvable, taking into account the suggestions noted in the key issue discussion above.

CODE AUTHORITY AND DECISION-MAKING PROCESS

The proposal is subject to the following provisions of the Milwaukie Municipal Code (MMC).

- MMC Section 19.1007 Type IV Review
- MMC Section 19.311 Planned Development Zone (PD)
- MMC Section 19.301 Low Density Residential Zones (including R-10)
- MMC Section 19.302 Medium and High Density Residential Zones (including R-3)
- MMC Section 19.902 Amendments to Maps and Ordinances

- MMC Title 17 Land Division
- MMC Title 18 Flood Hazard Regulations
- MMC Section 19.402 Natural Resources
- MMC Chapter 19.500 Supplementary Development Regulations
- MMC Chapter 19.600 Off-Street Parking and Loading
- MMC Chapter 19.700 Public Facility Improvements
- MMC Title 12 Streets, Sidewalks, and Public Places
- MMC Chapter 13.14 Stormwater Management
- MMC Section 19.904 Community Service Uses
- MMC Section 19.911 Variances
- MMC Chapter 19.1200 Solar Access Protection

This application is subject to Type IV review, which requires the Planning Commission to consider whether the applicant has demonstrated compliance with the code sections shown above and make a recommendation to City Council for a final decision. In Type IV reviews, the Commission assesses the application against review criteria and development standards, evaluates testimony and evidence received at the public hearing, and makes a recommendation to the Council.

The Commission has four decision-making options as follows:

- A. Recommend approval of the application subject to the recommended Findings and Conditions of Approval.
- B. Recommend approval of the application with modifications to the recommended Findings and Conditions of Approval. Such modifications need to be read into the record.
- C. Continue the hearing, to allow for the provision of additional information from the applicant and/or additional deliberation by the Commission. The applicant has provided a waiver to the 120-day clock, adding 60 days to the time the City has to make a final decision. The applicant may need to provide an additional waiver to the 120-day clock in the future, depending on the outcome of the continued hearing.
- D. Recommend denial of the application upon finding that it does not meet approval criteria.

The final decision on these applications, which includes any appeals to the City Council, must be made by October 4, 2017, based on the applicant's 60-day extension of the 120-day clock and in accordance with the Oregon Revised Statutes and the Milwaukie Zoning Ordinance. The applicant can make additional waivers to the time period in which the application must be decided.

COMMENTS

The following is a summary of the comments received by the City since the last public hearing on May 25. See Attachment 4 for further details.

- **Joseph Edge, Director, Oak Grove Community Council** (*follow-up on some of his comments from the May 25 hearing*): There is no guarantee that the market rate for the proposed units will remain within the price range of modest-income people, so the promotion of the proposed units as workforce housing should not be the basis for granting a density bonus. To be more affordable, at least some of the housing should be proposed

as rental units in multifamily buildings. This would also reduce the aggregate footprint of structures on the site and thus further avoid and minimize impacts to natural resources.

The site is not ideal for lower income affordable housing, due to the expense of motor-vehicle ownership and the fact that the lack of safe transportation options at this location means that the people who live at the site will likely have 1 or 2 vehicles and therefore will not likely be lower income people. One suggestion is to have the new Home Owners' Association provide a car-sharing service to help reduce the number of resident-owned vehicles in the new development. Such a car-sharing service, together with a multifamily configuration of buildings to reduce impacts to natural resources, could arguably be viewed as the kind of creative and outstanding amenities that would warrant a density bonus.

- **Chris Runyard, ecological restoration specialist:** It is not the role of the Planning Commission or City staff to ensure that developers make a profit. Ninety-two (92) units are not necessary for the developer to make a profit. The new units will not be “affordable housing” but will be sold at the market rate. The developer would benefit from giving the open space tract to the North Clackamas Parks & Recreation District (NCPRD), so the wetlands should not be negotiated away in exchange for the higher density (92 units). The City does have a responsibility to protect the public good (e.g., wetlands, trees, housing, and reduced flooding) and should be more concerned with protecting natural resources than with the developer’s profit margin.
- **Kathryn Krygier, Planning and Development Manager, North Clackamas Parks & Recreation District (NCPRD):** NCPRD is willing to acquire and manage the proposed open space tract. No funds are available for NCPRD position to purchase the tract or to provide System Development Charge (SDC) credits in exchange, but NCPRD would accept the tract if offered at no cost. The District’s interest extends only to the open space tract and not to the community garden or play area.

If acquired, NCPRD would manage the tract to be compatible with the master plan for North Clackamas Park, including approval of the location and specifications of the trail and review of the mitigation plan. NCPRD would either accept the tract after the mitigation plantings had been installed and approved by the City or could implement the mitigation plan itself with the funding provided by the developer. The District is also amenable to having the City take ownership of the tract and amending the Intergovernmental Agreement (IGA) as needed to have NCPRD manage and maintain the tract.

Pedestrian and bicycle routes through and within the site are critical to the development’s success. To provide for complete connectivity throughout the site, the path shown on the revised site plan where a road was shown on the original plan should be public and meet ADA requirements.

- **Alex Roller, Engineering Tech II, City of Milwaukie Engineering Department:** Revised comments related to the proposed variance to the number of lots allowed to be served by a closed-end street system (MMC Subsection 19.708.1.E.5).

Staff Response: *The Engineering Department’s revised comments are integrated into the Recommended Findings and Conditions as appropriate.*

ATTACHMENTS

Attachments are provided as indicated by the checked boxes. All material is available for viewing upon request.

	PC Packet	Public Copies	E-Packet
1. Recommended Findings in Support of Approval	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
a. Track Changes version			
b. Clean version			
2. Recommended Conditions of Approval	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
a. Track Changes version			
b. Clean version			
3. Additional Information from the Applicant <i>(all materials received July 11, 2017, unless otherwise noted)</i>			
a. Revised Narratives	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1) Minor Modification to CSU, Subdivision, etc.			
2) Planned Development, Variance, Zone Change			
b. Revised Exhibit A – Plan Sheets	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
c. Revised Exhibit E – Drainage Report	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
d. Revised Exhibit E-3 – Floodplain Mitigation Exhibit	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
e. Exhibit G-3 – Supplemental Traffic Memo prepared by Kittleson & Associates (including count data)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
f. Exhibit I-1 – Supplemental Arborist Memo prepared by Morgan Holen & Associates	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
g. Revised Exhibit J – Natural Resource Review report prepared by Pacific Habitat Services	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4. Comments Received			
a. Joseph Edge, Oak Grove Community Council <i>(May 26)</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
b. Chris Runyard, ecological restoration specialist <i>(June 7)</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
c. Kathryn Krygier, North Clackamas Parks & Recreation District <i>(July 11)</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
d. Alex Roller, City Engineering Dept. <i>(July 18)</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5. List of Record	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: The List of Record is maintained and updated throughout the review process and is available for viewing upon request.

Key:

Early PC Mailing = paper materials provided to Planning Commission at the time of public notice 20 days prior to the hearing.

PC Packet = paper materials provided to Planning Commission 7 days prior to the hearing.

Public Copies = paper copies of the packet available for review at City facilities and at the Planning Commission meeting.

E-Packet = packet materials available online at <https://www.milwaukieoregon.gov/planning/planning-commission-174>.

**Recommended Findings in Support of Approval
Master File #PD-2017-001
Kellogg Creek Planned Development**

Sections of the Milwaukie Municipal Code not addressed in these findings are found to be inapplicable to the decision on this application.

1. The applicant, Brownstone Development, Inc., has applied for approval to create a 92-unit Planned Development subdivision on property currently addressed at 13333 SE Rusk Rd. The site is split zoned Medium Density Residential R-3 on the western half and Low Density Residential R-10 on the eastern half. The land use application master file number is PD-2017-001, with accompanying file numbers ZA-2017-001, S-2017-001, NR-2017-001, TFR-2017-001, VR-2017-003, and CSU-2017-001.
2. The subject property is comprised of a single lot that is the result of a recent lot consolidation and property line adjustment process (land use files PLA-2017-001 and LC-2017-001). Previously, the subject property was comprised of four lots totaling 17.55 acres, with the Turning Point Church located in the southeastern corner of the site and addressed as 13333 SE Rusk Rd. Three of the lots on the western side of the original property were consolidated, and the property line between this new lot and the remaining church lot was subsequently adjusted to accurately reflect the location of the church building and accompanying off-street parking areas. The resulting church site is approximately 3.7 acres, and the subject property being subdivided is approximately 13.8 acres.
3. The applicant has proposed to divide the subject property into 92 lots for 4-unit rowhouse development, with tracts for stormwater (3 facilities), open space (nearly 7 acres), a community garden, and a pedestrian connection to Kellogg Creek Drive along the eastern edge of the development. A network of new public streets will provide access to the new development, with two points of vehicle access to Kellogg Creek Drive and pedestrian and bicycle access to an existing sidewalk at the intersection of Rusk Road and Highway 224. Private alleys will provide additional access to the rear of some of the proposed rowhouses. Previously, the church site depended on an access through the subject property; access to the church site will be retained through one of the new public streets. The proposal includes a variance request for locating the driveway access for one of the proposed lots slightly closer to a street intersection than the City code allows.
4. Mount Scott Creek flows across the northern portion of the subject property, and a large wetland (approximately 0.7 acres) is located within the 100-year floodplain designated over most of the western half of the site. Water Quality Resource (WQR) and Habitat Conservation Area (HCA) designations exist around the creek and wetland, and portions of these natural resource areas will be disturbed by the proposed development. The applicant has proposed mitigation plantings within the WQR and HCA and to balance cut and fill within the floodplain. The proposal includes a variance request for configuring several of the new lots in such a way that there is little or no buildable area outside the WQR or HCA.
5. The proposal is subject to the following provisions of the Milwaukie Municipal Code (MMC):
 - MMC Section 19.1007 Type IV Review
 - MMC Section 19.311 Planned Development Zone (PD)
 - MMC Section 19.301 Low Density Residential Zones (including R-10)
 - MMC Section 19.302 Medium and High Density Residential Zones (including R-3)
 - MMC Section 19.902 Amendments to Maps and Ordinances

- MMC Title 17 Land Division
- MMC Title 18 Flood Hazard Regulations
- MMC Section 19.402 Natural Resources
- MMC Chapter 19.500 Supplementary Development Regulations
- MMC Chapter 19.600 Off-Street Parking and Loading
- MMC Chapter 19.700 Public Facility Improvements
- MMC Section 19.904 Community Service Uses
- MMC Section 19.911 Variances
- MMC Chapter 19.1200 Solar Access Protection

6. The application submittal includes a proposed Planned Development, Zoning Map Amendment, Subdivision (preliminary plat), Natural Resource Review, Transportation Facilities Review, Variance Request, and minor modification to the church as an existing Community Service Use. Of all of the application components, the Planned Development and Zoning Map Amendment require the highest level of review (Type IV); as per MMC Subsection 19.1001.6.B, all are being processed with Type IV review.

The application has been processed and public notice provided in accordance with MMC Section 19.1007 Type IV Review. As required by MMC Subsection 19.1002.2, a preapplication conference was held on August 11, 2016. Public notice was sent to property owners and current residents within 500 ft of the subject property. MMC Subsection 19.1007.3.D requires a 400-ft radius for public notice, but the applicant requested a broader notice radius to correspond with the notice sent for the applicant's voluntary neighborhood meeting prior to submittal. As required by law, a public hearing with the Planning Commission was held-opened on May 23, 2017; continued to May 25; continued again to June 27 (where it was only nominally re-opened); and continued again to July 25, 2017. The Planning Commission hearing resulted in a recommendation for final decision by the City Council. A public hearing with the City Council was held on [month/day], 2017, as required by law.

These findings are worded to reflect the City Council's role as final decision-maker; they represent the Planning Commission's recommendation to the City Council.

7. MMC Chapter 19.300 Base Zones

As a Planned Development, the proposed subdivision is subject to the requirements for Planned Developments as established in MMC Section 19.311. The Planned Development (PD) zone is a superimposed zone applied in combination with regular existing zones. The subject property is split-zoned R-10 and R-3, so the underlying zone requirements of MMC Sections 19.301 and 19.302, respectively, are relevant and must be addressed as well.

- a. MMC Section 19.311 Planned Development Zone (PD)

The purpose of a Planned Development (PD) zone is to provide a more desirable environment than is possible through the strict application of Zoning Ordinance requirements, encouraging greater flexibility of design and providing a more desirable use of public and private common open space. PD zones can promote variety in the physical development pattern of the city and encourage a mix of housing types.

- (1) MMC Subsection 19.311.2 Use

The City Council approves the final development plan of a PD zone, in consideration of the proposal's conformance to the following standards:

(a) Conformance to the City's Comprehensive Plan

As addressed in more detail in Finding 8, the proposed Planned Development conforms to the City's Comprehensive Plan and is consistent with the relevant policies and goals.

(b) Formation of a compatible and harmonious group

As proposed, the development will provide 92 single-family attached units in the form of 23 four-unit rowhouses. Approximately half of the units will be alley-loaded, with driveways and garages located in the rear; the other half will be front-loaded, with driveways and garages accessing the streets. Although the two types of structures will have different front facades, according to the applicant's submittal materials, the size, orientation, architecture, color palette, and articulating features will be similar and will lend a sense of group compatibility.

(c) Suitability to the capacity of existing and proposed community utilities and facilities

The existing public utilities and facilities in the vicinity of the subject property are all of sufficient size and capacity to support the proposed development. As required, the new streets and utilities provided within the proposed development itself will be suitable to serve it.

(d) Cohesive design and consistency with the protection of public health, safety, and welfare in general

The proposed street network, comprised of public streets, a public alley, and pedestrian and bicycle paths, is cohesively designed and meets the various applicable City standards for spacing and sight-distance. Frontage improvements on the new public streets and along the subject property's frontage on Kellogg Creek Drive, including sidewalks, landscaping, and streetlights will meet applicable City standards. A soft-surface trail system through a portion of the open space area will offer recreational opportunities while limiting impacts to natural areas.

(e) Affordance of reasonable protection to the permissible uses of properties surrounding the site

No commercial or other nonresidential uses are proposed as part of the development. Surrounding properties are zoned for low-density residential uses, and the proposed development will not limit any future development or redevelopment of those properties. Access to the adjacent church site will be modified to allow a safe connection to Kellogg Creek Drive through the new street system of the proposed development. Future redevelopment of the church site may require further modifications to its access, but the proposed development does not preclude such redevelopment. The northern portion of the site, which is adjacent to the rear of several residential lots on Kayla Court, will not be accessible across Mount Scott Creek and will not present any new impacts as a result of the proposed development.

(2) MMC Subsection 19.311.3 Development Standards

MMC 19.311.3 establishes that the various applicable standards and requirements of MMC Title 19, including those of the underlying zone(s), are

applicable in a PD zone, unless the Planning Commission grants a variance from said standards in its approval of the PD or the accompanying subdivision plat. The City Attorney has concurred with the conclusion of City staff that a formal variance request is not required for adjustments related to the flexibility inherent in the stated purpose of the PD zone to encourage greater flexibility of design and provide a more efficient and desirable use of common open space, with an allowance for some increase in density as a reward for outstanding design (e.g., housing type, lot size, lot dimension, setbacks, and similar standards).

(a) Minimum Size of a PD Zone

MMC Subsection 19.311.3.A requires a minimum of 2 contiguous acres of land for a Planned Development.

The subject property is approximately 13.8 acres in size and provides an adequate area for development.

(b) Special Improvements

MMC Subsection 19.311.3.B establishes the City's authority to require the developer to provide special or oversize sewer lines, water lines, roads and streets, or other service facilities.

The City's Engineering Department has determined that no special or oversize facilities are required to ensure that the proposed development provides adequate public facilities.

(c) Density Increase and Control

MMC Subsection 19.311.3.C allows an increase in density of up to 20% above the maximum allowed in the underlying zone(s), if the City Council determines that the proposed Planned Development is outstanding in planned land use and design and provides exceptional advantages in living conditions and amenities not found in similar developments constructed under regular zoning.

Subtracting the area occupied by floodplain, proposed rights-of-way, and required open space, as required by the density-calculation standards provided in MMC Subsection 19.202.4, the maximum allowable density for the net area of the subject property is 80 units. The applicant has proposed a total of 92 units, which is a 15% increase. The applicant has listed the following elements as evidence of the project's outstanding design and exceptional advantages:

- *Over 7 acres of open space, which will protect natural resource and floodplain areas on the site and provide recreational opportunities with a soft-surface trail system. Staff notes that, to ensure ongoing maintenance of the open space, the area should either be dedicated to the City or North Clackamas Parks & Recreation District or that a Home Owners' Association be established with Covenants, Conditions, and Restrictions that require ongoing maintenance.*
- *Overall site design that provides a sense of openness and visual permeability between the natural open space tract and the*

residential lots, nearly half of which will have backyards that are directly adjacent to the open space

- *Unfenced stormwater facilities planted with low-lying grasses that maintain views of the open space and provide connection points between the trail system and the rest of the development*
- *A community garden for use by residents, located in the northeastern portion of the site*
- *Trees planted as screening between Highway 224 and the adjacent lots in the northeast corner of the site*
- *92 units of attached single-family housing offered at a price point that is affordable for working people with moderate incomes*
- *Compact development in proximity to a large public park (North Clackamas Park) and with access to a major roadway (Highway 224)*

The applicant has asserted that, without the Planned Development process, the site would be difficult to develop at a level that would meet the City's minimum density standard, at least without resulting in greater impacts to the designated natural resources on the site and a loss of some of the proposed amenities like the soft-surface trails and community garden. In effect, the proposed development is outstanding by virtue of being the only practicable and feasible layout for the site that provides new housing targeted at working people with moderate incomes.

As per the recommendation of the Planning Commission, the City Council finds that the proposed development provides sufficiently outstanding design features and extraordinary amenities to justify the proposed density increase.

(d) Peripheral Yards

MMC Subsection 19.311.3.D requires that yards along the periphery of any Planned Development zone be at least as deep as the front yard required in the underlying zone(s). Open space may serve as peripheral yard.

The front yard requirements of the underlying zones are 20 ft for R-10 and 15 ft for R-3. The large open space tract on the north and west sides of the proposed development provides a buffer of well over 20 ft. Where the proposed development is adjacent to the church property on the east, a 22-ft-wide public alley provides a peripheral buffer for Lots 45 and 537, and the 20-ft-wide pedestrian connection on tracts E and F provides a peripheral buffer for Lots 1 and 17. The pedestrian-bicycle connection between the cul-de-sac and the sidewalk at Rusk Road, in the northeastern corner of the site, provides 15 ft of separation for Lot 92; together with the proposed 5-ft side yard, a total of 20 ft will be provided as a buffer for this lot.

(e) Open Space

MMC Subsection 19.311.3.E requires that a Planned Development set aside land as open space, for scenic, landscaping, or other recreational purposes within the development. A minimum of one-third of the gross area

of the site must be provided as open space and/or outdoor recreational areas, with at least half of this area being of the same general character as the area containing dwelling units.

The gross area of the subject property is approximately 13.8 acres, so a minimum of 4.6 acres must be provided as open space, with at least 2.3 acres available for recreational purposes. The applicant has proposed to establish an open space tract of approximately 7 acres, with a soft-surface trail system making approximately 2.5 acres available for recreation.

(3) MMC Subsection 19.311.6 Planning Commission Review of Preliminary Development Plan and Program

MMC 19.311.6 establishes that the Planning Commission shall review an applicant's preliminary development plan and program for a PD and shall notify the applicant whether the proposal appears to satisfy the provisions of this section or has any deficiencies. Upon the Commission's approval in principle of the preliminary plan and program, the applicant shall file a final development plan and program and an application for zone change.

The applicant has submitted a development plan and program for the proposed PD and has requested that the Commission consider it to be the final development plan and program submittal, along with the accompanying application for zone change.

(4) MMC Subsection 19.311.8 Subdivision Plat

MMC 19.311.8 requires that the submittal of a final development plan and program be accompanied by an application for subdivision preliminary plat, where the PD involves the subdivision of land.

The proposal involves a 92-unit subdivision, and the applicant has included an application for subdivision preliminary plat with the submittal of a final development plan and program.

(5) MMC Subsection 19.311.9 Application for Zone Change

MMC 19.311.9 requires that an application for zone change accompany the submittal of a final development plan and program.

Along with the final development plan and program, the applicant has included an application for zone change to apply the PD zone to the subject property.

(6) MMC Subsection 19.311.10 Planning Commission Action on Final Development Plan and Program

MMC 19.311.10 requires that the Planning Commission hold a public hearing using Type IV review to consider a final development plan and program, zone change application, and subdivision preliminary plat. If the Planning Commission finds that the final development plan and program is in compliance with the preliminary approval and with the intent and requirements of the applicable provisions of the zoning ordinance, it shall forward a recommendation for approval to the City Council for adoption.

As required, the Planning Commission held a public hearing on May 23, 2017, in accordance with the Type IV process outlined in MMC Section 19.1007 and considered the proposed development plan and program, zone change application, subdivision preliminary plat, and other accompanying reviews. The

Planning Commission found that the development plan and program is in compliance with the intent and requirements of the applicable provisions of MMC Title 19 Zoning and forwarded a recommendation of approval to the City Council for adoption.

(7) MMC Subsection 19.311.11 Council Action on Final Development Plan and Program

MMC 19.311.11 requires that the City Council consider the final development plan and program and zone change application through the Type IV review process, upon receipt of a recommendation from the Planning Commission. Upon consideration of the proposal, the Council may adopt an ordinance applying the PD zone to the subject property and adopt the final development plan and program as the standards and requirements for that PD zone. The Council may also continue consideration and refer the matter back to the Planning Commission with recommendations for amendment, or may reject the proposal and abandon further hearings and proceedings.

The Council considered the final plan and program and zone change application, as well as the accompanying applications for subdivision preliminary plat and associated reviews, in accordance with the Type IV review process outlined in MMC Section 19.1007. The Council held a public hearing on [month/day], 2017, and adopted an ordinance applying the PD zone to the subject property, which adopted the final development plan and program as the standards and requirements for the new PD zone (Ordinance #####).

The City Council finds that the applicable standards and requirements of MMC 19.311 are met. As per Ordinance #####, the final development plan and program is adopted as the standards and requirements and the PD zone designation is applied to the subject property.

b. MMC Sections 19.301 Low Density Residential Zones (including R-10) and 19.302 Medium and High Density Residential Zones (including R-3)

The subject property is split-zoned Residential R-10 and Residential R-3. MMC 19.301 and 19.302 establish the allowable uses and development standards for the residential R-10 and R-3 zones, respectively. As noted in Finding 7-a(2), although the underlying zone standards are primarily applicable, the PD zone allows adjustment to some of those standards. This applies to such underlying zone limitations as housing type, lot size, lot dimension, setbacks, and similar standards that relate to flexibility of design, greater efficiency in the use of common open space, and minor increases in density allowed as a reward for outstanding design.

(1) Permitted Uses

As per MMC Table 19.301.2, rowhouse development is not a permitted use in the R-10 zone; rowhouses are an outright permitted use in the R-3 zone (as per MMC Table 19.302.2). As noted in Finding 7-a, the primary purposes of the PD zone include encouraging greater flexibility of design and providing a more efficient use of common open space, so housing types not ordinarily permitted in the base zone may be proposed.

The applicant has proposed a 92-unit development comprised of 23 four-unit rowhouse buildings. The proposed design maximizes the development potential of the subject property, providing a public street network and utility infrastructure

while minimizing impacts to the natural resource and floodplain areas on the site, which will remain protected in open space.

(2) Lot and Development Standards

The applicant has proposed to apply a single set of lot and development standards across the entire site, which is zoned R-3 on the western half and R-10 on the eastern half. As discussed in Finding 7-a(2), above, adjustments to underlying zone standards that are related to the flexibility of design afforded by the PD process are allowed and do not require a formal variance request. Table 7-b(2) compares the applicable standards for development in the R-10 and R-3 zones with the standards proposed as the final development plan and program for this PD zone.

Standard	R-10 Requirement	R-3 Requirement ¹	Proposed PD Requirement
1. Minimum Lot Size	10,000 sq ft	3,000 sq ft	Lots range from 1,600 sq ft to approx. 2,420 <u>500</u> sq ft
2. Minimum Lot Width	70 ft	30 ft	Lot widths range from 48-20 ft to 34 <u>28</u> ft
3. Minimum Lot Depth	100 ft	80 ft	Lot depths range from 80 to 94 <u>87.25</u> ft
4. Minimum street frontage	35 ft	30 ft	Typical range is 20 to 25 ft; two-three lots on cul de sac are <20 ft
5. Front Yard	20 ft	15 ft	Front-loaded lots = 18 ft Alley-loaded lots = 10 ft to 14 ft
6. Side Yard	10 ft	0 ft (common) 5 ft (exterior)	Common wall = 0 ft Exterior wall = 5 to 6 ft
7. Street-Side Yard	20 ft	15 ft	5 ft to 7 <u>8</u> ft
8. Rear Yard	20 ft	15 ft	Front-loaded lots = 15 ft Alley-loaded lots = 18-20 ft
8. Maximum Building Height	2.5 stories or 35 ft (whichever is less)	2.5 stories or 35 ft (whichever is less)	2 stories, <35 ft
9. Side yard height plane limit	45 degree slope at 20 ft height	45 degree slope at 20 ft height	≤20 ft
10. Maximum lot coverage	30%	40% (+20% for rowhouses)	Lots range from 46% to 59%
11. Minimum vegetation	35%	35%	Small vegetated areas on each lot, with access to large open space area to west
12. Front yard minimum vegetation	40%	40%	Front yard areas not occupied by driveways and walkways will be vegetated

13. Minimum density	3.5 units per acre	11.6 units per acre	Minimum of 66 units for entire site
14. Maximum density	4.4 units per acre	14.5 units per acre	Maximum of 80 units for entire site (Applicant has requested a 15% density increase to a total of 92 units)

¹ R-3 requirements from MMC Table 19.302.2 for rowhouses

The lot and development standards that will govern development on the subject property are shown in Table 7-b(2) and effectively establish a component of the final development plan and program for this PD zone.

8. MMC Section 19.902 Amendments to Maps and Ordinances

MMC 19.902 establishes the process for amending the City's Comprehensive Plan and land use regulations, including the zoning map. Specifically, MMC Subsection 19.902.6 establishes the review process and approval criteria for zoning map amendments.

a. MMC Subsection 19.902.6.A Review Process

MMC 19.902.6.A provides that, generally, changes to the zoning map that involve 5 or more properties or encompass more than 2 acres of land are legislative and are therefore subject to Type V review; otherwise, they are quasi-judicial in nature and subject to Type III review. The City Attorney has the authority to determine the appropriate review process for each proposed zoning map amendment.

The proposed zoning map amendment encompasses a single property of approximately 13.8 acres and is related to a proposed planned development, which requires Type IV review. The City Attorney has determined that the proposed zoning map amendment is quasi-judicial in nature and requires Type III review. The concurrent planned development requires Type IV review, which is also a quasi-judicial process. The City Council finds that the Type IV review process is appropriate for the proposed zoning map change.

b. MMC Subsection 19.902.6.B Approval Criteria

MMC 19.902.6.B establishes the following approval criteria for zoning map amendments:

- (1) The proposed amendment is compatible with the surrounding area based on the following factors:
 - (a) Site location and character of the area
 - (b) Predominant land use pattern and density of the area
 - (c) Expected changes in the development pattern for the area

The area surrounding the subject property includes North Clackamas Park and low to moderate density residential development, as well as the Deerfield Village assisted living center (40 apartment units) located directly across Kellogg Creek Drive from the site. The proposed development will preserve over half of the site area as natural open space with access through soft-surface trails for low-impact recreational use. The location offers easy access to Highway 224, North Clackamas Park, several nearby schools, and employment centers along the Highway 224 and Interstate 205 corridors.

The 92 units of proposed rowhouses will be arranged in a compact pattern accessible by fully constructed local streets, with landscape strips, street trees, and on-street parking. Although the residential portion of the proposed development will be more dense than most of the surrounding neighborhood, the Deerfield Village assisted living center is similar in density and aesthetic to an apartment or multifamily development. The proposed development is consistent with the single-family attached housing that Milwaukie's 2016 Housing Needs Analysis predicts will be developed over the next 20 years.

The proposed zoning amendment is compatible with the surrounding area based on the factors listed above.

- (2) The need is demonstrated for uses allowed by the proposed amendment.

The draft 2016 Housing Needs Analysis prepared for Milwaukie notes a particular need for single-family attached units like the proposed rowhouses.

- (3) The availability is shown of suitable alternative areas with the same or similar zoning designation.

Functionally, the PD designation is a form of overlay zone designation that can be applied to sufficiently sized properties for greater flexibility in developing the site. This criterion is more applicable to standard base zone designations and is intended to ensure that a suitable number of other properties with the same base zone designation will remain available for development.

This criterion is not applicable to a proposal to add the PD designation to a base zone.

- (4) The subject property and adjacent properties presently have adequate public transportation facilities, public utilities, and services to support the use(s) allowed by the proposed amendment, or such facilities, utilities, and services are proposed or required as a condition of approval for the proposed amendment.

The applicant's submittal materials include a traffic impact study, utility plans, and preliminary stormwater drainage report to demonstrate that public facilities are or will be made adequate to serve the proposed development.

Existing water and sanitary sewer services in Kellogg Creek Drive are provided by Clackamas River Water (CRW) and Clackamas County's Water and Environment Services (WES), respectively, and are adequate to serve the proposed new units. Within the public rights-of-way that will serve the proposed development, new water and sanitary sewer mains will be constructed as per City standards and will be maintained by the City, though they will connect to the CRW and WES facilities in Kellogg Creek Drive.

The applicant proposes to manage stormwater runoff from the new public streets with three large, shallow bioswale facilities. The applicant's preliminary drainage report, prepared by a qualified professional engineer, explains in more detail how stormwater will be managed and demonstrates that post-development runoff will not exceed the applicable pre-development standards.

Within the newly dedicated public rights-of-way that will serve the proposed lots, public streets will be constructed to meet applicable City standards, with paved travel lanes, curb and gutter, landscape planter strips, and sidewalks. On Kellogg Creek Drive along the subject property frontage, the existing right-of-way will be also be improved to provide the required width travel lane, striped

bicycle lane, on-street parking strip, curb and gutter, landscape planter strip, and setback sidewalk.

The subject property and adjacent properties presently have adequate public transportation facilities, public utilities, and services to support the proposed development.

- (5) The proposed amendment is consistent with the functional classification, capacity, and level of service of the transportation system. A transportation impact study may be required subject to the provisions of Chapter 19.700.

The applicant prepared a traffic impact study (TIS) to evaluate the proposed development's anticipated impacts on the transportation system. The TIS concluded that traffic volumes from the proposed development will not cause any of the intersections in the study area to fall below acceptable levels of service.

As discussed in Finding 14-~~xxc~~, the City's traffic consultant has reviewed the applicant's TIS and concluded that, with the exception of one error related to measurement of the northbound right-turn lane on Rusk Road at the Highway 224 intersection, the methodology and conclusions of the TIS are sound. As proposed, the northbound right-turn leg of the Rusk Road/Highway 224 intersection would fall below the acceptable level of service. A condition has been established to require extension of the northbound right-turn lane on Rusk Road so the Highway 224 intersection maintains an acceptable level of service.

As conditioned, the proposed amendment is consistent with the functional classification, capacity, and level of service of the transportation system.

- (6) The proposed amendment is consistent with the goals and policies of the Comprehensive Plan, including the Land Use Map.

The Land Use Map within the City's Comprehensive Plan (Comp Plan) reflects the split zoning of the subject property, with a Low Density designation for the portion zoned R-10 and a Medium Density designation for the portion zoned R-3. The proposed amendment would add the Planned Development (PD) designation to each of the zone designations for the subject property but would not affect the designations on the Land Use Map.

The Comp Plan includes a number of goals and policies that are applicable to the proposed development.

(a) *Chapter 1 Citizen Involvement*

The goal of Chapter 1 is to encourage and provide opportunities for citizens to participate in all phases of the planning process. Prior to submitting the application, the applicant held an open meeting to present and discuss the project. The Lake Road Neighborhood District Association and to property owners and residents within 500 ft of the site were invited. According to the applicant's submittal materials, approximately 30 people attended the meeting, held on November 3, 2016. The applicant noted the various concerns raised by neighbors and has noted that several aspects of the original plan were revised as a result.

The Type IV review process utilized for consideration of any Planned Development provides for public hearings by both the Planning Commission and City Council, where citizens have the opportunity to

present testimony and participate in the decision-making process. A public hearing on the proposed development was ~~held~~ opened by the Planning Commission on May 23, 2017; ~~and was continued to [month/day] May 25, 2017; continued again to June 27 (where it was only nominally re-opened); and continued again to July 25, 2017.~~ A public hearing was held by the City Council on [month/day], 2017. The Commission and Council considered testimony from citizens en route to reaching the decision reflected in these findings.

(b) Chapter 2 Plan Review and Amendment Process

The goal of Chapter 2 is to establish a process for review and amendment of the Comp Plan, as a basis for land use decisions and with public participation. Policies related to the objective of implementing the Comp Plan include a requirement that zone changes and other planning actions be consistent with the intent of the Comp Plan. The applicant's narrative and supporting materials are evidence of the required review process at work, with opportunities for public involvement at Commission and Council hearings as noted above.

(c) Chapter 3 Environmental and Natural Resources

Chapter 3 focuses on conservation of the City's remaining natural resources.

(i) Natural Hazards Element

The goal of the Natural Hazards element is to provide appropriate safeguards for development in areas of known natural hazards, such as floodplains. Policies include the direction to establish regulations to prevent development from increasing stormwater runoff and standards to ensure the strength and quality of construction materials within the floodplain. The finished elevations of the lowest floors of buildings and streets must be a minimum of 1 ft above the 100-year flood elevation, and actions are encouraged to retain the floodplain as minimally undeveloped open space.

The subject property includes a designated floodplain area, and the proposed development involves some alteration of the floodplain. As discussed in Finding 10, the applicant proposes to balance the amount of fill that will be added within the floodplain with the removal of an equal amount of material. The fill will raise those areas of residential construction and streets at least 1 ft above the base flood elevation. The remaining floodplain areas on the site will be included in a large open space tract.

(ii) Open Spaces, Scenic Areas, and Natural Resources Element

The goal of the Open Spaces element is to conserve open space and protect and enhance natural resources to create an aesthetically pleasing urban environment. Policies include the protection of natural resources through conservation and mitigation, designation of riparian area buffers, regulation of the placement and design of stormwater drainage facilities, and protection of existing upland areas and values related to wildlife habitat and erosion control.

As discussed in more detail in Finding 11, the applicant's submittal materials include a natural resource report that analyzes practicable alternatives to the proposed development and demonstrates that its proposal does the most to avoid impacts to the WQR and HCA parts of the site, minimizes impacts where unavoidable, and sufficiently mitigates for the allowed disturbance. The applicant's submittal materials include a preliminary drainage report that explains how the proposed stormwater management facilities are designed to ensure that post-development runoff will not exceed pre-development levels.

(d) Chapter 4 Land Use

Chapter 4 provides objectives and policies to guide the development of vacant lands and redevelopment of existing features, considering a variety of needs such as housing, employment, and recreation.

(i) Residential Land Use and Housing Element

The goal of the Residential Land Use element includes the provision of new housing that is adequate to meet the needs of local residents and the regional housing market.

Policies related to buildable lands include the use of zoning to implement the policies and standards of various other elements of the Comp Plan and requirement of a report demonstrating consistency with the policies of Chapter 3 (Environmental and Natural Resources) for sites with special resource designations. Policies related to residential land use design include an allowed density bonus of up to 20% for Planned Unit Developments in exchange for exceptional design quality or special project amenities, a requirement that Planned Unit Developments provide areas dedicated to open space and/or outdoor recreation, and encouragement for preservation of existing tree canopy and connected vegetated corridors. Policies related to housing choice include the development of larger subdivisions and Planned Unit Developments that use innovative techniques for the purpose of reducing housing costs while creating an attractive living environment.

The applicant's narrative includes an address of the proposal's consistency with the various applicable goals, objectives, and policies of the Comp Plan, including those of Chapter 3. As addressed in Finding 7-a-(2)(c), the applicant has proposed a density increase of 15%, based on the exceptional design and special amenities of the proposed development. The proposed development includes nearly half of the overall site retained as open space, with the developable lots configured in such a way as to preserve as many of the existing trees on the site as practicable and to avoid impacts to the riparian corridor along Mount Scott Creek. The applicant asserts that the number of proposed lots will create a certain economy of scale that will allow the new units to be sold at an affordable price and meet one of the community's housing needs.

(ii) Recreational Needs Element

The goal of the recreational needs element is to provide for the recreational needs of current and future city residents by maximizing the use of existing public facilities, encouraging the development of private recreational facilities, and preserving the opportunity for future public recreational use of vacant private lands.

The subject property is adjacent to the eastern edge of North Clackamas Park, and future residents in the proposed development will have easy access to this existing public facility. Within the proposed open space tract, a soft-surface trail system will be available for recreational use by both future residents and the public at large (through a public access easement).

(e) *Chapter 5 Transportation, Public Facilities, and Energy Conservation*

Chapter 5 addresses the City's responsibility to provide its current and future residents with a full range of urban services, including streets, sewer, and water.

(i) *Transportation Element*

The City's Transportation System Plan (TSP) is an ancillary Comp Plan document that contains the City's long-term transportation goals and policies. The applicant's TIS demonstrates consistency with the TSP and asserts that the proposed development will not result in significant impacts to the surrounding transportation system. As discussed in Finding 14-xx, the City's traffic consultant has reviewed the applicant's TIS and concluded that, with the exception of one error related to measurement of the northbound right-turn lane on Rusk Road at the Highway 224 intersection, the methodology and conclusions of the TIS are sound. A condition has been established to address this error.

(ii) *Public Facilities and Services Element*

The goal of the Public Facilities element is to provide for the orderly and efficient arrangement of public facilities and services to serve urban development. The proposed development includes the extension of existing water and sewer services to serve the new lots, as well as stormwater facilities designed to ensure that post-development runoff does not exceed pre-development levels.

(iii) *Energy Conservation Element*

The goal of the Energy Conservation element is to conserve energy by encouraging energy-efficient land use patterns and transportation systems. The proposed development is a compact arrangement of 92 units of rowhouse housing that is located close to large employment corridors across Highway 224 and along Interstate 205.

As conditioned, the proposed amendment is consistent with the goals and policies of the Comprehensive Plan, including the Land Use Map.

- (7) The proposed amendment is consistent with the Metro Urban Growth Management Functional Plan and relevant regional policies.

The Metro Urban Growth Management Functional Plan includes a number of titles that address various aspects of the region's goals and policies for urban development.

(a) *Title 1 Housing Capacity*

The proposed development will provide a large number of needed housing units in a compact urban form.

(b) *Title 3 Water Quality and Flood Management*

The proposed development is configured to avoid and/or minimize impacts to the designated natural resources on the site. Proposed alterations to the floodplain will be done in accordance with local and federal requirements.

(c) *Title 7 Housing Choice*

The proposed development will provide single-family attached housing and will support Metro's policies for expanding housing choice with a needed housing type in Milwaukie.

(d) *Title 13 Nature in Neighborhoods*

The proposed development supports Metro's policies for conserving and enhancing habitat areas by avoiding and minimizing impacts to the designated natural resources on the site, as well as by establishing a large open space tract that includes wetlands, floodplain, existing mature native trees, and the riparian corridor along Mount Scott Creek.

The proposed amendment is consistent with the Metro Urban Growth Management Functional Plan and relevant regional policies.

- (8) The proposed amendment is consistent with relevant State statutes and administrative rules, including the Statewide Planning Goals and Transportation Planning Rule.

Several of the Statewide Planning Goals are relevant to the proposed amendment:

(a) *Goal 2 Citizen Involvement*

Prior to submitting the application, the applicant held an open meeting to present and discuss the proposed development with neighbors. The applicant made several revisions to the original concept plan as a direct result of the discussion at that meeting. The Type IV review process for Planned Development proposals requires public hearings with both the Planning Commission and the City Council, allowing additional opportunities for citizens to submit written and oral testimony before the decision-makers. A public hearing on the proposed development was held by the Planning Commission on May 23, 2017, and was continued to [month/day], 2017; a public hearing was held by the City Council on [month/day], 2017.

(b) *Goal 5 Natural Resources*

The proposed development is subject to the applicable standards of MMC Section 19.402 Natural Resources, which provide protections for designated natural resource areas. As discussed in more detail in Finding 11, the applicant has proposed to avoid impacts to WQR and HCA parts of

the site as much as practicable, to minimize impacts where unavoidable, and to sufficiently mitigate for the allowed disturbance.

(c) *Goal 7 Areas Subject to Natural Hazards*

The subject property includes a significant area of floodplain. As addressed in Finding 10, the applicant proposes substantial alteration of the floodplain in accordance with local and federal requirements, including the provision that the amount of fill material placed in the floodplain must be balanced by an equal removal of material from within the floodplain.

(d) *Goal 12 Transportation and Transportation Planning*

As addressed in Finding 14 and elsewhere in these findings, with the conditioned correction of one minor error noted by City staff, -the applicant's TIS demonstrates that the proposed development will not require changes to the functional classification of existing or planned transportation facilities and will not result in significant impacts on the transportation system.

As conditioned, the proposed amendment is consistent with relevant State statutes and administrative rules, including the Statewide Planning Goals and Transportation Planning Rule.

The proposed amendment, as conditioned, is consistent with the applicable criteria for zoning map amendments.

As conditioned, the City Council finds that the proposed amendment to the City's Zoning Map is approvable.

9. MMC Title 17 Land Division

MMC Title 17 establishes the City's regulations and procedures for lot consolidations, land divisions, property boundary changes, and creation of streets and rights-of-way. As per MMC Section 17.04.050, all decisions on boundary changes and land divisions expire 1 year after the date of approval, with one 6-month extension allowed upon submission of a formal request to the original decision-making authority.

a. MMC Chapter 17.12 Application Procedure and Approval Criteria

MMC 17.12 establishes the application procedures and approval criteria for land divisions and property boundary changes. Specifically, MMC Subsection 17.12.020.E provides that applications for subdivision preliminary plat are subject to Type III review.

MMC Section 17.12.040 establishes the following approval criteria for preliminary plat:

- (1) The proposed preliminary plat complies with Title 19 of this code and other applicable ordinances, regulations, and design standards.

The proposed preliminary plat is for a planned development subdivision of 92 lots for rowhouse development, with tracts for stormwater facilities, open space, a community garden, and a pedestrian connection to Kellogg Creek Drive along the eastern edge of the development. The subject property is a 13.8-acre parcel that was created from a larger 17.5-acre property by a Property Line Adjustment and Lot Consolidation application (file #s PLA-2017-001 and LC-2017-001) approved in May 2017.

As addressed throughout these findings, the proposed subdivision complies with the applicable standards of Title 19 and other applicable ordinances, regulations, and design standards.

The Planning Commission City Council finds that this standard is met.

- (2) The proposed division will allow reasonable development and will not create the need for a variance of any land division or zoning standard.

The proposed division will allow reasonable development on all developable lots, without creating the need for any additional variances of land division or zoning standards beyond those addressed in these findings.

The Planning Commission City Council finds that this standard is met.

- (3) The proposed subdivision plat name is not duplicative and the plat otherwise satisfies the provisions of ORS 92.090(1).

The proposed subdivision name, Kellogg Creek, is not duplicative, and the plat otherwise satisfies the provisions of ORS 92.090(1).

The Planning Commission City Council finds that this standard is met.

- (4) The streets and roads are laid out so as to conform to the plats of subdivisions already approved for adjoining property as to width, general direction, and in all other respects unless the City determines it is in the public interest to modify the street or road pattern.

The Whitman's Lake-East Heights subdivision of 2001 is adjacent to the subject property to the north, across Mount Scott Creek from the proposed development. The Whitman's Lake-East Heights subdivision includes a public street (Madeira Drive) that bends away from the subject property and does not provide a connection point to the subject property. The proposed development does not include a crossing of Mount Scott Creek nor any developable lots or streets adjacent to the adjoining subdivision to the north.

The Planning Commission City Council finds that this standard is not applicable.

- (5) A detailed narrative description demonstrating how the proposal conforms to all applicable code sections and design standards.

The applicant has provided a detailed narrative description that demonstrates how the proposal conforms to all applicable standards and addresses variance requests as needed.

The Planning Commission City Council finds that this standard is met.

The Planning Commission City Council finds that the applicable procedures and approval criteria for the proposed subdivision, as outlined in MMC 17.12, are met.

b. MMC Chapter 17.16 Application Requirements and Procedures

MMC 17.16 establishes application requirements for land divisions and property boundary changes, including for preliminary plat for subdivision. The application must include all required forms and fees, as well as the information specified on the Submittal Requirements and Preliminary Plat checklists.

The applicant's submittal materials include all required forms and fees for the proposed subdivision, as well as plan sheets, narratives addressing the various applicable standards and criteria, and supporting documents and reports.

The ~~Planning Commission~~ City Council finds that the application requirements and procedures of MMC 17.16 are met.

c. MMC Chapter 17.20 Preliminary Plat

MMC 17.20 establishes the information required with the preliminary plat, including existing and proposed conditions, a drainage summary report, proposed deed restrictions (if any), and proposed public improvements.

The applicant's preliminary plat materials include existing and proposed conditions, a preliminary drainage report, and plans for proposed improvements (including grading, landscaping, public utilities, and frontage improvements). No deed restrictions are proposed.

The ~~Planning Commission~~ City Council finds that the preliminary plat requirements of MMC 17.20 are met.

d. MMC Chapter 17.28 Design Standards

MMC 17.28 establishes general design standards for land divisions and property boundary changes.

(1) MMC Section 17.28.020 Public Facility Improvements

MMC 17.28.020 requires that all land divisions that increase the number of lots are subject to the requirements and standards of MMC Chapter 19.700 Public Facility Improvements.

The proposed subdivision will increase the number of lots. The applicable standards of MMC 19.700 are addressed in Finding 12.

(2) MMC Section 17.28.030 Easements

MMC 17.28.030 requires that easements for public utilities (including sewers and water mains) be dedicated wherever necessary.

The proposed subdivision will establish new public streets, where the public utility infrastructure will be located. Three tracts for stormwater facilities and three tracts for pedestrian and/or bicycle access will be established and dedicated to the public. A condition has been established to ensure that easements for stormwater outfalls, for public access across private alleys, or for any other public utilities will be dedicated as needed.

(3) Specifically, MMC Section 17.28.040 provides standards for general lot design, including a requirement for rectilinear lots and a 10% limit on the cumulative lateral shift of compound lot line segments.

Lots 88-92, which are located in the curve of the proposed cul-de-sac, each have at least one compound lot line segment. None of the compound segments are greater than 10% of the distance between opposing lot corners.

The City Council finds that the applicable lot design standards of MMC 17.28 are met.

The City Council finds that the proposed subdivision meets all applicable land division standards of MMC Title 17.

10. MMC Title 18 Flood Hazard Regulations

MMC Title 18 provides standards intended to minimize public and private losses due to flood conditions in specific areas. The regulations established in MMC Title 18 do this in

part by controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters; controlling filling, grading, dredging, and other development which may increase flood damage; and preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas. As per MMC Section 18.04.100, a development permit is required prior to any construction or development within the flood management area.

The subject property includes flood hazard and flood management areas as identified on the Flood Insurance Rate Maps prepared by the Federal Emergency Management Agency (FEMA) and acknowledged by the City for the purposes of implementing this title. The applicant is proposing a revision to the FIRM map, to demonstrate that new lots will not be in the modified floodplain. Although no buildings will be built below the floodplain elevation, the proposed development includes cut and fill within the floodplain.

The proposed development is subject to the applicable provisions of MMC Title 18.

a. MMC Section 18.04.150 General Standards

MMC 18.04.150 provides general standards for all special flood hazard and all flood management areas.

(1) MMC Subsection 18.04.150.C Utilities

MMC 18.04.150.C requires that all new water and sanitary sewer systems be designed to minimize or eliminate infiltration of floodwaters into the system.

A condition has been established to ensure that all new utilities are installed underground and shall otherwise be designed to minimize or eliminate infiltration of floodwaters into the system, including stubs for utility service prior to surfacing any streets.

(2) MMC Subsection 18.04.150.D Subdivisions

MMC 18.04.150.D requires that all subdivision proposals must be consistent with the need to minimize flood damage. Public utilities and facilities shall be located and constructed to minimize or eliminate flood damage. Adequate drainage shall be provided to reduce exposure to flood damage. Base flood elevation data shall be provided for subdivision proposals that contain at least 50 lots or 5 acres.

The base flood elevation is 69.9 located at cross section C on FEMA map number FM41005C0036D (NAVD 1988 datum). The proposed development would establish 92 units on approximately 13.8 acres and was designed to minimize flood damage by elevating the developable portions of the site at least 1 ft above base flood elevation. As proposed, all public utilities are located outside the floodplain, except for the sanitary sewer connection to the existing sanitary sewer located within the existing floodplain and those public utilities that will be in Kellogg Creek Drive, a portion of which lies within the existing floodplain. The site will be graded to provide positive drainage to reduce exposure to flood damage. Proposed street grades meet or exceed the minimum grade allowed by the City's Public Works Standards, and street cross sections match typical sections provided by the City to ensure proper drainage.

(3) MMC Section 18.04.150.F Balanced Cut and Fill

MMC 18.04.150.F provides requirements for the displacement of flood storage area by the placement of fill or structures.

As per the applicant's submittal materials, all fill added to the floodplain will be balanced with an equal amount of soil removed from the floodplain meeting the "no net fill" requirement. Excavation will occur on the same parcel as the proposed development and will not occur below the bankfull stage.

As conditioned, the proposed development is consistent with the applicable general standards for all special flood hazard and all flood management areas.

b. MMC Section 18.04.160 Specific Standards

MMC Subsection 18.04.160.A provides specific standards for residential construction, including a requirement that new construction of any residential structure shall have the lowest floor, including basement, elevated 1 ft above base flood elevation.

As proposed, all new primary residential structures will have the lowest floor elevated at least 1 ft above base flood elevation.

The City Council finds that, pending approval of the applicant's proposed revision to the appropriate FIRM map and as conditioned, the proposed development is consistent with the applicable standards of MMC Title 18.

11. MMC Section 19.402 Natural Resources

MMC 19.402 establishes regulations for designated natural resource areas. The standards and requirements of MMC 19.402 are an acknowledgment that many of the riparian, wildlife, and wetland resources in the community have been adversely impacted by development over time. The regulations are intended to minimize additional negative impacts and to restore and improve natural resources where possible.

a. MMC Subsection 19.402.3 Applicability

MMC 19.402.3 establishes applicability of the Natural Resource (NR) regulations, including all properties containing Water Quality Resources (WQRs) and Habitat Conservation Areas (HCAs) as shown on the City's Natural Resource (NR) Administrative Map.

Mount Scott Creek flows across the northern portion of the subject property, and a large wetland (approximately 0.7 acres) is located within the 100-year floodplain designated over most of the western half of the site. The City's NR Administrative Map shows Water Quality Resource (WQR) and Habitat Conservation Area (HCA) designations around the creek and wetland, and portions of these natural resource areas will be disturbed by the proposed development.

As presented in the applicant's submittal materials, the proposed development will temporarily or permanently disturb approximately 115,700 sq ft of WQR and/or HCA area. At that scale, the proposed activity is not listed as exempt according to the standards outlined in MMC 19.402.4.

The City Council finds that the requirements of MMC 19.402 are applicable to the proposed activity.

b. MMC Subsection 19.402.7 Activities Requiring Type II Review

MMC 19.402.7 establishes that certain activities within a designated WQR and/or HCA are subject to Type II review in accordance with MMC 19.1005. As per MMC 19.402.7.E, this includes boundary verifications that propose substantial corrections

to the NR Administrative Map, including identifying the precise location of wetlands, as required by MMC 19.402.15.A.

The subject property includes a delineated wetland. As provided in MMC Subsection 19.402.15.A, the Type II review process is required to confirm the specific location of wetlands. However, the proposed activity requires other applications that are being processed concurrently with Type IV review. As provided in MMC Subsection 19.1001.6.B.1, concurrent applications are processed according to the highest numbered review type, with a single decision to be issued that includes findings for all concurrent applications.

The City Council finds that the boundary verification for wetlands shall be processed concurrently with Type IV review.

c. MMC Subsection 19.402.8 Activities Requiring Type III Review

MMC 19.402.8 establishes that certain activities within a designated WQR and/or HCA are subject to Type III review in accordance with MMC 19.1006. As per MMC 19.402.8.A.1, this includes activities allowed in the base zone that are not otherwise exempt or permitted as a Type I or II activity.

The subdivision of land containing a WQR and/or HCA is subject to Type III review and the standards established in MMC Subsections 19.402.13.H and 13.I. The level of disturbance proposed within the designated WQR and HCA areas on the subject property exceeds the levels allowed by Type I and II review, as provided in MMC 19.402.6 and 402.7, respectively. As such, the activity is subject to Type III review and the discretionary process established in MMC 19.402.12. As noted in Finding 11-b above, the Natural Resource review is associated with other applications being processed concurrently with Type IV.

The City Council finds that the proposed activity is subject to Type III review and will be processed concurrently with other applications requiring Type IV review.

d. MMC Subsection 19.402.9 Construction Management Plans

MMC 19.402.9 establishes standards for construction management plans, which are required for projects that disturb more than 150 sq ft of designated natural resource area. Construction management plans must provide information related to site access, staging of materials and equipment, and measures for tree protection and erosion control.

The applicant's Natural Resource Review report includes a construction management plan that provides the information required by MMC 19.402.9, including tree protection measures. The plan will be formally reviewed at the time of submittal for development permits.

e. MMC Subsection 19.402.11 Development Standards

MMC 19.402.11 establishes development standards for projects that impact a designated natural resource, including requirements to protect natural resource areas during development and general standards for required mitigation (e.g., plant species, size, spacing, and diversity).

In particular, MMC Subsection 19.402.11.C establishes mitigation requirements for disturbance within WQRs. The requirements vary depending on the existing condition of the WQR, according to the categories established in MMC Table 19.402.11.C. For Class A "Good" WQR conditions, MMC Table 19.402.11.C requires that the applicant

submit a plan for mitigating water quality impacts related to the development; for Class C “Poor” WQR conditions, the table requires restoration and mitigation with native species using a City-approved plan.

The proposed development will permanently disturb approximately 342,7800 sq ft and temporarily disturb approximately 498,35000 sq ft within the WQR. The portion of the WQR closest to Mount Scott Creek is categorized as Class A (“Good”); other portions are categorized as Class C (“Poor”). In addition, the proposed development will permanently disturb approximately 460,3700 sq ft and temporarily disturb approximately 45,4500 sq ft within the HCA-only areas on the site.

Using the mitigation planting ratio provided in MMC Subsection 19.402.11.D.2.b as a guide, the applicant proposes to plant 5 trees and 25 shrubs per 500 sq ft of disturbance area. For the total WQR and HCA disturbance of approximately 415,70086,350 sq ft (both permanent and temporary disturbance), the applicant proposes to plant 1,160863 native trees and 5,7904,317 native shrubs within a specific mitigation area. As proposed, the mitigation plantings will meet the minimum requirements established in MMC Subsection 19.402.11.B. Mitigation trees will be of at least ½-in caliper (measured at 6 ft above the ground level after planting) and shrubs will be of at least 1-gallon size and at least 12-in height.

ESA, the City’s consultant for on-call natural resource services, has evaluated the proposed mitigation plan and concluded that, with a few adjustments, it adequately addresses the proposed WQR and HCA disturbance. ESA provided a few additional recommendations to improve the mitigation plan, including retaining the existing white oak saplings that appear to have been planted on the site as part of an ongoing restoration effort and re-evaluating the assessment of WQR classification at several of the sample points to ensure that mitigation plantings are distributed appropriately. Conditions have been established to ensure that these recommendations are implemented. In addition, a condition has been established to require a maintenance plan ensuring that the mitigation effort is successful and ongoing.

As conditioned, the City Council finds that the applicable development standards of MMC 19.402.11 are met.

f. MMC Subsection 19.402.12 General Discretionary Review

MMC 19.402.12 establishes the discretionary review process for activities that substantially disturb designated natural resource areas.

(1) Impact Evaluation and Analysis

MMC Subsection 19.402.12.A requires an impact evaluation and alternatives analysis in order to determine compliance with the approval criteria for discretionary review and to evaluate alternatives to the proposed development. A technical report prepared by a qualified natural resource professional is required and should include the following components:

- Identification of ecological functions
- Inventory of vegetation
- Assessment of water quality impacts
- Alternatives analysis
- Demonstration that no practicable alternative method or design exists that would have a lesser impact on the resource and that impacts are mitigated to the extent practicable

- Mitigation plan

The applicant's submittal materials include a technical report prepared by Pacific Habitat Services, Inc., a private firm providing a range of environmental consulting services including natural resource assessment, wetland delineation, and environmental restoration. The technical report includes an impact evaluation and alternatives analysis consistent with the required components listed above, as well as an inventory of existing vegetation and discusses the ecological function of the existing WQR and HCA areas within the project area. The report also provides a mitigation plan for permanent and temporary impacts to the WQR and HCA.

The technical report considers two alternatives to the proposed development configuration: (1) another planned development scenario with no regard for natural resources on the site (resulting in greater impacts to the WQR and HCA) and (2) a subdivision following the existing split zoning of the site and configured to produce almost no disturbance of the WQR and HCA. The report concludes that the proposed development is the most practicable alternative that results in the least impact to the natural resources on the site.

The City Council finds that the applicant's impact evaluation and alternatives analysis is sufficient for purposes of reviewing the proposed activity against the approval criteria provided in MMC 19.402.12. This standard is met.

(2) Approval Criteria

MMC Subsection 19.402.12.B provides the approval criteria for discretionary review as follows:

Note: ESA reviewed the applicant's technical report and presented its assessment to the City in a summary memo, which informs this portion of the findings.

- Avoid – The proposed activity avoids the intrusion of development into the WQR and/or HCA to the extent practicable, and has less detrimental impact to the natural resource areas than other practicable alternatives.

Mount Scott Creek cuts across the northern portion of the nearly 14-acre development site, resulting in significant areas of designated WQR and HCA. Developing the site to achieve even the minimum density without any impacts to the WQR and HCA is difficult. The applicant has proposed a Planned Development instead of a conventional subdivision to have the flexibility to blend the densities allowed by the split R-10 and R-3 zoning of the site. This flexibility allows the applicant to direct the development generally away from the WQR and HCA. By using 4-unit rowhouse structures, the applicant is able to provide a larger number of units in a more compact form than a conventional subdivision would allow. Considering the other alternatives noted in Finding 11-f(1) above, the proposed development will have less detrimental impact to the natural resource areas on the site than other practicable alternatives.

- Minimize – If the applicant demonstrates that there is no practicable alternative to avoid disturbance of the natural resource, then the proposed activity shall minimize detrimental impacts to the extent practicable.

As noted in the above discussion of avoiding impacts, the proposed development is configured to reduce impacts to the WQR and HCA to the greatest extent practicable. The proposed development is compact by design and focuses major site impacts away from the WQR and HCA where practicable.

- Mitigate – If the applicant demonstrates that there is no practicable alternative that will avoid disturbance of the natural resource, then the proposed activity shall mitigate for adverse impacts to the resource area. The applicant shall present a mitigation plan that demonstrates compensation for detrimental impacts to ecological functions, with mitigation occurring on the site of the disturbance to the extent practicable, utilization of native plants, and a maintenance plan to ensure the success of plantings.

As noted in Finding 11-e, the applicant's submittal includes a mitigation plan for the WQR and HCA disturbance that will accompany the proposed development. ~~Over 1,160 native trees and 5,790 native shrubs will be planted~~The applicant has proposed to plant 863 native trees and 4,317 native shrubs in the areas of permanent and temporary disturbance, and ~~to remove~~ nuisance plants and noxious material and debris ~~will be removed~~. Conditions have been established to ensure that all mitigation plantings are species from the Milwaukie Native Plants List, ~~and~~ that existing restoration plantings are preserved where possible, and that a long-term maintenance plan is in place. In addition, to ensure the long-term maintenance of all mitigation areas, a condition has been established to require that the development either (1) dedicate the open space tract to the City or North Clackamas Parks & Recreation District or (2) establish Covenants, Conditions, and Restrictions and a Home Owners' Association that require ongoing maintenance.

As conditioned, the City Council finds that the proposed development meets the approval criteria for discretionary review as established in MMC 19.402.12.B.

(3) Limitations and Mitigation for Disturbance of HCAs

MMC Subsection 19.402.12.C establishes the discretionary review process for mitigation of more HCA disturbance than would be allowed by the nondiscretionary standards of MMC Subsection 19.402.11.D.1. In such cases, the applicant must submit an Impact Evaluation and Alternatives Analysis consistent with the standards established in MMC 19.402.12.A and subject to the approval criteria established in MMC 19.402.12.B.

As discussed in Finding 11-f(1), the applicant's submittal materials include a technical report that provides an evaluation of impacts to the WQR as well as to those impacted HCA areas beyond the WQR, consistent with the standards established in MMC 19.402.12.A. As discussed in Finding 11-f(2), the proposed development, with the conditions noted therein, meets the approval criteria established in MMC 19.402.12.B.

As conditioned, the City Council finds that the proposed development meets the discretionary standards for disturbance of HCAs as established in MMC 19.402.12.C.

The City Council finds that, as conditioned, the proposed development meets the applicable discretionary review standards of MMC 19.402.12.

g. MMC Subsection 19.402.15 Boundary Verification and Map Administration

MMC 19.402.15 establishes standards for verifying the boundaries of WQRs and HCAs and for administering the City's Natural Resource (NR) Administrative Map.

The locations of WQRs are determined based on the provisions of MMC Table 19.402.15. For streams, the WQR includes the feature itself and a vegetated corridor that extends 50 ft from the ordinary high water mark or 2-year recurrence interval flood elevation. Where the slope exceeds 25% for less than 150 ft, the vegetated corridor is measured with a 50-ft width from the break in the 25% slope. For wetlands, a wetland delineation report prepared by a professional wetland specialist and approved by the Department of State Lands (DSL) is required.

For HCAs, the City's NR Administrative Map is assumed to be accurate with respect to location unless challenged by the applicant, using the procedures outlined in either MMC Subsection 19.402.15.A.1 or MMC Subsection 19.402.15.A.2.b.

The technical report provided by the applicant includes a detailed topographic map showing the accurate boundaries of the WQR using the provisions of MMC Table 19.402.15, as well as a wetland delineation report prepared in accordance with the standards of DSL. A condition has been established to require a formal letter of concurrence by DSL prior to the issuance of any development permits.

The applicant is not challenging the accuracy of the NR Administrative Map with respect to the HCA location on the site. However, as a result of the disturbance allowed by the approval of the proposed development, the NR Administrative Map shall be adjusted accordingly to remove those HCA locations that will be permanently disturbed by the proposed development.

In addition, the City has conducted a review of the mapped HCA in accordance with the detailed verification procedures provided in MMC 19.402.15.A.2.b and confirmed that the NR Administrative Map is inaccurate with respect to the HCA boundary in the southwestern corner of the subject property. The City's documentation of this boundary verification was provided as an exhibit at a public hearing with the Planning Commission on [month/day], 2017, and demonstrates where the HCA boundary shall be extended to include the tree canopy provided by the existing white oak trees in the southwestern portion of the site.

The City Council finds that the City's NR Administrative Map shall be adjusted to reflect the detailed information provided by the applicant with respect to the location of the delineated wetland on the site and the permanent disturbance to the HCA, as well as to reflect the adjusted HCA boundary based on information provided by the City.

The City Council finds that, as conditioned, the proposed development, including disturbance of the designated natural resource area on the subject property, meets all applicable standards of MMC 19.402.

12. MMC Chapter 19.500 Supplementary Development Regulations

MMC 19.500 provides supplementary standards for development.

a. MMC Subsection 19.504.9 On-Site Walkways and Circulation

MMC 19.504.9 establishes standards for on-site walkways, including requirements that on-site walkways be at least 5 ft wide, constructed of hard surface materials that are permeable for stormwater, and lighted to a minimum level of 0.5 footcandles.

The proposed development includes pedestrian and bicycle pathways on Tracts E, F, and H. A condition has been established to ensure that all such on-site pathways are designed and constructed to meet the applicable standards of MMC 19.504.9.

As conditioned, the City Council finds that this standard is met.

b. MMC Subsection 19.505.5 Building Design Standards for Rowhouses

MMC 19.505.5 establishes design standards for rowhouse development.

(1) MMC Subsection 19.505.5.C Rowhouse Design Standards

As per MMC Subsection 19.505.5.C.1, rowhouses are subject to the design standards for single-family housing as established in MMC Subsection 19.505.1. As per MMC Subsection 19.505.5.C.2, rowhouses shall include either a vertical or horizontal transition area between the public right-of-way and the private entry of the dwelling.

The proposed development's compliance with the applicable standards of MMC 19.505.5.C will be confirmed through the development review process outlined in MMC Section 19.906 at the time of development. As proposed, the new rowhouse units will have covered front porches that appear to meet the standards for providing a horizontal transition between the right-of-way and the front entry.

(2) MMC Subsection 19.505.5.D Number of Rowhouses Allowed

As per MMC 19.505.5.D, no more than 4 consecutive rowhouses may share a common wall, though sets of 4-unit rowhouse structures may be adjacent to one another.

The proposed development is comprised of 23 structures with 4 rowhouse units each. No more than 4 consecutive rowhouses will share a common wall.

(3) MMC Subsection 19.505.5.E Rowhouse Lot Standards

MMC 19.505.5.E establishes standards for the size and dimension of rowhouse lots in various zones. Generally, rowhouse development is not allowed on lots less than 35 ft wide.

As discussed in Finding 7-b, the Planned Development process allows some flexibility of design, including in lot size and dimension. As proposed, the new lots will range in width from ~~4820~~ to ~~3428~~ ft and in size from 1,600 sq ft to approximately 2,420,500 sq ft. Approval of the final development plan and program effectively makes the standards of MMC 19.505.5.E inapplicable.

(4) MMC Subsection 19.505.5.F Driveway Access and Parking

MMC Subsection 19.505.5.F.1 establishes restrictions on garages on the front façade of a rowhouse as well as on off-street parking areas and driveway accesses in the front yard. A minimum of 30 ft of street frontage is required, no more than 2 shared accesses are allowed for 4 rowhouses, and outdoor on-site parking areas and garage door width shall not exceed 10 ft. For rowhouses that do not provide garages or parking areas on the front façade, MMC Subsection 19.505.5.F.2 establishes standards for consolidated access.

As discussed in Finding 7-b and noted in Finding 12-c above, the Planned Development process allows for reduced lot widths. The proposed development's compliance with the other applicable standards of MMC 19.505.5.F will be confirmed through the development review process outlined in MMC Section 19.906 at the time of development. As proposed, the new 4-unit rowhouse structures with front-facing garages will share 2 driveway accesses, with on-site parking and maneuvering areas no wider than 10 ft and garage doors no wider than 10 ft. The new rowhouse structures with rear-facing garages will share access off private alleys.

(5) MMC Subsection 19.505.5.G Accessory Structure Setbacks

MMC 19.505.5.G provides that there is no required side yard setback between an accessory structure and a side lot line abutting another rowhouse lot, though all other accessory structure regulations in MMC Subsection 19.502.2.A apply.

No accessory structures are proposed as part of the proposed development, and the applicant has not requested any adjustment to this standard.

The City Council finds that the proposed development meets the standards of MMC 19.505.5 that are applicable to the subdivision and final development plan and program of the Planned Development, noting that consistency with all applicable standards will be confirmed as part of the development review process outlined in MMC Section 19.906 at the time of submittal for development permits for the new rowhouses.

The City Council finds that, as conditioned, the proposed development is consistent with the applicable standards of MMC Chapter 19.500.

13. MMC Chapter 19.600 Off-Street Parking and Loading

MMC 19.600 regulates off-street parking and loading areas on private property outside the public right-of-way. The purpose of these requirements includes providing adequate space for off-street parking, minimizing parking impacts to adjacent properties, and minimizing environmental impacts of parking areas.

MMC Section 19.605 establishes standards to ensure that development provides adequate vehicle parking based on estimated parking demand. MMC Table 19.605.1 provides minimum and maximum requirements for a range of different uses. For rowhouses, a minimum of 1 off-street parking space is required per dwelling unit, with no maximum limit.

MMC Section 19.607 establishes standards for off-street parking areas for residential uses, including for rowhouses. Standards include minimum dimensions for off-street parking spaces and limitations on required spaces being located in the front yard setback.

As proposed, all rowhouse units will have attached garages. Units with front-facing garages have a single-car garage; units with rear-facing garages have a two-car garage. As proposed, all garages will be located outside the front yard setback and of adequate dimension. A final determination of the proposed development's consistency with the applicable standards of MMC 19.600 will be made as part of the development review process outlined in MMC Section 19.906 at the time of submittal for development permits for the new rowhouses.

The City Council finds that the proposed development meets the standards of MMC 19.600 that are applicable to the subdivision and final development plan and program of the Planned Development, noting that consistency with all applicable standards will be

confirmed as part of the development review process outlined in MMC Section 19.906 at the time of submittal for development permits for the new rowhouses.

14. MMC Chapter 19.700 Public Facility Improvements

MMC 19.700 establishes provisions to ensure that development provides public facilities that are safe, convenient, and adequate in rough proportion to their public facility impacts.

a. MMC Section 19.702 Applicability

MMC 19.702 establishes the applicability of the provisions of MMC 19.700, including land divisions, new construction, and modification or expansion of an existing structure or a change or intensification in use that result in any projected increase in vehicle trips or any increase in gross floor area on the site.

The applicant proposes to subdivide the subject property to create 92 lots for rowhouse development as well as several other tracts for open space, stormwater facilities, and pedestrian/bicycle connections. The proposed land division triggers the requirements of MMC 19.700.

b. MMC Section 19.703 Review Process

MMC 19.703 establishes the review process for development that is subject to MMC 19.700, including requiring a preapplication conference, establishing the type of application required, and providing approval criteria.

The applicant had a preapplication conference with City staff prior to application submittal, on August 11, 2016. The proposed development triggers a Transportation Impact Study (as addressed in Finding 14-c). The proposal's compliance with MMC 19.700 has been evaluated through a concurrent Transportation Facilities Review application. Finding 14-f addresses the proposal's compliance with the approval criteria established in MMC Subsection 19.703.3, particularly the required transportation facility improvements.

c. MMC Section 19.704 Transportation Impact Evaluation

MMC 19.704 establishes the process and requirements for evaluating development impacts on the surrounding transportation system, including determining when a formal Transportation Impact Study (TIS) is necessary and what mitigation measures will be required.

The proposed development will trigger a significant increase in trip generation above the existing church use on a portion of the site and therefore requires a TIS. City Engineering staff and the City's on-call traffic consultant (DKS) provided the applicant with a scope of work for the TIS. Kittleson & Associates, the applicant's traffic consultant, prepared the TIS that was included with the applicant's larger submittal for the proposed planned development. To ensure accuracy, the original TIS was updated with additional counts for the intersections of Rusk Road and Highway 224, Rusk Road and Ruscliff Road, Rusk Road and Kellogg Creek Drive, and Kellogg Creek Drive and the proposed Street A.

The TIS concluded that the proposed development does not trigger mitigation of impacts beyond the required frontage improvements and bike lane requirements, for which conditions of approval have been established. The TIS also concluded that the surrounding transportation system will continue to operate at the same level of service as before the proposed development.

However, ODOT and Clackamas County have expressed concern regarding the analysis performed for the right-turn lane for northbound traffic at the Rusk Road/Highway 224 intersection. The TIS indicates a turn lane with a queuing length of 50 ft. The City agrees with ODOT and Clackamas County that this value may be overestimated. The TIS also indicates that the right-turn-on-red allowance is 50 vehicles per hour, which likely is not how this intersection functions where one through-vehicle can block the entire turn lane.

DKS, the City's consultant, has re-analyzed this intersection with the left turn, through movement, and right turn all together as a single lane. Also, the right-turn-on-red movement was reduced to zero vehicles, which is a more accurate representation of how the intersection currently functions. With these adjustments, the resulting volume-to-capacity ratio (v/c) of the single lane is greater than 1.0, indicating a need for mitigation requirements. A condition has been established to require extension of the right-turn lane on Rusk Road at the Highway 224 intersection, to ensure that the surrounding transportation system will continue to operate at the same level of service as before the proposed development

As conditioned, the applicant's TIS is sufficient to meet the requirements of MMC 19.704.

d. MMC Section 19.705 Rough Proportionality

MMC 19.705 requires that transportation impacts of the proposed development be mitigated in proportion to its potential impacts.

The City has determined that conditions established to require improvements on Kellogg Creek Drive and in the right-turn lane on Rusk Road at the Highway 224 intersection meet the proportionality requirements for the proposed development.

As conditioned, the proposed development is consistent with MMC 19.705.

e. MMC Section 19.707 Agency Notification and Coordinated Review

MMC 19.707 establishes provisions for coordinating land use application review with other agencies that may have some interest in a project that is in proximity to facilities they manage.

The application was referred to the Oregon Department of Transportation (ODOT), Clackamas County, Metro, and TriMet for comment. The section of Kellogg Creek Drive fronting the subject property is under the jurisdiction of Clackamas County. The County has regulatory authority where transportation impacts and improvement standards are concerned, and the County's Department of Transportation and Development (DTD) provided comments that have been incorporated into these findings and the associated conditions of approval as appropriate.

f. MMC Section 19.708 Transportation Facility Requirements

MMC 19.708 establishes the City's requirements and standards for improvements to public streets, including pedestrian, bicycle, and transit facilities. However, the subject property's public street frontage is along Kellogg Creek Drive, which is under the jurisdiction of Clackamas County. Where the City has more restrictive standards than the County for certain elements, it is the City's practice to defer to the County standards when the proposed development demonstrates that there is no practicable alternative and that the proposal presents the minimum exception necessary to provide a safe and functional design. Such situations are evaluated at the time of development permit review.

The County DTD provided comments on the application, with recommended findings and conditions that address the County's requirements for such elements as access management, clear vision, street design, and bicycle and pedestrian facilities. Those comments have been incorporated into these findings and conditions of approval as appropriate.

(1) MMC Subsection 19.708.1 General Street Requirements and Standards

MMC 19.708.1 provides general standards for streets, including for access management, clear vision, street layout and connectivity, and intersection design and spacing.

As proposed, the development is consistent with the applicable standards of MMC 19.708.1.

(2) MMC Subsection 19.708.2 Street Design Standards

MMC 19.708.2 provides design standards for streets, including dimensional requirements for the various street elements (e.g., travel lanes, bike lanes, on-street parking, landscape strips, and sidewalks).

The street to the east of Lots 45 and 53 does not comply with minimum City standards, as the required sidewalk and planter strips are not proposed. The City has allowed this reduced cross section because of the pending adoption of a low-volume residential standard cross section with pedestrian routes on the street surface. The 22-ft right-of-way width accommodates the minimum 10-ft travel lanes, curb, and separation from the private property.

The proposed cross sections for Kellogg Creek Drive and all remaining internal streets conform to applicable requirements and are consistent with MMC 19.708.2.

(3) MMC Subsection 19.708.3 Sidewalk Requirements and Standards

MMC 19.708.3 provides standards for public sidewalks, including the requirement for compliance with applicable standards of the Americans with Disabilities Act (ADA).

As proposed, the development is consistent with all applicable standards of MMC 19.708.3.

(4) MMC Subsection 19.708.4 Bicycle Facility Requirements and Standards

MMC 19.708.4 provides standards for bicycle facilities.

Per Milwaukie's Transportation System Plan (TSP), a bike lane is required connecting the northeast corner of the property to the southwest corner of the property. The applicant has proposed to construct an on-street bike route through the development. A multiuse path will connect the northeast turnaround on Street B to the Rusk Road/Highway 224 intersection.

As proposed, the development is consistent with all applicable standards of MMC 19.708.4.

(5) MMC Subsection 19.708.5 Pedestrian/Bicycle Path Requirements and Standards

MMC 19.708.5 provides standards for pedestrian and bicycle paths.

Pedestrian access is required at the end of the proposed cul-de-sac, which is satisfied through a 15-ft multiuse path extended to Rusk Road. Pedestrian access is also required from the east end of Street A to Kellogg Creek Drive, which is satisfied through a pedestrian connection in Tracts E and F.

As proposed, the development is consistent with all applicable standards of MMC 19.708.5.

(6) MMC Subsection 19.708.6 Transit Requirements and Standards

MMC 19.708.6 provides standards for transit facilities.

The portion of Kellogg Creek Drive fronting the proposed development is classified as a transit route in the Milwaukie TSP. However, transit facilities are already in place. As a result, transit facility improvements are not required for the proposed development.

As proposed, the development is consistent with all applicable standards of MMC 19.708.6.

Conditions have been established in response to these County findings, to ensure that the proposed development will meet all applicable standards of MMC 19.708, the Clackamas County Roadway Standards, and any other applicable County requirements.

As conditioned, the City Council finds that the proposed development meets the applicable public facility improvement standards of MMC 19.700.

15. MMC Section 19.904 Community Service Uses

MMC 19.904 establishes standards for community service uses, including churches, schools, and parks. MMC Subsection 19.904.5.C authorizes the approval of minor modifications to an approved community service, provided that such modification:

- a. Does not increase the intensity of any use.

The proposed modification includes reconfiguring the existing driveway at Rusk Road to reinforce its status as an ingress-only access (left and right turns in), removing some existing parking spaces along the western edge of the parking lot to create access points between the church and the proposed development, and removal of the existing play area adjacent to the western edge of the parking area. The proposed modification will not add square footage to the church use or otherwise result in an increase in activity or use of the church site.

- b. Meets all requirements of the underlying zone relating to building size and location and off-street parking and the standards of Title 19.

The applicable standards of Title 19 are those related to off-street parking (MMC Chapter 19.600) and access (MMC Section 19.708 and MMC Chapter 12.16).

As proposed, 10 existing parking spaces will be eliminated from the church parking lot. The church, which has 400 seats, has a minimum parking requirement of 100 spaces (at a ratio of 1 space for every 4 seats, as per MMC Table 19.605.1) and a maximum allowance of 200 spaces (at a ratio of 1 space for every 2 seats). There are currently 225 spaces in the church parking lot. Removal of 10 spaces will bring the church site closer to conformance with the current standards.

In addition, the proposal includes a 6-ft landscape buffer along the northern and western perimeter of the existing parking area, adjacent to the proposed

development, which will bring the site closer to conformance with the perimeter landscaping standards of MMC Subsection 19.606.2 and will screen the parking area from the proposed development.

One of the purposes of MMC Section 19.708 Transportation Facility Requirements, and the intent of MMC Chapter 12.16, is to ensure safe access to public streets. The proposed modifications to the existing church driveway at Rusk Road will ensure that the driveway is used for ingress only, which will improve safety on Rusk Road by reducing potential conflicts due to poor sight distance at that location.

- c. Does not result in deterioration or loss of any protected natural feature or open space, and does not negatively affect nearby properties.

The proposed modifications to the existing church parking lot and driveway access at Rusk Road do not impact any designated natural resource area or open space feature.

- d. Does not alter or contravene any conditions specifically placed on the development by the Planning Commission or City Council.

The property was annexed into the city limits in 1981 (land use file #A-80-07). In 1983, use of the site for pasture land and grazing for horses was approved as a conditional use (file #C-83-08); however, the conditional use application was subsequently withdrawn.

The site was approved as a CSU for church use by the Milwaukie Assembly of God in 1984 (file #CS-84-02). Conditions of approval included requirements to provide plans for landscaping, public facilities, and exterior lighting, as well as a traffic study and right-of-way dedication along Rusk Rd and Kellogg Creek Dr.

In 1987, the City Council approved a zone change for the western portion of the property, from R-10 to R-3, along with a conditional use approval for senior housing and an amendment to the Comprehensive Plan map (file #CPA-87-01, ZC-87-05, CU-87-05, with Ordinance #1639). The senior housing project (called Parkside Village) was never developed.

In 1992, the City approved a 5,500-sq-ft addition to the church building (file #CSO-92-03, NR-92-01). Conditions of approval included requirements to install the approved landscaping and to direct lighting away from the designated natural resource area.

In 1997, the Planning Commission denied a sign permit request to locate an electronic reader board sign on the property near the intersection of Highway 224 and Rusk Rd (file #SP-97-01).

In 2014, the Planning Director approved a minor modification to the existing CSU for the church, for removal of approximately 75 of 300 existing parking spaces as part of a natural resource restoration effort near Mount Scott Creek (file #s CSU-14-06 and NR-14-06). There were no conditions of approval.

The proposed modification does not alter or contravene any of the past conditions placed on the church development by the Planning Commission.

- e. Does not cause any public facility, including transportation, water, sewer and storm drainage, to fail to meet any applicable standards relating to adequacy of the public facility.

With regard to public facilities, the proposed modification will affect only the existing church driveway at Rusk Road. As proposed, the driveway will be modified to further

limit egress movements at that location, which, due to limited sight distance and the proximity to the intersection of Rusk Road and Highway 224, will improve public safety. A new in/out access to the church site will be established through the proposed development and will be designed to meet applicable standards. The new access will focus more church trips on Kellogg Creek Drive, a local street, instead of on Rusk Road, a collector. The proposed modification will not cause any public facility to fail to meet any applicable standards relating to adequacy.

As proposed, the City Council finds that the proposed development meets the approval criteria for a minor modification to the existing community service use.

16. MMC Section 19.911 Variances

MMC Section 19.911 establishes the variance process for seeking relief from specific code sections that have the unintended effect of preventing reasonable development or imposing undue hardship.

a. MMC Subsection 19.911.2 Applicability

MMC 19.911.2 establishes applicability standards for variance requests.

Variances may be requested to any standard of MMC Title 19, provided the request is not specifically listed as ineligible in MMC Subsection 19.911.2.B.

The applicant has requested two variances: (1) to ~~reduce the 45-ft driveway spacing standard established in MMC Section 12.16.040 for Lot 72~~ allow more than 20 dwellings to be served by a closed-end street system as limited by MMC Subsection 19.708.1.E.5; and (2) to exempt ~~34-23~~ of the 92 proposed lots from the requirement of MMC Subsection 19.402.13.I.2 to provide adequate buildable area outside of the WQR and HCA. The second variance request would permit an additional number of units to be constructed through a 15% increase in density, as allowed in a Planned Development zone (MMC Section 19.311).

The request would not eliminate the restriction on a prohibited activity, change a required review type, allow a use not allowed outright in the R-10 or R-3 zone, or otherwise produce any of the results listed in MMC Subsection 19.911.2.B. The requests are each eligible for a variance as per MMC 19.911.2.

b. MMC Subsection 19.911.3 Review Process

MMC 19.911.3 establishes review processes for different types of variances. MMC Subsection 19.911.3.C establishes the Type III review process for larger or more complex variations to standards than those allowed through the Type II review process as per MMC Subsection 19.911.3.B, variations that require additional discretion and warrant a public hearing.

The applicant has requested variances to the ~~driveway spacing~~ closed-end street standard established in MMC Subsection ~~12.16.040~~ 19.708.1.E.5 and to the requirement that all new lots have adequate buildable area outside of the WQR and HCA. These requests are not eligible for Type II review as provided in MMC 19.911.3.B and so are subject to Type III review as per MMC 19.911.3.C. As noted in Finding 6, since the variance requests are associated with a proposed Planned Development, which itself requires Type IV review, the variances are also subject to Type IV review as per MMC Subsection 19.1001.6.B.

c. MMC Subsection 19.911.4 Approval Criteria

MMC 19.911.4 establishes approval criteria for variance requests. Specifically, MMC Subsection 19.911.4.B.1 provides approval criteria for Type III variances where the applicant elects to utilize the Discretionary Relief Criteria:

- (1) The applicant's alternatives analysis provides, at a minimum, an analysis of the impacts and benefits of the variance proposal as compared to the baseline code requirements.

~~Driveway Spacing Variance Closed-End Street System: To meet the 45-ft driveway spacing standard, Lot 72 would need to shift to the north by approximately 20 ft, which would shift the whole block of lots north of Lot 72 as well. This would result in additional impacts to the natural resource area. Allowing the driveway to remain in its proposed location will help minimize impacts to natural resources. Potential impacts from allowing a driveway that does not meet the spacing standard will be minimal and can be mitigated, as described in Finding 16-c(3), below. In order to preserve the existing white oak trees in the southwestern corner of the site and to maintain 92 dwelling units as originally proposed, the development plan was shifted approximately 40 ft to the east and removed one of the two street connections to Kellogg Creek Drive. Although this effectively makes the street system a dead-end one serving all 92 units, the revised network maintains safe internal circulation and sufficient fire and emergency service access for the proposed development because access is available through the adjacent church property.~~

Adequate Buildable Area Variance: As noted above, ~~31-23~~ of the 92 proposed lots are affected by the requested variance. Eliminating the lots in question would reduce the proposed development below the minimum density of 66 units required for the site with the proposed street configuration. In addition, eliminating those lots would remove the need for the requested density bonus, which was being justified by the inclusion of several amenities (e.g., community garden, additional landscaping) that would likely be removed from the proposal. The proposed disturbance to the WQR and HCA will be mitigated with native plantings to enhance the remaining natural resource areas.

The City Council finds that the applicant's analysis of alternatives is sufficient to address the impacts and benefits of both of the proposed variances. This criterion is met.

- (2) The proposed variance is determined to be both reasonable and appropriate, and it meets one or more of the following criteria:
- (a) The proposed variance avoids or minimizes impacts to surrounding properties.
 - (b) The proposed variance has desirable public benefits.
 - (c) The proposed variance responds to the existing built or natural environment in a creative and sensitive manner.

~~Closed-End Street System Driveway Spacing Variance: The driveway for Lot 72 is shared with Lot 71. Allowing the driveway to remain as proposed benefits the layout of both lots. Given the proximity of Lot 72 and the adjacent lots to the north to the designated natural resources on the site, allowing the driveway as proposed has the benefit of avoiding the need for further natural resource disturbance if Lot 72 and the adjacent lots were to shift to the north. The~~

proposed variance will not have any negative impacts on surrounding properties and helps ensure that the existing white oak trees in the southwestern corner of the site will not be removed.

Adequate Buildable Area Variance: *The requested variance does not affect any adjacent properties outside the proposed development. Approval of the variance allows the development of 92 units of housing instead of 61 units, which helps address an identified housing need for the community. The overall development layout is configured to minimize intrusion into the floodplain and designated natural resource areas on the site, and to focus impacts on WQR and HCA resources that are of lower ecological value and/or that have already been impacted by past development activity. Mitigation plantings will enhance remaining natural resources on the site.*

The City Council finds that the requested variances are reasonable and appropriate and that they both meet one or more of the criteria provided in MMC Subsection 19.911.B.1.b.

- (3) Impacts from the proposed variance will be mitigated to the extent practicable.

~~*Closed-End Street System Driveway Spacing Variance:*~~ ~~*The City's clear vision standards will ensure a high level of visibility for vehicles using the driveway to Lot 72. Street B, which runs in front of Lot 72, is not a through street and ends in a cul de sac. Traffic volumes on the northern section of Street B where Lot 72 is located will be relatively low and should not result in significant queuing in front of Lots 71 and 72. To address potential impacts of the proposed variance on fire and emergency service access, the design of the revised street system incorporates comments received from Clackamas Fire District #1 to provide adequate access for fire and emergency service vehicles.*~~

Adequate Buildable Area Variance: *The applicant has provided a mitigation plan for disturbed natural resource areas that includes removal of nuisance plants, noxious materials, and debris within the WQR and HCA areas on the site. As proposed, more than 1,150 native trees and 5,750 native shrubs will be planted. Two other areas beyond the disturbance zones will be enhanced with removal of nuisance plants and debris and additional native plantings. As proposed, the mitigation plan will enhance the natural resource areas that remain.*

The City Council finds that both variance requests will be mitigated to the extent practicable.

The City Council finds that the proposed development meets the approval criteria for a Type III variance request, as provided in MMC 19.911.4.B.

As proposed, the City Council finds that both of the requested variances are allowable as per the applicable standards of MMC 19.911.

17. MMC Chapter 19.1200 Solar Access Protection

A primary purpose of MMC 19.1200 is to orient new lots and parcels to allow utilization of solar energy. In particular, MMC Section 19.1203 establishes solar access provisions for new development. In particular, MMC Subsection 19.1203.2 establishes the applicability of MMC Subsection 19.1203.3 as applications for the creation of lots in single-family zones. Exceptions are allowable to the extent the Planning Director finds that the applicant has shown one or more of the conditions listed in MMC Subsections 19.1203.4 and 19.1203.5 exist and that exemptions or adjustments are warranted.

a. MMC Subsection 19.1203.3 Design Standard

MMC 19.1203.3 establishes a solar design standard for at least 80% of the lots in any proposed development, including basic requirements for north-south dimension and front-lot-line orientation with respect to a true east-west axis. There are two other options for compliance, either establishing a protected solar building line or demonstrating a level of performance with respect to protection from shading.

The proposed development is for 92 lots, ~~only 32~~none of which (approximately 35%) have a minimum north-south dimension of at least 90 ft.; However, 76 lots (approximately 82%) have a minimum north-south dimension of at least 80 ft and have the all-with the front lot line oriented within 30 degrees of a true east-west axis. ~~However, 64 lots (approximately 70%) have a minimum north-south dimension of at least 80 ft.~~ Of the remaining 2816 lots, all have their long axis oriented within 30 degrees of a true east-west axis, but due to the attached nature of the rowhouses in the proposed development, the ground floor south wall of most of the units will be shaded by the adjacent unit to the south.

The applicant has requested an adjustment to the design standard of MMC 19.1203.3.

b. MMC Subsection 19.1203.5 Adjustment to Design Standard

MMC 19.1203.5 allows the reduction of the number of lots that must comply with MMC 19.1203.3 to the minimum extent necessary, if the applicant demonstrates that the standard would cause or is subject to certain conditions, such as adverse impacts on density, cost, or amenities.

Considering the flexibility of design afforded to planned developments in MMC Section 19.311, the allowance for a density bonus as discussed in Finding 7-a, and the site constraints presented by natural resources and floodplain on the site, the design standard of MMC 19.1203.3 presents a particular challenge for the subject property. To configure more lots with a north-south axis of at least 90 ft would result in additional disturbance to natural resources or the floodplain. Reducing the number of lots accordingly would substantially reduce the effectiveness of the Planned Development option for a site that is otherwise well suited for flexible design.

As proposed, ~~64~~76 of the 92 proposed lots (approximately ~~70~~82%) are close to meeting the design standard of MMC 19.1203.3, with a north-south dimension of at least 80 ft. In a planned development scenario, where adjustments to conventional lot size and dimensional requirements are expected, and where strict adherence to the design standard would result in a significant decrease in density or increase in disturbance to natural resource and floodplain areas, a request to reduce the number of lots that must comply is reasonable.

The City Council finds that the request to adjust the number of lots that must comply with the design standard of MMC 19.1203.3 is warranted. The ~~64~~76 lots with a north-south axis of at least 80 ft are sufficient to meet the requirements of MMC 19.1200.

As proposed, and with the approved reduction noted above, the City Council finds that the proposed development complies with the applicable standards of MMC 19.1200.

18. The application was referred to the following departments and agencies on April 13, 2017, with additional materials sent on April 26, 2017:

- Milwaukie Building Department

- Milwaukie Engineering Department
- Milwaukie Public Works Department
- ESA (City's on-call consultant for natural resource review)
- Clackamas Fire District #1
- Lake Road Neighborhood District Association (NDA) Chairperson and Land Use Committee (LUC)
- Clackamas County Department of Transportation and Development
- Metro
- Oregon Department of Transportation (ODOT)
- TriMet
- North Clackamas Parks ~~and~~ Recreation District
- Oak Grove Community Council

The comments received are summarized as follows, including comments received in response to the public notice posted on the site and mailed to property owners and residents within 500 ft of the site:

- a. **Michelle Wyfells, Planner II, TriMet:** Given the imminent changes to re-route the existing bus service on Kellogg Creek Drive (Line 152), TriMet has no comments on the proposal.
- b. **Matt Amos, Fire Inspector, Clackamas Fire District #1 (CFD#1):** Comments related to fire access and water supply requirements, including notes on required turning radii and approvable turnarounds.
- c. **Rob Livingston, Erosion Control Specialist, City of Milwaukie Public Works:** Due to the site being over 5 acres, a 1200C construction stormwater permit from DEQ will be required. A maintenance agreement with the City must be established for the stormwater facilities on site. For the City's erosion control permit, more information will be required on how hydric soils will be managed during excavation of the wetland area. Given the number of new households proposed and the accompanying number of anticipated household pets, a dispensing device(s) for pet-waste bags should be required in the large natural open space area. There is also concern for the likelihood of negative impacts to water quality and fish habitat from household pets recreating in Mount Scott Creek.

The proposed stormwater facilities do not show details for detention prior to discharge into Mount Scott Creek, particularly regarding how or where stormwater discharge will be mitigated. Many of the proposed plantings are near buildings and sidewalks—tree plantings closer to the creek would improve shade, reducing stream temperatures and mitigating for the development's removal of large mature trees from the site. The plantings proposed in Additional Enhancement Areas A and B do not provide meaningful streambank enhancement or vegetative shading for the creek.

- d. **Paul Hawkins, Land Use Chair, Lake Road NDA:** The FEMA flood data for this location is dated, so it is unclear whether the three proposed detention ponds will be adequate. The "Y" intersection of Rusk Road and Kellogg Creek Drive is less than ideal, and traffic currently backs up on Rusk Road at the Highway 224 intersection during weekday commuting hours.

- e. **Rebecca Hamilton, Regional Planner, Metro:** Metro notes that the application would require a Type III Variance to allow impacts to designated natural areas for creating 31 of the 92 proposed lots. The City of Milwaukie's Municipal Code is consistent with Metro's Functional Plan. If the City of Milwaukie is satisfied that the application has met its requirements for a Type III Variance, and if there is no request for an amendment to the City's comprehensive plan or zoning code, then Metro has no comment on this application.
- f. **Joseph Edge, Director, Oak Grove Community Council:** The trip estimates for the proposed development appear to be low, as the proposed units will perform more like single-family detached dwellings than townhouses, given their proposed price point and the likelihood that two wage-earners employed outside the household will live in each unit. The stormwater calculations are based on a pre-development curve number that is too high and does not accurately represent the pre-development conditions that should be more conservatively assumed for the site, especially considering the flood potential of the area. The loss of large white oak trees in the southwestern corner of the site is unacceptable, as these mature, old-growth trees cannot be sufficiently replaced with new trees. An alternative that preserves those trees and combines the 12 units in the southwestern portion of the site into a multifamily building elsewhere on the site would be more acceptable.
- g. **Sarah Hartung, Senior Biologist, ESA (City's On-Call Natural Resource Consultant):** A report providing peer review of the applicant's Natural Resource Review report has been provided to City staff and has been integrated into the Recommended Findings and Conditions of Approval.
- h. **Marah Danielson, Development Review Planner, ODOT Region 1:** The proposed zone change results in only a small increase in additional trips to the state highway. The applicant's Traffic Impact Analysis (TIA) shows a high number of crashes at both the Rusk Road and Webster Road intersections with Highway 224. Since the TIA analyzed the northbound right-turn movement at the Rusk Road/Highway 224 intersection as a right-turn lane where there is only a flare for a turn lane, ODOT recommends a condition requiring installation of a northbound right-turn lane at the Rusk Road/Highway 224 intersection.
- i. **Alex Roller, Engineering Tech II, City of Milwaukie Engineering Department:** Comments related to the proposal's compliance with Milwaukie Municipal Code (MMC) Title 12 Streets, Sidewalks, and Public Places; MMC Title 18 Flood Hazard Regulations; and MMC Chapter 19.700 Public Facility Improvements, with relevant recommended conditions of approval.
- j. **Kenneth Kent, Senior Planner, Clackamas County Department of Transportation and Development, Engineering Division:** Both Kellogg Creek Drive and Rusk Road are under the County's jurisdiction, so County standards and requirements apply where frontage improvements are concerned. On Kellogg Creek Drive, half-street improvements are required (minimum 16-ft roadway, curb or curb and gutter, 5-ft landscape strip, 5-ft sidewalk), with no bike lane striping. Recommendation that the existing church driveway at Rusk Road be closed, due to poor sight-distance and the difficulty of ensuring one-way ingress to the site without a median on Rusk Road. Recommendation that the applicant's traffic impact study be updated to (1) evaluate the study intersections to include estimated summer traffic volumes from North Clackamas Park, (2) include impacts of closure of the existing church driveway at Rusk Road, (3) reevaluate queuing on Rusk Road at the Highway

224 intersection using the SimTraffic program, and (4) evaluate the need for a northbound left-turn lane at the Rusk Road intersection with Kellogg Creek Drive. Suggestion that an analysis or evaluation of parking availability within the proposed development (in driveways, garages, and on-street) be conducted to understand the potential impacts of overflow parking in the adjacent neighborhood.

- k. **Kathryn Krygier, Planning and Development Manager, and Tonia Williamson, Natural Resource Coordinator, North Clackamas Parks & Recreation District (NCPRD):** Concern that increased traffic resulting from the proposed development will impact access to nearby NCPRD facilities. Note that the applicant's Traffic Impact Study (TIS) was not conducted during the time when activity at the ballfield complex in North Clackamas Park is at its peak (April through July). Concerns about safety at the intersection of Rusk Road and Kellogg Creek Drive. Suggestion that a parking study be conducted to examine the issue of visitor parking within the proposed development. Concern that the bike lane between Rusk Road and Street B appears to dead-end. Questions about the soft-surface trail system, including public accessibility, maintenance, and assessment of natural resource impacts, with a note that the trails are short and discontinuous. Request for a phasing plan, if phasing is proposed. Concern about the potential for increased flooding resulting from development within designated natural resource areas on the site. Suggestion that the applicant has not sufficiently demonstrated that impacts to natural resources will be minimized.
- l. **Laura Hickman, area resident:** Concern about traffic impacts resulting from the proposed development; including pedestrian and bicycle safety to and from area homes, North Clackamas Park, and nearby schools. Questions about the methodology and assumptions of the TIS.
- m. **Ray Olma, area resident:** Traffic on Highway 224 and Rusk Road is already bad and will be made worse by trips from the proposed development. Concern for pedestrian safety on and crossing Rusk Road, which does not have sidewalks.
- n. **Jamie Marshall, area resident:** Existing infrastructure (including water treatment facilities and I-205) is inadequate to support the proposed development.
- o. **Melanie Frisch, area resident:** Concern about traffic impacts (inadequate infrastructure) and impacts to natural resources.
- p. **Alex Roller, Engineering Tech II, City of Milwaukie Engineering Department:** Revisions to comments provided in the earlier memo related to MMC Title 12 Streets, Sidewalks, and Public Places; MMC Title 18 Flood Hazard Regulations; and MMC Chapter 19.700 Public Facility Improvements.
- q. **Dan Sweet, area resident:** Comments in opposition to the proposed development, based on concerns about traffic, flooding, and stormwater runoff.
- r. **Vincent Alvarez, Chair, Lake Road NDA:** Concerns about the proposed destruction of existing wetlands and removal of healthy white oak trees, flooding potential, and traffic impacts.
- s. **Bruce Reiter, area resident:** *[comments to be summarized]* Concerns about traffic impacts and potential impacts to the wetland's role in flood management.
- t. **John Green-Hite, area resident:** *[comments to be summarized]* Concerns about impacts to the watershed and flooding as well as to traffic.

- u. **Joan Young, area resident:** ~~comments to be summarized~~ Concerns about impacts to the broader community beyond city limits, including impacts to traffic, the environment in general, the white oak trees in particular, and flooding. Reports a history of illegal fill activity on the site.
- v. **Howard Lanoff, area resident:** ~~comments to be summarized~~ Concern about increased density and its impacts on livability.
- w. **Georgia Bogner, area resident:** ~~comments to be summarized~~ Wait times at the light at Rusk Road and Highway 224 are already bad. The proposed 92-unit development will add more than 1 vehicle each during peak times.
- x. **Chris Runyard, ecological restoration specialist:** ~~comments to be summarized~~ Submitted a 3-minute video posted online in opposition to the proposed development, citing concerns about impacts to the white oak trees, wetlands, and flooding.
- y. **Linda Huntley, area resident:** ~~comments to be summarized~~ Comments in opposition to the proposed development, based on concerns about traffic (accidents and congestion).
- z. **Jennifer Stipetic, area resident:** ~~comments to be summarized~~ Concerns about impacts on area traffic and the environment, including a desire to preserve the existing white oak trees and avoid any fill in the wetlands.
- aa. ~~Andrew Collins-Anderson~~ **Terry Gibson, Executive Director Board Chair of North Clackamas Urban Watersheds Council:** ~~comments to be summarized~~ The applicant has failed to show that the proposed development avoids or minimizes impacts to surrounding properties, has desirable public benefits, or responds to the existing built or natural environment in a creative or sensitive manner. The application does not address the potential for increased flooding in North Clackamas Park or the public benefit currently provided by the natural resource area on the site (including the white oak trees). The watershed council is heavily invested in the restoration of the natural resource area on site through its Streamside Stewards Program and believes the proposed mitigation plantings would be redundant of these earlier efforts.
- bb. **Linda Huntley, area resident:** Additional note that traffic from ball field activity in the park (Spring through Fall) already presents significant congestion and safety issues.
- cc. **Sara Miller, area resident:** The proposed development does not promote several of the goals identified in Milwaukie's 2040 Vision, particularly where it proposes to remove existing white oak trees and fill in the wetland and floodplain. The proposal does not appear to include sidewalks or address sidewalk gaps and ADA deficiencies. There are better locations in Milwaukie to develop townhomes.
- dd. **Dick Shook, area resident:** Concerns about impacts on area creeks and wetlands (flooding), the old-growth white oak trees, and the number of proposed units.
- ee. **Matt Menely, area resident:** The proposed development does not reflect the community values that have been expressed over time—walkable communities, more open space, and housing developments that create a sense of community. Wetlands and trees provide benefits to the community and should be preserved.
- ff. **Laura Hickman, area resident:** Submitted a report from the North Clackamas School District that included a detailed review of pedestrian conditions on Rusk Road. Walking conditions on Rusk Road are unsafe.

- gg. Todd Alsbury, District Fish Biologist, Oregon Department of Fish & Wildlife (ODFW):** ODFW has conducted a preliminary review of the proposed project and asks for additional time for review. Priority and/or special status fish and wildlife species are known to occur on and near the property, and Mount Scott Creek is considered Essential Salmonid Habitat. Flowing water, riparian zones, wetlands, and Oregon white oak habitat are identified as Strategy (Priority) Habitats in the Oregon Conservation Strategy. ODFW is concerned about siting infrastructure within an active floodplain, encroachment into the riparian zone, loss of existing wetlands, and loss of Oregon white oak trees that would result from the proposed development. ODFW recommends that new infrastructure be sited outside floodplains, wetlands, and other priority fish and wildlife habitats, that those habitats be adequately buffered, and that the white oak trees be retained.
- hh. Lisa Kennedy, area resident:** Comments in favor of the proposed development, including that it provides plenty of open space with affordable housing.
- ii. Sue Hayes, area resident:** Comments in opposition to the proposed development, including that 92 units are too many, the lots are too small, the site is in a flood zone, and that it would increase traffic and be dangerous for pedestrians.
- jj. Bev St. John, area resident:** Concerns about traffic impacts and pedestrian safety (lack of sidewalks in the area).
- kk. Randy Day, area resident:** The proposed development is too much for this site, considering the impact to adjacent sensitive lands and the fact that it will be an auto-dependent development. The traffic impacts will be significant and a right-turn lane on Rusk Road at Highway 224 is needed now; increased trips would seem to necessitate a left-turn lane and signal as well.
- ll. Jarrod Allen, area resident:** Opposition to the proposed development, due to traffic impacts and a lack of pedestrian facilities. The wetland area should remain undeveloped.
- mm. Lois Keiser, area resident:** Concerns about general impacts to neighborhood (density, water/sewer infrastructure, and traffic).
- nn. Ben Geertz, area resident:** Concerns for pedestrian and other non-motorized safety, as Rusk Road is currently very unsafe (no shoulder, blind corners, limited pedestrian facilities).
- oo. Lois Herring, area resident:** Support for May 25 comment by Joseph Edge that traffic study calculations for the proposed development should be done using the assumption that the proposed rowhouses will function in similar fashion to single-family detached dwellings.
- pp. Linda and Roger Huntley, area residents:** Additional concerns related to the need to preserve salmon habitat and the white oak trees.
- qq. Joseph Edge, Director, Oak Grove Community Council:** There is no guarantee that the market rate for the proposed units will remain within the price range of modest-income people, so the promotion of the proposed units as workforce housing should not be the basis for granting a density bonus. To be more affordable, at least some of the housing should be proposed as rental units in multifamily buildings. This would also reduce the aggregate footprint of structures on the site and thus further avoid and minimize impacts to natural resources.

The site is not ideal for lower income affordable housing, due to the expense of motor-vehicle ownership and the fact that the lack of safe transportation options at this location means that the people who live at the site will likely have 1 or 2 vehicles and therefore will not likely be lower income people. One suggestion is to have the new homeowners association provide a car-sharing service to help reduce the number of resident-owned vehicles in the new development. Such a car-sharing service, together with a multifamily configuration of buildings to reduce impacts to natural resources, could arguably be viewed as the kind of creative and outstanding amenities that would warrant a density bonus.

rr. Chris Runyard, ecological restoration specialist: It is not the role of the Planning Commission or City staff to ensure that developers make a profit. Ninety-two (92) units are not necessary for the developer to make a profit. The new units will not be “affordable housing” but will be sold at the market rate. The developer would benefit from giving the open space tract to the North Clackamas Parks & Recreation District (NCPRD), so the wetlands should not be negotiated away in exchange for the higher density (92 units). The City does have a responsibility to protect the public good (e.g., wetlands, trees, housing, and reduced flooding) and should be more concerned with protecting natural resources than with the developer’s profit margin.

ss. Kathryn Krygier, Planning and Development Manager, North Clackamas Parks & Recreation District (NCPRD): NCPRD is willing to acquire and manage the proposed open space tract. No funds are available for NCPRD position to purchase the tract or to provide System Development Charge (SDC) credits in exchange, but NCPRD would accept the tract if offered at no cost. The District’s interest extends only to the open space tract and not to the community garden or play area.

If acquired, NCPRD would manage the tract to be compatible with the master plan for North Clackamas Park, including approval of the location and specifications of the trail and review of the mitigation plan. NCPRD would either accept the tract after the mitigation plantings had been installed and approved by the City or could implement the mitigation plan itself with the funding provided by the developer. The District is also amenable to having the City take ownership of the tract and amending the Intergovernmental Agreement (IGA) as needed to have NCPRD manage and maintain the tract.

Pedestrian and bicycle routes through and within the site are critical to the development’s success. To provide for complete connectivity throughout the site, the path shown on the revised site plan where a road was shown on the original plan should be public and meet ADA requirements.

bb-tt. Alex Roller, Engineering Tech II, City of Milwaukie Engineering Department: Revised comments related to the proposed variance to the number of lots allowed to be served by a closed-end street system (MMC Subsection 19.708.1.E.5).

**Recommended Findings in Support of Approval
Master File #PD-2017-001
Kellogg Creek Planned Development**

Sections of the Milwaukie Municipal Code not addressed in these findings are found to be inapplicable to the decision on this application.

1. The applicant, Brownstone Development, Inc., has applied for approval to create a 92-unit Planned Development subdivision on property currently addressed at 13333 SE Rusk Rd. The site is split zoned Medium Density Residential R-3 on the western half and Low Density Residential R-10 on the eastern half. The land use application master file number is PD-2017-001, with accompanying file numbers ZA-2017-001, S-2017-001, NR-2017-001, TFR-2017-001, VR-2017-003, and CSU-2017-001.
2. The subject property is comprised of a single lot that is the result of a recent lot consolidation and property line adjustment process (land use files PLA-2017-001 and LC-2017-001). Previously, the subject property was comprised of four lots totaling 17.55 acres, with the Turning Point Church located in the southeastern corner of the site and addressed as 13333 SE Rusk Rd. Three of the lots on the western side of the original property were consolidated, and the property line between this new lot and the remaining church lot was subsequently adjusted to accurately reflect the location of the church building and accompanying off-street parking areas. The resulting church site is approximately 3.7 acres, and the subject property being subdivided is approximately 13.8 acres.
3. The applicant has proposed to divide the subject property into 92 lots for 4-unit rowhouse development, with tracts for stormwater (3 facilities), open space (nearly 7 acres), a community garden, and a pedestrian connection to Kellogg Creek Drive along the eastern edge of the development. A network of new public streets will provide access to the new development, with two points of vehicle access to Kellogg Creek Drive and pedestrian and bicycle access to an existing sidewalk at the intersection of Rusk Road and Highway 224. Private alleys will provide additional access to the rear of some of the proposed rowhouses. Previously, the church site depended on an access through the subject property; access to the church site will be retained through one of the new public streets. The proposal includes a variance request for locating the driveway access for one of the proposed lots slightly closer to a street intersection than the City code allows.
4. Mount Scott Creek flows across the northern portion of the subject property, and a large wetland (approximately 0.7 acres) is located within the 100-year floodplain designated over most of the western half of the site. Water Quality Resource (WQR) and Habitat Conservation Area (HCA) designations exist around the creek and wetland, and portions of these natural resource areas will be disturbed by the proposed development. The applicant has proposed mitigation plantings within the WQR and HCA and to balance cut and fill within the floodplain. The proposal includes a variance request for configuring several of the new lots in such a way that there is little or no buildable area outside the WQR or HCA.
5. The proposal is subject to the following provisions of the Milwaukie Municipal Code (MMC):
 - MMC Section 19.1007 Type IV Review
 - MMC Section 19.311 Planned Development Zone (PD)
 - MMC Section 19.301 Low Density Residential Zones (including R-10)
 - MMC Section 19.302 Medium and High Density Residential Zones (including R-3)
 - MMC Section 19.902 Amendments to Maps and Ordinances

- MMC Title 17 Land Division
- MMC Title 18 Flood Hazard Regulations
- MMC Section 19.402 Natural Resources
- MMC Chapter 19.500 Supplementary Development Regulations
- MMC Chapter 19.600 Off-Street Parking and Loading
- MMC Chapter 19.700 Public Facility Improvements
- MMC Section 19.904 Community Service Uses
- MMC Section 19.911 Variances
- MMC Chapter 19.1200 Solar Access Protection

6. The application submittal includes a proposed Planned Development, Zoning Map Amendment, Subdivision (preliminary plat), Natural Resource Review, Transportation Facilities Review, Variance Request, and minor modification to the church as an existing Community Service Use. Of all of the application components, the Planned Development and Zoning Map Amendment require the highest level of review (Type IV); as per MMC Subsection 19.1001.6.B, all are being processed with Type IV review.

The application has been processed and public notice provided in accordance with MMC Section 19.1007 Type IV Review. As required by MMC Subsection 19.1002.2, a preapplication conference was held on August 11, 2016. Public notice was sent to property owners and current residents within 500 ft of the subject property. MMC Subsection 19.1007.3.D requires a 400-ft radius for public notice, but the applicant requested a broader notice radius to correspond with the notice sent for the applicant's voluntary neighborhood meeting prior to submittal. As required by law, a public hearing with the Planning Commission was opened on May 23, 2017; continued to May 25; continued again to June 27 (where it was only nominally re-opened); and continued again to July 25, 2017. The Planning Commission hearing resulted in a recommendation for final decision by the City Council. A public hearing with the City Council was held on [month/day], 2017, as required by law.

These findings are worded to reflect the City Council's role as final decision-maker; they represent the Planning Commission's recommendation to the City Council.

7. MMC Chapter 19.300 Base Zones

As a Planned Development, the proposed subdivision is subject to the requirements for Planned Developments as established in MMC Section 19.311. The Planned Development (PD) zone is a superimposed zone applied in combination with regular existing zones. The subject property is split-zoned R-10 and R-3, so the underlying zone requirements of MMC Sections 19.301 and 19.302, respectively, are relevant and must be addressed as well.

- a. MMC Section 19.311 Planned Development Zone (PD)

The purpose of a Planned Development (PD) zone is to provide a more desirable environment than is possible through the strict application of Zoning Ordinance requirements, encouraging greater flexibility of design and providing a more desirable use of public and private common open space. PD zones can promote variety in the physical development pattern of the city and encourage a mix of housing types.

- (1) MMC Subsection 19.311.2 Use

The City Council approves the final development plan of a PD zone, in consideration of the proposal's conformance to the following standards:

(a) Conformance to the City's Comprehensive Plan

As addressed in more detail in Finding 8, the proposed Planned Development conforms to the City's Comprehensive Plan and is consistent with the relevant policies and goals.

(b) Formation of a compatible and harmonious group

As proposed, the development will provide 92 single-family attached units in the form of 23 four-unit rowhouses. Approximately half of the units will be alley-loaded, with driveways and garages located in the rear; the other half will be front-loaded, with driveways and garages accessing the streets. Although the two types of structures will have different front facades, according to the applicant's submittal materials, the size, orientation, architecture, color palette, and articulating features will be similar and will lend a sense of group compatibility.

(c) Suitability to the capacity of existing and proposed community utilities and facilities

The existing public utilities and facilities in the vicinity of the subject property are all of sufficient size and capacity to support the proposed development. As required, the new streets and utilities provided within the proposed development itself will be suitable to serve it.

(d) Cohesive design and consistency with the protection of public health, safety, and welfare in general

The proposed street network, comprised of public streets, a public alley, and pedestrian and bicycle paths, is cohesively designed and meets the various applicable City standards for spacing and sight-distance. Frontage improvements on the new public streets and along the subject property's frontage on Kellogg Creek Drive, including sidewalks, landscaping, and streetlights will meet applicable City standards. A soft-surface trail system through a portion of the open space area will offer recreational opportunities while limiting impacts to natural areas.

(e) Affordance of reasonable protection to the permissible uses of properties surrounding the site

No commercial or other nonresidential uses are proposed as part of the development. Surrounding properties are zoned for low-density residential uses, and the proposed development will not limit any future development or redevelopment of those properties. Access to the adjacent church site will be modified to allow a safe connection to Kellogg Creek Drive through the new street system of the proposed development. Future redevelopment of the church site may require further modifications to its access, but the proposed development does not preclude such redevelopment. The northern portion of the site, which is adjacent to the rear of several residential lots on Kayla Court, will not be accessible across Mount Scott Creek and will not present any new impacts as a result of the proposed development.

(2) MMC Subsection 19.311.3 Development Standards

MMC 19.311.3 establishes that the various applicable standards and requirements of MMC Title 19, including those of the underlying zone(s), are

applicable in a PD zone, unless the Planning Commission grants a variance from said standards in its approval of the PD or the accompanying subdivision plat. The City Attorney has concurred with the conclusion of City staff that a formal variance request is not required for adjustments related to the flexibility inherent in the stated purpose of the PD zone to encourage greater flexibility of design and provide a more efficient and desirable use of common open space, with an allowance for some increase in density as a reward for outstanding design (e.g., housing type, lot size, lot dimension, setbacks, and similar standards).

(a) Minimum Size of a PD Zone

MMC Subsection 19.311.3.A requires a minimum of 2 contiguous acres of land for a Planned Development.

The subject property is approximately 13.8 acres in size and provides an adequate area for development.

(b) Special Improvements

MMC Subsection 19.311.3.B establishes the City's authority to require the developer to provide special or oversize sewer lines, water lines, roads and streets, or other service facilities.

The City's Engineering Department has determined that no special or oversize facilities are required to ensure that the proposed development provides adequate public facilities.

(c) Density Increase and Control

MMC Subsection 19.311.3.C allows an increase in density of up to 20% above the maximum allowed in the underlying zone(s), if the City Council determines that the proposed Planned Development is outstanding in planned land use and design and provides exceptional advantages in living conditions and amenities not found in similar developments constructed under regular zoning.

Subtracting the area occupied by floodplain, proposed rights-of-way, and required open space, as required by the density-calculation standards provided in MMC Subsection 19.202.4, the maximum allowable density for the net area of the subject property is 80 units. The applicant has proposed a total of 92 units, which is a 15% increase. The applicant has listed the following elements as evidence of the project's outstanding design and exceptional advantages:

- *Over 7 acres of open space, which will protect natural resource and floodplain areas on the site and provide recreational opportunities with a soft-surface trail system. Staff notes that, to ensure ongoing maintenance of the open space, the area should either be dedicated to the City or North Clackamas Parks & Recreation District or that a Home Owners' Association be established with Covenants, Conditions, and Restrictions that require ongoing maintenance.*
- *Overall site design that provides a sense of openness and visual permeability between the natural open space tract and the*

residential lots, nearly half of which will have backyards that are directly adjacent to the open space

- *Unfenced stormwater facilities planted with low-lying grasses that maintain views of the open space and provide connection points between the trail system and the rest of the development*
- *A community garden for use by residents, located in the northeastern portion of the site*
- *Trees planted as screening between Highway 224 and the adjacent lots in the northeast corner of the site*
- *92 units of attached single-family housing offered at a price point that is affordable for working people with moderate incomes*
- *Compact development in proximity to a large public park (North Clackamas Park) and with access to a major roadway (Highway 224)*

The applicant has asserted that, without the Planned Development process, the site would be difficult to develop at a level that would meet the City's minimum density standard, at least without resulting in greater impacts to the designated natural resources on the site and a loss of some of the proposed amenities like the soft-surface trails and community garden. In effect, the proposed development is outstanding by virtue of being the only practicable and feasible layout for the site that provides new housing targeted at working people with moderate incomes.

As per the recommendation of the Planning Commission, the City Council finds that the proposed development provides sufficiently outstanding design features and extraordinary amenities to justify the proposed density increase.

(d) Peripheral Yards

MMC Subsection 19.311.3.D requires that yards along the periphery of any Planned Development zone be at least as deep as the front yard required in the underlying zone(s). Open space may serve as peripheral yard.

The front yard requirements of the underlying zones are 20 ft for R-10 and 15 ft for R-3. The large open space tract on the north and west sides of the proposed development provides a buffer of well over 20 ft. Where the proposed development is adjacent to the church property on the east, a 22-ft-wide public alley provides a peripheral buffer for Lots 45 and 57, and the 20-ft-wide pedestrian connection on tracts E and F provides a peripheral buffer for Lots 1 and 17. The pedestrian-bicycle connection between the cul-de-sac and the sidewalk at Rusk Road, in the northeastern corner of the site, provides 15 ft of separation for Lot 92; together with the proposed 5-ft side yard, a total of 20 ft will be provided as a buffer for this lot.

(e) Open Space

MMC Subsection 19.311.3.E requires that a Planned Development set aside land as open space, for scenic, landscaping, or other recreational purposes within the development. A minimum of one-third of the gross area of the site must be provided as open space and/or outdoor recreational

areas, with at least half of this area being of the same general character as the area containing dwelling units.

The gross area of the subject property is approximately 13.8 acres, so a minimum of 4.6 acres must be provided as open space, with at least 2.3 acres available for recreational purposes. The applicant has proposed to establish an open space tract of approximately 7 acres, with a soft-surface trail system making approximately 2.5 acres available for recreation.

(3) MMC Subsection 19.311.6 Planning Commission Review of Preliminary Development Plan and Program

MMC 19.311.6 establishes that the Planning Commission shall review an applicant's preliminary development plan and program for a PD and shall notify the applicant whether the proposal appears to satisfy the provisions of this section or has any deficiencies. Upon the Commission's approval in principle of the preliminary plan and program, the applicant shall file a final development plan and program and an application for zone change.

The applicant has submitted a development plan and program for the proposed PD and has requested that the Commission consider it to be the final development plan and program submittal, along with the accompanying application for zone change.

(4) MMC Subsection 19.311.8 Subdivision Plat

MMC 19.311.8 requires that the submittal of a final development plan and program be accompanied by an application for subdivision preliminary plat, where the PD involves the subdivision of land.

The proposal involves a 92-unit subdivision, and the applicant has included an application for subdivision preliminary plat with the submittal of a final development plan and program.

(5) MMC Subsection 19.311.9 Application for Zone Change

MMC 19.311.9 requires that an application for zone change accompany the submittal of a final development plan and program.

Along with the final development plan and program, the applicant has included an application for zone change to apply the PD zone to the subject property.

(6) MMC Subsection 19.311.10 Planning Commission Action on Final Development Plan and Program

MMC 19.311.10 requires that the Planning Commission hold a public hearing using Type IV review to consider a final development plan and program, zone change application, and subdivision preliminary plat. If the Planning Commission finds that the final development plan and program is in compliance with the preliminary approval and with the intent and requirements of the applicable provisions of the zoning ordinance, it shall forward a recommendation for approval to the City Council for adoption.

As required, the Planning Commission held a public hearing on May 23, 2017, in accordance with the Type IV process outlined in MMC Section 19.1007 and considered the proposed development plan and program, zone change application, subdivision preliminary plat, and other accompanying reviews. The Planning Commission found that the development plan and program is in

compliance with the intent and requirements of the applicable provisions of MMC Title 19 Zoning and forwarded a recommendation of approval to the City Council for adoption.

(7) MMC Subsection 19.311.11 Council Action on Final Development Plan and Program

MMC 19.311.11 requires that the City Council consider the final development plan and program and zone change application through the Type IV review process, upon receipt of a recommendation from the Planning Commission. Upon consideration of the proposal, the Council may adopt an ordinance applying the PD zone to the subject property and adopt the final development plan and program as the standards and requirements for that PD zone. The Council may also continue consideration and refer the matter back to the Planning Commission with recommendations for amendment, or may reject the proposal and abandon further hearings and proceedings.

The Council considered the final plan and program and zone change application, as well as the accompanying applications for subdivision preliminary plat and associated reviews, in accordance with the Type IV review process outlined in MMC Section 19.1007. The Council held a public hearing on [month/day], 2017, and adopted an ordinance applying the PD zone to the subject property, which adopted the final development plan and program as the standards and requirements for the new PD zone (Ordinance #####).

The City Council finds that the applicable standards and requirements of MMC 19.311 are met. As per Ordinance #####, the final development plan and program is adopted as the standards and requirements and the PD zone designation is applied to the subject property.

b. MMC Sections 19.301 Low Density Residential Zones (including R-10) and 19.302 Medium and High Density Residential Zones (including R-3)

The subject property is split-zoned Residential R-10 and Residential R-3. MMC 19.301 and 19.302 establish the allowable uses and development standards for the residential R-10 and R-3 zones, respectively. As noted in Finding 7-a(2), although the underlying zone standards are primarily applicable, the PD zone allows adjustment to some of those standards. This applies to such underlying zone limitations as housing type, lot size, lot dimension, setbacks, and similar standards that relate to flexibility of design, greater efficiency in the use of common open space, and minor increases in density allowed as a reward for outstanding design.

(1) Permitted Uses

As per MMC Table 19.301.2, rowhouse development is not a permitted use in the R-10 zone; rowhouses are an outright permitted use in the R-3 zone (as per MMC Table 19.302.2). As noted in Finding 7-a, the primary purposes of the PD zone include encouraging greater flexibility of design and providing a more efficient use of common open space, so housing types not ordinarily permitted in the base zone may be proposed.

The applicant has proposed a 92-unit development comprised of 23 four-unit rowhouse buildings. The proposed design maximizes the development potential of the subject property, providing a public street network and utility infrastructure

while minimizing impacts to the natural resource and floodplain areas on the site, which will remain protected in open space.

(2) Lot and Development Standards

The applicant has proposed to apply a single set of lot and development standards across the entire site, which is zoned R-3 on the western half and R-10 on the eastern half. As discussed in Finding 7-a(2), above, adjustments to underlying zone standards that are related to the flexibility of design afforded by the PD process are allowed and do not require a formal variance request. Table 7-b(2) compares the applicable standards for development in the R-10 and R-3 zones with the standards proposed as the final development plan and program for this PD zone.

Standard	R-10 Requirement	R-3 Requirement ¹	Proposed PD Requirement
1. Minimum Lot Size	10,000 sq ft	3,000 sq ft	Lots range from 1,600 sq ft to approx. 2,500 sq ft
2. Minimum Lot Width	70 ft	30 ft	Lot widths range from 20 ft to 28 ft
3. Minimum Lot Depth	100 ft	80 ft	Lot depths range from 80 to 87.25 ft
4. Minimum street frontage	35 ft	30 ft	Typical range is 20 to 25 ft; three lots on cul de sac are <20 ft
5. Front Yard	20 ft	15 ft	Front-loaded lots = 18 ft Alley-loaded lots = 10 ft
6. Side Yard	10 ft	0 ft (common) 5 ft (exterior)	Common wall = 0 ft Exterior wall = 5 to 6 ft
7. Street-Side Yard	20 ft	15 ft	8 ft
8. Rear Yard	20 ft	15 ft	Front-loaded lots = 15 ft Alley-loaded lots = 20 ft
8. Maximum Building Height	2.5 stories or 35 ft (whichever is less)	2.5 stories or 35 ft (whichever is less)	2 stories, <35 ft
9. Side yard height plane limit	45 degree slope at 20 ft height	45 degree slope at 20 ft height	≤20 ft
10. Maximum lot coverage	30%	40% (+20% for rowhouses)	Lots range from 46% to 59%
11. Minimum vegetation	35%	35%	Small vegetated areas on each lot, with access to large open space area to west
12. Front yard minimum vegetation	40%	40%	Front yard areas not occupied by driveways and walkways will be vegetated

13. Minimum density	3.5 units per acre	11.6 units per acre	Minimum of 66 units for entire site
14. Maximum density	4.4 units per acre	14.5 units per acre	Maximum of 80 units for entire site (Applicant has requested a 15% density increase to a total of 92 units)

¹ R-3 requirements from MMC Table 19.302.2 for rowhouses

The lot and development standards that will govern development on the subject property are shown in Table 7-b(2) and effectively establish a component of the final development plan and program for this PD zone.

8. MMC Section 19.902 Amendments to Maps and Ordinances

MMC 19.902 establishes the process for amending the City's Comprehensive Plan and land use regulations, including the zoning map. Specifically, MMC Subsection 19.902.6 establishes the review process and approval criteria for zoning map amendments.

a. MMC Subsection 19.902.6.A Review Process

MMC 19.902.6.A provides that, generally, changes to the zoning map that involve 5 or more properties or encompass more than 2 acres of land are legislative and are therefore subject to Type V review; otherwise, they are quasi-judicial in nature and subject to Type III review. The City Attorney has the authority to determine the appropriate review process for each proposed zoning map amendment.

The proposed zoning map amendment encompasses a single property of approximately 13.8 acres and is related to a proposed planned development, which requires Type IV review. The City Attorney has determined that the proposed zoning map amendment is quasi-judicial in nature and requires Type III review. The concurrent planned development requires Type IV review, which is also a quasi-judicial process. The City Council finds that the Type IV review process is appropriate for the proposed zoning map change.

b. MMC Subsection 19.902.6.B Approval Criteria

MMC 19.902.6.B establishes the following approval criteria for zoning map amendments:

- (1) The proposed amendment is compatible with the surrounding area based on the following factors:
 - (a) Site location and character of the area
 - (b) Predominant land use pattern and density of the area
 - (c) Expected changes in the development pattern for the area

The area surrounding the subject property includes North Clackamas Park and low to moderate density residential development, as well as the Deerfield Village assisted living center (40 apartment units) located directly across Kellogg Creek Drive from the site. The proposed development will preserve over half of the site area as natural open space with access through soft-surface trails for low-impact recreational use. The location offers easy access to Highway 224, North Clackamas Park, several nearby schools, and employment centers along the Highway 224 and Interstate 205 corridors.

The 92 units of proposed rowhouses will be arranged in a compact pattern accessible by fully constructed local streets, with landscape strips, street trees, and on-street parking. Although the residential portion of the proposed development will be more dense than most of the surrounding neighborhood, the Deerfield Village assisted living center is similar in density and aesthetic to an apartment or multifamily development. The proposed development is consistent with the single-family attached housing that Milwaukie's 2016 Housing Needs Analysis predicts will be developed over the next 20 years.

The proposed zoning amendment is compatible with the surrounding area based on the factors listed above.

- (2) The need is demonstrated for uses allowed by the proposed amendment.

The draft 2016 Housing Needs Analysis prepared for Milwaukie notes a particular need for single-family attached units like the proposed rowhouses.

- (3) The availability is shown of suitable alternative areas with the same or similar zoning designation.

Functionally, the PD designation is a form of overlay zone designation that can be applied to sufficiently sized properties for greater flexibility in developing the site. This criterion is more applicable to standard base zone designations and is intended to ensure that a suitable number of other properties with the same base zone designation will remain available for development.

This criterion is not applicable to a proposal to add the PD designation to a base zone.

- (4) The subject property and adjacent properties presently have adequate public transportation facilities, public utilities, and services to support the use(s) allowed by the proposed amendment, or such facilities, utilities, and services are proposed or required as a condition of approval for the proposed amendment.

The applicant's submittal materials include a traffic impact study, utility plans, and preliminary stormwater drainage report to demonstrate that public facilities are or will be made adequate to serve the proposed development.

Existing water and sanitary sewer services in Kellogg Creek Drive are provided by Clackamas River Water (CRW) and Clackamas County's Water and Environment Services (WES), respectively, and are adequate to serve the proposed new units. Within the public rights-of-way that will serve the proposed development, new water and sanitary sewer mains will be constructed as per City standards and will be maintained by the City, though they will connect to the CRW and WES facilities in Kellogg Creek Drive.

The applicant proposes to manage stormwater runoff from the new public streets with three large, shallow bioswale facilities. The applicant's preliminary drainage report, prepared by a qualified professional engineer, explains in more detail how stormwater will be managed and demonstrates that post-development runoff will not exceed the applicable pre-development standards.

Within the newly dedicated public rights-of-way that will serve the proposed lots, public streets will be constructed to meet applicable City standards, with paved travel lanes, curb and gutter, landscape planter strips, and sidewalks. On Kellogg Creek Drive along the subject property frontage, the existing right-of-way will be also be improved to provide the required width travel lane, striped

bicycle lane, on-street parking strip, curb and gutter, landscape planter strip, and setback sidewalk.

The subject property and adjacent properties presently have adequate public transportation facilities, public utilities, and services to support the proposed development.

- (5) The proposed amendment is consistent with the functional classification, capacity, and level of service of the transportation system. A transportation impact study may be required subject to the provisions of Chapter 19.700.

The applicant prepared a traffic impact study (TIS) to evaluate the proposed development's anticipated impacts on the transportation system. The TIS concluded that traffic volumes from the proposed development will not cause any of the intersections in the study area to fall below acceptable levels of service.

As discussed in Finding 14-c, the City's traffic consultant has reviewed the applicant's TIS and concluded that, with the exception of one error related to measurement of the northbound right-turn lane on Rusk Road at the Highway 224 intersection, the methodology and conclusions of the TIS are sound. As proposed, the northbound right-turn leg of the Rusk Road/Highway 224 intersection would fall below the acceptable level of service. A condition has been established to require extension of the northbound right-turn lane on Rusk Road so the Highway 224 intersection maintains an acceptable level of service.

As conditioned, the proposed amendment is consistent with the functional classification, capacity, and level of service of the transportation system.

- (6) The proposed amendment is consistent with the goals and policies of the Comprehensive Plan, including the Land Use Map.

The Land Use Map within the City's Comprehensive Plan (Comp Plan) reflects the split zoning of the subject property, with a Low Density designation for the portion zoned R-10 and a Medium Density designation for the portion zoned R-3. The proposed amendment would add the Planned Development (PD) designation to each of the zone designations for the subject property but would not affect the designations on the Land Use Map.

The Comp Plan includes a number of goals and policies that are applicable to the proposed development.

(a) *Chapter 1 Citizen Involvement*

The goal of Chapter 1 is to encourage and provide opportunities for citizens to participate in all phases of the planning process. Prior to submitting the application, the applicant held an open meeting to present and discuss the project. The Lake Road Neighborhood District Association and to property owners and residents within 500 ft of the site were invited. According to the applicant's submittal materials, approximately 30 people attended the meeting, held on November 3, 2016. The applicant noted the various concerns raised by neighbors and has noted that several aspects of the original plan were revised as a result.

The Type IV review process utilized for consideration of any Planned Development provides for public hearings by both the Planning Commission and City Council, where citizens have the opportunity to

present testimony and participate in the decision-making process. A public hearing on the proposed development was opened by the Planning Commission on May 23, 2017; continued to May 25; continued again to June 27 (where it was only nominally re-opened); and continued again to July 25, 2017. A public hearing was held by the City Council on [month/day], 2017. The Commission and Council considered testimony from citizens en route to reaching the decision reflected in these findings.

(b) Chapter 2 Plan Review and Amendment Process

The goal of Chapter 2 is to establish a process for review and amendment of the Comp Plan, as a basis for land use decisions and with public participation. Policies related to the objective of implementing the Comp Plan include a requirement that zone changes and other planning actions be consistent with the intent of the Comp Plan. The applicant's narrative and supporting materials are evidence of the required review process at work, with opportunities for public involvement at Commission and Council hearings as noted above.

(c) Chapter 3 Environmental and Natural Resources

Chapter 3 focuses on conservation of the City's remaining natural resources.

(i) Natural Hazards Element

The goal of the Natural Hazards element is to provide appropriate safeguards for development in areas of known natural hazards, such as floodplains. Policies include the direction to establish regulations to prevent development from increasing stormwater runoff and standards to ensure the strength and quality of construction materials within the floodplain. The finished elevations of the lowest floors of buildings and streets must be a minimum of 1 ft above the 100-year flood elevation, and actions are encouraged to retain the floodplain as minimally undeveloped open space.

The subject property includes a designated floodplain area, and the proposed development involves some alteration of the floodplain. As discussed in Finding 10, the applicant proposes to balance the amount of fill that will be added within the floodplain with the removal of an equal amount of material. The fill will raise those areas of residential construction and streets at least 1 ft above the base flood elevation. The remaining floodplain areas on the site will be included in a large open space tract.

(ii) Open Spaces, Scenic Areas, and Natural Resources Element

The goal of the Open Spaces element is to conserve open space and protect and enhance natural resources to create an aesthetically pleasing urban environment. Policies include the protection of natural resources through conservation and mitigation, designation of riparian area buffers, regulation of the placement and design of stormwater drainage facilities, and protection of existing upland areas and values related to wildlife habitat and erosion control.

As discussed in more detail in Finding 11, the applicant's submittal materials include a natural resource report that analyzes practicable alternatives to the proposed development and demonstrates that its proposal does the most to avoid impacts to the WQR and HCA parts of the site, minimizes impacts where unavoidable, and sufficiently mitigates for the allowed disturbance. The applicant's submittal materials include a preliminary drainage report that explains how the proposed stormwater management facilities are designed to ensure that post-development runoff will not exceed pre-development levels.

(d) Chapter 4 Land Use

Chapter 4 provides objectives and policies to guide the development of vacant lands and redevelopment of existing features, considering a variety of needs such as housing, employment, and recreation.

(i) Residential Land Use and Housing Element

The goal of the Residential Land Use element includes the provision of new housing that is adequate to meet the needs of local residents and the regional housing market.

Policies related to buildable lands include the use of zoning to implement the policies and standards of various other elements of the Comp Plan and requirement of a report demonstrating consistency with the policies of Chapter 3 (Environmental and Natural Resources) for sites with special resource designations. Policies related to residential land use design include an allowed density bonus of up to 20% for Planned Unit Developments in exchange for exceptional design quality or special project amenities, a requirement that Planned Unit Developments provide areas dedicated to open space and/or outdoor recreation, and encouragement for preservation of existing tree canopy and connected vegetated corridors. Policies related to housing choice include the development of larger subdivisions and Planned Unit Developments that use innovative techniques for the purpose of reducing housing costs while creating an attractive living environment.

The applicant's narrative includes an address of the proposal's consistency with the various applicable goals, objectives, and policies of the Comp Plan, including those of Chapter 3. As addressed in Finding 7-a-(2)(c), the applicant has proposed a density increase of 15%, based on the exceptional design and special amenities of the proposed development. The proposed development includes nearly half of the overall site retained as open space, with the developable lots configured in such a way as to preserve as many of the existing trees on the site as practicable and to avoid impacts to the riparian corridor along Mount Scott Creek. The applicant asserts that the number of proposed lots will create a certain economy of scale that will allow the new units to be sold at an affordable price and meet one of the community's housing needs.

(ii) Recreational Needs Element

The goal of the recreational needs element is to provide for the recreational needs of current and future city residents by maximizing the use of existing public facilities, encouraging the development of private recreational facilities, and preserving the opportunity for future public recreational use of vacant private lands.

The subject property is adjacent to the eastern edge of North Clackamas Park, and future residents in the proposed development will have easy access to this existing public facility. Within the proposed open space tract, a soft-surface trail system will be available for recreational use by both future residents and the public at large (through a public access easement).

(e) Chapter 5 Transportation, Public Facilities, and Energy Conservation

Chapter 5 addresses the City's responsibility to provide its current and future residents with a full range of urban services, including streets, sewer, and water.

(i) Transportation Element

The City's Transportation System Plan (TSP) is an ancillary Comp Plan document that contains the City's long-term transportation goals and policies. The applicant's TIS demonstrates consistency with the TSP and asserts that the proposed development will not result in significant impacts to the surrounding transportation system. As discussed in Finding 14-xx, the City's traffic consultant has reviewed the applicant's TIS and concluded that, with the exception of one error related to measurement of the northbound right-turn lane on Rusk Road at the Highway 224 intersection, the methodology and conclusions of the TIS are sound. A condition has been established to address this error.

(ii) Public Facilities and Services Element

The goal of the Public Facilities element is to provide for the orderly and efficient arrangement of public facilities and services to serve urban development. The proposed development includes the extension of existing water and sewer services to serve the new lots, as well as stormwater facilities designed to ensure that post-development runoff does not exceed pre-development levels.

(iii) Energy Conservation Element

The goal of the Energy Conservation element is to conserve energy by encouraging energy-efficient land use patterns and transportation systems. The proposed development is a compact arrangement of 92 units of rowhouse housing that is located close to large employment corridors across Highway 224 and along Interstate 205.

As conditioned, the proposed amendment is consistent with the goals and policies of the Comprehensive Plan, including the Land Use Map.

- (7) The proposed amendment is consistent with the Metro Urban Growth Management Functional Plan and relevant regional policies.

The Metro Urban Growth Management Functional Plan includes a number of titles that address various aspects of the region's goals and policies for urban development.

(a) *Title 1 Housing Capacity*

The proposed development will provide a large number of needed housing units in a compact urban form.

(b) *Title 3 Water Quality and Flood Management*

The proposed development is configured to avoid and/or minimize impacts to the designated natural resources on the site. Proposed alterations to the floodplain will be done in accordance with local and federal requirements.

(c) *Title 7 Housing Choice*

The proposed development will provide single-family attached housing and will support Metro's policies for expanding housing choice with a needed housing type in Milwaukie.

(d) *Title 13 Nature in Neighborhoods*

The proposed development supports Metro's policies for conserving and enhancing habitat areas by avoiding and minimizing impacts to the designated natural resources on the site, as well as by establishing a large open space tract that includes wetlands, floodplain, existing mature native trees, and the riparian corridor along Mount Scott Creek.

The proposed amendment is consistent with the Metro Urban Growth Management Functional Plan and relevant regional policies.

- (8) The proposed amendment is consistent with relevant State statutes and administrative rules, including the Statewide Planning Goals and Transportation Planning Rule.

Several of the Statewide Planning Goals are relevant to the proposed amendment:

(a) *Goal 2 Citizen Involvement*

Prior to submitting the application, the applicant held an open meeting to present and discuss the proposed development with neighbors. The applicant made several revisions to the original concept plan as a direct result of the discussion at that meeting. The Type IV review process for Planned Development proposals requires public hearings with both the Planning Commission and the City Council, allowing additional opportunities for citizens to submit written and oral testimony before the decision-makers. A public hearing on the proposed development was held by the Planning Commission on May 23, 2017, and was continued to [month/day], 2017; a public hearing was held by the City Council on [month/day], 2017.

(b) *Goal 5 Natural Resources*

The proposed development is subject to the applicable standards of MMC Section 19.402 Natural Resources, which provide protections for designated natural resource areas. As discussed in more detail in Finding 11, the applicant has proposed to avoid impacts to WQR and HCA parts of

the site as much as practicable, to minimize impacts where unavoidable, and to sufficiently mitigate for the allowed disturbance.

(c) *Goal 7 Areas Subject to Natural Hazards*

The subject property includes a significant area of floodplain. As addressed in Finding 10, the applicant proposes substantial alteration of the floodplain in accordance with local and federal requirements, including the provision that the amount of fill material placed in the floodplain must be balanced by an equal removal of material from within the floodplain.

(d) *Goal 12 Transportation and Transportation Planning*

As addressed in Finding 14 and elsewhere in these findings, with the conditioned correction of one minor error noted by City staff, the applicant's TIS demonstrates that the proposed development will not require changes to the functional classification of existing or planned transportation facilities and will not result in significant impacts on the transportation system.

As conditioned, the proposed amendment is consistent with relevant State statutes and administrative rules, including the Statewide Planning Goals and Transportation Planning Rule.

The proposed amendment, as conditioned, is consistent with the applicable criteria for zoning map amendments.

As conditioned, the City Council finds that the proposed amendment to the City's Zoning Map is approvable.

9. MMC Title 17 Land Division

MMC Title 17 establishes the City's regulations and procedures for lot consolidations, land divisions, property boundary changes, and creation of streets and rights-of-way. As per MMC Section 17.04.050, all decisions on boundary changes and land divisions expire 1 year after the date of approval, with one 6-month extension allowed upon submission of a formal request to the original decision-making authority.

a. MMC Chapter 17.12 Application Procedure and Approval Criteria

MMC 17.12 establishes the application procedures and approval criteria for land divisions and property boundary changes. Specifically, MMC Subsection 17.12.020.E provides that applications for subdivision preliminary plat are subject to Type III review.

MMC Section 17.12.040 establishes the following approval criteria for preliminary plat:

- (1) The proposed preliminary plat complies with Title 19 of this code and other applicable ordinances, regulations, and design standards.

The proposed preliminary plat is for a planned development subdivision of 92 lots for rowhouse development, with tracts for stormwater facilities, open space, a community garden, and a pedestrian connection to Kellogg Creek Drive along the eastern edge of the development. The subject property is a 13.8-acre parcel that was created from a larger 17.5-acre property by a Property Line Adjustment and Lot Consolidation application (file #s PLA-2017-001 and LC-2017-001) approved in May 2017.

As addressed throughout these findings, the proposed subdivision complies with the applicable standards of Title 19 and other applicable ordinances, regulations, and design standards.

The City Council finds that this standard is met.

- (2) The proposed division will allow reasonable development and will not create the need for a variance of any land division or zoning standard.

The proposed division will allow reasonable development on all developable lots, without creating the need for any additional variances of land division or zoning standards beyond those addressed in these findings.

The City Council finds that this standard is met.

- (3) The proposed subdivision plat name is not duplicative and the plat otherwise satisfies the provisions of ORS 92.090(1).

The proposed subdivision name, Kellogg Creek, is not duplicative, and the plat otherwise satisfies the provisions of ORS 92.090(1).

The City Council finds that this standard is met.

- (4) The streets and roads are laid out so as to conform to the plats of subdivisions already approved for adjoining property as to width, general direction, and in all other respects unless the City determines it is in the public interest to modify the street or road pattern.

The Whitman's Lake-East Heights subdivision of 2001 is adjacent to the subject property to the north, across Mount Scott Creek from the proposed development. The Whitman's Lake-East Heights subdivision includes a public street (Madeira Drive) that bends away from the subject property and does not provide a connection point to the subject property. The proposed development does not include a crossing of Mount Scott Creek nor any developable lots or streets adjacent to the adjoining subdivision to the north.

The City Council finds that this standard is not applicable.

- (5) A detailed narrative description demonstrating how the proposal conforms to all applicable code sections and design standards.

The applicant has provided a detailed narrative description that demonstrates how the proposal conforms to all applicable standards and addresses variance requests as needed.

The City Council finds that this standard is met.

The City Council finds that the applicable procedures and approval criteria for the proposed subdivision, as outlined in MMC 17.12, are met.

b. MMC Chapter 17.16 Application Requirements and Procedures

MMC 17.16 establishes application requirements for land divisions and property boundary changes, including for preliminary plat for subdivision. The application must include all required forms and fees, as well as the information specified on the Submittal Requirements and Preliminary Plat checklists.

The applicant's submittal materials include all required forms and fees for the proposed subdivision, as well as plan sheets, narratives addressing the various applicable standards and criteria, and supporting documents and reports.

The City Council finds that the application requirements and procedures of MMC 17.16 are met.

c. MMC Chapter 17.20 Preliminary Plat

MMC 17.20 establishes the information required with the preliminary plat, including existing and proposed conditions, a drainage summary report, proposed deed restrictions (if any), and proposed public improvements.

The applicant's preliminary plat materials include existing and proposed conditions, a preliminary drainage report, and plans for proposed improvements (including grading, landscaping, public utilities, and frontage improvements). No deed restrictions are proposed.

The City Council finds that the preliminary plat requirements of MMC 17.20 are met.

d. MMC Chapter 17.28 Design Standards

MMC 17.28 establishes general design standards for land divisions and property boundary changes.

(1) MMC Section 17.28.020 Public Facility Improvements

MMC 17.28.020 requires that all land divisions that increase the number of lots are subject to the requirements and standards of MMC Chapter 19.700 Public Facility Improvements.

The proposed subdivision will increase the number of lots. The applicable standards of MMC 19.700 are addressed in Finding 12.

(2) MMC Section 17.28.030 Easements

MMC 17.28.030 requires that easements for public utilities (including sewers and water mains) be dedicated wherever necessary.

The proposed subdivision will establish new public streets, where the public utility infrastructure will be located. Three tracts for stormwater facilities and three tracts for pedestrian and/or bicycle access will be established and dedicated to the public. A condition has been established to ensure that easements for stormwater outfalls, for public access across private alleys, or for any other public utilities will be dedicated as needed.

(3) Specifically, MMC Section 17.28.040 provides standards for general lot design, including a requirement for rectilinear lots and a 10% limit on the cumulative lateral shift of compound lot line segments.

Lots 88-92, which are located in the curve of the proposed cul-de-sac, each have at least one compound lot line segment. None of the compound segments are greater than 10% of the distance between opposing lot corners.

The City Council finds that the applicable lot design standards of MMC 17.28 are met.

The City Council finds that the proposed subdivision meets all applicable land division standards of MMC Title 17.

10. MMC Title 18 Flood Hazard Regulations

MMC Title 18 provides standards intended to minimize public and private losses due to flood conditions in specific areas. The regulations established in MMC Title 18 do this in part by controlling the alteration of natural floodplains, stream channels, and natural

protective barriers, which help accommodate or channel flood waters; controlling filling, grading, dredging, and other development which may increase flood damage; and preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas. As per MMC Section 18.04.100, a development permit is required prior to any construction or development within the flood management area.

The subject property includes flood hazard and flood management areas as identified on the Flood Insurance Rate Maps prepared by the Federal Emergency Management Agency (FEMA) and acknowledged by the City for the purposes of implementing this title. The applicant is proposing a revision to the FIRM map, to demonstrate that new lots will not be in the modified floodplain. Although no buildings will be built below the floodplain elevation, the proposed development includes cut and fill within the floodplain.

The proposed development is subject to the applicable provisions of MMC Title 18.

a. MMC Section 18.04.150 General Standards

MMC 18.04.150 provides general standards for all special flood hazard and all flood management areas.

(1) MMC Subsection 18.04.150.C Utilities

MMC 18.04.150.C requires that all new water and sanitary sewer systems be designed to minimize or eliminate infiltration of floodwaters into the system.

A condition has been established to ensure that all new utilities are installed underground and shall otherwise be designed to minimize or eliminate infiltration of floodwaters into the system, including stubs for utility service prior to surfacing any streets.

(2) MMC Subsection 18.04.150.D Subdivisions

MMC 18.04.150.D requires that all subdivision proposals must be consistent with the need to minimize flood damage. Public utilities and facilities shall be located and constructed to minimize or eliminate flood damage. Adequate drainage shall be provided to reduce exposure to flood damage. Base flood elevation data shall be provided for subdivision proposals that contain at least 50 lots or 5 acres.

The base flood elevation is 69.9 located at cross section C on FEMA map number FM41005C0036D (NAVD 1988 datum). The proposed development would establish 92 units on approximately 13.8 acres and was designed to minimize flood damage by elevating the developable portions of the site at least 1 ft above base flood elevation. As proposed, all public utilities are located outside the floodplain, except for the sanitary sewer connection to the existing sanitary sewer located within the existing floodplain and those public utilities that will be in Kellogg Creek Drive, a portion of which lies within the existing floodplain. The site will be graded to provide positive drainage to reduce exposure to flood damage. Proposed street grades meet or exceed the minimum grade allowed by the City's Public Works Standards, and street cross sections match typical sections provided by the City to ensure proper drainage.

(3) MMC Section 18.04.150.F Balanced Cut and Fill

MMC 18.04.150.F provides requirements for the displacement of flood storage area by the placement of fill or structures.

As per the applicant's submittal materials, all fill added to the floodplain will be balanced with an equal amount of soil removed from the floodplain meeting the "no net fill" requirement. Excavation will occur on the same parcel as the proposed development and will not occur below the bankfull stage.

As conditioned, the proposed development is consistent with the applicable general standards for all special flood hazard and all flood management areas.

b. MMC Section 18.04.160 Specific Standards

MMC Subsection 18.04.160.A provides specific standards for residential construction, including a requirement that new construction of any residential structure shall have the lowest floor, including basement, elevated 1 ft above base flood elevation.

As proposed, all new primary residential structures will have the lowest floor elevated at least 1 ft above base flood elevation.

The City Council finds that, pending approval of the applicant's proposed revision to the appropriate FIRM map and as conditioned, the proposed development is consistent with the applicable standards of MMC Title 18.

11. MMC Section 19.402 Natural Resources

MMC 19.402 establishes regulations for designated natural resource areas. The standards and requirements of MMC 19.402 are an acknowledgment that many of the riparian, wildlife, and wetland resources in the community have been adversely impacted by development over time. The regulations are intended to minimize additional negative impacts and to restore and improve natural resources where possible.

a. MMC Subsection 19.402.3 Applicability

MMC 19.402.3 establishes applicability of the Natural Resource (NR) regulations, including all properties containing Water Quality Resources (WQRs) and Habitat Conservation Areas (HCAs) as shown on the City's Natural Resource (NR) Administrative Map.

Mount Scott Creek flows across the northern portion of the subject property, and a large wetland (approximately 0.7 acres) is located within the 100-year floodplain designated over most of the western half of the site. The City's NR Administrative Map shows Water Quality Resource (WQR) and Habitat Conservation Area (HCA) designations around the creek and wetland, and portions of these natural resource areas will be disturbed by the proposed development.

As presented in the applicant's submittal materials, the proposed development will temporarily or permanently disturb approximately 115,700 sq ft of WQR and/or HCA area. At that scale, the proposed activity is not listed as exempt according to the standards outlined in MMC 19.402.4.

The City Council finds that the requirements of MMC 19.402 are applicable to the proposed activity.

b. MMC Subsection 19.402.7 Activities Requiring Type II Review

MMC 19.402.7 establishes that certain activities within a designated WQR and/or HCA are subject to Type II review in accordance with MMC 19.1005. As per MMC 19.402.7.E, this includes boundary verifications that propose substantial corrections to the NR Administrative Map, including identifying the precise location of wetlands, as required by MMC 19.402.15.A.

The subject property includes a delineated wetland. As provided in MMC Subsection 19.402.15.A, the Type II review process is required to confirm the specific location of wetlands. However, the proposed activity requires other applications that are being processed concurrently with Type IV review. As provided in MMC Subsection 19.1001.6.B.1, concurrent applications are processed according to the highest numbered review type, with a single decision to be issued that includes findings for all concurrent applications.

The City Council finds that the boundary verification for wetlands shall be processed concurrently with Type IV review.

c. MMC Subsection 19.402.8 Activities Requiring Type III Review

MMC 19.402.8 establishes that certain activities within a designated WQR and/or HCA are subject to Type III review in accordance with MMC 19.1006. As per MMC 19.402.8.A.1, this includes activities allowed in the base zone that are not otherwise exempt or permitted as a Type I or II activity.

The subdivision of land containing a WQR and/or HCA is subject to Type III review and the standards established in MMC Subsections 19.402.13.H and 13.I. The level of disturbance proposed within the designated WQR and HCA areas on the subject property exceeds the levels allowed by Type I and II review, as provided in MMC 19.402.6 and 402.7, respectively. As such, the activity is subject to Type III review and the discretionary process established in MMC 19.402.12. As noted in Finding 11-b above, the Natural Resource review is associated with other applications being processed concurrently with Type IV.

The City Council finds that the proposed activity is subject to Type III review and will be processed concurrently with other applications requiring Type IV review.

d. MMC Subsection 19.402.9 Construction Management Plans

MMC 19.402.9 establishes standards for construction management plans, which are required for projects that disturb more than 150 sq ft of designated natural resource area. Construction management plans must provide information related to site access, staging of materials and equipment, and measures for tree protection and erosion control.

The applicant's Natural Resource Review report includes a construction management plan that provides the information required by MMC 19.402.9, including tree protection measures. The plan will be formally reviewed at the time of submittal for development permits.

e. MMC Subsection 19.402.11 Development Standards

MMC 19.402.11 establishes development standards for projects that impact a designated natural resource, including requirements to protect natural resource areas during development and general standards for required mitigation (e.g., plant species, size, spacing, and diversity).

In particular, MMC Subsection 19.402.11.C establishes mitigation requirements for disturbance within WQRs. The requirements vary depending on the existing condition of the WQR, according to the categories established in MMC Table 19.402.11.C. For Class A "Good" WQR conditions, MMC Table 19.402.11.C requires that the applicant submit a plan for mitigating water quality impacts related to the development; for Class C "Poor" WQR conditions, the table requires restoration and mitigation with native species using a City-approved plan.

The proposed development will permanently disturb approximately 32,800 sq ft and temporarily disturb approximately 8,350 sq ft within the WQR. The portion of the WQR closest to Mount Scott Creek is categorized as Class A (“Good”); other portions are categorized as Class C (“Poor”). In addition, the proposed development will permanently disturb approximately 40,700 sq ft and temporarily disturb approximately 5,500 sq ft within the HCA-only areas on the site.

Using the mitigation planting ratio provided in MMC Subsection 19.402.11.D.2.b as a guide, the applicant proposes to plant 5 trees and 25 shrubs per 500 sq ft of disturbance area. For the total WQR and HCA disturbance of approximately 86,350 sq ft (both permanent and temporary disturbance), the applicant proposes to plant 863 native trees and 4,317 native shrubs within a specific mitigation area. As proposed, the mitigation plantings will meet the minimum requirements established in MMC Subsection 19.402.11.B. Mitigation trees will be of at least ½-in caliper (measured at 6 ft above the ground level after planting) and shrubs will be of at least 1-gallon size and at least 12-in height.

ESA, the City’s consultant for on-call natural resource services, has evaluated the proposed mitigation plan and concluded that, with a few adjustments, it adequately addresses the proposed WQR and HCA disturbance. ESA provided a few additional recommendations to improve the mitigation plan, including retaining the existing white oak saplings that appear to have been planted on the site as part of an ongoing restoration effort and re-evaluating the assessment of WQR classification at several of the sample points to ensure that mitigation plantings are distributed appropriately. Conditions have been established to ensure that these recommendations are implemented. In addition, a condition has been established to require a maintenance plan ensuring that the mitigation effort is successful and ongoing.

As conditioned, the City Council finds that the applicable development standards of MMC 19.402.11 are met.

f. MMC Subsection 19.402.12 General Discretionary Review

MMC 19.402.12 establishes the discretionary review process for activities that substantially disturb designated natural resource areas.

(1) Impact Evaluation and Analysis

MMC Subsection 19.402.12.A requires an impact evaluation and alternatives analysis in order to determine compliance with the approval criteria for discretionary review and to evaluate alternatives to the proposed development. A technical report prepared by a qualified natural resource professional is required and should include the following components:

- Identification of ecological functions
- Inventory of vegetation
- Assessment of water quality impacts
- Alternatives analysis
- Demonstration that no practicable alternative method or design exists that would have a lesser impact on the resource and that impacts are mitigated to the extent practicable
- Mitigation plan

The applicant’s submittal materials include a technical report prepared by Pacific Habitat Services, Inc., a private firm providing a range of environmental

consulting services including natural resource assessment, wetland delineation, and environmental restoration. The technical report includes an impact evaluation and alternatives analysis consistent with the required components listed above, as well as an inventory of existing vegetation and discusses the ecological function of the existing WQR and HCA areas within the project area. The report also provides a mitigation plan for permanent and temporary impacts to the WQR and HCA.

The technical report considers two alternatives to the proposed development configuration: (1) another planned development scenario with no regard for natural resources on the site (resulting in greater impacts to the WQR and HCA) and (2) a subdivision following the existing split zoning of the site and configured to produce almost no disturbance of the WQR and HCA. The report concludes that the proposed development is the most practicable alternative that results in the least impact to the natural resources on the site.

The City Council finds that the applicant's impact evaluation and alternatives analysis is sufficient for purposes of reviewing the proposed activity against the approval criteria provided in MMC 19.402.12. This standard is met.

(2) Approval Criteria

MMC Subsection 19.402.12.B provides the approval criteria for discretionary review as follows:

Note: ESA reviewed the applicant's technical report and presented its assessment to the City in a summary memo, which informs this portion of the findings.

- Avoid – The proposed activity avoids the intrusion of development into the WQR and/or HCA to the extent practicable, and has less detrimental impact to the natural resource areas than other practicable alternatives.

Mount Scott Creek cuts across the northern portion of the nearly 14-acre development site, resulting in significant areas of designated WQR and HCA. Developing the site to achieve even the minimum density without any impacts to the WQR and HCA is difficult. The applicant has proposed a Planned Development instead of a conventional subdivision to have the flexibility to blend the densities allowed by the split R-10 and R-3 zoning of the site. This flexibility allows the applicant to direct the development generally away from the WQR and HCA. By using 4-unit rowhouse structures, the applicant is able to provide a larger number of units in a more compact form than a conventional subdivision would allow. Considering the other alternatives noted in Finding 11-f(1) above, the proposed development will have less detrimental impact to the natural resource areas on the site than other practicable alternatives.

- Minimize – If the applicant demonstrates that there is no practicable alternative to avoid disturbance of the natural resource, then the proposed activity shall minimize detrimental impacts to the extent practicable.

As noted in the above discussion of avoiding impacts, the proposed development is configured to reduce impacts to the WQR and HCA to the greatest extent practicable. The proposed development is compact by

design and focuses major site impacts away from the WQR and HCA where practicable.

- Mitigate – If the applicant demonstrates that there is no practicable alternative that will avoid disturbance of the natural resource, then the proposed activity shall mitigate for adverse impacts to the resource area. The applicant shall present a mitigation plan that demonstrates compensation for detrimental impacts to ecological functions, with mitigation occurring on the site of the disturbance to the extent practicable, utilization of native plants, and a maintenance plan to ensure the success of plantings.

As noted in Finding 11-e, the applicant's submittal includes a mitigation plan for the WQR and HCA disturbance that will accompany the proposed development. The applicant has proposed to plant 863 native trees and 4,317 native shrubs in the areas of permanent and temporary disturbance, and to remove nuisance plants and noxious material and debris. Conditions have been established to ensure that all mitigation plantings are species from the Milwaukie Native Plants List, that existing restoration plantings are preserved where possible, and that a long-term maintenance plan is in place. In addition, to ensure the long-term maintenance of all mitigation areas, a condition has been established to require that the development either (1) dedicate the open space tract to the City or North Clackamas Parks & Recreation District or (2) establish Covenants, Conditions, and Restrictions and a Home Owners' Association that require ongoing maintenance.

As conditioned, the City Council finds that the proposed development meets the approval criteria for discretionary review as established in MMC 19.402.12.B.

(3) Limitations and Mitigation for Disturbance of HCAs

MMC Subsection 19.402.12.C establishes the discretionary review process for mitigation of more HCA disturbance than would be allowed by the nondiscretionary standards of MMC Subsection 19.402.11.D.1. In such cases, the applicant must submit an Impact Evaluation and Alternatives Analysis consistent with the standards established in MMC 19.402.12.A and subject to the approval criteria established in MMC 19.402.12.B.

As discussed in Finding 11-f(1), the applicant's submittal materials include a technical report that provides an evaluation of impacts to the WQR as well as to those impacted HCA areas beyond the WQR, consistent with the standards established in MMC 19.402.12.A. As discussed in Finding 11-f(2), the proposed development, with the conditions noted therein, meets the approval criteria established in MMC 19.402.12.B.

As conditioned, the City Council finds that the proposed development meets the discretionary standards for disturbance of HCAs as established in MMC 19.402.12.C.

The City Council finds that, as conditioned, the proposed development meets the applicable discretionary review standards of MMC 19.402.12.

g. MMC Subsection 19.402.15 Boundary Verification and Map Administration

MMC 19.402.15 establishes standards for verifying the boundaries of WQRs and HCAs and for administering the City's Natural Resource (NR) Administrative Map.

The locations of WQRs are determined based on the provisions of MMC Table 19.402.15. For streams, the WQR includes the feature itself and a vegetated corridor that extends 50 ft from the ordinary high water mark or 2-year recurrence interval flood elevation. Where the slope exceeds 25% for less than 150 ft, the vegetated corridor is measured with a 50-ft width from the break in the 25% slope. For wetlands, a wetland delineation report prepared by a professional wetland specialist and approved by the Department of State Lands (DSL) is required.

For HCAs, the City's NR Administrative Map is assumed to be accurate with respect to location unless challenged by the applicant, using the procedures outlined in either MMC Subsection 19.402.15.A.1 or MMC Subsection 19.402.15.A.2.b.

The technical report provided by the applicant includes a detailed topographic map showing the accurate boundaries of the WQR using the provisions of MMC Table 19.402.15, as well as a wetland delineation report prepared in accordance with the standards of DSL. A condition has been established to require a formal letter of concurrence by DSL prior to the issuance of any development permits.

The applicant is not challenging the accuracy of the NR Administrative Map with respect to the HCA location on the site. However, as a result of the disturbance allowed by the approval of the proposed development, the NR Administrative Map shall be adjusted accordingly to remove those HCA locations that will be permanently disturbed by the proposed development.

In addition, the City has conducted a review of the mapped HCA in accordance with the detailed verification procedures provided in MMC 19.402.15.A.2.b and confirmed that the NR Administrative Map is inaccurate with respect to the HCA boundary in the southwestern corner of the subject property. The City's documentation of this boundary verification was provided as an exhibit at a public hearing with the Planning Commission on [month/day], 2017, and demonstrates where the HCA boundary shall be extended to include the tree canopy provided by the existing white oak trees in the southwestern portion of the site.

The City Council finds that the City's NR Administrative Map shall be adjusted to reflect the detailed information provided by the applicant with respect to the location of the delineated wetland on the site and the permanent disturbance to the HCA, as well as to reflect the adjusted HCA boundary based on information provided by the City.

The City Council finds that, as conditioned, the proposed development, including disturbance of the designated natural resource area on the subject property, meets all applicable standards of MMC 19.402.

12. MMC Chapter 19.500 Supplementary Development Regulations

MMC 19.500 provides supplementary standards for development.

a. MMC Subsection 19.504.9 On-Site Walkways and Circulation

MMC 19.504.9 establishes standards for on-site walkways, including requirements that on-site walkways be at least 5 ft wide, constructed of hard surface materials that are permeable for stormwater, and lighted to a minimum level of 0.5 footcandles.

The proposed development includes pedestrian and bicycle pathways on Tracts E, F, and H. A condition has been established to ensure that all such on-site pathways are designed and constructed to meet the applicable standards of MMC 19.504.9.

As conditioned, the City Council finds that this standard is met.

b. MMC Subsection 19.505.5 Building Design Standards for Rowhouses

MMC 19.505.5 establishes design standards for rowhouse development.

(1) MMC Subsection 19.505.5.C Rowhouse Design Standards

As per MMC Subsection 19.505.5.C.1, rowhouses are subject to the design standards for single-family housing as established in MMC Subsection 19.505.1. As per MMC Subsection 19.505.5.C.2, rowhouses shall include either a vertical or horizontal transition area between the public right-of-way and the private entry of the dwelling.

The proposed development's compliance with the applicable standards of MMC 19.505.5.C will be confirmed through the development review process outlined in MMC Section 19.906 at the time of development. As proposed, the new rowhouse units will have covered front porches that appear to meet the standards for providing a horizontal transition between the right-of-way and the front entry.

(2) MMC Subsection 19.505.5.D Number of Rowhouses Allowed

As per MMC 19.505.5.D, no more than 4 consecutive rowhouses may share a common wall, though sets of 4-unit rowhouse structures may be adjacent to one another.

The proposed development is comprised of 23 structures with 4 rowhouse units each. No more than 4 consecutive rowhouses will share a common wall.

(3) MMC Subsection 19.505.5.E Rowhouse Lot Standards

MMC 19.505.5.E establishes standards for the size and dimension of rowhouse lots in various zones. Generally, rowhouse development is not allowed on lots less than 35 ft wide.

As discussed in Finding 7-b, the Planned Development process allows some flexibility of design, including in lot size and dimension. As proposed, the new lots will range in width from 20 to 28 ft and in size from 1,600 sq ft to approximately 2,500 sq ft. Approval of the final development plan and program effectively makes the standards of MMC 19.505.5.E inapplicable.

(4) MMC Subsection 19.505.5.F Driveway Access and Parking

MMC Subsection 19.505.5.F.1 establishes restrictions on garages on the front façade of a rowhouse as well as on off-street parking areas and driveway accesses in the front yard. A minimum of 30 ft of street frontage is required, no more than 2 shared accesses are allowed for 4 rowhouses, and outdoor on-site parking areas and garage door width shall not exceed 10 ft. For rowhouses that do not provide garages or parking areas on the front façade, MMC Subsection 19.505.5.F.2 establishes standards for consolidated access.

As discussed in Finding 7-b and noted in Finding 12-c above, the Planned Development process allows for reduced lot widths. The proposed development's compliance with the other applicable standards of MMC

19.505.5.F will be confirmed through the development review process outlined in MMC Section 19.906 at the time of development. As proposed, the new 4-unit rowhouse structures with front-facing garages will share 2 driveway accesses, with on-site parking and maneuvering areas no wider than 10 ft and garage doors no wider than 10 ft. The new rowhouse structures with rear-facing garages will share access off private alleys.

(5) MMC Subsection 19.505.5.G Accessory Structure Setbacks

MMC 19.505.5.G provides that there is no required side yard setback between an accessory structure and a side lot line abutting another rowhouse lot, though all other accessory structure regulations in MMC Subsection 19.502.2.A apply.

No accessory structures are proposed as part of the proposed development, and the applicant has not requested any adjustment to this standard.

The City Council finds that the proposed development meets the standards of MMC 19.505.5 that are applicable to the subdivision and final development plan and program of the Planned Development, noting that consistency with all applicable standards will be confirmed as part of the development review process outlined in MMC Section 19.906 at the time of submittal for development permits for the new rowhouses.

The City Council finds that, as conditioned, the proposed development is consistent with the applicable standards of MMC Chapter 19.500.

13. MMC Chapter 19.600 Off-Street Parking and Loading

MMC 19.600 regulates off-street parking and loading areas on private property outside the public right-of-way. The purpose of these requirements includes providing adequate space for off-street parking, minimizing parking impacts to adjacent properties, and minimizing environmental impacts of parking areas.

MMC Section 19.605 establishes standards to ensure that development provides adequate vehicle parking based on estimated parking demand. MMC Table 19.605.1 provides minimum and maximum requirements for a range of different uses. For rowhouses, a minimum of 1 off-street parking space is required per dwelling unit, with no maximum limit.

MMC Section 19.607 establishes standards for off-street parking areas for residential uses, including for rowhouses. Standards include minimum dimensions for off-street parking spaces and limitations on required spaces being located in the front yard setback.

As proposed, all rowhouse units will have attached garages. Units with front-facing garages have a single-car garage; units with rear-facing garages have a two-car garage. As proposed, all garages will be located outside the front yard setback and of adequate dimension. A final determination of the proposed development's consistency with the applicable standards of MMC 19.600 will be made as part of the development review process outlined in MMC Section 19.906 at the time of submittal for development permits for the new rowhouses.

The City Council finds that the proposed development meets the standards of MMC 19.600 that are applicable to the subdivision and final development plan and program of the Planned Development, noting that consistency with all applicable standards will be confirmed as part of the development review process outlined in MMC Section 19.906 at the time of submittal for development permits for the new rowhouses.

14. MMC Chapter 19.700 Public Facility Improvements

MMC 19.700 establishes provisions to ensure that development provides public facilities that are safe, convenient, and adequate in rough proportion to their public facility impacts.

a. MMC Section 19.702 Applicability

MMC 19.702 establishes the applicability of the provisions of MMC 19.700, including land divisions, new construction, and modification or expansion of an existing structure or a change or intensification in use that result in any projected increase in vehicle trips or any increase in gross floor area on the site.

The applicant proposes to subdivide the subject property to create 92 lots for rowhouse development as well as several other tracts for open space, stormwater facilities, and pedestrian/bicycle connections. The proposed land division triggers the requirements of MMC 19.700.

b. MMC Section 19.703 Review Process

MMC 19.703 establishes the review process for development that is subject to MMC 19.700, including requiring a preapplication conference, establishing the type of application required, and providing approval criteria.

The applicant had a preapplication conference with City staff prior to application submittal, on August 11, 2016. The proposed development triggers a Transportation Impact Study (as addressed in Finding 14-c). The proposal's compliance with MMC 19.700 has been evaluated through a concurrent Transportation Facilities Review application. Finding 14-f addresses the proposal's compliance with the approval criteria established in MMC Subsection 19.703.3, particularly the required transportation facility improvements.

c. MMC Section 19.704 Transportation Impact Evaluation

MMC 19.704 establishes the process and requirements for evaluating development impacts on the surrounding transportation system, including determining when a formal Transportation Impact Study (TIS) is necessary and what mitigation measures will be required.

The proposed development will trigger a significant increase in trip generation above the existing church use on a portion of the site and therefore requires a TIS. City Engineering staff and the City's on-call traffic consultant (DKS) provided the applicant with a scope of work for the TIS. Kittleson & Associates, the applicant's traffic consultant, prepared the TIS that was included with the applicant's larger submittal for the proposed planned development. To ensure accuracy, the original TIS was updated with additional counts for the intersections of Rusk Road and Highway 224, Rusk Road and Ruscliff Road, Rusk Road and Kellogg Creek Drive, and Kellogg Creek Drive and the proposed Street A.

The TIS concluded that the proposed development does not trigger mitigation of impacts beyond the required frontage improvements and bike lane requirements, for which conditions of approval have been established. The TIS also concluded that the surrounding transportation system will continue to operate at the same level of service as before the proposed development.

However, ODOT and Clackamas County have expressed concern regarding the analysis performed for the right-turn lane for northbound traffic at the Rusk Road/Highway 224 intersection. The TIS indicates a turn lane with a queuing length

of 50 ft. The City agrees with ODOT and Clackamas County that this value may be overestimated. The TIS also indicates that the right-turn-on-red allowance is 50 vehicles per hour, which likely is not how this intersection functions where one through-vehicle can block the entire turn lane.

DKS, the City's consultant, has re-analyzed this intersection with the left turn, through movement, and right turn all together as a single lane. Also, the right-turn-on-red movement was reduced to zero vehicles, which is a more accurate representation of how the intersection currently functions. With these adjustments, the resulting volume-to-capacity ratio (v/c) of the single lane is greater than 1.0, indicating a need for mitigation requirements. A condition has been established to require extension of the right-turn lane on Rusk Road at the Highway 224 intersection, to ensure that the surrounding transportation system will continue to operate at the same level of service as before the proposed development

As conditioned, the applicant's TIS is sufficient to meet the requirements of MMC 19.704.

d. MMC Section 19.705 Rough Proportionality

MMC 19.705 requires that transportation impacts of the proposed development be mitigated in proportion to its potential impacts.

The City has determined that conditions established to require improvements on Kellogg Creek Drive and in the right-turn lane on Rusk Road at the Highway 224 intersection meet the proportionality requirements for the proposed development.

As conditioned, the proposed development is consistent with MMC 19.705.

e. MMC Section 19.707 Agency Notification and Coordinated Review

MMC 19.707 establishes provisions for coordinating land use application review with other agencies that may have some interest in a project that is in proximity to facilities they manage.

The application was referred to the Oregon Department of Transportation (ODOT), Clackamas County, Metro, and TriMet for comment. The section of Kellogg Creek Drive fronting the subject property is under the jurisdiction of Clackamas County. The County has regulatory authority where transportation impacts and improvement standards are concerned, and the County's Department of Transportation and Development (DTD) provided comments that have been incorporated into these findings and the associated conditions of approval as appropriate.

f. MMC Section 19.708 Transportation Facility Requirements

MMC 19.708 establishes the City's requirements and standards for improvements to public streets, including pedestrian, bicycle, and transit facilities. However, the subject property's public street frontage is along Kellogg Creek Drive, which is under the jurisdiction of Clackamas County. Where the City has more restrictive standards than the County for certain elements, it is the City's practice to defer to the County standards when the proposed development demonstrates that there is no practicable alternative and that the proposal presents the minimum exception necessary to provide a safe and functional design. Such situations are evaluated at the time of development permit review.

The County DTD provided comments on the application, with recommended findings and conditions that address the County's requirements for such elements as access

management, clear vision, street design, and bicycle and pedestrian facilities. Those comments have been incorporated into these findings and conditions of approval as appropriate.

(1) MMC Subsection 19.708.1 General Street Requirements and Standards

MMC 19.708.1 provides general standards for streets, including for access management, clear vision, street layout and connectivity, and intersection design and spacing.

As proposed, the development is consistent with the applicable standards of MMC 19.708.1.

(2) MMC Subsection 19.708.2 Street Design Standards

MMC 19.708.2 provides design standards for streets, including dimensional requirements for the various street elements (e.g., travel lanes, bike lanes, on-street parking, landscape strips, and sidewalks).

The street to the east of Lots 45 and 53 does not comply with minimum City standards, as the required sidewalk and planter strips are not proposed. The City has allowed this reduced cross section because of the pending adoption of a low-volume residential standard cross section with pedestrian routes on the street surface. The 22-ft right-of-way width accommodates the minimum 10-ft travel lanes, curb, and separation from the private property.

The proposed cross sections for Kellogg Creek Drive and all remaining internal streets conform to applicable requirements and are consistent with MMC 19.708.2.

(3) MMC Subsection 19.708.3 Sidewalk Requirements and Standards

MMC 19.708.3 provides standards for public sidewalks, including the requirement for compliance with applicable standards of the Americans with Disabilities Act (ADA).

As proposed, the development is consistent with all applicable standards of MMC 19.708.3.

(4) MMC Subsection 19.708.4 Bicycle Facility Requirements and Standards

MMC 19.708.4 provides standards for bicycle facilities.

Per Milwaukie's Transportation System Plan (TSP), a bike lane is required connecting the northeast corner of the property to the southwest corner of the property. The applicant has proposed to construct an on-street bike route through the development. A multiuse path will connect the northeast turnaround on Street B to the Rusk Road/Highway 224 intersection.

As proposed, the development is consistent with all applicable standards of MMC 19.708.4.

(5) MMC Subsection 19.708.5 Pedestrian/Bicycle Path Requirements and Standards

MMC 19.708.5 provides standards for pedestrian and bicycle paths.

Pedestrian access is required at the end of the proposed cul-de-sac, which is satisfied through a 15-ft multiuse path extended to Rusk Road. Pedestrian

access is also required from the east end of Street A to Kellogg Creek Drive, which is satisfied through a pedestrian connection in Tracts E and F.

As proposed, the development is consistent with all applicable standards of MMC 19.708.5.

(6) MMC Subsection 19.708.6 Transit Requirements and Standards

MMC 19.708.6 provides standards for transit facilities.

The portion of Kellogg Creek Drive fronting the proposed development is classified as a transit route in the Milwaukie TSP. However, transit facilities are already in place. As a result, transit facility improvements are not required for the proposed development.

As proposed, the development is consistent with all applicable standards of MMC 19.708.6.

Conditions have been established in response to these County findings, to ensure that the proposed development will meet all applicable standards of MMC 19.708, the Clackamas County Roadway Standards, and any other applicable County requirements.

As conditioned, the City Council finds that the proposed development meets the applicable public facility improvement standards of MMC 19.700.

15. MMC Section 19.904 Community Service Uses

MMC 19.904 establishes standards for community service uses, including churches, schools, and parks. MMC Subsection 19.904.5.C authorizes the approval of minor modifications to an approved community service, provided that such modification:

- a. Does not increase the intensity of any use.

The proposed modification includes reconfiguring the existing driveway at Rusk Road to reinforce its status as an ingress-only access (left and right turns in), removing some existing parking spaces along the western edge of the parking lot to create access points between the church and the proposed development, and removal of the existing play area adjacent to the western edge of the parking area. The proposed modification will not add square footage to the church use or otherwise result in an increase in activity or use of the church site.

- b. Meets all requirements of the underlying zone relating to building size and location and off-street parking and the standards of Title 19.

The applicable standards of Title 19 are those related to off-street parking (MMC Chapter 19.600) and access (MMC Section 19.708 and MMC Chapter 12.16).

As proposed, 10 existing parking spaces will be eliminated from the church parking lot. The church, which has 400 seats, has a minimum parking requirement of 100 spaces (at a ratio of 1 space for every 4 seats, as per MMC Table 19.605.1) and a maximum allowance of 200 spaces (at a ratio of 1 space for every 2 seats). There are currently 225 spaces in the church parking lot. Removal of 10 spaces will bring the church site closer to conformance with the current standards.

In addition, the proposal includes a 6-ft landscape buffer along the northern and western perimeter of the existing parking area, adjacent to the proposed development, which will bring the site closer to conformance with the perimeter

landscaping standards of MMC Subsection 19.606.2 and will screen the parking area from the proposed development.

One of the purposes of MMC Section 19.708 Transportation Facility Requirements, and the intent of MMC Chapter 12.16, is to ensure safe access to public streets. The proposed modifications to the existing church driveway at Rusk Road will ensure that the driveway is used for ingress only, which will improve safety on Rusk Road by reducing potential conflicts due to poor sight distance at that location.

- c. Does not result in deterioration or loss of any protected natural feature or open space, and does not negatively affect nearby properties.

The proposed modifications to the existing church parking lot and driveway access at Rusk Road do not impact any designated natural resource area or open space feature.

- d. Does not alter or contravene any conditions specifically placed on the development by the Planning Commission or City Council.

The property was annexed into the city limits in 1981 (land use file #A-80-07). In 1983, use of the site for pasture land and grazing for horses was approved as a conditional use (file #C-83-08); however, the conditional use application was subsequently withdrawn.

The site was approved as a CSU for church use by the Milwaukie Assembly of God in 1984 (file #CS-84-02). Conditions of approval included requirements to provide plans for landscaping, public facilities, and exterior lighting, as well as a traffic study and right-of-way dedication along Rusk Rd and Kellogg Creek Dr.

In 1987, the City Council approved a zone change for the western portion of the property, from R-10 to R-3, along with a conditional use approval for senior housing and an amendment to the Comprehensive Plan map (file #CPA-87-01, ZC-87-05, CU-87-05, with Ordinance #1639). The senior housing project (called Parkside Village) was never developed.

In 1992, the City approved a 5,500-sq-ft addition to the church building (file #CSO-92-03, NR-92-01). Conditions of approval included requirements to install the approved landscaping and to direct lighting away from the designated natural resource area.

In 1997, the Planning Commission denied a sign permit request to locate an electronic reader board sign on the property near the intersection of Highway 224 and Rusk Rd (file #SP-97-01).

In 2014, the Planning Director approved a minor modification to the existing CSU for the church, for removal of approximately 75 of 300 existing parking spaces as part of a natural resource restoration effort near Mount Scott Creek (file #s CSU-14-06 and NR-14-06). There were no conditions of approval.

The proposed modification does not alter or contravene any of the past conditions placed on the church development by the Planning Commission.

- e. Does not cause any public facility, including transportation, water, sewer and storm drainage, to fail to meet any applicable standards relating to adequacy of the public facility.

With regard to public facilities, the proposed modification will affect only the existing church driveway at Rusk Road. As proposed, the driveway will be modified to further limit egress movements at that location, which, due to limited sight distance and the

proximity to the intersection of Rusk Road and Highway 224, will improve public safety. A new in/out access to the church site will be established through the proposed development and will be designed to meet applicable standards. The new access will focus more church trips on Kellogg Creek Drive, a local street, instead of on Rusk Road, a collector. The proposed modification will not cause any public facility to fail to meet any applicable standards relating to adequacy.

As proposed, the City Council finds that the proposed development meets the approval criteria for a minor modification to the existing community service use.

16. MMC Section 19.911 Variances

MMC Section 19.911 establishes the variance process for seeking relief from specific code sections that have the unintended effect of preventing reasonable development or imposing undue hardship.

a. MMC Subsection 19.911.2 Applicability

MMC 19.911.2 establishes applicability standards for variance requests.

Variances may be requested to any standard of MMC Title 19, provided the request is not specifically listed as ineligible in MMC Subsection 19.911.2.B.

The applicant has requested two variances: (1) to allow more than 20 dwellings to be served by a closed-end street system as limited by MMC Subsection 19.708.1.E.5; and (2) to exempt 23 of the 92 proposed lots from the requirement of MMC Subsection 19.402.13.1.2 to provide adequate buildable area outside of the WQR and HCA. The second variance request would permit an additional number of units to be constructed through a 15% increase in density, as allowed in a Planned Development zone (MMC Section 19.311).

The request would not eliminate the restriction on a prohibited activity, change a required review type, allow a use not allowed outright in the R-10 or R-3 zone, or otherwise produce any of the results listed in MMC Subsection 19.911.2.B. The requests are each eligible for a variance as per MMC 19.911.2.

b. MMC Subsection 19.911.3 Review Process

MMC 19.911.3 establishes review processes for different types of variances. MMC Subsection 19.911.3.C establishes the Type III review process for larger or more complex variations to standards than those allowed through the Type II review process as per MMC Subsection 19.911.3.B, variations that require additional discretion and warrant a public hearing.

The applicant has requested variances to the closed-end street standard established in MMC Subsection 19.708.1.E.5 and to the requirement that all new lots have adequate buildable area outside of the WQR and HCA. These requests are not eligible for Type II review as provided in MMC 19.911.3.B and so are subject to Type III review as per MMC 19.911.3.C. As noted in Finding 6, since the variance requests are associated with a proposed Planned Development, which itself requires Type IV review, the variances are also subject to Type IV review as per MMC Subsection 19.1001.6.B.

c. MMC Subsection 19.911.4 Approval Criteria

MMC 19.911.4 establishes approval criteria for variance requests. Specifically, MMC Subsection 19.911.4.B.1 provides approval criteria for Type III variances where the applicant elects to utilize the Discretionary Relief Criteria:

- (1) The applicant's alternatives analysis provides, at a minimum, an analysis of the impacts and benefits of the variance proposal as compared to the baseline code requirements.

Closed-End Street System: *In order to preserve the existing white oak trees in the southwestern corner of the site and to maintain 92 dwelling units as originally proposed, the development plan was shifted approximately 40 ft to the east and removed one of the two street connections to Kellogg Creek Drive. Although this effectively makes the street system a dead-end one serving all 92 units, the revised network maintains safe internal circulation and sufficient fire and emergency service access for the proposed development because access is available through the adjacent church property.*

Adequate Buildable Area Variance: *As noted above, 23 of the 92 proposed lots are affected by the requested variance. Eliminating the lots in question would reduce the proposed development below the minimum density of 66 units required for the site with the proposed street configuration. In addition, eliminating those lots would remove the need for the requested density bonus, which was being justified by the inclusion of several amenities (e.g., community garden, additional landscaping) that would likely be removed from the proposal. The proposed disturbance to the WQR and HCA will be mitigated with native plantings to enhance the remaining natural resource areas.*

The City Council finds that the applicant's analysis of alternatives is sufficient to address the impacts and benefits of both of the proposed variances. This criterion is met.

- (2) The proposed variance is determined to be both reasonable and appropriate, and it meets one or more of the following criteria:
 - (a) The proposed variance avoids or minimizes impacts to surrounding properties.
 - (b) The proposed variance has desirable public benefits.
 - (c) The proposed variance responds to the existing built or natural environment in a creative and sensitive manner.

Closed-End Street System: *The proposed variance will not have any negative impacts on surrounding properties and helps ensure that the existing white oak trees in the southwestern corner of the site will not be removed.*

Adequate Buildable Area Variance: *The requested variance does not affect any adjacent properties outside the proposed development. Approval of the variance allows the development of 92 units of housing instead of 61 units, which helps address an identified housing need for the community. The overall development layout is configured to minimize intrusion into the floodplain and designated natural resource areas on the site, and to focus impacts on WQR and HCA resources that are of lower ecological value and/or that have already been impacted by past development activity. Mitigation plantings will enhance remaining natural resources on the site.*

The City Council finds that the requested variances are reasonable and appropriate and that they both meet one or more of the criteria provided in MMC Subsection 19.911.B.1.b.

- (3) Impacts from the proposed variance will be mitigated to the extent practicable.

Closed-End Street System: To address potential impacts of the proposed variance on fire and emergency service access, the design of the revised street system incorporates comments received from Clackamas Fire District #1 to provide adequate access for fire and emergency service vehicles.

Adequate Buildable Area Variance: The applicant has provided a mitigation plan for disturbed natural resource areas that includes removal of nuisance plants, noxious materials, and debris within the WQR and HCA areas on the site. As proposed, more than 1,150 native trees and 5,750 native shrubs will be planted. Two other areas beyond the disturbance zones will be enhanced with removal of nuisance plants and debris and additional native plantings. As proposed, the mitigation plan will enhance the natural resource areas that remain.

The City Council finds that both variance requests will be mitigated to the extent practicable.

The City Council finds that the proposed development meets the approval criteria for a Type III variance request, as provided in MMC 19.911.4.B.

As proposed, the City Council finds that both of the requested variances are allowable as per the applicable standards of MMC 19.911.

17. MMC Chapter 19.1200 Solar Access Protection

A primary purpose of MMC 19.1200 is to orient new lots and parcels to allow utilization of solar energy. In particular, MMC Section 19.1203 establishes solar access provisions for new development. In particular, MMC Subsection 19.1203.2 establishes the applicability of MMC Subsection 19.1203.3 as applications for the creation of lots in single-family zones. Exceptions are allowable to the extent the Planning Director finds that the applicant has shown one or more of the conditions listed in MMC Subsections 19.1203.4 and 19.1203.5 exist and that exemptions or adjustments are warranted.

a. MMC Subsection 19.1203.3 Design Standard

MMC 19.1203.3 establishes a solar design standard for at least 80% of the lots in any proposed development, including basic requirements for north-south dimension and front-lot-line orientation with respect to a true east-west axis. There are two other options for compliance, either establishing a protected solar building line or demonstrating a level of performance with respect to protection from shading.

The proposed development is for 92 lots, none of which have a minimum north-south dimension of at least 90 ft. However, 76 lots (approximately 82%) have a minimum north-south dimension of at least 80 ft and have the the front lot line oriented within 30 degrees of a true east-west axis. Of the remaining 16 lots, all have their long axis oriented within 30 degrees of a true east-west axis, but due to the attached nature of the rowhouses in the proposed development, the ground floor south wall of most of the units will be shaded by the adjacent unit to the south.

The applicant has requested an adjustment to the design standard of MMC 19.1203.3.

b. MMC Subsection 19.1203.5 Adjustment to Design Standard

MMC 19.1203.5 allows the reduction of the number of lots that must comply with MMC 19.1203.3 to the minimum extent necessary, if the applicant demonstrates that

the standard would cause or is subject to certain conditions, such as adverse impacts on density, cost, or amenities.

Considering the flexibility of design afforded to planned developments in MMC Section 19.311, the allowance for a density bonus as discussed in Finding 7-a, and the site constraints presented by natural resources and floodplain on the site, the design standard of MMC 19.1203.3 presents a particular challenge for the subject property. To configure more lots with a north-south axis of at least 90 ft would result in additional disturbance to natural resources or the floodplain. Reducing the number of lots accordingly would substantially reduce the effectiveness of the Planned Development option for a site that is otherwise well suited for flexible design.

As proposed, 76 of the 92 proposed lots (approximately 82%) are close to meeting the design standard of MMC 19.1203.3, with a north-south dimension of at least 80 ft. In a planned development scenario, where adjustments to conventional lot size and dimensional requirements are expected, and where strict adherence to the design standard would result in a significant decrease in density or increase in disturbance to natural resource and floodplain areas, a request to reduce the number of lots that must comply is reasonable.

The City Council finds that the request to adjust the number of lots that must comply with the design standard of MMC 19.1203.3 is warranted. The 76 lots with a north-south axis of at least 80 ft are sufficient to meet the requirements of MMC 19.1200.

As proposed, and with the approved reduction noted above, the City Council finds that the proposed development complies with the applicable standards of MMC 19.1200.

18. The application was referred to the following departments and agencies on April 13, 2017, with additional materials sent on April 26, 2017:
- Milwaukie Building Department
 - Milwaukie Engineering Department
 - Milwaukie Public Works Department
 - ESA (City's on-call consultant for natural resource review)
 - Clackamas Fire District #1
 - Lake Road Neighborhood District Association (NDA) Chairperson and Land Use Committee (LUC)
 - Clackamas County Department of Transportation and Development
 - Metro
 - Oregon Department of Transportation (ODOT)
 - TriMet
 - North Clackamas Parks & Recreation District
 - Oak Grove Community Council

The comments received are summarized as follows, including comments received in response to the public notice posted on the site and mailed to property owners and residents within 500 ft of the site:

- a. **Michelle Wyfells, Planner II, TriMet:** Given the imminent changes to re-route the existing bus service on Kellogg Creek Drive (Line 152), TriMet has no comments on the proposal.

- b. **Matt Amos, Fire Inspector, Clackamas Fire District #1 (CFD#1):** Comments related to fire access and water supply requirements, including notes on required turning radii and approvable turnarounds.
- c. **Rob Livingston, Erosion Control Specialist, City of Milwaukie Public Works:** Due to the site being over 5 acres, a 1200C construction stormwater permit from DEQ will be required. A maintenance agreement with the City must be established for the stormwater facilities on site. For the City's erosion control permit, more information will be required on how hydric soils will be managed during excavation of the wetland area. Given the number of new households proposed and the accompanying number of anticipated household pets, a dispensing device(s) for pet-waste bags should be required in the large natural open space area. There is also concern for the likelihood of negative impacts to water quality and fish habitat from household pets recreating in Mount Scott Creek.
- The proposed stormwater facilities do not show details for detention prior to discharge into Mount Scott Creek, particularly regarding how or where stormwater discharge will be mitigated. Many of the proposed plantings are near buildings and sidewalks—tree plantings closer to the creek would improve shade, reducing stream temperatures and mitigating for the development's removal of large mature trees from the site. The plantings proposed in Additional Enhancement Areas A and B do not provide meaningful streambank enhancement or vegetative shading for the creek.
- d. **Paul Hawkins, Land Use Chair, Lake Road NDA:** The FEMA flood data for this location is dated, so it is unclear whether the three proposed detention ponds will be adequate. The "Y" intersection of Rusk Road and Kellogg Creek Drive is less than ideal, and traffic currently backs up on Rusk Road at the Highway 224 intersection during weekday commuting hours.
- e. **Rebecca Hamilton, Regional Planner, Metro:** Metro notes that the application would require a Type III Variance to allow impacts to designated natural areas for creating 31 of the 92 proposed lots. The City of Milwaukie's Municipal Code is consistent with Metro's Functional Plan. If the City of Milwaukie is satisfied that the application has met its requirements for a Type III Variance, and if there is no request for an amendment to the City's comprehensive plan or zoning code, then Metro has no comment on this application.
- f. **Joseph Edge, Director, Oak Grove Community Council:** The trip estimates for the proposed development appear to be low, as the proposed units will perform more like single-family detached dwellings than townhouses, given their proposed price point and the likelihood that two wage-earners employed outside the household will live in each unit. The stormwater calculations are based on a pre-development curve number that is too high and does not accurately represent the pre-development conditions that should be more conservatively assumed for the site, especially considering the flood potential of the area. The loss of large white oak trees in the southwestern corner of the site is unacceptable, as these mature, old-growth trees cannot be sufficiently replaced with new trees. An alternative that preserves those trees and combines the 12 units in the southwestern portion of the site into a multifamily building elsewhere on the site would be more acceptable.
- g. **Sarah Hartung, Senior Biologist, ESA (City's On-Call Natural Resource Consultant):** A report providing peer review of the applicant's Natural Resource Review report has been provided to City staff and has been integrated into the Recommended Findings and Conditions of Approval.

- h. **Marah Danielson, Development Review Planner, ODOT Region 1:** The proposed zone change results in only a small increase in additional trips to the state highway. The applicant's Traffic Impact Analysis (TIA) shows a high number of crashes at both the Rusk Road and Webster Road intersections with Highway 224. Since the TIA analyzed the northbound right-turn movement at the Rusk Road/Highway 224 intersection as a right-turn lane where there is only a flare for a turn lane, ODOT recommends a condition requiring installation of a northbound right-turn lane at the Rusk Road/Highway 224 intersection.
- i. **Alex Roller, Engineering Tech II, City of Milwaukie Engineering Department:** Comments related to the proposal's compliance with Milwaukie Municipal Code (MMC) Title 12 Streets, Sidewalks, and Public Places; MMC Title 18 Flood Hazard Regulations; and MMC Chapter 19.700 Public Facility Improvements, with relevant recommended conditions of approval.
- j. **Kenneth Kent, Senior Planner, Clackamas County Department of Transportation and Development, Engineering Division:** Both Kellogg Creek Drive and Rusk Road are under the County's jurisdiction, so County standards and requirements apply where frontage improvements are concerned. On Kellogg Creek Drive, half-street improvements are required (minimum 16-ft roadway, curb or curb and gutter, 5-ft landscape strip, 5-ft sidewalk), with no bike lane striping. Recommendation that the existing church driveway at Rusk Road be closed, due to poor sight-distance and the difficulty of ensuring one-way ingress to the site without a median on Rusk Road. Recommendation that the applicant's traffic impact study be updated to (1) evaluate the study intersections to include estimated summer traffic volumes from North Clackamas Park, (2) include impacts of closure of the existing church driveway at Rusk Road, (3) reevaluate queuing on Rusk Road at the Highway 224 intersection using the SimTraffic program, and (4) evaluate the need for a northbound left-turn lane at the Rusk Road intersection with Kellogg Creek Drive. Suggestion that an analysis or evaluation of parking availability within the proposed development (in driveways, garages, and on-street) be conducted to understand the potential impacts of overflow parking in the adjacent neighborhood.
- k. **Kathryn Krygier, Planning and Development Manager, and Tonia Williamson, Natural Resource Coordinator, North Clackamas Parks & Recreation District (NCPRD):** Concern that increased traffic resulting from the proposed development will impact access to nearby NCPRD facilities. Note that the applicant's Traffic Impact Study (TIS) was not conducted during the time when activity at the ballfield complex in North Clackamas Park is at its peak (April through July). Concerns about safety at the intersection of Rusk Road and Kellogg Creek Drive. Suggestion that a parking study be conducted to examine the issue of visitor parking within the proposed development. Concern that the bike lane between Rusk Road and Street B appears to dead-end. Questions about the soft-surface trail system, including public accessibility, maintenance, and assessment of natural resource impacts, with a note that the trails are short and discontinuous. Request for a phasing plan, if phasing is proposed. Concern about the potential for increased flooding resulting from development within designated natural resource areas on the site. Suggestion that the applicant has not sufficiently demonstrated that impacts to natural resources will be minimized.
- l. **Laura Hickman, area resident:** Concern about traffic impacts resulting from the proposed development; including pedestrian and bicycle safety to and from area

- homes, North Clackamas Park, and nearby schools. Questions about the methodology and assumptions of the TIS.
- m. **Ray Olma, area resident:** Traffic on Highway 224 and Rusk Road is already bad and will be made worse by trips from the proposed development. Concern for pedestrian safety on and crossing Rusk Road, which does not have sidewalks.
 - n. **Jamie Marshall, area resident:** Existing infrastructure (including water treatment facilities and I-205) is inadequate to support the proposed development.
 - o. **Melanie Frisch, area resident:** Concern about traffic impacts (inadequate infrastructure) and impacts to natural resources.
 - p. **Alex Roller, Engineering Tech II, City of Milwaukie Engineering Department:** Revisions to comments provided in the earlier memo related to MMC Title 12 Streets, Sidewalks, and Public Places; MMC Title 18 Flood Hazard Regulations; and MMC Chapter 19.700 Public Facility Improvements.
 - q. **Dan Sweet, area resident:** Comments in opposition to the proposed development, based on concerns about traffic, flooding, and stormwater runoff.
 - r. **Vincent Alvarez, Chair, Lake Road NDA:** Concerns about the proposed destruction of existing wetlands and removal of healthy white oak trees, flooding potential, and traffic impacts.
 - s. **Bruce Reiter, area resident:** Concerns about traffic impacts and potential impacts to the wetland's role in flood management.
 - t. **John Green-Hite, area resident:** Concerns about impacts to the watershed and flooding as well as to traffic.
 - u. **Joan Young, area resident:** Concerns about impacts to the broader community beyond city limits, including impacts to traffic, the environment in general, the white oak trees in particular, and flooding. Reports a history of illegal fill activity on the site.
 - v. **Howard Lanoff, area resident:** Concern about increased density and its impacts on livability.
 - w. **Georgia Bogner, area resident:** Wait times at the light at Rusk Road and Highway 224 are already bad. The proposed 92-unit development will add more than 1 vehicle each during peak times.
 - x. **Chris Runyard, ecological restoration specialist:** Submitted a 3-minute video posted online in opposition to the proposed development, citing concerns about impacts to the white oak trees, wetlands, and flooding.
 - y. **Linda Huntley, area resident:** Comments in opposition to the proposed development, based on concerns about traffic (accidents and congestion).
 - z. **Jennifer Stipetic, area resident:** Concerns about impacts on area traffic and the environment, including a desire to preserve the existing white oak trees and avoid any fill in the wetlands.
 - aa. **Terry Gibson, Board Chair of North Clackamas Urban Watersheds Council:** The applicant has failed to show that the proposed development avoids or minimizes impacts to surrounding properties, has desirable public benefits, or responds to the existing built or natural environment in a creative or sensitive manner. The application does not address the potential for increased flooding in North Clackamas Park or the public benefit currently provided by the natural resource area on the site (including

- the white oak trees). The watershed council is heavily invested in the restoration of the natural resource area on site through its Streamside Stewards Program and believes the proposed mitigation plantings would be redundant of these earlier efforts.
- bb. Linda Huntley, area resident:** Additional note that traffic from ball field activity in the park (Spring through Fall) already presents significant congestion and safety issues.
 - cc. Sara Miller, area resident:** The proposed development does not promote several of the goals identified in Milwaukie's 2040 Vision, particularly where it proposes to remove existing white oak trees and fill in the wetland and floodplain. The proposal does not appear to include sidewalks or address sidewalk gaps and ADA deficiencies. There are better locations in Milwaukie to develop townhomes.
 - dd. Dick Shook, area resident:** Concerns about impacts on area creeks and wetlands (flooding), the old-growth white oak trees, and the number of proposed units.
 - ee. Matt Menely, area resident:** The proposed development does not reflect the community values that have been expressed over time—walkable communities, more open space, and housing developments that create a sense of community. Wetlands and trees provide benefits to the community and should be preserved.
 - ff. Laura Hickman, area resident:** Submitted a report from the North Clackamas School District that included a detailed review of pedestrian conditions on Rusk Road. Walking conditions on Rusk Road are unsafe.
 - gg. Todd Alsbury, District Fish Biologist, Oregon Department of Fish & Wildlife (ODFW):** ODFW has conducted a preliminary review of the proposed project and asks for additional time for review. Priority and/or special status fish and wildlife species are known to occur on and near the property, and Mount Scott Creek is considered Essential Salmonid Habitat. Flowing water, riparian zones, wetlands, and Oregon white oak habitat are identified as Strategy (Priority) Habitats in the Oregon Conservation Strategy. ODFW is concerned about siting infrastructure within an active floodplain, encroachment into the riparian zone, loss of existing wetlands, and loss of Oregon white oak trees that would result from the proposed development. ODFW recommends that new infrastructure be sited outside floodplains, wetlands, and other priority fish and wildlife habitats, that those habitats be adequately buffered, and that the white oak trees be retained.
 - hh. Lisa Kennedy, area resident:** Comments in favor of the proposed development, including that it provides plenty of open space with affordable housing.
 - ii. Sue Hayes, area resident:** Comments in opposition to the proposed development, including that 92 units are too many, the lots are too small, the site is in a flood zone, and that it would increase traffic and be dangerous for pedestrians.
 - jj. Bev St. John, area resident:** Concerns about traffic impacts and pedestrian safety (lack of sidewalks in the area).
 - kk. Randy Day, area resident:** The proposed development is too much for this site, considering the impact to adjacent sensitive lands and the fact that it will be an auto-dependent development. The traffic impacts will be significant and a right-turn lane on Rusk Road at Highway 224 is needed now; increased trips would seem to necessitate a left-turn lane and signal as well.
 - ll. Jarrod Allen, area resident:** Opposition to the proposed development, due to traffic impacts and a lack of pedestrian facilities. The wetland area should remain undeveloped.

- mm. Lois Keiser, area resident:** Concerns about general impacts to neighborhood (density, water/sewer infrastructure, and traffic).
- nn. Ben Geertz, area resident:** Concerns for pedestrian and other non-motorized safety, as Rusk Road is currently very unsafe (no shoulder, blind corners, limited pedestrian facilities).
- oo. Lois Herring, area resident:** Support for May 25 comment by Joseph Edge that traffic study calculations for the proposed development should be done using the assumption that the proposed rowhouses will function in similar fashion to single-family detached dwellings.
- pp. Linda and Roger Huntley, area residents:** Additional concerns related to the need to preserve salmon habitat and the white oak trees.
- qq. Joseph Edge, Director, Oak Grove Community Council:** There is no guarantee that the market rate for the proposed units will remain within the price range of modest-income people, so the promotion of the proposed units as workforce housing should not be the basis for granting a density bonus. To be more affordable, at least some of the housing should be proposed as rental units in multifamily buildings. This would also reduce the aggregate footprint of structures on the site and thus further avoid and minimize impacts to natural resources.

The site is not ideal for lower income affordable housing, due to the expense of motor-vehicle ownership and the fact that the lack of safe transportation options at this location means that the people who live at the site will likely have 1 or 2 vehicles and therefore will not likely be lower income people. One suggestion is to have the new Home Owners' Association provide a car-sharing service to help reduce the number of resident-owned vehicles in the new development. Such a car-sharing service, together with a multifamily configuration of buildings to reduce impacts to natural resources, could arguably be viewed as the kind of creative and outstanding amenities that would warrant a density bonus.

- rr. Chris Runyard, ecological restoration specialist:** It is not the role of the Planning Commission or City staff to ensure that developers make a profit. Ninety-two (92) units are not necessary for the developer to make a profit. The new units will not be "affordable housing" but will be sold at the market rate. The developer would benefit from giving the open space tract to the North Clackamas Parks & Recreation District (NCPRD), so the wetlands should not be negotiated away in exchange for the higher density (92 units). The City does have a responsibility to protect the public good (e.g., wetlands, trees, housing, and reduced flooding) and should be more concerned with protecting natural resources than with the developer's profit margin.
- ss. Kathryn Krygier, Planning and Development Manager, North Clackamas Parks & Recreation District (NCPRD):** NCPRD is willing to acquire and manage the proposed open space tract. No funds are available for NCPRD position to purchase the tract or to provide System Development Charge (SDC) credits in exchange, but NCPRD would accept the tract if offered at no cost. The District's interest extends only to the open space tract and not to the community garden or play area.

If acquired, NCPRD would manage the tract to be compatible with the master plan for North Clackamas Park, including approval of the location and specifications of the trail and review of the mitigation plan. NCPRD would either accept the tract after the mitigation plantings had been installed and approved by the City or could implement the mitigation plan itself with the funding provided by the developer. The District is

also amenable to having the City take ownership of the tract and amending the Intergovernmental Agreement (IGA) as needed to have NCPRD manage and maintain the tract.

Pedestrian and bicycle routes through and within the site are critical to the development's success. To provide for complete connectivity throughout the site, the path shown on the revised site plan where a road was shown on the original plan should be public and meet ADA requirements.

- tt. Alex Roller, Engineering Tech II, City of Milwaukie Engineering Department:**
Revised comments related to the proposed variance to the number of lots allowed to be served by a closed-end street system (MMC Subsection 19.708.1.E.5).

**Recommended Conditions of Approval
Master File #PD-2017-001
Kellogg Creek Planned Development**

Conditions

1. The applicant shall submit a final plat application within 6 months of the preliminary plat approval in accordance with MMC Section 17.24.040. The applicant shall obtain approval of the final plat prior to the expiration of this preliminary plat approval. If the applicant chooses to phase the final plat approval, a revised stormwater report shall be provided with the submittal for each phase. A payment and performance bond for 100% of the cost of the required public improvements shall be provided with the submittal materials for the first phase.
2. The applicant's final plat application shall include the items listed on the City of Milwaukie Final Plat Checklist. The following specific items and changes are required as part of the application:
 - a. Provide a written narrative describing all changes made to the final plat that are not related to these conditions of approval.
 - b. Provide a final plat that substantially conforms to the revised plans approved by this action, which are the plans stamped received by the City on ~~April 7~~ July 11, 2017; and modified by the ~~revised landscaping plans~~ updated floodplain mitigation exhibit received on ~~April 12~~ July 17, 2017; ~~the revised Natural Resource Review report and plans received on April 12, 2017; and the revised mitigation plans received on April 20, 2017;~~ except as otherwise modified by these conditions of approval.
 - c. The modifications required by these conditions of approval include the following revisions to all relevant plan sheets:
 - (1) As per Finding 14-c, extend the northbound right-turn lane at the Rusk Road/Highway 224 intersection sufficient to meet applicable ODOT standards.
 - (2) As per Finding 12-a, provide sufficient detail to demonstrate that the pedestrian and bicycle pathways on Tracts E, F, and H are at least 5 ft wide, constructed of hard surface materials that are permeable for stormwater, and meet all other applicable design standards of MMC Subsection 19.504.9.E, including the requirement for lighting to a minimum level of 0.5 footcandles.
 - (3) As per Finding 11-f(2), revise the mitigation planting plan to ensure that all mitigation plantings are species found on the Milwaukie Native Plants List. In addition, establish a long-term maintenance plan for all mitigation plantings within the open space tract.
 - (4) As per Finding 11-f(2), re-evaluate the assessment of WQR classification at the various sample points noted in the applicant's technical report. Revise the configuration of Mitigation Area A accordingly.
 - d. The final plat submittal shall include a complete set of revised plans. The revised plans shall be consistent with one another, accurate with respect to the proposed development details, drawn to scale, and providing a legend that clearly identifies all detailed features. The final plat shall include spaces for signatures by the Milwaukie Planning Director and Milwaukie Engineering Director, and a note indicating that the subdivision is subject to the requirements of City of Milwaukie Land Use Application master file PD-2017-001.
 - e. Provide a concurrence letter from the Department of State Lands (DSL) regarding the delineated wetland on the site.

- f. Provide ~~a draft of all proposed~~ public easements and/or deed restrictions as required by this approval, including for public access to the soft-surface trail system on Tract G; public access to the bicycle and pedestrian connection from Street B to Rusk Road on Tract G; public access to the pedestrian connection across Tracts E and F; and private access through Alley C for the church.
- g. Provide ~~a draft of the proposed~~ Covenants, Conditions, and Restrictions (CC&Rs) for the ~~H~~Home ~~e~~Owners' ~~a~~Association (HOA) that will be established for the proposed development. Details shall address maintenance of the ~~soft-surface trail system~~, publicly accessible pedestrian and bicycle connections on the various tracts, ~~and as well as of~~ common areas such as the community garden.
- g.h. Either dedicate the open space tract to the City or North Clackamas Parks & Recreation District (NCPRD) or demonstrate that the HOA and CC&Rs will ensure adequate long-term maintenance of the mitigation plantings and restoration areas within the open space tract. Note that, under the HOA option, if proper maintenance of the open space tract does not occur, the City hereby establishes the right to undertake maintenance of the open space tract and may put a lien on all of the properties within the development to pay for all maintenance costs.

3. Prior to approval of the Final Plat, the following items shall be resolved:

- a. Submit a final stormwater management plan to the City of Milwaukie Engineering Department for review and approval. The plan shall be prepared in accordance with Section 2 – Stormwater Design Standards of the City of Milwaukie Public Works Standards. Submit full-engineered plans for construction of all required public improvements, reviewed and approved by the City of Milwaukie Engineering Department. All utilities shall conform to the Milwaukie Public Works Standards.
- b. Obtain a City right-of-way permit for construction of all required public improvements listed in these recommended conditions of approval for the public right(s)-of-way under City of Milwaukie jurisdiction.
- c. Pay an inspection fee equal to 5.5% of the cost of the public improvements.
- d. Provide a payment and performance bond for 100% of the cost of the required public improvements.
- e. Provide an erosion control plan and obtain an erosion control permit.
- f. Dedicate 14 ft of right-of-way on SE Kellogg Creek Drive fronting the subject property to accommodate the required parking and bike facilities.
- g. Install all underground utilities, including stubs for utility service prior to surfacing any streets. Utilities shall be designed to minimize or eliminate infiltration of floodwaters into the system. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the system and discharge from the systems into floodwaters. Relocate or provide a private utility easement for all utilities encroaching onto adjacent properties.
- h. Construct a 5-ft set-back sidewalk, 4-ft planter strip, curb and gutter, 7-ft parking strip, and 10-ft travel lane for each half of right-of-way on Street A and Street B.
- i. Construct all ADA ramps and driveways on Street A and Street B.
- j. Extend the right-turn lane for northbound traffic at the Rusk Road/Highway 224 intersection in accordance with the applicable ODOT standards.

- k. Construct a driveway approach to meet all guidelines of the Americans with Disabilities Act (ADA) to each new lot that takes direct access from a public street. The driveway approach aprons shall be between 9 ft and 20 ft in width and least 7.5 ft from the side property line.
- l. Clear vision areas shall be maintained at all driveways and accessways and on the corners of all property adjacent to an intersection. Remove all signs, structures, or vegetation more than 3 ft in height located in “vision clearance areas” at intersections of streets, driveways, and alleys fronting the proposed development.
- m. Provide a 12-month Maintenance Bond upon completion of the construction.
- n. Provide a final approved set of Mylar and electronic PDF “As Constructed” drawings to the City of Milwaukie prior to final inspection.
- o. Construct and receive County Engineering inspection for all required public improvements in the public right(s)-of-way under Clackamas County jurisdiction. All frontage improvements in or adjacent to Clackamas County right-of-way shall be designed and constructed in accordance with *Clackamas County Roadway Standards*.

Prior to commencement of site work the applicant shall obtain a Development Permit from the Clackamas County Engineering Division for design and construction of required improvements to Kellogg Creek Drive. To obtain the Permit, the applicant shall submit plans prepared and stamped by an Engineer registered in the State of Oregon, provide a Performance Guarantee, and pay an Inspection Fee. The Performance Guarantee is 125% of the approved Engineer’s cost estimate for the required improvements.

Prior to commencement of utility work within the Kellogg Creek Drive or Rusk Road rights-of-way, a Utility Placement Permit shall be obtained from the Clackamas County Engineering Division.

Required improvements to Kellogg Creek Drive include the following:

- (1) A minimum 16-ft-wide one-half street improvement for a local roadway. The applicant shall widen Kellogg Creek Drive so that the minimum total road width along the site frontage is 32 ft. The structural section for Kellogg Creek Drive improvements shall consist of 4 in of asphalt concrete, per *Clackamas County Roadway Standards Standard Drawing C100*.
- (2) Standard curb, or curb and gutter if curblin slope is less than 1%.
- (3) Adjacent to the curb, a 5-ft landscape strip, including street trees, shall be constructed along the entire site frontage.
- (4) Except where modified by the City Engineering Director, Aa minimum 5-ft-wide unobstructed sidewalk shall be constructed along the entire site frontage, per Standard Drawing S960. Where the sidewalk does not connect to sidewalk on adjacent property, the end of the sidewalk shall include a concrete ADA accessible ramp, providing a transition from the new sidewalk to the edge of the pavement.
- (5) Inbound and outbound tapers shall be provided per Section 250.6.4 of the *Clackamas County Roadway Standards*. The full road improvement shall extend to the westerly project property line, with the outbound taper beginning at that point.

- (6) Dual curb ramps shall be constructed at proposed intersections with Kellogg Creek Drive, per Standard Drawing S910. A perpendicular curb ramp shall be constructed at the westerly project boundary, per Standard Drawing S940. Crosswalk striping shall be modified as necessary based on required road widening. The designer shall complete the County ADA Assessment Checklist and provide a copy with the improvement plans. The County has adopted the following curb ramp design and construction standards:

Feature	Design Standard	Construction Standard
Ramp Slope	7.5%	8.33%
Ramp Cross Slope	1.5%	2.0%
Landing (turning space) Cross Slope	1.5%	2.0%

- (7) Drainage facilities shall be in conformance with Water Environment Services regulations and *Clackamas County Roadway Standards*, Chapter 4. Stormwater detention facilities shall not be located within the public right-of-way.
- (8) The applicant shall grant an 8-ft-wide public utility easement adjacent to the public right-of-way along the entire site frontage of Kellogg Creek Drive.
- p. Record all required easements and/or deed restrictions with the Clackamas County Recorder's office and provide a copy of each to the City Planning Department.
- q. Submit a letter from the project landscape designer attesting that all required site plantings have been completed in conformance with the approved site plans and with City standards, including all mitigation plantings. This includes removal of all invasive or nuisance species vegetation (as identified on the Milwaukie Native Plant List), noxious materials, and man-made debris such as concrete rubble from within all WQR and HCA locations on the site, on the north and south sides of the creek, as per Finding 11.
- r. As per Finding 11, demarcate the boundary of the delineated wetland within the open space tract, using permanent signage and/or split-rail fencing.
- s. As per Finding 11, provide at least two pet-waste bag dispensing devices dispersed along the soft-surface trail system.
4. Prior to issuance of any building permit, the following shall be resolved:
- a. Obtain approval of the necessary FEMA map revision for those lots that are currently in the floodplain.
5. Prior to final inspection of any building permit, the following shall be resolved:
- a. Provide a narrative describing all actions taken to comply with these conditions of approval. In addition, describe any changes made after the issuance of this land use decision that are not related to these conditions of approval.
- b. Connect all residential roof drains to a private drywell or other approved structure. Private properties may only connect to public storm system if percolation tests show that infiltration cannot be obtained on site or if the water table is too shallow. In the event the storm management system contains underground injection control devices, submit proof of acceptance of the storm system design from the Department of Environmental Quality.
6. Ongoing conditions of approval include the following:

- a. As per Finding 7, fencing in yards adjacent to the open space tract shall remain free of sight-obscuring materials, to allow visibility into the adjacent open space.
- b. As per Finding 11, where practicable, lights on lots adjacent to WQR and HCA areas shall be placed so that they do not shine directly into any WQR and/or HCA location.

Additional Requirements

The following items are not conditions of approval necessary to meet applicable land use review criteria. They relate to other development standards and permitting requirements contained in the Milwaukie Municipal Code (MMC) and Public Works Standards that are required at various points in the development and permitting process.

1. Prior to commencement of any earth-disturbing activities, the applicant shall obtain an erosion control permit.

2. Limitations on Development Activity

Development activity on the site shall be limited to 7:00 a.m. to 10:00 p.m. Monday through Friday and 8:00 a.m. to 5:00 p.m. Saturday and Sunday, as per MMC Subsection 8.08.070(I).

3. Final Development Plan and Program

As per the requirements of MMC Subsections 19.311.12 through 19.311.15, no excavation, grading, construction, improvement, or building shall begin, and no permits therefor shall be issued, until the following items must be addressed regarding the final development plan and program:

- a. Prior to the effective date of the ordinance adopting the final development plan and program and accompanying change to the zoning map, file with the City Recorder's office a final development plan and program that includes any modifications that were part of the final plan approved by City Council.
- b. The City shall prepare a notice to acknowledge that the final development plan and program approved by City Council constitutes zoning for the subject property. The notice shall contain a legal description of the property and reference to the certified copy of the final development plan and program filed in the office of the City Recorder. The applicant shall record a copy of this acknowledgment notice in the County Recorder's office.
- c. An application for approval of variations to the recorded final plan and program may be submitted in writing. Such variations may be approved by the City staff provided they do not alter dwelling unit densities, alter dwelling unit type ratios, increase or change the type or location of commercial or residential structures, change the boundaries of the planned development, or change the location and area of public open spaces and recreational areas.

4. Landscaping Maintenance

As per MMC Subsection 19.402.11.B.9, a minimum of 80% of all required mitigation plantings for WQR or HCA disturbance shall remain alive on the second anniversary of the date the planting is completed.

5. Requirements from Clackamas Fire District #1 (CFD#1)

- a. A Fire Access and Water Supply plan is required for subdivisions. The plan shall show fire apparatus access, fire lanes, fire hydrants, fire lines, available fire flow, FDC location (if applicable), building square footage, and type of construction. The applicant shall provide fire flow tests per NFPA 291, and shall be no older than 12

months. Work to be completed by experienced and responsible persons and coordinated with the local water authority.

b. Access

- (1) Provide address numbering that is clearly visible from the street.
- (2) The inside turning radius and outside turning radius for a 20-ft-wide road shall not be less than 28 ft and 48 ft respectively, measured from the same center point.
- (3) Provide an approved turnaround for dead end access roads exceeding 150 ft in length.
- (4) Fire Department turnarounds shall meet the dimensions found in the fire code applications guide.

c. Water Supply

- (1) Fire Hydrants, One and Two-Family Dwellings & Accessory Structures: Where a portion of a structure is more than 600 ft from a hydrant on a fire apparatus access road, as measured in an approved route around the exterior of the structure(s), additional fire hydrants and mains shall be provided.
- (2) Prior to the start of combustible construction required fire hydrants shall be operational and accessible.
- (3) For one and two family dwellings located in areas with reliable municipal fire fighting water supply the following shall apply:
 - <3,600 sq ft (including attached garage)
 - (a) 1,000 gpm @ 20 psi with hydrant within 600 ft of furthest portion of new residential construction, (OFC Section B105.2)
 - >3,600 sq ft (including attached garage)
 - (a) Shall meet fire flow requirements specified in Appendix B of the current Oregon Fire Code, (OFC, Table B105.1)
 - (b) Shall meet hydrant coverage as specified in Appendix C of the current Oregon Fire Code, (OFC, Table C105.1)

6. Expiration of Approval

- a. As per MMC Subsection 19.311.16, if substantial construction or development in compliance with the approved final development plan and program has not occurred within 6 months of its effective date, the Planning Commission may initiate a review of the PD Zone and hold a public hearing to determine whether its continuation (in whole or in part) is in the public interest. Notification and hearing shall be in accordance with MMC Section 19.1007 Type IV Review. If found not to be, the Planning Commission shall recommend to the City Council that the PD Zone be removed by appropriate amendment to the Zoning Ordinance and the property changed back to original zoning.
- b. Beyond the limitations of MMC 19.311.6, proposals requiring any kind of development permit must complete both of the following steps, as per MMC Subsection 19.1001.7.E.1.a:
 - (1) Obtain and pay for all necessary development permits and start construction within two (2) years of land use approval.

- (2) Pass final inspection and/or obtain a certificate of occupancy within four (4) years of land use approval.

**Recommended Conditions of Approval
Master File #PD-2017-001
Kellogg Creek Planned Development**

Conditions

1. The applicant shall submit a final plat application within 6 months of the preliminary plat approval in accordance with MMC Section 17.24.040. The applicant shall obtain approval of the final plat prior to the expiration of this preliminary plat approval. If the applicant chooses to phase the final plat approval, a revised stormwater report shall be provided with the submittal for each phase. A payment and performance bond for 100% of the cost of the required public improvements shall be provided with the submittal materials for the first phase.
2. The applicant's final plat application shall include the items listed on the City of Milwaukie Final Plat Checklist. The following specific items and changes are required as part of the application:
 - a. Provide a written narrative describing all changes made to the final plat that are not related to these conditions of approval.
 - b. Provide a final plat that substantially conforms to the revised plans approved by this action, which are the plans stamped received by the City on July 11, 2017; and modified by the updated floodplain mitigation exhibit received on July 17, 2017; except as otherwise modified by these conditions of approval.
 - c. The modifications required by these conditions of approval include the following revisions to all relevant plan sheets:
 - (1) As per Finding 14-c, extend the northbound right-turn lane at the Rusk Road/Highway 224 intersection sufficient to meet applicable ODOT standards.
 - (2) As per Finding 12-a, provide sufficient detail to demonstrate that the pedestrian and bicycle pathways on Tracts E, F, and H are at least 5 ft wide, constructed of hard surface materials that are permeable for stormwater, and meet all other applicable design standards of MMC Subsection 19.504.9.E, including the requirement for lighting to a minimum level of 0.5 footcandles.
 - (3) As per Finding 11-f(2), revise the mitigation planting plan to ensure that all mitigation plantings are species found on the Milwaukie Native Plants List. In addition, establish a long-term maintenance plan for all mitigation plantings within the open space tract.
 - (4) As per Finding 11-f(2), re-evaluate the assessment of WQR classification at the various sample points noted in the applicant's technical report. Revise the configuration of Mitigation Area A accordingly.
 - d. The final plat submittal shall include a complete set of revised plans. The revised plans shall be consistent with one another, accurate with respect to the proposed development details, drawn to scale, and providing a legend that clearly identifies all detailed features. The final plat shall include spaces for signatures by the Milwaukie Planning Director and Milwaukie Engineering Director, and a note indicating that the subdivision is subject to the requirements of City of Milwaukie Land Use Application master file PD-2017-001.
 - e. Provide a concurrence letter from the Department of State Lands (DSL) regarding the delineated wetland on the site.
 - f. Provide public easements and/or deed restrictions as required by this approval, including for public access to the soft-surface trail system on Tract G; public access to

the bicycle and pedestrian connection from Street B to Rusk Road on Tract G; public access to the pedestrian connection across Tracts E and F; and private access through Alley C for the church.

- g. Provide Covenants, Conditions, and Restrictions (CC&Rs) for the Home Owners' Association (HOA) that will be established for the proposed development. Details shall address maintenance of the publicly accessible pedestrian and bicycle connections on the various tracts as well as of common areas such as the community garden.
 - h. Either dedicate the open space tract to the City or North Clackamas Parks & Recreation District (NCPRD) or demonstrate that the HOA and CC&Rs will ensure adequate long-term maintenance of the mitigation plantings and restoration areas within the open space tract. Note that, under the HOA option, if proper maintenance of the open space tract does not occur, the City hereby establishes the right to undertake maintenance of the open space tract and may put a lien on all of the properties within the development to pay for all maintenance costs.
3. Prior to approval of the Final Plat, the following items shall be resolved:
- a. Submit a final stormwater management plan to the City of Milwaukie Engineering Department for review and approval. The plan shall be prepared in accordance with Section 2 – Stormwater Design Standards of the City of Milwaukie Public Works Standards. Submit full-engineered plans for construction of all required public improvements, reviewed and approved by the City of Milwaukie Engineering Department. All utilities shall conform to the Milwaukie Public Works Standards.
 - b. Obtain a City right-of-way permit for construction of all required public improvements listed in these recommended conditions of approval for the public right(s)-of-way under City of Milwaukie jurisdiction.
 - c. Pay an inspection fee equal to 5.5% of the cost of the public improvements.
 - d. Provide a payment and performance bond for 100% of the cost of the required public improvements.
 - e. Provide an erosion control plan and obtain an erosion control permit.
 - f. Dedicate 14 ft of right-of-way on SE Kellogg Creek Drive fronting the subject property to accommodate the required parking and bike facilities.
 - g. Install all underground utilities, including stubs for utility service prior to surfacing any streets. Utilities shall be designed to minimize or eliminate infiltration of floodwaters into the system. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the system and discharge from the systems into floodwaters. Relocate or provide a private utility easement for all utilities encroaching onto adjacent properties.
 - h. Construct a 5-ft set-back sidewalk, 4-ft planter strip, curb and gutter, 7-ft parking strip, and 10-ft travel lane for each half of right-of-way on Street A and Street B.
 - i. Construct all ADA ramps and driveways on Street A and Street B.
 - j. Extend the right-turn lane for northbound traffic at the Rusk Road/Highway 224 intersection in accordance with the applicable ODOT standards.
 - k. Construct a driveway approach to meet all guidelines of the Americans with Disabilities Act (ADA) to each new lot that takes direct access from a public street.

The driveway approach aprons shall be between 9 ft and 20 ft in width and least 7.5 ft from the side property line.

- l. Clear vision areas shall be maintained at all driveways and accessways and on the corners of all property adjacent to an intersection. Remove all signs, structures, or vegetation more than 3 ft in height located in “vision clearance areas” at intersections of streets, driveways, and alleys fronting the proposed development.
- m. Provide a 12-month Maintenance Bond upon completion of the construction.
- n. Provide a final approved set of Mylar and electronic PDF “As Constructed” drawings to the City of Milwaukie prior to final inspection.
- o. Construct and receive County Engineering inspection for all required public improvements in the public right(s)-of-way under Clackamas County jurisdiction. All frontage improvements in or adjacent to Clackamas County right-of-way shall be designed and constructed in accordance with *Clackamas County Roadway Standards*.

Prior to commencement of site work the applicant shall obtain a Development Permit from the Clackamas County Engineering Division for design and construction of required improvements to Kellogg Creek Drive. To obtain the Permit, the applicant shall submit plans prepared and stamped by an Engineer registered in the State of Oregon, provide a Performance Guarantee, and pay an Inspection Fee. The Performance Guarantee is 125% of the approved Engineer’s cost estimate for the required improvements.

Prior to commencement of utility work within the Kellogg Creek Drive or Rusk Road rights-of-way, a Utility Placement Permit shall be obtained from the Clackamas County Engineering Division.

Required improvements to Kellogg Creek Drive include the following:

- (1) A minimum 16-ft-wide one-half street improvement for a local roadway. The applicant shall widen Kellogg Creek Drive so that the minimum total road width along the site frontage is 32 ft. The structural section for Kellogg Creek Drive improvements shall consist of 4 in of asphalt concrete, per *Clackamas County Roadway Standards Standard Drawing C100*.
- (2) Standard curb, or curb and gutter if curblin slope is less than 1%.
- (3) Adjacent to the curb, a 5-ft landscape strip, including street trees, shall be constructed along the entire site frontage.
- (4) Except where modified by the City Engineering Director, a minimum 5-ft-wide unobstructed sidewalk shall be constructed along the entire site frontage, per Standard Drawing S960. Where the sidewalk does not connect to sidewalk on adjacent property, the end of the sidewalk shall include a concrete ADA accessible ramp, providing a transition from the new sidewalk to the edge of the pavement.
- (5) Inbound and outbound tapers shall be provided per Section 250.6.4 of the *Clackamas County Roadway Standards*. The full road improvement shall extend to the westerly project property line, with the outbound taper beginning at that point.
- (6) Dual curb ramps shall be constructed at proposed intersections with Kellogg Creek Drive, per Standard Drawing S910. A perpendicular curb ramp shall be constructed at the westerly project boundary, per Standard Drawing S940.

Crosswalk striping shall be modified as necessary based on required road widening. The designer shall complete the County ADA Assessment Checklist and provide a copy with the improvement plans. The County has adopted the following curb ramp design and construction standards:

Feature	Design Standard	Construction Standard
Ramp Slope	7.5%	8.33%
Ramp Cross Slope	1.5%	2.0%
Landing (turning space) Cross Slope	1.5%	2.0%

- (7) Drainage facilities shall be in conformance with Water Environment Services regulations and *Clackamas County Roadway Standards*, Chapter 4. Stormwater detention facilities shall not be located within the public right-of-way.
 - (8) The applicant shall grant an 8-ft-wide public utility easement adjacent to the public right-of-way along the entire site frontage of Kellogg Creek Drive.
- p. Record all required easements and/or deed restrictions with the Clackamas County Recorder's office and provide a copy of each to the City Planning Department.
 - q. Submit a letter from the project landscape designer attesting that all required site plantings have been completed in conformance with the approved site plans and with City standards, including all mitigation plantings. This includes removal of all invasive or nuisance species vegetation (as identified on the Milwaukie Native Plant List), noxious materials, and man-made debris such as concrete rubble from within all WQR and HCA locations on the site, on the north and south sides of the creek, as per Finding 11.
 - r. As per Finding 11, demarcate the boundary of the delineated wetland within the open space tract, using permanent signage and/or split-rail fencing.
 - s. As per Finding 11, provide at least two pet-waste bag dispensing devices dispersed along the soft-surface trail system.
4. Prior to issuance of any building permit, the following shall be resolved:
 - a. Obtain approval of the necessary FEMA map revision for those lots that are currently in the floodplain.
 5. Prior to final inspection of any building permit, the following shall be resolved:
 - a. Provide a narrative describing all actions taken to comply with these conditions of approval. In addition, describe any changes made after the issuance of this land use decision that are not related to these conditions of approval.
 - b. Connect all residential roof drains to a private drywell or other approved structure. Private properties may only connect to public storm system if percolation tests show that infiltration cannot be obtained on site or if the water table is too shallow. In the event the storm management system contains underground injection control devices, submit proof of acceptance of the storm system design from the Department of Environmental Quality.
 6. Ongoing conditions of approval include the following:
 - a. As per Finding 7, fencing in yards adjacent to the open space tract shall remain free of sight-obscuring materials, to allow visibility into the adjacent open space.

- b. As per Finding 11, where practicable, lights on lots adjacent to WQR and HCA areas shall be placed so that they do not shine directly into any WQR and/or HCA location.

Additional Requirements

The following items are not conditions of approval necessary to meet applicable land use review criteria. They relate to other development standards and permitting requirements contained in the Milwaukie Municipal Code (MMC) and Public Works Standards that are required at various points in the development and permitting process.

1. Prior to commencement of any earth-disturbing activities, the applicant shall obtain an erosion control permit.
2. Limitations on Development Activity

Development activity on the site shall be limited to 7:00 a.m. to 10:00 p.m. Monday through Friday and 8:00 a.m. to 5:00 p.m. Saturday and Sunday, as per MMC Subsection 8.08.070(l).
3. Final Development Plan and Program

As per the requirements of MMC Subsections 19.311.12 through 19.311.15, no excavation, grading, construction, improvement, or building shall begin, and no permits therefor shall be issued, until the following items must be addressed regarding the final development plan and program:

 - a. Prior to the effective date of the ordinance adopting the final development plan and program and accompanying change to the zoning map, file with the City Recorder's office a final development plan and program that includes any modifications that were part of the final plan approved by City Council.
 - b. The City shall prepare a notice to acknowledge that the final development plan and program approved by City Council constitutes zoning for the subject property. The notice shall contain a legal description of the property and reference to the certified copy of the final development plan and program filed in the office of the City Recorder. The applicant shall record a copy of this acknowledgment notice in the County Recorder's office.
 - c. An application for approval of variations to the recorded final plan and program may be submitted in writing. Such variations may be approved by the City staff provided they do not alter dwelling unit densities, alter dwelling unit type ratios, increase or change the type or location of commercial or residential structures, change the boundaries of the planned development, or change the location and area of public open spaces and recreational areas.
4. Landscaping Maintenance

As per MMC Subsection 19.402.11.B.9, a minimum of 80% of all required mitigation plantings for WQR or HCA disturbance shall remain alive on the second anniversary of the date the planting is completed.
5. Requirements from Clackamas Fire District #1 (CFD#1)
 - a. A Fire Access and Water Supply plan is required for subdivisions. The plan shall show fire apparatus access, fire lanes, fire hydrants, fire lines, available fire flow, FDC location (if applicable), building square footage, and type of construction. The applicant shall provide fire flow tests per NFPA 291, and shall be no older than 12 months. Work to be completed by experienced and responsible persons and coordinated with the local water authority.

b. Access

- (1) Provide address numbering that is clearly visible from the street.
- (2) The inside turning radius and outside turning radius for a 20-ft-wide road shall not be less than 28 ft and 48 ft respectively, measured from the same center point.
- (3) Provide an approved turnaround for dead end access roads exceeding 150 ft in length.
- (4) Fire Department turnarounds shall meet the dimensions found in the fire code applications guide.

c. Water Supply

- (1) Fire Hydrants, One and Two-Family Dwellings & Accessory Structures: Where a portion of a structure is more than 600 ft from a hydrant on a fire apparatus access road, as measured in an approved route around the exterior of the structure(s), additional fire hydrants and mains shall be provided.
- (2) Prior to the start of combustible construction required fire hydrants shall be operational and accessible.
- (3) For one and two family dwellings located in areas with reliable municipal fire fighting water supply the following shall apply:
 - <3,600 sq ft (including attached garage)
 - (a) 1,000 gpm @ 20 psi with hydrant within 600 ft of furthest portion of new residential construction, (OFC Section B105.2)
 - >3,600 sq ft (including attached garage)
 - (a) Shall meet fire flow requirements specified in Appendix B of the current Oregon Fire Code, (OFC, Table B105.1)
 - (b) Shall meet hydrant coverage as specified in Appendix C of the current Oregon Fire Code, (OFC, Table C105.1)

6. Expiration of Approval

- a. As per MMC Subsection 19.311.16, if substantial construction or development in compliance with the approved final development plan and program has not occurred within 6 months of its effective date, the Planning Commission may initiate a review of the PD Zone and hold a public hearing to determine whether its continuation (in whole or in part) is in the public interest. Notification and hearing shall be in accordance with MMC Section 19.1007 Type IV Review. If found not to be, the Planning Commission shall recommend to the City Council that the PD Zone be removed by appropriate amendment to the Zoning Ordinance and the property changed back to original zoning.
- b. Beyond the limitations of MMC 19.311.6, proposals requiring any kind of development permit must complete both of the following steps, as per MMC Subsection 19.1001.7.E.1.a:
 - (1) Obtain and pay for all necessary development permits and start construction within two (2) years of land use approval.
 - (2) Pass final inspection and/or obtain a certificate of occupancy within four (4) years of land use approval.

KELLOGG CREEK Milwaukie, Oregon

A Land Use Application for:

**Minor Modification to Community Service Use
Subdivision Preliminary Plat
Transportation Facilities Review
Natural Resources Review**

**Revised and Submitted:
June 2017**

Applicant:
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47 South State Street
Lake Oswego, OR 97934

Prepared by:
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EXHIBITS

- A. Development Plan Set
- B. Pre-Application Notes
- C. City Planning Process Memo
- D. Wetland Delineation Report
- E. Drainage Report
- F. Geo-Tech Report
- G. Traffic Impact Study
- H. Neighborhood Meeting Materials
- I. Arborist Report
- J. Natural Resource Review

I. PROJECT TEAM

Applicant

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Planning/Civil Engineering

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Traffic Engineering

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cbrehmer@kittelson.com

Natural Resources

Pacific Habitat Services
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Wilsonville, OR 97070
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jvs@pacifichabitat.com

Arborist

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Lake Oswego, Oregon 97035
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971.409.9354
morgan.holen@comcast.net

II. INTRODUCTION

Summary of Proposal

Brownstone Development (the applicant) is proposing a new residential subdivision located at 13333 Rusk Road in the City of Milwaukie (see Figure 1, Vicinity Map). The development site is approximately 13.8 acres and will consist of 92 new lots intended for single-family attached (rowhouse) dwelling units and associated public streets. The attached homes will be in groupings of four units and will be accessed from rear alleys or front-facing driveways. The development will also include new public local streets, private alleys and a soft-surface pedestrian trail to provide connectivity throughout the site. Open spaces and natural areas will surround the homes and connect to the adjacent North Clackamas Park west of the site.

The subject property currently consists of four tax lots all owned by the Turning Point Church, which is located at the corner of Rusk Road and Kellogg Creek Drive. A property line adjustment application has been submitted to the City of Milwaukie in order to consolidate and reconfigure the four tax lots into two lots. One lot (13.8 acres) will be the development site and the other lot (3.7 acres) will be established for the church. The Turning Point Church and its associated parking areas will remain.

Access to the development site will be taken from SE Kellogg Creek Drive, as shown on the Preliminary Plat, Sheet C201 in Exhibit A. In order to ensure the Turning Point Church continues to have safe ingress and egress, a connection between the two sites will be provided to allow church visitors to exit through the development site onto Kellogg Creek Drive (exit from the church site onto Rusk Road is not permitted; that access is entrance only).

Zoning & Land Uses

The subject site currently has split zoning, with the western portion of the site zoned R-3 and the eastern portion of the site zoned R-10. See Figure 2 and the Existing Conditions Plan (Sheet C100) in Exhibit A. The table below describes the uses and zoning on properties surrounding the subject site.

Table 1: Surrounding Uses

<u>Area</u>	<u>Zoning</u>	<u>Land Uses</u>
North	R-10	Single-family residences, Highway 224 right-of-way
East	R-10	Turning Point Church, SE Rusk Road, and single-family residences
South	R-10	SE Kellogg Creek Road, single-family residences, Deerfield Village Assisted Living Center
West	R-10	The Milwaukie Center, North Clackamas Park

Figure 1: Vicinity Map



Legend

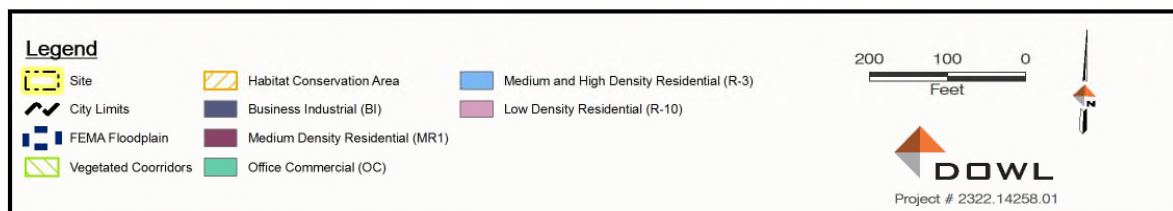
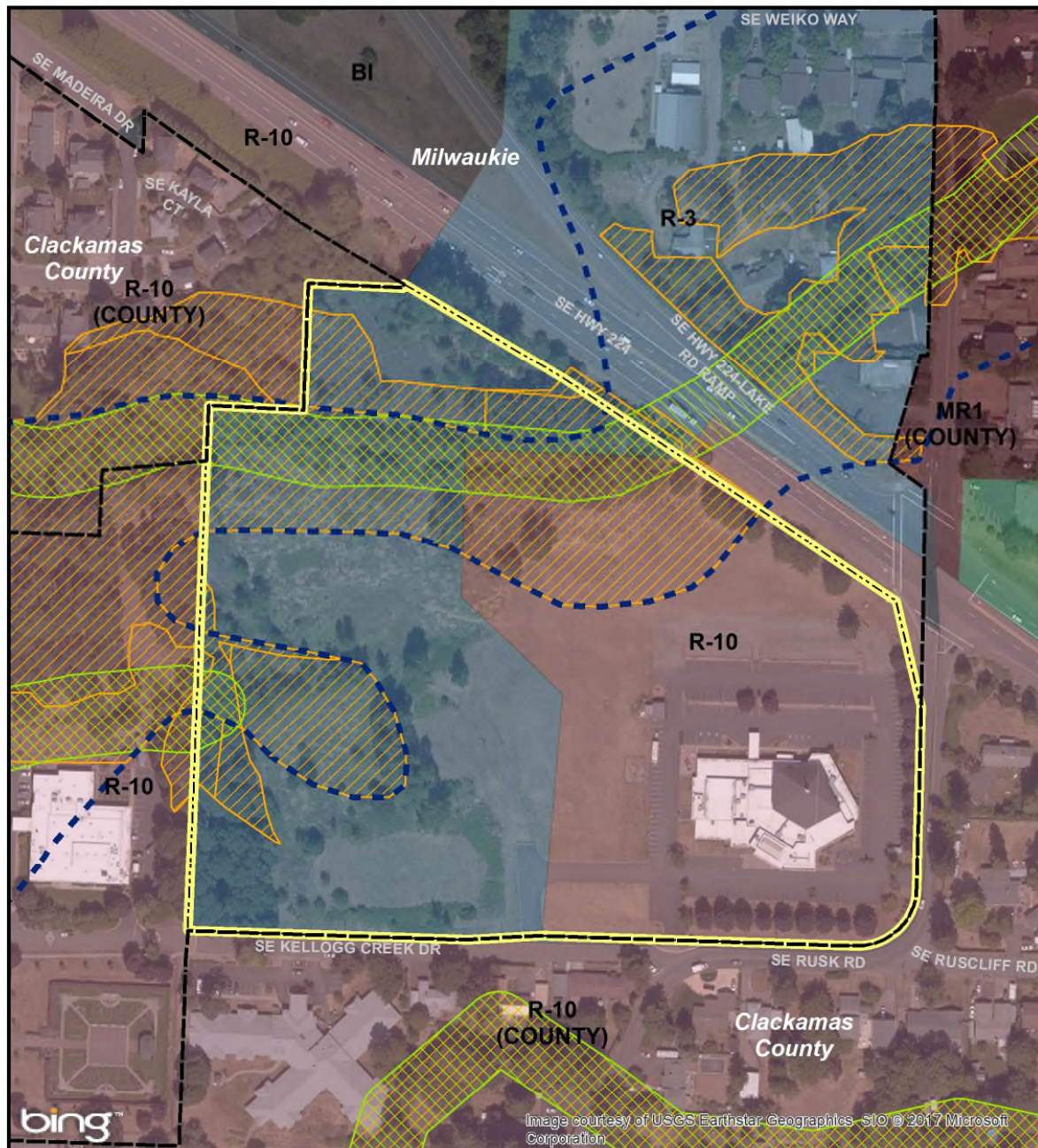
- Site
- taxlots
- City Limits

1,000 500 0
Feet

Vicinity Map
Kellogg Creek
Milwaukie, Oregon

DOWL
Project # 2322.1414258.01

Figure 2: Natural Resources & Zoning



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Planned Development

In order to maximize development potential on the site, preserve natural resources and provide needed housing for Milwaukie, the applicant is proposing to develop this site using the city's Planned Development process. The Planned Development process allows for greater flexibility in design and use of a site to encourage a mix of housing types and creation of a unique environment that would not be possible under strict application of the Zoning Code. The Planned Development process has several steps, including a zone change and a final development plan. To clarify the Planned Development review process and how it relates to the other applications needed for this project, the project team met with Milwaukie Planning staff in August 2016 for a pre-application conference, and again in September 2016 for a follow-up discussion. After the September meeting, city staff drafted a memo presenting two possible options for a review process – standard and streamlined. See Exhibits B and C for a copy of the pre-application notes and the September memo.

The applicant has chosen to utilize the streamlined review process, as outlined in the September memo. As such, two application packages are being submitted concurrently:

1. Zone Change and Preliminary Development Plan Package – Type IV review
2. Subdivision and related applications – Type III review

As noted below, this narrative is part of the Type III application package and addresses standards and requirements for a subdivision preliminary plat and related sections of the Zoning Code.

Natural Resources

The site contains approximately 4.5 acres of designated floodplain area, which is regulated by Chapter 18.04 of the Milwaukie Municipal Code. The site also contains approximately 5.6 acres of designated Habitat Conservation Area (HCA). See Figure 2 Natural Resource Areas. HCA lands are natural resources that have been identified by the City for protection and are regulated under Chapter 19.402 of the Milwaukie Zoning Code. Impacts to floodplain and HCA are permitted by the City if certain conditions can be met and mitigation of those impacts is provided. While the bulk of existing natural resources on the subject site will be preserved, some impacts will be necessary to accommodate the proposed development. This application provides information about those impacts and how they will be mitigated in accordance with City regulations.

Wetlands

Wetlands have been identified on the site and delineated by Pacific Habitat Services. See Exhibit D for the Wetland Delineation Report. Impacts to the wetlands will occur in order to accommodate development on the site. Those impacts require a joint permit from Department of State Lands (DSL) and the US Army Corps of Engineers (US Corps). A joint permit application for wetland impacts will be submitted as required.

Modifications to the Church Property

As noted previously, a property line adjustment request has been submitted to the City to establish a separate tax lot for the existing church and associated parking areas. As part of the proposed subdivision development, minor changes to the church property will occur, including:

- The church entrance from Rusk Road will be reconfigured to enforce that it is for entry only; exit onto Rusk Road from that access point is not permitted due to sight distance issues.
- Some parking spaces along the western edge of the church property will be removed in order to create an access between the church site and the proposed subdivision site. This access will provide a new, safe exit point for the church onto Kellogg Creek Drive. Additional parking spaces will be removed just south of the new access point to create a service and emergency-only access from the alley on the subdivision

site. This access will be gated and will only be accessible for emergency fire and garbage service activities.

Because the church use is an approved Community Service Use (CSU) per Milwaukie's code (Section 19.904), a minor modification to the CSU approval is required by the City.

Request

As part of the overall Planned Development project, this application package contains the following requests for approvals from the City of Milwaukie:

- Type I Minor Modification to a CSU
- Type III Preliminary Plat Subdivision
- Type III Natural Resources Review
- Type II Transportation Facilities Review

The applicant has submitted this application, narrative, and plans in order to demonstrate how this proposal complies with the standards set forth in the City of Milwaukie's Municipal Code. All applicable standards have been addressed and all required submittal materials have been provided.

The applicant is also submitting a separate application package for Planned Development, Zone Change and Variance approvals. The two application packages are related and are intended to be reviewed concurrently by the city.

III. COMPLIANCE WITH CITY OF MILWAUKIE DEVELOPMENT CODE

Section II of this narrative contains sections of the Milwaukie Municipal Code along with responses to demonstrate how the proposed project meets the applicable standards and requirements. Sections of the code that are not applicable are generally not included here unless necessary for context.

Title 17 Land Division

17.12.040 APPROVAL CRITERIA FOR PRELIMINARY PLAT

A. Approval Criteria

The approval authority may approve, approve with conditions, or deny a preliminary plat based on the following approval criteria:

1. *The proposed preliminary plat complies with Title 19 of this code and other applicable ordinances, regulations, and design standards.*

Response: This narrative provides responses to applicable sections of the Milwaukie Municipal Code to demonstrate how the proposal is consistent with City regulations and design standards.

2. *The proposed division will allow reasonable development and will not create the need for a variance of any land division or zoning standard.*

Response: The proposed subdivision will allow the applicant reasonable development opportunities on the site and will not create the need for a variance (outside of the concurrent Planned Development request).

3. *The proposed subdivision plat name is not duplicative and the plat otherwise satisfies the provisions of ORS 92.090(1).*

Response: The proposed subdivision name is Kellogg Creek and is not duplicative. The plat satisfies provisions of ORS 92.090(1), which establishes rules for subdivision plat names and numbering.

4. *The streets and roads are laid out so as to conform to the plats of subdivisions already approved for adjoining property as to width, general direction, and in all other respects unless the City determines it is in the public interest to modify the street or road pattern.*

Response: There are no previously approved subdivisions on adjoining lots. Therefore, this standard is not applicable.

5. *A detailed narrative description demonstrating how the proposal conforms to all applicable code sections and design standards.*

Response: This narrative provides a detailed description that demonstrates how the proposed subdivision conforms to applicable code sections and design standards.

B. Conditions of Approval

The approval authority may attach such conditions as are necessary to carry out the applicable ordinances and regulations and may require access control strips be granted to the City for the purpose of controlling access to adjoining undeveloped properties. (Ord. 1965 §§ 6, 7, 2006; Ord. 1907 (Attach. 1), 2002)

Response: The applicant understands that the approval authority may attach conditions of approval as deemed necessary.

17.16.060 PRELIMINARY PLAT FOR PARTITION AND SUBDIVISION

The following shall accompany applications for partition:

- A. Completed application form signed by all owners of property included in the proposal;
- B. Application fee as adopted by the City Council;
- C. Completed and signed "submission requirements" and "partition checklist" or "subdivision checklist" forms as appropriate;
- D. All information specified on the "submission requirements" and "partition checklist" or "subdivision checklist" forms as appropriate;
- E. Requirements and information specified in Chapter 17.20; and
- F. Any additional information as may be needed to demonstrate compliance with approval criteria.

Response: The above items have been provided as part of this application package.

CHAPTER 17.20 PRELIMINARY PLAT**17.20.030 GENERAL INFORMATION TO BE SHOWN ON THE PRELIMINARY PLAT**

- A. Preliminary plats shall be prepared by an Oregon registered land surveyor.

Response: The Preliminary Plat, Sheet C201 in Exhibit A was prepared by an Oregon registered engineer with DOWL, the applicant's representative.

- B. The following general information shall be submitted with the preliminary plat:
 1. Proposed name of the subdivision/partition. The name shall not duplicate nor resemble the name of another subdivision in the county. Subdivision names shall be approved by the County Surveyor in accordance with ORS Chapter 92;
 2. Date, north point, and scale of drawing;
 3. Appropriate identification clearly stating the map is a preliminary plat;
 4. Location by section, township, and range; and a legal description sufficient to define the location and boundaries of the area to be divided;
 5. Names and addresses of the owner, subdivider, and engineer or surveyor;
 6. Acreage;
 7. Structures and yard setbacks;
 8. The location, width, and purpose of easements;
 9. The location, approximate dimensions, and area of all lots;
 10. Lot and block numbers; and
 11. Other information as maybe specified on application forms and checklists prescribed by the Planning Director.

Response: The Preliminary Plat, Sheet C201 in Exhibit A, includes the above items.

- C. Vicinity map shall be drawn at an appropriate scale, showing all existing subdivisions, streets, and unsubdivided land between the proposed subdivision and the nearest existing arterial or collector streets, and

showing how proposed streets may be extended to connect with existing streets. At a minimum, the vicinity map shall depict future street connections for land within 400 feet of the subject property.

Response: The Vicinity Map is provided in Figure 1 above.

17.20.040 BUILDING LINES PROHIBITED

Platted building lines are prohibited. The effect of building lines may be executed through recordation of instruments, which shall be referenced on the recorded plat.

Response: No building lines have been platted.

17.20.050 EXISTING CONDITIONS

The following shall be shown on the preliminary plat:

- A. Location, width, and names of all existing or platted streets within or adjacent to the tract, together with easements, railroad right-of-way, and other important features, such as section lines and corners, City boundary lines, and monuments.*
- B. Contour lines related to an established benchmark or other datum approved by the Engineering Director, with intervals at a minimum of 2 feet for slopes up to 10% and 5 feet for slopes over 10%.*
- C. Location within the area to be divided, and in the adjoining streets and property, of existing sewers, water mains, culverts, storm drain system, and electric conduits or lines proposed to service the property to be subdivided, and invert elevations of sewer manholes, drain pipes, and culverts.*
- D. Zoning and existing uses within the tract and 200 feet on all sides, including the location and use of all existing structures indicating those that will remain and those to be removed.*
- E. Approximate location of areas subject to inundation or stormwater overflow with approximate high-water elevation. Location, width, direction, and flow of all watercourses on or abutting the tract including wetlands and watercourses as shown on City-adopted natural resource and Title 3 maps.*
- F. Natural features such as rock outcroppings, drainages whether seasonal or perennial, wooded areas, and isolated trees, including type and caliper.*
- G. Floodway and floodplain boundary.*
- H. Areas containing slopes of 25% or greater.*

Response: The Existing Conditions Plan, Sheet C100 in Exhibit A, includes all of the above required items.

17.20.060 PROPOSED CONDITIONS

- A. 12 copies of a preliminary plat shall be submitted to the Planning Director. The plat shall include the following information:*
 - 1. Date, north point, scale, address, assessor reference number, and legal description;*
 - 2. Name and address of the record owner or owners and of the person who prepared the site plan;*
 - 3. Approximate acreage and square feet under a single ownership, or if more than 1 ownership is involved, the total contiguous acreage of all landowners directly involved in the partition;*
 - 4. For land adjacent to and within the area to be divided, the locations, names, and existing widths of all streets, driveways, public safety accesses, easements, and rights-of-way; location, width, and purpose of all other existing easements; and location and size of sewer and waterlines, drainage ways, power poles, and other utilities;*

5. *Location of existing structures, identifying those to remain in place and those to be removed;*
6. *Lot design and layout, showing proposed setbacks, landscaping, buffers, driveways, lot sizes, and relationship to existing or proposed streets and utility easements;*
7. *Existing development and natural features for the site and adjacent properties, including those properties within 100 feet of the proposal, showing buildings, mature trees, topography, and other structures;*
8. *Elevation and location of flood hazard boundaries;*
9. *The location, width, name, and approximate centerline grade and curve radii of all streets; the relationship of all streets to any projected streets planned by the City; whether roads will continue beyond the plat; and existing and proposed grade profiles. No street name may be used which will duplicate or be confused with the name of an existing street, except for extensions of existing streets. Street names and numbers shall conform to the established pattern in the surrounding area.*

Response: The plan set in Exhibit A and Figures 1 and 2 in this narrative include all of the above items.

B. A conceptual plan shall be provided for complete subdivision or partitioning of the property, as well as any adjacent vacant or underutilized properties, so that access issues may be addressed in a comprehensive manner. The concept plan shall include documentation that all options for access have been investigated including shared driveways, pedestrian accessways, and new street development.

Response: The Preliminary Plat provided in Exhibit A shows the conceptual plan for subdivision of the subject site. Areas on the site to remain un-divided are within the floodplain and HCA and contain wetlands; future subdivision of that portion of the site is not anticipated. The Preliminary Plat also shows proposed access to the site, including a new exit point for church visitors (the church site is not permitted to exit onto Rusk Road).

C. A detailed narrative description demonstrating how the proposal meets all applicable provisions of this title, Title 19, and City design standards, including the Public Works Standards.

Response: This narrative provides responses that demonstrate how the proposal complies with applicable City standards.

D. Plans and drawings as necessary to demonstrate compliance with all applicable provisions of chapters of this title, Title 19, and City design standards, including the Public Works Standards.

Response: Plans and drawings are provided in Exhibit A.

E. A drainage summary report and plan prepared in accordance with the applicable Public Works Standards.

Response: A Preliminary Drainage Report is provided in Exhibit E.

F. Proposed deed restrictions, if any, in outline form.

Response: The applicant is not proposing any deed restrictions.

G. Improvements to be made by the developer and the approximate time such improvements are to be completed. Sufficient detail regarding proposed improvements shall be submitted so that they may be checked for compliance with the objectives of this title, State law, and other applicable City ordinances. If the nature of the improvements is such that it is impractical to prepare all necessary details prior to approval of the preliminary plat, the additional details shall be submitted with the request for final plat approval.

Response: The plan set provided in Exhibit A provides detail about proposed improvements, including grading, streets, landscaping, utilities, and frontage improvements. All of these improvements will be completed prior to

occupancy of the proposed homes. Additional details requested by the City will be provided as part of the final plat application.

CHAPTER 17.28 DESIGN STANDARDS

17.28.020 PUBLIC FACILITY IMPROVEMENTS

All land divisions and boundary changes that increase the number of lots shall be subject to the requirements and standards contained in Chapter 19.700 Public Facility Improvements and the Public Works Standards for improvements to streets, sidewalks, bicycle facilities, transit facilities, and public utilities.

Response: Applicable requirements from Chapter 19.700 are addressed later in this narrative.

17.28.030 EASEMENTS

A. Utility Lines

Easements for sewers, water mains, electric lines, or other public utilities shall be dedicated wherever necessary. The easements shall be provided in accordance with applicable design standards in the Public Works Standards.

Response: Easements for sewers, water mains, electric lines and other public utilities will be dedicated where necessary and in accordance with applicable standards.

B. Watercourses

If a subdivision is traversed by a watercourse such as a drainageway, channel, or stream, there shall be provided a stormwater easement or drainage right-of-way conforming substantially with the lines of the watercourse, and such further width as will be adequate for the purpose of construction and maintenance. Streets, parkways, bicycle ways, or pedestrian ways parallel to major watercourses may be required.

Response: Mount Scott Creek runs along the northern edge of the subject site, north of the proposed development area. A 60-foot public drainage easement already exists along the creek, and a 20-foot public sanitary easement exists along the southern edge of the creek. See the Preliminary Plat, Sheet C201 in Exhibit A, for details.

17.28.040 GENERAL LOT DESIGN

This section does not apply to units of land that are created for purposes other than land development including parks, natural areas, right-of-way dedications, or reservations of a similar nature. Lots and tracts created for cottage cluster housing development, per Subsection 19.505.4, are also exempt from the requirements of this section.

A. Size and Shape

Lot size, width, shape, and orientation shall be appropriate for the location and the type of use contemplated. Minimum lot standards shall conform to Title 19.

Response: Single-family attached dwelling units are appropriate on the site given its size, width, shape and orientation of the lots, as well as the presence of a significant amount of natural resources. Lots in the proposed subdivision are compact in order to maximize building potential while protecting natural resources to the greatest extent possible. Proposed lot sizes are smaller than the minimum lot size standards in the underlying base zones (R-3 and R-10). However, the Planned Development process allows for flexibility to alter lot sizes and other dimensional standards as needed to design the site. Approval of the Planned Development proposal will include approval of smaller lot sizes.

B. Rectilinear Lots Required

Lot shape shall be rectilinear, except where not practicable due to location along a street radius, or existing lot shape. The sidelines of lots, as far as practicable, shall run at right angles to the street upon which the lots face. As far as practicable, the rear lot line shall run parallel to the street.

Response: As shown on the Preliminary Plat in Exhibit A, all proposed lots are rectilinear in shape.

C. Limits on Compound Lot Line Segments

Changes in direction along side and rear lot lines shall be avoided. Cumulative lateral changes in direction of a side or rear lot line exceeding 10% of the distance between opposing lot corners along a given lot line is prohibited. Changes in direction shall be measured from a straight line drawn between opposing lot corners.

Response: As shown on the Preliminary Plat in Exhibit A, lots 88 – 92 located at the end of the proposed cul-de-sac have slight changes in direction along their side lot lines. None of those lateral changes exceed the 10 percent limit as measured per the standard above.

D. Adjustments to Lot Shape Standard

Lot shape standards may be adjusted subject to Section 19.911 Variances.

Response: No adjustment to the lot shape standards is being requested.

E. Limits on Double and Reversed Frontage Lots

Double frontage and reversed frontage lots should be avoided, except where essential to provide separations of residential development from railroads, traffic arteries, or adjacent nonresidential uses, or to overcome specific disadvantages of topography and orientation.

Response: As shown on the Preliminary Plat in Exhibit A, no double frontage or reverse frontage lots are proposed as part of this subdivision.

17.28.080 PUBLIC OPEN SPACES

A. Due consideration shall be given to the allocation of suitable areas for schools, parks, and playgrounds to be dedicated for public use.

Response: The applicant will work with North Clackamas Parks and Recreation District to determine if the undeveloped natural resource area on the site (Tract G on Sheet C201) can be sold or dedicated to the parks district.

B. Where a proposed park, playground or other public use shown in the Comprehensive Plan or master plan adopted by the City is located in whole or in part in a subdivision, the Planning Commission may require the dedication or reservation of such area within the subdivision.

Response: There are no proposed parks, playgrounds or other public uses located in whole or in part on the subject site shown in the Comprehensive Plan or other city master plans.

C. Where considered desirable by the Planning Commission, and where the Comprehensive Plan or adopted master plan of the City does not indicate proposed public use area, the Planning Commission may require the dedication or reservation of areas or sites of a character, extent, and location suitable for the development of parks and other public use.

D. If the applicant is required to reserve land area for park, playground, or other public use, such land shall be acquired by the appropriate public agency within 18 months following plat approval, at a price agreed upon prior to approval of the plat, or such reservation shall be released to the applicant.

Response: The applicant understands that the Planning Commission may require dedication or reservation of areas suitable for parks or other public uses. Applicant further understands that any such land will be acquired by the public agency at an agreed upon price.

E. New residential projects will require the dedication of land if the development corresponds to park locations defined in the parks and recreation master plan.

F. In exchange for the dedication of parkland, the allowable density on the remaining lands will be increased, so that the overall parcel density remains the same.

Response: There is not a parks and recreation master plan that includes the proposed subdivision site.

Title 19 Zoning

Section 19.300 Base Zones

19.301 LOW DENSITY RESIDENTIAL ZONES*

19.301.2 Allowed Uses in Low Density Residential Zones

Response: A portion of the subject site is zoned R-10, which is a low density residential zone. The R-10 does not typically allow rowhouse development, per Table 19.301.2. However, the applicant has submitted a concurrent Planned Development application to apply the PD Zone in combination with the R-10 zone. The PD zone allows “combinations of types of dwellings and other structures and uses” as authorized by the City Council through the PD review process. Approval of the PD zone will allow rowhouse development to occur on the R-10 zoning.

19.301.4 Development Standards

In the low density residential zones, the development standards in Table 19.301.4 apply. Notes and/or cross references to other applicable code sections are listed in the “Standards/Additional Provisions” column. Additional standards are provided in Subsection 19.301.5.

See Sections 19.201 Definitions and 19.202 Measurements for specific descriptions of standards and measurements listed in the table.

Standard	R-10	Response
<i>Minimum lot size</i>	<i>10,000 SF</i>	Proposed lot sizes typically range from 1,600 SF to 2,516 SF. Using Planned Development provisions - see response below.
<i>Minimum lot width</i>	<i>70 feet</i>	Proposed lot widths typically range from 20 to 28 feet. Using Planned Development provisions - see response below.
<i>Minimum lot depth</i>	<i>100 feet</i>	Proposed lot depths typically range from 80 to 87.25 feet. Using Planned Development provisions - see response below.
<i>Minimum street frontage</i>	<i>35 feet</i>	Proposed street frontages typically range from 20 to 25 feet. Some corner lots have reduced street frontages. Using Planned Development provisions - see response below.
<i>Minimum front yard</i>	<i>20 feet</i>	Front loaded lots, front yard = 18 feet Alley loaded lots, front yard = 10 feet Using Planned Development provisions - see response below.
<i>Minimum side yard</i>	<i>10 feet</i>	Proposed side yard, common wall = 0 feet Proposed side yard, no common wall = 5-6 feet Using Planned Development provisions - see response below.
<i>Minimum street side yard</i>	<i>20 feet</i>	Street side yard = 8 feet Using Planned Development provisions - see response below.
<i>Minimum rear yard</i>	<i>20 feet</i>	Front loaded lots, rear yard = 15 feet Alley loaded lots, rear yard = 20 feet Using Planned Development provisions - see response below.

<i>Maximum bldg. height</i>	<i>2.5 stories or 35 feet</i>	Standard met. As shown on the building elevations provided in Exhibit A, the proposed rowhouses will be two stories and below the maximum building height of 35 feet.
<i>Side yard height plane limit: Height above ground Slope of plane</i>	<i>20 feet 45 degrees</i>	Standard will be met on those side yards that do not share a common wall. Using Planned Development provisions - see response below.
<i>Maximum lot coverage</i>	<i>30 percent</i>	Proposed lot coverages range from 46 to 59 percent. Using Planned Development provisions - see response below.
<i>Minimum vegetation</i>	<i>35 percent</i>	Using Planned Development provisions - see response below.
<i>Minimum density</i>	<i>3.5 units/acre</i>	Using Planned Development provisions - see response below.
<i>Maximum density</i>	<i>4.4 units/acre</i>	

Response: As noted previously, the applicant is proposing to use the City's Planned Development provisions in Section 19.311. Those provisions allow variation to the development standards as appropriate to be consistent with the purpose of the Planned Development Zone. The purpose of the Planned Development Zone is to encourage flexibility in site design to provide a mix of housing types, variety in development patterns, and preserve natural resources. More discussion regarding how the proposed subdivision meets the intent of the Planned Development Zone is provided in the separate Zone Change and Planned Development application package submitted concurrently with this application package.

As noted in the above table, most of the development standards have been adjusted in order to design the subdivision with small lots for an attached housing type (rowhouses). Due to the small size of lots and the specific housing type planned for this development, dimensional standards such as lot sizes, setbacks, lot coverage and minimum vegetation have all been adjusted accordingly. Approval of the Planned Development will include approval of those adjustments.

Minimum and maximum densities were calculated consistent with the density calculation provisions in MMC Section 19.202.4.

Minimum Density: Table 2 below shows how minimum density was calculated for the site.

Table 2: Net Area and Minimum Density Calculations

Zoning	Gross Acres	FEMA Mapped Floodway	Right-of-way	Additional Open Space¹	Net Acres²	Minimum Density
R-3	9.58	1.20	1.19	1.99	5.20	60 units
R-10	4.44	0.50	0.86	0.98	2.10	7 units
Totals	14.02	1.70	2.05	2.97	7.30	67 units

1. Required open space is one-third of the gross acreage (per PD provisions in 19.311.3.E). The above calculations assume a portion of the open space overlaps with floodway. Additional open space needed to achieve one-third of the gross is indicated here.
2. Net acres = gross acres – (floodway + right-of-way + open space)
3. Minimum density is based on 11.6 units per acre for R-3 and 3.5 units per acre for R-10

Maximum Density: The allowable maximum density was calculated for each zone (R-3 and R-10) separately and then combined to determine allowable density for the entire site. Per the City’s pre-application notes, “the development may effectively blend the densities for the two zones by distributing structures across the site regardless of the specific zoning boundary.” Table 3 shows the detailed maximum density calculations. See Figure 3 for a map of areas used for the maximum density calculations.

Table 3A: Net Acres Calculation for Maximum Density

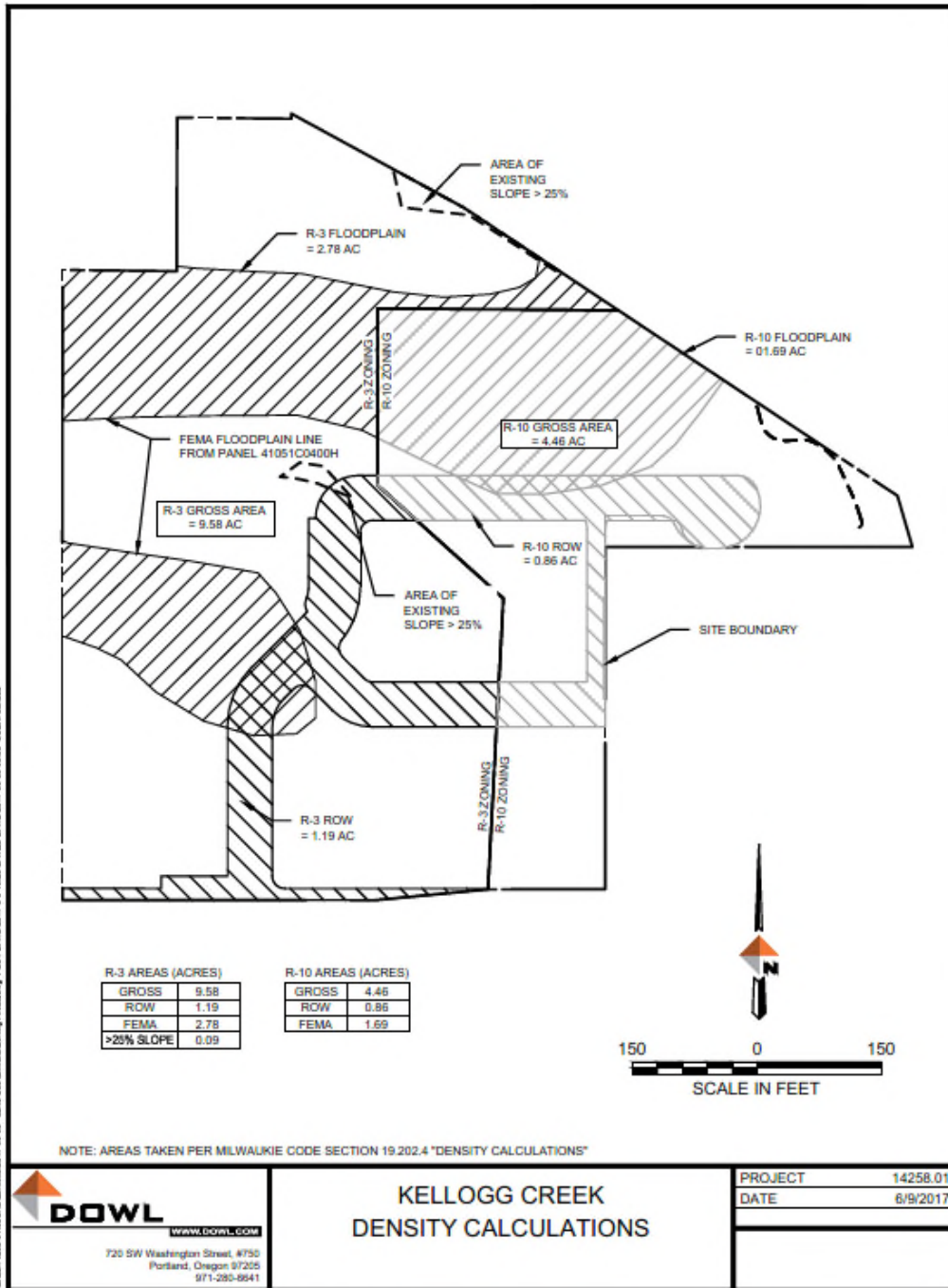
Zoning	Gross Acres	FEMA Mapped Floodplain	Right-of-way	Additional Open Space ¹	Slopes > 25%	Net Acres ²
R-3	9.58	2.78	1.19	0.41	0.09	5.11
R-10	4.44	1.69	0.86	0	0	1.89
Totals	14.02	4.47	2.05	0.41		7.00

Table 3B: Maximum Density Calculation

Zoning	Net Acres ²	Maximum Density (du/net acre)	Maximum Number of Units Allowed (without PD)	PD Increase (20%) ³	Maximum Number of Units with Rounding (per MMC 19.202.4)
R-3	5.11	14.5	74.09	88.90	89
R-10	1.89	4.4	8.32	9.98	10
Totals	7.00	-	82.4 (82 with rounding)	-	99

1. Required open space is one-third of the gross acreage (per PD provisions in 19.311.3.E). The above calculations assume a portion of the open space overlaps with floodplain. Additional open space needed to achieve one-third of the gross is indicated here.
2. Net acres = gross acres – (floodplain + right-of-way + open space)
3. Per Section 19.311.3.C, a density increase of up to 20% is allowed in the PD Zone.

Figure 3: Density Calculation Areas



Utilizing the density increase allowed by the Planned Development Zone, the maximum allowable number of units on the site is 99 dwellings. The proposed development has 92 units, which represents an approximately 12 percent increase from the base zone standard.

It's important to note that slopes in excess of 25 percent are required to be deducted from the gross acreage when calculating maximum density. As shown on the Existing Conditions (Sheet C100) in Exhibit A, there are several areas on the site with steep slopes. However, the larger elongated area of steep slopes near the center of the site is an area that was created by man-made fill deposited on the site over ten years ago. The

geotechnical report prepared by Geo Consultants Northwest on October 7, 2016 (Exhibit F) includes the following information regarding this fill:

- The fill ranges in thickness up to 12 feet thick.
- The ten-foot-tall fill zone in the central portion of the site terminates at its western edge with a steep, constructed slope.
- The fill is man-made material (concrete and asphalt) from a nearby construction project that was likely placed on the site prior to 1995.
- As part of site preparation, man-made fill should be removed from the site.

Because this area of steep slopes is not a naturally occurring condition and will be removed as part of site preparation, it was not deducted from the gross acreage for the purpose of calculating density. Other areas of steep slopes that appear to be naturally occurring were deducted, as shown in Table 3A above.

19.301.5 Additional Development Standards

A. Side Yards

In the R-7 Zone, one side yard shall be at least 5 ft and one side yard shall be at least 10 ft, except on a corner lot the street side yard shall be 20 ft.

Response: Not applicable. The R-7 zoning does not apply to the subject site.

B. Lot Coverage

The lot coverage standards in Subsection 19.301.4.B.4 are modified for specific uses and lot sizes as described below. The reductions and increases are combined for properties that are described by more than one of the situations below.

1. Decreased Lot Coverage for Large Lots

The maximum lot coverage percentage in Subsection 19.301.4.B.4 is reduced by 10 percentage points for a single-family detached dwelling, duplex, or residential home on a lot that is more than 2.5 times larger than the minimum lot size in Subsection 19.301.4.A.1.

Response: Not applicable. This proposal does not include large lots.

2. Increased Lot Coverage for Single-Family Detached Dwellings

Response: Not applicable. This proposal does not include detached single-family dwelling units.

3. Increased Lot Coverage for Duplexes

The maximum lot coverage percentage in Subsection 19.301.4.B.4 is increased by 20 percentage points for a duplex.

Response: Not applicable. This proposal does not include duplexes.

4. Increased Lot Coverage for Detached Accessory Dwelling Units

The maximum lot coverage percentage in Subsection 19.301.4.B.4 is increased by 5 percentage points for the development of a new detached accessory dwelling unit. This allowance applies only to the detached accessory structure and does not allow for the primary structure or other accessory structures to exceed lot coverage standards.

Response: Not applicable. This proposal does not include detached accessory dwelling units.

C. Front Yard Minimum Vegetation

At least 40% of the front yard shall be vegetated. The front yard vegetation area required by this subsection counts toward the minimum required vegetation for the lot. A property may provide less than the 40% of the front yard vegetation requirement if it is necessary to provide a turnaround area so that vehicles can enter a collector or arterial street in a forward motion.

Response: As noted previously, this development is proposing to use the Planned Development provisions in Chapter 19.311, which allows flexibility to adjust development standards. The proposed development consists of small lots with an attached housing type; as such, front yards are relatively small. Those areas of front yards that are not used for driveways and sidewalks will be vegetated.

D. Residential Densities

The minimum and maximum development densities in Subsection 19.301.4.C.1 are applicable for land divisions and replats that change the number of lots.

If a proposal for a replat or land division is not able to meet the minimum density requirement—due to the dimensional requirements for lot width, lot depth, or lot frontage—the minimum density requirement shall instead be equal to the maximum number of lots that can be obtained from the site given its dimensional constraints. The inability of new lot lines to meet required yard dimensions from existing structures shall not be considered as a basis for automatically lowering the minimum density requirement.

Response: Required density is addressed in Table 2 above. The minimum density for the site will be met.

E. Accessory Structure Standards

Standards specific to accessory structures are contained in Section 19.502.

Response: Not applicable. No accessory structures are proposed as part of this application.

F. Number of Dwelling Structures

In the low density residential zones, 1 primary building designed for dwelling purposes shall be permitted per lot. See Subsection 19.504.4.

Response: As shown on the Preliminary Plat in Exhibit A, each lot in the proposed subdivision will have one primary building designed for dwelling purposes.

G. Off-Street Parking and Loading

Off-street parking and loading is required as specified in Chapter 19.600.

Response: Applicable standards from Section 19.600 are addressed later in this narrative.

H. Public Facility Improvements

Transportation requirements and public facility improvements are required as specified in Chapter 19.700.

Response: Applicable standards from Section 19.700 are addressed later in this narrative.

I. Additional Standards

Depending upon the type of use and development proposed, the following sections of Chapter 19.500 Supplementary Development Regulations may apply. These sections are referenced for convenience, and do not limit or determine the applicability of other sections within the Milwaukie Municipal Code.

1. Subsection 19.504.4 Buildings on the Same Lot

2. Subsection 19.504.8 Flag Lot Design and Development Standards
3. Subsection 19.505.1 Single-Family Dwellings and Duplexes
4. Subsection 19.505.2 Garages and Carports
5. Subsection 19.506.4 Manufactured Dwelling Siting and Design Standards, Siting Standards

Response: Applicable standards from Section 19.500 are addressed later in this narrative.

19.302 MEDIUM AND HIGH DENSITY RESIDENTIAL ZONES

19.302.2 Allowed Uses in Medium and High Density Residential Zones

Response: Part of the subject site is zoned R-3, which is a medium density zone. Rowhouses are an allowed use in the R-3 zone.

19.302.4 Development Standards

In the medium and high density residential zones, the development standards in Table 19.302.4 apply. Notes and/or cross references to other applicable code sections are listed in the "Standards/Additional Provisions" column. Additional standards are provided in Section 19.302.5.

The standards in Subsection 19.302.4 are not applicable to cottage cluster development except where specifically referenced by Subsection 19.505.4.

Standard	R-3	Response
<i>Minimum lot size, rowhouse</i>	<i>3,000 SF</i>	Proposed lot sizes typically range from 1,600 SF to 2,516 SF. Using Planned Development provisions - see response below.
<i>Minimum lot width, rowhouse</i>	<i>30 feet</i>	Proposed lot widths typically range from 20 to 28 feet. Using Planned Development provisions - see response below.
<i>Minimum lot depth, rowhouse</i>	<i>80 feet</i>	Standard met. Proposed lot depths typically range from 80 to 87.25 feet.
<i>Minimum street frontage, rowhouse</i>	<i>30 feet</i>	Proposed street frontages typically range from 20 to 25 feet. Some corner lots have reduced street frontages. Using Planned Development provisions - see response below.
<i>Minimum front yard</i>	<i>15 feet</i>	Standard partially met. Front loaded lots, front yard = 18 feet Alley loaded lots, front yard = 10 feet Using Planned Development provisions - see response below.
<i>Minimum side yard, common wall</i>	<i>0 feet</i>	Standards met. Proposed side yard, common wall = 0 feet
<i>Minimum side yard, no common wall</i>	<i>5 feet</i>	Proposed side yard, no common wall = 5-6 feet
<i>Minimum street side yard</i>	<i>15 feet</i>	Street side yard = 8 feet Using Planned Development provisions - see response below.
<i>Minimum rear yard</i>	<i>15 feet</i>	Standard met.

		Front loaded lots, rear yard = 15 feet Alley loaded lots, rear yard = 20 feet
<i>Maximum bldg. height</i>	<i>2.5 stories or 35 feet</i>	Standard met. As shown on the building elevations provided in Exhibit A, the proposed rowhouses will be two stories and below the maximum building height of 35 feet.
<i>Side yard height plane limit: Height above ground Slope if plane</i>	<i>20 feet 45 degrees</i>	Standard will be met on those side yards that do not share a common wall. Using Planned Development provisions - see response below.
<i>Maximum lot coverage</i>	<i>40 percent</i>	Standard met. See response to Section 19.302.5.B.2 below regarding increased lot coverage.
<i>Minimum vegetation</i>	<i>35 percent</i>	Using Planned Development provisions - see response below.
<i>Minimum density</i>	<i>11.6 units/acre</i>	Using Planned Development provisions. See density calculations and discussion provided above.
<i>Maximum density</i>	<i>14.5 units/acre</i>	

Response: As noted previously, the applicant is proposing to use the City's Planned Development provisions in Section 19.311. Those provisions allow variation to the development standards as appropriate for consistency with the purpose of the Planned Development Zone. The purpose of the Planned Development Zone is to encourage flexibility in site design to provide a mix of housing types, variety in development patterns, and preserve natural resources. More discussion regarding how the proposed subdivision meets the intent of the Planned Development Zone is provided in the separate Zone Change and Planned Development application package submitted concurrently with this application package.

As noted in the above table, most of the development standards have been adjusted in order to design the subdivision with small lots with an attached housing type (rowhouses). Due to the small size of lots and the specific housing type planned for this development, dimensional standards such as lot sizes, setbacks, lot coverage and minimum vegetation have all been adjusted accordingly. Approval of the Planned Development will include approval of those adjustments.

19.302.5 Additional Development Standards

A. Side Yards

In the medium and high density zones, the required side yard is determined as described below. These measurements apply only to required side yards and do not apply to required street side yards.

- 1. The side yard for development other than a rowhouse shall be at least 5 ft.*
- 2. There is no required side yard for rowhouses that share 2 common walls. The required side yard for an exterior rowhouse that has only 1 common wall is 0 ft for the common wall and 5 ft for the opposite side yard. An exterior rowhouse on a corner lot shall meet the required street side yard setback in Subsection 19.302.4.B.1.b.*

Response: As shown on the Preliminary Plat in Exhibit A, the proposed development will consist of rowhouses in sets of four dwellings. Side yards for the rowhouses not sharing a common wall will be five feet, consistent with this standard. Street side yards will be 8 feet, consistent with the Planned Development provisions as described above.

B. Lot Coverage

The lot coverage standards in Subsection 19.302.4.B.4 are modified for specific uses and lot sizes as described below. The reductions and increases are additive for lots that are described by one or more of the situations below.

1. Increased Lot Coverage for Single-Family Detached Dwellings

Response: Not applicable. The proposal does not include single-family detached dwellings.

2. Increased Lot Coverage for Duplexes and Rowhouses

The maximum lot coverage percentage in Subsection 19.302.4.B.4 is increased by 20 percentage points for a duplex or rowhouse.

Response: The proposed subdivision includes rowhouses, which increases the maximum lot coverage standard to 60 percent. Proposed lot coverage on the site will range from 46 to 59 percent, which is below the maximum coverage standard.

3. Increased Lot Coverage for Detached Accessory Dwelling Units

Response: Not applicable. The proposal does not include detached accessory dwelling units.

C. Minimum Vegetation

At least half of the minimum required vegetation area must be suitable for outdoor recreation by residents, and not have extreme topography or dense vegetation that precludes access.

Response: Vegetated areas on each individual lot will be landscaped and usable and will not have extreme topography or dense vegetation. Residents will also have access to larger areas (approximately seven acres) of natural open space via a soft-surface trail that travels throughout the site. The trail will be approximately 30 inches wide and will not have grades greater than ten percent.

D. Front Yard Minimum Vegetation

At least 40% of the front yard shall be vegetated. The front yard vegetation area required by this subsection counts toward the minimum required vegetation for the lot. A property may provide less than the 40% of the front yard vegetation requirement if it is necessary to provide a turnaround area so that vehicles can enter a collector or arterial street in a forward motion.

Response: As noted previously, this development is proposing to use the Planned Development provisions in Chapter 19.311, which allows flexibility to adjust development standards. The proposed development consists of small lots with an attached housing type; as such, front yards are relatively small. Those areas of front yards that are not used for driveways and sidewalks will be vegetated.

E. Height Exceptions

1 additional story may be permitted in excess of the required maximum standard. For each additional story, an additional 10% of site area beyond the minimum is required to be retained in vegetation.

Response: Not applicable. The proposal does not include buildings that exceed the maximum building height standard.

F. Residential Densities

1. The minimum and maximum development densities in Subsection 19.302.4.C.1 are applicable for land divisions, replats that change the number of lots, and any development that would change the

number of dwelling units on a lot. Development of a single-family detached dwelling or an accessory dwelling is exempt from the minimum and maximum density requirements.

If a proposal for a replat or land division is not able to meet the minimum density requirement—due to the dimensional requirements for lot width, lot depth, or lot frontage—the minimum density requirement shall instead be equal to the maximum number of lots that can be obtained from the site given its dimensional constraints. The inability of new lot lines to meet required yard dimensions from existing structures shall not be considered as a basis for automatically lowering the minimum density requirement.

Response: Required minimum and maximum densities are addressed in Tables 2 and 3 above. The allowable density range for the site is 67 to 99 units; the proposed subdivision falls within that range.

2. Multifamily development in the R-2, R-1, and R-1-B Zones is subject to the minimum site size requirements in Table 19.302.5.F.2. In the event that the minimum site size requirements conflict with the development densities in Subsection 19.302.4.C.1, the site size requirements in Table 19.302.F.2 shall prevail.

Response: Not applicable. This project does not propose multifamily development in the R-2, R-1 or R-1-B zones.

G. Accessory Structure Standards

Standards specific to accessory structures are contained in Section 19.502.

Response: Not applicable. The proposal does not include accessory structures.

H. Building Limitations

1. In the R-3 Zone, 1 single-family detached dwelling or 1 duplex is permitted per lot. See Subsection 19.504.4. A detached accessory dwelling may be permitted in addition to a single-family detached dwelling, per Subsection 19.910.1.

Response: As shown on the Preliminary Plat in Exhibit A, the subdivision proposes one single-family attached dwelling per lot. No detached accessory dwellings are proposed.

2. Multifamily buildings shall not have an overall horizontal distance exceeding 150 linear ft as measured from end wall to end wall.

Response: Not applicable. The proposal does not include multifamily buildings.

I. Transition Measures

The following transition measures apply to multifamily development that abuts an R-10-, R-7-, or R-5-zoned property.

Response: Not applicable. The proposal does not include multifamily development.

J. Off-Street Parking and Loading

Off-street parking and loading is required as specified in Chapter 19.600.

Response: Response: Applicable standards from Section 19.600 are addressed later in this narrative.

K. Public Facility Improvements

Transportation requirements and public facility improvements are required as specified in Chapter 19.700.

Response: Applicable standards from Section 19.700 are addressed later in this narrative.

L. Additional Standards

Depending upon the type of use and development proposed, the following sections of Chapter 19.500 Supplementary Development Regulations may apply. These sections are referenced for convenience, and do not limit or determine the applicability of other sections within the Milwaukie Municipal Code.

- 1. Subsection 19.504.4 Buildings on the Same Lot*
- 2. Subsection 19.504.8 Flag Lot Design and Development Standards*
- 3. Subsection 19.504.9 On-Site Walkways and Circulation*
- 4. Subsection 19.504.10 Setbacks Adjacent to Transit*
- 5. Subsection 19.505.1 Single-Family Dwellings and Duplexes*
- 6. Subsection 19.505.2 Garages and Carports*
- 7. Subsection 19.505.3 Multifamily Housing*
- 8. Subsection 19.505.4 Cottage Cluster Housing*
- 9. Subsection 19.505.8 Building Orientation to Transit*
- 10. Subsection 19.506.4 Manufactured Dwelling Siting and Design Standards, Siting Standards*

Response: Applicable standards from Section 19.500 are addressed later in this narrative.

Section 19.402 Natural Resources

19.402.3 Applicability

A. *The regulations in Section 19.402 apply to all properties that contain, or are within 100 ft of a WQR and/or HCA (including any locally significant Goal 5 wetlands or habitat areas identified by the City of Milwaukie) as shown on the Milwaukie Natural Resource Administrative Map (hereafter "NR Administrative Map").*

Response: The subject property contains areas designated as HCA per the NR Administrative Map. Therefore, the regulations of 19.402 apply.

K. *Activities that are not exempt per Subsection 19.402.4, or prohibited per Subsection 19.402.5, are subject to the Type I, II, or III review process as outlined in Table 19.402.3.K.*

Response: This proposal includes activities that are not exempt or prohibited. Therefore, this proposal is subject to a Type III Natural Resources Review. A Natural Resource Review report was prepared by Pacific Habitat Services, Inc. in January 2017 and revised in June 2017. That report (see Exhibit J) provides a detailed description of impacts to designated natural resources on the site and responses to applicable standards and criteria from Chapter 19.402 to demonstrate how the project will comply with this section of code.

Chapter 500 Supplementary Development Regulations

19.504 SITE DESIGN STANDARDS

19.504.1 Clear Vision Areas

A clear vision area shall be maintained on the corners of all property at the intersection of 2 streets or a street and a railroad according to the provisions of the clear vision ordinance in Chapter 12.24.

Response: Clear vision areas will be maintained as required by Chapter 12.24.

19.504.2 Maintenance of Minimum Ordinance Requirements

No lot area, yard, other open space, or off-street parking or loading area shall be reduced by conveyance or otherwise below the minimum requirements of this title, except by dedication or conveyance for a public use.

Response: Lot area and yards (setbacks) have been reduced in accordance with the Planned Development provisions in 19.311.

19.504.3 Dual Use of Required Open Space

No lot area, yard, or other open space or off-street parking or loading area which is required by this title for one use shall be used to meet the required lot area, yard, or other open space or off-street parking area for another use, except as provided in Subsection 19.605.4.

Response: No lot area, yard or other open space or off-street parking or loading area required by this code will be used to meet a standard for more than one use.

19.504.4 Buildings on the Same Lot

A. In R-10, R-7, and R-5 Zones, 1 primary dwelling shall be permitted per lot. A detached accessory dwelling unit may be permitted per Subsection 19.910.1.

B. In the R-3 Zone, 1 single-family detached dwelling shall be permitted per lot. A detached accessory dwelling unit may be permitted per Subsection 19.910.1. Multifamily housing, with multiple structures designed for dwelling purposes, may be permitted as a conditional use per Section 19.905.

Response: The proposed development consists of lots with one primary dwelling on each lot. No detached accessory dwellings are proposed.

19.504.5 Distance from Property Line

Where a side or rear yard is not required and a structure is not to be erected at the property line, it shall be set back at least 3 ft from the property line.

Response: Not applicable. Side and rear yards are required in the R-3 and R-10 zones.

19.505 BUILDING DESIGN STANDARDS

19.505.1 Single-Family Dwellings and Duplexes

B. Applicability

The design standards in this subsection apply to the types of development listed below when the closest wall of the street-facing façade is within 50 ft of a front or street side lot line.

1. *New single-family detached dwellings, residential homes, duplexes, and rowhouses on individual lots. Placement of a new manufactured home on a lot outside of a manufactured home park is subject to the requirements of Section 19.506 and the standards of Subsection 19.505.1.*

Response: The proposed development includes rowhouses on individual lots. Therefore, the building design standards in this section apply.

C. Standards

1. Articulation

All buildings shall incorporate design elements that break up all street-facing façades into smaller planes as follows. See Figure 19.505.1.C.1 for illustration of articulation.

c. *For buildings with less than 30 ft of street frontage, the building articulation standard is not applicable.*

Response: As shown on the Preliminary Plat in Exhibit A, all rowhouses will be constructed on lots that have less than 30 feet of street frontage. Therefore, this building articulation standard does not apply.

2. Eyes on the Street

At least 12% of the area of each street-facing façade must be windows or entrance doors. See Figure 19.505.1.C.2 for illustration of eyes on the street.

Response: As shown on the building elevations in Exhibit A, all street-facing facades will have at least 12 percent glazing (windows or entrance doors), consistent with this requirement.

a. *Windows used to meet this standard must be transparent and allow views from the building to the street. Glass blocks and privacy windows in bathrooms do not meet this standard.*

Response: Windows used to meet this standard will be transparent and allow views from the building to the street. Glass blocks and privacy windows have not been used to meet this standard.

b. *Half of the total window area in the door(s) of an attached garage counts toward the eyes on the street standard. All of the window area in the street-facing wall(s) of an attached garage count toward meeting this standard.*

Response: Garage windows were not included in the calculations for the “eyes on the street standard.”

c. *Window area is considered the entire area within the outer window frame, including any interior window grid.*

Response: Window area was calculated consistent with this standard.

d. *Doors used to meet this standard must face the street or be at an angle of no greater than 45 degrees from the street.*

Response: Doors used to meet this standard face the street.

e. *Door area is considered the portion of the door that moves. Door frames do not count toward this standard.*

Response: Door frames were not included in the calculations to meet this standard.

3. Main Entrance

At least 1 main entrance must meet both of the following standards. See Figure 19.505.1.C.3 for illustration of main entrances.

- a. *Be no further than 8 ft behind the longest street-facing wall of the building.*

Response: As shown on the floor plans in Exhibit A, the main entrance for each dwelling is located approximately 2 to 6 feet behind the longest street-facing wall of the building depending on the location of the garage (alley loaded or not). In no case is the main entrance located farther than 8 feet behind the longest street-facing wall.

- b. *Face the street, be at an angle of up to 45 degrees from the street, or open onto a porch. If the entrance opens up onto a porch, the porch must meet all of these additional standards.*

- (1) *Be at least 25 sq ft in area with a minimum 4-ft depth.*

- (2) *Have at least 1 porch entry facing the street.*

- (3) *Have a roof that is no more than 12 ft above the floor of the porch.*

- (4) *Have a roof that covers at least 30% of the porch area.*

Response: As shown on the floor plans and elevations in Exhibit A, all main entries face the street and open onto a porch that meets (and exceeds) the standards in (1) through (4) above.

4. *Detailed Design*

All buildings shall include at least 5 of the following features on any street-facing façade. See Figure 19.505.1.C.4 for illustration of detailed design elements.

- a. *Covered porch at least 5 ft deep, as measured horizontally from the face of the main building façade to the edge of the deck, and at least 5 ft wide.*

- b. *Recessed entry area at least 2 ft deep, as measured horizontally from the face of the main building façade, and at least 5 ft wide.*

- c. *Offset on the building face of at least 16 in from 1 exterior wall surface to the other.*

- d. *Dormer that is at least 4 ft wide and integrated into the roof form.*

- e. *Roof eaves with a minimum projection of 12 in from the intersection of the roof and the exterior walls.*

- f. *Roof line offsets of at least 2 ft from the top surface of 1 roof to the top surface of the other.*

- g. *Tile or wood shingle roofs.*

- h. *Horizontal lap siding between 3 to 7 in wide (the visible portion once installed). The siding material may be wood, fiber-cement, or vinyl.*

- i. *Brick, cedar shingles, stucco, or other similar decorative materials covering at least 40% of the street-facing façade.*

- j. *Gable roof, hip roof, or gambrel roof design.*

- k. *Window trim around all windows at least 3 in wide and 5/8 in deep.*

- l. *Window recesses, in all windows, of at least 3 in as measured horizontally from the face of the building façade.*

- m. *Balcony that is at least 3 ft deep, 5 ft wide, and accessible from an interior room.*

- n. *One roof pitch of at least 500 sq ft in area that is sloped to face the southern sky and has its eave line oriented within 30 degrees of the true north/south axis.*

- o. Bay window at least 2 ft deep and 5 ft long.*
- p. Attached garage width, as measured between the inside of the garage door frame, of 35% or less of the length of the street-facing façade.*

Response: As shown on the floor plans and elevations in Exhibit A, buildings will meet or exceed this standard as follows.

For alley loaded homes:

1. Covered porch consistent with item (a) above
2. Offset on the building face consistent with item (c) above
3. Roofline offsets consistent with item (f) above
4. Horizontal lap siding consistent with item (h) above
5. Decorative materials consistent with item (i) above
6. Window trim consistent with item (k) above

For standard (non-alley-loaded) homes:

1. Covered porch consistent with item (a) above
2. Offset on the building face consistent with item (c) above
3. Roofline offsets consistent with item (f) above
4. Horizontal lap siding consistent with item (h) above
5. Window trim consistent with item (k) above

19.505.5 Rowhouses

C. Rowhouse Design Standards

1. *Rowhouses are subject to the design standards for single-family housing in Subsection 19.505.1.*

Response: The design standards in Subsection 19.505.1 are addressed above.

2. *Rowhouses shall include an area of transition between the public realm of the right-of-way and the entry to the private dwelling. The entry may be either vertical or horizontal, as described below.*

a. A vertical transition shall be an uncovered flight of stairs that leads to the front door or front porch of the dwelling. The stairs must rise at least 3 ft, and not more than 8 ft, from grade. The flight of stairs may encroach into the required front yard, and the bottom step must be at least 5 ft from the front lot line.

b. A horizontal transition shall be a covered porch with a depth of at least 6 ft. The porch may encroach into the required front yard, but it shall be at least 7 ft from the front lot line.

Response: As shown on the floor plans and elevations in Exhibit A, the proposed rowhouses will meet the horizontal transition standard in (b) above by providing covered porches with depths of at least 6 feet that are located at least 7 feet from the front lot line.

D. Number of Rowhouses Allowed

No more than 4 consecutive rowhouses that share a common wall(s) are allowed. A set of 4 rowhouses with common walls is allowed to be adjacent to a separate set of 4 rowhouses with common walls.

Response: As shown on the floor plans and elevations in Exhibit A, rowhouses are proposed in sets of four units sharing a common wall. No greater than four consecutive rowhouses sharing a common wall are proposed.

E. Rowhouse Lot Standards

1. *Rowhouse development is not allowed on lots with a lot width of more than 35 ft.*

Response: As shown on the Preliminary Plat in Exhibit A, all proposed rowhouse lots have widths less than 35 feet.

2. *Rowhouse development is allowed only where there are at least 2 abutting lots on the same street frontage whose street frontage, lot width, lot depth, and lot area meet or exceed the base zone requirements listed in Table 19.302.2.*

Response: The applicant is requesting Planned Development approval as part of this proposal. The Planned Development provisions in 19.311 allow reductions or variances to applicable standards consistent with the Planned Development purpose and criteria. The Planned Development request includes variances to lot area, dimensions and other development standards established in the base zones. For this reason, the proposed subdivision does not include abutting lots on the same street that meet or exceed the base zone requirements. Approval of the Planned Development will include approval of adjustments to those standards, which will effectively make this standard not applicable.

3. *Rowhouse development in the R-3 and R-2.5 Zones must meet the minimum lot size standards in Subsection 19.302.4.A.1.*

Response: As noted above, the applicant is requesting Planned Development approval as part of this proposal. The Planned Development provisions in 19.311 allow reductions or variances to applicable standards consistent with the Planned Development purpose and criteria. The Planned Development request includes variances to lot area, dimensions and other development standards established in the base zones. Approval of the Planned Development request will include approval of reduced lot sizes.

4. *Rowhouse development in the R-2, R-1 and R-1-B Zones must meet the minimum lot size standards in Subsection 19.302.4.A.1. In addition, the rowhouse development must meet the minimum site size requirements in Table 19.505.5.E.4.*

Response: Not applicable. The site is not zoned R-2, R-1 or R-1-B.

F. Driveway Access and Parking

1. *Garages on the front façade of a rowhouse, off-street parking areas in the front yard, and driveway accesses in front of a rowhouse are prohibited unless the following standards are met. See Figure 19.505.5.F.1.*

Response: The proposed development will consist of rowhouses, some of which are alley-loaded and some of which are front-loaded. For the front-loaded dwellings, garages and driveways will be located on the front façade of the dwelling. Therefore, the following standards apply to the front-loaded rowhouses.

- a. *Each rowhouse lot has a street frontage of at least 30 ft on a street identified as a Neighborhood Route or Local Street in the Transportation System Plan Figure 8-3b.*

Response: As noted above, the applicant is requesting Planned Development approval as part of this proposal. The Planned Development provisions in 19.311 allow reductions or variances to applicable standards consistent with the Planned Development purpose and criteria. Approval of the Planned Development request will include approval of reduced street frontages.

b. Development of 2 or 3 rowhouses has at least 1 shared access between the lots, and development of 4 rowhouses has 2 shared accesses.

Response: The proposed development will consist of rowhouses in sets of four dwellings each. Each set of four rowhouses will have two shared accesses.

c. Outdoor on-site parking and maneuvering areas do not exceed 10 ft wide on any lot.

Response: As shown on the floor plans (Sheet 2.0) in Exhibit A, on-site parking and maneuvering area widths will not exceed 10 feet. Parking and maneuvering areas will be approximately eight feet wide.

d. The garage width does not exceed 10 ft, as measured from the inside of the garage door frame.

Response: As shown on the elevations (Sheet 6.0) in Exhibit A, garage door widths will not exceed 10 feet, as measured from the inside frame. Garage doors will be approximately eight feet wide.

2. The following rules apply to driveways and parking areas for rowhouse developments that do not meet all of the standards in Subsection 19.505.5.F.1.

Response: Not applicable. The proposed development meets the standards in Subsection 19.505.5.F.1, as demonstrated in the responses above.

G. Accessory Structure Setbacks

On rowhouse lots with a lot width of 25 ft or less, there is no required side yard between an accessory structure and a side lot line abutting a rowhouse lot. All other accessory structure regulations in Subsection 19.502.2.A apply.

Response: Not applicable. Accessory structures are not proposed as part of this application.

Chapter 19.600 Off-Street Parking and Loading

19.604 GENERAL PARKING STANDARDS

19.604.1 Parking Provided with Development Activity

All required off-street parking areas shall be provided at the time the structure is built; at the time a structure or site is enlarged; or when there is change in use or an increase in density or intensity. All required off-street parking areas shall be provided in conformance with the standards of Chapter 19.600 prior to issuance of a certificate of occupancy, or final development permit approval, or as otherwise specified in any applicable land use decision.

Response: Required off-street parking for the proposed development will be provided at the time the dwellings are built. Off-street parking will be consistent with standards of Chapter 19.600, as demonstrated in the responses in this narrative.

19.604.2 Parking Area Location

Accessory parking shall be located in one or more of the following areas:

- A. *On the same site as the primary use for which the parking is accessory.*
- B. *On a site owned by the same entity as the site containing the primary use that meets the standards of Subsection 19.605.4.B.2. Accessory parking that is located in this manner shall not be considered a parking facility for purposes of the base zones in Chapter 19.300.*
- C. *Where shared parking is approved in conformance with Subsection 19.605.4.*

Response: Parking for each rowhouse unit will be provided in a garage on the same lot as the rowhouse. No shared parking is proposed.

19.604.3 Use of Parking Areas

All required off-street parking areas shall continually be available for the parking of operable vehicles of intended users of the site. Required parking shall not be rented, leased, sold, or otherwise used for parking that is unrelated to the primary or accessory use of the site, except where a shared parking agreement per Subsection 19.605.4 has been recorded. Subsection 19.604.3 does not prohibit charging fees for parking when the parking serves the primary or accessory uses on site.

Response: Parking for the rowhouse units will be continually available for the residents of the rowhouse. Required parking will not be rented, leased, sold or otherwise used for unrelated parking.

19.604.4 Storage Prohibited

No required off-street parking area shall be used for storage of equipment or materials, except as specifically authorized by Subsection 19.607.2 Commercial Vehicle, Pleasure Craft, and Recreational Vehicle Parking. (Ord. 2025 § 2, 2011)

Response: Off-street parking will not be used for storage.

19.605 VEHICLE PARKING QUANTITY REQUIREMENTS

19.605.1 Minimum and Maximum Requirements

A. *Development shall provide at least the minimum and not more than the maximum number of parking spaces as listed in Table 19.605.1. Modifications to the standards in Table 19.605.1 may be made as per Section 19.605. Where multiple ratios are listed, the Planning Director shall determine which ratio to apply to the proposed development or use.*

Response: Per Table 19.605.1, rowhouses are required to provide a minimum of one space per unit. There is no maximum parking standard for rowhouses. As shown on the Preliminary Plat in Exhibit A, each rowhouse will provide one off-street parking space, located in an attached garage on the same lot as the dwelling.

19.607 OFF-STREET PARKING STANDARDS FOR RESIDENTIAL AREAS

19.607.1 Residential Driveways and Vehicle Parking Areas

Subsection 19.607.1 is intended to preserve residential neighborhood character by establishing off-street parking standards. The provisions of Subsection 19.607.1 apply to passenger vehicles and off-street parking areas for rowhouses, cottage clusters, duplexes, single-family detached dwellings, and residential homes in all zones, unless specifically stated otherwise.

A. Dimensions

Off-street parking space dimensions for required parking spaces are 9 ft wide x 18 ft deep.

Response: The attached garages provided for off-street parking will be approximately 11 x 18.5 feet, which exceeds the above standard.

B. Location

- 1. Off-street vehicle parking shall be located on the same lot as the associated dwelling, unless shared parking is approved per Subsection 19.605.4.*

Response: Parking for each rowhouse dwelling will be provided on the same lot as the rowhouse.

- 2. No portion of the required parking space is allowed within the following areas. See Figure 19.607.1.B.2. These standards do not apply to off-street parking for cottage clusters, which are subject to the standards in Subsection 19.505.4.*
 - a. Within the required front yard or within 15 ft of the front lot line, whichever is greater.*
 - b. Within a required street side yard.*

Response: Off-street parking spaces are provided in attached garages for each rowhouse unit. No parking spaces are proposed within the front or side yards.

C. Parking Surface Materials

Parking of vehicles shall only be allowed on surfaces described in Subsection 19.607.1.C.

- 1. The following areas are required to have a durable and dust-free hard surface, and shall be maintained for all-weather use. The use of pervious concrete, pervious paving, driveway strips, or an in-ground grid or lattice surface is encouraged to reduce stormwater runoff.*
 - a. Required parking space(s).*
 - b. All vehicle parking spaces and maneuvering areas located within a required front or side yard. Areas for boat or RV parking are exempt from this requirement and may be graveled.*
 - c. All off-street parking and maneuvering areas for a residential home.*
- 2. Maneuvering areas and unrequired parking areas that are outside of a required front or side yard are allowed to have a gravel surface.*

Response: All off-street parking and maneuvering areas on the proposed lots will have a durable and dust-free hard surface appropriate for all-weather use. No gravel areas are proposed.

D. Parking Area Limitations

Uncovered parking spaces and maneuvering areas for vehicles, and for recreational vehicles and pleasure craft as described in Subsection 19.607.2.B, have the following area limitations. See Figure 19.607.1.D. The pole portion of a flag lot is not included in these area limitations.

These standards do not apply to off-street parking for cottage clusters, which are subject to the standards in Subsection 19.505.4; nor to rowhouses, which are subject to the standards in Subsection 19.505.5.

- a. Uncovered parking spaces and maneuvering areas cannot exceed 50% of the front yard area.*
- b. Uncovered parking spaces and maneuvering areas cannot exceed 30% of the required street side yard area.*

Response: Not applicable. Required parking for the proposed rowhouses will be provided in attached, covered garages on each lot. No uncovered parking areas are proposed.

- c. No more than 3 residential parking spaces are allowed within the required front yard. A residential parking space in the required front yard is any 9- x 18-ft rectangle that is entirely within the required front yard that does not overlap with another 9- x 18-ft rectangle within the required front yard.*

Response: Not applicable. No parking spaces are proposed within the front yard. Parking spaces will be provided in attached garages for each rowhouse.

E. Additional Driveway Standards

- 1. Parking areas and driveways on the property shall align with the approved driveway approach and shall not be wider than the approved driveway approach within 10 ft of the right-of-way boundary.*

Response: As shown on the Preliminary Plat and floor plans in Exhibit A, parking areas and driveways on each lot will align with the driveway approach and will not be wider than the driveway approach.

- 2. Properties that take access from streets other than local streets and neighborhood routes shall provide a turnaround area on site that allows vehicles to enter the right-of-way in a forward motion.*

Response: Not applicable. Each lot within the proposed development will take access from a private alley or a local street.

Section 19.700 Public Facility Improvements

19.703 REVIEW PROCESS

19.703.1 Preapplication Conference

For all proposed development that requires a land use application and is subject to Chapter 19.700 per Section 19.702, the applicant shall schedule a preapplication conference with the City prior to submittal of the land use application. The Engineering Director may waive this requirement for proposals that are not complex.

Response: A pre-application conference with the City was held on August 11, 2016. Notes from the City are provided in Exhibit B. A second pre-application conference to review the Traffic Impact Study was held on January 19, 2016.

19.703.2 Application Submittal

For all proposed development that is subject to Chapter 19.700 per Section 19.702, one of the following types of applications is required.

B. Transportation Facilities Review (TFR) Land Use Application

If the proposed development triggers a transportation impact study (TIS) per Section 19.704, a TFR land use application shall be required. Compliance with Chapter 19.700 will be reviewed as part of the TFR application submittal and will be subject to a Type II review process as set forth in Section 19.1005. The TFR application shall be consolidated with, and processed concurrently with, any other required land use applications.

Response: The proposed project requires a TIS and therefore also requires a TFR land use application. The TFR application is included with this submittal package and applicable standards and criteria are addressed in this section of the narrative.

19.703.3 Approval Criteria

For all proposed development that is subject to Chapter 19.700 per Section 19.702, the required development permit and/or land use application shall demonstrate compliance with the following approval criteria at the time of submittal.

A. Procedures, Requirements, and Standards

Development and related public facility improvements shall comply with procedures, requirements, and standards of Chapter 19.700 and the Public Works Standards.

Response: All development and related public facility improvements will comply with Chapter 19.700 and the City's Public Works Standards.

B. Transportation Facility Improvements

Development shall provide transportation improvements and mitigation at the time of development in rough proportion to the potential impacts of the development per Section 19.705 Rough Proportionality, except as allowed by Section 19.706 Fee in Lieu of Construction.

Response: The Traffic Impact Study provided to the City (Exhibit G) identifies recommended improvements that will be done as part of the proposed development. Those recommendations include improvements (signage and other) to the existing church access point on Rusk Road to restrict vehicles from exiting at that location. Half-street improvements along the site's frontage with Kellogg Creek Drive, and full-street improvements along proposed new streets are also recommended.

The applicant is not requesting any fee-in-lieu of construction.

C. Safety and Functionality Standards

The City will not issue any development permits unless the proposed development complies with the City's basic safety and functionality standards, the purpose of which is to ensure that development does not occur in areas where the surrounding public facilities are inadequate. Upon submittal of a development permit application, an applicant shall demonstrate that the development property has or will have all of the following:

1. Adequate street drainage, as determined by the Engineering Director.

Response: Adequate street drainage will be provided, as demonstrated in the Preliminary Drainage Report in Exhibit E.

2. Safe access and clear vision at intersections, as determined by the Engineering Director.

Response: Access to the proposed development will be provided along SE Kellogg Creek Drive. As demonstrated in the TIS provided to the City, the access point will be safe, adequate to serve the site, and consistent with City standards.

3. Adequate public utilities, as determined by the Engineering Director.

Response: As shown in the Composite Utilities Plan (Sheet C400) in Exhibit A, the development property has or will have adequate public utilities to serve the proposed development. Specifically:

- A Clackamas River Water main is available for connection in SE Kellogg Creek Drive and can provide service for the proposed development. As part of the development, water lines will be constructed within the new public streets to serve the homes in the subdivision. All water improvements will be consistent with Clackamas River Water standards.
- There is an existing sanitary sewer line within SE Kellogg Creek Drive that is available for connection to serve the proposed development. The applicant will construct an eight-inch line within the new public streets to serve homes in the subdivision.
- The applicant has submitted a storm drainage report (Exhibit E) that demonstrates how stormwater will be managed on the site consistent with Milwaukie Public Works Standards and the Portland Stormwater Management Manual for design of water quality facilities.

4. Access onto a public street with the minimum paved widths as stated in Subsection 19.703.3.C.5 below.

Response: The proposed development will have access onto SE Kellogg Creek Drive, which has a local street designation and at least 16 feet of paved width.

5. Adequate frontage improvements as follows:

- a. For local streets, a minimum paved width of 16 ft along the site's frontage.
- b. For nonlocal streets, a minimum paved width of 20 ft along the site's frontage.
- c. For all streets, a minimum horizontal right-of-way clearance of 20 ft along the site's frontage.

Response: As recommended in the TIS provided to the City, and shown on Sheet C202 in Exhibit A, standard half street improvements along the site's frontage with SE Kellogg Creek Drive (including a striped bike lane) will be constructed. In addition, all new streets within the proposed subdivision will be constructed to the full-street cross section as required by the City.

6. *Compliance with Level of Service D for all intersections impacted by the development, except those on Oregon Highway 99E that shall be subject to the following:*

- a. *Level of Service F for the first hour of the morning or evening 2-hour peak period.*
- b. *Level of Service E for the second hour of the morning or evening 2-hour peak period.*

Response: As demonstrated in the Traffic Impact Study provided to the City (Exhibit G), all intersections within the study area will continue to operate within the City's operational standards upon buildout of the proposed development.

19.708 TRANSPORTATION FACILITY REQUIREMENTS

19.708.1 General Street Requirements and Standards

A. Access Management

All development subject to Chapter 19.700 shall comply with access management standards contained in Chapter 12.16.

Response: The proposed development will take access from SE Kellogg Creek Drive and will comply with all applicable access management standards in Chapter 12.16.

B. Clear Vision

All development subject to Chapter 19.700 shall comply with clear vision standards contained in Chapter 12.24.

Response: The proposed development will comply with the clear vision standards contained in Chapter 12.24.

C. Development in Downtown Zones

Street design standards and right-of-way dedication for the downtown zones are subject to the requirements of the Milwaukie Public Works Standards, which implement the streetscape design of the Milwaukie Downtown and Riverfront Plan: Public Area Requirements (PAR). Unless specifically stated otherwise, the standards in Section 19.708 do not apply to development located in the downtown zones or on street sections shown in the PAR per Subsection 19.304.6.

Response: Not applicable.

D. Development in Non-Downtown Zones

Development in a non-downtown zone that has frontage on a street section shown in the PAR is subject to the requirements of the Milwaukie Public Works Standards, which implements the street design standards and right-of-way dedication requirements contained in the PAR for that street frontage. The following general provisions apply only to street frontages that are not shown in the PAR and for development that is not in any of the downtown zones listed in Subsection 19.708.1.C above:

1. *Streets shall be designed and improved in accordance with the standards of this chapter and the Public Works Standards. ODOT facilities shall be designed consistent with State and federal standards. County facilities shall be designed consistent with County standards.*

Response: All streets constructed or improved as part of the proposed development will comply with the standards of this chapter and the City's Public Works Standards. No improvements to ODOT facilities are anticipated as part of this project.

2. *Streets shall be designed according to their functional classification per Figure 8-3b of the TSP.*

Response: As shown on the Preliminary Plat and Typical Street Sections in Exhibit A, all streets will be designed according to their functional classification. New streets within the proposed subdivision will be designed to the standard local street cross section.

3. Street right-of-way shall be dedicated to the public for street purposes in accordance with Subsection 19.708.2. Right-of-way shall be dedicated at the corners of street intersections to accommodate the required turning radii and transportation facilities in accordance with Section 19.708 and the Public Works Standards. Additional dedication may be required at intersections for improvements identified by the TSP or a required transportation impact study.

Response: Right-of-way along the site's frontage with Kellogg Creek Drive will be dedicated in order to accommodate the required half-street improvement. No other right-of-way dedication is proposed.

4. The City shall not approve any development permits for a proposed development unless it has frontage or approved access to a public street.

Response: The proposed development has frontage on, and will take access from, SE Kellogg Creek Drive.

5. Off-site street improvements shall only be required to ensure adequate access to the proposed development and to mitigate for off-site impacts of the proposed development.

Response: The proposed development will include off-site improvements to the church access on Rusk Road. Those improvements will restrict vehicles from exiting onto Rusk Road, which is prohibited due to sight distance issues.

6. The following provisions apply to all new public streets and extensions to existing public streets.

a. All new streets shall be dedicated and improved in accordance with this chapter.

b. Dedication and construction of a half-street is generally not acceptable. However, a half-street may be approved where it is essential to allow reasonable development of a property and when the review authority finds that it will be possible for the property adjoining the half-street to dedicate and improve the remainder of the street when it develops. The minimum paved roadway width for a half-street shall be the minimum width necessary to accommodate 2 travel lanes pursuant to Subsection 19.708.2.

Response: All new streets constructed as part of the proposed development will be improved and dedicated in accordance with this code. Half-streets are not proposed; all new streets will be constructed to the full cross section.

7. Traffic calming may be required for existing or new streets. Traffic calming devices shall be designed in accordance with the Public Works Standards or with the approval of the Engineering Director.

Response: Traffic calming elements are not recommended per the TIS and are not proposed as part of this development.

8. Railroad Crossings

Where anticipated development impacts trigger a need to install or improve a railroad crossing, the cost for such improvements may be a condition of development approval.

Response: The proposed development does not anticipate any need to improve or install a railroad crossing.

9. Street Signs

The City shall install all street signs, relative to traffic control and street names, as specified by the Engineering Director. The applicant shall reimburse the City for the cost of all such signs installed by the City.

Response: The applicant understands the City will install any necessary street signs and the applicant will be required to reimburse the City for such costs.

10. Streetlights

The location of streetlights shall be noted on approved development plans. Streetlights shall be installed in accordance with the Public Works Standards or with the approval of the Engineering Director.

Response: The location of streetlights is noted on the Utility Plan in Exhibit A. All streetlights will be installed in accordance with the Public Works Standards or as required by the Engineering Director.

E. Street Layout and Connectivity

1. *The length, width, and shape of blocks shall take lot size standards, access and circulation needs, traffic safety, and topographic limitations into consideration.*

2. *The street network shall be generally rectilinear but may vary due to topography or other natural conditions.*

Response: As shown on the Preliminary Plat in Exhibit A, the proposed street layout to serve the new development will allow for safe and efficient access and circulation on the site. The street network is somewhat curvy along the western edge to avoid impacts to the identified wetland area. Due to topographic and access constraints (and the proximity of Highway 224), a cul-de-sac is proposed at the northeast corner of the development where a through street was not feasible.

New streets within the proposed subdivision will have 54 feet of right-of-way with two 10-foot travel lanes, on-street parking, a planter strip and 5-foot sidewalks on both sides.

3. *Streets shall be extended to the boundary lines of the developing property where necessary to give access to or allow for future development of adjoining properties.*

Response: Due to topography, the presence of natural resources and surrounding land uses, it is not anticipated that street extensions will be necessary to allow for future development of adjoining properties.

4. *Permanent turnarounds shall only be provided when no opportunity exists for creating a through street connection. The lack of present ownership or control over abutting property shall not be grounds for construction of a turnaround. For proposed land division sites that are 3 acres or larger, a street ending in a turnaround shall have a maximum length of 200 ft, as measured from the cross street right-of-way to the farthest point of right-of-way containing the turnaround. For proposed land division sites that are less than 3 acres, a street ending in a turnaround shall have a maximum length of 400 ft, measured from the cross street right-of-way to the farthest point of right-of-way containing the turnaround. Turnarounds shall be designed in accordance with the requirements of the Public Works Standards.*

Response: The development proposes one permanent turnaround (cul-de-sac) located in the northeast corner of the development where a through street is not possible due to existing constraints (the church building, Highway 224 and natural resource areas). The length of the street ending in the cul-de-sac is approximately 186 feet, as measured from the Alley E right-of-way to the farthest point of right-of-way containing the cul-de-sac. The cul-de-sac will be constructed in accordance with the City's Public Works Standards.

5. *Closed-end street systems may serve no more than 20 dwellings.*

Response: The proposed subdivision is considered a closed-end street system because it has one access point onto Kellogg Creek Drive. The closed-end street system will serve 92 dwelling units and therefore requires a variance to this standard. A variance request has been submitted as part of this application package.

F. Intersection Design and Spacing

1. *Connecting street intersections shall be located to provide for traffic flow, safety, and turning movements, as conditions warrant.*
2. *Street and intersection alignments for local streets shall facilitate local circulation but avoid alignments that encourage nonlocal through traffic.*

Response: Streets and intersections for the proposed development have been designed to provide safe and efficient circulation for the subdivision

3. *Streets should generally be aligned to intersect at right angles (90 degrees). Angles of less than 75 degrees will not be permitted unless the Engineering Director has approved a special intersection design.*

Response: Streets constructed as part of the proposed development intersect at right angles. Where the new street intersects with SE Kellogg Creek Drive, that intersection will also be at right angles.

4. *New streets shall intersect at existing street intersections so that centerlines are not offset. Where existing streets adjacent to a proposed development do not align properly, conditions shall be imposed on the development to provide for proper alignment.*

Response: No off-set intersections will be created as part of the proposed development.

5. *Minimum and maximum block perimeter standards are provided in Table 19.708.1.*

Response: Per Table 19.708.1, maximum block perimeter for local streets is 1,650 feet. As shown on the Preliminary Plat in Exhibit A, perimeters are consistent with this standard. The largest proposed block on the site will have a perimeter of approximately 1,100 feet.

6. *Minimum and maximum intersection spacing standards are provided in Table 19.708.1.*

Response: Per Table 19.708.1, the minimum block length for local streets is 100 feet and the maximum is 530 feet. As shown on the Preliminary Plat in Exhibit A, the longest block length proposed is approximately 370 feet. The shortest block length proposed is approximately 220 feet.

19.708.2 Street Design Standards

Table 19.708.2 contains the street design elements and dimensional standards for street cross sections by functional classification. Dimensions are shown as ranges to allow for flexibility in developing the most appropriate cross section for a given street or portion of street based on existing conditions and the surrounding development pattern. The additional street design standards in Subsection 19.708.2.A augment the dimensional standards contained in Table 19.708.2. The Engineering Director will rely on Table 19.708.2 and Subsection 19.708.2.A to determine the full-width cross section for a specific street segment based on functional classification. The full-width cross section is the sum total of the widest dimension of all individual street elements. If the Engineering Director determines that a full-width cross section is appropriate and feasible, a full-width cross section will be required. If the Engineering Director determines that a full-width cross section is not appropriate or feasible, the Engineering Director will modify the full-width cross section requirement using the guidelines provided in Subsection 19.708.2.B. Standards for design speed, horizontal/vertical curves, grades, and curb return radii are specified in the Public Works Standards.

Response: New streets constructed to serve the proposed development will be built to the local street standard and will have the following elements, consistent with Table 19.708.2:

- 54 feet total right-of-way
- 34 feet of paved width from curb to curb

- Two 10-foot travel lanes
- 7-foot on-street parking on both sides
- 4-foot planter strip on both sides
- 5-foot sidewalk on both sides

A. Additional Street Design Standards

These standards augment the dimensional standards contained in Table 19.708.2 and may increase the width of an individual street element and/or the full-width right-of-way dimension.

1. *Minimum 10-ft travel lane width shall be provided on local streets with no on-street parking.*

Response: The new local streets will have two 10-foot travel lanes and on-street parking.

2. *Where travel lanes are next to a curb line, an additional 1 ft of travel lane width shall be provided. Where a travel lane is located between curbs, an additional 2 ft of travel lane width shall be provided.*

Response: Not applicable. Travel lanes will be next to a planter strip.

3. *Where shared lanes or bicycle boulevards are planned, up to an additional 6 ft of travel lane width shall be provided.*

Response: A shared bike lane (“sharrows”) will be provided on Street A to provide a bike connection from the Highway 224/Rusk Road intersection to Kellogg Creek Drive. The city has not required additional travel lane width.

4. *Bike lane widths may be reduced to a minimum of 4 ft where unusual circumstances exist, as determined by the Engineering Director, and where such a reduction would not result in a safety hazard.*

Response: Striped bike lanes are not planned on the new streets within the proposed development. A striped bike lane will be included as part of the half-street improvements along the site’s frontage with Kellogg Creek Drive.

5. *Where a curb is required by the Engineering Director, it shall be designed in accordance with the Public Works Standards.*

Response: All curbs will be designed in accordance with Public Works Standards.

6. *Center turn lanes are not required for truck and bus routes on street classifications other than arterial roads.*

7. *On-street parking in industrial zones shall have a minimum width of 8 ft.*

8. *On-street parking in commercial zones shall have a minimum width of 7 ft.*

Response: Items 6-8 above are not applicable.

9. *On-street parking in residential zones shall have a minimum width of 6 ft.*

Response: On street parking provided on the new local streets will have a width of 7 feet on both sides. On-street parking will also be provided along the site’s frontage on Kellogg Creek Drive, except along the southwest corner of the site, where on-street parking has been eliminated to avoid impacts to the Oregon white oak trees located in that area.

10. *Sidewalk widths may be reduced to a minimum of 4 ft for short distances for the purpose of avoiding obstacles within the public right-of-way including, but not limited to, trees and power poles.*

Response: Sidewalks provided will be five feet in width throughout the proposed development. The half-street improvements along the site's frontage with Kellogg Creek Drive will also include a five-foot sidewalk. Along the southwest corner of the site, the Kellogg Creek Drive frontage improvements will be altered in order to avoid impacts to the stand of Oregon white oak trees. The applicant is working with City Engineering staff to determine the best approach in this location.

11. *Landscape strip widths shall be measured from back of curb to front of sidewalk.*

Response: Landscape strips provided will be four feet wide, as measured in accordance with this standard.

12. *Where landscape strips are required, street trees shall be provided a minimum of every 40 ft in accordance with the Public Works Standards and the Milwaukie Street Tree List and Street Tree Planting Guidelines.*

Response: As shown on the Planting Plan (Sheet L100) in Exhibit A, street trees will be provided consistent with this standard.

13. *Where water quality treatment is provided within the public right-of-way, the landscape strip width may be increased to accommodate the required treatment area.*

Response: As shown on the Composite Utility Plan, water quality treatment facilities are proposed within the public right-of-way landscape strips. Those landscape strips are four feet in width.

14. *A minimum of 6 in shall be required between a property line and the street element that abuts it; e.g., sidewalk or landscape strip.*

Response: As shown on the Typical Street Sections (Sheet C202) in Exhibit A, six inches will be provided between a property line and the street element that abuts it.

19.708.3 Sidewalk Requirements and Standards

B. Sidewalk Requirements

1. Requirements

Sidewalks shall be provided on the public street frontage of all development per the requirements of this chapter. Sidewalks shall generally be constructed within the dedicated public right-of-way, but may be located outside of the right-of-way within a public easement with the approval of the Engineering Director.

Response: As shown on the Preliminary Plat in Exhibit A, sidewalks will be provided along both sides of new streets throughout the proposed development. A sidewalk will also be provided along SE Kellogg Creek Drive along the site's frontage. Along the southwest corner of the site, the Kellogg Creek Drive frontage improvements will be altered in order to avoid impacts to the stand of Oregon white oak trees. The applicant is working with City Engineering staff to determine the best approach in this location.

2. Design Standards

Sidewalks shall be designed and improved in accordance with the requirements of this chapter and the Public Works Standards.

Response: All sidewalks will be designed and improved in accordance with this chapter and the Public Works Standards.

19.708.5 Pedestrian/Bicycle Path Requirements and Standards

B. Pedestrian/Bicycle Path Requirements

Pedestrian/bicycle paths shall be required in the following situations.

- 1. In residential and mixed-use districts, a pedestrian/bicycle path shall be required at least every 300 ft when a street connection is not feasible.*

Response: As shown on the Preliminary Plat in Exhibit A, pedestrian connections are available at the eastern end of the site where it abuts the church property (Tracts E and F) to connect Street B to Kellogg Creek Drive. Pedestrian connections will also be available via the emergency access through the center of that same block.

- 2. In residential and industrial districts where addition of a path would reduce walking distance, via a sidewalk or other available pedestrian route, by at least 400 ft and by at least 50% to an existing transit stop, planned transit route, school, shopping center, or park.*

Response: Not applicable. Addition of a path to reduce walking distances as noted above is not needed.

- 3. In commercial districts and community service use developments where addition of a path would reduce walking distance, via a sidewalk or other available pedestrian route, by at least 200 ft and by at least 50% to an existing transit stop, planned transit route, school, shopping center, or park.*

Response: Not applicable.

- 4. In all districts where addition of a path would provide a midblock connection between blocks that exceed 800 ft or would link the end of a turnaround with a nearby street or activity center.*

Response: There are no blocks that exceed 800 feet in the proposed development. As shown on the Preliminary Plat in Exhibit A, a pedestrian and bicycle connection will be provided between the end of the turnaround and the sidewalk at the Rusk Road/Highway 224 intersection.

C. Design Standards

Pedestrian/bicycle paths shall be designed and improved in accordance with the requirements of this chapter and the Public Works Standards. Paths shall be located to provide a reasonably direct connection between likely pedestrian and bicyclist destinations. A path shall have a minimum right-of-way width of 15 ft and a minimum improved surface of 10 ft. If a path also provides secondary fire access or a public utility corridor, it shall have a minimum right-of-way width of 20 ft and a minimum improved surface of 15 ft. Additional standards relating to entry points, maximum length, visibility, and path lighting are provided in the Public Works Standards.

Response: There is a proposed pedestrian/bicycle path connecting the end of the cul-de-sac to the intersection of Rusk Road and Highway 224. This path will have a 15-foot public access easement with a 10-foot paved width and will provide bicycle and pedestrian connections from the highway, through the development and down to Kellogg Creek Drive which connects to North Clackamas Park.

Section 19.904 Community Service Uses

19.904.5 Procedures for Reviewing a Community Service Use

C. The Planning Director may approve minor modifications to an approved community service per Section 19.1004 Type I Review, provided that such modification:

Response: The proposed modifications to the church property will include the following elements, all of which represent minor modifications to the approved CSU.

- The church entrance from Rusk Road will be reconfigured to enforce the “entry-only” status; exit onto Rusk Road from that access point is not permitted due to sight distance issues. Improvements to the access point will include narrowing the driveway, striping an entry-only arrow on the pavement, adding signage to indicate “No Exit”, and adding some landscaping at the corner to serve as a barrier to exiting the site at that location.
- Some parking spaces along the western edge of the church property will be removed in order to create an access between the church site and the proposed subdivision site. This new access will provide a safe exit point for the church onto Kellogg Creek Drive.
- Additional parking spaces will be removed just south of the new access point to create a service and emergency-only access from Alley C on the subdivision site. This access will be gated and will only be accessible for emergency fire and garbage service activities.

1. Does not increase the intensity of any use;

Response: The proposed modifications to the church property will not add square footage to the church use or otherwise result in an increase in activity or use of the site. The overall amount of parking on the site will be reduced by 10 spaces.

2. Meets all requirements of the underlying zone relating to building size and location and off-street parking and the standards of Title 19;

Response: Applicable standards from Title 19 include only those related to off-street parking and access. No other elements regulated by Title 19 (such as building size and location) will be impacted by the proposed modifications.

- Overall parking on the church site will be reduced by 10 spaces to accommodate the new access points described above. Per Table 19.605.1 in the code, the minimum parking standard for a church is 1 space per 4 seats and the maximum is 1 space per 2 seats. The church has 400 seats. Therefore, the parking minimum is 100 spaces and the maximum is 200 spaces. The church currently has 225 parking spaces, which exceeds the allowable maximum. This is due to the fact that no parking maximums were in place when the church was constructed in 1984. Removing 10 parking spaces from the church site will bring the site closer to conformance with the existing code.
- The Public Facility Improvements standards in Chapter 19.703 require that all development has safe access to a public street. The proposed modifications to the church site will facilitate safe access to the site by improving the entry-only access point on Rusk Road. These improvements will help ensure that the entry-only access point is not used as an exit. The proposed improvements will also provide a safe access point for the church to Kellogg Creek Drive. That access point can be used as both an entry and exit for the church site.
- Per MMC 19.606.2.C, perimeter landscape buffers are required where the parking area abuts another property. A 6-foot landscape buffer will be provided around the parking lot along the northern and

western edges of the parking lot where it abuts the adjacent property. The buffer will be landscaped consistent with MMC 19.606.2.C.2, including one tree for every 40 lineal feet.

3. *Does not result in deterioration or loss of any protected natural feature or open space, and does not negatively affect nearby properties;*

Response: The proposed parking lot and access modifications will not have any impact on natural resources or open spaces in the vicinity of the site. All proposed modifications to the church site will occur within the boundaries of the existing parking lot and will not negatively affect nearby properties.

4. *Does not alter or contravene any conditions specifically placed on the development by the Planning Commission or City Council; and*

Response: The most recent review of the church property was conducted in September 2014 when the Turning Point Church requested a CSU Minor Modification and Natural Resource Review in order to remove a section of off-street parking spaces from the church parking lot and replace them with landscaping (grass and ground cover). That decision (File Nos. CSU-14-06 and NR-14-06) did not include any conditions of approval. In the findings for that decision, prior conditions of approval for the church site were listed as follows:

The property was annexed into the city limits in 1981 (land use file #A-80-07). In 1983, use of the site for pasture land and grazing for horses was approved as a conditional use (file #C-83-08); however, the conditional use application was subsequently withdrawn.

The site was approved as a CSU for church use by the Milwaukie Assembly of God in 1984 (file #CS-84-02). Conditions of approval included requirements to provide plans for landscaping, public facilities, and exterior lighting, as well as a traffic study and right-of-way dedication along Rusk Rd and Kellogg Creek Dr.

In 1987, the City Council approved a zone change for the western portion of the property, from R-10 to R-3, along with a conditional use approval for senior housing and an amendment to the Comprehensive Plan map (file #CPA-87-01, ZC-87-05, CU87-05, with Ordinance #1639). The senior housing project (called Parkside Village) was never developed.

In 1992, the City approved a 5,500-sq-ft addition to the church building (file #CSO-92-03, NR-92-01). Conditions of approval included requirements to install the approved landscaping and to direct lighting away from the designated natural resource area.

In 1997, the Planning Commission denied a sign permit request to locate an electronic reader board sign on the property near the intersection of Highway 224 and Rusk Rd (file #SP-97-01).

The proposed modifications to the church parking lot and access will not contravene or alter any of the conditions of approval from the above-listed decisions.

5. *Does not cause any public facility, including transportation, water, sewer and storm drainage, to fail to meet any applicable standards relating to adequacy of the public facility.*

Response: No public facility will fail to meet adequacy standards as a result of the proposed modifications to the church property. The only public facility that will be impacted by the proposed modifications is public transportation. The proposed modifications at the entry-only access point on Rusk Road combined with the new access point on Kellogg Creek Drive (through the subdivision site) will provide an overall improvement to safe access for the church property. The “no exit” requirement onto Rusk Road will be reinforced and a safe and convenient exit onto Kellogg Creek Drive will be created. The new access point on Kellogg Creek Drive will be designed consistent with applicable standards.

Section 19.1200 Solar Access Protection

19.1203.3 Design Standard

At least 80% of the lots in a development subject to these provisions shall comply with one or more of the options in this subsection; provided a development may, but is not required to, use the options in Subsections 19.1203.3.B or C below to comply with Section 19.1203.

A. Basic Requirement

A lot complies with Subsection 19.1203.3 if it:

1. *Has a north-south dimension of 90 ft or more; and*
2. *Has a front lot line that is oriented within 30 degrees of a true east-west axis (see Figure 19.1203.3).*

C. Performance Option

In the alternative, a lot complies with Subsection 19.1203.3 if:

1. *Habitable structures built on that lot will have their long axis oriented within 30 degrees of a true east-west axis, and at least 80% of their ground floor south wall will be protected from shade by structures and nonexempt trees using appropriate deed restrictions; or*

Response: There are a total of 92 lots proposed as part of this subdivision. As shown on the Preliminary Plat (Sheet C201 in Exhibit A), 76 of the lots will have a north-south dimension of 80 to 87.25 feet. All of those lots have a front lot line that is oriented within 30 degrees of an east-west axis.

For the remaining 16 lots, structures will have their long axis oriented within 30 degrees of an east-west axis. Because the structures will be attached homes in sets of four units, the south-facing walls of units will be protected by the unit attached to it, or by the four-plex structure directly south of it (there will be 10 feet between four-plexes). The only units without shade protection will be those three units at the southern-most end of the east-west oriented structures (Lots 33 and 92 on the Preliminary Plat in Exhibit A).

Because the proposed subdivision does not meet the standards of 19.1203.3 above, an adjustment to the standard is requested, consistent with the criteria established in 19.1203.5 below.

19.1203.5 Adjustment to Design Standard

The Director shall reduce the percentage of lots that must comply with Subsection 19.1203.3, to the minimum extent necessary, if he or she finds the applicant has shown it would cause or is subject to one or more of the following conditions.

A. Adverse Impacts on Density, Cost, or Amenities

1. *If the design standard in Subsection 19.1203.3.A is applied, either the resulting density is less than that proposed, or on-site site development costs (e.g., grading, water, storm drainage, sanitary systems, and road) and solar-related off-site site development costs are at least 5% more per lot than if the standard is not applied. The following conditions, among others, could constrain the design of a development in such a way that compliance with Subsection 19.1203.3.A would reduce density or increase costs per lot in this manner. The applicant shall show which, if any, of these or other similar site characteristics apply in an application for a development:*

- b. *There is a significant natural feature on the site, identified as such in the Comprehensive Plan or Development Ordinance, that prevents given streets or lots from being oriented for solar access, and it will exist after the site is developed;*

Response: As noted above, 16 lots meet the performance option in MMC 19.1203.3.C above, which is 17 percent of the total proposed lots. Therefore, an adjustment is requested to reduce the percentage of lots required to meet MMC 19.1203 to 17 percent.

If the design standard in 19.1203.3 is applied to the proposed subdivision, the resulting density would be less than what is proposed. The site has numerous physical constraints that limit site design options, including significant natural resources (floodplain, habitat area, Mount Scott Creek and wetlands) and the existing church property. Furthermore, the site has split zoning (R-10 and R-3), which adds more complexity in terms of site design. For all these reasons, the applicant is proposing a Planned Development on the site, which allows greater flexibility to design the site efficiently and economically within the context of the various constraints. The proposed site design minimizes impacts to natural resources while allowing the applicant to develop the site efficiently and in a way that is financially feasible. Reconfiguring the site so that all lots meet the solar access standards would result in significantly fewer lots, and potentially greater impacts to the natural resource areas. For these reasons, an adjustment is appropriate.

IV. CONCLUSIONS

As established in the discussion and responses provided in this narrative, the proposed subdivision is consistent with City standards and criteria. Approval of this application will facilitate development of a project that will preserve and protect natural resources, contribute to the overall variety of housing types and development patterns in Milwaukie, and provide a needed housing type in close proximity to a large employment center.

KELLOGG CREEK Milwaukie, Oregon

A Land Use Application for:

**Planned Development
Type III Variance
Type IV Zone Change**

Revised and Submitted:
June 2017

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EXHIBITS

- A. Development Plan Set
- B. Pre-Application Notes
- C. City Planning Process Memo
- D. Wetland Delineation Report
- E. Drainage Report
- F. Geo-Tech Report
- G. Traffic Impact Study
- H. Neighborhood Meeting Materials
- I. Arborist Report
- J. Natural Resource Review
- K. Memo from Johnson Economics

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I. INTRODUCTION

Summary of Proposal

Brownstone Development (the applicant) is proposing a new residential subdivision located at 13333 Rusk Road in the City of Milwaukie (see Figure 1, Vicinity Map). The development site is approximately 13.8 acres and will consist of 92 new lots intended for single-family attached (rowhouse) dwelling units and associated public streets. The attached homes will be in groupings of four units and will be accessed from rear alleys or front-facing driveways. The development will also include new public local streets, private alleys and a soft-surface pedestrian trail to provide connectivity throughout the site. Open spaces and natural areas will surround the homes and connect to the adjacent North Clackamas Park west of the site.

The subject property currently consists of four tax lots all owned by the Turning Point Church, which is located at the corner of Rusk Road and Kellogg Creek Drive. A property line adjustment application has been submitted to the City of Milwaukie in order to consolidate and reconfigure the four tax lots into two lots. One lot (13.8 acres) will be the development site and the other lot (3.7 acres) will be the church lot. The Turning Point Church and its associated parking areas will remain.

Access to the site will be taken from SE Kellogg Creek Drive, as shown on the Preliminary Plat, Sheet C201 in Exhibit A. In order to ensure the Turning Point Church continues to have safe ingress and egress to the church site, a connection between the two sites will be provided to allow church visitors to exit through the development site onto Kellogg Creek Drive (exit from the church site onto Rusk Road is not permitted; that access is entrance only).

Zoning & Land Uses

The subject site currently has split zoning, with the western portion of the site zoned R-3 and the eastern portion of the site zoned R-10. See Figure 2 and the Existing Conditions Plan (Sheet C100) in Exhibit A. The table below describes the uses and zoning on properties surrounding the subject site.

Table 1: Surrounding Uses

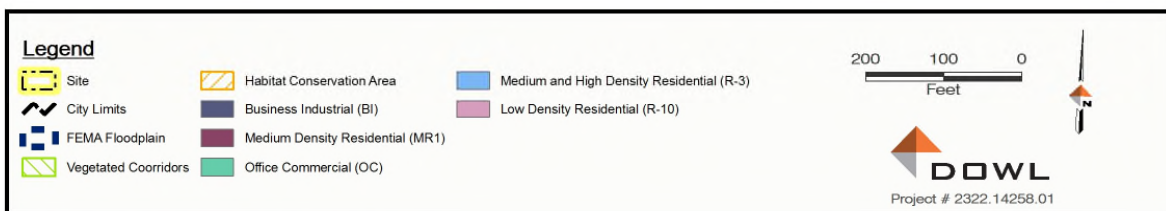
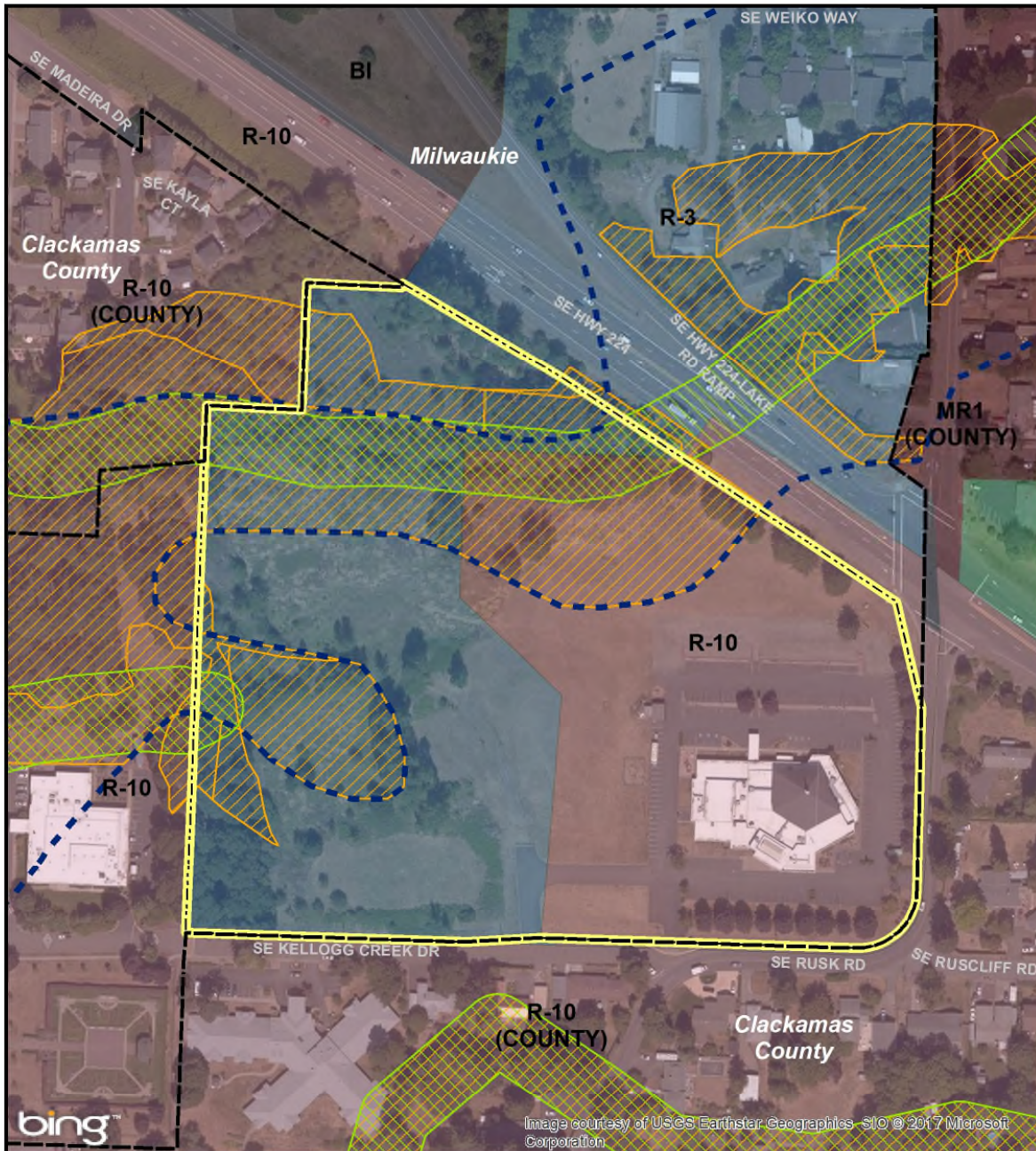
<u>Area</u>	<u>Zoning</u>	<u>Land Uses</u>
North	R-10	Single-family residences, Highway 224 right-of-way
East	R-10	Turning Point Church, SE Rusk Road, and single-family residences
South	R-10	SE Kellogg Creek Road, single-family residences, Deerfield Village Assisted Living Center
West	R-10	The Milwaukie Center, North Clackamas Park

Figure 1: Vicinity Map



Legend		Vicinity Map Kellogg Creek Milwaukie, Oregon	
Site			
taxlots			Project # 2322.1414258.01
City Limits			

Figure 2: Natural Resources & Zoning



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Planned Development

In order to maximize development potential on the site, preserve natural resources and provide needed housing for Milwaukie, the applicant is proposing to develop this site using the city's Planned Development process. The Planned Development process allows for greater flexibility in design and use of a site to encourage a mix of housing types and creation of a unique environment that would not be possible under strict application of the Zoning Code. The Planned Development process has several steps, including a zone change and a final development plan. The zone change is necessary to apply the Planned Development (PD) zone to the site. To clarify the Planned Development review process and how it relates to the other applications needed for this project, the project team met with Milwaukie Planning staff in August 2016 for a pre-application conference, and again in September 2016 for a follow-up discussion. After the September meeting, city staff drafted a memo presenting two possible options for a review process – standard and streamlined. See Exhibits B and C for a copy of the pre-application notes and the September memo.

The applicant has chosen to utilize the streamlined review process, as outlined in the September memo. As such, two application packages are being submitted concurrently:

1. Zone Change and Development Plan Package – Type IV review
2. Subdivision and related applications – Type III review

As noted below, this narrative is part of the Type IV application package and addresses standards and criteria for Planned Development and Zone Change reviews.

Natural Resources

The site contains approximately 4.5 acres of designated floodplain area, which is regulated by Chapter 18.04 of the Milwaukie Municipal Code. The site also contains approximately 5.6 acres of designated Habitat Conservation Area (HCA) (See Figure 2). HCA lands are natural resources that have been identified by the City for protection and are regulated under Chapter 19.402 of the Milwaukie Zoning Code. Impacts to floodplain and HCA are permitted by the City if certain conditions can be met and mitigation of those impacts is provided. While the bulk of existing natural resources on the subject site will be preserved, some impacts will be necessary to accommodate the proposed development. The separate and concurrent Type III application package provides information about those impacts and how they will be mitigated in accordance with City regulations. A Natural Resource Review report is provided in Exhibit J.

Wetlands

Wetlands have been identified on the site and delineated by Pacific Habitat Services (See Exhibit D, Wetland Delineation Report). Impacts to the wetlands will occur in order to accommodate development on the site. Those impacts require a joint permit from Department of State Lands (DSL) and the US Army Corps of Engineers (USACE). A joint permit application for wetland impacts will be submitted as required.

Request

As part of the overall Planned Development project, this application package contains the following requests for approvals from the City of Milwaukie:

- Planned Development
- Type III Variance
- Type IV Zoning Map Amendment

The applicant has submitted this application, narrative, and plans in order to demonstrate how this proposal complies with the standards set forth the in the City of Milwaukie’s Municipal Code. All applicable standards have been addressed and all required submittal materials have been provided.

The applicant is also submitting a separate application package for associated Type II and III approvals including subdivision and natural resources reviews. The two application packages are related and intended to be reviewed concurrently by the city.

II. COMPLIANCE WITH CITY OF MILWAUKIE DEVELOPMENT CODE

This section contains responses to applicable sections of the Milwaukie Development Code, Title 19 Zoning. Those sections that are not applicable to the proposal are generally not included unless needed for context.

Section 19.311 Planned Development Zone

19.311.1 Purpose

The purpose of a PD Planned Development Zone is:

- A. To provide a more desirable environment than is possible through the strict application of Zoning Ordinance requirements;*
- B. To encourage greater flexibility of design and the application of new techniques in land development;*
- C. To provide a more efficient, aesthetic, and desirable use of public and private common open space;*
- D. To promote variety in the physical development pattern of the City; and*
- E. To encourage a mix of housing types and to allow a mix of residential and other land uses.*

Response: The proposed project is well aligned with the purpose of the PD Zone. The flexibility of the PD Zone allows the applicant to protect significant natural resources while maximizing development potential of the site. This balance is critical to the success of the project.

The PD Zone provides the ability to reduce lot sizes and cluster them on the site so that impacts to the Habitat Conservation Area, floodplain area, trees and wetlands are minimized. Those natural resources will be largely protected and remain available as open space for the public and future residents of the development site. Application of the PD Zone will also achieve:

- Development of rowhouses in a planned community. This project represents a relatively new and different type of housing for Milwaukie and will contribute to the overall variety of housing types in the city. This is especially important considering the need for additional affordable housing in Milwaukie. A recent housing needs analysis¹ was prepared for the City to forecast housing needs over the next 20 years. That analysis identifies a need for over 1,000 new housing units. The majority (71 percent) of that housing is projected to be ownership housing, over half of which is projected to be an attached housing type. The proposed development will provide attached housing for ownership, thereby supporting the City's goal to provide more of this type of housing.
- The proposed development will consist of rowhouses on small lots in a relatively compact area with large, integrated open spaces. This arrangement is not one that is typically found in Milwaukie and will support the City's goal of encouraging a greater variety of development patterns.
- Natural and usable open spaces will be available for the public and residents of the development. Approximately seven acres of natural area and open space will be preserved on the site. A soft-surface trail system is proposed throughout the site to allow greater access to the protected natural areas while preserving the overall natural character of the site.

19.311.2 Use

A planned development approved by the City Council and based on a final development plan and program shall constitute the Planned Development Zone. The PD Zone is a superimposed zone applied in combination with regular existing zones. A PD Zone shall be comprised of such combinations of types of dwellings and other

¹ Housing and Residential Land Needs Assessment, prepared by Johnson Economics, August 2016.

structures and uses as shall be authorized by the Council, but the Council shall authorize only those types of dwellings and other structures and uses as will:

A. Conform to the City's Comprehensive Plan;

Response: Consistency with applicable Comprehensive Plan goals and policies is demonstrated in responses in Section III of this narrative.

B. Form a compatible and harmonious group;

Response: The proposed development will consist of single-family attached dwellings (rowhouses) in groups of four units. Some units will be alley-loaded with driveways and garages located in the rear of the lot, and the remainder will be front-loaded with driveways and garages located in the front. The two housing types will have a different front façade due to the difference in garage locations; however, they will be similar in size, orientation, architecture, color palette, and articulating features (renderings are provided on Sheet A100 in Exhibit A). The dwellings have been designed to provide aesthetic variation while still maintaining a sense of compatibility as a group. The groups of rowhouses will be arranged in a compact pattern around a simple grid of public streets and private alleys. Landscaping will be provided between the front driveways and the rear (alley) driveways to provide some separation between units. The intent of the development is to create a cohesive and compact neighborhood surrounded by natural areas and open space.

C. Be suited to the capacity of existing and proposed community utilities and facilities;

Response: Public utilities and facilities in the vicinity of the site are available to serve the proposed development. Specifically:

- **Water** – The site is within the Clackamas River Water (CRW) district and will connect to an existing CRW water main located in SE Kellogg Creek Drive. The applicant will construct new water lines within the right-of-way of new public streets on the site to serve the proposed residential units. Proposed utilities are shown on the Composite Utility Plan (Sheet C400) in Exhibit A.
- **Sewer** – There is a Clackamas County wastewater main located along the western and northern property lines of the site and is available to serve the proposed development. The applicant will construct an 8-inch PVC sewer line within the right-of-way of new public streets on the site and will connect this line to the existing sewer main north of the site. Proposed utilities are shown on the Composite Utility Plan (Sheet C400) in Exhibit A.
- **Stormwater** – The applicant has submitted a preliminary stormwater report prepared by a qualified professional engineer as part of this application (see Exhibit E). The report explains how stormwater runoff will be managed on the site and demonstrates that post-development runoff will not exceed pre-development runoff. The report also demonstrates consistency with the City's water quality standards.
- **Streets** – The site will take access from SE Kellogg Creek Drive, which currently has 40 feet of right-of-way. The traffic impact study conducted for this project indicates that traffic volumes from the proposed development will not cause intersections in the study area to fall below acceptable levels of service. Additional right-of-way will be dedicated along the site's frontage on Kellogg Creek Drive to accommodate half-street improvements as required by the City's engineering staff.
- **Parks** – The site is located adjacent to the North Clackamas Park, which is a 47-acre regional park with a variety of recreational amenities available to serve the proposed development. The site will also have approximately seven acres of additional open space and over two acres of usable open space (the trail system) available for the public and future residents of the development.

D. Be cohesively designed and consistent with the protection of public health, safety, and welfare in general; and

Response: As noted above, the proposed development will consist of rowhouse dwelling units in groups of four, designed to be visually compatible and form a cohesive neighborhood within the site. Public health, safety and welfare will be protected through the following measures:

- A connected system of streets designed to the local street functional classification, which includes sidewalks on both sides of the street and planter strips with street trees. The street system will also provide adequate access and circulation for emergency fire vehicles and service trucks.
- Street connections to the existing street system along Kellogg Creek Drive that meet the City’s access spacing and sight distance standards.
- Half-street improvements along the site’s frontage with Kellogg Creek Drive that will include a bike path to improve connections to North Clackamas Park.
- Protected natural resource areas, including a stand of mature Oregon white oaks, wetlands, habitat areas and floodplain.
- A soft-surface trail system throughout the development that allows access through the natural resource areas and provides opportunity for recreation while minimizing impacts to the natural area.
- An outdoor community garden with raised planter beds, gravel pathways, and a water source. The community garden will be fenced and gated for security and will be managed by the future homeowners association.
- A play area, located adjacent to the community garden, for use by residents of the subdivision.

E. Afford reasonable protection to the permissible uses of properties surrounding the site. In addition to residences and their accessory uses, the Council may authorize commercial and nonresidential uses which it finds to be:

- 1. Designed to serve primarily the residents of the planned development,*
- 2. Limited to those nonresidential uses which do not exist in the vicinity, and*
- 3. Fully compatible with, and incorporated into, the design of the planned development.*

Response: No commercial or non-residential uses are being proposed as part of this development. The development will consist of single-family attached dwellings and associated public streets. Properties surrounding the site are zoned for low-density residential uses (R-10). The proposed development will not impact the ability of those surrounding properties to develop or redevelop with permissible uses. The proposed development will not impact access to those properties, change flood elevations, or impose any other physical or conceptual constraints on surrounding properties that will impede their ability to develop as allowed.

19.311.3 Development Standards

All standards and requirements of this chapter and other City ordinances shall apply in a PD Zone unless the Planning Commission grants a variance from said standards in its approval of the PD Zone or accompanying subdivision plat.

A. Minimum Size of a PD Zone

A PD Zone may be established only on land which is suitable for the proposed development and of sufficient size to be planned and developed in a manner consistent with the purposes of this zone. A PD Zone shall not be

established on less than 2 acres of contiguous land unless the Planning Commission finds that a smaller site is suitable because of unique character, topography, landscaping features, or constitutes an isolated problem area.

Response: The proposed Planned Development site is approximately 14 acres of contiguous land, a portion of which is suitable for the proposed development. The site has been designed to preserve significant amounts of designated natural resources while maximizing development potential through compact rowhouse development. The site is also suitable for development in terms of access to public streets and utilities, as noted previously.

B. Special Improvements

In its approval of the final plan or subdivision plat within a PD Zone, the City may require the developer to provide special or oversize sewer lines, water lines, roads and streets, or other service facilities. Such approval shall not obligate the City to expend funds for additional construction equipment or for special road, sewer, lighting, water, fire, or police service.

Response: The applicant understands that the City may require special or oversized sewer lines, water lines, roads or other service facilities in its approval of the final plan and subdivision plat.

C. Density Increase and Control

The Council may permit residential densities which exceed those of the underlying zone, if it determines that the planned development is outstanding in planned land use and design and provides exceptional advantages in living conditions and amenities not found in similar developments constructed under regular zoning. In no case shall such density increase be more than 20% greater than the density range prescribed for the primary land use designation indicated in the Comprehensive Plan.

Response: Maximum density for the site was calculated consistent with the density calculation provisions in MMC Section 19.202.4. The allowable density was calculated for each zone (R-3 and R-10) separately and then combined to determine allowable density for the entire site. Per the City’s pre-application notes, “the development may effectively blend the densities for the two zones by distributing structures across the site regardless of the specific zoning boundary.” Table 2 shows the detailed density calculations. See Figure 3 for a map of areas used for the density calculations.

Table 2A: Net Acres Calculation

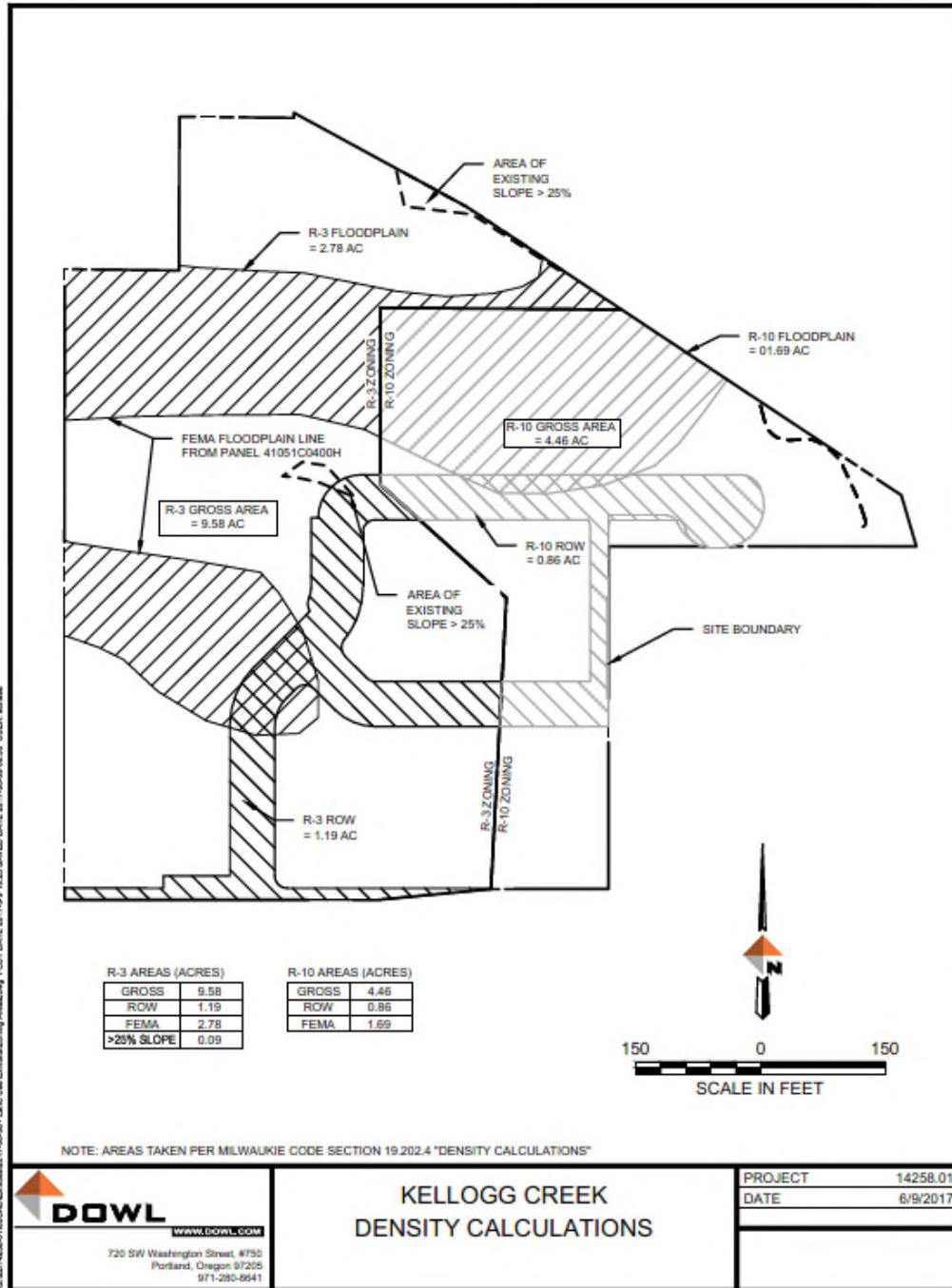
Zoning	Gross Acres	FEMA Mapped Floodplain	Right-of-way	Additional Open Space ¹	Slopes > 25%	Net Acres ²
R-3	9.58	2.78	1.19	0.41	0.09	5.11
R-10	4.44	1.69	0.86	0	0	1.89
Totals	14.02	4.47	2.05	0.41		7.00

Table 2B: Maximum Density Calculation

Zoning	Net Acres ²	Maximum Density (du/net acre)	Maximum Number of Units Allowed (without PD)	PD Increase (20%) ³	Maximum Number of Units with Rounding (per MMC 19.202.4)
R-3	5.11	14.5	74.09	88.90	89
R-10	1.89	4.4	8.32	9.98	10
Totals	7.00	-	82.4 (82 with rounding)	-	99

1. Required open space is one-third of the gross acreage (per PD provisions in 19.311.3.E). The above calculations assume a portion of the open space overlaps with floodplain. Additional open space needed to achieve one-third of the gross is indicated here.
2. Net acres = gross acres – (floodplain + right-of-way + open space)
3. Per Section 19.311.3.C, a density increase of up to 20% is allowed in the PD Zone.

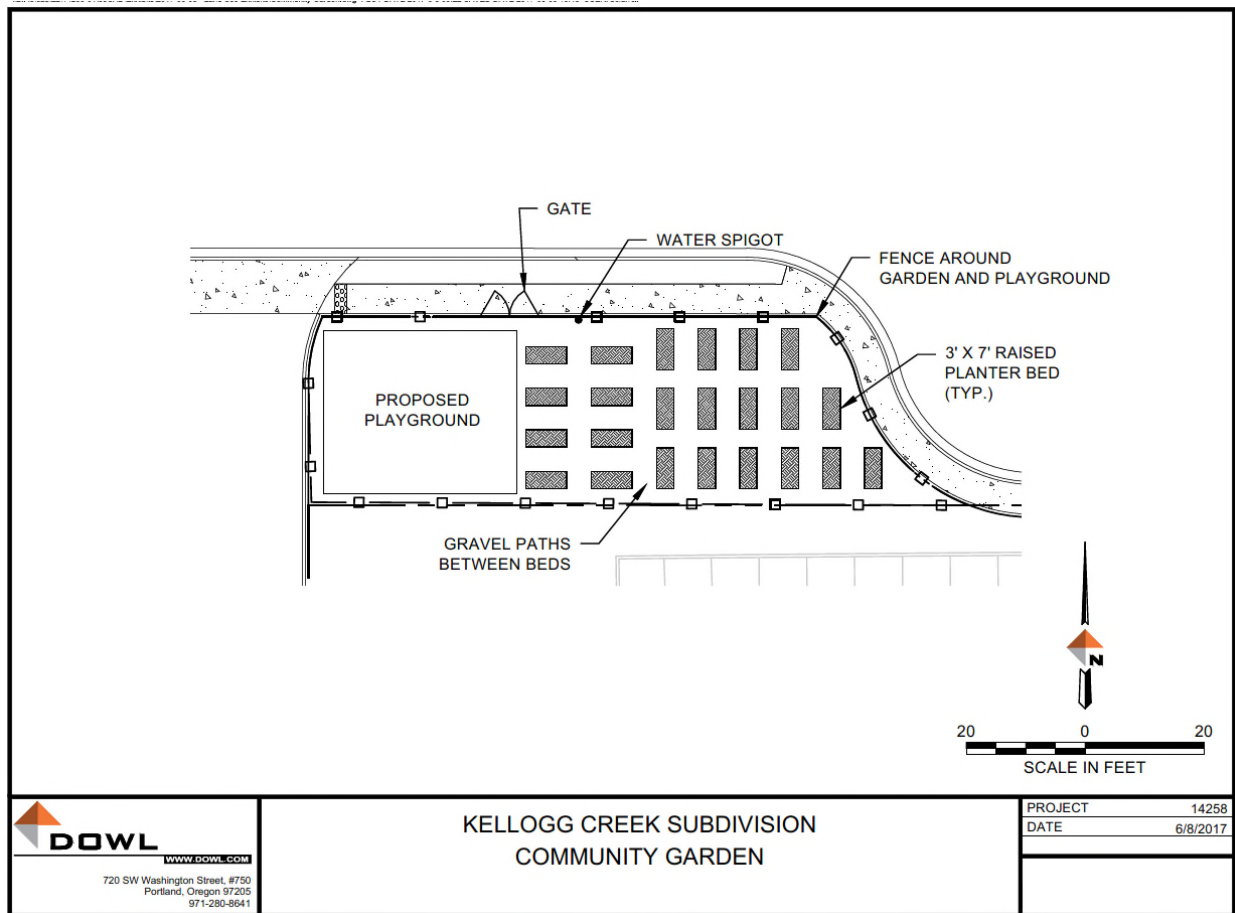
Figure 3: Density Calculation Areas



As shown, the maximum number of units that would be allowed on the site per the underlying zoning is 82 units. The maximum number of units that would be allowed with the 20 percent density increase per the PD Zone is 99 units. The proposed development has 92 units. This represents an approximately 12 percent increase in density, which is less than the 20 percent maximum increase allowed by the PD Zone. There are a number of unique and “outstanding” amenities provided with this proposed development that support the density increase:

- Just over half of the 14-acre site will be preserved as open space to minimize impacts to important natural resources, including habitat conservation area, floodplain, mature trees and wetlands. Residents of the development and the public will have access to these natural open spaces via a soft-surface trail system that will travel throughout the site. The trail will connect to a paved pedestrian/bicycle path at the northeast corner of the site near the intersection of Rusk Road and Highway 224.
- The site has been designed to avoid impacts to the large stand of mature Oregon white oak trees located in the southwest corner of the site. These trees have been identified extremely valuable and their protection is a high priority for the City and community members. Lots have been shifted as far east as possible to allow the oaks to remain on the site. In addition, the required half-street improvement along Kellogg Creek Drive has been altered (in collaboration with City Engineering staff) to avoid any tree removal associated with frontage improvements. As a result, all Oregon white oaks on the site will remain and be protected. The project arborist, Morgan Holen & Associates, LLC, has provided a supplemental memo dated June 11, 2017 that identifies specific tree protection measures that can be taken during construction to avoid damage to the white oaks.
- The site has been designed to create a sense of permeability between the natural open spaces and the developed portion of the site. In the southwest portion of the development, 12 homes will have yards that back up to the stand of large Oregon white oak trees. The backyards of those lots will have low (4-foot height) fencing made of black cyclone material to provide visibility and a sense of openness to the natural area while providing privacy and security for individual home owners. In addition, Street A has been designed to travel along the large protected wetland to provide visual access into the natural area in the northwest portion of the site. There are no homes located along the western edge of Street A through that area, which allows views into the natural area from the developed part of the site.
- The larger water quality facilities have been designed and located in order to provide views into the open space areas beyond them. The water quality facilities will be planted with low-lying grasses and will not be fenced, so they will provide a sense of openness for the nearby homes, as well as vehicles and pedestrians traveling through the site.
- A community garden will be provided on the site in Tract D for use by residents of the development (see Figure 4). That garden (approximately 3,100 square feet) will include raised planter beds, gravel pathways and a water source. The garden will be fenced and gated for security and will be managed by the future homeowners association.
- A play structure will also be provided adjacent to the community garden in Tract D for use by the residents of the development and church visitors. This structure will replace the existing church play structure that will be removed as part of this project.
- Additional trees will be planted where the site abuts Highway 224 in the northeastern corner to provide some additional screening for those lots that are located closest to that property line.

Figure 4: Community Garden and Play Area



- The proposed development will provide 92 units of attached single-family housing. Those rowhouse units will be available for ownership at a price point that is affordable for working people with moderate incomes (referred to as workforce housing). The need for this type of housing at this price point was well-established in the housing needs analysis prepared for the City at the end of 2016. This was further clarified in a memo prepared by Johnson Economics² on behalf of the applicant. That memo states (emphasis added):

*“The proposed development is consistent with the observed trends in the residential market, and is expected to deliver a product that is consistent with identified market demand. **The subject site is particularly well suited for this type of development**, with proximate parks and open space to complement the limited yard space provided in a townhome configuration. We would expect the project to have **appeal to a cost-sensitive starter family market**, which will value the local amenity mix as well as proximity to employment and commercial services.*

The development is requesting a Planned Development approval, which would allow for flexibility to deal with the site and natural resources. The site is split zoned, with portions zoned either R-10 or R-3. The R-10 zoning has a minimum lot size of 10,000 square feet, and would yield few units. Even under a duplex scenario, the zoning would require 14,000 square feet per duplex. The R-3 zoning allows for 3,000 square foot lots sizes, but with the level of natural resource on the site, a development would not be able to

² Johnson Economics also prepared the 2016 Housing Needs Analysis for the City of Milwaukie.

meet minimum density. As zoned, any development on the site would necessarily be at a price point that would not be responsive to the local demand.

The proposed townhome development would allow for family-oriented units at a price point that meets identified demand, and can provide workforce housing. It would help realize and expand the City’s housing capacity, increasing housing options for local residents as well as locally-employed households.”

See Exhibit K for the full memo. It’s important to note the language about price point above because it directly relates to the density increase. Without the proposed 12 percent density increase to 92 lots, this project would not be economically feasible and would not be able to deliver housing at the needed price point. Simply stated, fewer lots means a higher price point.

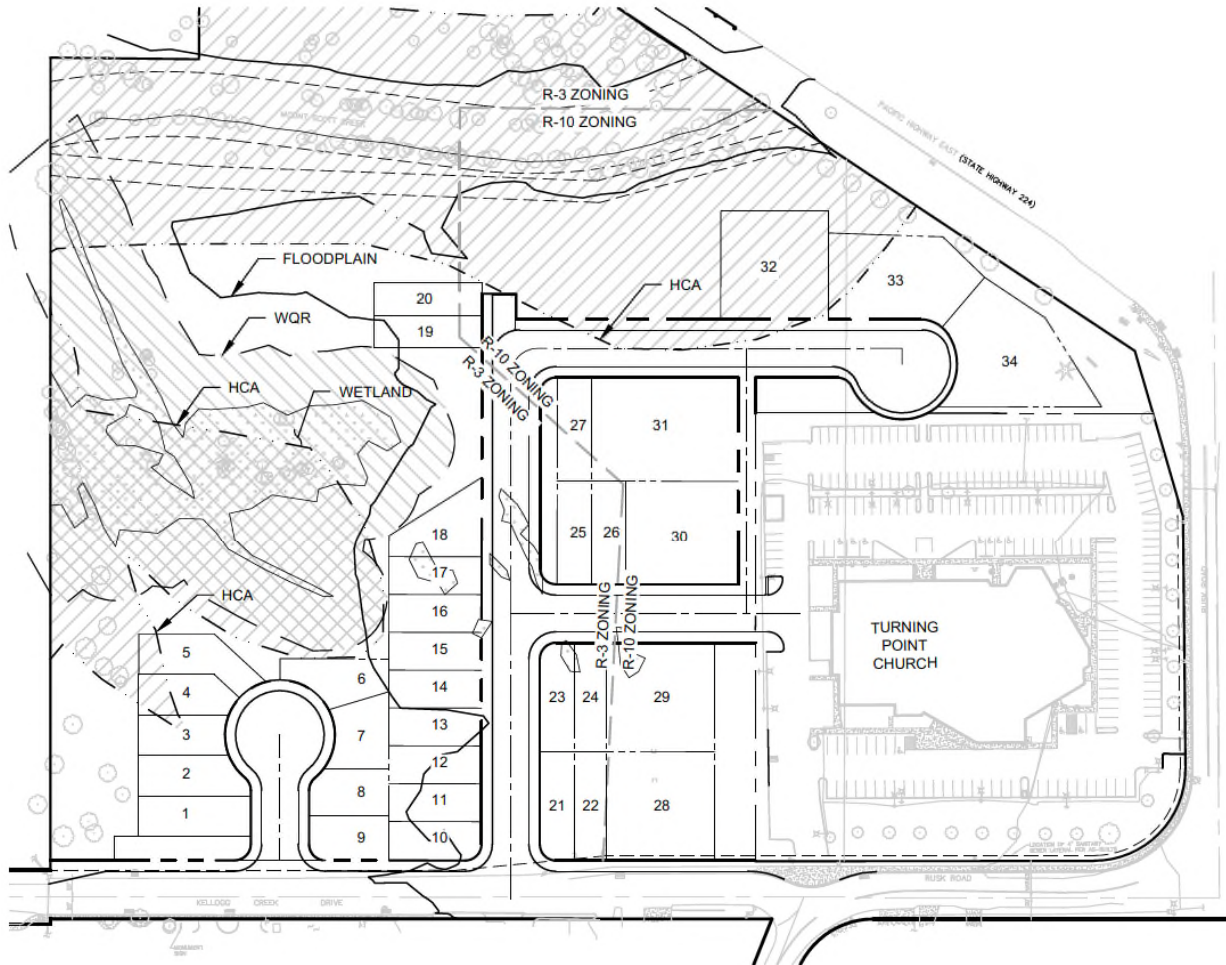
- The proposed development will be compact, with small individual lots on a connected street system in close proximity to a large public park with convenient access to a major arterial (Highway 224). The development is located less than 2.5 miles from downtown Milwaukie. This type of development is consistent with the housing trends that are anticipated to occur in Milwaukie over the next 20 years, as identified in the 2016 housing analysis. Those trends include the need for more dense and efficient development within the city limits, migration to urban areas, the desire for smaller homes in well-planned and safe communities, and the need for workforce housing.
- Under standard zoning (meaning, without using the PD provisions), this site would be very difficult to develop and would likely not produce an economically viable project. The alternative site layout shown in Figure 5 below shows a potential configuration of lots in the context of the standard R-10 and R-3 zoning (blending of zones would not be permitted as it is with the PD) and the natural resource provisions in MMC 19.402. The alternative layout is consistent with the subdivision standard in MMC 19.402.13.I that requires at least 90 percent of the HCA and 100 percent of the WRQ to be located in a separate non-developable tract.

As shown, 27 lots are provided in the R-3 portion of the site. However, the minimum density required under this scenario is 36 lots (for the R-3). In order to meet minimum density requirements (see Table 3 for calculations) in the R-3 zone, nine additional units would be needed, which would result in impacts to the natural resources on the site. Furthermore, the lots in this alternative layout are larger (significantly larger in the R-10 portion) which means the price point for housing in this scenario will be much higher. Amenities such as the proposed community garden and soft-surface trail are not required considerations under standard subdivision zoning and would therefore not likely be provided in this scenario.

Table 3: Alternative Layout – Minimum Density

Zone	Gross Acres	Gross SF	Floodway	Proposed ROW	Additional Open Space	Net SF	Net Acres	Min Required Units
R3	9.58	417,305	52,359	39,837	189,922	135,187	3.10	36
R10	4.44	193,406	21,753	37,517	74,488	59,649	1.37	5

Figure 5: Alternative Site Layout – Standard Zoning




Alternate Site Plan Information


R-3 Zoning:

Number of Lots Provided = 27 Lots
 Number of Lots Required to Meet Minimum Density ROW Area = 36 Lots
 ROW Area = 39,837 SF

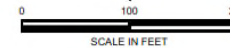
R-10:

Number of Lots Provided = 7 Lots
 Number of Lots Required to Meet Minimum Density ROW Area = 5 Lots
 ROW Area = 37,517 SF

 **Habitat Conservation Area (HCA)**
 Total Existing within Site = 5.59 acres
 Impacted by Site Plan = 0.43 acres (7.7%)

 **Water Quality Resource (WQR)**
 Total Existing within Site = 2.30 acres
 No Impact to WQR

WQR + HCA
 Total Area = 6.07 acres
 Overlapping Area = 1.82 acres



4/3/2017
 720 SW Washington Street, #750
 Portland, Oregon 97205
 971-229-8316
 Project No. 14258.01
 Contact: Scott Emmens, PE

Kellogg Creek

Site Plan: April 3, 2017

Milwaukie, Oregon

D. Peripheral Yards

Along the periphery of any PD Zone, additional yard depth, buffering, or screening may be required. Peripheral yards shall be at least as deep as that required by the front yard regulations of underlying zones. Open space may serve as peripheral yard and/or buffer strips to separate one planned area from another, if such dual use of the land is deemed to comply with this section.

Response: The front yard depths in the proposed development range from 10 to 20 feet so it is assumed here that the required periphery buffer is required to be at least 10 feet deep. The proposed development is surrounded by large areas of open space to the north and west, Kellogg Creek Drive to the south, and the existing church parking lot to the east. Where the proposed development abuts open space and Kellogg Creek Drive, additional periphery buffer is not required. The remainder of the development provides a periphery buffer as follows:

- Tracts E and F provide a 15-foot buffer between lots 1 and 17 and the property line.
- The public alley provides a 22-foot buffer between lots 45 and 53 and the property line.
- The bicycle/pedestrian path provides a 15-foot buffer between lot 92 and the property line.

E. Open Space

Open space means the land area to be set aside and used for scenic, landscaping, or open recreational purposes within the development. Open space may also include areas which, because of topographic or other conditions, are deemed by the Council to be suitable for leaving in a natural condition. Open space shall be adequate for the recreational and leisure needs of the occupants of the development, and shall include the preservation of areas designated by the City for open space or scenic preservation in the Comprehensive Plan or other plans adopted by the City.

The development plan and program shall provide for the landscaping and/or preservation of the natural features of the land. To ensure that open space will be permanent, deeds or dedication of easements of development rights to the City may be required. Instruments and documents guaranteeing the maintenance of open space shall be approved as to form by the City Attorney. Failure to maintain open space or any other property in a manner specified in the development plan and program shall empower the City to enter said property in order to bring it up to specified standards. In order to recover such maintenance costs, the City may, at its option, assess the real property and improvements within the planned development.

All planned unit developments will have at least one-third of the gross area devoted to open space and/or outdoor recreational areas. At least half of the required open space and/or recreational areas will be of the same general character as the area containing dwelling units. Open space and/or recreational areas do not include public or private streets.

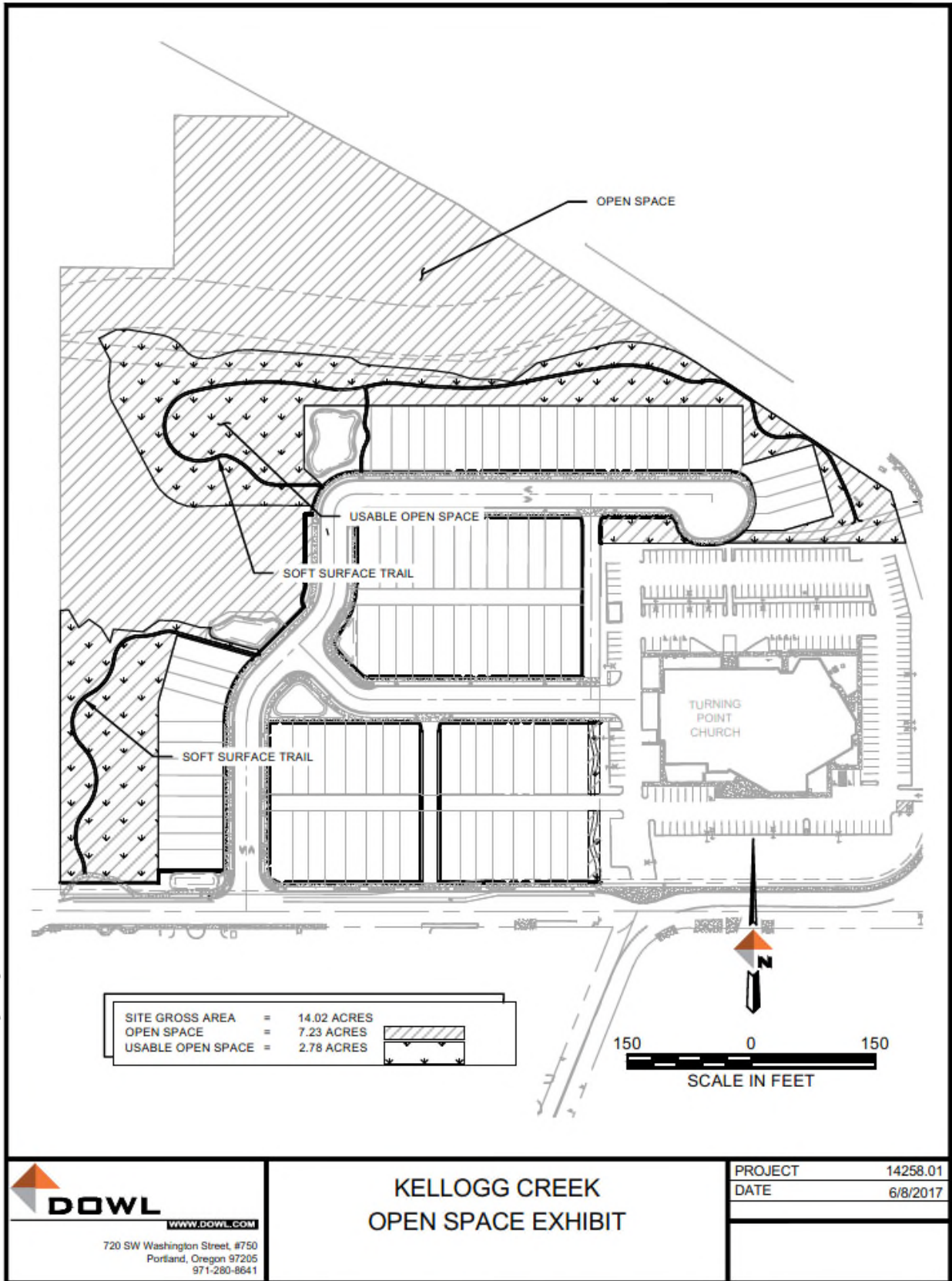
Response: The subject site is approximately 14 acres. One-third of the site is 4.67 acres, which is the amount required for open space per the standard above. One-half of the open space (2.34 acres) must be usable open space of the same general character as the area containing dwelling units.

As shown on Figure 6 below, the proposed development will have 7.23 acres of open space, which exceeds the one-third requirement. Approximately 2.78 acres of that open space will be available for recreational purposes via the proposed soft-surface trail system that travels through the site, which exceeds the one-half requirement. The trail system travels through the natural areas and connects to Kellogg Creek Drive in the southwest corner of the site and the bicycle/pedestrian pathway in the northeast corner of the site. Preservation of natural resources played a significant role in determining how this site was designed. It is appropriate and “in character” to leave those natural resources as intact as possible. The intent of the trail is to provide access to the open spaces that are being preserved on the site, while maintaining the overall integrity of the natural resources they

protect. Users who desire a more landscaped and programmed recreational area have convenient access to North Clackamas Park, which is directly adjacent to the site. Walking distance from the furthest point on the development site to North Clackamas Park is less than one-half mile, or about an eight minute walk.

In addition to the open space trail system, a community garden and play structure will be provided near the cul-de-sac at the northern end of the development.

Figure 6: Open Space Areas



19.311.4 Subject to Design Review

Any development within a PD Zone shall be subject to the provisions of design review as outlined in a separate ordinance.

Response: The proposed rowhouse development is subject to design standards, which have been addressed in the concurrent application narrative for subdivision and other associated reviews.

Section 19.902 Amendments to Maps and Ordinances

19.902.6 Zoning Map Amendments

Changes to the Zoning Map of Milwaukie, Oregon, shall be called Zoning Map amendments.

B. Approval Criteria

Changes to the Zoning Map shall be evaluated against the following approval criteria. A quasi-judicial map amendment shall be approved if the following criteria are met. A legislative map amendment may be approved if the following criteria are met:

- 1. The proposed amendment is compatible with the surrounding area based on the following factors:*
 - a. Site location and character of the area.*
 - b. Predominant land use pattern and density of the area.*
 - c. Expected changes in the development pattern for the area.*

Response: The area surrounding the subject site has two predominate characteristics: parks/open space and low to moderately dense residential development. North Clackamas Park is located directly west of the site and consists of the Milwaukie Center building, ball fields, trails, and both passive and active recreational areas. The proposed development will preserve a significant area (about seven acres) of natural open spaces abutting the park, and will provide a soft-surface trail system throughout those open spaces. These preserved open space areas will be compatible with, and help maintain, the natural and open space character of the area. The large amount of open space preserved on the site will also help to buffer the impact of denser development.

The proposed project will also consist of 92 single family attached dwelling units (rowhouses) in a compact development pattern. While density on the site will be greater than density in the surrounding residential developments, it will not be out of character with surrounding residential development patterns. The proposed project will have full local streets, with landscaped strips and street trees, arranged in a grid-like pattern (with one cul-de-sac). The site is directly across Kellogg Creek Drive from the Deerfield Village Assisted Living center, which has characteristics similar to an apartment or multi-family development in terms of density and aesthetic.

As noted in the Johnson Economics memo in Exhibit K, "The location of the site provides excellent access and visibility from Highway 224, as well as access to the North Clackamas Park, Alder Creek Middle School, the Clackamas Aquatic Center, and employment concentrations along Highway 224 and I-205 corridors. While proximate to single family residential concentrations...the site is separated by topography and environmental corridors, limiting the impact on these properties from new development."

It's also important to note that a primary purpose of the PD Zone, which is the subject of this zone change request, is to encourage "the application of new techniques in land development...promote variety in the physical development pattern of the City, and...encourage a mix of housing types." Therefore, the PD Zone inherently and intentionally encourages unique development that is intended to adapt to the natural

characteristics of a site. This development proposal implements that intent while maintaining the two prevailing characteristics that define its surroundings: open space and residential development.

In terms of expected changes to the development pattern, the proposed development is consistent with the housing development trends that are anticipated to occur in Milwaukie over the next 20 years, as identified in the 2016 housing analysis. Those trends include the need for more dense and efficient development within the city limits, the desire for smaller homes in well-planned and safe communities, and the need for workforce housing.

2. The need is demonstrated for uses allowed by the proposed amendment.

Response: The proposed development will provide 92 single-family attached dwelling units (rowhouses) on individual lots. The need for this type of housing product has been identified in the housing needs analysis that was prepared for the City in 2016, and summarized previously.

3. The availability is shown of suitable alternative areas with the same or similar zoning designation.

Response: As noted in the 2016 Housing Needs Analysis prepared for the City, only 20 percent of the City's current land capacity is located on vacant parcels, with relatively few larger parcels available for "greenfield" development of single-family homes. The subject site has a particular combination of qualities that make it suitable for this development, including proximity to downtown, employment corridors, parks, schools and other services. The property is under single ownership and is available for purchase.

It's important to note that the PD Zone is a zone that is applied as an overlay at the request of an applicant who needs additional flexibility to develop a site. This criterion does not directly apply to a PD Zone request.

4. The subject property and adjacent properties presently have adequate public transportation facilities, public utilities, and services to support the use(s) allowed by the proposed amendment, or such facilities, utilities, and services are proposed or required as a condition of approval for the proposed amendment.

Response: The applicant has provided a traffic impact study, utility plans and a drainage report to demonstrate that adequate public services (transportation, water, sewer, stormwater) are available, or can be provided, to serve the use proposed by the requested amendment. Specifically:

- Water – The site is within the Clackamas River Water (CRW) district and will connect to an existing CRW water main located in SE Kellogg Creek Drive. The applicant will construct new water lines within the right-of-way of new public streets on the site to serve the proposed residential units. Proposed utilities are shown on the Composite Utility Plan (Sheet C400) in Exhibit A.
- Sewer – There is a Clackamas County wastewater main located along the western and northern property lines of the site and is available to serve the proposed development. The applicant will construct an 8-inch PVC sewer line within the right-of-way of new public streets on the site and will connect this line to the existing sewer main north of the site. Proposed utilities are shown on the Composite Utility Plan (Sheet C400) in Exhibit A.
- Stormwater – The applicant has submitted a preliminary stormwater report prepared by a qualified professional engineer as part of this application (see Exhibit E). The report explains how stormwater runoff will be managed on the site and demonstrates that post-development runoff will not exceed pre-development runoff. The report also demonstrates consistency with the City's water quality standards.
- Streets – The site will take access from SE Kellogg Creek Drive, which currently has 40 feet of right-of-way. The traffic impact study conducted for this project indicates that traffic volumes from the proposed development will not cause intersections in the study area to fall below acceptable levels of service.

Additional right-of-way will be dedicated along the site's frontage on Kellogg Creek Drive to accommodate half-street improvements, including a striped bike lane.

- Parks – The site is located adjacent to the North Clackamas Park, which is a 47-acre regional park with a variety of recreational amenities available to serve the proposed development. The site will also have approximately seven acres of additional open space and over two acres of usable open space (the trail system) available for the public and future residents of the development.

5. *The proposed amendment is consistent with the functional classification, capacity, and level of service of the transportation system. A transportation impact study may be required subject to the provisions of Chapter 19.700.*

Response: As demonstrated in the traffic impact study provided to the City, the proposed project is (or can be made to be) consistent with the functional classification, capacity and level of service of the surrounding transportation system.

6. *The proposed amendment is consistent with the goals and policies of the Comprehensive Plan, including the Land Use Map.*

Response: Responses to demonstrate that the proposed Planned Development is consistent with applicable Comprehensive Plan goals and policies are provided in Section III of this narrative.

7. *The proposed amendment is consistent with the Metro Urban Growth Management Functional Plan and relevant regional policies.*

Response: Relevant sections from the Urban Growth Management Functional Plan are addressed below.

Title 1 Housing Capacity. The proposed subdivision will provide housing in a compact urban form, which directly supports the intent of Metro's Housing Capacity requirements.

Title 3 Water Quality and Flood Management. The proposed development has been designed to preserve water quality resources and floodplain areas to the greatest extent feasible while still allowing development of the site. Consistent with Milwaukie's code, impacts to those areas will be mitigated and floodplain alterations will be done in accordance with local and federal requirements.

Title 7 Housing Choice. The proposed development will support Metro's Housing Choice policies by providing a needed housing type in Milwaukie that will be affordable to workers with moderate incomes.

Title 13 Nature in Neighborhoods. The proposed development supports these Metro policies by providing a large area of natural open space on the site that is contiguous to North Clackamas Park and protects the streamside vegetated corridor along Mount Scott Creek. The development will also comply with Milwaukie's Natural Resources code (Chapter 19.402), which protects habitat conservation and water quality resource areas on the site.

8. *The proposed amendment is consistent with relevant State statutes and administrative rules, including the Statewide Planning Goals and Transportation Planning Rule.*

Response: There are a number of directly relevant Statewide Planning Goals, which are briefly addressed below.

Goal 2 Citizen Involvement. Prior to submittal of the land use applications for this project, the applicant held a neighborhood meeting to discuss the proposal with surrounding neighbors. As noted previously in this narrative, changes to the overall development plan were made based on input during that meeting. Meeting materials are provided in Exhibit H. In addition, the review process for this application will include at least one hearing before the Planning Commission and one hearing before the City Council. Those hearings are open to the public and public notice will be provided consistent with the City's procedural code. Neighbors will have additional opportunity at those hearings to provide comment to the City prior to decisions.

Goal 5 Natural Resources. As noted previously, there are significant amounts of natural resources on the subject site, including wetlands, habitat conservation area, and mature trees. Impacts to those areas resulting from the proposed development have been minimized and over half the site will remain as natural open space. Impacts necessary to accommodate development on the site have been identified, and all applicable local, state and federal regulations have been addressed. Those regulations include the City’s Title 19 natural resources provisions, and joint DSL/USACE wetlands permitting.

Goal 7 Areas Subject to Natural Hazards. A significant amount of floodplain exists on the site and alteration of the floodplain will be necessary to accommodate the proposed development. Impacts to the floodplain have been identified and all applicable local floodplain regulations in the City’s Title 18 have been addressed. Federal requirements governing floodplain fill and management are being addressed in parallel to the local permitting effort.

Goal 12 Transportation and Transportation Planning Rule. As noted in the traffic impact study provided to the City, the proposed zoning map amendment “will not require changes to the functional classification of existing or planned transportation facilities, will not require a change to the standards implementing the comprehensive plan, and will not significantly affect a transportation facility. Accordingly, the proposed zoning map amendment does not result in a significant effect on the transportation system, and no further review of mitigation for Transportation Planning Rule purposes is necessary.”

Section 19.911 Variances

19.911.3 Review Process

C. Type III Variances

Type III variances allow for larger or more complex variations to standards that require additional discretion and warrant a public hearing consistent with the Type III review process. Any variance request that is not specifically listed as a Type II variance per Subsection 19.911.3.B shall be evaluated through a Type III review per Section 19.1006.

Response: The applicant is requesting two variances:

- A variance is requested to MMC 19.708.1.E.5 which states that “Closed-end street systems may serve no more than 20 dwellings.” Because the proposed subdivision has one access point on Kellogg Creek Drive, it is considered a closed-end street system and serves 92 dwellings, which exceeds the 20 dwelling maximum per this standard. This type of variance request is not specifically listed as a Type II variance; therefore a Type III variance is required.
- A variance is requested to the natural resource standards in MMC 19.402 pertaining to applications for subdivisions. Specifically, MMC 19.402.13.I.2.a states that, “All proposed lots shall have adequate buildable area outside of the WQR and HCA.” As indicated in the Natural Resources Report in Exhibit J (see Figure 5) approximately 25 of the proposed 92 lots do not meet this standard. Those lots are lots 41-44, 68, and 69-86. This type of variance request is not specifically listed as a Type II variance; therefore a Type III variance is required.

19.911.4 Approval Criteria

B. Type III Variances

An application for a Type III variance shall be approved when all of the criteria in either Subsection 19.911.4.B.1 or 2 have been met. An applicant may choose which set of criteria to meet based upon the nature of the variance request, the nature of the development proposal, and the existing site conditions.

1. Discretionary Relief Criteria

- a. The applicant's alternatives analysis provides, at a minimum, an analysis of the impacts and benefits of the variance proposal as compared to the baseline code requirements.*

Response:

Closed-end street system variance. This variance will allow preservation of the stand of mature Oregon white oak trees located in the southwest corner of the site. The originally submitted site plan for this project had two access points on Kellogg Creek Drive. However, that plan resulted in removal of approximately half of the existing white oaks. Based on extensive feedback from the City and community members, preservation of all the white oaks should be considered a top priority. For that reason, the lots that abut the white oak stand were shifted about 40 feet to the east in order to avoid impacts to the trees. To maintain the 92-lot count, the street system was redesigned with one access point on Kellogg Creek Drive to accommodate that 40-foot shift. The proposed site plan allows protection of the Oregon white oaks while maintaining the same number of lots. The proposed street system also maintains safe and convenient circulation for future residents of the subdivision. Emergency fire access is provided throughout the site. The Clackamas Fire District has reviewed this site plan and provided comments indicating that it will meet their fire access standards.

Adequate buildable area variance. As noted above, the requested variance impacts 25 of the 92 lots in the proposed Planned Development subdivision. Without the variance, those 25 lots could not be retained and the resulting Planned Development would be reduced to approximately 67 lots. That represents a significant reduction in the number of proposed lots, which would have a number of impacts:

- As proposed, the project proposes 92 lots, which represents an approximately 12 percent increase in the allowed maximum density for the site. The Planned Development provisions in MMC 19.311 allow a density bonus up to 20 percent if the project can demonstrate that it is “outstanding in planned land use and design” and provides amenities that would not otherwise be provided. This project proposes a number of design features and amenities that were included specifically to justify the proposed density increase. However, if the number of lots is reduced, the density bonus is no longer applicable and those amenities would no longer be necessary. In other words, without the proposed variance, project amenities such as the open space trail, additional landscaping, and community garden/play structure would not be provided.
- Although the proposed variance will result in impacts to areas of mapped natural resources on the site, those impacts will be minimized and mitigated. The result of the mitigation and enhancement activities will be an overall improvement in the quality of natural resource areas on the site. This is described in more detail in the responses below.
- As discussed in more detail below, the proposed variance will allow the project to provide 92 units of a needed housing type (attached single-family residential) for the City. Without the variance, the ability of the project to provide this type of housing (attached ownership units) at the identified price point (low to mid \$300,000 range) will be constrained.

The table below summarizes the impacts and benefits of the proposed project under baseline code requirements (i.e., without the variance) versus the proposed project with the requested variance.

Issue	Project without Variance	Project with Variance
Impacts natural resource areas	Minimal impacts to natural resources	HCA impacts: 0.95 acres WQR impacts: 0.80 acres
Improves and restores natural resource areas	No	Yes
Meets Minimum Density	No	Yes
Provides Community Amenities	No	Yes
Provides Needed Housing	Unlikely to provide needed attached single family housing type	Provides 92 attached single family units - providing a housing type that is identified as needed in the City's HNA

b. The proposed variance is determined by the Planning Commission to be both reasonable and appropriate, and it meets one or more of the following criteria:

(1) The proposed variance avoids or minimizes impacts to surrounding properties.

Response:

Neither variance request will have impacts to surrounding properties. The requested variances are internal to the subdivision site and will not change how the development interacts with, or impacts, surrounding uses. The Traffic Impact Study provided in Exhibit G demonstrates that traffic impacts from the proposed subdivision, with the requested variances, will not negatively impact functionality or safety of the public street system.

(2) The proposed variance has desirable public benefits.

Response:

Closed-end street system variance. The proposed variance will ensure that impacts to the stand of mature Oregon white oak trees can be avoided.

Adequate buildable area variance. The proposed variance will provide a number of public benefits that would otherwise not be provided.

- As noted above, the variance will allow the proposed Planned Development to achieve 92 lots, which utilizes the density bonus allowed by the Planned Development provisions. In response to the density bonus, the project includes public amenities (open space trail, community garden and additional landscaping). Without the variance, those public amenities would not be provided.
- This project specifically responds to the need for additional single family attached housing in Milwaukie. A recent housing needs analysis³ was prepared for the City to forecast housing needs over the next 20 years. That analysis identifies a need for over 1,000 new housing units. The majority (71 percent) of that housing is projected to be ownership housing, over half of which is projected to be an attached housing type. The proposed variance will allow the project to provide 92 units of attached housing for ownership, thereby supporting the City's goal to provide more of this type of needed housing. Without the variance, it is likely that the project would shift to a different housing type with larger lots and at a higher price point that would not provide the attached housing type needed in the City.

A memo prepared by Johnson Economics states the following (emphasis added):

³ Housing and Residential Land Needs Assessment, prepared by Johnson Economics, August 2016.

*“The proposed development is consistent with the observed trends in the residential market, and is expected to deliver a product that is consistent with identified market demand. **The subject site is particularly well suited for this type of development, with proximate parks and open space to complement the limited yard space provided in a townhome configuration. We would expect the project to appeal to a cost-sensitive starter family market, which will value the local amenity mix as well as proximity to employment and commercial services.***

*The development is requesting a Planned Development approval, which would allow for flexibility to deal with the site and natural resources. The site is split zoned, with portions zoned either R-10 or R-3. The R-10 zoning has a minimum lot size of 10,000 square feet, and would yield few units. Even under a duplex scenario, the zoning would require 14,000 square feet per duplex. The R-3 zoning allows for 3,000 square foot lots sizes, but with the level of natural resource on the site, a development would not be able to meet minimum density. **As zoned, any development on the site would necessarily be at a price point that would not be responsive to the local demand.***

*The proposed townhome development would allow for family-oriented units at a price point that meets identified demand, and can provide workforce housing. **It would help realize and expand the City’s housing capacity, increasing housing options for local residents as well as locally-employed households.”***

Without the requested variance to allow 92 lots, the project would not be able to deliver housing at a price point desired by the community and needed in the region.

(3) The proposed variance responds to the existing built or natural environment in a creative and sensitive manner.

Response:

Closed-end street system variance. This variance responds to the natural environment by allowing protection of the stand of mature Oregon white oaks located in the southwest corner of the site. As noted previously, the originally submitted site plan for this project had two access points on Kellogg Creek Drive. However, that plan resulted in removal of approximately half of the existing white oaks. Based on extensive feedback from the City and community members, preservation of all the white oaks should be considered a top priority. For that reason, the lots that abut the white oak stand were shifted about 40 feet to the east in order to avoid impacts to the trees. To maintain the 92-lot count, the street system was redesigned with one access point on Kellogg Creek Drive to accommodate that 40-foot shift. The proposed site plan allows protection of the Oregon white oaks while maintaining the same number of lots.

Adequate buildable area variance. The Planned Development site has a large amount of mapped natural resources that significantly limits the developable area. The proposed variance responds to this condition by ensuring that development encroachment areas are limited to areas that provide low habitat/water quality function and value. Mitigation proposed to compensate for encroachment into the mapped areas will result in an overall improvement in the quality and value of natural resource areas on the site.

Although impacts to natural resources will occur, those impacts have been identified and documented in the Natural Resource Report (Exhibit J). The report identifies areas of water quality resource (WQR) on the site and rates their quality according to definitions provided in MMC Chapter 19.402. The following summary describes those WQR areas:

- WQR area south of Mt. Scott Creek is Class A, or “good” quality. That area **is not** being impacted by the proposed variance.

- WQR area west of Wetland A is Class A, or “good” quality. That area **is not** being impacted by the proposed variance.
- WQR areas east and south of Wetland A are Class C, or “poor” quality. Those are the areas that will be impacted by the proposed variance.

In addition, the habitat conservation area (HCA) located at the northern edge of the proposed subdivision (impacted by lots 69-86) is not good quality wildlife habitat. This area is primarily composed of non-native, weedy plant species and lacks vegetation structure and diversity. As such, it provides less wildlife habitat than those areas that are forested and have a more diverse understory. The Natural Resources Report states the following:

“The development has been designed taking into consideration the City’s building, design, and development requirements, while avoiding and minimizing resource impacts to the greatest extent practicable, and still allowing the project to be financially feasible. As such development in the WQR and HCA has been limited to the outer portions of each, in areas that are of lowest quality.”

The proposed variance responds to the natural environment by limiting impacts to primarily those natural resource areas that have been identified as low or poor quality. Mitigation and enhancement activities on the site (discussed more in the response below) will ensure that the overall quality of natural resource areas will be improved.

c. Impacts from the proposed variance will be mitigated to the extent practicable.

Response:

Closed-end street system variance. Possible impacts from the proposed variance include emergency access concerns. The street system has been designed consistent with comments provided by the Clackamas Fire District in their review of the revised site plan. The district made several recommendations related to fire access; all of those recommendations have been implemented on the site.

Adequate buildable area variance. As proposed, the subdivision will impact 0.95 acres of habitat conservation area and 0.80 acres of water quality resource. The Natural Resource Report provided in Exhibit J describes in detail how the natural resource impacts from the proposed variance will be minimized and mitigated. Those measures include:

- A construction management plan that describes how erosion and sediment control measures will protect natural resource areas during construction activities.
- A tree protection plan that describes how trees will be protected during construction.
- Natural resource areas that will be temporarily disturbed during construction will be restored and improved through removal of invasive plant species and replanting with native species suitable to the site that will enhance habitat value.
- Natural resource areas that will be permanently disturbed will be mitigated on the site consistent with requirements in MMC Chapter 19.402 and with federal requirements for mitigation of wetland impacts (through the joint DSL and COE permit process). Mitigation areas are shown on Figure 9 and will include:
 - Inventory and removal of man-made debris and noxious materials that are located on the site, as identified in the Geo-Technical Report in Exhibit F.
 - Removal of non-native, invasive plant species from the riparian corridor along Mt. Scott Creek.

- Installation of tree and shrubs within the remaining natural resource areas and floodplain storage area to restore a diverse, native plant community.
- Bare or open soil areas will be seeded to 100 percent surface coverage with native grasses and other groundcover species.
- Woody material will be placed in the mitigation and restoration areas after construction to maximize survival of the plantings.
- Monitoring of the mitigation and restoration areas will occur in the two years following construction. Annual monitoring reports will be submitted to the City consistent with requirements in MMC 19.402.

In addition to required mitigation, the project will provide further enhancement to two areas on the site. Those areas are shown as Additional Enhancement Areas A and B on the revised Figure 9 from the Natural Resources Report. Enhancement Area A is approximately 0.34 acres and is located north of Mt. Scott Creek. Enhancement Area B is approximately 0.12 acres and is located south of Mt. Scott Creek and Highway 224 in the eastern corner of the site. Both of those areas will be enhanced through the removal of man-made debris, removal of invasive plant species and planting with native trees, shrubs and seed mix. Those plantings will improve the native plant community, vegetation structure and diversity – all of which will improve the overall quality of wildlife habitat on the site. The planting lists for the mitigation area and the two additional enhancement areas are shown on Figure 9A of the Natural Resources Report.

As a result of mitigation and enhancement activities on the site, the Natural Resource Report describes the overall impacts of the project as follows:

“The proposed project is not anticipated to have any adverse impacts to water quality. The use of erosion and sediment controls during construction will prevent sediment-related impacts to water quality. The proposed project is not anticipated to result in additional nutrient inputs to the stream, and the restoration of the floodplain on the south side of Mt. Scott Creek will increase shade on the stream as the riparian plantings mature, helping to reduce water temperatures in the stream.”

The report further states that (emphasis added),

“Implementation of the proposed mitigation will ensure the proposed project minimizes adverse effects to the ecological functions of the WQR and loss of habitat, as follows:

- *The minimization of areal impacts as well as the proposed plantings to restore native plant communities on the south side of Mt. Scott Creek, along the northeast and south sides of Wetland A, and within the floodplain storage area will ensure that the WQR continues to provide vegetated corridors that separate protected water features from development.*
- *As the proposed tree and shrub plantings south of Mt. Scott Creek, around Wetland A, and within the floodplain storage area mature, they will increasingly provide microclimate regulation and shade for the stream and wetland, and **provide better microclimate regulation and shade as compared to the existing plant communities.***
- *As the proposed tree and shrub plantings south of Mt. Scott Creek, around Wetland A, and the floodplain storage area mature, they **will provide more effective streamflow moderation during high flow events than the herbaceous plant community, predominantly composed of reed canarygrass, that is present under existing conditions.***
- *The diverse plant community within the WQR, HCA and floodplain storage area will continue to provide water filtration, infiltration, and natural purification functions. The proposed project will not adversely affect these functions.*

- *The proposed restoration plantings and the resulting diverse plant community within the WQR, HCA and floodplain storage area will continue to provide bank stabilization and sediment and pollution control functions. The proposed project will not adversely affect these functions.*
- *Trees will remain within the vegetated corridor following construction, and therefore, the WQR will continue to provide the potential for large wood recruitment and retention functions. No impacts are proposed for the creek, and therefore, there will be no adverse impact on channel dynamics.*
- *Because the WQR will continue to be vegetated with a diverse plant community, the proposed project will not adversely affect the resource's ability to provide organic inputs to the stream and riparian area."*

III. COMPLIANCE WITH CITY OF MILWAUKIE COMPREHENSIVE PLAN

This section contains responses to applicable Comprehensive Plan goals and policies. Where specific policy language was not particularly relevant to this application, the overall goal statement is addressed instead.

Chapter 1 Citizen Involvement

GOAL STATEMENT: To encourage and provide opportunities for citizens to participate in all phases of the planning process, to keep citizens informed and to open lines of communication for the sharing of questions, problems and suggestions regarding the Comprehensive Plan and land use regulations

Response: Consistent with Citizen Involvement goals, the applicant held a neighborhood meeting on November 3, 2016 to discuss the proposed project with surrounding property owners and the Lake Road Neighborhood District Association (NDA). A letter of invitation to the meeting was mailed to all property owners within a 500-foot radius of the site. The Chair of the Lake Road NDA was also contacted (via email and telephone) to inform the NDA of the meeting and invite them to attend. The meeting was held at the Turning Point Church, which is directly adjacent to the project site. Approximately 30 people attended the meeting. See Exhibit H for meeting materials.

During the meeting, the consultant team presented an overview of the proposed site plan and explained the review process that will be required in order to approve the project. The consultant team included the project civil engineers, traffic engineer, biologist and land use planner. The applicant and property owner (Turning Point Church) were also present at the meeting. Neighbors expressed some concerns during the meeting as noted below.

- Neighbors were concerned that proposed development on the site could exacerbate existing flooding issues that occur in the area. Subsequently, the site plan was revised to significantly reduce impacts to the floodplain area. In addition, the applicant will comply with all Milwaukie Title 18 floodplain alteration provisions and applicable FEMA flood map revision requirements. Those provisions and processes are in place to ensure floodplain alterations do not negatively impact surrounding development.
- Neighbors were concerned that traffic resulting from the development will add congestion, delays and safety issues on surrounding streets and intersections. The applicant has submitted a traffic impact study to the City, which has been reviewed and discussed during the required TIS pre-application meeting. The traffic study identifies anticipated impacts from the proposed development and mitigating improvements that will be constructed as part of the development. Per the study, intersections within the study area are expected to continue to operate at acceptable levels after the proposed development is complete.
- Neighbors were concerned that there are too many lots proposed on the site. Subsequently, the development plan was revised and the total number of lots was reduced from 99 to 92. Compatibility with the surrounding neighborhood has been discussed previously in this narrative and must be balanced with other interests such as protection of natural resources and the need for more housing in Milwaukie.

In addition to the neighborhood meeting, citizens will be notified by the City when the applications are submitted and deemed complete for review. They will have an opportunity to provide written comment on the application during the public comment period prior to the public hearings. Citizens will also have the ability to provide written or oral testimony during the public hearings before the Planning Commission and City Council. The City provides such notice to all property owners within a 300-foot radius of the project site, consistent with City procedural code.

Chapter 2 Plan Review & Amendment Process

GOAL STATEMENT: Establish a Plan review and amendment process as a basis for land use decisions, provide for participation by citizens and affected governmental units, and ensure a factual base for decisions and actions.

Response: Policies under Chapter 2, Objective #2 require that zone changes and other planning actions be consistent with the intent of the Comprehensive Plan. This application supports those policies by providing these findings to demonstrate conformance with applicable Comprehensive Plan goals and policies. As noted in the response to Chapter 1 above, opportunities for participation by citizens and affected governmental units has been, or will be, provided through the neighborhood meeting and the City's public notice and hearings processes.

Chapter 3 Environmental & Natural Resources

NATURAL HAZARDS ELEMENT

Floodplain Policies

1. *New construction and development will be regulated so that water flow will not be increased. The capacity of the floodplain shall not be reduced by development activities.*

Response: The capacity of the floodplain will not be reduced by the proposed development activities. Balanced cut and fill of the floodplain will be conducted on the site to accommodate the proposed development. Milwaukie's Title 18 floodplain alteration provisions will be met and the applicant has provided this information to the City. In addition, FEMA flood map revision requirements will also be addressed through a separate process.

2. *Construction materials which may be inundated will be of such strength and quality that they will not deteriorate, and they must be able to withstand the pressure and velocity of flowing water.*

Response: Areas of residential construction will be filled to ensure that the surface of residential foundations is at least one foot above the base flood elevation. Therefore, no residential construction areas will fall within the inundation area of a 100-year flood event.

3. *The finished elevations of the lowest floor of buildings and streets will be a minimum of 1.0 foot above the 100 year flood elevation.*

Response: Finished elevations of the lowest floor of buildings and streets will be at least one foot above the 100-year flood elevation.

4. *Whenever possible, the floodplain will be retained as open space and used for recreation, wildlife areas, or trails. Dedication of lands or public easements within the floodplain is encouraged when indicated by the Recreational Needs Element, and may be required as a condition of development along creeks and rivers or other water bodies or wetlands.*

Response: Floodplain on the site will be largely left as natural open space and will be accessible to residents for recreational purposes via a soft-surface trail system, as described and shown previously in this narrative.

OPEN SPACES, SCENIC AREAS, AND NATURAL RESOURCES ELEMENT

Natural Resource Policies

1. *Protect designated natural resources and their associated values through preservation, intergovernmental coordination, conservation, mitigation, and acquisition of resources.*

Response: The natural resources on the site (habitat conservation area and wetlands) will be protected to the greatest extent possible while allowing the applicant to provide efficient and compact residential development.

All impacts to protected areas will be done in accordance with applicable local and federal regulations, including MMC Chapter 19.402 for Natural Resources and the joint DSL/USACE wetlands permitting process. Impacts will be mitigated as required through those processes.

2. *Provide protection to important wetland and water body areas through designation of riparian area buffers between natural resources and other urban development activities. Restrict non-water dependent development within the riparian buffer area.*

Response: Chapter 19.402 of the Milwaukie code establishes vegetated corridor width requirements for protected water features, including those found on the subject site, and restricts activity within those corridors. As part of a separate and concurrent application package, the applicant has submitted a Natural Resources review application to demonstrate consistency with Chapter 19.402 regarding habitat conservation area and water quality resources. A Natural Resource Review report is provided in Exhibit J.

3. *Maintain and improve water quality of wetlands and water bodies by regulating the placement and design of stormwater drainage facilities.*

Response: Placement and design of stormwater facilities has been provided to the City in the Drainage Report in Exhibit E and the plans in Exhibit A. Those facilities have been designed consistent with City standards and requirements.

4. *Protect existing upland areas and values related to wildlife habitat, groundwater recharge, and erosion control.*

- *Encourage the development of open spaces and increased vegetation for wildlife habitats.*
- *Protect steep slopes from erosion through the use of vegetation.*
- *Provide protection between the resource and other urban development.*

Response: Chapter 19.402 of the Milwaukie code establishes regulations and requirements for habitat conservation areas, including those found on the subject site. As part of a separate and concurrent application package, the applicant has submitted a Natural Resources review application to demonstrate consistency with Chapter 19.402 regarding habitat conservation area and water quality resources.

Chapter 4 Land Use

RESIDENTIAL LAND USE AND HOUSING ELEMENT

Buildable Land Policies

1. *Policies and standards found in the Historic Resources, Natural Hazard and Open Spaces, Scenic Areas, and Natural Resources Elements of the Environmental and Natural Resources Chapter apply, where applicable, throughout the City. Through its regular zoning, building and safety enforcement process, the City will implement those policies in Special Policies Classification areas and direct urban development toward more suitable areas through density transfer.*

Response: The proposed development supports this policy by transferring available density from the portion of the site with natural resources to the portion of the site more suitable for development.

2. *Prior to the approval of any building permit or other development approval, the developer of any vacant land within special policies classification areas must submit a report indicating how the applicable policies in the Environmental and Natural Resources Chapter are to be met. The report will describe the proposed type of site preparation and building techniques, how these techniques meet the applicable policies, and the mitigative measures, if any, proposed to lessen impacts during construction.*

Response: Applicable policies from the Environmental and Natural Resources chapter of the Comprehensive Plan are provided in the above section of this narrative.

Residential Land Use Design Policies

2. *In all Planned Unit Developments, a density bonus up twenty percent (20%) over the allowable density may be granted in exchange for exceptional design quality or special project amenities.*

Response: As noted previously, and reiterated here, the maximum number of units that would be allowed on the site per the underlying zoning is 82 units. The proposed development has 92 units. This represents an approximately 12 percent increase in density, which is less than the 20 percent maximum increase afforded by the PD Zone. There are a number of unique and “outstanding” amenities provided with this proposed development that meet the intent of this standard:

- Just over half of the 14-acre site will be preserved as open space to minimize impacts to important natural resources, including habitat conservation area, floodplain, mature trees and wetlands. Residents of the development and the public will have access to these natural open spaces via a soft-surface trail system that will travel throughout the site. The trail will connect to a paved pedestrian/bicycle path at the northeast corner of the site near the intersection of Rusk Road and Highway 224.
- The site has been designed to avoid impacts to the large stand of mature Oregon white oak trees located in the southwest corner of the site. These trees have been identified extremely valuable and their protection is a high priority for the City and community members. Lots have been shifted as far east as possible to allow the oaks to remain on the site. In addition, the required half-street improvement along Kellogg Creek Drive has been altered (in collaboration with City Engineering staff) to avoid any tree removal associated with frontage improvements. As a result, all Oregon white oaks on the site will remain and be protected. The project arborist, Morgan Holen & Associates, LLC, has provided a supplemental memo dated June 11, 2017 that identifies specific tree protection measures that can be taken during construction to avoid damage to the white oaks.
- The site has been designed to create a sense of permeability between the natural open spaces and the developed portion of the site. In the southwest portion of the development, 12 homes will have yards that back up to the stand of large Oregon white oak trees. The backyards of those lots will have low (4-foot height) fencing made of black cyclone material to provide visibility and a sense of openness to the natural area while providing privacy and security for individual home owners. In addition, Street A has been designed to travel along the large protected wetland to provide visual access into the natural area in the northwest portion of the site. There are no homes located along the western edge of Street A through that area, which allows views into the natural area from the developed part of the site.
- The larger water quality facilities have been designed and located in order to provide views into the open space areas beyond them. The water quality facilities will be planted with low-lying grasses and will not be fenced, so they will provide a sense of openness for the nearby homes, as well as vehicles and pedestrians traveling through the site.
- A community garden will be provided on the site in Tract D for use by residents of the development (see Figure 4). That garden (approximately 3,100 square feet) will include raised planter beds, gravel pathways and a water source. The garden will be fenced and gated for security and will be managed by the future homeowners association.
- A play structure will also be provided adjacent to the community garden in Tract D for use by the residents of the development and church visitors. This structure will replace the existing church play structure that will be removed as part of this project.

- Additional trees will be planted where the site abuts Highway 224 in the northeastern corner to provide some additional screening for those lots that are located closest to that property line.
- The proposed development will provide 92 units of attached single-family housing. Those rowhouse units will be available for ownership at a price point that is affordable for working people with moderate incomes (referred to as workforce housing). The need for this type of housing at this price point was well-established in the housing needs analysis prepared for the City at the end of 2016. This was further clarified in a memo prepared by Johnson Economics⁴ on behalf of the applicant. That memo states (emphasis added):

*“The proposed development is consistent with the observed trends in the residential market, and is expected to deliver a product that is consistent with identified market demand. **The subject site is particularly well suited for this type of development, with proximate parks and open space to complement the limited yard space provided in a townhome configuration. We would expect the project to have appeal to a cost-sensitive starter family market, which will value the local amenity mix as well as proximity to employment and commercial services.**”*

*The development is requesting a Planned Development approval, which would allow for flexibility to deal with the site and natural resources. The site is split zoned, with portions zoned either R-10 or R-3. The R-10 zoning has a minimum lot size of 10,000 square feet, and would yield few units. Even under a duplex scenario, the zoning would require 14,000 square feet per duplex. The R-3 zoning allows for 3,000 square foot lots sizes, but with the level of natural resource on the site, a development would not be able to meet minimum density. **As zoned, any development on the site would necessarily be at a price point that would not be responsive to the local demand.**”*

*The proposed townhome development would allow for family-oriented units at a price point that meets identified demand, and can provide workforce housing. **It would help realize and expand the City’s housing capacity, increasing housing options for local residents as well as locally-employed households.”***

See Exhibit K for the full memo. It’s important to note the language about price point above because it directly relates to the density increase. Without the proposed 12 percent density increase to 92 lots, this project would not be economically feasible and would not be able to deliver housing at the needed price point. Simply stated, fewer lots means a higher price point.

- The proposed development will be compact, with small individual lots on a connected street system in close proximity to a large public park with convenient access to a major arterial (Highway 224). The development is located less than 2.5 miles from downtown Milwaukie. This type of development is consistent with the housing trends that are anticipated to occur in Milwaukie over the next 20 years, as identified in the 2016 housing analysis. Those trends include the need for more dense and efficient development within the city limits, migration to urban areas, the desire for smaller homes in well-planned and safe communities, and the need for workforce housing.

3. *All Planned Unit Developments will have area devoted to open space and/or outdoor recreational areas. At least half of the open space and/or recreational areas will be of the same general character as the area containing dwelling units. Open space and/or recreational areas do not include public or private streets.*

Response: As demonstrated previously in this narrative, the proposed PD development will provide at least one-third of the site as open space and at least half of that open space will be usable and of the same general character as the area containing dwellings.

⁴ Johnson Economics also prepared the 2016 Housing Needs Analysis for the City of Milwaukie.

4. *All projects in Medium Density and High Density areas will have area devoted to open space and/or outdoor recreational areas. At least half of the open space and/or recreational areas will be of the same general character as the area containing dwelling units. Open space and/or recreational areas do not include public or private streets and parking areas, but may include private yards.*

Response: As demonstrated previously in this narrative, the proposed PD development will provide at least one-third of the site as open space and at least half of that open space will be usable for recreation (walking paths) and of the same general character as the area containing dwellings.

5. *In all cases, existing tree coverage will be preserved whenever possible, and areas of trees and shrubs will remain connected particularly along natural drainage courses.*

Response: As shown on the Tree Protection and Removal Plan (Sheet C101) in Exhibit A, the majority of existing trees on the site will be preserved, particularly the stand of Oregon white oak trees at the western edge of the site. The Arborist Report in Exhibit I notes that of the existing 221 trees identified on the site, 36 trees (17 percent of the total) will be removed to accommodate development. Of those 36 trees, approximately a third of them were identified as being in poor condition. Trees located along Mt Scott Creek at the northern end of the site will be preserved and protected during development.

6. *Specified trees will be protected during construction, in accordance with conditions attached to building permits.*

Response: Trees to remain on the site will be protected in accordance with recommendations in the Arborist Report (Exhibit I) and any conditions attached to building permits.

7. *Sites within open space, natural hazard or natural resource areas will be protected according to specifications in the Natural Hazard and Natural Resources Elements.*

Response: As demonstrated in the responses above, the proposed development will protect natural resources according to applicable policies and Chapter 19.402 of the Milwaukie code.

Housing Choice Policies

2. *The City will encourage the development of larger subdivisions and PUDs that use innovative development techniques for the purpose of reducing housing costs as well as creating an attractive living environment. Such techniques to reduce costs may include providing a variety of housing size, type, and amenities. The City may provide density bonuses, additional building height allowances, or other such incentives for the provision of affordable housing in residential development projects. Overall project density may not exceed the allowable density plus ten (10) percent, which may be added to the Planned Unit Development bonus.*

Response: The proposed zone change supports this policy by facilitating development of a Planned Development that will provide a housing type that is not commonly found in Milwaukie. Per the housing needs analysis prepared for the City in 2016, single-family attached housing accounts for only 1.6 percent of total housing units in Milwaukie. This proposed development will help the City achieve a greater variety of housing type and a greater number of units that will be affordable to workers with moderate incomes (workforce housing). The proposed development will create an attractive living environment that includes unified building design, large amounts of open space with recreational opportunities, and fully improved streets with landscape strips and street trees.

RECREATIONAL NEEDS ELEMENT

Private Recreation Policies

3. *New residential projects not corresponding to areas of deficient park land as identified in the Parks and Recreation Master Plan will ensure adequate space and/or facilities are provided to meet the recreational needs of residents of the project, especially children. New projects may also be subject to a systems development charge for park and recreation improvements. Standards for private playlots will be established in the Parks and Recreation Master Plan. If playlots are required by the Planning Commission, the allowable density on the remaining lands may be increased, so that overall parcel density remains the same.*

Response: The site is located directly adjacent to the North Clackamas Park, which is a 47-acre park that provides a wide variety of park amenities. In addition, the proposed development provides a large area of open space (approximately 7 acres) that will be accessible to the public and residents of the development via a soft-surface trail system that travels throughout the site.

Chapter 5 Transportation, Public Facilities and Energy Conservation

TRANSPORTATION ELEMENT

Response: The transportation element of the Comprehensive Plan is the City's Transportation System Plan (TSP). Consistency with the City's TSP is established in the traffic impact study provided to the City. That study concluded that the proposed zoning map amendment will not result in significant impacts to the surrounding transportation system.

PUBLIC FACILITIES AND SERVICES ELEMENT

Response: Generally, the policies contained in this section are intended to ensure orderly and efficient arrangement of public facilities and services to serve new development. As demonstrated in the Composite Utility Plan (Sheet C400) in Exhibit A and the Drainage Report in Exhibit E, public utilities are available and adequate to serve the site. The proposed development will extend those public utilities to serve new homes constructed on the site. Stormwater management will occur on the site, consistent with City regulations. Specifically:

- **Water** – The site is within the Clackamas River Water (CRW) district and will connect to an existing CRW water main located in SE Kellogg Creek Drive. The applicant will construct new water lines within the right-of-way of new public streets on the site to serve the proposed residential units. Proposed utilities are shown on the Composite Utility Plan (Sheet C400) in Exhibit A.
- **Sewer** – There is a Clackamas County wastewater main located along the western and northern property lines of the site and is available to serve the proposed development. The applicant will construct an 8-inch PVC sewer line within the right-of-way of new public streets on the site and will connect this line to the existing sewer main north of the site. Proposed utilities are shown on the Composite Utility Plan (Sheet C400) in Exhibit A.
- **Stormwater** – The applicant has submitted a preliminary stormwater report prepared by a qualified professional engineer as part of this application (see Exhibit E). The report explains how stormwater runoff will be managed on the site and demonstrates that post-development runoff will not exceed pre-development runoff. The report also demonstrates consistency with the City's water quality standards.

ENERGY CONSERVATION ELEMENT

Response: The policies in this section encourage energy efficiency through the use of land use patterns and transportation systems. This proposal supports these policies by providing a dense residential community in close proximity to a large employment corridors located directly across Highway 224 and along I-205.

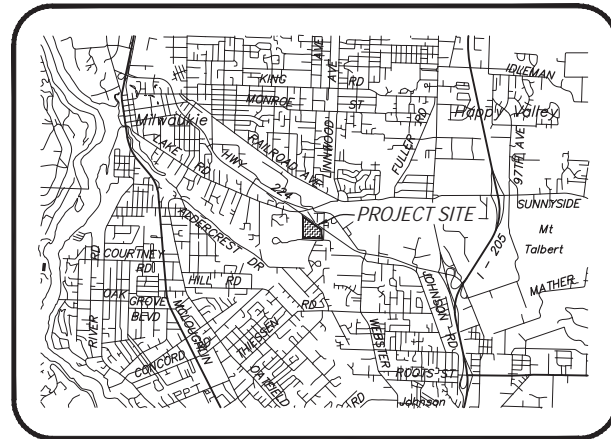
IV. CONCLUSIONS

As established in the discussion and responses provided in this narrative, the proposed Planned Development and associated zone change and variances are consistent with City standards and criteria. Approval of this application will facilitate development of a project that will preserve and protect natural resources, contribute to the overall variety of housing types and development patterns in Milwaukie, and provide a needed housing type in close proximity to a large employment center.

KELLOGG CREEK

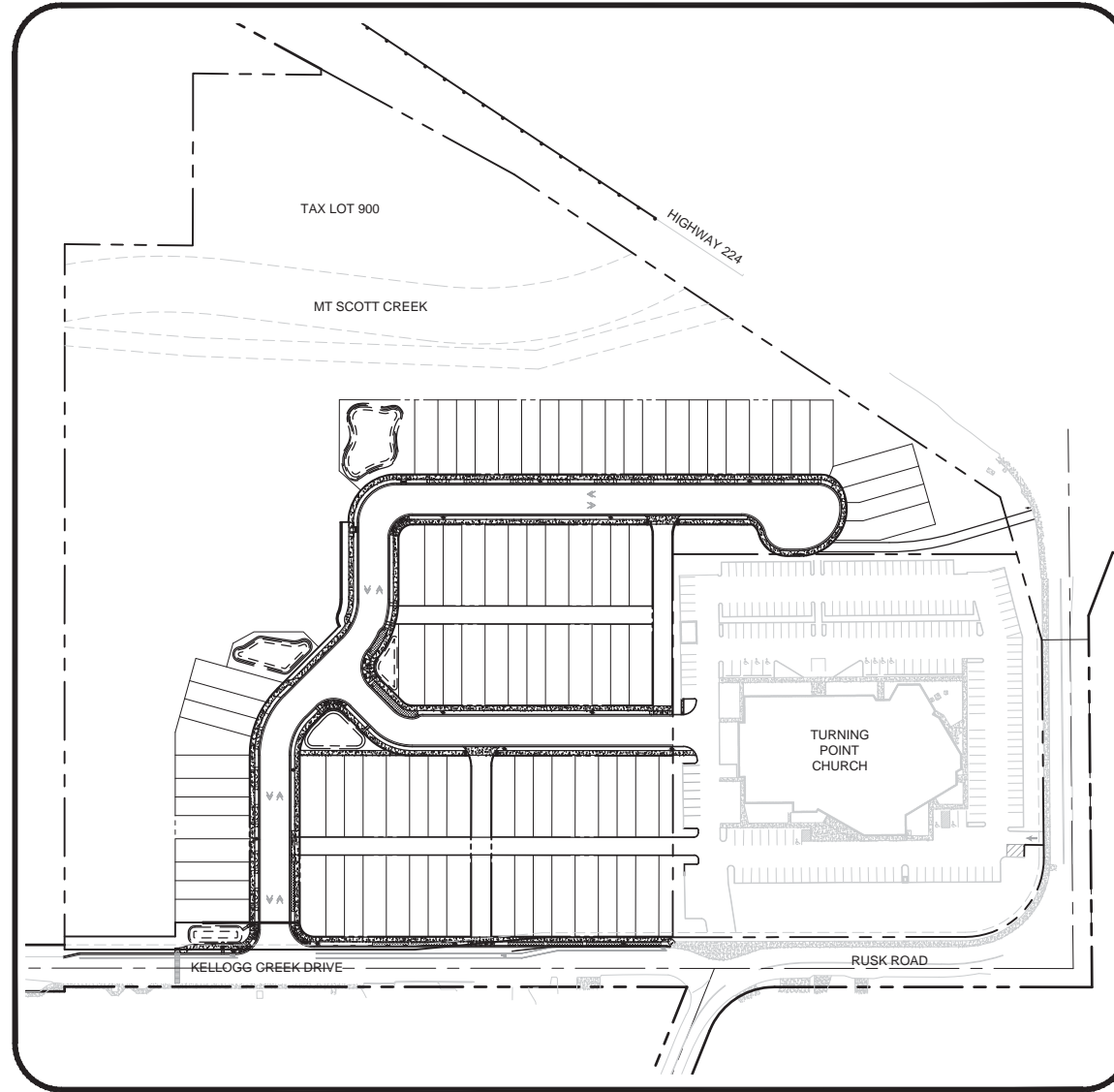
Planned Development Subdivision Application Milwaukie, Oregon

July, 2017



VICINITY MAP

SCALE: NTS



SITE MAP

SCALE: NTS



SHEET INDEX

C000	COVER SHEET
C100	EXISTING CONDITIONS
C101	TREE PROTECTION & REMOVAL PLAN
C102	TREE PROTECTION & REMOVAL PLAN
C200	PRELIMINARY LOT LINE ADJUSTMENT
C201	PRELIMINARY PLAT
C202	TYPICAL STREET SECTIONS
C300	GRADING PLAN
C400	COMPOSITE UTILITY PLAN
C500	PUBLIC IMPROVEMENT PLAN
L100	LANDSCAPE PLAN
L110	LANDSCAPE ENLARGEMENTS
A100	BUILDING PLANS AND ELEVATIONS
A2	ALLEY MAIN FLOOR
A4	ALLEY UPPER FLOOR
A6	ALLEY FOUR-PLEX ELEVATIONS
2.0	FOUR-PLEX MAIN FLOOR PLAN
4.0	FOUR-PLEX UPPER FLOOR PLAN
6.0	FOUR-PLEX ELEVATIONS
7.0	FOUR-PLEX ELEVATIONS
7.1	FOUR-PLEX STREET SIDE ELEVATIONS



PROJECT TEAM

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GEO CONSULTANTS NORTHWEST
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824 SE 12TH AVE
PORTLAND, OR 97214
(503) 616-9425

KELLOGG CREEK SUBDIVISION

COVER SHEET

BROWNSTONE DEVELOPMENT

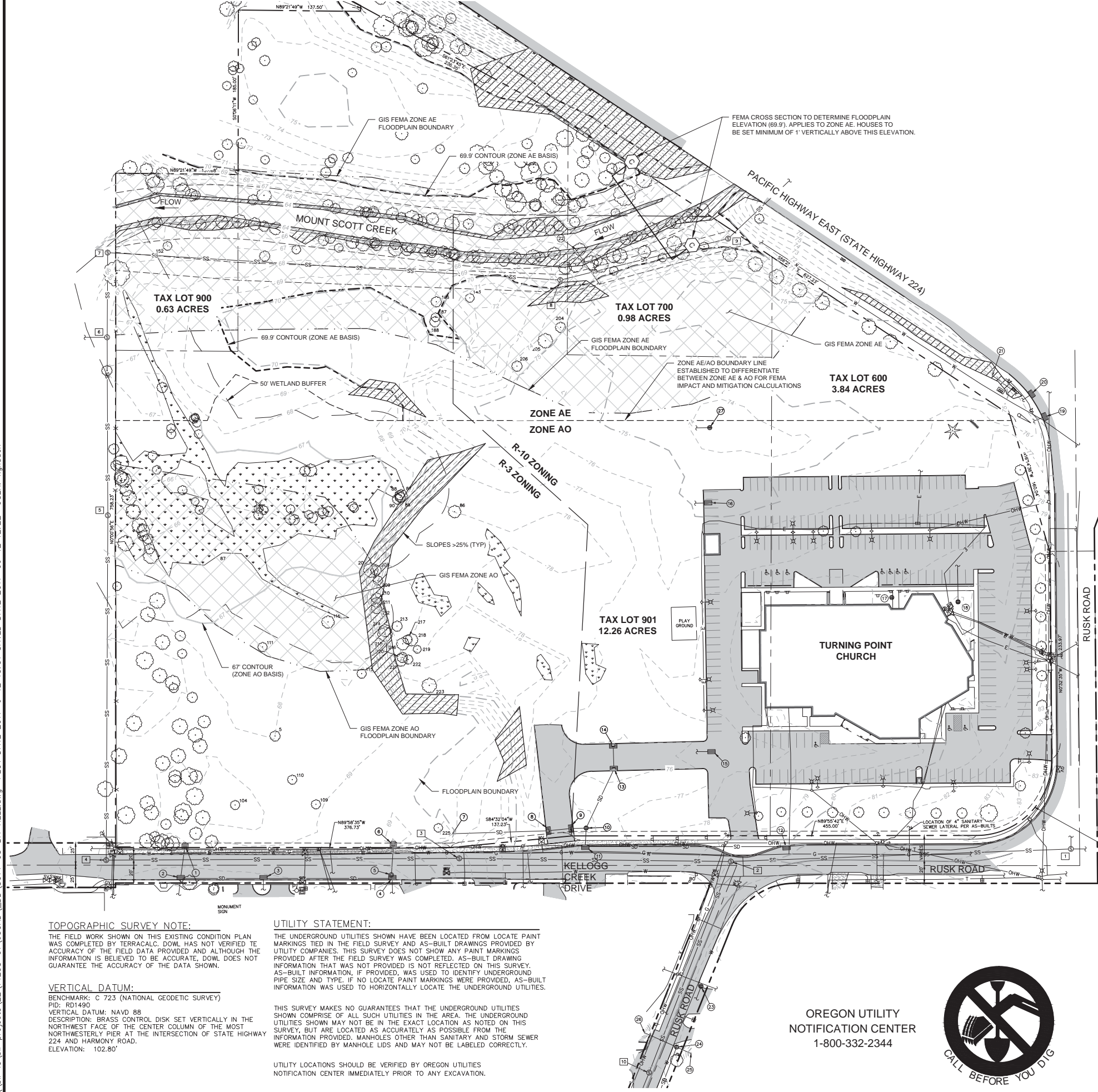
MILWAUKIE, OREGON
SE1/7 NE1/4 SEC. 6 T2S R2E W.M. EXISTING TAX LOTS 600, 700, 900, 901

PROJECT 14258-01
DATE 06/12/2017

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SHEET

C000



LEGEND:

- EXISTING ASPHALT
- EXISTING CONCRETE
- EXISTING GRAVEL
- EXISTING SLOPES GREATER THAN 25%
- EXISTING WETLAND
- STORM DRAINAGE LINE
- SANITARY SEWER LINE
- UNDERGROUND TELECOMMUNICATION LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND WATER LINE
- FENCE
- OVERHEAD POWER LINE
- GAS LINE
- DECIDUOUS TREE
- CONIFEROUS TREE
- SIGN
- TRAFFIC SIGNAL POLE
- SANITARY SEWER MANHOLE
- STORM DRAINAGE MANHOLE
- CATCH BASIN
- AREA DRAIN
- DITCH INLET
- ELECTRICAL VAULT
- COMMUNICATIONS VAULT
- WATER VAULT
- ELECTRICAL METER
- ELECTRICAL RISER
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- FIRE DEPARTMENT CONNECTION
- SPRINKLER VALVE
- GAS VALVE
- COMMUNICATIONS RISER
- ELECTRIC JUNCTION BOX
- SIGNAL JUNCTION BOX
- BOLLARD
- LIGHT POLE
- SIGNAL POLE
- PEDESTRIAN SIGNAL POLE
- UTILITY POLE
- GUY ANCHOR
- HANDICAPPED PARKING SPACE
- EXTG MAJOR CONTOUR
- EXTG MINOR CONTOUR
- FLOOD PLAIN (100 YEAR)
- LOT LINE
- BOUNDARY LINE
- RIGHT OF WAY LINE
- CENTERLINE
- ZONING DELINEATION

SANITARY SEWER TABLE:

1	SANITARY SEWER MANHOLE RIM=62.78' IE 8" CONC (N)=68.77' IE 12" CONC (E)=68.54' IE 12" CONC (W)=68.50'
2	SANITARY SEWER MANHOLE RIM=79.05' IE 8" CONC (S)=68.12' IE 12" CONC (E)=67.60' IE 12" CONC (W)=67.55'
3	SANITARY SEWER MANHOLE RIM=71.50' IE 12" CONC (E)=63.83' IE 12" CONC (W)=63.83'
4	SANITARY SEWER MANHOLE RIM=68.97' IE 12" CONC (E)=62.99' IE 12" CONC (N)=62.54'
5	SANITARY SEWER MANHOLE RIM=66.79' IE 12" CONC (S)=60.82' IE 12" CONC (N)=60.78'
6	SANITARY SEWER MANHOLE RIM=66.57' IE 12" CONC (S)=53.59' IE 42" CONC (N)=51.77' IE 42" CONC (W)=51.68'
7	SANITARY SEWER MANHOLE RIM=65.51' IE 42" CONC (E)= IE 42" CONC (S)=
8	SANITARY SEWER MANHOLE RIM=69.73' IE 42" CONC (E)=52.94' IE 42" CONC (W)=52.94'
9	SANITARY SEWER MANHOLE RIM=70.91' IE 42" CONC (NE)=53.40' IE 42" CONC (W)=53.21'

STORM DRAINAGE TABLE:

1	DITCH INLET GRATE=67.40' IE 12" CPP (S)=66.15'
2	CATCH BASIN GRATE=67.40' IE 6" PVC (S)=65.95' IE 12" CPP (N)=65.93' IE 12" CONC (E)=65.88'
3	CATCH BASIN GRATE=67.79' IE 8" PVC (S)=65.72' IE 12" CONC (W)=65.62' IE 12" CONC (E)=65.62'
4	CATCH BASIN GRATE=68.47' IE 12" CONC (W)=65.22' IE 12" CONC (NW)=65.42' IE 12" CONC (S)=65.17'
5	STORM DRAINAGE MANHOLE RIM=68.65' IE 12" CONC (N)=65.29' IE 12" CONC (SE)=65.58'
6	DITCH INLET GRATE=67.83' IE 12" CONC (S)=65.69'
7	IE 12" CPP (E)=69.69'
8	CATCH BASIN GRATE=75.17' IE 12" CPP (E)=70.89' IE 12" CPP (W)=70.89'
9	CATCH BASIN GRATE=75.11' IE 12" CPP (E)=71.41' IE 12" CPP (W)=71.41'
10	AREA DRAIN GRATE=75.57' IE 12" CPP (N)=72.36' IE 12" CONC (S)=72.23' IE 12" CPP (W)=71.86'
11	CATCH BASIN GRATE=76.05' IE 12" CONC (E)=74.27' IE 12" CONC (N)=73.25'
12	CATCH BASIN GRATE=79.51' IE 12" CONC (W)=76.32'
13	CATCH BASIN GRATE=75.01' IE 12" CPP (N)=72.42' IE 12" CPP (S)=72.59'
14	CATCH BASIN GRATE=75.03' IE 12" CPP (S)=72.70'
15	CATCH BASIN/OIL TRAP GRATE=76.12' WATER LEVEL=75.00' COULD NOT OPEN TRAP
16	CATCH BASIN/OIL TRAP GRATE=73.86' WATER LEVEL=73.16' COULD NOT OPEN TRAP
17	AREA DRAIN GRATE=77.52'
18	AREA DRAIN/OIL TRAP GRATE=77.60' WATER LEVEL=76.89' COULD NOT OPEN TRAP
19	CATCH BASIN GRATE=76.41' IE 12" CONC (SW)=74.65'
20	CATCH BASIN GRATE=76.14' IE 12" CONC (SW)=74.09'
21	IE 16" CPP (E)=72.59'
22	IE 12" PVC (SE)=64.71'
23	AREA DRAIN GRATE=77.39' IE 3" PVC (S)=76.74'
24	AREA DRAIN GRATE=76.08' IE 24" CONC (E&W)=71.42'
25	IE 24" CONC (W)=71.63'
26	IE 24" CONC (E)=70.95'
27	AREA DRAIN GRATE=72.78' WATER LEVEL=72.03' COULD NOT OPEN TRAP

TOPOGRAPHIC SURVEY NOTE:
THE FIELD WORK SHOWN ON THIS EXISTING CONDITION PLAN WAS COMPLETED BY TERRACALC. DOWL HAS NOT VERIFIED THE ACCURACY OF THE FIELD DATA PROVIDED AND ALTHOUGH THE INFORMATION IS BELIEVED TO BE ACCURATE, DOWL DOES NOT GUARANTEE THE ACCURACY OF THE DATA SHOWN.

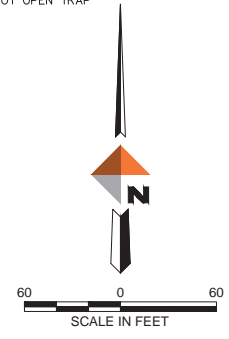
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BENCHMARK: C 723 (NATIONAL GEODETIC SURVEY)
PID: RD1490
VERTICAL DATUM: NAVD 88
DESCRIPTION: BRASS CONTROL DISK SET VERTICALLY IN THE NORTHWEST FACE OF THE CENTER COLUMN OF THE MOST NORTHWESTERLY PIER AT THE INTERSECTION OF STATE HIGHWAY 224 AND HARMONY ROAD.
ELEVATION: 102.80'

UTILITY STATEMENT:
THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM LOCATE PAINT MARKINGS TIED IN THE FIELD SURVEY AND AS-BUILT DRAWINGS PROVIDED BY UTILITY COMPANIES. THIS SURVEY DOES NOT SHOW ANY PAINT MARKINGS PROVIDED AFTER THE FIELD SURVEY WAS COMPLETED. AS-BUILT DRAWING INFORMATION THAT WAS NOT PROVIDED IS NOT REFLECTED ON THIS SURVEY. AS-BUILT INFORMATION, IF PROVIDED, WAS USED TO IDENTIFY UNDERGROUND PIPE SIZE AND TYPE. IF NO LOCATE PAINT MARKINGS WERE PROVIDED, AS-BUILT INFORMATION WAS USED TO HORIZONTALLY LOCATE THE UNDERGROUND UTILITIES.

THIS SURVEY MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE OF ALL SUCH UTILITIES IN THE AREA. THE UNDERGROUND UTILITIES SHOWN MAY NOT BE IN THE EXACT LOCATION AS NOTED ON THIS SURVEY, BUT ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION PROVIDED. MANHOLES OTHER THAN SANITARY AND STORM SEWER WERE IDENTIFIED BY MANHOLE LIDS AND MAY NOT BE LABELED CORRECTLY.

UTILITY LOCATIONS SHOULD BE VERIFIED BY OREGON UTILITIES NOTIFICATION CENTER IMMEDIATELY PRIOR TO ANY EXCAVATION.

OREGON UTILITY
NOTIFICATION CENTER
1-800-332-2344



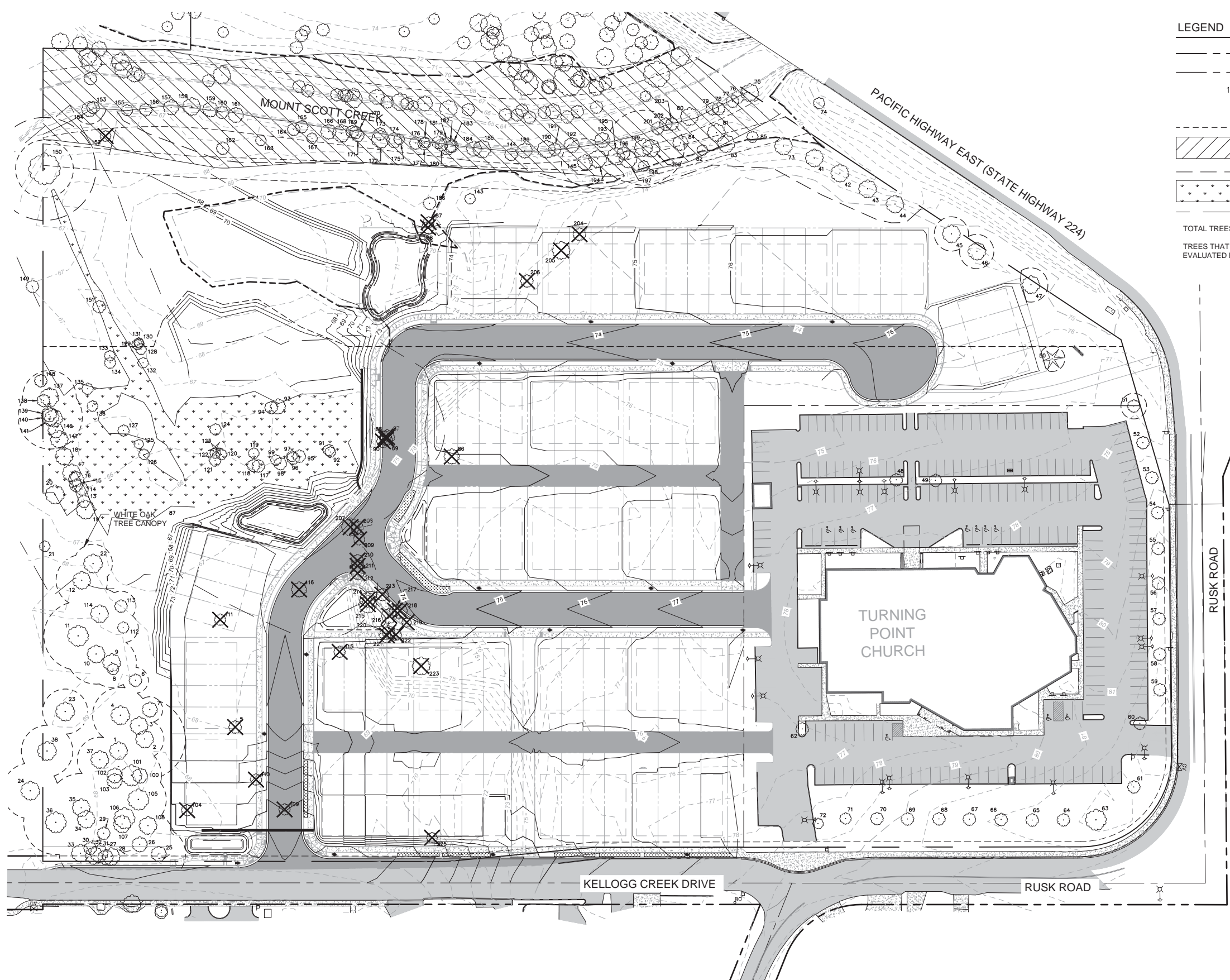
FOR REVIEW ONLY



KELLOGG CREEK SUBDIVISION
EXISTING CONDITIONS
BROWNSTONE DEVELOPMENT
MILWAUKIE, OREGON
SE17 NE1/4 SEC. 6 T2S R2E W.M. EXISTING TAXLOTS 600, 700, 900, 901

PROJECT 14258-01
DATE 06/12/2017
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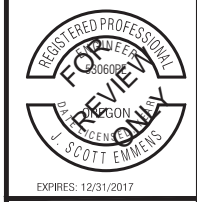


LEGEND

- EXISTING BOUNDARY LINE
- PROPOSED LOT LINE
- EXISTING TREE TO BE REMOVED
- TREE PROTECTION FENCING
- GIS VEGETATED CORRIDOR
- FLOOD PLAIN BOUNDARY
- WETLAND
- WETLAND BUFFER

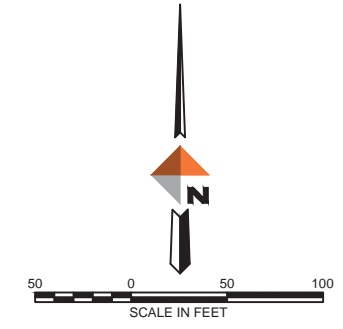
TOTAL TREES TO BE REMOVED = 62

TREES THAT ARE NOT NUMBERED HAVE NOT BEEN EVALUATED BEEN BY THE TREE ARBORIST



KELLOGG CREEK SUBDIVISION
TREE PROTECTION & REMOVAL PLAN
 BROWNSTONE DEVELOPMENT
 MILWAUKIE, OREGON
 SE1/7 NE1/4 SEC. 6 T2S R2E W.M. EXISTING TAXLOTS 600, 700, 900, 901

PROJECT	14258-01
DATE	06/12/2017
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\\bil-fs\projects\22\14258-01\65CAD\DD\SC14-VB-TR-KELL.dwg PLOT DATE 2017-6-12 13:47 SAVED DATE 2017-06-12 12:45 USER: kgiddens

Number	Dia (in)	White Oak (Y/N)	Remove (Y/N)
1	18	Y	N
2	18	Y	N
3	18	Y	N
4	20	Y	N
5	12	N	Y
6	12	Y	N
7	14	Y	N
8	10	Y	N
9	16	Y	N
10	16	Y	N
11	24	Y	N
12	18	Y	N
13	12	N	N
14	12	N	N
15	12	N	N
16	14x2	N	N
17	16	N	N
18	18	N	N
19	20	N	N
20	20	N	N
21	8	N	N
22	20	Y	N
23	20	Y	N
24	20	Y	N
25	14	Y	N
26	14x2	Y	N
27	14	Y	N
28	16	Y	N
29	12	N	N
30	12	Y	N
31	16	Y	N
32	16	Y	N
33	16	Y	N
34	16	Y	N
35	16x2	Y	N
36	24	Y	N
37	18	Y	N
38	20	Y	N
41	18	N	N
42	16	N	N
43	16	N	N
44	16	N	N
45	16	N	N
46	16	N	N
47	16	N	N
48	12	N	N
49	12	N	N
50	12x2	N	N
51	12	N	N
52	12	N	N
53	12	N	N
54	12	N	N
55	14	N	N
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71	12	N	N
72	8	N	N
73	16	N	N
74	10	N	N
75	16	N	N
76	12x3	N	N

77	12	N	N
78	12	N	N
79	12	N	N
80	18	N	N
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82	8	N	N
83	16	N	N
84	14	N	N
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93	14	N	N
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99	8	N	N
100	14	Y	N
101	24	Y	N
102	8x6	N	N
103	14	Y	N
104	10	N	Y
105	24	Y	N
106	24	Y	N
107	18	N	N
108	16x2	N	N
109	10	N	Y
110	10	N	Y
111	10x5	N	Y
112	10	Y	N
113	12	Y	N
114	18	Y	N
115	10x8	N	Y
116	14	N	Y
117	12	N	N
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133	8	N	N
134	10	N	N
135	10	N	N
136	8x2	N	N
137	20	Y	N
138	12	N	N
139	14	N	N
140	16	N	N
141	16	Y	N
143	8	N	N
144	12	N	N
145	14x2	Y	N
146	14	N	N
147	16x2	N	N
148	12x3	N	N
149	12	N	N
150	48	Y	N
151	12	N	N
152	8	N	Y
153	12	N	N

154	14	N	N
155	10x4	N	N
156	12x2	N	N
157	14	N	N
158	16	N	N
159	14	N	N
160	10x3	N	N
161	14	N	N
162	10	N	N
163	8x2	N	N
164	12	N	N
165	12	N	N
166	14	N	N
167	8	N	N
168	18	N	N
169	12	N	N
170	12	N	N
171	12	N	N
172	16x3	N	N
173	12	N	N
174	14	N	N
175	8	N	N
176	12	N	N
177	10	N	N
178	8	N	N
179	10x2	N	N
180	12	N	N
181	16	N	N
182	12	N	N
183	12	N	N
184	14x2	N	N
185	18x2	N	N
186	12x3	N	N
187	8x2	N	Y
188	10x2	N	Y
189	14x2	N	N
190	16	N	N
191	12	N	N
192	14x2	N	N
193	14	N	N
194	16	Y	N
195	16	Y	N
196	12	Y	N
197	16	Y	N
198	8	Y	N
199	19	Y	N
200	18	Y	N
201	12	N	N
202	12	N	N
203	10x2	N	N
204	12	N	Y
205	18x2	N	Y
206	12x4	N	Y
207	16	N	Y
208	12x2	N	Y
209	10x9	N	Y
210	12	N	Y
211	12	N	Y
212	12	N	Y
213	12	N	Y
214	14	N	Y
215	16	N	Y
216	14	N	Y
217	10	N	Y
218	14	N	Y
219	6x3	N	Y
220	12	N	Y
221	14	N	Y
222	10	N	Y
223	16x2	N	Y
225	8x3	N	Y

TOTAL TREES TO BE REMOVED = 36

TREES THAT ARE NOT NUMBERED HAVE NOT BEEN EVALUATED BEEN BY THE TREE ARBORIST



**KELLOGG CREEK SUBDIVISION
TREE PROTECTION & REMOVAL TABLE**

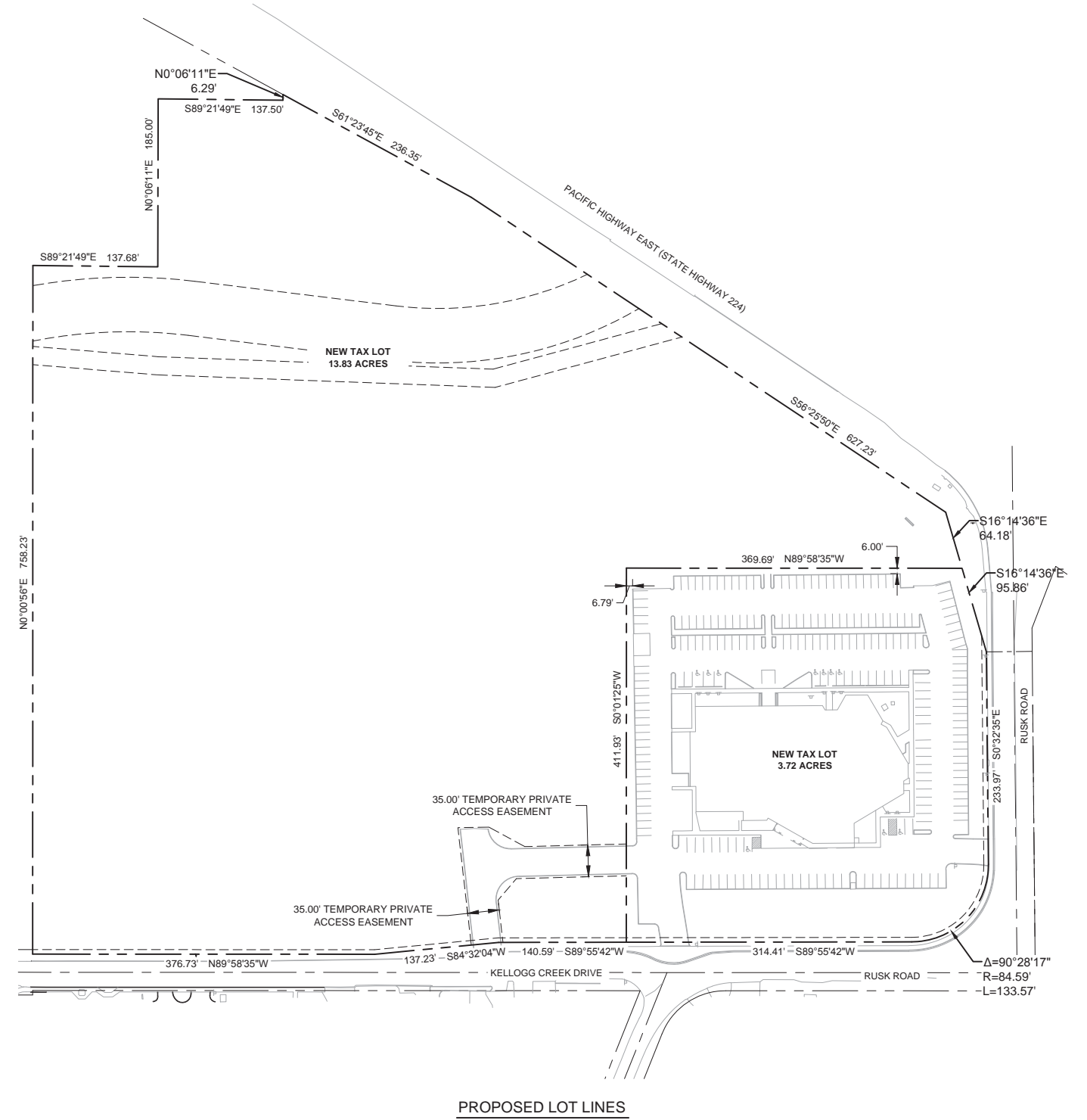
BROWNSTONE DEVELOPMENT
MILWAUKIE, OREGON
SE1/7 NE1/4 SEC. 6 T2S R2E W.M. EXISTING TAXLOTS 600, 700, 900, 901

PROJECT 14258-01
DATE 06/12/2017

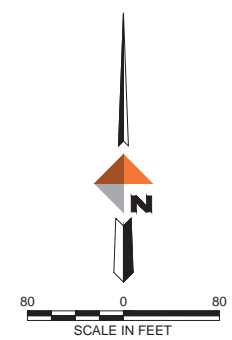
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C102

\\bil-fs\proj\projects\22\14258-01\65CAD\DD\SCI4-CS-PP-KELL.dwg PLOT DATE 2017-06-12 14:00 SAVED DATE 2017-06-12 12:12 USER: kgladden



LOT CONSOLIDATION AND PROPERTY LOT LINE ADJUSTMENT



FOR REVIEW ONLY



**KELLOGG CREEK SUBDIVISION
PRELIMINARY LOT LINE ADJUSTMENT**

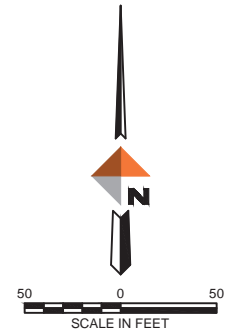
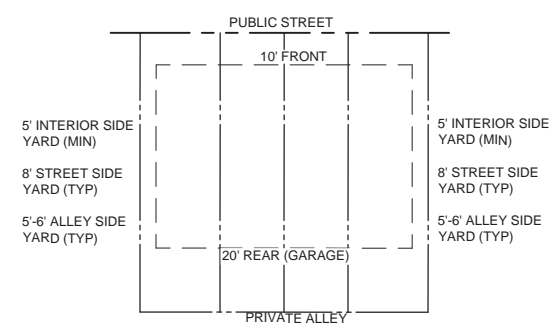
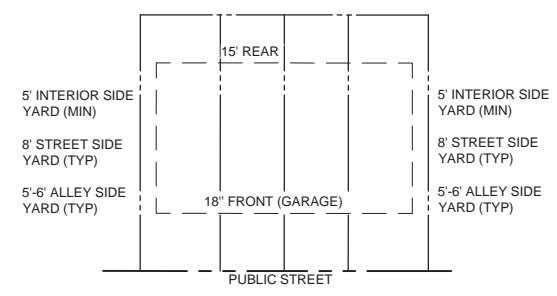
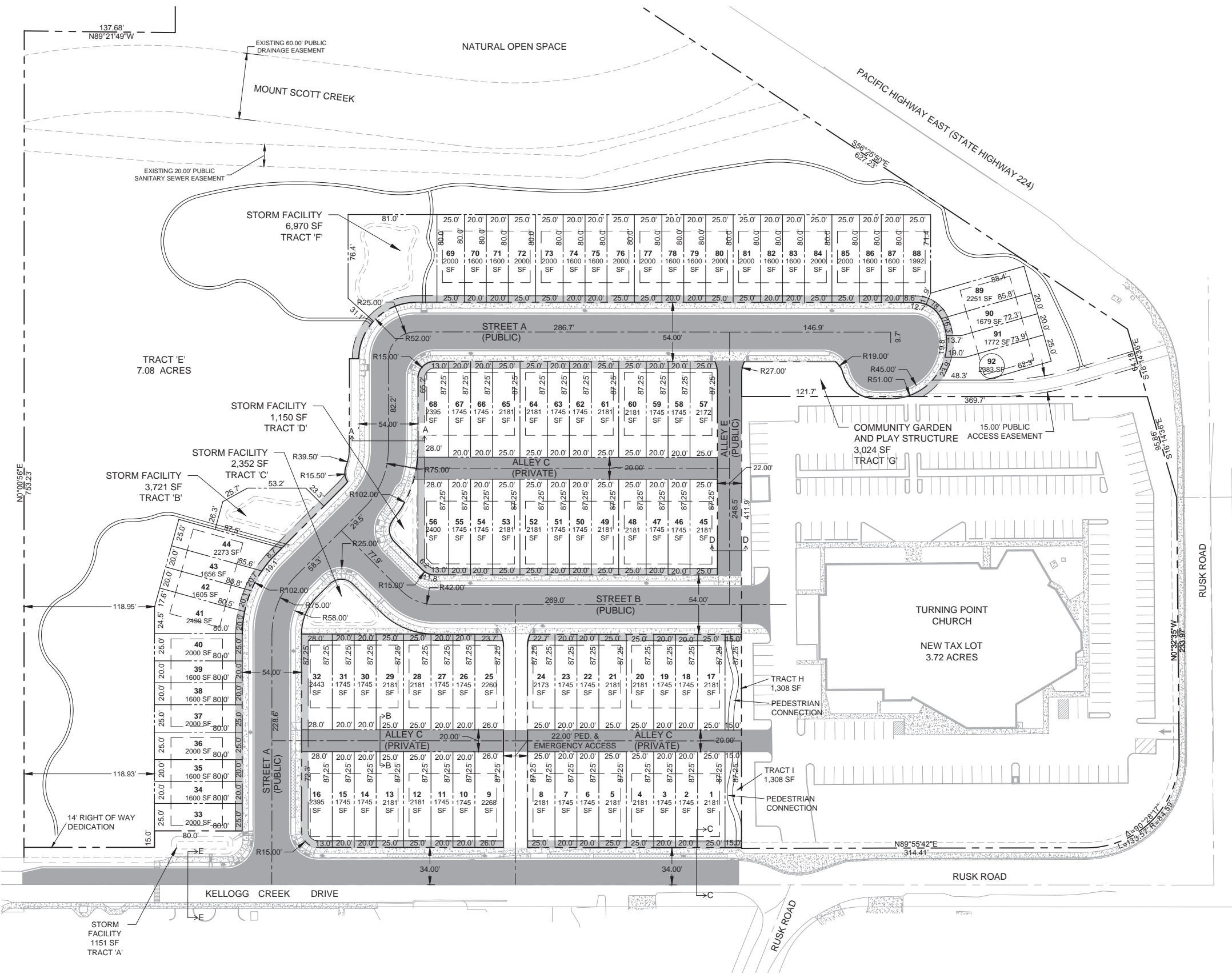
BROWNSTONE DEVELOPMENT
MILWAUKIE, OREGON
SE1/7 NE1/4 SEC. 6 T2S R2E W.M. EXISTING TAX LOTS 600, 700, 900, 901

PROJECT	14258-01
DATE	06/12/2017
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SHEET	
C100	

LEGEND:

- ZONING BOUNDARY
- EXISTING CENTERLINE
- - - PROPOSED CENTERLINE
- PROPOSED LOT LINE
- PROPOSED RIGHT OF WAY LINE
- EXISTING RIGHT OF WAY LINE
- EXISTING PROPERTY LINE TO REMAIN
- EXISTING PROPERTY LINE TO REMOVE
- PROPOSED SETBACK LINE
- PROPOSED CURB AND GUTTER
- EXISTING EASEMENT
- PROPOSED 6' PUE

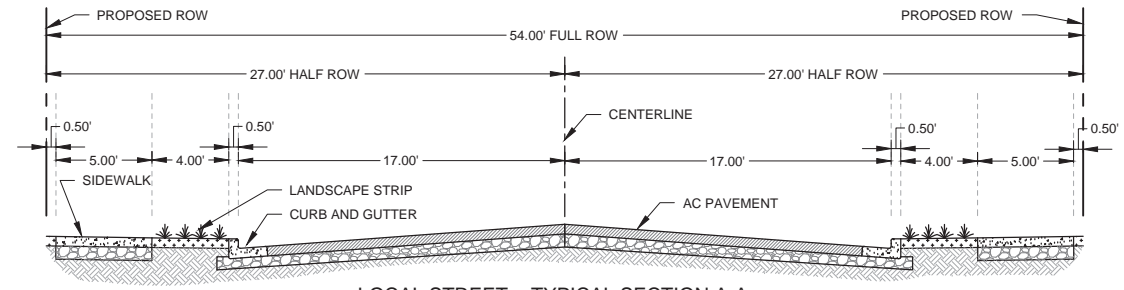
SEE SHEET C202 FOR STREET SECTIONS



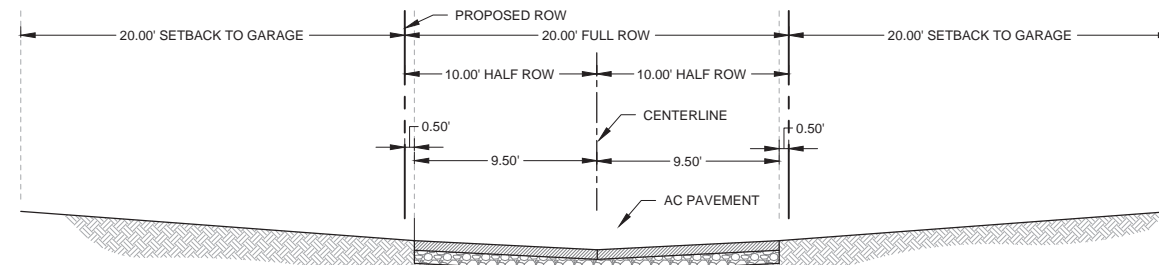
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KELLOGG CREEK SUBDIVISION
 PRELIMINARY PLAT
 BROWNSTONE DEVELOPMENT
 MILWAUKIE, OREGON
 SE1/7 NE1/4 SEC. 6 T2S R2E W.M. EXISTING TAX LOTS 600, 700, 900, 901

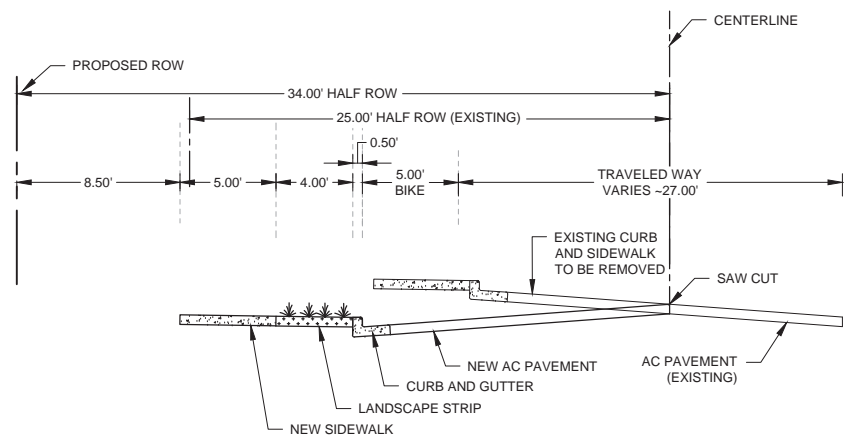
PROJECT	14258-01
DATE	06/12/2017
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SHEET	C201



LOCAL STREET - TYPICAL SECTION A-A
HORIZONTAL SCALE: 1" = 5'



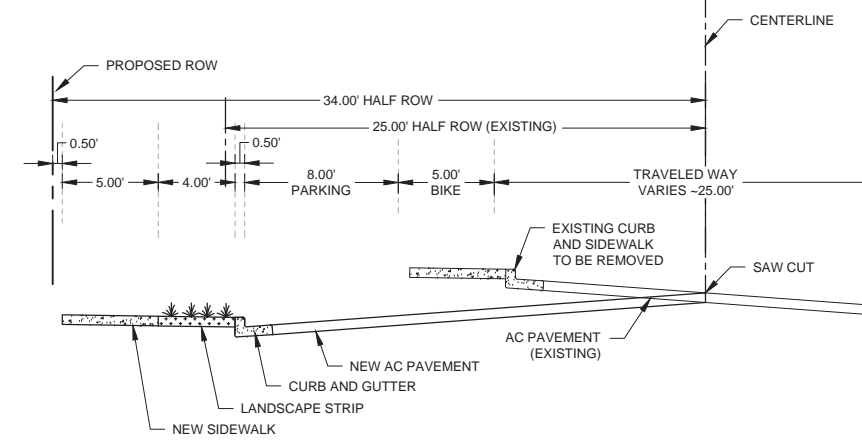
ALLEY - TYPICAL SECTION B-B
HORIZONTAL SCALE: 1" = 5'



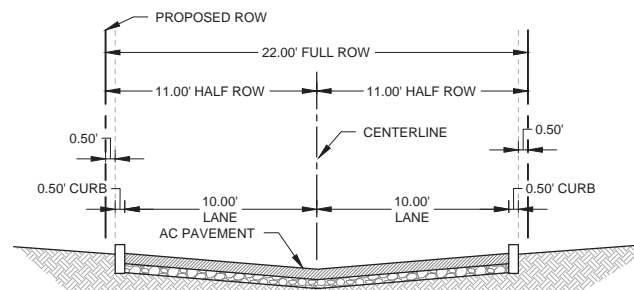
KELLOGG CREEK DRIVE - TYPICAL SECTION E-E
HORIZONTAL SCALE: 1" = 5'

NOTES:

1. SEE PLAN FOR WIDENED ROW FOR STORM FACILITY.
2. SEE PLAN FOR SECTION OF KELLOG CREEK DRIVE TO HAVE CURB TIGHT AND DETACHED VARYING OFFSET SIDEWALK.



KELLOGG CREEK DRIVE - TYPICAL SECTION C-C
HORIZONTAL SCALE: 1" = 5'



PUBLIC ALLEY - TYPICAL SECTION D-D
HORIZONTAL SCALE: 1" = 5'



KELLOGG CREEK SUBDIVISION

TYPICAL STREET SECTIONS

BROWNSTONE DEVELOPMENT
MILWAUKIE, OREGON

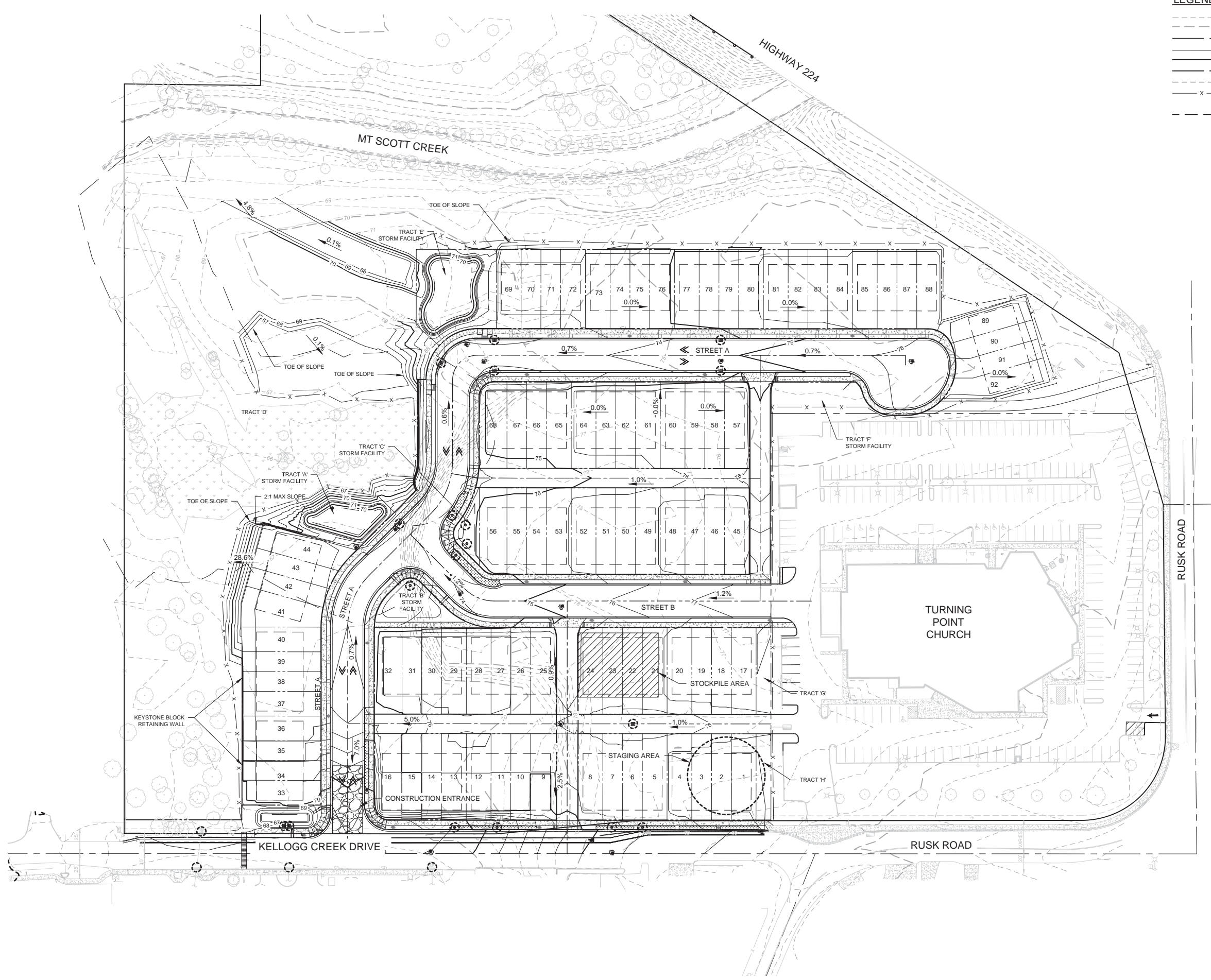
SE17 NE1/4 SEC. 6 T2S R2E W.M. EXISTING TAX LOTS 600, 700, 900, 901

PROJECT 14258-01
DATE 06/12/2017

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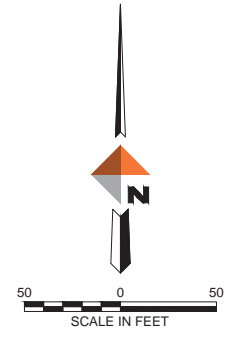
C202

- LEGEND:**
- - - - - EXISTING MINOR CONTOUR
 - - - - - EXISTING MAJOR CONTOUR
 - - - - - EXISTING PROPERTY LINE
 - - - - - PROPOSED MINOR CONTOUR
 - - - - - PROPOSED MAJOR CONTOUR
 - - - - - PROPOSED RIGHT OF WAY
 - - - - - TOE OF SLOPE
 - x - x - SEDIMENT FENCE
 - (X) - INLET PROTECTION
 - - - - - PROPOSED FLOODPLAIN BOUNDARY



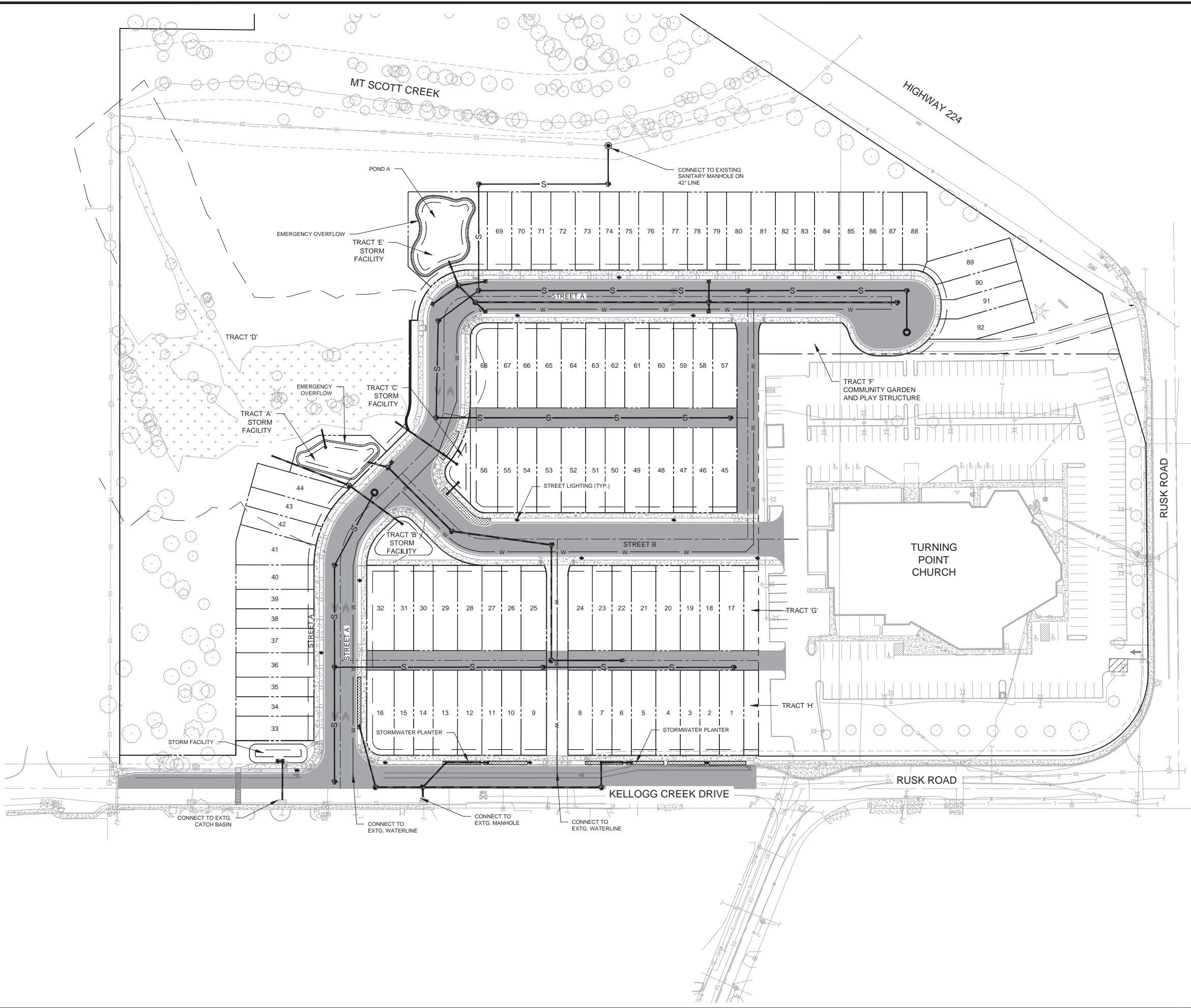
KELLOGG CREEK SUBDIVISION
GRADING PLAN
 BROWNSTONE DEVELOPMENT
 MILWAUKIE, OREGON
 SE1/7 NE1/4 SEC. 6 T2S R2E W.M. EXISTING TAXLOTS 600, 700, 900, 901

PROJECT	14258-01
DATE	06/12/2017
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SHEET	
C300	



G:\22\14258-01\65CAD\DD\SC14-CS-GR-KELL.dwg PLOT DATE 2017-7-11 08:06 SAVED DATE 2017-06-12 11:58 USER: semmens

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- LEGEND:**
- S — EXISTING SANITARY SEWER LINE
 - SD — EXISTING STORM LINE
 - W — EXISTING WATER LINE
 - EXISTING STORM MAN HOLE
 - EXISTING SANITARY MAN HOLE
 - EXISTING CATCH BASIN
 - EXISTING WATER VALVE
 - S — PROPOSED SANITARY SEWER LINE
 - SD — PROPOSED STORM LINE
 - W — PROPOSED WATER LINE
 - PROPOSED STORM MAN HOLE
 - PROPOSED SANITARY MAN HOLE
 - PROPOSED CATCH BASIN
 - PROPOSED STORMWATER PLANTER

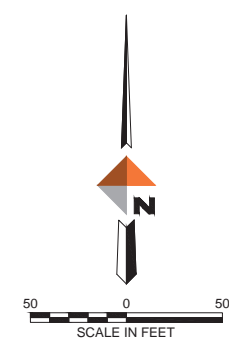
NOTES:

1. OUTFALL A AND B: SEE SECTION 6.3 FLOW DISPERSION OF THE STORM WATER REPORT DATED JANUARY 12, 2017 PREPARED BY DOWL.

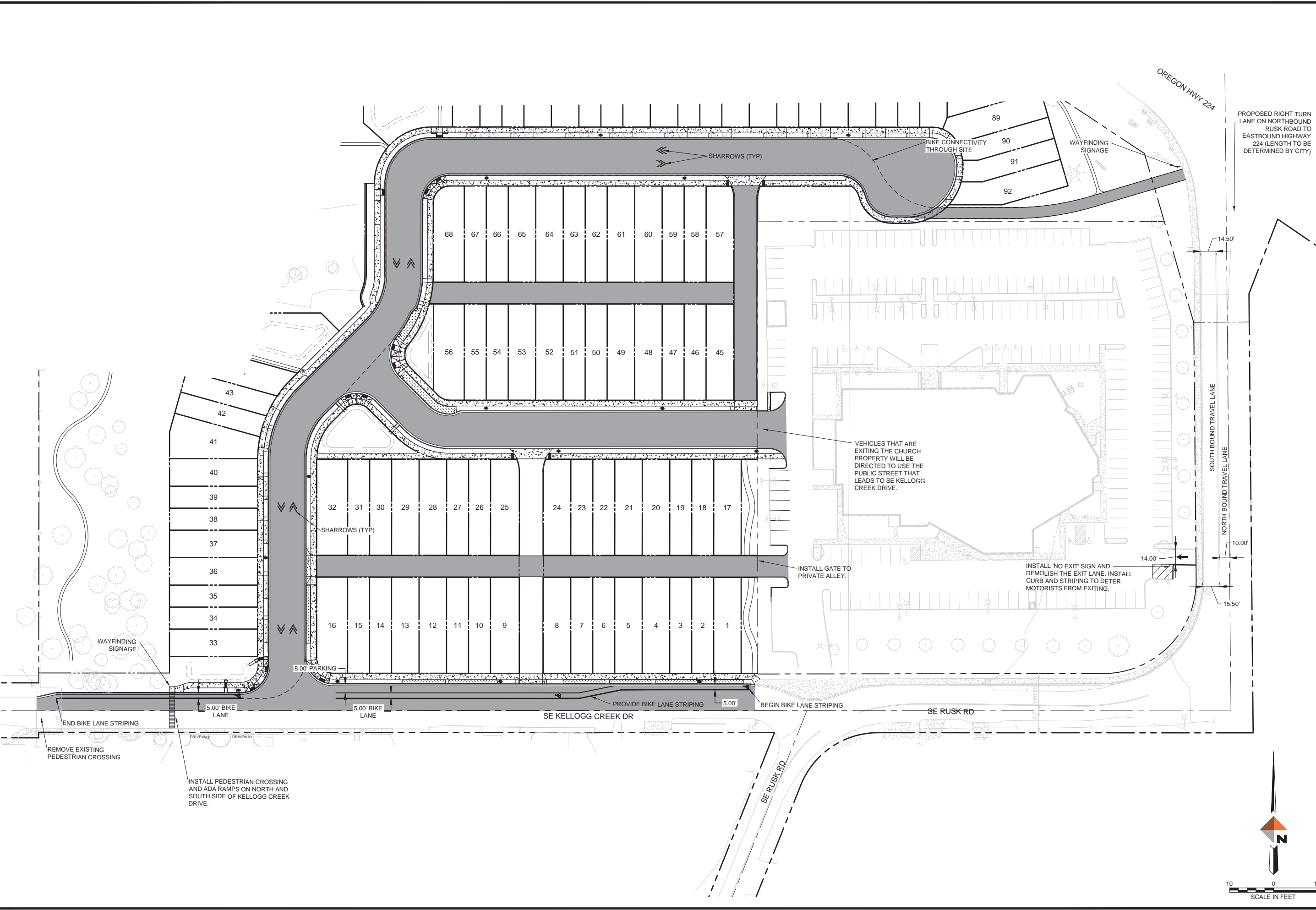


KELLOGG CREEK SUBDIVISION
COMPOSITE UTILITY PLAN
 BROWNSTONE DEVELOPMENT
 MILWAUKIE, OREGON
 SE1/4 NE1/4 SEC. 6 T2S R2E W.M. EXISTING TAXLOTS 600, 700, 900, 901

PROJECT	14258-01
DATE	06/12/2017
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SHEET	
C400	



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PROPOSED RIGHT TURN LANE ON NORTHBOUND RUSK ROAD TO EASTBOUND HIGHWAY 224 (LENGTH TO BE DETERMINED BY CITY)

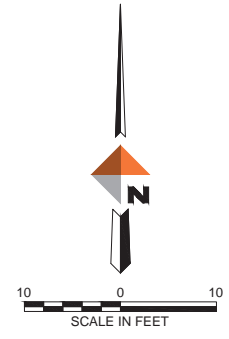


KELLOGG CREEK SUBDIVISION
PUBLIC INTERSECTION
BROWNSTONE DEVELOPMENT
 MILWAUKIE, OREGON
 SE1/7 NE1/4 SEC. 6 T2S R2E W.M. EXISTING TAXLOTS 600, 700, 900, 901

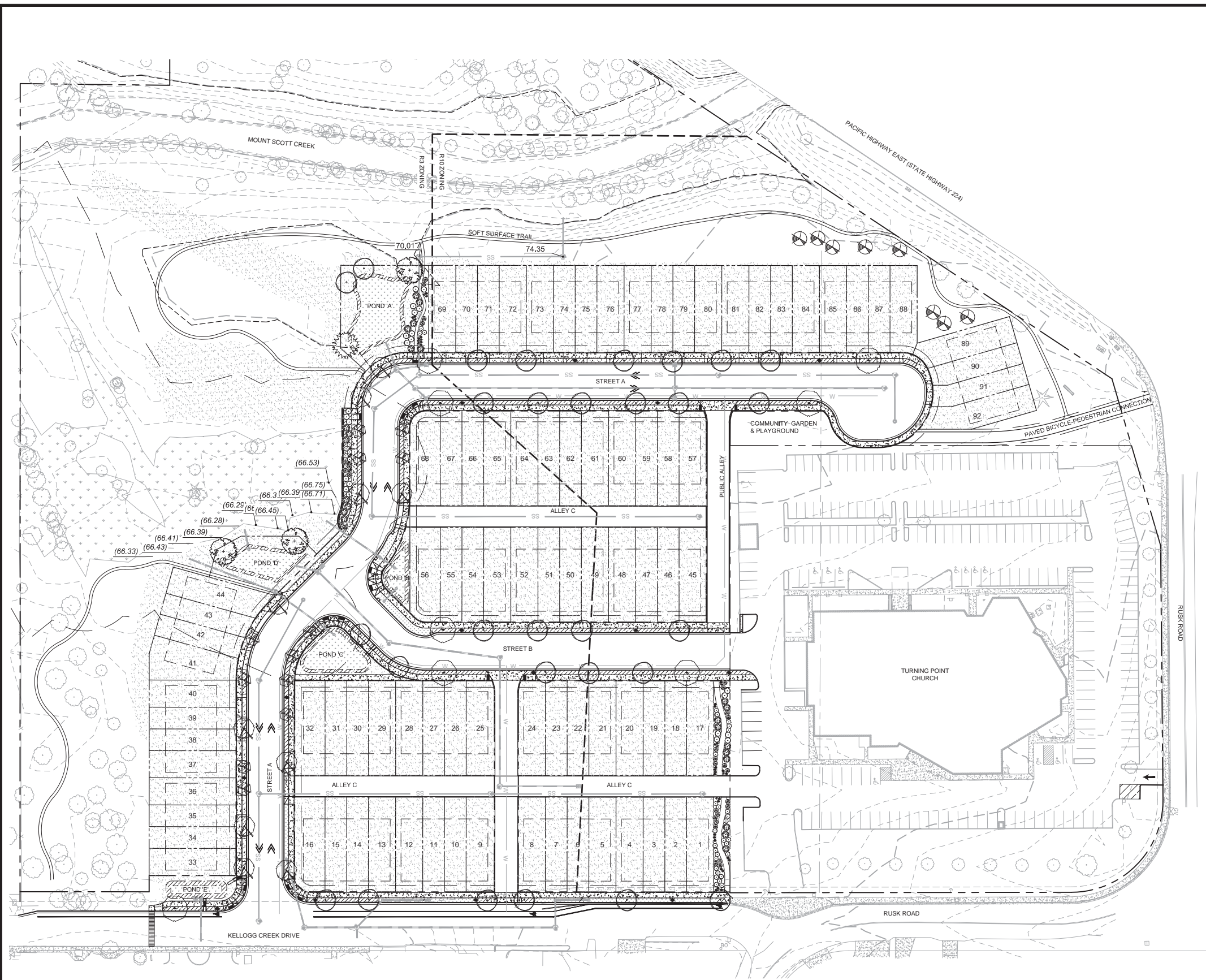
PROJECT 14258-01
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 SHEET

C500



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FRONTAGE AND OPEN SPACE MATERIALS LEGEND

TREES ITEM	SIZE / SPACING	QUANTITY
A. TRUN. x A. PLAT. 'WARRENRED' PACIFIC SUNSET MAPLE	1.5" CAL. / B&B AS SHOWN	8
ACER GRISEUM PAPERBARK MAPLE	1.5" CAL. / B&B AS SHOWN	27
GINKGO BILOBA 'PRINCETON SENTRY' PRINCETON SENTRY GINKGO	1.5" CAL. / B&B AS SHOWN	10
CARPINUS BETULUS 'FRANS FONTAINE' FRANS FONTAINE HORNBEAM	1.5" CAL. / B&B AS SHOWN	12
THUJA PLICATA WESTERN RED CEDAR	4' HEIGHT MINIMUM	8
EXISTING TREE TO REMAIN	AS NOTED	

SHRUBS & ACCENTS ITEM	SIZE / SPACING	QUANTITY
MAHONIA AQUIFOLIUM OREGON GRAPE	1 GAL. AS SHOWN	27
RIBES SANGUINEUM RED-FLOWERING CURRENT	3 GAL. AS SHOWN	31
VACCINIUM OVATUM EVERGREEN HUCKLEBERRY	3 GAL. AS SHOWN	23
ROSMARINUS OFFICINALIS 'ARP' ARP ROSEMARY	1 GAL. AS SHOWN	29
CAL. ACUTIFLORA 'KARL FOERSTER' KARL FOERSTER REED GRASS	1 GAL. AS SHOWN	47

GROUNDCOVERS & MISCELLANEOUS ITEM	SIZE / SPACING	QUANTITY
ARCTO. UVA-URSI 'MASSACHUSETTS' MASSACHUSETTS KINNICKINNICK	1 GALLON 3'-0" O.C.	8,279 SF - PLANTS
NATIVE EROSION CONTROL GRASS MIX SUNMARK SEEDS - FAIRVIEW, OR	SEED @ 1 LBS. / 1,000 SF	215,368 SF 215 LBS
CROCUS V. 'GIANT DUTCH' & N. TETE-A-TETE GIANT CROCUS & TETE-A-TETE DAFFODIL	20 / 100 SF	120 SF 24 BULBS
SOFT SURFACE TRAIL	2'-6" WIDTH	

WATER QUALITY FACILITY MATERIALS LEGEND

TREES ITEM	SIZE / SPACING	QUANTITY
ACER GRISEUM PAPERBARK MAPLE	1.5" CAL. / B&B AS SHOWN	2
ALNUS RUBRA RED ALDER	1.5" CAL. / B&B AS SHOWN	3
PSEUDOTSUGA MENZIESII DOUGLAS FIR	6' HT / B&B AS SHOWN	1
EXISTING TREES TO REMAIN	AS NOTED	

SHRUBS & ACCENTS ITEM	SIZE / SPACING	QUANTITY
MAHONIA AQUIFOLIUM OREGON GRAPE	2 GALLON 7 PLANTS / 100 SF	-
CORNUS SERICEA RED TWIG DOGWOOD	2 GALLON 7 PLANTS / 100 SF	-
ROSA NOOTKANA NOOTKA ROSE	2 GALLON 7 PLANTS / 100 SF	-

GROUNDCOVERS & MISCELLANEOUS ITEM	SIZE / SPACING	QUANTITY
ARCTO. UVA-URSI 'MASSACHUSETTS' MASSACHUSETTS KINNICKINNICK	1 GALLON 70 / 100 SF	2,580 SF 1,806 PLANTS
SEDGE / RUSH MIX 50% CAREX STIPATA 50% JUNCUS PATENS	1 GALLON 80 PLANTS / 100 SF	7,422 SF 5,938 PLANTS

STORMWATER FACILITY REQUIREMENTS:

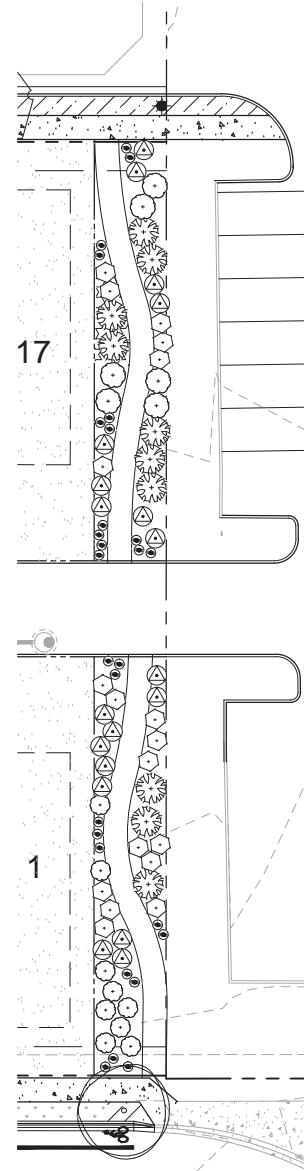
ZONE A TOTALS: 7,422 SF
 REQUIRES: 80 HERBACEOUS / 100 SF = 5,938 HERBACEOUS
 PROPOSED: 5,938 HERBACEOUS

ZONE B TOTALS: 2,580 SF
 REQUIRES: 7 SHRUBS / 100 SF = 1.81 SHRUBS
 PROPOSED: 181 SHRUBS (MIX OF SPECIES)

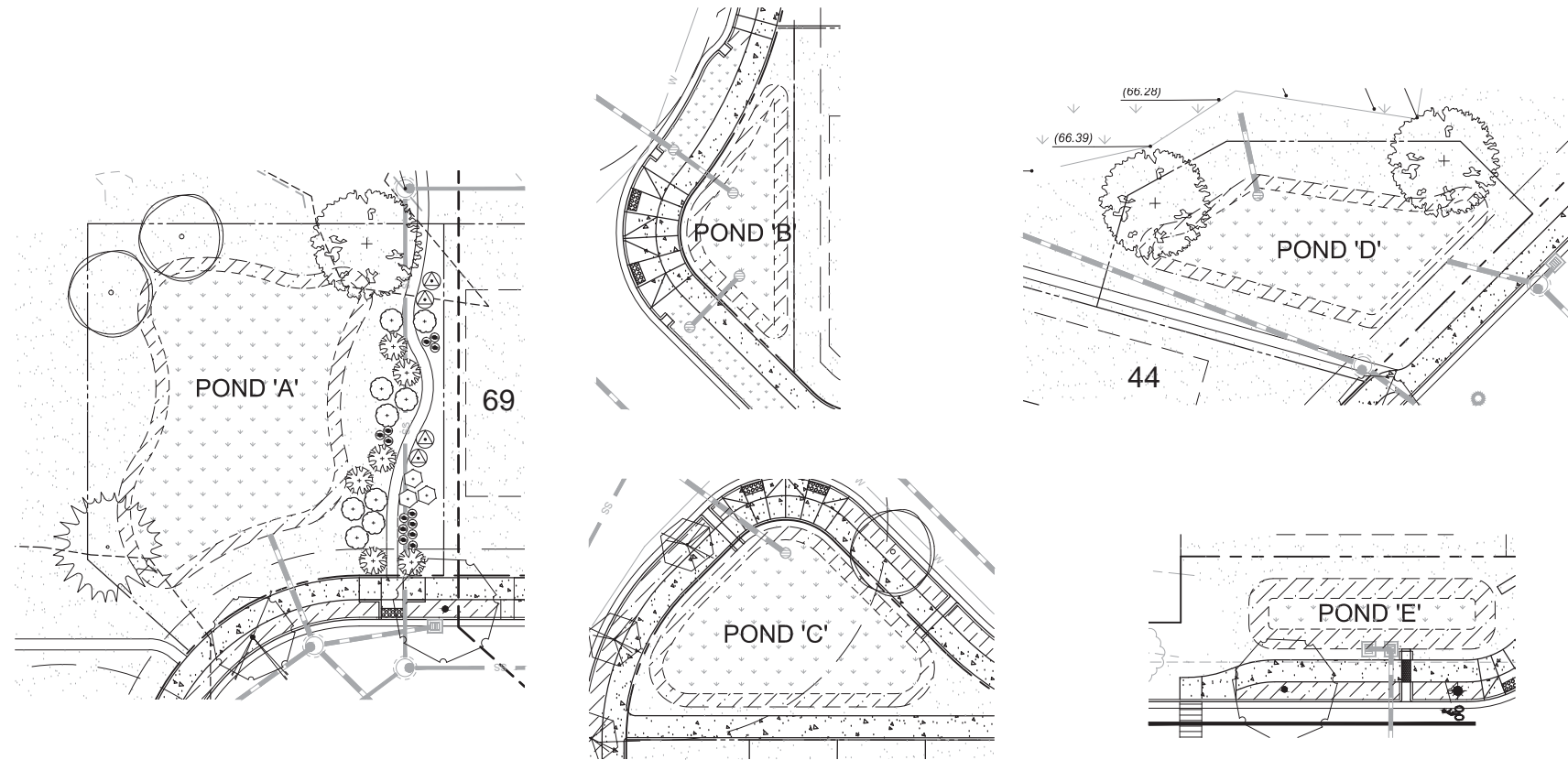


KELLOGG CREEK SUBDIVISION
 PLANTING PLAN - OVERALL
 BROWNSTONE DEVELOPMENT
 MILWAUKIE, OREGON
 SE17 NE1/4 SEC. 6 T2S R2E W.M. EXISTING TAXLOTS 600, 700, 900, 901

PROJECT	14258-01
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A OPEN SPACE TRACTS



B WATER QUALITY FACILITIES

FRONTAGE AND OPEN SPACE MATERIALS LEGEND

TREES ITEM	SIZE / SPACING	QUANTITY
A. TRUN. x A. PLAT. 'WARRENRED' PACIFIC SUNSET MAPLE	1.5" CAL. / B&B AS SHOWN	8
ACER GRISEUM PAPERBARK MAPLE	1.5" CAL. / B&B AS SHOWN	27
GINKGO BILOBA 'PRINCETON SENTRY' PRINCETON SENTRY GINKGO	1.5" CAL. / B&B AS SHOWN	10
CARPINUS BETULUS 'FRANS FONTAINE' FRANS FONTAINE HORNBEAM	1.5" CAL. / B&B AS SHOWN	12
THUJA PLICATA WESTERN RED CEDAR	4' HEIGHT MINIMUM	8
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SHRUBS & ACCENTS ITEM	SIZE / SPACING	QUANTITY
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NATIVE EROSION CONTROL GRASS MIX SUNMARK SEEDS - FAIRVIEW, OR	SEED @ 1 LBS. / 1,000 SF	215,368 SF 215 LBS
CROCUS V. 'GIANT DUTCH' & N. TETE-A-TETE	BULBS 20 / 100 SF	120 SF 24 BULBS
SOFT SURFACE TRAIL	2'-6" WIDTH	

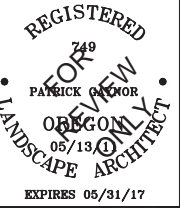
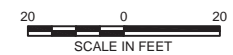
WATER QUALITY FACILITY MATERIALS LEGEND

TREES ITEM	SIZE / SPACING	QUANTITY
ACER GRISEUM PAPERBARK MAPLE	1.5" CAL. / B&B AS SHOWN	2
ALNUS RUBRA RED ALDER	1.5" CAL. / B&B AS SHOWN	3
PSEUDOTSUGA MENZIESII DOUGLAS FIR	6' HT / B&B AS SHOWN	1
EXISTING TREES TO REMAIN	AS NOTED	
SHRUBS & ACCENTS ITEM	SIZE / SPACING	QUANTITY
MAHONIA AQUIFOLIUM OREGON GRAPE	2 GALLON 7 PLANTS / 100 SF	-
CORNUS SERICEA RED TWIG DOGWOOD	2 GALLON 7 PLANTS / 100 SF	-
ROSA NOOTKANA NOOTKA ROSE	2 GALLON 7 PLANTS / 100 SF	-
GROUNDCOVERS & MISCELLANEOUS ITEM	SIZE / SPACING	QUANTITY
ARCTO. UVA-URSI 'MASSACHUSETTS' MASSACHUSETTS KINNICKINNICK	1 GALLON 70 / 100 SF	2,580 SF 1,806 PLANTS
SEDGE / RUSH MIX 50% CAREX STIPATA 50% JUNCUS PATENS	1 GALLON 80 PLANTS / 100 SF	7,422 SF 5,938 PLANTS

STORMWATER FACILITY REQUIREMENTS:

ZONE A TOTALS: 7,422 SF
REQUIRES: 80 HERBACEOUS / 100 SF = 5,938 HERBACEOUS
PROPOSED: 5,938 HERBACEOUS

ZONE B TOTALS: 2,580 SF
REQUIRES: 7 SHRUBS / 100 SF = 1,81 SHRUBS
PROPOSED: 181 SHRUBS (MIX OF SPECIES)



KELLOGG CREEK SUBDIVISION
PLANTING PLAN - ENLARGEMENTS
BROWNSTONE DEVELOPMENT
MILWAUKIE, OREGON
SE17 NE1/4 SEC. 6 T2S R2E W.M. EXISTING TAXLOTS 600, 700, 900, 901

PROJECT 14258-01
DATE 07/07/2017

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FRONT LOAD UNITS



ALLEY LOAD UNITS



KELLOGG CREEK SUBDIVISION

TOWNHOME RENDERINGS

BROWNSTONE DEVELOPMENT

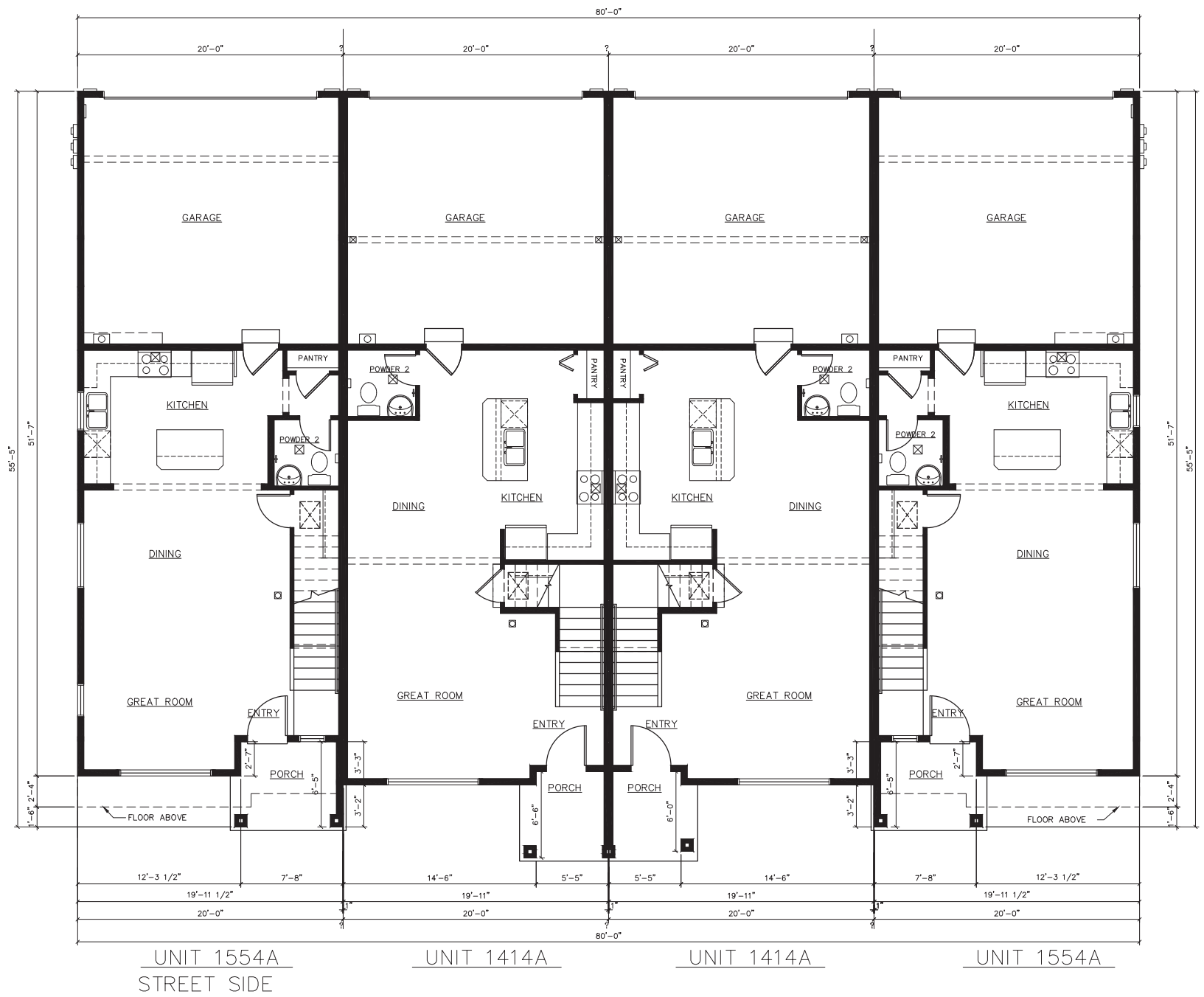
MILWAUKIE, OREGON
SE1/7 NE1/4 SEC. 6 T2S R2E W1M. EXISTING TAXLOTS 600, 700, 900, 901

PROJECT 14258-01
DATE 06/12/2017

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SHEET

A100



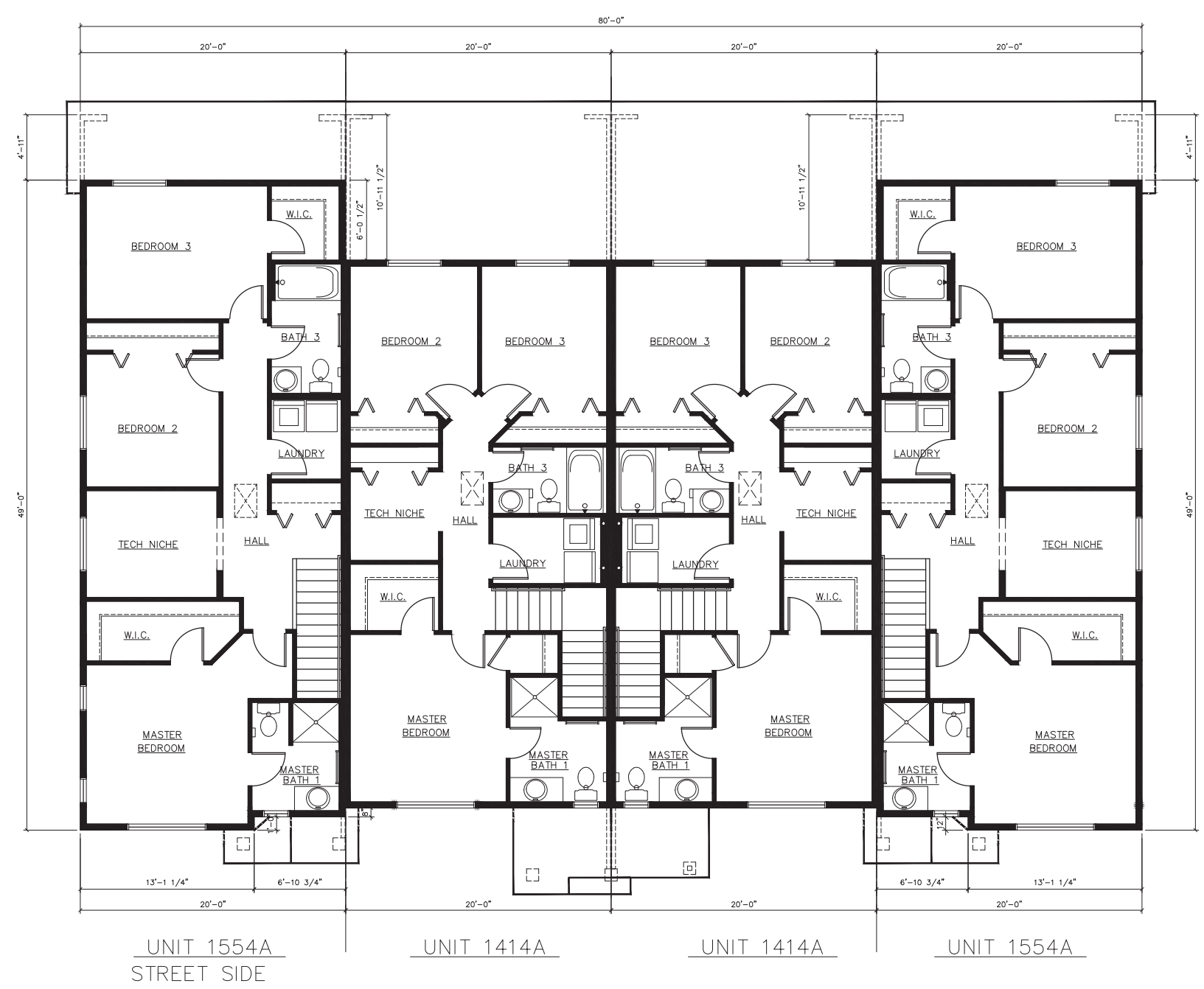
MAIN FLOOR PLANS 4-PLEX BUILDING TYPE A1
 SCALE 3/16" = 1'-0"

STRUCTURAL DESIGN:
VOELKER ENGINEERING
 1911 116th Ave. NE
 Bellevue, WA 98004
 425-451-4946

BUILDER/DESIGNER:
D.R. HORTON
 4360 SW Macadam Ave, Suite 100
 Portland, OR 97239
 503-222-3719

KELLOGG CREEK ALLEY
 MAIN FLOOR

8/05/15
 A2



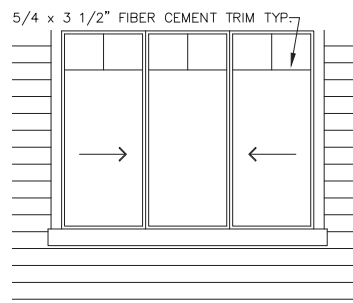
UPPER FLOOR PLANS TYPE A1
 SCALE 3/16" = 1'-0"

STRUCTURAL DESIGN:
VOELKER ENGINEERING
 1911 116th Ave. NE
 Bellevue, WA 98004
 425-451-4946

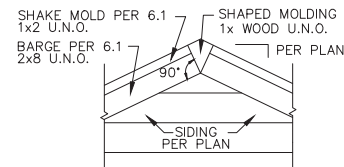
BUILDER/DESIGNER:
D.R. HORTON
 4380 SW Macadam Ave, Suite 100
 Portland, OR 97239
 503-222-3719

KELLOGG CREEK ALLEY
 UPPER FLOOR

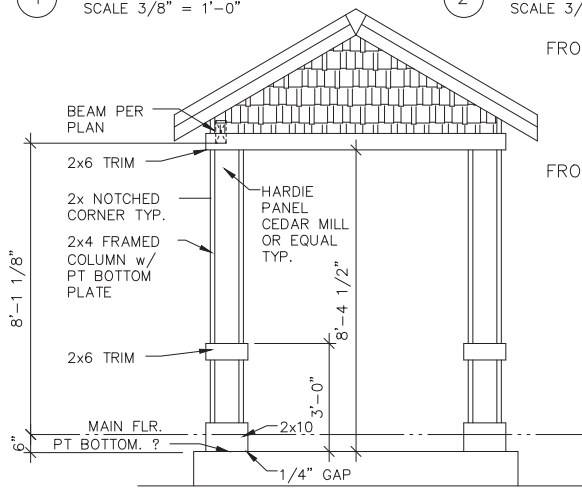
A4



1 TYP. WINDOW TRIM
SCALE 3/8" = 1'-0"



2 GABLE END TRIM
SCALE 3/4" = 1'-0"



3 PORCH DETAIL
SCALE 3/8" = 1'-0"

FRONT ELEVATION GLAZING PERCENTAGE

WALL AREA	=	1,424 SF
GLAZING AREA	=	302 SF
GLAZING %	=	21.2 %

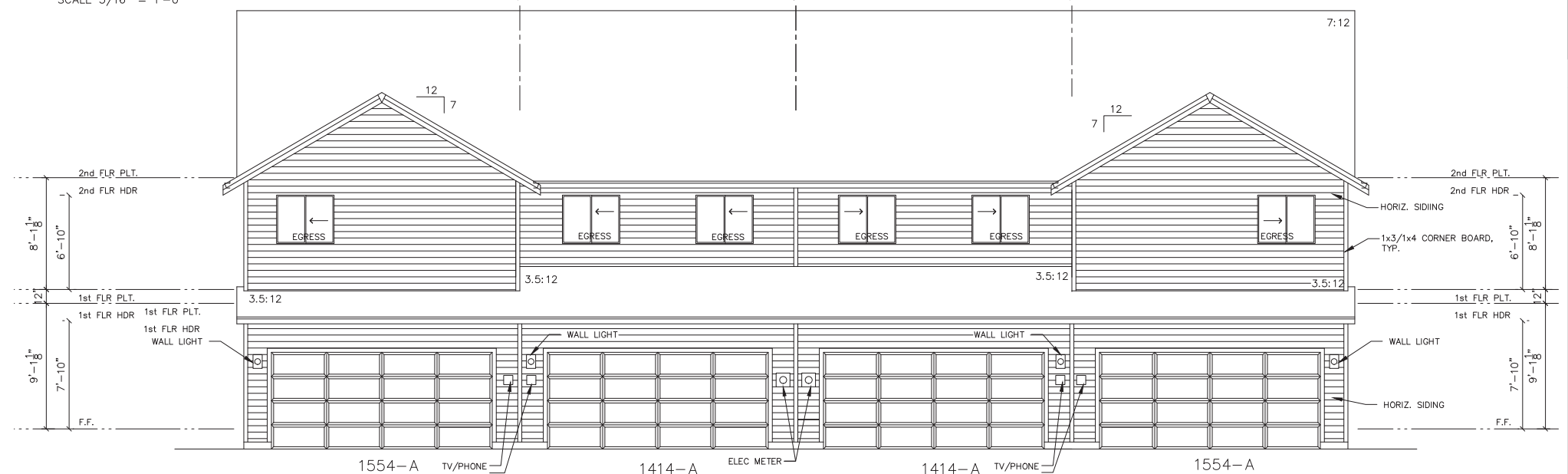
FRONT ELEVATION SIDING PERCENTAGE

WALL AREA	=	1,424 SF
SIDING AREA	=	632 SF
SIDING %	=	44.4 %

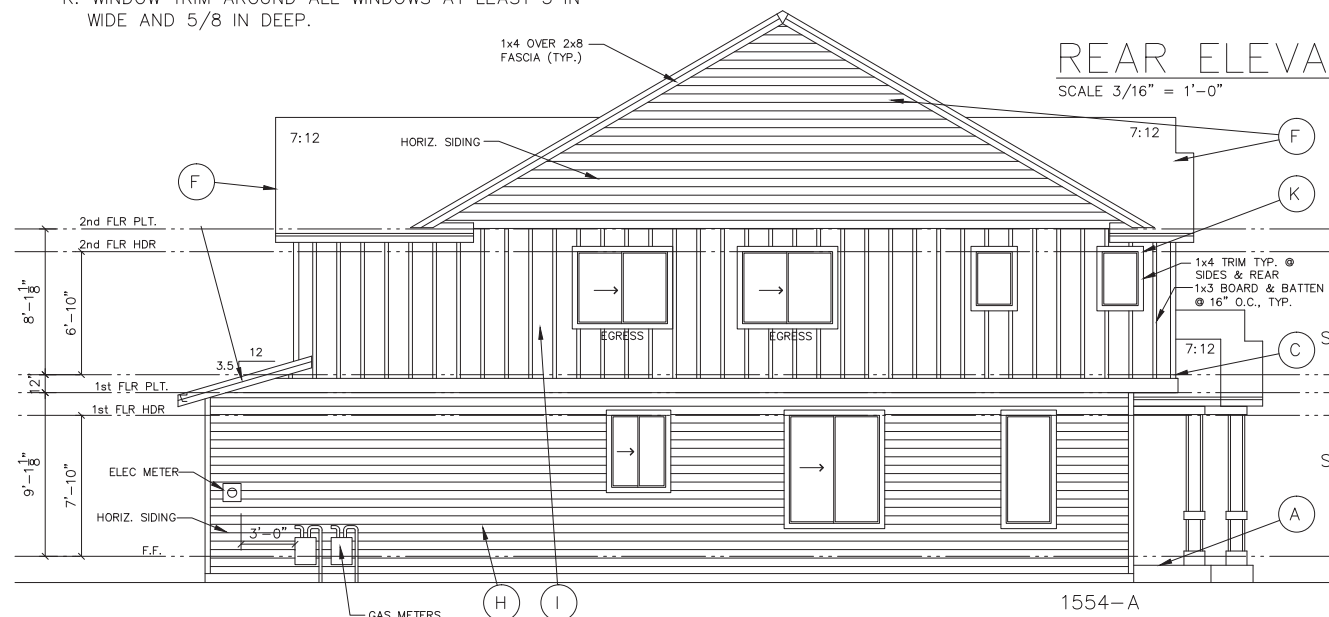
- BUILDING DETAILED DESIGN ELEMENTS PER 19.505.1.C.4:
- A. COVERED PORCH AT LEAST 5 FT DEEP, AS MEASURED HORIZONTALLY FROM THE FACE OF THE MAIN BUILDING FAÇADE TO THE EDGE OF THE DECK, AND AT LEAST 5 FT WIDE.
 - C. OFFSET ON THE BUILDING FACE OF AT LEAST 16 IN FROM 1 EXTERIOR WALL SURFACE TO THE OTHER.
 - F. ROOF LINE OFFSETS OF AT LEAST 2 FT FROM THE TOP SURFACE OF 1 ROOF TO THE TOP SURFACE OF THE OTHER.
 - H. HORIZONTAL LAP SIDING BETWEEN 3 TO 7 IN WIDE (THE VISIBLE PORTION ONCE INSTALLED). THE SIDING MATERIAL MAY BE WOOD, FIBER-CEMENT, OR VINYL.
 - I. BRICK, CEDAR SHINGLES, STUCCO, OR OTHER SIMILAR DECORATIVE MATERIALS COVERING AT LEAST 40% OF THE STREET-FACING FAÇADE.
 - K. WINDOW TRIM AROUND ALL WINDOWS AT LEAST 3 IN WIDE AND 5/8 IN DEEP.



FRONT ELEVATION 4-PLEX BUILDING
SCALE 3/16" = 1'-0"



REAR ELEVATION 4-PLEX BUILDING
SCALE 3/16" = 1'-0"



LEFT ELEVATION 4-PLEX BUILDING
STREET SIDE ELEVATION
SCALE 3/16" = 1'-0"

SIDE ELEVATION GLAZING PERCENTAGE

WALL AREA	=	906 SF
GLAZING AREA	=	109 SF
GLAZING %	=	12.0 %

SIDE ELEVATION SIDING PERCENTAGE

WALL AREA	=	906 SF
SIDING AREA	=	435 SF
SIDING %	=	48.0 %



RIGHT ELEVATION 4-PLEX BUILDING
SCALE 3/16" = 1'-0"

NOTE: THIS ELEVATION TO BE ONLY AT CORNER LOTS w/ STREET EXPOSURE

STRUCTURAL DESIGN:

VOELKER ENGINEERING
1911 116th Ave. NE
Bellevue, WA 98004
425-451-4946

BUILDER/DESIGNER:

D.R. HORTON
4360 SW Macadam Ave, Suite 100
Portland, OR 97239
503-222-3719

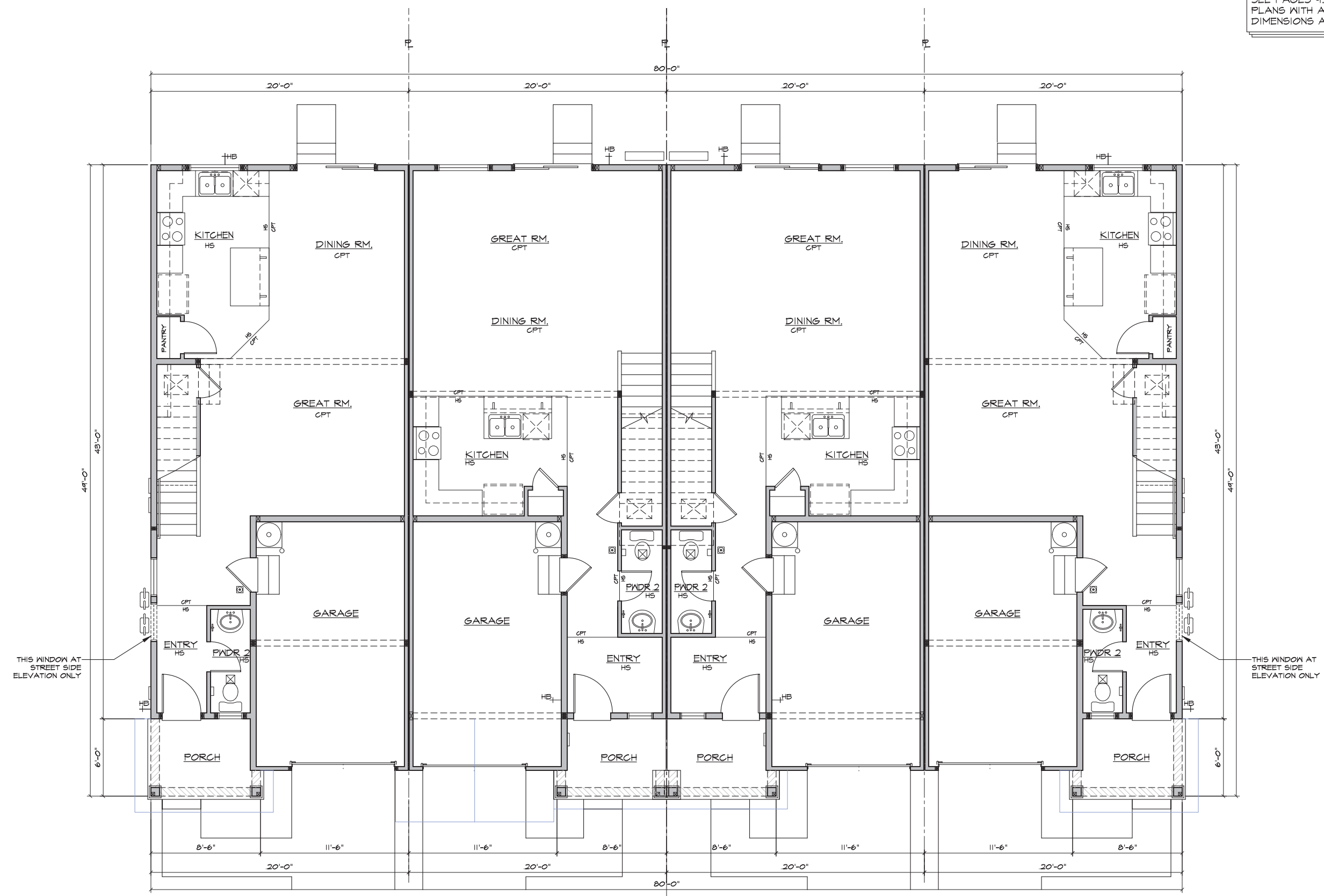
KELLOGG CREEK ALLEY
ALLEY FOUR-PLEX ELEVATIONS

BUILDING
A-1

8/05/15

A6

NOTE:
SEE PAGES 9.0-10.0 FOR UNIT
PLANS WITH ADDITIONAL
DIMENSIONS AND NOTES.



THIS WINDOW AT
STREET SIDE
ELEVATION ONLY

THIS WINDOW AT
STREET SIDE
ELEVATION ONLY

NOTE:
TYPICAL EXTERIOR WALL TO BE
CONSTRUCTED PER SCHEDULE
PAGE 3.0 AS P6 SHEARWALLS
UNLESS NOTED OTHERWISE

PLAN 1535-D
SEE SHEET 9.0

PLAN 1498-C
SEE SHEET 10.0

PLAN 1498-D
SEE SHEET 10.0

PLAN 1535-C
SEE SHEET 9.0

MAIN FLOOR PLANS
SCALE 1/4" = 1'-0"

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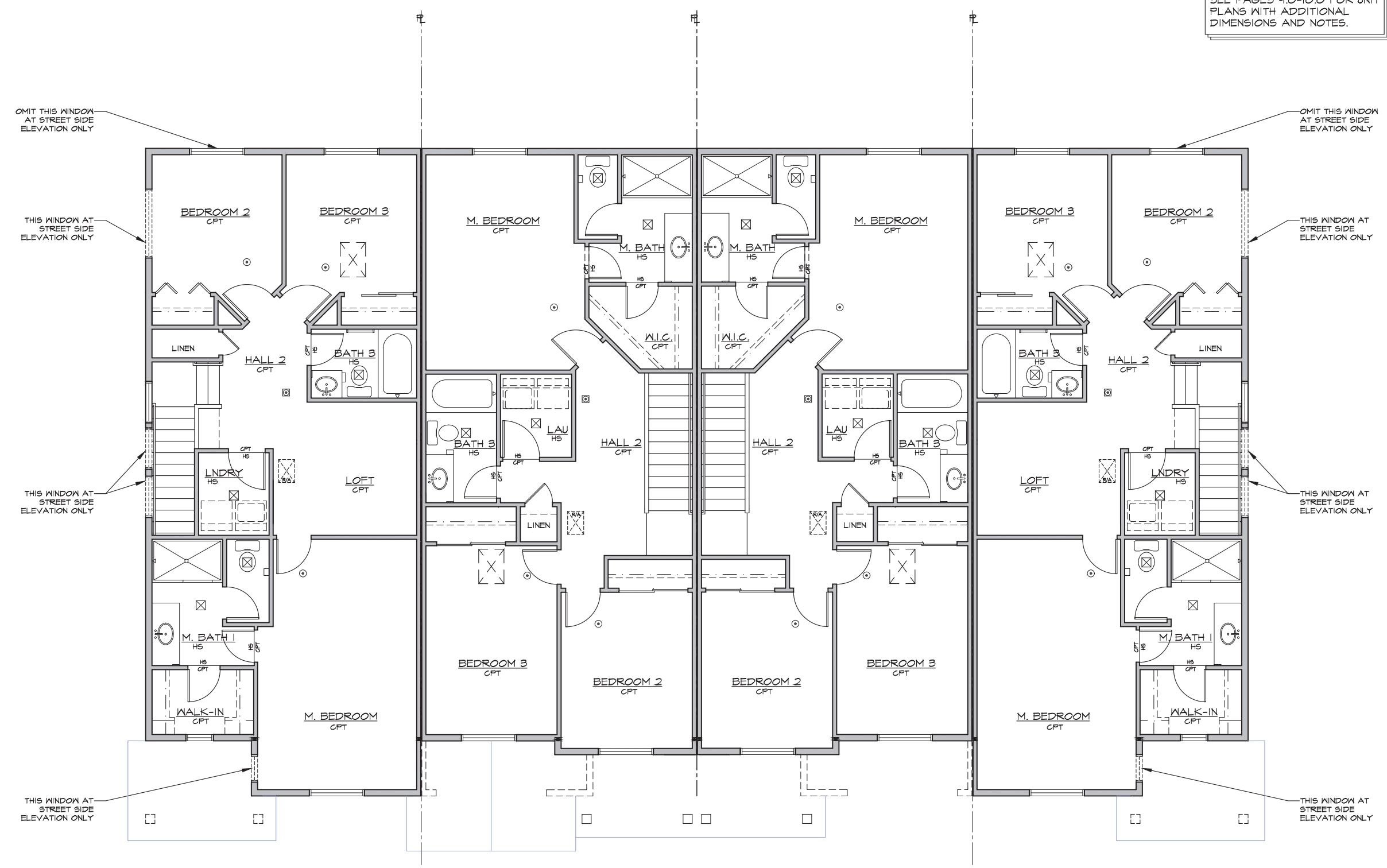
KELLOGG CREEK
FOUR-PLEX MAIN FLOOR PLAN

STRUCTURAL DESIGN:
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 Bellevue, WA 98004
 425-451-4946

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 Portland, OR 97239
 503-222-3719

KELLOGG CREEK
FOUR-PLEX UPPER FLOOR PLAN

NOTE:
 SEE PAGES 9.0-10.0 FOR UNIT
 PLANS WITH ADDITIONAL
 DIMENSIONS AND NOTES.



PLAN 1535-D
 SEE SHEET 9.0

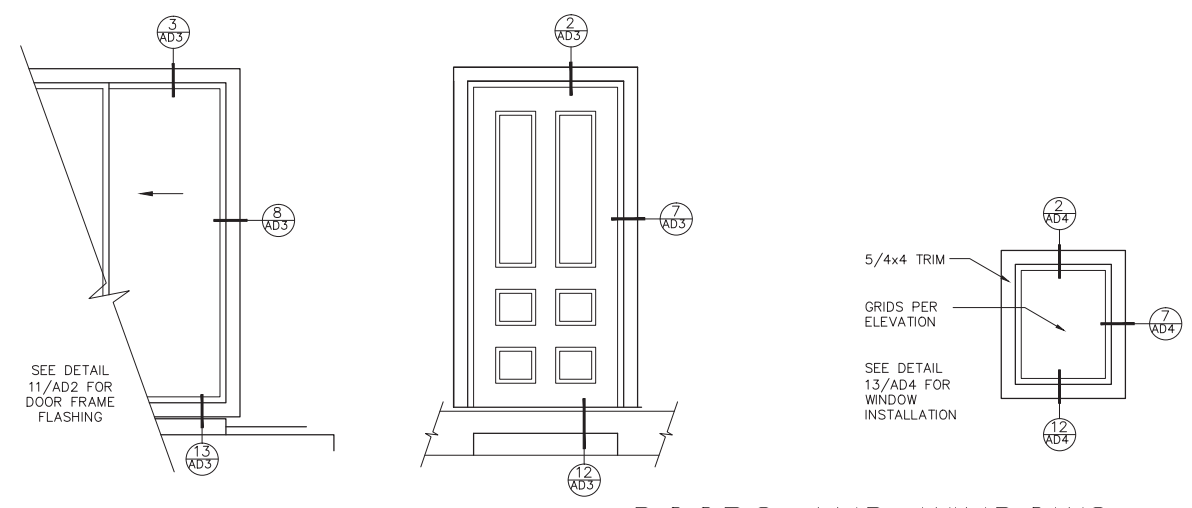
PLAN 1498-C
 SEE SHEET 10.0

PLAN 1498-D
 SEE SHEET 10.0

PLAN 1535-C
 SEE SHEET 9.0

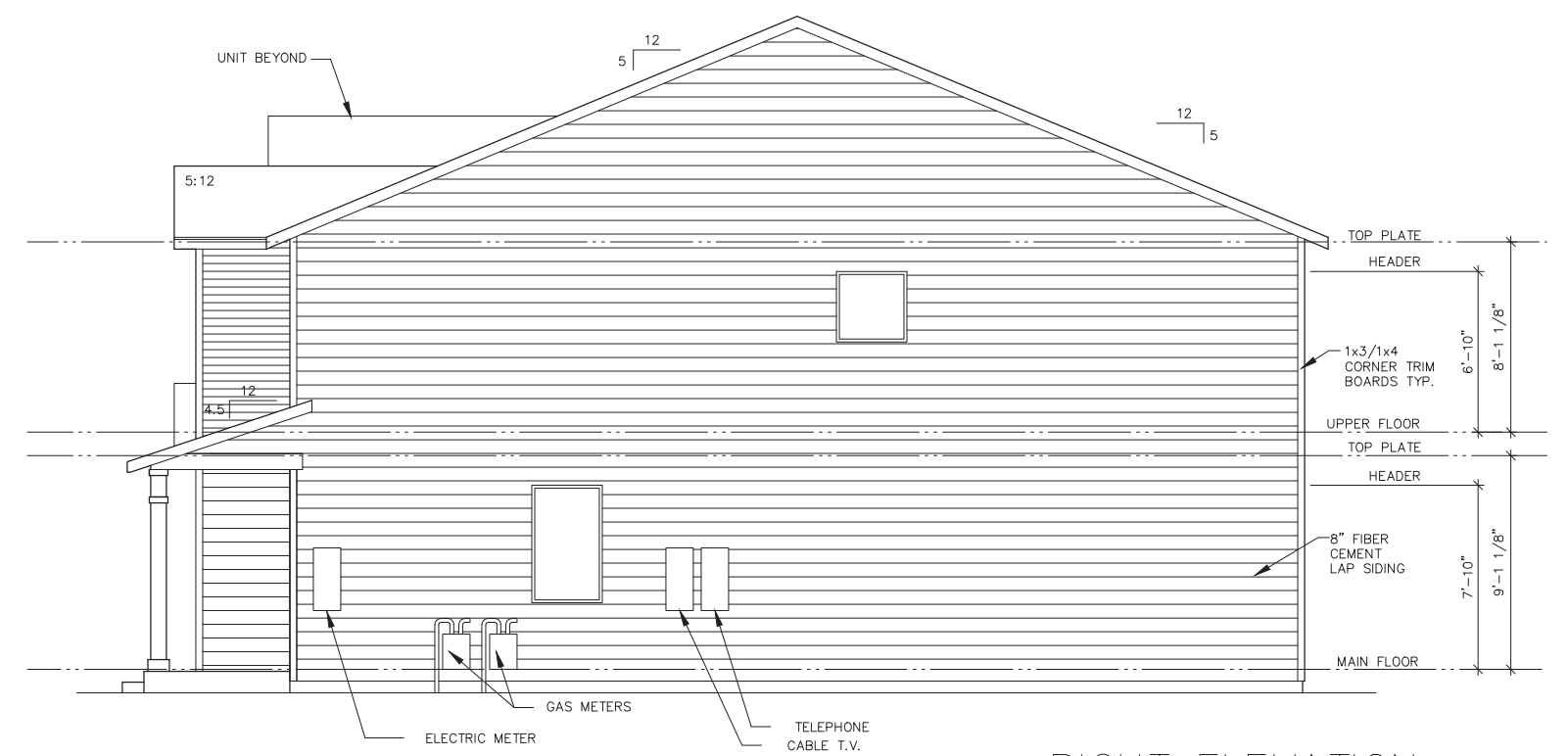
NOTE:
 TYPICAL EXTERIOR WALL TO BE
 CONSTRUCTED PER SCHEDULE
 PAGE 3.0 AS F6 SHEARWALLS
 UNLESS NOTED OTHERWISE

UPPER FLOOR PLANS
 SCALE 1/4" = 1'-0"



DOORS AND WINDOWS
SCALE 1/2" = 1'-0"

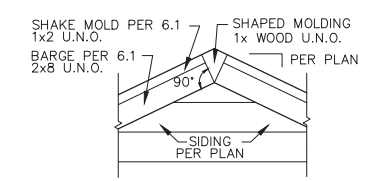
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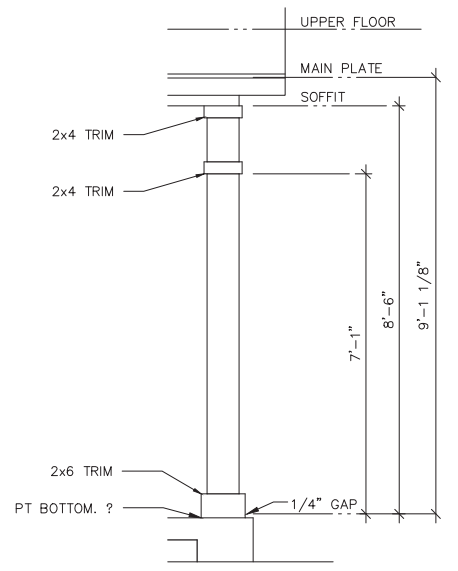
RIGHT ELEVATION
SCALE 1/4" = 1'-0"

FRONT ELEVATION GLAZING PERCENTAGE

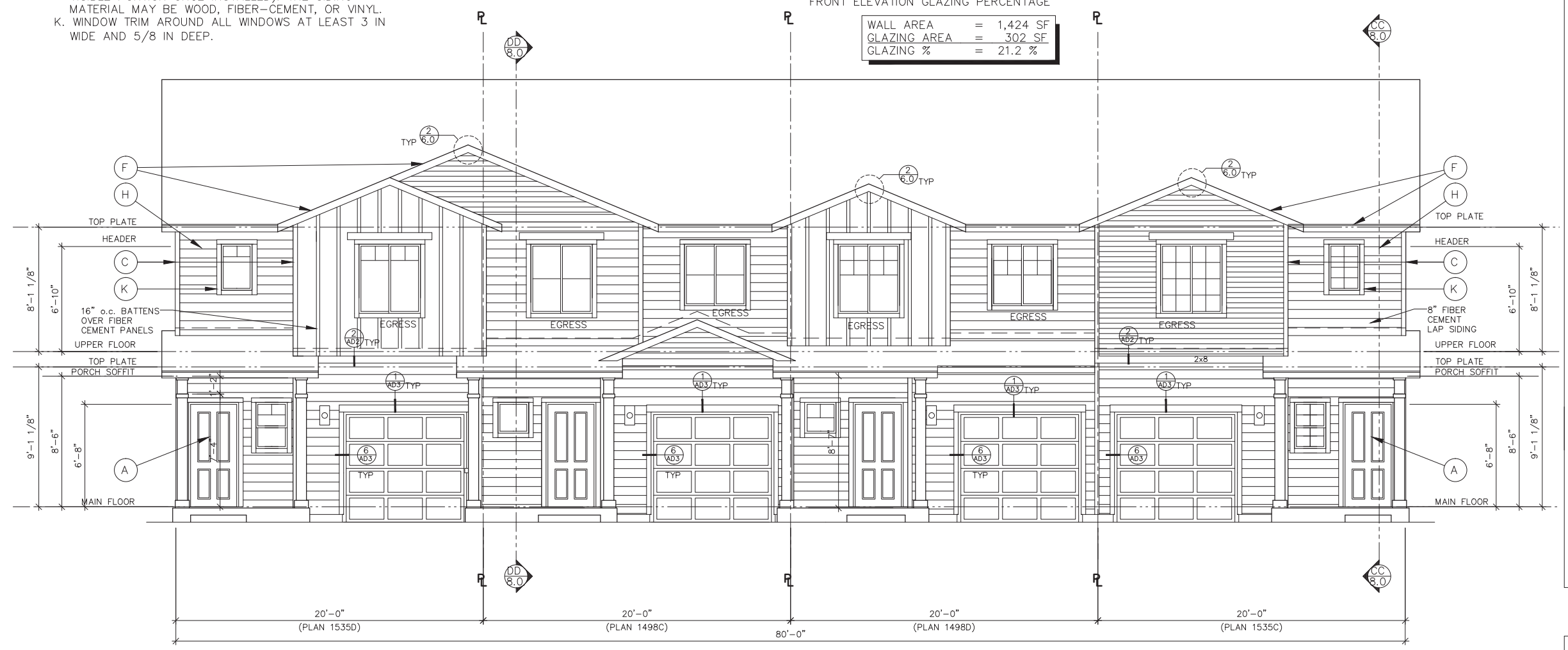
WALL AREA	=	1,424 SF
GLAZING AREA	=	302 SF
GLAZING %	=	21.2 %



2 GABLE END TRIM
SCALE 3/4" = 1'-0"



3 PORCH COLUMN DETAIL
SCALE 1/2" = 1'-0"



NOTE:
SEE SHEETS AD0 THROUGH AD4 FOR WATER INTRUSION AND FLASHING DETAILS.

FRONT ELEVATION
SCALE 1/4" = 1'-0"

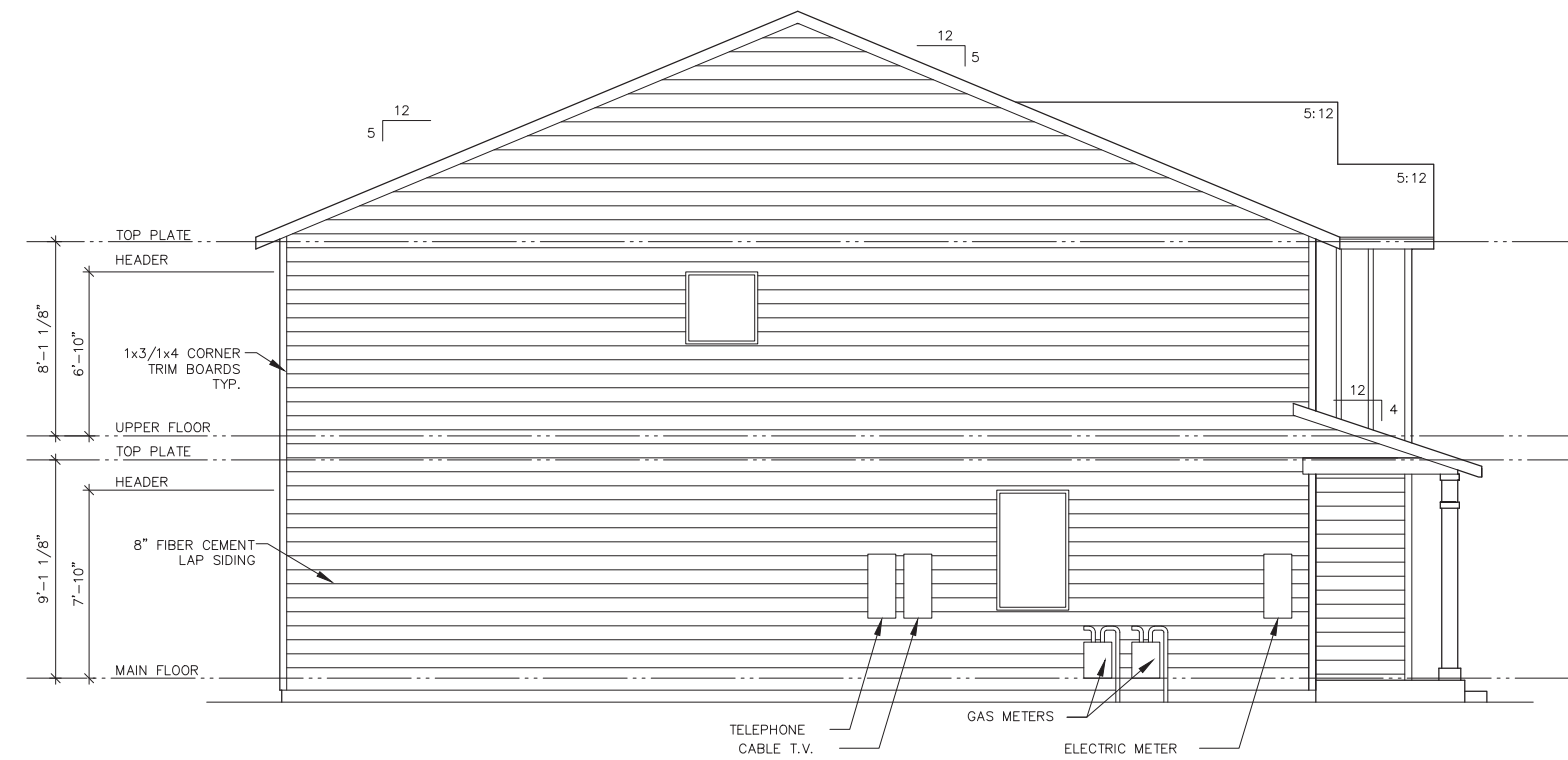
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 Bellevue, WA 98004
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BUILDER/DESIGNER:
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 4360 SW Macadam Ave, Suite 100
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 503-222-3719

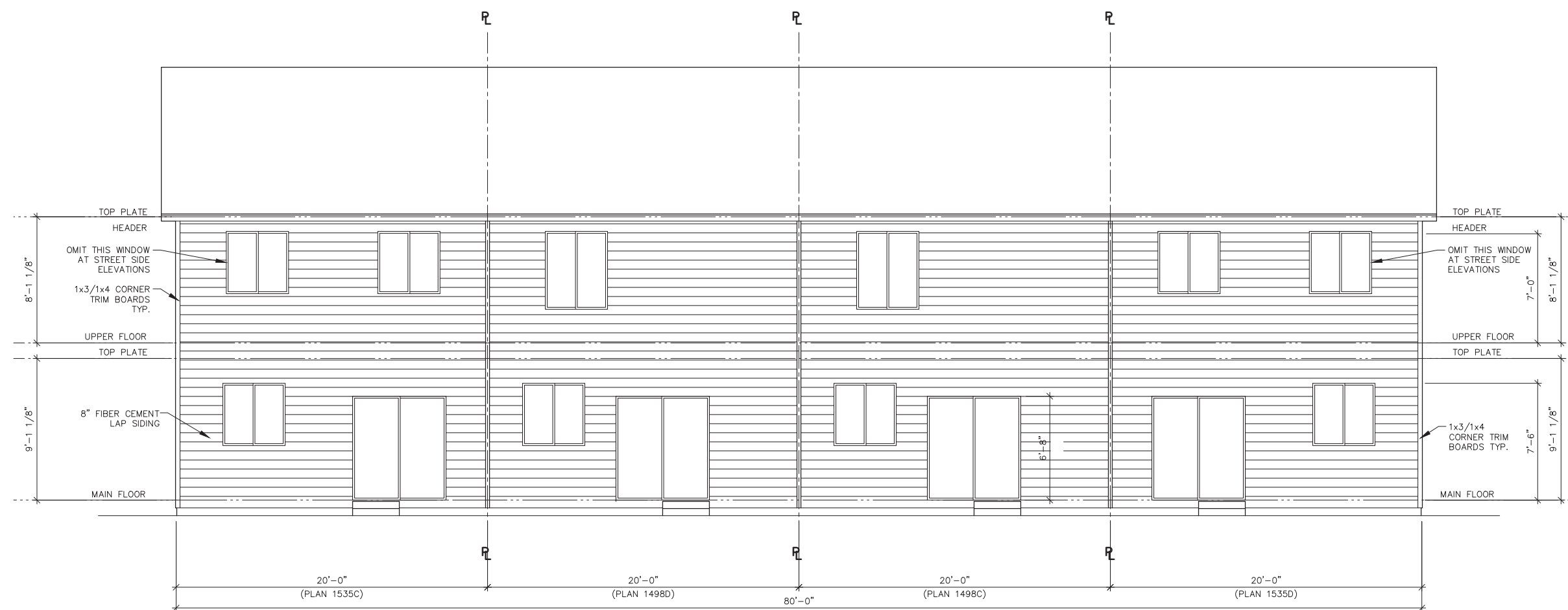
KELLOGG CREEK
FOUR-PLEX ELEVATIONS

REL 2/22/16

6.0



LEFT ELEVATION
SCALE 1/4" = 1'-0"



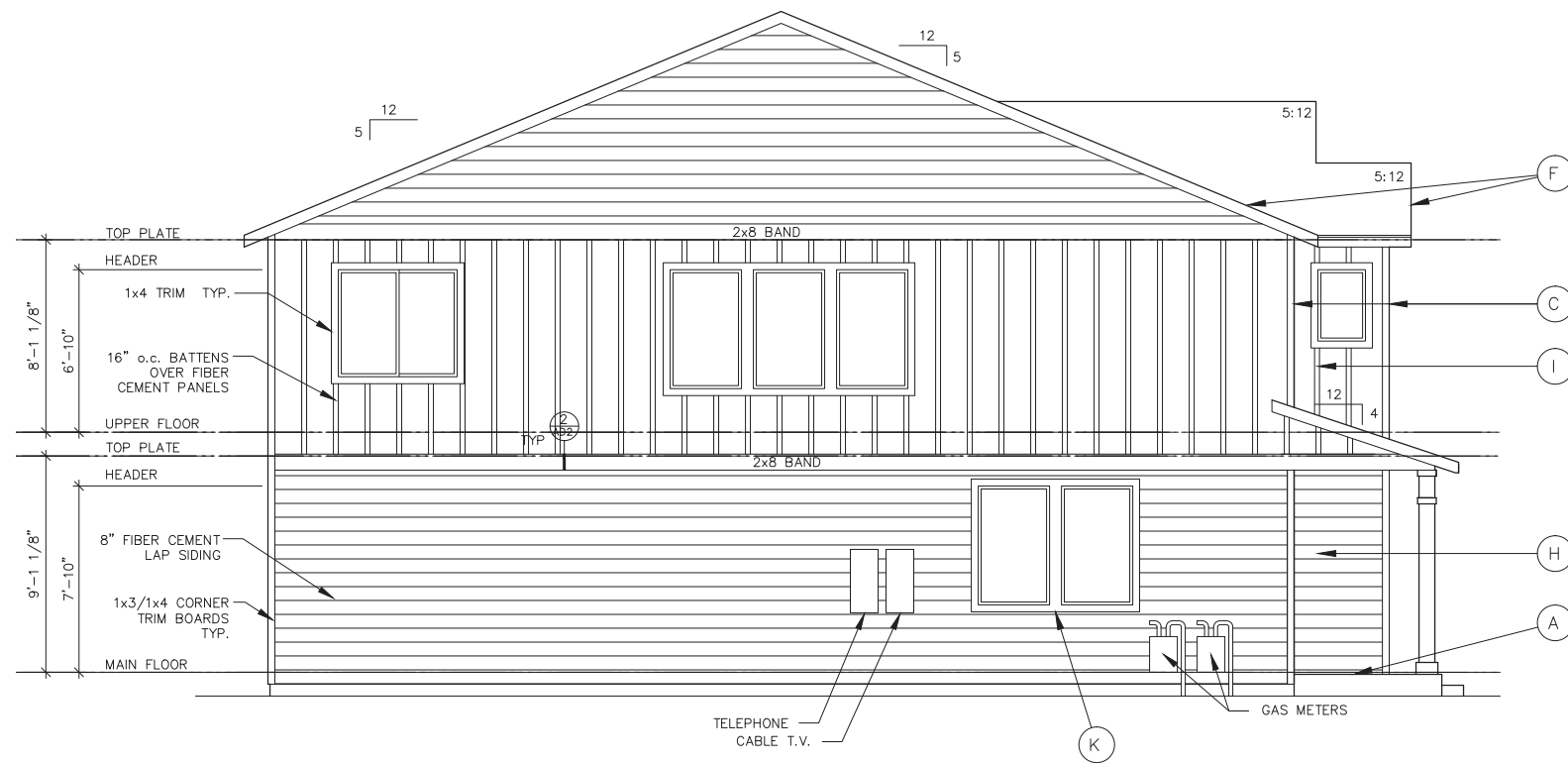
REAR ELEVATION
SCALE 1/4" = 1'-0"

STRUCTURAL DESIGN:
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Portland, OR 97239
503-222-3719

KELLOGG CREEK
FOUR-PLEX ELEVATIONS

REL 2/22/16
7.0



STREET SIDE LEFT ELEVATION

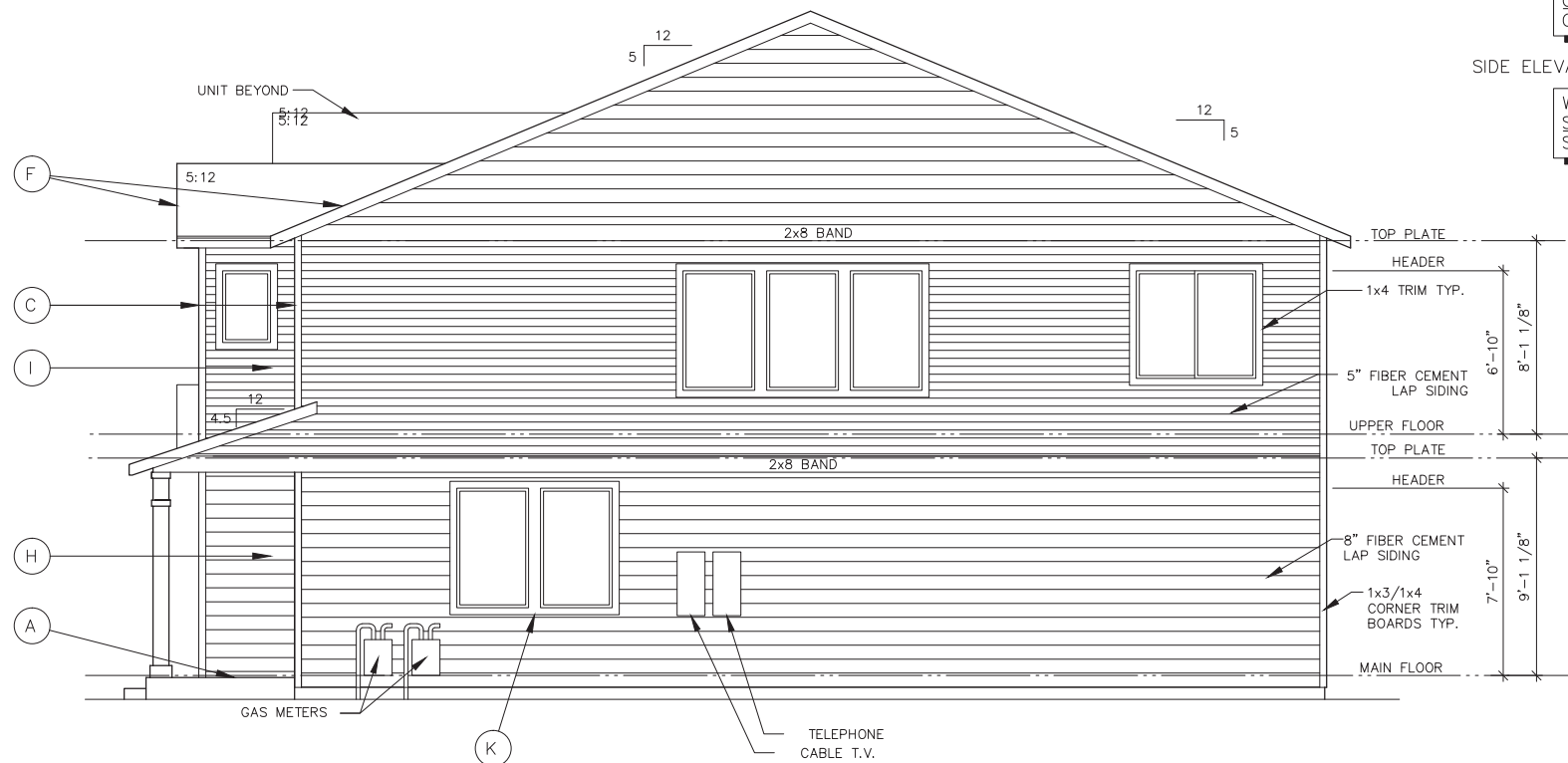
SCALE 1/4" = 1'-0"

SIDE ELEVATION GLAZING PERCENTAGE

WALL AREA	=	858 SF
GLAZING AREA	=	103.5 SF
GLAZING %	=	12.1 %

SIDE ELEVATION SIDING PERCENTAGE

WALL AREA	=	858 SF
SIDING AREA	=	425 SF
SIDING %	=	49.5 %



STREET SIDE RIGHT ELEVATION

SCALE 1/4" = 1'-0"

BUILDING DETAILED DESIGN ELEMENTS PER 19.505.1.C.4:

- A. COVERED PORCH AT LEAST 5 FT DEEP, AS MEASURED HORIZONTALLY FROM THE FACE OF THE MAIN BUILDING FAÇADE TO THE EDGE OF THE DECK, AND AT LEAST 5 FT WIDE.
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503-222-3719

KELLOGG CREEK
FOUR-PLEX STREET SIDE ELEVATIONS

REL 3/16/16

7.1



Preliminary Drainage Report

Kellogg Creek Planned Development

2322.14258.01

Prepared for
Brownstone Development, Inc.

47 S State Street

PO Box 2375

Lake Oswego, Oregon 97934

June 12, 2017

Revised from February 8, 2017

Preliminary Drainage Report
Kellogg Creek Planned Development

Prepared for Brownstone Development, Inc.
Project Name Preliminary Drainage Report
Job Number 2322.14258.01
Date June 12, 2017

DOWL

720 SW Washington Street, Suite 750
Portland, Oregon
97205

Telephone: 971-280-8641
Facsimile: 800-865-9847
araskin@dowl.com

Name	Title	Date	Revision	Reviewer
Atalia Raskin	WR Project Manager	2/8/2017	1	Scott Emmens
Atalia Raskin	WR Project Manager	6/12/2017	2	Scott Emmens

Executive Summary

The proposed Kellogg Creek residential development is located at 13333 Rusk Road in Milwaukie, Oregon (See Figure 1-1 Vicinity Map). The subdivision is approximately 14 acres and will include the construction of 92 new lots intended for single-family attached homes (rowhouses). Two public streets are proposed, these streets are identified as Street A and Street B. Frontage improvements to SE Kellogg Creek Drive will also be completed as part of this project.

Stormwater Management Standards

The proposed storm design will meet the requirements of the City of Milwaukie as listed in the *Public Works Standards* dated February 2015. The City of Milwaukie follows the current City of Portland's *Stormwater Management Manual* for water quality facility design.

The proposed project will fill wetlands located on the site. Therefore, the project must comply with the National Marine Fisheries Service (NMFS) criteria as part of the March 2014 Programmatic Biological Opinion and Essential Fish Habitat Consultation for Revisions to Standard Local Operating Procedures for Endangered Species (SLOPES V) as part of the Wetland Fill Permit with the Army Corp of Engineers.

Additionally, the project is located within the 100-year floodplain of Mt. Scott Creek. All fill placed on the site will be balanced with an equal amount of soil removed per City of Milwaukie Municipal Code 18.04.150 F Balanced Cut and Fill. Excavation will occur within the property boundary.

Water Quality

The project will discharge into Mt. Scott Creek, a tributary of Kellogg Creek and the Willamette River. Mt. Scott and Kellogg Creek are not listed as water quality limited and the Willamette River is listed for E. Coli. Typical pollutants from single-family residential projects include: nutrients, pesticides, metals, oil, grease and other petroleum products, and sediment. Dissolved copper, dissolved zinc, and PAHs are generally the primary constituents of concern for stormwater runoff in Oregon streams for their impact on ESA listed species. These pollutants are specially targeted for treatment in the selected stormwater management systems.

Water quality treatment will occur through stormwater bioretention basins, planters and a pond. These facilities are landscaped reservoirs that collect and treat stormwater runoff through vegetation and soil media. They provide pollution reduction and flow attenuation to reduce hydraulic impacts from urban developments on downstream rivers. Specific elements are incorporated into the design to increase the effectiveness of this stormwater facility type. Design elements include trapped catch basins to remove coarse sediment, soil media to provide stormwater filtration, and vegetation to will provide plant uptake.

The basins are designed using the BMP Sizing Tool developed by Clackamas County. This continuous simulation software is a regional tool for the Portland metro area. City of Milwaukie standards were checked using the City of Portland Presumptive Approach Calculator (PAC). The stormwater facilities were designed to the standards below:

- Water Quality: 50% of the cumulative rainfall from the 2-year storm event. (Using a continuous rainfall/runoff model).

The calculated peak water quality flow from the 5.47 ac of impervious area is 1.08 cfs with an approximate 15,531 cf runoff volume.

Water Quantity

Water quantity control will occur within the proposed bioretention facilities. Control structures will be placed within each facility to limit runoff to the SLOPES V criteria listed below. The City of Milwaukie does not require water quantity control for this project as the site discharge location into Mt. Scott Creek and Kellogg Creek.

- City of Milwaukie = Match existing flow rate to proposed flow from the 2 through 25-year storm event. – Not required for this project.
- SLOPES V = limit pre-developed discharge rates using a continuous simulation for flows between 42% of the 2-year event and the 10-year flow event.

The calculated water quantity volume is approximate 14,168 cf volume.

Conveyance

The proposed conveyance system will be designed using the 100-year storm event in the final Drainage Report.

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1 Project Overview

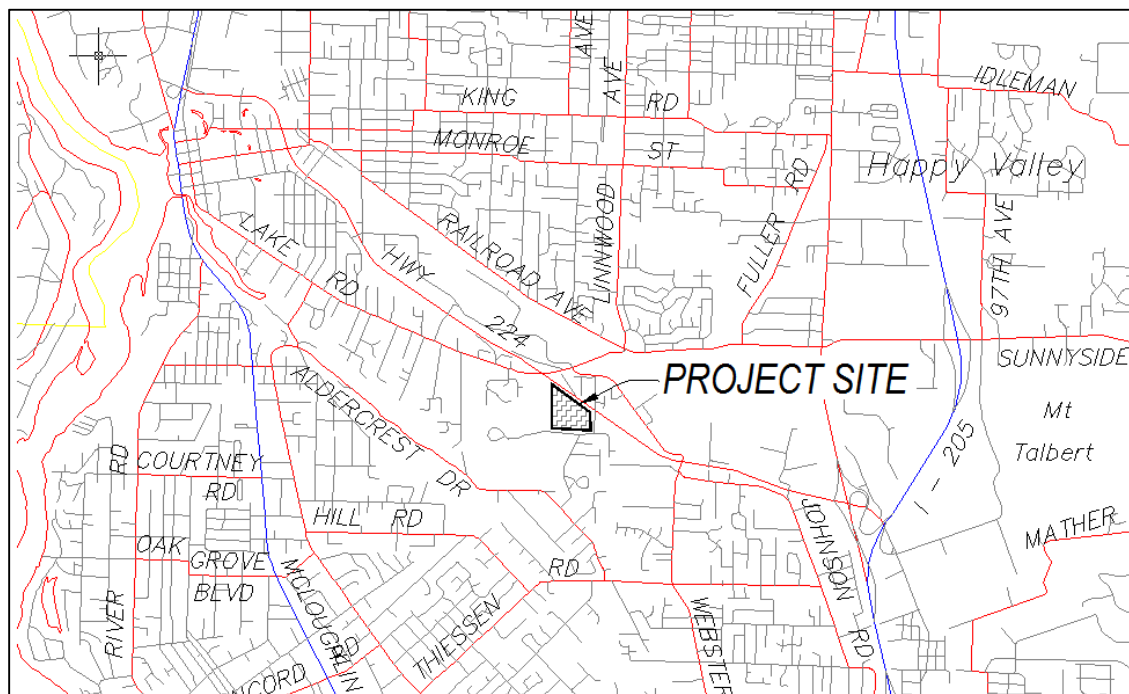
1.1 Project Overview

The Kellogg Creek residential subdivision is approximately 14 acres and will include the construction of 92 new lots intended for single-family attached homes (rowhouses). Two public streets are proposed, these streets are identified as Street A and Street B. Frontage improvements to SE Kellogg Creek Drive will also be completed as part of this project.

1.2 Location

The proposed project is located at 13333 Rusk Road in Milwaukie, Oregon (See Figure 1-1 Vicinity Map). The property includes the following tax lots: TL 22E 06AD 600, TL 22E 06AD 700, TL 22E 06AD 900, and TL 22E 06AD 901.

Figure 1-1 Vicinity Map



1.3 Methodology

The proposed storm design will meet the requirements of the City of Milwaukie as listed in the *Public Works Standards* dated February 2015. The City of Milwaukie follows the current City of Portland's *Stormwater Management Manual* for water quality facility design.

Additionally, the project must conform to Standard Local Operating Procedures for Endangered Species (SLOPES V) as part of the Wetland Fill Permit with the Army Corp of Engineers.

2 Existing Conditions

2.1 Topography

The existing site contains a driveway entrance for the adjacent Turning Point Church, grass, blackberry bushes and a scattering of trees. Fill material was previously placed at the site adjacent to the church parking lot. Mt. Scott Creek runs through the northern portion of the site. The site has gradual slopes between 0.5 and 5% and generally drains towards the northwest - west. Steeper slopes occur at the end of fill placed at the site and along Mt. Scott Creek. The highest elevation within the project area is 78; located along the southeast property corner. The lowest elevation of 66 is located in the western property boundary.

2.2 Climate

The site is in Milwaukie, Oregon and is located approximately 65 miles inland from the Pacific Ocean. There is a gradual change in seasons with defined seasonal characteristics. Average daily temperatures range from 36°F to 83°F. Record temperatures recorded for this region of the state are -3°F and 107°F. Average annual rainfall recorded in this area is 42-inches. Average annual snowfall is approximately 1-inches between December and February.

2.3 Site Geology

The underlying soil types on the site, as classified by the United States Department of Agriculture Soil Survey of Clackamas County, Oregon are identified in Table 2-1 (See Technical Appendix: Hydrologic Soils Map - Clackamas County).

Table 2-1 Soil Characteristics

Soil Type	Hydrologic Group
Cove Silty Clay Loam	D
Salem Silt Loam	B
Wapato Silty Clay Loam	C/D
Woodburn Silt Loam	C

A majority of the site is classified as Cove Silty Clay Loam. Therefore, the entire site has conservatively been assigned a soil Group D. Group D soils have very slow infiltration rates when thoroughly saturated.

Groundwater was encountered during the geotechnical evaluation completed by GEO Consultants Northwest. Groundwater depths varied across the site from 3 to 12 below the ground surface. This variation of groundwater depths is a result of the varying amount of existing fill at the site. The elevation of groundwater is approximately 65 ft across the site.

2.4 Curve Number

The curve number represents runoff potential from the soil. The major factors for determining the curve number values are hydrologic soil group, cover type, hydrologic condition and antecedent runoff condition. The pervious curve numbers of 79 representing Woods-Grass Combination in Good Condition was used at the site. A pre-development condition of forested was used in conformance with SLOPES V criteria. (See Technical Appendix: Table 2-2c – Technical Release 55-Urban Hydrology for Small Watersheds).

2.5 Time of Concentration

The time of concentration (T_C) as described in NEH-4 Chapter 15 is defined in two ways; the time for runoff to travel from the furthestmost point of the watershed to the point in question, and the time from the end of excess rainfall to the point of inflection on the trailing limb of the unit hydrograph. Time of concentration can be estimated from the following formulas. The time of concentration was calculated to be 24 minutes (See Technical Appendix: Time of Concentration Calculation).

Sheet Flow

$$T_t = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5} s^{0.4}}$$

- T_t = Travel Time (hours) n = Manning’s “n” of slope
 L = Length of flow (ft) P_2 = 2-Year, 24-hour rainfall (in)
 s = Slope (ft / ft)

Shallow Concentrated Flow

$$T_t = \frac{L}{3600V}$$

- T_t = Travel Time (hours) L = Flow Length (ft)
 V = Average Velocity (ft / s) 3600 = seconds / hour

2.6 Hydrology

Stormwater runoff from the site sheet flows north to Mt. Scott Creek with the exception of the church driveway entrance and a small area of pervious area. Catch basins collect this impervious area and the adjacent church and sends runoff south to a public storm sewer in SE Kellogg Creek Dr. The SE Kellogg Creek Dr. storm sewer heads south and outfalls into a tributary of Kellogg Creek. Water quality treatment is not provided at the site.

2.7 Basin Area

Impervious and pervious surface areas for the existing conditions are shown in Table 2-2. The site is 1.4% impervious. Approximately 1.466 acres of the site drains south to Kellogg Creek (See Technical Appendix: Figure 1 – Existing Basin Delineation).

Table 2-2 Existing Basin Areas

Basin	Impervious Area, ac	Pervious Area, ac	Total Area, ac
Site (Mt Scott Creek)	0.202	13.846	14.048
Kellogg Creek Dr.	0.319	0.044	0.363
Total	0.521	13.890	14.411

3 Proposed Conditions

3.1 Curve Number

The pervious curve numbers of 80 representing Open Space in Good Condition was used at the site. (See Technical Appendix: Table 2-2a – Technical Release 55-Urban Hydrology for Small Watersheds).

3.2 Time of Concentration

A time of concentration of 5 minutes was used for the delineated basins.

3.3 Hydrology

Stormwater runoff outside the limits of work will continue to sheet flow to Mt. Scott Creek. Floodplain grading will occur so that floodwaters will recede back into the creek channel. Two new outfalls are proposed as part of this project. These outfalls are included as part of the wetland fill permit. The church entrance will be modified as part of this project.

Water quality treatment and quantity facilities will be added to the site. A summary of each facility is provided below.

- Bioretention Basin A: Bioretention Pond, Outfall to Mt. Scott Creek
- Bioretention Basin B, C & D: Bioretention Pond, Outfall to Mt. Scott Creek through a flow dispersion trench. Note Basin B, includes street planters identified as Planter C within the calculations.
- Pond E: Extended Dry Pond to the tributary of Kellogg Creek
- Planters A and B: Bioretention Planters, Outfall to Kellogg Creek. Planters A will treat proposed onsite street A. Planter B is located along Kellogg Creek Drive.
- Untreated: Street grading constraints and protected trees prohibit this portion of the street from flowing to a treatment facility.

3.4 Basin Area

Impervious and pervious surface areas for proposed conditions are shown in Table 3-1. The site is 36.7 % impervious in proposed conditions. The majority of the project will occur at the site, although some work is being done within church property. Street improvements to SE Kellogg Creek Dr. will also occur as part of this project. The Creek basin will not be developed but includes grading to balance the floodplain. The amount of area draining to the tributary of Kellogg Creek is 1.83 acres, slightly more than in existing conditions (See Technical Appendix: Figure 2 – proposed Basin Delineation).

Table 3-1 Proposed Basin Areas

Basin	Impervious Area, ac	Pervious Area, ac	Total Area, ac
Basin A	1.815	0.871	2.686
Basin B	0.830	0.237	1.067
Basin C	0.692	0.329	1.021
Basin D	0.725	0.290	1.015
Pond E	0.465	0.163	0.628
Planter A	0.133	0.035	0.168
Planter B	0.539	0.187	0.726
Mt. Scott Creek	0.000	6.788	6.788
Kellogg Creek	0.086	0.226	0.312
Total	5.285	9.126	14.411

4 Hydrologic and Hydraulic Analysis

4.1 Design Guidelines

The proposed storm design will meet the requirements of the City of Milwaukie as listed in the *Public Works Standards* dated February 2015. Section 2.0013 describes the allowable flow determination methods including the selected Unity Hydrograph Method.

4.2 Hydrologic Method

The Santa Barbara Urban Hydrograph (SBUH) was used for this analysis. The SBUH method is based on the curve number (CN) approach, and uses the Natural Resources Conservation Service’s (NRCS) equations for computing soil absorption and precipitation excess.

The SBUH method converts the incremental runoff depths into instantaneous hydrographs, which are then routed through an imaginary reservoir with a time delay equal to the basin time of concentration.

The runoff function of xpswmm generates surface and subsurface runoff based on design or measured rainfall conditions, land use and topography. xpswmm Version 17.1 was used for our hydrology and hydraulics analysis. xpswmm is based on the public EPA SWMM program. xpswmm is an approved method of analysis by City of Milwaukie.

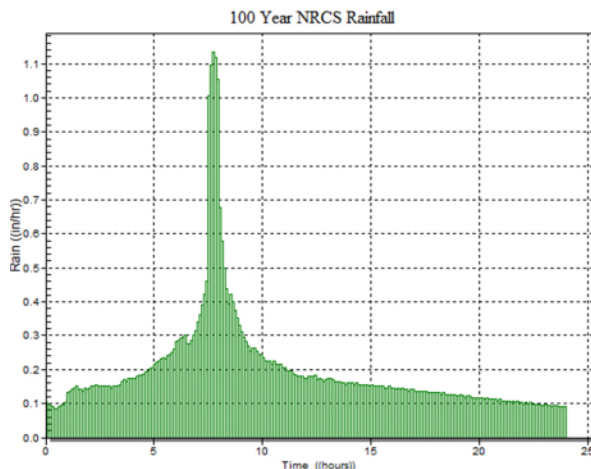
4.3 Design Storm

The rainfall distribution to be used within the City of Milwaukie jurisdiction is the design storm of 24-hour duration based on the standard Type 1A rainfall distribution. Table 4-1 shows total precipitation depths for different storm events. The NRCS Distribution for a type 1A 24-hour rainfall distribution for a 25-year storm event is shown in Figure 4-1.

Table 4-1 Precipitation Depth

Recurrence interval (years)	Total Precipitation Depth (in)
2	2.40
10	3.50
25	4.00
100	4.70

Figure 4-1 100-Year Type 1A Rainfall Distribution



4.4 Basin Runoff

Table 4-2 lists the runoff rates for existing and proposed conditions for the site during the 2, 10, 25 and 100-year storm events. These values do not include onsite detention. (See Technical Appendix: Existing and Proposed Hydrographs).

Table 4-2 Runoff Rates

Recurrence Interval (years)	Existing Peak Runoff Rate (cfs)	Proposed Peak Runoff Rate (cfs)
2	1.310	4.253
5	2.469	6.045
10	3.569	7.621
25	4.749	9.251
100	6.499	11.602

5 Conveyance Analysis

5.1 Design Guidelines

The analysis and design criteria described in this section will follow the City of Milwaukie's *Public Works Standards*. The manual requires storm drainage system and facilities be designed to convey the 100-year storm event.

5.2 System Capacity

The proposed conveyance system was designed to convey and contain the peak runoff from a 100-year design storm.

5.3 System Performance

A complete conveyance analysis will be completed in the final Drainage Report.

6 Water Quality & Quantity

6.1 Design Guidelines

The proposed water quality and quantity facilities were designed per the City of Milwaukie requirements as listed in the *Public Works Standards* dated February 2015. The City of Milwaukie follows the current City of Portland's *Stormwater Management Manual* for water quality facility design. The City of Milwaukie requires the proposed discharge rate for the 2, 5, 10, and 25-year events to be that of the existing discharge rate. The City of Milwaukie does not require water quantity control for this project as the site discharge location into Mt. Scott Creek and Kellogg Creek.

Detention is also required to meet SLOPES V criteria. SLOPES V limits the proposed discharge rates using a continuous simulation for flows between 42% of the 2-year event and the 10-year flow event of existing flows. Existing conditions are assumed to be forested.

6.2 Water Quality and Quantity Facilities

The project will discharge into Mt. Scott Creek, a tributary of Kellogg Creek and the Willamette River. Mt. Scott and Kellogg Creek are not listed as water quality limited and the Willamette River is listed for E. Coli. Typical pollutants from single-family residential projects include: nutrients, pesticides, metals, oil, grease and other petroleum products, and sediment. Dissolved copper, dissolved zinc, and PAHs are generally the primary constituents of concern for stormwater runoff in Oregon streams for their impact on ESA listed species. These pollutants are specially targeted for treatment in the selected stormwater management systems.

Water quality treatment will occur through stormwater bioretention basins, planters and a pond. These facilities are landscaped reservoirs that collect and treat stormwater runoff through vegetation and soil media. They provide pollution reduction and flow attenuation to reduce hydraulic impacts from urban developments on downstream rivers. Specific elements are incorporated into the design to increase the effectiveness of this stormwater facility type. Design elements include trapped catch basins to remove coarse sediment, soil media to provide stormwater filtration, and vegetation to will provide plant uptake.

The basins are designed using the BMP Sizing Tool developed by Clackamas County. This continuous simulation software is a regional tool for the Portland metro area. City of Milwaukie standards were checked using the City of Portland Presumptive Approach Calculator (PAC).

Bioretention facilities are designed to incorporate the following criteria:

- Water Depth: 10 to 18 inches
- Drain Rock Depth: 6 to 18 inches
- Growing Medium Depth: 18 inches
- Minimum Freeboard: 2 inches
- Perforated Pipe Under Drain
- Minimum Orifice Size: 1 inch

There are seven (7) proposed bioretention facilities located in the proposed project. Each facility was designed to maximize water contact with vegetation for biological treatment. A control structure with one or two orifices will control the allowable release rate. Appropriate vegetation will be planted in the basin as specified by the City of Portland's *Stormwater Management Manual* (See Technical Appendix: WES BMP Sizing Report). Table 6-1 provides a summary of each facility.

Table 6-1 Bioretention Facility Summary

Basin ID	Facility Type	Minimum Top Area (not including Freeboard) (sf)	Minimum Bottom Area (sf)	Water Depth (in)	Soil Depth (in)	Rock Depth (in)	Total Depth (in)
Basin A	Bioretention Basin	3,102	2,445	12	18	6	36
Basin B	Bioretention Basin	849	607	12	18	6	36
Basin C	Bioretention Basin	1,193	887	12	18	6	36
Basin D	Bioretention Basin	1,879	1,397	12	18	6	36
Pond E*	Dry Pond	1,084	507	18	0	0	18
Planter A	Planter	215	-	10	18	7	35
Planter B	Planter	1,497	-	10	18	7	35

* Pond E will include soil media and plantings at the bottom of the pond.

6.3 Flow Dispersion

A flow dispersion trench will be used at the outfall of Bioretention Basin B, C and D. This flow spreader was designed to disperse flow over a large area in an effort to reduce erosive velocities of the stormwater discharge entering the wetland during the 100-year event. The flow spreader will be a gravel filled trench with a perforation pipe in the bottom of the trench.

Soils in the proposed discharge location were conservatively assumed to consist of silty clay loam. This soil type has a maximum permissible velocity of 0.5-fps, which was used to determine the facility length (See Technical Appendix: Chow – Fig. 7-3 U.S. and U.S.S.R. data on Permissible Velocities for Non-cohesive Soils). The flow spreader was treated as a broad crested weir with a weir coefficient of 2.4. The broad crested weir equation is shown below.

$$q = 2.4H^{3/2}$$

Where:

q= Volumetric flow rate per unit length, cfs/ft

H= Depth of flow over weir

Table 6-2 Flow Dispersion Trench

Length (ft)	Discharge (cfs)	Depth (ft)	q (cfs/ft)	Velocity (fps)
135	3.01	0.04	0.02	0.50

7 Floodplain Analysis

FEMA Flood Insurance Rate Maps were used to determine the 10, 25 and 100-year flood stage for Mt. Scott Creek. The site is located on map number FM41005C0036D, with an effective date of June 17, 2008. Elevations are provided in the NAVD 1988 datum, the same as used for this project. The upstream most cross section is C located just downstream of Hwy 224. The 100-year elevation at cross section C is 69.9.

The 25-year elevation was interpolated from the FEMA profile. These elevations were used to balance the floodplain and determine the elevation of the stormwater facilities. FEMA determined elevations are listed in Table 7-1 (See Technical Appendix: Flood Insurance Study, Clackamas County - Mt. Scott Creek Profile).

Table 7-1 Mt. Scott Creek Water Surface Elevations

Recurrence Interval (years)	Water Surface Elevation	
	Upstream Property Boundary	Downstream Property Boundary
10	69.4	67.5
25	69.7	67.3
100	69.9	67.3

8 Operation & Maintenance

Maintenance of water quality and quantity facilities is very important to ensure they operate as designed. Inadequate maintenance can be attributed to premature failures of these facilities. Stormwater facilities for the site will be maintained and operated privately by the homeowners. Prior to creation of an HOA, please contact Randy Myers at 503-358-4460 or Randy@Brownstonehomes.net about inspection and maintenance of the proposed stormwater facilities.

The owners must insure the water quality systems efficiently perform their function of removing petroleum hydrocarbons, sediments, metals, bacteria and nutrients from stormwater runoff and that the water quantity system performs their function of regulating the rate and volume of stormwater runoff leaving the property.

The Operation and Maintenance Plan is provided within the Technical Appendix.

9 Summary

The proposed water quality and quantity facility design follows the City of Milwaukie's *Public Works Standards* dated February 2015. The City of Milwaukie follows the current City of Portland's *Stormwater Management Manual* for water quality facility design.

Additionally, the project must comply with the National Marine Fisheries Service (NMFS) criteria as part of the March 2014 Programmatic Biological Opinion and Essential Fish Habitat Consultation for Revisions to Standard Local Operating Procedures for Endangered Species (SLOPES V) as part of the Wetland Fill Permit with the Army Corp of Engineers.

Bioretention facilities are proposed to provide a high level of treatment and detention.



Technical Appendix

Technical Appendix

- Figure 1 – Existing Basin Delineation
- Figure 2 – Proposed Basin Delineation

- Hydrologic Soil Map – Washington County
- Table 2-2c – Runoff Curve Numbers for Other Agricultural Lands
- Table 2-2a – Runoff Curve Numbers for Urban Areas
- Time of Concentration
- WES BMP Sizing Report
- PAC
- Existing & Proposed Hydrographs
- Flood Insurance Study, Clackamas County - Mt. Scott Creek Profile
- Chow – Fig. 7-3 U.S. and U.S.S.R. data on Permissible Velocities for Non-cohesive Soils
- Operation and Maintenance Plan
- Geotechnical Evaluation – Kellogg Creek Development, GEO Consultants Northwest, October 7, 2016.

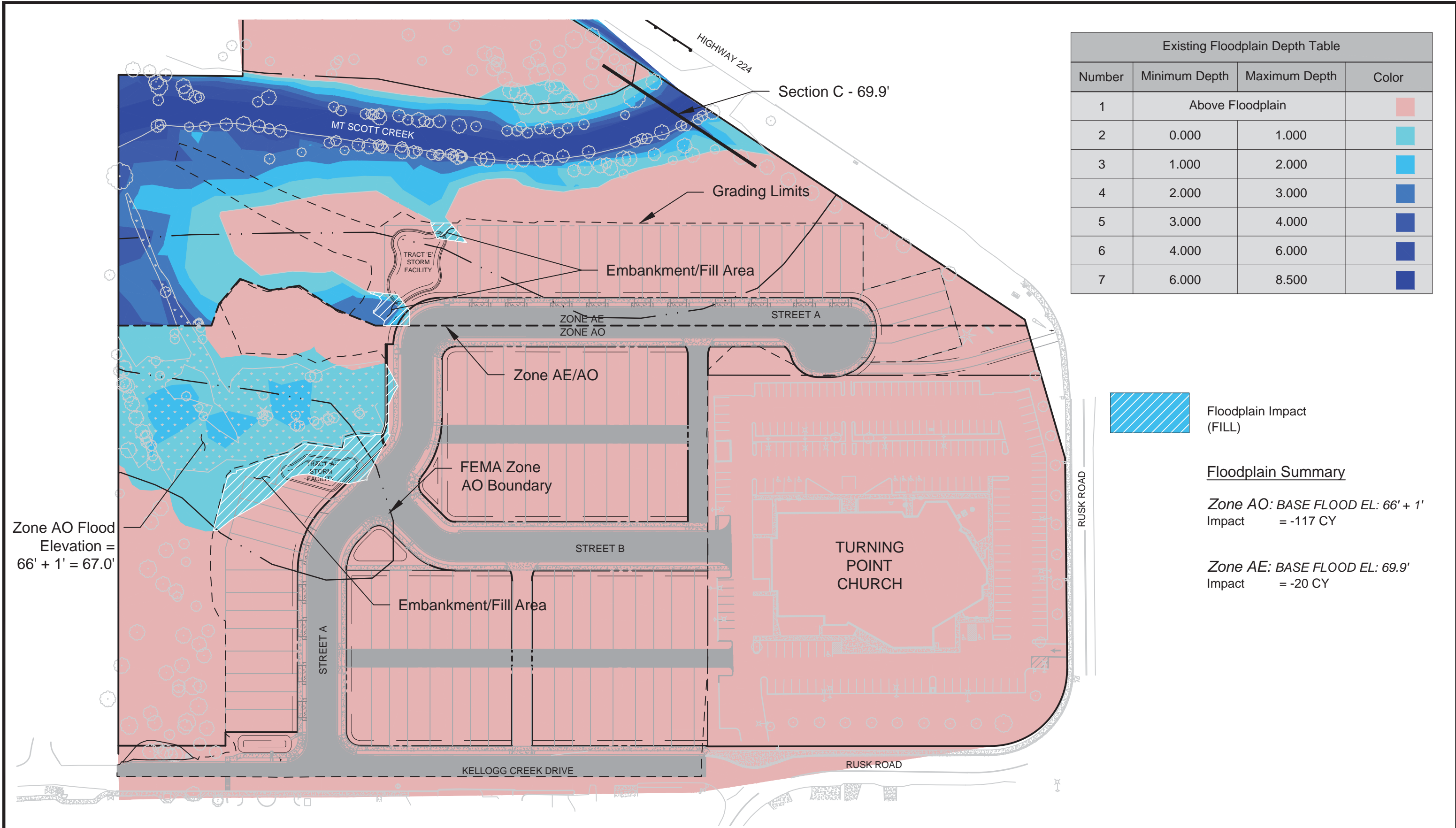
References

Flood Insurance Study (FIS) – Clackamas County, Oregon and Incorporated Areas, FEMA, June 17, 2008.

Public Works Standards, City of Milwaukie, February 2015.

Stormwater Management Manual, City of Portland, August 2016.

Programmatic Biological Opinion and Essential Fish Habitat Consultation for Revisions to Standard Local Operating Procedures for Endangered Species (SLOPES V), National Marine Fisheries Service (NMFS), March 2014.



Existing Floodplain Depth Table			
Number	Minimum Depth	Maximum Depth	Color
1	Above Floodplain		
2	0.000	1.000	
3	1.000	2.000	
4	2.000	3.000	
5	3.000	4.000	
6	4.000	6.000	
7	6.000	8.500	



Floodplain Impact (FILL)

Floodplain Summary

Zone AO: BASE FLOOD EL: 66' + 1'
Impact = -117 CY

Zone AE: BASE FLOOD EL: 69.9'
Impact = -20 CY

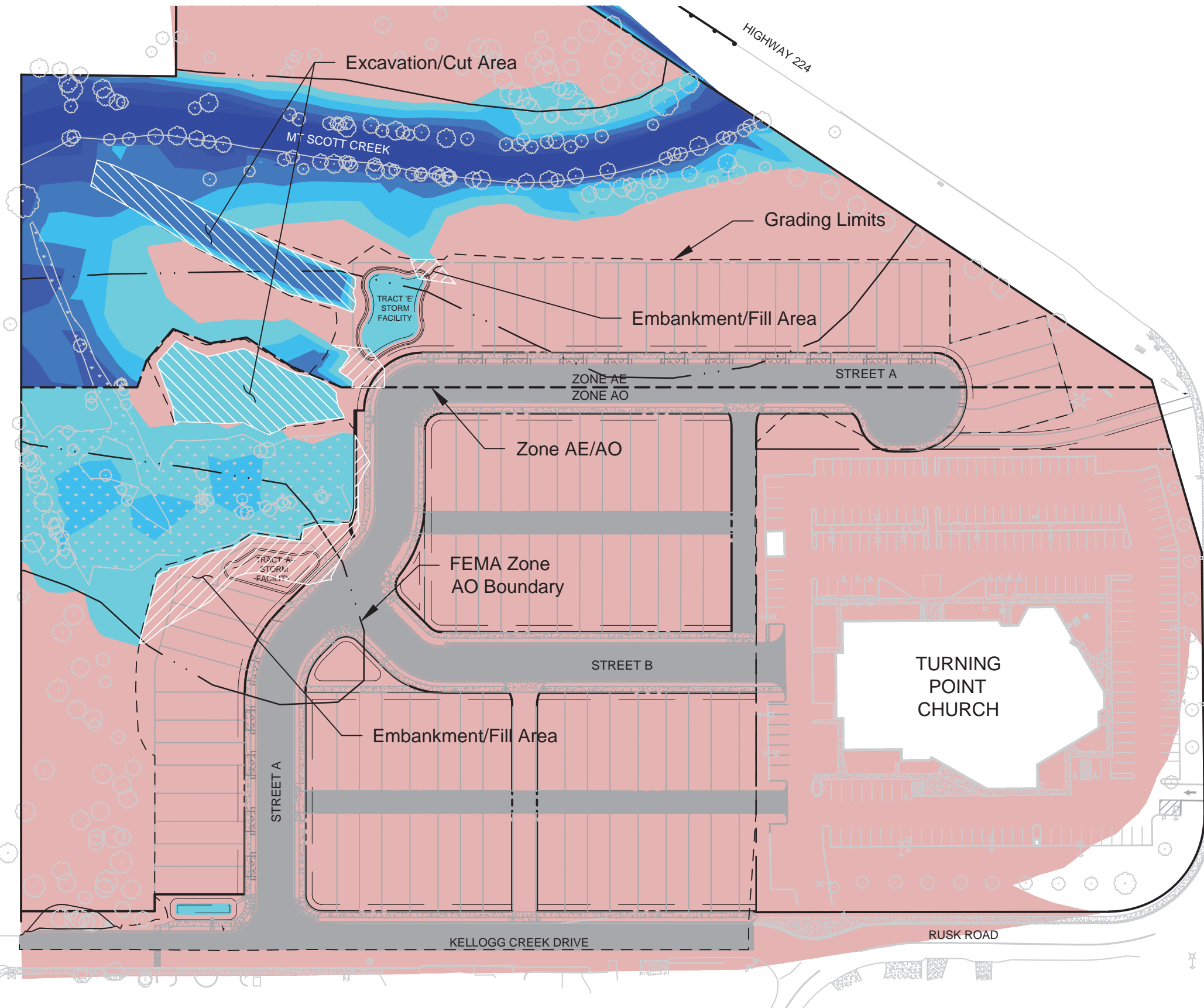
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**KELLOGG CREEK SUBDIVISION
EXISTING FLOODPLAIN**

PROJECT	14258.01
DATE	7/12/2017

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Proposed Floodplain Depth Table			
Number	Minimum Depth	Maximum Depth	Color
1	Above Floodplain		
2	0.00	1.00	
3	1.00	2.00	
4	2.00	3.00	
5	3.00	4.00	
6	4.00	6.00	
7	6.00	8.50	

Floodplain Mitigation (CUT)

Floodplain Impact (FILL)

Floodplain Summary

Zone AO:
 Impact = -117 CY
 Mitigation = +126 CY
 Surplus = + 9 CY

Zone AE
 Impact = -20 CY
 Mitigation = +501 CY
 Surplus = + 481 CY

Net Floodplain Surplus = +490 CY



**KELLOGG CREEK SUBDIVISION
 FLOODPLAIN IMPACTS & MITIGATION**

PROJECT	14258.01
DATE	7/13/2017

FIGURE 2/2

June 12, 2017

Project #: 20703

Brett Kelper, AICP and Alex Roller, EI
City of Milwaukie
10722 SE Main Street
Milwaukie, OR 97222

RE: Kellogg Creek Townhomes Supplemental Traffic Operational Analysis Information

Dear Mr. Kelper and Mr. Roller,

This letter addresses comments raised at the May 23 and May 25, 2017 Planning Commission hearings that questioned two aspects of the February 7, 2017 Traffic Impact Study (TIS) report. To address the comments, the Commission and the City of Milwaukie have asked us to respond to the two points below:

1. The traffic study collected weekday AM and PM peak period traffic counts at the three following intersections on Wednesday, November 2, 2016; on that day, classes at the North Clackamas School District were not in session:
 - a. OR 224/SE Rusk Road
 - b. SE Rusk Road/SE Ruscliffe Road
 - c. SE Rusk Rd/SE Kellogg Creek Drive
2. The northbound approach of SE Rusk Road at the intersection of OR 224/SE Rusk Road was analyzed with a shared left-through lane and a right-turn lane.

To address these comments, we have been asked to:

- Collect weekday AM and PM peak period traffic counts at the three intersections on a day when school is in session.
- Complete an AM and PM peak hour analysis for the three intersections for the existing, background, and total traffic scenarios and determine if operating standards are met.
- Complete an AM and PM peak hour analysis for the proposed site driveway.
- Analyze the northbound approach of SE Rusk Road at the intersection of OR 224/SE Rusk Road as a single lane.

As described above, this letter provides supplemental traffic analysis results that address each of the requested items, and finds that the three study intersections and the site driveway would operate acceptably in the future with site development.

TRAFFIC IMPACT ANALYSIS

New turning movements counts were collected at the three intersections during the weekday AM and PM peak periods on Thursday, June 1, 2017, when school was in session (in addition, seasonal activities at North Clackamas Park on SE Kellogg Drive were also active). The weekday AM and PM hour volumes are shown in Figure 1 and Figure 2, respectively, alongside the volumes (collected in November 2016) from the February 2017 traffic report.

The northbound approach on SE Rusk Road at the intersection of OR 224/SE Rusk Road was modeled with a single shared left-through-right lane per City staff's request.

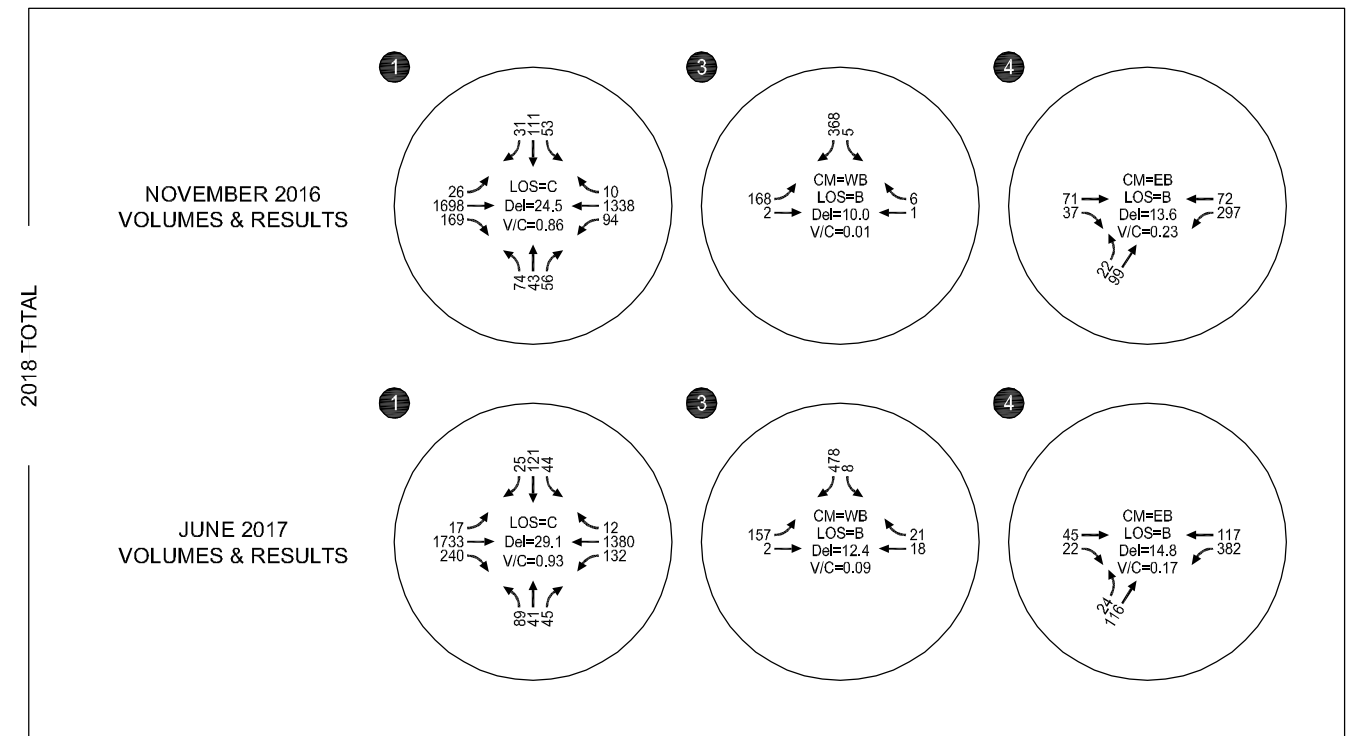
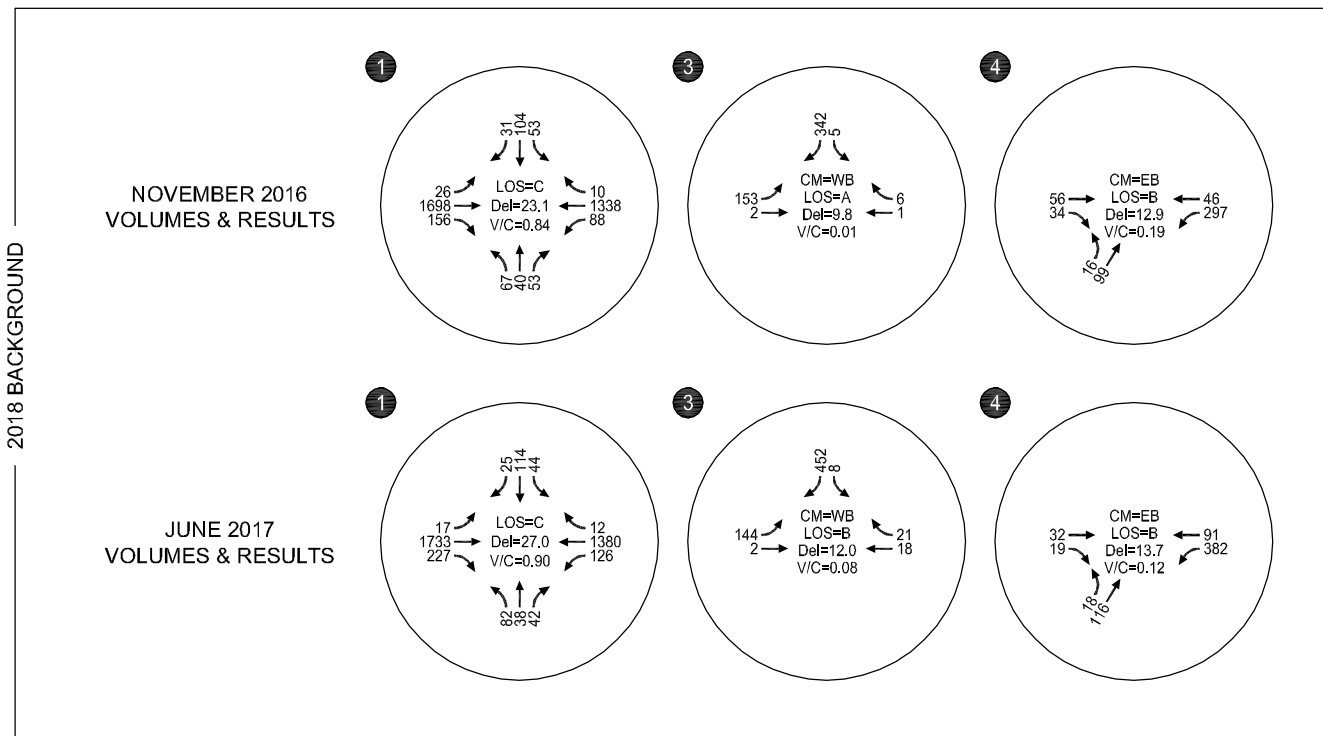
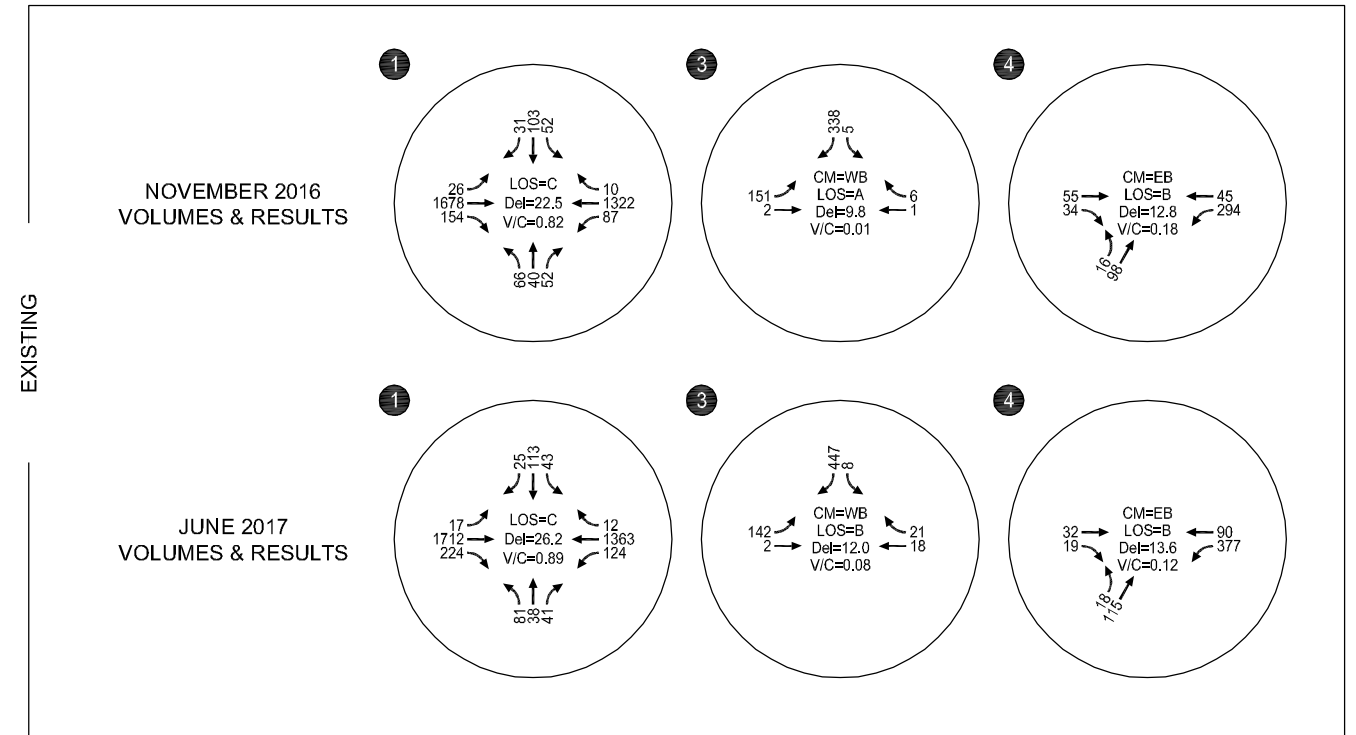
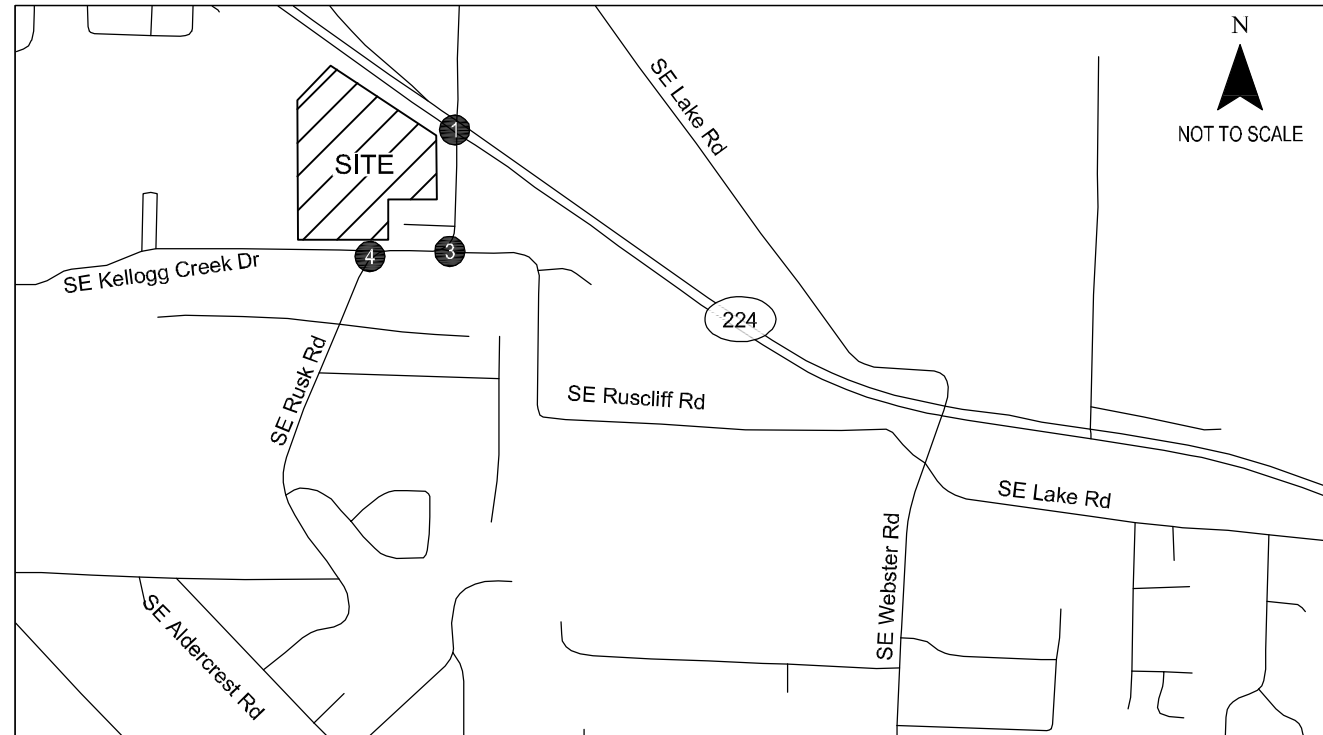
The operational analysis was conducted for the weekday AM and PM peak hours for existing conditions, background, and total traffic with the new traffic volumes and lane configuration on SE Rusk Road. The results for the weekday AM and PM peak hours are shown in Figure 1 and Figure 2, respectively, alongside the results from the February 2017 traffic report. The applicable operating standards and results are shown below in Table 1.

As the results indicate, all three intersections and the site driveway would meet the respective operational standards under the total traffic conditions for both the weekday AM and PM peak hours. Given that the intersections operate acceptably under total traffic conditions with site-generated trips, they will also operate acceptably under existing and background traffic conditions without the site-generated trips.

Table 1. June 1, 2017 Operational Results and Comparison to Previous

Intersection	Jurisdiction	Applicable Peak Hour Operating Standards	Previous Total Traffic Results		June 1, 2017 Total Traffic Results		Mets Standard?
			AM Peak	PM Peak	AM Peak	PM Peak	
#1 OR-224/SE Rusk Road	ODOT	Intersection V/C ≤ 0.99	0.88	0.86	0.95	0.93	Yes
#3 SE Rusk Road/SE Ruscliffe Road	City of Milwaukie & Clackamas County	LOS "D" & PM V/C ≤ 0.99	LOS "B"	LOS "B" 0.01	LOS "B"	LOS "B" 0.09	Yes
#4 SE Rusk Road/SE Kellogg Creek Drive	City of Milwaukie & Clackamas County	LOS "D" & PM V/C ≤ 0.99	LOS "B"	LOS "B" 0.23	LOS "B"	LOS "B"* 0.17*	Yes
#5 SE Kellogg Creek Drive/Site Driveway	City of Milwaukie	LOS "D"	LOS "B"	LOS "A"	LOS "B"	LOS "A"	Yes

* Note that on June 1, 2017, the volume of eastbound traffic on SE Kellogg Creek was lower than on the previous count day in November 2016 (per the February 2017 traffic report). Using the higher count from November 2016, the results for the weekday PM peak hour would be LOS "C" (16.1 seconds of per-vehicle delay) and a v/c ratio of 0.28. Both the November 2016 and June 2017 results are well within the respective operating standard.



CM = CRITICAL MOVEMENT (TWSC)
 LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED/AWSC) / CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
 Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED/AWSC) / CRITICAL MOVEMENT CONTROL DELAY (TWSC)
 V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

Existing, 2018 Background, and 2018 Total Traffic Conditions
 PM Peak Hour
 Milwaukie, Oregon

Figure
 2

H:\201703 - Kellogg Creek\dwg\figs\June 2017 Update 20703_Figures.dwg Jun 12, 2017 - 3:00pm - kconnolly - Layout Tab: PM Peak

SUMMARY

In summary, while there is an incremental increase in delay at each of the three study intersections due to the higher volume of weekday AM and PM peak hour trips (and the lane configuration modification on SE Rusk Road at OR 224), the intersections all would continue to operate acceptably during both of the respective analysis periods. Further, it is noted that the operations analysis presented in Figure 1 and Figure 2 are consistent with the assumptions of the TIS, including the use of existing ODOT signal timing at the OR 224/SE Rusk Road intersection. Given the staff-recommended condition of approval to provide a northbound right-turn lane on SE Rusk Road at OR 224, we would expect the OR 224/SE Rusk Road intersection operations to perform better than those presented in the TIS or this letter. The analysis worksheets are attached to this letter for your reference.

NEXT STEPS

No additional transportation mitigation needs were identified through this supplemental analysis. We believe the analysis findings presented in this letter and the February 7, 2017 Traffic Impact Study provide the City, ODOT, and Clackamas County with sufficient information to understand the traffic impacts of the proposed development. Please let us know if you have any questions about the materials presented.

Sincerely,
KITTELSON & ASSOCIATES, INC.

Zachary Horowitz
Senior Project Manager

Chris Brehmer, P.E.
Principal Engineer

Attachment: June 1, 2017 Operations Analysis Worksheets



Consulting Arborists and Urban Forest Management

971.409.9354
 3 Monroe Parkway, Suite P 220
 Lake Oswego, Oregon 97035
 morgan.holen@comcast.net

DATE: June 11, 2017
TO: J. Scott Emmens, DOWL
FROM: Morgan Holen, Consulting Arborist
RE: Kellogg Creek Subdivision – Modified Site Plan Tree Protection Recommendations

MHA17033

This memorandum provides supplemental information to the January 4, 2017 arborist report for the Kellogg Creek Subdivision project in Milwaukie, Oregon, based on site plan modifications and discussion during an on-site meeting that occurred on June 8, 2017. I met with J. Scott Emmens of Dowl at the site, along with Brett Kolver (City of Milwaukie), Randy Myers (Brownstone Homes), and Chris Runyard (local ecologist). We discussed tree protection in the southwest corner of the site in terms of street improvements along Kellogg Creek Drive and 12 proposed building lots adjacent to a grove of Oregon white oak (*Quercus garryana*) trees.

The modified site plan limits encroachment towards the oak trees closest to the road by meandering the sidewalk north through the grove. Under this scenario, the existing sidewalk will be removed, the street will be widened to create a bicycle lane, and a new curb will be constructed in approximately the same location as the back of the existing sidewalk. The proposed street construction is limited to the existing disturbed area. Recommendations:

- Exploratory Excavation.** Prior to construction, conduct exploratory excavation along the back of the existing sidewalk to the depth of the proposed new curb using either an airspade or a hydrovac; a Qualified Tree Service should perform this work. Coordinate with the project arborist to visually assess the exposed roots in terms of quantity, size, location, and condition. The arborist should determine whether individual roots are critical to the health or stability of the adjacent trees and prescribe additional treatment recommendations as needed. Such treatments could include pruning non-critical roots clean to sound wood at the limits of proposed work or developing design alternatives to preserve roots determined to be critical intact within the new street section. Performing exploratory excavation upfront will provide the best information to inform site design and avoid delays at the time of construction.
- Modified Profile.** The new sidewalk meandering through the oak grove should be built up from existing grade with no excavation using a modified profile (Figure 1). The profile includes removal of the uppermost organic matter along the sidewalk alignment, placing a layer of permeable geotextile fabric on the ground surface, and clean crushed rock to raise the grade as needed. Surfacing may include asphalt, concrete, or other materials.

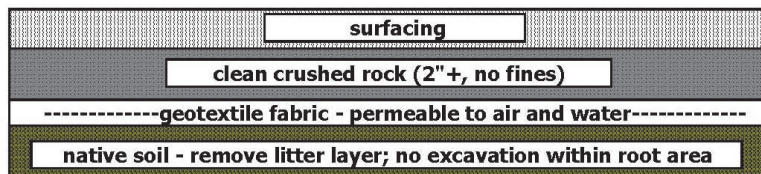


Figure 1. Sample profile for areas within Critical Root Zones. Depth of rock is dependent on grading. Technique based on best management practices.

During the site meeting, we discussed a variety of options to help avoid or minimize work being proposed within and directly adjacent to the tree grove, including: shifting street improvements as far to the south as possible; doing away with the proposed sidewalk along the north side of the road by installing a cross-walk east of the tree grove connecting to the existing sidewalk on the south side of the road; and, raising the grade of the proposed bicycle lane to avoid excavation beneath the existing sidewalk. These approaches are being explored by the City and design team. However, Oregon white oaks have good tolerance for development impacts¹ and from a tree protection perspective, adequate tree protection is possible based on the modified site plan using the tree protection specifications provided in the January 4, 2017 arborist report and the supplemental recommendations provided above. Nevertheless, the alternative approaches discussed during the site meeting, if feasible, could reduce the need for tree protection and provide protection of the understory vegetation.

Prior to the site meeting, J. Scott Emmens flagged the limits of proposed work in the rear of 12 building lots at 119 feet from the western property boundary based on the modified site plan. Tree #2 is the only tree with a crown overlapping a building lot. The crown radius of this 18-inch diameter oak measured 36-feet, but the tree is very one-sided with a strong but stable phototropic lean to the east. Because of its structure, the critical root zone of this tree is more accurately defined using an alternative, but widely accepted method, of one foot radius of tree protection for each inch of trunk diameter². The modified site plan depicts the dripline for consistency with all other trees, but also depicts a radius based on one foot per inch diameter, which is the recommended tree protection zone. A line of protection fencing extending north to south at the rear of these 12 lots will exceed the recommended tree protection area of all trees adjacent to the building lots. Also, tree #25, a 22-inch diameter oak with a 25-foot crown radius overlaps the water quality tract between the road and building lots, but no work is proposed beneath the dripline and protection fencing can be installed at the dripline at a minimum. No impacts to these trees are proposed. Protection recommendations are consistent with Tree Protection Standard 2 in the January 4, 2017 arborist report, specifically:

- **Fencing.** Trees to remain on site shall be protected by installation of tree protection fencing to prevent injury to tree trunks or roots, or soil compaction within the root protection area, which generally coincides with tree driplines (*except for a radius equivalent to one foot of protection for each inch of trunk diameter for tree #2*). Fences shall be chain link fencing on concrete blocks or orange plastic construction fencing on metal stakes. The project arborist shall determine the exact location and type of tree protection fencing. Trees located more than 30-feet from construction activity shall not require fencing.

Based on the proposed site plan modifications, 26 additional trees can be retained during site development, including all of the existing Oregon white oaks. The following table provides an update to Table 2 in the January 4, 2017 arborist report.

¹ N. Matheny & J.R. Clark. (1998) Trees and Development: A Technical Guide to Preservation of Trees During Land Development. International Society of Arboriculture. Page 176.

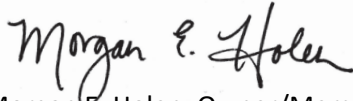
² K. Fite & E.T. Smiley. (2008) Best Management Practices: Managing Trees During Construction. International Society of Arboriculture. Page 12.

Revised Table 2. Count of Trees by Treatment Recommendation and General Condition Rating.

Treatment Recommendation	General Condition Rating				Total	Percent
	Dead	Poor	Fair	Good		
Retain	9	44	46	86	185	83%
Remove		10	20	6	36	17%
Total	9	54	66	92	221	100%
Percent	4%	24%	30%	42%		

The client may choose to accept or disregard the recommendations contained herein, or seek additional advice. Neither this author nor Morgan Holen & Associates, LLC, have assumed any responsibility for liability associated with the trees on or adjacent to this site. Thank you for choosing Morgan Holen & Associates, LLC, to provide consulting arborist services for the Kellogg Creek Subdivision project. Please contact us if you have questions or need any additional information or further assistance.

Thank you,
 Morgan Holen & Associates, LLC



Morgan E. Holen, Owner/Member
 ISA Board Certified Master Arborist, PN-6145B
 ISA Tree Risk Assessment Qualified
 Forest Biologist

Enclosures: MHA16090 Kellogg Creek Subdivision – Tree Data 11-18-16 Rev. 6-8-17



No.	Common Name	Species Name	DBH ¹	C-Rad ²	Cond ³	Comments	Treatment
1	Oregon white oak	<i>Quercus garryana</i>	18	16	G		Retain
2	Oregon white oak	<i>Quercus garryana</i>	18	38	F	phototropic lean, one-sided to east	Retain
3	Oregon white oak	<i>Quercus garryana</i>	22	24	F		Retain
4	Oregon white oak	<i>Quercus garryana</i>	28	26	G		Retain
5	Scouler's willow	<i>Salix scouleriana</i>	12	12	P		Remove
6	Oregon white oak	<i>Quercus garryana</i>	12	12	P		Retain
7	Oregon white oak	<i>Quercus garryana</i>	14	12	F		Retain
8	Oregon white oak	<i>Quercus garryana</i>	10	12	P		Retain
9	Oregon white oak	<i>Quercus garryana</i>	28	23	G		Retain
10	Oregon white oak	<i>Quercus garryana</i>	20	28	F		Retain
11	Oregon white oak	<i>Quercus garryana</i>	38	32	G		Retain
12	Oregon white oak	<i>Quercus garryana</i>	24	24	G		Retain
13	Oregon ash	<i>Fraxinus latifolia</i>	12	16	P		Retain
14	Oregon ash	<i>Fraxinus latifolia</i>	15	14	G		Retain
15	Oregon ash	<i>Fraxinus latifolia</i>	12	12	P		Retain
16	Oregon ash	<i>Fraxinus latifolia</i>	2x14	12	P		Retain
17	Oregon ash	<i>Fraxinus latifolia</i>	16	16	F		Retain
18	Oregon ash	<i>Fraxinus latifolia</i>	2x16	18	G		Retain
19	Oregon ash	<i>Fraxinus latifolia</i>	24	26	G		Retain
20	Oregon ash	<i>Fraxinus latifolia</i>	24	28	P		Retain
21	Oregon ash	<i>Fraxinus latifolia</i>	8	8	F		Retain
22	Oregon white oak	<i>Quercus garryana</i>	23	18	P		Retain
23	Oregon white oak	<i>Quercus garryana</i>	22	21	G		Retain
24	Oregon white oak	<i>Quercus garryana</i>	28	26	G	off-site	Retain
25	Oregon white oak	<i>Quercus garryana</i>	22	25	G		Retain
26	Oregon white oak	<i>Quercus garryana</i>	2x16	34	F		Retain
27	Oregon white oak	<i>Quercus garryana</i>	14	16	P	one-sided to north	Retain
28	Oregon white oak	<i>Quercus garryana</i>	22	30	G		Retain
29	Oregon ash	<i>Fraxinus latifolia</i>	18	15	P		Retain
30	Oregon white oak	<i>Quercus garryana</i>	12	12	P		Retain
31	Oregon white oak	<i>Quercus garryana</i>	22	22	G		Retain
32	Oregon white oak	<i>Quercus garryana</i>	21	22	G		Retain
33	Oregon white oak	<i>Quercus garryana</i>	18	20	G		Retain
34	Oregon white oak	<i>Quercus garryana</i>	18	15	G		Retain
35	Oregon white oak	<i>Quercus garryana</i>	2x20	32	G		Retain
36	Oregon white oak	<i>Quercus garryana</i>	36	30	G		Retain
37	Oregon white oak	<i>Quercus garryana</i>	26	21	G		Retain
38	Oregon white oak	<i>Quercus garryana</i>	29	24	G		Retain



No.	Common Name	Species Name	DBH ¹	C-Rad ²	Cond ³	Comments	Treatment
41	pin oak	<i>Quercus palustris</i>	18	19	F		Retain
42	pin oak	<i>Quercus palustris</i>	22	20	G		Retain
43	pin oak	<i>Quercus palustris</i>	21	23	G		Retain
44	pin oak	<i>Quercus palustris</i>	18	18	G		Retain
45	pin oak	<i>Quercus palustris</i>	18	19	G		Retain
46	pin oak	<i>Quercus palustris</i>	18	24	G		Retain
47	pin oak	<i>Quercus palustris</i>	21	18	G		Retain
48	plum	<i>Prunus spp.</i>	12	8	G		Retain
49	plum	<i>Prunus spp.</i>	12	8	G		Retain
50	Douglas-fir	<i>Pseudotsuga menziesii</i>	2x16	14	G		Retain
51	Norway maple	<i>Acer platanoides</i>	14	12	G	nuisance species	Retain
52	Norway maple	<i>Acer platanoides</i>	14	14	G	nuisance species	Retain
53	Norway maple	<i>Acer platanoides</i>	16	12	G	nuisance species	Retain
54	Norway maple	<i>Acer platanoides</i>	13	14	G	nuisance species	Retain
55	Norway maple	<i>Acer platanoides</i>	19	13	G	nuisance species	Retain
56	Norway maple	<i>Acer platanoides</i>	12	12	G	nuisance species	Retain
57	Norway maple	<i>Acer platanoides</i>	14	12	G	nuisance species	Retain
58	Norway maple	<i>Acer platanoides</i>	15	12	G	nuisance species	Retain
59	Norway maple	<i>Acer platanoides</i>	14	13	G	nuisance species	Retain
60	European white birch	<i>Betula pendula</i>	12	8	F	nuisance species	Retain
61	Japanese maple	<i>Acer palmatum</i>	12	12	G		Retain
62	European white birch	<i>Betula pendula</i>	14	14	F	nuisance species	Retain
63	Norway maple	<i>Acer platanoides</i>	19	16	G	nuisance species	Retain
64	Norway maple	<i>Acer platanoides</i>	12	11	G	nuisance species	Retain
65	Norway maple	<i>Acer platanoides</i>	15	15	G	nuisance species	Retain
66	Norway maple	<i>Acer platanoides</i>	20	16	G	nuisance species	Retain
67	Norway maple	<i>Acer platanoides</i>	17	14	G	nuisance species	Retain
68	Norway maple	<i>Acer platanoides</i>	15	13	G	nuisance species	Retain
69	Norway maple	<i>Acer platanoides</i>	14	14	G	nuisance species	Retain
70	Norway maple	<i>Acer platanoides</i>	17	15	G	nuisance species	Retain
71	Norway maple	<i>Acer platanoides</i>	14	15	G	nuisance species	Retain
72	European white birch	<i>Betula pendula</i>	10	10	G	nuisance species	Retain
73	pin oak	<i>Quercus palustris</i>	18	20	F		Retain
74	English hawthorn	<i>Crataegus monogyna</i>	10	8	F	nuisance species	Retain
75	red alder	<i>Alnus rubra</i>	16	15	F		Retain
76	red alder	<i>Alnus rubra</i>	3x12	18	F		Retain
77	Oregon ash	<i>Fraxinus latifolia</i>	12	15	G		Retain
78	red alder	<i>Alnus rubra</i>	12	15	G		Retain
79	red alder	<i>Alnus rubra</i>	12	13	P		Retain



No.	Common Name	Species Name	DBH ¹	C-Rad ²	Cond ³	Comments	Treatment
80	red alder	<i>Alnus rubra</i>	20	4	D	nesting cavities	Retain
81	black cottonwood	<i>Populus trichocarpa</i>	21	14	G		Retain
82	Oregon ash	<i>Fraxinus latifolia</i>	8	10	P		Retain
83	pin oak	<i>Quercus palustris</i>	18	12	F		Retain
84	Scouler's willow	<i>Salix scouleriana</i>	14	14	P		Retain
85	pin oak	<i>Quercus palustris</i>	8	8	P		Retain
86	Scouler's willow	<i>Salix scouleriana</i>	14		G		Remove
87	black cottonwood	<i>Populus trichocarpa</i>	2x14		G		Remove
88	black cottonwood	<i>Populus trichocarpa</i>	10		G		Remove
89	black cottonwood	<i>Populus trichocarpa</i>	12		G		Remove
90	Scouler's willow	<i>Salix scouleriana</i>	12		P		Remove
91	black cottonwood	<i>Populus trichocarpa</i>	10	11	F		Retain
92	black cottonwood	<i>Populus trichocarpa</i>	8	10	F		Retain
93	black cottonwood	<i>Populus trichocarpa</i>	14	13	G		Retain
94	black cottonwood	<i>Populus trichocarpa</i>	12	12	F		Retain
95	black cottonwood	<i>Populus trichocarpa</i>	12	12	G		Retain
96	black cottonwood	<i>Populus trichocarpa</i>	12	12	G		Retain
97	black cottonwood	<i>Populus trichocarpa</i>	8	10	P		Retain
98	black cottonwood	<i>Populus trichocarpa</i>	12	12	G		Retain
99	black cottonwood	<i>Populus trichocarpa</i>	12	12	G		Retain
100	Oregon white oak	<i>Quercus garryana</i>	17	18	F		Retain
101	Oregon white oak	<i>Quercus garryana</i>	28	28	F		Retain
102	Oregon ash	<i>Fraxinus latifolia</i>	6x8	14	P		Retain
103	Oregon white oak	<i>Quercus garryana</i>	16	13	G		Retain
104	English hawthorn	<i>Crataegus monogyna</i>	10		P	nuisance species	Remove
105	Oregon white oak	<i>Quercus garryana</i>	26	26	G		Retain
106	Oregon white oak	<i>Quercus garryana</i>	24	24	P	decay	Retain
107	Scouler's willow	<i>Salix scouleriana</i>	18	15	P	decay	Retain
108	Scouler's willow	<i>Salix scouleriana</i>	2x16	15	F		Retain
109	English hawthorn	<i>Crataegus monogyna</i>	10		P	nuisance species	Remove
110	English hawthorn	<i>Crataegus monogyna</i>	10		F	nuisance species	Remove
111	Scouler's willow	<i>Salix scouleriana</i>	5x10		P		Remove
112	Oregon white oak	<i>Quercus garryana</i>	10	14	P		Retain
113	Oregon white oak	<i>Quercus garryana</i>	12	14	P		Retain
114	Oregon white oak	<i>Quercus garryana</i>	24	24	G		Retain
115	Scouler's willow	<i>Salix scouleriana</i>	8x10		P		Remove
116	English hawthorn	<i>Crataegus monogyna</i>	14		F	nuisance species	Remove
117	black cottonwood	<i>Populus trichocarpa</i>	12	10	G		Retain
118	black cottonwood	<i>Populus trichocarpa</i>	12	10	G		Retain



No.	Common Name	Species Name	DBH ¹	C-Rad ²	Cond ³	Comments	Treatment
119	black cottonwood	<i>Populus trichocarpa</i>	2x8	12	G		Retain
120	black cottonwood	<i>Populus trichocarpa</i>	8	10	G		Retain
121	black cottonwood	<i>Populus trichocarpa</i>	10	11	G		Retain
122	black cottonwood	<i>Populus trichocarpa</i>	8	10	F		Retain
123	Scots pine	<i>Pinus sylvestris</i>	6	10	P		Retain
124	black cottonwood	<i>Populus trichocarpa</i>	2x10	10	G		Retain
125	Oregon ash	<i>Fraxinus latifolia</i>	6	10	G		Retain
126	Oregon ash	<i>Fraxinus latifolia</i>	8	10	G		Retain
127	sweet cherry	<i>Prunus avium</i>	10	14	D	nuisance species	Retain
128	Oregon ash	<i>Fraxinus latifolia</i>	8	8	G		Retain
129	Oregon ash	<i>Fraxinus latifolia</i>	8	8	G		Retain
130	Oregon ash	<i>Fraxinus latifolia</i>	6	8	G		Retain
131	Oregon ash	<i>Fraxinus latifolia</i>	6	8	G		Retain
132	Oregon ash	<i>Fraxinus latifolia</i>	8	8	F		Retain
133	Oregon ash	<i>Fraxinus latifolia</i>	8	10	F		Retain
134	Oregon ash	<i>Fraxinus latifolia</i>	10	10	F		Retain
135	English hawthorn	<i>Crataegus monogyna</i>	10	10	P	nuisance species	Retain
136	Oregon ash	<i>Fraxinus latifolia</i>	2x8	8	G		Retain
137	Oregon white oak	<i>Quercus garryana</i>	20	25	G		Retain
138	Oregon ash	<i>Fraxinus latifolia</i>	14	16	P		Retain
139	Oregon ash	<i>Fraxinus latifolia</i>	14	18	F		Retain
140	Oregon ash	<i>Fraxinus latifolia</i>	18	20	G		Retain
141	Oregon white oak	<i>Quercus garryana</i>	16	30	F		Retain
143	bigleaf maple	<i>Acer macrophyllum</i>	8	10	P		Retain
144	bigleaf maple	<i>Acer macrophyllum</i>	12	12	P	split trunk	Retain
145	Oregon white oak	<i>Quercus garryana</i>	2x14	22	G		Retain
146	Oregon ash	<i>Fraxinus latifolia</i>	14	12	G		Retain
147	Oregon ash	<i>Fraxinus latifolia</i>	16	12	P		Retain
148	Oregon ash	<i>Fraxinus latifolia</i>	10	12	G	off-site	Retain
149	Oregon ash	<i>Fraxinus latifolia</i>	10	12	F	off-site	Retain
150	Oregon white oak	<i>Quercus garryana</i>	48	27	G		Retain
151	deciduous	unknown	12	10	D		Retain
152	English hawthorn	<i>Crataegus monogyna</i>	8		P	nuisance species	Remove
153	red alder	<i>Alnus rubra</i>	12	10	D		Retain
154	red alder	<i>Alnus rubra</i>	14	12	D		Retain
155	red alder	<i>Alnus rubra</i>	2x10	8	P		Retain
156	red alder	<i>Alnus rubra</i>	12	12	P		Retain
157	red alder	<i>Alnus rubra</i>	14	12	F		Retain
158	red alder	<i>Alnus rubra</i>	16	12	P		Retain



No.	Common Name	Species Name	DBH ¹	C-Rad ²	Cond ³	Comments	Treatment
159	red alder	<i>Alnus rubra</i>	14	10	P		Retain
160	red alder	<i>Alnus rubra</i>	3x8	12	F		Retain
161	Scouler's willow	<i>Salix scouleriana</i>	14	4	D		Retain
162	Oregon ash	<i>Fraxinus latifolia</i>	10	10	F		Retain
163	English hawthorn	<i>Crataegus monogyna</i>	2x8	10	P	nuisance species	Retain
164	red alder	<i>Alnus rubra</i>	12	4	D		Retain
165	red alder	<i>Alnus rubra</i>	12	12	F		Retain
166	red alder	<i>Alnus rubra</i>	12	10	P		Retain
167	English hawthorn	<i>Crataegus monogyna</i>	8	8	G	nuisance species	Retain
168	red alder	<i>Alnus rubra</i>	18	20	P		Retain
169	red alder	<i>Alnus rubra</i>	12	4	D		Retain
170	red alder	<i>Alnus rubra</i>	12	12	P	decay	Retain
171	red alder	<i>Alnus rubra</i>	12	20	P	decay	Retain
172	red alder	<i>Alnus rubra</i>	10	8	P		Retain
173	red alder	<i>Alnus rubra</i>	12	4	D		Retain
174	red alder	<i>Alnus rubra</i>	11	12	F		Retain
175	Oregon ash	<i>Fraxinus latifolia</i>	8	10	F		Retain
176	red alder	<i>Alnus rubra</i>	12	14	F		Retain
177	red alder	<i>Alnus rubra</i>	10	10	F		Retain
178	red alder	<i>Alnus rubra</i>	8	8	P		Retain
179	red alder	<i>Alnus rubra</i>	2x10	8	P		Retain
180	red alder	<i>Alnus rubra</i>	10	12	P		Retain
181	red alder	<i>Alnus rubra</i>	14	14	F		Retain
182	red alder	<i>Alnus rubra</i>	10	12	F		Retain
183	red alder	<i>Alnus rubra</i>	10	12	P		Retain
184	red alder	<i>Alnus rubra</i>	2X14	18	F		Retain
185	red alder	<i>Alnus rubra</i>	18	18	P		Retain
186	Scouler's willow	<i>Salix scouleriana</i>	3x12	14	P		Retain
187	Scouler's willow	<i>Salix scouleriana</i>	2x8		P		Remove
188	Scouler's willow	<i>Salix scouleriana</i>	2x10		P		Remove
189	red alder	<i>Alnus rubra</i>	2x14	17	G		Retain
190	red alder	<i>Alnus rubra</i>	14	16	F		Retain
191	red alder	<i>Alnus rubra</i>	12	10	F		Retain
192	red alder	<i>Alnus rubra</i>	2x12	15	F		Retain
193	red alder	<i>Alnus rubra</i>	14	12	F		Retain
194	Oregon white oak	<i>Quercus garryana</i>	20	16	G		Retain
195	Oregon white oak	<i>Quercus garryana</i>	20	18	G		Retain
196	Oregon white oak	<i>Quercus garryana</i>	12	12	G		Retain
197	Oregon white oak	<i>Quercus garryana</i>	16	21	F		Retain



No.	Common Name	Species Name	DBH ¹	C-Rad ²	Cond ³	Comments	Treatment
198	Oregon white oak	<i>Quercus garryana</i>	8	12	P		Retain
199	Oregon white oak	<i>Quercus garryana</i>	23	35	G		Retain
200	Oregon white oak	<i>Quercus garryana</i>	23	31	G		Retain
201	red alder	<i>Alnus rubra</i>	12	10	P		Retain
202	red alder	<i>Alnus rubra</i>	12	10	F		Retain
203	red alder	<i>Alnus rubra</i>	2x10	10	F		Retain
204	black cottonwood	<i>Populus trichocarpa</i>	16		G		Remove
205	black cottonwood	<i>Populus trichocarpa</i>	2x18		G		Remove
206	Scouler's willow	<i>Salix scouleriana</i>	4x12		P		Remove
207	black cottonwood	<i>Populus trichocarpa</i>	16		F		Remove
208	black cottonwood	<i>Populus trichocarpa</i>	2x12		F		Remove
209	black cottonwood	<i>Populus trichocarpa</i>	9x10		F		Remove
210	black cottonwood	<i>Populus trichocarpa</i>	12		F		Remove
211	black cottonwood	<i>Populus trichocarpa</i>	12		F		Remove
212	black cottonwood	<i>Populus trichocarpa</i>	12		F		Remove
213	black cottonwood	<i>Populus trichocarpa</i>	12		F		Remove
214	black cottonwood	<i>Populus trichocarpa</i>	14		F		Remove
215	black cottonwood	<i>Populus trichocarpa</i>	16		F		Remove
216	black cottonwood	<i>Populus trichocarpa</i>	14		F		Remove
217	black cottonwood	<i>Populus trichocarpa</i>	10		F		Remove
218	black cottonwood	<i>Populus trichocarpa</i>	14		F		Remove
219	black cottonwood	<i>Populus trichocarpa</i>	3x6		F		Remove
220	black cottonwood	<i>Populus trichocarpa</i>	12		F		Remove
221	black cottonwood	<i>Populus trichocarpa</i>	14		F		Remove
222	black cottonwood	<i>Populus trichocarpa</i>	10		F		Remove
223	black cottonwood	<i>Populus trichocarpa</i>	2x16		F		Remove
225	English hawthorn	<i>Crataegus monogyna</i>	3x8		F	nuisance species	Remove

¹DBH is tree diameter measured at 4.5-feet above ground level in inches; diameter for trees with codominant stems originating below 4.5-feet is reported as quantity of stems x size.

²C-Rad is the average crown radius measured in feet for trees planned for preservation.

³Cond is an arborist assigned rating to generally describe the condition of individual trees as follows-

- D: Dead
- P: Poor Condition
- F: Fair Condition
- G: Good Condition
- E: Excellent Condition

GENERAL COMMENTS:

STEM DECAY IN MOST RED ALDER

ALDER BORDERING STREAM - UNDERMINED ROOTS ON STREAM SIDE

Morgan Holen & Associates, LLC

Consulting Arborists and Urban Forest Management

3 Monroe Parkway, Suite P220, Lake Oswego, OR 97035

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Natural Resource Review
for the Proposed Kellogg Creek
Subdivision in Milwaukie, Oregon
(Township 2 South, Range 2 East, Section 6AD,
Clackamas County, TL 600 and Portions of 700, 900, 901)

Prepared for
Brownstone Development, Inc.
Attn: Randy Myers
PO Box 2375
Lake Oswego, Oregon 97035

Prepared by
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Craig Tumer
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9450 SW Commerce Circle, Suite 180
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PHS Project Number: 5975

April 6, 2017

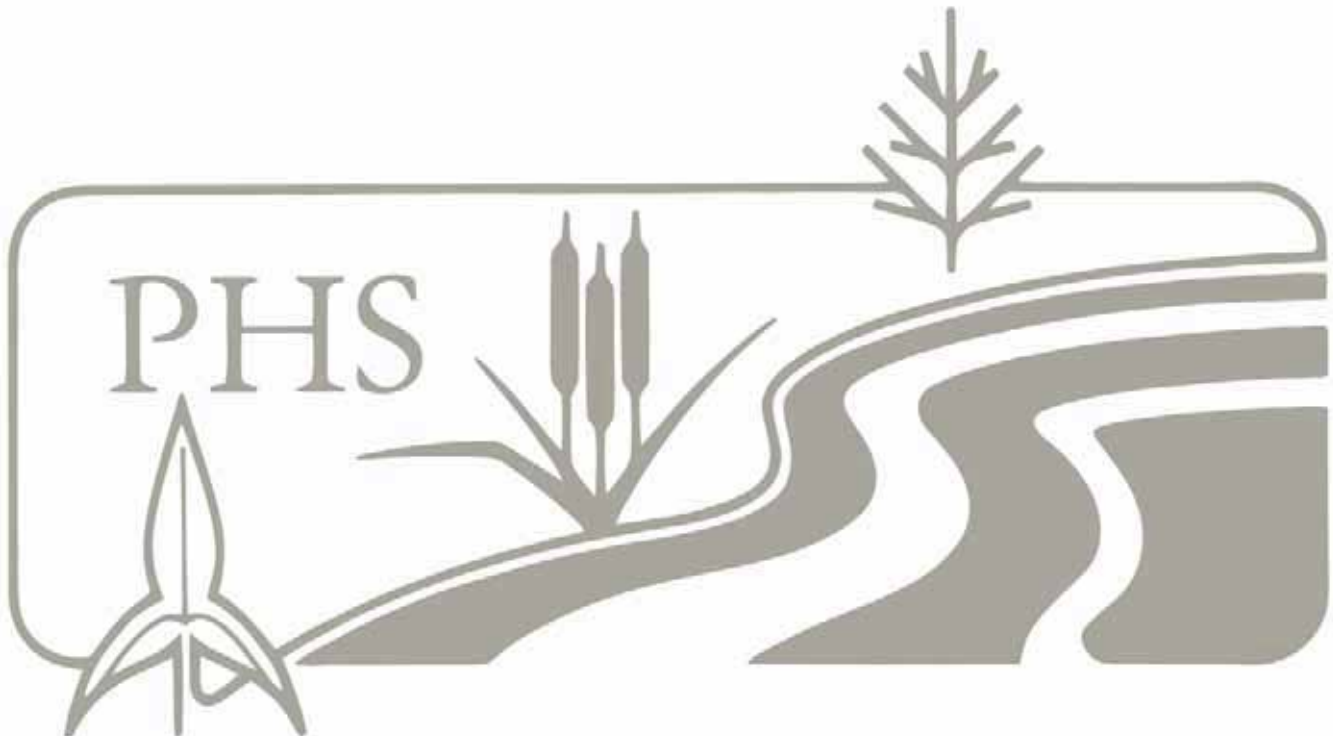


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ATTACHMENT A: Figures

- Figure 1: Project Location Map
- Figure 1A: Additional Enhancement Areas
- Figure 2: Tax Lot Map
- Figure 3: Existing Site Conditions
- Figure 4: Water Quality Resource and Habitat Conservation Area Map
- Figure 5: Site Plan and WQR, HCA and Wetland Impacts
- Figure 5A: Alternative Site Plan and WQR, HCA and Wetland Impacts
- Figure 5B: Additional Alternative Site Plan
- Figure 6: Construction Management Plan
- Figure 7: Tree Protection and Removal Plan
- Figure 7A: Tree Survey and Removal Table
- Figure 8: Stormwater Management Plan
- Figure 9: Mitigation Plan
- Figure 9A: Planting Lists
- Figure 10: HCA Boundary Verification Map

ATTACHMENT B: Wetland Delineation Report

ATTACHMENT C: DSL Concurrence Letter

1.0 INTRODUCTION

The City of Milwaukie (the “City”) has mapped Water Quality Resource (WQR) and Habitat Conservation Area (HCA) within the proposed Kellogg Creek Subdivision project site. Brownstone Development, Inc. (the “Applicant”) seeks approval for the proposed development through a Type III General Discretionary Review. The following document demonstrates how the proposed project will be in compliance with the applicable development standards that are listed in the Natural Resources (NR) Zoning Code Section 19.402 of the City of Milwaukie Municipal Code (MMC). Pacific Habitat Services, Inc. (PHS) has prepared a Natural Resource Review in accordance with MMC Section 19.402 to support the land use application. The information necessary to process the application is provided in the following sections. Supporting information is included in Attachment A (Figures) and Attachment B (Wetland Delineation Report).

2.0 APPLICANT INFORMATION

2.1 Applicant

Brownstone Development, Inc.
Attn: Randy Myers
PO Box 2375
Lake Oswego, OR 97035
Phone: 503-358-4460
Email: Randy@brownstonehomes.net

2.2 Applicant’s Agent

Pacific Habitat Services, Inc.
Attn: Caroline Rim
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070
Phone: 503-570-0800
Email: cr@pacifichabitat.com

3.0 SITE INFORMATION

The following information is for the parcel which is the subject of this natural resource review.

Site Address: 13333 SE Rusk Road, Milwaukie, OR 97222
Zoning: Residential R-3 and R-10
Legal Description: Tax Lot (TL) 600 and portions of TL 700, 900, 901, Section 6AD 2S 2E (15.58 acres), Clackamas County

3.1 Site Description

The site is located southwest of Highway 224 (Pacific Highway), north of SE Kellogg Creek Drive, and north and west of SE Rusk Road. Mt. Scott Creek flows to the west along the northern edge of the study area, and the North Clackamas Park Milwaukie Center borders the western edge. The site is located within a residential area; undeveloped woodland is located immediately to the north and northwest of the study area, and the Turning Point Church is located in the southeast corner of the site at 13333 SE Rusk Road (Figures 1 and 2). The eastern half of the property, near the church, is relatively level; however, the western half descends abruptly to a lower woodland area. Site elevations range from approximately 80 feet National Geodetic Vertical Datum (NGVD) in the eastern half of the site, to approximately 66 feet NGVD in the lower reaches of the western half of the site. The site has not been subject to recent construction activities; however, it appears that the substrate throughout much of the central and eastern half of the site consists of fill material, up to more than 12 feet thick, likely associated with the construction of the church, over two decades ago.

On November 21, 2016, PHS identified and delineated one potential wetland area (Wetland A) and Mt. Scott Creek (south bank only), as well as six potentially artificially created wetland areas (Wetlands B through G). Descriptions of the on-site wetlands and non-wetland waters are provided below, and are further detailed in the Wetland Delineation Report (Attachment B). Figure 3 shows the existing site conditions.

Mt. Scott Creek, a tributary to Kellogg Creek and the Willamette River, is a perennial stream that generally flows to the west along the northern boundary of the study area. The stream banks are well defined and near vertical at the location of the OHW line. The plant community of the riparian area along the creek includes a deciduous overstory of big-leaf maple (*Acer macrophyllum*), Oregon white oak (*Quercus garryana*), Oregon ash (*Fraxinus latifolia*), and red alder (*Alnus rubra*); and a shrub and herbaceous understory composed of species such as snowberry (*Symphoricarpos albus*), Pacific ninebark (*Physocarpus capitatus*), Scouler's willow (*Salix scouleriana*), English hawthorn (*Crataegus monogyna*), Fuller's teasel (*Dipsacus fullonum*), and spreading bentgrass (*Agrostis stolonifera*). Mt. Scott Creek continues outside the project area to the north, west and east.

An approximately 0.70-acre (30,386 square feet) wetland (Wetland A) is located in the low-lying woodland area in the western half of the site, south of Mt. Scott Creek. The plant community within Wetland A is a combination of deciduous woodland bordered by open fields. Dominant species within the woodland include an overstory of Oregon ash and black cottonwood (*Populus balsamifera*), with a woody understory of Oregon ash, black cottonwood, red-osier dogwood (*Cornus alba*), snowberry, and Himalayan blackberry (*Rubus armeniacus*). The open fields include reed canarygrass (*Phalaris arundinacea*), creeping buttercup (*Ranunculus repens*), large-leaf avens (*Geum macrophyllum*), slender rush (*Juncus tenuis*), rough bluegrass (*Poa trivialis*), bitter dock (*Rumex obtusifolius*), and common dandelion (*Taraxacum officinale*).

The adjacent upland areas include Oregon ash, Himalayan blackberry, snowberry, English hawthorn, reed canarygrass, Fuller's teasel, large-leaf avens, bull thistle (*Cirsium vulgare*), fringed willowherb (*Epilobium ciliatum*), Dewey sedge (*Carex deweyana*), common selfheal (*Prunella vulgaris*), Western swordfern (*Polystichum munitum*), lentil vetch (*Vicia tetrasperma*), creeping buttercup, spreading bentgrass, field horsetail (*Equisetum arvense*), narrow-leaf goosefoot (*Chenopodium leptophyllum*), spotted cat's ear (*Hypochaeris radicata*), European centaury (*Centaurium erythraea*), wild carrot (*Daucus carota*), tansy ragwort (*Senecio jacobaea*), and colonial bentgrass (*Agrostis capillaris*).

In addition to Wetland A, six potentially artificially created wetlands (Wetlands B –G) are located in the central portion of the site. These wetlands generally consist of small, shallow, isolated depressions. Table 2 lists the area of each wetland.

Wetland	Area (square feet / acres)
B	905 / 0.02
C	176 / 0.004
D	172 / 0.004
E	998 / 0.02
F	301 / 0.007
G	666 / 0.02
Total	3,218 / 0.07

All six of these wetlands are similar in character. The plant communities in both the wetland and upland areas are primarily composed of weedy grasses and herbs; the wetland areas include reed canarygrass, spreading bentgrass, soft rush (*Juncus effusus*), spotted cat’s ear, and oxeye daisy (*Chrysanthemum vulgare*); the adjacent upland areas include wild carrot, curly dock (*Rumex crispus*), colonial bentgrass, bluegrass (*Poa sp.*), common velvet grass (*Holcus lanatus*), tall fescue (*Schedonorus arundinaceus*), yellow glandweed (*Parentucellia viscosa*), and English plantain (*Plantago lanceolata*).

Hydrology within Wetlands B through G primarily consists of surface runoff and precipitation. As discussed in the *Subsurface Conditions* section of the geotechnical evaluation report (Appendix E of the Wetland Delineation Report), fill material in the central portion of the site was observed to be approximately 10 feet thick, and groundwater was not encountered in the test pits in the vicinity of these wetlands. Therefore, it is reasonable to assume that these wetlands are not hydrologically connected to the water table, and as such, are considered to be non-jurisdictional artificially created wetlands.

The wetland delineation report (Attachment B) was submitted to the Oregon Department of State Lands (DSL) for review and has received approval. On June 8, 2017, DSL conducted a site visit to verify the delineated wetland boundary. During the site visit, DSL took additional data and concluded that it concurred with PHS’s delineated wetland boundary. A copy of the concurrence letter is included with this report (Attachment C).

4.0 PROJECT DESCRIPTION

The Kellogg Creek Subdivision will consist of the construction of a planned residential development with 92 dwelling units, associated parking, roads, utilities, landscaping, and four stormwater treatment facilities. Mt. Scott Creek (a perennial stream) and Wetland A (a Title 3 wetland) are both Primary Protected Water Features, as defined in the City’s Natural Resources Code (MMC 19.402). As such, the proposed project is subject to discretionary review under MMC Subsections 19.402.8, 19.402.9, 19.402.11, 19.402.12, and 19.402.13I – J. This Natural Resource Review describes the

existing Water Quality Resource (WQR) and Habitat Conservation Area (HCA) on the site and demonstrates project compliance with the applicable sections of the municipal code.

This Natural Resource review includes an evaluation of the condition of the WQR on the site, an analysis of potential impacts from the proposed development on the WQR and the HCA, a mitigation plan to compensate for those impacts, and an HCA boundary verification and updated map.

5.0 EXISTING WQR AND HCA ON THE PROJECT SITE

Mt. Scott Creek and Wetland A are primary protected water features, and as described in Table 19.402.15, Determination of WQR Location in MMC Subsection 19.402.15, primary protected water features have an associated vegetated corridor of 50 to 200 feet wide depending on the slopes adjacent to the resource. The slopes adjacent to the south side of Mt. Scott Creek are less than 25 percent, and therefore, the associated vegetated corridor in this area is 50 feet wide. For the same reason, the vegetated corridor along the north, south and west sides of Wetland A are also 50 feet wide. However, the slopes along a short segment of vegetated corridor adjacent to the eastern edge of Wetland A, vary in steepness from less than to greater than 25 percent near the fill slope; therefore, in this area, the width of the vegetated corridor ranges from 50 to 130 feet. The extent of the vegetated corridor on the project site, based on the surveyed boundaries of the wetland and waterway is depicted on Figure 4. The total area of WQR on the site (not including the stream and wetland) is approximately 103,187 sf (2.37 acres). Section 6.3 MMC19.402.11.C describes the condition of the vegetated corridor.

Mt. Scott Creek and Wetland A also have associated HCAs. The Milwaukie Interactive Zoning Map (<http://milwaukie.maps.arcgis.com/apps/webappviewer/index.html?id=48bfb9fc517446f9af954d4d1c4413af>) shows HCAs extending onto the northern and western portions of the site. The City's GIS-mapped HCA is depicted on Figure 4. The total area of HCA on the project site is approximately 175,791 sf (4.04 acres). This HCA, and the WQR noted above, are used in the impact evaluation and alternatives analysis below.

6.0 COMPLIANCE WITH MILWAUKIE MUNICIPAL CODE

6.1 MMC 19.402.8 – Activities Requiring Type III Review

Within either WQRs or HCAs, the following activities are subject to Type III review and approval by the Planning Commission under Section 19.1006, unless they are otherwise exempt or permitted as a Type I or II activity.

B. The activities listed below shall be subject to the review criteria for partitions and subdivisions provided in Subsections 19.402.13.H and I, respectively:

- 2. The subdividing of land containing a WQR or HCA.*

The proposed project site contains both WQR and HCA, and the project will require the subdividing of land.

6.2 MMC 19.402.9 – Construction Management Plans

B. Construction management plans shall provide the following information:

- 1. Description of work to be done.*
- 2. Scaled site plan showing a demarcation of WQRs and HCAs and the location of excavation areas for building foundations, utilities, stormwater facilities, etc.*
- 3. Location of site access and egress that construction equipment will use.*
- 4. Equipment and material stockpile areas.*
- 5. Erosion and sediment control measures.*

As stated above in Section 4, the project is the construction of a planned residential development with 92 dwelling units, associated parking, roads, utilities, landscaping, four stormwater treatment facilities, and balanced cut/fill in the floodplain. Site preparation will include grubbing and grading. A demarcation of WQRs and HCAs and the location of excavation areas for building foundations, utilities, stormwater facilities, etc. are shown on Figure 5. Figures 5A and 5B show alternative site plans, which are discussed below in Section 6.4. The site access and egress locations that construction equipment will use, as well as equipment and material stockpile/staging areas, are shown on the Construction Management Plan (Figure 6). As shown on Figure 6, erosion control fencing will be placed at the limits of disturbance. This fencing will act as a physical barrier and prevent the encroachment of machinery into portions of the WQR and HCA areas that are to remain undisturbed.

The following components of the erosion control plan will protect against erosion, prevent the transport of sediments offsite and into the remaining WQR and HCA areas, and ensure that impacts are minimized. The proposed project will have no detrimental impact on resources or functional values of WQR and HCA areas designated to be left undisturbed. The use of construction fencing and erosion and sediment control barriers at the limits of work, as well as other methods described below will prevent direct physical impacts to nearby areas of WQR and HCA to remain undisturbed.

- Prior to the start of any earth-moving activities, construction fencing will be installed at the limits of the work area, which in this case will be along the outer edge of the proposed development. Sediment fence will be installed inside the construction fencing.
- All base erosion and sediment prevention control measures (including inlet protection, perimeter sediment control, gravel construction entrances, etc.) will be in place, functional, and approved in an initial inspection prior to the start of any construction activities.
- Construction entrances will be installed prior to construction and maintained for the duration of the project.
- Active inlets to stormwater systems will be protected with approved inlet protection measures. All inlet protection measures will be regularly inspected and maintained as necessary. These inlet protection measures will prevent runoff from reaching discharge points.
- Exposed cut and fill areas will be stabilized through the use of temporary seeding and mulching or other appropriate measures.
- Seed used for temporary or permanent seeding will be per specifications.

- Slopes receiving temporary or permanent seeding will have the surface roughened to improve seed bedding and reduce run-off velocities.
- Stockpiled soil or strippings will be placed in an approved, stable location and configuration. During “wet weather” periods, stockpiles will be covered with straw mulch. Sediment fence will be placed around the perimeter of all stockpiles.
- Appropriate dust control measures, including the application of a fine spray of water, straw mulching or other approved measures, will be used in areas subject to wind erosion. Any saturated materials hauled off site will be transported in watertight trucks to prevent the spillage of sediment or sediment-laden water.

The proposed project will have no detrimental impact on resources or functional values of WQR and HCA areas designated to be left undisturbed. The use of construction fencing and erosion and sediment control barriers at the limits of work, as well as other methods described in the Construction Management Plan will prevent direct physical impacts to nearby areas of WQR and HCA to remain undisturbed.

6. *Measures to protect trees and other vegetation located within the potentially affected WQR and/or HCA. A root protection zone shall be established around each tree in the WRQ or HCA that is adjacent to any approved work area. The root protection zone shall extend from the trunk to the outer edge of the tree’s canopy, or as close to the outer edge of the canopy as is practicable for the approved project. The perimeter of the root protection zone shall be flagged, fenced, or otherwise marked and shall remain undisturbed. Material storage and construction access is prohibited within the perimeter. The root protection zone shall be maintained until construction is complete.*

The Tree Removal and Protection Plan is shown on Figure 7 and the accompanying Tree Survey and Removal Table is shown on Figure 7A. Tree protection will be as recommended by a qualified arborist or, at minimum, will include the following protective measures:

- All trees to be protected on the project site and adjacent to the site shall be clearly identified and protective fencing will be installed at the perimeter of the dripline (to avoid soil compaction, removal of vegetation, and/or tree branches) prior to any grubbing, clearing, grading, parking, preparation or storage of materials or machinery, or other construction activity on the site. The fencing will be secured and consist of a material that cannot be easily moved, removed, or broken during construction activities
- No machinery repair, cleaning or fueling will be performed within 10 feet of the dripline of any of trees identified for protection;
- There will be no digging of trenches for placement of public or private utilities or other structure within the critical root zones of trees to be protected;
- If required by the City, a consulting arborist or other qualified biologist will be present during construction or grading activities that may affect the dripline of the trees to be protected.

6.3 MMC 19.402.11 – Development Standards

A. Protection of Natural Resources During Site Development

During development of any site containing a designated natural resource, the following standards shall apply:

1. *Work areas shall be marked to reduce potential damage to the WQR and/or HCA.*

In addition to erosion and sediment control measures, previously discussed in the Construction Management section, work areas shall be marked to reduce potential damage to the WQR and/or HCA.

2. *Trees in WQRs or HCAs shall not be used as anchors for stabilizing construction equipment.*

No trees within the WQR or HCA will be used as anchors for stabilizing construction equipment.

3. *Native soils disturbed during the development shall be conserved on the property.*

Native soils disturbed during development will be conserved on the property.

4. *An erosion and sediment control plan is required and shall be prepared in compliance with requirements set forth in the City's Public Works Standards.*

The erosion and sediment control plan is shown on the Construction Management Plan (Figure 6), was discussed in the previous section, Construction Management Plan, and was prepared in compliance with requirements set forth in the City's Public Works Standards.

5. *Site preparation and construction practices shall be followed that prevent drainage of hazardous materials or erosion, pollution, or sedimentation to any WQR adjacent to the project area.*

As discussed above in the Construction Management Plans section, Best Management Practices (BMPs) will be implemented during site preparation and construction in order to prevent drainage of hazardous materials or erosion, pollution, or sedimentation to any WQR adjacent to the project area.

6. *Stormwater flows that result from proposed development within and to natural drainage courses shall not exceed predevelopment flows.*

The primary purpose of the stormwater management plan (Figure 8) is to effectively treat the stormwater runoff from the new development while maintaining the same hydrologic input as is currently present at pre-development/pre-Lewis and Clark conditions. Key components of the stormwater management plan will include treating and detaining stormwater in four vegetated stormwater treatment facilities/ponds (A – D). Treated stormwater from facilities A, B and C will be discharged with the use of flow spreaders; and storm facility D will connect back into the existing storm sewer system in SE Kellogg Creek Drive.

7. *Prior to construction, the WQR and/or HCA that is to remain undeveloped shall be flagged, fenced, or otherwise marked and shall remain undisturbed. Such markings shall be maintained until construction is complete.*

As discussed above in the Construction Management Plans section, prior to construction, construction fencing, sediment fencing, and other erosion and sediment control barriers will be installed at the limits of work, in order to prevent impacts to nearby areas of WQR and HCA to remain undisturbed.

8. *The construction phase of the development shall be done in such a manner as to safeguard the resource portions of the site that have not been approved for development.*

As discussed above in the Construction Management Plans section, BMPs will be implemented and erosion and sediment control methods will be in place prior to construction in such a manner as to safeguard the resource portions of the site that have not been approved for development.

9. *Where practicable, lights shall be placed so that they do not shine directly into any WQR and/or HCA location. The type, size, and intensity of lighting shall be selected so that impacts to habitat functions are minimized.*

Where practicable, lights will be placed so that they do not shine directly into the WQR and/or HCA. The type, size, and intensity of lighting will be selected so that impacts to habitat functions are minimized.

10. *All work on the property shall conform to a construction management plan prepared according to Subsection 19.402.9.*

All work on the property will conform to a construction management plan, as previously discussed, prepared according to Subsection 19.402.9.

B. General Standards for Required Mitigation

Where mitigation is required by Section 19.402 for disturbance to WQRs and/or HCAs, the following general standards apply:

1. Disturbance

- a. *Designated natural resources that are affected by temporary disturbances shall be restored, and those affected by permanent disturbances shall be mitigated, in accordance with the standards provided in Subsection 19.402.11.C for WQRs and Subsection 19.402.D.2 for HCAs, as applicable.*

Designated natural resources that are affected by temporary disturbances will be restored. The proposed site plan will unavoidably result in permanent disturbances to both WQR and HCA areas, and as such, the areas of permanent disturbances will be mitigated in accordance with the standards provided in Subsections 19.402.11.C and 19.402.D.2, respectively. See Figure 9 - Mitigation Plan.

2. Required Plants

Unless specified elsewhere in Section 19.402, all trees, shrubs, and ground cover planted as mitigation shall be native plants, as identified on the Milwaukie Native Plant List. Applicants are encouraged to choose particular native species that are appropriately suited for the specific conditions of the planting site; e.g., shade, soil type, moisture, topography, etc.

All proposed mitigation plants will consist of native species as identified on the Milwaukie Native Plant List. Plants will be chosen for: 1) their suitability to the soils and hydrology of the site, 2) their natural occurrence in the area, 3) their wildlife habitat enhancement value, and 4) their local availability. The table on Figure 9A shows selected species to be planted.

3. Plant Size

Replacement trees shall average at least a ½-in caliper – measured at 6 in above the ground level for field-grown trees or above the soil line for container-grown trees – unless they are oak or madrone, which may be 1-gallon size. Shrubs shall be at least 1-gallon size and 12 in high.

4. Plant Spacing

Trees shall be planted between 8 and 12 ft on center. Shrubs shall be planted between 4 and 5 ft on center or clustered in single-species groups of no more than 4 plants, with each cluster planted between 8 and 10 ft on center. When planting near existing trees, the dripline of the existing tree shall be the starting point for plant spacing measurements.

5. Plant Diversity

Shrubs shall consist of at least 2 different species, If 10 trees or more are planted, then no more than 50% of the trees shall be of the same genus.

Mitigation plant size, spacing and diversity will be in accordance with the requirements stated in items 3 – 5, above (See table on Figure 9A).

6. Location of Mitigation Area

a. On-Site Mitigation

All mitigation vegetation shall be planted on the applicant’s site within the designated natural resource that is disturbed, or in an area contiguous to the resource area; however, if the vegetation is planted outside of the resource area, the applicant shall preserve the contiguous planting area by executing a deed restriction such as a restrictive covenant.

All mitigation vegetation will be planted on-site and within the designated natural resource that is disturbed or in an area contiguous to the resource area. The mitigation areas proposed for planting are shown in Figure 9 Mitigation Plan.

In addition to required mitigation, the project will provide enhancement to three areas on the site, one of which is currently mapped as a natural resource area and two of which are partially mapped as natural resource areas. Those areas are shown as Additional Enhancement Areas A, B and C on Figure 9 and planting lists for the areas are shown on Figure 9A. Enhancement Area A is approximately 0.34 acre and is located north of Mt. Scott Creek. Enhancement Areas B and C are approximately 0.40 acre and 0.35 acre, respectively, and are located south of Mt. Scott Creek in the northern portion of the site. These three areas will be enhanced through the removal of man-made debris, removal of invasive plant species and planting with native trees, shrubs and seed mix. Those plantings will improve the native plant community, vegetation structure and diversity – all of which will improve the overall quality of wildlife habitat on the site.

7. Invasive Vegetation

Invasive nonnative or noxious vegetation shall be removed within the mitigation area prior to planting, including, but not limited to, species identified as nuisance plants on the Milwaukie Native Plant List.

Invasive nonnative or noxious vegetation, and nuisance plants will be removed from the mitigation area prior to planting.

8. Ground Cover

Bare or open soil areas remaining after the required tree and shrub plantings shall be planted or seeded to 10% surface coverage with grasses or other ground cover species identified as native on the Milwaukie Native Plant List. Revegetation shall occur during the next planting season following the site disturbance.

Following the installation of the required tree and shrub plantings, remaining bare/open soil areas will be planted or seeded to 100% surface coverage with a native grass seed mix or other ground cover species during the next planting season following the site disturbance.

9. Tree and Shrub Survival

A minimum of 80% of the trees and shrubs planted shall remain alive on the second anniversary of the date that the mitigation planting is completed.

a. Required Practices

To enhance survival of the mitigation plantings, the following practices are required:

- (1) Mulch new plantings to a minimum of 3-in depth and 18-in diameter to retain moisture and discourage weed growth.*
- (2) Remove or control nonnative or noxious vegetation throughout the maintenance period.*

b. Recommended Practices

To enhance survival of tree replacement and vegetation plantings, the following practices are recommended:

- (1) Plant bare root trees between December 1 and April 15; plant potted plants between October 15 and April 30.*
- (2) Use plant sleeves or fencing to protect trees and shrubs against wildlife browsing and the resulting damage to plants.*
- (3) Water new plantings at a rate of 1 in per week between June 15 and October 15 for the first two years following planting.*

In order to meet the minimum of 80% tree and shrub survival of the mitigation plantings on the second anniversary of the date that the mitigation planting is completed, the applicant will follow the “Required” and “Recommended” planting and maintenance practices, as described above in Items a and b.

c. Monitoring and Reporting

Monitoring of the mitigation site is the ongoing responsibility of the property owner. Plants that die shall be replaced in kind as needed to ensure the minimum 80% survival rate. The Planning Director may require a maintenance bond to cover the continued health and survival of all plantings. A maintenance bond shall not be required for land use applications related to owner-occupied single-family residential projects. An annual report on the survival rate of all plantings shall be submitted for 2 years.

An annual monitoring site visit will be conducted and a report will be prepared and submitted to the City for two years after planting. The report will allow an analysis of the survival rate of the mitigation plantings and what corrective measures, if any, are needed to ensure the minimum 80% required survival rate for woody plantings at the end of the second monitoring season.

10. Light Impacts

Where practicable, lights shall be placed so that they do not shine directly into any WQR and/or HCA location. The type, size, and intensity of lighting shall be selected so that impacts to habitat functions are minimized.

Where practicable, lights will be placed so that they do not shine directly into the WQR and/or HCA. The type, size, and intensity of lighting will be selected so that impacts to habitat functions are minimized.

C. Mitigation Requirements for Disturbance within WQRs

- 1. The requirements for mitigation vary depending on the existing condition of the WQR on the project site at the time of application. The existing condition of the WQR shall be assessed in accordance with the categories established in Table 19.402.11.C.**

Plant communities within the vegetated corridor include a mixture of wooded and non-wooded communities. PHS identified two separate plant communities within the on-site vegetated corridor based on the predominance of woody species in the community. South of Mt. Scott Creek, and along the western property boundary to the north and south of the west end of Wetland A, the vegetated corridor has a well-developed forest canopy; while along the eastern and southern edges of Wetland A, the vegetated corridor has only a few scattered trees. PHS took seven sample points to characterize the plant communities; two along the south side of the creek, two along the northeast side of Wetland A, one along the south side of Wetland A, and two near the western property boundary to the north and south of Wetland A. A brief description and an evaluation of the condition of each of the communities are provided below (See Figure 4 for location of sample points).

South of Mt. Scott Creek

The WQR south of Mt. Scott Creek contains a moderately dense canopy predominantly composed of red alder (*Alnus rubra*), Oregon white oak (*Quercus garryana*), black cotton wood (*Populus balsamifera*), and big-leaf maple (*Acer macrophyllum*). Common species in the understory include English hawthorn (*Crataegus monogyna*), snowberry (*Symphoricarpos alba*), Pacific willow (*Salix lasiandra*), Scouler’s willow (*Salix scouleriana*), Pacific ninebark (*Physocarpus capitatus*), red-osier dogwood (*Cornus alba*), clustered rose (*Rosa pisocarpa*), twinberry honeysuckle (*Lonicera involucrata*), Himalayan blackberry (*Rubus armeniacus*), and beaked hazel (*Corylus cornuta*). The groundcover contains a diverse mixture of native and non-native species, including Pacific dewberry (*Rubus ursinus*), Fuller’s teasel (*Dipsacus sylvestris*), Waton’s willow-herb (*Epilobium watsonii*), nipplewort (*Lapsana communis*), common velvetgrass (*Holcus lanatus*), colonial bentgrass (*Agrostis capillaris*), fringe-cup (*Tellima grandiflora*), brome (*Bromus sp.*), and Western swordfern (*Polystichum munitum*). Tables 1 and 2 summarize the species composition at two sample points within the plant community.

Table 1. Plant Community South of Mt. Scott, Characterized by Sample Point 1

Botanical Name	Common Name	♦Cover (%)
Trees		50
<i>Alnus rubra</i>	Red alder	30
<i>Fraxinus latifolia</i>	Oregon ash	5
<i>Salix scouleriana</i>	Scouler’s willow	7
<i>Salix lasiandra</i>	Pacific willow	2
<i>Acer macrophyllum</i>	Big-leaf maple	1
<i>Crataegus monogyna</i>	English hawthorn	10
Shrubs and Saplings		60
<i>Populus balsamifera</i>	Black cottonwood	5
<i>Symphoricarpos albus</i>	Common snowberry	5
<i>Rosa pisocarpa</i>	Clustered rose	13
<i>Quercus garryana</i>	Oregon white oak	10
<i>Rubus armeniacus</i> ***	Himalayan blackberry	2
<i>Physocarpus capitatus</i>	Pacific ninebark	15
<i>Crataegus monogyna</i>	English hawthorn	5
<i>Corylus cornuta</i>	Beaked hazelnut	3

Botanical Name	Common Name	♦Cover (%)
<i>Cornus alba</i>	Red-osier dogwood	2
Groundcover		55
<i>Rubus ursinus</i>	California dewberry	5
<i>Dipsacus sylvestris</i> **	Fuller's teasel	25
<i>Epilobium watsonii</i>	Watson's willow-herb	30
<i>Lapsana communis</i> **	Nipplewort	10
<i>Holcus lanatus</i>	Common velvetgrass	5
<i>Agrostis capillaris</i>	Colonial bentgrass	20
<i>Tellima grandiflora</i>	Fringecup	2
<i>Bromus sp.</i>	Common brome	3

*Invasive species or noxious weed (Oregon Dept. of Agriculture (ODA))

**Nuisance Plant List (Milwaukie Plant List/Portland Plant List)

♦Absolute Percent Cover

Table 2. Plant Community South of Mt. Scott, Characterized by Sample Point 2

Botanical Name	Common Name	♦Cover (%)
Trees		60
<i>Alnus rubra</i>	Red alder	20
<i>Quercus garyana</i>	Oregon white oak	40
<i>Salix scouleriana</i>	Scouler's willow	5
<i>Populus balsamifera</i>	Black cottonwood	10
<i>Acer macrophyllum</i>	Big-leaf maple	5
Shrubs and Saplings		80
<i>Lonicera involucrate</i>	Twinberry honeysuckle	2
<i>Symphoricarpos albus</i>	Common snowberry	30
<i>Rosa pisocarpa</i>	Clustered rose	5
<i>Oregon white oak</i>	<i>Quercus garryana</i>	5
<i>Populus balsamifera</i>	Black cottonwood	5
<i>Physocarpus capitatus</i>	Pacific ninebark	10
<i>Crataegus monogyna</i>	English hawthorn	5
<i>Corylus cornuta</i>	Beaked hazelnut	3
<i>Cornus alba</i>	Red-osier dogwood	2
Groundcover		35
<i>Rubus ursinus</i>	California dewberry	5
<i>Dipsacus sylvestris</i> **	Fuller's teasel	2
<i>Polystichum munitum</i>	Western swordfern	3
<i>Lapsana communis</i> **	Nipplewort	3
<i>Holcus lanatus</i>	Common velvetgrass	3
<i>Agrostis capillaris</i>	Colonial bentgrass	10
<i>Tellima grandiflora</i>	Fringecup	5
<i>Bromus sp.</i>	Common brome	22

*Invasive species or noxious weed (Oregon Dept. of Agriculture (ODA))

**Nuisance Plant List (Milwaukie Plant List/Portland Plant List)

♦Absolute Percent Cover

The plant community south of Mt. Scott Creek has a moderately dense tree canopy with coverage that varies from 50 to 60 percent. Canopy coverage across the entire plant community exceeds 50 percent. The combined tree, shrub and groundcover layers provide coverage that exceeds 80 percent. As such, the existing condition of the WQR south of Mt. Scott Creek meets the definition of a Class A (“Good”) WQR, as defined in Table 19.402.11.C of the municipal code.

Northeast of Wetland A

A few scattered trees are present within the vegetated corridor northeast of Wetland A; however, the plant community in this area generally lacks a canopy layer and is predominantly composed of reed canarygrass (*Phalaris arundinacea*) and other grasses and various groundcover. Tables 3 and 4 summarize the species composition within the plant community east of Wetland A.

Table 3. Plant Community Northeast of Wetland A, Characterized by Sample Point 3

Botanical Name	Common Name	♦Cover (%)
Trees		20
<i>Salix scouleriana</i>	Scouler’s willow	20
<i>Crataegus monogyna</i>	English hawthorn	20
<i>Fraxinus latifolia</i>	Oregon ash	5
<i>Populus balsamifera</i>	Black cottonwood	5
Shrubs and Saplings		40
<i>Salix scouleriana</i>	Scouler’s willow	20
<i>Rosa pisocarpa</i>	Clustered rose	10
<i>Crataegus monogyna</i>	English hawthorn	20
<i>Corylus cornuta</i>	Beaked hazelnut	5
<i>Rubus armeniacus</i> ***	Himalayan blackberry	5
Groundcover		90
<i>Phalaris arundinacea</i> **	Reed canarygrass	60
<i>Dipsacus sylvestris</i> **	Fuller’s teasel	40
<i>Tanacetum vulgare</i> **	Common tansy	15
<i>Epilobium watsonii</i>	Watson’s willow-herb	15
<i>Cirsium arvense</i>	Canada thistle	5

*Invasive species or noxious weed (Oregon Dept. of Agriculture (ODA))

**Nuisance Plant List (Milwaukie Plant List/Portland Plant List)

♦Absolute Percent Cover

Table 4. Plant Community Northeast of Wetland A, Characterized by Sample Point 4

Botanical Name	Common Name	♦Cover (%)
Trees		5
<i>Acer macrophyllum</i>	Big-leaf maple	5
Shrubs and Saplings		10
<i>Acer macrophyllum</i>	Big-leaf maple	10
<i>Rosa pisocarpa</i>	Clustered rose	10
<i>Rubus armeniacus</i> ***	Himalayan blackberry	5
Groundcover		100
<i>Phalaris arundinacea</i> **	Reed canarygrass	100

<i>Dipsacus sylvestris</i> **	Fuller's teasel	15
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*Invasive species or noxious weed (Oregon Dept. of Agriculture (ODA))

**Nuisance Plant List (Milwaukie Plant List/Portland Plant List)

♦Absolute Percent Cover

As described above and shown by Sample Points 3 and 4, the plant community northeast of Wetland A has little to no tree canopy coverage. The combined tree, shrub and groundcover layers provide coverage that exceeds 80 percent; however, tree canopy coverage is less than 25 percent. Therefore, the existing condition of the WQR east of Wetland A meets the definition of a Class C (“Poor”) WQR, as defined in Table 19.402.11.C of the municipal code.

South of Wetland A

Similar to the vegetated corridor along the northeast side of Wetland A, the area to the south of Wetland A also has a few scattered trees present. The plant community south of Wetland A also generally lacks a canopy layer and is primarily composed of reed canarygrass and a few other species of grasses and various groundcover. Table 5 summarizes the species composition within the plant community south of Wetland A.

Table 5. Plant Community South of Wetland A, Characterized by Sample Point5

Botanical Name	Common Name	♦Cover (%)
Trees		5
<i>Crataegus monogyna</i>	English hawthorn	5
Shrubs and Saplings		10
<i>Quercus garyana</i>	Oregon white oak	10
<i>Rubus laciniatus</i> **	Cut-leaf blackberry	5
<i>Rubus armeniacus</i> ***	Himalayan blackberry	10
Groundcover		100
<i>Phalaris arundinacea</i> **	Reed canarygrass	90
<i>Dipsacus sylvestris</i> **	Fuller's teasel	40
<i>Epilobium watsonii</i>	Watson's willow-herb	10
<i>Cirsium arvense</i> ***	Canada thistle	10

*Invasive species or noxious weed (Oregon Dept. of Agriculture (ODA))

**Nuisance Plant List (Milwaukie Plant List/Portland Plant List)

♦Absolute Percent Cover

As described above and shown by Sample Point 5, the plant community south of Wetland A has almost no tree canopy coverage. The combined tree, shrub and groundcover layers provide coverage that exceeds 80 percent; however, tree canopy coverage is less than 25 percent. Therefore, the existing condition of the WQR south of Wetland A meets the definition of a Class C (“Poor”) WQR, as defined in Table 19.402.11.C of the municipal code.

West of Wetland A

The WQR west of Wetland A contains a dense canopy predominantly composed of Oregon ash and Oregon white oak. Common species in the understory include English hawthorn, snowberry, Himalayan blackberry, bald-hip rose (*Rosa gymnocarpa*), and clustered rose. The groundcover contains a diverse mixture of native and non-native species, including Pacific dewberry, English ivy (*Hedera helix*), Fuller's teasel, Watson's willow-herb, nipplewort, Western swordfern, big-leaf avens

(*Geum macrophyllum*), and common dandelion (*Taraxacum officinale*). Tables 6 and 7 summarize the species composition at two sample points within the plant community.

Table 6. Plant Community West of Wetland A. Characterized by Sample Point 6

Botanical Name	Common Name	♦Cover (%)
Trees		90
<i>Fraxinus latifolia</i>	Oregon ash	25
<i>Quercus garyana</i>	Oregon white oak	30
Shrubs and Saplings		40
<i>Symphoricarpos albus</i>	Common snowberry	50
<i>Rubus armeniacus</i> ***	Himalayan blackberry	10
<i>Crataegus monogyna</i>	English hawthorn	15
Groundcover		55
<i>Rubus ursinus</i>	California dewberry	15
<i>Geum macrophyllum</i>	Big-leaf avens	20
<i>Epilobium watsonii</i>	Watson's willow-herb	5
<i>Lapsana communis</i> **	Nipplewort	35
<i>Taraxacum officinale</i>	Common dandelion	15
<i>Polystichum munitum</i>	Western swordfern	5
<i>Hedera helix</i> **	English ivy	5

*Invasive species or noxious weed (Oregon Dept. of Agriculture (ODA))

**Nuisance Plant List (Milwaukie Plant List/Portland Plant List)

♦Absolute Percent Cover

Table 7. Plant Community West of Wetland A, Characterized by Sample 7

Botanical Name	Common Name	♦Cover (%)
Trees		90
<i>Fraxinus latifolia</i>	Oregon ash	10
<i>Quercus garyana</i>	Oregon white oak	5
Shrubs and Saplings		50
<i>Symphoricarpos albus</i>	Common snowberry	50
<i>Rosa gymnocarpa</i>	Bald-hip rose	10
<i>Rosa pisocarpa</i>	Clustered rose	10
<i>Crataegus monogyna</i>	English hawthorn	40
Groundcover		60
<i>Rubus ursinus</i>	California dewberry	60
<i>Geum macrophyllum</i>	Big-leaf avens	40
<i>Epilobium watsonii</i>	Watson's willow-herb	10
<i>Dipsacus sylvestris</i> **	Fuller's teasel	20
<i>Polystichum munitum</i>	Western swordfern	15

*Invasive species or noxious weed (Oregon Dept. of Agriculture (ODA))

**Nuisance Plant List (Milwaukie Plant List/Portland Plant List)

♦Absolute Percent Cover

The plant community west of Wetland A has a dense tree canopy averaging 90 percent. Canopy coverage across the entire plant community exceeds 50 percent. The combined tree, shrub and groundcover layers provide coverage that exceeds 80 percent. As such, the existing condition of the WQR west of Wetland A meets the definition of a Class A (“Good”) WQR, as defined in Table 19.402.11.C of the municipal code.

6.4 MMC 19.402.12 - General Discretionary Review

A. Impact Evaluation and Alternatives Analysis

An impact evaluation and alternatives analysis is required to determine compliance with the approval criteria for general discretionary review and to evaluate development alternatives for a particular property. A report presenting this evaluation and analysis shall be prepared and signed by a knowledgeable and qualified natural resource professional, such as a wildlife biologist, botanist, or hydrologist. At the Planning Director’s discretion, the requirement to provide such a report may be waived for small projects that trigger discretionary review but can be evaluated without professional assistance.

The alternatives shall be evaluated on the basis of their impact on WQRs and HCAs, the ecological functions provided by the resource on the property, and off-site impacts within the subwatershed (6th Field Hydrologic Unit Code) where the property is located. The evaluation and analysis shall include the following:

1. *Identification of the ecological functions of riparian habitat found on the property, as described in Subsection 19.402.1.C.2.*

Subsection 19.402.1.C.2 of the MMC identifies seven functions and values that contribute to water quality and to fish and wildlife habitat in urban streamside areas. Descriptions of the functions and values provided by the riparian habitat on the project site are provided below.

Vegetated corridors to separate protected water features from development – With exception of the southeast corner of the site, at the location of the church, the site is undeveloped. The vegetated buffer south of Mt. Scott Creek provides a buffer that separates this existing development in the southeast corner of the site from the primary protected water features. The moderately dense tree cover and the dense shrub and herbaceous vegetation along the south side of the creek provide wildlife habitat and water quality benefits to the stream.

Microclimate and shade – Trees within the WQR provide shade to the stream and help to regulate the microclimate within the riparian corridor.

Streamflow moderation and water storage – The floodplain on the south side of Mt. Scott Creek is vegetated with a mixture of trees, shrubs and herbaceous vegetation. During high flow events, vegetation within the floodplain helps to slow floodwaters and reduce downstream flooding. Although much of the floodplain south of the creek predominantly consists of non-woody vegetation, the stream gradient within the site is relatively gradual, and therefore, the riparian corridor within the project area provides limited streamflow moderation and water storage functions.

Water filtration, infiltration, and natural purification – Vegetation within the riparian corridor along Mt. Scott Creek slows runoff from adjacent areas and filters sediments and other pollutants from the runoff before it reaches the stream. By slowing the runoff, the vegetation also increases the potential for water to infiltrate into the soil before reaching the stream. However, the predominantly clay loam soils within the project area reduce the ability of the water to infiltrate into the soil.

Bank stabilization and sediment and pollution control – Streambanks within the project area are generally well-vegetated with trees, shrubs and herbaceous vegetation. This vegetation helps to stabilize the banks, and no evidence of active bank erosion within the project site was observed.

Large wood recruitment and retention and natural channel dynamics – Within the project area, trees occur on both the north and south sides of Mt. Scott Creek. These trees have the potential to become large woody material. When these trees fall into the stream, they have the potential to affect the natural channel dynamics. However, because of the relatively small size of the stream, any large woody material that falls into the stream is likely to remain on the project site rather than be carried downstream.

Organic material resources –Vegetation within the riparian corridor provides organic material that serves as the basis for the aquatic food web. Under the existing conditions, the riparian corridor within the project site is vegetated with a mixture of trees, shrubs, and herbaceous species, which contribute organic materials to the stream.

2. *An inventory of vegetation, sufficient to categorize the existing condition of the WQR per Table 19.402.11.C, including the percentage of ground and canopy coverage materials within the WQR.*

An inventory of vegetation, sufficient to categorize the existing condition of the WQR per Table 19.402.11.C, including the percentage of ground and canopy coverage materials within the WQR, was provided earlier in this document in Subsection 19.402.11.C “Mitigation Requirements for Disturbance within WQRs” of the Development Standards.

3. *An assessment of the water quality impacts related to the development, including sediments, temperature and nutrients, sediment control, and temperature control, or any other condition with the potential to cause the protected water feature to be listed on DEQ’s 303(d) list.*

The proposed project will result in impacts to WQR and HCA associated with Mt. Scott Creek and Wetland A. A 92-unit residential subdivision will be constructed in the central portion of the site. Construction of the subdivision will include four stormwater facilities and grading in the northwest corner of the site for floodplain storage; these features will result in impacts to 40,155 sf (0.92 acre) of WQR and approximately 46,192 sf (1.06 acres) of HCA beyond the limits of the WQR. The WQR impact also includes approximately 1,557 sf (0.04 acre) of wetland impact. The wetlands proposed for impact are of low quality, lacking vegetated structure, and primarily composed of a monoculture of reed canarygrass. Required permits from the State (Department of State Lands (DSL)) and Federal (U.S. Army Corps of Engineers (COE)) agencies for the proposed wetland impacts, and associated wetland mitigation plan, will be obtained, and upon receipt, the Applicant will provide a copy to the City for its files. The areas of permanent and temporary disturbance within the HCA and WQR are summarized in Table 8, below and shown on Figure 5.

It should be noted that the proposed soft-surface paths within the WQR and / or HCA are unpaved and no wider than 30 inches, and therefore, are exempt trails, and as such, meet the standards established in MMC Subsection 19.402.4.A.17, and are not considered to be permanent disturbance within the WQR and HCA.

Table 8. Summary of Permanent and Temporary Disturbance in the WQR and HCA

Activity	Permanent Disturbance (sq.ft./ac.)		Temporary Disturbance (sq.ft./ac.)	
	WQR	HCA	WQR	HCA
92-Unit Subdivision	31,799 / 0.73	40,684 / 0.93	0 / 0	0 / 0
Floodplain storage	0/0	0/0	8,356 / 0.19	5,508 / 0.13
Total	31,799 / 0.73	40,684/ 0.93	8,356 / 0.19	5,508 / 0.13

The proposed project is not anticipated to have any adverse impacts to water quality. The use of erosion and sediment controls during construction will prevent sediment-related impacts to water quality. The proposed project is not anticipated to result in additional nutrient inputs to the stream, and the restoration of the floodplain/ on the south side of Mt. Scott Creek will increase shade on the stream as the riparian plantings mature, helping to reduce water temperatures in the stream. The stormwater outfalls will discharge treated stormwater to the WQR, and the flow-spreaders at the outfalls will dissipate flows preventing erosion and sedimentation downslope of the outfalls and prevent impacts to water quality.

4. *An alternatives analysis, providing an explanation of the rationale behind choosing the alternative selected, listing measures that will be taken to avoid and/or minimize adverse impacts to designated natural resources, and demonstrating that:*
 - a. *No practicable alternatives to the requested development exist that will not disturb the WQR or HCA.*

Because of the location, size and orientation of the resources within the site, and the existing development/church, and limited access points from SE Kellogg Creek Drive, impacts to the WQR and HCA are unavoidable. The alternative site plan (Figure 5A) would have resulted in approximately 48% more permanent impacts to the WQR, with a total of 46,666 sf / 1.07 ac of WQR impacts; permanent impacts to the HCA (42,823 sf / 0.98 acre) resulting from the alternative site plan would have been greater than 5% more than the proposed site plan; and impacts to the wetland (17,592 sf / 0.40 acre) resulting from the alternative site plan would have been significantly greater, resulting in more than 11 times the amount of wetland impact than the proposed site plan. In order to avoid and minimize impacts to the resources, while still allowing the project to be practicable, the Applicant conducted an alternatives analysis, resulting in the proposed plan, which has significantly less adverse effects to the water resources than the alternative design.

An additional alternative site plan was analyzed in order to investigate whether the natural resource impacts could be further minimized. Figure 5B illustrates the additional alternative site plan. However, due to the complexities associated with the combination of the R-10 and R-3 zones transecting the central portion of the site, this alternative would not have allowed the development to meet the City’s minimum density requirements, and therefore, is not a practicable option. This site layout generally shows how the site could be designed under standard R-10 and R-3 zoning without using the Planned Development provisions and within the context of the Natural Resource standards in MMC 19.402.13.I related to subdivisions. The language in that section provides two options for lot layout:

1. *At least 90% of the property’s HCA and 100% of the property’s WQR shall be located in a separate tract. Applications that meet this standard are not subject to the discretionary review requirements of Subsection 19.402.12.*

or

2. *If a subdivision cannot comply with the standards in Subsection 19.402.13.I.1, the application shall comply with the following standards:*

a. *All proposed lots shall have adequate buildable area outside of the WQR and HCA...*

The alternative site layout complies with subsection (1) above and indicates that 100 percent of the WQR and 90 percent of the HCA will remain intact in a separate tract. Lots have been laid out on the site consistent with that standard and consistent with the existing split zoning (10,000 square foot lots in R-10 and 3,000 square foot lots in R-3). As shown, the alternative site plan provides 34 lots (27 R-3 lots and 7 R-10 lots). However, this is not a sufficient number of lots to meet the City’s required minimum density for the R-3 zone. The table below shows how minimum density was calculated for the site.

Zone	Gross Acres	Deduct Gross SF	Deduct Floodway	Deduct Proposed ROW	Deduct Open Space	Net SF	Net Acres	Min Required Units
R3	9.58	417,305	52,359	39,837	189,922	135,187	3.10	36
R10	4.44	193,406	21,753	37,517	74,488	59,649	1.37	5

These calculations assume the entire WQR area and more than 90 percent of the HCA will remain in a separate tract owned in common by the future residents of the subdivision. Once floodway, right-of-way and common open space are deducted from the gross R-3 acreage, the net buildable area is 3.10 acres. With a minimum density requirement of 11.6 units per acre, the total amount of units required for the R-3 zone is 36 units. As shown on the alternative site plan, only 27 units fit within the R-3 portion of the site. In order to meet minimum density requirements in the R-3 zone, nine additional units would be needed, which would result in substantial impacts to the WQR and HCA.

b. *Development in the WQR and/or HCA has been limited to the area necessary to allow for the proposed use.*

Development within the WQR and HCA has been limited to the area necessary to allow for the proposed use. The development has been designed taking into consideration the City’s building, design, and development requirements, while avoiding and minimizing resource impacts to the greatest extent practicable, and still allowing the project to be financially feasible. As such development in the WQR and HCA has been limited to the outer portions of each, in areas that are of lowest quality.

c. *If disturbed, the WQR can be restored to an equal or better condition in accordance with Table 19.402.11.C; and the HCA can be restored consistent with the mitigation requirements of Subsection 19.402.11.D.2.*

Restoration and mitigation for impacts to the WQR and HCA will be done in accordance with Table 19.402.11.C and Subsection 19.402.11.D.2, respectively. Details of the restoration and mitigation are described in more detail below in Subsection 19.402.12.A.6.b.

It should be noted that the DSL and COE requirement for mitigation for the wetland impact will be met and details will be discussed in the permit, which upon receipt, the Applicant will provide to the City.

d. Road crossings will be minimized as much as possible.

Road crossings are located along the inside edge of the development, which will eliminate the need for side slopes, and thereby, minimize the area of impact to the WQR and HCA.

5. Evidence that the applicant has done the following, for applications proposing routine repair and maintenance, alteration, and/or total replacement of existing structures located within the WQR:

- a. Demonstrated that no practicable alternative design or method of development exists that would have a lesser impact on the WQR than the one proposed. If no such practicable alternative design or method of development exists, the project shall be conditioned to limit its disturbance and impact on the WQR to the minimum extent necessary to achieve the proposed repair/maintenance, alteration, and/or replacement.*
- b. Provided mitigation to ensure that impacts to the functions and values of the WQR will be mitigated or restored to the extent practicable.*

Not applicable. The proposed project does not include routine repair and maintenance, alteration, and/or total replacement of existing structures within the WQR.

6. A mitigation plan for the designated natural resource that contains the following information:

- a. A description of adverse impacts that will be caused as a result of development.*

The proposed project will result in impacts to WQR and HCA associated with Mt. Scott Creek and Wetland A. A 92-unit residential subdivision will be constructed in the central portion of the site. Construction of the subdivision will include four stormwater facilities and grading in the northwest corner of the site for floodplain storage; these features will result in impacts to a total of 40,155 sf (0.92 acre) of WQR and approximately 46,192 sf (1.06 acres) of HCA beyond the limits of the WQR. The WQR impact also includes approximately 1,557 sf (0.04 acre) of wetland impact. The areas proposed for grading for floodplain storage will be restored with native vegetation plantings. The areas of permanent and temporary disturbance within the HCA and WQR are summarized in Table 8, above.

- b. An explanation of measures that will be taken to avoid, minimize, and/or mitigate adverse impacts to the designated natural resource; in accordance with, but not limited to, Table 19.402.11.C for WQRs and Subsection 19.402.11.D.2 for HCAs.*

As discussed above, impacts to the WQR and HCA are unavoidable. Adverse effects to the resources have been minimized by reducing the number of dwelling units (from 100 to 92) and redesigning the development layout, thereby, limiting impacts to the outer edges of the resources to the greatest extent practicable.

Mitigation for the unavoidable impacts will be provided through the inventory of man-made debris and noxious materials that might be present within the WQR and the removal of any such material present; the implementation of a stormwater plan that meets City requirements for runoff rates and water quality; the removal of non-native, invasive plants from the riparian corridor along the south side of Mt. Scott Creek; and the installation of tree and shrub plantings within the remaining WQR and HCA areas, the floodplain storage area, and three additional enhancement areas to restore a diverse, native plant community. Compliance with the mitigation requirements outlined in Table 19.402.11.C and Subsection 19.402.11.D.2 to compensate for proposed impacts to the WQR and HCA are described below. Planting the three additional enhancement areas is in addition to the required mitigation.

As depicted on Figure 4, the existing condition of WQR along the south side of Mt. Scott Creek and the west edge of the property, north and south of Wetland A, is Class A (“Good”); the existing condition of the WQR along the northeast and south sides of Wetland A is Class C (“Poor”). Mitigation requirements for disturbance in a Class A and Class C WQR, as listed in Table 19.402.11.C, are listed below, as are the components of the project design that have been incorporated to insure compliance with the mitigation requirements.

- ***Submit a plan for mitigating water quality impacts related to the development, including: sediments, temperature, nutrients, or any other condition that may have caused the protected water feature to be listed on DEQ’s 303(d) list.***

DOWL will be submitting a Preliminary Drainage Report (dated January 12, 2017) demonstrating that the proposed stormwater management facilities treat runoff to meet the City of Milwaukie’s water quality requirements and detain post-development runoff at or below pre-development release rates.

- ***Inventory and remove debris and noxious materials.***

At the time of site construction, the Applicant will identify man-made debris and noxious materials that may be present within the WQR. Any such debris or materials will be removed from the WQR. This will occur within mitigation and restoration areas, as shown on Figure 9.

Mitigation requirements for disturbance in a Class C WQR, as listed in Table 19.402.11.C, are listed below, as are the components of the project design that have been incorporated to insure compliance with the mitigation requirements.

- ***Restore and mitigate disturbed areas with native species from the Milwaukie Native Plant List, using a City-approved plan developed to represent the vegetative composition that would naturally occur on the site.***

All disturbed areas within the WQR and HCA will be restored with native trees and shrubs and reseeded with a native seed mix. Trees and shrubs will be planted within the mitigation and restoration areas on the south side of Mt. Scott Creek to restore a native plant community within the WQR and HCA areas. In addition to the required mitigation, three additional enhancement areas will be planted with native trees, shrubs and seed mix, which will further improve vegetation structure and diversity.

The number of trees and shrubs to be planted was determined in accordance with MMC Subsection 19.402.11.D.2. Sixteen trees will be removed from the WQR, as shown on Figure 7. As prescribed by Table 19.402.11.D.2.a, 112 trees and 183 shrubs would be required under Mitigation Option 1 to mitigate for the trees to be removed. Under Mitigation Option 2, 863 trees (86,347 sf impact area x 5 trees per 500 sf of impact area = 863 trees) and 4,317 shrubs (86,347 sf impact area x 25 shrubs per 500 sf of impact area = 4,317 shrubs) would be planted to mitigate for the 86,347 sf of impacts to the WQR and HCA. Because Mitigation Option 2 results in more tree plantings, Mitigation Option 2 was used to determine the number of trees and shrubs to be planted in accordance with MMC Subsection 19.402.11.D.2. A list of trees and shrubs proposed for planting is provided in Table 9 below, and on Figure 9A – Planting Lists.

These mitigation plantings meet the requirements of MMC Subsection 19.402.11.D, as follows:

- All areas temporarily disturbed will be restored and permanent impacts will be mitigated by the tree and shrub plantings, as described above.
- All species proposed for planting are native species, as identified on the Milwaukie Native Plant List.
- Trees to be planted will average at least a ½-in caliper (measured at 6 inches above the ground level for field-grown trees or above the soil line for container-grown trees). Shrubs shall be at least 1-gallon size and 12 inches high.
- Trees will be planted between 8 and 12 feet on center. Shrubs will be planted between 4 and 5 feet on center or clustered in single-species groups of no more than 4 plants, with each cluster planted between 8 and 10 feet on center. When planting near existing trees, the dripline of the existing tree shall be the starting point for plant spacing measurements.
- More than two species of shrubs are proposed, and not more than 50 percent of the trees to be planted are of the same genus.
- All mitigation will occur on site.
- Invasive non-native or noxious vegetation will be removed within the mitigation area prior to planting, including, but not limited to, species identified as nuisance plants on the Milwaukie Native Plant List.
- Bare or open soil areas remaining after the required tree and shrub plantings will be seeded to 100% surface coverage with grasses or other groundcover species identified as native on the Milwaukie Native Plant List. Revegetation will occur during the next planting season following the site disturbance.

Table 9. Mitigation Area A Planting List

Species	Common Name	Quantity	Stock Type	Plant Size
Trees				
<i>Alnus rubra</i>	Red alder	173	Container or field-grown	½ in caliper
<i>Crataegus suksdorfii</i>	Black hawthorn	172	Container or field grown	½ in caliper
<i>Fraxinus latifolia</i>	Oregon ash	173	Container or field grown	½ in caliper
<i>Populus balsamifera</i>	Black cottonwood	173	Container or field-grown	½ in caliper
<i>Salix scouleriana</i>	Scouler’s willow	172	Container or field-grown	½ in caliper
Shrubs				
<i>Cornus alba</i>	Red-osier dogwood	720	1 gal.	12 in
<i>Rosa pisocarpa</i>	Clustered rose	720	1 gal.	12 in
<i>Malus fusca</i>	Western crabapple	719	1 gal	12 in
<i>Physocarpus capitatus</i>	Pacific ninebark	719	1 gal.	12 in
<i>Sambucus racemosa</i>	Red elderberry	719	1 gal.	12 in
<i>Symphoricarpos albus</i>	Snowberry	720	1 gal.	12 in
Herbaceous seed mix				
<i>Agrostis exarata</i>	Spike bentgrass	2.0 lbs/ac	Seed	n/a

Species	Common Name	Quantity	Stock Type	Plant Size
<i>Bromus carinatus</i>	California brome	2.0 lbs/ac	Seed	n/a
<i>Deschampsia cespitosa</i>	Tufted hairgrass	3.0 lbs/ac	Seed	n/a
<i>Elymus glaucus</i>	Blue wildrye	3.0 lbs/ac	Seed	n/a
<i>Hordeum brachyantherum</i>	Meadow barley	2.0 lbs/ac	Seed	n/a
<i>Lupinus rivularis</i>	Riverbank lupine	3.5 lbs/ac	Seed	n/a

The types of plants to be installed were chosen from the Milwaukie Native Plant List and by the suitability to site conditions and the types of native species that were observed on the site. The tree and shrub plantings will improve vegetation structure and diversity, and thereby, enhance wildlife habitat, in areas that presently consist of a monoculture of reed canarygrass.

- ***Plant and/or seed all bare areas to provide 100% surface coverage.***

All disturbed soil surfaces will be seeded with a native seed mix, as described in Table 9, above. Areas temporarily disturbed for the construction of stormwater outfalls and due to the removal of invasive plant species will be seeded with this seed mix.

- ***Inventory and remove debris and noxious materials.***

At the time of site construction, the Applicant will identify man-made debris and noxious materials that may be present within the WQR. Any such debris or materials will be removed from the WQR. This will occur within mitigation and restoration areas, as shown on Figure 9.

- c. ***Sufficient description to demonstrate how the following standards will be achieved:***

(1) ***Where existing vegetation has been removed, the site shall be revegetated as soon as practicable.***

Following the completion of the construction of the proposed stormwater outfalls, disturbed soils will be reseeded with the native seed mix described in Table 9, above. Within the mitigation and restoration areas, soils disturbed as a result of the removal of non-native invasive plants will be seeded with the native seed mix described in Table 9 as soon as practicable following the removal of the invasive plants. Woody material will be planted in the mitigation and restoration areas in the fall/winter immediately following construction to maximize the survival of the plantings.

(2) ***Where practicable, lights shall be placed so that they do not shine directly into any WQR and/or HCA location. The type, size, and intensity of lighting shall be selected so that impacts to habitat functions are minimized.***

Lights will be placed so that they do not shine directly into the WQR and/or HCA. The type, size, and intensity of lighting will be selected so that impacts to habitat functions are minimized.

(3) ***Areas of standing trees, shrubs, and natural vegetation will remain connected or contiguous; particularly along natural drainage courses, except where mitigation is approved; so as to provide a transition between the proposed development and the designated natural resource and to provide opportunity for food, water, and cover for animals located within the WQR.***

With the exception of the removal of invasive plants from the proposed mitigation and restoration areas, existing trees, shrubs, and natural vegetation within the WQR will remain undisturbed during the proposed construction.

- d. *A map showing where the specific mitigation activities will occur. Off-site mitigation related to WQRs shall not be used to meet the mitigation requirements of Section 19.402.*

Figure 9 depicts the location of proposed mitigation activities. No mitigation is proposed to occur off-site.

- e. *An implementation schedule; including a timeline for construction, mitigation, mitigation maintenance, monitoring, and reporting; as well as a contingency plan. All in-stream work in fish-bearing streams shall be done in accordance with the allowable windows for in-water work as designated by ODFW.*

Construction of the proposed project is anticipated to begin in the late summer of 2017. Activities associated with the WQR/HCA mitigation are anticipated to begin in summer 2017. Removal of any existing man-made debris and noxious materials from the WQR will occur in summer 2017, as will the removal of invasive plants from the mitigation and restoration areas (Figure 9). Restoration plantings will be installed in the mitigation and enhancement areas in late fall of 2017.

Monitoring of the restoration area will be conducted in the summer of 2018 and again in the summer of 2019. An annual monitoring report documenting the survival of the restoration plantings will be submitted to the City of Milwaukie by December 31 of each monitoring year. Plants that die shall be replaced in kind as needed to ensure the minimum 80% survival rate.

No in-stream work is proposed to occur as part of this project.

B. Approval Criteria

1. *Unless specified elsewhere in Section 19.402, applications subject to the discretionary review process shall demonstrate how the proposed activity complies with the following criteria:*

a. *Avoid*

The proposed activity avoids the intrusion of development into the WQR and/or HCA to the extent practicable. The proposed activity shall have less detrimental impact to the designated natural resource than other practicable alternatives, including significantly different practicable alternatives that propose less development within the resource area.

The proposed project avoids development within the WQR and HCA to the extent practicable, given the limitations due to zoning constraints and minimum density requirements. As discussed earlier in this document, the alternative site designs (Figures 5A and 5B) have greater impacts to the WQR, HCA and wetlands, and therefore, the proposed site design is the optimal alternative for site development that would meet the City's minimum density requirements while also avoiding and minimizing impacts to natural resources on the site to the extent practicable.

b. *Minimize*

If the applicant demonstrates that there is no practicable alternative that will avoid disturbance of the designated natural resource, then the proposed activity within the resource area shall minimize detrimental impacts to the extent practicable.

- (1) *The proposed activity shall minimize detrimental impacts to ecological functions and loss of habitat, consistent with uses allowed by right under the base zone, to the extent practicable.*

Implementation of the proposed mitigation will ensure the proposed project minimizes adverse effects to the ecological functions of the WQR and loss of habitat, as follows:

- The minimization of areal impacts as well as the proposed plantings to restore native plant communities on the south side of Mt. Scott Creek, along the northeast and south sides of

Wetland A, and within the floodplain storage area will ensure that the WQR continues to provide vegetated corridors that separate protected water features from development.

- As the proposed tree and shrub plantings south of Mt. Scott Creek, around Wetland A, and within the floodplain storage area mature, they will increasingly provide microclimate regulation and shade for the stream and wetland, and provide better microclimate regulation and shade as compared to the existing plant communities.
- As the proposed tree and shrub plantings south of Mt. Scott Creek, around Wetland A, and the floodplain storage area mature, they will provide more effective streamflow moderation during high flow events than the herbaceous plant community, predominantly composed of reed canarygrass, that is present under existing conditions.
- The diverse plant community within the WQR, HCA and floodplain storage area will continue to provide water filtration, infiltration, and natural purification functions. The proposed project will not adversely affect these functions.
- The proposed restoration plantings and the resulting diverse plant community within the WQR, HCA and floodplain storage area will continue to provide bank stabilization and sediment and pollution control functions. The proposed project will not adversely affect these functions.
- Trees will remain within the vegetated corridor following construction, and therefore, the WQR will continue to provide the potential for large wood recruitment and retention functions. No impacts are proposed for the creek, and therefore, there will be no adverse impact on channel dynamics.
- Because the WQR will continue to be vegetated with a diverse plant community, the proposed project will not adversely affect the resource's ability to provide organic inputs to the stream and riparian area.

(2) *To the extent practicable within the designated natural resource, the proposed activity shall be designed, located, and constructed to:*

(a) Minimize grading, removal of native vegetation, and disturbance and removal of native soils; by using the approaches described in Subsection 19.402.11.A, reducing building footprints, and using minimal excavation foundation systems (e.g., pier, post, or piling foundation).

In accordance with MMC Subsection 19.402.11.A, the following measures will be implemented to minimize impacts to the WQR on the site:

- Work areas will be marked to reduce potential damage to the WQR.
- Trees in the WQR will not be used as anchors for stabilizing construction equipment.
- Native soils disturbed during development shall be conserved on the property.
- The Applicant has prepared a preliminary grading and erosion control plan. Prior to the start of any construction activities, the applicant will apply for a grading and erosion control permit, consistent with the standards required by the City's Public Works Department.
- The Applicant will implement best management practices on site to prevent the drainage of hazardous materials, erosion, pollution or sedimentation within the resources and the vegetative corridors.

- The Applicant has prepared a preliminary stormwater detention and water quality plan for the project which has been designed to prevent flows within and to natural drainage courses which might exceed pre-developed conditions.
- Prior to construction, the WQR and HCA that are to remain undeveloped will be flagged, fenced, or otherwise marked and shall remain undisturbed. Such markings will be maintained until construction is complete.
- The construction phase of the development shall be done in such a manner as to safeguard the resource portions of the site that have not been approved for development.
- Lights will be placed so that they do not shine directly into the WQR and/or HCA.
- The Applicant has prepared a construction management plan which will conform to the requirements of 19.402.9. The Final Construction management plan will be provided to the City's Engineering Department prior to the commencement of construction activities.

(b) Minimize adverse hydrological impacts on water resources.

The implementation of the proposed stormwater management plan, which detains post-development runoff at or below pre-development release rates will ensure that hydrologic impacts to the water resources are minimized. Since no work is proposed in the stream, this will ensure the project avoids hydraulic impacts to the stream channel.

(c) Minimize impacts on wildlife corridors and fish passage.

No work is proposed in the stream, which will ensure the project avoids impacts to fish passage along this reach of Mt. Scott Creek. Restoration with a diverse native plant community within the riparian corridor will ensure that impacts to wildlife habitat are minimized.

(d) Allow for use of other techniques to further minimize the impacts of development in the resource area; such as using native plants throughout the site (not just in the resource area), locating other required landscaping adjacent to the resource area, reducing light spill-off into the resource area from development, preserving and maintaining existing trees and tree canopy coverage, and/or planting trees where appropriate to maximize future tree canopy coverage.

Impacts to the on-site resources have been minimized to the extent practicable.

c. Mitigate

If the applicant demonstrates that there is no practicable alternative that will avoid disturbance of the designated natural resource, then the proposed activity shall mitigate for adverse impacts to the resource area. All proposed mitigation plans shall meet the following standards:

- (1) The mitigation plan shall demonstrate that it compensates for detrimental impacts to the ecological functions of resource areas, after taking into consideration the applicant's efforts to minimize such detrimental impacts.*

As described above, implementation of the proposed mitigation will ensure the proposed project minimizes adverse effects to the ecological functions of the WQR and loss of habitat, as follows:

- The minimization of areal impacts as well as the proposed plantings to restore a native plant community on the south side of Mt. Scott Creek, around Wetland A, and within the floodplain storage area will ensure that the WQR continues to provide a vegetated corridor that separates protected water features from development.

- As the proposed tree and shrub plantings south of Mt. Scott Creek; around Wetland A, and within the floodplain storage area mature, they will increasingly provide microclimate regulation and shade for the stream, and provide better microclimate regulation and shade as compared to the existing plant community on the south side of the creek.
- As the proposed tree and shrub plantings south of Mt. Scott Creek, around Wetland A, and within the floodplain storage area mature, they will provide more effective streamflow moderation during high flow events than the predominantly reed canarygrass herbaceous plant community that is present under existing conditions.
- The diverse plant community within the WQR, HCA and floodplain storage area will continue to provide water filtration, infiltration, and natural purification functions. The proposed project will not adversely affect these functions.
- The proposed restoration plantings and the resulting diverse plant community within the WQR, HCA and floodplain storage area will continue to provide bank stabilization and sediment and pollution control functions. The proposed project will not adversely affect these functions.
- Trees will remain within the vegetated corridor following construction, and therefore, the WQR will continue to provide the potential for large wood recruitment and retention functions. No impacts are proposed for the creek, and therefore, there will be no adverse impact on channel dynamics.
- Because the WQR will continue to be vegetated with a diverse plant community, the proposed project will not adversely affect the resource's ability to provide organic inputs to the stream and riparian area.

(2) Mitigation shall occur on the site of the disturbance, to the extent practicable. Off-site mitigation for disturbance of WQRs shall not be approved. Off-site mitigation for disturbance of HCAs shall be approved if the applicant has demonstrated that it is not practicable to complete the mitigation on-site and if the applicant has documented that they can carry out and ensure the success of the off-site mitigation as outlined in Subsection 19.402.11.B.5.

In addition, if the off-site mitigation area is not within the same subwatershed (6th Field Hydrologic Unit Code) as the related disturbed HCA, the applicant shall demonstrate that it is not practicable to complete the mitigation within the same subwatershed and that, considering the purpose of the mitigation, the mitigation will provide more ecological functional value if implemented outside of the subwatershed.

All mitigation will occur on site.

(3) All revegetation plantings shall use native plants listed on the Milwaukie Native Plant List.

Only native species will be installed in the revegetation plantings. A list of species to be planted is provided on Figure 9A.

(4) All in-stream work in fish-bearing streams shall be done in accordance with the allowable windows for in-water work as designated by ODFW.

No in-stream work is proposed to occur with this project.

(5) A mitigation maintenance plan shall be included and shall be sufficient to ensure the success of the planting. Compliance with the plan shall be a condition of development approval.

The Applicant will undertake the following mitigation maintenance measures to ensure a minimum of 80 percent of the trees and shrubs planted remain alive two years after the mitigation planting is completed.

- New plantings will be mulched to a minimum of 3-inch depth and 18-inch diameter to retain moisture and discourage weed growth.
- Non-native or noxious vegetation will be removed or controlled throughout the maintenance period.
- Plant sleeves or fencing will be used to protect trees and shrubs against wildlife browsing and the resulting damage to plants.
- New plantings will be watered at a rate of 1 inch per week between June 15 and October 15 for the first two years following planting.

It should be noted that as described in the sections above, mitigation for proposed impacts to the HCA and WQR are primarily in the form of restoration and enhancement plantings. Due to the size, shape and location of the wetland areas and associated WQR and HCA within the site, options for other mitigation measures, such as grading with gradual slopes, while avoiding further impacts to natural resources, is quite limited. As such, grading with gradual slopes, 3:1 or less, were limited to areas along the south and east sides of the existing wetland.

6.5 MMC 19.402.13 – Land Division and Property Line Adjustments

I. Subdivisions

Applications for subdivisions are subject to Type III review and shall comply with one of the following two standards:

- 1. At least 90% of the property's HCA and 100% of the property's WQR shall be located in a separate tract. Applications that meet this standard are not subject to the discretionary review requirements of Subsection 19.402.12.*

This standard is not met. As such the application is subject to the discretionary review provided in Section 6.4, above.

- 2. If a subdivision cannot comply with the standards in Subsection 9.402.13.I.1, the application shall comply with the following standards:*
 - a. All proposed lots shall have adequate buildable area outside of the WQR and HCA.*
 - b. To the extent practicable, the lot and access configurations shall mitigate the potential future impacts to the WQR and HCA from access and development.*
 - c. An Impact Evaluation and Alternatives Analysis shall be prepared in accordance with the relevant portions of Subsection 19.402.12.A.*
 - d. For properties where the HCA covers more than 85% of the total lot area, the Impact Evaluation and Alternatives Analysis shall address how the applicant's proposal retains the greatest practicable degree of contiguity of the HCA across the new lots.*

Standards b, c and d are being met, and have been discussed above in Section 6.4. Standard a cannot be met, however, mitigation for impacts to WQR and HCA has been provided. Some of the developable lots within the proposed development will not provide adequate buildable area outside of

WQR and HCA areas on the site, and therefore, will remain with a WQR and/or HCA. As such, a formal variance request has been made by the Applicant, and will be subject to a Type III review. A Type III Variance Application has been submitted to the City by DOWL.

J. Resource Area as a Separate Tract

Where required by Section 19.402, the new subdivision or partition plat shall delineate and show all WQRs and HCAs as being located in a separate unbuildable tract(s) according to the following process:

1. *Prior to preliminary plat approval, the designated natural resource (whether WQR, HCA, or both) shall be shown as a separate tract(s), which shall not be part of any lot or parcel used for construction of any structures.*

Prior to preliminary plat approval, the WQR and HCA will be shown as separate tracts, which will not be part of any lot or parcel used for construction of any structures. Figure 10 shows the locations of the revised WQR and HCA boundaries upon completion of the proposed development.

2. *Prior to final plat approval, ownership of the separate natural resource tract(s) shall be identified to distinguish it from lots or parcels intended for sale. Ownership in common or by a homeowners association is strongly discouraged. The tract(s) may be identified as any of the following:*
 - a. *Private natural area held by the owner with a restrictive covenant and/or conservation easement.*
 - b. *For residential subdivisions, private natural area subject to an easement conveying storm and surface water management rights to the City of Milwaukie, Clackamas County Water Environment Services, and/or any other relevant jurisdiction, and preventing the owner of the tract from activities and uses inconsistent with the purposes of Section 19.402.*
 - c. *Public natural area where the tract has been dedicated to the City of Milwaukie or a private nonprofit with the mission of land conservation.*

As the proposed development is a residential subdivision, prior to final plat approval, the ownership of the separate natural resource tract(s) will be identified to distinguish it from lots or parcels intended for sale by identifying it as a private natural area subject to an easement conveying storm and surface water management rights to the City of Milwaukie, Clackamas County Water Environment Services, and/or any other relevant jurisdiction, and preventing the owner of the tract from activities and uses inconsistent with the purposes of Section 19.402.

3. *The boundaries of all such tracts shall be demarcated with stakes, flags, or some similar means so that the boundaries between tracts and adjacent properties are defined in perpetuity. Fences that prevent the unfettered passage of wildlife shall not be installed along the boundary of any tract.*

The boundaries of all such tracts will be demarcated with stakes, flags, or some similar means so that the boundaries between tracts and adjacent properties are visibly defined in perpetuity. The exact means that will be used will be determined at the time of construction; however, fences that prevent the unfettered passage of wildlife will not be installed along the boundary of any tract.

6.6 MMC 19.402.15 – Boundary Verification and Map Administration

A. Boundary Verification

To determine whether the standards of Section 19.402 apply to a proposed activity at any given location, the boundaries of any designated natural resource(s) on or near the site shall be verified.

Agreement with the accuracy of the NR Administrative Map does not constitute or require a land use decision. However, for activities proposed within 100 feet of a wetland or its associated vegetated corridor, the boundary verification process outlined in Subsection 19.402.15.A.2.a(1)(b) shall be followed to identify the specific location of wetlands on the subject property. The Planning Director may waive the requirement for official wetland

delineation, depending on the specific circumstances of the site and the proposed activity. Such circumstances may include, but are not limited to, the scale and potential impacts of the proposed activity, the proximity of the proposed activity to the mapped resource, and the Director's confidence in the accuracy of the NR Administrative Map relative to the resource in question. An applicant may challenge the accuracy of the NR Administrative Map through either of the boundary verification processes outlined in Subsections 19.402.15.A.1 and 2.

1. Type I Boundary Verification

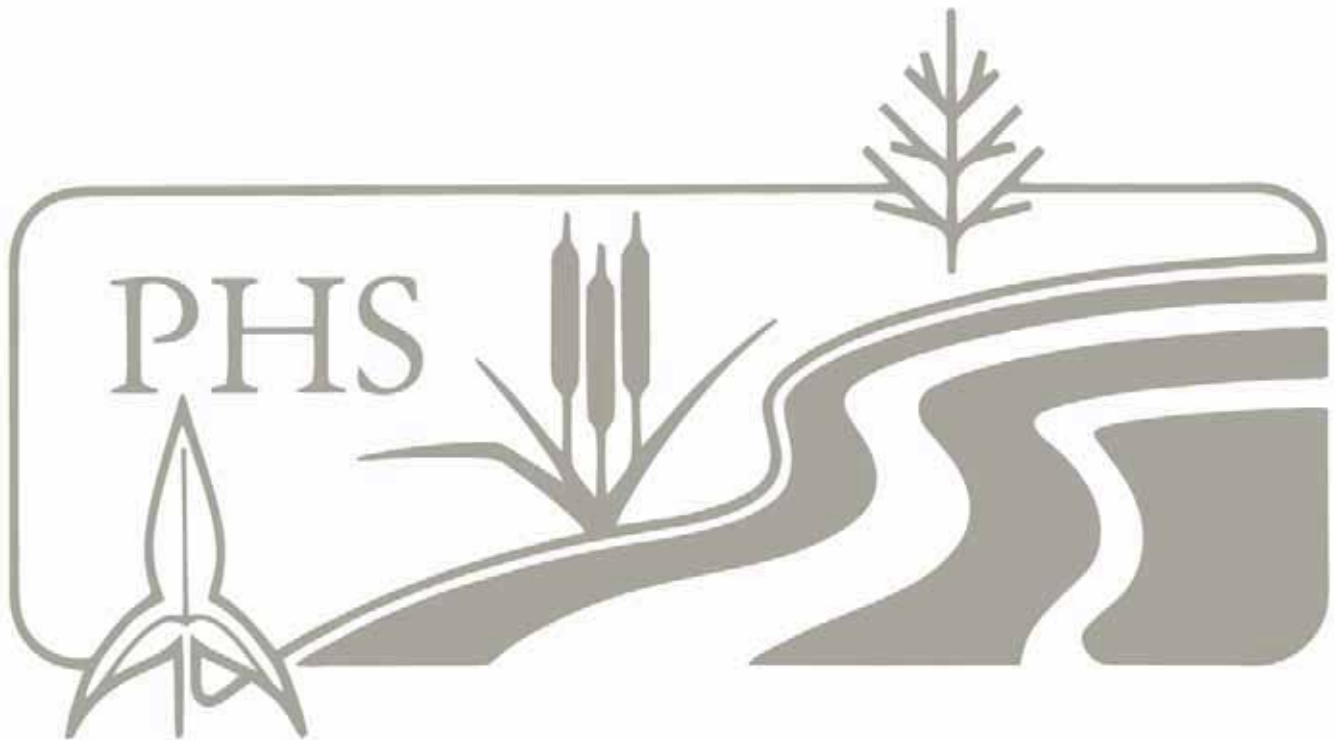
The following minor corrections to mapped HCAs may be proposed according to one of the following procedures, and are subject to Type I review per Section 19.1004:

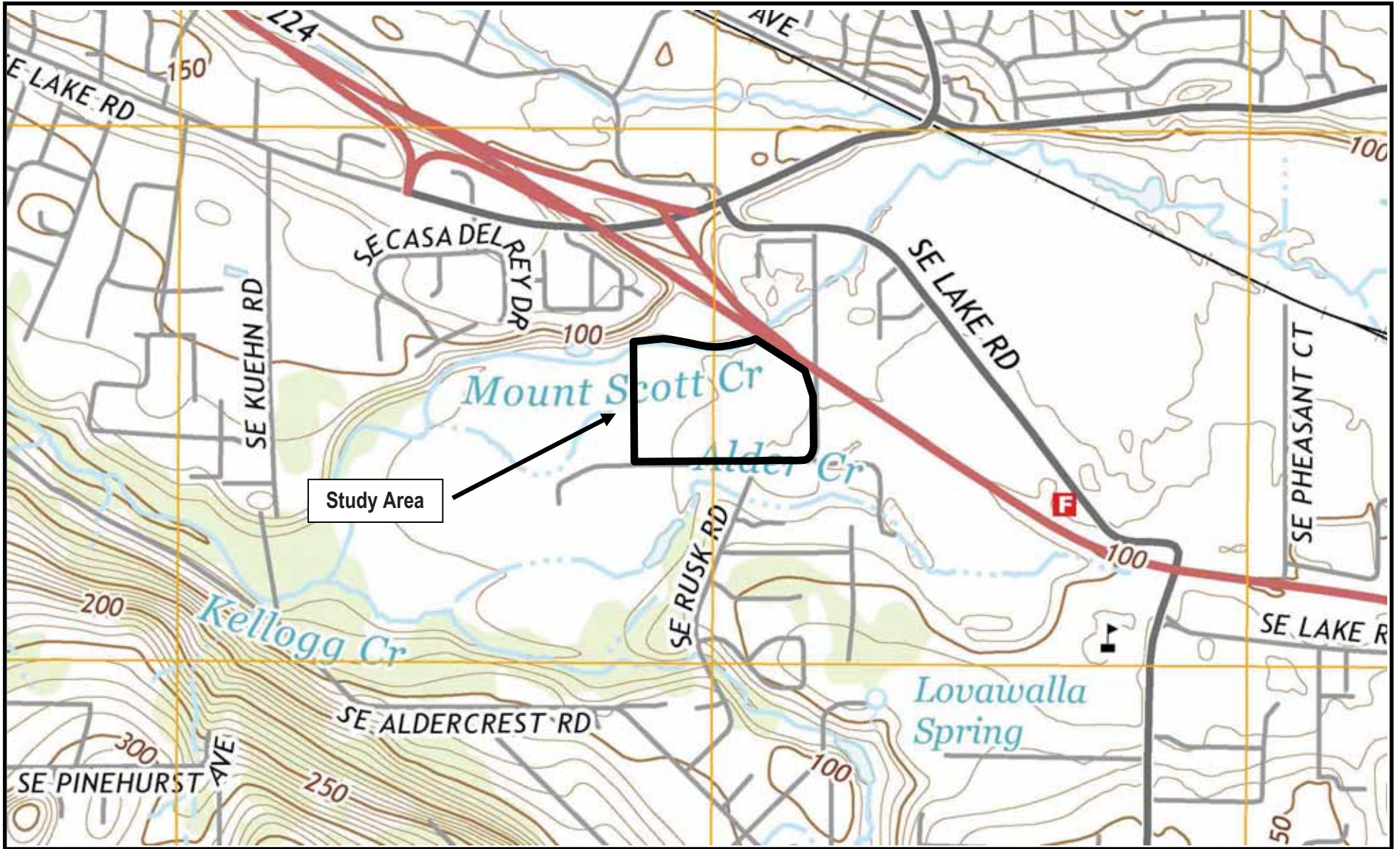
a. Simple Incongruities

The proposed site plan per approval will result in a revised HCA boundary resulting from simple incongruities associated with the development of the subject site. The proposed updated HCA boundary verification map is presented on Figure 10.

Attachment A

Figures





5975
1/16/2017





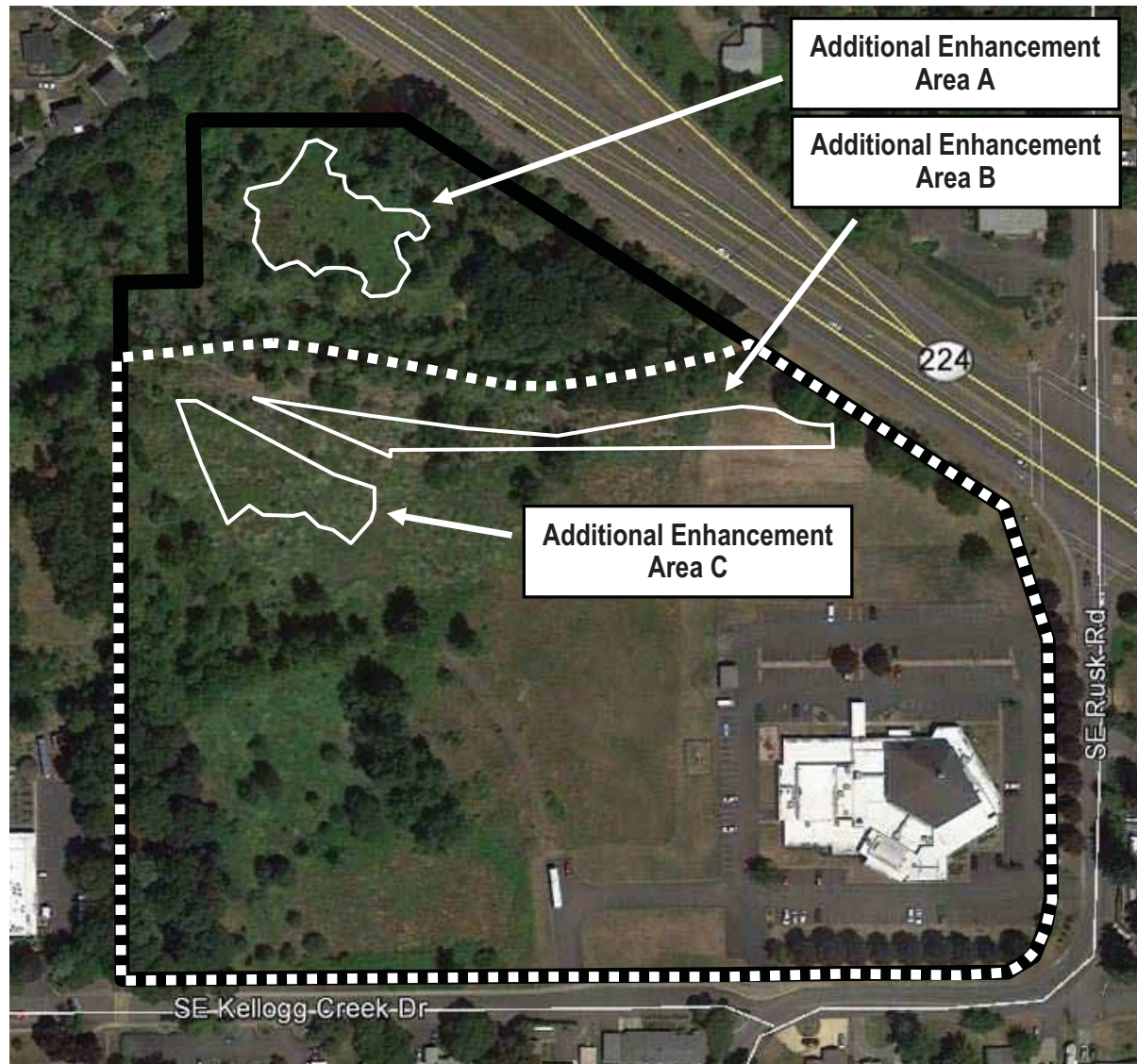
Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

General Location and Topography
SE Kellogg Creek Drive - Milwaukie, Oregon
United States Geological Survey (USGS), Gladstone, Oregon, 7.5 Quadrangle, 2014
(viewer/nationalmap.gov/basic)

FIGURE

1

 Tax Lot Boundary
 Study Area



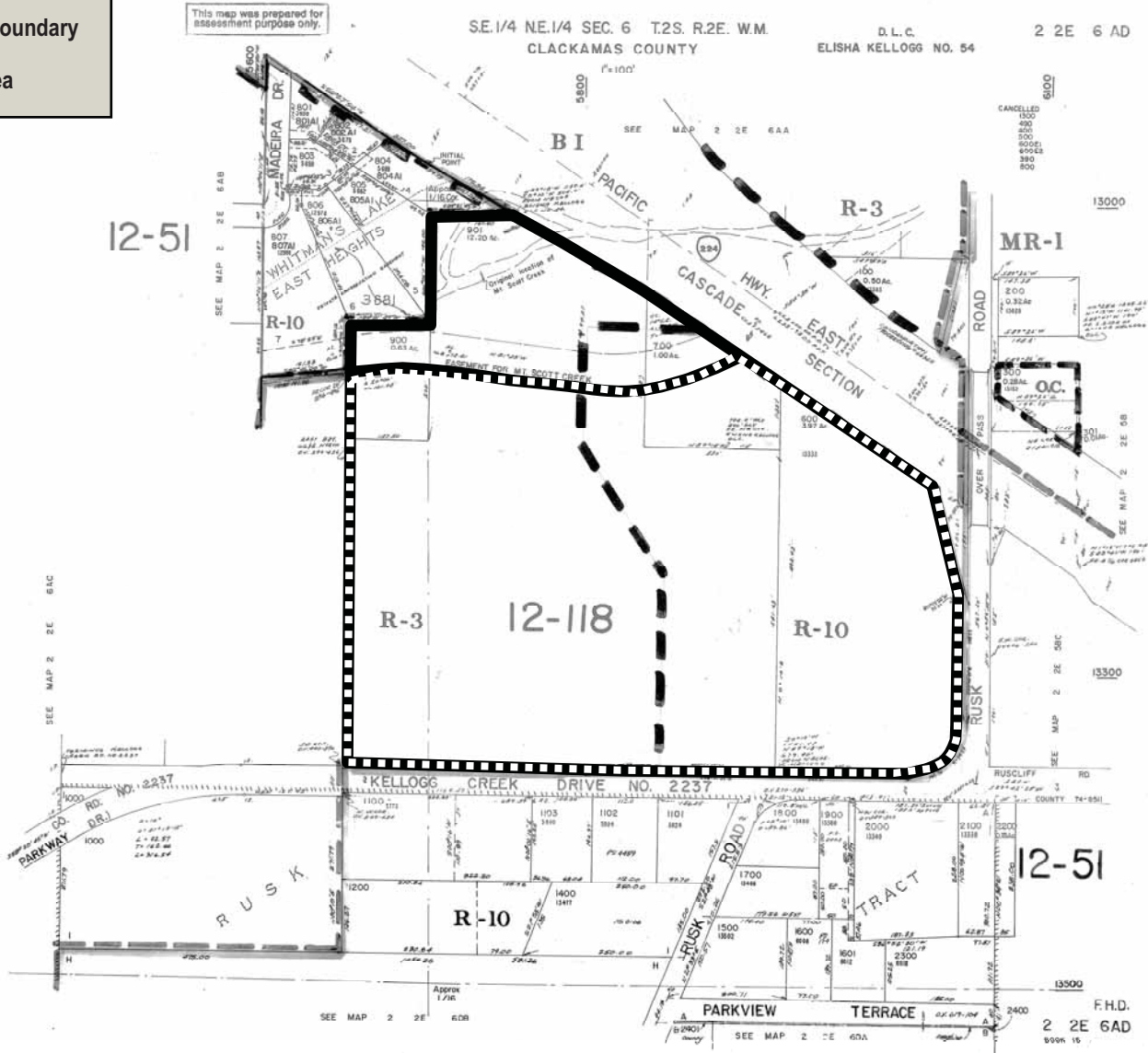
5975
 4/19/2017

 Pacific Habitat Services, Inc.
 9450 SW Commerce Circle, Suite 180
 Wilsonville, OR 97070

Additional Enhancement Areas A, B and C
 SE Kellogg Creek Drive - Milwaukie, Oregon
 Aerial Photo - Google Earth, 2016

FIGURE
 1A

Tax Lot Boundary
 Study Area



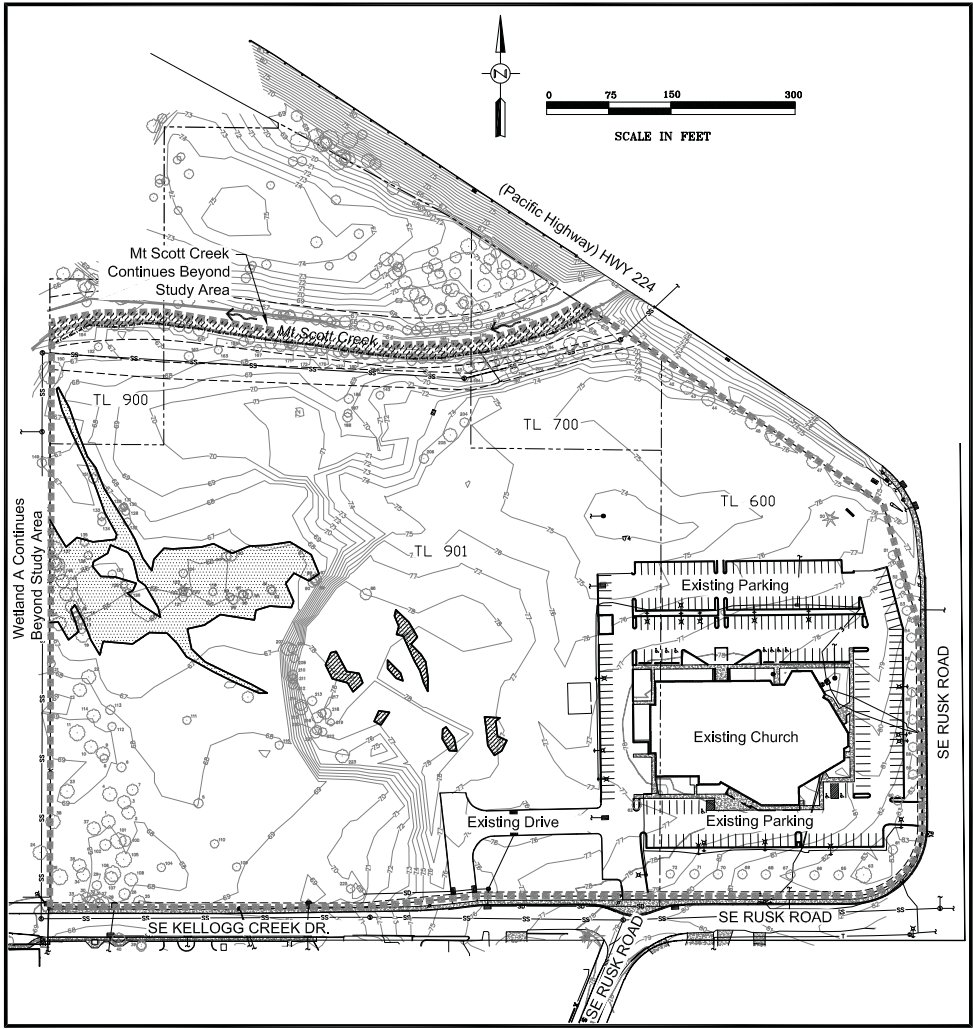
5975
12/21/2016



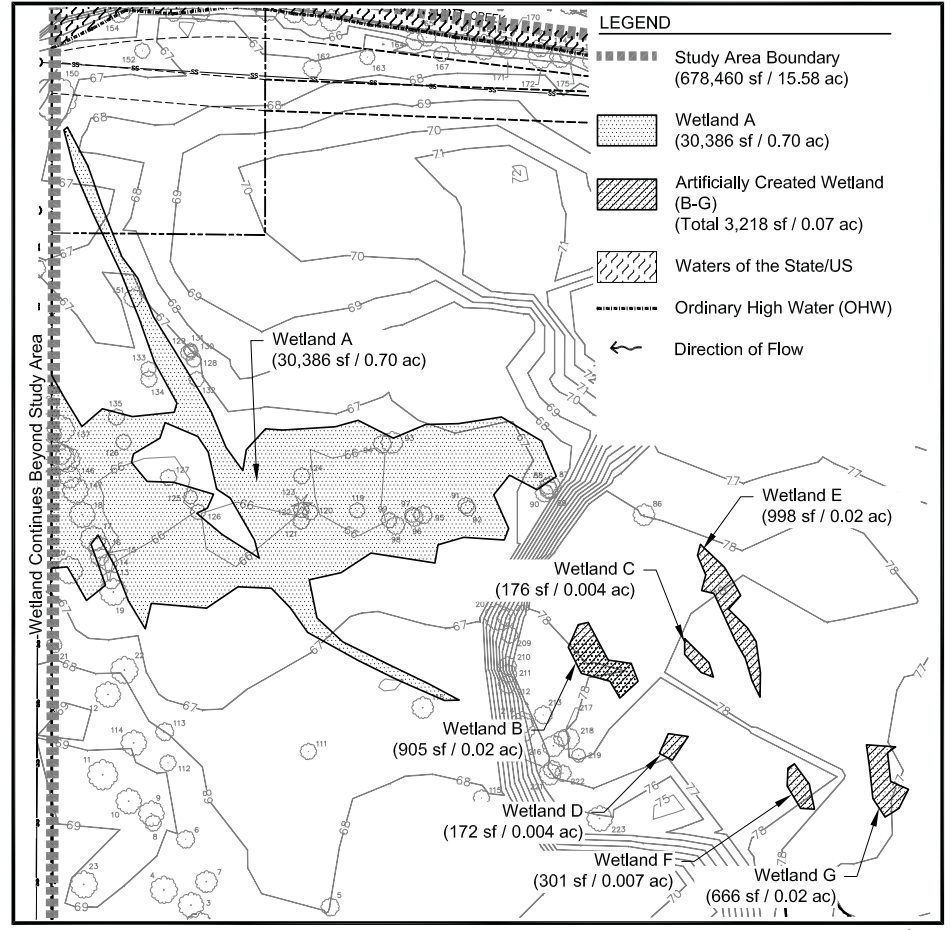
Pacific Habitat Services, Inc.
 9450 SW Commerce Circle, Suite 180
 Wilsonville, OR 97070

Tax Lot Map
 SE Kellogg Creek Drive - Milwaukie, Oregon
 The Oregon Map (ormap.net)

FIGURE
 2



TAX LOT OVERVIEW



SCALE IN FEET

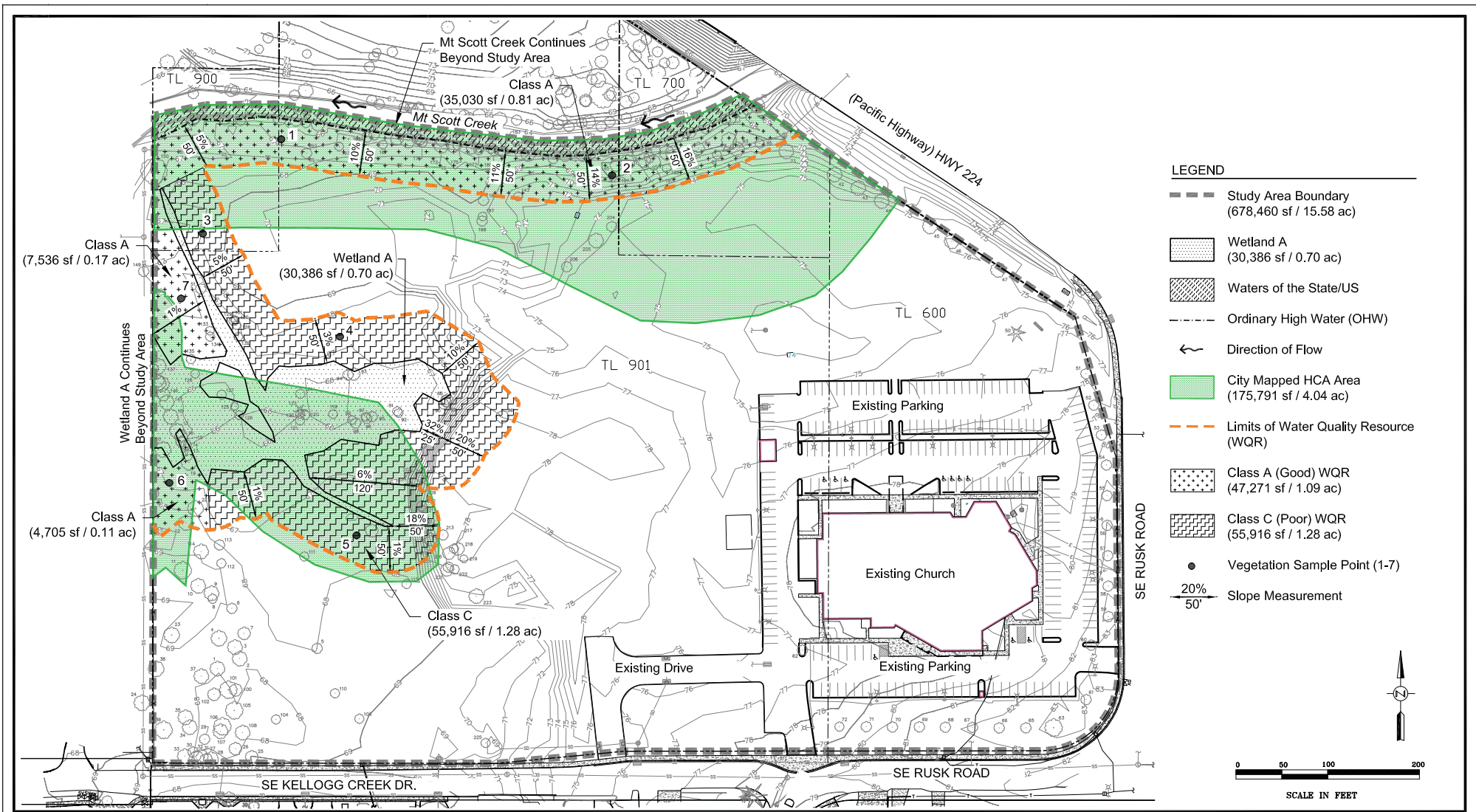


Survey provided by
 TerraCalc Land Surveying, Inc., 2016
 Survey accuracy is sub-centimeter and
 Sample Point accuracy is ± 3 feet.

Existing Conditions
 Kellogg Creek Subdivision - Milwaukie, Oregon

FIGURE
3

1-31-2017



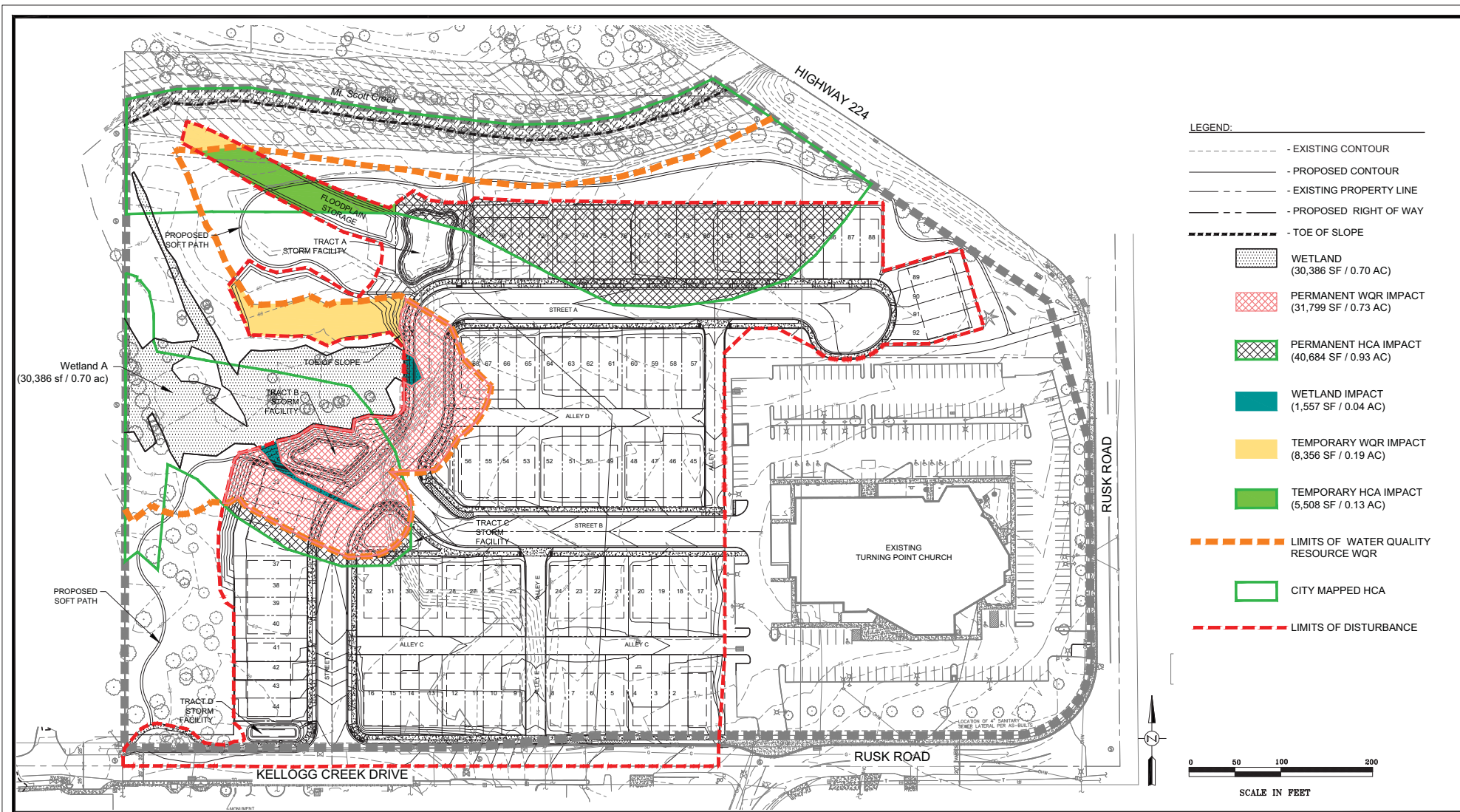
Survey provided by
TerraCalc Land Surveying, Inc., 2016.

Pacific Habitat Services, Inc.
940 SW Commerce Circle, Suite 180 Milwaukie, Oregon 97131
Phone: (503) 671-4300 Fax: (503) 671-4355

Water Quality Resource and Habitat Conservation Area Map
SE Kellogg Creek Drive - Milwaukie, Oregon

FIGURE
4

2-1-2017



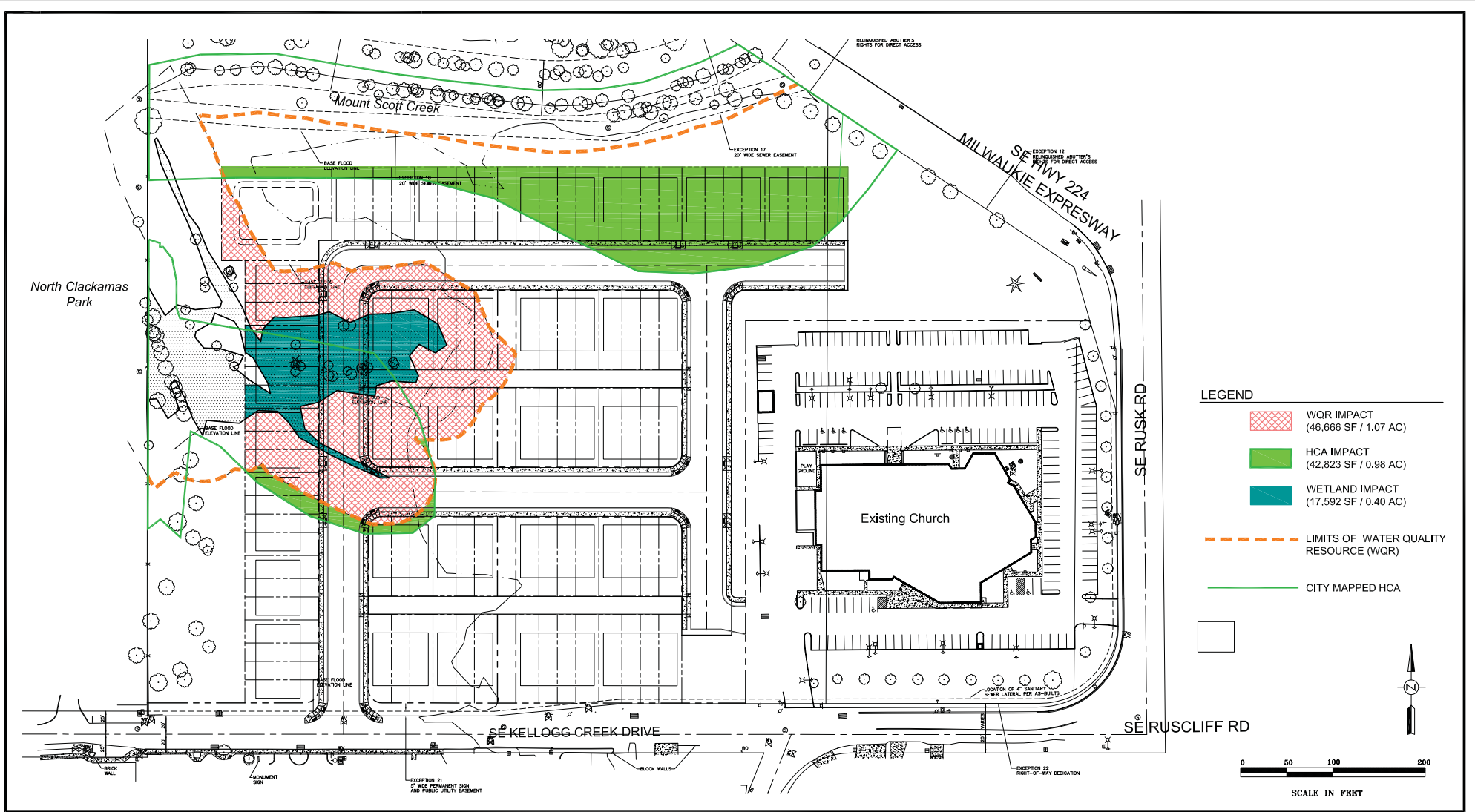
Plans provided by DOWL.

Pacific Habitat Services, Inc.
 9420 SW Commerce Circle, Suite 180, Milwaukie, Oregon 97131
 Phone: (503) 670-0800 Fax: (503) 670-0802

Site Plan and WQR, HCA and Wetland Impacts
 Kellogg Creek Subdivision - Milwaukie, Oregon

FIGURE
5

6-14-2017



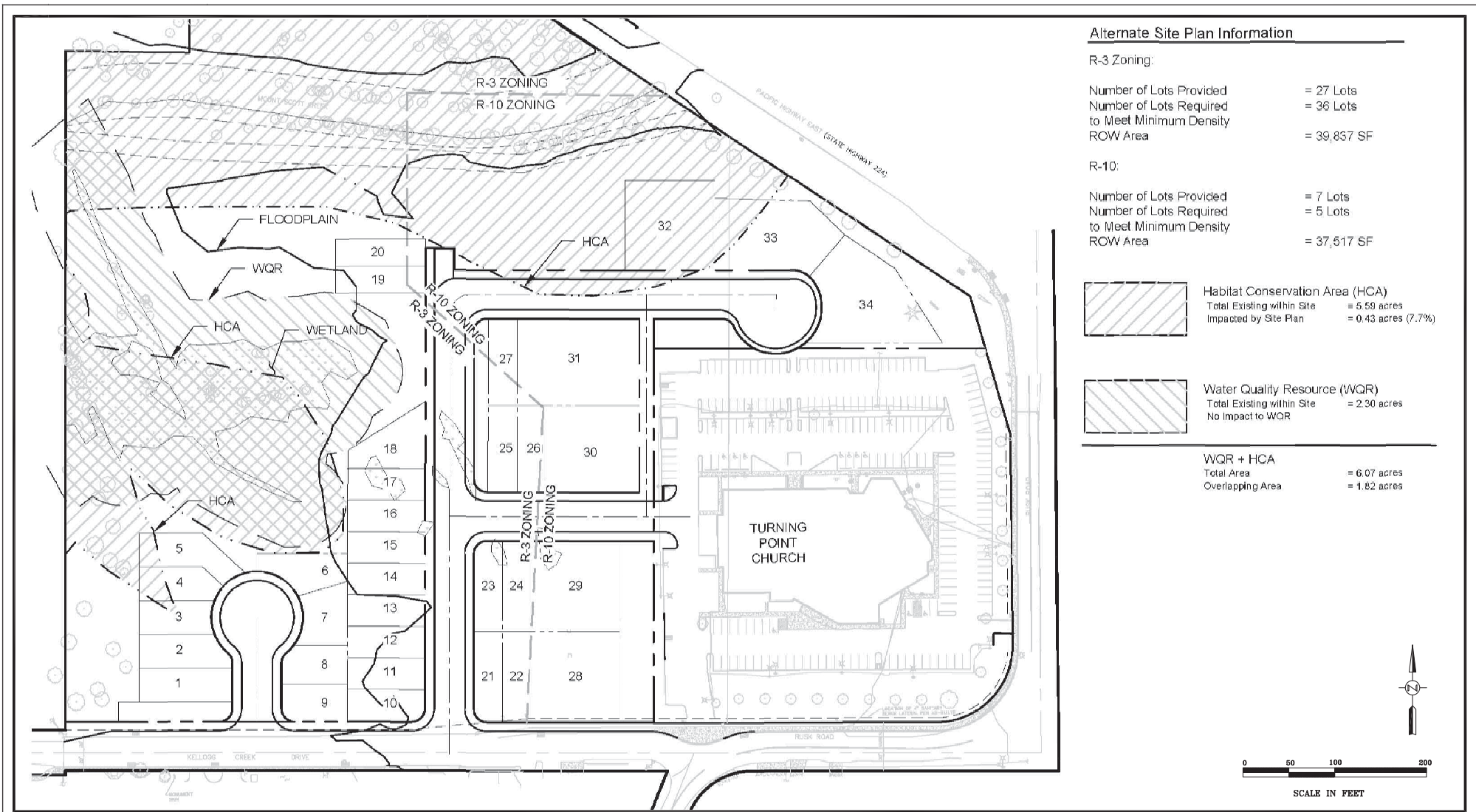
Plans provided by DOWL.

Pacific Habitat Services, Inc.
 9450 SW Commerce Drive, Suite 180, Milwaukie, Oregon 97131
 Phone: (503) 674-0300 Fax: (503) 674-0355

Alternative Site Plan and WQR, HCA and Wetland Impacts
 Kellogg Creek Subdivision - Milwaukie, Oregon

FIGURE
5A

2-1-2017

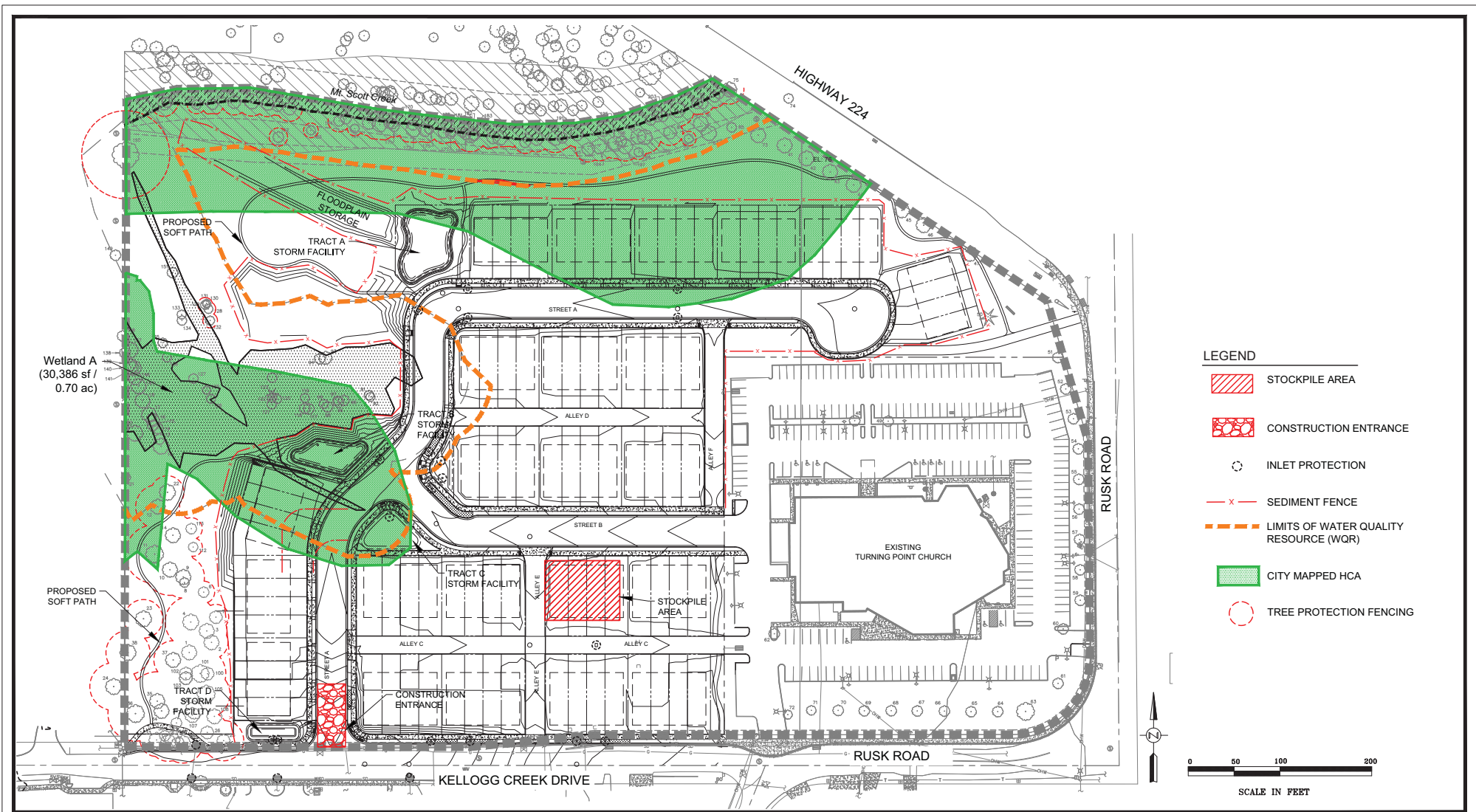


Site Plan (April 3, 2017) provided by DOWL.

Additional Alternative Site Plan
 Kellogg Creek Subdivision - Milwaukie, Oregon

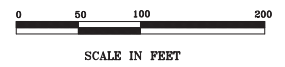
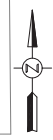
FIGURE 5B

4-6-2017



LEGEND

-  STOCKPILE AREA
-  CONSTRUCTION ENTRANCE
-  INLET PROTECTION
-  SEDIMENT FENCE
-  LIMITS OF WATER QUALITY RESOURCE (WQR)
-  CITY MAPPED HCA
-  TREE PROTECTION FENCING



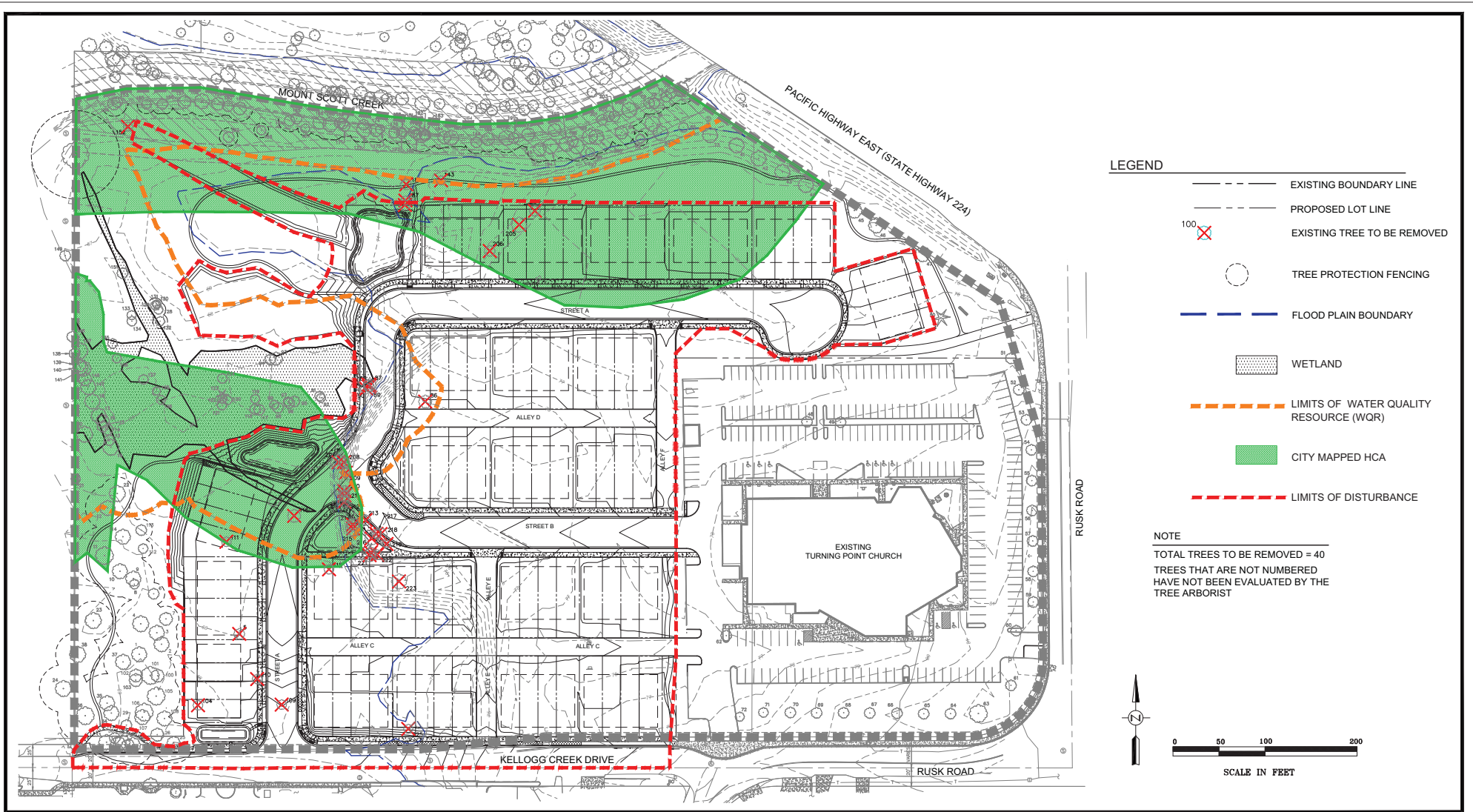
Plans provided by DOWL.

Pacific Habitat Services, Inc.
9420 SW Commerce Circle, Suite 189, Wilson, Oregon 97150
Phone: (503) 670-0800 Fax: (503) 670-0800

Construction Management / Erosion and Sediment Control Plan
Kellogg Creek Subdivision - Milwaukie, Oregon

FIGURE
6

6-14-2017

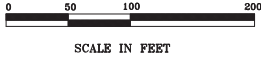
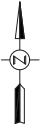


LEGEND

- EXISTING BOUNDARY LINE
- - - PROPOSED LOT LINE
- 100 X EXISTING TREE TO BE REMOVED
- TREE PROTECTION FENCING
- FLOOD PLAIN BOUNDARY
- WETLAND
- LIMITS OF WATER QUALITY RESOURCE (WQR)
- CITY MAPPED HCA
- LIMITS OF DISTURBANCE

NOTE

TOTAL TREES TO BE REMOVED = 40
 TREES THAT ARE NOT NUMBERED
 HAVE NOT BEEN EVALUATED BY THE
 TREE ARBORIST



Plans provided by DOWL.

Pacific Habitat Services, Inc.
 940 SW Commerce Circle, Suite 180 Milwaukie, Oregon 97131
 Phone: (503) 670-0800 Fax: (503) 670-0804

Tree Removal and Protection Plan
 Kellogg Creek Subdivision - Milwaukie, Oregon

FIGURE
7

6-14-2017

Number	Dia (in)	Remove (Y/N)	Number	Dia (in)	Remove (Y/N)	Number	Dia (in)	Remove (Y/N)	Number	Dia (in)	Remove (Y/N)
1	18	N	61	12	N	119	2x8	N	178	8	N
2	18	N	62	14	N	120	8	N	179	2x10	N
3	22	N	63	19	N	121	10	N	180	10	N
4	28	N	64	12	N	122	8	N	181	14	N
5	12	Y	65	15	N	123	6	N	182	10	N
6	12	N	66	20	N	124	2x10	N	183	10	N
7	14	N	67	17	N	125	6	N	184	2x14	N
8	10	N	68	15	N	126	8	N	185	18	N
9	28	N	69	14	N	127	10	N	186	3x12	Y
10	20	N	70	17	N	128	8	N	187	2x8	Y
11	38	N	71	14	N	129	8	N	188	2x10	Y
12	24	N	72	10	N	130	6	N	189	2x14	N
13	12	N	73	18	N	131	6	N	190	14	N
14	15	N	74	10	N	132	8	N	191	12	N
15	12	N	75	16	N	133	8	N	192	2x12	N
16	2x14	N	76	3x12	N	134	10	N	193	14	N
17	16	N	77	12	N	135	10	N	194	20	N
18	2x16	N	78	12	N	136	2x8	N	195	20	N
19	24	N	79	12	N	137	20	N	196	12	N
20	24	N	80	20	N	138	14	N	197	16	N
21	8	N	81	21	N	139	14	N	198	8	N
22	23	N	82	8	N	140	18	N	199	23	N
23	22	N	83	18	N	141	16	N	200	23	N
24	28	N	84	14	N	143	8	Y	201	12	N
25	22	N	85	8	N	144	12	N	202	12	N
26	2x16	N	86	14	Y	145	2x14	N	203	2x10	N
27	14	N	87	2x14	Y	146	14	N	204	16	Y
28	22	N	88	10	Y	147	16	N	205	2x18	Y
29	18	N	89	12	Y	148	10	N	206	4x12	Y
30	12	N	90	12	Y	149	10	N	207	16	Y
31	22	N	91	10	N	150	48	N	208	2x12	Y
32	21	N	92	8	N	151	12	N	209	9x10	Y
33	18	N	93	14	N	152	8	Y	210	12	Y
34	18	N	94	12	N	153	12	N	211	12	Y
35	2x20	N	95	12	N	154	14	N	212	12	Y
36	36	N	96	12	N	155	2x10	N	213	12	Y
37	26	N	97	8	N	156	12	N	214	14	Y
38	29	N	98	12	N	157	14	N	215	16	Y
41	18	N	99	12	N	158	16	N	216	14	Y
42	22	N	100	17	N	159	14	N	217	10	Y
43	21	N	101	28	N	160	3x8	N	218	14	Y
44	18	N	102	6x8	N	161	14	N	219	3x6	Y
45	18	N	103	16	N	162	10	N	220	12	Y
46	18	N	104	10	Y	163	2x8	N	221	14	Y
47	21	N	105	26	N	164	12	N	222	10	Y
48	12	Y	106	24	N	165	12	N	223	2x16	Y
49	12	Y	107	18	N	166	12	N	225	3x8	Y
50	2x16	N	108	2x16	N	167	8	N			
51	14	N	109	10	Y	168	18	N			
52	14	N	110	10	Y	169	12	N			
53	16	N	111	5x10	Y	170	12	N			
54	13	N	112	10	N	171	12	N			
55	19	N	113	12	N	172	10	N			
56	12	N	114	24	N	173	12	N			
57	14	N	115	8x10	Y	174	11	N			
58	15	N	116	14	Y	175	8	N			
59	14	N	117	12	N	176	12	N			
60	12	N	118	12	N	177	10	N			

TOTAL TREES TO BE REMOVED = 40

TREES THAT ARE NOT NUMBERED HAVE NOT BEEN EVALUATED BY THE ARBORIST



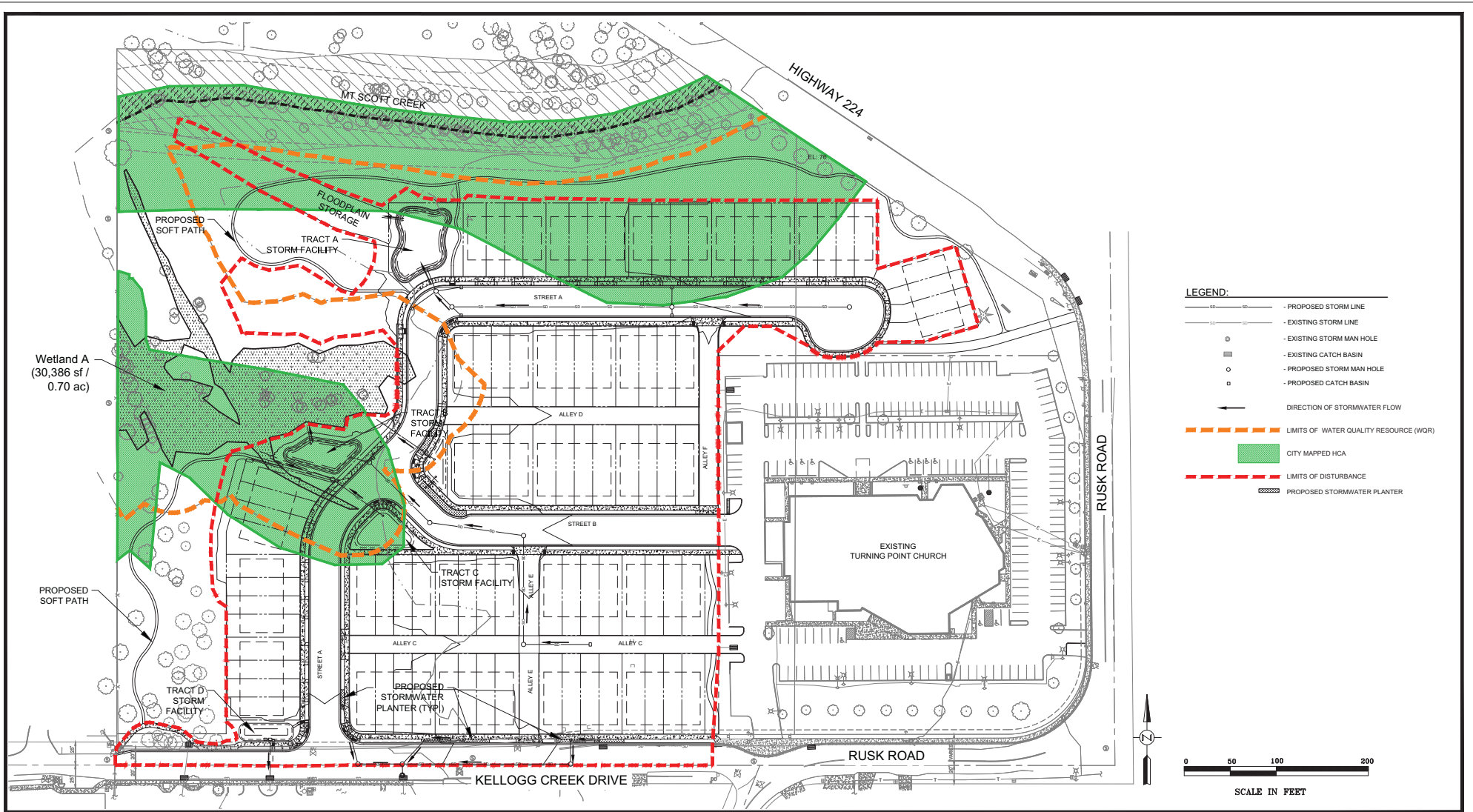
Pacific Habitat Services, Inc.
 940 SW Commerce Drive, Suite 180 Milwaukie, Oregon 97139
 Phone: (503) 671-6300 Fax: (503) 671-6355

Plans provided by DOWL.

Tree Survey and Removal Table
 Kellogg Creek Subdivision - Milwaukie, Oregon

FIGURE
7A

6-14-2017



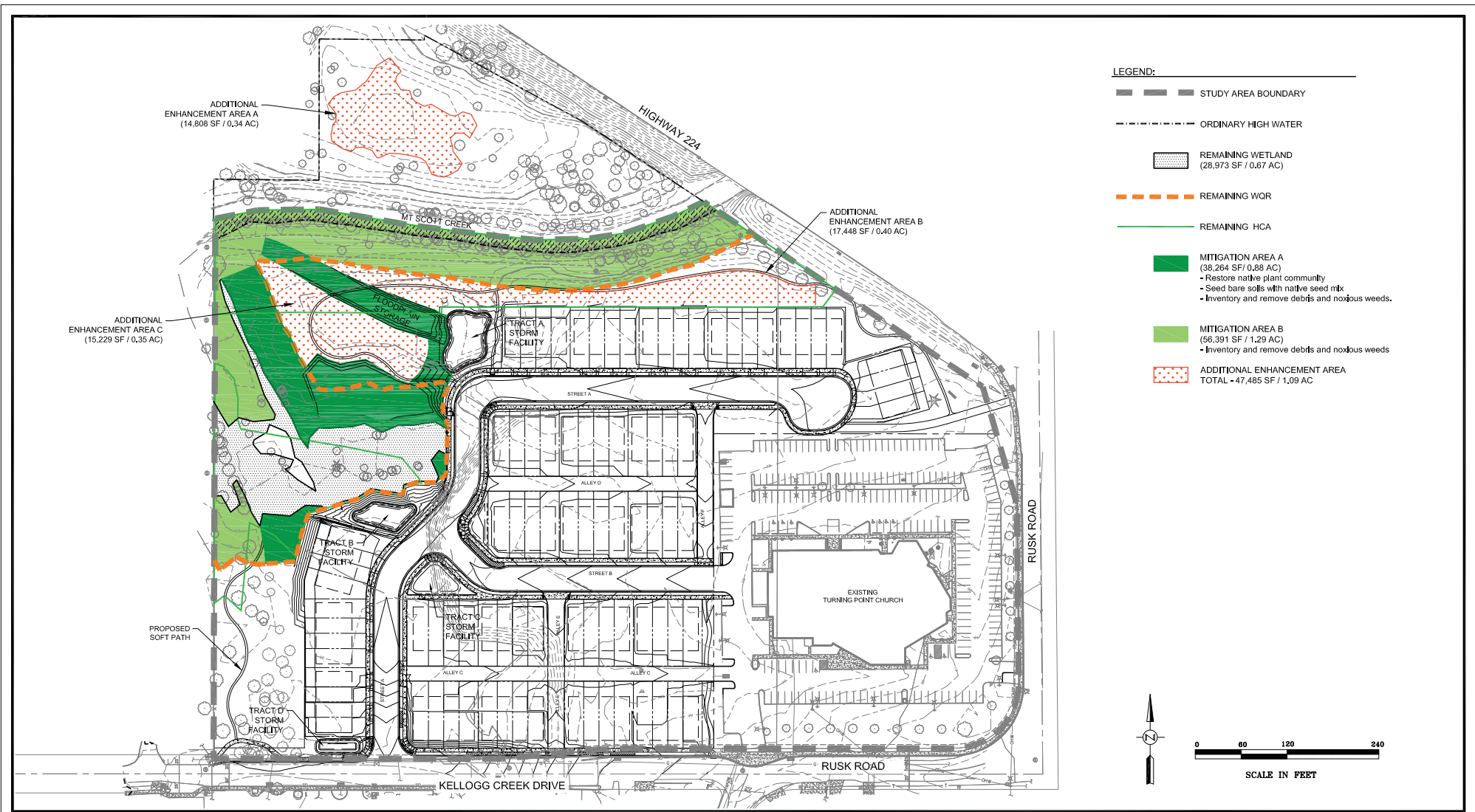
Plans provided by DOWL.

Pacific Habitat Services, Inc.
 9420 SW Commerce Circle, Suite 180 Milwaukie, Oregon 97131
 Phone: (503) 670-0800 Fax: (503) 670-0800

Stormwater Management Plan
 SE Kellogg Creek Drive - Milwaukie, Oregon

FIGURE
 8

6-14-2017



Plans provided by DOWL.

Mitigation Plan
 Kellogg Creek Subdivision - Milwaukie, Oregon

FIGURE
 9

6-14-2017

Mitigation Area A Planting List

Species	Common Name	Quantity	Stock Type	Plant Size
Trees				
<i>Alnus rubra</i>	Red alder	173	Container or field-grown	½ in caliper
<i>Crataegus douglasii</i>	Douglas hawthorn	172	Container or field grown	½ in caliper
<i>Fraxinus latifolia</i>	Oregon ash	173	Container or field grown	½ in caliper
<i>Populus balsamifera</i>	Black cottonwood	173	Container or field-grown	½ in caliper
<i>Salix scouleriana</i>	Scouler's willow	172	Container or field-grown	½ in caliper
Shrubs				
<i>Cornus alba</i>	Red-osier dogwood	720	1 gal.	12 in
<i>Rosa pisocarpa</i>	Clustered rose	720	1 gal.	12 in
<i>Malus fusca</i>	Western crabapple	719	1 gal.	12 in
<i>Physocarpus capitatus</i>	Pacific ninebark	719	1 gal.	12 in
<i>Sambucus racemosa</i>	Red elderberry	719	1 gal.	12 in
<i>Symphoricarpos albus</i>	Snowberry	720	1 gal.	12 in
Herbaceous seed mix				
<i>Agrostis exarata</i>	Spike bentgrass	2.0 lbs/ac	Seed	n/a
<i>Bromus carinatus</i>	California brome	2.0 lbs/ac	Seed	n/a
<i>Deschampsia cespitosa</i>	Tufted hairgrass	3.0 lbs/ac	Seed	n/a
<i>Elymus glaucus</i>	Blue wildrye	3.0 lbs/ac	Seed	n/a
<i>Hordeum brachyantherum</i>	Meadow barley	2.0 lbs/ac	Seed	n/a
<i>Lupinus rivularis</i>	Riverbank lupine	3.5 lbs/ac	Seed	n/a

Additional Enhancement Area A Planting List

Species	Common Name	Quantity	Stock Type	Plant Size
Trees				
<i>Crataegus douglasii</i>	Douglas hawthorn	81	Container or field grown	½ in caliper
<i>Fraxinus latifolia</i>	Oregon ash	81	Container or field grown	½ in caliper
<i>Populus balsamifera</i>	Black cottonwood	81	Container or field-grown	½ in caliper
Shrubs				
<i>Rosa pisocarpa</i>	Clustered rose	243	1 gal.	12 in
<i>Malus fusca</i>	Western crabapple	243	1 gal.	12 in
<i>Physocarpus capitatus</i>	Pacific ninebark	243	1 gal.	12 in
<i>Sambucus racemosa</i>	Red elderberry	243	1 gal.	12 in
<i>Symphoricarpos albus</i>	Snowberry	243	1 gal.	12 in
Herbaceous seed mix				
<i>Agrostis exarata</i>	Spike bentgrass	2.0 lbs/ac	Seed	n/a
<i>Bromus carinatus</i>	California brome	2.0 lbs/ac	Seed	n/a
<i>Deschampsia cespitosa</i>	Tufted hairgrass	3.0 lbs/ac	Seed	n/a
<i>Elymus glaucus</i>	Blue wildrye	3.0 lbs/ac	Seed	n/a
<i>Hordeum brachyantherum</i>	Meadow barley	2.0 lbs/ac	Seed	n/a

Additional Enhancement Area B Planting List

Species	Common Name	Quantity	Stock Type	Plant Size
Trees				
<i>Acer macrophyllum</i>	Big-leaf maple	54	Container or field-grown	½ in caliper
<i>Populus balsamifera</i>	Black cottonwood	54	Container or field grown	½ in caliper
<i>Quercus garryana</i>	Oregon white oak	54	Container or field grown	½ in caliper
Shrubs				
<i>Mahonia aquifolium</i>	Tall Oregon grape	286	1 gal.	12 in
<i>Rosa gymnocarpa</i>	Baldhip rose	286	1 gal.	12 in
<i>Symphoricarpos albus</i>	Snowberry	286	1 gal.	12 in
Herbaceous seed mix				
<i>Achillea millefolium</i>	Yarrow	3.0 lbs/ac	Seed	n/a
<i>Bromus carinatus</i>	California brome	2.0 lbs/ac	Seed	n/a
<i>Elymus glaucus</i>	Blue wildrye	3.0 lbs/ac	Seed	n/a

Additional Enhancement Area C Planting List

Species	Common Name	Quantity	Stock Type	Plant Size
Trees				
<i>Alnus rubra</i>	Red alder	87	Container or field-grown	½ in caliper
<i>Crataegus douglasii</i>	Douglas hawthorn	86	Container or field grown	½ in caliper
<i>Fraxinus latifolia</i>	Oregon ash	87	Container or field grown	½ in caliper
<i>Populus balsamifera</i>	Black cottonwood	87	Container or field-grown	½ in caliper
<i>Salix scouleriana</i>	Scouler's willow	86	Container or field-grown	½ in caliper
Shrubs				
<i>Cornus alba</i>	Red-osier dogwood	360	1 gal.	12 in
<i>Rosa pisocarpa</i>	Clustered rose	360	1 gal.	12 in
<i>Malus fusca</i>	Western crabapple	360	1 gal.	12 in
<i>Physocarpus capitatus</i>	Pacific ninebark	360	1 gal.	12 in
<i>Sambucus racemosa</i>	Red elderberry	360	1 gal.	12 in
<i>Symphoricarpos albus</i>	Snowberry	360	1 gal.	12 in
Herbaceous seed mix				
<i>Agrostis exarata</i>	Spike bentgrass	2.0 lbs/ac	Seed	n/a
<i>Bromus carinatus</i>	California brome	2.0 lbs/ac	Seed	n/a
<i>Deschampsia cespitosa</i>	Tufted hairgrass	3.0 lbs/ac	Seed	n/a
<i>Elymus glaucus</i>	Blue wildrye	3.0 lbs/ac	Seed	n/a
<i>Hordeum brachyantherum</i>	Meadow barley	2.0 lbs/ac	Seed	n/a
<i>Lupinus rivularis</i>	Riverbank lupine	3.5 lbs/ac	Seed	n/a



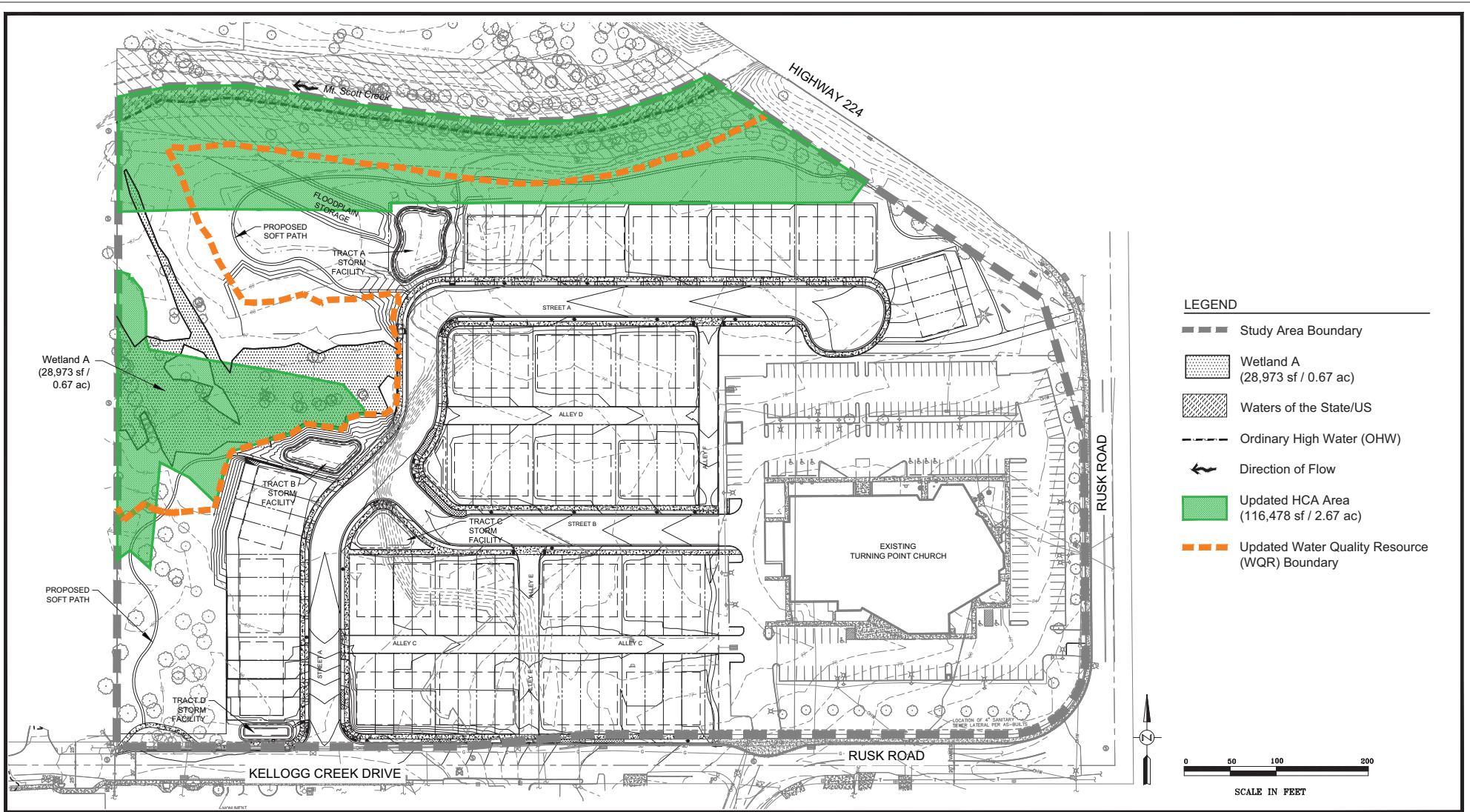
Plans provided by DOWL.

Pacific Habitat Services, Inc.
 9420 SW Commerce Circle, Suite 180 Milwaukie, Oregon 97131
 Phone: (503) 670-0850 Fax: (503) 670-0852

Planting Lists

Kellogg Creek Subdivision - Milwaukie, Oregon

FIGURE
9A



Plans provided by DOWL.

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HCA Boundary Verification Map
 Kellogg Creek Subdivision - Milwaukie, Oregon

FIGURE
10

6-14-2017

Attachment B

Wetland Delineation Report



Wetland Delineation
for a Proposed Development Site
North of SE Kellogg Creek Drive
in Milwaukie, Clackamas County, Oregon
(Township 2 South, Range 2 East, Section 6AD,
TL 600 and Portions of 700, 900 and 901)

Prepared for
Brownstone Development, Inc.
Attn: Randy Myers
PO Box 2375
Lake Oswego, OR 97035

Prepared by
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(503) 570-0855 FAX
PHS Project Number: 5975

January 16, 2017

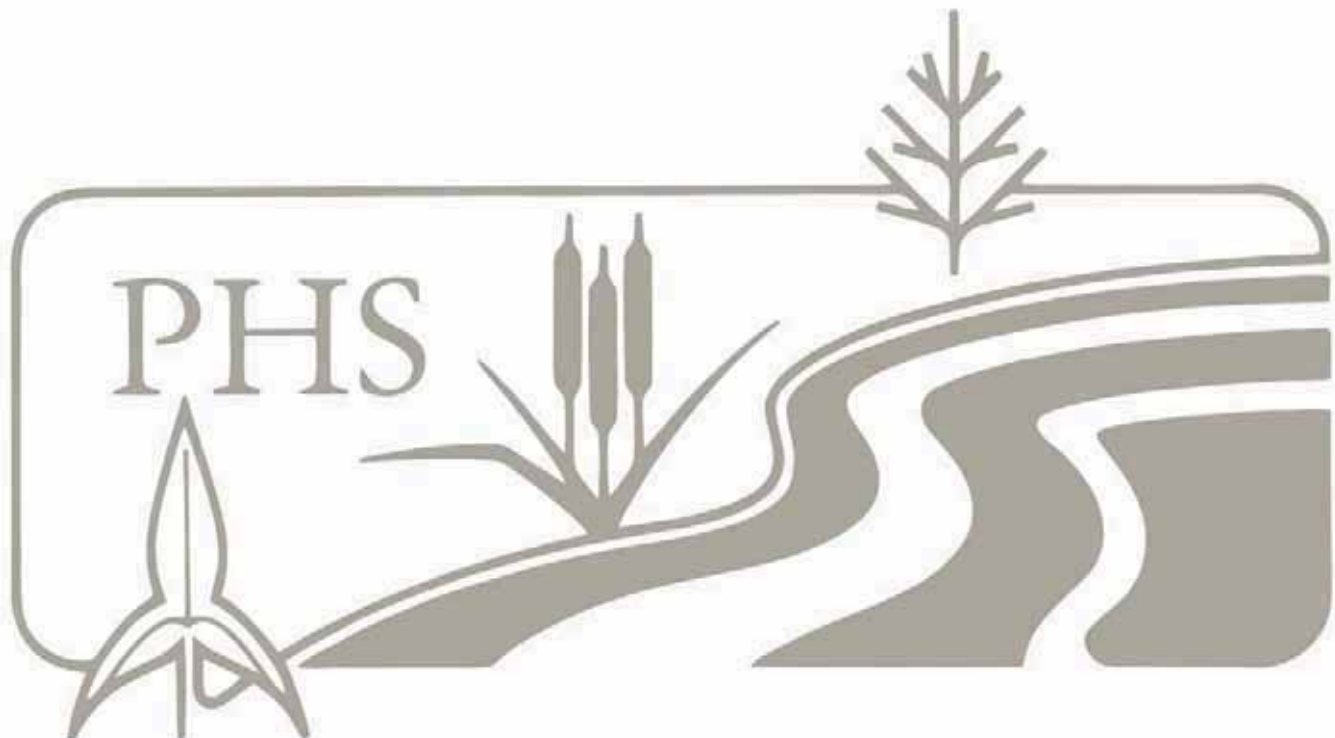


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I. INTRODUCTION

Pacific Habitat Services, Inc. (PHS) conducted a wetland delineation on a proposed development site located north of SE Kellogg Creek Drive in Milwaukie, Clackamas County, Oregon (Township 2 South, Range 2 East, Section 6AD, Tax Lot 600 and portions of Tax Lots 700, 900, 901). The study area consists of approximately 15.58 acres.

This report presents the results of PHS's field work. Figures, including a map depicting the location of wetlands within the study area, are located in Appendix A. Data sheets documenting on-site conditions are provided in Appendix B. Ground-level photos of the study area are in Appendix C. Historic aerial photographs are in Appendix D. The geotechnical evaluation report for the site is included in Appendix E. A discussion of the methodology is provided in Appendix F for the client.

II. RESULTS AND DISCUSSION

A. Landscape Setting and Land Use

The site is located southwest of Highway 224 (Pacific Highway); north of SE Kellogg Creek Drive, and north and west of SE Rusk Road. Mt. Scott Creek flows to the west along the northern edge of the study area, and the North Clackamas Park Milwaukie Center borders the western edge. The site is located within a residential area; undeveloped woodland is located immediately to the north and northwest of the study area, and the Turning Point Church is located in the southeast corner of the site at 13333 SE Rusk Road. The eastern half of the property, near the church, is relatively level; however, the western half descends abruptly to a lower woodland area. Site elevations range from approximately 80 feet National Geodetic Vertical Datum (NGVD) in the eastern half of the site, to approximately 66 feet NGVD in the lower reaches of the western half of the site.

B. Site Alterations

The site has not been subject to recent construction activities; however, it appears that the substrate throughout much of the central and eastern half of the site consists of fill material, likely associated with the construction of the church, over two decades ago.

C. Precipitation Data and Analysis

Table 1 compares the average monthly precipitation to the observed monthly precipitation at the Portland International Airport National Weather Service Station in the three months prior to PHS's wetland delineation field work. Table 1 also compares the observed precipitation to be within the normal precipitation range, as identified in the NRCS WETS table for the Oregon City station.

As shown in Table 1, observed precipitation was below normal and normal range in August. Observed precipitation was above normal but within normal range in September; however, in October observed precipitation was considerably above normal and normal range. It should be noted that the observed precipitation total for November in Table 1 is the amount of precipitation recorded in the first 20 days of the month, prior to the day of PHS's wetland delineation field work.

Table 1. Comparison of Average and Observed Precipitation for the Three Months Prior to the Wetland Delineation Field Work

Month	Average Precipitation ^a (in.)	30% Chance Will Have		Observed Precipitation ^b (in.)	Percent of Normal
		Less Than Average ^a	More Than Average ^a		
August	1.00	0.21	1.16	0.09	13
September	1.93	0.86	2.41	1.69	115
October	3.48	1.85	4.25	8.31	277
November	6.79	4.43	8.16	2.79 ^c	50 ^d

- Notes:
- a. Source: NRCS WETS Table for Oregon City WETS station
 - b. Observed precipitation is the precipitation recorded at the Portland International Airport weather station. Source: National Weather Service.
 - c. Observed precipitation is for the period November 1-20, 2016, prior to PHS’s November 21, 2016 field work.
 - d. The percent of normal precipitation is for the first twenty days in November prior to PHS’s November 21, 2016 field work. This estimate assumes that precipitation is spread evenly across the month and that the average precipitation in the first twenty days of November is 2.79 inches.

Precipitation in the months preceding PHS’s wetland delineation field work fluctuated widely. However, based on this and other observations of hydrologic conditions during the site visit, it is PHS’s opinion that the drier than normal conditions in August and the wetter than normal conditions in September and October did not affect the hydrological indicators observed at the time of PHS’s wetland delineation field work.

D. Methods

PHS conducted the wetland investigation and data collection on November 21, 2016. PHS identified jurisdictional wetlands in the study area based on the presence of wetland hydrology, hydric soils, and hydrophytic vegetation, in accordance with the Routine On-site Determination, as described in the *Corps of Engineers Wetland Delineation Manual, Wetlands Research Program Technical Report Y-87-1* (“The 1987 Manual”) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region*.

PHS delineated the limits of ordinary high water (OHW) along the south bank of Mt. Scott Creek based on an evaluation of observed physical characteristics, as described in the U.S. Army Corps of Engineers’ Regulatory Guidance Letter No. 05-05 (December 7, 2005). PHS flagged the limits of OHW with blue flags placed at the limits of the OHW, as indicated by the point below which woody vegetation is absent and at the break in the slope angle of the bank.

E. Description of All Wetlands and Other Non-Wetland Waters

PHS identified and delineated one potential wetland area (Wetland A) and Mt. Scott Creek (south bank only), as well as six potentially, artificially created wetland areas (Wetlands B through G). Brief descriptions of the on-site wetlands and non-wetland waters are provided below.

Mt. Scott Creek

Mt. Scott Creek, a tributary to Kellogg Creek and the Willamette River, is a perennial stream that generally flows to the west along the northern boundary of the study area. The stream banks are relatively well defined and near vertical at the location of the OHW line. The plant community of the riparian area along the creek includes a deciduous overstory of big-leaf maple (*Acer macrophyllum*, FACU), Oregon white oak (*Quercus garryana*, FACU), Oregon ash (*Fraxinus latifolia*, FACW), and red alder (*Alnus rubra*, FAC); and a shrub and herbaceous understory composed of species such as snowberry (*Symphoricarpos albus*, FACU), Pacific ninebark (*Physocarpus capitatus*, FACW), Scouler's willow (*Salix scouleriana*, FAC), English hawthorn (*Crataegus monogyna*, FAC), Fuller's teasel (*Dipsacus fullonum*, FAC), and spreading bentgrass (*Agrostis stolonifera*, FAC). The Cowardin Classification for Mt. Scott Creek is Riverine Upper Perennial Unconsolidated Bottom Permanently Flooded (R3UBH) and Riverine Unknown Perennial Unconsolidated Bottom Permanently Flooded (R5UBH). The Hydrogeomorphic (HGM) Classification is Riverine Flow-Through. Mt. Scott Creek continues outside the study area to the north, west and east.

Wetland A

Wetland A consists of approximately 30,386 square feet (0.70 acre) located in the western half of the site, south of Mt. Scott Creek. The plant community within Wetland A (characterized by Sample Points 3, 5, 7) is a combination of deciduous woodland bordered by open fields. Dominant species within the woodland include an overstory of Oregon ash and black cottonwood (*Populus balsamifera*, FAC), with a woody understory of Oregon ash, black cottonwood, red-osier dogwood (*Cornus alba*, FACW), snowberry, and Himalayan blackberry (*Rubus armeniacus*, FAC). The open fields include reed canarygrass (*Phalaris arundinacea*, FACW), creeping buttercup (*Ranunculus repens*, FAC), big leaf avens (*Geum macrophyllum*, FAC), slender rush (*Juncus tenuis*, FAC), rough bluegrass (*Poa trivialis*, FAC), bitter dock (*Rumex obtusifolius*, FAC), and common dandelion (*Taraxacum officinale*, FACU).

The adjacent upland areas (characterized by Sample Points 2, 6, 8) include Oregon ash, Himalayan blackberry, snowberry, English hawthorn, reed canarygrass, Fuller's teasel, large leaf avens, bull thistle (*Cirsium vulgare*, FACU), fringed willowherb (*Epilobium ciliatum*, FACW), Dewey sedge (*Carex deweyana*, FAC), common selfheal (*Prunella vulgaris*, FACU), Western swordfern (*Polystichum munitum*, FACU), lentil vetch (*Vicia tetrasperma*, NOL), creeping buttercup, spreading bentgrass, field horsetail (*Equisetum arvense*, FAC), narrow-leaf goosefoot (*Chenopodium leptophyllum*, FACU), spotted cat's ear (*Hypochaeris radicata*, FACU), European centaury (*Centaureum erythraea*, FAC), wild carrot (*Daucus carota*, FACU), tansy ragwort (*Senecio jacobaea*, FACU), and colonial bentgrass (*Agrostis capillaris*, FAC).

Hydrology within Wetland A is likely supported by a seasonally high groundwater table, surface runoff and precipitation. At the time of PHS's wetland delineation field work, the soils in Wetland A were typically saturated to the surface or within twelve inches of the surface, with free water observed at four inches below the soil surface or at the surface; inundation was also commonly present within Wetland A. The low-chroma matrix of the soil with contrasting redox concentrations meets the redox dark surface indicator for hydric soils. The Cowardin Classification for Wetland A is Palustrine Emergent, Persistent, Seasonally Flooded/Saturated (PEM1E). The HGM Classification is Slope. Wetland A continues outside the study area to the west.

Wetlands B – G (Artificially Created Wetlands)

Wetlands B through G generally consist of small, shallow, isolated depressions. Table 2 lists the area of each wetland.

Wetland	Area (square feet / acres)
B	905 / 0.02
C	176 / 0.004
D	172 / 0.004
E	998 / 0.02
F	301 / 0.007
G	666 / 0.02
Total	3,218 / 0.07

All six of these wetlands are similar in character, and therefore, a representative pair of wetland/upland sample points (9 and 10, respectively) were taken at Wetland E. These wetlands are located in the central portion of the site, west of the church and several feet above the lower woodland area further to the west. The plant communities in both the wetland and upland areas are primarily composed of weedy grasses and herbs; the wetland areas include reed canarygrass, spreading bentgrass, soft rush (*Juncus effusus*, FACW), spotted cat's ear, and oxeye daisy (*Chrysanthemum vulgare*, FACU), and the adjacent upland areas include wild carrot, curly dock (*Rumex crispus*, FAC), colonial bentgrass, bluegrass (*Poa sp.*, FAC), common velvet grass (*Holcus lanatus*, FAC), tall fescue (*Schedonorus arundinaceus*, FAC), yellow glandweed (*Parentucellia viscosa*, FAC), and English plantain (*Plantago lanceolata*, FACU).

Hydrology within Wetlands B through G primarily consists of surface runoff and precipitation. As discussed in the *Subsurface Conditions* section of the geotechnical evaluation report (Appendix E), fill material on the site ranges in thickness up to more than 12 feet, with approximately 10 feet in the central portion of the site, and groundwater was not encountered in the test pits in the vicinity of these wetlands. Therefore, it is reasonable to assume that these artificially created wetlands are not hydrologically connected to the water table. At the time of PHS's wetland delineation field work, the soils within these wetlands were typically saturated to the surface, with free water observed at or near the surface, and included some areas of inundation, which likely was perched on compacted substrate resulting in diminished permeability. The redox dark surface indicator for hydric soils was met with low-chroma matrix soils with contrasting redox concentrations. The Cowardin Classification for Wetlands B through G is Palustrine Emergent, Nonpersistent, Seasonally Flooded/Saturated (PEM2E). The HGM Classification is Slope.

As mentioned previously in Section B, *Site Alterations*, it appears that the substrate throughout much of the central and eastern half of the site consists of fill material, likely associated with the construction of the church. In addition, based on a review of historic aerial photographs (Appendix D), it appears that Wetlands B through G have been artificially created on compacted fill material resulting from activities associated with construction of the church and on-going activities associated with the church property over the years.

F. Deviation from LWI or NWI

With the exception of Mt. Scott Creek, which the US Fish and Wildlife Service’s National Wetlands Inventory (NWI) maps as Riverine Upper Perennial Unconsolidated Bottom Permanently Flooded (R3UBH) and Riverine Unknown Perennial Unconsolidated Bottom Permanently Flooded (R5UBH) wetland, it does not indicate the presence of any wetlands on the site. NWI maps are generated primarily through the interpretation of color infrared aerial photographs (scale of 1:58,000), with limited “ground truthing” to confirm the interpretations. The canopy cover over much of Wetland A, the small size of Wetlands B through G, and the scale of the aerial photographs used to prepare the NWI maps are likely reasons for the discrepancy between the wetlands mapping and the existing on-site conditions. In addition, as Wetlands B through G appear to be artificially created, their presence and absence over the years are likely to have been dependent upon the construction and various activities on the church property, which have varied over the period of time in which the aerial photographs were taken.

G. Mapping Method

PHS flagged the wetland boundaries and limits of OHW with blue flagging. Sample points were flagged with lime green surveyor’s tape. The wetland boundary and OHW flagging were survey-located by TerraCalc Land Surveying, Inc. Sample points were GPS-located by PHS, which subsequently transferred this information onto a base map provided by TerraCalc Land Surveying. The estimated survey accuracy is sub-centimeter and the sample point accuracy is approximately +/- 3 feet.

H. Additional Information

None

I. Results and Conclusions

Within the study area, PHS identified and delineated a total of approximately 0.70 acres of potentially jurisdictional wetland, approximately 0.07 acres of potentially artificially created wetland, and the OHW line along the south bank of Mt. Scott Creek, as detailed in Table 3.

Table 3: Summary of Potentially Jurisdictional and Artificially Created Wetland, and Other Waters within the Study Area

Resource	Area (square feet/acreage)	Cowardin Class	HGM Class
Wetland A	30,386 / 0.70	PEM1E	Slope
Wetland B (Artificially Created)	905 / 0.02	PEM2E	Slope
Wetland C (Artificially Created)	176 / 0.004	PEM2E	Slope
Wetland D (Artificially Created)	172 / 0.004	PEM2E	Slope

Resource	Area (square feet/acreage)	Cowardin Class	HGM Class
Wetland E (Artificially Created)	998 / 0.02	PEM2E	Slope
Wetland F (Artificially Created)	301 / 0.007	PEM2E	Slope
Wetland G (Artificially Created)	666 / 0.02	PEM2E	Slope
Mt. Scott Creek (OHW line south bank only)	-	R3UBH R5UBH	Riverine Flow-Through
Total (Potentially Jurisdictional Wetland)	30,386 (0.70 acres)		
Total (Potentially Artificially Created Wetland)	3,218 (0.07 acres)		

J. Required Disclaimer

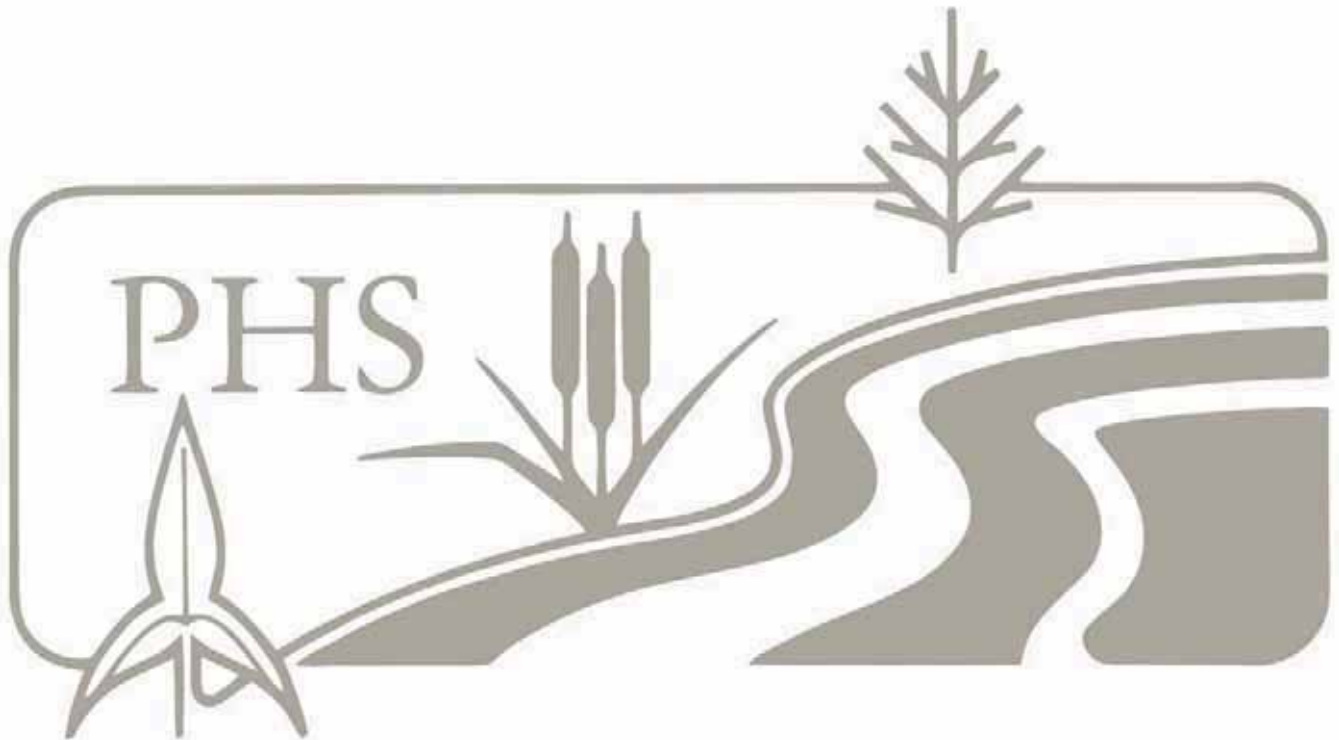
This report documents the investigation, best professional judgment and conclusions of the investigators. It is correct and complete to the best of our knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been reviewed and approved in writing by the Oregon Department of State Lands in accordance with OAR 141-090-0005 through 141-090-0055.

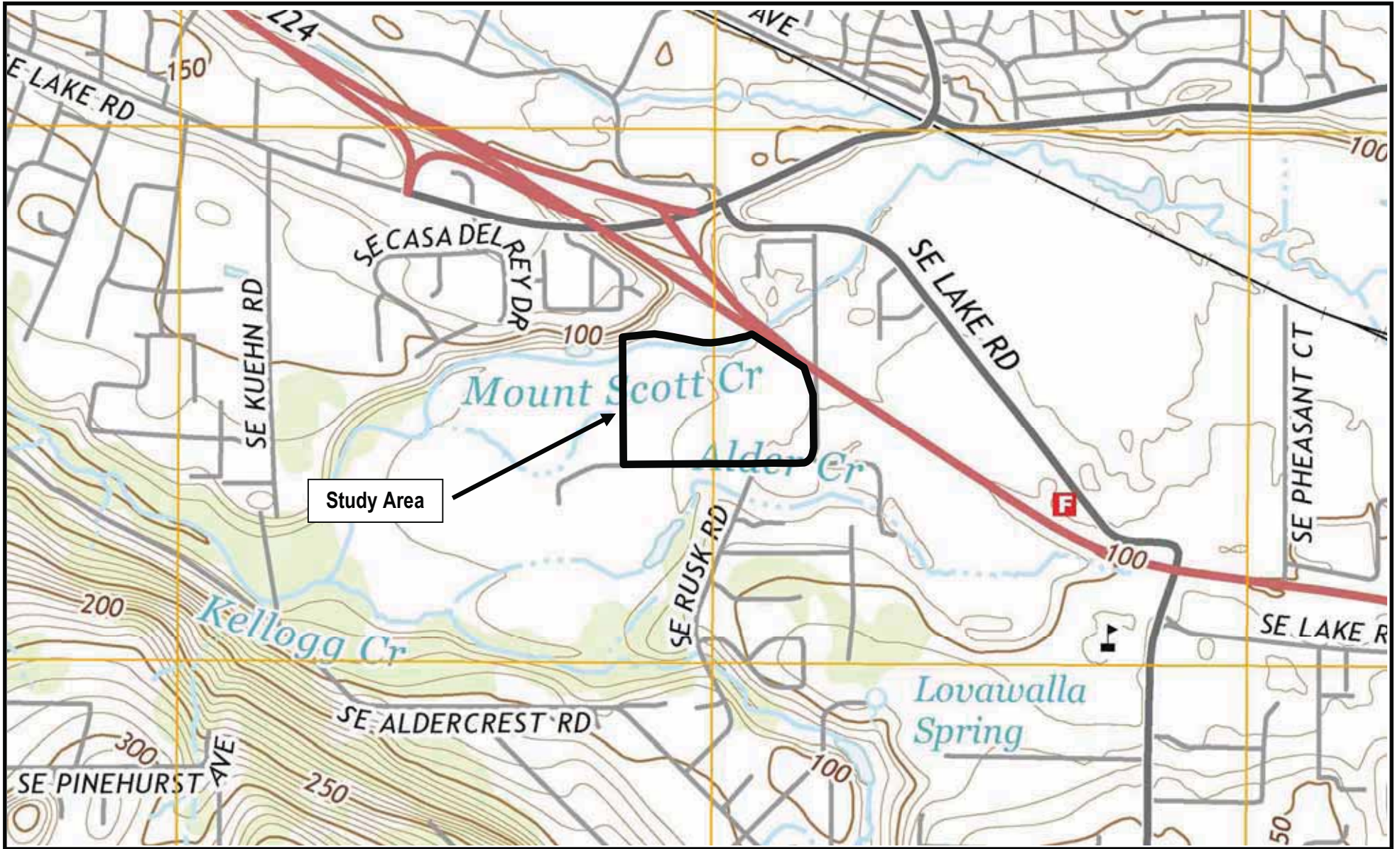
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Appendix A

Figures





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1/16/2017



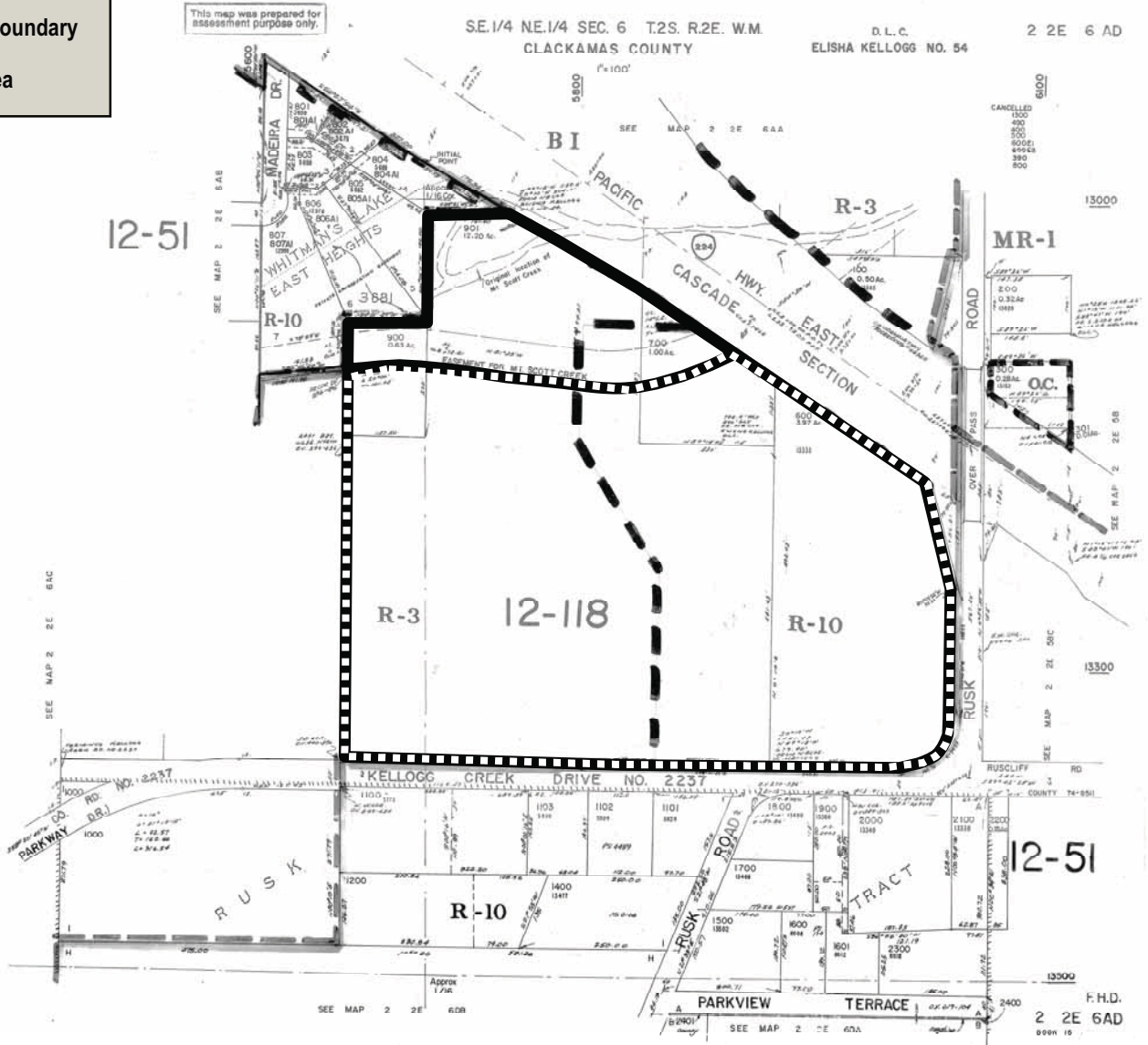
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General Location and Topography
SE Kellogg Creek Drive - Milwaukie, Oregon
United States Geological Survey (USGS), Gladstone, Oregon, 7.5 Quadrangle, 2014
(viewer/nationalmap.gov/basic)

FIGURE

1

Tax Lot Boundary
 Study Area



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12/21/2016

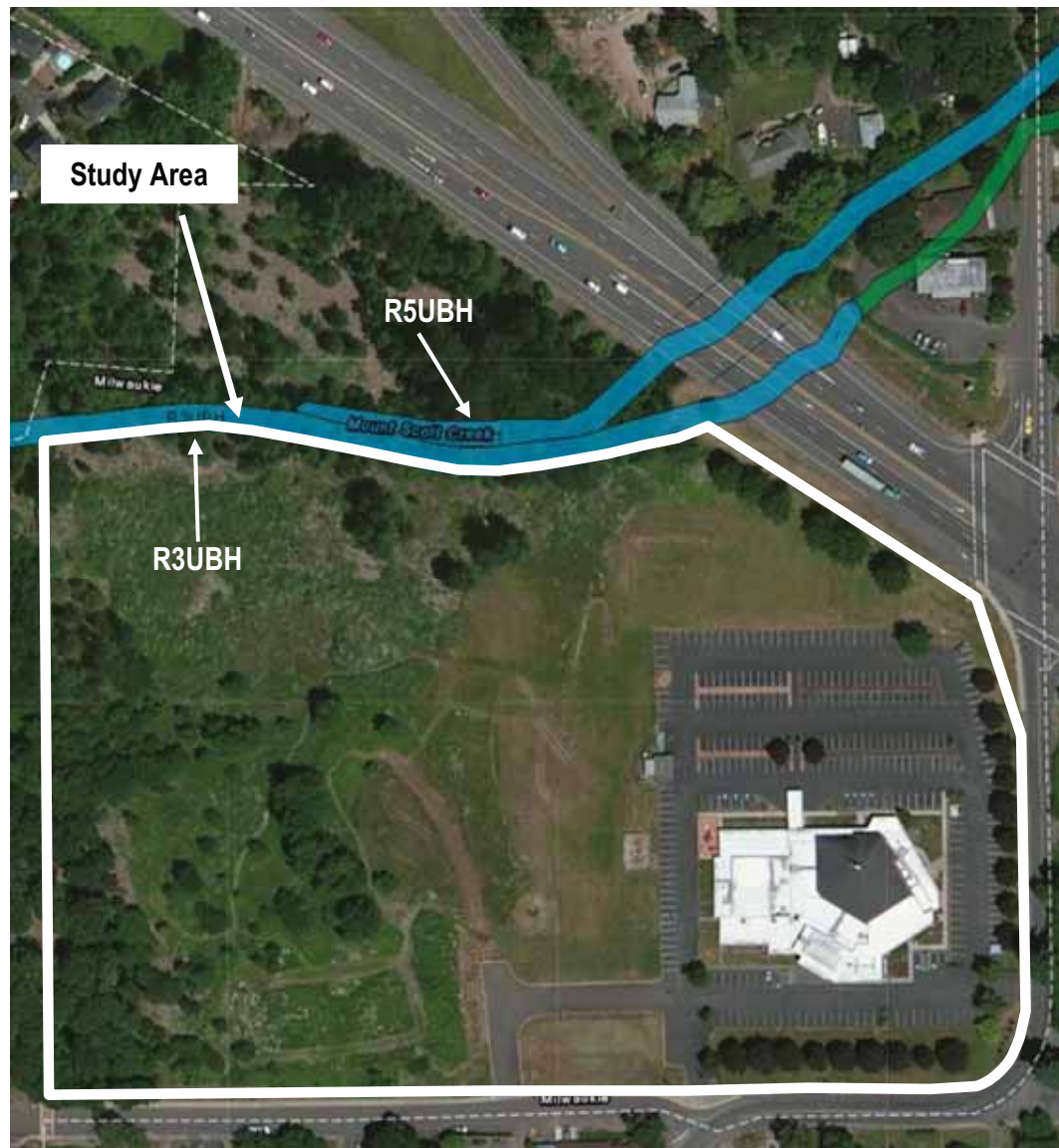


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Tax Lot Map
 SE Kellogg Creek Drive - Milwaukie, Oregon
 The Oregon Map (ormap.net)

FIGURE
 2

+



LEGEND

Wetlands

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

R3UBH: Riverine Upper Perennial Unconsolidated Bottom Permanently Flooded

R5UBH: Riverine Unknown Perennial Unconsolidated Bottom Permanently Flooded

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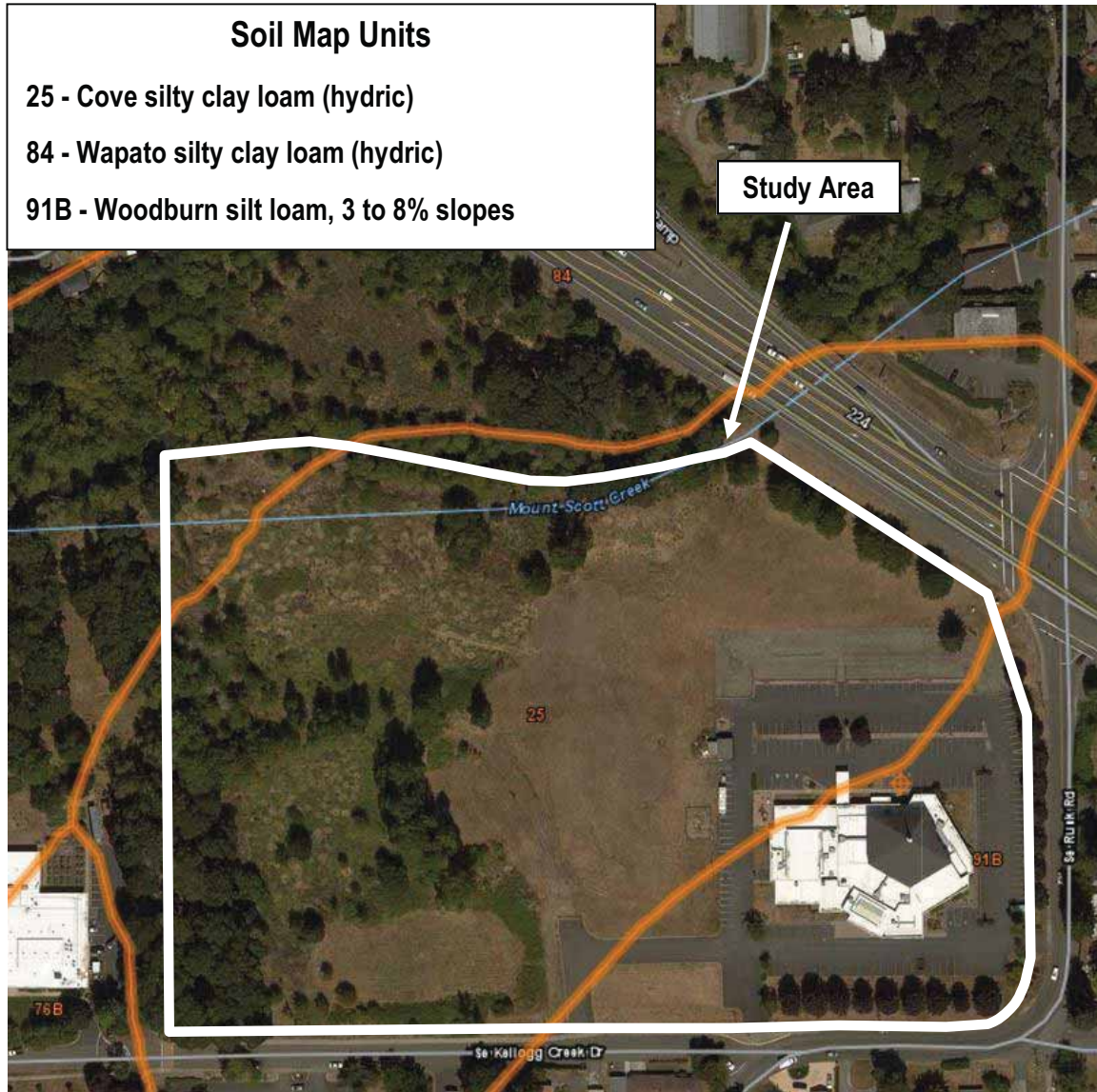
National Wetlands Inventory Map
SE Kellogg Creek Drive - Milwaukie, Oregon
U.S. Fish and Wildlife Service, Online Wetland Mapper V2, 2016

FIGURE

3

Soil Map Units

- 25 - Cove silty clay loam (hydric)
- 84 - Wapato silty clay loam (hydric)
- 91B - Woodburn silt loam, 3 to 8% slopes



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Soils Map
SE Kellogg Creek Drive - Milwaukie, Oregon
Natural Resources Conservation Services, Web Soil Survey, 2016

(websoilsurvey.sc.egov.usda.gov)

FIGURE

4



5975
12/21/2016

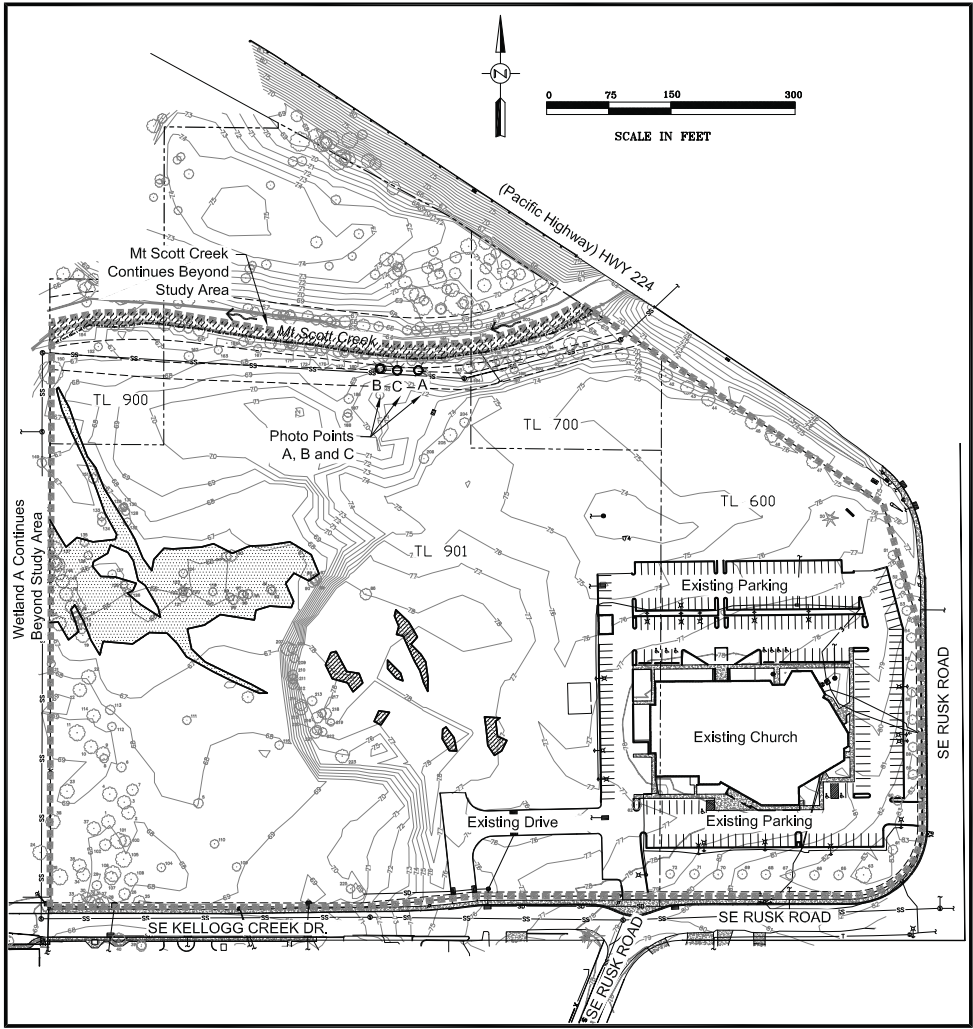


Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

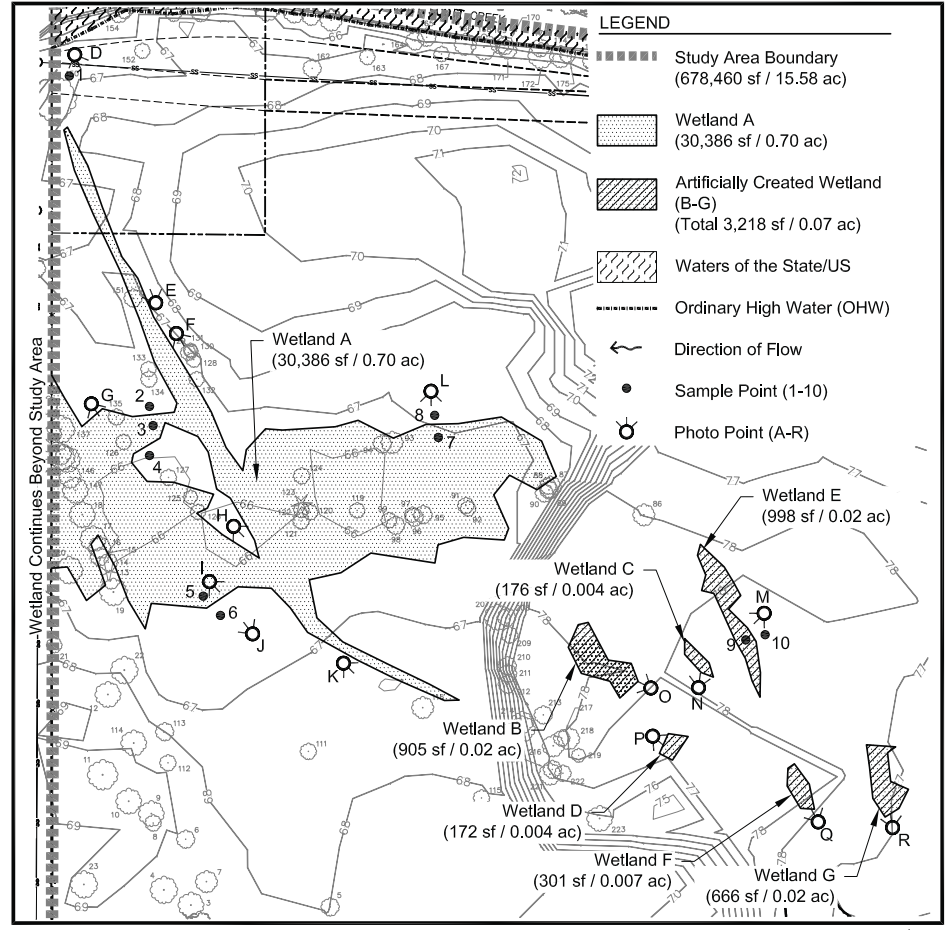
Aerial Photo
SE Kellogg Creek Drive - Milwaukie, Oregon
Google Earth, 2016

FIGURE

5



TAX LOT OVERVIEW



Wetland Delineation
 SE Kellogg Creek Drive - Milwaukie, Oregon

FIGURE
 6

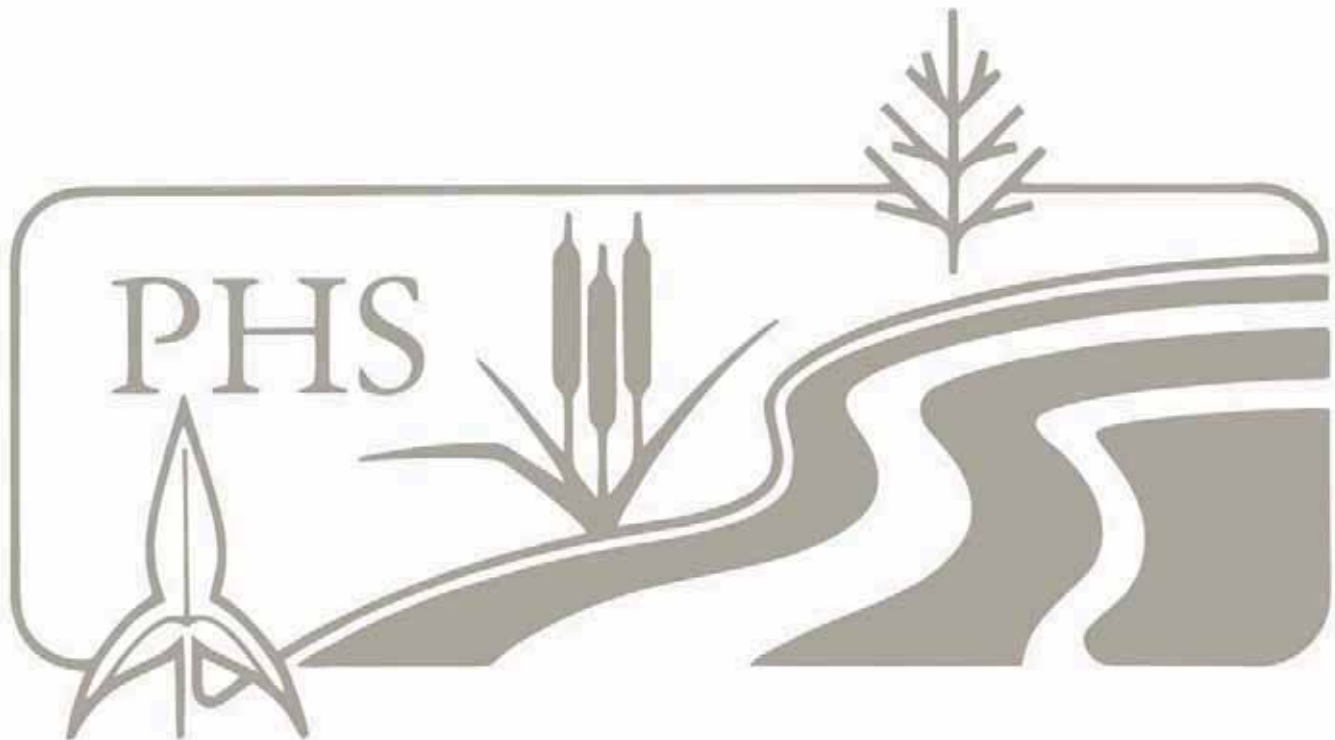
1-18-2017



Survey provided by
 TerraCalc Land Surveying, Inc., 2016
 Survey accuracy is sub-centimeter and
 Sample Point accuracy is ± 3 feet.

Appendix B

Wetland Delineation Data Sheets



WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SE Kellogg Creek Drive City/County: Milwaukie/Clackamas Sampling Date: 11/21/2016
 Applicant/Owner: Brownstone Development, Inc. State: OR Sampling Point: 1
 Investigator(s): Caroline R./Craig T. Section, Township, Range: Section 6AD, T 2S, R 2E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRR Lat: 45.427379 Long: -122.603487 Datum: WGS 84
 Soil Map Unit Name: Wapato silty clay loam NWI Classification: None
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (if no, explain in Remarks)
 Are vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y
 Are vegetation _____ Soil _____ or Hydrology _____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes <u>X</u> No _____	

Remarks:
Floodplain adjacent to Mt. Scott Creek.

VEGETATION - Use scientific names of plants.

Tree Stratum (plot size: <u>30</u>)	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A)
1 <u>Quercus garryana</u>	<u>30</u>	<u>X</u>	<u>FACU</u>	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	Percent of Dominant Species That are OBL, FACW, or FAC: <u>67%</u> (A/B)
4 _____	_____	_____	_____	
= Total Cover <u>30</u>				
Sapling/Shrub Stratum (plot size: <u>5</u>)				Prevalence Index Worksheet: Total % Cover of _____ Multiply by: _____
1 <u>Salix sitchensis</u>	<u>15</u>	<u>X</u>	<u>FACW</u>	
2 <u>Fraxinus latifolia</u>	<u>5</u>	<u>X</u>	<u>FACW</u>	FACW species _____ x 2 = <u>0</u>
3 <u>Rubus armeniacus</u>	<u>5</u>	<u>X</u>	<u>FAC</u>	FAC Species _____ x 3 = <u>0</u>
4 _____	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>
5 _____	_____	_____	_____	UPL Species _____ x 5 = <u>0</u>
= Total Cover <u>25</u>				Column Totals <u>0</u> (A) <u>0</u> (B)
Herb Stratum (plot size: <u>5</u>)				Prevalence Index = B/A = <u>#DIV/0!</u>
1 <u>Rumex crispus</u>	<u>5</u>	_____	<u>FAC</u>	Hydrophytic Vegetation Indicators: _____ 1- Rapid Test for Hydrophytic Vegetation <u>X</u> 2- Dominance Test is >50% _____ 3-Prevalence Index is ≤ 3.0 ¹ _____ 4-Morphological Adaptations ¹ (provide supporting data in Remarks or on a separate sheet) _____ 5- Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? Yes <u>X</u> No _____
2 <u>Carex deweyana</u>	<u>5</u>	_____	<u>FAC</u>	
3 <u>Taraxacum officinale</u>	<u>2</u>	_____	<u>FACU</u>	
4 <u>Dipsacus fullonum</u>	<u>6</u>	_____	<u>FAC</u>	
5 <u>Geum macrophyllum</u>	<u>3</u>	_____	<u>FAC</u>	
6 <u>Agrostis stolonifera</u>	<u>15</u>	<u>X</u>	<u>FAC</u>	
7 <u>Lapsana communis</u>	<u>10</u>	<u>X</u>	<u>FACU</u>	
8 <u>Leucanthemum vulgare</u>	<u>2</u>	_____	<u>FACU</u>	
= Total Cover <u>48</u>				
Woody Vine Stratum (plot size: _____)				
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
= Total Cover <u>0</u>				
% Bare Ground in Herb Stratum <u>40</u>				

Remarks:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Table with columns: Depth (Inches), Matrix (Color (moist), %), Redox Features (Color (moist), %, Type, Loc), Texture, Remarks. Row 1: 0-12, 10YR 3/2, 100, Sandy Loam.

1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

2Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils3:

Table listing hydric soil indicators (Histosol, Histic Epipedon, etc.) and problematic hydric soil indicators (2 cm Muck, Red Parent Material, etc.) with checkboxes.

3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compacted rock/gravel/cobble
Depth (inches): 12"

Hydric Soil Present? Yes No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

Table listing primary and secondary wetland hydrology indicators (Surface Water, High Water Table, etc.) with checkboxes.

Field Observations:

Surface Water Present? Yes No X
Water Table Present? Yes No X
Saturation Present? Yes No X
Depth (inches): > 12

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SE Kellogg Creek Drive City/County: Milwaukie/Clackamas Sampling Date: 11/21/2016
 Applicant/Owner: Brownstone Development, Inc. State: OR Sampling Point: 2
 Investigator(s): Caroline R./Craig T. Section, Township, Range: Section 6AD, T 2S, R 2E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRR Lat: 45.427379 Long: -122.603487 Datum: WGS 84
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (if no, explain in Remarks)
 Are vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y
 Are vegetation _____ Soil _____ or Hydrology _____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status		
Tree Stratum (plot size: _____)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
1	<u>Fraxinus latifolia</u>	<u>10</u>	<u>X</u>		<u>FACW</u>
2	_____	_____	_____		_____
3	_____	_____	_____		_____
4	_____	_____	_____		_____
	<u>10</u>	= Total Cover			
Sapling/Shrub Stratum (plot size: _____)					
1	<u>Fraxinus latifolia</u>	<u>5</u>	<u>X</u>		<u>FACW</u>
2	<u>Prunus sp.</u>	<u>1</u>			<u>(FAC)</u>
3	<u>Rubus armeniacus</u>	<u>5</u>	<u>X</u>		<u>FAC</u>
4	_____	_____	_____	_____	
5	_____	_____	_____	_____	
	<u>11</u>	= Total Cover			
Herb Stratum (plot size: _____)				Prevalence Index Worksheet: Total % Cover of _____ Multiply by: OBL Species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC Species _____ x 3 = <u>0</u> FACU Species _____ x 4 = <u>0</u> UPL Species _____ x 5 = <u>0</u> Column Totals <u>0</u> (A) <u>0</u> (B) Prevalence Index =B/A = <u>#DIV/0!</u>	
1	<u>Phalaris arundinacea</u>	<u>70</u>	<u>X</u>		<u>FACW</u>
2	<u>Dipsacus fullonum</u>	<u>15</u>			<u>FAC</u>
3	<u>Geum macrophyllum</u>	<u>2</u>			<u>FAC</u>
4	<u>Cirsium vulgare</u>	<u>1</u>			<u>FACU</u>
5	<u>Epilobium ciliatum</u>	<u>1</u>			<u>FACW</u>
6	_____	_____	_____		_____
7	_____	_____	_____		_____
8	_____	_____	_____		_____
	<u>89</u>	= Total Cover			
Woody Vine Stratum (plot size: _____)					
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum _____				Hydrophytic Vegetation Indicators: _____ 1- Rapid Test for Hydrophytic Vegetation <u>X</u> 2- Dominance Test is >50% _____ 3-Prevalence Index is ≤ 3.0 ¹ _____ 4-Morphological Adaptations ¹ (provide supporting data in Remarks or on a separate sheet) _____ 5- Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
Remarks:					

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Table with columns: Depth (Inches), Matrix (Color (moist), %), Redox Features (Color (moist), %, Type, Loc), Texture, Remarks. Row 1: 0-18, 10YR 3/2, 100, Silty Clay Loam.

1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

2Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils3:

Table listing hydric soil indicators (Histosol, Histic Epipedon, etc.) and problematic hydric soil indicators (2 cm Muck, Red Parent Material, etc.) with checkboxes.

3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

Table listing primary and secondary wetland hydrology indicators (Surface Water, High Water Table, etc.) with checkboxes.

Field Observations:

Surface Water Present? Yes _____ No X
Water Table Present? Yes _____ No X
Saturation Present? Yes _____ No X
Depth (inches): > 18

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SE Kellogg Creek Drive City/County: Milwaukie/Clackamas Sampling Date: 11/21/2016
 Applicant/Owner: Brownstone Development, Inc. State: OR Sampling Point: 3
 Investigator(s): Caroline R./Craig T. Section, Township, Range: Section 6AD, T 2S, R 2E
 Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRRRA Lat: 45.427379 Long: -122.603487 Datum: WGS 84
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (if no, explain in Remarks)
 Are vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y
 Are vegetation _____ Soil _____ or Hydrology _____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks: _____

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
Tree Stratum (plot size: _____)				Number of Dominant Species	
1 <u>Fraxinus latifolia</u>	<u>5</u>	<u>X</u>	<u>FACW</u>	That are OBL, FACW, or FAC: <u>5</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>5</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species	
4 _____	_____	_____	_____	That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
5 _____	<u>5</u>	= Total Cover	_____	Prevalence Index Worksheet:	
Sapling/Shrub Stratum (plot size: _____)				Total % Cover of _____ Multiply by: _____	
1 <u>Fraxinus latifolia</u>	<u>15</u>	<u>X</u>	<u>FACW</u>	OBL Species _____ x 1 = <u>0</u>	
2 <u>Rubus armeniacus</u>	<u>5</u>	<u>X</u>	<u>FAC</u>	FACW species _____ x 2 = <u>0</u>	
3 _____	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
4 _____	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
5 _____	<u>20</u>	= Total Cover	_____	UPL Species _____ x 5 = <u>0</u>	
Herb Stratum (plot size: _____)				Column Totals <u>0</u> (A) <u>0</u> (B)	
1 <u>Phalaris arundinacea</u>	<u>50</u>	<u>X</u>	<u>FACW</u>	Prevalence Index =B/A = <u>#DIV/0!</u>	
2 <u>Ranunculus repens</u>	<u>30</u>	<u>X</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators:	
3 <u>Geum macrophyllum</u>	<u>1</u>	_____	<u>FAC</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
4 _____	_____	_____	_____	<u>X</u> 2- Dominance Test is >50%	
5 _____	_____	_____	_____	_____ 3-Prevalence Index is ≤ 3.0 ¹	
6 _____	_____	_____	_____	_____ 4-Morphological Adaptations ¹ (provide supporting data in Remarks or on a separate sheet)	
7 _____	_____	_____	_____	_____ 5- Wetland Non-Vascular Plants ¹	
8 _____	<u>81</u>	= Total Cover	_____	_____ Problematic Hydrophytic Vegetation ¹ (Explain)	
Woody Vine Stratum (plot size: _____)				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
1 _____	_____	_____	_____	Hydrophytic Vegetation Present?	
2 _____	<u>0</u>	= Total Cover	_____	Yes <u>X</u> No _____	
% Bare Ground in Herb Stratum _____					

Remarks: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Table with columns: Depth (Inches), Matrix (Color (moist), %), Redox Features (Color (moist), %, Type, Loc), Texture, Remarks. Rows include 0-8 and 8-18 depth intervals with soil characteristics like 10YR 3/1, 100, Silty Clay Loam, 10YR 2/1, 98, 10YR 4/4, 2, C, M, Clay.

1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

2Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils3:

Table listing hydric soil indicators (Histosol, Histic Epipedon, Black Histic, Hydrogen Sulfide, Depleted Below Dark Surface, Thick Dark Surface, Sandy Mucky Mineral, Sandy Gleyed Matrix) and problematic hydric soil indicators (Sandy Redox, Stripped Matrix, Loamy Mucky Mineral, Loamy Gleyed Matrix, Depleted Matrix, Redox Dark Surface, Depleted Dark Surface, Redox Depressions, 2 cm Muck, Red Parent Material, Very Shallow Dark Surface, Other).

3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

Table listing primary indicators (Surface Water, High Water Table, Saturation, Water Marks, Sediment Deposits, Drift Deposits, Algal Mat or Crust, Iron Deposits, Surface Soil Cracks, Inundation Visible on Aerial Imagery, Sparsely Vegetated Concave Surface) and secondary indicators (Water stained Leaves, Drainage Patterns, Dry-Season Water Table, Saturation Visible on Aerial Imagery, Geomorphic Position, Shallow Aquitard, Fac-Neutral Test, Raised Ant Mounds, Frost-Heave Hummocks).

Field Observations:

Surface Water Present? Yes No X Depth (inches):
Water Table Present? Yes X No Depth (inches): 8
Saturation Present? Yes X No Depth (inches): 10

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SE Kellogg Creek Drive City/County: Milwaukie/Clackamas Sampling Date: 11/21/2016
 Applicant/Owner: Brownstone Development, Inc. State: OR Sampling Point: 4
 Investigator(s): Caroline R./Craig T. Section, Township, Range: Section 6AD, T 2S, R 2E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRR A Lat: 45.427379 Long: -122.603487 Datum: WGS 84
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (if no, explain in Remarks)
 Are vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y
 Are vegetation _____ Soil _____ or Hydrology _____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status	
Tree Stratum (plot size: <u>30</u>)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>43%</u> (A/B)
1 <u>Fraxinus latifolia</u>	<u>3</u>		<u>FACW</u>	
2 _____				
3 _____				
4 _____				
	<u>3</u>	= Total Cover		
Sapling/Shrub Stratum (plot size: <u>5</u>)				Prevalence Index Worksheet: Total % Cover of _____ Multiply by: OBL Species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC Species _____ x 3 = <u>0</u> FACU Species _____ x 4 = <u>0</u> UPL Species _____ x 5 = <u>0</u> Column Totals <u>0</u> (A) <u>0</u> (B) Prevalence Index =B/A = <u>#DIV/0!</u>
1 <u>Fraxinus latifolia</u>	<u>3</u>		<u>FACW</u>	
2 <u>Rubus armeniacus</u>	<u>20</u>	<u>X</u>	<u>FAC</u>	
3 <u>Crataegus monogyna</u>	<u>10</u>	<u>X</u>	<u>FAC</u>	
4 <u>Rubus laciniatus</u>	<u>15</u>	<u>X</u>	<u>FACU</u>	
5 _____				
	<u>48</u>	= Total Cover		
Herb Stratum (plot size: <u>5</u>)				Hydrophytic Vegetation Indicators: _____ 1- Rapid Test for Hydrophytic Vegetation _____ 2- Dominance Test is >50% _____ 3-Prevalence Index is ≤ 3.0 ¹ _____ 4-Morphological Adaptations ¹ (provide supporting data in Remarks or on a separate sheet) _____ 5- Wetland Non-Vascular Plants ¹ _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1 <u>Geum macrophyllum</u>	<u>5</u>	<u>X</u>	<u>FAC</u>	
2 <u>Lapsana communis</u>	<u>10</u>	<u>X</u>	<u>FACU</u>	
3 <u>Polystichum munitum</u>	<u>5</u>	<u>X</u>	<u>FACU</u>	
4 _____				
5 _____				
6 _____				
7 _____				
8 _____				
	<u>20</u>	= Total Cover		
Woody Vine Stratum (plot size: _____)				
1 <u>Rubus ursinus</u>	<u>60</u>	<u>X</u>	<u>FACU</u>	
2 <u>Solanum dulcamara</u>	<u>5</u>		<u>FAC</u>	
	<u>65</u>	= Total Cover		
% Bare Ground in Herb Stratum _____				
Remarks:				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Table with columns: Depth (Inches), Matrix (Color (moist), %), Redox Features (Color (moist), %, Type, Loc), Texture, Remarks. Row 1: 0-16, 10YR 3/2, 100, Sandy Loam.

1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

2Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils3:

- Hydric Soil Indicators: Histosol (A1), Histic Epipedon (A2), Black Histic (A3), Hydrogen Sulfide (A4), Depleted Below Dark Surface (A11), Thick Dark Surface (A12), Sandy Mucky Mineral (S1), Sandy Gleyed Matrix (S4), Sandy Redox (S5), Stripped Matrix (S6), Loamy Mucky Mineral (F1), Loamy Gleyed Matrix (F2), Depleted Matrix (F3), Redox Dark Surface (F6), Depleted Dark Surface (F7), Redox Depressions (F8), 2 cm Muck (A10), Red Parent Material (TF2), Very Shallow Dark Surface (TF12), Other (explain in Remarks).

3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

- Primary Indicators: Surface Water (A1), High Water Table (A2), Saturation (A3), Water Marks (B1), Sediment Deposits (B2), Drift Deposits (B3), Algal Mat or Crust (B4), Iron Deposits (B5), Surface Soil Cracks (B6), Inundation Visible on Aerial Imagery (B7), Sparsely Vegetated Concave Surface (B8).
Secondary Indicators: Water stained Leaves (B9), Drainage Patterns (B10), Dry-Season Water Table (C2), Saturation Visible on Aerial Imagery (C9), Geomorphic Position (D2), Shallow Aquitard (D3), Fac-Neutral Test (D5), Raised Ant Mounds (D6), Frost-Heave Hummocks (D7).

Field Observations:

Surface Water Present? Yes _____ No X
Water Table Present? Yes _____ No X
Saturation Present? Yes _____ No X
Depth (inches): > 16

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SE Kellogg Creek Drive City/County: Milwaukie/Clackamas Sampling Date: 11/21/2016
 Applicant/Owner: Brownstone Development, Inc. State: OR Sampling Point: 5
 Investigator(s): Caroline R./Craig T. Section, Township, Range: Section 6AD, T 2S, R 2E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRR A Lat: 45.427379 Long: -122.603487 Datum: WGS 84
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (if no, explain in Remarks)
 Are vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y
 Are vegetation _____ Soil _____ or Hydrology _____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present? Yes <u>X</u> No _____	
Wetland Hydrology Present? Yes <u>X</u> No _____	
Remarks:	

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status	
Tree Stratum (plot size: _____)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)
1	<u>60</u>	<u>X</u>	<u>FACW</u>	
2				
3				
4				
	<u>60</u>	= Total Cover		
Sapling/Shrub Stratum (plot size: _____)				
1	<u>5</u>	<u>X</u>	<u>FACW</u>	
2	<u>1</u>		<u>FACW</u>	
3	<u>1</u>		<u>FACU</u>	
4				
5				
	<u>7</u>	= Total Cover		
Herb Stratum (plot size: _____)				Prevalence Index Worksheet: Total % Cover of _____ Multiply by: OBL Species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC Species _____ x 3 = <u>0</u> FACU Species _____ x 4 = <u>0</u> UPL Species _____ x 5 = <u>0</u> Column Totals <u>0</u> (A) <u>0</u> (B) Prevalence Index =B/A = <u>#DIV/0!</u>
1	<u>30</u>	<u>X</u>	<u>FAC</u>	
2	<u>2</u>		<u>FAC</u>	
3	<u>1</u>		<u>FAC</u>	
4	<u>1</u>		<u>FAC</u>	
5	<u>1</u>		<u>FACU</u>	
6				
7				
8				
	<u>35</u>	= Total Cover		
Woody Vine Stratum (plot size: _____)				
1				
2				
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum _____				
Remarks:				

Hydrophytic Vegetation Indicators:

- 1- Rapid Test for Hydrophytic Vegetation
- 2- Dominance Test is >50% X
- 3-Prevalence Index is ≤ 3.0¹
- 4-Morphological Adaptations¹ (provide supporting data in Remarks or on a separate sheet)
- 5- Wetland Non-Vascular Plants¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
1-6	10YR 3/1	100					Silty Clay Loam	
6-8	10YR 2/1	95	10YR 4/4	5	C	M	Clay	
8-18	10YR 2/1	100					Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): 4

Saturation Present? Yes No Depth (inches): 9
(includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: _____

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SE Kellogg Creek Drive City/County: Milwaukie/Clackamas Sampling Date: 11/21/2016
 Applicant/Owner: Brownstone Development, Inc. State: OR Sampling Point: 6
 Investigator(s): Caroline R./Craig T. Section, Township, Range: Section 6AD, T 2S, R 2E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRR A Lat: 45.427379 Long: -122.603487 Datum: WGS 84
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (if no, explain in Remarks)
 Are vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y
 Are vegetation _____ Soil _____ or Hydrology _____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Remarks:					

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status	
Tree Stratum (plot size: <u>30</u>)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)
1 <u>Fraxinus latifolia</u>	<u>50</u>	<u>X</u>	<u>FACW</u>	
2 _____				
3 _____				
4 _____				
	<u>50</u>	= Total Cover		
Sapling/Shrub Stratum (plot size: <u>5</u>)				
1 <u>Fraxinus latifolia</u>	<u>20</u>	<u>X</u>	<u>FACW</u>	
2 <u>Symphoricarpos albus</u>	<u>5</u>		<u>FACU</u>	
3 <u>Crataegus monogyna</u>	<u>15</u>	<u>X</u>	<u>FAC</u>	
4 <u>Rubus armeniacus</u>	<u>2</u>		<u>FAC</u>	
5 _____				
	<u>42</u>	= Total Cover		
Herb Stratum (plot size: <u>5</u>)				Prevalence Index Worksheet: Total % Cover of _____ Multiply by: OBL Species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC Species _____ x 3 = <u>0</u> FACU Species _____ x 4 = <u>0</u> UPL Species _____ x 5 = <u>0</u> Column Totals <u>0</u> (A) <u>0</u> (B) Prevalence Index =B/A = <u>#DIV/0!</u>
1 <u>Carex deweyana</u>	<u>70</u>	<u>X</u>	<u>FAC</u>	
2 <u>Prunella vulgaris</u>	<u>3</u>		<u>FACU</u>	
3 <u>Polystichum munitum</u>	<u>3</u>		<u>FACU</u>	
4 <u>Vicia tetrasperma</u>	<u>5</u>		<u>(NOL)</u>	
5 <u>Ranunculus repens</u>	<u>10</u>		<u>FAC</u>	
6 <u>Dipsacus fullonum</u>	<u>3</u>		<u>FAC</u>	
7 <u>Agrostis stolonifera</u>	<u>10</u>		<u>FAC</u>	
8 <u>Equisetum arvense</u>	<u>1</u>		<u>FAC</u>	
	<u>105</u>	= Total Cover		
Woody Vine Stratum (plot size: _____)				
1 _____				
2 _____				
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum _____				
1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? Yes <u>X</u> No _____				
Remarks:				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 3/2	100					Sandy Loam	
6-16	10YR 3/2	60					Sandy Clay Loam	
	10YR 3/1	20					Sandy Clay Loam	
	10YR 4/3	20					Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): > 16

Saturation Present? Yes _____ No X Depth (inches): > 16
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SE Kellogg Creek Drive City/County: Milwaukie/Clackamas Sampling Date: 11/21/2016
 Applicant/Owner: Brownstone Development, Inc. State: OR Sampling Point: 7
 Investigator(s): Caroline R./Craig T. Section, Township, Range: Section 6AD, T 2S, R 2E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRR A Lat: 45.427379 Long: -122.603487 Datum: WGS 84
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (if no, explain in Remarks)
 Are vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y
 Are vegetation _____ Soil _____ or Hydrology _____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks: _____

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status	
Tree Stratum (plot size: _____)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)
1	<u>10</u>	<u>X</u>	<u>FAC</u>	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
	<u>10</u>	= Total Cover		
Sapling/Shrub Stratum (plot size: _____)				
1	<u>15</u>	<u>X</u>	<u>FAC</u>	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	
	<u>15</u>	= Total Cover		
Herb Stratum (plot size: _____)				Prevalence Index Worksheet: Total % Cover of _____ Multiply by: OBL Species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC Species _____ x 3 = <u>0</u> FACU Species _____ x 4 = <u>0</u> UPL Species _____ x 5 = <u>0</u> Column Totals <u>0</u> (A) <u>0</u> (B) Prevalence Index =B/A = <u>#DIV/0!</u>
1	<u>100</u>	<u>X</u>	<u>FACW</u>	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	
6	_____	_____	_____	
7	_____	_____	_____	
8	_____	_____	_____	
	<u>100</u>	= Total Cover		
Woody Vine Stratum (plot size: _____)				
1	_____	_____	_____	
2	_____	_____	_____	
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum _____				

Hydrophytic Vegetation Indicators:

- 1- Rapid Test for Hydrophytic Vegetation
- 2- Dominance Test is >50% X
- 3-Prevalence Index is ≤ 3.0¹
- 4-Morphological Adaptations¹ (provide supporting data in Remarks or on a separate sheet)
- 5- Wetland Non-Vascular Plants¹

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/2	100					Silty Clay Loam	
4-7	10YR 3/2	95	7.5YR 4/6	5	C	M	Silty Clay Loam	
7-18	10YR 2/2	98	10YR 3/4	2	C	M	Clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

Field Observations:

Surface Water Present? Yes No Depth (inches): 2

Water Table Present? Yes No Depth (inches): 0

Saturation Present? Yes No Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Small ponded area in ~5% of plot

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SE Kellogg Creek Drive City/County: Milwaukie/Clackamas Sampling Date: 11/21/2016
 Applicant/Owner: Brownstone Development, Inc. State: OR Sampling Point: 8
 Investigator(s): Caroline R./Craig T. Section, Township, Range: Section 6AD, T 2S, R 2E
 Landform (hillslope, terrace, etc.): Fill Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRRRA Lat: 45.427379 Long: -122.603487 Datum: WGS 84
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (if no, explain in Remarks)
 Are vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y
 Are vegetation _____ Soil _____ or Hydrology _____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks:

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
Tree Stratum (plot size: _____)				Number of Dominant Species	
1	_____	_____	_____	That are OBL, FACW, or FAC: <u>1</u> (A)	
2	_____	_____	_____	Total Number of Dominant	
3	_____	_____	_____	Species Across All Strata: <u>3</u> (B)	
4	_____	_____	_____	Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>33%</u> (A/B)	
Sapling/Shrub Stratum (plot size: _____)				Prevalence Index Worksheet:	
1	_____	_____	_____	Total % Cover of _____ Multiply by: _____	
2	_____	_____	_____	OBL Species _____ x 1 = <u>0</u>	
3	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
4	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
5	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL Species _____ x 5 = <u>0</u>	
Herb Stratum (plot size: <u>5</u>)				Column Totals <u>0</u> (A) <u>0</u> (B)	
1	<u>20</u>	<u>X</u>	<u>FACW</u>	Prevalence Index =B/A = <u>#DIV/0!</u>	
2	<u>25</u>	<u>X</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators:	
3	<u>10</u>	_____	<u>FAC</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
4	<u>5</u>	_____	<u>FAC</u>	_____ 2- Dominance Test is >50%	
5	<u>10</u>	_____	<u>FACU</u>	_____ 3-Prevalence Index is ≤ 3.0 ¹	
6	<u>5</u>	_____	<u>FAC</u>	_____ 4-Morphological Adaptations ¹ (provide supporting	
7	<u>15</u>	<u>X</u>	<u>FACU</u>	data in Remarks or on a separate sheet)	
8	<u>10</u>	_____	<u>FACU</u>	_____ 5- Wetland Non-Vascular Plants ¹	
	<u>105</u>	= Total Cover		_____ Problematic Hydrophytic Vegetation ¹ (Explain)	
Woody Vine Stratum (plot size: _____)				¹ Indicators of hydric soil and wetland hydrology must be present, unless	
1	_____	_____	_____	disturbed or problematic.	
2	_____	_____	_____	Hydrophytic	
	<u>0</u>	= Total Cover		Vegetation Yes _____ No <u>X</u>	
% Bare Ground in Herb Stratum _____				Present?	

Remarks:
Herb Stratum also contains: Agrostis capillaris (FAC) 5%

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/3	100					Sandy Loam	
4-8	10YR 4/4	60					Sandy Loam	
	10YR 3/2	40					Sandy Loam	
8-16	10YR 3/1	100					Sandy Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No

Remarks:
0-16" - a jumble of mixed disturbed fill, rocks and gravel throughout

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> Fac-Neutral Test (D5)
	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
	<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____

Water Table Present? Yes _____ No Depth (inches): > 16

Saturation Present? Yes _____ No Depth (inches): > 16 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SE Kellogg Creek Drive City/County: Milwaukie/Clackamas Sampling Date: 11/21/2016
 Applicant/Owner: Brownstone Development, Inc. State: OR Sampling Point: 9
 Investigator(s): Caroline R./Craig T. Section, Township, Range: Section 6AD, T 2S, R 2E
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRR A Lat: 45.427379 Long: -122.603487 Datum: WGS 84
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (if no, explain in Remarks)
 Are vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y
 Are vegetation _____ Soil _____ or Hydrology _____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present? Yes <u>X</u> No _____		Yes <u>X</u>	No _____
Wetland Hydrology Present? Yes <u>X</u> No _____			
Remarks:			

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status	
Tree Stratum (plot size: _____)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
	<u>0</u>	= Total Cover		
Sapling/Shrub Stratum (plot size: _____)				
1	_____	_____	_____	
2	_____	_____	_____	
3	_____	_____	_____	
4	_____	_____	_____	
5	_____	_____	_____	
	<u>0</u>	= Total Cover		
Herb Stratum (plot size: _____)				Prevalence Index Worksheet: Total % Cover of _____ Multiply by: OBL Species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC Species _____ x 3 = <u>0</u> FACU Species _____ x 4 = <u>0</u> UPL Species _____ x 5 = <u>0</u> Column Totals <u>0</u> (A) <u>0</u> (B) Prevalence Index =B/A = <u>#DIV/0!</u>
1	<u>25</u>	<u>X</u>	<u>FACW</u>	
2	<u>40</u>	<u>X</u>	<u>FAC</u>	
3	<u>10</u>	_____	<u>FACW</u>	
4	<u>10</u>	_____	<u>FACU</u>	
5	<u>5</u>	_____	<u>FACU</u>	
6	_____	_____	_____	
7	_____	_____	_____	
8	_____	_____	_____	
	<u>90</u>	= Total Cover		
Woody Vine Stratum (plot size: _____)				
1	_____	_____	_____	
2	_____	_____	_____	
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum _____				
Remarks:				

- Hydrophytic Vegetation Indicators:**
- _____ 1- Rapid Test for Hydrophytic Vegetation
 - X 2- Dominance Test is >50%
 - _____ 3-Prevalence Index is ≤ 3.0¹
 - _____ 4-Morphological Adaptations¹ (provide supporting data in Remarks or on a separate sheet)
 - _____ 5- Wetland Non-Vascular Plants¹
 - _____ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Table with columns: Depth (Inches), Matrix (Color (moist), %), Redox Features (Color (moist), %, Type, Loc), Texture, Remarks. Rows include 0-6 and 6-14 depth intervals.

1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

2Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils3:

Table listing hydric soil indicators (Histosol, Histic Epipedon, etc.) and problematic hydric soil indicators (2 cm Muck, Red Parent Material, etc.) with checkboxes.

3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

Table listing primary and secondary wetland hydrology indicators (Surface Water, High Water Table, Saturation, etc.) with checkboxes.

Field Observations:

Surface Water Present? Yes X No
Water Table Present? Yes X No
Saturation Present? Yes X No
Depth (inches): 2, 0, 0

Wetland Hydrology Present? Yes X No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: SE Kellogg Creek Drive City/County: Milwaukie/Clackamas Sampling Date: 11/21/2016
 Applicant/Owner: Brownstone Development, Inc. State: OR Sampling Point: 10
 Investigator(s): Caroline R./Craig T. Section, Township, Range: Section 6AD, T 2S, R 2E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRRRA Lat: 45.427379 Long: -122.603487 Datum: WGS 84
 Soil Map Unit Name: Cove silty clay loam NWI Classification: None
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (if no, explain in Remarks)
 Are vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y
 Are vegetation _____ Soil _____ or Hydrology _____ naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks: _____

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
Tree Stratum (plot size: _____)				Number of Dominant Species	
1	_____	_____	_____	That are OBL, FACW, or FAC: <u>2</u> (A)	
2	_____	_____	_____	Total Number of Dominant	
3	_____	_____	_____	Species Across All Strata: <u>4</u> (B)	
4	_____	_____	_____	Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>50%</u> (A/B)	
Sapling/Shrub Stratum (plot size: _____)				Prevalence Index Worksheet:	
1	_____	_____	_____	Total % Cover of _____ Multiply by: _____	
2	_____	_____	_____	OBL Species _____ x 1 = <u>0</u>	
3	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
4	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
5	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL Species _____ x 5 = <u>0</u>	
Herb Stratum (plot size: <u>5</u>)				Column Totals <u>0</u> (A) <u>0</u> (B)	
1	<u>25</u>	<u>X</u>	<u>FACU</u>	Prevalence Index =B/A = <u>#DIV/0!</u>	
2	<u>20</u>	<u>X</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators:	
3	<u>20</u>	<u>X</u>	<u>FAC</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
4	<u>15</u>	_____	<u>FACU</u>	_____ 2- Dominance Test is >50%	
5	<u>10</u>	_____	<u>FAC</u>	_____ 3-Prevalence Index is ≤ 3.0 ¹	
6	<u>20</u>	<u>X</u>	<u>(FAC)</u>	_____ 4-Morphological Adaptations ¹ (provide supporting	
7	<u>10</u>	_____	<u>FAC</u>	data in Remarks or on a separate sheet)	
8	<u>15</u>	_____	<u>FACU</u>	_____ 5- Wetland Non-Vascular Plants ¹	
	<u>160</u>	= Total Cover		_____ Problematic Hydrophytic Vegetation ¹ (Explain)	
Woody Vine Stratum (plot size: _____)				¹ Indicators of hydric soil and wetland hydrology must be present, unless	
1	_____	_____	_____	disturbed or problematic.	
2	_____	_____	_____	Hydrophytic	
	<u>0</u>	= Total Cover		Vegetation Yes _____ No <u>X</u>	
% Bare Ground in Herb Stratum _____				Present?	
Remarks: _____					
Herb Stratum also contains: Poa sp. (FAC) 10%, Rumex crispus (FAC) 5%, Cirsium arvense (FAC) 5%, Schedonorus arundinaceus, FAC 5%					

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Table with columns: Depth (Inches), Matrix (Color (moist), %), Redox Features (Color (moist), %, Type, Loc), Texture, Remarks. Rows include 0-3, 3-16 depths with matrix and texture descriptions like 'Sandy Loam'.

1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

2Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils3:

Table listing hydric soil indicators such as Histosol (A1), Sandy Redox (S5), and indicators for problematic hydric soils like 2 cm Muck (A10), Red Parent Material (TF2), etc.

3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

0-16 - jumble of mixed/disturbed fill

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

Table listing primary and secondary wetland hydrology indicators such as Surface Water (A1), High Water Table (A2), Water stained Leaves (B9), etc.

Field Observations:

Surface Water Present? Yes _____ No X
Water Table Present? Yes _____ No X
Saturation Present? Yes _____ No X

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix C

Site Photos

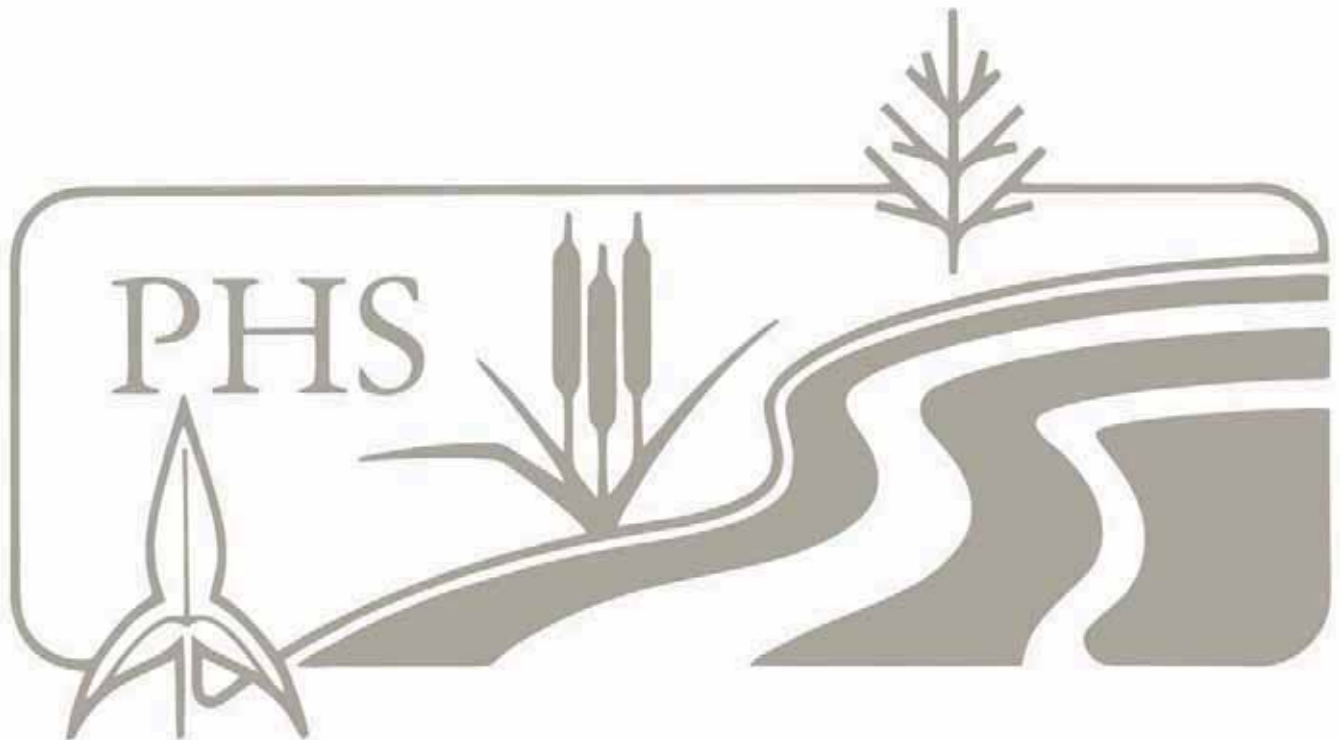




Photo A

Looking east along south bank of Mt. Scott Creek

Photo B

Looking west along south bank of Mt. Scott Creek



#5975
11/22/2016



Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Photodocumentation
SE Kellogg Creek Drive, Milwaukie, Oregon
Both photos taken on October 18, 2016

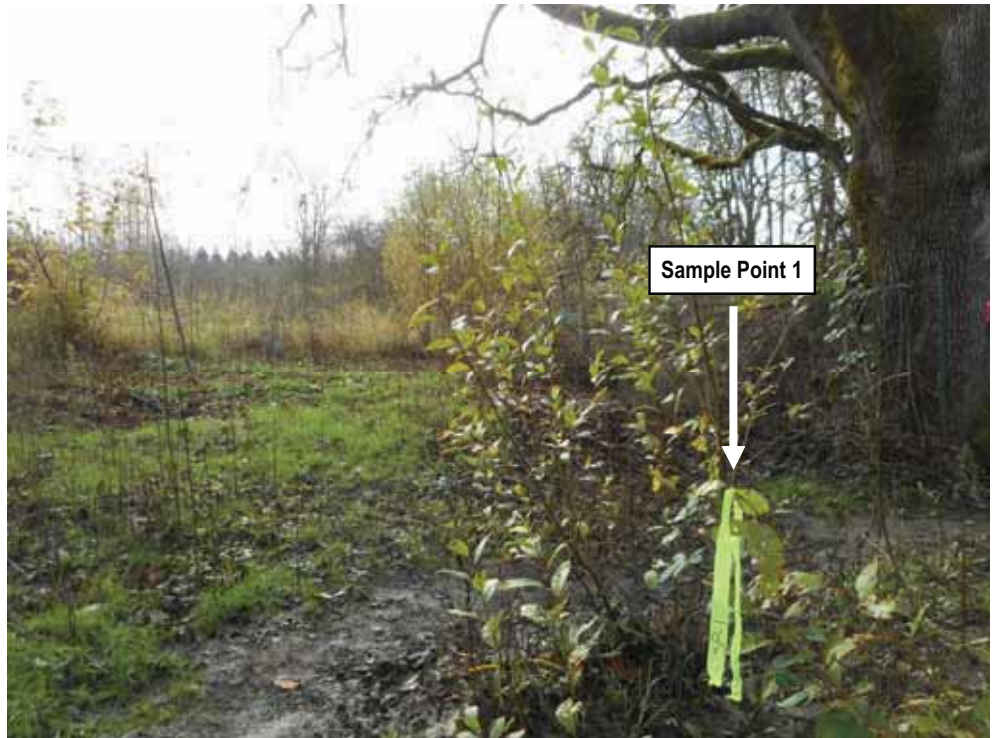


Photo C

Looking north across
Mt. Scott Creek

Photo D

Looking southeast toward
Wetland A



Sample Point 1

#57975
711/22/2016



Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Photodocumentation
SE Kellogg Creek Drive, Milwaukie, Oregon
Photo C taken on October 18, 2016, Photo D taken on November 21, 2016



Photo E

Looking northwest
toward north end of
Wetland A

Photo F

Looking southeast toward center
of Wetland A



#5975
11/22/2016



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9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Photodocumentation
SE Kellogg Creek Drive, Milwaukie, Oregon
Both photos taken on November 17, 2016

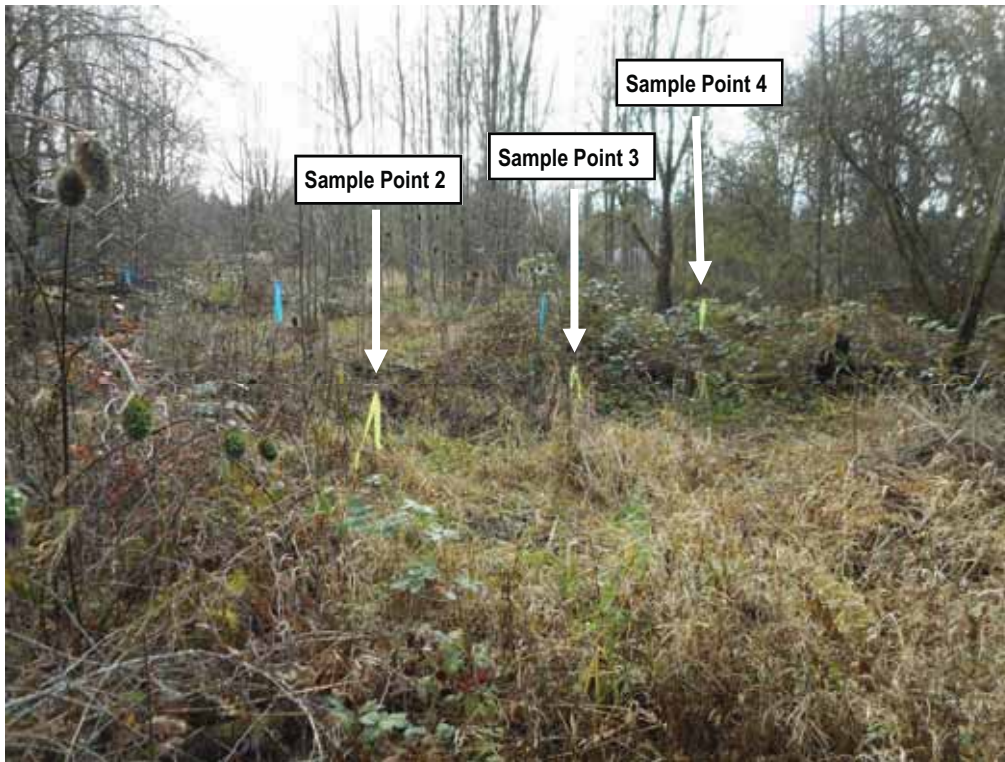


Photo G

Looking southeast toward upland island (Sample Point 4) and center of Wetland A

Photo H

Looking southeast toward southern portion of Wetland A from south end of upland island



#5975
11/22/2016



Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Photodocumentation
SE Kellogg Creek Drive, Milwaukie, Oregon
Both photos taken on November 21, 2016

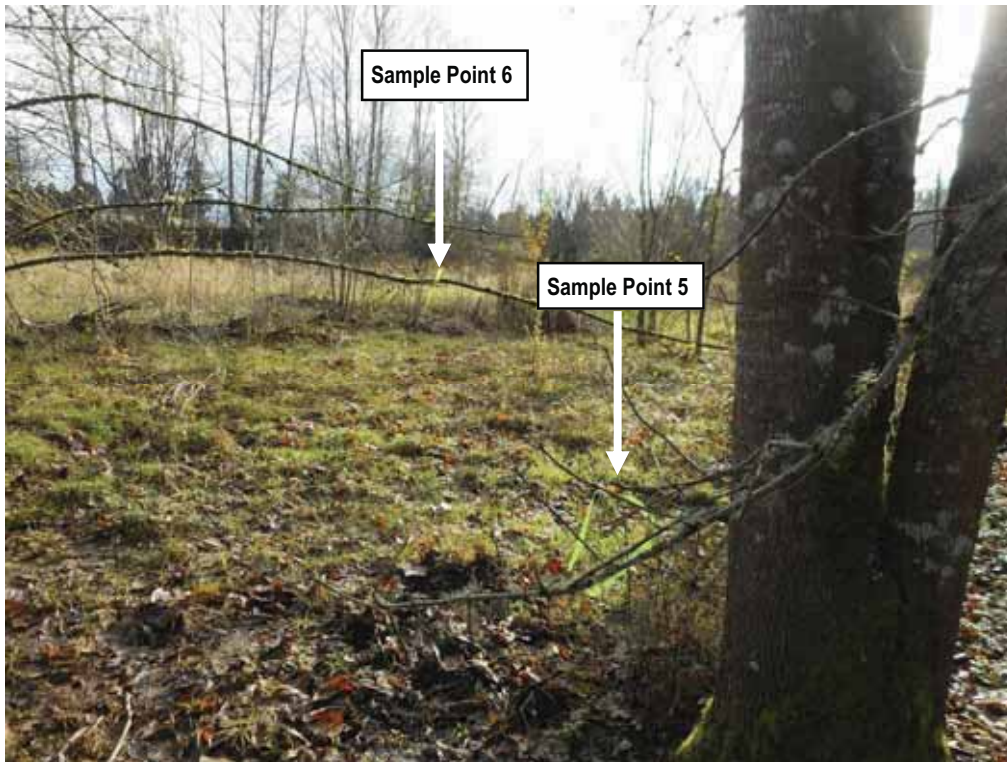
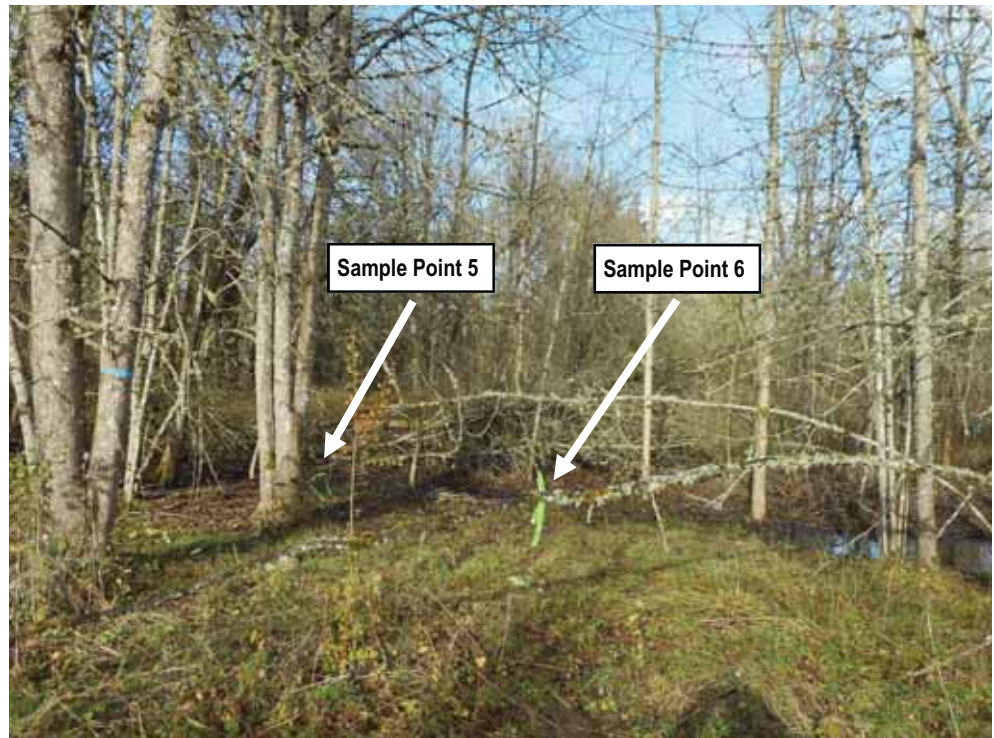


Photo I

Looking southeast toward southern boundary of Wetland A

Photo J

Looking toward the northwest portion of Wetland A from its southern boundary.



#5975
11/22/2016



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Wilsonville, OR 97070

Photodocumentation
SE Kellogg Creek Drive, Milwaukie, Oregon
Both photos taken on November 21, 2016

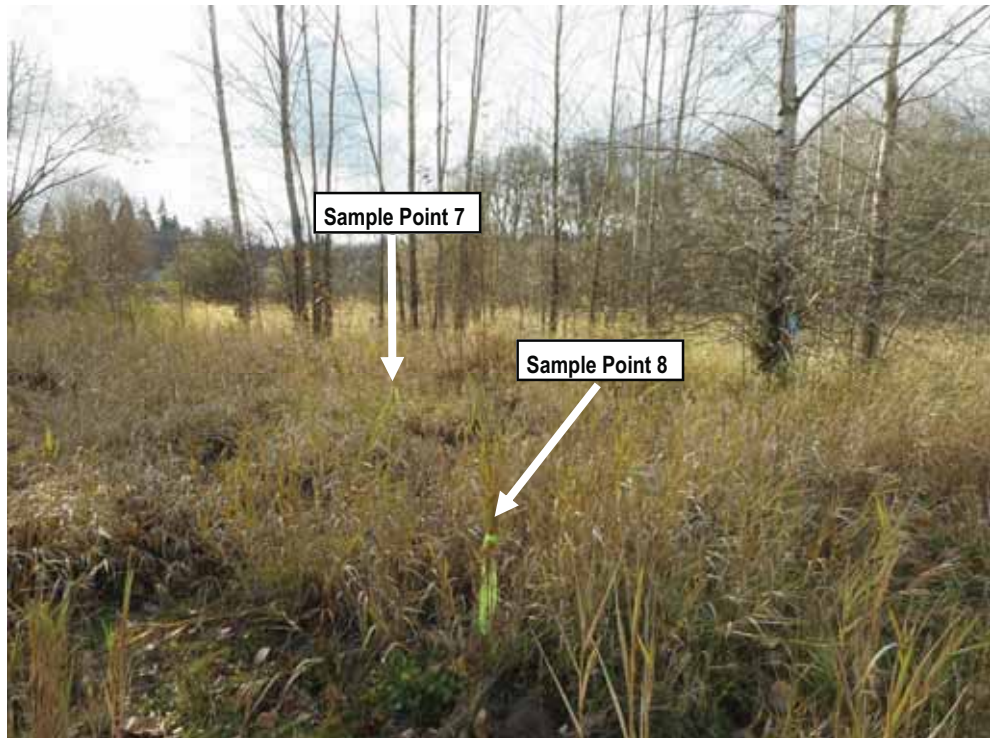


Photo K

Looking southeast at south end of Wetland A

Photo L

Looking south at eastern portion of Wetland A



#5975
11/22/2016



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Wilsonville, OR 97070

Photodocumentation
SE Kellogg Creek Drive, Milwaukie, Oregon
Both photos taken on November 21, 2016

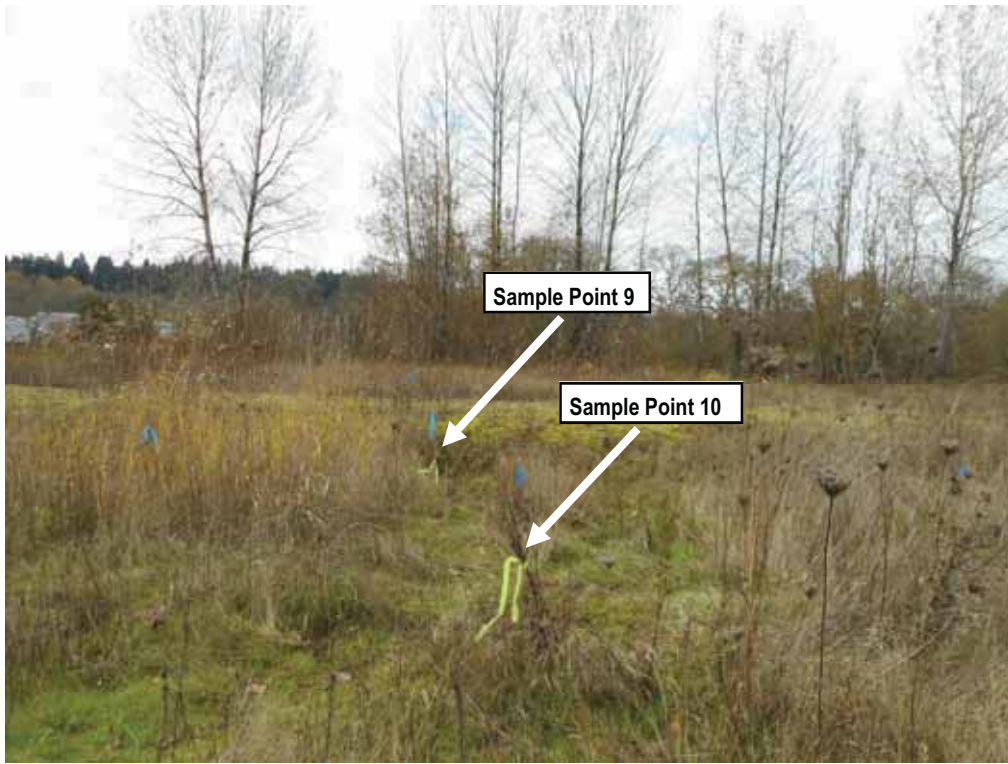


Photo M

Looking southwest
across Wetland E

Photo N

Looking north at Wetland C



#5975
11/22/2016



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9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Photodocumentation
SE Kellogg Creek Drive, Milwaukie, Oregon
Both photos taken on November 21, 2016



Photo O

Looking northwest at
Wetland B

Photo P

Looking southeast at Wetland D



#5975
11/22/2016



Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Photodocumentation
SE Kellogg Creek Drive, Milwaukie, Oregon
Both photos taken on November 21, 2016



Photo Q

Looking northwest at
Wetland F

Photo R

Looking north at Wetland G



#5975
11/22/2016



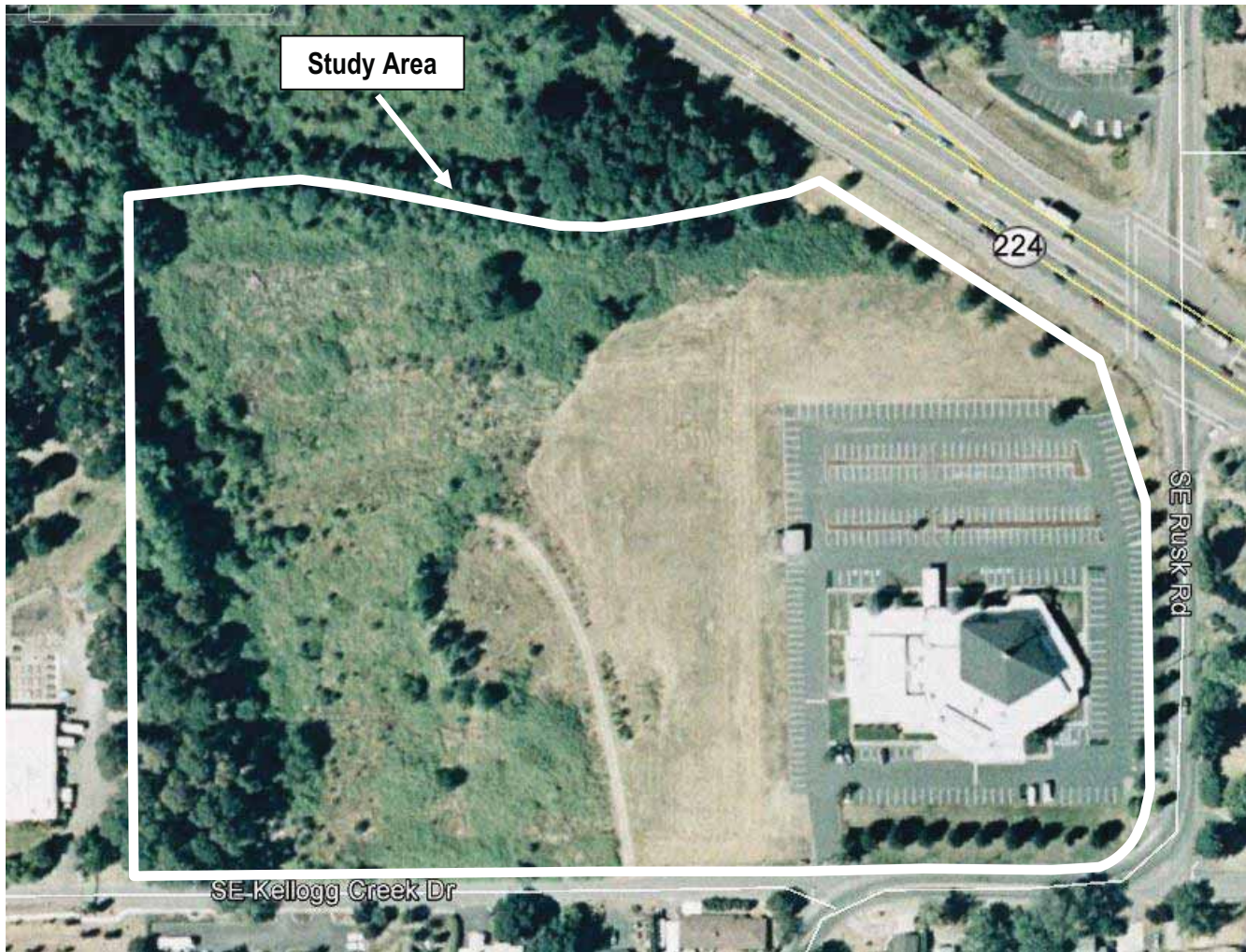
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Wilsonville, OR 97070

Photodocumentation
SE Kellogg Creek Drive, Milwaukie, Oregon
Both photos taken on November 21, 2016

Appendix D

Historic Aerial Photographs



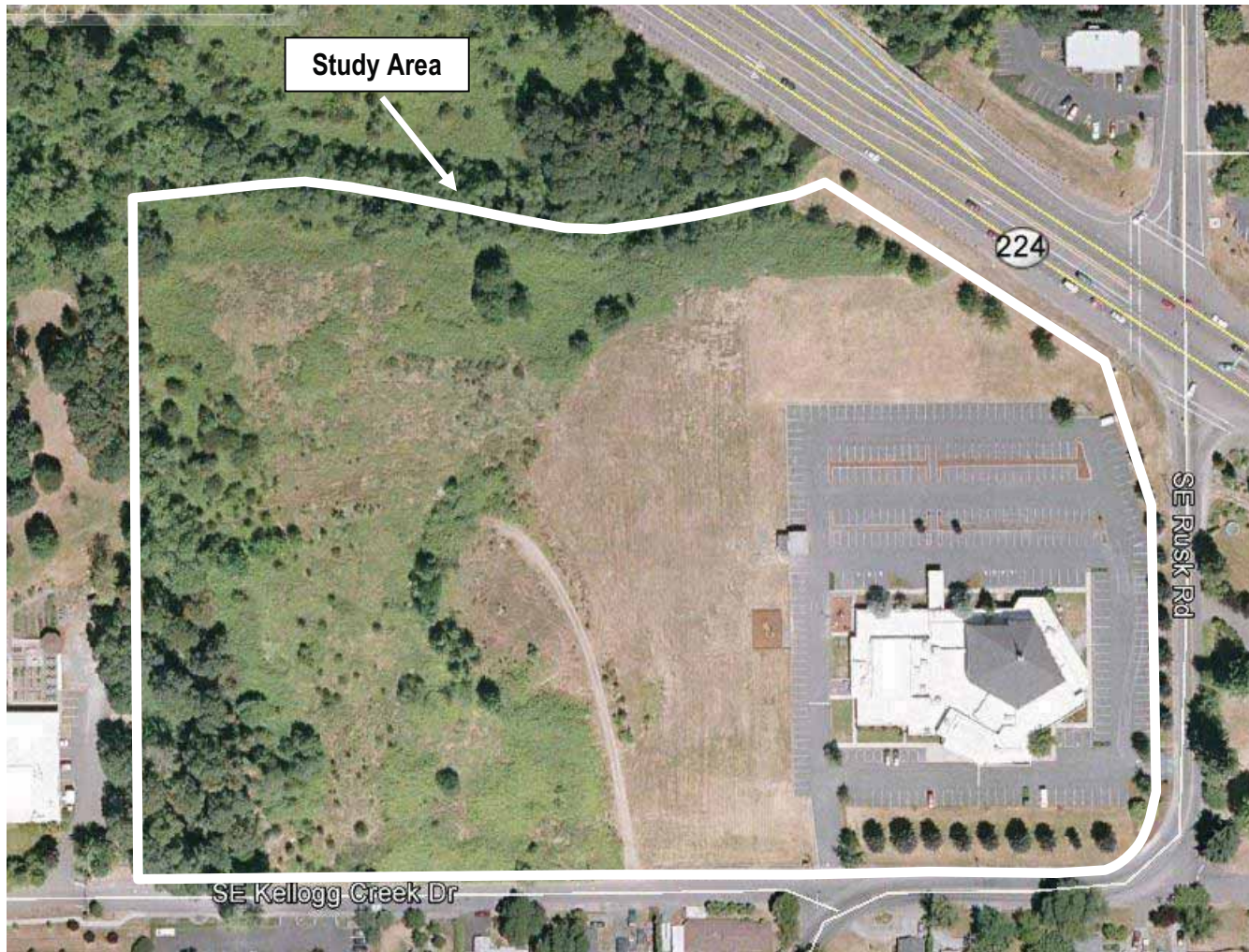


5975
12/21/2016



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9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Historic Aerial Photo
SE Kellogg Creek Drive, Milwaukie, Oregon
Google Earth, August 14, 2002



Study Area

224

SE Rusk Rd

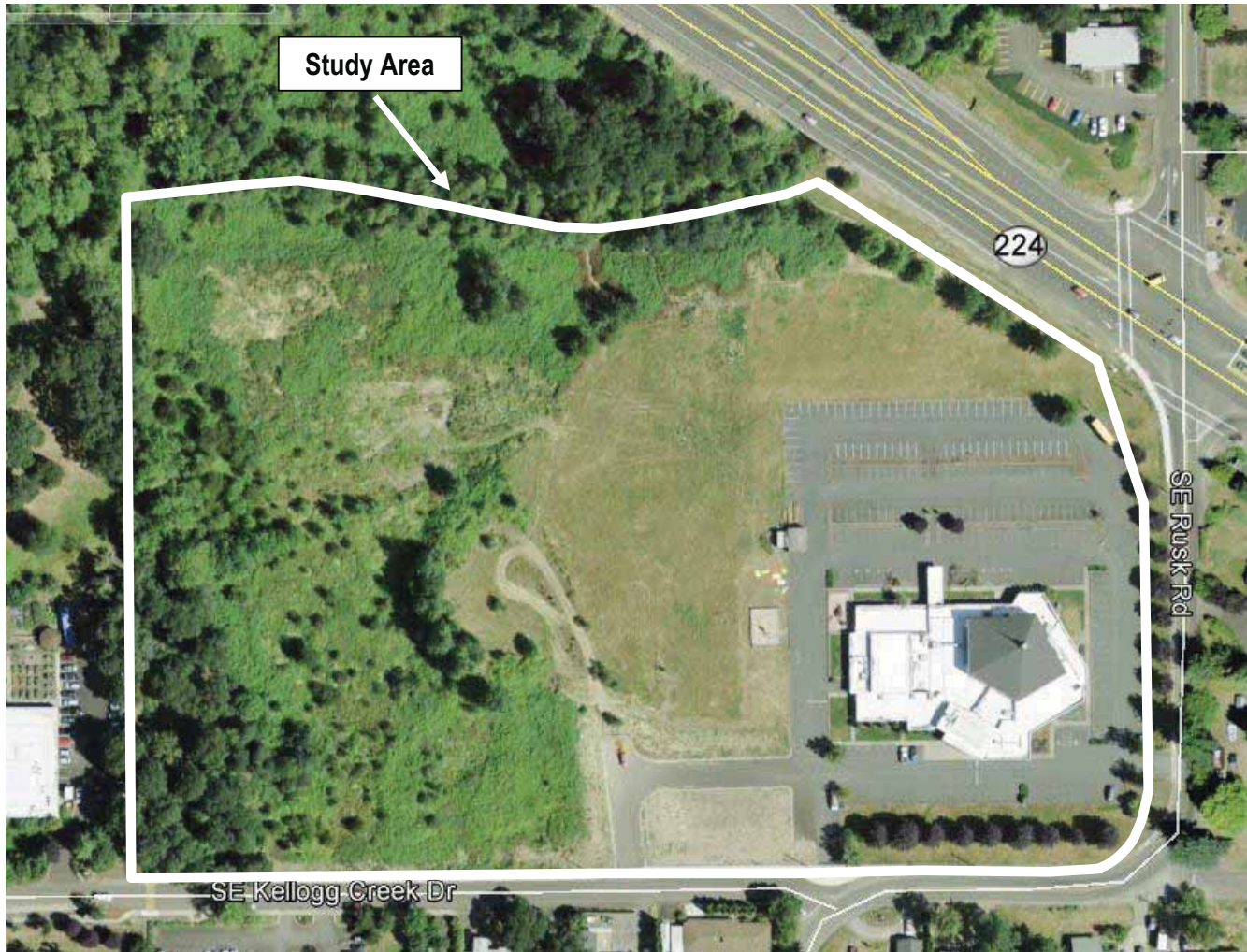
SE Kellogg Creek Dr

5975
12/21/2016



Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Historic Aerial Photo
SE Kellogg Creek Drive, Milwaukie, Oregon
Google Earth, July 2003

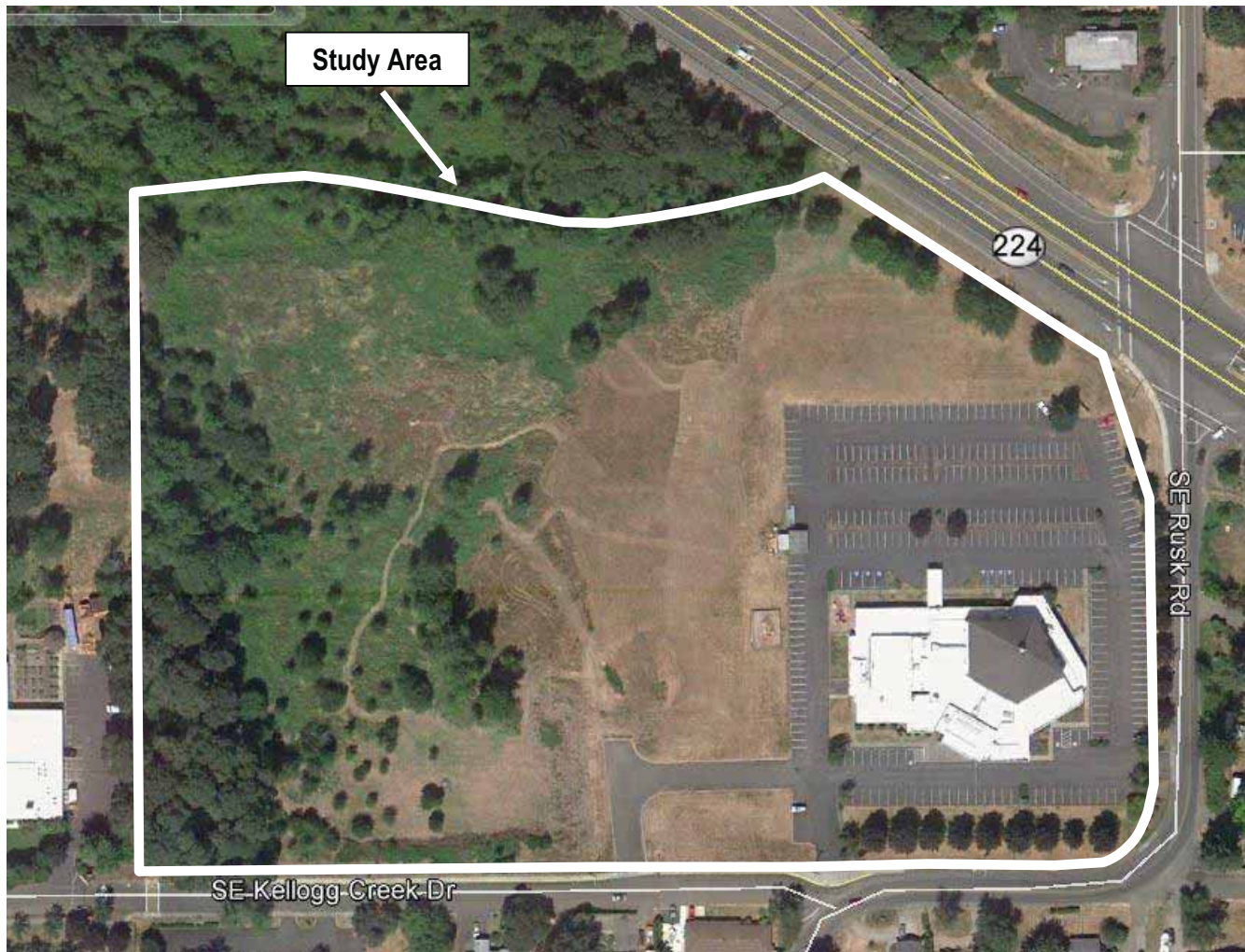


5975
12/21/2016



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Wilsonville, OR 97070

Historic Aerial Photo
SE Kellogg Creek Drive, Milwaukie, Oregon
Google Earth, July 2007



5975
12/21/2016



Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Historic Aerial Photo
SE Kellogg Creek Drive, Milwaukie, Oregon
Google Earth, August 2010

Appendix E

Wetland Definitions, Methodology, and References



WATERS OF THE STATE AND WETLAND DEFINITION AND CRITERIA

Regulatory Jurisdiction

Wetlands and water resources in Oregon are regulated by the Oregon Department of State Lands (DSL) under the Removal-Fill Law (ORS 196.800-196.990) and by the U.S. Army Corps of Engineers (COE) through Section 404 of the Clean Water Act.

The primary source document for wetland delineations within Oregon is the *Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1* (Environmental Laboratory 1987) which is recognized by both DSL and COE.

Waters of the State and Wetland Definition

Waters of the State are defined as “natural waterways including all tidal and nontidal bays, intermittent streams, constantly flowing streams, lakes, wetlands and other bodies of water in this state, navigable and nonnavigable...”. “Natural waterways” is further defined as waterways created naturally by geological and hydrological processes, waterways that would be natural but for human-caused disturbances (e.g. channelized or culverted streams, impounded waters, partially drained wetlands or ponds created in wetlands)...”(DSL, 2001).

Wetlands are defined as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (DSL, 2001).

Wetland Criteria

Based on the above definition, three major factors characterize a wetland: hydrology, substrate, and biota.

Wetland Hydrology

Wetland hydrology is related to duration of saturation, frequency of saturation, and critical depth of saturation. The 1987 manual defines wetland hydrology as inundation or saturation within a major portion of the root zone (usually above 12 inches), typically for at least 12.5% of the growing season. The wetland hydrology criterion can be met, however, if saturation within the major portion of the root zone is present for only 5% of the growing season, depending on other evidence.

The growing season is defined as the portion of the year when soil temperatures at 19.7 inches below the soil surface are higher than biological zero (41 degrees Fahrenheit, 5 degrees Celsius), but also allows approximation from frost free days, based on air temperature. The growing season for any given site or location is determined from US Natural Resources Conservation Service, (formerly Soil Conservation Service) data and information.

Wetland hydrologic indicators include the following: visual observation of inundation or saturation, watermarks, drift lines, sediment deposits, drainage pattern, and/or oxidized rhizospheres with living roots. Oxidized rhizospheres are defined as yellowish-red zones around the roots and rhizomes of some plants that grow in frequently saturated soils.

Wetland Substrate (Soils)

Most wetlands are characterized by hydric soils. Hydric soils are those that are ponded, flooded, or saturated for long enough during the growing season to develop anaerobic conditions. Periodic saturation of soils causes alternation of reduced and oxidized conditions, which leads to the formation of redoximorphic features (gleying and mottling). Mineral hydric soils will be either gleyed or will have bright mottles and/or low matrix chroma. The redoximorphic feature known as gley is a result of greatly reduced soil conditions, which result in a characteristic grayish, bluish or greenish soil color. The term mottling is used to describe areas of contrasting color within a soil matrix. The soil matrix is the portion of the soil layer that has the predominant color. Soils that have brightly colored mottles and a low matrix chroma are indicative of a fluctuating water table.

Hydric soil indicators include: organic content of greater than 50% by volume, sulfidic material or “rotten egg” odor, and/or presence of redoximorphic features and dark soil matrix, as determined by the use of a Munsell Soil Color Chart. This chart establishes the chroma, value and hue of soils based on comparison with color chips. Mineral hydric soils usually have a matrix chroma of 2 or less in mottled soils, or a matrix chroma of 1 or less in unmottled soils.

Wetland Biota (Vegetation)

Wetland biota is defined as hydrophytic vegetation. A hydrophyte is a plant species that is capable of growing in substrates that are periodically deficient in oxygen as a result of saturated soil conditions. The U.S. Fish and Wildlife Service, in the *National List of Plant Species that Occur in Wetlands*, has established five basic groups of vegetation based on their frequency of occurrence in wetlands. These categories, referred to as the "wetland indicator status", are as follows: obligate wetland plants (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and obligate upland (UPL). Table 1 gives a definition of the plant indicator codes.

Table 1. Description of Wetland Plant Indicator Status Codes

Indicator Code	Status
OBL	Obligate wetland. Estimated to occur almost exclusively in wetlands (>99%)
FACW	Facultative wetland. Estimated to occur 67-99% of the time in wetlands.
FAC	Facultative. Occur equally in wetlands and non-wetlands (34-66%).
FACU	Facultative upland. Usually occur in non-wetlands (67-99%).
UPL	Obligate upland. Estimated to occur almost exclusively in non-wetlands (>99%). If a species is not assigned to one of the four groups described above it is assumed to be obligate upland.
NI	Has not yet received a wetland indicator status, but is probably not obligate upland.

Observations of hydrology, soils, and vegetation, were made using the "Routine On-site" delineation method as defined in the 1987 manual for areas that were not currently in agricultural production. One-foot diameter soil pits were excavated to 16 inches and soil profiles were examined for hydric soil and wetland hydrology field indicators. In addition, a visual percent-

cover estimate of the dominant species of the plant community was performed using soil pit locations as a center of reference. Dominant plant species are based on estimates of percent cover for herbaceous, woody vine, and shrub species within a 5 foot radius of the sample point, and basal area cover for tree species within a 30 foot radius of the sample point. Plant species in each vegetative layer, which are estimated at less than 20%, are not considered to be dominant. The wetland indicator status is then used to determine if there is an overall dominance (greater than 50%) of wetland or upland plant species.

During data collection, the soil profiles were examined for hydric soil and wetland hydrology field indicators. Plant species and cover were recorded. Data was recorded on standard data sheets which contain the information specified in the 1987 Corps manual.

Attachment C

DSL Concurrence Letter





Oregon

Kate Brown, Governor

Department of State Lands

775 Summer Street NE, Suite 100

Salem, OR 97301-1279

(503) 986-5200

FAX (503) 378-4844

www.oregon.gov/dsl

State Land Board

Kate Brown

Governor

Dennis Richardson

Secretary of State

Tobias Read

State Treasurer

May 2, 2017

Brownstone Development, Inc.

Attn: Randy Myers

P.O. Box 2375

Lake Oswego, OR 97035

Re: WD # 2017-0054 Wetland Delineation Report for the
Proposed Kellogg Creek Subdivision
Clackamas County; T2S R2E Sec. 6AD, Tax lot 600 and
Portions of Tax Lots 700, 900 and 901
App. # 60166

Dear Mr. Myers:

The Department of State Lands has reviewed the wetland delineation report prepared by Pacific Habitat Services for the site referenced above. Please note that the study area includes only a portion of the tax lots described above (see the attached maps). Based upon the information presented in the report, we concur with the wetland and waterway boundaries as mapped in Figure 6 of the report. Within the study area, seven wetlands and a segment of Mt. Scott Creek were identified.

One of the seven wetlands (Wetland A, totaling approximately 0.7 acres) and the creek are subject to the permit requirements of the state Removal-Fill Law. The remaining six wetlands (Wetlands B through G) are exempt per OAR 141-085-0515 (6); therefore, they are not subject to these permit requirements. In addition, normally a state permit is required for cumulative fill or annual excavation of 50 cubic yards or more in wetlands or below the ordinary high water line (OHWL) of a waterway (or the 2 year recurrence interval flood elevation if OHWL cannot be determined). However, Mt. Scott Creek is an essential salmonid stream; therefore, fill or removal of any amount of material below its OHWL or within hydrologically-connected wetlands (Wetland A) may require a state permit.

This concurrence is for purposes of the state Removal-Fill Law only. Federal or local permit requirements may apply as well. This concurrence is based on information provided to the agency. The jurisdictional determination is valid for five years from the date of this letter unless new information necessitates a revision. Circumstances under which the Department may change a determination are found in OAR 141-090-0045 (available on our web site or upon request). In addition, laws enacted by the legislature and/or rules adopted by the Department may result in a change in jurisdiction; individuals and applicants are subject to the regulations that are in effect at the time of the removal-fill activity or complete permit application. The applicant, landowner, or

agent may submit a request for reconsideration of this determination in writing within six months of the date of this letter.

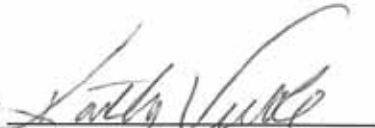
Thank you for having the site evaluated. Please phone me at 503-986-5232 if you have any questions.

Sincerely,



Peter Ryan, PWS
Jurisdiction Coordinator

Approved by

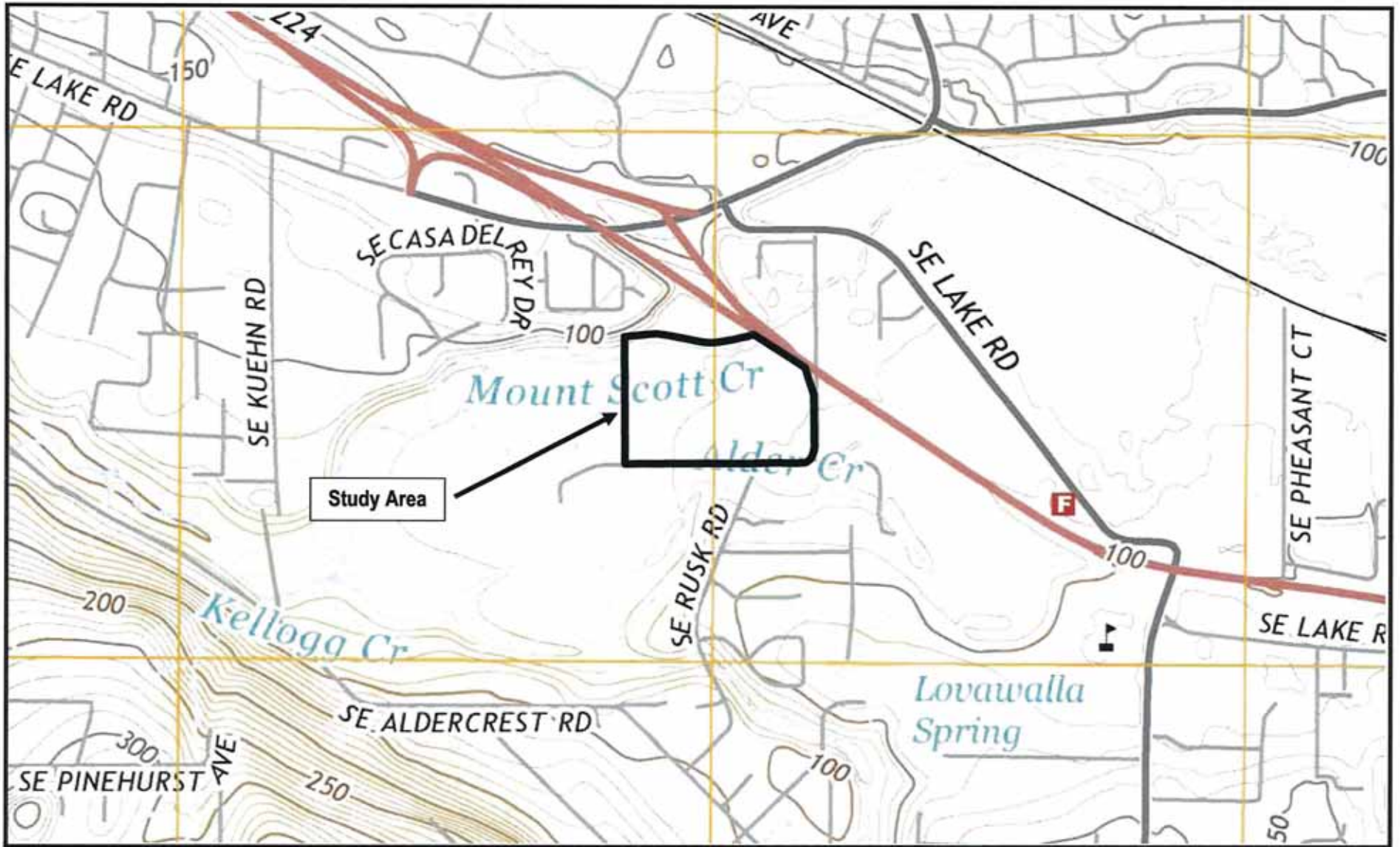


Kathy Verble, CPSS
Aquatic Resource Specialist

Enclosures

ec: Caroline Rim, Pacific Habitat Services
Clackamas County Planning Department
Dominic Yballe, Corps of Engineers
Melinda Butterfield, DSL

W02017-0054





5975
1/16/2017

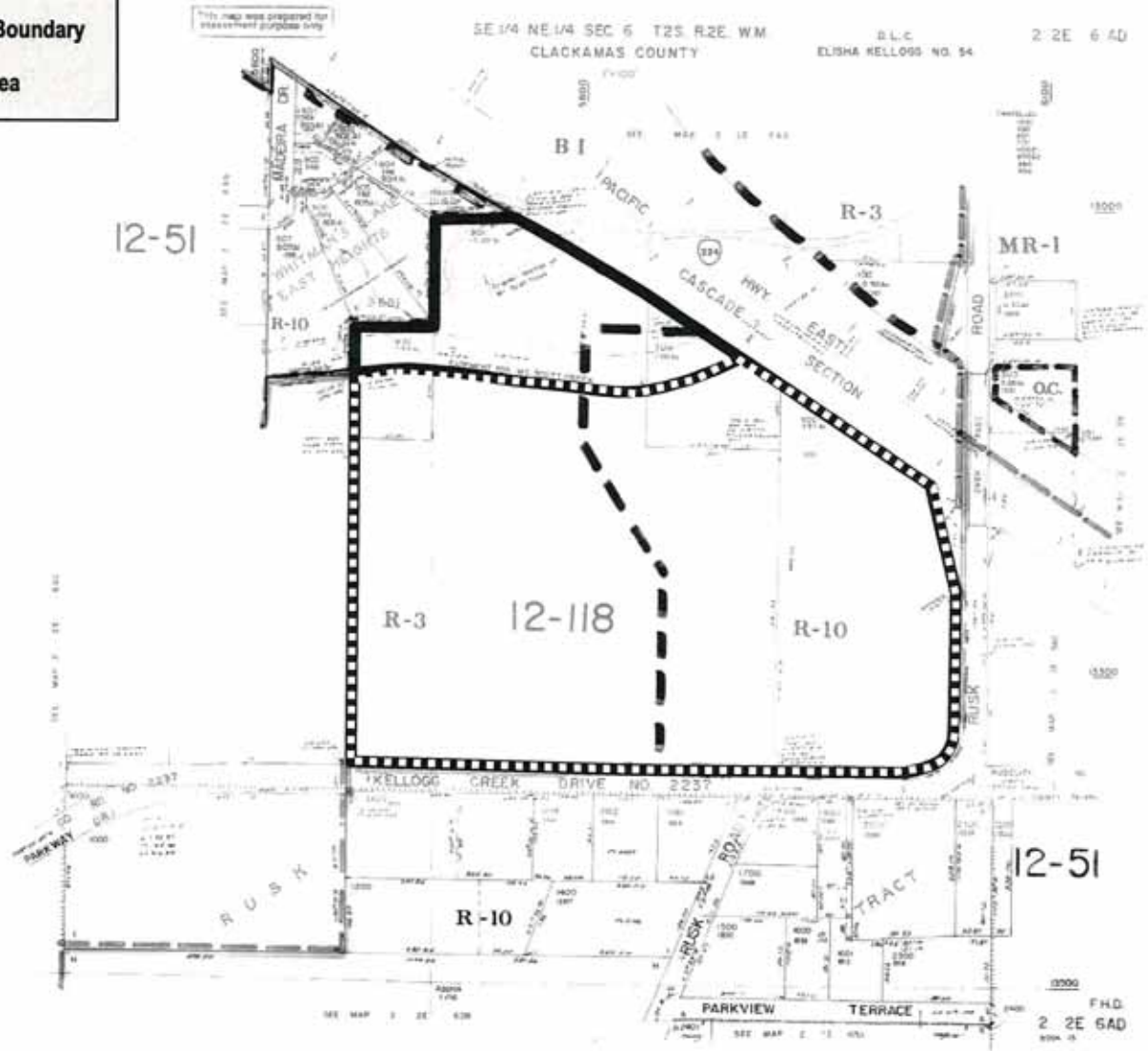
Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

General Location and Topography
SE Kellogg Creek Drive - Milwaukie, Oregon
United States Geological Survey (USGS), Gladstone, Oregon, 7.5 Quadrangle, 2014
(viewer/nationalmap.gov/basic)

FIGURE
1

W02017-0057

 Tax Lot Boundary
 Study Area



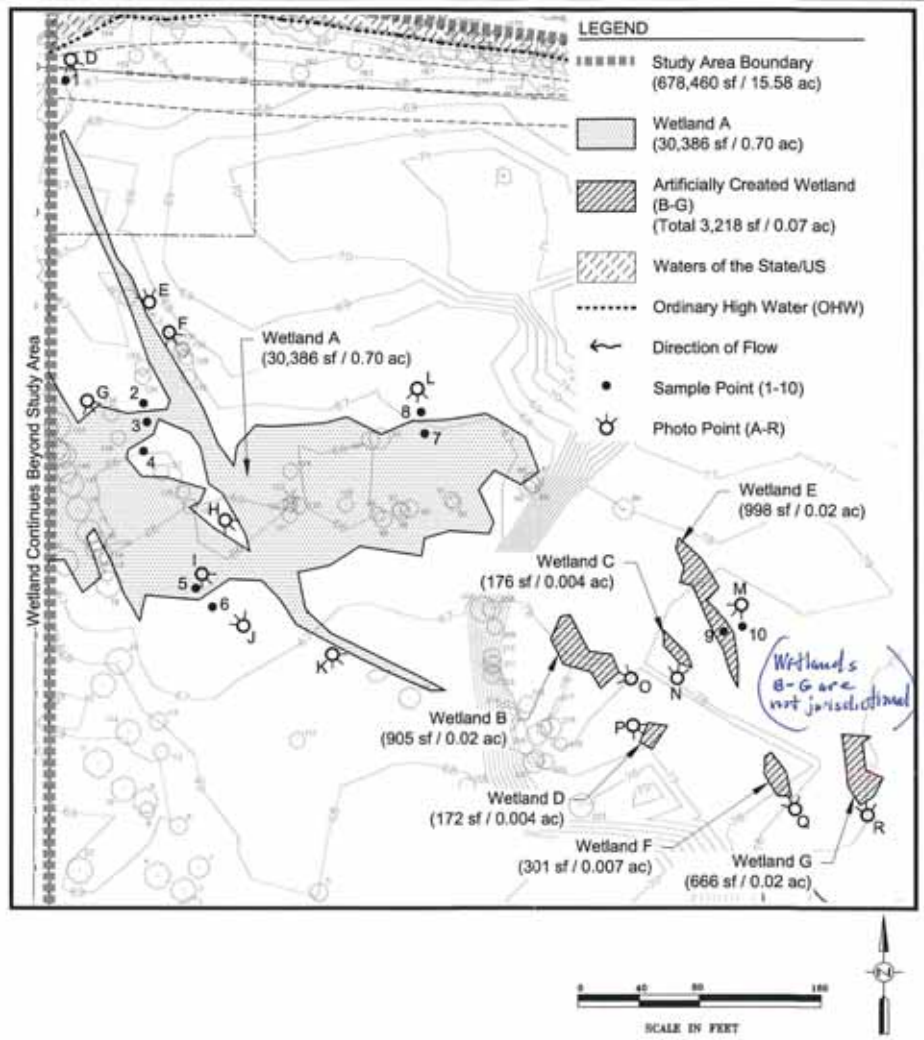
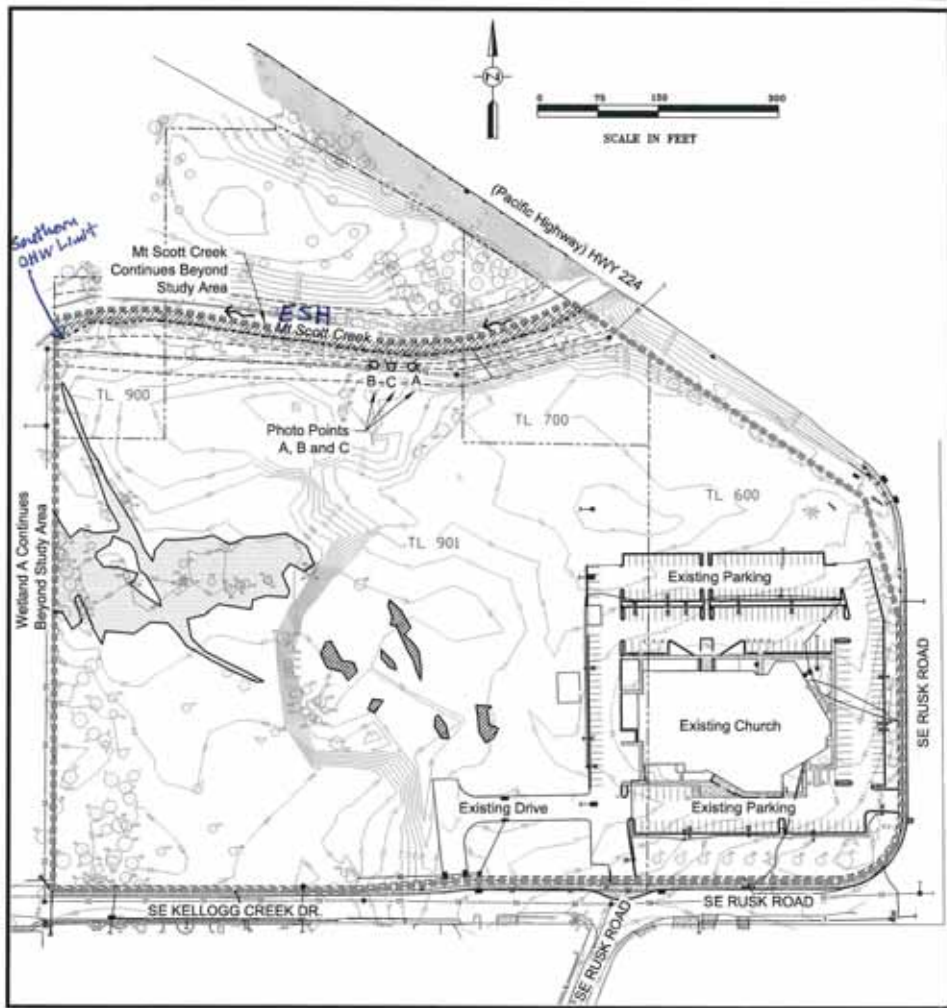
5975
12/21/2016



Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Tax Lot Map
SE Kellogg Creek Drive - Milwaukie, Oregon
The Oregon Map (ormap.net)

FIGURE
2



Survey provided by
TerraCalc Land Surveying, Inc., 2016
Survey accuracy is sub-centimeter and
Sample Point accuracy is ± 3 feet.

DSL WD # 2017-0054
Approval Issued 5/2/2017
Approval Expires 5/2/2022

Wetland Delineation
SE Kellogg Creek Drive - Milwaukie, Oregon

FIGURE
6

1-18-2017

Kelver, Brett

From: Joseph Edge <joseph.edge@gmail.com>
Sent: Friday, May 26, 2017 12:25 AM
To: Kelver, Brett
Subject: PD-2017-001 Comments

Brett,

I think I stumbled over some of my words and wasn't as clear as I had hoped in my testimony on Thursday. I would like to clarify the second part of my statement.

+++++

Chair Hemer, et al.,

This proposal intends to offer a market rate housing product that will command a price that will likely be lower than a comparable detached single family dwelling. However, there is no guarantee that the market rate for these dwelling units will be within the means of modest-income households. Therefore it should not be assumed that these dwelling units will be available as workforce housing once they are put up for sale. As such, this assumption should not form any of the basis for granting a density bonus.

If your intent is for some of these 92 dwelling units to be available to families with modest incomes, please consider asking the applicant to present an alternative that provides some of the dwelling units in multifamily buildings. Rental units in multifamily buildings, even at market rates, will be more affordable to families with modest incomes than owner-occupied units. Multifamily buildings will reduce the aggregate footprints of structures, affording the developer greater flexibility in avoiding and minimizing impacts to the natural resource areas on the site while offering the same number of dwelling units as proposed under other alternatives.

As much as we need more, actual "affordable housing" across the metro area, this is not the site to serve that need, even if multifamily buildings are planned. The people who live here will need access to motor vehicles to travel to and from this site. Motor vehicle ownership is very expensive and exacerbates poverty and uncertainty for people with lower incomes, which is why a plurality of low income households do not own motor vehicles. Many of the families that will live at this development will choose to own two or more motor vehicles due to the lack of other safe options for traveling to and from this site, thereby disqualifying those of lower incomes - and yes, even many families with "modest" incomes - from being able to afford to live here.

The provision of a car-sharing service, under contract by the HOA and/or multifamily building owners, would help reduce the number of vehicles that future residents of the proposed development will choose to own and operate. This will also reduce the money required to "buy in" to a dwelling unit here, whether rented or purchased, increasing the number of households who could afford to live here. Phrased differently: a household that owns one fewer car has more resources available to spend on housing or other goods.

In closing, the combination of a multifamily building or buildings to reduce impacts to resource areas coupled with the provision of a car sharing amenity could serve as creative, unique, and outstanding design features that warrant the density bonus for a Planned Development.

Thank you for your consideration.

Joseph Edge

June 7, 2017

Comments on the Turning Point Church Project

After attending two Planning Commission meetings on the subject, I have a few comments.

1. It is not the Planning Commissions role to ensure a profit for the developer. There are many moving parts in this project where the developer can make money. 92 units is not mandatory to make a profit. Why are the commissioners so concerned about Brownstone's profit at the expense of the wetlands and low areas? The western 12 units are horribly placed, wouldn't 80 units work? Avoid the northern HCA and maybe 70 would work.

2. The developer will make a profit on this project well below the 92 units. While I believe the Brownstone comments about operating on a lean margin, I do not believe any good business owner needs 92 units to make this project profitable.

$\$350,000 \times 92 = \$32.2 \text{ million (gross)}$

$\$350,000 \times 80 = \28 million

$\$350,000 \times 50 = \17.5 million

As the unit # decreases so do many of the costs, footprints, habitat destruction....

3. These are not "affordable housing" as confirmed by Dowl Consultants. Any notion that this is an affordable housing project was put to rest by the consultant team who said that "this is not an affordable housing project." The houses will sell for market value at the time of the sale. They will resale for market value at the time of the resale. Some of them will be bought and then rented to renters at the market rental rates.

If the builder gets all 92 units, they will not be sold at a more affordable rate. They will be sold at market rate regardless of number of units.

4. The natural areas will be a maintenance liability that the HOA would love to get rid of. The access to the natural areas will be a wonderful asset. Both of those are available by giving the land to the NCPRD. This isn't something to negotiate the wetlands away for, any smart developer or HOA will see the benefit of this. HOA's do 1 of 2 things with their natural areas: ignore it and let it succumb to weeds, transients and garbage or have their landscape crew mow it to death. It is not necessary to build 92 units for the NCPRD to get the wetlands.

5. The development should not encroach upon the wetlands, HCA, WQR or lowlands regardless of how much land is donated to the NCPRD.

I believe it is not the role of the city to ensure maximum profits for the developer. It is however, the role of the city to protect the public good. Wetlands, trees, housing and reduced flooding are the public good. I would like to see the Planning Commission and city staff less concerned with developer profit and more concerned about their natural treasures. Draw a line around what you don't want destroyed and they can build on the rest, not the other way around. 92 units is too many for this site!

Submitted by
Chris Runyard



NORTH CLACKAMAS
PARKS & RECREATION DISTRICT

MEMO

SUPER DRAFT

TO: Mr. Brett Kelter, Associate Planner, City of Milwaukie

FROM: Kathryn Krygier, Planning and Development Manager

Copy: Scott Archer, Director
Tonia Williamson, Natural Resources Coordinator
Kevin Cayson, Park and Facilities Manager

DATE: July 10, 2017

RE: **Brownstone Development, Inc.**
File Nos.: PD-2017-001, ZA-2017-001, S-2017-001, NR-2017, TFR-2017-001,
VR-2017-003, CSU-2017-001

Application Types: Planned Development, Zoning Map Amendment,
Subdivision (preliminary plat), Natural Resource Review, Transportation
Facilities Review, Variance,
Community Service Use (minor modification)

Thank you for the opportunity to provide additional comments on the proposed Brownstone Development (Project). Most of this memo responds to questions raised by City planning staff and Planning Commissioners about ownership and management of the open space. In addition, NCPRD would like to comment on connectivity in the proposed development as noted at the end of the list.

Ownership and Maintenance

It is NCPRD's experience that generally Home Owner's Associations (HOA) do not have the capacity to adequately maintain open space. The proposed open space contains sensitive wetlands and a conservation area, which requires specialized care and maintenance. This makes it an even greater challenge for an HOA. While we are supportive of the development, we are concerned the open space will be neglected and become a negative influence, not only to the watershed, but also to our adjacent property. For this reason, staff have met with Randy Meyers about possible acquisition of the open space, but have not come to acceptable terms. Following are NCPRD's initial ideas about acquiring and managing the property:

1. NCPRD would want the open space tract to be compatible and enhance the North Clackamas Park Master Plan. A trail through the site, connecting to the park would be an amenity for the community. NCPRD would want to approve the location and specifications of the trail. A pole and post fence may be appropriate in some areas of the property to protect the wetlands.
2. NCPRD would want to review the proposed mitigation plan to make sure it is be compatible with the North Clackamas Park Master Plan and NCPRD's approach to restoration of wetlands and conservation areas. If it were not compatible, NCPRD would want to make changes to the proposal.

3. NCPRD would accept the property after the mitigation warranty period is completed and approved by all permitting agencies. Alternatively, NCPRD could, with funding from the developer, create and/or implement the mitigation plan.
4. NCPRD is only interested in owning open space that serves the community. For example, NCPRD is not interested in owning the community garden and play area.
5. NCPRD will only accept the property at no cost. The expense to maintain the property in perpetuity is a significant unplanned expense to NCPRD, so no additional funds are available for acquisition of the property.
6. This Project is not contemplated in our SDC Capital Improvement Plan, therefore no SDCs are available for the Project.
7. NCPRD is amenable to having the City of Milwaukie acquire the property and amending our IGA to include future maintenance responsibilities of the open space. We would anticipate accepting the maintenance of the property with similar conditions that are noted above.

Connectivity

8. Pedestrian and bicycle routes through and within the site are critical to its success. The plan dated 5/19/2017 shows a "path" where a road was located in earlier drawings. This "path" should be public and meet ADA requirements to provide for complete connectivity throughout the Project.

MEMORANDUM

TO: Community Development Department
THROUGH: Chuck Eaton, Director of Engineering
FROM: Alex Roller, Engineering Technician II
RE: 92-Lot Planned Development – 13333 SE Rusk Road
 PD-2017-001 (*revised comments*)
DATE: July 18, 2017

Transportation Facility Requirements

MMC 19.708.1.E.5 – Dwelling units on a closed-end street system

Proposal will have 92 dwelling units on a closed-end street system, while our code only allows 20. The Engineering department supports a variance for this increase. There is no opportunity for any additional dwelling units to be constructed that will access this street system, further impacting this closed-end system. Also, the system will have separate fire access points, providing adequate fire and life safety.

Recommended Conditions of Approval

1. Prior to approval of the final plat, the following shall be resolved:

- ~~A. Obtain a variance to MMC 12.16.040.C.4.a for accessway spacing for lot 72.~~
- A. Obtain a variance to MMC 19.708.1.E.5 for number of dwellings on a closed-end street system.
- B. Submit a final stormwater management plan to the City of Milwaukie Engineering Department for review and approval. The plan shall be prepared in accordance with Section 2 – Stormwater Design Standards of the City of Milwaukie Public Works Standards. Submit full-engineered plans for construction of all required public improvements, reviewed and approved by the City of Milwaukie Engineering Department. All utilities shall conform to the Milwaukie Public Works Standards.
- C. Obtain a right-of-way permit for construction of all required public improvements listed in these recommended conditions of approval.
- D. Pay an inspection fee equal to 5.5% of the cost of the public improvements.
- E. Provide a payment and performance bond for 100 percent of the cost of the required public improvements.
- F. Provide an erosion control plan and obtain an erosion control permit.
- G. Dedicate 14 feet of right-of-way on SE Kellogg Creek Drive fronting the proposed development property to accommodate the parking and bike facilities to the intersection of Rusk and Kellogg Creek Drive.

- H. Install all underground utilities, including stubs for utility service prior to surfacing any streets. Utilities shall be designed to minimize or eliminate infiltration of floodwaters into the system. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the system and discharge from the systems into floodwaters. Relocate or provide a private utility easement for all utilities encroaching onto adjacent properties.
 - I. Construct a 5-foot set-back sidewalk, 4-foot planter strip and curb & gutter on entire frontage of SE Kellogg Creek Drive. **Modification to this requirement may be possible by constructing a crossing at the southwest corner of lot 33, and not constructing sidewalk to the west of this pedestrian crossing.**
 - J. Construct 5-foot set-back sidewalk, 4-ft planter strip, curb and gutter, 7-foot parking, and 10-foot travel lane (for each half of right-of-way), on "SE Street A" and "SE Street B".
 - K. Construct all sidewalks, ramps and driveways on "SE Street A" and "Street B".
 - L. Extend right turn lane for northbound traffic at Rusk/OR 224 intersection.
 - M. Construct a driveway approach to meet all guidelines of the Americans with Disabilities Act (ADA) to each new lot. The driveway approach aprons shall be between 9 feet and 20 feet in width and least 7.5 feet from the side property line.
 - N. Clear vision areas shall be maintained at all driveways and accessways and on the corners of all property adjacent to an intersection Remove all signs, structures, or vegetation more than three feet in height located in "vision clearance areas" at intersections of streets, driveways, and alleys fronting the proposed development.
 - O. Provide a 12-month Maintenance Bond upon completion of the construction.
 - P. Provide a final approved set of Mylar and electronic PDF "As Constructed" drawings to the City of Milwaukie prior to final inspection.
2. Prior to issuance of any building permit:
- A. Obtain approval of FEMA map revision for lots that are currently in the floodplain.
3. Prior to final inspection for any building on the proposed development, the following shall be resolved:
- A. Connect all residential roof drains to private drywell or other approved structure. Private properties may only connect to public storm system if percolation tests show that infiltration cannot be obtained on site or if the water table is too shallow. In the event the storm management system contains underground injection control devices, submit proof of acceptance of the storm system design from the Department of Environmental Quality.



To: Planning Commission
Through: Dennis Egner, Planning Director
From: Brett Kelter, Associate Planner
Date: July 20, 2017, for July 25, 2017, Public Hearing
Subject: Supplemental Information for File: PD-2017-001 (master file)
Address: 13333 SE Rusk Rd

SUPPLEMENTAL INFORMATION

Based on ongoing conversations with staff from the North Clackamas Parks & Recreation District (NCPRD) about long-term management of the proposed open space tract, City staff has adjusted one portion of the revised Recommended Findings and several sections of the revised Conditions that were attached to the staff report sent out on July 18 (see Attachments 1 and 2, respectively). The operations analysis worksheets (i.e., the data) from the updated traffic count conducted by the applicant team on July 1 is also included in this mailing, as an appendix to the applicant's Exhibit G-3, Supplemental Traffic Memo (see Attachment 3).

ATTACHMENTS

Attachments are provided as indicated by the checked boxes. All material is available for viewing upon request.

	Supplement to PC	Public Copies	E- Packet
1. Adjustments to Recommended Findings in Support of Approval (Track Changes version only—latest changes highlighted in yellow)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• Finding 7-a-2(c) (Page 4)			
2. Adjustments to Recommended Conditions of Approval	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
a. Track Changes version—latest changes highlighted in yellow			
b. Clean version			
3. Appendix to Exhibit G-3 (Supplemental Traffic Memo)—Operations Analysis Worksheets for July 1, 2017	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Key:

Supplement to PC = paper materials provided to Planning Commission 7 days prior to the hearing.

Public Copies = paper copies of the packet available for review at City facilities and at the Planning Commission meeting.

E-Packet = packet materials available online at <https://www.milwaukieoregon.gov/planning/planning-commission-174>.

applicable in a PD zone, unless the Planning Commission grants a variance from said standards in its approval of the PD or the accompanying subdivision plat. The City Attorney has concurred with the conclusion of City staff that a formal variance request is not required for adjustments related to the flexibility inherent in the stated purpose of the PD zone to encourage greater flexibility of design and provide a more efficient and desirable use of common open space, with an allowance for some increase in density as a reward for outstanding design (e.g., housing type, lot size, lot dimension, setbacks, and similar standards).

(a) Minimum Size of a PD Zone

MMC Subsection 19.311.3.A requires a minimum of 2 contiguous acres of land for a Planned Development.

The subject property is approximately 13.8 acres in size and provides an adequate area for development.

(b) Special Improvements

MMC Subsection 19.311.3.B establishes the City's authority to require the developer to provide special or oversize sewer lines, water lines, roads and streets, or other service facilities.

The City's Engineering Department has determined that no special or oversize facilities are required to ensure that the proposed development provides adequate public facilities.

(c) Density Increase and Control

MMC Subsection 19.311.3.C allows an increase in density of up to 20% above the maximum allowed in the underlying zone(s), if the City Council determines that the proposed Planned Development is outstanding in planned land use and design and provides exceptional advantages in living conditions and amenities not found in similar developments constructed under regular zoning.

Subtracting the area occupied by floodplain, proposed rights-of-way, and required open space, as required by the density-calculation standards provided in MMC Subsection 19.202.4, the maximum allowable density for the net area of the subject property is 80 units. The applicant has proposed a total of 92 units, which is a 15% increase. The applicant has listed the following elements as evidence of the project's outstanding design and exceptional advantages:

- *Over 7 acres of open space, which will protect natural resource and floodplain areas on the site and provide recreational opportunities with a soft-surface trail system. The open space tract includes a stand of mature Oregon white oak trees that have been identified by public testimony as a priority for preservation. Staff notes that, to ensure ongoing maintenance of the open space, the area should either be dedicated to the City or North Clackamas Parks & Recreation District or that a Home Owners' Association be established with Covenants, Conditions, and Restrictions that require ongoing maintenance.*

Revised Recommended Conditions of Approval
Master File #PD-2017-001
Kellogg Creek Planned Development

Conditions

1. The applicant shall submit a final plat application within 6 months of the preliminary plat approval in accordance with MMC Section 17.24.040. The applicant shall obtain approval of the final plat prior to the expiration of this preliminary plat approval. If the applicant chooses to phase the final plat approval, a revised stormwater report shall be provided with the submittal for each phase. A payment and performance bond for 100% of the cost of the required public improvements shall be provided with the submittal materials for the first phase.
2. The applicant's final plat application shall include the items listed on the City of Milwaukie Final Plat Checklist. The following specific items and changes are required as part of the application:

a. Provide a written narrative describing all changes made to the final plat that are not related to these conditions of approval.

b. Provide a final plat that substantially conforms to the revised plans approved by this action, which are the plans stamped received by the City on ~~April 7~~ July 11, 2017; and modified by the ~~revised landscaping plans updated floodplain mitigation exhibit received on April 12~~ July 17, 2017; ~~the revised Natural Resource Review report and plans received on April 12, 2017; and the revised mitigation plans received on April 20, 2017;~~ except as otherwise modified by these conditions of approval.

Note that plans for the open space tract (particularly the location of the soft-surface trail system) are understood to be conceptual and that specific details shall be determined prior to final plat approval. The final details shall be approved by the Planning Director after review by North Clackamas Parks & Recreation Department (NCPRD) staff. If the open space tract remains in the ownership of the developer or a Home Owners' Association (HOA), maintenance of the trail system shall be set forth in the long-term maintenance plan as noted in Condition 2-i, below. Plans for the community garden are also understood to be conceptual, with details to be finalized prior to final plat approval, with ongoing maintenance provided by the HOA.

b-c. The modifications required by these conditions of approval include the following revisions to all relevant plan sheets:

- (1) As per Finding 14-c, extend the northbound right-turn lane at the Rusk Road/Highway 224 intersection sufficient to meet applicable ODOT standards.
- (2) As per Finding 12-a, provide sufficient detail to demonstrate that the pedestrian and bicycle pathways on Tracts E, F, and H are at least 5 ft wide, constructed of hard surface materials that are permeable for stormwater, and meet all other applicable design standards of MMC Subsection 19.504.9.E, including the requirement for lighting to a minimum level of 0.5 footcandles.
- (3) As per Finding 11-f(2), revise the mitigation planting plan to ensure that all mitigation plantings are species found on the Milwaukie Native Plants List. In addition, establish a long-term maintenance plan for all mitigation plantings within the open space tract.

- (4) As per Finding 11-f(2), re-evaluate the assessment of WQR classification at the various sample points noted in the applicant's technical report. Revise the configuration of Mitigation Area A accordingly.

- ~~e.d.~~ The final plat submittal shall include a complete set of revised plans. The revised plans shall be consistent with one another, accurate with respect to the proposed development details, drawn to scale, and providing a legend that clearly identifies all detailed features. The final plat shall include spaces for signatures by the Milwaukie Planning Director and Milwaukie Engineering Director, and a note indicating that the subdivision is subject to the requirements of City of Milwaukie Land Use Application master file PD-2017-001.
- ~~e.e.~~ Provide a concurrence letter from the Department of State Lands (DSL) regarding the delineated wetland on the site.
- ~~e.f.~~ Provide ~~a draft of all proposed~~ public easements and/or deed restrictions as required by this approval, including for public access to the soft-surface trail system on Tract G; public access to the bicycle and pedestrian connection from Street B to Rusk Road on Tract G; public access to the pedestrian connection across Tracts E and F; and private access through Alley C for the church.
- ~~g.~~ Provide ~~a draft of the proposed~~ Covenants, Conditions, and Restrictions (CC&Rs) for the ~~Home Owners Association (HOA)~~ that will be established for the proposed development. Details shall address maintenance of the ~~soft-surface trail system~~, publicly accessible pedestrian and bicycle connections on the various tracts, ~~and as well as of~~ common areas such as the community garden.
- ~~h.~~ ~~Either dedicate the open space tract to the City or North Clackamas Parks & Recreation District (NCPRD) or demonstrate that the HOA and CC&Rs will ensure adequate long-term maintenance of the mitigation plantings and restoration areas within the open space tract. Note that, under the HOA option, if proper maintenance of the open space tract does not occur, the CC&Rs shall City hereby establishes the right for the City to undertake maintenance of the open space tract and shall clearly state that the City may put a lien on all of the properties within the development to pay for all maintenance costs.~~
- ~~f.i.~~ As per Finding 11-f(2), establish a long-term maintenance plan for the open space tract. The maintenance plan shall be coordinated with NCPRD; approved by the Planning Director; and shall address such topics as survival of mitigation plantings, tree health, public access, trail maintenance, litter management, weed control, and similar issues.

3. Prior to approval of the Final Plat, the following items shall be resolved:

- a. Submit a final stormwater management plan to the City of Milwaukie Engineering Department for review and approval. The plan shall be prepared in accordance with Section 2 – Stormwater Design Standards of the City of Milwaukie Public Works Standards. Submit full-engineered plans for construction of all required public improvements, reviewed and approved by the City of Milwaukie Engineering Department. All utilities shall conform to the Milwaukie Public Works Standards.
- b. Obtain a City right-of-way permit for construction of all required public improvements listed in these recommended conditions of approval for the public right(s)-of-way under City of Milwaukie jurisdiction.
- c. Pay an inspection fee equal to 5.5% of the cost of the public improvements.

- d. Provide a payment and performance bond for 100% of the cost of the required public improvements.
- e. Provide an erosion control plan and obtain an erosion control permit.
- f. Dedicate 14 ft of right-of-way on SE Kellogg Creek Drive fronting the subject property to accommodate the required parking and bike facilities.
- g. Install all underground utilities, including stubs for utility service prior to surfacing any streets. Utilities shall be designed to minimize or eliminate infiltration of floodwaters into the system. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the system and discharge from the systems into floodwaters. Relocate or provide a private utility easement for all utilities encroaching onto adjacent properties.
- h. Construct a 5-ft set-back sidewalk, 4-ft planter strip, curb and gutter, 7-ft parking strip, and 10-ft travel lane for each half of right-of-way on Street A and Street B.
- i. Construct all ADA ramps and driveways on Street A and Street B.
- j. Extend the right-turn lane for northbound traffic at the Rusk Road/Highway 224 intersection in accordance with the applicable ODOT standards.
- k. Construct a driveway approach to meet all guidelines of the Americans with Disabilities Act (ADA) to each new lot that takes direct access from a public street. The driveway approach aprons shall be between 9 ft and 20 ft in width and least 7.5 ft from the side property line.
- l. Clear vision areas shall be maintained at all driveways and accessways and on the corners of all property adjacent to an intersection. Remove all signs, structures, or vegetation more than 3 ft in height located in “vision clearance areas” at intersections of streets, driveways, and alleys fronting the proposed development.
- m. Provide a 12-month Maintenance Bond upon completion of the construction.
- n. Provide a final approved set of Mylar and electronic PDF “As Constructed” drawings to the City of Milwaukie prior to final inspection.
- o. Construct and receive County Engineering inspection for all required public improvements in the public right(s)-of-way under Clackamas County jurisdiction. All frontage improvements in or adjacent to Clackamas County right-of-way shall be designed and constructed in accordance with *Clackamas County Roadway Standards*.

Prior to commencement of site work the applicant shall obtain a Development Permit from the Clackamas County Engineering Division for design and construction of required improvements to Kellogg Creek Drive. To obtain the Permit, the applicant shall submit plans prepared and stamped by an Engineer registered in the State of Oregon, provide a Performance Guarantee, and pay an Inspection Fee. The Performance Guarantee is 125% of the approved Engineer’s cost estimate for the required improvements.

Prior to commencement of utility work within the Kellogg Creek Drive or Rusk Road rights-of-way, a Utility Placement Permit shall be obtained from the Clackamas County Engineering Division.

Required improvements to Kellogg Creek Drive include the following:

- (1) A minimum 16-ft-wide one-half street improvement for a local roadway. The applicant shall widen Kellogg Creek Drive so that the minimum total road width

along the site frontage is 32 ft. The structural section for Kellogg Creek Drive improvements shall consist of 4 in of asphalt concrete, per *Clackamas County Roadway Standards Standard Drawing C100*.

- (2) Standard curb, or curb and gutter if curblin slope is less than 1%.
- (3) Adjacent to the curb, a 5-ft landscape strip, including street trees, shall be constructed along the entire site frontage.
- (4) **Except where modified by the City Engineering Director, Aa** minimum 5-ft-wide unobstructed sidewalk shall be constructed along the entire site frontage, per Standard Drawing S960. Where the sidewalk does not connect to sidewalk on adjacent property, the end of the sidewalk shall include a concrete ADA accessible ramp, providing a transition from the new sidewalk to the edge of the pavement. **The applicant shall conduct an exploratory excavation using an airspade, hydrovac, or similar tool where improvements will be adjacent to existing white oak trees. The applicant's arborist shall determine whether the improvements will affect any roots critical to the health or stability of the oak trees and shall prescribe additional treatment methods as needed to minimize the possibility of tree failure, as preservation of the trees was noted as a priority in Finding 7-a-2(c).**
- (5) Inbound and outbound tapers shall be provided per Section 250.6.4 of the *Clackamas County Roadway Standards*. The full road improvement shall extend to the westerly project property line, with the outbound taper beginning at that point.
- (6) Dual curb ramps shall be constructed at proposed intersections with Kellogg Creek Drive, per Standard Drawing S910. A perpendicular curb ramp shall be constructed at the westerly project boundary, per Standard Drawing S940. Crosswalk striping shall be modified as necessary based on required road widening. The designer shall complete the County ADA Assessment Checklist and provide a copy with the improvement plans. The County has adopted the following curb ramp design and construction standards:

Feature	Design Standard	Construction Standard
Ramp Slope	7.5%	8.33%
Ramp Cross Slope	1.5%	2.0%
Landing (turning space) Cross Slope	1.5%	2.0%

- (7) Drainage facilities shall be in conformance with Water Environment Services regulations and *Clackamas County Roadway Standards*, Chapter 4. Stormwater detention facilities shall not be located within the public right-of-way.
- (8) The applicant shall grant an 8-ft-wide public utility easement adjacent to the public right-of-way along the entire site frontage of Kellogg Creek Drive.
- p. Record all required easements and/or deed restrictions with the Clackamas County Recorder's office and provide a copy of each to the City Planning Department.
- q. Submit a letter from the project landscape designer attesting that all required site plantings have been completed in conformance with the approved site plans and with City standards, including all mitigation plantings. This includes removal of all invasive or nuisance species vegetation (as identified on the Milwaukie Native Plant List), noxious materials, and man-made debris such as concrete rubble from within all

- WQR and HCA locations on the site, on the north and south sides of the creek, as per Finding 11.
- r. As per Finding 11, demarcate the boundary of the delineated wetland within the open space tract, using permanent signage and/or split-rail fencing.
 - s. As per Finding 11, provide at least two pet-waste bag dispensing devices dispersed along the soft-surface trail system.
4. Prior to issuance of any building permit, the following shall be resolved:
 - a. Obtain approval of the necessary FEMA map revision for those lots that are currently in the floodplain.
 5. Prior to final inspection of any building permit, the following shall be resolved:
 - a. Provide a narrative describing all actions taken to comply with these conditions of approval. In addition, describe any changes made after the issuance of this land use decision that are not related to these conditions of approval.
 - b. Connect all residential roof drains to a private drywell or other approved structure. Private properties may only connect to public storm system if percolation tests show that infiltration cannot be obtained on site or if the water table is too shallow. In the event the storm management system contains underground injection control devices, submit proof of acceptance of the storm system design from the Department of Environmental Quality.
 6. Ongoing conditions of approval include the following:
 - a. As per Finding 7, fencing in yards adjacent to the open space tract shall remain free of sight-obscuring materials, to allow visibility into the adjacent open space.
 - b. As per Finding 11, where practicable, lights on lots adjacent to WQR and HCA areas shall be placed so that they do not shine directly into any WQR and/or HCA location.

Additional Requirements

The following items are not conditions of approval necessary to meet applicable land use review criteria. They relate to other development standards and permitting requirements contained in the Milwaukie Municipal Code (MMC) and Public Works Standards that are required at various points in the development and permitting process.

1. Prior to commencement of any earth-disturbing activities, the applicant shall obtain an erosion control permit.
2. Limitations on Development Activity

Development activity on the site shall be limited to 7:00 a.m. to 10:00 p.m. Monday through Friday and 8:00 a.m. to 5:00 p.m. Saturday and Sunday, as per MMC Subsection 8.08.070(I).
3. Final Development Plan and Program

As per the requirements of MMC Subsections 19.311.12 through 19.311.15, no excavation, grading, construction, improvement, or building shall begin, and no permits therefor shall be issued, until the following items must be addressed regarding the final development plan and program:

 - a. Prior to the effective date of the ordinance adopting the final development plan and program and accompanying change to the zoning map, file with the City Recorder's office a final development plan and program that includes any modifications that were part of the final plan approved by City Council.

- b. The City shall prepare a notice to acknowledge that the final development plan and program approved by City Council constitutes zoning for the subject property. The notice shall contain a legal description of the property and reference to the certified copy of the final development plan and program filed in the office of the City Recorder. The applicant shall record a copy of this acknowledgment notice in the County Recorder's office.
- c. An application for approval of variations to the recorded final plan and program may be submitted in writing. Such variations may be approved by the City staff provided they do not alter dwelling unit densities, alter dwelling unit type ratios, increase or change the type or location of commercial or residential structures, change the boundaries of the planned development, or change the location and area of public open spaces and recreational areas.

4. Landscaping Maintenance

As per MMC Subsection 19.402.11.B.9, a minimum of 80% of all required mitigation plantings for WQR or HCA disturbance shall remain alive on the second anniversary of the date the planting is completed.

5. Requirements from Clackamas Fire District #1 (CFD#1)

- a. A Fire Access and Water Supply plan is required for subdivisions. The plan shall show fire apparatus access, fire lanes, fire hydrants, fire lines, available fire flow, FDC location (if applicable), building square footage, and type of construction. The applicant shall provide fire flow tests per NFPA 291, and shall be no older than 12 months. Work to be completed by experienced and responsible persons and coordinated with the local water authority.
- b. Access
 - (1) Provide address numbering that is clearly visible from the street.
 - (2) The inside turning radius and outside turning radius for a 20-ft-wide road shall not be less than 28 ft and 48 ft respectively, measured from the same center point.
 - (3) Provide an approved turnaround for dead end access roads exceeding 150 ft in length.
 - (4) Fire Department turnarounds shall meet the dimensions found in the fire code applications guide.
- c. Water Supply
 - (1) Fire Hydrants, One and Two-Family Dwellings & Accessory Structures: Where a portion of a structure is more than 600 ft from a hydrant on a fire apparatus access road, as measured in an approved route around the exterior of the structure(s), additional fire hydrants and mains shall be provided.
 - (2) Prior to the start of combustible construction required fire hydrants shall be operational and accessible.
 - (3) For one and two family dwellings located in areas with reliable municipal fire fighting water supply the following shall apply:
 - <3,600 sq ft (including attached garage)
 - (a) 1,000 gpm @ 20 psi with hydrant within 600 ft of furthest portion of new residential construction, (OFC Section B105.2)

>3,600 sq ft (including attached garage)

- (a) Shall meet fire flow requirements specified in Appendix B of the current Oregon Fire Code, (OFC, Table B105.1)
- (b) Shall meet hydrant coverage as specified in Appendix C of the current Oregon Fire Code, (OFC, Table C105.1)

6. Expiration of Approval

- a. As per MMC Subsection 19.311.16, if substantial construction or development in compliance with the approved final development plan and program has not occurred within 6 months of its effective date, the Planning Commission may initiate a review of the PD Zone and hold a public hearing to determine whether its continuation (in whole or in part) is in the public interest. Notification and hearing shall be in accordance with MMC Section 19.1007 Type IV Review. If found not to be, the Planning Commission shall recommend to the City Council that the PD Zone be removed by appropriate amendment to the Zoning Ordinance and the property changed back to original zoning.
- b. Beyond the limitations of MMC 19.311.6, proposals requiring any kind of development permit must complete both of the following steps, as per MMC Subsection 19.1001.7.E.1.a:
 - (1) Obtain and pay for all necessary development permits and start construction within two (2) years of land use approval.
 - (2) Pass final inspection and/or obtain a certificate of occupancy within four (4) years of land use approval.

**Revised Recommended Conditions of Approval
Master File #PD-2017-001
Kellogg Creek Planned Development**

Conditions

1. The applicant shall submit a final plat application within 6 months of the preliminary plat approval in accordance with MMC Section 17.24.040. The applicant shall obtain approval of the final plat prior to the expiration of this preliminary plat approval. If the applicant chooses to phase the final plat approval, a revised stormwater report shall be provided with the submittal for each phase. A payment and performance bond for 100% of the cost of the required public improvements shall be provided with the submittal materials for the first phase.
2. The applicant's final plat application shall include the items listed on the City of Milwaukie Final Plat Checklist. The following specific items and changes are required as part of the application:

- a. Provide a written narrative describing all changes made to the final plat that are not related to these conditions of approval.
- b. Provide a final plat that substantially conforms to the revised plans approved by this action, which are the plans stamped received by the City on July 11, 2017; and modified by the updated floodplain mitigation exhibit received on July 17, 2017; except as otherwise modified by these conditions of approval.

Note that plans for the open space tract (particularly the location of the soft-surface trail system) are understood to be conceptual and that specific details shall be determined prior to final plat approval. The final details shall be approved by the Planning Director after review by North Clackamas Parks & Recreation Department (NCPRD) staff. If the open space tract remains in the ownership of the developer or a Home Owners' Association (HOA), maintenance of the trail system shall be set forth in the long-term maintenance plan as noted in Condition 2-i, below. Plans for the community garden are also understood to be conceptual, with details to be finalized prior to final plat approval, with ongoing maintenance provided by the HOA.

- c. The modifications required by these conditions of approval include the following revisions to all relevant plan sheets:
 - (1) As per Finding 14-c, extend the northbound right-turn lane at the Rusk Road/Highway 224 intersection sufficient to meet applicable ODOT standards.
 - (2) As per Finding 12-a, provide sufficient detail to demonstrate that the pedestrian and bicycle pathways on Tracts E, F, and H are at least 5 ft wide, constructed of hard surface materials that are permeable for stormwater, and meet all other applicable design standards of MMC Subsection 19.504.9.E, including the requirement for lighting to a minimum level of 0.5 footcandles.
 - (3) As per Finding 11-f(2), revise the mitigation planting plan to ensure that all mitigation plantings are species found on the Milwaukie Native Plants List.
 - (4) As per Finding 11-f(2), re-evaluate the assessment of WQR classification at the various sample points noted in the applicant's technical report. Revise the configuration of Mitigation Area A accordingly.
- d. The final plat submittal shall include a complete set of revised plans. The revised plans shall be consistent with one another, accurate with respect to the proposed development details, drawn to scale, and providing a legend that clearly identifies all

detailed features. The final plat shall include spaces for signatures by the Milwaukie Planning Director and Milwaukie Engineering Director, and a note indicating that the subdivision is subject to the requirements of City of Milwaukie Land Use Application master file PD-2017-001.

- e. Provide a concurrence letter from the Department of State Lands (DSL) regarding the delineated wetland on the site.
 - f. Provide public easements and/or deed restrictions as required by this approval, including for public access to the soft-surface trail system on Tract G; public access to the bicycle and pedestrian connection from Street B to Rusk Road on Tract G; public access to the pedestrian connection across Tracts E and F; and private access through Alley C for the church.
 - g. Provide Covenants, Conditions, and Restrictions (CC&Rs) for the HOA that will be established for the proposed development. Details shall address maintenance of the publicly accessible pedestrian and bicycle connections on the various tracts as well as of common areas such as the community garden.
 - h. Either dedicate the open space tract to NCPRD or demonstrate that the HOA and CC&Rs will ensure adequate long-term maintenance of the mitigation plantings and restoration areas within the open space tract. Note that, under the HOA option, if proper maintenance of the open space tract does not occur, the CC&Rs shall establish the right for the City to undertake maintenance of the open space tract and shall clearly state that the City may put a lien on all of the properties within the development to pay for all maintenance costs.
 - i. As per Finding 11-f(2), establish a long-term maintenance plan for the open space tract. The maintenance plan shall be coordinated with NCPRD; approved by the Planning Director; and shall address such topics as survival of mitigation plantings, tree health, public access, trail maintenance, litter management, weed control, and similar issues.
3. Prior to approval of the Final Plat, the following items shall be resolved:
- a. Submit a final stormwater management plan to the City of Milwaukie Engineering Department for review and approval. The plan shall be prepared in accordance with Section 2 – Stormwater Design Standards of the City of Milwaukie Public Works Standards. Submit full-engineered plans for construction of all required public improvements, reviewed and approved by the City of Milwaukie Engineering Department. All utilities shall conform to the Milwaukie Public Works Standards.
 - b. Obtain a City right-of-way permit for construction of all required public improvements listed in these recommended conditions of approval for the public right(s)-of-way under City of Milwaukie jurisdiction.
 - c. Pay an inspection fee equal to 5.5% of the cost of the public improvements.
 - d. Provide a payment and performance bond for 100% of the cost of the required public improvements.
 - e. Provide an erosion control plan and obtain an erosion control permit.
 - f. Dedicate 14 ft of right-of-way on Kellogg Creek Drive fronting the subject property to accommodate the required parking and bike facilities.
 - g. Install all underground utilities, including stubs for utility service prior to surfacing any streets. Utilities shall be designed to minimize or eliminate infiltration of floodwaters into the system. New and replacement sanitary sewage systems shall be designed to

minimize or eliminate infiltration of floodwaters into the system and discharge from the systems into floodwaters. Relocate or provide a private utility easement for all utilities encroaching onto adjacent properties.

- h. Construct a 5-ft set-back sidewalk, 4-ft planter strip, curb and gutter, 7-ft parking strip, and 10-ft travel lane for each half of right-of-way on Street A and Street B.
- i. Construct all ADA ramps and driveways on Street A and Street B.
- j. Extend the right-turn lane for northbound traffic at the Rusk Road/Highway 224 intersection in accordance with the applicable ODOT standards.
- k. Construct a driveway approach to meet all guidelines of the Americans with Disabilities Act (ADA) to each new lot that takes direct access from a public street. The driveway approach aprons shall be between 9 ft and 20 ft in width and least 7.5 ft from the side property line.
- l. Clear vision areas shall be maintained at all driveways and accessways and on the corners of all property adjacent to an intersection. Remove all signs, structures, or vegetation more than 3 ft in height located in “vision clearance areas” at intersections of streets, driveways, and alleys fronting the proposed development.
- m. Provide a 12-month Maintenance Bond upon completion of the construction.
- n. Provide a final approved set of Mylar and electronic PDF “As Constructed” drawings to the City of Milwaukie prior to final inspection.
- o. Construct and receive County Engineering inspection for all required public improvements in the public right(s)-of-way under Clackamas County jurisdiction. All frontage improvements in or adjacent to Clackamas County right-of-way shall be designed and constructed in accordance with *Clackamas County Roadway Standards*.

Prior to commencement of site work the applicant shall obtain a Development Permit from the Clackamas County Engineering Division for design and construction of required improvements to Kellogg Creek Drive. To obtain the Permit, the applicant shall submit plans prepared and stamped by an Engineer registered in the State of Oregon, provide a Performance Guarantee, and pay an Inspection Fee. The Performance Guarantee is 125% of the approved Engineer’s cost estimate for the required improvements.

Prior to commencement of utility work within the Kellogg Creek Drive or Rusk Road rights-of-way, a Utility Placement Permit shall be obtained from the Clackamas County Engineering Division.

Required improvements to Kellogg Creek Drive include the following:

- (1) A minimum 16-ft-wide one-half street improvement for a local roadway. The applicant shall widen Kellogg Creek Drive so that the minimum total road width along the site frontage is 32 ft. The structural section for Kellogg Creek Drive improvements shall consist of 4 in of asphalt concrete, per *Clackamas County Roadway Standards Standard Drawing C100*.
- (2) Standard curb, or curb and gutter if curblines slope is less than 1%.
- (3) Adjacent to the curb, a 5-ft landscape strip, including street trees, shall be constructed along the entire site frontage.
- (4) Except where modified by the City Engineering Director, a minimum 5-ft-wide unobstructed sidewalk shall be constructed along the entire site frontage, per

Standard Drawing S960. Where the sidewalk does not connect to sidewalk on adjacent property, the end of the sidewalk shall include a concrete ADA accessible ramp, providing a transition from the new sidewalk to the edge of the pavement. The applicant shall conduct an exploratory excavation using an airspade, hydrovac, or similar tool where improvements will be adjacent to existing white oak trees. The applicant’s arborist shall determine whether the improvements will affect any roots critical to the health or stability of the oak trees and shall prescribe additional treatment methods as needed to minimize the possibility of tree failure, as preservation of the trees was noted as a priority in Finding 7-a-2(c).

- (5) Inbound and outbound tapers shall be provided per Section 250.6.4 of the *Clackamas County Roadway Standards*. The full road improvement shall extend to the westerly project property line, with the outbound taper beginning at that point.
- (6) Dual curb ramps shall be constructed at proposed intersections with Kellogg Creek Drive, per Standard Drawing S910. A perpendicular curb ramp shall be constructed at the westerly project boundary, per Standard Drawing S940. Crosswalk striping shall be modified as necessary based on required road widening. The designer shall complete the County ADA Assessment Checklist and provide a copy with the improvement plans. The County has adopted the following curb ramp design and construction standards:

Feature	Design Standard	Construction Standard
Ramp Slope	7.5%	8.33%
Ramp Cross Slope	1.5%	2.0%
Landing (turning space) Cross Slope	1.5%	2.0%

- (7) Drainage facilities shall be in conformance with Water Environment Services regulations and *Clackamas County Roadway Standards*, Chapter 4. Stormwater detention facilities shall not be located within the public right-of-way.
- (8) The applicant shall grant an 8-ft-wide public utility easement adjacent to the public right-of-way along the entire site frontage of Kellogg Creek Drive.
- p. Record all required easements and/or deed restrictions with the Clackamas County Recorder’s office and provide a copy of each to the City Planning Department.
- q. Submit a letter from the project landscape designer attesting that all required site plantings have been completed in conformance with the approved site plans and with City standards, including all mitigation plantings. This includes removal of all invasive or nuisance species vegetation (as identified on the Milwaukie Native Plant List), noxious materials, and man-made debris such as concrete rubble from within all WQR and HCA locations on the site, on the north and south sides of the creek, as per Finding 11.
- r. As per Finding 11, demarcate the boundary of the delineated wetland within the open space tract, using permanent signage and/or split-rail fencing.
- s. As per Finding 11, provide at least two pet-waste bag dispensing devices dispersed along the soft-surface trail system.

4. Prior to issuance of any building permit, the following shall be resolved:
 - a. Obtain approval of the necessary FEMA map revision for those lots that are currently in the floodplain.
5. Prior to final inspection of any building permit, the following shall be resolved:
 - a. Provide a narrative describing all actions taken to comply with these conditions of approval. In addition, describe any changes made after the issuance of this land use decision that are not related to these conditions of approval.
 - b. Connect all residential roof drains to a private drywell or other approved structure. Private properties may only connect to public storm system if percolation tests show that infiltration cannot be obtained on site or if the water table is too shallow. In the event the storm management system contains underground injection control devices, submit proof of acceptance of the storm system design from the Department of Environmental Quality.
6. Ongoing conditions of approval include the following:
 - a. As per Finding 7, fencing in yards adjacent to the open space tract shall remain free of sight-obscuring materials, to allow visibility into the adjacent open space.
 - b. As per Finding 11, where practicable, lights on lots adjacent to WQR and HCA areas shall be placed so that they do not shine directly into any WQR and/or HCA location.

Additional Requirements

The following items are not conditions of approval necessary to meet applicable land use review criteria. They relate to other development standards and permitting requirements contained in the Milwaukie Municipal Code (MMC) and Public Works Standards that are required at various points in the development and permitting process.

1. Prior to commencement of any earth-disturbing activities, the applicant shall obtain an erosion control permit.
2. Limitations on Development Activity
Development activity on the site shall be limited to 7:00 a.m. to 10:00 p.m. Monday through Friday and 8:00 a.m. to 5:00 p.m. Saturday and Sunday, as per MMC Subsection 8.08.070(l).
3. Final Development Plan and Program
As per the requirements of MMC Subsections 19.311.12 through 19.311.15, no excavation, grading, construction, improvement, or building shall begin, and no permits therefor shall be issued, until the following items must be addressed regarding the final development plan and program:
 - a. Prior to the effective date of the ordinance adopting the final development plan and program and accompanying change to the zoning map, file with the City Recorder's office a final development plan and program that includes any modifications that were part of the final plan approved by City Council.
 - b. The City shall prepare a notice to acknowledge that the final development plan and program approved by City Council constitutes zoning for the subject property. The notice shall contain a legal description of the property and reference to the certified copy of the final development plan and program filed in the office of the City Recorder. The applicant shall record a copy of this acknowledgment notice in the County Recorder's office.

- c. An application for approval of variations to the recorded final plan and program may be submitted in writing. Such variations may be approved by the City staff provided they do not alter dwelling unit densities, alter dwelling unit type ratios, increase or change the type or location of commercial or residential structures, change the boundaries of the planned development, or change the location and area of public open spaces and recreational areas.

4. Landscaping Maintenance

As per MMC Subsection 19.402.11.B.9, a minimum of 80% of all required mitigation plantings for WQR or HCA disturbance shall remain alive on the second anniversary of the date the planting is completed.

5. Requirements from Clackamas Fire District #1 (CFD#1)

- a. A Fire Access and Water Supply plan is required for subdivisions. The plan shall show fire apparatus access, fire lanes, fire hydrants, fire lines, available fire flow, FDC location (if applicable), building square footage, and type of construction. The applicant shall provide fire flow tests per NFPA 291, and shall be no older than 12 months. Work to be completed by experienced and responsible persons and coordinated with the local water authority.
- b. Access
 - (1) Provide address numbering that is clearly visible from the street.
 - (2) The inside turning radius and outside turning radius for a 20-ft-wide road shall not be less than 28 ft and 48 ft respectively, measured from the same center point.
 - (3) Provide an approved turnaround for dead end access roads exceeding 150 ft in length.
 - (4) Fire Department turnarounds shall meet the dimensions found in the fire code applications guide.
- c. Water Supply
 - (1) Fire Hydrants, One and Two-Family Dwellings & Accessory Structures: Where a portion of a structure is more than 600 ft from a hydrant on a fire apparatus access road, as measured in an approved route around the exterior of the structure(s), additional fire hydrants and mains shall be provided.
 - (2) Prior to the start of combustible construction required fire hydrants shall be operational and accessible.
 - (3) For one and two family dwellings located in areas with reliable municipal fire fighting water supply the following shall apply:
 - <3,600 sq ft (including attached garage)
 - (a) 1,000 gpm @ 20 psi with hydrant within 600 ft of furthest portion of new residential construction, (OFC Section B105.2)
 - >3,600 sq ft (including attached garage)
 - (a) Shall meet fire flow requirements specified in Appendix B of the current Oregon Fire Code, (OFC, Table B105.1)
 - (b) Shall meet hydrant coverage as specified in Appendix C of the current Oregon Fire Code, (OFC, Table C105.1)

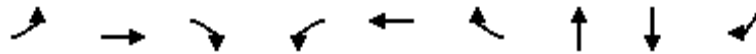
6. Expiration of Approval

- a. As per MMC Subsection 19.311.16, if substantial construction or development in compliance with the approved final development plan and program has not occurred within 6 months of its effective date, the Planning Commission may initiate a review of the PD Zone and hold a public hearing to determine whether its continuation (in whole or in part) is in the public interest. Notification and hearing shall be in accordance with MMC Section 19.1007 Type IV Review. If found not to be, the Planning Commission shall recommend to the City Council that the PD Zone be removed by appropriate amendment to the Zoning Ordinance and the property changed back to original zoning.
- b. Beyond the limitations of MMC 19.311.6, proposals requiring any kind of development permit must complete both of the following steps, as per MMC Subsection 19.1001.7.E.1.a:
 - (1) Obtain and pay for all necessary development permits and start construction within two (2) years of land use approval.
 - (2) Pass final inspection and/or obtain a certificate of occupancy within four (4) years of land use approval.

Queues

1: SE Rusk Rd & Milwaukie Expy

06/11/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	6	825	27	18	2207	12	211	66	7
v/c Ratio	0.07	0.35	0.03	0.18	0.89	0.01	0.90	0.26	0.03
Control Delay	55.5	8.4	0.0	50.5	13.7	0.5	84.4	45.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.5	8.4	0.0	50.5	13.7	0.5	84.4	45.3	0.1
Queue Length 50th (ft)	5	103	0	14	312	0	155	44	0
Queue Length 95th (ft)	19	193	0	m18	m#1044	m0	#294	88	0
Internal Link Dist (ft)		263			2471		389	744	
Turn Bay Length (ft)	470		110	455		100			75
Base Capacity (vph)	165	2367	1051	315	2488	872	246	263	288
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.35	0.03	0.06	0.89	0.01	0.86	0.25	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

1: SE Rusk Rd & Milwaukie Expy

06/11/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖	↖	↗↗	↖		↕			↖	↖
Traffic Volume (vph)	6	784	26	17	2097	11	140	28	33	21	42	7
Future Volume (vph)	6	784	26	17	2097	11	140	28	33	21	42	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0		4.0			4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00		1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.98			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97			0.98	1.00
Satd. Flow (prot)	1805	3374	1463	1805	3438	1188		1693			1588	1129
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.75			0.89	1.00
Satd. Flow (perm)	1805	3374	1463	1805	3438	1188		1316			1438	1129
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	825	27	18	2207	12	147	29	35	22	44	7
RTOR Reduction (vph)	0	0	9	0	0	4	0	6	0	0	0	6
Lane Group Flow (vph)	6	825	18	18	2207	8	0	205	0	0	66	1
Confl. Peds. (#/hr)			1				1					
Heavy Vehicles (%)	0%	7%	8%	0%	5%	36%	5%	11%	6%	29%	12%	43%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8				4
Permitted Phases			2			6	8			4		4
Actuated Green, G (s)	1.4	81.8	81.8	3.2	83.6	83.6		21.0			21.0	21.0
Effective Green, g (s)	1.4	81.8	81.8	3.2	83.6	83.6		21.0			21.0	21.0
Actuated g/C Ratio	0.01	0.68	0.68	0.03	0.70	0.70		0.18			0.18	0.18
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0		4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	21	2299	997	48	2395	827		230			251	197
v/s Ratio Prot	0.00	0.24		c0.01	c0.64							
v/s Ratio Perm			0.01			0.01		c0.16			0.05	0.00
v/c Ratio	0.29	0.36	0.02	0.38	0.92	0.01		0.89			0.26	0.01
Uniform Delay, d1	58.8	8.0	6.2	57.4	15.4	5.6		48.4			42.8	40.9
Progression Factor	1.00	1.00	1.00	0.91	0.72	1.00		1.00			1.00	1.00
Incremental Delay, d2	7.4	0.4	0.0	2.5	4.1	0.0		32.1			0.6	0.0
Delay (s)	66.2	8.5	6.2	54.6	15.2	5.6		80.5			43.4	40.9
Level of Service	E	A	A	D	B	A		F			D	D
Approach Delay (s)		8.8			15.4			80.5			43.1	
Approach LOS		A			B			F			D	

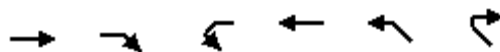
Intersection Summary

HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis 3: SE Ruscliffe Rd & SE Rusk Rd

06/11/2017



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↻			↻	↻	
Traffic Volume (veh/h)	181	1	2	175	3	8
Future Volume (Veh/h)	181	1	2	175	3	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	248	1	3	240	4	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None		None			
Median storage (veh)						
Upstream signal (ft)	553					
pX, platoon unblocked						
vC, conflicting volume			249		494	248
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			249		494	248
tC, single (s)			4.1		6.7	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.8	3.4
p0 queue free %			100		99	99
cM capacity (veh/h)			1328		482	764
Direction, Lane #	EB 1	WB 1	NW 1			
Volume Total	249	243	15			
Volume Left	0	3	4			
Volume Right	1	0	11			
cSH	1700	1328	661			
Volume to Capacity	0.15	0.00	0.02			
Queue Length 95th (ft)	0	0	2			
Control Delay (s)	0.0	0.1	10.6			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.1	10.6			
Approach LOS			B			
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			20.8%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: SE Rusk Rd & SE Kellogg Creek Dr

06/11/2017

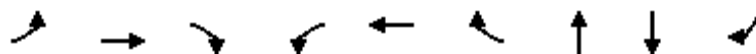


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	42	14	34	137	114	66
Future Volume (Veh/h)	42	14	34	137	114	66
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.64	0.64	0.64	0.64	0.64	0.64
Hourly flow rate (vph)	66	22	53	214	178	103
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)	923					
pX, platoon unblocked						
vC, conflicting volume	550	230	281			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	550	230	281			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	86	97	96			
cM capacity (veh/h)	463	797	1276			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	88	267	281			
Volume Left	66	53	0			
Volume Right	22	0	103			
cSH	517	1276	1700			
Volume to Capacity	0.17	0.04	0.17			
Queue Length 95th (ft)	15	3	0			
Control Delay (s)	13.4	1.9	0.0			
Lane LOS	B	A				
Approach Delay (s)	13.4	1.9	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			2.6			
Intersection Capacity Utilization			32.4%	ICU Level of Service	A	
Analysis Period (min)			15			

Queues

1: SE Rusk Rd & Milwaukie Expy

06/11/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	18	1861	243	135	1482	13	174	170	27
v/c Ratio	0.19	0.90	0.25	0.74	0.61	0.01	0.96	0.61	0.08
Control Delay	57.6	29.3	8.2	70.8	11.8	0.8	101.5	53.8	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.6	29.3	8.2	70.8	11.8	0.8	101.5	53.8	0.5
Queue Length 50th (ft)	14	682	53	90	357	0	124	121	0
Queue Length 95th (ft)	38	#891	98	m#200	m580	m0	#237	187	2
Internal Link Dist (ft)		263			2471		389	767	
Turn Bay Length (ft)	470		110	455		100			75
Base Capacity (vph)	156	2067	982	184	2443	1139	224	352	385
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.90	0.25	0.73	0.61	0.01	0.78	0.48	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

1: SE Rusk Rd & Milwaukie Expy

06/11/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘		↕			↗	↘
Traffic Volume (vph)	17	1712	224	124	1363	12	81	38	41	43	113	25
Future Volume (vph)	17	1712	224	124	1363	12	81	38	41	43	113	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0		4.0			4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.97	1.00	1.00	1.00		1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.97			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98			0.99	1.00
Satd. Flow (prot)	1703	3438	1573	1770	3505	1615		1735			1816	1495
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.53			0.85	1.00
Satd. Flow (perm)	1703	3438	1573	1770	3505	1615		950			1567	1495
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	1861	243	135	1482	13	88	41	45	47	123	27
RTOR Reduction (vph)	0	0	37	0	0	4	0	11	0	0	0	22
Lane Group Flow (vph)	18	1861	206	135	1482	9	0	163	0	0	170	5
Confl. Peds. (#/hr)			3				3					
Heavy Vehicles (%)	6%	5%	0%	2%	3%	0%	1%	5%	5%	9%	1%	8%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		4
Actuated Green, G (s)	3.3	72.1	72.1	12.4	81.2	81.2		21.5			21.5	21.5
Effective Green, g (s)	3.3	72.1	72.1	12.4	81.2	81.2		21.5			21.5	21.5
Actuated g/C Ratio	0.03	0.60	0.60	0.10	0.68	0.68		0.18			0.18	0.18
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0		4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	46	2065	945	182	2371	1092		170			280	267
v/s Ratio Prot	0.01	c0.54		c0.08	0.42							
v/s Ratio Perm			0.13			0.01		c0.17			0.11	0.00
v/c Ratio	0.39	0.90	0.22	0.74	0.63	0.01		0.96			0.61	0.02
Uniform Delay, d1	57.4	20.8	11.0	52.2	10.9	6.3		48.8			45.4	40.6
Progression Factor	1.00	1.00	1.00	0.95	0.93	1.00		1.00			1.00	1.00
Incremental Delay, d2	5.4	6.9	0.5	12.7	1.0	0.0		55.6			3.7	0.0
Delay (s)	62.8	27.7	11.5	62.4	11.1	6.3		104.4			49.1	40.6
Level of Service	E	C	B	E	B	A		F			D	D
Approach Delay (s)		26.2			15.3			104.4			47.9	
Approach LOS		C			B			F			D	

Intersection Summary










HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: SE Rusk Rd & SE Ruscliffe Rd

06/11/2017

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	18	21	142	2	8	447
Future Volume (Veh/h)	18	21	142	2	8	447
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	21	25	169	2	10	532
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	722	170			171	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	722	170			171	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	97			99	
cM capacity (veh/h)	394	879			1418	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	46	171	542			
Volume Left	21	0	10			
Volume Right	25	2	0			
cSH	563	1700	1418			
Volume to Capacity	0.08	0.10	0.01			
Queue Length 95th (ft)	7	0	1			
Control Delay (s)	12.0	0.0	0.2			
Lane LOS	B		A			
Approach Delay (s)	12.0	0.0	0.2			
Approach LOS	B					
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			39.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: SE Rusk Rd & SE Kellogg Creek Dr

06/11/2017

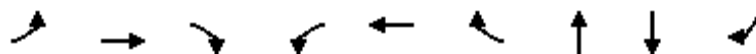


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	32	19	18	115	377	90
Future Volume (Veh/h)	32	19	18	115	377	90
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	36	22	20	131	428	102
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						920
pX, platoon unblocked						
vC, conflicting volume	650	479	530			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	650	479	530			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	96	98			
cM capacity (veh/h)	424	591	1048			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	58	151	530			
Volume Left	36	20	0			
Volume Right	22	0	102			
cSH	475	1048	1700			
Volume to Capacity	0.12	0.02	0.31			
Queue Length 95th (ft)	10	1	0			
Control Delay (s)	13.6	1.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	13.6	1.3	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			35.3%	ICU Level of Service	A	
Analysis Period (min)			15			

Queues

1: SE Rusk Rd & Milwaukie Expy

06/11/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	6	836	27	18	2235	12	213	67	7
v/c Ratio	0.07	0.35	0.03	0.18	0.90	0.01	0.90	0.27	0.03
Control Delay	55.5	8.5	0.0	50.5	14.4	0.5	85.5	45.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.5	8.5	0.0	50.5	14.4	0.5	85.5	45.4	0.1
Queue Length 50th (ft)	5	105	0	14	317	0	157	45	0
Queue Length 95th (ft)	19	197	0	m17	m#1068	m0	#298	89	0
Internal Link Dist (ft)		263			2471		389	744	
Turn Bay Length (ft)	470		110	455		100			75
Base Capacity (vph)	165	2366	1050	315	2486	871	246	264	288
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.35	0.03	0.06	0.90	0.01	0.87	0.25	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

1: SE Rusk Rd & Milwaukie Expy

06/11/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖	↖	↗↗	↖		↕			↖	↖
Traffic Volume (vph)	6	794	26	17	2123	11	142	28	33	21	43	7
Future Volume (vph)	6	794	26	17	2123	11	142	28	33	21	43	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0		4.0			4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00		1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.98			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97			0.98	1.00
Satd. Flow (prot)	1805	3374	1463	1805	3438	1188		1693			1590	1129
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.75			0.89	1.00
Satd. Flow (perm)	1805	3374	1463	1805	3438	1188		1314			1442	1129
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	836	27	18	2235	12	149	29	35	22	45	7
RTOR Reduction (vph)	0	0	9	0	0	4	0	6	0	0	0	6
Lane Group Flow (vph)	6	836	18	18	2235	8	0	207	0	0	67	1
Confl. Peds. (#/hr)			1				1					
Heavy Vehicles (%)	0%	7%	8%	0%	5%	36%	5%	11%	6%	29%	12%	43%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		4
Actuated Green, G (s)	1.4	81.8	81.8	3.2	83.6	83.6		21.0			21.0	21.0
Effective Green, g (s)	1.4	81.8	81.8	3.2	83.6	83.6		21.0			21.0	21.0
Actuated g/C Ratio	0.01	0.68	0.68	0.03	0.70	0.70		0.18			0.18	0.18
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0		4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	21	2299	997	48	2395	827		229			252	197
v/s Ratio Prot	0.00	0.25		c0.01	c0.65							
v/s Ratio Perm			0.01			0.01		c0.16			0.05	0.00
v/c Ratio	0.29	0.36	0.02	0.38	0.93	0.01		0.90			0.27	0.01
Uniform Delay, d1	58.8	8.1	6.2	57.4	15.8	5.6		48.5			42.8	40.9
Progression Factor	1.00	1.00	1.00	0.91	0.72	1.00		1.00			1.00	1.00
Incremental Delay, d2	7.4	0.4	0.0	2.6	4.8	0.0		34.7			0.6	0.0
Delay (s)	66.2	8.5	6.2	54.6	16.2	5.6		83.2			43.4	40.9
Level of Service	E	A	A	D	B	A		F			D	D
Approach Delay (s)		8.9			16.4			83.2			43.2	
Approach LOS		A			B			F			D	

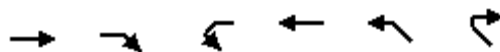
Intersection Summary

HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis 3: SE Ruscliffe Rd & SE Rusk Rd

06/11/2017



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↻			↻	↻	
Traffic Volume (veh/h)	183	1	2	177	3	8
Future Volume (Veh/h)	183	1	2	177	3	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	251	1	3	242	4	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	553					
pX, platoon unblocked						
vC, conflicting volume			252		500	252
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			252		500	252
tC, single (s)			4.1		6.7	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.8	3.4
p0 queue free %			100		99	99
cM capacity (veh/h)			1325		478	761
Direction, Lane #	EB 1	WB 1	NW 1			
Volume Total	252	245	15			
Volume Left	0	3	4			
Volume Right	1	0	11			
cSH	1700	1325	657			
Volume to Capacity	0.15	0.00	0.02			
Queue Length 95th (ft)	0	0	2			
Control Delay (s)	0.0	0.1	10.6			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.1	10.6			
Approach LOS			B			
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			20.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: SE Rusk Rd & SE Kellogg Creek Dr

06/11/2017

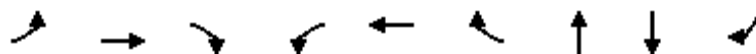


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	43	14	34	139	115	67
Future Volume (Veh/h)	43	14	34	139	115	67
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.64	0.64	0.64	0.64	0.64	0.64
Hourly flow rate (vph)	67	22	53	217	180	105
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						923
pX, platoon unblocked						
vC, conflicting volume	556	232	285			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	556	232	285			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	85	97	96			
cM capacity (veh/h)	459	794	1271			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	89	270	285			
Volume Left	67	53	0			
Volume Right	22	0	105			
cSH	513	1271	1700			
Volume to Capacity	0.17	0.04	0.17			
Queue Length 95th (ft)	16	3	0			
Control Delay (s)	13.5	1.9	0.0			
Lane LOS	B	A				
Approach Delay (s)	13.5	1.9	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			2.6			
Intersection Capacity Utilization			32.7%	ICU Level of Service	A	
Analysis Period (min)			15			

Queues

1: SE Rusk Rd & Milwaukie Expy

06/11/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	18	1884	247	137	1500	13	176	172	27
v/c Ratio	0.19	0.91	0.25	0.76	0.62	0.01	0.96	0.61	0.08
Control Delay	57.6	30.8	8.3	73.0	12.1	0.8	100.0	53.4	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.6	30.8	8.3	73.0	12.1	0.8	100.0	53.4	0.5
Queue Length 50th (ft)	14	701	55	93	366	0	125	122	0
Queue Length 95th (ft)	38	#911	101	m#205	m590	m0	#240	189	2
Internal Link Dist (ft)		263			2471		389	767	
Turn Bay Length (ft)	470		110	455		100			75
Base Capacity (vph)	156	2060	979	181	2432	1134	224	351	385
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.91	0.25	0.76	0.62	0.01	0.79	0.49	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

1: SE Rusk Rd & Milwaukie Expy

06/11/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖	↖	↗↗	↖		↕			↗	↖
Traffic Volume (vph)	17	1733	227	126	1380	12	82	38	42	44	114	25
Future Volume (vph)	17	1733	227	126	1380	12	82	38	42	44	114	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0		4.0			4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	1.00		1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.96			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98			0.99	1.00
Satd. Flow (prot)	1703	3438	1573	1770	3505	1615		1735			1815	1495
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.53			0.85	1.00
Satd. Flow (perm)	1703	3438	1573	1770	3505	1615		950			1563	1495
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	1884	247	137	1500	13	89	41	46	48	124	27
RTOR Reduction (vph)	0	0	37	0	0	4	0	11	0	0	0	22
Lane Group Flow (vph)	18	1884	210	137	1500	9	0	165	0	0	172	5
Confl. Peds. (#/hr)			3				3					
Heavy Vehicles (%)	6%	5%	0%	2%	3%	0%	1%	5%	5%	9%	1%	8%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		4
Actuated Green, G (s)	3.3	71.9	71.9	12.2	80.8	80.8		21.9			21.9	21.9
Effective Green, g (s)	3.3	71.9	71.9	12.2	80.8	80.8		21.9			21.9	21.9
Actuated g/C Ratio	0.03	0.60	0.60	0.10	0.67	0.67		0.18			0.18	0.18
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0		4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	46	2059	942	179	2360	1087		173			285	272
v/s Ratio Prot	0.01	c0.55		c0.08	0.43							
v/s Ratio Perm			0.13			0.01		c0.17			0.11	0.00
v/c Ratio	0.39	0.92	0.22	0.77	0.64	0.01		0.95			0.60	0.02
Uniform Delay, d1	57.4	21.3	11.1	52.5	11.2	6.4		48.5			45.1	40.2
Progression Factor	1.00	1.00	1.00	0.95	0.92	1.00		1.00			1.00	1.00
Incremental Delay, d2	5.4	7.8	0.5	15.0	1.1	0.0		54.0			3.6	0.0
Delay (s)	62.8	29.2	11.7	65.1	11.4	6.4		102.5			48.6	40.3
Level of Service	E	C	B	E	B	A		F			D	D
Approach Delay (s)		27.4			15.8			102.5			47.5	
Approach LOS		C			B			F			D	

Intersection Summary










HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: SE Rusk Rd & SE Ruscliffe Rd

06/11/2017

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	18	21	144	2	8	452
Future Volume (Veh/h)	18	21	144	2	8	452
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	21	25	171	2	10	538
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						553
pX, platoon unblocked						
vC, conflicting volume	730	172			173	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	730	172			173	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	97			99	
cM capacity (veh/h)	390	877			1416	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	46	173	548			
Volume Left	21	0	10			
Volume Right	25	2	0			
cSH	558	1700	1416			
Volume to Capacity	0.08	0.10	0.01			
Queue Length 95th (ft)	7	0	1			
Control Delay (s)	12.0	0.0	0.2			
Lane LOS	B		A			
Approach Delay (s)	12.0	0.0	0.2			
Approach LOS	B					
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			40.2%	ICU Level of Service		A
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

4: SE Rusk Rd & SE Kellogg Creek Dr

06/11/2017

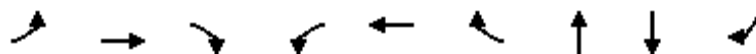


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	32	19	18	116	382	91
Future Volume (Veh/h)	32	19	18	116	382	91
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	36	22	20	132	434	103
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						920
pX, platoon unblocked						
vC, conflicting volume	658	486	537			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	658	486	537			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	96	98			
cM capacity (veh/h)	420	586	1041			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	58	152	537			
Volume Left	36	20	0			
Volume Right	22	0	103			
cSH	470	1041	1700			
Volume to Capacity	0.12	0.02	0.32			
Queue Length 95th (ft)	10	1	0			
Control Delay (s)	13.7	1.3	0.0			
Lane LOS	B	A				
Approach Delay (s)	13.7	1.3	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			35.6%	ICU Level of Service	A	
Analysis Period (min)			15			

Queues

1: SE Rusk Rd & Milwaukie Expy

06/11/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	6	836	31	19	2235	12	241	69	7
v/c Ratio	0.07	0.36	0.03	0.19	0.91	0.01	0.97	0.26	0.02
Control Delay	55.5	8.7	0.1	50.8	15.0	0.5	98.0	45.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.5	8.7	0.1	50.8	15.0	0.5	98.0	45.1	0.1
Queue Length 50th (ft)	5	105	0	15	317	0	182	46	0
Queue Length 95th (ft)	19	197	0	m18	m#1068	m0	#350	91	0
Internal Link Dist (ft)		263			2471		389	744	
Turn Bay Length (ft)	470		110	455		100			75
Base Capacity (vph)	165	2338	1038	315	2458	862	248	264	288
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.36	0.03	0.06	0.91	0.01	0.97	0.26	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

1: SE Rusk Rd & Milwaukie Expy

06/11/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘		↕			↖	↗
Traffic Volume (vph)	6	794	29	18	2123	11	154	35	40	21	45	7
Future Volume (vph)	6	794	29	18	2123	11	154	35	40	21	45	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0		4.0			4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00		1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.98			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.97			0.98	1.00
Satd. Flow (prot)	1805	3374	1463	1805	3438	1188		1691			1593	1129
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.76			0.89	1.00
Satd. Flow (perm)	1805	3374	1463	1805	3438	1188		1321			1440	1129
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	6	836	31	19	2235	12	162	37	42	22	47	7
RTOR Reduction (vph)	0	0	10	0	0	4	0	7	0	0	0	6
Lane Group Flow (vph)	6	836	21	19	2235	8	0	234	0	0	69	1
Confl. Peds. (#/hr)			1				1					
Heavy Vehicles (%)	0%	7%	8%	0%	5%	36%	5%	11%	6%	29%	12%	43%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		4
Actuated Green, G (s)	1.4	80.8	80.8	3.2	82.6	82.6		22.0			22.0	22.0
Effective Green, g (s)	1.4	80.8	80.8	3.2	82.6	82.6		22.0			22.0	22.0
Actuated g/C Ratio	0.01	0.67	0.67	0.03	0.69	0.69		0.18			0.18	0.18
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0		4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	21	2271	985	48	2366	817		242			264	206
v/s Ratio Prot	0.00	0.25		c0.01	c0.65							
v/s Ratio Perm			0.01			0.01		c0.18			0.05	0.00
v/c Ratio	0.29	0.37	0.02	0.40	0.94	0.01		0.97			0.26	0.01
Uniform Delay, d1	58.8	8.5	6.5	57.4	16.7	5.9		48.7			42.0	40.1
Progression Factor	1.00	1.00	1.00	0.91	0.72	1.00		1.00			1.00	1.00
Incremental Delay, d2	7.4	0.5	0.0	2.8	5.6	0.0		48.5			0.5	0.0
Delay (s)	66.2	9.0	6.5	55.1	17.5	5.9		97.2			42.6	40.1
Level of Service	E	A	A	E	B	A		F			D	D
Approach Delay (s)		9.3			17.8			97.2			42.3	
Approach LOS		A			B			F			D	

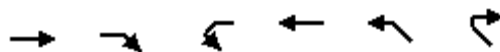
Intersection Summary

HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis 3: SE Ruscliffe Rd & SE Rusk Rd

06/11/2017



Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations	↔			↔	↔	
Traffic Volume (veh/h)	209	1	2	183	3	8
Future Volume (Veh/h)	209	1	2	183	3	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	286	1	3	251	4	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)				553		
pX, platoon unblocked						
vC, conflicting volume			287		544	286
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			287		544	286
tC, single (s)			4.1		6.7	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.8	3.4
p0 queue free %			100		99	98
cM capacity (veh/h)			1287		450	727
Direction, Lane #	EB 1	WB 1	NW 1			
Volume Total	287	254	15			
Volume Left	0	3	4			
Volume Right	1	0	11			
cSH	1700	1287	624			
Volume to Capacity	0.17	0.00	0.02			
Queue Length 95th (ft)	0	0	2			
Control Delay (s)	0.0	0.1	10.9			
Lane LOS		A	B			
Approach Delay (s)	0.0	0.1	10.9			
Approach LOS			B			
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			21.2%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: SE Rusk Rd & SE Kellogg Creek Dr

06/11/2017

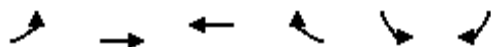


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	69	21	35	139	115	73
Future Volume (Veh/h)	69	21	35	139	115	73
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.64	0.64	0.64	0.64	0.64	0.64
Hourly flow rate (vph)	108	33	55	217	180	114
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)	923					
pX, platoon unblocked						
vC, conflicting volume	564	237	294			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	564	237	294			
tC, single (s)	6.5	6.3	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.2			
p0 queue free %	76	96	96			
cM capacity (veh/h)	453	790	1262			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	141	272	294			
Volume Left	108	55	0			
Volume Right	33	0	114			
cSH	503	1262	1700			
Volume to Capacity	0.28	0.04	0.17			
Queue Length 95th (ft)	28	3	0			
Control Delay (s)	14.9	1.9	0.0			
Lane LOS	B	A				
Approach Delay (s)	14.9	1.9	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay	3.7					
Intersection Capacity Utilization	34.9%			ICU Level of Service	A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

5: SE Kellogg Creek Dr & Site Driveway

06/11/2017

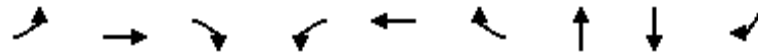


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	57	101	7	33	0
Future Volume (Veh/h)	0	57	101	7	33	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.61	0.61	0.61	0.61	0.61	0.61
Hourly flow rate (vph)	0	93	166	11	54	0
Pedestrians					2	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	179				266	174
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	179				266	174
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				93	100
cM capacity (veh/h)	1407				726	874
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	93	177	54			
Volume Left	0	0	54			
Volume Right	0	11	0			
cSH	1407	1700	726			
Volume to Capacity	0.00	0.10	0.07			
Queue Length 95th (ft)	0	0	6			
Control Delay (s)	0.0	0.0	10.4			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	10.4			
Approach LOS			B			
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization		16.2%		ICU Level of Service		A
Analysis Period (min)			15			

Queues

1: SE Rusk Rd & Milwaukie Expy

06/11/2017



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	18	1884	261	143	1500	13	191	180	27
v/c Ratio	0.19	0.94	0.27	0.82	0.63	0.01	0.95	0.58	0.08
Control Delay	57.6	33.7	8.6	79.8	12.8	0.7	97.1	50.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.6	33.7	8.6	79.8	12.8	0.7	97.1	50.5	0.4
Queue Length 50th (ft)	14	701	58	108	395	0	134	123	0
Queue Length 95th (ft)	38	#911	106	m#216	m591	m0	#269	198	2
Internal Link Dist (ft)		263			2471		389	767	
Turn Bay Length (ft)	470		110	455		100			75
Base Capacity (vph)	156	2014	962	175	2375	1109	225	354	385
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.94	0.27	0.82	0.63	0.01	0.85	0.51	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.






















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis










1: SE Rusk Rd & Milwaukie Expy

06/11/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	1733	240	132	1380	12	89	41	45	44	121	25
Future Volume (vph)	17	1733	240	132	1380	12	89	41	45	44	121	25
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0		4.0			4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	1.00
Frbp, ped/bikes	1.00	1.00	0.97	1.00	1.00	1.00		1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.97			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.98			0.99	1.00
Satd. Flow (prot)	1703	3438	1573	1770	3505	1615		1736			1818	1495
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.54			0.86	1.00
Satd. Flow (perm)	1703	3438	1573	1770	3505	1615		957			1577	1495
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	1884	261	143	1500	13	97	45	49	48	132	27
RTOR Reduction (vph)	0	0	41	0	0	4	0	10	0	0	0	22
Lane Group Flow (vph)	18	1884	220	143	1500	9	0	181	0	0	180	5
Confl. Peds. (#/hr)			3				3					
Heavy Vehicles (%)	6%	5%	0%	2%	3%	0%	1%	5%	5%	9%	1%	8%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases			2			6	8			4		4
Actuated Green, G (s)	3.3	70.3	70.3	11.9	78.9	78.9		23.8			23.8	23.8
Effective Green, g (s)	3.3	70.3	70.3	11.9	78.9	78.9		23.8			23.8	23.8
Actuated g/C Ratio	0.03	0.59	0.59	0.10	0.66	0.66		0.20			0.20	0.20
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0		4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)	46	2014	921	175	2304	1061		189			312	296
v/s Ratio Prot	0.01	c0.55		c0.08	0.43							
v/s Ratio Perm			0.14			0.01		c0.19			0.11	0.00
v/c Ratio	0.39	0.94	0.24	0.82	0.65	0.01		0.96			0.58	0.02
Uniform Delay, d1	57.4	22.8	12.0	53.0	12.3	7.1		47.6			43.5	38.7
Progression Factor	1.00	1.00	1.00	0.94	0.91	1.00		1.00			1.00	1.00
Incremental Delay, d2	5.4	9.7	0.6	21.3	1.2	0.0		52.2			2.6	0.0
Delay (s)	62.8	32.5	12.6	71.0	12.4	7.1		99.7			46.1	38.7
Level of Service	E	C	B	E	B	A		F			D	D
Approach Delay (s)		30.3			17.5			99.7			45.2	
Approach LOS		C			B			F			D	
Intersection Summary												
HCM 2000 Control Delay			29.1									C
HCM 2000 Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			120.0								14.0	
Intersection Capacity Utilization			88.8%									E
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 3: SE Rusk Rd & SE Ruscliffe Rd

06/11/2017

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	18	21	157	2	8	478
Future Volume (Veh/h)	18	21	157	2	8	478
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	21	25	187	2	10	569
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						553
pX, platoon unblocked						
vC, conflicting volume	777	188			189	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	777	188			189	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	97			99	
cM capacity (veh/h)	366	859			1397	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	46	189	579			
Volume Left	21	0	10			
Volume Right	25	2	0			
cSH	532	1700	1397			
Volume to Capacity	0.09	0.11	0.01			
Queue Length 95th (ft)	7	0	1			
Control Delay (s)	12.4	0.0	0.2			
Lane LOS	B		A			
Approach Delay (s)	12.4	0.0	0.2			
Approach LOS	B					
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization		41.6%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: SE Rusk Rd & SE Kellogg Creek Dr

06/11/2017

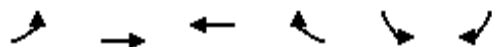


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	45	22	24	116	382	117
Future Volume (Veh/h)	45	22	24	116	382	117
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	51	25	27	132	434	133
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						920
pX, platoon unblocked						
vC, conflicting volume	686	500	567			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	686	500	567			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	96	97			
cM capacity (veh/h)	400	574	1015			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	76	159	567			
Volume Left	51	27	0			
Volume Right	25	0	133			
cSH	445	1015	1700			
Volume to Capacity	0.17	0.03	0.33			
Queue Length 95th (ft)	15	2	0			
Control Delay (s)	14.8	1.7	0.0			
Lane LOS	B	A				
Approach Delay (s)	14.8	1.7	0.0			
Approach LOS	B					
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			37.7%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

5: SE Kellogg Creek Dr & Church Driveway

06/11/2017



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	51	109	32	16	1
Future Volume (Veh/h)	0	51	109	32	16	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	59	125	37	18	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	162				202	144
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	162				202	144
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	100
cM capacity (veh/h)	1429				791	909
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	59	162	19			
Volume Left	0	0	18			
Volume Right	0	37	1			
cSH	1429	1700	796			
Volume to Capacity	0.00	0.10	0.02			
Queue Length 95th (ft)	0	0	2			
Control Delay (s)	0.0	0.0	9.6			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	9.6			
Approach LOS			A			
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			17.7%		ICU Level of Service	A
Analysis Period (min)			15			