CITY OF GRESHAM 1333 N.W. Eastman Parkway | Gresham, OR 97030 | 503-618-2488

TO: **Jim Wheeler, Planning Manager**
Helen Toloza, Interim City Attorney

FROM: **Kathy Majidi, Natural Resources Program Manager**

DATE: **November 8, 2023**

SUBJECT: **Additional Information in Support of Exhibit A to the City Attorney's October 13, 2023 Memo (Exhibit R)**

The Section II.C. of City Attorney's memo dated October 13, 2023 (Exhibit R) described the City's Natural Resources staff's consultations with experts in the fields of wetland science, water quality, hydrogeology, Johnson Creek basin geology and stream geomorphology on issues related to wetland #1's contribution to water quality improvements. Those verbal and written communications were summarized in a table provided as Exhibit A to the memo.

This packet supplements the table in Exhibit A by providing written communications with the experts that support the basis for the summaries in Exhibit A. The table has been updated to provide an index to the supporting communications.

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CC: **Steve Fancher, Assistant City Manager**
Carrie Pak, Watershed Division Manager

External Experts Log

Organization	Name	Job Title/Role	Analysis	Attachments for reference:
Oregon Department of Environmental Quality	Lesley Merrick	Water Quality Assessment Program Lead	DEQ confirms Kelley Creek was 303(d) listed for temperature at the time of the Veranda submittal	#1a: Email from Lesley Merrick (DEQ) and #1b: attached Word file.
Oregon Department of Environmental Quality	Travis Pritchard	Water Quality Analyst - Water Quality Standards Program	Per the 303(d) data set he manages: Kelley Creek, assessed as part of the Kelley Creek Watershed, was considered a water quality impaired water body on the 303d list by Oregon DEQ in the 2018/2020 Integrated Report for temperature (year-round) and temperature (spawning)	#2: Email from Travis Pritchard (DEQ)
Pacific Habitat Services	John Van Staveren	President & Owner of PHS. Senior Professional Wetland Scientist; Served on the state technical advisory committee that developed the Oregon's Locally Significant Wetland Criteria	Veranda wetlands are locally significant	#3: Memo from PHS (Craig Tumer and John van Staveren) finding local significance of Veranda wetlands

Organization	Name	Job Title/Role	Analysis	Attachments for reference:
Pacific Habitat Services	Amy Hawkins	Professional Wetland Scientist	Conducted OFWAM assessment on Veranda (both the 4.97-acre Wetland 1 from Schott delineation and the 0.12 acre Wetland A from Castle Rose) and found either to be locally significant due to proximity to Kelley Creek	#4: OFWAM assessment forms
Pacific Habitat Services	Craig Tumer	Professional Wetland Scientist	Reviewed all AKS materials, QA/QC'ed their ORWAP, found discrepancies between AKS and Schott statements about the wetlands, and conducted the field work to assess those discrepancies. Found no evidence in AKS statements that contradicts PHS finding that Wetland 1 is locally significant.	#3: Memo from PHS (Craig Tumer and John van Staveren) finding local significance of Veranda wetlands
River Design Group	Melanie Klym, PE, RG/LG, ENV SP	Licensed Water Resources Engineer & Geologist who worked extensively in the watershed as long-time board member of the Johnson Creek Watershed Council	Reviewed and did not find sufficient documentation in the AKS memo to demonstrate that there is not a subsurface connection between the wetlands on the site and Kelley Creek, and provided the references from USGS and Johnson Creek research that support the groundwater connection benefits to Kelley Creek.	#5: Emailed summary of her supporting references.

Organization	Name	Job Title/Role	Analysis	Attachments for reference:
Waterways Consulting	John Dvorsky	Principle Scientist, Geomorphologist. Has conducted stream/floodplain improvement projects in the Johnson Creek Watershed and studied Kelley Creek reaches.	Found that an analysis (informed by geotechnical investigations that define the connection between the wetland and local shallow groundwater elevation) would be needed to support argument of wetlands being not locally significant. Noted contradiction in AKS statements about lack of groundwater connection though tile drains were installed in order to lower shallow groundwater table for the growing season, and damaged tile drains are now resulting in the formation of wetlands (those wetlands are maintained by groundwater).	#6: Summary email from review of AKS submittal to City in January 2023.

Attachment #1a: Lesley Merrick response affirming Kelley Creek 303(d) listing prior to December 2020

From: MERRICK Lesley * DEQ
To: Kathy Majidi
Subject: RE: Veranda at Pleasant Valley -ESRA Designation - City File SD/MIS 20-26000343 (MPLAN 21-00652)
Date: Wednesday, January 18, 2023 2:23:21 PM
Attachments: image001.jpg
image002.png
104550_TemperatureData.xlsx
COG_KelleyCreek.docx

CAUTION: External Email

Hi Kathy,

I attached a summary for OR_WS_170900120101_02_104550 that has more detail than the statement you got from Travis in June. I also attached the 2018/2020 raw data download file for temperature. This shows Kelley Creek contributed to the 2018/2020 temperature listings and was considered impaired at that time. I am available tomorrow morning if you would like to discuss the summary.

Thanks!
Lesley

Lesley Merrick | Her/She
Water Quality Assessment Program Lead
Water Quality Division
Oregon Department of Environmental Quality
Phone: 971-323-7228

From: Kathy Majidi <kathy.majidi@greshamoregon.gov>
Sent: Tuesday, January 17, 2023 2:39 PM
To: MERRICK Lesley * DEQ <Lesley.MERRICK@deq.oregon.gov>
Subject: FW: Veranda at Pleasant Valley -ESRA Designation - City File SD/MIS 20-26000343 (MPLAN 21-00652)

Thank you for taking a look through this Lesley, and providing any statements you have on file about Kelley Creek being a waterbody listed on the 303(d) list before December 2020.

Thank you!

Kathy Majidi
Natural Resources Program Manager
Department of Environmental Services, City of Gresham
1333 NW Eastman Parkway
Gresham Oregon 97030
503-618-2488 /503-449-2179

From: Stacey Reed <StaceyR@aks-eng.com>
Sent: Monday, January 16, 2023 5:02 PM
To: Eric Schmidt <eric.schmidt@greshamoregon.gov>; steve.fancher@grershamoregon.gov; Kathy Majidi <kathy.majidi@greshamoregon.gov>; Jim Wheeler <jim.wheeler@greshamoregon.gov>
Cc: Jim Leeper <leeperdev@gmail.com>
Subject: Veranda at Pleasant Valley -ESRA Designation - City File SD/MIS 20-26000343 (MPLAN 21-00652)

CAUTION: External Email

Good afternoon,

Please find attached a memorandum addressing whether wetlands delineated by Schott and Associates on the Veranda at Pleasant Valley Subdivision site can potentially not be designated as locally significant.

Jim Leeper asked that I respectfully forward this information for your consideration. AKS is working on a revised submittal that will addresses other non-complete items listed by City staff (including a mitigation plan for ESRA-PV mapped resources and addressing the drainage along the east boundary); however, the determination as to whether wetlands delineated by Schott should be protected under ESRA-PV is one of the bigger outstanding issues that we ask kindly for confirmation.

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

Thank you in advance for your time on this matter.

Regards,

Stacey Reed, PWS, Senior Wetland Scientist

AKS ENGINEERING & FORESTRY, LLC
12965 SW Herman Road, Suite 100 | Tualatin, OR 97062
C: 503.956.2550| O: 503.563.6151 l www.aks-eng.com |
Offices in: Bend, OR | Keizer, OR | Tualatin, OR | Vancouver, WA

Attachment #1b: Lesley Merrick @ DEQ, confirming Kelley Creek was 303(d)-listed prior to December 2022

Oregon Department of Environmental Quality (DEQ) 303(d) Mapping
Kelley (sometimes referred to as Kelly Creek) is located within the Lower Willamette (HUC8) of the Upper Johnson Creek (HUC12) watershed; Oregon DEQ Assessment Unit ID OR_WS_170900120101_02_104550. A DEQ water quality monitoring station is present within Kelley Creek immediately downstream of the project site at the SE 190th Drive crossing (Monitoring Location ID 38681-ORDEQ).
During the time the Veranda at Pleasant Valley Master Plan and Subdivision application was submitted to the City (December 2020), Kelley Creek (waterbody) was not listed in Oregon's DEQ 2018/2020 Integrated Report Assessment (IR) as a Category 5 Water Quality Limited waterbody needing a TMDL 303(d) listing (see Attachment A). However, the HUC 12 Upper Johnson Creek watershed (which includes Kelley Creek) was 303(d) listed for year-round temperature. The Oregon DEQ 2018/2020 IR proposed listings were approved by EPA on November 12, 2020.

DEQ response –

On November 12, 2020 the U.S. Environmental Protection Agency approved the State of Oregon's 2018-2020 Integrated Report, including the 303(d) Impaired Waters List[1]. In this report, DEQ identified Kelley Creek as part of assessment unit OR_WS_170900120101_02_104550, which is a watershed type unit. In this report and 303(d) list, this assessment unit has been designated impaired for the following parameters: E. coli, Endosulfan, Endrin Aldehyde, Temperature (Year Round), and Temperature (Spawning) , with all but E. coli reported as Category 5 (303(d) listed). The 303(d) list went into effect upon EPA approval.

For the 2018/2020 assessment cycle, DEQ defined watershed type assessment units as collectively representing small streams within a sub-watershed (HUC-12). As described in the 2018-2020 assessment methodology, DEQ pooled data within watershed type assessment units and an assessment conclusion was drawn for the whole unit[2]. **The data or information resulting in an identification of impairment is most relevant to the stream in which it was collected[3].**

Using the DEQ web map application for the 2018/2020 Impaired Waters[4], 10 monitoring locations on Kelley Creek were identified (attached spreadsheet). The 2018/2020 online search database[5], is used to identify if data from any monitoring locations on Kelley creek contributed to the Category 5 (303(d) listed) status. Of the 4 parameters in Category 5 (Endosulfan, Endrin Aldehyde, Temperature (Year Round), and Temperature (Spawning)) for this assessment unit, only temperature was assessed in 2018/2020. The raw data download for the 2018/2020 year round temperature assessment shows DEQ evaluated 8829 7DADM values in OR_WS_170900120101_02_104550. There were a total of 2683 exceedances of the water quality criteria, of those exceedances, 632 occurred on Kelley Creek (monitoring locations – 14211499, 37371-ORDEQ, 38676-ORDEQ and 38681-ORDEQ). The raw data

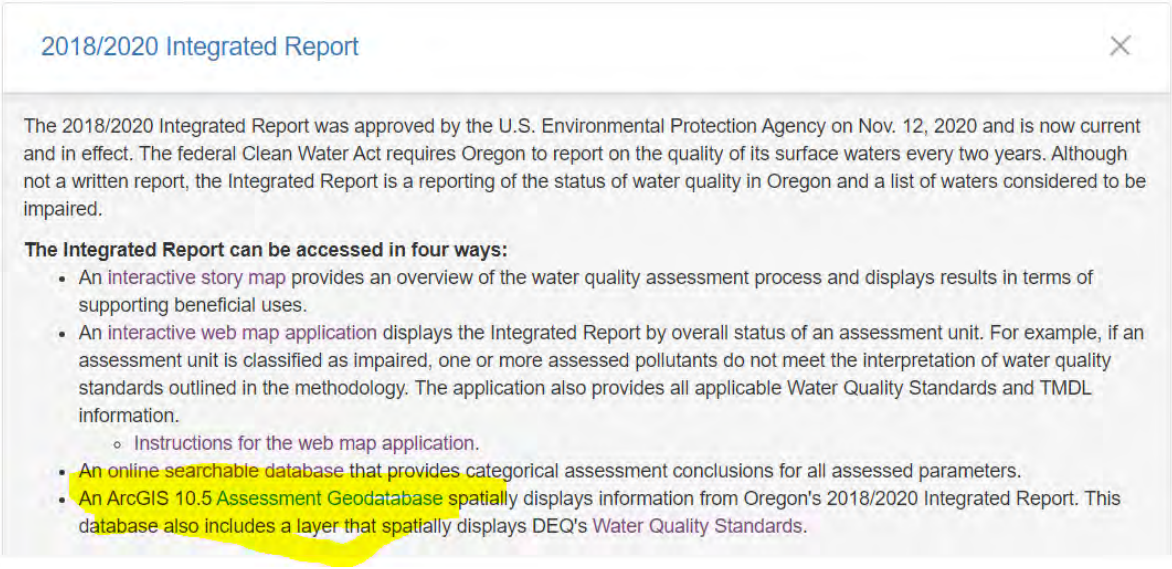
[1] https://www.oregon.gov/deq/wq/Documents/wqaApproval1420cwa303d.pdf
[2] https://www.oregon.gov/deq/wq/Documents/irMethodologyF1820.pdf (Section 3.3.2. Evaluating Data and Information)

[3] https://www.oregon.gov/deq/wq/Documents/irFAQ1820.pdf (page 6)
[4] https://hdcgcx2.deq.state.or.us/Html5Viewer211/?viewer=wqsa
[5] https://rstudioconnect.deq.state.or.us/content/5ef6752f-14a6-4950-8959-645b090b38dd/

download for the 2018/2020 spawning temperature assessment shows DEQ evaluated 2044 7DADM values in OR_WS_170900120101_02_104550. There were a total of 183 exceedances of the spawning water quality criteria, with all occurring on Kelley Creek (monitoring locations – 14211499 and 38676-ORDEQ). Thus, for implementation purposes, **DEQ considered Kelley Creek as Category 5 (303(d) listed) for Temperature (Year Round), and Temperature (Spawning) with the year listed as 2018.**

DEQ recognized this level of analysis was difficult for the end users of the IR. Therefore, when the 2018/2020 IR was approved by EPA on November 12, 2020, DEQ released an updated version of the Assessment Geodatabase which contains a layer, **Impaired_2020_Watershed_Line**, that delineates waterbodies identified as impaired in watershed assessment units. This layer shows Kelley Creek as Category 5 for temperature (year round and spawning).

https://www.oregon.gov/deq/wq/Pages/pastir.aspx



2018/2020 Integrated Report

The 2018/2020 Integrated Report was approved by the U.S. Environmental Protection Agency on Nov. 12, 2020 and is now current and in effect. The federal Clean Water Act requires Oregon to report on the quality of its surface waters every two years. Although not a written report, the Integrated Report is a reporting of the status of water quality in Oregon and a list of waters considered to be impaired.

The Integrated Report can be accessed in four ways:

- An interactive story map provides an overview of the water quality assessment process and displays results in terms of supporting beneficial uses.
- An interactive web map application displays the Integrated Report by overall status of an assessment unit. For example, if an assessment unit is classified as impaired, one or more assessed pollutants do not meet the interpretation of water quality standards outlined in the methodology. The application also provides all applicable Water Quality Standards and TMDL information.
  - Instructions for the web map application.
- An online searchable database that provides categorical assessment conclusions for all assessed parameters.
- An ArcGIS 10.5 Assessment Geodatabase spatially displays information from Oregon's 2018/2020 Integrated Report. This database also includes a layer that spatially displays DEQ's Water Quality Standards.

On September 1, 2022 the U.S. Environmental Protection Agency approved the State of Oregon's 2022 Integrated Report, including the 303(d) Impaired Waters List[6]. This is now the effective list and shows OR_WS_170900120101_02_104550;Kelley Creek as Category 5 for Temperature- year_round; Temperature- spawn; BioCriteria; Copper - Aquatic Life[7].

[6] https://www.oregon.gov/deq/wq/Documents/IR2022-303dApproval.pdf

[7] https://www.deq.state.or.us/psc/pdf/AssessmentSummaries/2022_IR_Assessment_Unit_report-OR_WS_170900120101_02_104550.html

Attachment #2: Travis Pritchard @ DEQ detailing current and future parameter 303(d) listings for Kelley Creek

From: PRITCHARD Travis * DEQ
To: MATZKE Andrea * DEQ
Cc: MERRICK Lesley * DEQ; Kathy Majidi
Subject: RE: Kelley Creek water quality limited listings
Date: Thursday, May 19, 2022 1:56:17 PM
Attachments: image001.png
image002.png
Kelly Creek Temperature.xlsx

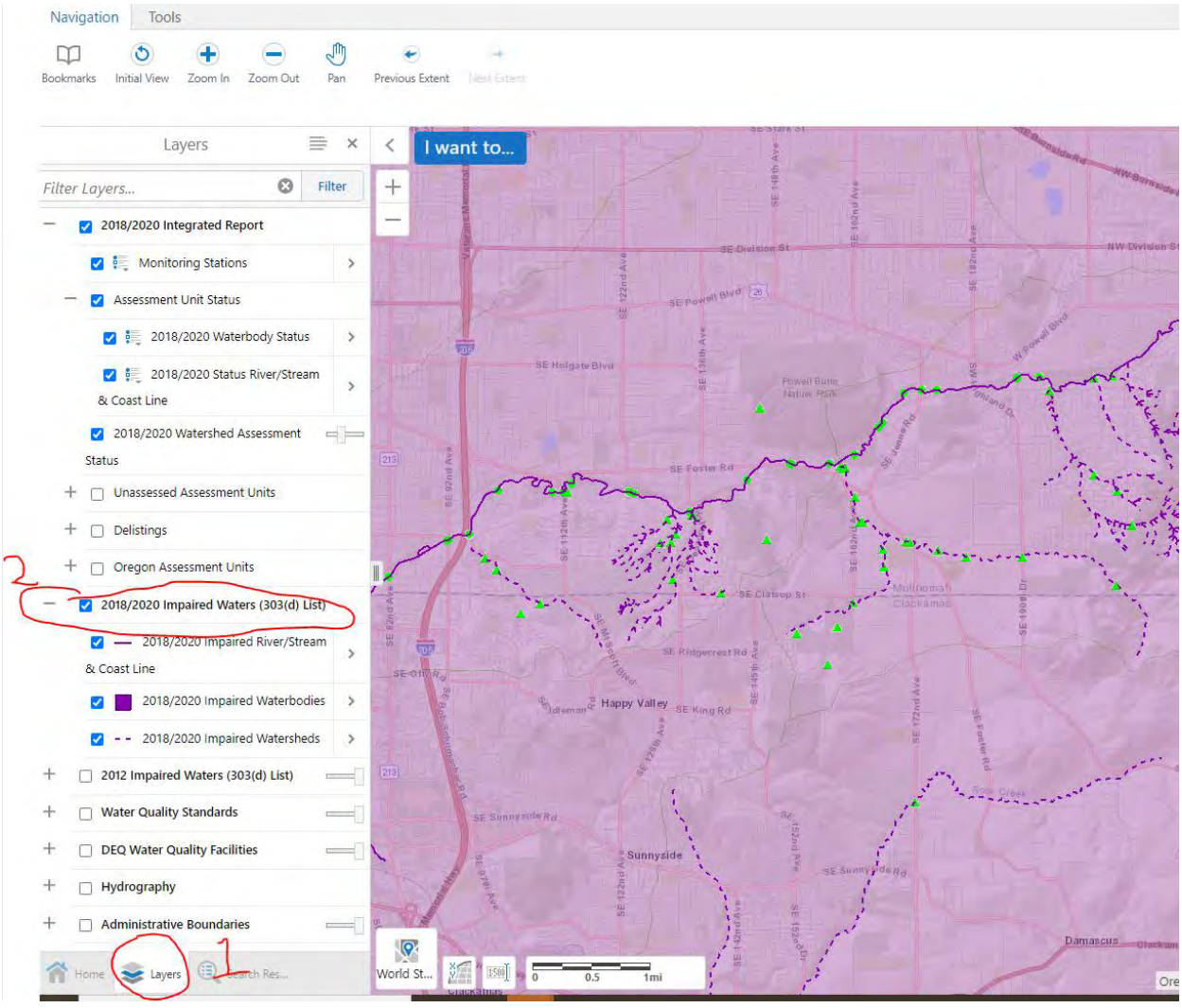
CAUTION: External Email

Andrea,

The 2018/2020 IR has Kelley Creek at OR_WS_170900120101_02_104550 impaired for both year round and spawning temperature. I have attached the temperature data we assessed that cycle.

Additionally, in the 2022 IR, we are proposing adding E. coli, Spawning Dissolved Oxygen, pH, and Biocriteria as Category 5 parameters. We are planning on submitting to EPA on Monday, and will go into effect when after EPA approval. Last cycle EPA approved around November, but I don't have any specific timeframes from them.

To turn on the dotted line layers to indicate impairments within the watershed units, you have to turn on the **2018/2020 Impaired Waters (303(d) List)** layer. See screenshot below:



From: MATZKE Andrea * DEQ <Andrea.MATZKE@deq.oregon.gov>
Sent: Thursday, May 19, 2022 1:32 PM
To: PRITCHARD Travis * DEQ <Travis.PRITCHARD@deq.oregon.gov>
Cc: MERRICK Lesley * DEQ <Lesley.MERRICK@deq.oregon.gov>; Majidi, Kathy <kathy.majidi@greshamoregon.gov>
Subject: FW: Kelley Creek water quality limited listings
Importance: High

Hi Travis,

I see that Leslie is out. Would you be able to respond to my email below to Leslie?

Many thanks!
Andrea

From: MATZKE Andrea * DEQ
Sent: Thursday, May 19, 2022 1:29 PM
To: MERRICK Lesley * DEQ <Lesley.MERRICK@deq.oregon.gov>

Cc: Majidi, Kathy <kathy.majidi@greshamoregon.gov>
Subject: FW: Kelley Creek water quality limited listings
Importance: High

Hi Lesley,

The City of Gresham, Kathy Majidi, is working on a project involving wetlands and they need to provide administrative proof to attorneys that a stream is on the 303d list. Kelley Creek in the Johnson Creek watershed in the Lower Willamette looks to me is listed for year-round temperature and for spawning. See my email to Kathy farther below. The attorney is looking for further documentation. Could you:

1. Confirm the listing
2. If possible, provide additional information above and beyond of what I included below for their attorney?

Sorry, this info is needed as soon as you can.

Many thanks Lesley!
Andrea

From: Kathy Majidi <kathy.majidi@greshamoregon.gov>
Sent: Wednesday, May 18, 2022 11:23 AM
To: MATZKE Andrea * DEQ <Andrea.MATZKE@deq.oregon.gov>
Subject: Re: Kelley vs Kelly Creek water quality limited listings

Andrea,
This is perfect. While I myself can't seem to figure out how to get the Kelley Creek data from that interactive web map (I can see it but not select it and it's not highlighted with a color, and the GNIS_ID query didn't result in a Kelley Creek hit, you provided the data and clip needed. I'll pass this along to Pacific Habitat Services, who is compiling the response on the full OFWAM assessment, and I'll endeavor to better learn this tool you've shared. :)

Thank you!!!!!

Kathy Majidi

Natural Resources Program Manager

Dept. of Environmental Services, City of Gresham

1333 NW Eastman Parkway

Gresham, OR 97030

503-618-2488

From: MATZKE Andrea * DEQ <Andrea.MATZKE@deq.oregon.gov>
Sent: Wednesday, May 18, 2022 11:00 AM
To: Kathy Majidi <kathy.majidi@greshamoregon.gov>
Cc: MATZKE Andrea * DEQ <Andrea.MATZKE@deq.oregon.gov>
Subject: RE: Kelley vs Kelly Creek water quality limited listings

Hi Kathy,

The database you were looking in is associated w/ the 2010 Integrated Report. The currently EPA-approved list is the 2018/2020 Integrated Report. I think the easiest way to search for impaired status is through the DEQ WQ Standards & Assessment Tool. This interactive web map is noted in the second bullet down on the website. When I search this way, I see that Kelley Creek in the JC watershed is impaired for both year-round temperature and spawning temperature criteria. Category 5 means that a TMDL needs to be developed. My understanding is that because EPA disapproved temperature TMDLs across the state that were based on natural conditions, all those temperature listings reverted from a 4a (impaired but TMDL in place), back to Cat. 5. That is what happened w/ the temperature listing in Kelley Creek.

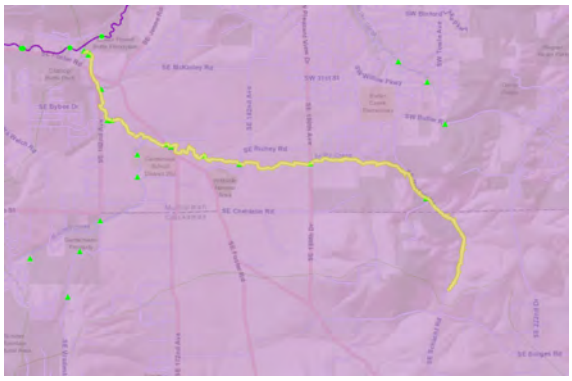
Below is my copy and paste from this map.

I hope this is what you need, but let me know if you need anything else.

Best,
Andrea

Kelley Creek

AU ID: OR_WS_170900120101_02_104550
GNIS Name: Kelley Creek
Assessment Unit Status: Impaired
Category 5: Temperature- Spawning; Temperature- Year Round
Category 4(B,C):
Category 4A:



From: Kathy Majidi <kathy.majidi@greshamoregon.gov>
Sent: Wednesday, May 18, 2022 9:01 AM
To: MATZKE Andrea <andrea.matzke@state.or.us>
Subject: Kelley vs Kelly Creek water quality limited listings

Andrea,
I found my way to this search engine:
https://www.deq.state.or.us/wq/assessment/rpt2010/search.asp#db

and if I search for Kelley, no hits. But if I search for Kelly Creek, 29 hits. A subset of the Kelly Creek hits are relevant to a Lower Columbia/Sandy listing, so consistent with what Gresham maps as "Kelly", draining to the Sandy. But then there are a subset of hits for a "Kelly Creek" with a different LLID (not sure what that stands for, but it's an ID # of some sort) and that's a tributary within the Lower Willamette... so I'm guessing that Kelley Creek data is listed incorrectly under Kelly within at least this one DEQ database.

State of Oregon: Department of Environmental Quality - Oregon's 2010 Integrated Report Assessment Database and 303(d) List

[About the Database] [Instructions] [Review the Database] The 2010 Integrated Report Assessment Database contains information on water quality in Oregon's surface waters and includes waters identified as water quality limited that need TMDLs (Category 5: Section 303(d) list).

www.deq.state.or.us

Attachment #3: PHS Finding of Local Significance

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, Oregon 97070

Telephone number: (503) 570-0800 Fax number: (503) 570-0855

MEMORANDUM

Date: **August 23, 2023**

To: **Ken Onyima, Senior Development Planner**
Urban Design & Planning, City of Gresham

From: **Craig Tumer**
John van Staveren

Re: **Review of AKS Locally Significant Wetland Report – Veranda Subdivision**
MPLAN 21-00652

At your request, Pacific Habitat Services, Inc. (PHS) has reviewed the ESRA-PV Mitigation Plan Technical Memorandum prepared by AKS Engineering & Forestry (AKS) for the Veranda at Pleasant Valley Master Plan and Subdivision (MPLAN 21-00652), dated May 23, 2023, with the focus of our review on AKS's determination that the wetlands on the project site do not meet the criteria for locally significant wetlands (LSW) and, therefore, are not subject to the standards of the City of Gresham's ESRA-PV sub-district. The results of our review are provided below.

OAR 141-086-0350(2)(a)-(e) list five "Mandatory LSW Criteria", and in accordance with the OAR, if a wetland meets one or more of these five criteria, the wetland shall be identified as locally significant. In accordance with OAR 141-086-0350(2)(b), a wetland shall be identified as locally significant if:

> *The wetland or a portion of the wetland occurs within a horizontal distance of less than one-fourth mile from a water body listed by the Department of Environmental Quality as a water quality limited water body (303(d) list), and the wetland's water quality functions is described as "intact" or "impacted" or "degraded" using OFWAM. The 303(d) list specifies which parameters (e.g., temperature, pH) do not meet state water quality standards for each water body.*

As described in AKS's memo, the wetlands on the Veranda property are within one-fourth mile of Kelley Creek, which is included in the Upper Johnson Creek Assessment Unit, which is 303(d)-listed for having impaired year-round temperature and temperature for spawning. AKS's OFWAM assessment of the on-site wetlands, which is included in Attachment A of AKS's memo, characterizes the wetlands' water quality function as impacted or degraded. Therefore,

the wetlands on the Veranda site meet the criteria for locally significant wetlands, as required by the OAR.

OAR 141-086-0350(2)(b) goes on the say:

> *A local government may determine that a wetland is not significant under this subsection upon documentation that the wetland does not provide water quality improvements for specified parameter(s).*

In order to make the case that wetlands on the Veranda property should not be considered locally significant, AKS assessed the functions and values of wetlands on the site using the Oregon Rapid Wetland Assessment Protocol (ORWAP) Version 3.2 and used their ORWAP results for the water-cooling function to draw conclusions about the wetlands' contribution to improving water quality via the moderation of water temperatures within Kelley Creek. The ORWAP methodology requires wetland professionals to answer questions related to a wetland's characteristics and enter those answers into an Excel spreadsheet. That ORWAP spreadsheet automatically generates scores intended to reflect a wetland's ability to support 16 different wetland functions related to hydrologic function, water quality support, fish habitat, aquatic habitat, and ecosystem support. The "water cooling" function is one of three functions that contribute to the water quality support functional group. The ORWAP algorithm then translates these scores into ratings of "lower," "moderate or "higher" relative to 200 reference wetlands found throughout Oregon on which the ORWAP function and value rating scores are based. AKS's ORWAP analysis determined that the wetlands on the Veranda site scored "lower" for the water-cooling function, as described in their memo. Based on their analysis, AKS concludes that, "…wetlands on the project site do not contribute meaningful water cooling (temperature) improvement to Kelley Creek." However, it is our best professional judgement that AKS's memo does not adequately document that the wetlands on the Veranda site do not provide water quality improvements for the parameters for which Kelley Creek is 303(d)-listed (i.e., year-round water temperature and temperature for spawning) and, as described below, we do not find their assessment proves that the wetland should not be identified as locally significant.

In February 2023, in reviewing the AKS position that their ORWAP scoring should serve as documentation for a lack of cool water input to Kelley Creek, PHS reviewed the DSL-approved wetland delineation for the site prepared for the applicant by Schott & Associates in 2019, and using data from that delineation and PHS' site observations, we applied the ORWAP methodology to Wetland 1, the largest wetland on the project site. Our ORWAP evaluation arrived at a "higher" rating for the water cooling functions. While recognizing ORWAP was not developed for the purpose of documenting whether a wetland meets local significance criteria, we provided feedback to the City that our "higher" ORWAP scoring contradicts the AKS "lower" ORWAP scoring, and that we found no support in their findings for the conclusion that Wetland 1 does not provide a water cooling benefit to Kelley Creek. Based on our experience looking at similarly situated sites in the area, PHS relayed to the City that is our best professional judgement that the wetlands on the Veranda site provide a more important contribution to moderating surface water temperatures in Kelley Creek than what was presented in the AKS materials.

PHS feedback to the City was included in a March 22, 2023, response memo from the City to the Veranda applicant team. In May 2023, AKS responded to PHS's February findings, noting that PHS's ORWAP analysis is based on a single February 2, 2003, site visit conducted prior to the start of the growing season. In their memo, AKS suggested that the PHS ORWAP analysis is less accurate than the AKS ORWAP analysis included in their most recent memo, as their ORWAP assessment was based on at least four site visits conducted between December 2022 and May 2023. PHS has considered this statement and is unable to find relevance of this argument. The spreadsheets associated with our February ORWAP analysis (appended to the City's March 22, 2023, Local Significance of Wetlands memorandum) included comments noting how our responses to the ORWAP "questions" differed from those of the original AKS draft ORWAP analysis, which was based on a single site visit dated December 2, 2022. Those February comments show that PHS's ORWAP analysis differed from AKS's in the answers to just seven of the 72 "questions" on the field data form. Several of those seven points of difference stemmed from inconsistencies between AKS's answers to ORWAP questions and the comments AKS entered into the spreadsheet, meaning their scores weren't supported by their own observation notes. In May 2023, AKS's updated ORWAP was delivered as a summary, without the associated spreadsheets that record the answers to the 72 aforementioned questions, but we can see that their water cooling function score of 2.22 remained unchanged between their ORWAP based on one site visit and their ORWAP based on 4 site visits. The function score of 2.22 for both the draft and final versions suggests that multiple site visits or observations made after the start of the growing season did not affect the rating for the water cooling function. PHS has a function score of 6.35 for the water cooling function. PHS's ORWAP scores also showed consistency with the applicant's wetland delineation (Schott & Associates, 2019) report contents as detailed below.

AKS notes in their memo, "Per the DSL ORWAP manual, the water-cooling function is defined as 'effectiveness of a wetland for maintain[ing] or reducing summertime water temperature, and in some cases, for moderating winter water temperature.'" The wetland delineation report prepared by Schott & Associates, Inc. for the Veranda site indicates that the hydrology of all wetlands on the site is supported by a combination of precipitation, high groundwater table, hillslope seeps, and damaged or plugged drain tiles (which indicate the presence of a shallow groundwater table). That same wetland delineation report also included a photograph from March 26, 2019, of flow from Wetland 1 into the off-site ditch that leads to Kelley Creek. The City of Gresham also has photos taken on March 20, 2017 (Photos A and B, Attachment 1) that show surface water within Wetland 1 and flow in the ditch between the wetland and Kelley Creek. These two photos indicate that discharges from the wetland are longer than the "…no more than two consecutive weeks, on average, during the early growing season" indicated in AKS's memo and suggest that these discharges are a regular occurrence.

The May 2023 AKS memo includes the following two statements:

- *There is no evidence to support surface water discharges from Wetland 1 during the warm weather period (May through October), when temperatures within Kelley Creek require cooling benefit.*

- *There is no documented evidence that wetlands provide groundwater discharges via the roadside ditch into Kelley Creek outside of the cool, wet season.*

However, the AKS memo does not provide data in the form of piezometer readings, photographs, wetland delineation sample points or soil profile descriptions that document the absence of surface water or groundwater discharges to Kelley Creek during the warm weather period. However, photos taken by City staff from the public right-of-way show surface water within Wetland 1 on the Veranda Property on May 4, 2022 (Photos C and D, Attachment 1). Analysis of precipitation data for the three-month period preceding the date this photo was taken using the Direct Antecedent Rainfall Evaluation Method (DAREM) shows that this photo was taken during a period of normal precipitation, which suggests that Wetland 1 does discharge surface and/or groundwater to Kelley Creek outside of the cool, wet season. The results of the DAREM analysis are provided in Attachment 2.

Furthermore, Kelley Creek and the watershed are 303(d)-listed for "year-round water temperature." The evidence in AKS's memo also does not provide documentation that the documented discharges from the wetlands do not provide water quality benefits to downstream waters in the winter months or during the early part of the growing season.

Even without considering the different results of AKS's and PHS's ORWAP analyses, it is our best professional judgement that the "lower" rating for the water-cooling function from AKS's ORWAP analysis is not adequate to document that the wetlands on the Veranda site do not contribute water temperature improvements in Kelley Creek. As described in the *ORWAP Technical Supplement, version 3.2*, the term "lower" is not an absolute measure of function and value but is a score showing relative performance of a function when compared to the 200 reference wetlands on which the ORWAP function and value rating scores are based. Because the functional ratings provided by ORWAP are relative to the pool of reference wetlands located in various landscape settings throughout Oregon that were used in the development of the methodology, wetlands that have been historically degraded by urban or agricultural activities typically receive "lower" or "moderate" ratings. Therefore, a "lower" rating does not mean that the wetland does not provide the function; rather it indicates that the wetland provides the function to a lesser degree than many of the reference wetlands. Furthermore, AKS's ORWAP analysis resulted in a function score of 2.22 for each of the three wetlands that were assessed. The "LM" in the "Rating Break Proximity" column of the ORWAP Score Summary Sheets (Attachment B of AKS's memo) indicates that this ORWAP score is within the upper range of scores assigned to the "lower" rating and within the statistical confidence interval of the break between lower and moderate ratings.

In summary, the wetlands within the Veranda site are within one-fourth mile of Kelley Creek, which as part of the Upper Johnson Creek Assessment Unit and is 303(d)-listed for having impaired year-round temperature and temperature for spawning. OFWAM analysis performed by AKS indicates the wetlands' water quality function is impacted or degraded. For these reasons, the wetlands on the Veranda site must be considered locally significant wetlands in accordance with OAR 141-086-0350(2)(b), which states, the following:

> *The wetland or a portion of the wetland occurs within a horizontal distance of less than one-fourth mile from a water body listed by the Department of Environmental Quality as a water quality limited water body (303(d) list), and the wetland's water quality function is described as "intact" or "impacted" or "degraded" using OFWAM. The 303(d) list specifies which parameters (e.g., temperature, pH) do not meet state water quality standards for each water body.*

It is our best professional judgement that the evidence provided in AKS's memo does not adequately document that the wetlands do not provide improvements to the year-round temperature and temperature for spawning parameters for which the stream is 303(d)-listed, as required by the OAR, and therefore, AKS's memorandum does not provide a basis for not considering the wetlands to be locally significant.

Attachment 1

Photographs

Photo A: Looking southeast across Wetland 1 on the Veranda Property. Note flow within the ditch within the wetland. Small areas od surface water are also visible in the vicinity of the dark green, herbaceous vegetation in the background of the photo. Photo taken by City staff on March 20, 2017.

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Photo B: Looking south along the ditch on the west side of SW 190th Drive, downstream of the culvert that discharge surface flow from Wetland 1. Photo taken by City staff on March 20, 2017.

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Photo C:

The blue area under the shrub is a small area of ponded surface water within Wetland 1, as seen from SW 190th Drive.

Photo taken by City staff on May 4, 2022.

Photo D:

Zoomed out photo of the area shown in Photo C provided to provide contect for photo location.

Photo taken by City staff on May 4, 2022.

Attachment 2

Results of DAREM Analysis

Attachment 2

Analysis of Precipitation in the Months Immediately Preceding May 4, 2022 Using the Direct Antecedent Rainfall Evaluation Method (DAREM)

Month	Average Precipitation[1]	30% Chance Will Have[1]		Measured Precipitation[2]	Condition Value[3] (1=dry, 2=normal, 3=wet)	Month Weight[4]	Condition Value x Month Weight	Sum Total[5]
		Less Than Average	More Than Average					
April	4.24	3.35	4.77	8.22	Wet (3)	3	9	14 (normal)
March	5.07	3.63	5.59	4.92	Normal (2)	2	4	
February	4.69	3.20	5.40	2.83	Dry (1)	1	1	

[1] NRCS WETS Table for the Troutdale, OR WETS Station for the period 1991 - 2020. Source: http://agacis.rcc-acis.org/?fips=41051.

[2] Measured rainfall is the precipitation recorded at the Troutdale, OR WETS Station. Source: http://agacis.rcc-acis.org/?fips=41051.

[3] Condition Value: compared to nearest WETS normal range

[4] Month Weight: most recent month = 3, 2nd most recent month = 2, third most recent month = 1

[5] Sum Total: sum of eighth column: drier (sum 6-9), normal (sum 10-14), wetter (sum 15-18)

Attachment #4: Amy Hawkins' OFWAM Assessment for Wetland 1 finding Local Significance

PACIFIC HABITAT SERVICES, INC.

9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

(800) 871-9333 ● (503) 570-0800 ● Fax (503) 570-0855

May 19, 2022

Kathy Majidi
City of Gresham
1333 NW Eastman Parkway
Gresham, OR 97030

In re: Veranda Property (7928 Southeast 190th Drive, Pleasant Valley, Gresham, OR)
PHS #7189

Dear Kathy,

Pacific Habitat Services (PHS) conducted an assessment of Wetland A (0.12 acre), as delineated by Jason Smith of Castle-Rose Environmental. The wetland is located at 7928 Southeast 190th Drive in Pleasant Valley, Gresham, Oregon. The wetland was assessed offsite using the Oregon Freshwater Wetland Assessment Methodology (OFWAM).

Applying the OFWAM results for Wetland A to the Locally Significant Wetland Criteria found in Oregon Administrative Rule (OAR) 141-086-0350, found the wetland to be locally significant. This is due to its proximity (within 1/4 mile) of a 303(d) listed creek (Kelley Creek).

The DSL-approved Wetland 1 within the Schott delineation (2019-0500) will also be considered locally significant due to its proximity to Kelley Creek.

The OFWAM data sheets for both wetlands are attached.

Please let me know if you need more information.

Sincerely,

Amy Hawkins

Amy Hawkins, Professional Wetland Scientist
Pacific Habitat Services, Inc.

c: Andrea Matzke, DEQ

Locally Significant Wetlands Criteria

ORS 197.279 (3)(b)

Project Name:	Veranda - Castle Rose Wetland A	**Wetland:**	**PEMC**
Project Location:	7928 SE 190th Drive, Pleasant V	**Approx. Area (acres):**	0.12
Date:	n/a	**Wetland Types(s):**	PEM

Exclusions **: This wetland cannot be designated as significant if the answer to any of the criteria below is "Yes".**		
1 Is this wetland artificially created entirely from upland and:		
a. created for the purpose of controlling, storing, or maintaining stormwater		No
b. is used for active surface mining or as a log pond		No
c. is a ditch without a free and open connection to natural waters of the state		No
d. is less than 1 acre and created unintentionally from irrigation or construction		No
e. created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard		No
2 Is the wetland or portion of the wetland contaminated by hazardous substances, materials or wastes as per the conditions of ORS 141-86-350 1(b)		No
Exclusion criteria satisfied?		**No**

Mandatory Locally Significant Wetland Criteria **: This wetland is locally significant if "Yes" is the answer to any of the criteria below.**		
1 Does the wetland provide *diverse wildlife habitat* ?		No
2 Is the wetland's *fish habitat function intact* ?		No
3 Is the wetland's *water quality function intact* ?		No
4 Is the wetland's *hydrologic control function intact* ?		No
5 Is the wetland less than 1/4 mile from a water body listed by DEQ as a water quality limited water body (303(d) list) and is the wetland's *water quality function intact, or impacted or degraded* ?	Yes	
6 Does the wetland contain a rare plant community?		No
7 Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered?		No
8 Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids and is the wetland's *fish habitat function intact, or impacted or degraded* ?		No
Mandatory Locally Significant Wetland criteria satisfied ?	**Yes**	

Optional Locally Significant Wetland Criteria **: local governments may identify a wetland as significant if "Yes" is the answer to the criteria below**		
1 Does the wetland represent a locally unique native plant community and provides *diverse wildlife habitat or habitat for some species* or has a *intact, or impacted or degraded fish habitat function* or has a *intact, or impacted or degraded water quality function* or has a *intact, or impacted or degraded hydrologic control function* .		No
2 Is the wetland publicly owned and used by a school or organization and does the wetland provide *educational uses* ?		No
Optional Locally Significant Wetland criteria satisfied ?		**No**

Locally Significant Wetland

Locally Significant Wetlands Criteria

ORS 197.279 (3)(b)

Project Name:	Veranda - Schott Wetlands	**Wetland:**	**PEMC**
Project Location:	7928 SE 190th Drive, Pleasant V	**Approx. Area (acres):**	4.97
Date:	n/a	**Wetland Types(s):**	PEM

Exclusions **: This wetland cannot be designated as significant if the answer to any of the criteria below is "Yes".**		
1 Is this wetland artificially created entirely from upland and:		
a. created for the purpose of controlling, storing, or maintaining stormwater		No
b. is used for active surface mining or as a log pond		No
c. is a ditch without a free and open connection to natural waters of the state		No
d. is less than 1 acre and created unintentionally from irrigation or construction		No
e. created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard		No
2 Is the wetland or portion of the wetland contaminated by hazardous substances, materials or wastes as per the conditions of ORS 141-86-350 1(b)		No
Exclusion criteria satisfied?		**No**

Mandatory Locally Significant Wetland Criteria **: This wetland is locally significant if "Yes" is the answer to any of the criteria below.**		
1 Does the wetland provide *diverse wildlife habitat* ?		No
2 Is the wetland's *fish habitat function intact* ?		No
3 Is the wetland's *water quality function intact* ?		No
4 Is the wetland's *hydrologic control function intact* ?		No
5 Is the wetland less than 1/4 mile from a water body listed by DEQ as a water quality limited water body (303(d) list) and is the wetland's *water quality function intact, or impacted or degraded* ?	Yes	
6 Does the wetland contain a rare plant community?		No
7 Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered?		No
8 Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids and is the wetland's *fish habitat function intact, or impacted or degraded* ?		No
Mandatory Locally Significant Wetland criteria satisfied ?	**Yes**	

Optional Locally Significant Wetland Criteria **: local governments may identify a wetland as significant if "Yes" is the answer to the criteria below**		
1 Does the wetland represent a locally unique native plant community and provides *diverse wildlife habitat or habitat for some species* or has a *intact, or impacted or degraded fish habitat function* or has a *intact, or impacted or degraded water quality function* or has a *intact, or impacted or degraded hydrologic control function* .		No
2 Is the wetland publicly owned and used by a school or organization and does the wetland provide *educational uses* ?		No
Optional Locally Significant Wetland criteria satisfied ?		**No**

Locally Significant Wetland

Attachment #5: Melanie Klym (River Design Group). Summary of her supporting references and review notes

Christa Britton

From: Kathy Majidi
Sent: Monday, November 6, 2023 11:11 AM
To: Christa Britton
Subject: FW: Review Notes RE: Veranda at Pleasant Valley and Kelley Creek temperature

From: Melanie Klym <mklym@riverdesigngroup.net>
Sent: Sunday, August 20, 2023 11:08 AM
To: Kathy Majidi <kathy.majidi@greshamoregon.gov>
Subject: Review Notes RE: Veranda at Pleasant Valley and Kelley Creek temperature

CAUTION: External Email

Hi Kathy,

As noted in the 2009 USGS study (Hydrology of the Johnson Creek watershed), Kelley Creek is an important cold-water tributary to Johnson Creek based on its groundwater inputs. Based on the information provided by AKS in their ESRA dete rmination memo and the earlier DSL concurrence of the wetland delineation I would recommend site-specific monitoring to substantiate the claim of "no subsurface connection" (and groundwater flow) between the wetlands and Kelley Creek. The absence of a subsurface (groundwater) connection between Veranda wetlands and Kelley Creek is unlikely based on my knowledge of the Johnson Creek watershed geology and hydrogeological principles of groundwater flow.

The south side of the creek (property in question) is underlain by the Troutdale Formation modified by the Boring Volcanics intrusion based on DOGAMI's geologic mapping. I would expect shallow groundwater flow (interflow) above the leaky aquitard commonly found in the Troutdale formation and deeper groundwater flow providing baseflow input to Kelley Creek based on the generally accepted hydrogeological phenomenon of the water table following topography and the work done by USGS (Lee and Snyder) investigating the hydrology and groundwater table configuration of the Johnson Creek watershed. I've included links & screenshots of these documents, below.

Riparian canopy and shade help to keep water cool but it doesn't inherently decrease water temperature once it's heated. It would be important to preserve the groundwater flow (subsurface connections) in the watershed to maintain this cold water especially in the face of climate change when we can expect warmer air temperatures.

I've included my review notes and notes on the source documents, below. Please let me know if you have any additional questions.

Cheers,
--Melanie

MELANIE C. KLYM, PE, RG/LG, ENV SP
Senior Engineer | Geomorphologist
541.207.1501 office
503.927.3179 mobile
RIVER DESIGN GROUP, INC.

My Pronouns: she/her - see www.mypronouns.org to learn more.

T02 - Veranda at Pleasant Valley

Wednesday, January 18, 2023
7:34 AM

Has ORWAP/SFAM been conducted?
--> Yes by PHS

KEY WORD:
"documentation"

~~Any RAAU documented on site?~~

- PHS agreed that (a) criteria do not apply

Purpose of Review

Evaluate thermal benefit of hillside wetlands in Pleasant Valley and whether they qualify as locally significant.

Information Provided

DSL wetland delineation concurrence (2019): WD20190500 AgencyDecision
AKS memo: 9804 20230112 Veranda PV ESRA Determination AKS Memo and Attachments

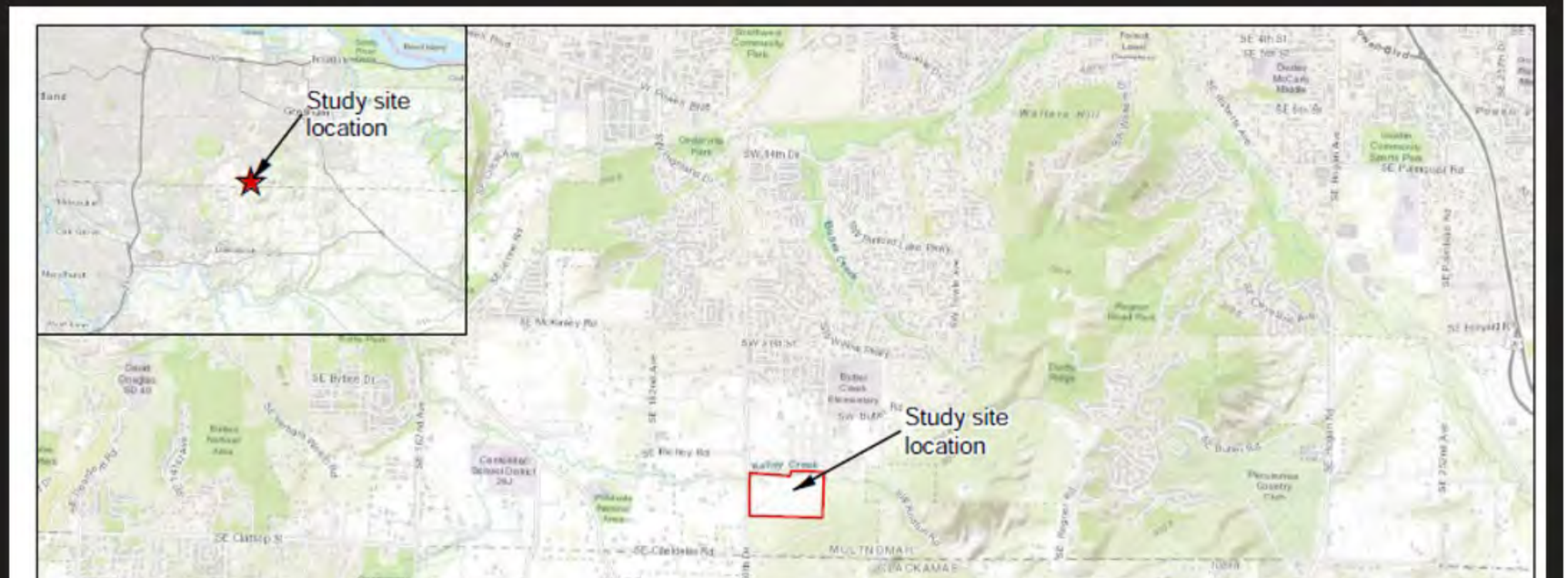
DSL delineation concurrence

- Concurrence with revised figures 6a, 6b, 6c
- 5 wetlands (#1-5), 5.52 acres
- One creek (Kelley Creek)
- Two ditches (wetland 1 and roadside)
  "the remainder of the roadside ditch not adjacent to Wetland 1 is exempt per OAR 141-085-0515(10)."

Enclosures

ec: Kim Biafora, Schott & Associates, Inc.
Jodi Reed, Schott & Associates
Multnomah County Planning Department (Maps enclosed for updating LWI)
Melody White, Corps of Engineers
Melinda Butterfield, DSL

Screen clipping taken: 1/18/2023 8:01 AM



Date: 3/27/2019

Data Source: ESRI, 2019;
Gresham Viewer, 2019

Figure 1. Location Map

SCHOTT & ASSOCIATES, Inc.

Pleasant Valley Project Site: S&A #2558

0 0.5 1 2 Miles

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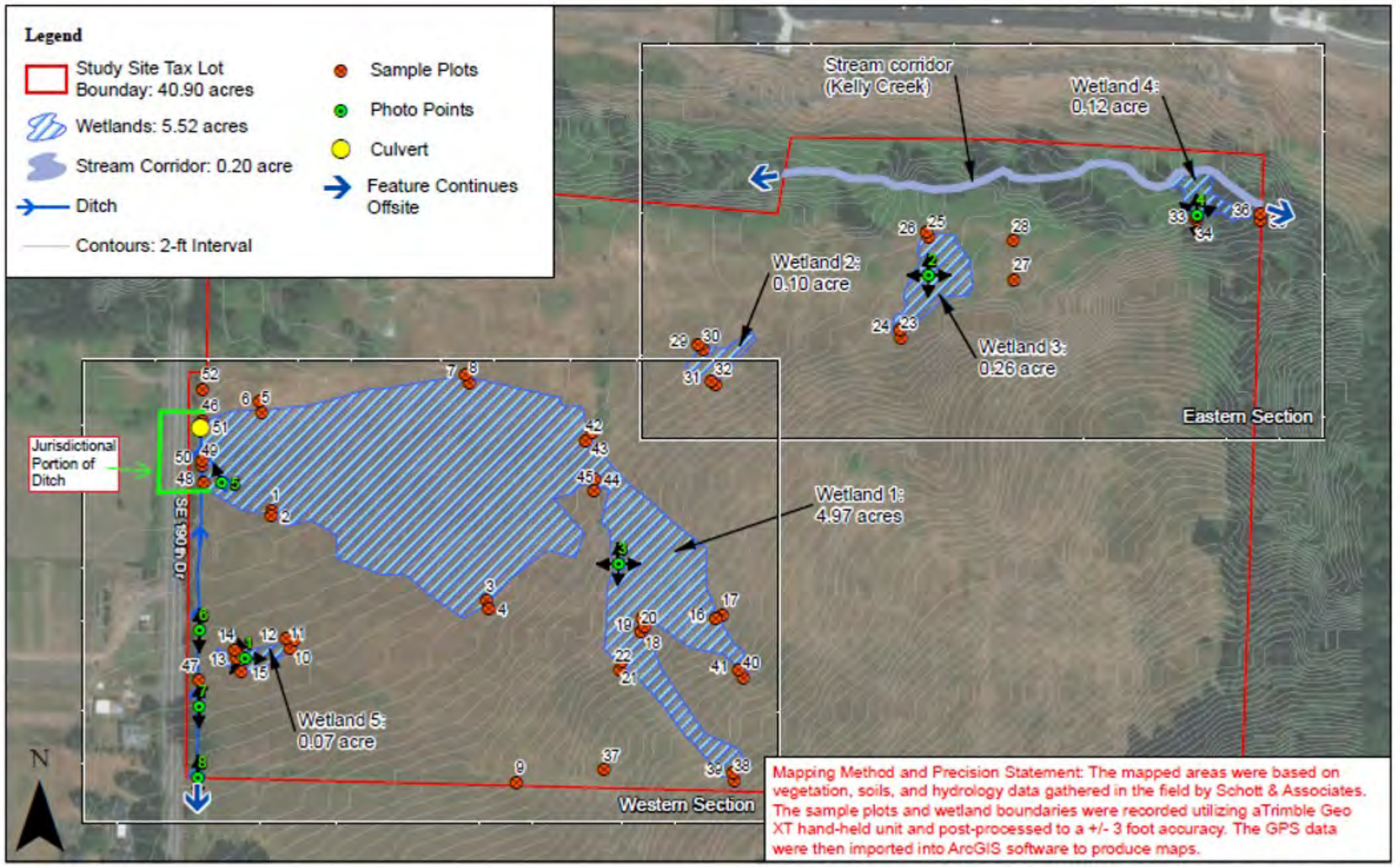
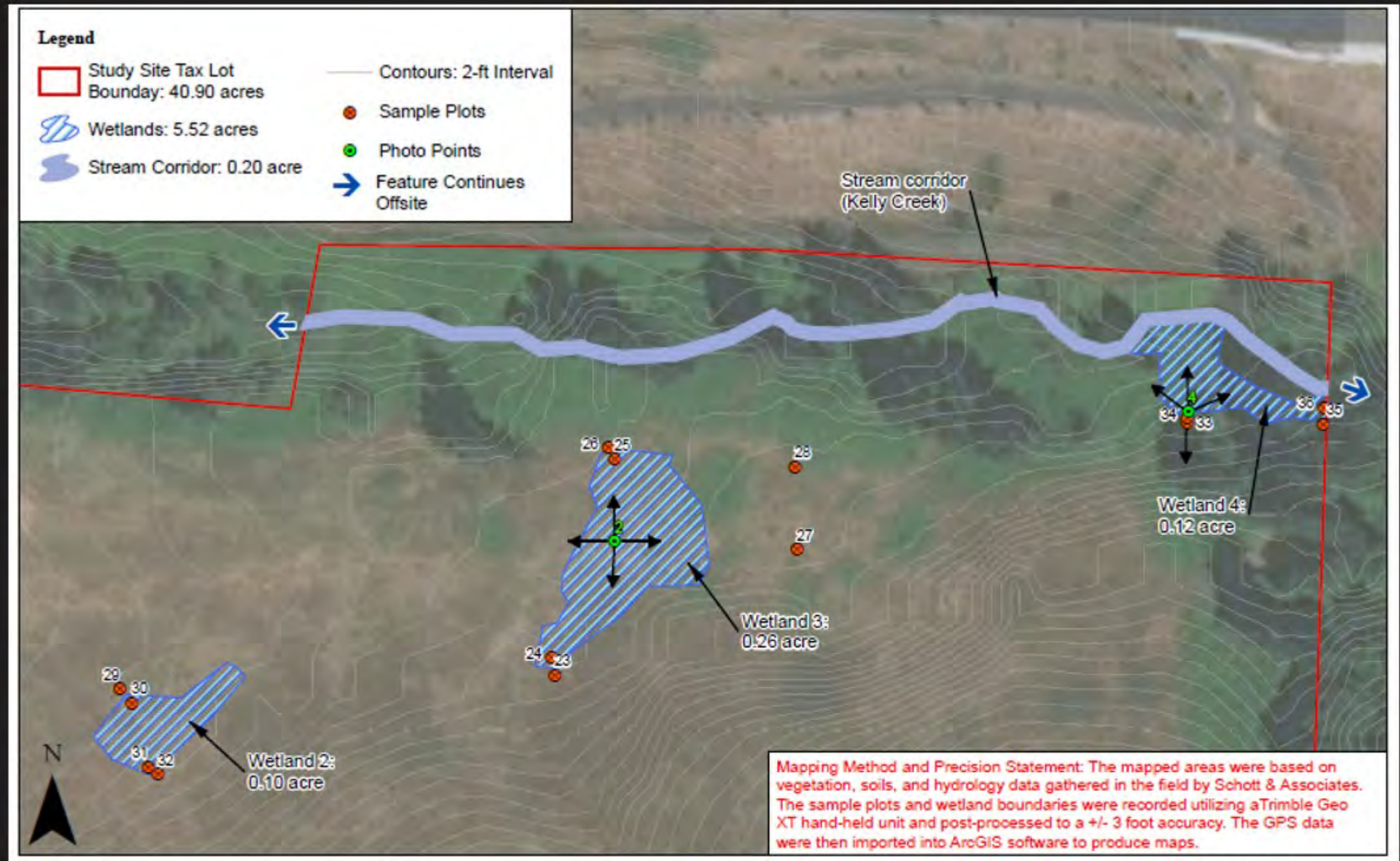


Date: 1/22/2020

Figure 6a. Wetland Delineation



Date: 1/17/2020

Data Source: ESRI, 2019; Gresham View, 2019; USGS, NED, 2013

Figure 6b. Wetland Delineation Map - Eastern Section

SCHOTT & ASSOCIATES, Inc.

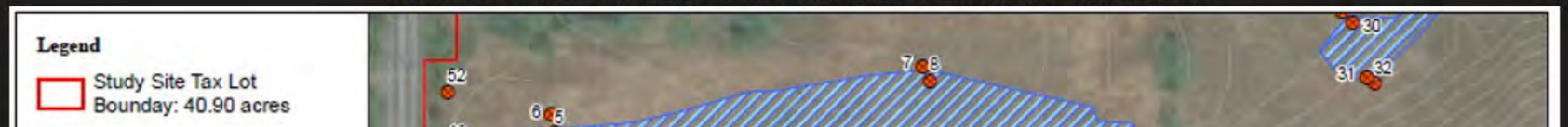
DSL WD # 2019-0500
Approval Issued 1/23/2020
Approval Expires 1/23/2025

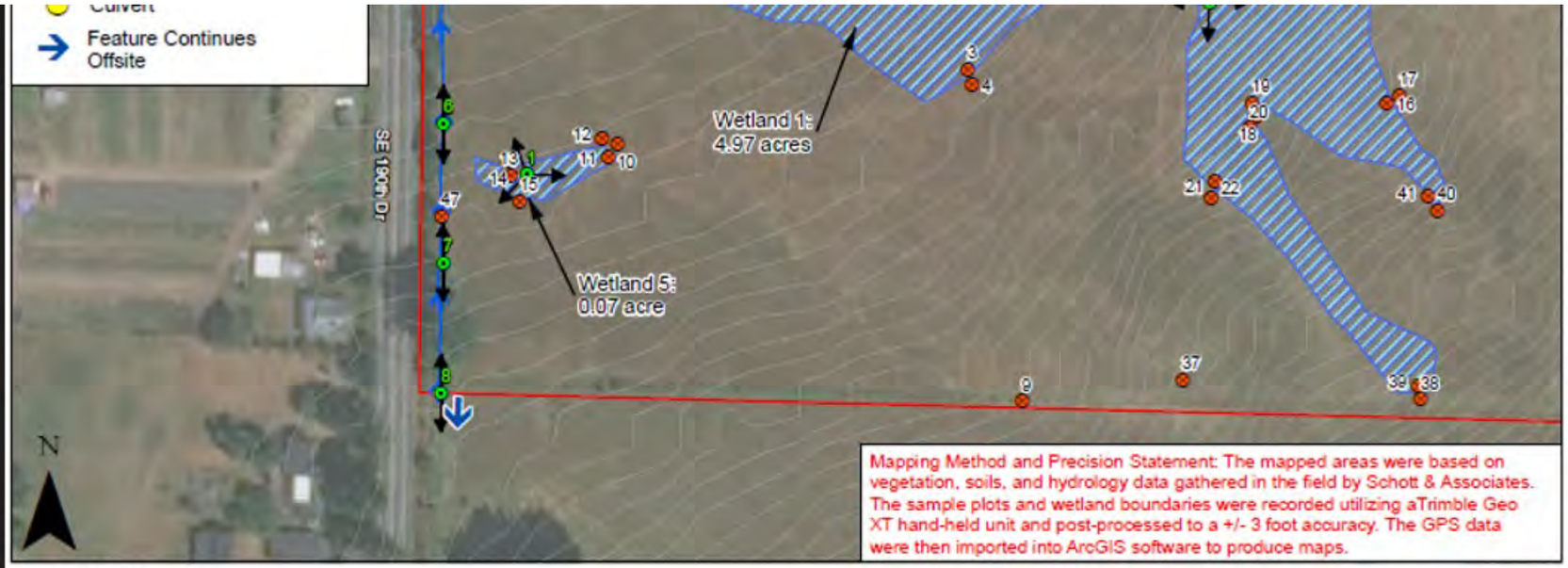
Pleasant Valley Project Site: S&A #2558

0 50 100 200 Feet

Screen clipping taken: 1/18/2023 8:04 AM

Where does culvert discharge to? Surface water connection to Kelley Creek?





Date: 1/22/2020

Data Source: ESRI, 2019; Gresham View, 2019; USGS, NED, 2013

Figure 6c. Wetland Delineation Map - Western Section

SCHOTT & ASSOCIATES, Inc.

DSL WD # 2019-0500
Approval Issued 1/23/2020
Approval Expires 1/23/2025

Pleasant Valley Project Site: S&A #2558

0 50 100 200 Feet

Screen clipping taken: 1/18/2023 8:04 AM

AKS memo and attachments

Date:	1/12/2023
To:	Jim Wheeler and Kathy Majidi, City of Gresham
From:	Stacey Reed, PWS, Senior Wetland Scientist
Project Name:	Veranda at Pleasant Valley Subdivision
AKS Job No.:	9804
Project Site:	7928 SE 190th Drive, Pleasant Valley Plan Area in Gresham, Clackamas County Tax lot 1200 of Clackamas County Assessor Tax Map 1S 3 20D
Subject:	ESRA-PV Determination City File No SD/MIS 20-26000343 (MPLAN 21-00652)

Screen clipping taken: 1/18/2023 8:05 AM

Screen clipping taken: 1/18/2023 8:06 AM

Locally Significance Criteria

Wetlands delineated by Schott on the project site were not mapped as locally significant on the City's Pleasant Valley Plan District ESRA map. The 2020 City ESRA-PV map only maps Kelley Creek and associated floodplain wetlands in the northern portion of the site as regulated under the ESRA-PV sub-district. According to Section 4.1432.B, wetlands identified on a site that are not mapped and meet the State of Oregon's definition of a locally significant wetland shall also be subject to the standards of the ESRA-PV sub-district. However, Oregon's mandatory locally significance criteria is outlined under Oregon Administrative Rule (OAR) 141-086-0350 (2). Under this criteria, Wetlands 1-3 and 5 do not meet any of the mandatory requirements *except* for criteria set forth under OAR 141-086-0350 (2)(b):

The wetland or a portion of the wetland occurs within a horizontal distance less than one-fourth mile from a water body listed by the Department of Environmental Quality as a water quality limited water body (303(d) list) and the wetland's water quality function is described as "intact" or "impacted or degraded" using OFWAM. The 303(d) list specifies which parameters (e.g. temperature, pH) do not meet state water quality standards for each water body. A local government may determine that a wetland is not significant under this subsection upon documentation that the wetland does not provide water quality improvement for the specified parameter(s).

Screen clipping taken: 1/18/2023 8:12 AM

Referenced OARs (in full)

https://oregon.public.law/rules/oar_141-086-0350

Mandatory LSW Criteria. A local government shall identify a wetland as locally significant if it meets one or more of the following criteria:

(a) The wetland performs any of the following functions at the levels indicated below using the Oregon Freshwater Wetland Assessment Methodology:

- **(A)** "Diverse" wildlife habitat; or
- **(B)** "Intact" fish habitat; or
- **(C)** "Intact" water quality function; or
- **(D)** "Intact" hydrologic control function.

(b) The wetland or a portion of the wetland occurs within a horizontal distance less than one-fourth mile from a water body listed by the Department of Environmental Quality as a water quality limited water body (303(d) list), and the wetland's water quality function is described as "intact" or "impacted or degraded" using OFWAM. The 303(d) list specifies which parameters (e.g., temperature, pH) do not meet state water quality standards for each water body. A local government may determine that a wetland is not significant under this subsection upon documentation that the wetland does not provide water quality improvements for the specified parameter(s).

(c) The wetland contains one or more rare plant communities, as defined in this rule.

(d) The wetland is inhabited by any species listed by the federal government as threatened or endangered, or listed by the state as sensitive, threatened or endangered, unless the appropriate state or federal agency indicates that the wetland is not important for the maintenance of the species.

- **(A)** The use of the site by listed species must be documented, not anecdotal. Acceptable sources of documentation may include but are not

On-site Wetland Water Quality Improvement Opportunity

Per OAR 141-086-0350(2)(b), even if the wetland is located within one-fourth mile to a 303(d) listed *waterbody*, local government may determine that a wetland is not locally significant if the wetland does not provide water quality improvement for the specified parameter. According to the 2018/2020 DEQ IR, the Upper Johnson Creek *watershed* was listed as a Category 5 303(d) for having impaired year-round temperature.

According to the current DSL and USACE approved wetland function assessment methodology (ORWAP V3.2 April 2020), the Water Cooling (WC) ecosystem support function evaluates a wetlands effectiveness for maintaining or reducing water temperature. Some wetlands have groundwater discharge, having the potential to mediate seasonal water temperatures to the watershed during the warmer summer months. This function is sometimes referred to as thermoregulation. According to ORWAP V3.2, non-tidal wetlands provide high functional opportunity for temperature (water cooling) if there is strong evidence of groundwater input or discharge, if the wetland has surface water present for 4 weeks or less during the growing season, and if the surface water in the wetland is shaded by woody vegetation during the summer.

Wetlands 1-3 and 5 are not positioned on a landform with the direct surface or subsurface connection to Kelley Creek (i.e. they are not located on a toeslope or on a floodplain terrace directly connected to Kelley Creek). They are located on the hillside footslope located approximately 8-10 feet higher in elevation above Kelley Creek. Wetlands 1-3 and 5 are dominated by non-native pasture grasses, lacking woody vegetation. The surrounding upland buffer is also dominated by pasture grasses with invasive Himalayan blackberry, lacking shaded canopy cover. According to the April 2019 Schott jurisdictional wetland delineation report, Wetlands 1-3 and 5 lacked surface water during their April 2018 and March 2019 site visits (conducted during the early portion of the growing season). Their 2019 delineation report stated wetland hydrology input was sustained from direct precipitation, broken and plugged drain tile, and possibly hillslope seeps in the upper portion of Wetland 1. The Schott report did not document evidence of surface water directly discharging from wetlands to Kelley Creek. The grasses within the wetland are dominated by pasture grasses (do not have dense stem densities) that are mowed regularly and lack thatch, exposing bare ground during the summer months.

According to these site specific features, the ORWAP assessment criteria scoring determines the existing wetland conditions provides lower functional opportunity for water cooling (temperature; see Attachment B). The landform and proximity of Wetlands 1-3 and 5 to Kelley Creek prohibits opportunity for enhanced wetlands to provide direct thermoregulation (temperature cooling) to Kelley Creek.

This means that the City can and should determine that these wetlands are not locally significant.

I would expect the groundwater discharge to follow topography towards Kelley C
shallow confining units are present

Drain tiles intercept shallow groundwater flow

and ratings assigned.

Normalized Scores & Ratings for this Assessment Area (AA):

Specific Functions or Values:	Function Score	Function Rating	Rating Break Proximity	Values Score	Values Rating	Rating Break Proximity	Function Score (raw)	Values Score (raw)
Water Storage & Delay (WS)	10.00	Higher		0.00	Lower		10.00	0.00
Sediment Retention & Stabilization (SR)	3.99	Moderate	LM	4.18	Moderate		4.27	3.18
Phosphorus Retention (PR)	10.00	Higher		1.73	Lower		10.00	1.44
Nitrate Removal & Retention (NR)	10.00	Higher		1.38	Lower		10.00	1.44
Anadromous Fish Habitat (FA)	0.00	Lower		0.00	Lower		0.00	0.00
Resident Fish Habitat (FR)	0.00	Lower		0.00	Lower		0.00	0.00
Amphibian & Reptile Habitat (AM)	5.79	Moderate		6.67	Moderate	MH	5.24	6.67
Waterbird Nesting Habitat (WBN)	0.00	Lower		0.00	Lower		0.00	0.00
Waterbird Feeding Habitat (WBF)	0.00	Lower		0.00	Lower		0.00	0.00
Aquatic Invertebrate Habitat (INV)	3.40	Lower	LM	2.02	Lower		5.01	2.55
Songbird, Raptor, Mammal Habitat (SBM)	4.24	Moderate	LM	4.67	Moderate		5.75	4.67
Water Cooling (WC)	2.22	Lower	LM	0.00	Lower		1.94	0.00
Native Plant Diversity (PD)	6.38	Moderate	MH	3.36	Lower	LM	5.72	3.36
Pollinator Habitat (POL)	6.96	Moderate	MH	3.61	Moderate		6.07	2.92
Organic Nutrient Export (OE)	0.00	Lower					0.00	
Carbon Sequestration (CS)	2.36	Lower					2.80	
Public Use & Recognition (PU)				2.18	Lower			2.96

Other Attributes:	Score	Rating	Rating Break Proximity		
Wetland Sensitivity (SEN)	2.61	Moderate	LM		4.68
Wetland Ecological Condition (EC)	1.59	Lower			3.33
Wetland Stressors (STR)	5.94	Higher	MH		5.47

GROUPS	Selected Function	Function Rating	Rating Break Proximity	Values Rating	Rating Break Proximity
Hydrologic Function (WS)	Water Storage & Delay (WS)	Higher		Lower	
Water Quality Support (SR, PR, or NR)	Phosphorus Retention (PR)	Higher		Lower	
Fish Habitat (FA or FR)	Anadromous Fish Habitat (FA)	Lower		Lower	
Aquatic Habitat (AM, WBF, or WBN)	Amphibian & Reptile Habitat (AM)	Moderate		Moderate	MH
Ecosystem Support (WC, INV, PD, POL, SBM, or OE)	Songbird, Raptor, Mammal Habitat (SBM)	Moderate	LM	Moderate	

reviewed and concurred with AKS' assessment?

What about the other wetlands? This is for Wetland 1 only.

Conjecture/assumption that there is no subsurface connection to the creek based on landform. Needed **documentation** of no connectivity (install monitoring well network).

Watertable generally follows land slope (Snyder, 2008 - depth to groundwater in Portland) and is higher on hillsides https://pubs.usgs.gov/sir/2008/5059/
https://pubs.usgs.gov/sir/2008/5059/figure8.html

Scientific Investigations Report 2008–5059

U.S. GEOLOGICAL SURVEY
Scientific Investigations Report 2008–5059

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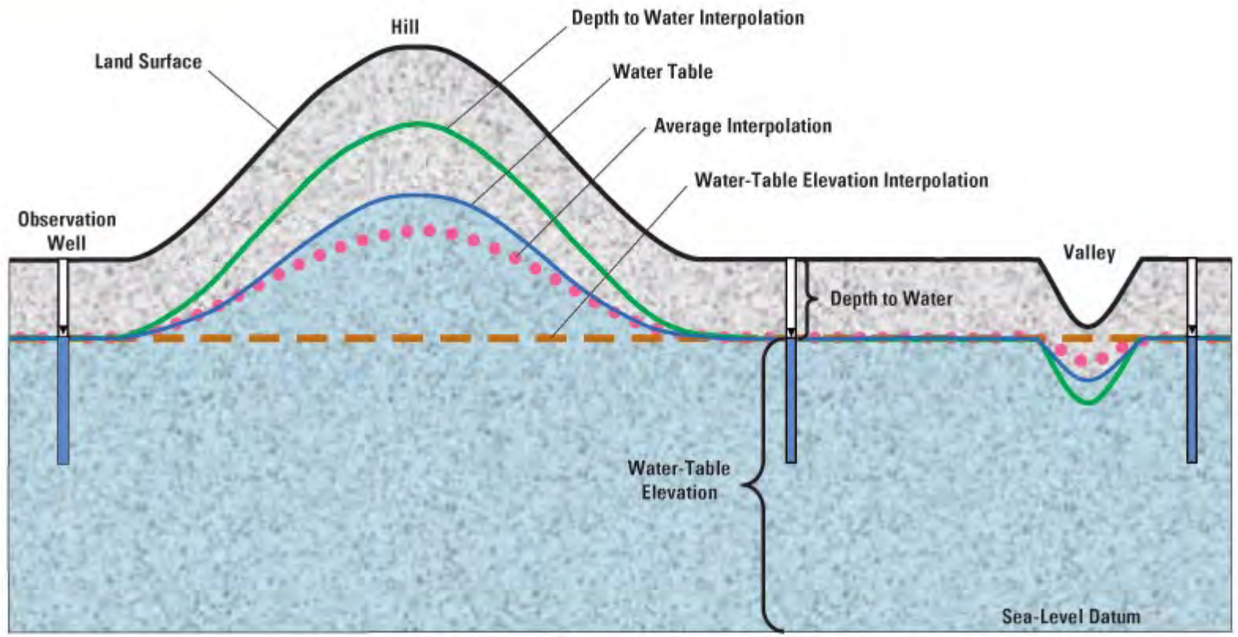

Figure 8. Averaged interpolation of the water-table position based on interpolations of depth to water table and water-table elevation.

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https://pubs.usgs.gov/sir/2008/5059/figure2.html

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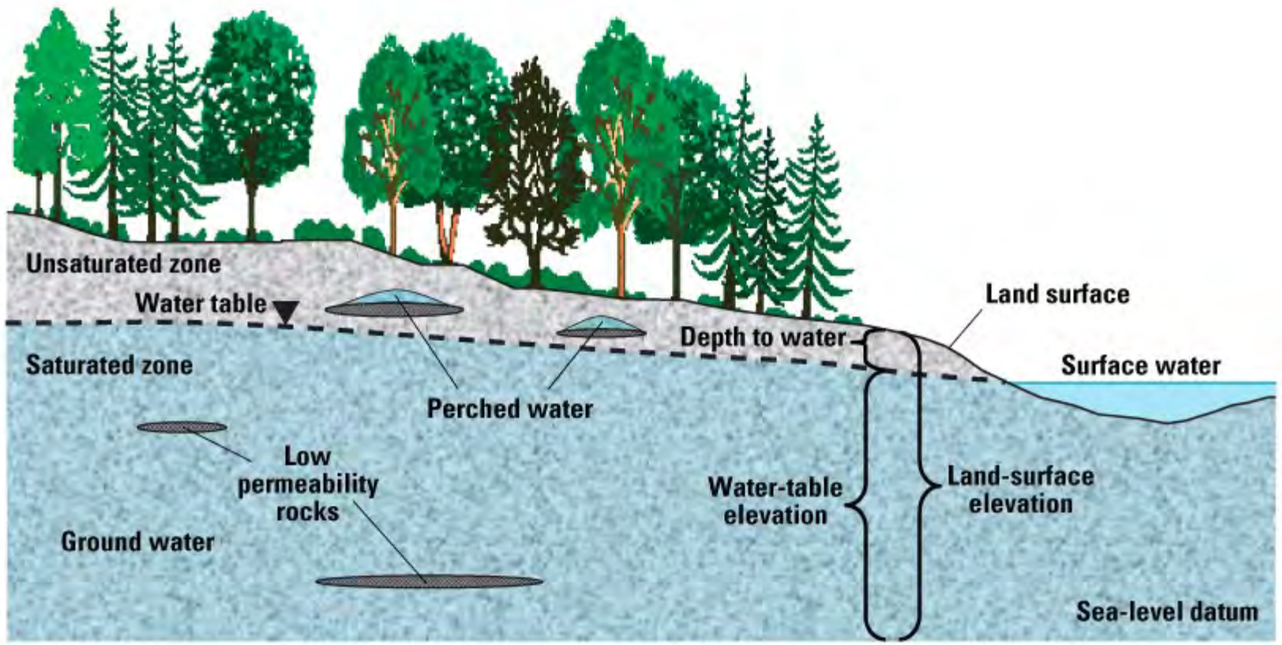

Figure 2. Occurrence of ground water, the position of the water table, and the relation between depth-to-water table and water-table elevation.

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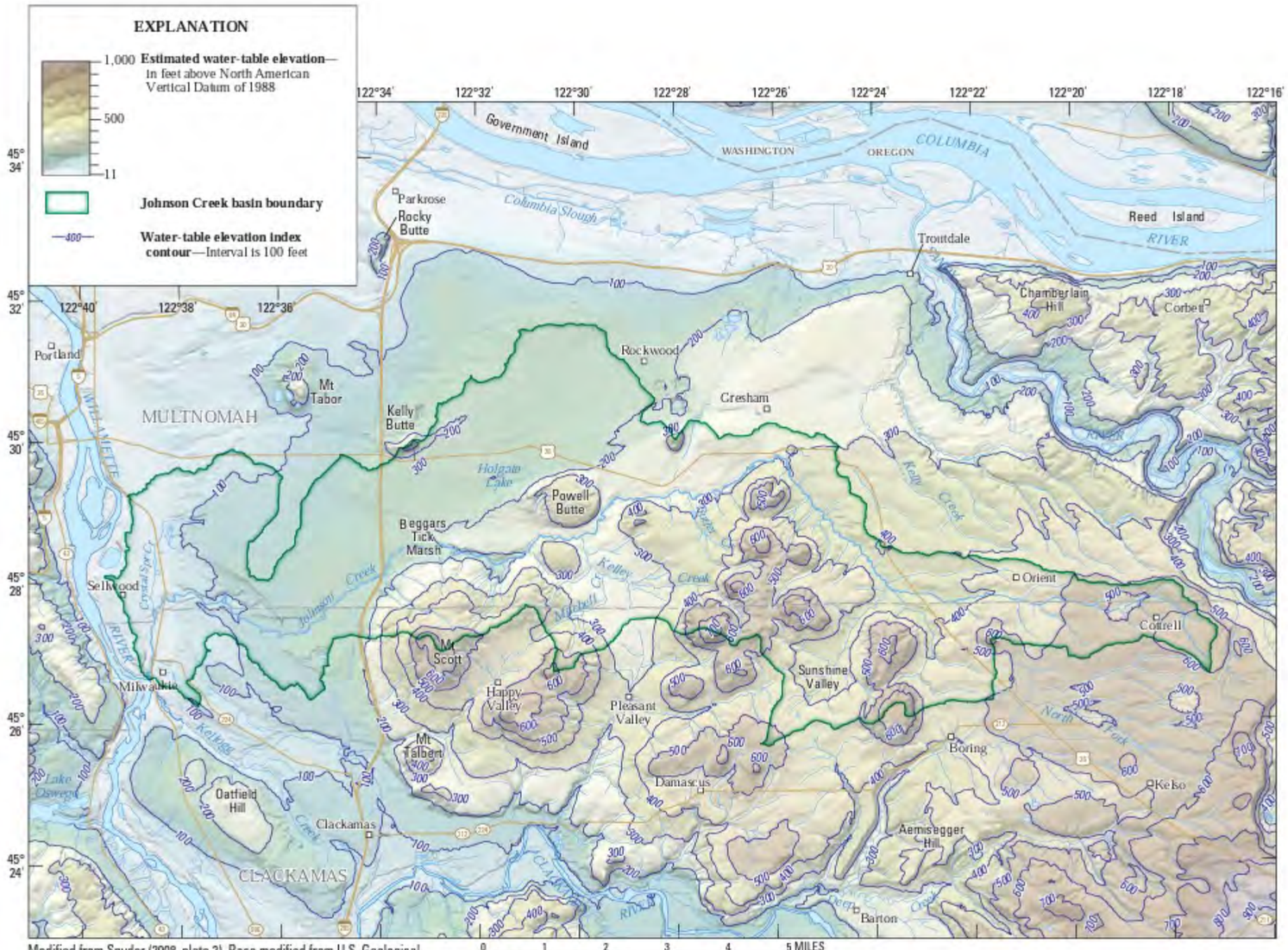
From Lee et al. 2009 (Hydrology of Johnson Creek Watershed) https://pubs.usgs.gov/sir/2009/5123/pdf/sir20095123.pdf
Kelley Creek is within contributing groundwater area and watertable elevated on buttes. Groundwater gradient discharges to creek channel.



Modified from Snyder (2008, plate 2). Base modified from U.S. Geological Survey data and other digital sources. Projection: UTM, Zone 10N, North American Datum 1983, Scale factor= 0.9996, False easting = 500,000, False northing = 0.

Figure 8. Estimated water table elevation, Johnson Creek basin, Oregon.

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Stream Temperature

Fluctuations in the temperature of Johnson Creek and tributaries are a result of human and natural causes. Low summer stream temperature supports more native fish life, whereas warm temperatures may be harmful to many aquatic organisms, raising concern regarding survival of native fish and other wildlife. A return to a stream temperature regime closer to the predevelopment condition would likely encourage a more native aquatic species composition. The effects of human modification in a stream basin generally cause increases in stream temperature compared to a predevelopment condition. Soil compaction decreases infiltration, which decreases groundwater discharge to the creek. Urban development may direct runoff to a combined sewer system, which also decreases groundwater discharge. Removal of vegetative cover and installation of ponds increases direct sunlight to the stream. Water withdrawals for irrigation decrease stream velocity and depth, increasing warming from the atmosphere.

The Total Maximum Daily Load (TMDL) allocation for temperature of Johnson Creek was set in 2006; it provided goals for reduction of summer stream temperature by increasing nearstream shading (Oregon Department of Environmental Quality, 2006). Because of the large geographic scale of the TMDL and lack of information on groundwater discharge to Johnson Creek, the effect of groundwater discharge on stream temperature was not fully explored. This study reports summer stream temperature decreases in areas of groundwater discharge to the stream and increases in open-water areas.

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A Hydrologic Landscapes Perspective on Groundwater Connectivity of Depressional Wetlands

Brian P. Neff[1,*], **Donald O. Rosenberry**[2], **Scott G. Leibowitz**[3], **Dave M. Mushet**[4], **Heather E. Golden**[5], **Mark C. Rains**[6], **J. Renée Brooks**[3], **Charles R. Lane**[5]

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Abstract

Research into processes governing the hydrologic connectivity of depressional wetlands has advanced rapidly in recent years. Nevertheless, a need persists for broadly applicable, non-site-specific guidance to facilitate further research. Here, we explicitly use the hydrologic landscapes theoretical framework to develop broadly applicable conceptual knowledge of depressional-wetland hydrologic connectivity. We used a numerical model to simulate the groundwater flow through five generic hydrologic landscapes. Next, we inserted depressional wetlands into the generic landscapes and repeated the modeling exercise. The results strongly characterize groundwater connectivity from uplands to lowlands as being predominantly indirect. Groundwater flowed from uplands and most of it was discharged to the surface at a concave-upward break in slope, possibly continuing as surface water to lowlands. Additionally, we found that groundwater connectivity of the depressional wetlands was primarily determined by the slope of the adjacent water table. However, we identified certain arrangements of landforms that caused the water table to fall sharply and not follow the surface contour. Finally, we synthesize our findings and provide guidance to practitioners and resource managers regarding the management significance of indirect groundwater discharge and the effect of depressional wetland groundwater connectivity on pond permanence and connectivity.

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Table 3.

Summary of general patterns of wetland connectivity.

Wetland Surface Relative to Water Table (Dashed Line)	Connectivity in Upgradient Direction	Connectivity in Downgradient Direction	Likely to Spill?	Likely Pond Permanence	Likely Location(s)
Above 	Surface water only	Groundwater; Surface water, if fill and spill occurs	No, unless depression is especially shallow	Low	Groundwater recharge areas, especially near a downward break in slope.
Below 	Groundwater and surface water	Surface water, if fill and spill occurs	Yes, unless depression is especially deep	High	Groundwater discharge areas, especially if not near downward breaks in slope.
Same 	Groundwater and surface water	Groundwater; Surface water, if fill and spill occurs	Possibly	Moderate	Slopes, also groundwater discharge areas if near a downward break in slope.

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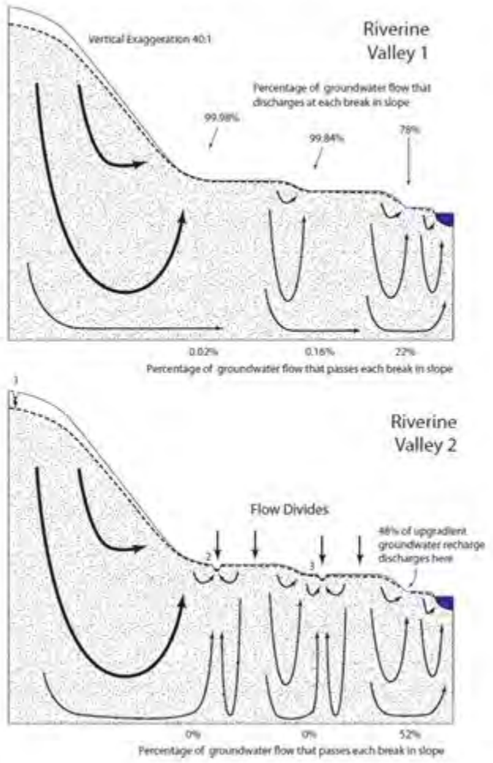

Figure 6.
Simulated flow through the Riverine Valley landscapes.

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Attachment #6: John Dvorsky @ Waterways. Summary email from review of AKS submittal to City in January 2023

From: John Dvorsky <johnd@watways.com>
Sent: Monday, November 6, 2023 11:48 AM
To: Kathy Majidi <kathy.majidi@greshamoregon.gov>
Subject: FW: Veranda

CAUTION: External Email

Hi Kathy-

I'm resending my thoughts on the Veranda review from back in February 2023. Although I have not been involved in this discussion since then, assuming no additional investigations have been completed since then, my assessment, as discussed below regarding the nature of the wetland resource, still stands.

Thanks. -John

John R. Dvorsky
Principal Scientist
Waterways Consulting, Inc.
1020 SW Taylor, Suite 380
Portland, Oregon 97205
Ph: 503-227-5979
Cell: 503-679-1101
www.watways.com

From: John Dvorsky
Sent: Thursday, February 16, 2023 9:55 AM
To: Kathy Majidi <kathy.majidi@greshamoregon.gov>
Subject: Veranda

Hi Kathy-

There is a lot of information to go through and I obviously have not spent time on the site to understand site context, etc, but I think that the figure below provided by Melanie is key within the context of classifying Wetland 1 as locally significant or not. What gives me some pause is the fact that they suggested that the wetland did not have surface water in April of 2018 and March of 2019 when surveys were done though the criteria suggests that classifying it as locally significant only requires that surface water be present during the growing season.

As Melanie stated, I think they need to provide some analysis, using well logs or geotechnical boring information (spatially) that better defines the connection between the wetland and the local shallow groundwater elevation. In one sentence they state that the wetland is only there because of broken or damaged drain tiles but then suggest there is no groundwater connection. That doesn't make sense because if the drain tile were installed to address a high shallow groundwater table that results in the formation of seasonal surface wetlands than that implies that these wetland are maintained by groundwater rather than direct precipitation. If they don't think there is a groundwater connection than they need to show that the wetland functions like the first cartoon, and not the 2nd and 3rd cartoon.

Those are my thoughts on the wetland/groundwater issue.

Let me know if you'd like to discuss my groundwater/wetland connection thoughts further.

Thanks.

Table 3.

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