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Exhibit X.2

DECISION OF THE HEARINGS OFFICER

An Application for Community Service Conditional Use Permit for Utility Facility (Filtration Facility), Community Service Conditional Use Permit for Utility Facility (Pipelines), Community Service Conditional Use Permit for Radio Transmission Tower (Communication Tower), Review Use for Utility Facility (Pipeline – EFU), Design Review (Filtration Facility, Pipelines, Communication Tower, Intertie Site), Significant Environmental Concern for Wildlife Habitat (Lusted Rd Pipeline, Raw Water Pipeline), Geologic Hazard (Raw Water Pipeline) and Lot of Record Verifications.

Case File: T3-2022-16220

Applicant: Bonita Oswald, Portland Water Bureau, City of Portland

I. Decision

As explained in detail in the analysis that follows, the record demonstrates that the Project, including proposed habitat enhancement and mitigations, and with imposition of the conditions of approval included below, will not adversely affect any category of natural resources, and therefore complies with MCC 39.7515(B).

Accordingly, I reapprove, with conditions, the applications for Community Service Conditional Use Permit for Utility Facility (Filtration Facility), Community Service Conditional Use Permit for Utility Facility (Pipelines), Community Service Conditional Use Permit for Radio Transmission Tower (Communication Tower), Review Use for Utility Facility (Pipeline – EFU), Design Review (Filtration Facility, Pipelines, Communication Tower, Intertie Site), Significant Environmental Concern for Wildlife Habitat (Lusted Rd Pipeline, Raw Water Pipeline), Geologic Hazard (Raw Water Pipeline), and Lot of Record Verifications.

This decision is supported by the following findings.

II. Defined Terms

This is a complex matter that will be aided by setting forth a set of consistent defined terms to aid the reader. Where used in these findings, whether or not capitalized, and unless another meaning is specified, the following terms are given the following meanings:

- The "***1977 Comp. Plan***" refers to the document provided in Exhibit S.7.
- The "***2016 MCCP***" refers to the Multnomah County Comprehensive Plan in effect on the date the applications were submitted. This is contrasted with the 1977 Comp. Plan.

- The "***2023 HO Decision***" means the decision of the prior Hearings Officer in this matter, issued November 29, 2023.

- The "***applicant***" means the applicant, the Portland Water Bureau.

- The "***applications***" means the land use applications for the Project subject to this proceeding, namely the: Community Service Conditional Use Permit for Utility Facility (Filtration Facility), Community Service Conditional Use Permit for Utility Facility (Pipelines), Community Service Conditional Use Permit for Radio Transmission Tower (Communication Tower), Review Use for Utility Facility (Pipeline – EFU), Design Review (Filtration Facility, Pipelines, Communication Tower, Intertie Site), Significant Environmental Concern for Wildlife Habitat (Lusted Rd Pipeline, Raw Water Pipeline), Geologic Hazard (Raw Water Pipeline) and Lot of Record Verifications.

- The "***conduits***" refers to the existing large-diameter, gravity-fed pipelines that have run through this area of the County for 130 years.[2]

- The "***Filtration Facility***" means the proposed water filtration facility on Carpenter Lane that will remove sediments, microbes, and organic materials.[3][4]

- The "***Filtration Facility site***" means the 94-acre property off Carpenter Lane where the Filtration Facility is proposed to be located in proximity to existing conduits and the Lusted Hill facility.[5]

- The "***Finished Water Pipelines***" means water pipelines that will convey and distribute filtered water from the Filtration Facility to the existing conduits system.[6]

- The "***Intertie***" means the Finished Water Pipeline connection facility on Lusted Road near Altman Road.[7]

- "***Lusted Hill***" refers to the existing Lusted Hill Treatment Facility, one of the Water Bureau's two existing treatment facilities in the Project area. Lusted Hill is located one-half mile north of the proposed Filtration Facility site and is designed to reduce corrosion of lead pipes found in some household and building plumbing.[8]

[2] Exhibit N.54, page 2.

[3] Exhibit A.2, page iv.

[4] Exhibit, R.1, slide 3

[5] Exhibit N.54, page 2.

[6] Exhibit A.83, page 1.

[7] Exhibit A.2, page iv.

[8] Exhibit N.54, page 2.

- "***LRDM***" means the Lusted Road Distribution Main connecting the Filtration Facility to the existing Lusted Road Distribution Main near the Lusted Hill site that serves local customers.[9]

- "***MCC***" refers to the Multnomah County Code that was in effect when the subject applications were submitted on October 12, 2022.

- The "***Project***" refers collectively to the Filtration Facility, the Raw Water Pipelines, the Intertie, the Finished Water Pipelines, and all other portions of the proposed use subject to this proceeding.

- "***PWB***" means the applicant, the Portland Water Bureau.

- The "***Raw Water Pipelines***" means pipes which convey unfiltered water from connections to the existing conduits in SE Lusted Road near the Multnomah County line to the Filtration Facility.[10]

- The "***Water Bureau***" means the applicant, the Portland Water Bureau.

Additional terms are defined in these findings as needed and generally identified by a ***bold and italic*** font emphasis. Additional terms have the meanings provided in the application narratives (Exhibit A.2, pages iv-v, provides a glossary) or in other applicant materials in the record relevant to the topic being addressed.

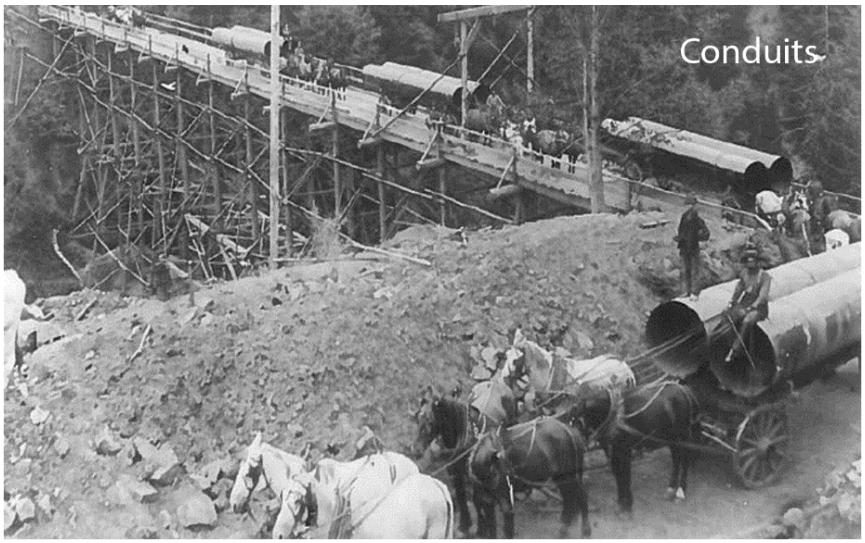
III. Project Background & Overview

The applicant provided a project background in Exhibit N.54, pages 1-3:

> The Bull Run water system was constructed [starting] in the late 1800s. Twenty-four miles of pipelines were laid to create a gravity-fed supply of clean water from the Bull Run River for the region.

[9] Exhibit A.2, page 24

[10] Exhibit A.82, page 1.



Pipeline construction in late 1800s.

Today, the Bull Run Water System provides safe and reliable drinking water to nearly one million people, including the City of Sandy and five other wholesale **water** districts in the project area. The large-diameter, gravity-fed pipelines (the "***conduits***") have run through this area of the County for 130 years (since becoming operational in 1895).

PWB has made many improvements to the system in this area over those 130 years, including replacement of the original wooden pipelines, installation of additional conduits, and the construction of two existing treatment facilities in the area. The existing Lusted Hill Treatment Facility ("***Lusted Hill***") is located one-half mile north of the proposed filtration facility (shown on the map below) and is designed to reduce corrosion of lead pipes found in some household and building plumbing. The existing Hudson Intertie is southeast of the project area and services the existing conduits. Neither of those existing treatment facilities has conflicted with local uses in the area. Instead, one neighbor described Lusted Hill as "not noticeable at all." Video, Exhibit J.51.

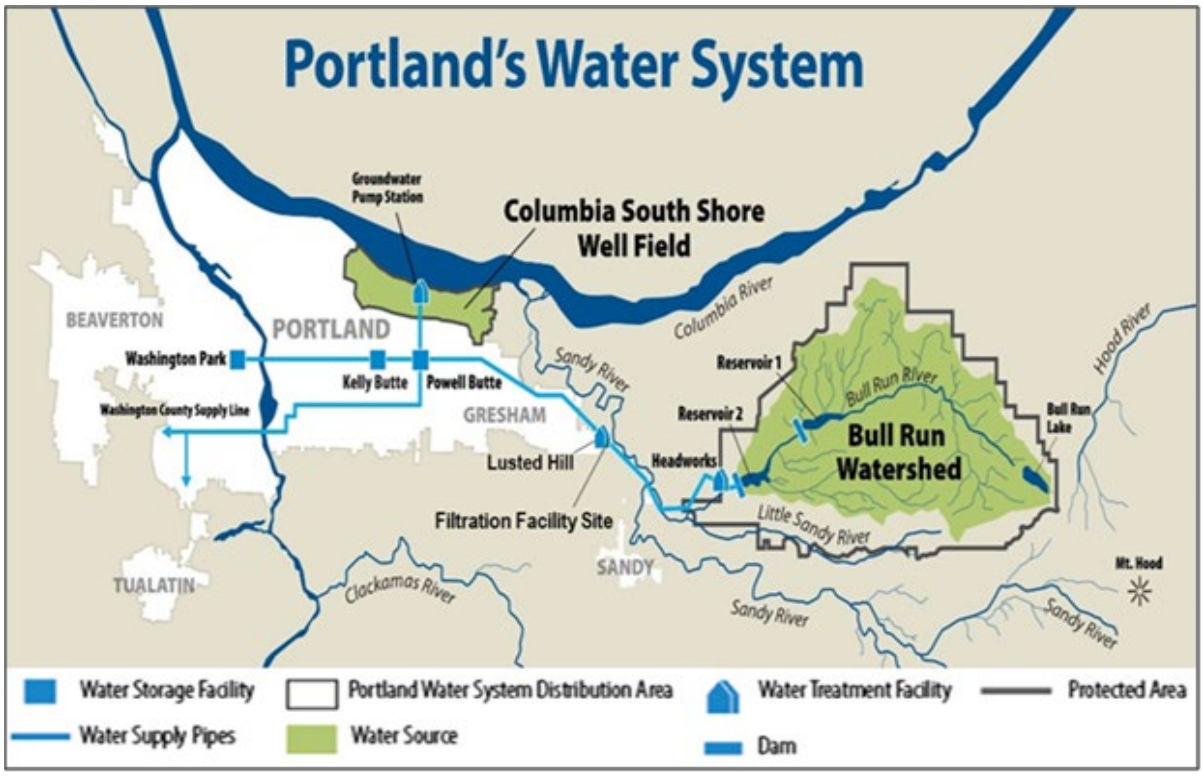


Figure 3. Portland's Water System Showing Proposed Filtration Facility Site

Over all those years, the Water Bureau has been a consistent steward of natural resources in the area. For example, in the past 11 years, the Water Bureau has planted 93,000 native trees and shrubs throughout the Sandy River basin, including the lower Bull Run River. The Water Bureau prioritizes stewardship of its properties by managing English ivy, holly, and other invasive plants on these properties and planting thousands of native plants where invasive plants are removed.

In 1975, the City of Portland purchased the 94-acre property off Carpenter Lane where the filtration facility is proposed to be located. The location was selected for the facility because of its proximity to existing water infrastructure and its hydraulic gradeline that allows continued gravity flow of water. The size of the facility site was also a consideration, as it allows for a large, vegetated area around the property perimeter that provides both habitat value and a buffer between the facility and adjacent properties.

Note that the importance or federally-mandated character of the Project has no impact on my decision. The facts above and any other facts in this decision related to those topics are provided as context for the reader and not to indicate that I believe MCC 39.7515(B) should be applied any differently in this case than I would apply it to any other proposed use subject to the standard.

The Project consists of multiple components as shown in the map from Exhibit R.1, slide 6, provided below. Starting from the bottom right of the map, two Raw Water Pipelines convey

unfiltered Bull Run water from a connection to existing[11] conduits in SE Lusted Road near the Multnomah County line to the Filtration Facility. The Filtration Facility will provide treatment to remove sediments, microbes, and organic materials. From the Filtration Facility, a single Finished Water Pipeline will convey water to the finished water Intertie and distribute finished water to three separate Finished Water Pipelines that connect to the Water Bureau's existing conduit system in the area. Connections to the existing conduits occur at Lusted Road near Altman Road, and Pipeline Road near Altman Road, and SE Oxbow Drive and Altman Road. The Lusted Road Distribution Main (LRDM) shown on the map as "local distribution main" will allow for continued service to the Water Bureau's existing local water customers and wholesale water districts.

Exhibit R.1, slide 6.

[11] At the hearing on this matter, I noted that the Water Bureau may be able to qualify the Project as a nonconforming use, given the extensive existing Water Bureau infrastructure in this area. However, this decision does not address such a possibility nor has that formed or supported any portion of my decision to reapprove the Project land use applications (which do not include an application for a nonconforming use).

IV. Legal Framework

A. Land Use Process

In 2023, Multnomah County issued an approval of the project, with the key approval being of a Conditional Use Permit ("***CUP***"). The approval decision (the "***2023 HO Decision***") was written by a County Hearings Officer and was appealed to the Land Use Board of Appeals ("***LUBA***"). LUBA affirmed the vast majority of the Prior Decision and remanded back to the County on one issue related to the approval criterion in MCC 39.7515(B), which requires an applicant to show that a proposed project "will not adversely affect natural resources[.]"

On February 25, 2025, the county received a request from the applicant to initiate the remand proceedings. Exhibit N.1. The county mailed notice to all individuals who participated in the initial review that a public hearing would be held on April 16, 2025. Exhibit N.3. The notice included a section that explained that the "hearing is limited in scope to resolving the issue(s) remanded by" LUBA "concerning the criterion of approval at MCC 39.7515(B)." Exhibit N.3, page 2. This limited scope was reinforced at the hearing. After hearing all public testimony, I closed the public hearing but left the record open for the filing of evidence and argument by specific deadlines set at the hearing, which I then provided in writing at Exhibit S.1.

B. LUBA's Remand; No Presumption

LUBA's remand instructions are to determine the proper legal construction of MCC 39.7515(B) and then apply it to the Project. No one sought review of LUBA's decision by the Court of Appeals, making the LUBA decision final. This remand proceeding followed.

In the 2023 HO Decision, the former Hearings Officer applied what County staff describe as "an existing, longstanding interpretation"[12] of MCC 39.7515(B) to limit the "natural resources" under review to those inventoried under Goal 5. The 2023 HO Decision was not remanded by LUBA on the *substance* of the Project's design or impacts to natural resources. Instead, in the 2023 HO Decision, the "hearings officer reviewed other cases and concluded the county consistently interpreted natural resources to mean those located within an SEC overlay[,]" which implements Goal 5. Exhibit M.25,[13] page 120.

For example, in 2019, the Water Bureau received approval to add storage tanks, storage silos, a chemical building, new electrical equipment, new vehicle area, and new underground pipes and vaults to their Lusted Hill facility. In concluding that that the use "will not adversely affect natural resources" under MCC 39.7515(B), the Hearings Officer in that case found:

> "A water treatment facility is an existing use on the property. The subject application is for an expansion of that use. **The natural resources on the site are forested wildlife habitat (SEC-h)**

[12] Exhibit W.1, page 4.

[13] Note that the PDF of LUBA's decision on the County's website is incorrectly marked as "Exhibit M.4", which is also assigned to another document from the LUBA process.

> **and geologic hazard (GH) overlay. The SEC-h requirements are intended to protect this resource**, and findings demonstrating compliance with applicable SEC-h and GH standards are found later in Section 11 of this Final Order. **To the extent that SEC-h and GH standards are met, this criterion is also met.**" Exhibit I.72, pg. 26 (emphasis added).

It is LUBA's rejection of that longstanding County legal standard – not the Project's compliance with any standard – that led to this remand proceeding. Accordingly, there is no presumption for or against approval based on the 2023 HO Decision or based on LUBA's remand of the 2023 HO Decision.

C. LUBA Held Construction Is Not the Use Under Review

1. Construction Includes Both the Activities and their Impacts

LUBA's decision that resulted in this remand proceeding is provided in the record at Exhibit M.25.

Ms. Richter, on behalf of opponents, proposes findings that: "In *Cottrell CPO I*, LUBA held that temporary construction impacts resulting from development could not be considered when applying these criteria. Slip op 26." Exhibit W.3a, page 15. Ms. Richter repeats at times that it is only "temporary construction impacts" that should be excluded from consideration under that holding, proposing that it is only "impacts specifically arising during **and confined to** the construction period" that are not part of the land use. Exhibit W.3a, page 4 (emphasis added). Instead, under Ms. Richter's proposed findings, any impact of a construction activity that still exists "on the same day that construction concludes" or, more specifically, "the day that occupancy is granted" is wholly part of the "use" and subject to land use review. Exhibit W.3a, pages 10, 16.

However, at another point, Ms. Richter proposes findings that "The hearings officer agrees with PWB that adverse effects caused by contaminant migration borne in dust or surface water during construction are not germane to this review." Exhibit W.3a, page 32. That is, "adverse effects caused by" the construction activity are "not germane to this review." Stated another way, it is the fact of the adverse effect **being caused by** a construction activity, rather than being caused by the land "use" being reviewed, that delineates the line of what is outside the scope of this remand and ultimately outside the scope of the "use".

Indeed, it must be the case that it is the causal relationship between the activity and the effect that delineates what is "construction" and what is the land "use" under review. Consider a hypothetical situation of construction dust generated in the last week of construction. That hypothetical construction dust falls on neighboring plants.[14] As the applicant's agricultural expert has explained, such dust is common in farming areas, and is washed away by rainwater or irrigation water. Exhibit I.80, page 7 ("the accepted farm practices are that rain and irrigation sprinklers wash the dust off the plants, which is aided by wind moving the dust off the plants"). But in our hypothetical construction project, it does not rain and it is not windy during the first week after construction is concluded. So, "on the same day that construction concludes" or, more specifically, "the day that occupancy is granted", Exhibit W.3a, pages

[14] This is not to say that the construction of this Project will create problematic dust – as explained in Section X.D.2 below, construction dust is well controlled. This is only a hypothetical.

10, 16, the dust is still there, having been clearly caused by construction activities. Does the "use" under land use review then "adversely affect natural resources" because of construction dust there still lingering on plants on "day 1"? I find that it does not. As LUBA explained, "the MCC does not regulate or apply the community service use approval criteria to temporary **construction activities** associated with a community service use." Exhibit M.25 (LUBA Order), page 22 (emphasis added).

LUBA's decision refers both to "construction impacts" and to "construction activities," upholding the Hearings Officer's determination that a proper interpretation of the MCC excludes consideration of the temporary activity itself as well as the impacts of that activity. For example, LUBA specifically states that it does "not agree with Cottrell and PHCA that our case law supports the conclusion that MCC 39.7515 requires consideration of **construction impacts**" and that caselaw "supports the hearings officer's interpretation of MCC 39.7515 that **construction impacts** are not a part of the community service use." Exhibit M.25 (LUBA Order), pages 24, 25 (emphasis added). The Hearings Officer's findings – upheld by LUBA – state that: "The express text of the code does not regulate or apply approval criteria to **temporary construction activities**. … The next question is whether **temporary construction activities** are a use listed in MCC 39.4310 through MCC 39.4320. They are not. … Temporary construction activities for a permanent use are simply not listed as a use that is subject to the approval criteria." Exhibit M.25 (LUBA Order), page 20 (emphasis added). Note that, in these upheld findings, it is the activities which are temporary, not necessarily the impacts of those temporary activities. In another section, LUBA notes that the "hearings officer concluded, and we agree, that the county regulation of **temporary construction uses** in other contexts, such as the large fill provisions in MCC 39.7220, evidence that the county knows how to regulate **construction-related impacts or activity** where it intends to do so and, in those cases, has specifically called out the construction activity in the allowed uses. Record 137-14 38. Differently, the county has not expressly included construction-related impacts in the approval criteria for community service uses." Exhibit M.25 (LUBA Order), page 26.

Therefore, LUBA held that it is both the construction activities, and the impacts caused by those construction activities, that are outside the applicability of MCC 39.7515(B). In addition to LUBA's holding, I find this is the correct interpretation of the MCC, for the same reasons LUBA upheld the prior Hearings Officer's decision to exclude consideration of construction broadly, in particular those sections of the findings quoted above about the text of the MCC not regulating or applying to construction activities.

There may be marginal cases where the line is blurred between what is an "impact" of a construction activity (that is, in Ms. Richter's words, "caused by" the construction activity) and what is an "impact" of the land "use" under review. However, the mere fact that an impact of a construction activity still exists "on the same day that construction concludes" or, more specifically, "the day that occupancy is granted" does not automatically make that construction activity wholly part of the "use" and subject to land use review. Instead, as noted above, in the findings LUBA upheld it is the activities which are temporary, not necessarily the impacts of those temporary activities.

The prior case law reviewed by LUBA is also instructive in my determination on this matter. Specifically, LUBA relied on *McLaughlin v. Douglas County*, LUBA No. 2020-004 (April 13, 2021), where LUBA had concluded that "that the temporary use was not a permanent disturbance, was associated with construction, and not legally limited" by the land use requirement (50-foot width) that otherwise would have facially prohibited it (because it was greater than 50 feet in width). Exhibit M.25 (LUBA Order), pages 25-26.

In *McLaughlin*, the County approved a conditional use permit in a forest zone that the land use standard limited to 50 feet wide. The County also approved "adjacent to the 50 feet, an additional 45 feet of right-of-way for construction" to be used for "clearing and grading activities" as well as additional "uncleared storage areas". Similar to the opponents in this case, petitioners in *McLaughlin* argued that "the temporary construction right-of-way should be considered a permanent disturbance or permanent right-of-way" because "[m]erchantable **timber will be cut and removed** from the construction right-of-way" and "such a **disturbance is not temporary** because "[c]learing timber creates a permanent 20-year or longer break in the timber stands that will be necessary for [intervener's] aerial surveillance." Slip op at 31. LUBA determined that the area was not "necessary for … aerial surveillance" associated with the proposed land use, but instead "that area is needed for construction purposes." Because the clearing of trees was "needed for construction purposes" and "will be replanted in a manner consistent with [the] Erosion Control and Vegetation Plan" it was not subject to the requirements that applied to the proposed land use (50-foot width). Slip op 32-33 (internal quotations omitted).

Given that LUBA determined that construction activities, and their impacts, are not part of the use being reviewed in this proceeding, and given that I find this is a correct interpretation of the MCC and is consistent with *McLaughlin*, I have separated my discussion of construction activities and their impacts as a separate Section X below.

2. Other Regulation of Construction

Although I will apply LUBA's holding that construction activities, and their impacts, are not part of the use being reviewed in this proceeding, I note that this does not mean that neighbors adversely affected by construction are without recourse or without a forum to raise their concerns about construction. LUBA's holding is only that *this land use review* is not the forum. If land use were the forum, it would be problematic for folks adversely affected by construction of an outright permitted use not subject to land use review. In its proposed findings, Jordan Ramis argues that if "the construction of [the Project] could permanently degrade or destroy any natural resource it found inconvenient to preserve without offending MCC 39.7515(B)", that would be inconsistent with the code, the purposes of the code and comprehensive plan, the underlying county and state policies, and contrary to "ORS 215.243(1) and Goal 3 which the comprehensive plan and MCC 3[9].7515(B) implement." Exhibit W.2a, page 1. First, I note that MCC 39.7515(B) does not "implement" Goal 3 or any other state law or policy – it is a wholly local standard, particularly as it is applied in this case to the MUA-20 zone. The MUA-20 zone is explicitly a "non-resource" and "exception lands" base zone to which Goal 3 does not apply. MCC Chapter 4.B.

Second, Jordan Ramis' argument implies that if construction activities and their impacts do not "offend" MCC 39.7515(B), construction will be unbridled, permanently destroying "any natural resource [the Water Bureau] found inconvenient to preserve[.]" This is not accurate.

LUBA's holding that construction activities, and their impacts, are not part of the "use" being reviewed in this land use proceeding, does not mean that construction is without regulation and that neighbors adversely affected by construction are without recourse or without a forum to raise their concerns about construction. LUBA's holding is only that *this land use review* is not the forum and that MCC 39.7515(B) is not the applicable regulation for construction. If land use were the forum, and land use laws were the applicable regulation for construction, it would be problematic for folks adversely affected by construction of an outright permitted use not subject to land use review.

The fact that there are other forums – and other specific regulations of construction activities and impacts in Multnomah County – was part of the Hearings Officer's prior decision: "As important *PGE/Gains* context, there are temporary construction uses that are called out as uses to be regulated by the code. … Other parts of the MCC also expressly regulate construction. For example, one of the approval criteria for the Geologic Hazards permit requires that 'soil disturbance shall be done in a manner which will minimize soil erosion, stabilize the soil as quickly as practicable, and expose the smallest practical area at any one time during construction.' MCC 39.5090(H) (emphasis added). The requirements of the Erosion and Sediment Control permits are another example. MCC 39.6225." Exhibit M.10 (Multnomah County's Brief), Page 14. As noted in those findings, Multnomah County directly regulates erosion and sediment control as part of construction. A condition of approval in the 2023 HO Decision memorializes that requirement: "Prior to commencement of any ground disturbing activities at any work site an Erosion and Sediment Control permit from Multnomah County for that work, shall be issued. [MCC 39.6225 & MCC 39.5090]." 2023 HO Decision, page 74. That is to say, Multnomah County has the home rule power to regulate construction activities and the impacts of those activities, and it has done so elsewhere in its codes. The Hearings Officer found, and LUBA affirmed, simply that MCC 39.7515(B) is not one of those regulations of construction.

Oregon and local laws provide multiple other forums in which issues regarding construction can – and indeed have been – been raised. Those forums are available whether construction relates to a use allowed outright or a use subject to land use review. Moreover, these other forums and regulations strike a balance between protection of the public and not regulating to such an extent that construction becomes impossible or that it invites uncertainty into the development process and slows, for example, housing production. As a legislative matter, this balance has been enacted into a variety of laws that regulate construction, including by the County, as discussed above. It is not within the scope of this land use proceeding to strike a different policy balance, regardless of whether or not I believe that the regulation of construction in these other forums or laws should be different or has or has not protected natural resources in this case.

For example, local nuisance ordinances and public safety codes allow for complaint-based enforcement of excessive noise, dust, or other disturbances during construction. In Multnomah County specifically, the nuisance code is provided in MCC Chapter 15 (Sheriff) and notably provides for a process in front of a County Hearings Officer. MCC 15.231. For work in the right of way, a construction management plan is a tool to control impacts such as traffic routing, closures, hours of work, and staging. For example, in the 2023 HO Decision, the conditions of approval include a requirement that a "Traffic Control Plan (TCP) shall be submitted during the Construction Permitting process that shows detours and road closures (MCRR 13.200.A)." 2023 HO Decision, page 81.

For dust, debris, and runoff, issues can be reported and addressed through Oregon DEQ. At multiple places in this record, opponents discuss how they have done just that. This land use review is simply not the forum in which opponents can contest their disagreement with DEQ's determinations regarding those construction activities. *See, e.g.*, Exhibit U.20.d (applicant responding to opponent's statement about "DEQ's failure to terminate the Beneficial Use Determination"); Exhibit U.2, page 13 (email from DEQ describing how DEQ had done an "onsite" inspection of the "Graymor" property and "did not observe" the issue the commenter describes).

Finally, concerned citizens may also pursue private remedies in circuit court for nuisance or property damage, where applicable. Indeed, the "local residents" in this case have an open case in circuit court

where they allege nuisance, trespass, timber trespass, inverse condemnation, and seek injunctive relief related to "construction" of the "the Bull Run Filtration Project." Exhibit N.65, page 28.

Particularly given that those matters are properly in front of the circuit court, it would be inappropriate to allow them to be litigated in this forum, as construction is not the use being reviewed in this land use proceeding.

D. *PGE/Gaines* Analysis of MCC 39.7515(B)

1. Basic Framework of *PGE/Gaines*

All parties agree that the meaning of the six-word phrase "will not adversely affect natural resources" in the Code must be analyzed using the familiar methodology of *Portland General Electric Company v. Bureau of Labor & Industry*, 317 Or 606, 859 P2d 1143 (1993), *State v. Gaines*, 346 Or 160, 206 P3d 1042 (2009), and their progeny, referred to collectively as "***PGE/Gaines***". [15] Under *PGE/Gaines*, the "first level of analysis, the text of the statutory provision itself, is the starting point for interpretation and is the best evidence of the legislature's intent," followed by the context found in related code provisions. *PGE*, 317 Or at 610-11.

The parties all also agree that the fundamental goal of *PGE/Gaines* code interpretation is "to discern the intent of the body that promulgated the law".[16] *City of Eugene v. Comcast of Or. II, Inc.,* 263 Or App 116, 127 (2014), *affirmed* 359 Or 528 (2016). With that goal in mind, "we apply the ordinary principles of statutory construction and determine the county's intent in enacting the pertinent code provisions by examining the text, context and any helpful enactment history". *Bowerman v. Lane Cty.*, 287 Or App 383, 392, 403 P3d 512 (2017).

2. The Awareness of the 1977 Board of County Commissioners and Examination of the Current Comprehensive Plan

In this case, the "body that promulgated the law" -- whose intent I must "discern" -- is the 1977 Board of County Commissioners. The reference is not just to the body generally – the Board of Commissioners – today or at any random time in history, but instead to the specific group of people who promulgated the law. This is why legislative history – discussions among the group of people actively making the laws at the time – is so important in the *PGE/Gaines* methodology. It is also why the Oregon courts have held that a *PGE/Gaines* analysis should focus on cases, statutes, and codes which existed at the time a law was promulgated *PGE/Gaines* analysis. *See, e.g., Holcomb v. Sunderland*, 321 Or 99, 105, 894 P2d 457

[15] The *PGE/Gaines* methodology applies to local codes. "The proper construction of a municipal ordinance is a question of law, which we resolve using the same rules of construction that we use to interpret statutes." *Waste Not of Yamhill Cty. v. Yamhill Cty.*, 305 Or App 436, 457, 471 P3d 769 (2020).

[16] Opponents' attorney, Ms. Richter, points to the "legislature's intent", but Ms. Richter does so in a paragraph that begins by stating that the "rules of statutory construction apply to the construction of local ordinance[.]" Exhibit W3.a, page 4. Accordingly, I understand Ms. Richter to state that it is the *legislative* body's intent that we peruse, which, in this case, is the Board of County Commissioners. Confusingly, Ms. Richter also argues that this is an "originalist interpretation"

(1995) ("the proper inquiry focuses on what the legislature intended at the time of enactment and discounts later events"); *Or. Occupational Safety & Health Div. v. CBI Servs.*, 356 Or 577, 592, 341 P3d 701 (2014) (holding that "court decisions that existed at the time that the legislature enacted a statute—and that, as a result, it could have been aware of—may be consulted in determining what the legislature intended").

In the case of MCC 39.7515(B)'s six words, that group of people was the September 6, 1977, Board of County Commissioners. "On September 6, 1977, the Board of County Commissioners adopted approval criteria for Community Service Uses in certain districts, including the MUA-20 zone, via Ordinance No. 148." Exhibit N.65, page 1. Ordinance No. 148 inserted into the Code for the first time the six words at issue today, "will not adversely affect natural resources." All parties agree that those six words have not been changed or amended in any manner since Ordinance No. 148 in 1977. Exhibit N.65, page 1; Exhibit W.3a, page 11. Therefore, the 1977 Board of County Commissioners is the relevant "body that promulgated the law" for the *PGE/Gaines* code interpretation of MCC 39.7515(B).

In fact, LUBA remanded this case in part *because* the Prior Decision relied on context (the Goal 5 inventory) which post-dated the 1977 Board of County Commissioners and therefore could not be evidence of that body's intent. Exhibit M.25 (LUBA Order), slip op at 123 ("natural resources" cannot be limited to Goal 5 resources because "MCC 39.7515 predates the Goal 5 SEC program described in MCCP chapter 5").

Stated another way, it is materials "that existed at the time that the [Board] enacted [the Code]—and that, as a result, it could have been aware of — [that] may be consulted in determining what the [Board] intended." *See Or. Occupational Safety & Health Div. v. CBI Servs.*, 356 Or 577, 592, 341 P3d 701 (2014) (none of the later decided cases "sheds light on what the legislature had in mind when it adopted that statute in 1973").

That does not mean, however, that later-enacted materials are completely irrelevant and that we must wholly disregard them. In fact, *Gaines* itself addresses the value of later-enacted materials:

> Ordinarily, only statutes enacted simultaneously with or before a statute at issue are pertinent context for interpreting that statute. *See Stull v. Hoke*, 326 Or 72, 79-80, 948 P.2d 722 (1997) (so observing). It may be that later enacted statutes can be of some aid in interpreting an earlier one for the limited purpose of demonstrating the legislature's adherence to certain conventions in legislative drafting or word usage.

346 Or at 177 n 16; s*ee also Providence Health Sys. v. Brown*, 372 Or 225, 246, 548 P3d 817, 830 (2024) (subsequent legislative history, at best, arguably confirms what we have determined to be the intended meaning).

I turn then to how to apply this temporal aspect of the *PGE/Gaines* intent-of-the-drafters analysis in this case, particularly in light of LUBA's determination that the prior interpretation of MCC 39.7515(B) was incorrect in part because of a temporal issue related to Goal 5. Exhibit M.25 (LUBA Order), slip op at 123 ("natural resources" cannot be limited to Goal 5 resources because "MCC 39.7515 predates the Goal 5 SEC program described in MCCP chapter 5").

LUBA also pointed out that there is a definition of "natural resources" in the current (2016) Multnomah County Comprehensive Plan ("***2016 MCCP***"):

> We agree with Cottrell that the hearings officer misconstrued the code when they concluded that "natural resources" in MCC 39.7515(B) includes only those significant resources included in SEC overlays. We do not find support for the argument that the title of MCCP chapter 5 serves as a definition of "natural resources" for purposes of MCC 39.7515(B). The MCCP glossary explains that within the context of the MCCP, "natural resource" is defined as: "Generally, a functioning natural system, such as a wetland or a stream, wildlife habitat or material in the environment used or capable of being used for some purpose, also including minerals and fuels, agricultural resources and forests[.]" MCCP App B, at 7. **Although the glossary is intended as a "convenience" it contradicts the hearings officer's conclusion** that "natural resource" as used in MCC 39.7515(B) and MCCP chapter 5 means only significant natural resources.

Exhibit M.25 (LUBA Order), slip op at 121 (emphasis added). Notably, LUBA *did not say* that the MCCP glossary *provides the definition* of "natural resources" for MCC 39.7515(B). Instead, LUBA referenced the glossary definition only to show that, even within the 2016 MCCP, there is a definition of "natural resources" that is not "the title of MCCP chapter 5" and that simple fact "contradicts the hearings officer's conclusion[.]" *Id.* In using the glossary to rebut the prior Hearings Officer's interpretation, LUBA did not say that the glossary definition applies directly or indeed anything about what the proper interpretation of "natural resources" would be.

Understandably, various parties have been attracted to the idea that there is a clear definition of "natural resources" provided in the 2016 MCCP that we can simply quote to and be done with the analysis. However, to do so would risk another remand proceeding on the basis of an inadequate *PGE/Gaines* analysis that once again disregards the temporal aspect of the intent-of-the-drafters analysis.

As the 2016 MCCP would not be written for nearly 40 years after Ordinance No. 148 inserted into the Code the six words at issue today, it is clear that the 1977 Board could not "have been aware of" the 2016 MCCP or its glossary definition of "natural resources." Therefore, from the perspective of *PGE/Gaines,* provisions of the 2016 MCCP "can be of some aid in interpreting [the 1977 code provision] for the limited purpose of demonstrating the [Board's] adherence to certain conventions in legislative drafting or word usage" or to "confirm[] what we have determined to be the intended meaning[.]" *See Gaines* 346 Or at 177 n 16; *Providence Health Sys.,* 372 Or at 246. Although the 2016 MCCP can be used in this confirmatory manner, as a *PGE/Gaines* matter, we cannot start (nor end) the analysis there.

3. *Baker* Conflicts

However, as staff correctly point out, interpretation of a local land use code is not merely a *PGE/Gaines* matter:

> While not necessarily at odds with the concerns described above, equally demanding Oregon legal principles hold that the 2016 Plan is the controlling land use planning document and the Code, including provisions adopted prior to the 2016 Plan, must conform to and be interpreted consistently with the 2016 Plan. *See Baker v. City of*

> *Milwaukie*, 271 Or 500, 514, 533 P2d 772 (1975) ("[A] comprehensive plan is the controlling land use planning instrument for a city. Upon passage of a comprehensive plan a city assumes a responsibility to effectuate that plan and conform prior conflicting zoning ordinances to it."); *Philippi v. City of Sublimity*, 294 Or 730, 735, 662 P2d 325 (1983) ("Analysis here must be prefaced with the recognition that a local government's comprehensive plan holds the preeminent position in its land use powers and responsibilities. Zoning and subdivision ordinances, and local land use decisions, are intended to be the means by which the plan is effectuated and, to such an extent, they are subservient to the plan.").

Exhibit W.1, page 2.

Perhaps surprisingly, there does not appear to be caselaw on point that addresses this tension between the temporal aspect of *PGE/Gaines*'s intent-of-the-drafters *interpretive* analysis and the land use concept that a comprehensive plan is "preeminent."

Baker v. City of Milwaukie, 271 Or 500, 533 P2d 772 (1975), cited by County staff, arose in the context of an appeal of a writ of mandamus by which the "plaintiff sought to compel the City of Milwaukie to conform a zoning ordinance to its comprehensive plan," among other things. 271 Or at 502. The City of Milwaukie had first, in 1968, adopted a zoning ordinance allowing 39 units per acre in the area around and on plaintiff's property. Then, in 1970, the City of Milwaukie adopted a comprehensive plan that allowed 17 units per acre. The City then approved a set of projects that "would result 26 units per acre -- less than the 39 units allowed by the zoning ordinance but substantially more than the 17 units allowed by the comprehensive plan." 271 Or at 503. The City argued that they did not have an obligation to amend the zoning ordinance to conform it to the subsequently adopted Comprehensive plan. 271 Or at 503. Ultimately, the Oregon Supreme Court held that: "If [the later enacted Comprehensive] plan is to have any efficacy as the basic planning tool for the City of Milwaukie, it must be given preference over conflicting prior zoning ordinances." 271 Or at 509 (emphasis added).

Jordan Ramis, on behalf of the Oregon Association of Nurseries, proposes findings that quote the holding of *Baker* that the later enacted Comprehensive plan "must be given preference over conflicting prior zoning ordinances" but summarizes the holding as stating that MCC 39.7515(B) "must be interpreted consistently with the current comprehensive plan[.]" Exhibit W.2a, pages 3-4. Those are simply not the words the Oregon Supreme Court used in *Baker*. Being "given preference over conflicting" prior ordinances is very different than saying that the *PGE/Gaines* interpretation of those prior ordinances must be done *with the goal* of finding consistency with the later-enacted comprehensive plan. Jordan Ramis cites to no source and advances no argument that the goal of PGE/Gaines interpretation is anything other than determining the intent of the drafters.

In *Baker* itself, the court makes this clear in fn10:

> "This opinion deals only with the question of the effect of the enactment of a comprehensive plan **on conflicting zoning ordinances**. Of course, where the plan adopts general parameters of long term growth with a provision that the intensity of use or the density of living units shall not exceed a certain amount**,** a more restrictive zoning ordinance **may be in accord with that plan**. However, between the time of the

> enactment of the comprehensive plan and the implementing zoning ordinances, no land use may occur which would exceed the limits set by the plan."

Subsequent cases refer to this concept as a "*Baker* conflict" issue. *See, e.g., Mountain Area Corridor v. Clackamas County*, 8 Or LUBA 78, 87 (1983) (finding no conflict); *Oregon Natural Resources Council v. City of Seaside*, 29 Or LUBA 39, 45 (1995) (finding no conflict).

Accordingly, under *Baker*, the questions in front of me appear to be (1) how should the prior zoning ordinance's words ("will not adversely affect natural resources"), be interpreted applying the rules of construction under PGE/Gaines? And the next, (2) is that interpretation "conflicting" with some provision of the 2016 MCCP, such at the 2016 MCCP controls over the intention of the drafters?

As to the second step, it is not clear that there is any conflict here. In *Philippi v. City of Sublimity*, 294 Or 730, 735, 662 P2d 325 (1983), the other case cited to by County staff, the Oregon Supreme Court evaluated what was "intended by the plan drafters" and whether the plan drafters intended for the specific comprehensive plan policy at issue in *Philippi* to control over conflicting zoning ordinance provisions (in that case, they did).

Here, however, it is clear that the drafters of the 2016 MCCP did *not* intend for the glossary definition to be automatically and mechanically applied in land use decisions as a definition of the terms used in the Code. How do we know that? The plan drafters said as much. As explained by LUBA in referencing the glossary definition of natural resources, the introduction to the Appendix B Glossary explains:

> This Glossary of Terms includes common definitions of terms used in the Comprehensive Plan and is intended as a convenience to help readers better understand some of the terms used in the Plan. … [B]ecause the definitions in this Glossary are intended solely for the convenience of the reader in conveying a general idea of the meaning of the terms used in this Plan, **nothing in this Comprehensive Plan prohibits the County from previously or subsequently defining any term**, whether **in the Zoning Ordinance or otherwise, in a manner that may or does conflict with the meaning of any term used in this Plan.**

2016 MCCP, Appendix B, page 2 (emphasis added). Given the direction from the drafters that the glossary definition was only "intended as a convenience," and that they specifically did not intend to "prohibit the County from previously or subsequently defining any term" even if such definition "may or does conflict" with the glossary, we cannot simply quote the definition of "natural resources" provided in the 2016 MCCP and be done with the analysis.

It is with this framework in mind that I proceed to analyze the meaning of MCC 39.7515(B). None of the terms analyzed below are specifically defined in the MCC.

The full unabridged definitions of each of the words analyzed below is provided in an appendix.

4. "use"

Ms. Richter provided proposed findings that:

> *a "use" includes not only how a building functions but also the impacts resulting from changes in the existing condition of the land necessary to accommodate the use. The County regulates that which is built as a use (but not impacts specifically arising during and confined to the construction period). Thus, the impacts upon natural resources which continue once construction is complete must be considered. MCC 39.4305. A contrary interpretation would serve only to nullify the duly adopted code provisions discussed here. In its supplemental staff report at W-1, Multnomah County staff amended its position to agree that a use includes the long-term impacts resulting from a development. Ex W.1.*

Exhibit W.3a, page 4.

This has been addressed above in Section IV.B. I disagree that impacts of construction must necessarily be "*confined to the construction period*" as the defining characteristic of what is the "use" in the MCC and what is the construction that LUBA held is not part of that "use." *McLaughlin* shows that the contrary is the case. *McLaughlin* involved the clearing and grading of a 45-foot wide construction right of way for a pipeline where trees would be "cut and removed" and evidence showed it would "create a permanent 20-year or longer break in the timber stands". Even where there was evidence that "a period of regrowth" of 20 years or longer would be required in that a 45-foot wide construction right of way, LUBA determined that construction impact and area was not subject to the requirements that applied to the proposed land use because the clearing of trees was "needed for construction purposes" and "will be replanted in a manner consistent with [the] Erosion Control and Vegetation Plan".

I have not been pointed to anything in the MCC, nor do I know of anything, that indicates that the word "use" in the MCC be interpreted contrary to *McLaughlin*.

Ms. Richter's proposed findings also state "Thus, the impacts upon natural resources which continue once construction is complete must be considered. Multnomah County staff amended its position **to agree that** a use includes the long-term impacts resulting from a development. Ex W.1." (emphasis added). This is an inaccurate summary of staff's statement in Exhibit W.1. Staff did not "agree" with Ms. Richter's proposed interpretation of LUBA's holding that construction is not the use. Instead, staff simply noted that they observed a "general agreement on a pre-construction versus post-construction analysis". There is nothing inherent in "a pre-construction versus post-construction analysis" that is contrary to LUBA's decision remanding this matter (and holding that construction is not the use) or that is contrary to *McLaughlin*.

Instead, **the standard to be applied is a pre-construction "use" verses post-construction "use" analysis** – as it is only the "use" that the MCC subjects to the analysis of MCC 39.7515(B). *See* MCC 39.7505(A). ("Community Service approval shall be for the specific use or uses approved"); MCC 39.7515 ("In approving a Community Service use, the approval authority shall find" that subsection (B) is met). Moreover, as it is "the hearings officer's interpretation of the term 'use'" that was specifically in front of LUBA, that term cannot now be reinterpreted to include construction activities or impacts. Exhibit M.25 (LUBA order), page 18, 22 ("Cottrell makes numerous arguments that the context supports its

interpretation of the term 'use' as including related construction activity"), 26-27 (disagreeing with Ms. Richter's argument that "the term 'use'" "require[es] consideration of construction impacts); s*ee* Section IV.B.1 above.

5. "will not"

Although not extensively focused on by the parties, the first two words of MCC 39.7515(B) do convey meaning that is relevant to this analysis. In particular, the word "will", as relevant here, is "used to express simple futurity".[17] This future facing word reinforces what has already been explained above. Whether the "use … will" have or not have some effect is a question of whether the use itself, post construction may have the prohibited effect. This is consistent with LUBA's holding that construction is not part of the "use" subject to MCC 39.7515(B). Instead, we are looking at what the operating use will, or will not, cause.

The importance of the words "will not" is illustrated by comments in the record that try to expand the words to require a finding that the Project "has not and will not" adversely affect natural resources. Exhibit S.21 (Courters), page 6. The wording of that comment illustrates that "will not" is well understood to be future facing, as discussed above.

As the text provides a clear meaning, there is no reason to proceed to the context and legislative history related to these two words.

6. "adversely affect"

a. "adversely"

Adversely is defined as "in an adverse or hostile manner; with hostile effect" or "unfavorably, disadvantageously."[18] In turn, "adverse" is relevantly defined as "hostile, opposed, antagonistic" or "harmful."[19] Both definitions for adversely and adverse have a markedly negative and disruptive tone, particularly with the use of "hostile" in the definitions. Hostile is defined as "marked by malevolence and desire to injure" or "offering an unpleasant or forbidding environment." The contrary nature of the words adverse and adversely do not just mean opposite but rather actively harmful and damaging.

Ms. Richter's proposed findings state that "Adverse" means "acting against or in a contrary direction" or "in opposition to one's interests". Exhibit W.3a, page 7. It may be that Ms. Richter is not using the unabridged version of Webster's or simply selected different definitions. In the unabridged version, the definition "acting against or in a contrary direction" is followed by the examples "opposing <adverse winds> <hindered by adverse forces>". The examples help show that this is not the applicable definition.

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[17] "Will." *Merriam-Webster's Unabridged Dictionary*, Merriam-Webster, https://unabridged.merriam-webster.com/unabridged/will. Accessed 28 May. 2025.

[18] "Adversely." *Merriam-Webster's Unabridged Dictionary*, Merriam-Webster, https://unabridged.merriam-webster.com/unabridged/adversely. Accessed 28 May. 2025.

[19] "Adverse." *Merriam-Webster's Unabridged Dictionary*, Merriam-Webster, https://unabridged.merriam-webster.com/unabridged/adverse. Accessed 28 May. 2025.

The effect of a "use" cannot be opposing or adverse in the way of a wind or a force, where there is the concept of a movement forward that is being opposed (against or in a contrary direction). In the unabridged version, "in opposition to one's interests" is followed by ":detrimental, unfavorable <an adverse balance of trade> <circumstances adverse to success> <adverse fortune> <an adverse verdict>." Again, the effect of a "use" is not adverse in the way used in these examples, where there is some movement or force that is being opposed. Regardless, those definitions do not appear to change the outcome of this case.

b. "affect"

Ms. Richter provides a simple proposed finding that the meaning of the word "affect" is "to produce an effect upon." Exhibit W.3a, page 7. This is the basic definition. There are a few definitions of "affect" in the unabridged dictionary[20] that could apply in this context:

> **1:** to produce an effect upon (someone or something):
>
> > **a:** to act on and cause a change in (someone or something)
> >
> > <Rainfall *affects* plant growth.><areas to be *affected* by highway construction><The protein plays a central role in metabolism … which in turn *affects* the rate of aging. — Stephen S. Hall, *National Geographic*, May 2013><The 1883 eruption of Krakatau in what is now Indonesia affected global sunsets for years … — Evelyn Browning Garriss, *The Old Farmer's Almanac*, 2012><Before the 1980s it was not at all clear how nicotine *affected* the brain. — Cynthia Kuhn et al., *Buzzed*, 1998>
> >
> > **b:** to cause illness, symptoms, etc., in (someone or something)
> >
> > <a disease that *affects* millions of patients each year><… the syndrome can *affect* the pancreas, which produces insulin … — H. Lee Kagan, *Discover*, October 2010>

The 1.a definition "to act on ***and*** cause a change in" shows that there must be a change – a "harmful" change when combined with adversely – in order for a natural resource to be adversely affected under MCC 39.7515(B). It is not enough to "act on" the natural resource, the force must "cause a change in" (that is, the definition has an "and" between these terms). That there must be a change reinforces my conclusion that there is a *de minimis* threshold. The 1.b definition "to cause illness, symptoms, etc., in" reinforces this understanding that the Project must produce a meaningful illness or symptom – a harmful change – in order to be considered to adversely affect natural resources.

[20] "Affect." *Merriam-Webster's Unabridged Dictionary*, Merriam-Webster, https://unabridged.merriam-webster.com/unabridged/affect. Accessed 29 May. 2025.

Together, the phrase "adversely affect" means the Project will cause a change that produces actual harm to natural resources that is more than *de minimis.*[21]

c. "One Blade of Grass" & Caselaw Interpreting Text

Ms. Richter also proposes findings that lead to her conclusion that "the loss of one blade of grass … would trigger an adverse effect finding under this exacting standard." Exhibit W.3a, page 8. That is, Ms. Richter argues that even the mere "the loss of one blade of grass" must be considered to be "adversely" – that is, in a "hostile manner" – affecting natural resources. That is an extreme interpretation that cannot be supported under *PGE/Gaines*.

First, in this context, the word "adversely" itself means that the effect must be "harmful" or "hostile." "Adversely" goes beyond mildly negative descriptors like inconvenient and instead conveys something more than a modicum of negativity – there must be actual harm caused. Accordingly, "the loss of one blade of grass", while it may be mildly negative, does not rise to the harmful, hostile level of adverse. "Adversely" requires a showing of actual or probable harm — not theoretical or symbolic injury.

Second, interpreting "adversely" to require more than a theoretical or symbolic injury ("the loss of one blade of grass") is consistent with how courts across the country have interpreted the phrase "adversely affected" in other contexts. Notably, in none of these other contexts is the term "adversely affected" "modified by terms like 'meaningful,' 'significant,' [or] 'substantial.'" *Compare with* Exhibit W.3a (Richter proposed findings), page 7.

For example, in the context of standing to appeal, an Ohio court – specifically considering treatment of the phrase "'adversely affected' in other administrative realms" – concluded that "adversely affected" means "produced an effect that is harmful to his or her interest, *i.e.*, an actual injury or a realistic danger of injury arising from the challenged action that is not so remote as to be merely speculative." *Eric Petro. Corp. v. Vendel*, 2025-Ohio-1238, ¶ 33 (Ct App). In the context of an agency's failure to provide the record to a reviewing court, the Ohio Supreme Court concluded that the words "adversely affected" "require[] a showing of prejudice. **No great linguistic dexterity is necessary to understand the meaning of the phrase 'adversely affected.' In common parlance, one is adversely affected when he is harmed.** In legal parlance, we call this prejudice. Thus, under the plain language of the statute, when an agency does not comply with the certification requirement, the court must make a finding in favor of the party that has been harmed or prejudiced by the agency's failure." *Goudy v. Tuscarawas Cty. Pub. Def.*, 170 Ohio St 3d 173, 177, 209 NE3d 681, 685 (2022) (emphasis added). In the context of the First Amendment, courts have required that to be "adversely affected" by retaliatory government conduct the "the nature of the retaliatory acts committed by a public employer [must] be **more than de minimis** or trivial." *Suarez Corp. Industries v. McGraw*, 202 F.3d 676, 686 (2000) (emphasis added); *see also Coker v. Warren*, 660 F. Supp.3d 1308, 1332 (2023) ("the test is an objective one and trivial injuries, or those that 'amount to no more than *de minimis* inconvenience in the exercise of First Amendment rights' are insufficient").

[21] "de minimis" means "lacking significance or importance : so minor as to merit disregard[.]" "De minimis." *Merriam-Webster's Unabridged Dictionary*, Merriam-Webster, https://unabridged.merriam-webster.com/unabridged/de%20minimis. Accessed 31 May. 2025.

The cases cited in Ms. Richter's proposed findings are not to the contrary. First, Ms. Richter cites to *Citizens for Renewables v. Coos County,* LUBA No. 2020-03, Feb 11, 2021. Exhibit W.3a, page 7. In *Citizens for Renewables*, the term being interpreted was "protect natural resources" rather than "adversely affect natural resources", but there was no modification by a term like "meaningful," "significant," or "substantial" as Ms. Richter suggests in the introduction to her paragraph. Exhibit W.3a, page 7. Instead, the case is consistent with and reinforces the conclusions of the cases interpreting the phrase "adversely affect" in that *Citizens for Renewables* concluded that a project that had shown it was "reducing harm to such a degree that there is at most a *de minimis* or insignificant impact" would not be in violation of the standard. *Citizens for Renewables, s*lip op. at 42-43.

Ms. Richter also cites to *Oregon Coast Alliance v. Clatsop County* (LUBA No. 2022-076, Jan 10, 2023). Exhibit W.3a, page 7. Just as in *Citizens for Renewables*, the phrase being interpreted in *Oregon Coast Alliance* was not "adversely affect natural resources", but instead asked whether the "site under consideration is suitable for the proposed use considering: … The natural and physical features of the site such as topography, natural hazards, natural resource values, and other features." Slip op. at 25. There was no modification by a term like "meaningful," "significant," or "substantial" as Ms. Richter suggests in the introduction to her paragraph. Exhibit W.3a, page 7. LUBA upheld the county's interpretation that the list ("such as topography, natural hazards, natural resource values, and other features") were factors to consider in determining site suitability, rather than "individual approval criteria that must be satisfied[.]" Slip op. at 6. That holding has no relevance to the interpretation of MCC 39.7515(B), which does not contain a list, nor the words "such as".

Ms. Richter also points to *Coffey v. City of North Bend*, 17 Or LUBA 527, 542 (1989) for a footnote that suggests that MCC 39.7515(B) would require "eliminating virtually any adverse impact." Exhibit W.3a, page 8. However, it is unclear why Ms. Richter cites this case, as it supports the conclusion there is some "adverse impact" that need not be eliminated, as it does not say, even in dicta, that MCC 39.7515(B) would require "eliminating all adverse impact" but instead only "virtually any". The word "virtually" means "almost entirely" here,[22] indicating that there is a *de minimus* threshold.

Finally, Ms. Richter points to a series of cases regarding LUBA jurisdiction and ORS 197.830. Exhibit W.3a, page 9. The requirement there of a showing that the decision "impinges upon" a person's interests is not contrary to this discussion and Ms. Richter does not explain how it leads to her very broad conclusion that "[w]here there is evidence of an effect by the decision, there is an 'adverse affect.'" Exhibit W.3a, page 9. Clearly, not *any* effect is sufficient, it must be one that impinges upon protected interests. The other cases (*Bonner*, *Curl*, *Schnitzer*) cited in this paragraph seem to be used to imply that "loss of scenic character," "the sight and sound of natural water flowing," and "economic impacts" are all protected by an "adversely affect" standard. However, those are simply categories of interests that might be "adversely affected" in that context. That does not mean that they are also "natural resources" that might be adversely affected under MCC 39.7515(B). Stated another way, caselaw about ORS 197.830's "adversely affected" standard may give us insight into how a court has interpreted those words, but it does not give us insight into the meaning of the words "natural resources".

[22] "Virtually." *Merriam-Webster's Unabridged Dictionary*, Merriam-Webster, https://unabridged.merriam-webster.com/unabridged/virtually. Accessed 1 Jun. 2025.

Therefore, the "loss of one blade of grass" cannot reasonably be construed as "hostile," "harmful," or even "opposed" to the interests protected by MCC 39.7515(B). If *any* effect, no matter how negligible or symbolic, is presumed to be "adverse," the term loses its meaning. Instead, consistent with the other decisions where courts have interpreted the meaning of this phrase, "one is adversely affected when he is harmed" and that harm must "be more than *de minimis* or trivial."

d. Context and Legislative History

There is only limited context in Ord. 148 for the meaning of "adversely affect". In the section of Ord. 148 related to houseboats, the use is required to show that it "will not adversely impact … normal fluvial processes[.]" Exhibit S.37, PDF page 286. However, impact in this context appears to mean "to have an adverse effect on"[23] – so, although there is a difference, it appears to be a difference without a distinction.

In the legislative history, however, there is a prior draft of approval criteria that are shown as struck that --- in lieu of what are today MCC 39.7515(A) and (B) – would have required a showing that the use "is consistent with the character of the area and the natural resource base." Exhibit S.37, PDF page 147. That page of legislative history is provided below.

Notably, and although it is a digression from the primary analysis here, later on that same page, subsection c. specifies Conditional Uses "permitted on lands not predominantly of Agricultural Capability Class I, II, or III soils[.]" Exhibit S.37, PDF page 238. Thus, where the "purposes" section for MUA-20 in Ord. 148 (at Exhibit S.37, page 236) identifies "the use of non-agricultural lands" being "encouraged" generally for a set of conditional uses, the conditional uses section of the MUA-20 zone is very clear that there are some conditional uses that are restricted to non-agricultural lands (that is, lands without high value Class I, II, or III soils), such as single-family residences, however others, including Community Service Uses like the Project, the "commercial processing of agricultural products," and "commercial dog kennels" are not constrained by the type of soils on the property where the use is proposed. This context provides a clear understanding that the 1977 Board did not intend to prohibit Community Service Uses (or commercial process of agricultural products, etc.) on lands with high value Class I, II, or III soils merely because the land contained such soils and could be put to agricultural use or even had been in agricultural use. If the intent of the 1977 Board was to prohibit Community Service Uses, like the Project on sites, like the Filtration Facility site, where there are farmable lands of Class I, II, or III soils, they would have put the words "Community Service Uses" lower on the page, in subsection c. This is discussed further below in Section IX.A.3 related to agricultural natural resources.

[23] "Impact." *Merriam-Webster's Unabridged Dictionary*, Merriam-Webster, https://unabridged.merriam-webster.com/unabridged/impact. Accessed 2 Jun. 2025.

3.133.3 CONDITIONAL USES

The following uses may be permitted when found by the Hearings Council to satisfy the applicable ordinance standards:

~~(1) is consistent with the character of the area and the natural resource base;~~

~~(2) will not conflict with the economic viability of of forest or agricultural lands for continued use;~~

~~(3) will not require the extension of services beyond those programmed for the area;~~

~~(4) does not create a hazard; and~~

~~(5) satisfies the applicable policies in the Comprehensive Plan.~~

a. Community Service Uses pursuant to the provisions of Section 7.00;

b. The following Conditional Uses ~~when approved by the Hearings Council~~ pursuant to the provisions of Section 7.50:

1. Operations conducted for the mining and processing of geothermal resources as defined by ORS 522.005 or exploration, mining and processing of aggregate and other mineral or subsurface resources;

2. Commercial processing of agricultural products, primarily raised or grown in the region;

3. Raising any type of fowl, or processing the by-products thereof, for sale of wholesale or retail;

4. Feed lots;

5. Raising of four or more swine over four months of age;

6. Raising of fur-bearing animals for sale at wholesale or retail; and

7. Commercial dog kennels.

c. The following Conditional Uses may be permitted on lands not predominantly of Agricultural Capability Class I, II, or III soils:

1. Rural planned developments for single-family residences as provided in Section 7.10; and

2. Pursuant to the provisions of Section 7.50:

(a) Cottage industries;

Exhibit S.37, PDF pages 146-147.

Returning from that digression to the primary analysis, the struck approval criterion ("is consistent with the character of the area and the natural resource base") was abandoned in favor of a set of new, handwritten approval criteria specific to Community Service Uses like the Project at Exhibit S.37, PDF page 183.

7.00 COMMUNITY SERVICE CS

7.010 PURPOSE.

This Section provides for the review and approval of the location and development of special uses which by reason of their public convenience, necessity, unusual character or effect on the neighborhood may be appropriate in any district but not suitable for listing within the other sections of this Ordinance.

7.020 GENERAL PROVISIONS.

....

7.027 COMMUNITY SERVICE APPROVAL IN CERTAIN DISTRICTS: STANDARDS
The following standards shall be applied to the approval of a Community Service use in the EFU-38, CFU-38, MUA-20, MUF-20, RR and RC districts:

7.027.(The Hearings Council shall find that the proposal:
a. is consistent with the character of the area;
b. will not adversely affect natural resources;
c. will not conflict with farm or forest uses in the area;
d. will not require public services other than those existing or programmed for the area;
e. will not create hazardous conditions; and

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CS

Exhibit S.37, PDF page 183.

The question becomes whether the change from "is consistent with" natural resources to "will not adversely affect" natural resources illuminates the meaning of MCC 39.7515(B). "Consistent" in this context indicates "harmony, regularity, or steady continuity," whereas the phrase "adversely affect" means the Project will cause a change that produces actual harm to natural resources that is more than *de minimis*.

After the change, rather than requiring that a project align with or be in harmony with natural resources, the revised language provides for a more concrete showing: that the project will not result in any tangible, negative impacts on those resources. The change suggests a more objective, harm-based threshold rather than a subjective consistency analysis. The change also suggests that the Project does not need to be "consistent" with natural resources so long as the lack of consistency is not one that causes a harmful change in those natural resources. For example, a proposed building that uses bright synthetic materials and a modern architectural style would clash with the surrounding forested landscape, but if the building is set back from sensitive habitats, uses low-impact construction techniques, and introduces no pollution, erosion, or habitat disruption—it does not cause any actual

harm to the natural resources, and "will not adversely affect natural resources." This reinforces my conclusion regarding the meaning of "adversely affect" based on the dictionary definitions, and illustrates why aesthetics would be problematic to classify as "natural resources", as explained more in Section IX.E.

e. Collective definition of "adversely affect"

Overall, I conclude that, in this context, the phrase "adversely affect" means the Project will cause a change that produces actual harm to natural resources that is more than *de minimis.*

7. "natural resources"

a. Text

Finally, the words "natural resources" have both combined and separate meanings to be considered.

The combined, plural term means "**natural resources**; *plural* **:** industrial materials and capacities (such as mineral deposits and waterpower) supplied by nature".[24] Ms. Richter provides the definition of "capacities (as native wit) or materials (as mineral deposits and waterpower) supplied by nature". Exhibit W.3a, page 5. Again, it may be that Ms. Richter is not using the unabridged version of Merriam-Webster. Regardless, the second portion of that definition -- materials (as mineral deposits and waterpower) supplied by nature – is consistent with the longer, unabridged definition, "industrial materials and capacities (such as mineral deposits and waterpower) supplied by nature".

The word "natural,"[25] standing alone, has a number of potentially applicable definitions:[26]

- **"2a:** in accordance with or determined by nature **:** based upon the operations of the physical world"
  - "<*natural* year>"

- **"9a :** occurring in conformity with the ordinary course of nature **:** not supernatural, marvelous, or miraculous"
  - **"**<the *natural* process of growth — H. W. H. King><a world where *natural* forces overwhelmed him — R. B. West><the rate of *natural* increase of the … population was quite high — Kingsley Davis><*natural* causes>"

[24] "Natural resource." *Merriam-Webster's Unabridged Dictionary*, Merriam-Webster, https://unabridged.merriam-webster.com/unabridged/natural%20resource. Accessed 29 May. 2025.

[25] Ms. Richter notably defined "nature" rather than "natural", and then based her "taken together" definition of the term "natural resources" on the definition of "nature." Exhibit W.3a, page 5. The word "nature" is not anywhere in MCC 39.7515(B) and the noun and the adjective have distinct meanings.

[26] "Natural." *Merriam-Webster's Unabridged Dictionary*, Merriam-Webster, https://unabridged.merriam-webster.com/unabridged/natural. Accessed 29 May. 2025.

- **"13a:** planted or growing by itself **:** not cultivated or introduced artificially"
  - **"**<*natural* grass>"

- **"b:** existing in or produced by nature **:** consisting of objects so existing or produced **:** not artificial (as in form or construction)"
  - **"**<agricultural commodities in their raw and *natural* state — *U.S. Code*><these *natural* deposits of potassium salts — A. C. Morrison><the vast *natural* wealth of the country — William Tate>"

The word "resources," standing alone, has a definition[27] that includes "natural resources" as an example, and thus appears to be the applicable one:

> **"resources** *plural* **:** available means (as of a country or business) **:** computable wealth (as in money, property, products) **:** immediate and possible sources of revenue
>
> <rich natural *resources*>
>
> <the book value of a company's *resources*>"

Based solely on the dictionary definitions of the text, "natural resources" appears to be fairly narrow, particularly with the use of "resources", which indicates "industrial materials and capacities (such as mineral deposits and waterpower)" or "available means (as of a country or business) **:** computable wealth (as in money, property, products) **:** immediate and possible sources of revenue <rich natural *resources*>".

Those definitions focus on the ability of the resources to be utilized for industrial, computable wealth, or possible sources of revenue. That is, the phrase "natural resources" at least from the perspective of the dictionary definitions, and read in isolation, focuses on materials produced by nature that humans can use for revenue or in an industrial manner.

However, upon examining the context and legislative history, it seems unlikely that such a narrow definition focused solely on human exploitation was intended by the 1977 Board.

To be clear, the applicant is not providing this detailed *PGE/Gaines* interpretation in order to *avoid* some category of natural resources. As shown in the sections that follow, the applicant has addressed all categories of natural resources raised in the record and on each has provided evidence in the record summarized in proposed findings of no adverse effect.

However, as noted above, LUBA remanded this case in part *because* the Prior Decision relied on context (the Goal 5 inventory) which post-dated the 1977 Board of County Commissioners and therefore could

[27] "Resource." *Merriam-Webster's Unabridged Dictionary*, Merriam-Webster, https://unabridged.merriam-webster.com/unabridged/resource. Accessed 29 May. 2025.

not be evidence of that body's intent. We provide this extensive *PGE/Gaines* analysis with the aim that we do what we can to increase the chances that the Hearings Officer's interpretation of MCC 39.7515(B) will be upheld by LUBA and the appellate courts.

b. Context

Code or legislative "text should not be read in isolation but must be considered in context." *Stevens v. Czerniak*, 336 Or 392, 401, 84 P.3d 140, 144 (2004). The classic example is the word "bank," which can refer to a financial institution or the side of a stream, depending on the context.

What does Oregon law consider part of the context? Recall that Oregon statutory construction focuses on the intentions of the body that promulgated the law. For this reason, the Oregon courts have explained that the "context" for a statute is essentially anything of which that body could have been aware at the time they enacted the words. *See, e.g., Holcomb v. Sunderland*, 321 Or 99, 105, 894 P2d 457 (1995) ("the proper inquiry focuses on what the legislature intended at the time of enactment and discounts later events"); *Or. Occupational Safety & Health Div. v. CBI Servs.*, 356 Or 577, 592, 341 P3d 701 (2014) (holding that "court decisions that existed at the time that the legislature enacted a statute—and that, as a result, it could have been aware of—may be consulted in determining what the legislature intended"). As explained above, that does not mean that later-enacted materials are completely irrelevant, as *Gaines* itself explains:

> "Ordinarily, only statutes enacted simultaneously with or before a statute at issue are pertinent context for interpreting that statute. *See Stull v. Hoke*, 326 Or 72, 79-80, 948 P.2d 722 (1997) (so observing). It may be that later enacted statutes can be of some aid in interpreting an earlier one for the limited purpose of demonstrating the legislature's adherence to certain conventions in legislative drafting or word usage."

346 Or at 177 n 16; s*ee also Providence Health Sys. v. Brown*, 372 Or 225, 246, 548 P3d 817, 830 (2024) (subsequent legislative history, at best, arguably confirms what we have determined to be the intended meaning).

Given that framework, I will start with an evaluation of the context "that existed at the time … and that, as a result, [the 1977 Board] could have been aware of" to attempt to determine the 1977 Board's intent. I will then turn to later-enacted materials to determine if they have any value in confirming on contradicting the contextual analysis.

i. Other Provisions of the Same Enactment – "Natural Resource Base" vs. "Natural Resources"

To begin, *PGE/Gaines* context "includes other provisions of the same statute" – or in this case, the same ordinance. *Wetherell v. Douglas Cty.*, 342 Or 666, 678, 160 P3d 614, 620 (2007).[28] The six words that are today MCC 39.7515(B) were enacted on September 6, 1977, via Ordinance No. 148 ("***Ord. 148***"). Exhibit N.65, page 1. Ordinance No. 148 is provided in its entirety in Exhibit S.37, starting at PDF page 218.

The term "natural resource" or "natural resources" is used in Ord. 148 in a variety of ways.

One way the term is used is in the summary of what is contained in Ord. 148, which includes "establishing new districts to regulate development in areas designated 'Rural or Natural Resource' by the Multnomah County Comprehensive Framework Plan[.]'" Exhibit S.37, PDF page 219. Similarly, that set of districts is referenced, requiring a setback "in all rural and natural resource districts[.]" Exhibit S.37, page 265. The Multnomah County Comprehensive Framework Plan referenced, including the designation of areas as natural resource, is addressed in the next section.

The term "natural resource" is also used in the statement of "Purposes" for the MUA-20 zone, referencing that one purpose of the zone is to "encourage the use of non-agricultural lands for … conditional uses, when these uses are shown to be compatible with the natural resource base, the character of the area, and the applicable County policies." Exhibit S.37, PDF page 236. Two pages later in the ordinance, "Conditional Uses" are set forth, including as subsection a. the relevant category for the Project: "Community Service Uses pursuant to the provisions of Section 7.00[.]" Exhibit S.37, PDF page 238.

Notably, the term "natural resource base" was used in a prior draft in approval criteria that are shown as struck in the legislative history materials I set forth above under "adversely affect". Exhibit S.37, PDF page 147. That approval criterion ("is consistent with the character of the area and the natural resource base") was abandoned in favor of a set of new, handwritten approval criteria specific to Community Service Uses like the Project at Exhibit S.37, PDF page 183. However, this sequence does not illuminate much about the definition of "natural resources" used in MCC 39.7515(B) today, other than that the 1977 Board had used the term "natural resource base" and changed the approval criteria to read "natural resources" instead while leaving "natural resource base" in the statement of purposes. A "base" as used in "natural resource base" would be "something (such as a group of people or things) that provides support for a place, business, etc. —usually singular".[29] That is, consistent with the definitions above of "natural resources" as a combined term, the "base" would be what "provides support for" the ability of the resources to be utilized for industrial, computable wealth, or possible sources of revenue. Overall, the change from "natural resource base" to "natural resources" presents no apparent change in meaning, given that the concept of "resources" already includes the idea that the

[28] In addition to "provisions of the same statute," PGE/Gaines context includes "other related statutes, as well as the preexisting common law and the statutory framework within which the law was enacted[.]" *Wetherell v. Douglas Cty.*, 342 Or 666, 678, 160 P3d 614, 620 (2007). However, there do not appear to be any related ordinances or preexisting common law that apply.

[29] "Base." *Merriam-Webster's Unabridged Dictionary*, Merriam-Webster, https://unabridged.merriam-webster.com/unabridged/base. Accessed 2 Jun. 2025.

resources are supportive of something, or can be used by humans. Accordingly, I proceed to examine the 1977 Comp Plan as additional context.

ii. The 1977 Comprehensive Plan

The only other *PGE/Gaines* "context" (again, in the sense of materials of which the enacting body could have been aware at the time they enacted the words) is the Comprehensive Framework Plan (the "***1977 Comp. Plan***") adopted by the 1977 Board as Ordinance No. 147, on the same day as, and immediately prior to, adoption of Ord. 148 and the six words at issue in this case. Exhibit S.37, page 1.

The 1977 Comp. Plan does help illuminate the intended meaning of the phrase "natural resources" as it was used by the 1977 Board that same day in Ord. 148. The 1977 Comp. Plan is separated into two parts, inventory and plan. Preface. The inventory section "summarizes the data … collected" to understand the physical, economic, environmental and social characteristics of the county. Preface; page 3 (The Planning Process). The plan section speaks to the "policies and locational criteria which apply to all legislative and quasi-judicial land use actions." Preface. For that reason, this analysis focuses on the plan section rather than the inventory.

The most significant use of the term "Natural Resources" in the plan section is as the title of one of the "Natural Environment" policies. The "Natural Environment" "section includes the following policies: Air and Water Quality, and Noise Levels[,] Development Limitations[,] Areas of Significant Environmental Concern[, and] Natural Resources." Exhibit S.7, page 213. That is, the term "natural resources" is a subset of the broader topic of "Natural Environment" considerations.

The other subsets of the broader topic of "Natural Environment" considerations illuminate what the 1977 Board intended to sweep into the ambit of the approval criterion related to "natural resources" and what the 1977 Board intended to be covered by other aspects of Ord. 148.

First, the "Air and Water Quality & Noise Level Policy" has the "purpose" to "promote the attainment and maintenance of environmental quality standards established by the U.S. Environmental Protection Agency and the State of Oregon Department of Environmental Quality" and it states that "[i]t is not intended that the County enact air or water quality standards, but rather to be certain that all Federal and State standards can be met before a development action is approved." Exhibit S.7, page 215. The policy includes a number of planning and administrative directions to staff and, most importantly here, specific direction on how the "Air and Water Quality & Noise Level Policy" "should be addressed in the preparation of the Community Development Ordinance" and, more specifically, in the "Development Standards Article". Exhibit S.7, page 217. At this point in the County's land use history, the "Development Standards Article" – Article V -- was separate from the "Zoning Article" in Article III. Exhibit S.7, pages 163-167. Therefore, the direction to include, for example, "protection of, or planting of vegetation in high noise impact areas" was not a direction to incorporate that into the "Zoning Article" that provided for "conditional uses." Exhibit S.7, page 164.

Second, the "Development Limitations Policy" "is to direct development and land form alterations away from areas with development limitations except upon a showing that design or construction techniques can mitigate any public harm" in areas that have specific characteristics, including "slopes exceeding 20%". In the modern code, this appears to be what is protected by the Geologic Hazards overlay zone. In 1977, there were provisions to be included in the Development Standards Article (which, as explained

above, was not the location of the six words we are interpreting) and directed that the "Zoning Article" (which was the location of our six words) should include standards for development within the 100 year flood plain. Exhibit S.7, page 220.

Third, "Areas of Significant Environmental Concern":

> "is an overlay classification which will be applied as shown on the Comprehensive Framework Plan or as the result of a plan amendment to areas having significant natural or man-made features. It is not intended to restrict the use of land, as allowed by the Comprehensive Plan and other regulations, but to identify these areas in which land uses will be subject to a review process. However, the review process may result in the imposition of design standards to minimize adverse environmental and aesthetic impacts."

Exhibit S.7, page 221. The "SEC" today is still an overlay classification, although it has more than simply a review process associated with it. Notably, the SEC overlay designation is what the 1977 Board had in mind to protect "F. Scenic Value, e.g., areas valued for the aesthetic appearance". The 1977 Board directed that the Zoning Article include an overlay zone for SEC areas as well as a historic preservation overlay district, a Willamette River Greenway district, and protection for the Sauvie Island dike. Exhibit S.7, pages 222-223.

In the 1977 Comp. Plan, each of the three "Natural Environment" policies outlined above is separate from the "Natural Resources" policy I will turn to next. Exhibit S.7, page 213. That structure of the 1977 Comp. Plan indicates that topics covered by the other three "Natural Environment" policies are not "Natural Resources" policies and provides contextual support for excluding those topics from the meaning of "natural resources" in MCC 39.7515(B).

The "Natural Resources Policy" begins on Exhibit S.7, page 225. It begins with an "INTRODUCTION" which, in full, reads:

> The purpose of the natural resource policy is to protects areas which are necessary to the long term health of the economy or a community: for example, mineral and aggregate sources, energy resource areas, domestic water supply watersheds, wildlife habitat areas, and ecologically significant areas.
>
> The intent of the policy is to protect these areas for their natural resource value. Mineral, aggregate, energy, and watershed areas are limited, and inappropriate land uses can destroy their future use. Significant habitat and ecological areas are important to the public for their educational, recreational and research value, and they often function to balance the effects of other land uses. The benefits gained by the preservation of wildlife habitat range from aesthetic enhancement of the landscape to improvement of community health. Greenspaces and vegetation significantly affect such factors as air flow, temperatures, oxygenation, travel patterns and pollution.

There are some notable features of that introduction that help illuminate the meaning of the term "natural resources" in MCC 39.7515(B). First, the term does include the concept of protecting "areas" in the way the dictionary definition indicates, looking at "their natural resource value" and their ability to support the "long term health of the economy or a community". Accordingly, it looks to protect

"Mineral, aggregate, energy, and watershed areas" for "their future use." However, the introduction explains that "Significant habitat and ecological areas are important to the public for their educational, recreational and research value, and they often function to balance the effects of other land uses." Therefore, the term "natural resources" when used by the 1977 Board had a **broader meaning than the dictionary definition of the term**, which is focused more narrowly on "industrial materials and capacities (such as mineral deposits and waterpower) supplied by nature".[30] Here, "natural resources" is broader than "industrial materials" that can be used by society, and includes areas of habitat for other, less monetary reasons.

The Natural Resources Policy section then goes on to set forth the specific policy:

> "The county's policy is to protect natural resource areas and to require a finding prior to approval of a legislative or quasi-judicial action that the long range availability and use of the following will not be limited or impaired:
>
> a. mineral and aggregate sources;
>
> b. energy resource areas;
>
> c. domestic water supply watersheds;
>
> d. fish habitat areas;
>
> e. wildlife habitat areas; and
>
> f. ecologically and scientifically significant natural areas."

Exhibit S.7, page 225 (all caps lettering removed for readability).

This specific list is **tied to the requirement to make "a finding prior to approval of a … quasi-judicial action[.]"** That sentence is the strongest indication that the 1977 Board intended this list of "natural resources" to inform the meaning of "natural resources" *in the quasi-judicial approval criterion* it adopted the same day. Given that the context provided by the "Natural Resources Policy" is the best evidence of the Board's intent that appears to exist, and because it is generally consistent with the plain text analysis above looking at dictionary definitions (even in protecting ecological areas, looking at their "value" "to the public"), I find that "natural resources" in MCC 39.7515(B) has the scope of the categories in a. through f. above that the 1977 Board sought to ensure "will not be limited or impaired" in "approval of a … quasi-judicial action[.]"

There may be, and likely are, other available interpretations of the term "natural resources" in MCC 39.7515(B). However, I come to this conclusion by adhering to the *PGE/Gaines* process and following the evidence available "to discern the intent of the body that promulgated the law". While the 1977 Board's intent is certainly obscured by the ensuing decades and the lack of explanatory legislative history, it is a

[30] "Natural resource." *Merriam-Webster's Unabridged Dictionary*, Merriam-Webster, https://unabridged.merriam-webster.com/unabridged/natural%20resource. Accessed 29 May. 2025.

reasonable interpretation to use the categories in a. through f. of the "Natural Resources Policy" as the categories to require that the applicant address in this quasi-judicial proceeding to meet its burden of proof.

I realize that an interpretation to use the categories provided in the 1977 "Natural Resources Policy" could appear to produce the same error as pointing to Chapter 5 of the 2016 MCCP -- an approach that LUBA explicitly did not endorse. Exhibit M.25 (LUBA Order), pages 117-123. However, LUBA did not reject the general approach of using relevant comprehensive plan categories to define "natural resources" – a point made by Ms. Richter in her proposed findings. Exhibit W.3a, page2n2. Instead, LUBA found the former Hearings Officer had not, in fact, adopted an interpretation that used relevant comprehensive plan language, and therefore such an interpretation was not in front of them for review. Exhibit M.25 (LUBA Order), page 126.

Moreover, the introductory language of the 1977 Natural Resources Policy -- providing specific categories ("the following") that the 1977 Board directed "to require a finding [on] prior to approval of a … quasi-judicial action" -- is quite distinct from Chapter 5 of the 2016 MCCP. The 2016 MCCP "provides an overview of conditions and planning issues associated with natural resources and environmental quality … including the following topics[.]" Exhibit M.25, page 118. An "overview" that has a non-exclusive list ("including the following topics") is very different than the "require a finding [on]" introductory language of the 1977 Natural Resources Policy.

In case a reviewing court disagrees, I have provided findings on other categories of natural resources that are outside of the "Natural Resources Policy". Accordingly, the findings below are organized first by addressing the Natural Resources Policy categories and then providing findings on additional categories in case a reviewing court follows the *PGE/Gaines* analysis to a different interpretation that includes any of those additional categories.

c. Legislative History

Nothing in the legislative history appears to illuminate the meaning of the words "natural resources" in MCC 39.7515(B).

8. No *Baker* Conflict with 2016 MCCP

As noted above, there is a tension between the temporal aspect of *PGE/Gaines*'s intent-of-the-drafters *interpretive* analysis and the land use concept that a comprehensive plan is "preeminent." Under *Baker*, as I noted, the questions in front of me appear to be (1) how should the prior zoning ordinance's words ("will not adversely affect natural resources"), be interpreted applying the rules of construction under PGE/Gaines? And the next, (2) is that interpretation "conflicting" with some provision of the 2016 MCCP, such at the 2016 MCCP controls over the intention of the drafters? The analysis above completes the first step.

Turning to the second step, there does not appear to be any *Baker* conflict between that interpretation of these six words and the 2016 MCCP.

a. 2016 Glossary Definition

In *Philippi v. City of Sublimity*, 294 Or 730, 735, 662 P2d 325 (1983), cited to by County staff, the Oregon Supreme Court evaluated what was "intended by the plan drafters" and whether the plan drafters intended for the specific comprehensive plan policy at issue in *Philippi* to control over conflicting zoning ordinance provisions (in that case, they did).

Here, however, it is clear that the drafters of the 2016 MCCP did *not* intend for the glossary definition to be automatically and mechanically applied in land use decisions as a definition of the terms used in the Code. How do we know that? The plan drafters said as much. As explained by LUBA in referencing the glossary definition of natural resources, the introduction to the Appendix B Glossary explains:

> "This Glossary of Terms includes common definitions of terms used in the Comprehensive Plan and is intended as a convenience to help readers better understand some of the terms used in the Plan. … [B]ecause the definitions in this Glossary are intended solely for the convenience of the reader in conveying a general idea of the meaning of the terms used in this Plan, **nothing in this Comprehensive Plan prohibits the County from previously or subsequently defining any term**, whether **in the Zoning Ordinance or otherwise, in a manner that may or does conflict** with the meaning of any term used in this Plan."

2016 MCCP, Appendix B, page 2 (emphasis added). Given the direction from the 2016 MCCP drafters that the glossary definition was only "intended as a convenience," and that they specifically did not intend to "prohibit the County from previously or subsequently defining any term" *even if such definition "may or does conflict" with the glossary*, we cannot simply quote the definition of "natural resources" provided in the 2016 MCCP, conclude that it creates a *Baker* conflict with the intent of the drafters of the six words, and be done with the analysis. (That would be "convenient" as Ms. Richter says, Exhibit W.3a, but it just is not shown by the analysis.)

Additionally, the categories of natural resources in my interpretation above and in the 2016 MCCP's glossary definition are more consistent than they are divergent or conflicting, as shown in the table below.

1977 Natural Resources	2016 Glossary
	Generally, a functioning natural system, such as
a. mineral and aggregate sources;	minerals
b. energy resource areas;	fuels
c. domestic water supply watersheds;	
d. fish habitat areas;	stream
e. wildlife habitat areas; and	wildlife habitat, forests
f. ecologically and scientifically significant natural areas.	wetland
	agricultural resources
	material in the environment used or capable of being used for some purpose

The 1977 Board had specific categories ("the following") that it directed "to require a finding [on] prior to approval of a … quasi-judicial action[.]" The Board directed to "require a finding" in "quasi-judicial actions" on a specific set of categories "to protect natural resource areas" on the same day it set forth an approval standard to "not adversely affect natural resources." In contrast, the direction from the 2016 MCCP drafters was that the glossary definition was only "intended as a convenience," and that they specifically did not intend to "prohibit the County from previously or subsequently defining any term" **even if such definition "may or does conflict"** with the glossary. Given those facts, I cannot find that the glossary definition "conflicts" with the intention-of-the-drafters analysis in a manner such that there is a *Baker* conflict that inserts the glossary definition in the place of the intention of the drafters. *See also Green v. Hayward*, 275 Or 693, 697, 552 P2d 815, 817 (1976) ("*Baker* does not hold that a [Comprehensive Plan] diagram or map … is necessarily the controlling land use document" particularly where the text which introduces the diagram refers to it as "illustrative").

Again, in case a reviewing court disagrees, I have, in the alternative, provided findings on all categories of natural resources raised.

b. Other Portions of the 2016 MCCP

In considering whether my interpretation conflicts with the 2016 MCCP more broadly, I am mindful that the compliance of the Project with the 2016 MCCP has already been conclusively decided in this proceeding. MCC 39.7515(G) requires a finding that the use "will satisfy applicable policies of the Comprehensive Plan." No one appealed the former Hearings Officer's determination that MCC 39.7515(G) is met. Exhibit M.25 (LUBA Order), page 89n25. Therefore, there is no argument in this proceeding that the Project does not comply with any specific Comprehensive Plan policy.

There is no *Baker* conflict with Chapter 5 of the 2016 MCCP. As explained above, the introductory language of the 1977 Natural Resources Policy -- providing specific categories ("the following") that the 1977 Board directed "to require a finding [on] prior to approval of a … quasi-judicial action" -- is quite distinct from Chapter 5 of the 2016 MCCP. The 2016 MCCP "provides an overview of conditions and planning issues associated with natural resources and environmental quality … including the following topics[.]" Exhibit M.25 (LUBA Order), page 118; *Philippi*, 294 Or at 735 (evaluating what was "intended by the plan drafters" and whether the plan drafters intended for the specific comprehensive plan policy at issue to control over conflicting zoning ordinance provisions). An "overview" that has a non-exclusive list ("including the following topics") is very different than the "require a finding [on]" introductory language of the 1977 Natural Resources Policy. Accordingly, neither Chapter 5 of the 2016 MCCP nor LUBA's analysis at Exhibit M.25 (LUBA Order), pages 117-123 provides evidence that the 2016 MCCP creates a *Baker* conflict or leads me to otherwise question my interpretation of the intention of the drafters.

Commenters also raise a statement on page 1-3 of the 2016 MCCP as potentially relevant to the intended meaning of "adversely affect". Exhibit W.3a, page 7 (Richter proposed findings); Exhibit N.7, page 8 (initial Staff report); Exhibit W.2a, page 8 (Jordan Ramis proposed findings). Page 1-3 of the 2016 MCCP states that "Multnomah County has also embraced land use planning … to protect natural resources from environmental degradation[.]" 2016 MCCP 1-3. Staff see that sentence on page 1-3 as representing the "County's primary concern with respect to protection of natural resources" and then proceed to look at the dictionary definition of "degradation" (a word not in MCC 39.7515(B)) to reach a conclusion about the meaning of MCC 39.7515(B). Staff's reliance on "environmental degradation" to

define "adversely affect" is inconsistent with the sequence of analysis provided in *PGE/Gaines*. In interpretation, the "first level of analysis, the text of the [code] provision itself, is the starting point for interpretation and is the best evidence of the [enactor]'s intent." *Portland General Electric Company v. Bureau of Labor & Industry*, 317 Or 606, 610, 859 P2d 1143 (1993).

Putting that aside, the ultimate conclusion (that "adversely affect" means "avoid degradation" and "degradation" means "impairment" or "damage") is not in conflict with my holding that the phrase "adversely affect" means the Project will cause a change that produces actual harm to natural resources that is more than *de minimis* or trivial. Instead, an "impairment," "damage," or "degradation" would similarly require a showing of actual harm. Moreover, there is no indication that the broad policy goal on page 1-3 of the 2016 MCCP was intended by the plan drafters to control, even if it did conflict (which it does not). Accordingly, there is no *Baker* conflict with page 1-3 of the 2016 MCCP. Instead, page 1-3 of the 2016 MCCP – while outside the potential knowledge of the 1977 Board – provides confirmatory context for the 1977 Board's intended meaning. *Providence Health Sys. v. Brown*, 372 Or 225, 246, 548 P3d 817, 830 (2024) (subsequent legislative history, at best, arguably confirms what we have determined to be the intended meaning).

9. Wildlife Habitat Areas as a Natural Resource

As provided in the code interpretation above, under either the Natural Resources Policy 16 of the 1977 Comp. Plan or under the 2016 MCCP glossary definition, the natural resources subject to MCC 39.7515(B) are either "wildlife habitat areas" or "wildlife habitat", respectively.

In her proposed findings, Ms. Richter concludes that "natural resources" includes "wildlife, including fish, amphibians, mammals and birds." Exhibit W.3a, page 5. She arrives at that conclusion after a short plain meaning interpretation using dictionary definitions. As noted above, however, rather than evaluate the dictionary definition of "natural," the word used in the MCC 39.7515(B), she provides the dictionary definition for the word "nature," a word not found in the MCC 39.7515(B). Ms. Richter also provides the definition for "resources" as **"**available means (as of a country or business) **:** computable wealth (as in money, property, products) **:** immediate and possible sources of revenue."

Ms. Richter concludes that, taken together, "natural resources" are "those living and non-living things that exist in their created form without influence or creation by humans that produce some value." Even from the definition of "nature" rather than "natural" she uses, it is unclear how Ms. Richter made the leap to that summarized definition. She leaps from "computable wealth" or "sources of revenue" to the far broader term "some value." She leaps from "having an unchanged as contrasted with a developed, ordered, perfected or man-made character" (again, even that as a definition of the wrong word), to "living and non-living things that exist in their created form[.]" Exhibit W.3a, page 5.

It is from those interpretational gymnastics that Ms. Richter arrives at the conclusion that "natural resources" in MCC 39.7515(B) includes "wildlife, including fish, amphibians, mammals and birds." Exhibit W.3a, page 5. I find no support, from Ms. Richter's offered interpretation or otherwise, to conclude that the plain meaning of "natural resources" includes wildlife, particularly where both the 1977 Comp. Plan and the 2016 MCCP focus on "habitat". That is sufficient for me to reach my conclusion.

Ms. Richter advances no contextual argument to support her claim that natural resources includes wildlife. Instead, she relies on the glossary definition which expressly references "wildlife habitat." I also

note that there is contextual evidence that it could not have been the intent of the 1977 Board of County Commissioners to include wildlife as a category of "natural resource" when it adopted the standard because one of the community service uses that must demonstrate compliance with the "will not adversely affect natural resource" approval criterion adversely affects wildlife by its very nature. Specifically, the list of Community Service uses in 1977 included hunting and fishing lodges. Exhibit S.37, Ordinance 148, page 55. In certain areas, including the East of Sandy River Planning Area, hunting and fishing lodges remain a community service use subject to the MCC 39.7515 standards. MCC 39.7520(B)(9). It is difficult to imagine a conclusion that a hunting or fishing lodge will not adversely affect the wildlife being targeted.

There are additional practical considerations that support an interpretation of "natural resources" that focuses on habitat instead of individual species or wildlife that live in that habitat. Any change to land inherently alters habitat conditions, and those changes inevitably benefit certain species while disadvantaging others. For example, clearing trees may benefit a grassland bird, but harm a woodpecker. Therefore, it makes sense that both the 1977 Comp. Plan and the 2016 MCCP focus on "habitat" instead of individual species or wildlife in that habitat, and I see no reason to come to a finding contrary to that focus of the 1977 Comp. Plan and the 2016 MCCP.

For the foregoing reasons, I find that that the term "natural resources" in MCC 39.7515(B) includes "wildlife habitat areas", or in the alternative "wildlife habitat," but does not include "wildlife" itself or individual animals.

10. No Specific Methodology Required

The six words of MCC 39.7515(B) do not provide any specific methodology of analysis required to show that the Project will not adversely affect natural resources. There is no requirement for an inventory, snorkel surveys, electrofishing, minnow traps, night cameras, or scent stations. Given the absence of any such requirement, and the absence of any guidance from the County of how MCC 39.7515(B) should be applied, I find that my task is to evaluate the evidence presented and determine if it is sufficient to show that the standard is met. Indeed, to hold that a specific methodology is required by the six vague words in MCC 39.7515(B) would seem to violate the requirement under ORS 215.416(8)(a) that the County approve or deny this application based on standards and criteria that are set forth in the zoning ordinance and which must be reasonably discernible from the provisions of the code itself. *Waveseer of Or., LLC v. Deschutes County*, 308 Or App 494, 501 (2021). However, I do not make any finding on ORS 215.416(8)(a) and proceed to evaluate the evidence presented and determine if it is sufficient to show that the standard is met.

E. Mitigation Can Evidence that the Standard is Met

Several project opponents claim that mitigation cannot be considered in the evaluation of whether the applicant has demonstrated compliance with the conditional use approval criterion at issue in this proceeding. Ms. Richter proposes findings that "If the County intended to allow mitigation as a strategy to avoid adverse effect, it would have stated as much." Exhibit W.3a, page 9. However, MCC 39.7510 does state exactly that – it allows the approval authority to attach conditions specifically to "mitigate any adverse effect". Notably, MCC 39.7510 is the section of the MCC immediately before the "Approval Criteria" in MCC 39.7515. Moreover, that position is contrary to the nature of conditional uses generally,

in addition to being contrary to MCC 39.7510 specifically. How could it be a "conditional" use if no conditions are allowed?

Perhaps more importantly, LUBA has already addressed this argument in this case. The prior Hearings Officer held "that the code allows impacts from these conditional uses to be mitigated by conditions." LUBA agreed: "we agree with the hearings officers statements that the code allows the imposition of conditions[.]" Finding the Hearings Officer's interpretation "at least partially inadequate for review," LUBA took it upon themselves to "provide an interpretation[.]" Exhibit M.25 (LUBA Order), page 75. Although they were doing so in the context of an argument about MCC 39.7515(A) ("character of the area"), LUBA's analysis and conclusion is not based on an interpretation of the words "consistent with the character of the area" but instead "based on the purpose statement and the provision allowing conditions of approval[.]" Exhibit M.25 (LUBA Order), page 75. Accordingly, that interpretation of the MCC is equally applicable in this proceeding.

Moreover, this case is not the first time that LUBA has made clear that mitigation can be used to show a standard is met. As LUBA noted in their order, in *Stephens v. Multnomah County*, 10 Or LUBA 147, 151-52 (1984), LUBA "concluded that the decision maker was required to make an unequivocal finding as to whether the criterion was met and we rejected the petitioner's argument that conditions may not be imposed to ensure compliance with the no hazardous conditions criterion." Exhibit M.25 (LUBA Order), page 90. In *Stephens*, LUBA rejected "petitioner's argument that conditions may not be used to ensure compliance with ordinance criteria. Petitioner cites us to no authority to suggest that a local government may not impose conditions so as to make an otherwise objectionable use not objectionable." 10 Or LUBA at 152.

Particularly given LUBA's prior holdings on this matter, and also based on my own evaluation of MCC 39.7510 and the purpose statement that LUBA reviewed, I find that mitigation is allowed to be taken into consideration to determine whether or not the Project – including mitigation proposed or imposed on the Project – will "adversely affect natural resources." That is, mitigation can be used "to make an otherwise objectionable use not objectionable" or, in the words of the code itself, to "mitigate any adverse effect".

Ms. Richter points to a quote from *West Hill & Island Neighbors, Inc v. Multnomah County*, LUBA No. 83-018 (Jun 29, 1983) (*West Hills*), that "Had the county intended to legislate a substantial consistency standard, based on mitigation of effects, it could have done so." Exhibit W.3, page 3. Ms. Richter then argues: "Mitigation, by its definition, reveals that adverse effects have occurred and as such, it cannot be used to establish compliance with this standard. This exacting and strict 'no adverse effect' standard prohibits any adverse effect, even where it might be mitigated to some reduced level." Exhibit W.3, page 3. For the reasons explained above, I disagree with Ms. Richter that "Mitigation … cannot be used to establish compliance with this standard[.]" Instead, the key, using Ms. Richter's words, is what "reduced level" of impact the mitigation achieves, and, crucially, does that level move below the bar of "adversely affect[ing] natural resources."

If it moves below that bar, the standard can be said to be met. If it remains above that bar, the standard cannot be met – and, indeed, that is exactly what *West Hills* held. The *West Hills* sentence *prior* to the one Ms. Richter quotes multiple times is helpful in this regard: "There is nothing in the plan or ordinance that says substantial mitigation means consistency." *West Hills*, slip op page 15. That is, LUBA's holding

in *West Hills* is that "*substantial* mitigation" is not enough – not that complete mitigation is impossible or that mitigation cannot be used whatsoever to meet these standards.

Ms. Richter also points to *McCoy v. Linn County*, LUBA No. 87-046 (Dec 15, 1987), providing a block quotation but drawing no parallels to this case from that quotation. Exhibit W.3a, page 8. I address *McCoy* here, as the block quotation cites to *West Hills*. As in West Hills, LUBA concludes that the ultimate conclusion must be that the "proposed development will cause no adverse effects" but expressly clarifies (after the block quotation section provided by Ms. Richter) that "the county may rely on the imposition of conditions, so long as it finds the conditions impose are sufficient to insure the standard will be met." *McCoy*, slip op at 7. *McCoy* reinforces my conclusion that the issue will always be whether or not the standard is met, not that mitigation cannot be used to meet the standard.

County staff explain well this distinction between the "substantial mitigation" found to be inadequate in *West Hills* and complete mitigation:

> "One aspect of the debate over whether mitigation may be imposed as a condition in satisfaction of MCC 39.7515(B) appears to concern the degree of reduction meant by 'mitigation.' The term 'mitigation' is often used to refer to a lessening of an impact, but one might also use the term to mean complete abatement of an impact. Under MCC 39.7515(B), mitigation, either alone or in combination with other conditions, could be imposed as a condition so long as the ultimate finding is that the proposed uses 'will not adversely affect natural resources.'"

Exhibit W.1, page 3. I agree with staff and so find.

I also note that the 2016 MCCP contains Policy 5.7: "Allow changes to existing development when the overall natural resource value of the property is improved by those changes and water quality will be improved." And Strategy 5.7-1: "Natural resource protection standards and water quality standards shall allow changes to existing development which result in a net benefit to the protected resource." This policy and corresponding strategy are consistent with my finding that mitigation can evidence that MCC 39.7515(B) – which also addresses "natural resources" is met.

1. The Day Construction Concludes is Not the Only Part of the Use That Counts

Ms. Richter argues that *West Hills* holds that "the standard can[not] be satisfied where the finding is that the degradation caused by the use will eventually be restored far in the future." Exhibit W.3a, page 10. This too is an erroneous statement of the holding in *West Hills*. Immediately prior to that summary, Ms. Richter quotes *West Hills*'s actual conclusion that "The ordinance does not allow the county to rest its conclusion … on the eventual end of the proposed use." *West Hills,* slip op 19. The holding is even clearer in another section of *West Hills*, where LUBA explains that the County had:

> "transform[ed] a bald requirement … into a requirement that the use be consistent after it is completed. We reject the argument that the county may measure consistency … against the day when the landfill no longer is operating and is covered over and

> replanted. Were that the case, *consistency would not be measured against a use* but against bare land after the use has gone."

Slip op at 14 (emphasis added). The standard of MCC 39.7515(B) at issue in this proceeding, like the standard of MCC 39.7515(A) discussed in that quote, must be "measured against a use" during the life of that use. That is, *West Hills* simply holds that mitigation *after the use is completed* cannot count as part of the "use" being evaluated to determine if impacts are above or below the bar of "adversely affect[ing] natural resources."

From this erroneous summary of the holding of *West Hills*, Ms. Richter concludes that the only part of the "use" that counts is "what is the effect of the use on the same day that construction concludes." Exhibit W.3a, page 10. That is certainly not the holding of *West Hills*, nor is such a standard otherwise legally supportable. Inherent in the conclusion that mitigation can and should be considered when determining if a project's impacts are below the level of "adversely affect" is the concept that mitigation must be done as part of the "use" being reviewed.

Moreover, the context for interpreting MCC 39.7515(B) includes the statement in the Natural Resources Policy that, when applied "to require a finding prior to approval of a … quasi-judicial action" – as in this case – the determination is whether "the long-range availability and use of" the listed natural resources will be limited or impaired. 1977 Comp. Plan, page 225. Therefore, the context of the code supports an interpretation that Ms. Richter's "only day one counts" proposal was not the intention of the drafters.

This concept is further discussed in the context of tree removal in Section VIII.D.5.e.i.(3) below.

F. Filtration Facility Site Selection is Legally Irrelevant

Several opponents argue that the Water Bureau could have selected an alternative site within Portland's Urban Growth Boundary for a filtration facility. *See, e.g.,* Exhibit N.16 (1000 Friends). The evidence provided to support the claim is misleading and one sided. More importantly, for this land use decision, it is irrelevant. The Filtration Facility is permitted as conditional Community Service use within the MUA-20 zone. There is not an alternatives analysis required in order to site a Community Service use in the MUA-20 zone. In other words, even if an alternative site were available for a filtration facility, the alternative site is not a relevant consideration in determining if the proposed Project in the proposed location satisfies the sole applicable MUA-20 approval criterion in this remand.

G. Rural Reserve is Legally Irrelevant

Several opponents argue that the location in a Rural Reserve is relevant to whether there is an adverse effect on natural resources, particularly what they consider "agricultural natural resources." *See*, *e.g.*, Exhibit N.17. However, the Rural Reserve designation does not change area zoning, existing or allowed uses, or the characteristics or impact to any natural resources. The rural reserve designation occurs through agreements between, in this case, the regional government Metro and Multnomah County. ORS 195.141. After designation of rural reserves, the county submits "amended plans, policies and land use regulations implementing the designations to the [state Land Conservation and Development] Commission for review and action in the manner provided for periodic review under ORS 197.628 to

197.650." Oregon Administrative Rules ("OAR") 660-027-0080. That is, the rural reserves designation is already implemented through the Comprehensive Plan and the zoning code. The time to challenge how the designation is implemented in the comprehensive plan and zoning code has long since passed. *City of Sandy v. Metro*, 48 Or LUBA 363, 373-374 (2005).

H. The Project Does Serve the Area, Although Not an Applicable Approval Criterion

Various commenters object that the "facility does not serve the needs of the rural area where it is sited". Exhibit N.9, page 2 (Oregon Association of Nurseries); Exhibit W.3a, page 12 (Ms. Richter proposing findings that this use should be restricted "by limiting non-farm uses as necessary to serve the rural community" and citing to the West of Sandy River Rural Plan).

This is a reference to an inapplicable approval criterion, MCC 39.7515(I) ("in the West of Sandy River Rural Planning Area, the use is limited in type and scale to primarily serve the needs of the rural area."). This criterion does not apply because the Project is a "utility facility" subject only to conditional use criteria A through H. This is made explicit in MCC 39.7520(A)(6): "(6) Utility facilities, including power substation or other public utility buildings or uses, subject to the approval criteria in **MCC 39.7515(A) through (H)**." (Emphasis added).

At times, this type of comment is also directed to Policy 3.16 of the 2016 MCCP: "New non-agricultural businesses should be limited in scale and type to serve the needs of the local rural area." Because the Project is a utility facility – and not a business covered by Policy 3.16 – the former Hearings Officer found that Policy 3.16 was met, as part of finding that the Project complies with the approval criterion in MCC 39.7515(G) that the Project "will satisfy the applicable policies of the Comprehensive Plan." That determination is final and not subject to review in this remand proceeding.

Ms. Richter also points to sections of the 1977 Comp. Plan exception statement to try to interpret into the words "will not adversely affect natural resources" a requirement that the use be "scaled to serve the community[.]" Exhibit W.3a, page 15. However, unlike for MCC 39.7515(B), the 1977 Comp. Plan is not relevant context for interpreting MCC 39.7520(A)(6): "(6) Utility facilities, including power substation or other public utility buildings or uses, subject to the approval criteria in **MCC 39.7515(A) through (H)**." Why? Because the relevant portion of MCC 39.7520(A)(6) was adopted after 2016, and as such the 2016 MCCP would provide the appropriate interpretive context. As described above, compliance with the 2016 MCCP has already been definitively resolved in the applicant's favor in this proceeding, and therefore is not at issue in this remand. Accordingly, I reject Ms. Richter's proposed findings that would require the project to comply with a standard similar to MCC 39.7515(I) contrary to the Board's explicit amendment of the code (MCC 39.7520(A)(6)) to exempt community service uses from a requirement to be "limited in scale and type to serve the needs of the local rural area."

That said, I note that it is also factually inaccurate to say that the Project will not meet needs of the rural area where it is sited. A depiction of the Water Bureau's service area is included as an attachment to Exhibit S.36. The Project "will certainly serve a portion of the area, including over 4,600 customers of the Pleasant Home Water District, Lusted Water District, and the City of Sandy[.]" Exhibit S.36, page 5.

V. Expert Testimony & Qualifications

Various reports in the record have been prepared by experts in the topic of the memorandum. For some of them, resumes or short biographies have been provided in the record to show how each is "qualified by education or experience" to render an expert opinion. *See Concerned Citizens v. Jackson County*, 33 Or LUBA 70, 101 (1997) ("qualified by education or experience"); *Oien v. Beaverton*, 46 Or LUBA 109, 132 (2003) (resume showing 14 years of experience in field demonstrated consultant was "[]qualified to render an expert opinion").

A. Applicant's Experts

I find that each of the following named individuals is qualified as an expert in the topic on which they have provided memoranda into the record. Additional specific qualifications are summarized for specific areas of findings below.

First	Last		Firm	Resume Exhibit
Ken	Ackerman	PE	Portland Water Bureau	A.155
Rajiv	Ali	PE GE	RhinoOne Geotechnical	A.155
Todd	Alsbury		Altap Restoration	I.88, N66
Travis	Arnzen	PE	Elcon	A.155
Mark	Bastasch	PE INCE Bd Cert	Jacobs	A.155
Dana	Beckwith	PE PTOE	Global Transportation Engineering	A.155
Ted	Brown		Biohabitats	N.66
Daniel	Boultinghouse	PE	Emerio Design	N.66
Robyn	Cook	RG, LG, PG, CWRE	GSI Water Solutions	S.38
Todd	Cotton	PE	Jacobs	I.88
Qianru	Deng	PE	Carollo	A.155
Allan	Felsot	PhD	Washington State University	A.155
Rafael	Gaeta	PE	Emerio Design	N.66
Christie	Galen		PHS	U.20.k
Phil	Gleason		ESA	N.66
Mark	Graham	PE PMP	Stantec	A.155
Jeff	Grassman	PE	Valmont	A.155
Mark	Havekost	PE	Delve Underground	S.38
Sarah	Hartung	PWS	ESA	I.88
Mary	Hofbeck		Stantec	A.155
Michelle	Horio		Carollo	A.155
Jason	Hirst	LA	NNA Landscape Architecture	N.66

First	Last		Firm	Resume Exhibit
Adam	Jenkins	PE INCE Bd Cert	Greenbusch Group	A.170
Basel	Jurdy		Stantec	A.155
Brent	Keller		Mason Bruce & Girard	A.155
Angie	Kimpo		Portland Water Bureau	U.20.k
Marilee	Klimek	LC	Elcon	A.155
Yuxin (Wolfe)	Lang		Delve Underground	J.68
Ken	Lite	RG	GSI Water Solutions	S.38
Morgan	MacCrostie		Jacobs	A.155
Richard	Martin	EIT	Global Transportation Engineering	A.155
Roy	Martinez		Portland Water Bureau	J.81
Adrian	McJunkin	PE	Valmont	A.155
Erik	Megow	PE	Stantec	N.66
Dennis	Mengel	PhD CPSS	Jacobs	A.155
Josh	Meyer	PE	Emerio Design	N.66
Laura	Miles	PE	GSI Water Solutions	S.38
Rick	Minor	PhD RPA	Heritage Research Associates	I.88
Justin	Morgan	INCE	Greenbusch Group	I.171
Robert	Musil	PhD RPA	Heritage Research Associates	I.88
Albert Carl	Oetting	PhD RPA	Heritage Research Associates	I.88
Brad	Phelps	PE	Jacobs	A.155
Bruce	Prenguber		Globalwise	A.155
Farid	Sariosseiri	PhD PE	Delve Underground	I.88
Anita	Smyth	MS SPWS	WinterBrook	A.155
Robin	Smyth	PE	Gillespie Prudhon & Associates	A.155
David	Stacy	PE	Performance Based Fire Protection Engineering	I.91
Dennis	Terzian	RG, LG	PBS	N.66
Kathryn Anne	Toepel	PhD RPA	Heritage Research Associates	I.88
Pat	Tortora	PE	Emerio	A.155
Jade Ajani	Ujcic-Ashcroft		City of Portland	S.38
Angela	Wieland	PE	Brown and Caldwell	N.66

B. Opponents' Experts

Opponents provided into the record a set of "Author Qualifications" attached to Exhibit N.43, pages 69-70, and some additional resumes for the Courters at Exhibit S.28.

First	Last	Field	Firm	Resume Exhibit
Charles	Ciecko	Parks and Natural Resources Manager	Retired	N.43
Steve	Smith	Wildlife Biologist	Retired	N.43; U.19
David	Rankin	Geologist	Strata Design LLC	N.43
Lauren	Courter	Toxicologist	Mount Hood Environmental	N.43; S.28
Ian	Courter	Fisheries Scientist	Mount Hood Environmental	N.43; S.28

I find that each of these authors is qualified in their indicated field as an expert and I consider their reports in the record within that area of expertise to be expert evidence in the record. I note that a number of these authors have also provided reports in the record as lay (non-expert) writers, outside of their area of expertise. For example, Mr. Ciecko is not an expert in contaminated soil management or DEQ regulations (Exhibit S.20). The Courters are experts in toxicology and fisheries science, but not in the evaluation of the engineering of stormwater management systems or stormwater management design and best management practices (Exhibit S.21, S.23) nor in air quality analysis (Exhibit S.24).

Those experts who live in the Project area—including the Courters, who live directly adjacent to the Filtration Facility site[31]—bring valuable expertise and thoughtful evidence to this record. At the same time, it is worth acknowledging that, quite understandably, their close proximity to the Project may shape their perspectives. Their lived experience and personal connection to the area are important, although those same factors may naturally influence how they view the issues at hand. However, I observe that it is in that context that the Courters accuse other experts of not providing a "neutral scientific assessment" and characterizing those other experts' work as "a promotional document [that] lacks … independence[.]" Exhibit S.21, page 7. Regardless, proximity to the Project does not influence my qualification of these individuals as experts – but may indicate the weight I should give that evidence, particularly where the tone is not a "neutral scientific" one.

VI. The Pre-Construction Use of Project Sites

In Ms. Richter's proposed findings, she summarizes opposition evidence about the introduction of chemicals and sediments into aquatic habitats and objects that a response that there is "far less risk" is

[31] Exhibit U.20c, pages 13-14.

insufficient. She continues, "This statement begs the question – 'far less risk' than what?" Exhibit W.3a, page 26.

The answer to "than what?" is the pre-development use of the site.

The determination of adversity of impacts is inherently comparison based. Consider a hypothetical: If the pre-development use were an industrial chemical plant with a large pipe doing direct release of toxic substances into adjacent aquatic habitats, remediation of that highly impactful land use with industry best practices to place ecologically friendly buildings on the site surrounded by wildlife areas would not "adversely affect natural resources". Clearly, it would benefit surrounding natural resources. However, if the pre-development use of the site was as old-growth forest or pristine, untouched wilderness area, the *exact same proposal*, to place ecologically friendly buildings on the site surrounded by wildlife areas, would be considered to adversely affect natural resources.

Therefore, we must begin with an examination of the pre-development use of the site and the impacts it had on natural resources, in order to create a baseline against which to evaluate whether the effects of the Project are adverse.

Much of the information below is provided by Mr. Prenguber, the applicant's farm expert who "studied these nurseries from 2020 to 2023 and prepared detailed evaluations of their accepted farm practices for the PWB land use applications." Exhibit S.36. page 2. Some of the information below was provided by farmers themselves (particularly in the 2023 proceeding related to the Farm Impacts Test approval criterion) or by other commenters on the record.

A. Overview of High-Intensity Farm Use

"The dominant pre-construction land cover or habitat type at the Filtration Facility Site [was] commercial nursery land totaling approximately 89 acres, including dirt roads. Ornamental bareroot trees and shrubs, as well as a wide range of ball and burlap (B&B) trees and shrubs were grown on the property for the landscaping industry." Exhibit N.56, page 11. "Surface Nursery leased land on the Filtration Facility site. Surface is a wholesale ornamental nursery stock operation that specializes in bare root stock and exports approximately 95 percent of its products to other states." Exhibit I.31, page 2.

"It is inaccurate to characterize agricultural land at the site, which was in nursery production, as low-intensity." Exhibit U.20.e, page 10. Instead, "nursery production is highly intensive (see Exhibit S.36, pages 1- 2)." Exhibit U.20.e, page 10. "The site was organized in long rows of single species that were planted and staked close together to maximize inventory. The rows of nursery stock formed blocks that were spaced to allow trucks and tractors to access the plants for periodic maintenance, which sometimes occurred on a daily or weekly basis by nursery staff." Exhibit N.56, page 11.

"Nursery use of inputs such as farm chemicals, fertilizers, tractors and fuel, and irrigation water are among the highest of all field grown crops." Exhibit U.20.e, page 10.

"The nursery crops are labor intensive, with tractors and farm equipment such as sprayers and mowers regularly traveling through the fields. Depending on the plant species, bareroot ornamental tree fields have narrow spacing of as little as 12 inches or less between plants in rows with space between crop

rows of approximately 4 feet apart. … The nurseries are not managed as peaceful, quiet, open land with abundant habitat for animals, birds, and insects, as this comment implies." Exhibit U.20.e, page 10.

B. Pesticides and Other Pollutants

"[T]he prior nursery crop production at the Filtration Facility and Intertie sites required the application of pesticides, resulting in runoff with pesticide loading into area aquatic habitats." Exhibit N.55, page 1. "Pesticides (i.e., Insecticides, herbicides, and or fungicides are chemicals that farmers use to promote the quality and yield of agricultural crops. Pesticides control weeds, insect infestations, and diseases, and can be used on conventionally grown (non-organic) crops. Select pesticides approved by certifying organizations can be applied on organic crops. Pesticides are sprayed toward the ground to eradicate weeds or soil borne organisms or sprayed directly on plants." Exhibit A.33, page 87. Surface Nursery confirmed that their operations included pesticide use, including pesticides that require up to a 72-hour exclusion period following spray application. Exhibit D.6, page 1; Exhibit J.87, page 19.

As explained in detail in the 2023 proceeding by the applicant's pesticides expert, Dr. Felsot, "Agricultural and forestry land uses near the proposed [Filtration Facility] involve periodic applications of pesticides (i.e., insecticides, herbicides, and/or fungicides) during routine production practices in compliance with pesticide labels (referred to herein as "pest management practices"). Exhibit A.39 D.4, page 2. "Some pesticide spray drift Is inevitable owing to the physics of spray particle (droplets) formation and atmospheric transport." Exhibit A.39 D.4, page 10. An extensive list of farm pesticides was evaluated by Dr. Felsot: See "Appendix A 1. List of Agricultural Chemicals Used in Farm and Forest Practices in the Surrounding Lands of the Filtration Facility" Exhibit A.39 D.4, page 50.

"Soil preparation at commercial nurseries can include adding lime or other soil amendments, fumigation, and sub-soil plowing followed by disking or rototilling. Pre-emergence herbicide applications were commonly applied in the winter or early spring. Rodent control was done using chemical rodenticides." For a more complete description of the accepted farm practices for these types of nurseries, see pages 32 to 38, Multnomah County Exhibit A.33 Compatibility Study. (LUBA REC-7160-7166). Exhibit N.56, page 11.

"A condition of approval from the 2023 decision memorializes the PWB commitment to manage the filtration facility site without herbicides or other chemicals. This will be an improvement over pre-construction conditions, where nurseries use a range of farm chemicals in field operations. In the case of bareroot and ball & burlap nursery tree production, chemicals include herbicides, pesticides, and rodenticides. Most of these chemicals are commonly applied by spray application. Soil fumigation before new plantings is also an accepted farm practice by these nurseries." Exhibit U.20.e, page 4. (see Exhibit A.33., D.1 Agricultural Compatibility Study, pages 34 – 37).

Farmers and farm supply vendors also transport farm chemicals over the public roads and store them in the project area. "Supplies used for addressing field and plant health concerns include pesticides and fertilizers." Exhibit I.31, page 5. Therefore, the "prior use of the site carried the same risks of spills (pesticides, herbicides, diesel fuel, etc.), likely with far less secure and safe storage practices" than the Project will employ. Exhibit U.20.a, page 6.

"The presence of low levels of pesticides like those found in near-surface soils is common on agricultural properties that were in active use between the 1940s and 1970s when these chemicals were commonly used. Once applied, these chemicals are very stable, bind to soil particles, and degrade at slow rates, resulting in the persistent presence of these compounds in soil for decades." Exhibit N.62, page 3. "Pollutants typically found in agricultural soils (including those confirmed at the Filtration Facility site preconstruction) also made their way into the creek at far higher rates than will occur during [Project] operations." Exhibit N.31, page 6. Concentrations of pesticides were found by USGS to be largest "at the most upstream sampling site, suggesting that agricultural activities were the primary source." Exhibit U.20.a, Attachment 2, page 4.

C. Bare Soil & Erosion

Mr. Prenguber, the applicant's agricultural expert, explains: "I personally was on the filtration facility site when Surface Nursery and R&H were leasing and managing the land for their crop production. I observed heavy farm vehicles compacting soil and saw exposed soil and muddy conditions – all of which are typical features of commercial nursery operations in the area." Exhibit U.20.e, Page 10. "The conditions described by Mr. Prenguber are typical of the former use of the property and surrounding agricultural lands that contributed to high levels of fine sediment to Johnson Creek. The evidence clearly shows that a detrimental impact has occurred and will continue to occur unless surrounding agricultural practices are improved by considering their direct impacts to aquatic and semi-aquatic resources in Johnson Creek." Exhibit U.20.a, Page 20.

The "sedimentation of Johnson Creek in the upper basin from agricultural uses is a well understood and documented phenomenon" – as discussed by the US Geological Survey[32] in Attachment 2 to Exhibit U.20.a. and shown in Figure 6 of Exhibit U.20.a. from that USGS report, provided below.

[32] I note that, consistent with my finding that the federal reports referenced by Jordan Ramis are expert reports, Exhibit W.2, page 5, I also find that this soil report from USGS is also an expert report.

Figure 6. US Geological Survey photograph in Attachment 2 titled: "High flows in the upper basin mobilize large amounts of sediment"

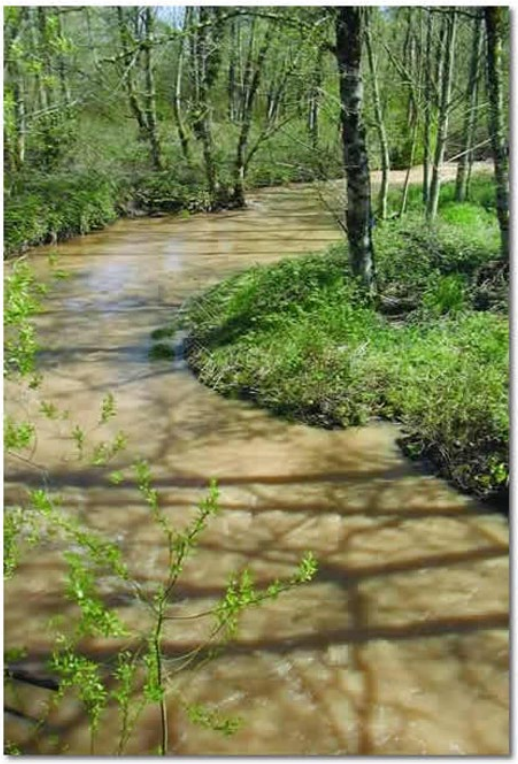

Figure 6 of Exhibit U.20.a., page 28.

Various photos in the record show bare nursery ground, including adjacent to Johnson Creek. Exhibit U.20.e, page 10. The photos show that the land was left fallow some of the time during the high-rainfall winter months with no planted ground cover. Exhibit U.20.e, page 10.

As Mr Prenguber explains in Exhibit U.20.e, page 11:

> Figures 1 and 2 on page 4, [in Exhibit S.21] referenced as "actual pre-construction photos" by Mr. Courter, illustrate the exposed soil between rows of intensively managed ornamental plants. Figure 1 shows a small area in grass cover crop that is closely mowed with essentially no habitat value. Additionally, note that Figure 2 misrepresents showing the PWB site when in fact it shows Surface Nursery's field south of the PWB site because the filtration site is north of the water towers in the distance.
>
> Figure 3 right side photo dated August 2011on page 5 shows large blocks of bare soil (brown) in the field to the south of the PWB property, owned by Surface Nursery, and a smaller block of bare ground on the PWB site. This supports my observation that Surface Nursery allows areas to remain fallow for months with soil exposed to rainfall or irrigation water runoff without a cover crop.
>
> Photos in Exhibit N.64 also show that the nurseries left bare nursery land exposed to stormwater and/or sprinkler irrigation runoff both on and off the filtration facility site.

> Again, I personally was on the filtration facility site when Surface Nursery and R&H were leasing and managing the land for their crop production. I took the photo below on May 11, 2020, showing a recently planted section of Surface Nursery. Notably, the area between plant rows has been rotavated, not planted to a cover crop."

Exhibit U.20.e, page 11. The photo referenced in the last paragraph above by Prenguber below is provided below.

Below the photo above, Mr. Prenguber continues in Exhibit U.20.e, pages 12-13.:

> The practice of rotavating (mechanically breaking up and loosening the soil) and leaving the soil bare increases sedimentation in stormwater runoff and increases dust and wind erosion for a number of reasons. Rotavating breaks up soil structure, making particles finer and less cohesive. Without plant roots or surface cover to hold the soil together, it becomes highly susceptible to being picked up and carried away by rain or sprinkler irrigation or even moderate winds. Vegetation also slows wind at the ground level – so when soil is bare, it is easier for wind to lift and carry away fine soil particles. Bare soil is exposed to direct raindrop or irrigation water impact, which breaks up soil aggregates and detaches particles. This process is called splash erosion, and it is one of the first steps in sediment transport. Vegetation slows down water flow and allows more of it to infiltrate into the ground. Without it, water moves faster over the surface, increasing its ability to carry sediment. Overall, both water and wind erosion are made worse by rotavating and leaving soil bare, as was the practice at the filtration facility site.
>
> To prevent sedimentation and soil loss, some sustainability-focused farmers use cover crops, mulching, contour plowing, or no-till practices to keep soil protected. However, none of these were regularly used farm practices at the filtration facility site. Surface

> Nursery indicated to me personally that they only had planted three types of cover crops: ryegrass, sudangrass, or barley. Importantly, this was discussed in terms of adding organic matter back to the soil when fields were not actively being used for nursery stock production. As shown in the photos above, and indeed in Exhibit S.21, page 4, Figure 1, a common practice of Surface Nursery at the filtration facility site was to rotavate and leave the soils bare between rows of plants. There are many reasons nurseries do this – such as reducing competition for water, nutrients, and light for the crop, and because bare ground between crop rows makes it easier to move machinery and workers between the rows of crops. Additionally, maintaining cover crops or even mulch between rows requires more labor, time, and expense. While these reasons are valid from a farming management standpoint, the trade-offs include negative impacts on that land, including increased soil erosion, nutrient loss, and reduced long-term soil health.

Exhibit U.20.e, pages 12-13.

Photos submitted by CCPO/PHCA in Exhibit S.25 purport to support the statement that "Surface Nursery planted bare soil with cover crop." This is responded to by Mr. Prenguber in Exhibit U.20.e, pages 15-16. As Mr. Prenguber explains, the photos show poorly maintained cover crops on field edges, actually show the contrary – bare land between rows of crops – or are revealed by the location of the Pleasant Home Water District towers or by their own captions to not be on the Filtration Facility site. Mr. Prenguber concludes: "There may be times where Surface Nursery uses cover crops between rows on this adjacent property, but the overwhelming evidence is that, in most cases, both Surface Nursery and other area bareroot nurseries do not use cover crops between rows, for the reasons explained above. I personally did not see any use of cover crops on the Surface Nursery field between rows when evaluating the filtration facility site. Two additional photos I took on May 11, 2020, of the Surface Nursery field on the filtration facility site are below and illustrate this point." Exhibit U.20.e, pages 15-16.

"Finally, it is noteworthy that most of the historical aerial imagery in Exhibit S.25 of the filtration facility site when it was being used as nursery land shows large blocks of bare ground (creating sedimentation from stormwater and irrigation runoff and wind erosion of soils). The imagery also shows the frequent change in land cover at the filtration site that prevented permanent support for wildlife habitat." Exhibit U.20.e, page 18. A full set of all color aerial images of the Filtration Facility Site available on Google Earth are provided in Exhibit U.20.j, and confirm the frequent change in land cover and the large blocks of bare ground.

D. Runoff and Flashy Flows

In general, "[s]ediment laden runoff from agricultural operations in the upper reaches of Johnson and Beaver Creeks makes its way into the watersheds where it contributes to degradation of instream and riparian habitats that aquatic species rely on to survive. Removal of riparian and upland vegetation to convert forested areas to agricultural operations has led to increases in fine sediment that can impact stream substrate used by aquatic insects and spawning fish. Fine sediment covers and compacts gravel, reducing the ability of aquatic insects to respire and limiting survival of eggs deposited by fish through reduction in oxygen available to developing embryos." Exhibit N.55, page 6.

"[T]he previous agricultural use of the project areas … contributed high levels of sediment and flashy flows to critical waterways in the area." Exhibit N.31, page 6. At the Filtration Facility site, "the pre-development agricultural land use was a significant contributor of sediment, nutrients, and pesticides to Johnson Creek[.] The agricultural lack of a buffer zone between the field and the waters of the creek, the lack of stormwater management facilities, and the practice of harvesting trees in mid-winter contributed to soil erosion into Johnson Creek. The agricultural use also increased the occurrence of flashy flows by compaction of soils and reduction in infiltration." Exhibit U.20.h, page 11. Similarly, at the Intertie, "the farm field created significant turbidity in the runoff[.]" Exhibit S.30, page 4.

"The crop rows were oriented to drain as quickly as possible, resulting in surface runoff to the low points of the site." Exhibit N.58, page 13. The "agricultural use of the property led to rapid changes in stream flows (flashy flows) associated with turbid runoff that did not have the chance to infiltrate into the ground as it otherwise would in a natural landscape." Exhibit S.31, page 3.

2/18/2020 – Pre-development SW corner of the site looking west with SEC-wr overlay zone in the foreground. Johnson Creek is to the left in the photo. Photo shows bare soil agricultural area in SEC-wr overlay zone designed to protect Johnson Creek. (Approximately Located at 45.461602773819, -122.29999966927318)

From Exhibit N.55, page 7.

"Prior to construction, the area closest to Johnson Creek -- including inside of the County's Significant Environmental Concern ('SEC') overlay zone – was largely cultivated crop land, with very limited erosion and sediment control, which caused significant turbidity and other impacts to Johnson Creek during runoff events." Exhibit N.31, page 6.

"Sediment deposition from the previous use of the filtration facility site and ongoing agricultural operations upstream covers the entire stream bottom from side to side, filling in holes and undercut banks typically used by fish and other aquatic organisms for cover and foraging opportunities. The creek in this area is shallow with limited instream wood or cover that is typically present in streams with intact riparian areas. Agricultural practices like those used at the property prior to the development of the Filtration Facility contributed to the sediment seen in the photo [above] and led to current conditions that negatively impact aquatic and semi-aquatic species in the area." Exhibit U.20.a, page 28.

"Exhibit S.36 provides additional detail on the methods used by local nurseries to harvest trees, typically in mid-winter when the risk of soil erosion is highest. Equipment used to harvest trees contributes to soil erosion and increase in flashy flows by compaction of soils and reduction in infiltration." Exhibit U.20.a, page 29.

The "vast amount of bare soils evident in the aerial imagery included in Exhibit S.25 is a clear example of how much risk there is of sediment being released into Johnson Creek from agricultural operations at the property prior to development as well as surrounding agricultural operations. It does not appear that cover crops were normally placed between rows of nursery stock that would have reduced the overall contribution of sediment to nearby Johnson Creek. The lack of ground cover combined with harvest activities that often occur in mid-winter when nursery stock is dormant creates a condition that leads to excessive erosion and sedimentation of instream habitat and impacts to aquatic resources." Exhibit U.20.a, page 37.

"[P]re-construction site conditions were considered in the evaluation of stormwater management facility sizing and existing stormwater runoff rates. Calculations accounted for existing soil conditions (> 90% Cazadero Silty Clay Loam, hydrologic soil group C) and land cover conditions / Curve Number selection associated with Row Crops in good condition, consistent with the reported condition of the site up to 2019. Those design assumptions are accurate representations of farming at the site." Exhibit U.20.h, page 13.

E. Irrigation

"Under pre-development conditions, irrigation was provided to the site via a groundwater well on the Surface Nursery property immediately south of the filtration site. Irrigation water from the groundwater well was pumped and piped to the Project site for irrigation purposes." Exhibit S.35, page 3.

The photo below "shows one of the sprinkler irrigation systems used by Surface Nursery to irrigate its field immediately south of the filtration facility site. This photo was taken by [Mr. Prenguber] on May 14, 2021. This is referred to as a 'big gun' sprinkler that more rapidly applies water than smaller, inline sprinklers. The big gun applies more water to plants due to its higher pressure and larger nozzle size, in comparison to the smaller sprinklers. However, especially when used on sloped ground with no cover crop between plant rows – as shown in this photo – it also has greater potential to result in soil erosion and water runoff. This is another example of the emphasis by the farmers at the PWB site to manage the farmland and soil in favor of efficient crop production over soil protection." Exhibit U.20.e, page 13.

Exhibit U.20.e, page 14

F. Farm Conflict with Wildlife

Farmers actively discouraged use of the Filtration Facility site by wildlife, particularly elk, who are sometimes hunted and killed by area farmers. Elk "have damaged nursery stock on the proposed Industrial Site several times. As well as other properties. One year Elk damaged about 35,000 Nursery trees." Exhibit E.1, page 2. "A remnant fence exists along the eastern boundary of the planned Filtration Facility Site and could be a hazard to wildlife and/or a minor impediment to wildlife movement. Elk and deer are often in conflict with homeowners in agricultural or rural communities due to their habitat of browsing in gardens and on landscaping." Exhibit N.56, page A-3.

"Fences are sometimes used [by area farmers] to thwart or harm wildlife, such as elk and deer which can easily damage or destroy the crops. Some farmers hunt themselves or allow others to enter their fields to hunt." Exhibit S.36, page 2.

"[T]he existing nursery land provides limited foraging and breeding opportunities for wildlife species, as it is a highly managed landscape with sparse cover and frequent intrusion / disturbance by humans, including harvesting ornamental plants on a 3- to 4-year cycle." Exhibit N.56, page 31. "No or limited beneficial habitat features are generally present on commercial nurseries that would provide cover or

nesting sites such as tall/complex shrubs or trees, undisturbed brush piles, leaf litter, humus, standing or downed wood, rock piles, or other microhabitats that could be used for denning or refugia. Management activities at commercial nurseries, such as pest control and use of fertilizers, also limit the abundance of rodents that could be taken as prey, thereby limiting the habitat suitability for larger predators such as red-tailed hawks. Soils are anticipated to be heavily altered and generally do not provide underground habitat features such as burrows that could be used by rodents (prey base for red-tailed hawks) or the western bumble bee (breeding habitat)." Exhibit N.56, page 31.

G. Crop Rotation / Habitat Disruption

Nursery operations involve intensive 3-year crop rotation activities: "Current farming practices include the need to 'adulterate' (to use the commentor's word) soil to achieve maximum productivity and crop output, especially for intensive farming such as the ornamental nurseries near the Project area. Bareroot Nurseries maximize crop production, an example being bareroot tree nurseries which produce trees in close spacing on a 3-year rotation, with no soil rest or one year of soil rest before replanting. These types of farm practices do not have 'zero,' or 'natural' effect on soil." Exhibit S.36, page 10.

Nursery operations at the Filtration Facility Site involved "frequent disturbance" of any habitat provided by the farmland, "due to crop rotation/harvesting and management such as irrigation and pesticide/herbicide application." Exhibit N.56, page 20.

H. Impacts on Soils

"Although soil is used for farming as an input to obtain crop production, the content of the soil is significantly changed by human actions which alter both its function and form from its original, natural condition. This is particularly true for the intensive farming practices of nurseries, as I have discussed." Exhibit S.36. page 6.

"These farms do not follow organic or typical sustainable cultural practices. Significant human intervention with large amounts of inputs are employed. The inputs include soil that is modified with many additives to produce the robust plants that quickly reach salable size and then are extracted from the soil. The added materials to the soil are fertilizers, pesticides, herbicides, rodenticides, soil amendments, and seeds/seedlings in order to be utilized for crop or livestock production. Plants are harvested by both the bareroot method, and by ball and burlap (b&b). Both harvest methods remove soil with the plants; the b&b method removes more soil with the root ball. Agricultural land is managed for crop production, not for natural conditions such as wildlife habitat, wetland functions, or stream management." Exhibit S.36. page 2.

Farmers also cause soil compaction in fields. "The soil is also modified by regular compaction by heavy farm equipment during field operations that include plowing, disking, mowing, pruning, harvesting, and more." Exhibit S.36, page 2.

Farmers disturb and remove soil from crop production with non-crop uses such as constructing barns: "Reference to farmed soil as an "agricultural" natural resource also overlooks the critical fact that soils (and lands that can be farmed) are not exclusively used for farming. Besides its use for crops, farmland is built upon for houses, barns, crop storage, roads, and more." Exhibit S.36. page 6.

I. Noise, Vibration, and Light

There were "frequent and louder noise sources operating throughout the site when the commercial nursery was operating. Pre-construction conditions included various levels of noise from farming operations including tractors, trucks, and workers in close proximity to habitat areas, including within the SEC area in the southwest corner of the site near the riparian forest. Most of the filtration facility site was leased by Surface Nursery. Testimony submitted by Surface Nursery during the original land use proceeding confirmed, '[tractors and other farm equipment are part of accepted farm practices and normal operation at Surface.' (Exhibit I.31, pg 3) The testimony further indicates that when tractor work is being performed there are typically 1-4 tractors operating in a field for less than 4 hours at a time. While there are likely variations among tractor models, sound generated by a tractor typically ranges from 80 to 100 dBa." Exhibit U.20.c.03, page 7. "The noise created by tractors and other farm equipment may already require that farmers provide protection for their employees from noise generated in their fields as an accepted farm practice." Exhibit I.80, page 8. "During field operations, tractors generate noise in the range of 80 to 100 decibels or more[.] An irrigation pump generates approximately 100 decibels of noise. Power tools, chicken coops, and conveyors also generate noise above 60 decibels." Exhibit. A.33, pages 98-99 (internal footnotes omitted). "The main farm equipment and fields near the filtration facility site are tractors that pull various implements in farm fields. Tractor motors generate significant vibration, especially when pulling equipment that works under the surface of the ground." Exhibit A.33, page 99; *see also* Exhibit A.4 (Filtration Facility Conditional Use Application Narrative), Section A.3.4, pages 49-51.

"[S]pecies that occur in the Project area are expected to be accustomed to the background noise levels created by surrounding residential use, agricultural activities including tractors and nursery trucks, and passing traffic." Exhibit N.56, page 33. "Additionally, wildlife species that occur in the Project area are expected to be accustomed to some amount of night lighting from businesses and residences / outbuildings throughout the area with lights that are not shielded." Exhibit N.56, page 33.

Table 2. Existing Noise Sources and Levels

Existing Land Use	Noise Source	Decibel Levels at Source
Agriculture	Gas Powered Nursery Farm Equipment	100-105 dBA
Forestry, Agriculture, Residential	Gas Powered Chain Saw	115 dBA
Residential	Gas Powered Lawn Equipment	95-105 dBA
Forestry, Agriculture, Residential	Barking Dogs	80-120 dBA
All Land Uses	Delivery Trucks	75-80 dBA
Agriculture	Semi-Trailer Diesel Trucks	100-120 dBA
Agriculture	Tractors, Excavators, Trucks	80-100 dBA
Agriculture and Residential	Irrigation Pumps	100 dBA
Agriculture and Residential	Diesel Powered Generators	100-105 dBA

Source: Appendix D.1 Agricultural Compatibility Study

J. Dust & Odors

"Farm vehicles and heavy equipment travel on dirt roads at field edges and move through fields that often have little or no ground cover between the crop rows. Therefore, farm vehicles and equipment regularly create airborne dust." Exhibit U.20.e, page 3. As "farmers themselves can create excessive dust[,] farms are generally not sensitive to dust from off-site sources. Farm vehicles frequently travel and perform work on dirt roads and through dirt fields. Farmers often have dirt roads that run through the middle of fields and are traversed many times per day." Exhibit I.80, page 7. See the video provided into the 2023 proceedings showing the large quantity of dust from a single pickup truck going approximately 10 mph on a farm road. Exhibit I.82, Attachment 27, video file.

"Windblow fugitive dust from agricultural operations (e.g., tilling, plowing, and vehicle travel on dirt roads) contains a much larger proportion of coarse particulate matter (i.e., PM10), with some of the dust being comprised of particulates that are even greater in size than PM10. These heavier dust particles (i.e., PM10 and PM greater than 10 microns) rapidly settle out of the atmosphere due to gravity – typically depositing on surfaces or waters within minutes to hours of becoming airborne – and usually fall to the ground within a relatively short distance of their source as a result (EPA, 1997). … Consequently, agricultural activities are a major contributor to localized PM deposition in rural areas – the coarse, soil-derived particles tend to accumulate on nearby fields, waters, and surfaces rather than travel long distances. In many rural regions (such as California's Central Valley), windblown dust from farming operations dominates PM mass in the local air, which underscores how most of the dust generated by agricultural activities is confined to the vicinity of its source(s) due to rapid deposition (Adebiyi et al., 2025)." Exhibit U.20.f.06, page 17.

"In contrast to the filtration facility, farms occasionally create odors that are detected off the farm property. This is primarily due to chemical odors from fertilizer application and farm spraying for insects, weeds, and other purposes. The airborne odors dissipate quickly." Exhibit A.33, pages 99-100.

K. Vehicle Use & Emissions

Air quality characteristics of the pre-construction use starts with farm workers and managers commuting to work. "Surface Nursery employees work, on average, 8-9 hours a day Monday through Friday with occasional Saturdays, year-round. A typical workday is from 7am to 4:30pm but shifts to earlier times when operationally necessary. The nursery is closed on Sundays. We employ on average 50 employees." Exhibit I.31, page 2.

The vice president of Surface Nursery explained that employees transport tractors, equipment, trees, and supplies to the field locations. Exhibit I.31, page 3. Surface Nursery also states: "On any given day, roughly 50 employees travel in 4 buses to 7 locations within a 3-mile radius." Exhibit D.6, page 1.

"Trips between the main farm and off-site fields range from 1 to 10 round trips or more, and involve tractors, pickups, and our employee farm buses." Exhibit I.31, page 4. Travel between the main farm and off-site work locations takes place multiple times a day and throughout the entire year. He explains that he and the nursery foremen go between sites "multiple times a day to check in with crews, repair equipment, deliver supplies, or for several other reasons." Exhibit I.31, page 3.

Surface testified that tractors are operated on its fields during a normal 8-9 hour workday for less than 4 hours at a time. “Tractors move across the fields through the row, turn around at the end of the row, and travel back to the opposite direction.” Exhibit I.31, page 4. Surface Nursery explained that “Tractors and other farm equipment are a part of accepted farm practices and normal farming operation at Surface. When tractor work is being performed, there is typically 1-4 tractors operating in the field.” Exhibit I.31, page 3.

Finally, Surface Nursery “exports approximately 95 percent of its products to other states.” Exhibit I.31, page 2.

L. Carbon Sequestration

“As described below, the commenter has not provided any evidence to support the notion that (1) the pre-developed site functioned as a carbon sink...,..."There were existing emission sources at the site (e.g., off-road equipment usage and vehicle trips) that partially or fully offset any carbon sequestration provided by the trees from the site’s pre-development use.” Exhibit S.35, page 2.

Rebuttal of Kelly Beamer oral testimony on carbon sequestration: “In her comment, Ms. Beamer uses the word “functional” instead of “functioning” to describe the natural systems (see Staff Report on Remand, Exhibit N.7 page 8). Regarding soils, and more specifically soils used for farming, “functioning” describes a current state of function, as compared to any level of functional support and including a lower standard. This is an important distinction, because farmland and soils used for farming, especially the intensive types of nursery farming surrounding the filtration facility site and the pipelines, have significantly diminished ability to perform carbon sequestration, support complex biological functions, or clean or cool water as stated by Ms. Beamer. Exhibit S.36, page 7.

“Historical agricultural operations at the site involved CO2 generating activities. These emission-generating activities included, but were not limited to: tractor operation, worker commutes via bus and passenger vehicles, haul and vendor trucks for material import and goods export, sprayers used to apply fertilizers and chemicals, water conveyance and distribution for irrigation, and other assorted equipment use for tending to the fields. Many of these pieces of off-road equipment were powered by diesel fuel. On- and off-road vehicles, as well as the imbedded CO2 emissions in the electricity used to convey and distribute water to the crops,1,2 contributed to CO2 emissions at the site under pre-development conditions. In addition, any carbon sequestration value credited to the site under pre-development conditions would have been attributable to young trees that were planted as seedlings and raised for about three to five years before being harvested. Young plants grow faster and fix (i.e., sequester) CO2 more rapidly per unit of biomass compared to more mature trees; however, tree pruning (a standard practice in agricultural operations, particularly for ornamental nursery trees like those raised previously at this site) removes leaf vegetation, which inhibits photosynthesis and reduces the rate of carbon sequestration. Thus, the commenter is incorrect in making a broad assumption that the site functioned as a carbon sink under pre-development conditions.” Exhibit S.35, page 3. 1st paragraph.

VII. Avoidance as A Guiding Principle

The Water Bureau has prioritized avoidance of environmental resources throughout the design development process – consistent with the County's conservation priorities, where the first priority is impact avoidance. Exhibit A.11, page 4 ("Throughout development of the design and evaluation of alternative facility site layout and pipeline alignment alternatives, the project has followed SEC conservation principles, where the first priority is impact avoidance.").

While LUBA held that the "Significant Environmental Concern" (SEC) areas of the county are not the *only* thing to be considered in evaluating MCC 39.7515(B), by avoiding those areas the Project does significantly lower the risk of "adversely affect[ing] natural resources" as inherently the areas outside of those SEC areas can only contain "natural resources" that have been legislatively designated by the County as non-significant ones that do not need the special protections of the SEC zones. SEC area resources are prioritized for protection because they are more vulnerable to disturbance, contain rare or endangered species, or play a critical role in ecosystem function. By avoiding them, the Project avoids impacting those most vulnerable or sensitive natural resource areas. Therefore, avoidance of SEC areas, while not sufficient in and of itself to make a finding under MCC 39.7515(B), is relevant to examine in the context of finding that the Project will not adversely affect natural resources.

A. Filtration Facility

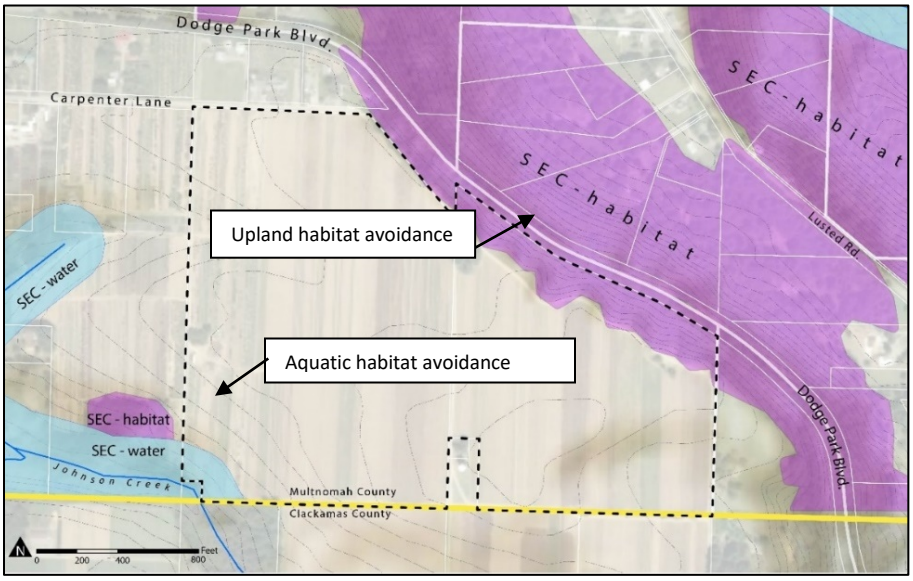

Exhibit A.11, page 2 (labels updated for remand legal context)

"At the filtration facility site, there are two SEC overlays: SEC-water resource (SEC-wr) and SEC-habitat (SEC-h). These overlays are shown on Figure 1. The SEC-wr area provides a 200-foot buffer along Johnson Creek, located in the southwest corner of the filtration site. Project design options evaluated within the buffer included a perimeter access road, stormwater basins, and stormwater piping. In the proposed site design, all development is set back from the SEC-wr area, completely avoiding the

protected water resource area. Native plantings are proposed on the exposed SEC slopes to enhance habitat functions." Exhibit A.11, page 1.

"The SEC-h overlay applies to forested habitat located on the steep slopes along the northeast edge of the site. Project design options evaluated in this habitat area included open-cut pipeline connections (to Dodge Park Boulevard and Lusted Road), site access to Dodge Park Boulevard, and a perimeter access road. The open-cut pipeline and site access alternatives in the SEC-h area were eliminated for environmental and seismic reasons. The perimeter road was relocated to avoid the SEC-h overlay. In the proposed site design, all development is set back from the SEC-h area, completely avoiding the protected habitat area." Exhibit A.11, page 1.

B. Pipelines and Intertie

Proposed Pipeline alignments and construction methods were modified during the design process to avoid impacts to protected resources within the SEC zones. Exhibit A.11, page 2.

"For the Finished Water Pipelines, two separate crossings of the SEC-wr (North Fork of Beaver Creek) were evaluated, one on Lusted Road and one on private land south of Lusted Road (Figure 2, FW Alt 5, in blue). A second pipeline route was evaluated that crossed the SEC-wr (Middle Fork of Beaver Creek) in Altman Road (Figure 2, FW Alt 3, in yellow). The final pipeline design realigned the pathway connecting Dodge Park Boulevard and Lusted Road, avoiding all SEC crossings of Beaver Creek in this area (Figure 2, red line)." Exhibit A.11, page 2.

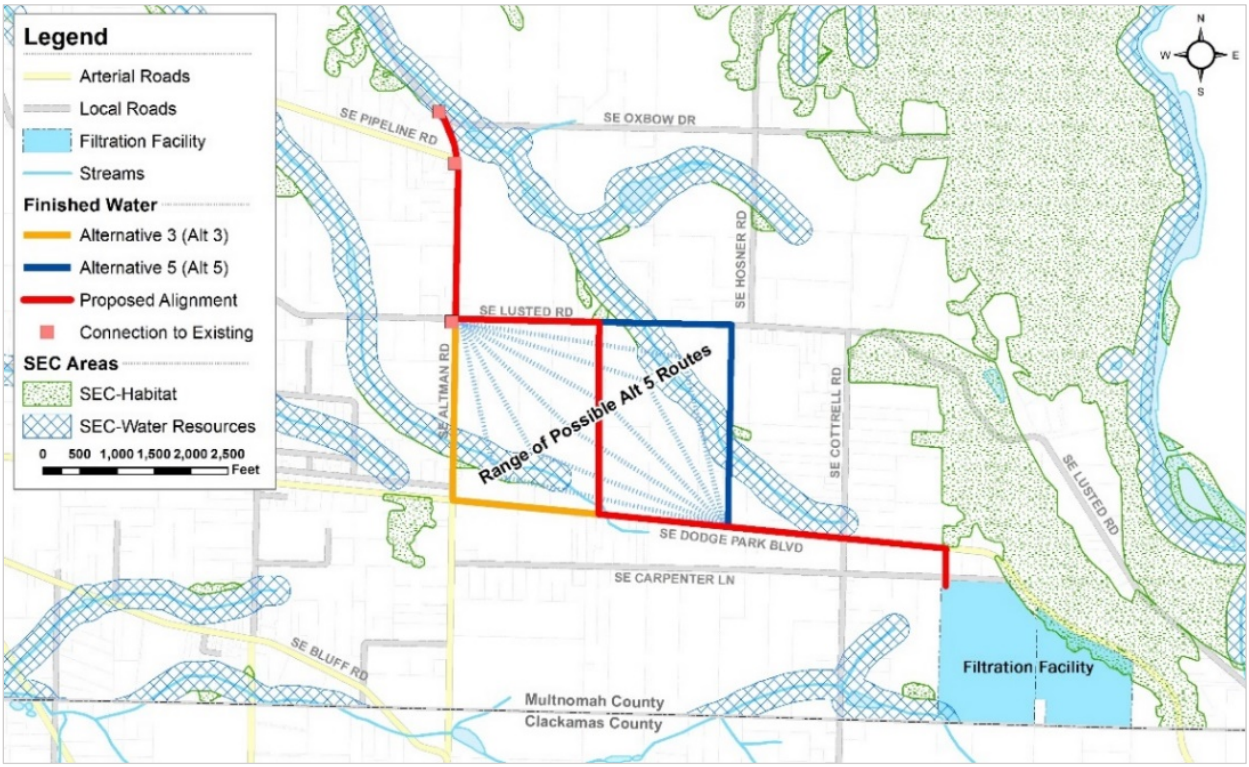

Figure 2. Finished Water Pipeline Routes Evaluated: Proposed Route Avoids Crossing Beaver Creek
Exhibit A.11, page 2.

Similarly, the Project "took significant steps to avoid environmental impacts for the raw water pipelines. Initially, conventional trench construction methods were considered to connect the pipelines between Lusted Road and the filtration site. An SEC-h overlay covers the steep forested slope adjacent to Dodge Park Boulevard (Figure 3). The trench construction would require a wide forest clearing with significant impacts to the protected SEC habitat resources. By selecting a trenchless (tunnel) alternative, the project entirely avoided forest clearing and soil disturbance within the SEC area. In evaluating the location of the tunnel portal at the base of the hillside, shallow and mid-level tunnel alternatives required placement in the SEC-h overlay. Project engineers identified another portal alternative, the "deep tunnel" option, that was entirely outside the SEC zone and provided increased geotechnical resiliency. This alternative was selected. The proposed tunnel with modified portal location completely avoids disturbance to the SEC-h forest and habitat resources." Exhibit A.11, page 3.

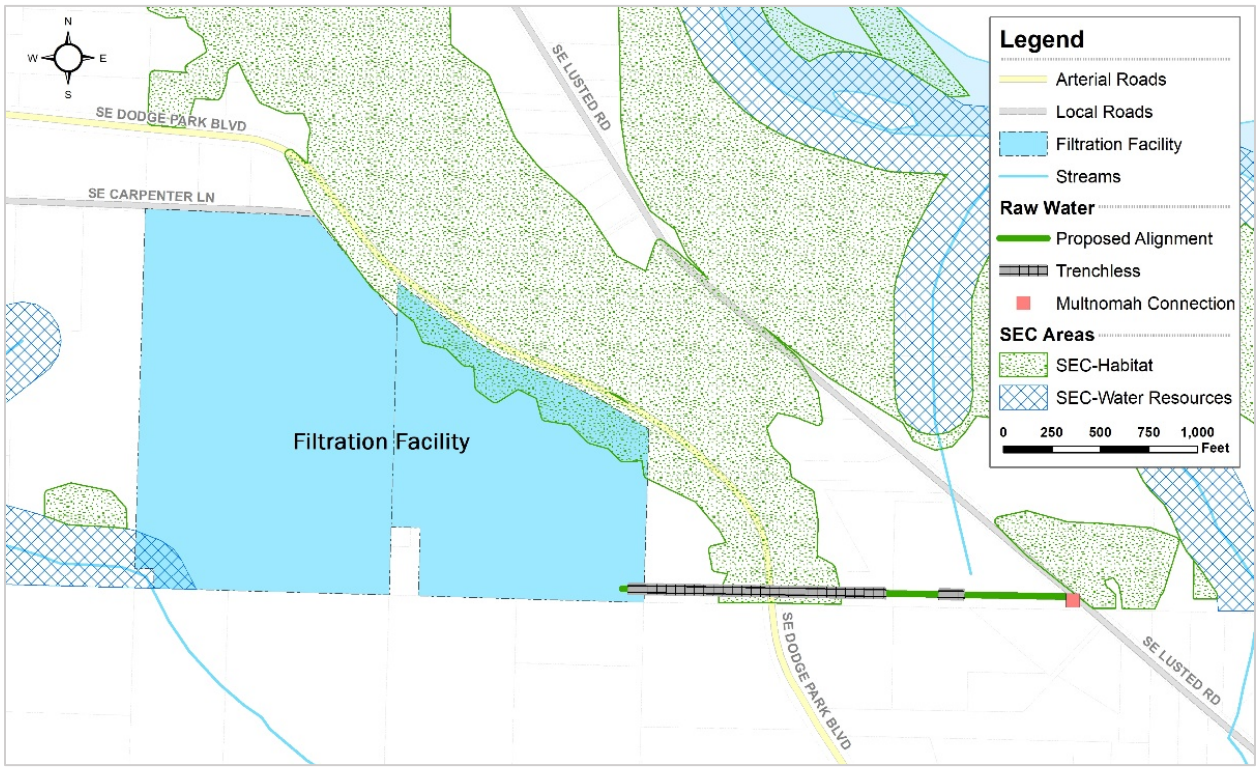

Figure 3. Raw Water Pipelines are Bored Deep Below the Full Extent of the SEC-h Overlay Zone

Exhibit A.11, page 3.

"In addition to these direct avoidance actions, the project design limits environmental impacts through a variety of other means as well. For most of their lengths, for example, pipeline alignments are located within developed road ROWs. Pipelines buried within existing roads and road shoulders are an effective way to avoid disturbance to protected SEC resources. Some sections of these road ROWs are mapped with SEC overlay zones by the County. Because they are within existing, disturbed roadways, these pipelines will have no impact to SEC resources." Exhibit A.11, page 3. Notably, for this reason, MCC 39.5515(A)(24) does not require an SEC permit for "The placement of utility infrastructure such as pipes, conduits and wires within an existing right-of-way." Exhibit A.11, page 3n1.

C. Agricultural Avoidance & Restoration

Finally, the Water Bureau has also prioritized the avoidance of agricultural areas.[33] "When it has been necessary to place the pipeline in farm fields, PWB has placed the pipeline under an existing farm roadway, or, in the case of the raw water pipeline, a tunnel, deep under the farm fields, to eliminate any potential loss or impact on farmable areas." Exhibit U.20.e, pages 2-3; *see also* Exhibit A.33 (Agricultural Compatibility Report), pages 138-140; I.80, pages 40-41. "Furthermore, PWB has a detailed soil restoration plan to return all farmable land to high productive crop growing capability. Exhibit A.33 (Agricultural Soils Restoration Plan). That Agricultural Soils Restoration Plan is included as a condition of approval for the Project. 2023 HO Decision, page 85.

The Water Bureau has gone to extraordinary lengths to minimize impacts to even thought it was not legally required to do so, and even where it is inside of easement areas. As summarized in Exhibit A.33 (Operations Report), pages 126 and 139, for each farm property that the pipelines will cross the Water Bureau has designed the proposed pipeline system to reduce any impacts to the farm unit These reduced impacts are the result of the Water Bureau's: (1) using existing ROW, farm roads, or non-cropland areas wherever possible instead of taking a more direct route through cropland, and improving and following the footprint of existing farm roads to the maximum extent possible; (2) agreeing to provisions in the easement documents themselves that will allow continued use of cropland area in the permanent easement area where possible; and (3) engaging a soils expert to prepare a best-practices plan for restoring that continued-use cropland area back to pre-construction productivity, and implementing that plan. Exhibit A.33, pages 126 and 139. "Monitoring and additional remediation for two years will allow remediating any locations that show significant impact including tillage as agreed by the farmer and addition of fertilizer, mulch, or organic matter if needed." Exhibit I.81, page 4. Therefore, it is inaccurate to say, as Jordan Ramis claims, that topsoil "will be permanently degraded by the operation" of the pipelines. Exhibit W.2a, page 10.

VIII. The Operating Project Will Not Adversely Affect Natural Resources – 1977 "Natural Resources Policy" Categories

A. "Mineral and Aggregate Sources" & "Energy Resource Areas"

These categories of natural resources are not applicable to this application and were not identified in testimony as applicable natural resources. Neither the applicant nor any opponents have identified "mineral and aggregate sources" or "energy resource areas" that have the potential to be impacted by the Project.

To the extent a reviewing court finds that agricultural soils fall into this category, they are addressed below in Section IX.A.

[33] I find below that the only "agricultural natural resource" to consider in this proceeding is soils, and that soils are not exclusively available for the use of agriculture. This paragraph is not intended to imply otherwise.

B. "Domestic Water Supply Watersheds"

1. Benefits to Domestic Water Supply

Portland Water Bureau currently serves almost 1 million people, including Portlanders and 19 wholesale customers, averaging 100 million gallons of drinking water daily. Exhibit R.1, slide 2. This includes water users near the Filtration Facility site. The Project "will improve water quality and reduce risks from waterborne bacteria for customers served by [multiple] cities and water districts. The Pleasant Home and Lusted Water Districts serve residential and business customers generally west of the proposed filtration facility[.]" Exhibit A.2, page 10.

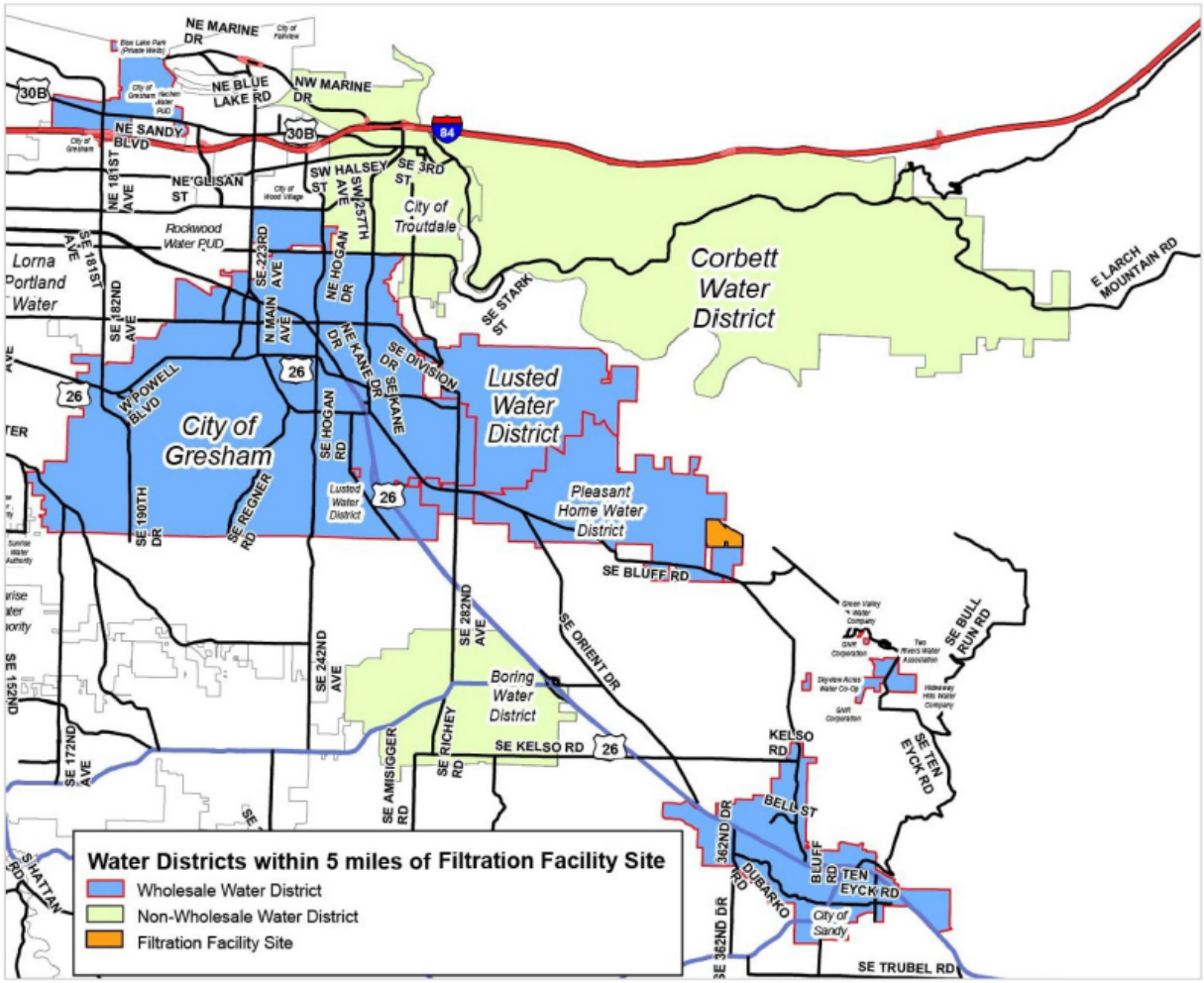

Figure 6. Cities and Water Districts to be Served by the Proposed Filtration Facility

Exhibit A.2, page 10.

2. Water Wells

a. Expert Testimony

i. Applicant's Experts

The applicant provided expert testimony from a number of professionals related to wells in a variety of exhibits in the record.

Brad Phelps, PE Jacobs (resume at Exhibit A.155) has more than 36 years of experience and is an industry leader in delivering large-scale design and construction of water system infrastructure projects. He has expertise in all major components including large diameter pipeline design and support services, hydraulics and modeling, interties, cathodic protection systems, geologic hazards, construction staging, and easements and environmental permitting and has successfully delivered over 200 miles of pipelines. Mr. Phelps has Bachelor of Science degree in Agricultural Engineering from Washington State University and is a registered civil engineer in Oregon, Washington, and Idaho.

Mark Havekost, PE Delve Underground (resume at Exhibit S.38) is a Principal engineer with a background in civil and geotechnical engineering. He has 30 years of U.S and international experience in the planning, design, and construction of water, wastewater, transportation, and hydropower infrastructure, along with significant U.S. and international experience in the underground industry, concentrating on tunnel design and geotechnical engineering. He has experience using trenchless, tunneling, and shaft construction methods to address unique challenges related to access, routing, subsurface conditions, hydraulic performance, corrosion, and seismic resiliency. Mr. Havekost has a Master of Science degree in Civil and Geotechnical Engineering from the University of California, Berkeley, a Bachelor of Science degree in Civil Engineering from California Polytechnic State University-San Luis Obispo, a Master of Engineering (MEng) from the University of California, Berkely, and is a registered civil engineer in Oregon.

Robyn Cook, RG, GSI Water Solutions (resume at Exhibit S.38) has 18 years of experience in water resources and environmental consulting, in Oregon, Washington, and on the East Coast. She manages and supports projects for municipal, agricultural, and private clients, including extensive experience in groundwater assessments, production well construction and rehabilitation, aquifer testing, and water rights transactions. Ms. Cook has a Master of Science degree in Geology from the University of Montana, a Bachelor of Science degree in Geology from Middlebury College and is a registered geologist and certified water rights examiner in Oregon, a licensed geologist in Washington, and a professional geologist in Idaho.

Ken Lite, RG, GSI Water Solutions (resume at Exhibit S.38) has more than 45 years of experience, including 34 years in hydrogeology, groundwater project management, intergovernmental groundwater studies, and groundwater administrative law as a hydrogeologist for the Oregon Water Resources Department (OWRD). He is an expert in conducting basinwide groundwater investigations and developing strategies to effectively manage groundwater resources for all beneficial uses. Ken's expertise includes planning and conducting complex groundwater studies, developing and using groundwater flow models, and conducting groundwater flow modeling. Mr. Lite has a Master of Science degree in Geology from Portland State University, a Bachelor of Science degree in Geology from Southern Oregon State College, and is a registered geologist in Oregon.

Laura Miles, PE, Delve Underground (resume at Exhibit S.38) has more than 29 years of experience in design project management, construction management, and design build. She has been with Delve Underground for more than 17 years with previous senior engineer roles with the US Army Corps of Engineers and United States Air Force where she was the Chief of Civil Design Section in Yokota, Japan, near Tokyo. Ms. Miles has a Bachelor of Science degree in Mining Engineering from the Colorado School of Mines, a Master of Science in Business Administration from Boston University-Metropolitan College, and is a registered professional engineer in Oregon, California, and Hawaii.

Yuxin (Wolfe) Lang, PE, Delve Underground, currently with Carollo (resume at Exhibit J.68), has more than 29 years of geotechnical engineering experience with a focus on water, wastewater, and conveyance projects. He has expertise in seismic ground motion characterization analysis, liquefaction analyses, post-liquefaction settlement analyses, post-liquefaction soil residual-strength evaluations, and seismic soil-structure design. His water, wastewater, and conveyance projects include new treatment facilities and reservoirs, seismic rehab of existing facilities, deep pump stations, pipelines, and trenchless crossings. Mr. Lang has provided senior geotechnical review for field exploration, subsurface condition interpretation, seismic hazards evaluation, dewatering, and pipe/trench construction considerations. He is the geotechnical and seismic design lead for the Raw Water Pipeline and extensive geotechnical explorations and instrumentations to assess the subsurface conditions including seismic liquefaction potential along the alignment, ground deformation analysis for the tunnel portal, site response and amplification analysis, excavation support system evaluation for the deep shaft, tunnel alignment. Mr. Lang has a Master of Science degree in Civil Engineering from the University of Waterloo, Ontario, a Bachelor of Science degree in Geological Engineering, Hebei Institue of Civil Engineering, China, and is a registered professional civil engineer and geotechnical engineer in Oregon and a professional civil engineer in Washington, Ontario, and British Columbia.

Todd Cotton, PE, Jacobs (resume at I.88) has 21 years of professional experience, including a variety of design, construction, and environmental projects, including reservoir tanks, wastewater and water treatment facilities, hard rock tunnels, auger boring, and horizontal directional drilling. As a geotechnical engineer, he has worked extensively on the design of shallow and deep foundation systems and has extensive design and construction management experience with large earthwork projects that involve excavation, transport, and reuse or disposal of soil and rock, and engineering control of fill placement. Mr. Cotton has a Master of Science degree in Engineering and Geotechnical Engineering from Colorado State University, a Bachelor of Science in Civil Engineering from Colorado State University and is a registered professional engineer in Oregon.

ii. Adam Brooks

There is in the record testimony from Adam Brooks, who lists his name in Exhibit S.14 followed by "Olsen Well Drilling & Pump". It is notable that the email submitting Exhibit S.14 into the record came from "Vance Wagner <olsenwelldrillingandpump@yahoo.com>". The business near the project area named "Olsen Well Drilling & Pump" has a website of https://olsenwelldrillingservice.com/, and it would be odd for the business to use an "@yahoo.com" email address instead of an "@olsenwelldrillingservice.com" email address for official company business. Exhibit U.20.g, page 1n1. Regardless, Mr. Brooks did not purport to provide expert testimony, nor explain how he was affiliated with Olsen Well Drilling & Pump, nor otherwise explained how he may be qualified by education or experience to provide expert testimony on any specific topic. I find that Mr. Brooks is not qualified to provide an expert opinion for this case. Nevertheless, these findings will address his concerns in detail.

b. Filtration Facility Site and Raw Water Pipeline

Commenters are concerned area domestic water wells will be adversely affected by the Project.

Before addressing the specifics of those concerns, it is helpful to set forth the basic structure of the groundwater geology in the area of the Filtration Facility site, including the Raw Water Pipeline shaft, as represented in this table, which represents facts in the record summarized immediately below the table:

Geologic Layer:	*Geologic Sub-Layer:*	*Area Wells:*	*Project Components:*
Springwater Formation:	*Above ~ 50 feet:* Lenses of Perched Groundwater	No area wells.	Filtration Facility and Raw Water Pipeline
	Below ~ 50 feet: Shallow Regional Aquifer	No area wells.	Raw Water Pipeline
~200 feet of Consolidated Sandstone			
Troutdale Formation:	Troutdale Formation Deep Aquifer	Deep aquifer from which area wells take water.	No Project activity or impact of any kind.

The Project does not pose risks to wells in the area of the Filtration Facility and Raw Water Pipeline shaft (other portions of the Project are addressed in the following sections).

The applicant's groundwater experts, based on specific studies (described below) of area wells and groundwater, explain, and I find, that "wells in the area source water from a deep regional aquifer within the **Troutdale Formation**. … The deep aquifer within the Troutdale Formation is separated from the Springwater Formation by a consolidated layer of approximately 200 feet of sandstone. The Springwater Formation and the deep aquifer are, therefore, not hydraulically connected.[34] As a result, the Troutdale Formation (where wells in the area source water from) will not be adversely affected by the construction or operation of the project." Exhibit U.20.g, page 4. The entirety of the Project

[34] The Courters state that "while the Troutdale Formation is buffered by a consolidated sandstone layer, to assume complete isolation disregards potential vertical connectivity through fractures or faults. Given the importance of both aquifers to regional water supply, it is not sufficient to rely solely on generalized hydrogeologic assumptions[.]" Exhibit U.14, page 4. First, providing an expert report is not merely "assum[ing]" isolation or making "assumptions." Notably, the Courters are not geologists. Additionally, there was "a comprehensive assessment of water levels … around project areas," Exhibit U.20, page 8, and Exhibit I.65 and Exhibit I.66 contain the boring logs from the "extensive geotechnical exploration program, consisting of 16 deep soils borings at and adjacent to the proposed structures on the Filtration Facility site[.]" Exhibit I.65. It is inaccurate to say these professional statements were mere assumptions.

(Filtration Facility and all Pipelines), construction and operations, is above the deep aquifer within the Troutdale Formation and will not impact that aquifer. Exhibit U.20.g, page 5.

Within the **Springwater Formation**, there are two areas, "the perched groundwater and a shallow regional aquifer below about 50 feet of depth". Exhibit U.20.g, page 4. "Well logs in the vicinity of the Filtration Facility site show that the upper approximately 30 to 50 feet of material are clay and cemented boulders (the Springwater Formation with lenses of perched groundwater), and that the first truly water-bearing zones (the shallow regional aquifer within the Springwater Formation) are encountered at 50 feet." Exhibit U.20.g, page 5.

For the **Filtration Facility**, the applicant's groundwater experts provided a detailed analysis on this topic during the 2023 proceedings, which is in the record as **Exhibit I.63**. As explained in Exhibit I.63, and as no one challenged in the LUBA appeal, the Filtration Facility, including all improvements on the Filtration Facility site, "will not impact groundwater wells, as the depth of wells are greater than 400 feet below ground surface (bgs) with considerable separation from surface activities related to the Project." Exhibit I.63, page 1. Activities for the Filtration Facility – even during construction – will only include excavations up to depths of 20- to 30 feet bgs. Exhibit I.63, page 1. That is, the Filtration Facility "will only interact with the shallow … lenses of perched groundwater[.]" Exhibit U.20.g., page 5.

For the **Raw Water Pipelines**, there are two sections of the pipeline alignment. See Exhibit A.10, page 3. First, there is a horizontal tunnel. The tunnel starts at the connection to the existing conduits at Lusted Road at the far eastern end of the Project, proceeding underground to the west, passing under the Sandy River canyon wall, and ending deep underground below the Filtration Facility site. Second, there is a vertical shaft. The shaft starts at the end of the tunnel and goes vertically up to the surface of the Filtration Facility site. For the Raw Water Pipelines, the applicant's groundwater experts provided a detailed analysis on this topic during the 2023 proceedings, which is in the record as **Exhibit I.64**, which no one challenged in the LUBA appeal. As explained in Exhibit I.64, raw water facilities will be between 80 and 350 feet above the level of any project area well water level and intake zone and therefore will not impact those wells. The analysis in Exhibit I.64 specifically considers and concludes that there will not be adverse effects on the "Courter Well" (referenced, for example, in Exhibit N.43, page 24). "The raw water pipeline alignment will pass through the Springwater Formation but will not interact with the Troutdale Formation aquifer that wells in the area take their water from." Exhibit U.20.g, page 5.

"There are several [Raw Water Pipeline] shaft and tunnel design features that will protect the Springwater Formation during construction and operation of the project, including liner and shaft wall support systems that isolate the shaft from surrounding groundwater and shunt flow barriers that prevent groundwater outside the shaft and tunnel from flowing along the outside of the shaft or tunnel walls." Exhibit U.20.g, page 5. The "Springwater Formation will quickly refill from precipitation after completion of construction of the raw water pipeline alignment." Exhibit U.20.g, page 6.

Although commenters asserted, without any evidence cited, that it would take "decades to reestablish" particularly the perched water zones (Exhibit S.14, page 2) after construction, this is not the case. "Instead, it will take only a few wet months to recharge after the underground construction is completed – which will be well within the overall construction period. The potential for quick recharge of water in the Springwater Formation was demonstrated in groundwater monitoring instrumentation installed in boring LRWPBH08, which was completed pre-construction at the southeast corner of the Filtration Facility site [where the Raw Water Pipeline shaft will be installed]. The monitoring indicated

groundwater conditions in the Springwater Formation that fell during dry conditions and then quickly rose after precipitation events. The testing of boring LRWP-BH08 provided confirmation that any dewatering of the Springwater Formation groundwater necessary for construction of the project (particularly the raw water shaft and the filtration facility excavations) will take only a few wet months to recharge after the underground construction is completed." Exhibit U.20.g, page 6. Post-construction, "the groundwater in the Springwater Formation (including both the perched groundwater and a shallow regional aquifer below about 50 feet of depth) will continue to cycle, recharging and draining water in soils in the area in the same way as under preconstruction conditions." Exhibit U.20.g, pages 4-5.

The following sections address more specific concerns or topics related to wells raised by commenters in the record.

i. Clarification Regarding Wells in Area of Filtration Facility / Raw Water Pipelines

Commenters state that there are 13 wells near the Filtration Facility site and Raw Water Pipelines alignment that could be affected by the Project. Exhibit S.14, page 2; Exhibit N.43 (CCPO/PHCA), pages 24-26.

The "13 wells" are shown on Exhibit N.43 (CCPO/PHCA) Figure 13 (page 26). However, Figure 13 shows that wells 1-9 "are adjacent to a previously considered alignment in Clackamas County … that is not being constructed[.]" Exhibit S.29, page 10. The Clackamas County line shown on Figure 13 "would have been an alternative raw water alignment, but it was not selected and therefore is irrelevant." Exhibit S.29, page 10. The raw water alignment alternatives process is explained in detail in Exhibit A.10 (EFU Review Application Narrative) and Exhibit A.85. The selected alternative goes directly east-west from the Filtration Facility site and does not go south into Clackamas County.

Accordingly, only four of these wells "are actually within 1,000 feet of the project. The balance of the wells (9 wells) are along a section of raw water pipeline that was at one point proposed, but is no longer part of the project." Exhibit U.20.g., page 7. "Two of the four wells are located near the raw water pipeline connection with the existing conduits at SE Lusted Rd. These wells are in the Troutdale Formation, are downslope of the connection and, with depths of 150 feet and 165 feet, are below the pipe trench bedding depth of 22 feet and will not be affected by the project. The other two of the four wells (the Walter's replacement well [described in the next section] and the Courters' well) are also located within the deep aquifer within the Troutdale Formation. The Troutdale Formation aquifer is below all facilities and all construction activity of the project and is not impacted by the project, as has been described" above. Exhibit U.20.g., page 7.

ii. Walters Well

Commenters assert that "our neighbors well was 'compromised', essentially became useless, when a PWB test well was being drilled 75 ft. from their well. They had to have another well drilled to have drinking water!" Exhibit N.6, page 1. Similarly, Mr. Brooks states that "The Walter Well experienced pressure loss, sedimentation, and failure following nearby geotechnical drilling. - PWB eventually replaced the well, but only after prolonged disruption to the homeowner." Exhibit S.14, page 2.

"[I]t is not true that the Walter Well was damaged by geotechnical drilling and had to be replaced. The original Walter Well referenced in the[se] comment[s] sourced its water from the shallow aquifer

system within the Springwater Formation and had experienced seasonal issues in the past that were also occurring when the geotechnical drilling was initiated in the area. Because the original Walter Well was in the shallow aquifer system and therefore had some potential to be impacted by the raw water pipeline installation, the Water Bureau chose to proactively pay for costs to replace the well with a well in the deeper Troutdale aquifer. The Water Bureau was in regular contact with the Walters throughout the well replacement process. In correspondence with the Walters in June 2019, they stated they had they noticed a reduction in flow from the well after the drilling was completed. The Walters never indicated that the well "failed" nor that there was "sedimentation" at any point. To the contrary, the Walters stated in an Oregonian news article only that they were "getting less water than normal" (nothing regarding sedimentation) and that, when interviewed before the Water Bureau replaced the Walters well, "our anxiety level is zero because we have enough water" (nothing about failure). This was a temporary pressure loss that was only correlated with Water Bureau work in the area – the Water Bureau's engineers determined there was no causal relationship between the drilling and the Walters temporary pressure loss. Instead, replacement of the Walters' well was a proactive measure in preparation for the construction of the raw water shaft. Regardless, the Walters now have a new well in the deeper Troutdale aquifer that will not be adversely affected by the project." Exhibit U.20.g, pages 7-8 (footnote omitted); *see also* Exhibit I.80, pages 24 – 25 (explaining the Walters Well history during the 2023 proceedings).

"The Water Bureau performed private well flow tests and water level measurements on the Walter's replacement well and 13 additional private wells prior to and following subsequent geotechnical drilling activities as a part of the design process. The work concluded that there were no major differences in the performance of the tested wells between the pre-drilling and post-drilling activities. This again demonstrates that the Water Bureau has been proactive in responding to concerns about area wells." Exhibit U.20.g, page 8.

Mr. Brooks in his conclusion states that the "well failures and disruptions experienced by residents like those on the Walter property are not isolated—they are indicative of a pattern of neglect." Exhibit S.14, page 3.

This comment by Mr. Brooks "implies that there are examples of multiple well failures attributed to a pattern of neglect but does not provide any information on specific well failures. A 'pattern' requires more than one example. The only well issue that is mentioned in the record" by any party is the one described above related to the Walters Well. "Rather than a 'pattern of neglect,' protecting groundwater resources for water supply is a central tenet of the Water Bureau's mission as a public water utility, and PWB works extensively to prevent groundwater impacts from both Bureau operations and activities conducted by others." Exhibit S.20.g, page 12. This work by the Water Bureau is further described in Section VII.B.2.b.vi.

iii. "Draw – down of water table"

Commenters are concerned that the Project poses "risks to domestic wells [from] [d]raw – down of water table due to interception and redirection of shallow perched groundwater layers." Exhibit S.14, page 1.

As explained above, the "shallow perched groundwater layers" are not hydraulically connected to the Troutdale Formation (where wells in the area source water from) because of the separation of the two

areas by a consolidated layer of approximately 200 feet of sandstone. Exhibit U.20.g, page 4. "In addition, the site had previously been a commercial nursery that was irrigated using water from the deep aquifer within the Troutdale Formation. The cessation of irrigation for that commercial use will reduce the demand for groundwater from the deep aquifer within the Troutdale Formation that competes with domestic and other wells in the area. Thus, the project could be expected to have a benefit to groundwater users appropriating water from the deep aquifer within the Troutdale Formation due to a reduction in the competing use from that source." Exhibit U.20.g, page 4.

iv. "[W]ells reliant on perched or upper aquifer zones"

Commenters are concerned that the Project poses "risks to domestic wells [from] [d]ecline in well yield or complete drying of wells reliant on perched or upper aquifer zones." Exhibit S.14, page 1. For those wells "that tap into" the "perched zones", commenters assert there will be "[s]ediment intrusion[,] [i]ncreased turbidity or discoloration[,]" and "[d]eclining well yield or complete well failure." Exhibit S.14, page 2.

However, "there are no wells around the Filtration Facility site which source water from the perched water in the Springwater Formation nor the aquifer of the Springwater formation." Exhibit S.14, page 1. Therefore, there are no "wells reliant on perched or upper aquifer zones" that could have a "decline in well yield" or "drying of wells" as the Exhibit S.14 commenter suggests. Exhibit U.20.g, page 4. "The Walters well *was* an exception to this. However, as explained [above], the Water Bureau chose to proactively pay for costs to replace the well with one in the deeper aquifer. With that replacement, there are no area wells reliant on perched or upper aquifer zones." Exhibit U.20.g, page 4n2.

v. "[H]ydrologic imbalance"

Commenters are concerned that the Project poses "risks to domestic wells [from] [l]ong-term hydrologic imbalance, particularly during summer months, as aquifer recharge cannot match discharge rates." Exhibit S.14, page 1. Similarly, Mr. Brooks argues that there is a "risk to domestic wells in the area [from] [h]igh-volume groundwater pumping[.]" Exhibit S.14, page 3.

The operating Project will not involve any groundwater pumping, let alone high-volume pumping. "The only groundwater that will be collected is through passive seepage into the underdrain systems[.] The comment implies 'pumping' of water as if being pulled or sucked out of the ground in the manner of a domestic well. This is not the case. The only pumping that will occur is after the groundwater seepage has moved via gravity flow from the underdrains into a low collection point, where a pump exists. The water is then pumped from the low collection point to the higher elevation stormwater management system at the ground surface." Exhibit U.20.g, page 11. The amount of water that will accumulate in the underdrains will vary by season. Even in wet seasons, the "amount of groundwater seepage that will be collected by the underdrain system … will have a negligible effect on groundwater availability" for natural resource purposes, such as springs and Johnson Creek, and during dry seasons, the groundwater is anticipated to not collect in the underdrains at all, and instead "naturally infiltrate into the groundwater system through the foundations' gravels." Exhibit U.20.g, page 14. There is no risk of adverse effects on natural resources from the Project creating hydrologic imbalance.

Accordingly, this is a comment about construction dewatering and is addressed below in Section X.A. Nevertheless, given the concern about "long-term" risks, I note here that there are no such long-term

risks, as, post-construction "the groundwater in the Springwater Formation (including both the perched groundwater and a shallow regional aquifer below about 50 feet of depth) will continue to cycle, recharging and draining water in soils in the area in the same way as under pre-construction conditions, and the deep aquifer within the Troutdale Formation will continue to be isolated from the shallow perched groundwater layers by a consolidated layer of approximately 200 feet of sandstone." Exhibit U.20.g, pages 4-5.

vi. Comprehensive Study, Monitoring, and Planning

Commenters broadly state that "the absence of: - A comprehensive hydrogeologic impact study, - Baseline water level data, or the Oregon Water Resources Department active involvement - An independent monitoring program ... means that many nearby residents may experience similar or worse impacts [as the Walter Well] without recourse." Exhibit S.14, pages 2-3.

However, as explained by the applicant's groundwater experts in Exhibit U.20.g, pages 8-9, and as I find:

> During design, a comprehensive assessment of water levels and well depths around project areas was performed to understand the depth of the aquifer supplying the water wells relative to the depth of the project facilities (pipelines and filtration facility), including their excavations for construction. In all cases, the aquifer providing water to nearby wells is below the project facilities and is not impacted by the project or its construction. The assessment of existing groundwater wells near the Filtration Facility and the Pipelines is provided in Exhibits I.63, I.64, and I.65. Therefore, it is inaccurate to say that there was no "comprehensive hydrogeologic impact study" for the project or "baseline water level data" collected.
>
> Evaluations and design considerations for the raw water alignment were shared with the Oregon Water Resources Department (OWRD) and OWRD did not raise any concerns. That said, there was and is no requirement, reason, or industry practice to actively involve or engage the OWRD in the identification of wells or assessment of baseline water quality data. However, all piezometers installed to facilitate periodic observation of the depth to groundwater were installed per OWRD regulations defined by OAR 690-240 and Oregon Revised Statutes 537.880 through 537.895.
>
> There have been three phases to assess and monitor groundwater as a part of the project and the design of improvements. These activities have included:
>
> 1. During design, long Term (ranging from 4 to 14 months) groundwater level monitoring was conducted using piezometers installed in geotechnical boreholes. Piezometers were installed in 11 locations along the original and final finished water alignments and finished water intertie; 10 locations along the original and final raw water alignments, and 20 locations at the facility site. Two ORWD water well logs were also reviewed for static water levels.
>
> 2. Evaluations of private wells' production capacity were conducted before and after geotechnical drilling during design. These baseline evaluations were offered to area residents with concerns about their wells in 2021. Fourteen wells were tested through an independent contractor, as a subcontractor to Jacobs, during this investigation. The

baseline well monitoring data was provided to the individual well owners and did not reveal any adverse changes in the performance of the tested wells between the pre-drilling and post-drilling activities.

3. During construction, PWB performed (through an independent contractor, as a subcontractor to Jacobs) testing to collect further baseline production rates and water quality information of four water wells (Courter, Walter, Tatro, Bissell) these are the four properties closest to the [Raw Water Pipeline] tunneling and shaft work. This well monitoring data was provided to the individual well owners and did not reveal any issues with those wells.

Exhibit U.20.g, pages 8-9 (numbering typo corrected).

See above regarding the shallow Walters Well. Mr. Brooks "has a misunderstanding of the background of the Walters shallow well issue being attributed to the project and incorrectly projects these issues to domestic wells in the deep aquifer within the Troutdale Formation." Exhibit U.20.g, page 9. The applicant was, in fact, "proactive" in their response to working with the Walters as well as other property owner outreach and well monitoring. The applicant has committed that, if "independent well monitoring reveals well issues caused by the project – which is not anticipated for all of the reasons above – residents would have recourse with the City to address and resolve those issues." Exhibit U.20.g, page 9.

To memorialize that commitment, the Water Bureau proposes, and I will impose, the following condition of approval:

> ***Within 6 months after receiving temporary certificate of occupancy for the Filtration Facility, Portland Water Bureau will offer voluntary, independent (meaning not performed by the Water Bureau nor by a contractor that was involved in the construction of the project) flow and water quality testing for the well of any property where the homeowner at the time had baseline testing performed when Portland Water Bureau offered it before construction of the project. If the post-construction well testing mentioned in the previous sentence reveals that project construction caused damage to the well, the Water Bureau will repair any such damage or ensure replacement of the function of the well for the property***.

Mr. Brooks also broadly states that there is a "risk to domestic wells in the area [because of the [a]bsence of a groundwater protection plan[.]" Exhibit S.14, page 3. It is not clear what "groundwater protection plan" Mr. Brooks thinks is "absent." "In general, the term 'groundwater protection plan' refers to a facilities' strategies and actions to prevent contamination of groundwater resources, particularly with regard to any potential groundwater contaminants used at the facility. For the Filtration Facility, the chemicals to be used at the Filtration Facility are identified in the facility Hazard Materials Management Plan (HMMP) which is in the record as Exhibit I.59. The HMMP was subject to public scrutiny during the 2023 land use proceedings as well as a detailed, third-party review by an expert, Performance Based Fire Protection Engineering. Exhibit I.91, Appendix D (Fire Safety Report). Feedback from the public and the expert were incorporated into the revised HMMP at Exhibit I.59. Among other things, the HMMP includes a Hazardous Materials Operation Plan that identifies: (1) the hazardous material storage areas and compliance with separation and containment; (2) details

regarding the facility design and protocols to be used during chemical deliveries to minimize the risk of spills and safely contain and clean spills if they were to occur; (3) description of the chemical storage areas and the containment and piping features to prevent chemical release; and (4) special safety features and standards related to the facility's potential future ozone system. Exhibit I.59, pgs. 5-11. These measures will also protect groundwater in the manner that the commenter suggests is 'absent.'" Exhibit S.20.g, page 11. Additional information related to the HMMP and the transport, storage, and handling of chemicals during operation of the Filtration Facility is addressed in Section IX.D below. That information in Section IX.D addresses related commenter concerns that the Project "will introduce pollutants into the groundwater" and harm wells, springs, Johnson Creek, or otherwise harm the surrounding ecosystems. *See* Exhibit S.15, pages 1-2.

Opponents also raise concerns more broadly about the geologic stability of the area. Exhibit N.43, pages 31-32, although those concerns are not tied to any specific natural resource that will be adversely affected. I address here in the context of the extensive geologic investigations done to ensure protection of area wells. First, it is false to say that "there is a moderate to high landslide hazard" "within portions of the Plant", Exhibit N.43, page 31, referring to the footprint of the proposed Filtration Facility itself. There are mapped geologic hazard areas on the eastern edge of the site, but the Filtration Facility itself will be well away from those areas and the slopes will be stabilized by additional forest plantings as part of the Project. This topic has been thoroughly examined in the context of the approval of the Geologic hazards permit and additional information is available at Exhibit A.164 (Geologic Hazards Permits Narrative); Exhibit A.87 (Raw Water Pipelines Geologic Hazards Permit Form); Exhibit A.89 (Lusted Road Distribution Main Geologic Hazards Permit Form); Exhibit A.180 (Responses to County Comments on Geologic Hazards Permits). Project geologic hazards materials were prepared by Geotechnical engineers, the geologic hazard permit was approved, and no one appealed that permit to LUBA or otherwise raised substantive concerns about the conclusions therein regarding the stability of Project areas. Accordingly, I find that the siting and development of the Project in and around areas with potential geologic hazards will not adversely affect natural resources.

c. Finished Water Pipelines

Based on the expert analysis in **Exhibit I.65**, the construction or operation of the **Finished Water Pipelines** – including the Intertie site – will not impact water wells in the project area. There are no wells within the construction or permanent easement areas for the finished water pipelines, nor in the public right of way where the vast majority of the finished water pipelines will be placed. Exhibit I.65, page 2. The applicant's expert, a geotechnical engineer, explains that finished water pipeline installation excavations are relatively shallow, typically no deeper than about 20 feet. Exhibit I.65, page 3. The only water wells within about 300 feet of the finished water alignment are between 300 and 500 feet of depth. Two shallower wells of 100 and 124 feet of depth are located more than 1,400 feet away from the nearest proposed pipelines – and even if they were not so distant, are still significantly below the ~20 foot pipeline installation excavation. Exhibit I.65, page 3. Vibrations from finished water pipeline installation will also be well below published structural damage levels and will not result in damage to existing structures or wells along the finished water pipelines alignment. Exhibit I.65, page 3. Overall, "private wells are offset from the construction work and the screened intervals on these wells are a minimum of approximately 80 to 100 feet below the invert of the constructed pipelines. In addition, the three wells located within 300 feet of the work area are screened at depths of at least 200 feet below the invert of the constructed pipeline. Construction vibrations are not expected to impact the performance of private wells because the distances and depth of the wells is too far from the

construction work areas to result in damage. Similarly, construction of the [finished water pipelines] project is not anticipated to impact the pumping capacity or the water quality of the water wells located in the vicinity of the [finished water pipelines] work for the same reasons." Exhibit I.65, page 4.

3. Groundwater Contamination

"Protecting groundwater resources for water supply is a central tenet of the Portland Water Bureau's mission as a public water utility, and PWB works extensively to prevent groundwater impacts from both Bureau operations and activities conducted by others. Groundwater from the Columbia South Shore Well Field (CSSWF), which includes wells that tap the Troutdale Formation, is an important part of the drinking water supply for Portland and the metro region. The Water Bureau has experience safely operating a water treatment facility in the vicinity of water supply wells, as Portland's Groundwater Pump Station sits in the center of the CSSWF and includes treatment chemical handling similar to the inventory planned for the filtration facility." Exhibit S.29, page 1.

"The Water Bureau has a long history of active groundwater protection dating back to the original development of the well field in the early 1980s. The goal of the Water Bureau's groundwater protection work is to prevent future groundwater contamination and to discover and remediate pre-existing contamination. The Water Bureau also provides technical assistance to businesses managing hazardous materials and educates the public on how to help protect groundwater. The Water Bureau monitors groundwater quality regularly at all active municipal supply wells and more than 80 additional monitoring wells around the City's well field. This allows the Water Bureau to characterize the water quality throughout the well field and provide an early warning for previously unknown contaminants." Exhibit S.29, pages 1-2.

Groundwater quality at the Filtration Facility site has also been tested to evaluate the potential for pesticide contaminants of concern to be present in water discharged from the dewatering system for the deep excavation on the west side of the property, or, after operations, from the underdrains of the project buildings. None of these compounds were detected. Exhibit U.20.g, page 12.

C. "Fish Habitat Areas" (Aquatic Habitat & Water Quality)

To begin, I note that the language of the 1977 Comp. Plan is "Fish Habitat Areas" and that the 1977 Board had specific categories ("the following") that it directed "to require a finding [on] prior to approval of a … quasi-judicial action[.]" Accordingly, I find that the Project will not adversely affect Fish Habitat Areas for the reasons set forth in this Section VIII.C.

However, in case a reviewing court disagrees that the 1977 Comp. Plan provides the categories of natural resources to address in this proceeding, the majority of this Section VIII.C addresses the broader category of aquatic natural resources and the related category of water quality. Accordingly, I also find that the Project will not adversely affect aquatic natural resources and will not adversely affect water quality for the reasons set forth in this Section VIII.C.

1. Expert Testimony

a. Applicant's Experts

The applicant provided expert testimony related to stormwater management and fish habitat areas (including the potential for impacts to water quality and to aquatic habitat more broadly) from Todd Alsbury and Ted Brown, of Biohabitats, Inc.

Biohabitats reviewed and provided input on stormwater management system design (Exhibit N.58) provided by Emerio Design (Rafael Gaeta, PE, Josh Meyer, PE, and Pat Tortora, PE) and reviewed by Angela Wieland, PE of Brown and Caldwell and Erik Megow, PE of Stantec. Biohabitats also reviewed and provided input on the stormwater flow spreader and vegetated slope design (Exhibit N.59) provided by Mark Graham of Stantec, Rafael Gaeta of Emerio Design, and Jason Hirst, of NNA Landscape Architecture, and reviewed by Erik Megow of Stantec.

i. Biohabitats (Aquatic Biology and Stormwater)

Todd Alsbury's resume is provided in Exhibit N.66. Mr. Alsbury, of Biohabitats, is a fisheries biologist and holds a Bachelor of Science (B.Sc.) degree in Aquatic Wildlife Biology from the University of Montana. Mr. Alsbury has extensive experience in stream restoration work and watershed and aquatic habitat assessment and monitoring. He has provided habitat assessments and determined appropriate mitigation actions for developments in the floodplain and for instream construction projects. His experience includes implementation of temperature monitoring and identification of sources of heating, conducting fish passage assessments, and conducting biological assessments under assessment methodologies developed by ODFW, Washington Dept. of Fish & Wildlife, U.S. Fish & Wildlife Service, and the Environmental Protection Agency. During his seven years as a District Fish Biologist for the Oregon Department of Fish and Wildlife, Mr. Alsbury spearheaded the collection of extensive biological and physical data on fish populations and their habitats within the North Willamette Watershed District (NWWD), which includes the Project area. Overall, I find that Mr. Alsbury is qualified by education and experience to provide the expert testimony he has provided in this case, particularly related to fish habitat areas (including the potential for impacts to water quality and to aquatic habitat more broadly).

Ted Brown's resume is provided in Exhibit N.66. Mr. Brown, also of Biohabitats, has over 30 years' experience in ecological restoration, watershed management, and planning and stormwater management services. Mr. Brown holds a Master of Science degree in Civil Engineering from the University of Virginia and is a registered professional engineer in a variety of states. As relevant to his role in evaluating the Project, Mr. Brown's technical expertise specifically includes stormwater infrastructure, including leading stormwater and management planning and design for large projects, such as at the University of Virgina. Mr. Brown's technical expertise also notably includes facilitating implementation of stormwater controls to achieve compliance with Total Daily Maximum Load (TMDL) standards in a variety of watersheds and designing proactive approaches to assessing and bolstering resilience to natural hazards caused by climate change. Mr. Brown's experience includes playing important roles in the development and writing of state stormwater manuals in four states and writing natural guidance for EPA to support he NPDES Phase II Stormwater Program. Overall, I find that Mr. Brown is qualified by education and experience to provide the expert testimony he has provided in this case, particularly related to the potential for the project's stormwater management system to adversely

affect fish habitat areas (including the potential for impacts to water quality and to aquatic habitat more broadly).

ii. Stormwater System Design

As noted above, Biohabitats reviewed and provided input on stormwater management system design (Exhibit N.58) provided by Emerio Design (Rafael Gaeta, PE, Josh Meyer, PE, and Pat Tortora, PE) and reviewed by Angela Wieland, PE of Brown and Caldwell and Erik Megow, PE of Stantec. Biohabitats also reviewed and provided input on the stormwater flow spreader and vegetated slope design (Exhibit N.59) provided by Mark Graham of Stantec, Rafael Gaeta of Emerio Design, and Jason Hirst, of NNA Landscape Architecture, and reviewed by Erik Megow of Stantec.

Rafael Gaeta, PE, of Emerio Design (resume at Exhibit N.66), has 28 years of experience in civil engineering design and project management, including stormwater facilities, water quality facilities, and detention and retention systems. Mr. Gaeta holds a Bachelor of Science degree from Portland State University and is a registered Professional Engineer in both Oregon and Washington. Mr. Gaeta has served as the task lead for the Project civil services, including stormwater management. I find that Mr. Gaeta is qualified by education and experience to provide expert testimony on stormwater management.

Mark Graham of Stantec (resume at Exhibit A.155), has over 25 years of experience in the water industry, with specific technical expertise in water quality and water treatment. Mr. Graham hods a Master of Science degree in Environmental Engineering from the University of Cincinnati and is a licensed Professional Engineer in Washington, Oregon, North Dakota, Colorado, and California. I find that Mr. Graham is qualified by education and experience to provide expert testimony on the engineering design of the flow spreader and vegetated slope.

Jason Hirst, of Nevue Ngan Associates (NNA) Landscape Architecture (resume at Exhibit N.66), is a Registered Landscape Architect in both Oregon and Washington and holds a Bachelor of Landscape Architecture degree from Washington State University. Mr. Hirst has worked on a variety of public and private projects, including the design of natural areas, with his main area of expertise sitting at the intersection of natural system and the built environment. This main area of expertise is particularly applicable to his work designing the landscaped slope between the flow spreader feature of the stormwater system for the Project and the riparian area around Johnson Creek. I find that Mr. Hirst is qualified by education and experience to provide expert testimony on landscape design and function.

Erik Megow, PE, of Stantec (resume at Exhibit N.66). is a water resource engineer with more than 14 years' experience as a consulting engineer in water resources, including specific expertise in stormwater best management practice design, hydraulic and hydrology modeling, stream restoration and stabilization design, and stormwater management. Mr. Megow holds a Bachelor of Science degree in Mechanical Engineering from the University of Minnesota. His experience includes serving as the lead designer and stormwater analyst for regional stormwater treatment for the City of Victoria, Minnesota, including design of stormwater basins to meet volume control and water quality requirements. I find that Mr. Megow is qualified by education and experience to provide expert testimony on stormwater management.

Josh Meyer, PE, of Emerio Design (resume at Exhibit N.66). has six years of experience providing civil design with a specialty in stormwater design. Mr. Meyer has a Bachelor of Science degree in Civil Engineering from George Fox University and is a registered Professional Engineer in Oregon. Mr. Meyer's expertise includes design of hydromodification, water quality, and water quantity control facilities, as well as design of conveyance systems. I find that Mr. Meyer is qualified by education and experience to provide expert testimony on stormwater management.

Pat Tortora, PE, of Emerio Design (resume at Exhibit A.155), has 29 years of civil engineering experience, including expertise in storm drainage facilities specifically. Mr. Tortora holds a Bachelor of Science degree in Civil Engineering from Oregon State University and is a registered Professional Engineer in Oregon, Washington, California, and Idaho. Mr. Tortora's experience includes the design of an extensive on-site multi-planter storm system for a large affordable housing project and the stormwater management plan for the Canby School District. I find that Mr. Tortora is qualified by education and experience to provide expert testimony on stormwater management.

Angela Wieland, PE, of Brown and Caldwell (resume at Exhibit N.66), has 22 years of experience with subject matter specialties in stormwater and green infrastructure and conveyance infrastructure, particularly working as a technical reviewer (which was her role in the Project, Exhibit N.58, page 1). Ms. Wieland has a Master of Science degree in Environmental Engineering from Oregon State University, a Bachelor of Science degree in Civil Engineering from the University of Portland, and is a registered civil engineer in Oregon. Ms. Wieland's experience includes the assessment, planning, and management of water quality and quantity in stormwater planning; NPDES compliance support for public bodies, stormwater master planning, hydromodification best management practices, TMDL implementation plans, and assisting multiple jurisdictions with the development of stormwater management manuals and public works design standards for stormwater. I find that Ms. Wieland is qualified by education and experience to provide expert testimony on stormwater management.

b. Opponents' Experts

i. Aquatic Biology and Toxicology

"**Ian Courter** is a cofounder of Mount Hood Environmental (MHE), an Oregon-based science consulting company with additional staff in Washington and Idaho. MHE specializes in fisheries research, water quality monitoring, and aquatic toxicology. Prior to establishing MHE, Ian provided project leadership, management, design, analysis, and data collection for Cramer Fish Sciences in Gresham, Oregon. In addition to his role as a senior scientist, Ian served as the Program Lead for Oregon operations. Ian has served as principal investigator on a variety of salmon and steelhead research projects in watersheds throughout the Pacific Northwest including the Cowlitz, Klamath, Willamette, Yakima, Wenatchee, Methow, Deschutes, Owyhee, Snake, Upper Columbia, and Sacramento/San Joaquin River Basins. He has a Master's degree in Fisheries Science with a minor in Natural Resource Policy and Law from Oregon State University, a bachelor's degree in Environmental Biology from Pacific University, and a Project Management certification from Portland State University, among other certifications." Exhibit N.43, page 70.

"**Lauren Courter** is a toxicologist and a co-founding scientist of Mount Hood Environmental (MHE), an Oregon-based science consulting company with additional staff in Washington and Idaho. MHE specializes in fisheries research, water quality monitoring, and aquatic toxicology. For nearly thirteen

years she has been a principal investigator on aquatic toxicology and water quality research, regularly contributing to various MHE technical writing assignments covering a wide variety of topics. Prior to MHE, Lauren engaged in eight years of academic research in the fields of carcinogenesis, molecular toxicology and neurobiology. Her graduate and post-graduate work focused on the genotoxicity of polycyclic aromatic hydrocarbons and toxicant effects on neurodevelopment, respectively. She has a Ph.D in Toxicology from Oregon State University and a bachelor's degree in Biology with a minor in Business Administration from Pacific University. Lauren is an expert in the study of non-target impacts of herbicides on aquatic and human health. She has written numerous reports and is well-published in her field. More specifically, her consulting research focuses on the effects of terrestrial and aquatic herbicide applications on sensitive aquatic species, relic sediment contamination on ESA-listed salmonid species, and water quality and nutrient monitoring. Her research has spanned basins across Oregon and Washington, including the Deschutes, Willamette and Upper Columbia basins. Lauren regularly serves as a consultant to several private timber companies leading herbicide monitoring efforts on the Oregon coast to determine non-target impacts of and the risks associated with silvicultural operations on human health and aquatic species. She has also served as a legal expert on several issues, including aquatic toxicity work in Douglas County, Oregon on an accidental release of concrete into the Umpqua River. More recently, she has been contracted as an expert to review and disseminate existing contaminant data and literature for the Portland Harbor Superfund Site." Exhibit N.43, page 70.

ii. Stormwater Systems Engineering or Design

Opponents did not provide any evidence in the record from an author that claimed to, or was evidenced to, be qualified by education or experience to provide an expert opinion on stormwater systems, their design, or their engineering.

2. Facts and Conclusions

a. Biohabitats Analysis Overview

Biohabitats reviewed the Project with respect to potential adverse impacts that could occur to aquatic natural resources or water quality from operations of the Project. Exhibit N.55. As further explained in the Expert Testimony section above, the expert opinions in Exhibit N.55 were provided by a team of Biohabitats staff "with direct knowledge of the status of fish and aquatic habitat in the area" (Mr. Alsbury) as well as "staff with experience and expertise in stormwater design and performance of typical best management practices for stormwater systems" (Mr. Brown). Exhibit N. 55, page 1.

Biohabitats assessed the pre- and post-construction conditions of aquatic habitat and water quality in the area of potential effect of the Project. Exhibit N. 55, page 1. These areas of aquatic habitat include watersheds containing sensitive aquatic species including several listed as endangered under the Endangered Species Act. Exhibit N. 55, page 1.

Although the primary analysis by Biohabitats in Exhibit N.55 focuses on Johnson Creek and Beaver Creek "because of their proximity to the project area," Exhibit N.55 "covers all area aquatic habitats, including the Sandy River ... through, for example, a reduction in stormwater discharge rates and improved water quality compared to the pre-developed condition[.]" Exhibit S.31, page 5. Additionally, protections of Beaver Creek are protective of the Sandy River, as that is the ultimate destination of Beaver Creek. For this reason, Biohabitats examined TMDLs and 303(b) listings for the Sandy River when evaluating the

Project's effects on water pollution. Additionally, the "closest unnamed tributary of the Sandy River [with] its confluence over 1.25 miles away from … the only [stormwater system] discharge point that ultimately flows to the Sandy River watershed[.] This distance additionally ensures the Sandy River will not be adversely affected by the project." Exhibit S.31, page 4; *see also* Exhibit S.32, page 24, Figure 9 on page 25, and Figure 10 on page 26 (depicting distances to Sandy Wild and Scenic buffer areas).

For the post-construction condition, Biohabitats considered the potential for the Project to have adverse effects on aquatic natural resources and concluded, and I find, that "necessary project design, operation, and maintenance plans are in place to prevent harm to water quality and aquatic habitat." Exhibit N.55, page 1; Exhibit U.20.a, page 38 (reaffirming conclusion after review of all comments in record). Biohabitats additionally notes that the Project "will utilize an adaptive management approach to continuously assess and implement new opportunities for improving program effectiveness in preventing adverse impacts to aquatic resources in Johnson and Beaver Creeks." Exhibit N.55, page 1.

Overall, Biohabitats concludes that it is their "expert opinion that the project will not adversely affect aquatic habitat or water quality." Exhibit N.55, page 1. Biohabitats reaffirmed that conclusion after "considering all of the comments in the record[.]" Exhibit U.20.a, page 38. For the reasons provided in this Section, I agree, and find that the Project will not adversely affect "fish habitat areas", water quality, or aquatic habitat broadly.

b. Pre-Construction Conditions

i. Adequacy of Study of Pre-Construction Conditions

Commenters, particularly the Courters and Ms. Richter in proposed findings, argue that pre-construction study for Biohabitat's analysis was insufficient. For example, the Courters argue that "No field surveys or quantitative aquatic assessments were conducted. Critical baseline data regarding habitat, species presence, and water quality were omitted[,]" and that "Biohabitats did not conduct a single aquatic species survey to inform its conclusions. No fish surveys, no amphibian sampling, no macroinvertebrate assessments, and no seasonal water quality monitoring were included. The entire analysis is speculative. These types of species surveys are customarily included in any aquatic habitat evaluation." Exhibit S.21, pages 1-2; Exhibit W.3a (Richter proposed findings), page 24 ("Opponents' experts explained what is customary industry standard for evaluating aquatic species for a project of this type in detail including weekly or monthly field survey using well-documented protocols over a three-year period to estimate species diversity and density using direct capture or passive observation methods.").

As explained above in Section IV.D.10, the six words of MCC 39.7515(B) do not require "quantitative aquatic assessments" or any specific survey, sampling, monitoring, or inventory. Nor does it require any particular methodology for determining whether the Project may "adversely affect" aquatic natural resources ("fish habitat areas"). Opponents assert that weekly / monthly protocols for three years are "customary industry standard" and "necessary" for an "aquatic habitat evaluation." But nowhere in MCC 39.7515(B) is a requirement for an "aquatic habitat evaluation." Instead, the standard requires evaluating the potential for adverse effects from the "use" (the Project). The opponents' argument applies a standard for oranges to an approval criterion about apples. While some level of understanding of nearby aquatic habitats is needed to understand the potential for adverse effects, the bar set by opponents is the wrong one for this Project's level of potential externalities.

For the reasons that follow, I find that the analysis of the pre-construction condition of Project area aquatic habitats covered by Biohabitats' expert reports provides the necessary evidence in the record to determine that the Project will not adversely affect aquatic natural resources. Notably, "habitat conditions near the project areas were assessed by Todd Alsbury, who has over 25 years of experience conducting monitoring, restoration, and management of fish population and their habitats in the Johnson and Beaver Creek watersheds specifically. Mr. Alsbury has been involved in project planning since 2021, including field review of project proposals on subject properties and in rights of way, assisting with development of best management practices (BMPs), and in-field review in preparation of this memorandum and prior project-related assessments (see Exhibit I.95)." Exhibit N.55, page 3. That is to say, not only is Mr. Alsbury qualified by education and experience as an expert in the general area of aquatic biology, but Mr. Alsbury also has specific experience monitoring fish and their habitats **in these specific watersheds**, including for the government during his seven years as a District Fish Biologist for the Oregon Department of Fish and Wildlife, when Mr. Alsbury spearheaded the collection of extensive biological and physical data on fish populations and their habitats within the North Willamette Watershed District (NWWD), which includes the Project area. Exhibit N.55 (resume). This specific expertise lends credibility to his summary of the habitat conditions, water quality, and aquatic species distribution around the Project area he found relevant to his analysis of the potential for the Project to adversely affect aquatic natural resources. It is reasonable for me to accept an expert's own analysis of the level of investigation needed in a specific context for a specific Project

As Mr. Alsbury explains, and as I find, "[n]ative migratory fish species are well studied in [the Project] area, due to their at-risk status (most populations in the region are listed under the Endangered Species Act) and regional importance. The distribution of native migratory fish is often used as a surrogate for the presence and distribution of other species with less research available to determine the extent of distribution." Exhibit N.55, page 7. Mr. Alsbury drew on his expertise in these specific watersheds as well as a number of past studies, including the "***24k Project***" conducted as part of the Oregon Plan for Salmon and Watersheds ("***Oregon Plan***") by the Oregon Department of Fish and Wildlife ("***ODFW***"). Exhibit N.55, page 8. The primary goal of the 24K Project was to develop consistent and comprehensive baseline datasets on fish habitat distribution at a scale of 1:24,000 (24K) by obtaining universal input and agreement from other Oregon Plan participating projects. Exhibit N.55, page 8. The 24K Project dataset also provides documentation of direct observations from those Oregon Plan participating projects and important information on barriers to migration, species origin and present production information, and timing of life-stages. Exhibit N.55, page 8.

The 24K Project dataset provides information for Johnson Creek and Beaver Creek on both current and historic habitat distribution (defined as "suitable areas believed to be currently or historically used by wild, natural, and/or hatchery fish populations"). Exhibit N.55, page 8. Overall, "[t]he 24K Project provides extensive and authoritative information about the fish habitat distribution in the area where the project is proposed." Accordingly, reliance on the 24K Project's extensive and authoritative information – in addition to Mr. Alsbury's personal experience and many other cited sources in his expert reports – was sufficient study for Mr. Alsbury to provide his expert analysis of the potential for the Project to adversely affect aquatic natural resources.

The 24K Project, Mr. Alsbury's personal experience, and other cited sources in Mr. Alsbury's expert reports together provide evidence on which a reasonable person would rely to obtain *the level of information needed* to analyze the potential for this Project to adversely affect aquatic natural resources in the area. I note that the level of information needed in this case may not be the same same level of

information that would be needed for other projects applying this standard, projects applying other land use standards, or experts using other analytical approaches. However, MCC 39.7515(B) does not prescribe a methodology or analytical approach required to meet the standard and therefore the only question is whether the study done is adequate to conclude that the Project will not adversely affect aquatic habitat or water quality. I find that it is.

Notably, no opponent identified how their criticisms of the analysis Mr. Alsbury provided of pre-construction conditions would change the potential for adverse impacts from the Project, particularly given that it is based on "widely relied upon, public, scientific information on the distribution of aquatic life in area streams"[35] (including the extensive and authoritative information from the 24K Project) and based on Mr. Alsbury's specific experience both in these watersheds and having worked on the project, including field review of project proposals, and involvement in project planning since before construction commenced. Exhibit N.55, page 3. There are multiple valid pathways to arrive at the same conclusion. "For example, seasonal water quality sampling would indicate that surrounding land uses (agricultural) are significant contributors of sediment to Johnson Creek. However, sampling is not needed to know that this is true (Capel, et.al. 2018, Shortle, 2021, USGS 2010)." Exhibit U.22.a, page 22.

Instead, opponents' arguments are that Mr. Alsbury could have done a variety of additional tasks ("electrofishing," "snorkel surveys," "minnow traps," etc., Exhibit S.21, page 2) but not that in doing those additional tasks *the result* of Mr. Alsbury's analysis *would have changed*. Exhibit S.21, pages 2-3. In fact, opponents point out that they did do a variety of additional tasks ("snorkel surveys (August 22, 2023)," "amphibian surveys," "photographic evidence") and that "none of these findings were disputed by Biohabitats[.]" Exhibit S.21, page 3. Biohabitats did not dispute those findings precisely because the snorkel surveys, amphibian surveys, and photographic evidence provide evidence in the record that confirms that Mr. Alsbury's approach is valid – as it was confirmatory of what he had found. Identifying a different methodology to come to the same conclusion does not detract from the validity of the conclusion itself.

Moreover, opponents argue that a lack of "direct field observation" means that Biohabitats has "no basis to assert" its conclusion that the Project will not adversely affect aquatic natural resources. Exhibit S.21, page 3; Exhibit W.3a, page 24 ("waters adjacent to the subject property were never field surveyed by PWB or its experts"). First, Biohabitats *did perform* field observations, even if not the specific types of field observations, like "snorkel surveys", that the Courters think are required by the six words of MCC 39.7515(B). *See* Exhibit N.55, page 3 ("Mr. Alsbury has been involved in project planning since 2021, including field review of project proposals on subject properties and in rights of way … and in-field review in preparation of this memorandum and prior project-related assessments (see Exhibit I.95).")

Second, the Courters assert that the specific types of field observations they propose were necessary are those "customarily included in any aquatic habitat evaluation." Exhibit S.21, page 2. However, the six words of MCC 39.7515(B) are not aimed at the completion of an "aquatic habitat evaluation" but rather at the *evaluation of the Project* and its potential to adversely affect area natural resources.

As Biohabitats explains, and as I find was appropriate for evidence to support findings under MCC 39.7515(B), the "goal of Biohabitat's analysis was not to evaluate the aquatic habitat in Johnson Creek

[35] Exhibit U.20.a, page 21.

or other area waterways. As the title of the document states clearly, the goal was evaluation of the 'Potential for Aquatic Natural Resources Effects From the Bull Run Filtration Project.' Those potential effects (be them positive or adverse) can only be caused by the externalities of the project – such as stormwater discharge. This is why Exhibit N.55 focuses on 'Review of Stormwater Design and System Operation and Maintenance' starting on Page 10 and why the Biohabitats team performing the evaluation included Ted Brown, an expert in stormwater design and performance of best management practices for stormwater systems. Notably, no one challenged Biohabitat's conclusion that 'the project stormwater systems … are the only project aspect which has the potential to have an adverse effect on water quality or aquatic species.'" Exhibit U.20.a, pages 20-21.

"Furthermore, it was not necessary to conduct detailed species surveys as Biohabitats made the conservative assumption that fish, amphibians, and other aquatic species are or historically were present in these habitats, and that any externality of the project that would degrade aquatic habitat could impact aquatic species now or in the future. Notably, the species assumed to be present or historically present are the same as those identified by the Cottrell CPO and PHCA (See Exhibit N.43, Page 52 Cottrell CPO & PHCA Adverse Effects Report). The commenters in Exhibit S.21 state: 'It should be noted that none of these findings were disputed by Biohabitats.' Page 3. Indeed, that is exactly the point – Biohabitats made the conservative assumption that any species shown by official sources, scientific studies, Biohabitats' own experience and in-field reviews for this project, and any findings of opponents were present[36] or were historically present, and thus taken into account in review of project externalities that could affect aquatic habitat." Exhibit U.20.a, pages 21-22.

In this light – that the "the focus of the report [was] on the externalities of the project and those externalities' potential to adversely affect aquatic habitat for any species" Exhibit U.20.a, page 23 – it is clear that the Courters' claim that Biohabitat's conclusions were made "without empirical data" is false. Exhibit S.21, page 2. "Biohabitats' report in N.55 was based on extensive empirical data in the stormwater management report in Exhibit N.58. Exhibit N.58 has 668 pages of analysis and data." Exhibit U.20.a, page 22. Additionally, as noted above, Biohabitats' report is based on "widely relied upon, public, scientific information on the distribution of aquatic life in area streams"[37] (including the extensive and authoritative information from the 24K Project). Overall, it cannot be said that Biohabitat's review was done "without empirical data".

ii. Pre-Construction Habitat Conditions

"Johnson Creek, located to the southwest of the main Filtration Facility site, and Beaver Creek, which passes near the Intertie Site near Lusted Road and the distribution main along Cottrell Road, are the main considerations for aquatic habitat that could be affected" by the Project – pre-construction habitat conditions in each of these creeks are "generally considered poor." Exhibit N.55, page 3.

[36] One exception is related to Juvenile salmonids as explained in Exhibit U.20.a, Page 22n8. ODFW data shows that salmonids, like other species, are not present above Cottrell Pond, which currently provides a complete barrier to fish passage. "Therefore, it is unlikely that juvenile salmonids were found adjacent to the project site, but this nuance is ultimately irrelevant given the approach of the report." Exhibit U.20.a, Page 23.

[37] Exhibit U.20.a, page 21.

"Channelization and development have greatly reduced riparian vegetation throughout most of the Johnson Creek and Beaver Creek watersheds" and the "riparian corridor is either narrow, minimal, or lacking[.]" N.55, page 3. "The loss of riparian habitat decreases shading and elevates water temperature, typically reduces the filtration of pollutants and sediments from runoff and can result in channel incision and streambank instability." Exhibit N.55, page 3.

Johnson and Beaver creeks are each also "highly fragmented by frequent road crossings" which "often create barriers to the upstream passage of native migratory fish that historically occupied the upper reaches" of the creeks (with those upper reaches being the relevant portions of the creeks in the Project area). Exhibit N.55, page 3.

Note that the reach of Johnson Creek adjacent to the Filtration Facility site is sometimes referred to (by both the applicant and by other parties) as the "headwaters" of Johnson Creek. "The term "headwaters" is somewhat misleading in this situation, as it does not refer to a ready source of water such as a spring. Instead, runoff from the proposed site and the surrounding uplands (shown in the Johnson Creek Upper Watershed Figure [attached to Exhibit S.29]) feeds the stream channel of Johnson Creek that passes by the Filtration Facility site. Above the reach of Johnson Creek near the Filtration Facility site, the Johnson Creek stream channel is underground in a pipeline under a commercial nursery field in Clackamas County. Above the reach under the nursery field (to the south of Bluff Road), there are areas where the stream is above ground. That is, there is a significant length of Johnson Creek above the reach near the Filtration Facility site – most of which is severely impacted by existing agricultural uses and other development." Exhibit S.29, page 3n1.

iii. Pre-Construction Water Quality

"Oregon's Department of Environmental Quality (ODEQ) lists Johnson Creek as a water quality limited 303(d) stream. The listings are primarily due to high temperature (from lack of riparian canopy), bacteria (from wildlife, agriculture, and septic systems), and toxics (from remnant pesticides used in agricultural operations) among other factors contributing to degraded water quality." Exhibit N.55, page 4. "The North Fork of Beaver Creek is also listed as a water quality limited 303(d) stream for temperature and bacteria due to causes similar to Johnson Creek." Exhibit N.55, page 4; Exhibit N.58, Table 2 (complete listing of TMDLs and 303(d) parameters for Johnson and Beaver Creeks).

Water Temperature. For both Johnson and Beaver Creek watersheds, "[w]arm water temperature is a widespread existing problem" even in the upper reaches near the Project area, and "[n]umerous investigations … have consistently indicated that summer water temperatures do not meet state water quality standards" in these watersheds and "are often hotter than state water quality standards for rearing and migratory salmon and trout." Exhibit N.55, page 4. This issue, "together with potential nutrient contributions, result in [Dissolved Oxygen] concentrations that frequently drop below guidelines in the summer" and "limit salmon and trout productivity throughout both watersheds." Exhibit N.55, page 4. "Elevated water temperatures are caused by low summer base flows, lack of riparian shade, and impoundment of water in ponds[.]" Exhibit N.55, page 4. "Historically, streams were kept cool by forests that shaded the stream channels. But in 2002, the average effective shade over mainstem Johnson Creek was just under 40%" and Beaver Creek shows a similar concern. Exhibit N.55, page 5.

Turbidity/Sedimentation. As explained above, both Johnson and Beaver Creeks in the Project area suffer from high levels of sediment resulting from "[s]ediment laden runoff from agricultural operations" and "removal of riparian and upland vegetation to convert forested areas to agricultural operations[,]" Exhibit N.55, page 6, as has occurred at the main Filtration Facility site. The use of the SEC area for agricultural cropland is shown in Exhibit N.64, pages 16-20. These high levels of turbidity/sedimentation degrade the instream and riparian habitats that aquatic species rely on to survive and the "increases in fine sediment … can impact stream substrate used by aquatic insects and spawning fish. Fine sediment covers and compacts gravel, reducing the ability of aquatic insects to respire and limiting survival of eggs deposited by fish through reduction in oxygen available to developing embryos." Exhibit N.55, page 6.

The Courters accuse Biohabitats of using photos "intended to distort perceptions of pre-construction conditions", particularly as to a photo on Page 7, Exhibit N.55, of Johnson Creek which was taken after farming at the Filtration Facility site ended. Exhibit S.21, pages 3-4. While Biohabitats agrees that the one photo was after farming at the Filtration Facility ended, "it is representative of the impact of agricultural operations in the area (which were still ongoing upstream of the Filtration Facility property). Sediment coming from those lands contributed to degradation of instream habitat shown in the photo." Exhibit U.20.a., page 27. More importantly, the "sedimentation of Johnson Creek in the upper basin from agricultural uses is a well understood and documented phenomenon" – as discussed by the US Geological Survey in Attachment 2 to Exhibit U.20.a. and shown in Figure 6 of Exhibit U.20.a. from that USGS report, provided below.

Figure 6. US Geological Survey photograph in Attachment 2 titled: "High flows in the upper basin mobilize large amounts of sediment"

Figure 6 of Exhibit U.20.a., page 28.

"Sediment deposition from the previous use of the filtration facility site and ongoing agricultural operations upstream covers the entire stream bottom from side to side, filling in holes and undercut banks typically used by fish and other aquatic organisms for cover and foraging opportunities. The creek in this area is shallow with limited instream wood or cover that is typically present in streams with intact riparian areas. Agricultural practices like those used at the property prior to the development of the Filtration Facility contributed to the sediment seen in the photo [above] and led to current conditions that negatively impact aquatic and semi-aquatic species in the area." Exhibit U.20.a, page 28.

iv. Pre-Construction Aquatic Species Distribution

Ms. Richter proposes findings that "All parties appear to agree that Johnson Creek and Beaver Creek … support several species of native migratory and resident fish including cutthroat trout and sculpins. Ex N.55, p 8 and N.43, p 48." Exhibit W.3a, page 24." Exhibit W.3a, page 24. The applicant's expert provided consistent aquatic species distribution evidence: "Johnson Creek and Beaver Creek support several species of native migratory and resident fish that are common to Oregon rivers and streams including: coho salmon (ESA listed – threatened), fall Chinook salmon (ESA listed – threatened), winter steelhead (ESA listed – threatened), cutthroat trout (Oregon – sensitive species), rainbow trout, lampreys, minnows (e.g., dace, shiners), and sculpins." Exhibit N.55, page 8.

Johnson Creek. Cutthroat trout are known to be present as far upstream as Cottrell Road[38] in Johnson Creek. Exhibit N.55, pages 8-9. "ESA listed fish species (coho and winter steelhead) are considered present in Johnson Creek up to a point that is 2.26 miles downstream of the southwest corner of the Filtration Facility site (ODFW, 2023). The distribution of ESA listed fish [in Johnson Creek] likely ends at that location due to the presence of 14 barriers to migration (dams, fords, road culverts) that are documented between 307th Ave. and Cottrell Road. All except one of the barriers are deemed to be partial barriers to upstream migration, so there may be occasions when they are passable to ESA listed fish." Exhibit N.55, page 9; Exhibit W.3a (Richter proposed findings), page 24 ("coho salmon are documented in Johnson Creek within two miles downstream and and steelhead trout distribution is documented within one mile downstream"). However, currently, a "large pond creates a complete barrier immediately upstream of Cottrell Road (between Cottrell Road and the Filtration Facility site)." Exhibit N.55, page 9. That pond is referred to in these findings as "***Cottrell Pond***". Cottrell Pond will be discussed further below related to the proposed removal of Cottrell Pond (and removal of the only complete barrier to upstream migration in Johnson Creek) as part of the Project.

Beaver Creek. "Cutthroat trout are distributed upstream to Lusted Road in all the upper tributaries of Beaver Creek3. The Intertie Site is further upstream, across Lusted Road. ESA listed fish species are considered present 1.42 miles downstream of Lusted Road on the South Fork Beaver Creek and 1.92 miles downstream of Lusted Road on the North Fork Beaver Creek." Exhibit N.55, page 9.

Amphibians. "In addition to fish species known to be present in the Johnson and Beaver Creek watersheds, several amphibian species are present in wetland and riparian habitats near the Filtration Facility, Intertie Site, and along the Pipeline alignments. There are 63 observations of amphibians (including northern red-legged frog, Pacific chorus frog, Oregon slender salamander, Dunn's salamander, northwestern salamander, roughskinned newt, Pacific giant salamander, and western painted turtle)

[38] Cottrell Road is the first public right of way to the west of the Filtration Facility site. *Exhibit R.1, slide 6.*

reported within the upper Johnson Creek and Beaver Creek watersheds based on data collected from iNaturalist (iNaturalist, 2025) and surveys conducted for BES in reaches of Johnson Creek downstream of the Filtration Plant (Adolfson, 2000)." Exhibit N.55, page 9; Exhibit W.3a (Richter proposed findings, page 24 ("The parties also agree that these water bodies are home to a wide variety of amphibians including the northern red-legged frog, roughskinned newt, salamanders and turtles."). "Amphibians rely on healthy, intact riparian areas where they can forage and seek refuge from predators, with many species being dependent on waterbodies to breed. Redlegged frogs are a state sensitive / strategy species in Oregon that use riparian vegetation, moist forests, and woodlands, as well as dense brush and logs during summer months. The project will enhance the existing riparian and upland areas compared to the previous agricultural land use, which directly negatively impacted habitats required by amphibians to survive." Exhibit N.55, page 10; *see also* Exhibit U.20.a., pages 37-38 (noting that the Project will improve conditions for salamanders that may be found in the Project area "by restoring the riparian buffer and reducing sediment and other adverse inputs into aquatic habitats").

Other Species. Biohabitats' primary analysis in Exhibit N.55 specifically looked at fish, which is appropriate given the focus in the 1977 Comprehensive Plan on "Fish Habitat Areas". However, Biohabitats clarified that Exhibit N.55 addresses "protection of waterways for all aquatic species" – even those "likely to be present in the area [that] were not specifically mentioned in Exhibit N.55, including river otters, macroinvertebrates, freshwater mussels, and crayfish" mentioned by other commenters in the record – as other species like those "rely on the same characteristics of water quality and aquatic habitat analyzed in Exhibit N.55." Exhibit S.31, page 2. For any macroinvertebrates or other aquatic species that also may use surrounding riparian areas, like amphibians, Biohabitats notes that "the project does not propose any removal or disturbance of riparian vegetation along Johnson Creek. In fact, there will be substantial improvements that will increase the current riparian buffer width along Johnson Creek, improving conditions for macroinvertebrates and all other aquatic species compared to the pre-development conditions." Exhibit S.31, page 14. "Overall, the project will improve all these sources of impairment (sedimentation, pollutants, temperature, hydrology, etc. [analyzed in detail below]) when compared to pre-development conditions, which will benefit (rather than adversely affect) all aquatic life, including those species not specifically mentioned in Exhibit N.55" and species that rely on the surrounding riparian areas. Exhibit S.31, page 2; *see* Exhibit N.43 (CCPO/PHCA), page 52 (identifying as relevant to amphibians the same categories of sources of impairment "sedimentation, toxic runoff, temperature increases, and increased flashy flows"); Exhibit S.31, page 18 (explaining that "the project will improve water quality and reduce impacts on aquatic habitat compared to pre-development conditions for all aquatic/semi-aquatic species present in Johnson Creek in the area" including frogs). This approach is consistent with the fact that the natural resource to be protected is the "Habitat Areas" – not the species themselves, as I found in Section IV.D.9. This is true whether the standard applied is the 1977 Comp. Plan's list of "natural resources" ("Fish Habitat Areas") or the 2016 MCCP glossary definition ("a stream, wildlife habitat"). Accordingly, focusing on "sources of impairment (sedimentation, pollutants, temperature, hydrology, etc.)" to that habitat is a valid approach under MCC 39.7515(B).

v. Incremental Habitat Degradation

The Courters accuse Biohabitats of "characterize[ing] Johnson Creek as degraded" and "representative of an urban stream" in an effort to "suggest[] that further impacts are acceptable simply because the stream has already experienced disturbance" using the "kind of rationale [that] promotes incremental habitat degradation[.]" Exhibit S.21, page 3. Biohabitats responds, and I find, that "Biohabitats does not

suggest that the headwater segment of Johnson Creek adjacent to the Filtration Facility site is representative of an 'urban stream' nor that further impacts are 'acceptable' because of the current condition of Johnson Creek. In fact, Biohabitats described the headwaters as having their origins in the urban/rural interface of Multnomah and Clackamas Counties. Biohabitats described land uses varying from heavily developed urban uses in the lower and middle reaches of Johnson Creek (e.g., Cities of Portland, Milwaukie, and Gresham) and Beaver Creek (e.g., Cities of Gresham, Fairview, Troutdale) to rural and agricultural use in the upper portions of both watersheds. (N.55 Pg. 3)." Exhibit U.20.a, pages 24-25.

Notably, the Courters do not argue that Johnson Creek is *not* degraded, but simply that it is not "urban." Given the Courters insistence on establishing the pre-construction characteristics of Johnson Creek as critical to the analysis under MCC 39.7515(B), it is confusing that they then object when Biohabitats does just that and accuses Biohabitats of endorsing incremental habitat degradation. To the contrary, Biohabitats' summary of the pre-construction characteristics of Johnson Creek establishes baseline conditions against which Biohabitats shows, as discussed in the next sections, that the "externalities of this project will improve the quality of habitat in Johnson Creek for all aquatic species. By improving the quality of habitat – whether it started from a degraded baseline or not – it cannot be said that the project will adversely affect water quality or aquatic resources in Johnson Creek." Exhibit U.20.a., Page 25.

vi. Pre-Construction Nursery Use's Impact

Ms. Richter proposes findings that: "PWB expert evaluation **assumes** that nursery farming on the facility property was adversely affecting riparian areas" and that "**Without documentation**, the hearings officer lacks any basis from which to conclude that the impacts before construction were any greater than what will result after construction" and that "**Without any evidence to suggest otherwise**, it might be reasonable to assume, given the long-standing farm practices, that the fish, amphibians and micorganisms within the adjacent streams were not impacted by farming practices." Exhibit U.W3a, page 25.

However, Biohabitats did not need to know "exactly where and how" various species are in Johnson Creek to know that "nursery farming on the facility property was adversely affecting riparian areas." *See* Exhibit U.W3a, page 25 ("Compliance with the strict adversely affect standard requires knowing exactly where and how the resources exist."). It is certainly not the case that Biohabitats simply "assume[d]" "without documentation" and "without any evidence" that nursery farming on the Filtration Facility site was adversely affecting aquatic habitats. Instead, Biohabitats consulted with an agricultural expert, Mr. Prenguber, to understand that prior use (*see* Section VI above for the extensive information provided by Mr. Prenguber). Exhibit U.20a, page 20. Additionally, Biohabitats consulted a large number of professional publications in its expert reports. Exhibit N.55, pages 19-20 (15 references cited); Exhibit U.20.a, page 39 (10 references cited). With the exception of the Exhibit U.20.a document from the final open record period, opponents had the opportunity to review those sources and explain in the record if they disagreed with the conclusions Biohabitats' was drawing based on those sources. No opponent did so.

For example, in the statement that Ms. Richter finds objectionable, Exhibit W.3a, page 25 ("seasonal water quality sampling would indicate that surrounding land uses (agricultural) are significant contributors to sediment to Johnson Creek. However, sampling is not needed to know that is true.

(Capel, et al. 2018, Shortle, 2021, USGS 2010." Ex U.20.a. p 22.), Biohabitats provides citations to two U.S. Geological Survey documents (Capel, et al. 2018 and USGS 2010) and a study published by Palgrave Macmillan in Palgrave Studies in Agricultural Economics and Food Policy (Shortle, 2021). Exhibit U.20.a, page 39. Moreover, one of those sources, USGS 2010, is provided in full in the record as Attachment 2 to Exhibit U.20.a.

Overall, it is simply not the case that Biohabitats "assume[d]" "without documentation" and "without any evidence" that nursery farming on the Filtration Facility site was adversely affecting aquatic habitats. I find that it was.

c. Assessment of the Project's Potential for Adverse or Beneficial Effects

At the outset, I find that the approach taken by Biohabitats is an appropriate methodology for assessing the potential for adverse effects to aquatic natural resources and water quality under MCC 39.7515(B). That is not to say that there could not be other appropriate methodologies – the six words of MCC 39.7515(B) do not prescribe any required analysis approach – nor to say conclusively that this methodology could be appropriate for all projects in Multnomah County subject to the standard. However, for this Project and this analysis, I find that the methodology provides substantial evidence on which I can conclude that the Project will not adversely affect aquatic natural resources nor water quality.

i. Aquatic Habitat Avoidance

Also notable is the efforts taken to avoid aquatic habitats in the first place. "PWB has made key design choices to avoid waterways throughout the project area, including boring beneath Beaver Creek at Cottrell Road, staying within the existing public right of way for pipeline alignments to the maximum extent possible, and, where not possible, placing pipeline alignments outside of riparian areas and instead using previously developed farm roads and farm areas." Exhibit N.55, page 6.

"d, the project was carefully designed to avoid crossing Beaver Creek. The Water Bureau prioritized avoidance of Beaver Creek throughout the design development process. During development of the design and evaluation of pipeline alignment alternatives, proposed finished water pipeline alignments and construction methods were modified to avoid impacts to Beaver Creek. Two separate crossings of the North Fork of Beaver Creek were evaluated, one on Lusted Road and one on private land south of Lusted Road. A second pipeline route was evaluated that crossed the Middle Fork of Beaver Creek in Altman Road. The final pipeline design realigned the pathway connecting Dodge Park Boulevard and Lusted Road, avoiding all crossings of Beaver Creek in this area. For most of their lengths, pipeline alignments are located within developed road rights of way. Pipelines buried within existing roads and road shoulders proved an effective way to avoid disturbance to Beaver Creek. As an additional precaution, where the Lusted Road Distribution Main travels within the Cottrell Road right of way and must cross Beaver Creek, the pipe is bored below the Beaver Creek culvert crossing, with no surface disturbance within 100 feet of the creek. Additionally, where the finished water pipeline must connect with an existing conduit adjacent to Beaver Creek, the pipeline connection was adjusted so that it is entirely within the Altman Road and Oxbow Drive rights of way, with no disturbance to Beaver Creek or its riparian vegetation." Exhibit U.20.a, page 2.

ii. Stormwater Management System & Best Management Practices (BMPs) Evaluated by Biohabitats

In evaluating the potential for the Project to have an adverse effect on aquatic natural resources, including "fish habitat areas" and water quality, Biohabitats concluded, no one challenged, and I now find, that the Project stormwater systems are the only Project aspect which has the potential to have an adverse effect on aquatic natural resources. Exhibit N.55, page 10. Accordingly, a general summary of the design of Project stormwater systems is provided first below, followed by an analysis of each of the factors that contribute to water quality and quality of habitat and how that factor will overall be improved (rather than adversely affected) by the Project.

In developing their expert opinion, Biohabitats reviewed, and accordingly I have reviewed, the following "***Project Stormwater Reports***", each of which represents the expert testimony of its authors:

- Exhibit N.58, **Filtration Facility** Stormwater Drainage Report.
  - Authors providing expert testimony: Rafael Gaeta, PE, Emerio Design, Josh Meyer, PE, Emerio Design, Angela Wieland, PE, Brown and Caldwell, Erik Megow, PE, Stantec
- Exhibit N.59, Stormwater **Flow Spreader** and Vegetated Slope.
  - Authors providing expert testimony: Mark Graham, PE, Stantec, Rafael Gaeta, PE, Emerio Design, Jason Hirst, LA, NNA Landscape Architecture
- Exhibit A.75, the **Finished Water Intertie** Stormwater Drainage Report.
  - Authors providing expert testimony: Pat Tortora, PE, Emerio Design, Rafael Gaeta, Emerio Design.[39]
- Exhibit A.77, the **Pipelines** Project Stormwater Report.
  - Authors providing expert testimony: Pat Tortora, PE, Emerio Design, Rafael Gaeta, Emerio Design.[40]

"Note that the Exhibit A.75 Finished Water Intertie Site Stormwater Drainage Report and Exhibit A.77 Pipelines Stormwater Management Report are each marked as a 60% design for review purposes. However, the authors of those reports[,] confirmed to Biohabitats that the design has not changed between 60% and 100% design. Additionally, the conclusions in Exhibits A.75 and A.77 were verified based on higher rainfall levels than assumed in the PAC Tool." Exhibit S.31, page 7n1.

"Stormwater management for the [**Filtration] Facility site** will meet or exceed all applicable stormwater design requirements, which are found in Multnomah County Code (MCC), the Multnomah County Design and Construction Manual (MCDCM), the City of Portland's Stormwater Management Manual (SWMM), and the City of Portland 2020 Sewer and Drainage Facilities Design Manual (SDFDM), including those for water quality treatment, flow control, and conveyance capacity. The proposed stormwater system also includes capacity to manage future changes in rainfall due to climate change, as discussed in Attachment L." Exhibit N.58, page 29.

[39] *See* Exhibit A.198 showing that Mr. Gaeta certified the stormwater system design details and calculations.

[40] *See* Exhibit A.199 showing that Mr. Gaeta certified the stormwater system design details and calculations.

The **Intertie** stormwater system uses a "lined basin with underdrain to achieve both water quality and treatment flow control requirements." Exhibit A.75, page 11. The standard achieved includes removal of 70% of Total Suspended Solids ("***TSS***") for the water quality design storm. Exhibit A.75, page 11. "The basin is designed to filter the site's runoff through a bioengineered soil mix and gravel media, which is then collected by an underdrain and routed to a flow control structure. The flow control structure has an orifice at the outlet structure to regulate the amount of stormwater released to ensure that the water quality storm is detained and treated." Exhibit A.75, page 11. The basin also serves as a pollution reduction facility, providing water quality treatment through biofiltration media. Exhibit A.75, pages 11-12. Temperature of water from the Intertie site is cooled down by hyporheic process of discharging through the subsurface media and released via an underdrain. Exhibit A.75, page 12.

The **Pipelines** stormwater system will provide both stormwater quality treatment and flow control using dispersion through native vegetation and enhancement of the roadside shoulders with seeded vegetation and amended soils – a system known as Filter Strips. Exhibit A.77, page 13. Filter Strips are a preferred BMP for providing stormwater quality treatment through biofiltration and hydrologic attenuation through vegetated flow paths. Exhibit A.77, pages 13-14.

Biohabitats reached their expert conclusions "after reviewing the Project Stormwater Reports and after receiving extensive responses to [their] questions posed to stormwater and project designers." Exhibit N.55, page 10.

Neither the Courters nor any other opponent has purported to be an expert in stormwater management, as explained above. This is perhaps most clear in the Courters' complaint that there are "no quantitative modeling, no flow estimates, and no sediment loading analysis to support" Biohabitats' analysis of the stormwater system's potential to adversely affect water quality. Exhibit S.21, page 6. To the contrary, "In Exhibit N.58, and hundreds of pages of attachments, quantitative modeling to inform the design of treatment, detention, and conveyance stormwater facilities is provided. These quantitative models include calculated estimates of flows used to design and analyze each proposed facility (each pond, for example). Sizing and design of stormwater treatment facilities in accordance with the MCDCM and Portland SWMM meets water quality performance standards addressing pollutants of concern, including Total Suspended Solids (TSS), which addresses [the Courter's] concern about 'sediment loading'. For TSS specifically, the estimated percent reduction of TSS by facility type used in the stormwater management system is provided in Table 3, page 6, Exhibit N.58." Exhibit U.20.h, page 9.

The extensive expert analysis in the Project Stormwater Reports (which were unchallenged by any opposing expert testimony) provide a reasonable basis to conclude that it is feasible for the applicant to provide stormwater management systems that will function as designed. I find this notwithstanding issues – described further in Section X.A.3 below – that have occurred with the construction stormwater management system, particularly as that construction stormwater management system was not implemented using the Project Stormwater Reports' design, but instead was modified in material ways that caused the construction issues. That is, the construction flow spreader is "a temporary version of the flow spreader [that] was installed by the contractor for construction activity" and does not reflect the final design of the flow spreader in Exhibit N.59. Exhibit U.20.h, page 9. Moreover, as explained immediately below related to BMPs, these are not mere unenforceable promises. I am imposing a modified version of Staff's proposed condition of approval that will specifically require that the stormwater systems implemented by the Project are as designed in the Project Stormwater Reports. If they do not, that will be a matter for code compliance.

(1) Best Management Practices (BMPs)

The Courters dismiss the 700+ pages of analysis and data provided by the stormwater experts in the Project Stormwater Reports as mere "unenforceable promises" and "reli[ance] on proposed BMPs … as 'guarantees' against environmental harm[.]" Exhibit S.21, page 5. However, as explained by the applicant's stormwater experts in Exhibit U.20.h, pages 6-7, the Best Management Practices (BMPs) "integrated into the project's stormwater systems' designs are based on proven, effective techniques, incorporating scientific research, industry standards, and practical experience." *See also* Exhibit U.20.a., page 30. The applicant's stormwater experts note that it is unclear why the Courters call BMPs "unverified," as their "use is enforced by local and state regulators and [they] are based on the best available science to prevent adverse effects on natural resources. In this way, the BMPs serve as an appropriate objective measure to ensure protection of natural resources around the project. Moreover, stormwater BMPs have been applied at the Filtration Facility with additional, voluntary consideration for the local conditions, including an analysis of local storm volumes, slope conditions, and soil types." Exhibit U.20.h, page 6.

Moreover, "BMPs are not promises, they are proven practices that provide well documented water quality treatment benefits when designed, operated and maintained as required by state-of-the-practice design criteria such as that specified in the City of Portland Stormwater Management Manual and the Multnomah County Design and Construction Manual to which the project's stormwater system was designed. When these criteria are adhered to, specific water quality performance outcomes have been consistently documented in the literature." Exhibit U.20.a., page 30. Finally, the system is not just copy/pasting BMPs from "general stormwater manuals" onto the site (Courters, Exhibit S.23, page 2). Instead, the system designed to address the unique characteristics of the Filtration Facility and Filtration Facility site by applying BMPs and other field-proven engineering principles. Exhibit U.20.h, page 10.

Rather than "unenforceable promises", a condition of approval from the 2023 HO Decision requires that "no work shall occur under this permit other than that which is specified within" the written narratives and plans in the record. 2023 HO Decision, page 73. This condition of approval ensures that, if the Water Bureau did not keep their "promises" to build the stormwater system designed to address the unique characteristics of the Filtration Facility and Filtration Facility site, it would, indeed be enforceable through a County code violation process. *See* Exhibit W.1, page 5 (staff describing Enforcement Code and process).

> ***4. Approval of this land use permit is based on the submitted written narrative(s) and plan(s). No work shall occur under this permit other than that which is specified within these documents. It shall be the responsibility of the property owner(s) to comply with these documents and the limitations of approval described herein. [MCC 39.1170(B)]***

An additional, more specific to the stormwater system, proposed condition of approval is provided below.

The Courters are also concerned that the stormwater BMPs will "fail in the field under winter storm conditions[.]" Exhibit S.21, page 5. "To the contrary, the stormwater management systems have been designed for storms up to and including the 25-year, 24-hour design storm event, and have been further designed to consider the 50- and 100- year storms. As shown in Tables 4 and 5 of Exhibit N.58

Attachment L (Climate Change Considerations in Design of Stormwater Management System), the 'Filtration Facility detention ponds will continue to function and maintain freeboard during the 50- and 100-year design storm events[.]]' Therefore, the filtration facility stormwater system will not fail under even the most extreme (100-year) winter storm conditions." Exhibit U.20.h, page 7.

Finally, the Courters are concerned that the stormwater BMPs will fail because of "steep slopes, and clay-heavy soils." Exhibit S.21, page 5. However, these "factors are addressed in the design of the specific stormwater management systems for the project. First, the stormwater conveyance and treatment systems are designed to prevent concentrated flows down slopes[.]" Exhibit U.20.h, page 7. The "only steep slope that will interact with the stormwater system is the area below the flow spreader" which is specifically designed, as explained in Exhibit N.59, to provide "energy dissipation and evenly distributes flows … without creating erosion or scour (evidence by gullies or rills) or mobilizing sediment." Exhibit N.59, Page 2. The flow spreader is an "appropriate facility for use on this slope, as evidenced by the fact that the slope is approximately 12%, well below the SWMM standard of a gradient of 20% or less." Exhibit U.20.h, page 7 (citing Exhibit N.59, page 4). "Second, due to the limited measured infiltration at the Facility site (the commenter's concerns about the type of soils appears to be about limited infiltration potential), the proposed system does not rely on the use of infiltration for stormwater management. Instead, stormwater treatment and detention facilities, as well as offsite conveyance, are used in conformance with the MCDCM and Portland SWMM. (See Exhibit N.58, Section 1.6.1, for a discussion of infiltration and Section 2.2 for a discussion of soil types.)" Exhibit U.20.h, page 7.

As Biohabitats explains, and I find, particularly when "compared to the nursery pre-development condition where no BMPs existed, the BMPs will provide better water quality treatment and protection" as evidenced in the Project Stormwater Reports. Exhibit U.20.a., page 30.

(2) Extensive Stormwater Infrastructure

The Courters state that the Project will have "no stormwater infrastructure, nor County plan for stormwater conveyance." Exhibit S.21, page 6. As evidenced by the extensive discussion of stormwater systems in these findings, it is inaccurate to say that there is "no stormwater infrastructure" proposed to serve the project. In fact, the stormwater infrastructure for the Project is extensive, including systems that collect and convey stormwater, treat stormwater, detain stormwater, and discharge stormwater off site at rates and locations consistent with pre-development conditions. The Courters here "may be implying that project stormwater needs to be discharged only to a public stormwater main (a 'County plan') for the project to be built. This is not the case. First, discharging to an overland flow path and maintaining existing drainage patterns, particularly for linear construction, is allowable and preferred by the governing stormwater design standards, provided that adequate outfall protection and energy dissipation and/or erosion control are used. This project has proposed these measures at each point of discharge according to the relevant stormwater design standards and site-specific needs, coordinating with Multnomah County in the development of Facility and off-site stormwater management systems." Exhibit U.20.h, page 8.

Instead, it is the pre-construction use of the site that had "no stormwater infrastructure[.]" As detailed above in Section VI, the pre-construction discharge of stormwater from the Filtration Facility site was

wholly uncontrolled, often running over and through bare, tilled earth to Johnson Creek without the benefit of any flow control or water quality treatment.

(3) Biohabitats Independent Assessment

Notably, Biohabitats did not simply "rely" on "third-party" designs of the stormwater system as stated by the Courters in Exhibit S.21, page 3. Instead, "the Biohabitats team performing the evaluation included Ted Brown, an expert in stormwater design and performance of best management practices for stormwater systems. Mr. Brown conducted many hours of review of the project stormwater proposal, including many meetings with project stormwater system designers, challenged project stormwater designers' assumptions, and provided input on improved designs that were incorporated into the final design in Exhibits N.58 and N.59. Biohabitats did not simply 'rely' on the project stormwater designers 'intentions' – but instead **Biohabitats provided an outside, third-party review**, was an active participant in the design process, and helped shape the proposed stormwater system and project more generally to ensure that the project will not adversely affect aquatic natural resources." Exhibit U.20.a, page 24.

Notably, no other party in this proceeding has claimed to, or is evidenced to, be qualified by education or experience to provide an expert opinion on the engineering, design, or function of the Project's stormwater management systems.

iii. Sedimentation

At the **Filtration Facility** site, the "stormwater system (detailed in Exhibit N.58) will reduce the potential for sediment transport and discharge compared to the predevelopment agricultural conditions (which included periods of exposed, cultivated soils) by using vegetated stormwater management facilities (i.e., BMPs) approved in the Portland Stormwater Management Manual (Portland SWMM) implemented specifically for sediment removal (refer to Exhibit N.58, Table 3). In addition, proposed vegetated areas at the Filtration Facility will be restored using permanent native grassland seeding with trees and understory plants appropriate for the surrounding context and for habitat restoration. The extensive re-vegetation of the site will dramatically reduce sediment runoff. See N.60 (Filtration Facility Site & Lighting Drawings), 00-LU-306 Landscape Plan." Exhibit U.20.h, page 5.

Moreover, at the Filtration Facility site, "post-construction site conditions will convert approximately 14[41] acres of the total 95-acre site to impervious surface. In addition, approximately 33 acres of cropland will be restored to native meadow, grassland, or Oak woodland." Exhibit N.55, page 10. "Compared to the prior agricultural conditions of the site, this will decrease sediment loading from the site (CBP, 2018; Stuntebeck et al., 2011)." Exhibit N.55, page 11. Additionally, stormwater BMPs at the Filtration Facility site use a treatment train approach (meaning that runoff is treated and managed through multiple BMPs), including an ecoroof, vegetated swales, filter strips, bioretention facilities, and stormwater planters. These BMPs are Portland SWMM approved facilities to meet water quality performance standards (including reduction of sedimentation) and "Table 3 of the Filtration Facility Stormwater Drainage Report shows collective reduction in sediment loading by upwards of 70%.

[41] The Courters in Exhibit U.15 state the Filtration Facility will include "approximately 40 acres of impervious surface[.]" Exhibit U.15, page 5. This is incorrect.

Additionally, for storm events greater than the water quality design storm, the proposed detention ponds will provide further treatment by allowing sediment to settle out during the time water is detained in these facilities." Exhibit N.55, page 11.

Exhibit N.59 (Stormwater Flow Spreader and Vegetative Slope) explains how the stormwater conveyance and treatment systems are designed to prevent concentrated flows down slopes. As concluded on page 6 of Exhibit N.59, "the proposed flow spreader and vegetated slope are conservatively designed, exceeding design criteria in the SWMM for similar facilities. The design achieves even flow distribution across the vegetated slope and limits maximum flow velocity to a maximum of 1.3 ft/s (less than half the SWMM criteria), providing energy dissipation and preventing erosion problems and sediment transport off the [Filtration Facility] site or into Johnson Creek."

It is unclear why Ms. Richter (representing the CCPO) states that "[r]etention and filtration of stormwater will not remove the fine sediment inputs in Johnson Creek that are created by operation of the new asphalt and concrete surfaces." Exhibit N.69, page 6. The stormwater system will indeed remove fine sediment. "Fine sediment is a component of total suspended solids (TSS). The project stormwater system, as described in Exhibit N.58 Filtration Facility Site Stormwater Drainage Report, will address water quality concerns (including fine sediment) from impervious surfaces including asphalt and concrete surfaces." Exhibit S.29, page 11.

The **Intertie** site stormwater management system includes grassy swales and bioretention and uses a treatment train approach (meaning that runoff is treated and managed through multiple BMPs) to provide both water quality and water quantity treatment. Exhibit N.55, page 11. "Sediment loads from the 0.57-acre site will be reduced compared to the predevelopment (agricultural land) condition loads because of the proposed postdevelopment stormwater treatment system." Exhibit N.55, page 11. After reviewing the proposed stormwater system, Biohabitats concluded that the system "will significantly reduce the amount of fine sediment contributed to … Beaver Creek[] compared to the previous agricultural land uses." Exhibit N.55, page 6. Further, after implementation of stormwater management designs including management of runoff through multiple BMPs, the "result is stormwater traveling to … Beaver Creek in a manner that contributes significantly less sediment loading to the receiving waters compared to the pre-development agricultural land use. Therefore, the project will not adversely affect, and will instead positively affect, sediment loading of aquatic habitats in the area." Exhibit N.55, page 11.

The **Pipelines** will "have no post-development changes compared to pre-development conditions with respect to water quality and water quantity." Exhibit N.55, page 11.

The commenter in Exhibit N.10 (Meacham) expressed concerns that the improvement of the farm road between Dodge Park Blvd. and Lusted Road – where the Finished Water Pipelines will be placed underground -- would lead to additional sedimentation ("muddy water") and suggests other unspecified negative effects. Exhibit N.10, page 2; Exhibit S.5, page 1. However, this is not a new road, but instead an "improvement over the previous farm road in this same location that did not have stormwater BMPs in place to reduce impacts to fish, wildlife, and their habitats. See Exhibit A.77. To meet the stormwater requirements for both stormwater quality treatment and flow control along the pipeline alignment, the project proposes to use dispersion through native vegetation and enhancement of the existing county right of way and the gravel road across agricultural land between Dodge Park Blvd. and Lusted Road with seeded vegetation and amended soils, referred to as filter strips. Filter strips are a common and

preferred BMP for ODOT for stormwater quality treatment and flow attenuation, providing filtration and infiltration along vegetated flow paths. See Exhibit A.77 for additional information about the pipelines stormwater system." Exhibit S.31, page 7. Mr. Meacham provided testimony that the position of the road does not "avoid the headwaters of the North Fork of Beaver Creek". Exhibit S.5, page 1. This was responded to by Biohabitats at Exhibit U.20.a, pages 3-4. Most importantly, "Beaver Creek does not extend to the improved road area" as "any flow of water here has been buried by the commercial nursery use of the land" and "the proposed improved farm road does not cross the "swale" the commenter identifies, but instead turns to the west and follows the southern property line before turning south on another farm road and connecting to Dodge Park Blvd." Exhibit U.20.a, page 3. "Overall, the improved road will not adversely affect natural resources." Exhibit S.31, page 7. Note also that "[p]rior to construction, in the same alignment along the edge of the farm field, there was an existing impermeable farm road that had been in use for quite some time. Therefore, this is not a 'new impermeable road' being installed for the project." Exhibit S.30, page 2.

"The **Lusted Road Distribution Main (LRDM)** will be within the developed area of the right-of-way of SE Cottrell Road and cross under Beaver Creek below the culvert that conveys the creek, just downstream of Cottrell near the intersection of Dodge Park and Cottrell Road. Although the selected low impact design alignment passes through the SEC-WR zone where the zone encompasses the Cottrell Road right-of-way, neither the creek itself nor any of the vegetated corridor will be disturbed. Accordingly, there is no risk associated with the LRDM of introducing sediment laden water into Beaver Creek that would lead to adverse impacts to aquatic species in the creek and associated riparian area." Exhibit N.55, page 11.

Additionally, "[r]iparian and upland revegetation actions along with implementation of stormwater BMPs in and around the Filtration Facility, Pipeline alignments, and Intertie will significantly reduce the amount of fine sediment contributed to Johnson and Beaver Creeks [and other area aquatic habitats, such as the Sandy River] compared to the previous agricultural land uses." Exhibit N.55, page 6; Exhibit S.31, pages 5-6 (other aquatic habitats).

Overall, the above described "design choices will reduce the potential for sediment being introduced to area streams that would lead to adverse impacts to aquatic resources." Exhibit N.55, page 7. The overall "result is stormwater traveling to Johnson Creek and Beaver Creek in a manner that contributes significantly less sediment loading to the receiving waters compared to the pre-development agricultural land use" at the Intertie and Filtration Facility sites. Exhibit N.55, page 11.

Therefore, Biohabitats concludes, and I find, that the Project "will not adversely affect, and will instead positively affect, sediment loading of aquatic habitats in the area." Exhibit N.55, page 11.

iv. "Pollutants of Concern"

"Similar to sedimentation, the project stormwater treatment practices will result in lower pollutant loading rates in area aquatic habitats compared to the pre-development agricultural land use." Exhibit N.55, page 12.

The "***Pollutants of Concern***" for Biohabitats' analysis appropriately looked at any TMDL or DEQ 303(d) parameters for Johnson Creek and for the Sandy River (where Beaver Creek ultimately flows). *See* Exhibit N.58, page 5, Section 1.6.2. As required by the performance standards for stormwater treatment

in Table 1-2 of the Portland SWMM, the Project stormwater systems use of a pollution reduction facilities that will reduce these Pollutants of Concern compared to the pre-construction use. Exhibit N.58, page 5 (Filtration Facility); Exhibit A.75, page 11 (Intertie); Exhibit A.77, pages 13-14 (Pipelines – using filter strips and applying ODOT standard requiring better quality after the project, rather than Portland SWMM).

Some of the Pollutants of Concern are legacy **pesticides** found in the Project area, including DDT, DDD, DDE, and Dieldrin. Exhibit N.58, page 5. As detailed above in Section VI, "the prior nursery crop production at the Filtration Facility and Intertie sites required the application of pesticides, resulting in runoff with pesticide loading into area aquatic habitats. In contrast, PWB has committed[42] to not applying pesticides or herbicides to any vegetation of the project. Additionally, the project includes removal and beneficial reuse of soils that were contaminated by agricultural use of pesticides, under guidance and permitting from ODEQ. The removal of contaminated soils, in combination with the commitment to not applying any new pesticides or herbicides to project areas, will result in a dramatic reduction in pesticide loading rates traveling from project areas into area aquatic habitats." Exhibit N.55, page 12.

Ms. Richter argues that Biohabitat's analysis on this topic amounts to "[s]imply stating the pesticides were polluting the streams to a greater degree than will occur with stormwater treatment, without any testing" and that "is a conclusion, not substantial evidence." Ms. Richter's assertion is that pre-construction water testing (weekly, for years) is the *only* evidence that could be substantial evidence. However, that argument ignores the extensive stormwater engineering reports that conclude – in compliance with SWMM standards – that the Project stormwater systems include pollution reduction facilities that will reduce pesticides, as well as other pollutants. As this is precisely the performance standard that must be met under applicable stormwater standards, and as there are no stormwater system design experts who have testified to challenge the conclusions of the Project Stormwater Reports, it is inaccurate to say that Biohabitats "[s]imply state[s]" a bald "conclusion" that there will be a reduction in pollutant loading leaving the Project sites.

Another Pollutant of Concern is **bacteria**. Exhibit N.58, page 5. The Project "will result in reduced bacteria loading compared to the pre-development agricultural condition. The Johnson and Beaver Creek impairments for bacteria are primarily attributed to livestock, wildlife, and/or failing septic systems in the watershed. The proposed site conditions at the Filtration Facility, Intertie, and pipeline alignments do not create any added sources of bacteria loading compared to existing conditions. Additionally, the stormwater BMPs on site will treat bacteria loads. A new state of the practice septic system will be installed within Basin A of the Filtration Facility site, and the Intertie site and pipeline alignments do not have any restrooms or other sources of septic effluent." Exhibit N.55, pages 12-13.

[42] "PWB also proposed this commitment as a condition of approval, which was incorporated by the former Hearings Officer into the prior Final Order as a condition of approval on page 84." Exhibit N.55, page 12n5.

v. Other Pollutants

Although the focus of the stormwater systems – and Portland SWMM and other regulations used to design those stormwater systems – is on Pollutants of Concern, the "vegetated stormwater management facilities utilize sedimentation and filtration as the primary unit treatment processes" and these processes will remove both Pollutants of Concern and other pollutants. Exhibit N.58, page 5. "The treatment capability of the BMPs of the project stormwater systems are estimated to result in a pollutant load reduction of at least 40% more from the site area being treated by the BMPs" which will "result in lower pollutant loading rates in area aquatic habitats compared to the pre-development agricultural land use." Exhibit N.55, page 12.

One non-Pollutant of Concern Biohabitats specifically looked at is excess **nutrients** (e.g., total phosphorus and total nitrogen), which can contribute to impaired water quality. Exhibit N.55, page 12. "Like sediment, compared to the prior agricultural conditions of the site, nutrient loading from developed land is anticipated to be less[.]" Exhibit N.55, page 12. "As noted above, on the eastern portion of the Filtration Facility site, about 29 acres of cropland will be restored to a native meadow and oak woodland, which will produce significantly lower nutrient loading compared to the prior cropland use[.]" Exhibit N.55, page 12. "At the Intertie site, the conversion of 0.31 acres of cropland to impervious surface will result in a net reduction in nutrient and other pollutant loading based on land cover change. Additionally, the stormwater BMPs on site (swales and bioretention) will provide additional load reductions of at least 40%. The proposed pipelines will create temporary disturbances during construction but will have no post-construction changes compared to existing conditions with respect to water quality." Exhibit N.55, page 12.

Commenters broadly raise concerns that runoff from "**impervious surfaces**" will carry various pollutants, such as "oils, metals and chemical residues" and "degrade[] water quality, diminishing the ability of streams and wetlands to support fish and invertebrates." Exhibit S.10 (Swinford), page 2. This is not the case. The Filtration Facility and other Project stormwater systems will treat runoff from impervious surfaces before discharge. "[I]mpervious surface areas at the Filtration Facility drain to onsite vegetated stormwater quality treatment facilities, including planters, basins, grassy swales, filter strips, and an ecoroof, all designed to meet the Portland SWMM requirements and remove pollutants of concern. These BMPs use a combination of unit removal processes including sedimentation, filtration, sorption, infiltration, and biologic uptake to specifically address potential water quality impacts from impervious surfaces (including any 'oils, metals, and chemical residues') prior to discharge at the Points of Discharge described in Exhibit N.58." Exhibit U.20.h, page 3.

One commenter expressed concerns about **microplastics** being shed by trucks associated with the Project. Exhibit S.2 (Shapiro), page 1. "Microplastics are, unfortunately, abundant in the aquatic environment and there is no reason to believe that Johnson Creek, Beaver Creek, or any other area waterway is an exception." Exhibit U.20.a, page 2. "[E]ven the most isolated areas in the United States—national parks and national wilderness areas—accumulate microplastic particles after they are transported there by wind and rain." Exhibit U.20.a, page 2. "[U]rban centers and resuspension from soils or water were shown to be the principal sources for wet-deposited plastics. By contrast, plastics deposited under dry conditions were smaller in size, and the rates of deposition were related to indices that suggest longer-range or global transport." Exhibit U.20.a, page 2. "Operations at the Filtration Facility that could contribute to microplastics in the environment are the transport of materials used in the treatment process to and from the site as well as staff commutes to operate the facility. However,

the proposed level of increase in vehicle trips (particularly when taking into consideration the predevelopment agricultural use of the land[43]) will have a negligible impact on the quantity of microplastics in area waterways, and a negligible corresponding increase in risk associated with microplastics contributing to degradation of aquatic habitat. It is the cumulative effect of millions and millions of vehicles – and other sources of microplastics carried globally and deposited on waterways – that have the potential to degrade aquatic habitats." Exhibit U.20.a, page 2.

Moreover, to the extent the microplastics concern is related to on-site trips, the stormwater system will address them in the same manner as other pollutants. As explained by the applicant's stormwater experts, the stormwater system uses "plant and soil media to treat stormwater using a combination of unit removal processes including sedimentation, filtration, sorption, infiltration, and biologic uptake" all of which are commonly classified as "bioretention" facilities. Exhibit U.20.h, page 1. Studies indicate that microplastics are removed from stormwater runoff by stormwater systems using bioretention facilities consistent with those proposed at the Filtration Facility site, with removal being correlated with TSS removal. Exhibit U.20.h, page 2. "Thus, microplastics in stormwater runoff are anticipated to be removed using bioretention facilities as proposed at the Filtration Facility site." Exhibit U.20.h, page 2.

The potential pollutant of pre-existing contaminated soils at Project sites is addressed below in Section VII.C.3.

Overall, the stormwater systems for the Project will significantly reduce pollutants, including Pollutants of Concern, nutrients, microplastics, and other pollutants, in area aquatic habitats. Accordingly, the Project "will not adversely affect, and will instead positively affect, pollutant loading to aquatic habitat in the area." Exhibit N.55, page 13.

vi. "Contamination" From Filtration Facility Chemical Use

Commenters expressed concerns that the filtration facility's use of chemicals puts area aquatic habitats "in danger of being contaminated by the water filtration plant." Exhibit N.33, page 1. As explained below in Section IX.D, I find, as did the previous Hearings Officer under the "hazardous conditions" approval criterion, that the Water Bureau will safely handle chemicals at the Filtration Facility. Overall, Biohabitats concludes, and I find, that "chemical use in the filtration facility will not adversely affect aquatic natural resources." Exhibit U.20.a, page 7.

Related to the topic of concerns about contamination from water treatment chemicals at the Filtration Facility, there is confusion from some commenters about the function of the overflow basins. *See, e.g.*, Exhibit N.33, page 1 (Courter) ("The filtration plant will always need to pump water out of the facility in order to prevent their overflow ponds from actually overflowing."). This is inaccurate. The Filtration Facility will be "operated as a zero liquid discharge facility, meaning that no process water (be it untreated Bull Run water or finished water after processing) will be discharged to Johnson Creek. Overflow basins are on site to contain process water when operational conditions warrant diversion from the main treatment process. Water sent to the overflow basins is then processed back through the

[43] "The pre-development agricultural use of the land included use of tractors and other rubber-tired farm equipment that contributed microplastics and other contaminants that directly impacted aquatic habitat in Johnson Creek." Exhibit U.20.a, page 2n2.

facility." Exhibit U.20.a, page 7. "Stormwater that falls into the Area 90 overflow basins can be pumped to Pond C (one of the six dry detention ponds), but if the stormwater is comingled with any process water it will be returned to the head of the facility. Further description of the overflow basin functions can be found in the separately prepared technical memorandum titled 'Overflow Basin Overview TM' in the land use record Exhibit I.60. Both basins include underdrain systems, described in Section 3.3[.]" Exhibit N.58 (Filtration Facility Stormwater Report), page 16.

vii. Pipelines Specific Concerns

Commenters expressed concerns about the effects that the Finished Water Pipelines "down Dodge Park Blvd will have on springs that feed into Beaver Creek." Exhibit N.15, page 1. While this comment ultimately appears to be about "pipeline construction", PWB has provided information about how the presence of the operating Pipelines underground – in the area of Dodge Park and in other areas – will not adversely affect groundwater resources that may feed area springs that feed into area aquatic habitats. Exhibit S.30, page 12, "explains that, in part because groundwater is found only below the bottom of the excavated depth of the pipeline installation, the pipeline … operation will not change groundwater flows or reduce the flow from existing springs into Beaver Creek" and therefore, Biohabitats concludes, and I find, there will be no "long term impact that could adversely affect natural resources in the area" from the presence of the operating Pipelines underground in areas near aquatic habitats. Exhibit S.31, page 9. The permanent installation of the Pipelines will also include an important design feature of "the intermittent placement of trench cutoffs that will stop water flowing along the low permeability zones of backfill of the pipeline and interrupt flow of water along the pipeline. The trench dams prevent the pipeline from acting as a 'French drain' that could otherwise alter a shallow groundwater regime." Exhibit S.30, page 14.

Another aspect of the pipelines that concerns commenters are "drains" that they "assume[] are utilized when pipelines must be emptied for the purpose of repair or maintenance activities" and are concerned would "cause localized ponding, erosion or run-off into local drainage swales and protected watercourses." Exhibit N.48, page 19. PWB explained that it "has been operating the conduit systems that convey Bull Run water to Portland for over a century, including all of the associated drainage blow-offs, which are the same as [the "drains" this commenter is discussing that] will be associated with the new pipelines. All drinking water systems have a periodic need to drain the pipes and there are well-established best management practices (BMPs) in place across the utility sector for conducting this activity safely and without adverse impacts on the surrounding environment. For example, Portland Water Bureau implements the appropriate BMPs by dechlorinating previously treated drinking water when it must be released and controlling flow rates using valves and energy dissipation BMPs such as rip rap to prevent water quality, erosional, or other impacts to the environment. The new pipeline segments associated with the filtration facility will be operated and maintained using the same established BMPs." Exhibit S.30, page 25. Biohabitats reviewed Exhibit S.30, and concluded, and I find, that "[c]onsidering, in particular, the BMPs in place for conducting standard draining of pipes in drinking water systems, the pipeline drains will not adversely affect aquatic habitat or water quality in the project area." Exhibit S.31, page 16.

viii. Filtration Facility Groundwater Seepage or Depletion

Commenters express concerns that the collection of groundwater in underdrains could have an adverse effect on aquatic natural resources in Johnson Creek by either creating an "artificially elevated flow volume" – see Exhibit S.14 ("dewatering activity is not temporary. It is expected to continue … possibly into operations") – or by "groundwater depletion" which will "lower the water table"[44] and "lead to a decline in water quality and quantity to the area" aquatic habitats and springs. Exhibit S.15, page 1.

The only interaction the operating Filtration Facility will have with groundwater at the site will be the operation of the underdrain systems, which will only interact with the "perched" groundwater at the site, and not the deeper Springwater Formation aquifer that is about 50-ft below the ground surface, nor the even deeper Troutdale Formation aquifer from which area wells source water. Each of these geologic areas is described in more detail above in Section VII.B.2.b.

A description of the underdrain system is provided in Exhibit U.20.g, pages 2-3:

> "After the completion of the facility, seasonally variable amounts of groundwater seepage will be collected by an underdrain system beneath the below-grade structures of the process basins, the clearwell, and the overflow basins. When groundwater seepage is high enough that water pressure builds up below the structure foundations, the underdrain system will allow the water to flow away from under the foundation to the stormwater system, relieving uplift pressure on the slab and preventing structural damage during periods of extended wet weather. In this case, seepage beneath the process basins and clearwell will drain to a pump station, where it will be pumped to a stormwater pond at the ground surface, and then discharged to Point of Discharge #1. Seepage beneath the overflow basins will flow by gravity to the flow spreader at Point of Discharge #2."
>
> "The subgrade beneath foundations of below grade structures was not disturbed after the required excavation was achieved [during construction prior to this remand]. Drain rock was placed on the undisturbed native soils, and then drain piping was placed above the drain rock and covered with additional drain rock. When groundwater seepage into the zone below the structures is relatively low, the groundwater stays in the subgrade soil below the structure. It is only during periods of extended wet weather that the seepage will create uplift pressure to be relieved through the underdrain systems."
>
> "The groundwater seepage that passively collects in the structural underdrain systems will not adversely affect the local aquifers, habitat areas, seeps and springs, or Johnson Creek because precipitation will continue to infiltrate across the site and beneath the structures. Only when pressure builds up beneath the structures do the underdrains function to protect the structures. At other times, the water around the structures will naturally infiltrate into the groundwater system through the foundations' drain rock and native soils."

[44] A "point of clarification is that there is no 'water table' associated with the perched water that will be passively re-routed by the underdrain system. A 'water table' is the elevation at which water in an unconfined aquifer is in equilibrium with atmospheric pressure. The elevation of the perched water is dependent on the distribution of unconsolidated geologic material and is not considered an aquifer." Exhibit U.20.g, page 14.

Importantly, the underdrain system will not include any active dewatering processes. The only groundwater that will be collected is through passive seepage into the underdrain systems, as explained more extensively elsewhere in this decision. "Pumping" of water implies active dewatering, where water is pulled or sucked out of the ground in the manner of a domestic well. This is not the case. The only pumping that will occur is after the groundwater seepage has moved via gravity flow from the underdrains into a low collection point, where a pump exists. The water is then pumped from the low collection point to the higher elevation stormwater management system at the ground surface. Exhibit U.20.g, page 11.

Notably, this will not create a "water quality" issue as the commenter in Exhibit S.15 is concerned about. Groundwater at the Filtration Facility site was tested to evaluate the potential for pesticide contaminants of concern to be present in water discharged from the underdrains of the project buildings. Exhibit S.29, page 2. None of the contaminants of concern were detected in the testing. Exhibit S.29, page 2. Moreover, any water collected in the underdrains will pass through the stormwater management system before discharge. Finally, any "springs in the area would be fed by Springwater Formation groundwater sources that rise and fall seasonally in this manner. Dewatering that is necessary for construction of the project will mimic the regular fall of water levels and will not have any impact on water quality when those groundwater sources refill from precipitation." Exhibit U.20.g, page 14. This will be even more true for the operating project's underdrain system, which will have only a negligible effect on groundwater availability. Overall, the applicant's groundwater experts conclude, and I find, that the Project "will not cause a 'decline in water quality' in area springs or wells." Exhibit U.20.g, page 14.

Nor will the underdrain system "lower the water table" and "lead to a decline in water … quantity to" Johnson Creek as expressed in Exhibit S.15, page 1. The amount of water that will accumulate in the underdrains will vary by season. Even in wet seasons, the "amount of groundwater seepage that will be collected by the underdrain system … will have a negligible effect on groundwater availability" for natural resource purposes, such as springs and Johnson Creek, and during dry seasons, the groundwater is anticipated to not collect in the underdrains at all, and instead "naturally infiltrate into the groundwater system through the foundations' gravels." Exhibit U.20.g, page 14. There is no risk of adverse effects on natural resources from the Project creating a water quantity issue.

Moreover, "the major source of groundwater that supplies Johnson Creek through seeps and springs is the deeper aquifer that is about 50-ft below the ground surface. This deeper aquifer was not and will not be impacted or pumped in association with [Filtration Facility] operation (as it is well below the perched groundwater areas). The perched groundwater will be recharged quickly [after construction dewatering is completed] (over a few wet months as explained in [Exhibit U.20.g, page 6]), and, regardless, the perched groundwater contributes only negligible amounts of groundwater to Johnson Creek.[45] Post-construction, the perched groundwater from the filtration facility site [collecting in

[45] As explained by the US Geologic Survey Fact Sheet, in this area of the Johnson Creek basin, "the direction of groundwater flow is not toward Johnson Creek or its tributaries but out of the drainage basin toward the lower-elevation Sandy[.] As a result, recharge to the groundwater system … does not discharge to Johnson Creek but instead flows out of the basin." Exhibit U.20.a., Attachment 2, Page 2. This is consistent with the applicant's

underdrains] will continue to contribute only negligible amounts of groundwater to Johnson Creek." Exhibit U.20.a, page 9; Exhibit U.20.g, page 3 ("the contribution of groundwater seepage to the stormwater system will not artificially elevate flow volumes in Johnson Creek and will have a negligible contribution compared with the surface water and groundwater flow contributions to Johnson Creek from the upper watershed area").

Accordingly, Biohabitats concludes, and I find, that the "groundwater seepage that passively collects in the structural underdrain systems will not adversely affect riparian habitat areas or Johnson Creek because the groundwater seepage will be a negligible contribution compared with surface water and groundwater flow to Johnson Creek from the upper watershed area, as explained in [Exhibit U.20.g]. Moreover, that small contribution to Johnson Creek will pass through the stormwater management system, providing quantity and quality controls." Exhibit U.20.a, page 8. "If anything, the water from the underdrains will serve to cool stormwater from the site and reduce thermal loading in Johnson Creek." Exhibit U.20.a, page 36; Exhibit U.20.a, Attachment 2 (USGS Fact Sheet), page 4 ("groundwater discharge cools the stream").

Concerns about the quantity of underdrain groundwater "displace[d]" by the Project appear to be what drove staff's proposed condition at Exhibit W.1, page 7 ("Circumstance #2"). The proposed condition, however, is not phrased in the clear and objective terms that ideally would be used in conditions of approval in order to avoid deferring compliance in a manner contrary to law. *See Rhyne v. Multnomah County*, 23 Or LUBA 442, 447 (1992). For example, staff would be left to determine what "to the greatest extent practicable" means. However, as I find that the stormwater system as designed will provide quantity and quality controls protective of Johnson Creek and the surrounding riparian habitat areas, a condition of approval specifically requiring implementation of the plans reviewed in this land use proceeding and compliance with the section of the MCC staff had cited to:

> ***To control the amount of stormwater/groundwater being directed to Johnson Creek, Permittee shall implement the stormwater management improvements shown in the Filtration Facility Site Stormwater Drainage Report (Exhibit N.58), the Stormwater Flow Spreader and Vegetated Slope TM (Exhibit N.59), and in the Filtration Facility Site Plans (Exhibit N.60). "The system shall be adequate to ensure that the rate of runoff from the Filtration Facility site for the 10-year, 24-hour storm event is no greater than that before the development." MCC 39.4325(G).***

Note that this condition supersedes the prior condition of approval related to the same system at 2023 HO Decision, pages 84-85, as the plan for the system itself has been updated.

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groundwater expert's explanation that "The Filtration Facility site is located at the extreme eastern edge of the Springwater Formation at the edge of the Sandy River canyon. Natural groundwater flow from the site into the Sandy River canyon diverts water offsite in a direction away from the Johnson Creek watershed. This diminishes the site's natural potential for contributing groundwater into the Johnson Creek watershed." Exhibit U.20.g, page 3.

ix. Hydrology (Stormwater Quantity and "Flashy Flows")

Biohabitats examined the potential of the project to have hydromodification impacts. Hydromodification is "the alteration of natural flow patterns that result in the degradation of a stream". Exhibit U.20.h, page 5.

The Project has applied "stormwater management standards and controls … to address the potential for change in hydrologic condition (also known as hydromodification) by requiring post-development peak discharges to match or be less than pre-development peak discharges for a range of design storms (i.e., water quantity flow control). In addition, for smaller, more frequent storm events (i.e., the 2-year return frequency and less) post-development design criteria require over-control, which is intended to maintain discharge velocities to non-erosive levels. These levels of control are achieved by implementing a range of BMPs to slow, filter, infiltrate, and detain the runoff volumes. For larger storms, the detention ponds provide the most significant levels of water quantity flow control." Exhibit N.55, page 17.

"As documented in the Filtration Facility Stormwater Report [Exhibit N.58], the proposed stormwater management system will employ a treatment train approach, where flows are directed and conveyed to both water quality and water quantity control BMPs. In addition to treating the runoff from the Portland water quality storm (1.61 inch/24 hours) storm, there are flow control (quantity) requirements that range from over-control of the 2-year return frequency storm (limit the 2-year post-development peak flow to ½ the 2-year pre-development peak flow) to peak control of the 5-, 10-, and 25-year design storms (ensuring post-development discharge does not exceed pre-development discharge). The over-control of the smaller, more frequent storms is a presumptive design approach that will control peak flow rates and prevent the channel-forming flows associated with hydromodification." Exhibit N.55, page 17. "Proposed onsite stormwater facilities (detention ponds, bioretention basin, and an ecoroof) have been designed in accordance with the MCDCM to control the release of post-development stormwater flows, such that the flow control requirements are met at each Point of Discharge (POD) from the Filtration Facility." Exhibit U.20.h, page 5.

"As outlined in Exhibit N.58, Section 3.5.2 and Attachment F, to further confirm that proposed onsite stormwater facilities address the range of hydromodification considerations (including flow alteration), facility sizing was also evaluated using the Clackamas County Water Environment Services (WES) BMP Sizing Tool, which uses continuous simulation modeling to evaluate pre- and post-development flows and the duration of those peak flows to size stormwater facilities for a range of geomorphically significant flows (established by ODOT as 42% of the 2-year peak flow through the 10-year peak flow). The sizing of the proposed stormwater facilities was confirmed by this WES Tool as meeting these hydromodification standards." Exhibit U.20.h, pages 5-6.

A number of commenters are concerned that the operating Project will be "dumping" water into Johnson Creek, which seems to express a concern about erosion, scour, and other types of impacts of hydromodification, and accordingly is addressed here. For example, a commenter states that "When the Plant is in operation PWB will continue to dump stormwater in Johnson Creek. This southwest corner of the plant is a SEC-Water Resource Area. PWB cannot mitigate the stormwater." Exhibit N.14, page 1; Exhibit S.21 (Courters), page 6 ("These conditions contribute to: altered stream hydrology ('flashy' flows)."); Exhibit N.28, page 2 (plan "shows Johnson Creek will be used for dumping Stormwater when the Filtration Plant is in operation.").

As explained above, the stormwater system for the Filtration Facility is designed to address the potential for change in hydrologic condition (also known as hydromodification or as caused by "flashy flows") by meeting or exceeding design criteria which will maintain discharge velocities **to non-erosive levels**. Additionally, "at Point of Discharge #2, the flow spreader will spread flows out, reduce velocities even further, and promote the shallow infiltration and filtering of flows. The extensive plantings in the Grass/Brush Area and the Riparian Buffer Area described [below] will additionally slow velocities, re-spread flows, and promote shallow infiltration." Exhibit N.55, page 17. "The flow spreader and vegetated slope are an integrated facility which provides energy dissipation and evenly distributes flows … across the slope downstream of the flow spreader, conveying that flow to Johnson Creek without creating erosion or scour (evidenced by gullies or rills) or mobilizing sediment." Exhibit N.59, page 2. "The resulting flows from the flow spreader system will mimic the pre-developed flow conditions[.]" Exhibit N.59, page 2. "The stormwater system will reduce the instance of flashy flows by slowly releasing stormwater after it is filtered to improve the quality of water being released from the Filtration Facility site." Exhibit U.20.a., page 33.

"Overall, the Filtration Facility stormwater will not adversely affect Johnson Creek [or other area aquatic habitats, such as the Sandy River] through hydromodification [including 'flashy flows'] or any other adverse impacts to area aquatic habitat related to post-development stormwater discharge and velocity." Exhibit N.55, page 17; Exhibit S.31, pages 5-6 (other aquatic habitats and Sandy River, flashy flows).

"The **Intertie** site similarly provides hydrologic control based on the same design criteria. As documented in the Intertie Stormwater Report (Exhibit A.75), the proposed stormwater management system will employ a treatment train approach, where flows are directed and conveyed to both water quality and water quantity control BMPs to meet the range of design storm water quality and flow control requirements, including over-control of smaller, more frequent storms to address hydromodification risk. As a result, Intertie stormwater will not adversely affect Beaver Creek through hydromodification or any other adverse impacts to area aquatic habitat related to post-development stormwater discharge and velocity. For the pipeline alignments, post-development conditions will be the same as predevelopment conditions." Exhibit N.55, pages 17-18.

x. Engineered Infrastructure

The Courters assert that the proposed stormwater management "system introduces engineered infrastructure into an ecologically sensitive area … and creates permanent modifications to a riparian zone" and that this alone "constitute[s] an adverse effect." Exhibit S.23, page 2.

This is an inaccurate statement. The entire stormwater management system at the Filtration Facility site, including the flow spreader, "is located entirely outside of the 200-foot SEC buffer that surrounds Johnson Creek, in an area that was previously used for commercial nursery farming, as shown in Exhibit N.59 Stormwater Flow Spreader and Vegetated Slope. A commercial nursery farm is not 'an ecologically sensitive area'" as the Courters state. Exhibit U.20.h, page 11.

"The SEC incorporates a 200-foot buffer area around Johnson Creek (and other area waterways) because scientific studies support the effectiveness of 100-foot or greater buffers in restoring and protecting stream habitats." Exhibit U.20.h, page 11 (collecting studies from nonprofits, peer-reviewed journals, and the EPA demonstrating that 100' buffers excel at restoring and protecting streams). "The

SEC overlay zone creates a 200-foot buffer on either side of Johnson Creek – doubling the recommended 100-foot best practice to be additionally protective and create additional riparian area." Exhibit U.20.h, page 11. Instead of placing "engineered infrastructure" into the 200-foot riparian buffer SEC area on either side of Johnson Creek, the Project will create additional high-value habitat within that riparian buffer. "The replacement of cultivated farmland with riparian buffer area planting will resist surface erosion, minimize the risk of thermal loading, and provide additional habitat." Exhibit U.20.h, page 11.

The Courters similarly argue that managing stormwater near Johnson Creek using "artificial infrastructure—including a concrete flow spreader, weir, and drain rock bedding—represents a clear and permanent alteration of natural functions." Exhibit S.23, page 2. However, as explained immediately above, the entirety of the stormwater system, including the flow spreader, will be on land that was previously used for commercial nursery farming. That land was not in its "natural" state but had been significantly altered on an ongoing basis and adversely impacted by decades of agricultural use. See Exhibit S.36, pages 2-3, "The Natural State of the Land & Many Uses of Soils"." Exhibit U.20.a., pages 36-37. In contrast, "[w]ork in the SEC zone has been limited exclusively to native planting." Exhibit U.20.h, page 12. The Project's restoration of the area below the flow spreader to riparian habitat using native plants will actually move the site *closer* to natural function than it was in its pre-construction condition. That is, rather than "transform a natural riparian buffer into a managed stormwater utility corridor" as the Courters state (Exhibit S.23, page 12), the Project will transform a heavily impacted commercial nursery field area into a natural riparian buffer area. Exhibit U.20.h, page 12.

xi. Modification of "Natural" Drainage Patterns

CCPO/PHCA argue that "overland flow and runoff patterns have permanently changed" as a result of the grading of the Filtration Facility site, and in particular express concerns about the site preparations having "permanently filled in [a] draw" on the western boundary of the site "that led into an ephemeral tributary of Johnson Creek" and that site preparations in "the SE corner of the property, near the raw water pipeline portal" have eliminated "a shallow draw" and "drainage [that] no longer exists." Exhibit N.43, pages 11-12; page 63 ("modification of natural water drainage"); *see also* Lauren Courter Oral Testimony, Hearing April 16, 2025, minute 02:22:47 ("what you don't see is the ephemeral tributary that is no longer -- that started at the surface of the site there. It has now been completely leveled, excavated").

Although these comments appear directed at construction grading, I find here that evidence in the record shows that the grading and stormwater management of the Filtration Facility site post-construction will restore the pre-construction points of discharge. As CCPO/PHCA explain, pre-construction, there were three points of discharge at "portions of the property with the lowest elevation … the SW corner toward Johnson Creek's riparian area, the western edge of the property, and at the SE corner." Exhibit N.43, pages 11-12. The stormwater report confirms that "[t]hese three points of discharge will be maintained in the post-development stormwater system for the site." Exhibit N.58, page 14. For purposes of the stormwater report and for evidence provided by the applicant, these are named Point of Discharge #1 (CCPO/PHCA's "the western edge of the property"), Point of Discharge #2 (CCPO/PHCA's "the SW corner toward Johnson Creek's riparian area"), and Point of Discharge #3 (CCPO/PHCA's "at the SE corner"). Additionally, the flow of stormwater from the site will be allocated among points of discharge in the same proportions as the pre-development flows were. Table 20, Exhibit N.58, pages 26-27. Overall, "the project will maintain the pre-development Points of Discharge" – both in location and in proportions of flow. Exhibit N.58, page 26. Accordingly, pre-construction

drainage patterns will be reestablished as part of the operating Project and no point of discharge has changed, been "permanently filled in," or "no longer exists".

Similarly, for the **Pipelines**, commenters raised concerns that "operation of pipelines could disrupt natural drainage patterns[.]" Exhibit N.4, page 2. This is not the case. "The restoration following pipelines construction will return the landforms to the condition and general topography they were in prior to construction, not changing the existing drainage patterns of the area." Exhibit S.30, page 2. The culverts that carry water under Dodge Park Blvd were also a concern of commenters (Exhibit N.10, page 2). However, PWB confirmed that "[c]ulverts along Dodge Park Blvd will be replaced in the same location, size, and configuration, if disturbed by the pipeline construction. No change in the flow direction of stormwater is proposed along the pipeline alignments." Exhibit S.30, page 2.

(1) Ms. Richter's Proposed Findings

Ms. Richter's proposed findings on this topic require some factual correction before they can be addressed.

First, Ms. Richter states that "most of the stormwater leaving the site will travel through the stormflow spreader." Exhibit W.3a, page 27. This is false. Table 20, on page 27 of Exhibit N.58, provides the details of post-development flow at each Point of Discharge and shows that flows are distributed among all three Points of Discharge. Among them, it is actually the western property line culvert (Point of Discharge #1) having the most flow for every one of the design year storms.

Second, Ms. Richter states that "[b]efore development, a substantial portion of the stormwater at the site infiltrated into the substrate, slowly percolating into the ground and travel as hyporheic flow into Johnson Creek and Beaver Creek. Once the ground was saturated, excess surface water flowed into Johnson Creek headwaters, but it entered the creek gradually over a length of 1400-1500 feet of stream bed." Confusingly, Ms. Richter cites to "Ex. A.73" as the source of these facts, which is both outdated (as it is the 2023 stormwater report that was replaced by Exhibit N.58) and contains none of these facts (perhaps why there is no page citation listed in Exhibit A.73). Moreover, these facts are false. It is untrue that there was substantial infiltration at the site pre-development – measured infiltration rates at the Filtration Facility site predevelopment were so low that under the Portland SWMM standards, infiltration was considered infeasible as a primary method of stormwater management. Exhibit N.58, pages 3-4 (SWMM standard is 2in/hour, site rates are 0.012 – 0.8in/hour). It is also untrue that "excess surface water … entered the creek gradually over a length of 1400-1500 feet of stream bed[.]" Again it is unclear how Ms. Richter came up with these numbers, as they are not in the Exhibit A.73 she cites to. More importantly, this would mean that stormwater from the Filtration Facility site was entering Johnson Creek *beyond Cottrell Road*, as the record shows that Cottrell Pond is only 1,000 feet downstream. Exhibit U.20.a, page 13.

Ultimately, the conclusion Ms. Richter draws from these flawed "facts" is that "This redirection of flows will adversely [a]ffect natural resources because they create single points of discharge that will alter stream hydrology." Exhibit W.3a, page 27. As explained above, the Project has applied "stormwater management standards and controls … to address the potential for change in hydrologic condition (also known as hydromodification) by requiring post-development peak discharges to match or be less than pre-development peak discharges for a range of design storms (i.e., water quantity flow control)."

Exhibit N.55, page 17. Opponents did not provide any expert testimony or otherwise explain why they consider this (or other) aspects of the Exhibit N.58 stormwater system design problematic or unable to address the potential for change in hydrologic condition in Johnson Creek.

Ms. Richter also has concerns about whether "the storm spreader, if performing correctly, would disperse water over a length of the Johnson Creek Headwaters approximately 175-200 feet in length as PWB claims." Exhibit W.3a, page 28. However, those concerns are based on the construction flow spreader design ("eight discharge channels"). The construction flow spreader is "a temporary version of the flow spreader [that] was installed by the contractor for construction activity" and does not reflect the final design of the flow spreader in Exhibit N.59. Exhibit U.20.h, page 9. The construction flow spreader is addressed further in Section X.A.3 below. As to the Project operations flow spreader, there will not be discharge channels nor create erosive flow down the vegetated slope. Exhibit N.59, page 4. Ms. Richter assumes that "the sloped topography will direct all the stormwater into a single point along the distribution field" and claims that the "record lacks any evaluation, technical testing or examination of this issue." Exhibit W.3a, page 28. To the contrary, there is an expert analysis of specifically this issue in Exhibit N.59:

> "The calculated flow velocity of 0.54 ft/s during the 25-year storm event is well below the design criteria of 3 ft/s, providing a safety factor (the ratio of desired performance to calculated performance) of 5.5 **to account for potential flow concentration as stormwater flows down the slope**. Any safety factor above 2.0 is appropriate for this application."

Exhibit N.59, page 4. Accordingly, I reject Ms. Richter's proposed findings on this matter.

(2) Concerns About Agricultural Impacts of Drainage Patterns

Finally, I address here a related concern that the Project will adversely affect agriculture or agricultural natural resources (natural resources used for agriculture). For example, Ms. Swinford states that "Altered drainage patterns (due to new impervious surfaces) could also harm irrigation or soil moisture. These impacts would degrade soil quality and crop viability (loss of agricultural capability)." Exhibit S.10, page 2. Mr. Swinford similarly claims that "agricultural lands may be weakened due to … hydrologic disruption[.]" Exhibit S.11, page 1. The applicant's agricultural expert, Mr. Prenguber responds, and I find:

> "The claim that the Project will alter site drainage is not true. The PWB facility design keeps surface water flowing to the same off-site points of discharge as in the pre-development period. See Exhibit N.58, Filtration Facility Site Stormwater Drainage Report, page 26. For example, R&H Nursery (to the west of the filtration facility site) will continue to receive drainage water from the site to capture in their irrigation pond west of the Project. This will support irrigation of their fields and maintain soil moisture at optimum levels for plant growth."
>
> "Second, the operational stormwater system for the filtration facility will remove sediment before routing stormwater to off-site discharge points. Exhibit N.58, pages 6, table 3 and pages 17-20. This is beneficial for R&H Nursery in the post-development

> period, as the nursery will receive a reduced amount of sediment in its irrigation pond during storm events. A lower amount of sedimentation reduces the need for R&H Nursery to conduct periodic removal to maintain the pond's irrigation water storage capacity and avoid pump failure."
>
> "Soil quality will not be degraded with the lower flow rates of stormwater from the filtration facility site because there is less potential for erosion during high rainfall periods. Six dry detention ponds, a sloped basin, and an ecoroof provide stormwater flow control for the filtration facility site. Exhibit N.58, page 20. These flow control facilities meet flow control performance standards that are intended to be conservative and prevent channel forming flows commonly associated with hydromodification. Detention pond sizing was also evaluated using the Clackamas WES BMP Sizing Tool that evaluates both peak flow and flow duration matching, providing additional assurance that the system protects against hydromodification. See Exhibit N.58, page 25. There will be no impact on crop yields, as irrigation from the farmers' pond will be more easily maintained with reduced pond sedimentation. Capacity to meet irrigation water requirements will also improve over pre-development conditions."
>
> "For all of these reasons, the water drainage in the post-development period will not adversely affect nearby farmers' irrigation, soil moisture, soil quality, or crop viability."

Exhibit U.20, pages 5-6.

xii. Noise

Commenters are concerned that "Continuous plant noise and vibrations will similarly drive other mammals, amphibians and birds from nearby forests and streams, undermining their quiet refuge and breeding success." Exhibit S.10, pages 1-2; *see also* Exhibit S.16 ("noise will be disruptive to fish").

The operating Project will not be a significant source of sound generation. "The filtration facility was carefully designed to mitigate noise generation through screening, topography, and structural buffering. The filtration facility Exterior Noise Analysis (Exhibit A.49) was prepared by acoustical engineers at Stantec and 'evaluated the highest noise levels generated by simultaneous operation of all equipment, including those with intermittent operation.' Exhibit J.69, page 1. This evaluation was a worst-case scenario including emergency equipment operation. In reality, the 'loudest equipment at the Facility is used only intermittently' and the emergency equipment is only operated for periodic testing, other than in an actual emergency. But even in an emergency, and even with all the intermittent equipment operating simultaneously, 'noise levels at the facility property line during operation will be within or below the range of current ambient sounds levels, and the type of noise generated by the facility will be similar to noises currently existing within the study area'. Exhibit J.69, page 2." Exhibit U.20.a, page 5, 19. "Given the design of the filtration facility, it is inaccurate to assert that the filtration facility will 'drive [species] from nearby … streams, undermining their quiet refuge and breeding success[.]'" Exhibit U.20.a, page 5.

Additionally, only a very high level of noise has the potential to impact aquatic habitats. As Biohabitats explains, "[n]oise has not been identified as a risk to aquatic species except for pile driving and other high amplitude construction related practices that occur underwater." Exhibit S.31, page 15. For the

Project, "t]here is no risk of high amplitude noise from … operations[] that would impact aquatic species in Johnson Creek as there is no underwater work proposed. [The Project is a] sufficient distance away to prevent risk of adverse impacts related to noise." Exhibit S.31, page 15; Exhibit U.20.a, pages 5-6; Exhibit U.20.a, pages 18-19. "Semi-aquatic species including amphibians that may be present in the riparian area or Johnson Creek itself will benefit from improvements to the riparian buffer that will negate any risk related to temporary noises that may occur when emergency generators are required to operate," Exhibit U.20.a, page 6. Moreover, the character of noises are similar to the type of noises aquatic and semi-aquatic species have already experienced from the pre-construction agricultural use of the site. See Section VI.K above; Exhibit S.16 ("fish get use[d] to sounds like the wind and various vibrations"). "Neither the emergency generators nor the other minimal noises from the project operation will have the ability to create noises at a level that would lead to any impact to aquatic species in the area." Exhibit U.20.a, pages 18-19. Overall, Biohabitats concludes, and I find, that "the streams and other aquatic habitats surrounding the project are sufficient distances away eliminate the risk of impacts related to sound or vibration." Exhibit U.20.a, page 18.

xiii. Temperature

Temperature is addressed in this final section (immediately before describing proposed habitat improvements) as it is the only category of potential impairments where a small risk of adverse effects to area aquatic habitats (specifically, Johnson Creek) does exist. The small risk relates to the potential for a large rainstorm, on a hot day, that occurs before the new riparian plantings along Johnson Creek have had time to establish. As explained further below, the risk of that kind of storm on a hot day occurring before establishment of plantings is very low because, in 38 years of data reviewed, it has never happened. Nevertheless, as explained below, the Project will provide mitigation with an overall benefit to temperature conditions in Johnson Creek through extensive improvement of Johnson Creek's riparian areas and the removal of Cottrell Pond, which has been shown to create lethal temperature impacts in the creek. As the Project overall will positively affect temperature conditions in Johnson Creek, it cannot be said that the Project will adversely affect natural resources in this manner.

First, "stormwater runoff is not considered by Oregon Department of Environmental Quality (DEQ) to be a significant contributor of heat or 'thermal loading' to surface waters like Johnson Creek. Instead, DEQ has found that the largest contributor to elevated temperature is the increased impact from solar radiation loads due to disturbances of riparian vegetation." Exhibit U.20.h, page 4. As is explained in detail below, the Project will include extensive additional riparian vegetation around Johnson Creek.

Second, "PWB has included extensive BMPs in the Project Stormwater Reports to ensure that stormwater does not have an adverse temperature effect on area aquatic habitats." Exhibit N.55, page 13. "For the Filtration Facility, those BMPs include enhanced planting approaches to promote shading of detention basins, use of an ecoroof on 93,700 square feet of roof, [and] filtration practices like planters and grassy swales for conveyance and treatment[.]" Exhibit N.55, page 13. Additional "temperature management strategies have been incorporated into the Filtration Facility stormwater system design, including the minimization of stormwater detention facility drawdown times and standing water depth, as well as the installation of mature vegetation in stormwater management facilities to shade the facilities and reduce the effects of stormwater exposed to sunlight and a heated atmosphere. These temperature management strategies are not required by any stormwater regulations nor by the SWMM, but instead were voluntarily included by the project to protect nearby aquatic resources, even though stormwater is not considered significant contributor to thermal loading." Exhibit U.20.h, page 4.

Third, as noted above, temperature issues in Johnson Creek are a pre-existing condition related primarily to the removal of riparian areas by area landowners. "Historically, streams were kept cool by forests that shaded the stream channels. But in 2002, the average effective shade over mainstem Johnson Creek was just under 40%" and Beaver Creek shows a similar concern. Exhibit N.55, page 5. The Project will directly address riparian shade surrounding Johnson Creek at the project site. The riparian area revegetation "has already begun and will increase the riparian buffer width and provide additional protection from potential thermal inputs to Johnson Creek related to development of the Filtration Facility site." Exhibit N.55, page 13. In addition, the extensive revegetation of the Filtration Facility site "will promote shallow groundwater recharge that will help regulate water temperature, flow rates, volumes, and velocities." Exhibit N.55, page 13.

Overall, Biohabitats concludes, and I find, that even before the removal of Cottrell Pond, the combination of BMPs, extensive revegetation of the upland habitat areas, and, once established, the Riparian Buffer Area (defined below), will prevent adverse thermal effects from the Filtration Facility. Exhibit N.55, page 15. In particular, "once established, the Riparian Buffer Area between the Filtration Facility and Johnson Creek will provide substantial benefit to aquatic species **by reducing temperatures of stormwater from the site below a level that leads to adverse impacts from the project**." Exhibit N.55, page 16 (emphasis added).

(1) Risk of Adverse Thermal Effects at Filtration Facility

As noted, *"once established"* it is the Project's proposed extensive revegetation of the Filtration Facility site, particularly the Riparian Buffer Area (defined below) adjacent to Johnson Creek, that will provide effective protection against adverse thermal effects in the creek from the Project. However, Biohabitats acknowledges a small risk of adverse thermal effects on Johnson Creek while that riparian vegetation is still being established: "The most significant risk of thermal loading … would come from a large storm (e.g., 2-yr storm event), during a time of excessive heating in the region, that occurs prior to the full establishment of the planned vegetation in the Riparian Buffer Area." Exhibit N.55, page 15; Exhibit U.20.a, page 10.[46]

It lends credibility to Biohabitat's analysis that they did not simply dismiss this risk – however small – of an adverse impact from the stormwater system during the initial period before establishment of vegetation.

This risk is small because "in this area specifically, that kind of large storm during the dry season (when excessive heating is possible) has only occurred a few times in 38 years of data reviewed by the stormwater designers[.]" Exhibit N.55, page 15; *see* Exhibit N.58, Section 1.6.5, in particular page 9 ("Only one, 24-hour rainfall event that was reflective of a design storm rainfall range occurred within the

[46] Note that this risk is limited to the flow spreader (Discharge Point #2) because "Stormwater from Discharge Point #1 goes to a neighboring nursery's irrigation ponds, which will dictate the thermal loading of those waters if they ever reach Johnson Creek. More likely, those waters would be used for irrigation during a time of excessive heating. Stormwater from Discharge Point #[3] flows through significant forested areas before reaching any water body, and therefore thermal loading of aquatic habitats is not a concern from Discharge Point #3." Exhibit U.20.a, page 10n3 (typo corrected).

defined dry season [of Jun 1 – Sep 30], and even then only for a 2-year design storm rainfall depth."). The stormwater experts' "indicates that rainfall depths associated with design storm events and yielding stormwater runoff do not predominately occur during the hot summer season (June-September) when thermal loading from site stormwater could be the greatest risk." Exhibit U.20.h, page 4. "However, even those few times in the 38 years of data were not accompanied by times of excessive heating – with the highest temperature day during those events being only 68 degrees." Exhibit N.55, page 15. That is to say, it would take a large storm, on a hot day that occurs *before* revegetation of the Riparian Buffer Area is established, to create a risk of adverse thermal effects in Johnson Creek from the Project – and that kind of large storm on a hot day simply *has not occurred* in the 38 years of data specific to this area. This is why it is accurate to say that, even before implementation of any of the measures described below, the risk of adverse thermal effects in Johnson Creek from the Project is small.

"However, given that it is unknown how the potential impacts from climate change will alter the frequency or intensity of rainfall events in the future, PWB will take additional steps to ensure that the project will not adversely affect thermal loading in Johnson Creek." Exhibit N.55, page 16.

"First, PWB will monitor stream temperatures in Johnson Creek above and below the point of entry of project stormwater from Point of Discharge #2 [the flow spreader] to confirm that stormwater released from the site is not increasing temperature in a manner that could potentially cause adverse impacts to aquatic resources. Monitoring would include placement of digital data loggers in the creek upstream of the influence of stormwater being released from Point of Discharge #2 and downstream an adequate distance to ensure mixing of the stream and contributing stormwater flow from the Filtration Facility. Monitoring would follow industry protocols to ensure accuracy and precision of temperature measurements including proper calibration of data loggers, determination of measurement intervals, and screening for errors in data collection (Dunham, et. al. 2005)." Exhibit N.55, page 16.

The Water Bureau proposes, and I now impose, the following condition of approval related to temperature monitoring:

> ***Commencing before final certificate of occupancy for the Filtration Facility, and continuing for at least five (5) years after final certificate of occupancy for the Filtration Facility, Portland Water Bureau shall monitor stream temperatures in Johnson Creek above and below the point of entry of Project stormwater from Point of Discharge #2 to Johnson Creek***.

"Second, to additionally ensure that the project will not adversely affect thermal loading in Johnson Creek, the project will facilitate the reduction of water temperatures in Johnson Creek through partnership with the Johnson Creek Watershed Council." Exhibit N.55, page 16. "In meetings with PWB about reducing temperatures in Johnson Creek, the Council [] identified several opportunities for restoration of private land within the upper watershed near the project site, each of which would increase riparian vegetation and reduce thermal loading in the Creek." Exhibit N.55, page 16. One of those opportunities – and the one that will be implemented by the Project as explained below in Section VII.C.2.d.ii – is the removal of Cottrell Pond. In general (details below), "PWB is facilitating the reduction of water temperatures in Johnson Creek by purchasing land downstream of the Filtration Facility and removing an in-channel pond, known as "Cottrell Pond", that is a known source of heating in Johnson Creek." Exhibit U.20.h, page 5.

Overall, the combination of the voluntary temperature management strategies, the low risk of occurrence of a storm during a period of atmospheric heating that would yield stormwater runoff from the site, the addition of extensive plantings to restore and enhance the riparian area, and the removal of Cottrell Pond, leads to the conclusion that the project will not adversely affect thermal loading or aquatic natural resources in or around Johnson Creek.

Ms. Richter's proposed findings do not convince me otherwise. As explained above in Section IV.E, Ms. Richter's proposed findings start from the flawed premise that: "Mitigation, by its definition, reveals that adverse effects have occurred and as such, it cannot be used to establish compliance with this standard. This exacting and strict 'no adverse effect' standard prohibits any adverse effect, even where it might be mitigated to some reduced level." Exhibit W.3, page 3. For the reasons explained in this section and in Section IV.E I disagree with Ms. Richter that "Mitigation … cannot be used to establish compliance with this standard[.]" Instead, the key, using Ms. Richter's words, is what "reduced level" of impact the mitigation achieves, and, crucially, does that level move below the bar of "adversely affect[ing] natural resources." If it moves below that bar, the standard can be said to be met. If it remains above that bar, the standard cannot be met.

In the case of the risk of an adverse impact from the stormwater system during the initial period before establishment of vegetation, I find that – before mitigation – while the level of impact is above that bar, it is only slightly above it, as we are discussing only a theoretical possibility of an adverse effect, only before vegetation is established, and *only if* in that time period there occurs a type of storm (large and on a hot day) that evidence shows has not occurred in 38 years. As explained above in Section IV.D.6e, I have found that a showing of "adversely affect" requires the Project will cause a change that produces actual harm to natural resources that is more than *de minimis*. I find that the risk of an adverse impact from the stormwater system during the initial period before establishment of vegetation does not show that the Project will cause an actual, harmful change.

However, given the extensive mitigation proposed by the Water Bureau in this case, I need not simply rest on that conclusion. Instead, and in the alternative, I find that the combination of the voluntary temperature management strategies included in the stormwater system itself, the addition of extensive plantings to restore and enhance the riparian area, and the removal of Cottrell Pond and addition of riparian area on the Cotrell Pond property, taken together, move the Project as a whole well below the bar of "adversely affect[ing] natural resources." That is, the extensive mitigation much more than offsets the level of impact slightly above the bar caused by the risk of an adverse impact from the stormwater system during the initial period before establishment of vegetation.

While the concept of "the bar" is of course a legal fiction, it is a useful one in the context of considering the impact of mitigation weighed against the risks created by the Project. But even setting aside the legal fiction, the ecological benefit created by the removal of Cottrell Pond as part of the Project is so large that only a major and certain impact on temperature in Johnson Creek could outweigh it.

"The Johnson Creek Watershed Council (JCWC) and partners including the City of Gresham and the Oregon Department of Environmental Quality (ODEQ) studied the effects of in-line ponds on water temperature to assess the potential impacts to aquatic resources in Johnson and Beaver Creeks (City of Gresham, 2020, ODEQ, 2023). The study indicated that many inline ponds increase stream temperatures throughout both watersheds[,] that individual ponds showed large differences in how much the temperature increased from upstream to downstream of the pond[, and] that removing ponds would

reduce thermal loading and be an important part of working towards meeting the instream water quality temperature standard established by ODEQ (Table 1)." Exhibit U.20.a, page 13; *see also* Exhibit U.20.a, Attachment 2 (USGS Fact Sheet), page 4 ("significant warming occurs in stream reaches with shallow, unshaded ponds").

"Removal of Cottrell Pond has been identified by the Clackamas Partnership[47] as a priority project in their 'Strategic Restoration Action Plan [SAP] to guide voluntary restoration actions designed to improve stream habitat, water quality, and native fish populations.' Cottrell Pond is such a high priority because, in [those] studies by the City of Gresham [and ODEQ) (provided in [Exhibit U.20.a]), **Cottrell Pond increased stream temperature *more than any other remaining Johnson Creek pond studied*,** and was second highest in increase of stream temperature *for any creek* in the area." Exhibit U.20.a, page 11 (bolding added, italics in original, internal citation removed).

"The Clackamas Partnership notes that, in 2018, JCWC summer temperature monitoring showed that **the temperature in Johnson Creek rose from 64° F to 79° F (15° F increase)** as the stream flowed into and out of the Cottrell Pond, respectively. Stream temperatures ranging from 70-77° F **can lead to fish mortality within hours or days** of exposure if they cannot find cool water refugia. Stream temperatures exceeding 64° F can impact feeding and growth as well as increase exposure to pathogens (Table 2). By increasing thermal loading such that temperatures in the creek rise above levels that can lead to fish mortality, Cottrell Pond contributes direct thermal loading adverse impacts to aquatic resources in Johnson Creek. Removing Cottrell Pond will remove this adverse impact, dramatically reducing thermal loading in this reach of Johnson Creek in a manner that significantly outweighs any risk of thermal loading in stormwater leaving Discharge Point #2 prior to the full establishment of the planned vegetation in the Riparian Buffer Area (described above)." Exhibit U.20.a, page 13 (bolding added, footnote omitted).

The other significant benefits of the Project's removal of Cottrell Pond – including the removal of a complete fish passage barrier and extensive riparian plantings – are discussed further below in Section VII.C.2.d.ii. Overall, the Project as a whole is well below the threshold of "adversely affect[ing] natural resources."

[47] "According to their website, 'The Clackamas Partnership is a collaboration of Portland metropolitan area watershed councils, government agencies, tribes, and other organizations committed to improving watershed health. The Partnership recently developed a Strategic Restoration Action Plan to guide voluntary restoration actions designed to improve stream habitat, water quality, and native fish populations. The Strategic Plan covers the Clackamas River Basin, a stretch of the Willamette River, and other tributaries flowing into the east side of the Willamette River, including Abernethy, Kellogg, and Johnson Creeks. Historically, the Clackamas River and these tributaries supported thriving salmon, steelhead, and other native fish populations.' https://www.clackamaspartnership.org/ The 'fifteen organizations committed to restoring native fish populations' as part of the Clackamas Partnership collaboration include Johnson Creek Watershed Council, ODEQ, Metro, Oregon Department of Fish & Wildlife, and the U.S. Forest Service Department of Agriculture. https://www.clackamaspartnership.org/About/About" Exhibit U.20.a, page 11n5.

(2) Intertie and Pipelines

Finally, other portions of the Project do not create a risk of thermal loading in area aquatic habitats. "The Intertie site represents less than 2% of the overall drainage area to the culvert under Lusted Road. The conversion of 0.31 acres of cropland to impervious surface will not influence temperatures in Beaver Creek compared to pre-development conditions. The site uses grassy swales and bioretention to manage the stormwater runoff which both have cooling benefits via filtration and infiltration. For the pipeline alignments, postdevelopment conditions will be the same as pre-development conditions." Exhibit N.55, page 16.

d. Proposed Aquatic Habitat Improvement as Part of the Project

As noted above, "Elevated water temperatures are caused by low summer base flows, lack of riparian shade, and impoundment of water in ponds[.]" Exhibit N.55, page 4. "Historically, streams were kept cool by forests that shaded the stream channels. But in 2002, the average effective shade over mainstem Johnson Creek was just under 40%". Exhibit N.55, page 5.

"Reduction of stream temperatures requires a system-wide riparian landscape perspective. Restoring vegetation along stream banks to provide shade is one of the most effective means of reducing stream temperatures. Eliminating or bypassing in-line ponds is an additional restoration strategy identified by the Johnson Creek Watershed Council (JCWC) for reducing high water temperatures in the watershed (JCWC, 2015)." Exhibit N.55, page 6. "Johnson Creek Watershed Council is the local nonprofit organization organized in 1995 to protect, restore, and enhance the creek. The organization has been highly successful in advancing that mission through decades of projects, including controlling invasive species, planting native riparian vegetation, improving fish passage, and creating off-channel flood storage." Exhibit N.55, page 6n1.

The Project will both provide extensive restoration of vegetation along Johnson Creek to provide shade and eliminate the existing in-line pond known as Cottrell Pond, as described in the sections that follow.

i. Riparian Restoration Area at Filtration Facility Site and Vegetated Slope

Biohabitats agrees with the Courters that "vegetated buffers and forest canopy [are] essential for stream cooling and habitat complexity." Exhibit S.21, page 6. It is unclear, however, why the Courters assert there will be "Loss of vegetated buffers and forest canopy" caused by the Project. Exhibit S.21, page 6. To the contrary, "[r]evegetation of 2 acres in the southwest corner of the Filtration Facility site has already begun and will increase the riparian buffer width and provide additional protection from potential thermal inputs to Johnson Creek related to development of the Filtration Facility site." Exhibit N.55, page 13. As part of the Project, "the riparian buffer between the Filtration Facility and Johnson Creek will expand from the narrow 50' strip in the southwest corner to a robust buffer exceeding 200 feet." Exhibit U.20.a, page 27.

Together with the "the removal of Cottrell Pond and associated extensive restoration of the riparian area downstream of the Filtration Facility [described in the section below], [the Project] will expand and connect the patches of healthy, intact riparian area that exist directly upstream and downstream of the filtration facility site." Exhibit U.20.a, Page 27. Rather than "fragment[ing]" riparian habitat, as stated by the Courters in Exhibit S.21, page 5, "the project will connect habitat – including connecting the

improved riparian habitat around Johnson Creek to new upland habitat and the SEC-h habitat area on the other side of the Filtration Facility site, as illustrated on page 19, Exhibit N.56 (Figure 4)." Exhibit U.20.a, page 29.

"Stormwater leaving the Filtration Facility at Discharge Point #2 (the discharge closest to Johnson Creek) will be evenly dispersed using the flow spreader. The area immediately below the flow spreader will have approximately one foot of drain rock to accept water dropping off the flow spreader weir and then approximately twenty feet of native shrubs and grasses (the "***Grass/Brush Area***"). The planting plan for the Grass/Brush Area is provided in Table 3 [of Exhibit N.55, page 14]. This Grass/Brush Area below the flow spreader will allow for maintenance of the flow spreader and provides a buffer between the concrete flow spreader and tree roots lower on the slope." Exhibit N.55, page 13.

"Restoration of the area between the Grass/Brush Area and Johnson Creek (the "***Riparian Buffer Area***") has been underway since 2023 with the goal of establishing a functioning riparian forest. A functioning riparian area will provide a resilient plant cover, be resistant to surface erosion, shade runoff, and protect aquatic resources in the creek. The planting plan for the Riparian Buffer Area is summarized in Table 4 [of Exhibit N.55, page 15] and includes native shrubs and trees well suited to post-development conditions in this area and designed to augment existing woody native cover along Johnson Creek. Willow bundles will be incorporated in the plan for the purpose of quickly creating a means to slow and redisperse surface flow and stabilize soil in the Riparian Buffer Area." Exhibit N.55, page 14.

"PWB will take an adaptive management approach in response to challenges with establishing planned vegetation in both the Grass/Brush Area and the Riparian Buffer Area by adjusting the plant palette to those that are appropriate for post-development conditions. Plans are in place to irrigate plants as needed during drier months to ensure effective establishment and survival of the proposed vegetation. Appropriate measures to address challenges related to planting will be taken to ensure successful establishment and survival of vegetation between the flow spreader and Johnson Creek." Exhibit N.55, page 15.

ii. Removal of Cottrell Pond and Improvement of Pond Property Riparian Area

"[T]o additionally ensure that the project will not adversely affect thermal loading in Johnson Creek, the project will facilitate the reduction of water temperatures in Johnson Creek by purchasing and restoring land between the Filtration Facility site and Cottrell Road, including removal[48] of a pond on the property ("***Cottrell Pond***", Figure 2/3) known to be a source of heating in Johnson Creek. Removing Cottrell Pond would provide significant benefit to all aquatic resources in the creek and significantly

[48] "The scope of the removal and restoration project is further described on Attachment 1 [to Exhibit U.20.a] and below. The Cottrell Pond removal and associated habitat restoration project will undergo further refinement of design and obtain all necessary permitting prior to being finalized. Biohabitats participated in the preparation of Attachment 1 and evaluation of the site for this project. Overall, [it is Biohabitat's] professional opinion based on design and construction of similar stream and habitat restoration projects, [and I now find that,] it is clearly feasible for the Water Bureau to reduce thermal loading and restore stream and aquatic habitat function in Johnson Creek through implementation of a project based on the concept described in [Exhibit U.20.a] and on Attachment 1." Exhibit U.20.a, page 10n4.

decrease temperature loading in the area of Johnson Creek closest to the Filtration Facility." Exhibit U.20.a, page 10.

Figure 2. Cottrell Pond Location Relative to Filtration Facility Site

Figure 2 from Exhibit U.20.a, page 11.

The earthen dam that created Cottrell Pond is marked with a yellow pin on the map in Figure 2 from Exhibit U.20.a, page 11, provided above. Exhibit U.20.a, page 11.

Figure 3. Cottrell Pond and Earthen Dam

Source: Clackamas Partnership, titled: "Cottrell pond from downstream end"

Source: Bonita Oswald, taken May 2025, showing earthen dam that created pond.

Figure 3 from Exhibit U.20.a, page 12.

"Cottrell Pond is a 0.73-acre pond located only 1,000 feet downstream of the southwest corner of the Filtration Facility site. The pond is formed by a man-made earthen dam that is approximately six feet tall and 100 feet long." Exhibit U.20.a, page 13

"In addition to the up to 15° F temperature increase that Cottrell Pond causes, the earthen dam blocks fish passage into the upper reach of the Johnson Creek watershed. See Figure 4 [from Exhibit U.20.a]. Approximately ½ mile of fish habitat historically existed for native migratory fish above Cottrell Pond, including the reach adjacent to the Filtration Facility site." Exhibit U.20.a, page 15.

Figure 4. Cottrell Pond culvert outflow to Johnson Creek (Complete Fish Passage Barrier)

Figure 4 from Exhibit U.20.a, page 15.

"PWB will remove the earthen dam and establish a natural stream channel with stream and riparian habitat intended to mimic the historic condition of Johnson Creek (Figure 5). The natural stream channel with functioning riparian area will provide benefits to all aquatic and semi-aquatic species by reducing temperatures in Johnson Creek and by increasing the amount and quality of available habitat needed to forage, grow, and reproduce." Exhibit U.20.a, page 15.

"Beyond the significant benefits of removing the thermal sink and fish passage barrier, the quality of habitat will be improved by the addition of large wood, restored sediment transport, and the creation of pools and off-channel rearing habitats that will provide benefits to fish and amphibians in the area. Restoration of the riparian area will provide benefits to numerous species in the area by increasing shade that will help contribute to achieving stream temperatures below thresholds identified for cold

water fish species[.] Other benefits of restoring the riparian area along the new stream corridor include stabilization of the streambank which will reduce erosion and sedimentation in the stream, improvements in water quality resulting from filtering of pollutants that contribute to degradation of aquatic habitat, and maintenance of base flows during summer low flow periods. The project will also increase connectivity between habitats in two ways, first by removing a barrier to aquatic passage that has the potential to impact species that require migration to access habitats needed to forage, grow, and reproduce. The project will also provide connectivity between the riparian habitat and adjacent upland areas managed specifically for native flora and wildlife. In total, the project will restore 1.7 acres of native riparian forest habitat and 0.65 acres of wetland fringe habitat; and create an additional 3.8 acres of oak and native prairie habitat. Additional details regarding the restoration are provided in Attachment 1 [to Exhibit U.20.a] and Figure 5 [of Exhibit U.20.a] below." Exhibit U.20.a, pages 15-16.

Figure 5. Proposed Restoration of Johnson Creek Map (See Attachment 1)

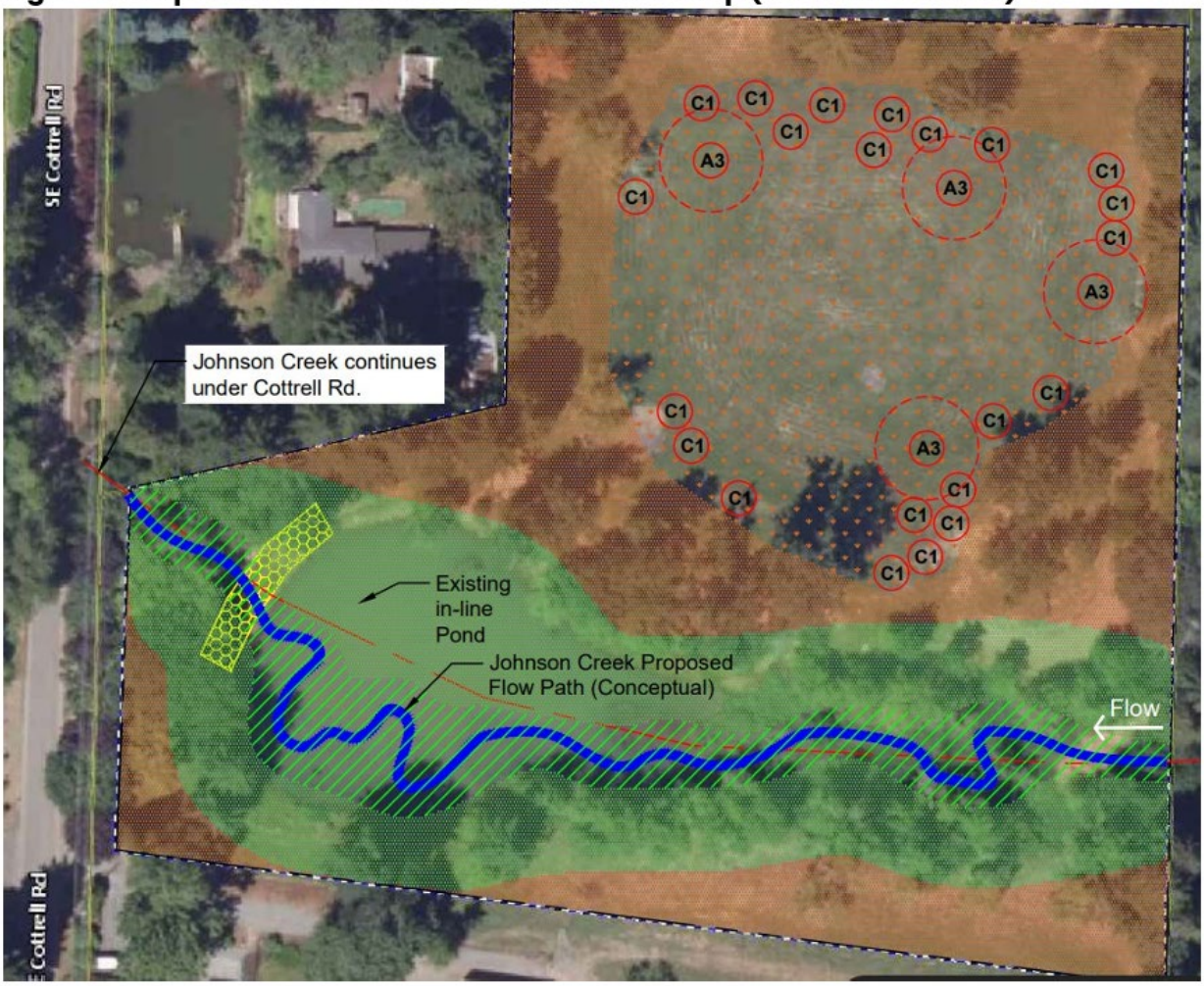


Figure 5 from Exhibit U.20.a, page 17.

I find that the implementation of this plan for restoration of Johnson Creek related to Cottrell Pond is feasible and likely to succeed. "The City, through the Portland Water Bureau, has entered into a Purchase and Sale Agreement (PSA) with the private owners of the property where Cottrell Pond is

located (the "***Pond Property***"), which is zoned MUA-20 (the same as the Filtration Facility site). The PSA is a binding agreement that ensures PWB can purchase the Pond Property and perform the restoration project described above. The restoration project will be included in the overall filtration facility scope of work and scheduled to be completed before commencement of filtration facility operations." Exhibit U.20.a, page 17. Moreover, Biohabitats, explained that "Biohabitats participated in the preparation of Attachment 1 and evaluation of the site for this project. Overall, [it is Biohabitat's] professional opinion based on design and construction of similar stream and habitat restoration projects, [and I now find that,] it is clearly feasible for the Water Bureau to reduce thermal loading and restore stream and aquatic habitat function in Johnson Creek through implementation of a project based on the concept described in [Exhibit U.20.a] and on Attachment 1." Exhibit U.20.a, page 10n4. This testimony from Mr. Alsbury of Biohabitats is credible evidence of the feasibility of design, permitting, and construction of the Cottrell Pond removal and overall restoration of the Pond Property because Mr. Alsbury has extensive experience in stream restoration work. *See also* Exhibit U.20.a, Attachment 4, page 18 ("Anecdotal evidence suggests that ICP dam removal or modification is a feasible, effective, and landowner-acceptable solution that also benefits fish passage. DEQ should consider promoting this.").

The Water Bureau proposes (Exhibit U.20.a, page 18), and I impose, the following condition of approval related to the removal of Cottrell Pond and habitat restoration on the Pond Property:

> ***Regarding Cottrell Pond, as defined in Exhibit U.20.a, prior to final certificate of occupancy for the Filtration Facility, Portland Water Bureau shall purchase the Pond Property and provide a written report from an aquatic biologist confirming the establishment of a natural stream channel and additional riparian planting areas on the Pond Property.***

iii. Cottrell Pond is Not Attenuated from the Project

Ms. Richter proposes findings that:

> "this evidence does not deal with the increased temperature of water entering Johnson Creek from the [Filtration facility] site, 1000-feet upstream of Cottrell Pond. The focus of the natural resources criterion is not just broad scale effects. If that were true, the applicants could provide mitigation elsewhere in the region and assert net benefits to aquatic resources. Local impacts must be evaluated to ensure no adverse effects on or adjacent to the project site. This would include the 1000-foot stream reach from the project site down to Cottrell Pond. Without any quantifiable evaluation otherwise, Biohabitats has assumed uniformity in water resources exists from the headwaters downstream into an established channel. This assumption leads to the inevitable conclusion that increased temperatures caused by the flow spreader will adversely affect the 1000 feet of Johnson Creek directly to the east of the Cottrell Pond."

Exhibit W.3a, pages 26-27.

First, Cottrell Pond *is part of the Project*, and located directly in the Project area – it is not an off-site mitigation bank ("elsewhere in the region" in Ms. Richter's words) with benefits attenuated from the Project's impacts. Moreover, there is nothing in MCC 39.7515(B)'s six words that indicates that off-site

mitigation (even if it were "elsewhere in the region") would clearly be prohibited or could not count in an evaluation of MCC 39.7515(B) and Ms. Richter cites to no source for her declaration that a project could not meet this standard with off-site mitigation.

In this case, the mitigation is included directly as part of the Project. Even before the Water Bureau committed to the removal of Cottrell Pond, the property was well within the Project area. From the beginning – literally as Figure 1 on the cover of the Introduction to the Land Use Applications – the Project area has included Cottrell Pond, which sits at the county line (in blue below) between the main Filtration Facility site and Cottrell Road. The Pond Property is between two study intersections identified by County Transportation[49] as within the scope of the Project for study. Moreover, in all directions, Cottrell Pond is within the physical footprint of the Project – north of the southern boundary of the Filtration Facility site (the county line) and the emergency access road in Clackamas county, east of the Filtration Facility site and raw water pipelines, and south and west of the finished water pipelines.

[49] Actually, this area was proposed even earlier than the Introduction to the Land Use Applications. The applicant proposed the area shown as the "Study Area" in the map below as part of the pre-application conference, but land use planning staff declined to determine the scope of the study area for land use purposes. Exhibit A.159, page 20. County Transportation, however, reviewed the proposed area for analysis and agreed that it was sufficient to analyze the potential impacts from both Project operations and construction traffic. Exhibit J.44 (County Transportation) page 7 ("'impact area' agreed at pre-ap stage (Exhibits B.13 and B.16 [page 17])"); Exhibit A.230 (Construction TIA) page 2 (indicating that Multnomah County Transportation approved the scope of the construction TIA).

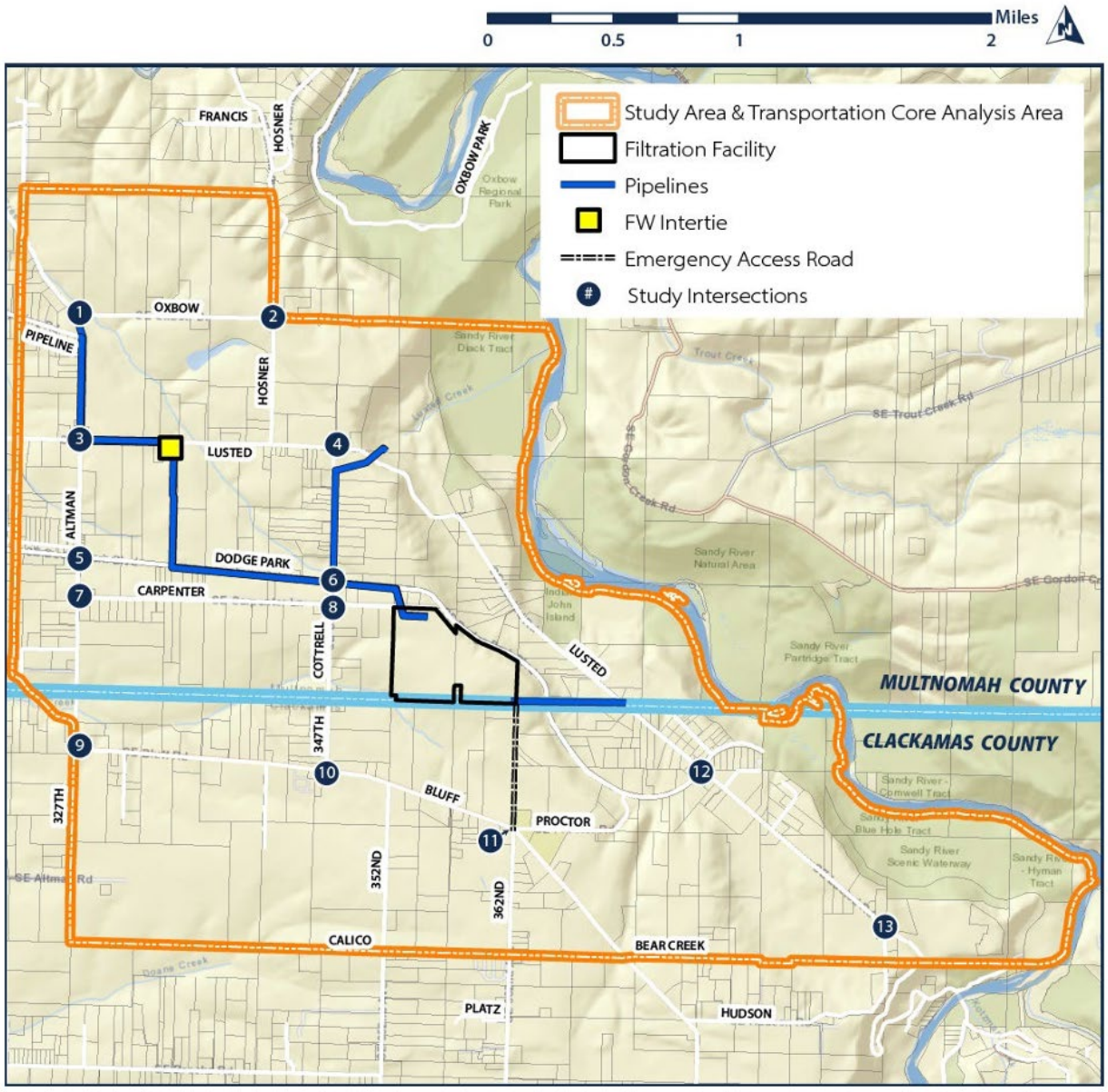


Figure 1. Bull Run Water Filtration Project Scope and Study Area

Exhibit A.2, page 1.

Therefore, the removal of Cottrell Pond is not spatially or physically attenuated from the Project as a whole. Moreover, the removal of Cottrell Pond will be completed during construction and as part of the construction of the Project, as required by my condition of approval above ("prior to final certificate of occupancy"). Therefore, the removal of Cottrell Pond is not temporally attenuated from the Project either.

Second, the evidence does not show that there *will be* "increased temperatures caused by the flow spreader" in the 1,000 feet Ms. Richter is concerned about – instead, as discussed extensively above –

the question is regarding the small risk that, before vegetation is established below the flow spreader, there occurs a type of storm (large and on a hot day) that evidence shows has not occurred in 38 years. I find above that the risk of an adverse impact from the stormwater system during the initial period before establishment of vegetation does not show that the Project will cause an actual, harmful change, and that, in the alternative and perhaps more importantly, the extensive mitigation included in the Project much more than offsets the level of impact slightly above the bar caused by the risk of an adverse impact from the stormwater system during the initial period before establishment of vegetation.

Moreover, even if that kind of storm occurs, "PWB has included extensive BMPs in the Project Stormwater Reports to ensure that stormwater does not have an adverse temperature effect on area aquatic habitats." Exhibit N.55, page 13. Beyond typical BMPs, additional "temperature management strategies have been incorporated into the Filtration Facility stormwater system design, including the minimization of stormwater detention facility drawdown times and standing water depth, as well as the installation of mature vegetation in stormwater management facilities to shade the facilities and reduce the effects of stormwater exposed to sunlight and a heated atmosphere. These temperature management strategies are not required by any stormwater regulations nor by the SWMM, but instead were voluntarily included by the project to protect nearby aquatic resources, even though stormwater is not considered significant contributor to thermal loading." Exhibit U.20.h, page 4.

Finally, to Ms. Richter's objection that a Project-wide approach only addresses "broad scale effects", for temperature specifically, a broader perspective is required. As explained by Biohabitats, "Reduction of stream temperatures requires a system-wide riparian landscape perspective." Exhibit N.55, page 6.

Overall, inherent in the conclusion that mitigation can and should be considered when determining if a project's impacts are below the level of "adversely affect" is the concept that mitigation is part of the "use" being reviewed. Additionally, nothing indicates that off-site mitigation (even if it were "elsewhere in the region") would clearly be prohibited or could not count in an evaluation of MCC 39.7515(B). However, I find that the removal of Cottrell Pond is not attenuated from the Project but instead is part of the Project, and will remove the "up to 15° F temperature increase that Cottrell Pond causes" along with restoring fish passage and providing extensive additional riparian planting that will also reduce temperatures. Exhibit U.20.a, page 15.

iv. Adaptive Management & Planning for Climate Change

"While measures described above are more than adequate to result in the project having no adverse impact to area aquatic habitat or water quality, contingency measures to mitigate unforeseen conditions are nonetheless prudent. PWB will establish an adaptive management approach that is based on stormwater inspections, water quality monitoring data, and operations and maintenance feedback loops. Adaptive management will allow PWB to implement a plan and continually revise it as they evaluate its effectiveness in achieving short- and long-term goals of protecting area aquatic resources." Exhibit N.55, page 18.

The Courters argue that "adaptive management is undefined and unenforceable" and amounts to the County "abdicat[ing] responsibility to future reviews that may never occur and that will be controlled by the same project proponents." Exhibit S.21, page 6. As noted above, I conclude, as did Biohabitats, that the measures described above are more than adequate to result in the Project having no adverse impact

to area aquatic habitat or water quality. Given that conclusion, no further future reviews are required by County staff to supporting the finding that MCC 39.7515(B) is met in this case. PWB's commitment to the best practice of adaptive management does not change that conclusion.

Moreover, "adaptive management is not undefined, but includes monitoring, triggers, and actions that will allow PWB to rapidly implement improvements to the stormwater management system when changes, which cannot currently be predicted with reasonable accuracy, occur. Adaptive management for stormwater systems is a best practice for providing a structured, iterative responsive process used to improve stormwater performance over time in the face of uncertain changes to climate and weather patterns over the life of the project. It involves planning, monitoring, evaluating, and adjusting stormwater practices based on observed outcomes and changing conditions (e.g., climate). Adaptive management is a structured way to ensure stormwater systems remain effective over time, even as conditions change over the many decades of life of this project." Exhibit U.20.a., pages 31-32.

"That said, the project has planned for future changes that we can reasonably predict, including the effects of climate change, as discussed in Attachment L to Exhibit N.58 Filtration Facility Site Stormwater Drainage Report. The conveyance system has been conservatively designed to accommodate larger rainfall events equivalent to the predicted 10-year design storm in 2080, the detention facilities are sized to detain the predicted 25-year storm in 2080, and stormwater treatment systems are oversized by 49%. Furthermore, PWB has committed to monitor system performance and climate change indicators, and modify the system as required to maintain or improve performance over time." Exhibit U.20.a., page 32.

That is, contrary to the concerns of the Courters, the stormwater management system does not "[d]epend on assumptions about flow behavior and climate conditions that may not hold over time." Exhibit S.23, page 2. "Instead it anticipates that climactic conditions and weather patterns will change … and uses a conservative design to accommodate near-term changes, and an adaptive management approach, described above, to respond to long-term changes that cannot be accurately predicted at this time." Exhibit U.20.h, page 12. The Courter's statement that "climate science[,] increasing storm intensities[,] and irregular weather patterns … are not being taken into account" reveals that they likely have not read Exhibit N.58 Site Stormwater Drainage Report - Attachment L: Climate Change TM, which concludes that "The conservative sizing in the design for conveyance, treatment (water quality), and flow control (water quantity) for the stormwater system at the Filtration Facility site includes excess capacity to accommodate the impacts of projected increases in rainfall due to climate change." "University of Washington climate adjustment factors have been applied to current, 24-hour design storm events to reflect future, climate adjusted 24-hour design storms for comparative purposes. The sizing of proposed stormwater facilities at the Filtration Facility have been evaluated in the context of climate-adjusted design storm events to identify the ability of proposed stormwater infrastructure to manage increased rainfall in the future while adhering to current performance standards. Identified excess capacity in the onsite conveyance, treatment, and detention stormwater system will be used to accommodate projected increases in rainfall." Exhibit U.20.h, page 13.

v. Conclusion

Temperature is the only category of potential impairments where a small risk of adverse effects to area aquatic habitats (specifically, Johnson Creek) from the Project does exist. The small risk relates to the potential for a large rainstorm, on a hot day, that occurs before the new riparian plantings along Johnson Creek have had time to establish. As has been explained, the risk of that kind of storm on a hot day occurring before establishment of plantings is very low because in 38 years of data reviewed, it has never happened. Nevertheless, the Project will provide mitigation with an overall benefit to temperature conditions in Johnson Creek through extensive improvement of Johnson Creek's riparian areas and the removal of Cottrell Pond, which has been shown to create lethal temperature impacts in the creek. As the Project overall will positively affect temperature conditions in Johnson Creek, it cannot be said that the Project will adversely affect natural resources in this manner.

e. Conclusion

Overall, I find that the Project will not adversely affect fish habitat areas, water quality, or aquatic habitat.

3. Contaminated Soils

Commenters' concerns about contaminated soils are focused on the construction activities of the removal and beneficial reuse of the soils. As those are construction activities, they are addressed below in Section X.B. This section addresses how the Project's management of soils will improve, rather than adversely affect, natural resources.

It is notable that, within the same document (Exhibit N.43), CCPO/PHNA argue both that the soils from the Filtration Facility site are, on the one hand, "contaminated" and "solid waste containing hazardous substances," page 34, and, on the other hand, "renewable, high-value Agricultural soils", page 63.

a. Expert Testimony

The applicant provided expert testimony from Mr. Dennis Terzian RG, Principal Geologist at PBS. Mr. Terzian's resume is in the record at Exhibit N.66 and shows that he is qualified by both education and experience to provide an expert analysis of contaminated soils, how they have been managed by the Project, and the potential for the soils or management of soils to adversely affect natural resources. Mr. Terzian holds a Bachelor's of Science in Earth Science from Western Michigan University and has more than 27 years of experience managing environmental site investigation and remedial activities, including conducting Phase I/Phase II Environmental Site Assessments (ESAs) for sites with historical pesticide use and impacted soils and related to contaminated media from industrial properties, discharges during dewatering, and the site-specific management of contaminated soils. Mr. Terzian is a Registered Geologist in Oregon, a Licensed Geologist in Washington, and additionally holds an Oregon Certified Water Rights Examiner qualification and has completed the OSHA 40-Hour Hazardous Waste Training (HAZWOPER). I find Mr. Terzian to be qualified to provide an expert opinion on contaminated soils, how they have been managed by the Project, and the potential for the soils or management of soils to adversely affect natural resources.

No other party to the proceeding purported to, or is evidenced to, have provided expert testimony on this topic.

b. Background

Soils at the Filtration Facility site and Pipelines sites were identified as "containing low levels of persistent pesticides." Exhibit N.62, page 1. DEQ referred to the soil as "slightly contaminated[.]" Exhibit N.43, page 34. "Site assessment activities completed in November 2023 consisting of Incremental Sampling Method (ISM) large scale composite sample and analysis of composite soil samples for organochlorine pesticides, chlorinated herbicides, 17 agricultural metals and total petroleum hydrocarbons, identified residual concentrations of several persistent pesticides in near-surface soil at the Filtration Facility Site and Finished Water Pipeline Sites, including 4,4-DDD, 4,4-DDE, 4,4-DDT, and dieldrin at concentrations exceeding Oregon Department of Environmental Quality (DEQ) Clean Fill Screening Levels (CFSLs). All other analytes were either below laboratory detection limits or were detected at concentrations below CFSLs. Samples collected in the vicinity of the Raw Water Pipeline did not contain concentrations of these compounds above laboratory detection limits." Exhibit N.62, pages 1-2. Although "DDT, DDE, and Dieldrin can at higher concentrations affect human health receptors, all concentrations of these compounds in the Project Sites' soil were noted to be below applicable DEQ risk-based criteria protective of human health receptors." Exhibit S.34, page 2.

The described contamination was limited to the top 1.5 feet (18 inches) below ground surface (bgs). Exhibit N.62, page 2. Deeper soils are considered clean fill. Exhibit S.34, page 6.

"The Filtration Facility Site has historically been utilized for agricultural activities, including, most recently, a landscape tree propagation nursery. Agricultural activities have also occurred near or on certain segments of the Pipeline Sites." Exhibit N.62, page 1. "The presence of low levels of pesticides like those found in near-surface soils is common on agricultural properties that were in active use between the 1940s and 1970s when these chemicals were commonly used. Once applied, these chemicals are very stable, bind to soil particles, and degrade at slow rates, resulting in the persistent presence of these compounds in soil for decades." Exhibit N.62, page 3. "Similar properties within the area that have been in agricultural use for extended periods of time similar to the Filtration Facility Site (including agricultural properties abutting the Filtration Facility Site) are likely contributing to the transport of low-level contaminated sediment to areas of natural resources." Exhibit N.62, page 3.

c. Facts and Conclusions

The operating Project's management of contaminated soils will not adversely affect natural resources. I agree with the conclusion of the expert on this matter, PBS / Mr. Terzian, that the project "will result in a reduction of the potential for mobilization of contaminated soil to areas of potential natural resources to occur when compared to the potential for the sites to adversely affect natural resources in their pre-development state." Exhibit N.62, page 3. The reduction in the potential for mobilization of contaminated soil to areas of potential natural resources is shown in the record, in particular, by the facts that: (1) "approximately two-thirds of the contaminated soil at the Filtration Facility Site and all excavation soil from the Pipeline Sites that were present at the sites before development have been or will be removed, significantly reducing the overall mass of soil that contains residual pesticides at DEQ-defined levels of concern[;]" and (2) at both the Filtration Facility site, and Pipelines sites, improvements

to install and manage vegetation will retain topsoil on the site and mitigate erosion in a manner superior to standard agricultural practices for row crops.

i. Prior Agricultural Use

The vegetated state of the Project sites post-construction will "retain topsoil on the site and mitigate erosion in a manner superior to standard agricultural practices for row crops (including the pre-development condition of this site) which often rely on tilling of soil and periods of time where little to no vegetation is present." Exhibit N.62, page 2. Additional evidence related to sediment-laden runoff from the agricultural site pre-construction is provided in Section VI.

Notably, the contamination itself was *caused* by the prior agricultural use of the land. The prior use of the filtration facility site – as an agricultural field – is what created the subject contamination with the persistent pesticides 4,4-DDD, 4,4-DDE, 4,4-DDT, and dieldrin. "Similar properties within the area that have been in agricultural use for extended periods of time similar to the Filtration Facility Site (including agricultural properties abutting the Filtration Facility Site) are likely contributing to the transport of low-level contaminated sediment to areas of natural resources." Exhibit N.62, page 3.

ii. Filtration Facility

"Following completion of construction of the filtration facility, soils not meeting the criteria for consideration of clean fill will have been removed from 68 of the 96 acres of the Filtration Facility Site." Exhibit N.62, page 2. As explained in detail in Section VIII.D, PWB will plant extensive areas of grasses, shrubs, and trees at the Filtration Facility site. "The extensive plantings will minimize migration of soil from the property by surface water or wind erosion processes." Exhibit N.62, page 2.

The absence of contaminated soils from the Filtration Facility site (the condition brought about by the Project), and the addition of extensive vegetation and sediment-reducing stormwater management systems, will result in a lower ecological risk and overall positive impact to area natural resources. *See* Exhibit U.20.a, page 20. This reduction in the "sources of sediment and sediment-borne contaminants" entering Johnson Creek is precisely the "management of runoff in the upper part of the basin" that the USGS memorandum in Attachment 2 to Exhibit U.20.a concludes is "important to the ecological health of the entire basin."

iii. Pipelines

Before operations of the Project, Pipeline construction areas will be restored to their previous conditions as roadside, shoulder, or agricultural land. Exhibit N.62, page 3. Although beneficial reuse on road shoulders was one of the allowed uses under the BUD, no excavated contaminated material / soils will have been left in the pipeline alignment or placed elsewhere for beneficial reuse. Exhibit U.20.d, page 2. "Soils and other materials used to restore the pipeline construction areas will only be clean fill. Therefore, removal of contaminated soils from the pipeline alignments will result in a lower risk to surrounding natural resources and the project will positively (rather than adversely) affect natural resources related to contaminated soils." Exhibit U.20.d, page 2. The absence of contaminated soils from the pipeline alignments (the condition brought about by the Project), and the addition of vegetation in these disturbed areas, will result in a lower ecological risk and overall "positive impact to natural resources within or adjacent to the pipelines." Exhibit N.62, page 3.

D. "Wildlife Habitat Areas"

1. Topic Summary

For the reasons set forth in Section IV.D.9 the natural resource at issue in this section is "wildlife habitat areas" or "wildlife habitat." It is not "wildlife" itself or the individual mammals, birds, amphibians, or fish that collectively make up wildlife. Much of the testimony received by project opponents and many of the arguments advanced by Ms. Richter are either specific only to wildlife or conflate impacts to wildlife with impacts to wildlife habitat without an explanation of how a reference to an impact or injury to an individual animal is caused by or relates to an impact to the wildlife habitat that supports that animal. For example, Ms. Richter refers to impacts to wildlife without reference or connection to habitat at least six times in her proposed findings. Exhibit W.3a. I recognize that there is often nuance in the distinction between wildlife impacts and wildlife habitat impacts and have considered that in my review. However, I find that testimony related exclusively to adverse effects or injury to wildlife or individual animals is not relevant to my determination of compliance with MCC 39.7515(B).

At the outset of this section, it is also important to acknowledge the difficulties inherent in applying the "will not adversely affect" criterion to a natural system as broad and complex as wildlife habitat. As relevant to wildlife, "habitat" is broadly defined as "the place or environment where a plant or animal naturally or normally lives and grows."[50] In the context of that definition, and based upon the plain language of the criterion, I find that MCC 39.7515(B) does not expressly favor one type of wildlife habitat over another type of wildlife habitat. Nor does the standard favor habitat for one species over habitat for another species.

2. Expert Testimony

a. Applicant's Experts

Multiple experts evaluated upland habitat impacts and developed and prepared the wildlife habitat analysis contained in the Habitat Evaluation Procedure (HEP) and habitat enhancement plans for the project.

Sarah Hartung, PWS, of ESA (resume at Exhibit I.88) ESA, is a Senior Ecologist with 25 years of experience in natural resource planning, permitting, mitigation strategies, and habitat restoration. She has successfully supported numerous infrastructure improvement projects with complex regulatory issues in riparian, wetland, and upland environments. Sarah's expertise is in avian (bird) ecology, and she has a broad understanding of wildlife biology and the habitat requirements of other animal groups, including mammals, amphibians, and fish. Through her attention to detail and technical accuracy, she has gained the trust of local and regional regulatory agencies, including DSL, DEQ, ODFW, USFWS, and USACE. Ms. Hartung has a Master of Science degree in Avian Ecology from the University of Illinois, a Bachelor of Arts degree in Biology from Hamline University, and is a Professional Wetland Scientist

[50] "Habitat." *Merriam-Webster's Unabridged Dictionary*, Merriam-Webster, http::://unabridged.merrium-webster/unbridged/habitat. Accessed July 31, 2025.

(PWS) and qualified by the Oregon Department of Transportation for providing Endangered Species Act documentation.

Angie Kimpo, Environmental Regulatory Program Coordinator for Portland Water Bureau, Bull Run Environmental Compliance and Resource Protection and Planning (resume at Exhibit U.20.k), has more than 25 years of experience with designing and implementing mitigation and ecological restoration projects in the Pacific Northwest to meet regulatory requirements and stewardship goals along with management of Pacific Northwest ecosystems and the management of natural resources on public lands and open spaces throughout the Metro region.

Christe Galen, Senior with PHS (resume at Exhibit U.20.k) has 36 years of experience conducting natural resource inventories and impact assessments, habitat assessments, sensitive species surveys, preparing Endangered Species Act Biological Assessments, wetland delineations and mitigation monitoring, and developing mitigation, restoration, and natural resource management plans. She has an extensive background in Pacific Northwest botany, wildlife, ecology, habitat restoration, resource management, and environmental permitting. She has conducted and managed numerous natural resource inventories (e.g., wetlands, stream corridors, uplands, sensitive species) for cities and counties throughout Oregon to meet the requirements of Oregon's land use planning Goal 5 and to help communities identify and protect important natural resources. She works with clients to incorporate measures into their project designs to avoid and/or minimize impacts to sensitive species, sensitive habitat, wildlife habitat, wetlands, and streams. She recommends best management practices to preserve and protect natural resources, maintain resource connectivity and wildlife corridors, reduce habitat fragmentation, improve microhabitat features, and prevent the spread of invasive species. Ms. Galen has a Bachelor of Science degree in Biology from Portland State University.

Anita Smyth, SPWS, with WinterBrook (resume at Exhibit A.155), has more than 25 years of professional environmental science experience with an emphasis on environmental inventories and permitting projects with potential impacts to ecologically sensitive areas. She has conducted numerous wetlands, riparian corridors, and wildlife habitats studies, including local wetland inventories and riparian habitat assessments for several Oregon cities. She is a Senior Professional Wetland Scientist (SPWS) and has completed numerous wetland delineations, functional assessments, and mitigation plans as standalone projects and as part of Joint Permit Applications (JPAs). She has worked with public and private clients to navigate their projects' environmental and regulatory challenges, emphasizing creative site planning with clients and agency staff to find mutually acceptable solutions early in the design process. Ms. Smyth has a Professional Master of Environmental Science Degree from Oregon State University and a Bachelor of Arts degree from Willamette University.

Bruce Prengruber is a Professional Economist with Globalwise (resume at Exhibit A.155) and has more than 39 years of experience in Agricultural Economics. He initiated and managed international market development programs in 10 countries that introduced over 100 U.S. companies to importers and distributors, managed a 13-member state export program, and proposed and managed over 100 economic and marketing projects. His recently published papers include *City of Sandy WSFP Detailed Discharge Alternatives Evaluation: "Market Potential for Sandy's Recycled Water"* for City of Sandy Oregon, "*Planning and Workshop Facilitation for Understanding Farmland Protection Priorities in the North and South Puget Sound Region"* for PCC Farmland Trust, *Task Reports Evaluating the Potential for Land Improvement for Grazing and Crop Production at the Westby Cattle Ranch* in New Meadows, Idaho, and "*Proposed Bikeway Impacts on Agricultural Land Owners in Benton County, Oregon"*. Mr.

Prengruber has a Master of Science degree in Agricultural Economics from the University of Wisconsin, a Bachelor of Science degree in Agricultural Economics from Washington State University-Pullman and was an Adjunct Instructor of Economics at Washington State University-Vancouver.

b. Opponents' Experts

STEVE SMITH, *Wildlife Biologist (U.S. Fish and Wildlife Services, retired)***.** Steven Smith has had a 34-year career as a professional wildlife biologist. A 1978 graduate of Wildlife Science and Rangeland Resource Management programs at Oregon State University, Steven has worked for the U.S. Forest Service, Oregon Department of Fish and Wildlife, and U.S. Fish &Wildlife Service. Throughout his career, Steven has worked with farm and forest landowners to conduct habitat assessments, integrate farm, forest and wildlife management systems, and implement habitat restoration projects to benefit fish and wildlife resources. The private landowner assistance programs he implemented have been recognized nationally as a model for achieving cooperative wildlife management on private and public lands.

No opponent has purported to provide expert testimony on wetland function or hydrology nor provided evidence that they are qualified by education or experience to render an expert opinion on the topic.

3. Overall Analysis Facts and Conclusions

To determine that the Project will not adversely affect wildlife habitat it is necessary to compare the wildlife habitat quantity and quality across all Project areas under the pre-construction use in comparison to the wildlife habitat quantity and quality across all Project areas under the post-construction use. If the overall wildlife habitat value of the post construction use is equal to or higher than the pre-construction use then the Project will not adversely affect wildlife habitat. Sarah Hartung of ESA (hereinafter "ESA" or "Ms. Hartung") evaluated the pre- and post-construction wildlife habitat across the four project areas, the Filtration Facility, the Raw Water Pipeline, the Finished Water Pipeline, and the Intertie site. Given the diversity of habitats across the Project area ESA conducted a modified Habitat Evaluation Procedure (HEP) analysis. The HEP was used to quantify pre-construction and post-construction wildlife habitat in the Project area to inform habitat enhancement and planting plan details that would result in a Project that will not adversely affect wildlife habitat. In other words, a Project above the bar.

The linear pipeline elements of the Project required removal of a number of trees. Through careful alignment, the vast majority of the tree removal occurred in the right of way. ESA worked with PWB habitat restoration staff to develop a robust and comprehensive planting and habitat enhancement plan to ensure that the wildlife habitat quality of the operating Project was high enough to compensate for the tree removal. The Filtration Facility plan includes extensive native planting across 47 acres including 5 different habitat areas, and additional habitat enhancements across the Filtration Facility site and other Project areas.

Overall, ESA concludes "[t]aking into consideration the wildlife habitat within and surrounding the Project area prior to construction in comparison to post-construction habitat impacts and enhancement, the author concludes that the Project will not adversely affect wildlife habitat." Exhibit N.56, page ii. ESA reaffirmed that conclusion stating, "[t]aking into consideration all of the comments and evidence in the record, it continues to be ESA's expert option that the filtration facility project will not adversely

affect wildlife habitat." Exhibit U.20.c, page 44. For the reasons provided in this Section VIII.D I agree, and find that the Project will not adversely affect wildlife habitat or wildlife habitat areas.

4. Habitat Evaluation Procedures

a. Purpose of HEP

MCC 39.7515(B) does not identify a specific methodology or type of natural resource evaluation to demonstrate that a community service use will not adversely affect natural resources, including wildlife habitat. As described in the Executive Summary of the Habitat Impact Analysis prepared by ESA for the Project, a HEP was selected as one of the methods used in this case to demonstrate that in comparing the pre-construction use of the Project areas to the post-construction use, the Project will not adversely affect wildlife habitat.

As broadly described in the summary, the purpose of the HEP is to quantify pre-construction and post-construction wildlife habitat in the Project area. Exhibit N.56, page 1. A HEP methodology can be used to document the quality and quantity of available habitat and provide a comparison to the relative value of the different areas at a future point in time to quantify the impact of a proposed project on wildlife habitat. Exhibit N.56, page i. In this case, it was used to document the habitat quantity and quality in the Project areas pre-construction and compare that to the habitat quantity and quality in the Project areas post-construction. See Exhibit U.20c, Table 3 (summary table for the updated pre- and post-construction Wildlife Habitat Units by habitat type).

b. Methodology and Conclusions

As explained in Habitat Impact Analysis Appendix A, HEP Methodology and Representative Wildlife Species, standard HEP methods rely on existing habitat models that rate habitat suitability according to a few optimal characteristics for specific species. Exhibit N.56, page A-1. In this case, the analysis uses "a modified HEP approach where habitat is ranked according to expected use of habitats by selected wildlife species known or suspected to occur in the project area and vicinity."[51] Exhibit N.56, page A-1. Originally, eight species were selected as representative species to "show a range of behaviors, life histories, and habitat needs." Exhibit N.56, page A-1. In response to comments from Steven Smith, a biologist testifying on the behalf of opponents CCPO/PHNA, during the first open record period that the HEP should have considered additional species, ESA evaluated five additional species in an updated analysis, for a total of 13 species. The updated HEP conclusions and data was included in the ESA Response to Upland Habitat Comments for Second Open Record Period. Exhibit U.20c, pages 23-28; Attachments 3a and 3b.

Under the HEP evaluation the value of the habitat for a selected species or the value of a community can be described using a Habitat Suitability Index (HSI). This HSI value (which ranges from 0 to 1.0) is multiplied by the area of available habitat to obtain Wildlife Habitat Units (WHUs). Exhibit U.20c, Attachment 3a, pages 1-2. HSI values were assigned based on both foraging and breeding habitat to capture a range of uses. Exhibit N.56, page A-1 – A-2. The WHUs represent the value for a wildlife

[51] Future references to the HEP in these findings are intended as reference to the modified HEP applied in this case unless clearly indicated otherwise.

habitat area considering both the quantity and quality of the area. Exhibit N.56, page i. An overall gain in WHUs post-project supports a conclusion of an increase in habitat value across the Project area. In this case, the Project was divided into specific pre-construction and post-construction areas to account for the varied habitat types across project components. See Exhibit U.20c, Tables 1-4. As detailed in the updated HEP summary tables, the final analysis considering all 13 representative species across all Project areas resulted in an increase in 38.4 WHUs between pre-construction and post-construction habitat units. Exhibit U.20c, Table 3, page 28. The pre-construction and post-construction totals for each Project area are presented in the updated graphs in the ESA Response to Upland Habitats Comments in the Second Open Record Period. U.20c, Figures 5 and 6, pages 26 and 27.

As ESA explains in the HEP Methodology description, conservative assumptions were made for the HSI assignments meaning, "pre-construction conditions were assumed to be at least somewhat favorable for the species if there was any justification or likelihood of occurrence." Exhibit N.56, page A-1. Additional conservative assumptions and calculations that I find favored increased pre-construction habitat values and decreased post-construction habitat values are identified below.

c. HEP Testimony

Extensive testimony was submitted by Mr. Smith related to the use of the HEP methodology. Specific issues raised by Mr. Smith are addressed by subject matter below. However, there are several themes in Mr. Smith's overall testimony that I find are relevant to his credibility in applying his expertise to this Project.

First, based upon the work history Mr. Smith provided, he had an impressive career in public service across two federal agencies and one state agency before retiring. Exhibit U-19, Work History. That agency perspective influences, and thus reduces the relevance of the testimony he has provided in this case. For example, Mr. Smith's testimony at Exhibit S.26 criticizing the HEP methodology applied by ESA cites and relies heavily, if not exclusively, on the requirements of a 1996 United States Fish and Wildlife Service ("USFWS") HEP manual. The stated purpose of the referenced 1996 manual is "to provide policy, standards, and guidance for application of the Habitat Evaluation Procedures (HEP) in the Fish and Wildlife Service." Exhibit U.20c, Attachment 2, page 1. The manual exclusively provides guidance for the federal agency and is not applicable to a modified HEP methodology conducted outside of the agency. This is further reinforced by Section 1.4 of the 1996 USFWS manual that describes the intended applications for a USFWS HEP subject to the manual guidance, which include federal projects required by the Fish and Wildlife Coordination Act, and federal agency planning activities particularly when USFWS is a cooperating agency under the Council on Environmental Quality's Regulations for implementing the National Environmental Policy Act. Exhibit U.20c, Attachment 2, page1. Based upon the purpose and intended application of the 1996 HEP manual referenced in Mr. Smith's testimony, I find that the document is not applicable to the HEP applied in this case. Mr. Smith indicates in his testimony that he sought to understand the use and requirements of the HEP through communications with USFWS staff. Exhibit S.26, page 3. There is no indication that those staff members would be familiar with how a HEP could be or is used outside of a USFWS project that is not subject to the requirements of the 1996 manual.

The USFWS perspective and focus Mr. Smith applied to his review and critique of the HEP methodology applied in this case is clearly stated in the first sentence of his conclusion in Exhibit U.19, which provides, "I do not believe the assessment of wildlife use, habitat composition and structure, and mitigation

measures meet the standards outlined in published manuals for HEP and HSI." Exhibit U, 19, page 9; *See also* Exhibit U19, page 1 (indicating that Mr. Smith standards by his assessment that the HEP/HSI used by ESA lack scientific validity with a citation to USFWS 1996). As explained above, the HEP methodology used in this case is not required to meet published standards applicable only to the USFWS. I find that collectively these sources indicate that Mr. Smith has a particular perspective for a HEP that is not directly relevant to how the HEP methodology was applied in this case.

Second, Mr. Smith's testimony demonstrates a general lack of knowledge of the relevant facts in this case. Mr. Smith concludes in his final testimony that "Based on my 25 years of experience of conducting and designing habitat restoration on over 16,000 acres within the Willamette Valley, I do not believe the mitigation plan will provide replacement habitat that functions as well as the existing combination of farm field, hedgerows, forest edge and wetlands that were present on the filtration site." U.19, pg 8. Ms. Richter, in turn, bases the conclusion of her proposed findings on that statement. Exhibit W.3a, page 22. While Mr. Smith's work history details his experience with restoration work, in this statement he is not just relying on his experience. Critically, he is also asserting specific knowledge of the pre-construction functions of all four referenced habitat areas and assuming that the project will impact each of those functions. However, the record indicates that Mr. Smith lacks basic familiarity with the Project, the Project components, and the Project areas. In terms of the four habitat areas, Mr. Smith 1) failed to acknowledge evidence in the record related of the site-specific pre-construction commercial nursery use and practices at the Filtration Facility site that, as discussed below, reduced the wildlife habitat value and function of the referenced "farm field"; 2) during oral testimony, indicated that he was asked by CCPO to assist in assessing wildlife habitat but had nothing to assess[52], indicating he has no personal knowledge of the composition functional value of the Dodge Park Boulevard hedge row; 3) demonstrated no knowledge of the location of the forest edge with the Project area or awareness that it is being retained through project design; and 4) provided no testimony indicating that he knew of the locations of the wetlands with the Project areas or was aware that the Project successfully avoids permanent impact to wetlands and only results in 83 square feet of temporary impact to a wetland located between Dodge Park Boulevard and active agricultural field. Mr. Smith revealed the extent of his lack of familiarity with the Project features and habitat locations when he stated, "Pages 9-10 of Exhibit N.56 document that ESA conducted pre-construction bird nesting surveys at the filtration site, raw water pipeline alignment areas and right of ways in early spring and summer of 2024, these areas do not include hedgerow, wetland or forest edge." Exhibit S.26, page 2. As explained in ESA's response in Exhibit U.20c:

> As well documented in testimony and the record, the hedgerow that was removed for the finished water pipeline was exclusively located in the public right-of-way along Dodge Park Boulevard. In fact, as explained in the Temporal Impacts topic in Exhibit S.32, 91% of trees removed for the project were located in the public right-of-way. The raw water pipeline will be located beneath property that includes delineated wetlands and two ponds that will be avoided by the project during construction. The raw water pipeline will also be located on property with established forest edge that will remain following construction. The filtration facility site also includes extensive forest edge

[52] Hearing Video, Minute 02:27:02.

> along the eastern boundary of the site and riparian forest edge in the southwest corner of the site.

Exhibit U.20c, page 17. None of that is to say that Mr. Smith is not an expert on the subject of wildlife habitat. I find, however, that his lack of familiarity with pre-construction habitat conditions and Project areas significantly reduces the credibility of his very broad conclusion that hinges on an understanding of the value of pre-construction wildlife habitat in comparison to the value of post-construction wildlife habitat across the four habitat types he references.

Third, Mr. Smith's conclusions about the likelihood of the habitat enhancement succeeding both in Exhibit U.19 and Exhibit S.22 seem extensively tied to the notion that habitat projects tend to fail due to a lack of long-term maintenance, monitoring, and funding of a project. *See* Exhibit S.26, page 6 ("HEP and HSI do not account for the long-term costs and care required to monitor or maintain habitat"); Exhibit U.19, page ("[t]he literature indicates that successful mitigation projects are those that have a stakeholder commitment to developing the habitat, monitoring the wildlife population response over time and assisting with long term maintenance of the site…I find no strong evidence that PWB has committed the resources to ensure long term stewardship and mitigation success.") His concern is addressed in this land use context through a condition of approval. The planting maintenance and monitoring condition of approval I impose in Section VIII.G.5.e.ii below requires 20 years of habitat monitoring and reporting and on-going survival of the habitat enhancement plan. Because of his repeated reference to a lack of commitment as fundamental concerns it is unclear how much of his overall conclusion is based on his belief that long term maintenance and monitoring would not be required.

Finally, Mr. Smith makes a statement about the relevance of construction in this remand hearing that is neither legally accurate nor relevant. He notes that ESA provided several responses in their 1st open record response at S.32 that construction of the project is outside of the scope of this proceeding and irrelevant to compliance with MCC 39.7515(B). Mr. Smith responds stating, "had the land use changes been implemented after the approval of the application this may have been accurate." Exhibit U.19. This statement is wrong for two reasons. First, the Hearing Officer for the initial hearing held that construction is not the use subject to MCC 39.7515(B), LUBA upheld that decision, and I am complying with LUBA's decision in this remand proceeding and announced that position at the beginning of the public hearing Mr. Smith attended. The timing for the start of construction has no relevance on that legal holding. Second, and more importantly for my consideration of the testimony in this case, at the time PWB began construction activities, the conditional use permits issued by Multnomah County were legal and valid. Mr. Smith may have been misinformed about the effect of the initial land use approval or simply misunderstood the procedural nuances, but in either case, the statement signals that he has been providing testimony in this case under the assumption that PWB did not have the legal authority to commence construction under an effective land use permit.

I find that collectively, these circumstances diminish Mr. Smith's credibility as an expert witness in this case.

i. Inventory

Multiple commenters, including Mr. Smith, claim that PWB did not conduct a sufficient inventory of vegetation or wildlife presence across the Project area. *See* Exhibit S.26, pages 3 and 5, Exhibit U.19,

pages 3-4. Mr. Smith in particular contends that "[i]nventory for wildlife use requires multiple techniques and repetitive seasonal visits to assess wildlife presence." Exhibit S.26, page 3. He provides examples of bird surveys in winter and summer mammal surveys using night cameras and scent stations, and reptile surveys across multiple seasons. Exhibit S.26, page 3. Mr. Smith asserts that these are all "customary inventory techniques." Exhibit S.26, page 4. Mr. Smith and other project opponents also specifically, argue that for the commercial nursery land specifically, it was necessary inventory wildlife presence across different conditions across multiple seasons because of its ever-changing condition.[53] Exhibit S.26, pages 5-6. Ms. Richter then relies on Mr. Smith's assertion to herself assert that a project-wide, thorough inventory of vegetation and wildlife was necessary. Exhibit W.3a, page 18. However, neither the project opponents nor legal counsel, provide any explanation for why the described level of inventory is required in this case. For example, Mr. Smith does not describe what type of project and under what regulatory circumstance an inventory over multiple seasons using night cameras and scent stations is "customary."

In this case, I find that nothing in the plain text of MCC 39.7515(B) requires a specific survey, sampling, monitoring, or inventory. Nor does the standard dictate any particular methodology to demonstrate that the operating Project will not adversely affect wildlife habitat. The inventory and studies performed and reviewed by ESA and others across the Project site are documented in the record, and include database review, a complete tree inventory, sensitive species inventories, a wetland inventory, forest inventories, and avian surveys. Exhibit S.32, pages 8-9; Exhibit U.20c, pages 16-19. In addition to the surveys and inventories, Ms. Hartung and City of Portland staff involved in development of the HEP and habitat enhancement plans conducted multiple site visits to all portions of the Project area, including the Dodge Park hedgerow, wetland areas, and all areas on the Filtration Facility site at different times of the year to understand the vegetation structure/density/composition and observe wildlife species that use the area. Exhibit U.20c, page 18.

As addressed below, ESA applied the information gathered through review of the cumulative survey work and personal observation of all Project areas to select a list of representative species known and suspected to be in the Project area with habitat requirements that correlate to all pre-construction and post-construction habitat areas. *See* Exhibit U.20c, Table 2. ESA combined site reconnaissance and visual estimation with a review of relevant literature and best professional judgement to inform the assigning of habitat quality ratings for each species and cover type of pre- and post-construction conditions.[54] Exhibit I.20c, page 20 As documented throughout these findings, I find that ESA also applied conservative assumptions in assigning pre-construction habitat value for the representative species across all project areas that were weighted towards increased pre-construction habitat values and lower post-construction habitat values.

[53] The element of this comment that is specifically related to the HSI applied to the nursey land is discussed below.

[54] ESA noted that this approach is consistent with an approach taken by BPA for the West Beaver Lake Project. ESA explained that as noted in the West Beaver Lake study, "visual estimation of suitability index values based on reconnaissance site visit or review of aerial imagery can be combined with vegetation data and/or understanding of the dominant species and plant structures within the cover type (such as grasslands, mature forest, etc.) to assign habitat values for the focal species in order to quantify habitat units." Exhibit I.20c, page 20.

ESA applied a conservative approach to the HEP process in multiple ways. First, as explained in greater detail in Section VIII.D.4.c.iii below, ESA identified species known to occur in the area based upon survey data and public testimony that represented a variety of other species with similar habitat requirements. Second, as ESA explains, if there was uncertainty about whether a representative species would use one of the pre-construction habitat areas, the HEP analysis assumes the presence of that species in assigning HSI values included in the pre-construction tables. Exhibit U.20c, page 20. For example, the little brown bat, one of the original representative species, was assumed to forage over the Filtration Facility site in pre-construction conditions because of the open landscape and proximity to forested habitats. The HSI model assumptions are presented in the updated Habitat Impact Analysis Appendix A. Exhibit U.20c, Attachment 3b.

Finally, ESA used a conservative assignment of pre-construction habitat value across project areas. For example, as explained in Section VIII.D.5.a.i the HEP conservatively assigns hedgerow habitat value to the entire Finished Water Pipeline alignment. In doing so, rather than underestimating the habitat value of the hedgerow across all species as suggested by Project opponents, the approach resulted in habitat units that greatly exceeded the habitat value along the entirety of the Finished Water Pipeline alignment. Additional, examples of the conservative steps taken in the HEP to assume higher pre-construction habitat value and lower post-construction habitat value are identified in various sections below.

Neither Mr. Smith nor any other project opponent challenged or otherwise addressed <u>any</u> of the pre-construction or post-construction habitat values identified in the original or updated HSI or Wildlife Habitat Unit tables. Exhibit N.56, Appendix B; Exhibit U.20c, Attachment 3b. In other words, there is no evidence or argument in the record to support a conclusion that the specific habitat values used to conclude the post-construction wildlife habitat value across the Project area is greater than the pre-construction wildlife habitat value were wrong or otherwise flawed.

It appears from the record that neither ESA nor PWB conducted a comprehensive wildlife and vegetation survey across multiple seasons. However, I find that in this case, that level of inventory or survey was not needed to satisfy MC 39.7515(B). Because the HEP applied in this case uses a habitat-based approach with representative species and multiple conservative HSI assumptions, I find ESA had and applied the necessary level of familiarity and understanding of the vegetation and habitat characteristic of all Project wildlife habitat to quantify pre-construction and post-construction wildlife habitat without the level of vegetation and wildlife inventory opponents claim is needed.

ii. <u>Expert Model/Team</u>

Mr. Smith asserts in his testimony that HEP was designed as an “expert” model. More specifically he states, “HEP is designed to be a collaborative, team effort and involve multiple types of species experts to review and select species of concern.” Exhibit S.26, page 6. This statement highlights why ESA conducted a HEP specific to the requirements of the applicable conditional use standard in this case. MCC 39.7515(B) does not require an evaluation of species of concern. Instead, I find that for purposes of wildlife habitat, it requires a conclusion that the operating project will not adversely affect wildlife habitat more broadly without favoring one species over another.

Mr. Smith also explains that the “[t]he FWS manual recommend experts from agencies and NGOs provide input and evaluation of species and their habitats.” Exhibit S.26, page 6. For the reasons

established above in Section VIII.D.4.c, I find that the HEP manual is not a binding authority for the HEP applied in this case. Even if it were, Section 1.8.B of the 1996 manual cited by Mr. Smith directs USFWS staff to use maximum effort to conduct HEP evaluations using interdisciplinary teams made up primarily of other federal and state agencies. Exhibit U20c, Attachment 2. ESA points out that because the 1996 manual is to be applied by USFWS in fulfilling its function as a coordinating and cooperating agency under federal laws, "[t]he requirement for USFWS staff to make an effort to use planning teams for HEP evaluations is most likely based in large part, if not exclusively, on the agency's respective role in federal actions, rather than anything inherent in the HEP methodology." PWB is not serving an analogous role in this case.

ESA also confirms that the HEP was not prepared in a vacuum as Mr. Smith suggests. Ms. Hartung explained she received support for development of the pre- and post-construction habitat conditions, selection of representative species, the HEP assumptions, and the assignment of HSI values for the HEP she prepared from the following sources:

- peer review within ESA;
- input from project staff and consultants familiar with the project site and past land use practices, including commercial nursery practices at the site,
- input from PWB staff with experienced with habitat restoration and enhancement work, including Angie Kimpo who has extensive experience with habitat restoration work generally and with oak savannah restoration specifically; and
- review and comments on drafts of the Habitat Impact Analysis provided by City of Portland Bureau of Environmental Services Staff familiar with habitat analysis and mitigation and by Christe Galen from Pacific Habitat Services.

Exhibit U.20c, page 38. Ms. Richter is dismissive, stating that these professionals are "neither qualified, nor disinterested," but fails to explain how Bureau of Environmental Services staff is not qualified, fails to explain how Ms. Galen is not qualified or not capable of third party review, and seemingly mistakes Ms. Kimpo for a landscape architect. As detailed in her resume, and discussed below, Ms. Kimpo the Environmental Regulatory Program Coordinator for PWB, and has over 25 years of experience designing and implementing mitigation and ecological restoration projects. Finally, the HEP methodology and inputs applied in this case were subject to additional review through the remand hearing and public comment process. Exhibit, U.20c, page 38. In fact, ESA responded to Mr. Smith's suggestion that additional representative species should have been included in the analysis by providing an updated HEP incorporating 5 of those species. *See* Exhibit U.20c, pages 23-28; Attachment 3a and 3b.

Notably and critically, Mr. Smith had an opportunity to review and critique or otherwise comment on the substance of the HEP evaluations and did not do so. In other words, he limited his comments to the overall methodology and species selection. He did not comment on or critique 1) the descriptions of the species selected in Exhibit N.56, Appendix A, 2) the foraging or breeding habitat value assigned to each species for each Project area populated in the pre- and post-construction tables in Exhibit N.56, Appendix B, or 3) the HEP assumptions in Exhibit N.56, Appendix C.

I find that no specific "expert" team approach was required for the HEP used in this case. I further find that there is substantial evidence in the record that the level of input and review provided to inform the HEP modeling and data was adequate to support the reliability of the conclusions.

iii. Species Selection

As explained in the Habitat Impact Analysis, the representative species were chosen to represent a range of behaviors, life histories, and habitat needs. Exhibit N.56, page A-1. The table provided at U.20c titled Habitat Association of 13 HEP focal Species and Associated Species demonstrates that the species selected and other similar species known or suspected to be present in the area, do in fact have a range of habitat needs that are well represented across the both pre-construction and post-construction habitat areas. Exhibit U.20c, Table 2, page 25.

Mr. Smith commented in the first open record period that the HEP is a single species analysis that cannot be used to address other species impacted by the project, but then acknowledges that "PWB apparently used [the eight species from the original HEP] as surrogates for all species of the area potentially impacted by the pipeline and filtration projects." Exhibit S.26, page 4. Mr. Smith then claims that "the use of only these surrogate species is a misrepresentation of wildlife impacts and mitigation adequacy." I note here that Mr. Smith's comment was specific to wildlife impacts and not wildlife habitat impacts. Mr. Smith then criticized ESA for not including the streak horned lark and stated that six other species should have been included. Exhibit S.26, page 4. Notably here, despite an opportunity to do so, Mr. Smith did not explain why he believed the original eight species were inadequate or provide any specific criticism related to those species.

In response, ESA explained that more traditional HEP assessments might use the "single species approach" to analyze pre- and post-project conditions for a specific sensitive species for species specific projects or to comply with federal laws or other regulations that are themselves species specific. As I concluded above, MCC 39.7515(B) is not species or wildlife specific. To help establish in this case that the operating project will not adversely affect wildlife habitat, as opposed to a specific species, the Habitat Impact Analysis includes a "modified" HEP based on key habitat components of selected wildlife species that represent the different habitat needs of a wide range of species both suspected and known to occur in the project area. Exhibit U.20c, page 22. In many cases the species were known to occur in the area based upon extensive representations that they were present in the area from public testimony.[55] ESA selected species that have similar characteristics and habitat needs of other species who were also expected to use both the pre- and post-construction habitats. As ESA further explained,

> In this HEP study, for example, the white-crowned sparrow represents other species with an affinity for grasslands/savannas/shrubby areas like spotted towhee, Lazuli bunting, and potentially the Savannah sparrow as well as the dark-eyed junco, all of which have been observed during pre-construction avian surveys at the filtration facility site. As another example, the western bumblebee was selected to represent the foraging habitat needs of other important pollinator species including sweat bees, moths and butterflies. Several native pollinator species require a diversity of flowering plants throughout the growing season for essential life requirements.

[55] Each of the species included in the original eight was mentioned directly at least once in public testimony, and some were referenced extensively, including the Roosevelt elk, bobcat, and retailed hawk. See e.g., Exhibit N.43, page 40 (downy woodpecker); Exhibit E.17, page 2 (red tailed hawk); Exhibit N.10, page 1 (elk); Exhibit H.28c, page 1 (bobcat); Exhibit N.43, page 41 (bumble bee); Exhibit E.17, page 2 (bat); Exhibit H.34, page 7 (Northern red legged frog).

Exhibit U.20.c, page 22. A more complete list of the other wildlife species with similar habitat requirements of each of the representative species is included in a Habitat Associations table. Exhibit U.20c, page 25. The table provides examples of other species known and reported in the area (i.e. coyote, deer, other bat species, other pollinators, and kestrel) and explains the association of all species to the pre- and post-construction habitats.

During the second open record period, Mr. Smith claimed that the original eight HEP species are generalists that "do not accurately represent the full range of critical ecosystem functions or habitats in a region." Mr. Smith does not explain why focusing on "critical" ecosystem functions or habitats in the region generally is necessary for MCC 39.7515(B) which applies generally and broadly to all wildlife habitat, rather than favoring one habitat over another, and requires an evaluation of the wildlife habitat within the Project area rather than the "region." Mr. Smith provides various definitions for focal species, none of which were articulated by ESA. He also falsely states that ESA used the term "indicator species." Exhibit U.19, page 5. The term is not used by ESA anywhere in the record. Mr. Smith next, and for the first time, comments on the original eight representative species. First, he suggests that "red legged frogs are more closely associated with wetlands and adjacent cover area, not the impacted habitats." Exhibit U.19, page 5. This is a curious comment because there are delineated wetlands and riparian areas in the Project area, so it is unclear why a wetland species would not be appropriate for an evaluation of pre- and post- construction habitat across the Project area. It is also a species specially mentioned in the CCPO/PHNA document as species in the area. Exhibit N.43, page 41. He next suggests that Roosevelt elk and bobcats are not species representing habitat components lost in the fields or hedgerows. U.19, page 5. Again, a curious comment given the volume of testimony from neighbors discussed in greater detail below, suggesting that both the nursery field and the hedgerow area provide habitat for elk and that bobcats are in the area. Mr. Smith also fails to acknowledge in this comment that ESA conservatively assigned habitat values to both elk and bobcats across the entirety of the Finished Water Pipeline alignment, including the Dodge Park hedgerow, as discussed in more detail below. Exhibit N.56, Appendix B, Table B-1. Therefore, to the extent that he is correct, it further demonstrates the conservative approach of the HEP.

Next Mr. Smith discusses the Downy woodpecker, a species identified and pictured in the CCPO/PHNA pre-hearing document, and the white crowned sparrow and suggests they are not appropriate for various reasons. Exhibit U.19, pages 5-6. Yet again, however, he does not acknowledge that both were assigned habitat value in the HEP for the Finished Water Pipelines/Dodge Park hedgerow and the nursery fields. Exhibit N.56, Appendix B, Table B-1. Finally, Mr. Smith mentions the bumble bee, which is once again curious given that the bumble bee is specially called out as "important and recognized as contributing significant pollination critical for blueberry and clover crops" in a discussion about the importance of open ground in the Agricultural Field section of the CCPO/PHNA pre-hearing document, a section he seemed to author. Exhibit N.43, page 41. All of these references seem to be designed to attack the species selection, but he picks and chooses for each species which area of the overall Project habitats he wants to focus on which creates internal inconsistencies. In contrast, the Habitat Association Table shows that the original eight species represent a broad spectrum across all pre- and post-construction project areas. Exhibit U.20c, Table 2, page 23. An once again, Mr. Smith never comments on the substance of the HEP, the actual HSI value assigned to these representative species.

In her proposed findings, Ms. Richter also challenges the use of eight representative species in the HEP, suggesting that "nothing in the county's standards suggest that estimates based on key indicator species provides a reasonable evidentiary basis to determine 'no adverse effect'[]" There are numerous flaws

with the statement. First, as noted above, ESA never identified the species included in the HEP analysis as "indicator species." Instead, that was a term used for first time in the record by Mr. Smith when he incorrectly attributed the use of the term to ESA. Exhibit U.19, page 5. Second, the total number of species evaluated in the updated HEP is 13 not 8, because ESA added 5 species that Mr. Smith indicated should have considered. Third, nothing in MCC 39.7515(B) suggests that use of representative species to quantitatively evaluate pre-construction wildlife habitat quantity and quality compared to post-construction wildlife habitat is not a reasonable evidentiary basis. MCC 39.7515(B) provides no guidance one way or the other. LUBA has upheld the use of a modified HEP using species chosen to represent a number of species with similar lifestyles and habitat requirements to meet an exacting Deschutes County "no net loss or net degradation" of fish and wildlife resources standard. *Gould v. Deschutes County*, 59 Or LUBA 435 (2009). Finally, there is not a logical connection between LUBA's holding in this case and the claim that the HEP applied here does not provide a reasonably evidentiary basis to determine that wildlife habitat will not be adversely affected by the operating Project. Just like MCC 39.7515(B) itself, I find that LUBA's decision provides no direction or limitation on how an identified natural resource must or even should be evaluated.

I find that ESA's selection of representative species was appropriate in the context of a modified HEP needed to evaluate diverse habitat areas.

iv. Reference Site

Mr. Smith states that reference sites are generally required to validate species assessments, habitat models, and mitigation proposals, adding, "[r]eference sites allow comparison of proposal impacts and remediation efforts with sites supporting similar habitat and species." Exhibit S.26, page 4. See also, Exhibit U.19, page 9 ("[v]alidation includes reference sites for proposed mitigation.") Mr. Smith does not explain the context for when validation sites are "generally required." Nonetheless, ESA clarified that reference sites were considered in this case to inform the planting plans and other habitat enhancement features:

The reference sites or reference habitats that were used to inform the habitat assessment and planting plans for the project include the existing upland forest along the eastern edge of the filtration facility site and along the hillside of the Lusted Forest, the existing mature hedgerow at the eastern end of Dodge Park Blvd., and the existing riparian forest at the filtration facility site and off-site to the south. The vegetation compositions of these habitats were considered when compiling suitable plant species for habitat enhancements at the filtration facility site, the pipeline alignments and the intertie.

Exhibit U.20c, page 21. Specific vegetation selections that support the use of the identified reference sites provided in Section VIII.D.5 below. The PWB wildlife habitat team also appropriately responded to public comments submitted during the hearing and the first open record period to add additional

planting areas,[56] modify the size of plantings,[57] and added additional habitat features to the filtration facility site.[58]

In addition to looking to the surrounding existing habitat as reference sites, the team that developed the habitat enhancement habitat has used other PWB projects as reference sites. Angie Kimpo is the Environmental Regulatory Coordinator in the PWB Resource Protection and Planning Gorup. Exhibit U.20k. Ms. Kimpo has had extensive experience working in all habitat types including Sandy Basin forests and oak/prairie habitats in the north Willamette Valley and West Cascades lowlands. This knowledge serves as a baseline for designing projects with knowledge of reference sites. Prior to working at the Water Bureau, staff worked as a Senior Natural Resource Scientist for Metro Regional Government. Some of the work completed includes the following:

- On going invasive species and adaptive management of oak and prairie sites over multiple decades.
- Botanical inventory of ecologically significant public lands including riparian surveys throughout the Sandy Basin, forest sites throughout the Portland region and oak and prairie sites including Cooper Mountain, Canemah Bluffs, Mt. Talbert, the Willamette Narrows, Gotter Prairie (Quamash prairie), Penstemon Prairie and Clear Creek
- Design and implementation of oak release projects at Canemah Bluffs, Mt. Talbert, Peach Cove
- Design and implementation of oak and riparian restoration projects at Penstemon Prairie (Lovejoy) and Graham Oaks

Exhibit U.20c, page 21. The work identified above lends to a significant baseline knowledge and understanding reference sites of the regions' ecological systems including north Willamette Valley oak and prairie habitats. PWB staff is also the co-author of the Urbanizing Flora of Portland: 1806-2008. This document is a comprehensive Flora of the Portland Metro Region and includes the distribution of all plant species including many rare native plants and exotic plants in the Portland Metro Region. Exhibit U.20c, page 22.

Finally, evidence in the record demonstrates that PWB's Resource Protection and Planning Group that Ms. Kimpo coordinates has a proven track record in successfully establishing restoration and habitat enhancement projects to retain and restore ecological function. Exhibit S.32, Exhibit 4. The report at Exhibit 4 identifies five different projects that involve habitat restoration work, including two that involve creating oak savannah and grassland habitat similar to the oak savannah area included in the habitat plan for the Filtration Facility. Collectively, these projects show that the Resource Protection and Planning Group has extensive experience in planning, planting, and long-term maintenance of thousands of trees and shrubs over large landscapes.

Mr. Ceicko attempts to reduce the relevance of the examples of successful habitat restoration and enhancement work by pointing out that the habitat work was conducted as a "regulatory requirement."

[56] Exhibit S.32, Exhibit 1, 00-LU-412 (Carpenter Lane); 00-LU-413 (Dodge Park ROW)

[57] Exhibit S.32, Exhibit 1, 00-LU-302 (T symbol in planting areas to irrigated and include B&B trees)

[58] Exhibit S.32, Exhibit 1, 00-LU-306 (Filtration Facility site Landscape Plan adding bird boxes, rock piles, additional log/brush piles)

Exhibit U.3. The fact that they are mitigation projects following construction activity is clearly stated in the descriptions, and therefore does not appear to be something that PWB was trying to hide. Exhibit S.32, This also seems to show that as an agency in charge of delivering clean water to the millions of citizens PWB must sometimes undertake projects that include habitat restoration work as a regulatory requirement. The current Filtration Facility project is such a project. I find the fact that these were projects planted as a regulatory requirement and continue to be maintained supports a conclusion that PWB has experience with the exact type of regulatory project that will be enforced through a condition of approval in this case. Mr. Ceiko, also tries to diminish the value of native trees depicted in the photos that range in height from 10 to 35 feet because of their size, claiming that a 15-to-20-foot Ponderosa pine is the size of a sapling. This seems contrary to Mr. Smith's assertion that "diameter is not the only attribute that makes trees valuable habitat. Height, flowering, fruit production, shelter, and visual screening are very important to creating habitat." Exhibit S.26, page 2.

I find that that no specific approach to reference sites is required to demonstrate compliance with MCC 39.7515(B). I further find that PWB Resource Protection and Planning Group's experience and success in developing, planting, and maintaining large habitat enhancement and restoration projects supports the conclusion that implementation of habitat enhancement plan is reasonably certain to succeed when combined the monitoring and maintenance conditions discussed below.

v. Habitat Monitoring and Maintenance

Mr. Smith asserts that the HEP and HSI "do not account for the long-term costs and care required to monitor or maintain habitat." Exhibit s.26 As ESA Explained in response, the Filtration Facility is designed to provide the region with clean water for decades to come. In other words, this is not a situation where long-term maintenance and monitoring is left to a private property owner or to surrounding property owners as suggested. Instead, the record supports a conclusion that PWB is a public agency with expertise and experience in planting and maintaining the types of habitats developed for this facility. Exhibit U.20c, pages 43-44; Exhibit S.32, Exhibit 4. PWB proposed conditions of approval that require adherence to objective maintenance standards for both trees/shrubs, groundcover, and invasive control on PWB property and in the Dodge Park Boulevard right-of-way. Exhibit U.20c, Attachment 10. I impose the conditions of approval in the appropriate Project area discussion below. Ms. Richter provided no comment on the proposed conditions but commented that there was "no plan for post-project wildlife monitoring." Exhibit W3.b, page 19. It is unclear if Ms. Richter is suggesting that post-construction wildlife monitoring is needed or that wildlife monitoring is needed once the Filtration Facility cease operation at some point in the unforeseeable future. In either case, I find that wildlife monitoring is not needed because the natural resource at issue is wildlife habitat not wildlife, and the proposed condition ensures that the habitat areas are appropriately monitored and maintained.

Mr. Smith concludes his final testimony by explaining, "the literature indicates that successful mitigation projects are those that have a stakeholder commitment to developing the habitat, monitoring the wildlife population response over time, and assisting with long term maintenance of the site." Exhibit U.19, page 9. The conditions of approval are binding requirements consistent with those targets for successful mitigation projects.

Based upon the collective reasoning above, I find that in this circumstance, and for the purposes of compliance with MCC 39.7515(B), the modified HEP methodology used in this case was appropriate to quantify impacts on wildlife habitat across all pre- and post-construction habitat types and to confirm

that the extensive wildlife habitat enhancements proposed, with conditions in place for long-term monitoring and maintenance, provides the necessary evidence to demonstrate that the Project operation will not adversely affect wildlife habitat or wildlife habitat areas.

5. Pre-construction and Post-Construction Habitat

As discussed above, to determine whether the Project will adversely affect wildlife habitat areas or wildlife habitat, it is necessary to compare the wildlife habitat quantity and quality across all Project areas under the pre-construction use in comparison to the wildlife habitat quantity and quality across all Project areas under the post-construction use. For organizational purposes and for ease of review, the following sections provide an evaluation of evidence in the record for pre-construction and post-construction wildlife habitat for each project area. However, because MCC 39.7515(B) applies to the Project as a whole, I find that it is not necessary for any one Project area to meet the standard independently.

a. Finished Water Pipeline

The operating Project will include Finished Water Pipelines located beneath the surface that will extend from the Filtration Facility approximately 1.5 miles to the Finished Water Intertie. The pipelines will be located entirely in the existing Dodge Park Boulevard right-of-way and subsequently along an easement that follows an existing farm road that connects Dodge Park Boulevard to the Intertie Site at Lusted Road. Finished Water Pipelines will then extend from the Intertie Site to connect with existing PWB conduits. Once leaving the Intertie Site, the pipelines are entirely with the Multnomah County rights-of-way along Altman Road and Lusted Road. Exhibit A.7, page 2.

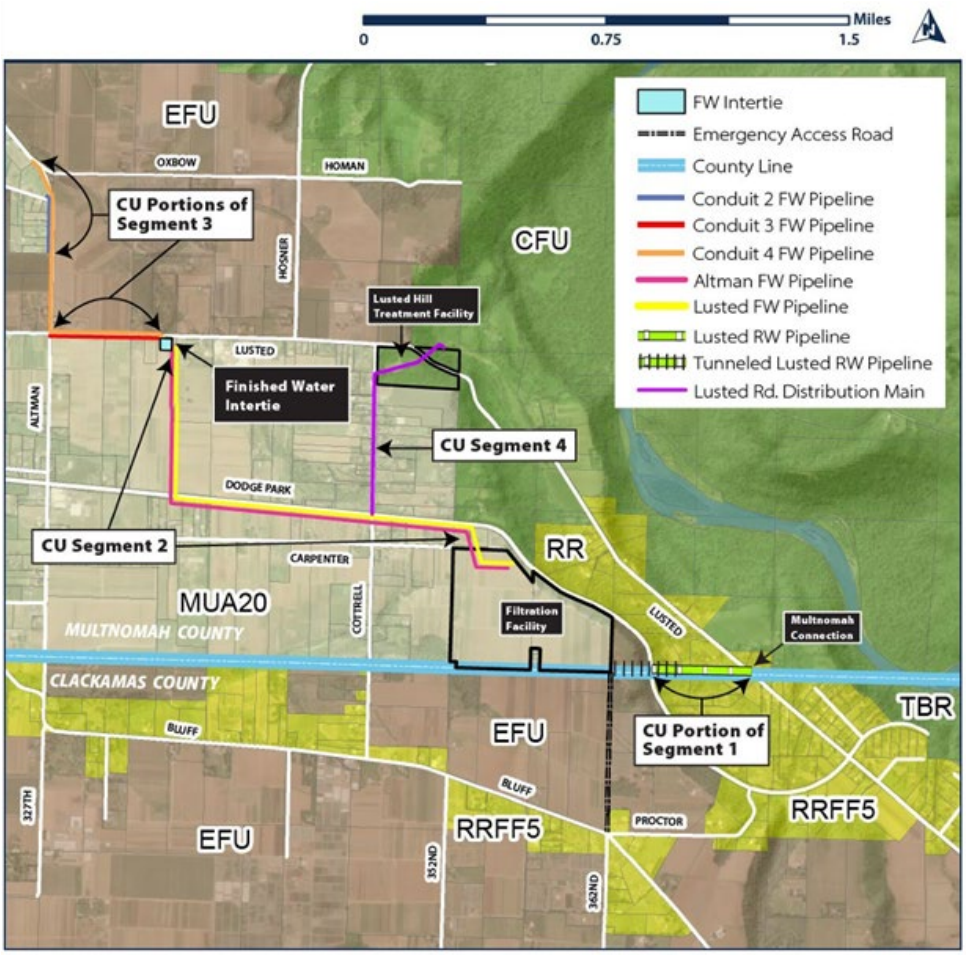


Figure 1. Pipeline Segments and Intertie

Exhibit A.8, page 2.

The trees and vegetation in the right of way are not "natural resources" that the 1977 Board intended to protect. Rather than being an area "to protect … for their natural resource value", as in the Natural Resources Policy, page 225, the county protects right of way areas for future public use. Accordingly, the 1977 Comp. Plan explains that they "serve the land uses in the County, and function to move people and goods." 1977 Comp Plan, page 323.

This is confirmed by the current Multnomah County Transportation System Plan (TSP), which is Appendix E of the Multnomah County Comprehensive Plan. "Right-of-Way" is defined in in the TSP as "property that the public has a right to use for transportation and transportation related purposes." In other words, it is an area that the County has designated for a specific public use, not a wildlife resource area. Additionally, as I conclude above, the standard applied in this case is a pre-construction use verses post-construction use analysis. In those areas where the Finished Water Pipelines are located in the right-of-way, the use of the right-of-way is the same both pre-construction and post-construction – a right-of-way dedicated to public use. The presence of the pipeline beneath the surface of the right-of-way post-construction does not alter the use of the surface area for the designated public purposes. Therefore, I find that portions of the Finished Water Pipelines located within the right-of-way have not

adversely affected natural resources, including wildlife habitat, because the primary use has not changed. In the alternative, if the Finished Water Pipeline as a component of the Project is the post-construction use for purposes of the pre-construction to post-construction comparison, my findings are set forth below.

i. Pre-construction Wildlife Habitat

ESA describes the pre-construction habitat within the Finished Water Pipeline alignment in 3.3.1 of the Habitat Impact Analysis. Exhibit N.56, pages 23-25. As described, the Finished Water Pipeline alignment is primarily located within public road rights-of-way along SE Dodge Park Boulevard, SE Lusted Road, SE Altman Road, and SE Cottrell Road. The rights-of-way consist of two lanes of traffic, narrow gravel shoulders, ditch lines, and in some cases rows of shrubs and trees. The habitat description documents the varied vegetation composition along the south side of Dodge Park Boulevard, identifying a section with a single row of trees and shrubs (photograph 6), areas of dense blackberry (photograph 7), and a row of mature trees with shrubs and groundcover (photograph 8) amounting to a continuous band of vegetation approximately 800 feet in length. Exhibit N.56, pages 23-25. Collectively this area is referred to as the "Dodge Park hedgerow." Many commenters emphasize the largest trees and most dense segments of the Dodge Park hedgerow area. *See e.g.* Exhibit N.48. However, I find the ESA description and photos included in the Habitat Impact Analysis are consistent with the aerial photos included in the CCPO/PHNA pre-hearing submittal that shows vegetation of varying width and composition along the south side of Dodge Park Boulevard. Exhibit N.43, page 44.

Several commenters, including Mr. Smith and Mr. Ciecko claimed that there was not a sufficient inventory conducted of the Dodge Park hedgerow area by PWB. In fact, PWB conducted a tree survey of all of the vegetation along the Project pipeline routes, including Dodge Park. PWB also conducted a nesting survey of Dodge Park Boulevard using established City of Portland protocols on February 13, 2024 prior to tree removal. Exhibit S.32, Exhibit 2, page 4. During the survey a total of 12 species of bird were observed traveling through the area, but no nests were found. Exhibit U.20c, page 17. As described in the Habitat Impact Analysis, Ms. Hartung also conducted multiple site visits to the Finished Water Pipeline alignment to evaluate the vegetation and habitat value. Exhibit N.56, pages 9-10. ESA explains that "hedgerow plant structure and species composition along Dodge Park Boulevard was assessed in the summer of 2023 and included and examination of aerial imagery as well as two visits by ESA…to confirm the type/extent of vegetation depicted in aerial imagery of the hedgerows in order to evaluate the wildlife that could potentially use vegetation within the rights-of-way." Exhibit U.20c, page 18. Consistent with my overall finding on inventories in Section Exhibit IV.D.10 above, I find that a specific level of survey or inventory of Project areas, including the areas along the Finished Water Pipelines was not necessary for this project to demonstrate compliance with MCC 39.7515(B). I further find that the level of evaluation conducted by ESA and others was sufficient to inform the HEP analysis and habitat enhancement plans.

CCPO described the entirety of the Dodge Park hedgerow as "high quality habitat" for resident birds, raptors, mammals, migratory birds, and a wide variety of pollinators, and identified the following lost functions, cover, roosting, nesting foraging, travel corridor, heat and cold attenuation, carbon dioxide sequestration, and stormwater filtration. Exhibit N.43, page 43. Many project opponents reported seeing a variety of wildlife using the Dodge Park hedgerow. See e.g. Exhibit N.10, page 2 (small animals, amphibians, and birds); Exhibit N.42, page 1 (elk, deer, coyote, lynx, bobcats, bear, eagles, falcons, and owls). It does not appear, however, that the record includes any photographs of wildlife in the shrubs or

trees along Dodge Park Boulevard that were removed during construction. CCPO/PHCA included two photos in their pre-hearing document that purport to describe "owls observed in the SE Dodge Park hedgerow prior to hedgerow removal and clearing" on March 5, 2024 and March 20, 2024. Exhibit N.43, page 46. However, as documented through the bird survey description, tree removal along Dodge Park Boulevard occurred on February 15, 2024, before the dates of the photos. Exhibit U.20c, page 17.

PWB acknowledged both through the application of the HEP and through the planting plans discussed below that the Dodge Park hedgerow had wildlife habitat value. As ESA explained, "[t]he Habitat Analysis at N.56 specifically acknowledges the habitat value of the hedgerow areas located along the finished water pipeline alignment within the Dodge Park Boulevard right-of-way and accounts for both the quantity and quality of that habitat in the evaluation. The value assigned to the sections of hedgerow along Dodge Park Boulevard in the Habitat Analysis considered the vegetation size, make-up, and location." Exhibit S.32, page 1. ESA further explained that it considered the following two locational factors in the HEP evaluation:

> First, much of the hedgerow area removed during construction included isolated sections of trees, particularly west and directly east of the intersection of Dodge Park Boulevard and Cottrell Road. Second, all hedgerow vegetation removed along Dodge Park Boulevard was located within the public right-of-way in a narrow strip of land directly adjacent to vehicular travels lanes on a road designated by Multnomah County as a collector road and freight route. Generally, hedgerows in rights-of-way along roadways can be hazardous habitat for wildlife. Some wildlife is attracted to this roadside vegetation, putting them in proximity to traffic, creating an increased risk of animal-vehicle collision, a hazard to both wildlife and humans. Thus, hedgerow habitat adjacent to road corridors can act as an ecological sink, attracting animals to seemingly suitable habitat that is in fact, too hazardous to provide high habitat function and often leads to breeding failure, injury, or mortality.

Exhibit S.32, pages 1-2. In addition to ESA's testimony on the hazards of hedgerows within a right-of-way, the record also includes several reports from neighbors of animal and vehicle conflict in the area. *See* Exhibit H.22e, page 1 (referencing concerns about the "the number of deer, elk, squirrels, and other animals hit by vehicles increasing" due to construction traffic); H.24.j, page 2 (photo of a bear that had been hit by a car); Exhibit H.12 (reference to a dead bear being pulled off of Dodge Park Boulevard). The location factors for the Dodge Park hedgerow were appropriately identified in the HEP Assumptions in the Habitat Impact Analysis. Exhibit N.56, Appendix C, page C-1. Notably, no one, including Mr. Smith challenged, critiqued, or otherwise referenced any of the HEP assumptions included in Appendix C. Additionally, as the only wildlife expert that testified in opposition to the Project, Mr. Smith, never stated that he believed that the location of the Dodge Park hedgerow within the right-of-way adjacent to travel lanes had no impact, or even a low degree of impact, on the quality of the habitat in the hedgerow. Instead, he cited an Oregon Department of Transportation ("ODOT") database of road crossings with a high degree of motor vehicle/wildlife accidents and noted "none of those locations are located near the project area." Exhibit U.19, page 7. That is neither surprising nor relevant because the record establishes that Dodge Park Boulevard is a Multnomah County collector and freight route, not an ODOT road. Exhibit A.227. Mr. Smith also indicated that he found no studies suggesting that hedgerows that parallel two-lane roads are a mortality sink for wildlife or cause an unusually high degree of nest failure. Exhibit U.19, page 8. There is of course no indication of how hard he looked. In any case, there is

not an affirmative statement from an expert that the location of a hedgerow next to an active travel lane does not reduce the functional value of the hedgerow.

In the proposed findings submitted into the record, Ms. Richter suggests that ESA's evaluation of the location of the hedgerow was an attempt to "disqualify" or "eliminate" the value of the hedgerow entirely. A review of the actual approach in the HEP for the Finished Pipeline right-of-way areas demonstrates that is not only inaccurate, but a complete misrepresentation of the very conservative approach and ultimate pre-construction wildlife habitat units attributed to the hedgerow. As noted above, for purposes of evaluating habitat quantity and quality across all Project areas, ESA divided the Project into large project element areas identified as Filtration Facility, Raw Pipelines, Finished (Filtered) Water Pipelines, and Intertie facility. See Exhibit U.20c, Attachment 3b. The pre-construction HSI tables include a positive foraging habitat value to the Finished Water Pipelines Road Rights-of-Way for seven of the original eight HEP species and the short-eared owl and assigned breeding habitat value for the downy woodpecker and the white-crowned sparrow. As depicted in Figure 3 of the ESA Habitat Impact Analysis the Finished (Filtered) Water Pipeline and described in Section 3.3.1 of the report, the Finished Pipeline included rights-of-way area of Dodge Park Boulevard, SE Cotrell Road, SE Lusted Road, and SE Altman Road. Exhibit N.56, Figure 3; pages 23-26.

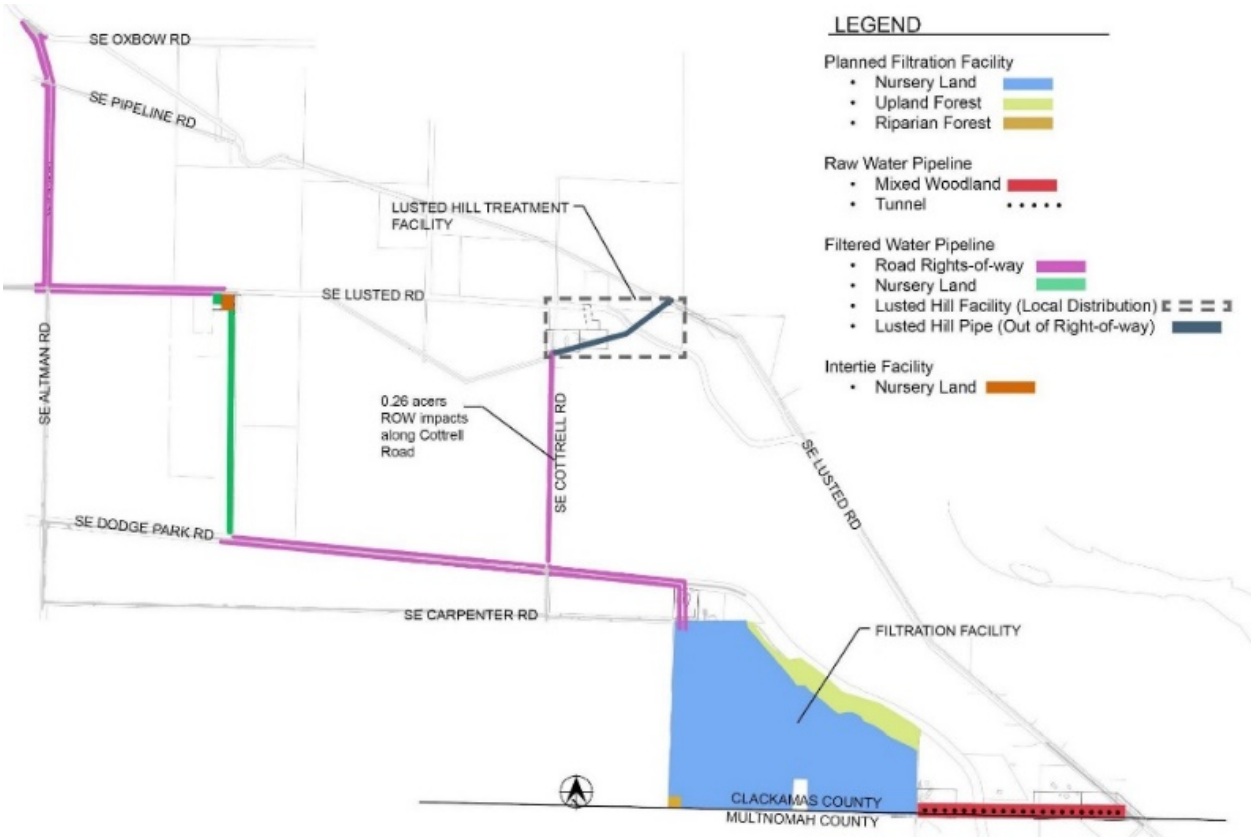


Figure 3 Preconstruction Conditions by Project Component

The total area of the Finished Water Pipeline is 16.87 acres, including 11.87 acres of road right-of-way across the four roads. Exhibit N.56, page 25. As noted, in the potential project impacts discussion, construction of the Finished Water Pipeline requires removal of a total of 337 trees and a majority of those trees were located along the south side of Dodge Park Boulevard, the area identified by many commenters as the Dodge Park hedgerow.[59] Exhibit N.56, page 25. The tree removal along other segments of the Finished Water right-of-way is extremely limited.[60] However, rather than divide the Finished Water Pipeline areas further, the HEP tables assign **the same HSI scores** applicable to the vegetated areas of Dodge Park Boulevard **to all 16.9 acres of Finished Water Pipeline**. In other words, the Finished Water Pipeline alignment along SE Altman Road and all other rights-of-way area for the Finished Water Pipeline with very limited tree removal was assigned the same habitat value for all species as the most densely vegetated strip of Dodge Park Boulevard. Exhibit U.20c, Attachment 3b. This resulted in conservatively assigning a pre-construction foraging HSI of .3 for elk, downy woodpecker, red-tailed hawk, and white-crowned sparrow to the full 16.9 acres instead of just the denser tree and shrub dominated areas along the stretch of Dodge Park Boulevard, the Dodge Park hedgerow. See Exhibit N.43, page 44. The photos below depict a portion of the right-of-way along Finished Water Pipeline alignment on SE Altman Road.

Photopoint 17

[59] The area of removal of removal along Dodge Park is included in the table at Exhibit U.20c, page 41 that approximates the total amount of hedgerow removal across the Project at 2.9 acres.

[60] The Project includes the following tree removal across the remainder of the Finished Water Pipeline road segments: SE Cotrell Road – 1 tree; SE Lusted Road 8 trees; and SE Altman Road – 1 tree. Exhibit J.75, Attachment A.

Photopoint 18

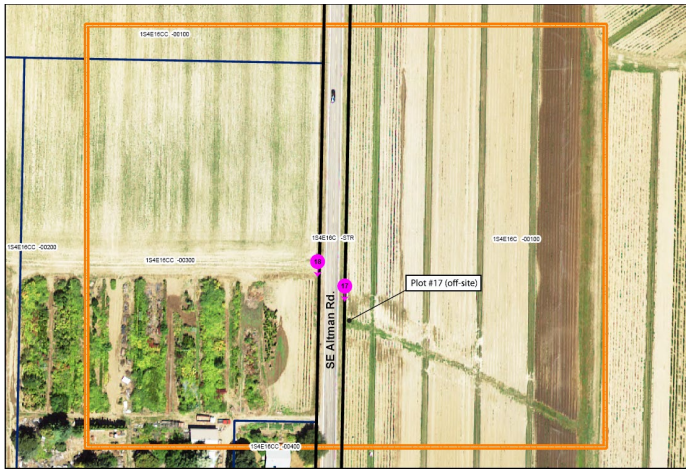


Figure 5g

Exhibit U.20c, Attachment 1. This conservative approach resulted in a pre-construction WHU foraging total of 30.37 for the Finished Water Pipeline area, which is just under the WHU foraging total of 33.06 for the 5.8 acres of mature upland forest on the site that is primarily located within the Significant Environmental Concern-habitat (SEC-h) Goal 5 overlay area. Exhibit U.20c, Attachment 3b, Table 2. In no way did ESA "disqualify" or "eliminate" the habitat value of the Dodge Park hedgerow through the HEP analysis. Instead, the habitat value they assigned to the right-of-way effectively **equals the habitat value of nearly 6 acres of protected forest land.**

I do not agree with Ms. Richter that ESA "disqualified" hedgerow as habitat in addressing the location of the Dodge Park hedgerow. To the contrary, I find that ESA appropriately considered the fact that the Dodge Park hedgerow was located within the right-of-way directly adjacent the travel lanes of a designated collector road and freight route in assigning value in the HEP evaluation, yet still used conservative value assignments for representative species. By then applying hedgerow habitat value across the entirety of the Finished Pipeline area likely resulted in wildlife habitat units for the area that overestimated, rather than underestimated the habitat value of the Dodge Park hedgerow.

ii. Post-construction Wildlife Habitat

As described in the Habitat Impact Analysis, tree roots can interfere with pipeline integrity, and therefore, no post-construction tree planting was originally proposed along the Dodge Park hedgerow area. Instead, the area was proposed to be planted with a ground cover seed mix. Exhibit N.56, page 26. As ESA explained, the replacement trees for the trees removed during construction will be accounted for in the tree replacement ratios on the Filtration Facility site. The final tree replacement ratios across the project are discussed in detail in Section VIII.D.5.e.i below. ESA concluded, and I agree, that replacing trees removed from the right-of-way on the Filtration Facility site will concentrate natural habitat in larger areas that will reduce habitat fragmentation and will reduce wildlife hazard. Exhibit N.56, page 26.

Following the remand hearing and in response to public comments, PWB developed a post-construction planting plan for the Dodge Park hedgerow area. PWB proposed planting the entirety of the pipeline alignment along the south side of Dodge Park Boulevard with a shrub dominated hedgerow that will include a base of herbaceous native plants.

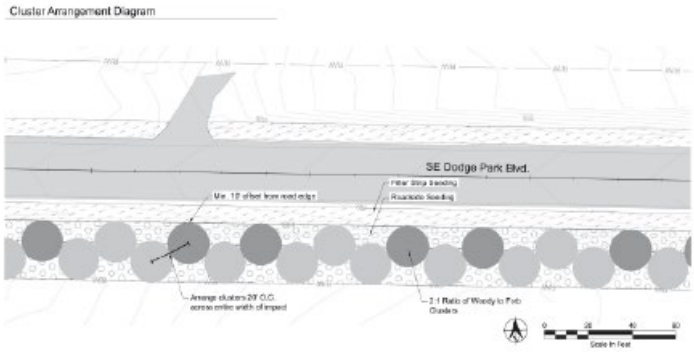


Figure 3 **Cluster Arrangement Diagram for Dodge Park Boulevard Replanting (Full Plan included as 00-LU-413 in Exhibit 1)**

Exhibit S.32, Figure 3, page 4. The plan was reviewed and initially approved by Multnomah County Transportation. Exhibit S.32, page 4. ESA provides the following description of the planting area and habitat function:

> This plan…consists of a dense hedgerow of diverse native shrubs and perennial groundcover species which will provide habitat for insects, birds, and small to medium-sized mammals. The plant species selected will provide a wide range of flowering periods to maximize benefits for pollinators. Shrub species will also be varied in size and structure to provide additional benefits for wildlife species including foraging habitat, nesting sites, and cover.

Exhibit S.32, page 4. The full plan is provided at Exhibit S.32, Exhibit 1. As detailed there, the woody clusters are comprised of 6 species of native shrubs, and the forb clusters are comprised 6 species of native forb vegetation. The area will also be seeded with filter strip seeding and roadside seeding. The total planting area will be approximately 146,000 square feet (3.35 acres). ESA describes the additional benefits of the planting location and filter strips:

> Unlike the hedgerow that was removed that had fragmented sections of vegetation, the vegetated clusters will be planted along the entire pipeline alignment outside of road intersections. The woody and vegetation and forbs will provide value to wildlife, will sequester CO2, absorb/filter/capture stormwater runoff, and absorb heat. [] Native grasses that form extensive root systems are especially able to sequester carbon. The proposed groundcover and woody species proposed for the right-of-way will provide equal or better functions for the aforementioned ecosystem services, especially as many sections of the pipeline alignment where vegetation was removed was dominated by non-native invasive species such as Himalayan blackberry – which does not have the growth form conducive for filtering/absorbing stormwater runoff as it is a vine species with relatively sparse stem structure.

Exhibit S.32, page 33. PWB submitted a proposed condition of approval that would require PWB to provide monitoring and maintenance of the right-of-way plantings for a period of two years. Multnomah County Staff proposed an alternative condition that would increase the planting area to cover all areas of public right-of-way of SE Carpenter Lane, SE Dodge Park Boulevard, SE Cottrell, SE Lusted Road, and SE Altman Road where hedgerows or trees were removed. Exhibit W1, page 7. The condition suggested by staff would require PWB to maintain those planting areas for a period of 10 years.

PWB has suggested a 5-year period would be appropriate for the rights-of-way, but agrees to extend the monitoring and reporting period on all other project areas from the 10 years as identified in Exhibit U.20c, Attachment 10, to 20 years. The project site monitoring plan is discussed further below. For the right-of-way, I impose the following condition of approval for maintenance of the right-of-way planting.

Right-of-Way Condition:

The Water Bureau shall plant the public rights-of-way areas of SE Carpenter Lane, SE Dodge Park Boulevard, SE Cottrell Road, SE Lusted Road, and SE Altman Road, where hedgerows or trees were removed, with shrubs and low vegetation to restore the wildlife habitat that was removed to install the pipelines or temporarily widen the paved areas of the roadway.

a. The Water Bureau shall submit to Transportation Planning and Land Use Planning for review and approval planting plans that are in substantial compliance with the woody and forb cluster mix identified in the Dodge Park Roadside Clusters submitted during the remand proceeding (00-LU-413) for all areas identified above. The restoration of the areas shall take place within 1 year of completion of pipeline installation on each roadway.

b. Permittee shall maintain these plantings for a minimum of five years to ensure they are established, free to grow, and adjusted to site conditions without maintenance. If the plantings don't have at least an 80% survival rate within five years (through natural causes and not due to actions by others maintaining the ROW, road users, or the public), the Water Bureau shall

replant to original plant numbers and maintain for up to an additional five years.

PWB does not believe that expanding the planting area is necessary to satisfy MCC 39.7515(B). Nonetheless, PWB agrees to a revised condition of approval that applies to all areas of SE Carpenter Lane, SE Dodge Park Boulevard, SE Cotrell Lane, SE Lusted Road, and SE Altman Road where project construction resulted in the removal of a tree(s) from the right-of-way. PWB is requesting that the 10 years suggested by staff be reduced to 5 years for monitoring and maintenance of the right-of-way planting areas. However, if the Hearings Officer believes that a 10-year period is necessary for compliance with MCC 30.7515(B), PWB requests that you impose the 10-year period. Note, because the Water Bureau will not control the right-of-way areas, the Water Bureau suggests clarity on the limits of its responsibilities if the plants are harmed by third parties.

HSI values for elk, Downy woodpecker and the white-crowned sparrow were reduced in the HEP from pre-construction values, resulting a reduction of wildlife habitat units. Exhibit U.20c, Attachment 3b. Notably, no changes were made to the HSI values or wildlife habitat units between the initial HEP and the updated HEP. See Exhibit N.56, Appendix B, Table B-3; Exhibit U.20c, Attachment 3b, Table 3. In other words, the wildlife habitat units assigned to the Finished Water Pipeline, and thus final wildlife habitat unit total for the Project, is based upon replacing the Dodge Park hedgerow along with the rest of the Finished Water Pipeline alignment with a grass seeding mix and does not account for either the Dodge Park Boulevard right-of-way plantings or additional areas added through the updated condition provided above. PWB points out, and I find this is another example of the very conservative assumptions taken in the HEP analysis that support its credibility and ultimate conclusion.

While not within the Finished Water Pipeline alignment, PWB identified an additional planting area directly adjacent to the alignment to provide additional planting in an area available for planting before the Filtration Facility is operational. PWB owns two residential lots located north of the filtration facility site and south of Dodge Park Boulevard adjacent to the east end of the Dodge Park hedgerow. Exhibit S.32, page 3. As depicted in the Carpenter Lane Plan (00-LU-412) the plan includes a 20-foot strip of tree-dominated hedgerow planting along the western boundary of the western lot and additional tree and shrub planting areas. All trees planted on the two lots will be relatively large ball and burlap plants that are approximately 6-8 feet in height or 1.5" caliper. As ESA explains, these larger specimen trees will provide a variety of functions within one to two growing seasons following installation, including: shade, food (fruit, seeds), nesting sites (especially evergreen species), and shelter for animals such as insects and songbirds." Exhibit S.32, page 3. The planting plan includes eight native trees and eight native trees, many of which are species found in the Dodge Park hedgerow. The planting plan includes 112 trees and 2,453 shrubs across 67,313 square feet of planting area. Exhibit S.32, Exhibit 1. The updated HEP considers the plantings on the Carpenter Lane properties, and results in an increase in wildlife habitat units considering both foraging and breeding. Exhibit U.20c, Attachment 3b.

Plantings on both properties will occur before operation the Filtration Facility begins, and will add to the collective habitat benefits created across all habitat enhancement areas. In summarily dismissing the habitat value of 1.5 acres of native plants directly adjacent to the hedgerow area, Ms. Richter focuses on the maximum end of the estimate identified in the functional value description. Exhibit W.3b, page 23.

The estimate for functional value was conservatively one to two years, not two years. Moreover, PWB points out, and I agree that the habitat value of a tree or a shrub is not a light switch that is not there one day and then appears the next. As provided, in the planting schedule the trees when planted prior to Facility operation will be 6 feet in height or 1.5 inches in diameter, and from that starting point will continue to mature and provide habitat function as they grow. As discussed in detail below, the Filtration Facility site planting plans also include numerous planting areas that provide hedgerow function and species replacement.

b. Filtration Facility Site

i. Pre-construction Habitat

The pre-construction habitat on the Filtration Facility site includes three distinct areas: commercial nursery land, upland forest, and riparian forest.

As explained in the Habitat Impact Analysis, the dominant pre-construction land cover or habitat type at the Filtration Facility Site was commercial nursery land totaling approximately 89 acres, including dirt roads directly adjacent to the upland forest and riparian forest. See Exhibit U.20j. Ornamental bareroot trees and shrubs, as well as a wide range of ball and burlap (B&B) trees and shrubs were grown on the property for the landscaping industry." Exhibit N.56, page 11. Surface Nursery leased land on the Filtration Facility site. Surface is a wholesale ornamental nursery stock operation that specializes in bare root stock and exports approximately 95 percent of its products to other states. Exhibit U.20e.

The next largest land cover or habitat type at the Filtration Facility Site is upland forest which covers approximately 5.8 acres. The upland forest on the site is a mix of evergreen and deciduous trees dominated by Douglas-fir and bigleaf maple as canopy trees with red alder and sweet cherry (*Prunus avium*) as subcanopy trees. Understory species include osoberry, Oregon grape, vine maple, hazelnut, and swordfern. English ivy, a non-native invasive species, is dominant in the groundcover and is growing on several tree trunks within the on-site upland forest. Other non-native invasive plant species such as evergreen blackberry (*Rubus laciniatus*) and Himalayan blackberry (*Rubus armeniacus*) are found at the interface of the relatively unaltered forest and the adjacent nursery land. Exhibit N.56, page 11.

A small area, approximately 0.2 acres, of riparian forest is located in the southwest corner of the site and extends off-site towards Johnson Creek. Exhibit N56, page 11. The overstory of the existing riparian forest on the southern end of this SEC zone consists of Douglas-fir, Western redcedar, red alder, and bigleaf maple. The understory is multiple layers of saplings, tall shrubs, and native groundcover species. The northern (top) 140 feet of this zone is former agricultural field with native shrubs planted throughout.

(1) Commercial Nursery Operations

Most of the public testimony about the Filtration Facility site related to the former nursery land and nursey farm operations on the site. Many commenters claim that agricultural lands at the site were low intensity *See e.g.* Exhibit U.13, page 3. There is extensive evidence in the record to the contrary. As Mr. Prenguber of Globalwise explained, that nursery production is highly intensive, and "use of inputs such as farm chemicals, fertilizers, tractors and fuel, and irrigation water are among the highest of all field grown crops." Exhibit U.20e, page 9. Section VI.A provides additional details on the regular use of

tractors, irrigation, and other farm equipment, the lack of regular cover crop by Surface nursery, and the sources or noise at a commercial nursery farm.

Of particular relevance to wildlife habitat are the soil preparation practices at commercial nurseries. Soil preparation at commercial nurseries can include adding lime or other soil amendments, fumigation, and sub-soil plowing followed by disking or rototilling. Pre-emergence herbicide applications were commonly applied in the winter or early spring. Rodent control was done using chemical rodenticides. Exhibit N.56, page 11.

Another issue relevant to the question of wildlife habitat during nursery operations relates to crop rotation and use of fields in between crop harvest and planting. Mr. Smith nursery stock field conditions can vary significantly over time as crop rotations occur and cover crops are established between crops." N.43, pg. 41 The evidence in this case supports a conclusion that there was historically minimal effort by the past nursery operators to use cover crops regularly or extensively. Exhibit U.20e, pages 9-18.

(2) Habitat Value

Mr. Smith submitted comments related to the use of agricultural land by a variety of animals, including the streak horned lark, other ground feeding bird, and numerous pollinators attracted to bare ground. Exhibit N.43, page 41. A streak horned lark survey was conducted by ESA and no streak horned larks were detected. Exhibit S.32, Exhibit 3. Mr. Smith further suggested that the constant changes to nursery land should have been considered. Exhibit S 26, pages 5-6. However, in the Habitat Impact Analysis ESA did precisely that providing the following description on the crop rotation for both type of trees grown at the site:

> The rows of nursery stock formed blocks that were spaced to allow trucks and tractors to access the plants for periodic maintenance, which sometimes occurred on a daily or weekly basis by nursery staff. Field planting occurred in the spring or fall. After planting, year-round management was needed. Bareroot trees that were grown on-site were harvested generally on a 3-to-4-year rotation. In some areas after fall harvesting, a cover crop was planted to rest the fields until the next growing season. The B&B plant spacing was wider as the trees grew to a larger size as they were left in the ground for 5 years or longer. The larger/older specimens represented a relatively small portion of the nursery stock (< 5 to 10 percent) grown on-site.

Exhibit N.56, page 11. This description was the introduction for, and was incorporated into, the HEP. The HEP also appropriately considered the nursery activities and the effect those have on habitat. Notably, Mr. Smith neither responded to nor acknowledged any of the inputs identified in the record that impacted the quality of habitat value on the site under the previous use. For example, a statement in the CCPO/PHNA pre-hearing document seemingly authored by Mr. Smith based upon a statement that the author had 20 plus years of habitat experience, states that open ground attracts pollinators "that prefer ground that is not annually cultivated," and then references wasps and bumble bees. Exhibit N.43, page 41. While the introduction references "pre-construction conditions" the statement itself does not include an assessment of or reference to the wildlife habitat provided by this specific site. The explanation of the pollinators preferences and benefits makes no mention of the intensive level of soil disturbance from disking or rototilling that occurs on a commercial nursery farm, nor does it explain the

effects of agrochemicals applied on commercial nursery farms to pollinators. ESA did explain in a response noting, "bumble bees are significantly impacted by agrochemicals applied to commercial nursery stock." Exhibit S.32, page 28. Mr. Smith concludes the section on the agricultural field noting that "cropland has numerous intrinsic natural resource values," referring to cropland generally as opposed to commercial nursery land specifically. Exhibit N.43, page 41. The record indicates that there is a difference both in how the land is managed, as noted above, and in the vegetation. While nurseries cultivate a diverse array of plant species, the focus is on non-native ornamental cultivars that arise from intentional human intervention. Exhibit U.20c, page 34.

To assist in the necessary comparison of the pre-construction use of the Filtration Facility site to the post-construction use, the HEP considered both the habitat values within the former nursery land across the varied drop rotations and the habitat limitations created in an intensively and actively managed commercial nursery. Exhibit U.20c, page 34. While these factors were included in the HEP assumptions, an evaluation of the details of the HSI values reveals that ESA assigned significant habitat value to the pre-construction use of the site. For example, the little brown bat and white-crowned sparrow were both had moderately high HSI values for foraging; the bobcat elk, red-tailed hawk, bumble bee all had marginal habitat values for foraging. Exhibit U.20c, Attachment 3b, table 1. Despite, the intensity of the nursery use, both the white-crowned sparrow and the bumble bee were also assigned breeding habitat value. Overall, the HEP attributed over 267 wildlife habitat units to the pre-construction nursery, **the highest WHU total for any area, pre- or post-construction**. Exhibit U.20c, Attachment 3b, Table 2. PWB argues, and I agree that the detailed evaluation and conservative assumptions included in the HEP analysis does not support Mr. Smith's contention that PWB arbitrarily dismissed the habitat values of the pre-construction use of the site. Exhibit S.26, page 1.

(3) Fences/Fragmentation

The record contains conflicting testimony related to whether the pre-construction nursery fields provided habitat or a movement corridor for elk and deer. During the remand proceeding, several commenters claimed that elk and deer were frequently on the filtration facility site. *See* Exhibit N.69, page 6; N.12, page 1; N.18, page 1, Exhibit S.2, page 1. As ESA explained, however, most commercial landowners are reluctant to allow access to wildlife such as deer and elk for fear of damage to the crops. Exhibit S.32, page 10. Evidence in the record, including a photograph dated May 11, 2020, indicates that a fence was installed along the eastern perimeter of the Filtration Facility site. Exhibit N.32, page 10. In testimony related to the presence of elk and deer in the area generally during the original proceeding, Mr. Ciecko confirmed the intent of the fence, stating "[e]vidence of the presence of these species is commonly observed by the existence of deer and elk fencing installed to deter damage from browsing animals. Even the proposed filtration plant site (high quality agricultural land) has elk fencing installed along the north property line." Exhibit E.9, page 19. Additional testimony from community members during the original land use proceeding confirms that while elk may have periodically gotten past the fence, that was not a welcome occurrence. *See* Exhibit H.12, page 8 (testimony from Paul Willis testifying that "[a]ll along the north and some of the east perimeter[sic] of the Plant site, the is an 8 ft. wire fence that has been there for decades to prevent game from eating the nursery stock…about 5 years ago [sic] a herd of elk got into the Plant site area and damaged …nursery stock items.") Notably, the source of the conflicting testimony is largely from the same source – neighbors familiar with the area. The difference is seemingly a matter of the timing of the testimony. The testimony indicating that deer and elk were unwelcome visitors on the nursery land was provided during the initial 2023

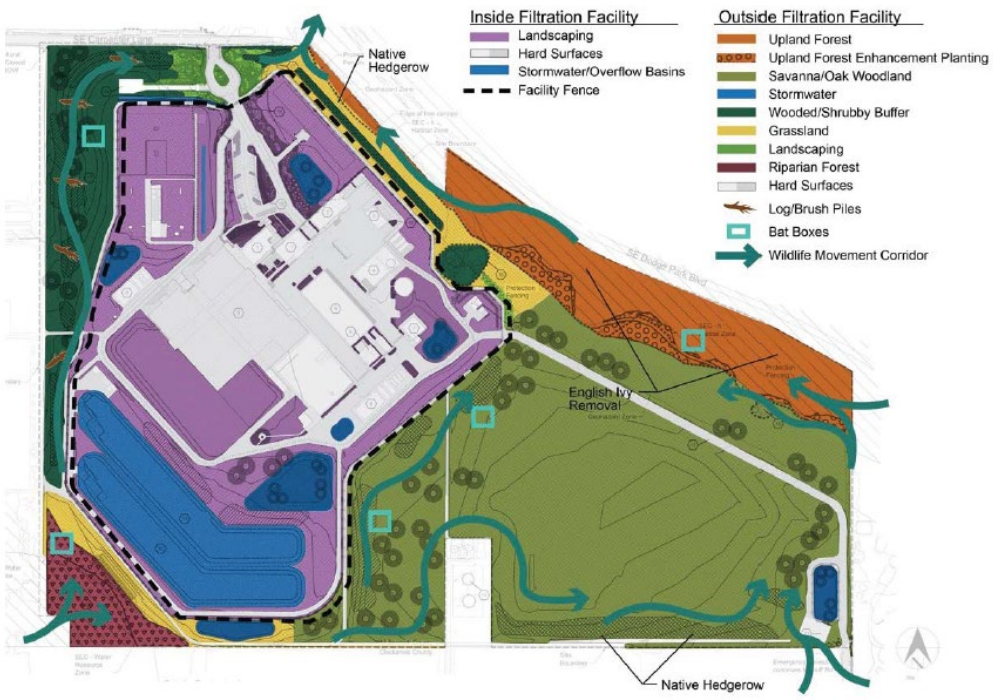
proceeding before MCC 39.7515(B) was the only criterion at issue. Given the source and timing of the conflicting testimony in combination with Mr. Pengruber's testimony related to wildlife, it is reasonable to conclude deer and elk were discouraged from entering or crossing the property, but occasionally did so despite efforts by the nursery operators to keep them out. I find that circumstance is appropriately accounted for through the marginal habitat suitably assigned to elk in the HEP. Exhibit U.20c, Attachment 3b, Table 1.

For the reasons set forth above, I conclude that Mr. Smith's contention that PWB "arbitrarily dismisses" the habitat value of the pre-construction nursery land is not accurate based upon the record. Instead, evaluation of the evidence reveals that rather than dismissing the habitat value of the land and vegetation, ESA appropriately considered the limits to habitat function that exist in an intensive and heavily managed commercial nursery operation, yet conservatively assigned significant wildlife value to the pre-construction nursery use through the HEP. In contrast, Mr. Smith's comments related to the pre-construction use address cropland habitat benefits generally without reference to the management practices of the commercial farming operation that existed pre-construction.

ii. Post-construction Habitat

Post-construction the Filtration Facility Site will include the Filtration Facility concentrated toward the northwest portion of the site. The Filtration Facility will include buildings, parking areas, stormwater facilities, and landscaping, and will be surrounded by an 8-foot security fence. The total area inside the fence line will be approximately 37 acres, including approximately 23 acres of landscaped area and stormwater facilities. Exhibit N.56, page 32. The area on the Filtration Facility site outside of the fence will include the following five distinct habitat areas across over 47 acres[61]: savanna/oak woodland, woody buffer/hedgerow, grassland, upland forest, and riparian forest.

[61] The 47-acre total includes 38.6 acres of Savanna/oak woodland, wooded/shrubby buffer, grassland, and some landscaping areas near the entry, 6.8 acres of upland forest (including the 1 acre of upland enhancement planting), and 1.9 acres of riparian forest (including the 1.7 acres of riparian enhancement plantings). Exhibit N.56, pages B-1 and B-3. Note that in the calculation of wildlife areas for purposes of the HEP, ESA appropriately excluded all hard surfaces, stormwater ponds, and landscaping outside of the facility fence.



Post-Construction Conditions at the Filtration Facility Site[62]

(1) Filtration Facility Habitat

The filtration facility areas inside the fence are described as follows in the in the Habitat Analysis HEP Assumptions, Exhibit N.53, Appendix C page C-4.

Interior Hard Surfaces (about 14 acres) – Includes buildings, paved walkways, and asphalt paving for parking lots – non-vegetated hard surfaces with no habitat value. For the purposes of habitat assessment, interior hard surfaces were excluded from the HEP analysis.

Interior Landscaping (~ 16 acres) – A mix of ornamental and some native shrubs will be planted in a few pockets near buildings and along walkways. Lawn will be established adjacent to parking areas and facility buildings to minimize fire danger.

Interior Stormwater Ponds (~ 5 acres) – Stormwater ponds are designed to capture surface water on-site and infiltrate or slowly treat stormwater. These are designed with native shrub, sedge, and grass plantings. Stormwater ponds will improve water quality by removing pollutants and increasing groundwater recharge, and are also valuable habitats for birds and aquatic wildlife and insects.

[62] This was included as Figure 3 in the Habitat Impact Analysis. Exhibit N.56, Figure 3, page 19. An updated Landscape Plan that includes additional habitat features, including blue bird boxes, rock piles, and additional log/brush piles in the riparian forest and wooded/shrubby buffer is included in the record at Exhibit S.32, Exhibit 1.

The over 20 acres of combined landscaping and stormwater areas were considered in the HEP, but resulted in limited habitat value for foraging for the little brown bat, the white-crowned sparrow, and the bumble bee and no breeding value. Hardscape areas were not considered. The indirect effects of the Filtration Facility operation were also considered in the HEP, and are addressed in Section VIII.D.6 below.

(2) Habitat Areas

The habitat areas are described as follows in the HEP assumptions of the Habitat Impact Analysis, Exhibit N.53, Appendix C pages C-3 – C-4:

Upland Forest – Mixed Hardwood Forest (a portion is SEC-h forest) (6.8 acres on the Filtration

Facility Site, expanded with additional plantings from 5.8 acres and approximately 80 acres off-site to the north, east, and south within 1,000 feet of the facility) – This habitat on-site and along SE Dodge Park Boulevard provides habitat for small to medium mammals, birds, and ungulates. Forest canopy is critical to providing clean air and filtering surface water. Forests also provide habitats for pollinators, which are essential in the reproduction of many flowering plants. Mature canopy is retained during the course of the project. This off-site forested area will remain undisturbed.

Savanna / Oak Woodland (roughly 29 acres) – This area is entirely contained within the formernursery land. The restoration design of this area was focused on providing oak woodland and savanna, which includes a mix of Oregon white oak (Quercus garryana) and native shrub clusters, intermixed with native prairie herbaceous plants (Appendix B). Oak woodlands and savannas are one of the most imperiled habitats in Oregon, with the greatest loss occurring in valley bottoms and foothills due to impacts such as conversion to agriculture, development, and invasive plant species. Oak savannah/meadow habitats are important to migratory songbirds, particularly neotropical migrants. They provide important stop-over habitat for birds migrating through the region. There are other important habitat benefits of this rare plant community. Oregon white oaks provide nest cavities for birds such as kestrels that hunt the grasslands, as well as produce abundant acorns used by both birds and mammals such nuthatches, acorn woodpeckers, and western gray squirrels. Many invertebrates, including various moths, butterflies, gall wasps, and spiders, are found exclusively in association with this oak species. Native meadow habitats within the savanna include abundant wildflower composition and provide essential habitat for numerous pollinators, birds, and mammals. The space between the grasses also provides crucial nesting areas and cover for wildlife species such as the western meadowlark.

Grassland (about 5 acres on the Filtration Facility Site) – Two relatively small areas of grassland are proposed as firebreaks – one strip will be adjacent to the riparian forest in the southwest corner and one between the upland forest and the Filtration Facility in the northwest corner of the site. The groundcover will consist of native grassland species and will support limited foraging and breeding habitat for songbirds, including the white-crowned sparrow, spotted towhee, dark-eyed junco, etc. Small mammals are anticipated to take cover in these narrow strips of grassland.

Riparian Forest (1.9 acres on the Filtration Facility Site, expanded with proposed plantings from 0.2 acre and about 25 acres of adjacent Riparian Forest within 1,000 feet to the west and south of the Filtration Facility Site). The on-site area contains wooded riparian forest and agricultural land that is in the process of being restored to native riparian buffer. The land falls within the 200-foot setback of the headwaters

of Johnson Creek (located off-site). Restoration and management activities in the area include dense native plantings, installation of willow wattles and live stakes, and care of those areas including watering during summer months and manual/mechanical control of invasive species. Riparian areas are important in stabilizing stream temperatures, reducing runoff, and maintaining valuable habitat for a variety of wildlife. This area will also provide connectivity with native plantings through the property outside of the planned Filtration Facility fence.

Wooded/Shrubby Buffer and Hedgerows (about 6 to 7 acres on the Filtration Facility Site) – These areas are entirely contained within the former nursery land. Throughout the edges of the parcel and around the Filtration Facility fence, dense plantings have been designed to minimize sound and light impacts on adjacent natural areas and provide functional habitat for wildlife. Some of these areas are shrub-dominated hedgerows, while others are dense tree stands with native shrubs mixed in. Hedgerows provide wildlife corridors for birds, mammals, and insects to move freely to adjacent natural areas. They are also important nesting habitats for birds and provide food and shelter for pollinators.

Neither Mr. Smith nor any other project opponent directly addressed or challenged these habitat descriptions. Because the determination of whether the operating project will result in an adverse effect to wildlife habitat requires a comparison between the use of the Filtration Facility site pre-construction in comparison to the Filtration Facility use, what these identified habitat areas will **not include** or experience in the post-construction condition in contrast to the previous use is relevant. I find that unlike the previous agricultural use, and as ensured through the application of conditions of approval adopted through this decision: 1) the ground will not be continually disced, and instead ground cover will be established and maintained, 2) the trees and vegetation will be allowed to grow and mature rather than being harvested every two to five years, 3) no pesticides will be applied, and 4) no tractors or farm equipment will travel across the designated habitat areas.

(3) Planting Plans

As discussed in Section VIII.D.5.b.ii(2) above, PWB staff, in coordination with ESA, developed a detailed habitat enhancement plan that includes diverse planting areas across the filtration facility and other Project areas. Most commentators either ignore the post-construction habitat enhancement plans or summarily dismiss them. Some project opponents commented on the original planting plans reliance exclusively on bare root species. In response to those comments, and to increase initial vegetation structure for the planting areas, the Filtration Facility Proposed Conditions Plan identifies tree and shrub dominated perimeter planting areas that will be planted with more mature ball and burlap (B&B) trees. As identified in the upper right-hand corner of the plan (S.32, page 49, Exhibit 1) all Screen Mix areas designed with a T will be planted with B&B trees with a minimum height of 6 feet or 1.5 caliper. This includes planting areas identified in Figure 1 of the ESA response document as planting areas that provide hedgerow function. Exhibit S.32, page 2, Figure 1. A total of 694 B&B trees will be planted for the Project, including all 112 trees at the Carpenter Lane properties. Exhibit, U.20c, page 41. Therefore, the Filtration Facility site will be planted with a minimum of 582 B&B trees.[63]

[63] 694-112 = 582

In his initial testimony, Mr. Smith did not directly address or comment on any of the elements or details of the habitat enhancement plans. Instead, he generally asserted that there is no evidence that the planted trees will ever achieve the canopy size, structural complexity, resilience, or cavity formation characteristics of existing mature trees. Exhibit S.22, page 6. Those comments are addressed in Section VIII.D.5.e.i(2) below.

During the 1st open record period, PWB submitted updated planting plans that included 1) additional more mature B&B plants in identified areas to provide habitat benefits earlier, 2) plans for new planting areas on two properties located on Carpenter Lane and planting along Dodge Park Boulevard were vegetation was removed along the south side of Dodge Park Boulevard, and 3) new habitat features on the Filtration Facility site. Exhibit S.32, Exhibit 1.

Mr. Smith provided limited comments on the update planting plans. Mr. Smith first claims that no impacted habitat was referenced, and states that the planting plan should reflect the plant species and vegetation structure to be replaced along with an anticipated timeline that the species should be expected to return. Exhibit U.19, page 8. As noted above, several planting plans were included in Exhibit S.32, Exhibit 1. Mr. Smith does not explain which of the plans he is referring to or provide any indication that he reviewed all of plans as he only references a single "updated planting plan" in the italicized text. In any case, the updated Filtration Facility Proposed Condition Plan (00-LU-306), the Carpenter Lane Plan (00-LU-412), and the Dodge Park Roadside Clusters Plan (00-LU-413) all directly relate to the removal of hedgerow row from sections of Dodge Park Boulevard. First, the planting plans reflect the native plant species removed from the hedgerow. In comparing the list of species removed during construction (Exhibit U.20c, Attachment 9) to the list of Project plants (Exhibit U.20c, Attachment 8) of the native trees and shrubs removed, 11 of the 13 are included in the Project planting plans. Project opponents have explained the habitat value of the mix of species in the Dodge Park hedgerow. Mr. Ciecko provided the following species-specific description, "[a] wide diversity of tree and shrub species all known to provide quality habitat for a variety [of] birds and small mammals for nesting, foraging, cover and travel corridor purposes." Exhibit N.48, page 2.

PWB offered a condition to add the two missing tree species, Oregon ash and Bitter cherry, into the Filtration Facility Plant Species list. I do not find that MCC 39.7515(B) requires every species in an area impacted during construction activity be replicated in the Filtration Facility habitat areas because of the additional diversity in both habitat areas and plant species the Filtration Facility enhancement areas provide. Ms. Kimpo, who designed the planting plan, explains and I agree, "[o]ne of the significant benefits of doing a large scale planting is the diversity of native plant materials that are installed over the course of the project…The diversity of the of trees (16) chosen for the filtration facility site will develop in different growth rates and patterns and present an array of structural and habitat functions for wildlife using the site." Exhibit U.20c, page 40.

The two tree species removed from the Dodge Park hedgerow that are not included in the current planting plans are the Bitter cherry and the Oregon ash tree. If the Hearings Officer concludes that a species for species replacement is needed to meet MCC 39.7515(B), PWB agrees to the following condition of approval:

Prior to providing final the planting schedules to the County, the applicant agrees to:

1. ***Modify the Screening Mix -Forested planting schedule on the Bull Run Filtration Facility Plant Species and Size – 00-LU-409 to remove Western larch (Larix occcidentalis) from the tree schedule and replace it with Bitter cherry (Prunus emarginata).***

2. ***Modify the Riparian Forest Planting schedule on Bull Run Filtration Facility Planting Details – 00-LU-411 to remove Western crabapple (Malus fusca) from the tree schedule and replace with Oregon ash (Fraxinus latifolia).***

In addition to replacing the specific species included in the hedgerow the plantings across the Project will provide additional diversity. Comparing the tree removal list in Exhibit U.20c, Attachment 9 to the Project planting list at Attachment 8 reveals that the plant list of **the Project adds 10 new species of native tree and 33 new native shrub species.**

Mr. Smith also notes that there is non-native vegetation on the plant list and that PWB proposes several species that are "not present on the impacted sites." Exhibit U.19, page 8. In terms of the non-native vegetation, as explained in the HEP Assumptions, the landscaping inside the Filtration Facility fence will include a mix of native and ornamental species. Exhibit N.56, page C-4. The HEP assigned very little habitat value to the approximately 16 acres of interior landscaping. Exhibit U.20c, Attachment 3b. In terms of the additional species, Mr. Smith fails to explain why he believes that additional diversity beyond what was included in the Dodge Park hedgerow contributes to an adverse effect. Mr. Smith opines that big leaf maple should be the dominant species to replace species and habitats.[64] While bigleaf maple is not the dominant species, it is present in multiple planting areas across the Project. Exhibit S.32, Exhibit 1; Exhibit U.20c, Attachment 5. Therefore, that habitat feature is replicated across multiple designated and protected habitat areas. Additionally, as noted above, mature big leaf maple trees are already a dominant species in the existing upland forest. As discussed above, a primary focus of the Filtration Facility is the oak savannah, and as Mr. Smith indicates a mature Oregon white oak provides a greater value in ecosystem function than a big leaf maple. In this case, the Project planting plans provide for both. While Mr. Smith claims that Oregon white oak is not appropriate, because fire is needed to maintain the grasslands. However, as identified in the HEP assumptions the savannah will be periodically mowed. Exhibit N.56, Appendix C, page C-4. Mr. Smith did not comment on any of the HEP assumptions.

Mr. Smith adds some additional observations on six additional species on the planting list, a very small fraction of the collective planting plans for the Project which includes 84 different species of trees, shrubs, and herbaceous plants. PWB points out, and I agree that even if Mr. Smith were right about

[64] Mr. Smith refers to mature bigleaf maples in the Dodge Park hedgerow and suggests that what was removed will take 30 to 80 years to be replaced. The CCPO/PHNA includes photos of two bigleaf maple tree stumps. One is identified as 15 years old and the other is identified as 57 years old.

some or all of seven plants, the conditions of approval that require monitoring and maintenance across all planting areas would require PWB to take corrective action to replace loss, increase ground cover, or control invasive species.

In addition to the vegetation, the Filtration Facility Landscape Plan includes these additional habitat enhancement features that will provide immediate habitat benefits: rock piles, blue bird boxes, bat boxes, log/brush piles, and invasive removal within the existing upland forest. Ms. Richter contends that PWB fails to "offer any correlation" between these features and the habitat character and quality they provide. That claim is not accurate. ESA described the specific habitat benefits of these features in multiple locations in the record. *See* Exhibit S.32, page 28 (ESA explains, "the addition of bird boxes will provide nesting opportunities for certain species as filtration facility site vegetation matures."); Exhibit N.56, Appendix C (provide the HEP assumptions and includes: "The installation of 5 bat boxes will improve breeding habitat for the little brown bat;" "log/brush piles proposed for the wooded/shrubby buffer along the western facility perimeter will provide foraging sites and cover that will benefit a multitude of wildlife species, including the red legged frog, bobcat, downy woodpecker, western bumblebee, white-crowned sparrow, and red-tailed hawk.) Exhibit U.20c, Attachment 3a (identify use of specific habitat features for the representative HEP species, including identifying log piles and downed wood an breeding habitat for bobcats; identifying placing downed wood in the riparian forest as a benefit for the Oregon slender salamander; identifying constructed bat boxes as roosting areas an providing direction on bat box location; identifying downed wood as important refugia for red legged frog and other native amphibians and noting that presence of English ivy reduces abundance of prey for the re legged frog; identifying the removal of ivy and holly resulting in an improvement in foraging habitat for the Northern spotted owl). Project opponents also provided testimony on the habitat benefits and functions of these features. *See* Exhibit N.43, page 42 (CCPO/PHNA stating that rock piles and dead wood provides "functional high value habitat"); Steve Smith, Remand Hearing 2:30-2:31 (stating that down wood in hedgerows is used by invertebrates as wintering and natal areas.)

(4) Hedgerow Function

As described in the Finished Water Pipeline section above, following the commencement of construction, PWB removed trees and vegetation within the right-of-way along the south side of Dodge Park Boulevard in preparation for pipeline installation, referred to in testimony and in these findings as the Dodge Park hedgerow. As PWB has explained, planting trees within the pipeline corridor is not possible because tree roots could impact pipeline integrity. Therefore, the original plan planting plan for the Filtration Facility site included shrub- dominated and tree-dominated linear vegetation that provides hedgerow function around the filtration facility site perimeters. Exhibit S.32, page 2. To add to the overall density of hedgerow features on the Filtration facility Site and to provide an additional vegetative buffer, an additional hedgerow area was added to the landscape plan between the Filtration Facility and the existing upland forest to the east during the initial land use proceeding. Exhibit S.32, page 2. Figure 1 from ESA's first open record period response, identifies all vegetation across the Filtration Facility habitat areas outside of the fence that will provide hedgerow function. Exhibit S.32, page 2. These areas are described collectively in the wooded/shrubby buffer and hedgerows habitat description above.

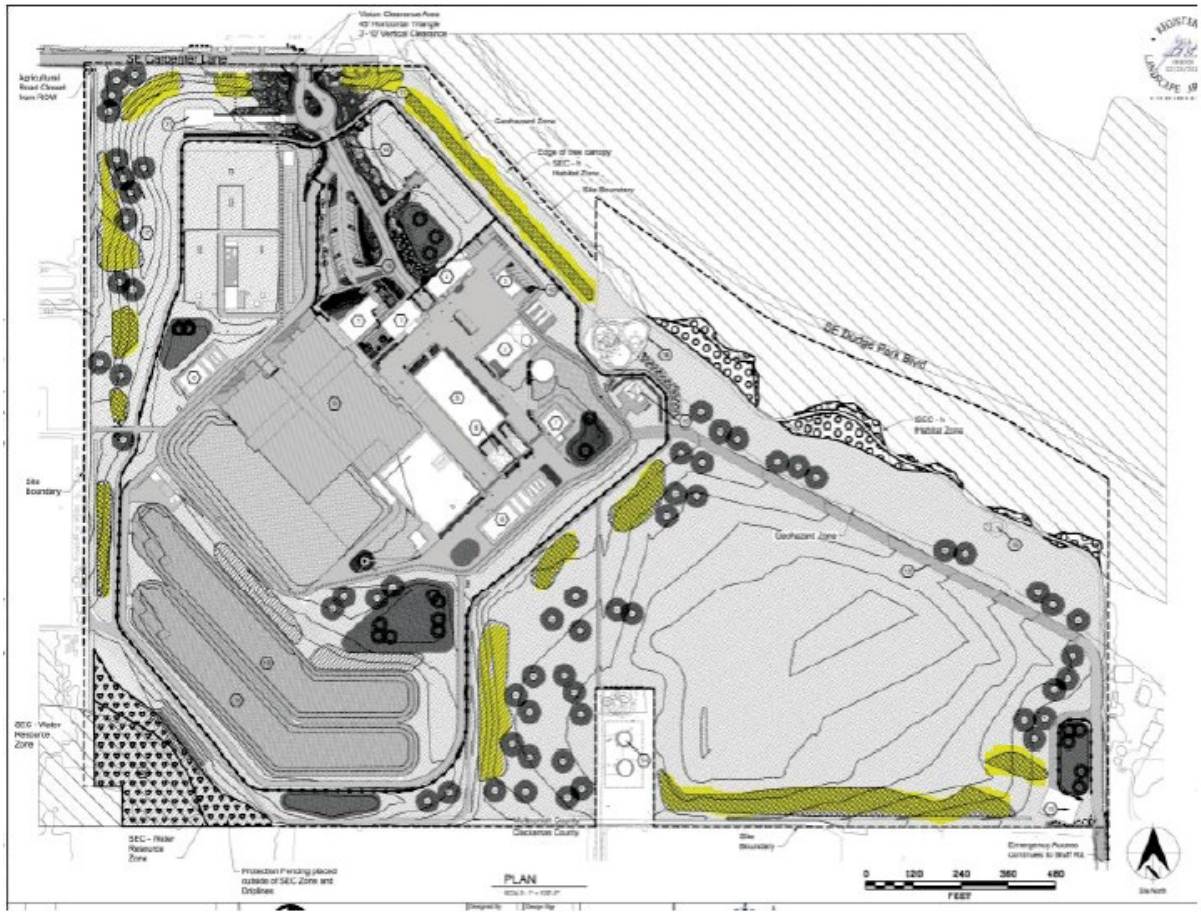


Figure 1 **Tree Dominated and Shrub Dominated Hedgerow Areas to be Planted on the Filtration Facility Site**

In her proposed findings, Ms. Richter claims that the "planting plan for hedgerows located around the filtration facility are not diverse" and only include one tree species that is unlikely to attract the same variety of wildlife as the Dodge Park hedgerow. Exhibit W.3a, page 22. Evaluation of the planting plan and planting schedule details reveals that the areas highlighted in yellow above with hedgerow function in fact provide a wide diversity of tree and shrub species, many of which were included in the Dodge Park hedgerow. The reference to one type of tree planting appears to be a reference to the "Hedgerow Planting" Schedule on the Planting Details sheet (00-LU-411). Exhibit N.56, page 72. However, as depicted on the Filtration Facility Landscape Plan 00-LU-306, only one planting area includes the corresponding Hedgerow Planting Area symbol for that plant schedule; the linear planting area near the northeast corner located between the Filtration Facility fence and the established upland forest to the east. Exhibit N.56, Appendix E; Exhibit S.32, Exhibit 1 (Updated Version). As explained above, that planting area was added to the planting plan during the original land use proceeding for the dual function of providing linear hedgerow habitat and providing a vegetated buffer between the Filtration Facility and the established upland forest in the SEC zone to the east. Exhibit S.32, page 2. Therefore, that "Hedgerow Planting" area includes a single native tree species, the cascara, along with seven species of native shrubs. Exhibit N.56, page 72. The cascara is one of the native trees included in the

Dodge Park hedgerow plant list. Exhibit U.20c, Attachment 9. The remaining 12 areas highlighted in yellow, are designated with the Screen Mix: Forested Planting or Screen Mix: Shrubby Planting symbol (00-LU-306) and will, accordingly, be planted with the mix of vegetation identified in the "Screening Planting Mixes" on Plant Species and Size Schedule (00-LU-409). Exhibit S.32, Exhibit 1; Exhibit U.20c, Attachment 5, page 1. As provided in the correct planting schedules the Screen Mix: Forested planting areas (5 of the 12) will be planted with eight different native tree species and five native shrub species. Four of the eight tree species (bigleaf maple, incense cedar, Douglas fir, and cascara) and one shrub (snowberry) are species that were removed from the Dodge Park Hedgerow. Exhibit U.20c, Attachment 9. The Screen Mix: Shrubby planting areas (7 of the 12) will be planted with a mix of 2 native trees and 15 native shrub species, 4 of which a species removed from the Dodge Park hedgerow (oceanspray, mockorange, elderberry, and snowberry). Exhibit U.20c, Attachment 9. Combined, the species of trees to be planted in the Hedgerow Planting Area, Screen Mix: Forested Planting area, and Screen Mix: Shrubby Planting area include 10 different native tree species and 19 different native shrub species.

As ESA explained the hedgerow plantings "provide food and shelter for bees, birds, and small mammals." The tree species in those areas particular will provide a variety of heights, structures, and growth rates. For example, the following trees included in the Screen Mix – Forested Planting areas have the following attributes: grand firs have a mature height of 150 feet, a mature spread of 40 feet, and a medium growth rate; bigleaf maples, have a mature height of 90 ft, a mature spread of 75 feet, and a very fast growth rate; and Scouler's willow have a mature height of 40 feet, a mature spread of 30 feet, and a fast growth rate. Exhibit U.20c, Attachment 6, pages 3.1-1, 3.2-1, and 3.2-4. The shrubs in the Screen Mix areas will also contribute to the variation in height, growth rates, and vegeation. The tall Oregon grape is in both mixtures and has a mature height of 5 to 6 feet, has a medium growth rate and edible berries. Exhibit U.20c, Attachment 6, page 3.8-2. The snowberry shrub is also in both mixes and has a mature height of 1 to 3 feet, has a fast growth rate, bell shaped flowers, and berries that are a source of winter food for birds. Exhibit U.20c, Attachment 6, page 3.8-11. The Screen Mix areas along the western boundary of the site and south of the facility fence will be planted B&B plants, and therefore many of the trees will range from 6-feet to 8-feet in height when planted. Exhibit S22, Exhibit 1, 00-LU-302; Exhibit U.20c, Attachment 5, 00-LU-409. The western boundary area will also include the long/brush piles. Exhibit S22, Exhibit 1, 00-LU-306. The planting areas with varied heights, species, and characteristics are consistent with this image of a hedgerow included in the CCPO/PHNA pre-hearing document:

Figure 21. Hedgerows are high quality habitats OSU Extension (2022), consisting of foliage similar to the former hedgerow on SE Dodge Park Blvd. Preconstruction hedgerow was an established habitat similar to this (see proceeding Figure 22)

Exhibit N43, page 43. ESA describes the benefits of hedgerows, explaining, "[s]hrub species provide the structure needed for nesting and shelter from predation," and food in the form of berries, rosehips, and vegetative plant materials. Exhibit S.32, pages 2-3. Perhaps, the testimony from CCPO/PHNA provides the best description of the wildlife habitat benefit these planting areas will provide:

> Beneficial insects, often referred to as pollinators, include numerous species of butterflies, wasps, moths, lady beetles, and ground beetles. Nesting and wintering pollinators seek shelter in hedgerows that offer protection from predators and the elements. Functional, high value habitat includes stems and branches of trees, shrubs, wildflowers, leaf litter, undisturbed ground, bare ground, dead wood, brush piles and rock piles. Pollinators and predatory insects often travel from natal and cover areas searching for pollen, nectar and food resources. This movement is beneficial to local agricultural producers that rely on insects to pollinate crops such as berries, fruit and nut trees.

Exhibit N.43, page 42. Ms. Richter's confusion is understandable given the labeling of each area in the legend. To avoid future confusion and clearly establish the minimum number of trees to be planted in each area identified in the planting legend for the Filtration Facility site and to ensure the number of B&B trees and shrubs represented in the testimony and discussed above are planted, PWB proposes, and I will impose the following condition of approval:

> ***The Water Bureau shall plant the following minimum number of trees in the following planting areas on the Filtration Facility* Site:**
>
> | | |
> |---|---|
> | ***Landscape/Stormwater*** | ***458*** |
> | ***Upland Forest*** | ***340*** |
> | ***Riparian Forest*** | ***1011*** |
> | ***Hedgerow*** | **68** |
> | ***Screen Mix*** | ***654*** |
> | ***Tree/Shrub Planting Clusters*** | ***775*** |
> | ***Total*** | **3306** |
>
> ***Within the total number of trees,* the Water Bureau shall plant a minimum of 582 ball and burlap (B&B) trees that are a minimum height of 6 feet or 1.5 caliper inches. The Water Bureau shall include the totals in and updated Filtration Facility Landscape Plan (00-LU-306) and submit the update to the County prior to planting.**

(5) Fencing/Habitat Fragmentation

Several comments raised concern about fragmentation cause by facility fencing or the facility itself. See Exhibit N.12, page 1 ("wildlife population declines in rural areas are often linked to infrastructure development, which fragments habitats and hinders wildlife migration"); Exhibit N.28, page 1("fencing and industrial activity would fragment habitat, disturb wildlife corridors.") Exhibit N.45; 3 page ("the operation of an industrial complex in this area would fragment wildlife habitat, making it difficult for species to migrate freely or access resources.") ESA responses to these comments and others in its responses at Exhibit S.32, pages 9-11.

There seems to be either persistent confusion or an intentional mischaracterization of the use of fencing at the Filtration Facility site for the operating facility. For example, Ms. Richter stated in her proposed findings that the Project will remove 90 plus acres from agricultural production and fence it "entirely." Exhibit W.3b, page 17. This is not accurate. Only the Filtration Facility itself will be fenced. The Final Staff Report on Remand also suggested that there would be a fence around the perimeter and referred to a map in the previous hearing officer's decision. Exhibit W.1, page 6. The referenced map is labeled Project Location, and it appears that the black line around the perimeter of the facility is showing the location of the facility and not a fence line. As depicted and described consistently in PWB testimony and figures, only the 37-acre Filtration Facility will be enclosed by a fence. The figure below, included in the Habitat Impact Assessment and included PWB's slide show at the hearing, shows the boundaries of the Facility Fence as a black and white dashed line that only surrounds the Filtration Facility itself. Exhibit N.56, page 19; Exhibit R.1, page 17. It also shows the wildlife movement corridors to and through the remainder of the site.

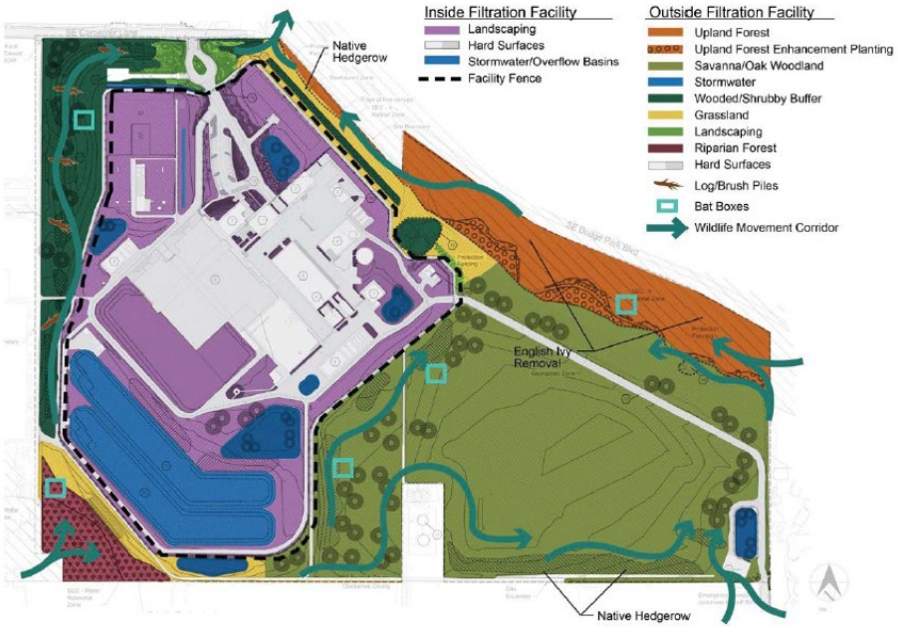


Exhibit N.56, page 19.

The Facility fence line is shown in the same location on the Filtration Facility Landscape Plan (00-LU-306). Exhibit, S.32, Exhibit 1. PWB had originally planned to place an agricultural style fence along a portion of the southern boundary of the Filtration Facility site at the edge of the adjacent nursery. *See* U.20c, page 12. However, PWB agrees to a condition of approval that would limit fencing on the site to the Facility Fenceline depicted on The Filtration Facility Landscape Plan (00-LU-306).

Staff recommend a condition of approval to address the fence concern and confirm preservation of the habitat areas outside of the fence for habitat purposes. PWB recommends, and I impose the following condition in place of the recommend condition from staff. I find that the condition is consistent with the staff's intent and creates additional certainty.

> ***Prior to issuance of a Certificate of Occupancy, the Water Bureau shall plant the Filtration Facility Site in a manner consistent with the Filtration Facility Landscape Plan (00-LU-306). This includes planting the areas outside of the Facility Fenceline identified on the plan, including the 30 +/-acre field area in the southeast portion of the Water Filtration Facility site, with native species (trees, shrubs and ground cover to provide native wildlife habitat for birds, deer, elk, and other species). The designated wildlife habitat areas outside of the Facility Fenceline will be used exclusively as wildlife habitat. Fencing on the operating Filtration Facility Site shall be limited to the Facility Fenceline depicted on the Landscape Plan (00-LU-306).***

On the broader issue of fragmentation, several commenters raised concerns that the Filtration Facility operation would create habitat fragmentation. *See* Exhibit N.45, page 3, Exhibit S.10, page 2. Both CCPO/PHNA and ESA referenced the Oregon Conservation Priority Wildlife Connection Areas Map. Exhibit N.43, page 61 and Exhibit S.32, page 11. CCPO/PHNA seemingly pointed to the map related to concerns over construction noise and activity. Construction noise issues are addressed in the Section X.C below. ESA points out how providing the wildlife movement pathways through the Filtration Facility site that has historically been used for intensive commercial nursery use and included an elk fence intended to deter wildlife movement could provide a improve connectivity and provide a habitat patch, noting:

> The post-construction plan incorporates native vegetated habitat corridors to support wildlife movement. These corridors will connect Johnson Creek with the upland forest area and the forested habitat extending north of the site. The design allows for movement and exchange of resources between the remaining habitat patches in the area thereby avoiding fragmentation.

Exhibit S.32, page 11. Mr. Smith responds by explaining the purpose of the mapping, but he does not directly address or challenge the point that the Filtration Facility habitat areas will improve connectivity. It is also unclear if, in his evaluation of the overall wildlife habitat benefits of the post-construction use, he believed, like Ms. Richter, that the entire 90-acre Filtration Facility site would be fenced. Exhibit U.19, page 8. Instead, he notes that hedgerows function as smaller habitat steppingstones assisting wildlife in reaching priority corridors and larger habitat areas. Exhibit U.19, page 8. Notably, Mr. Smith does not specifically reference the Dodge Park hedgerow nor indicate that he believes that the Dodge Park hedgerow served as a steppingstone habitat. In contrast, the testimony from ESA specifically identifies

the creation of a corridor between Johnson Creek to the southwest of the Filtration Facility and the upland forest to the east.

PWB has proposed, and I adopted as findings the following condition that documents the habitat enhancements identified in the Habitat Impact Analysis that are not already reflected in the landscape plans. This list includes removal of the existing elk fencing that as discussed above has historically deterred the movement of elk and deer through the Filtration Facility site.

The Water Bureau shall comply with the following habitat enhancements:

1. Remove English ivy and English holly from the area identified for removal on the Filtration Facility Landscape Plan (00-LU-306) which includes approximately 5 acres, pursuant to the following schedule and minimum performance standards:

- ***1st year cover < 60 percent; i.e. no more than 60 percent English ivy & holly cover should be present in the forest using visual estimates.***
- ***2nd year cover < 50 percent***
- ***3rd year cover < 40 percent***
- ***4th year cover < 30 percent***
- ***5th year cover < 20 percent***
- ***Removal must commence within 1 year of land use approval.***
- ***Removal includes from the forest ground and cutting the bottom 4' of trunks of trees.***
- ***All removal must be by hand or mechanical means.***
- ***All invasives removed must be replaced with native shrub and tree species where native cover is less than 70 percent, and interplanted species must be replaced if needed to achieve 60 percent survival rate.***
- ***Removal must occur between December 1st and February 31st.***
- ***Beginning with the first year of removal, the permittee will submit a report to the Multnomah County Planning Director documenting: the amount and area of removal, the method of removal, the estimated remaining coverage, and the number of replacement plants. The report must be submitted to the Planning Director by April 1st of each year that removal occurs.***

2. Remove all existing fencing located on along the eastern/northern boundary of the filtration facility site within one year of land use approval.
3. Prohibit dogs outside of the Filtration Facility fence.
4. Prohibit the recreational use of off-road motor vehicles on the Filtration Facility Site.

Taking into consideration evidence in the record related to wildlife habitat fragmentation and existing and proposed fencing on the Filtration Facility site, I find that as conditioned, the site layout and fencing plan will operate to collectively decrease fragmentation and increase wildlife habitat connectivity through the Filtration Facility site and is an improvement over the pre-construction condition.

c. Intertie Site

i. Pre-construction Wildlife Habitat

ESA describes the pre-construction habitat at the Intertie site in Section 3.2.1 of the Habitat Impact Analysis. Exhibit N.56, pages 23-25. As described, the dominant pre-construction land cover or habitat type at the Intertie Site is commercial nursery land adjacent to the SE Lusted Road right-of-way totaling approximately 0.5 acres. ESA explains, "typical habitat conditions are similar as those described for the nursery operations at the Filtration Facility Site and consist of frequent disturbance due to crop rotation/harvesting and management such as irrigation and pesticide/herbicide application. Beaver Creek is located across SE Lusted Road from the Intertie Site." Exhibit N.56, page 20.

ii. Post-construction Wildlife Habitat

The Intertie will control the flow of finished water to the water transmission system. The Intertie Site will contain an underground vault, an above-ground operations building, above-ground mechanical equipment, a small, paved area for maintenance vehicles, and landscaping. Exhibit N.56, page 22. Post-construction, the Intertie Site will include about 0.25 acres of ornamental and native landscaping (primarily tall shrubs) in addition to hard surfaces. The landscaping will provide a combination of screening and wildlife habitat. Exhibit N.56, page 22. As provided in the Finished Water Intertie Landscape Plan, the planting plan includes 10 screening plants and 5 varieties of stormwater planting. Exhibit N.56, Appendix E. ESA determined, "proposed landscaping will provide some limited habitat functions for a small number of wildlife species." Exhibit N.56, page 22. With the exception of elk, ESA conservatively applied the same pre-construction HSI values to the nursery use at the Intertie site as applied to the nursery use at the Filtration Facility Site. The limited post-construction wildlife habitat at the site resulted in a slight reduction in wildlife habitat units for both foraging and breeding. Exhibit U.20c, Attachment 3b. There was no testimony specific to wildlife habitat impacts at the Intertie site.

d. Raw Water Pipeline

i. Pre-construction Wildlife Habitat

The Raw Water Pipeline extends approximately 0.4 miles from a connection to existing PWB pipelines in Lusted Road across private property to the east edge of the Filtration Facility site. Exhibit A.7, page 2. ESA explains the dominant land cover or habitat type within the alignment of the Raw Water Pipeline is characterized by mixed woodland, which is a mosaic of tree stands, shrubby areas, and thickets intermixed with small ponds and pastures. Exhibit N.62, page 27. The mixed woodland habitat type includes a small pond (< 0.10 acre) within the alignment that was originally constructed and stocked with non-native fish to serve as an indicator of water quality in the runoff from adjacent farm fields. Exhibit N.62, page 27. The pond is surrounded by a delineated wetland and is located adjacent to a dirt farm road. A second delineated wetland is located north of the farm road. Exhibit S. 33.

ii. Post-construction Wildlife Habitat

Following construction, the Raw Water Pipelines will be located beneath the pond and wetlands and beneath two pasture areas. Exhibit U.20b, page 7. The pasture areas will be regraded and reseeded to return it to preconstruction condition. Exhibit U.20b, page 7. As explained by Anita Smyth of

Winterbrook, the wetland biologist for the Project, during construction a hardened structure was placed over the existing dirt farm road and between the two wetlands on either side of the road to protect an existing culvert under the road and the wetlands. Exhibit S.33, page 2. The project team advised leaving the structure in place to protect the wetlands. Exhibit S.33, page 2. An updated planting plan for the Raw Water site requires a total of 163 native wetland plants installed on either side of the structure. During construction 29 trees were proposed for removal, including many less than 3-inches in diameter. Exhibit J.75, Attachment A. As discussed in Section VIII.D.5.e.i below, those trees are included in the Project wide total for tree removal and therefore, are included in the overall tree replacement ratio of 7.9 trees for every one tree removed. There is also on-site tree replacement as the updated planting plan includes the placement of 10 native trees in the wetland to the north of the structure. Exhibit U.20b, page 7.

The HEP assigned both foraging and breeding HSI score to most of the representative species, including high and moderately high values for the red-legged frog. Exhibit U.20c, Attachment 3b. Because the overall habitat structure remained the same, the pre-construction and post-construction values also remained the same. There were no comments on the HEP conclusions related to the Raw Water Pipeline and Mr. Smith did not specifically comment on the Raw Water Pipeline, except to suggest that wetlands generally should have been qualitatively assessed. S.26, page 5. As explained in detail in Section VIII.D.5.e.iii below, they were. The Courters also made multiple rounds of comments related to concerns about wetland impacts on the raw water pipeline. Both the comments and the responses are addressed in detail in the consolidated wetlands response in Section VIII.D.5.e.iii below. Mr. Ciecko also provided comments related to the Raw Water Pipeline that primarily related to forest edge habitat. His comments are referenced and addressed in forest edge findings in Section VIII.D.5.e.ii below.

e. Project Wide Topics

The following sections address arguments by project opponents related to pre-construction and post-construction wildlife habitat issues that relate to more than one of the project areas.

i. Trees

Many commenters, including Mr. Smith, understandably focused on the amount of tree removal required for construction of the Project, and many comments in the record identify tree removal as an adverse effect to wildlife habitat or wildlife. The following addresses tree related comments and issues in the record.

(1) Tree Removal

As provided above, as part of initial construction of the Project PWB removed trees along the Raw Water Pipeline alignment and the Finished Water Pipeline alignment. As an initial matter, I find that the act of cutting the trees was a construction activity, and as such is that not part of the use being reviewed in this proceeding. However, in the alternative described above, the absence of the trees in the Project area is a consideration in the comparison of the pre-construction wildlife habitat to the post-construction wildlife habitat. For example, and as discussed above, the HSI wildlife habitat value assigned in the HEP for the Finished Water Pipeline alignment post-construction was conservatively based upon grass cover across the entire alignment. The presence of trees in each habitat area of the

Filtration Facility site was also a consideration in the post-construction value assigned to the Filtration Facility site both inside and outside of the Filtration Facility fence. See Exhibit N.56, Appendix G.[65]

Trees were also removed from rights-of-way not located within the pipeline alignment, and primarily along Carpenter Lane, to accommodate road widening consistent with County street design guidelines that was necessary for Project construction. Exhibit S.32, page 31. The tree removal along Carpenter Lane included the removal of the four large diameter sequoia trees in the right-of-way.[66] The photo of the trees shows that prior to removal they were severely topped to accommodate the overhead utility located in the right-of-way. These appear to be the sequoias Mr. Smith referred to in his comments as being more than 60-feet tall, and he at least implied they would be appropriate perches for great horned owls and red-tail hawks. Exhibit U.19, page 2.

Exhibit S.32, page 31, Figure 11.

The road widening was conducted during construction, and removal of the trees was a construction activity not under review in this proceeding. Exhibit S.32, page 31. Nonetheless, as ESA confirms, the tree removal within the Carpenter Lane right-of-way is considered in the overall tree removal number for purposes of the tree planting ratio. Exhibit S.32, page 31. As there will be no permanent element of the Project within the Carpenter Lane right-of-way (i.e. no subsurface pipeline), it is not necessary to consider the absence of the trees along Carpenter Lane in a comparison of pre-construction wildlife habitat across Project areas to post-construction habitat across Project areas. Nonetheless, because construction tree removal within right-of-way is considered in the overall tree removal number for

[65] After the original HEP, the landscape plans were modified to increase the number of trees on the Filtration Facility site from 2,485 to 3,306 and to replace bare root trees with 582 B&B trees. Notably, ESA did not adjust the Filtration Facility post-construction HSI values for the original eight species in the HEP to boost the post construction wildlife habitat units. PWB points out, and I agree, that this is another example of a conservative approach taken in the final HEP that supports the credibility of the analysis.

[66] These appear to be the same trees that CCPO/PHNA refers to as red cedars. Exhibit N.43, page 48, Figure 26.

purposes of the tree planting ratio, I find that even if the removal of these trees were considered in the pre- and post-construction evaluation for purposes of compliance with MCC 39.7515(B) the habitat value of the trees is appropriately considered and accounted for in the landscape plans and the overall habitat enhancement elements of the Project which support the finding that the Project will not adversely affect wildlife habitat.

A large percentage of public comments that emphasized the number of trees removed. A total of 433 trees were mapped for removal prior to commencement of the project. Of those 433 trees, 396 trees or 91%, were located in public rights-of-way. Exhibit S.32, page 12. Trees mapped for removal were measured by diameter at breast height (dbh) and included the following size classes:

3-<6"	74 trees
6-<10"	149 trees
10-<20"	166 trees
20-<30"	28 trees
30-<40"	13 trees
trees > 40"	3 trees
Total Trees	433

Exhibit S.32, page 12. As provided in the table, over half of the trees (223) were smaller than 10-inches dbh. Almost 90% of trees were smaller than 20-inches dbh. Trees removed for construction of the Project include native species in the right-of-way along Dodge Park Boulevard, trees removed along the Raw Water Pipeline alignment, and native and ornamental species from the right-of-way along Carpenter Lane.[67] Of the 8 trees larger than 36-inches, four were the sequoias along Carpenter Lane addressed above. Exhibit S.32, page 12.

(2) Tree Planting

As documented by ESA, and consistent with the condition of approval above requiring a minimum number of trees be planted in specific habitat areas, the planting plans for the Filtration Facility and the Carpenter Lane properties will result in the planting of 3,418 native trees[68] and over well over 46,000 native shrubs. The total conservatively excludes: 1) all vegetation to be planted at the Intertie site; 2) the trees that have been and will be planted along the raw water alignment, including the 20 trees planted in 2023 at the forest edge of the SEC overlay; and 3) the extensive riparian, upland forest, and oak woodland trees and shrubs, totaling approximately 680 trees and 830 shrubs, to be planted across 5.5 acres at the Cotrell Pond property. Exhibit U.20.c, page 39. Even with those exclusions, the

[67] Ms. Richter estimates that in the Dodge Park hedgerow alone, 320 to 400 trees greater than 6-inches in diameter were removed during construction. Exhibit W.3a, page 20. There is no evidentiary support for this estimate in the record, and Ms. Richter cites to none. The page she references at N.43, page 43 lacks any reference to the number of trees removed within the Dodge Park Boulevard right-of-way. The estimate is also inconsistent with specific tree removal numbers that are included in the record.

[68] This total includes the 3,306 trees required on the Filtration Facility site pursuant to the condition applied above, and the 112 trees identified on the Carpenter Lane planting plans.

replacement ratio equates to approximately 7.9 trees planted for every 1 tree removed across all tree removal sizes.[69]

Mr. Smith challenged the adequacy of the planting plans stating that the proposed plantings do not resemble the previous hedgerow structure, and that "[e]ven under ideal conditions it could take up to 60 years for newly planted trees to develop comparable habitat functions. Moreover, there is no evidence that the planted trees will ever achieve the canopy size, structural complexity, resilience, or cavity formation characteristic of existing mature trees." Exhibit S.26, page 6. While it is possible he was referring to all of the plantings across the Filtration Facility site, it seems likely that in referencing the proposed plantings the he, like Ms. Richter, might be mistaken about the extent of the planting areas that do replicate hedgerow features and functional values on the site.

Ms. Kimpo referenced the diversity of native plant species that are addressed in detail above, and explained,

> Structural complexity is an indicator of biodiversity on a site. While the formation of tree-related microhabitats (TreMs) such as cavities are often attributed to mature trees, it is also recognized that small diameter, younger trees represent important cavity nesting TreM's. Hardwood trees typically develop rot at smaller sizes and in younger individuals than do conifers. In a 2002 paper by Bunnell, he describes the diverse array of cavity excavating birds and the variance in preference for larger conifer trees as opposed to smaller hardwood trees which develop in a relatively short time period. The diversity of trees (16 species) chosen for the filtration facility site will develop in different growth rates and patterns and present an array of structural and habitat functions for wildlife using the site.

Exhibit U.20c, page 40. As addressed above, in addition to diversity, the project will also include at least 694 B&B trees on Carpenter Lane and the Filtration Facility site. At 6 to 8 feet in height will quickly provide a variety of functions following installation, including shade, food, nesting sites, and shelter for animals such as insects and songbirds. Exhibit S.32, page 3.

In response to Mr. Smith's claims about canopy size specifically, Ms Kimpo calculated the projected tree and shrub cover for the Project by habitat area using the Portland Plant List's projections for cover spread at year 10 for each tree and shrub. Exhibit U.20c, Attachment 6. Using the list of all plants to be installed across all sites except the Intertie, Ms. Kimpo estimated cover was calculated for each individual species and also for each habitat type to be restored. The following table summarizes the evaluation.

[69] 3,418 ÷ 433 = 7.89

Projected Cover by Habitat (all sites)	**Approximate Acres Removed**	**Planting Area Acres**	**Projected Tree cover at year 10 (acres)**	**Projected Shrub Cover at year 10 (acres)**
Forest	1	19.2	1.3	0.73
Hedgerow	2.9	6.9	3.6	11.5
Riparian	0	5.7	4.6	9
Oak and Prairie*	0	34.8	0.9	0.5
Landscape	0.5	1.5	1	0**
Total	**4.4**	**68.1**	**11.4**	**21.73**
*Oak and prairie units designed to be low woody plant density				
**Shrubs not included in calculations for landscape areas				

Table 5 - Comparison of vegetation removed with acres of restored habitat

Exhibit U.20c, page 41. The first thing notable about this table is the comparison in habitat area alone. Overall, the Project planting area will replace the area of vegetation removal during construction by a factor of over 15 to 1, and the Project will provide over twice as much hedgerow area. As provided, by year 10 the projected tree cover is projected to be 11.4 acres compared to and the shrub cover is expected to be nearly 22 acres. Ms Kimpo notes,

> It is also important to note that the size of trees planted has an impact on the temporal development of the site. Trees planted as B&B tend to be 5-8' in height and can range from an age of 4-7 years at the time of planting. Many trees originally proposed for planting as bareroot without irrigation have been converted to ball [sic] and burlap with irrigation to speed development of the structure and development of those individuals. As noted above, the current plans will result in a total of 694 B&B trees being planted on the filtration facility site and the Carpenter Lane properties. Additional B&B trees are proposed in the area south of Johnson Creek at the Cotrell Pond site. The average height of trees planted at the 10-year mark is projected to be 17.5'. Some of the faster growing trees are projected to be much taller, including black cottonwood at 50' and Douglas-fir at 40'.

Exhibit U.20c, page 41. Ms. Richter dismisses the evaluation, claiming the evaluation is "overly optimistic" and unsupported by "substantial evidence." As provided, the evaluation was conducted by Ms. Kimpo, who as noted above is the Environmental Regulatory Program Coordinator for the PWB Resource Protection and Planning group who has over 25 years' experience designing and implementing mitigation and ecological restoration project in the Pacific Northwest. Exhibit U.20k. This detailed evaluation by an experienced professional using verifiable sources included in the record is evidence any reasonable would rely upon, and I find that it provides substantial evidence that the trees included in the Project plantings plans will achieve and far surpass the canopy size of the trees removed during construction.

Ms. Richter also suggests that the purpose of the cover comparison was to estimate when the benefit of the extensive planting plan would "be realized." In stating that the 10-year cover comparison demonstrates that there will be a 10-year lag in natural resource, she misses both the point of the comparison and the result. As clear from the document, the evaluation was offered in direct response to Mr. Smith's claim that it would take 60 years for the newly planted trees to develop habitat function comparable to what was removed, and his claim that there was no evidence that the Project plantings

would ever achieve the canopy size of what was lost. What Ms. Kimpo's evaluation shows is that in just 10 years, not 60, the canopy of the trees planted would be expected to be 2.5 times that of what was removed, not just match it. That in no way equates to a conclusion that the 10-year mark is when the "benefits would be realized" as Ms. Richter suggests.

Ms. Kimpos's response also details the mixtures of speeds at which trees will develop and identified the habitat benefit the varying speeds as well as the diversity of species being planted. Exhibit U.20c, pages 40-42.

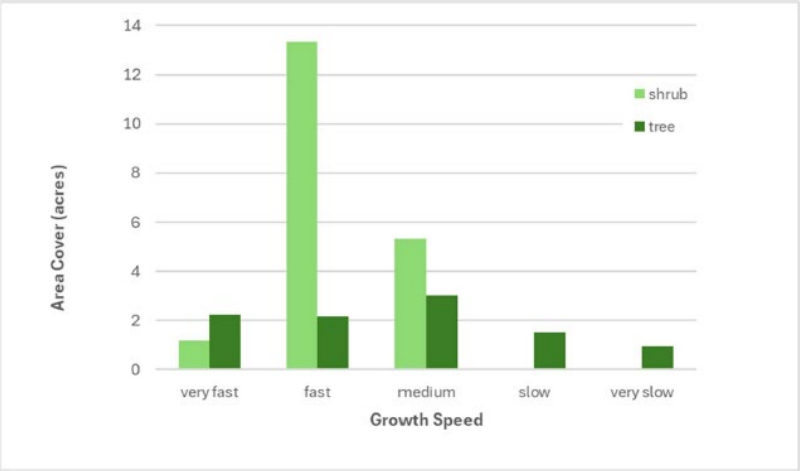


Exhibit U.20c, page 42.

Mr. Smith also provided multiple comments suggesting that PWB had not committed to long term maintenance and monitoring of the habitat areas. *See* Exhibit S.26, page 6; Exhibit U.19, page 10. PWB developed a detailed monitoring plan for the Filtration Facility site, the Carpenter Lane properties, and the Raw Water Pipeline. Exhibit U.20c Attachment 10. PWB has agreed to extend the monitoring period to 20 years with a graduated reduction in the frequency in reporting form year 11 to 20, and I impose the following condition of approval:

> ***Planting Plan Maintenance and Monitoring Condition for Filtration Facility Site (00-LU-306), Carpenter Lane Properties (00-LU-412), Raw Water Pipeline (LU-200):***
>
> ***The landscape professional or designer of record shall monitor the plantings for 20 years after to ensure survival and replacement as described below. The landowner is responsible for ongoing survival of required plantings beyond the designated 20-year monitoring period. The landscape professional shall:***
>
> - ***Provide a minimum of 13 letters (to serve as monitoring and maintenance reports) to the Multnomah County Planning Director containing the monitoring information described below. Submit the first letter within 12 months following completion of plantings identified on the Final Planting Plan for the subject property. Submit subsequent letters every 12 months following***

the date of the previous monitoring letter for the first 10 years and then every 3 years from years 11 to 20. All letters shall contain the following information:

- ***A count of the number of planted trees and shrubs that have died. If fewer than 80% of the planted trees in the mitigation areas are surviving at the time of monitoring, one replacement tree must be planted for each dead tree (replacement must occur within one planting season).***

- ***For areas with native seed mixes: the percent coverage of native ground covers within the 8-acre invasive species removal area and all temporary disturbance areas. If less than 80 percent of these areas is covered with native groundcovers at the time of the annual count, additional groundcovers shall be planted to reach 80 percent cover (replacement must occur within one planting season).***

- ***A list of replacement plants that were installed.***

- ***Photographs of the mitigation area and a site plan, in conformance with the Final Planting Plan, showing the location and direction of photos.***

- ***A description of the method used and the frequency for watering trees, and groundcovers for the first two summers after planting.***

- ***An estimate of percent cover of invasive species within each mitigation area and the invasive species removal area (invasive hawthorn, Himalayan blackberry, Scots broom, teasel, English ivy, reed canarygrass, clematis, etc.) within 10 feet of all plantings. Invasive species must not exceed 20 percent cover during the monitoring period.***

- ***Assessment of habitat features- includes annual visit to large wood installations, bird boxes, bat boxes, rock piles annually to assess function and use. Replace features that are no longer providing the intended function. (applicable to 00-LU-306)***

(3) Temporal Impacts

Ms. Richter and most comments from Project opponents seek to dismiss or discount the relevance of the number of trees PWB has committed to plant across the Project area. Ms. Richter and other project opponents also point to the amount of time it takes for trees to grow. *See* Exhibit W.3a, page 23. This is often referred to as temporal impacts.

As ESA explains, "it is common in natural resource mitigation to compensate for the amount of time needed for large vegetation such as trees to grow by increasing mitigation ratios for re-establishment of mature vegetation to greater than 1:1." Exhibit U.20c, page 39. PWB conducted a comparative review of the tree replacement requirements of tree codes from other jurisdictions, including Portland's own tree code, as a planning tool. Exhibit U.20c, page 39. Each jurisdiction applies slightly different requirements such as 1) requiring a specific number of trees be planted, often calculated through a graduated replacement ratio based on the size of the trees removed, 2) requiring a certain caliper be planted based upon the total caliper of trees removed, or 3) a mix of those approaches. Exhibit U.20c, page 39-40. As detailed in the jurisdiction comparison table provided at Exhibit U.20c, Attachment 4, for each jurisdiction **the tree replacement provided by PWB for this project dramatically exceeds the tree replacement standards of the other jurisdictions**, including the City of Portland requirements for tree removal that is not even associated with development. Exhibit U.20c, Attachment 4.

For example, within just the Filtration Facility and the Carpenter Lane properties, PWB has committed to planting 3,418 trees, including both B&B and bareroot trees, which equates to 2,503 caliper inches. In comparison, if the tree removal required for construction of this project were to occur in Redmond Washington, a "no net loss" tree jurisdiction, just 392 2.5-inch caliper trees (980 caliper inches) would be required as replacement in order for that jurisdiction to conclude that there had been "no net loss" and compensate for the amount of time needed for large vegetation such as trees to grow. Applied to the Project – considering only the Filtration Facility and Carpenter Lane plantings, compared to all tree removal across the entirety of the Project construction – the Project has achieved 255.4% of the "no net loss" standard to conclude that the Project has compensated for the amount of time needed for large vegetation such as trees to grow.

This Project is not subject to those standards, and they do not substitute for compliance with MCC 39.7515(B). However, the standards do provide an objective, third party measurement to put into context exactly how extensive the planting commitment is in this case, and to compare that level of planting to what is considered in those objective standards to compensate for the amount of time needed for large vegetation such as trees to grow. In every case, the proposed planting dramatically exceeds what other jurisdictions would consider to compensate, on the day construction ends, for construction tree removal. Exhibit U.20c, Attachment 4.

The question here is not whether the project satisfies tree codes in other jurisdictions, but what is required for compliance with MCC 39.7515(B). In other words, does a reasonable interpretation of what the drafters intended by the words "will not adversely affect natural resources," as applied to construction tree removal, allow for a period of regrowth during the use? For the reasons set forth below, I find that it does.

First, for the reasons in Section IV.C above, I find that, consistent with LUBA's order in this case, the MCC does not regulate or apply the community service use approval criteria to temporary construction activities or their impacts. As I stated before, the cutting of the trees to allow for installation of the subsurface pipeline in the right-of-way and on private property was a construction activity. This is consistent with how LUBA has viewed tree removal before, specifically in *McLaughlin v. Douglas County*, LUBA No. 2020-004 (April 13, 2021), a case LUBA relied upon in their order in this case to determine that such construction activities are not the land "use" under review in this proceeding. Exhibit M.25 (LUBA Order), page 25-26. In *McLaughlin,* the applicant proposed to install over five miles of natural gas pipeline directly through forested areas in Goal 4 protected forest zones, impacting "during

construction" over 75 acres of those zones. *McLaughlin*, slip op at 26. Although the allowed use in the forest zones only allowed for a 50-foot wide pipeline right of way, the project included "an additional 45 feet of right-of-way for construction" to "accommodate the necessary clearing and grading activities" and other construction uses, such as a passing lane. *McLaughlin*, slip op at 30. In that additional 45 feet of width cleared for construction, "merchantable timber [would] be cut and removed" and petitioners pointed out that "such a disturbance is not temporary because clearing timber creates a permanent 20-year or longer break in the timber stands[.]" *McLaughlin*, slip op at 31. The record showed that the "the disturbed temporary construction easement will be reforested following construction" and LUBA held that "clearing the 45-foot-wide area outside the 50-foot-wide permanent right-of-way" was "needed for construction purposes" rather than for maintaining aerial surveillance for 20 years. *McLaughlin*, slip op at 31n9, 31 (internal quotations omitted). LUBA found that the fact that the "temporary construction area will be replanted" was sufficient to apply the holding of Cit*izens Against LNG* and conclude that this was temporary construction activity outside the applicability of the land use requirement (50-foot width). LUBA examined the applicable land use requirement and concluded that "nothing [therein] supports the contention that a period of regrowth is inconsistent with forest use." *McLaughlin*, slip op at 33. *McLaughlin* indicates that trees cut for construction purposes remain a construction activity rather than part of the permanent land "use" and that the impacts of that construction activity may be much longer than construction itself – even 20 years – as "a period of regrowth" is expected for tree removal construction activities.

Second, examining the applicable land use requirement in this case, there is nothing inherent in the words "will not adversely affect" that prohibits a period of regrowth for replacement trees. Ms. Richter cites *West Hills* to assert that LUBA has concluded that the criterion cannot be satisfied where the finding is that the "degradation caused by the use will eventually be restored far in the future." Exhibit W.3b, page 10. LUBA reached no such conclusion in *West Hills*. Instead, LUBA held that "the ordinance does not allow the county to rest its conclusion about adverse effect on timberland on the eventual end of the proposed use." (emphasis added) *West Hills*, slip op at 18. LUBA said nothing about whether the criterion prohibits full mitigation during the use, particularly for construction activities, like tree removal, which are expected to have an impact that extends beyond construction. In *West Hills*, the cutting of trees was not just necessary for construction, instead maintaining the absence of trees was necessary for the operation of the landfill itself. In other words, maintaining the absence of trees was not a construction impact, it was inherent in and necessary for the use itself. In this case, PWB is not able to plant trees over the top of the pipeline in Dodge Park, but, in stark contrast to *West Hills*, PWB is not resting its conclusion on the eventual end of the use or the removal of the pipeline to avoid an adverse effect. Instead, PWB is restoring nearly half of the total project area as a dedicated wildlife habitat area and replacing all trees removed at a ratio of nearly 8 to 1. As discussed above, there is substantial evidence that the trees will achieve and then quickly exceed the complexity and cover lost during construction. This period of regrowth is expected and allowed.

Finally, and although the analysis above is more than sufficient to reach my conclusions below, I note that Ms. Richter's interpretation would effectively prohibit tree removal for any community service use,

or any other use subject to the "will not adversely affect natural resources" criterion[70] – an absurd result. Ms. Richter pre-emptively claims in her proposed findings that the maximum of absurd result should not be applied I this case. I agree that the absurd result maximum of statutory construction is limited and is to be used sparingly. However, sparingly is not never, and evaluating Ms. Richter's interpretation of what this highly ambiguous criterion requires relative to replacement of trees removed for construction is an appropriate case.

For purposes of tree removal, Ms. Richter effectively takes the position that a newly planted tree, even one that is 6-feet in height at planting, cannot possess "the same level of mature complex natural canopy" or provide the exact same wildlife habitat benefit as a more mature tree, noting "smaller plantings will not provide shade to keep out invasives." Exhibit W.3a, page 22. She then contends that sheer numbers cannot overcome the lesser complexity, effectively concluding that no matter how many replacement trees are planted it cannot be enough. Exhibit W.3a, page 23. Such an interpretation would make it impossible for any community service use to meet the "will not adversely affect natural resources" criterion if development of the community service use requires removal of virtually any tree that has character or maturity greater than that of the replacement tree during construction. For example, if a fire district station were needed in an area that included two 20-year-old trees, under the interpretation that Ms. Richter articulates, in order to ensure that the maturity and character of those trees was achieved by the time the fire station begins operation, it would be necessary for the fire district to plant replacement trees 20 years in advance of fire station operation. In most cases, this amounts to a prohibition on tree removal for the construction of any community service use. I find that cannot be what the drafters of the criterion intended in 1977.

When considering the context of the standard, I have reviewed other provisions of the MCC that anticipate some level of temporal disturbance while mitigation plantings mature. Under MCC 39.5590(D)(b)(iii), when evaluating potential impacts to natural resources for SEC permits related to Significant Water Resources, the County must evaluate the "extent and permanence of the adverse effects" of development. The use of the term "permanence" suggests that adverse effects are not measured on day one of operation, but must be considered in relation to the mitigation imposed through conditions of approval. I do not believe that it was the intent of the County to prohibit the siting of a community service use because such a use would entail the removal of a single non-Goal 5 protected tree even if the tree removal were mitigated though an 8:1 replating requirement, yet allow tree removal and temporal mitigation for Goal 5 protected resource areas. Similarly, when considering the context of the standard, in the MUA-20 zone the county allows the "propagation or harvesting of forest products." MCC 39.4310(C). I do not believe that it was the intent of the county to allow the complete removal of trees without a corresponding mitigation requirement if done while "harvesting a

[70] The approval criteria for Community Service uses at MCC 39.7515 apply to all uses identified as Community Service uses at MCC 39.7520, which include, but are not limited to: churches, childcare facility, group care facility, parks and playgrounds, utility facilities (including power substations), riding academies and horse boarding for profit, private and public schools, and fire stations. In some planning areas such as the East of Sandy River Rural Planning Area, the West Hills Planning Area, and Sauvie Island, Community Service uses subject to the MCC 39.7515 approval criteria include, but are not limited to: boat moorages, camps and campgrounds, hospitals, resorts, dude ranches, and hunting or fishing lodges.

forest product" but prohibit the removal of a single tree in connection with a community service use with a corresponding mitigation obligation.

In fact, Ms. Richter suggested during the hearing that planting trees seven years in advance of facility operation is what would be required in this case.[71] Ms. Richter also implied during the hearing that the MCC 39.7515(B) should be applied differently to this use because of its size and could be applied differently to a community use with smaller impacts.[72] However, LUBA's holding in *West Hills* makes it clear that MCC 39.7515 criteria should be "applied consistently no matter what use is proposed." *West Hills,* slip op 7. In other words, if as, Ms. Richter suggests, the volume of replacement trees is irrelevant, it is also irrelevant to consistent application of the criterion whether a community service use must cut 1 tree or 100.

Ms. Richter refers to *West Hills* to seemingly claim that it precludes the absurd result maximum from being applied to MCC 39.7515 conditional use criteria. As she noted, *West Hills* is not an absurd result case. More importantly, the holding in *West Hills* suggests that a specific category of community service use was not excused from demonstrating compliance with the MCC 39.7515 criteria simply because that type of use could not meet a criterion. In this case, Ms. Richter's interpretation of MCC 39.7515(B) would effectively prohibit any community service use from cutting any tree larger than the size of tree needed to replace it's character and canopy, unless the replacement tree is planted far enough to in advance to obtain that character before day 1 of operations. For the purposes of this issue, I find that PWB's and Ms. Richter's construction of MCC 39.7515 are not "wholly implausible constructions" of MCC 39.7515. That said, because I find that Ms. Richter's construction would lead to an absurd result (e.g., tree removal without mitigation allowed for authorized uses, but tree removal with mitigation prohibited for conditional uses), I favor PWB's construction of the statute. *Pete's Mt. Homeowners Ass'n v. Or. Water Res. Dep't*, 236 Or App 507, 522, 238 P3d 395 (2010) (In the face of competing and not wholly implausible constructions of a statute, when one construction would lead to an absurd result and the other would not, we generally favor the latter, under the assumption that the legislature would not intend an absurd or impossible result).

For the reasons set forth above, I find that it is not necessary for the Project to demonstrate that the replacement trees will replicate the character and quality of the trees removed during construction on the day that construction ends, as a period of regrowth is expected and consistent with the LUBA's determination that the impact of the tree removal construction activities are not part of the "use" under review in this proceeding.

ii. Forest Edge

Several commenters referenced the importance of "forest edge" as important habitat. Mr. Ciecko, raised concerns about the impact of the project on edge habitat in several of his comments. *See* Exhibit

[71] Ms. Richter stated, "and it would be one thing if the Water Bureau went out and planted a bunch of trees today to retain the habitat quality during the 7 years of construction, but they're not retaining anything." Hearing Video, Minute 2:17:39.

[72] Ms. Richter stated, "in the West Sandy plan, there is talk about rural community service uses, that there is this rural idea and that uses that are scaled to serve a rural area would have -- I think the presumption is they'd have less impacts because they'd be tinier." Hearing Video, Minute 2:15:50.

E.9, page 11; Exhibit N.48, pages 10-11. However, the comment at Exhibit E.9 very generally states, "the value of edge habitat in proximity to forested areas is well established and generally contributes to diversity of both mammal and avian species." Exhibit E.9, page 11. While the Exhibit N.48 reference relates to the Raw Water Pipeline area generally it does not identify a specific area on the Raw Water Pipeline site. Thus, neither comment from Mr. Ciecko specifically identifies the location of forest edge habitat he claims will be adversely impacted. Finally, Mr. Ciecko's comments seemingly relate to tree removal and other construction activities. See E.9 The CCPO/PHNA provides equally vague statements about forest edge habitat, first identifying general functions of "forested field edges" and then stating, "the forest edges within and adjacent to this property" provide many of the same natural resources for wildlife as hedgerows. Exhibit N.43, pages 42 and 44. There is no mention of how the forest edges within and adjacent to the Site would be affected by Project operation. Finally, Mr. Smith also generally raises the concept of forest edge habitat in contending that forest edge habitat is an "impacted habitat" that should have been quantitatively assessed, but offers no explanation of his understanding of where forest edge is located on the Project site or how it is impacted by Project operation. Exhibit S.26, page 5.

In response to comments on forest edge habitat, ESA explains "[f]orest edge habitat is typically defined as the transition zone along a wooded boundary with open habitat such as grassland or shrubland. Plant species richness is often greater along forest edges and thus these habitats provide benefits for many different types of wildlife species." Exhibit U.20c, pages 30-31. There appears to be no disagreement in the record between the parties on the general functional value of forest edge to multiple species. There is, however, disagreement in the record about potential impact of the operating Project on forest edge habitat areas.

As identified above, those testifying in opposition to the project generally claim or insinuate that there will be adverse impacts to forest edge, but do not identify specific edge habitat areas on or near the Project that they contend would be impacted during Project operation or identify any specific type of impact. In contrast, ESA specifically identifies the forest edge areas with a 50-foot buffer on either side of the edge located on the Filtration Facility site and on the Raw Water Pipeline site. Exhibit U.20c, pages 31-32, Figures 7 a-c. As ESA explains:

> Each of the hedge habitat areas will remain intact and will continue to function as edge habitat following construction. [] Additionally, high contrast edges from mature forest to field, such as those that occurred at the filtration facility site in pre-construction conditions, are less valuable for wildlife than a wider transition zone that will occur postconstruction with more diverse plant structures like a hedgerow, native grasses and shrubs adjacent to the mature forest.

The images at Exhibit U.20c, page 33, Figure 8 provide 1) a rendering of the typical high contrast/simplified forested edge on the Filtration Facility Site pre-construction with the commercial nursery fields directly abutting the forest edge, and 2) a rendering of post-construction conditions near the upland forest enhancement area. Exhibit U.20c, page 33. As depicted in Exhibit U.20c, Figure 7b below, a perimeter farm road was also located within the 50-feet forest edge area.

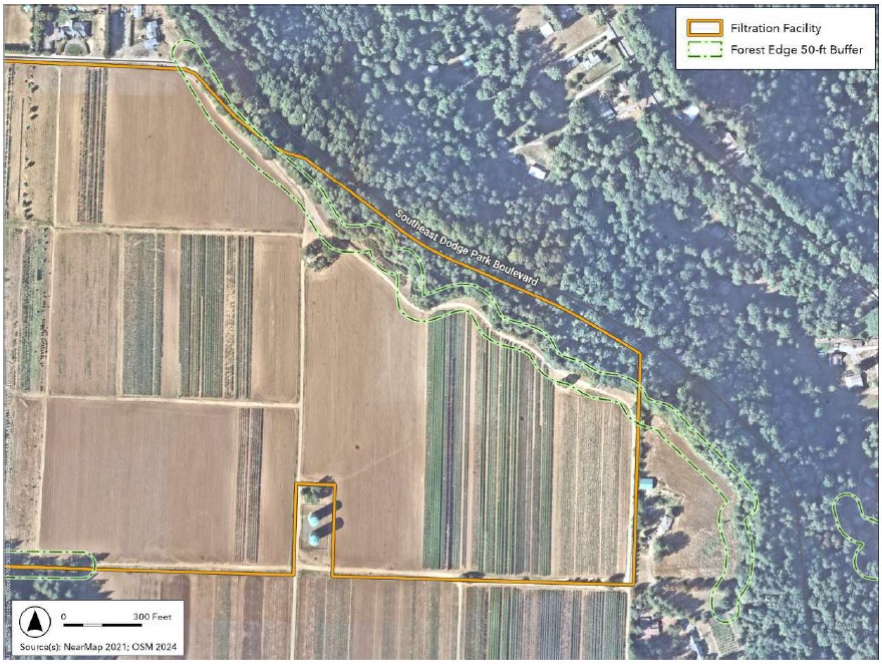


Figure 7b: Filtration facility site upland forest edge

ESA further describes the habitat enhancement work PWB will implement within the 50-foot forest edge buffer area on both the Raw Water Pipeline site and on the Filtration Facility site:

> Beyond just remaining intact, the project habitat enhancement efforts add plantings at and near the forest edge in three specific locations. First, as detailed in Exhibit S.32, in February of 2024, PWB planted 20 trees along the forest edge of the SEC zone near the raw water alignment. Second, as detailed in the updated planting plans for the filtration facility site included as an attachment to Exhibit S.32, PWB has committed to provide extensive tree and shrub plantings in an area identified on the planting plan as Upland Forest located at the edge of the existing mature forest area within the SEC zone on the filtration facility site. PWB will also remove English Ivy and English Holly from the adjacent established forest area. The removal of the invasive species will protect existing mature trees in that area and improve habitat quality for a number of species throughout the removal area, which includes areas within the forest edge transition zone. The native trees, shrubs, and ground cover that will be planted east of the forest edge will overall provide improved habitat in comparison to the extensively managed commercial nursery fields previously directly abutting the forest edge. Third, extensive riparian forest plantings in the southwest corner of the site will create additional riparian edge area in the filtration facility site itself. In that case, the new riparian edge will be relatively close to the filtration facility fence. However, overall, the functional benefits of a thicker band of riparian forest adjacent to Johnson Creek exceeds the functional value of extensive edge habitat in this area, particularly when considering the past commercial nursery activities extended through the SEC-w area to the existing riparian edge (See, Exhibit N.64, pgs. 16-20). Collectively these habitat enhancements

along the retained forest edges within the project will increase the size and complexity of the edge habitat creating an overall increase in wildlife habitat in the area. Exhibit U.20c, page 33.

Based upon the reasons above and other analysis in the exhibits cited, I find that the operating Project will not adversely affect forest edge habitat areas located on or near the Project sites.

iii. Wetlands

A wetland delineation for all Project areas was prepared by Anita Smyth from Winterbrook Planning. Ms. Smyth prepared a Determination and Delineation of Wetlands and Water of the United States ("Wetland Report") and submitted it to the Oregon Department of State Lands ("DSL") and The US Army Corps of Engineers ("Corps") for review and concurrence in February of 2023. Exhibit U.20c, Attachment 1. As detailed in the Wetland Report, field data was collected between April 2020 and January 2022 in seven areas of potential wetland presence across all Project areas. Id, Attachment 1, page 1; Figure 1. The field data confirms there was a comprehensive evaluation of vegetation in and around each sampling point. Specifically, the data sheet for each sampling point identifies trees and shrubs within 15 feet and herbaceous cover and woody/vine vegetation within 5 feet. Exhibit U.20c, Attachment 1, Appendix B. The Wetland Report identified a total of six potentially jurisdictional wetlands and four potentially jurisdictional waters across all project areas. Id, Attachment 1, page 10. DSL concurred with the wetland and water delineation through an approval dated July 10, 2023 (WD# 2023-0085). Exhibit S.33. Appendix B.

As explained in the *Bull Run Filtration Project – Wetland Evaluation* memorandum prepared by Ms. Smyth and included in the record as Exhibit N.57, wetlands and waters of the state were a primary consideration in evaluation of pipeline alternatives, and "the nature of the wetlands in the study area, preliminary alternatives analysis discussions, and regulatory concerns were presented and discussed at Streamlining Meetings attended by Melinda Butterfield, Department of State Lands (DSL) Aquatic Resource Specialist and Melody White, US Army Corps of Engineers (USACE) Project Manager." Exhibit N.57, page 1. Through the alternatives analysis process, the Project successfully avoids permanent impacts to wetlands and water resources subject to federal and state regulation. Exhibit N.57, page 1. Construction of the Finished Water Pipeline will require temporary disturbance of a delineated wetland, located just north of Dodge Park Boulevard. Exhibit N.57, page 1. The temporary disturbance and the DSL and Corps authorization for that work are addressed in the construction activities section below.

The temporary disturbance that will occur during construction is the only direct impact to a delineated wetland area. Therefore, the operating Project will have no direct impacts to wetlands. In two instances, the Project avoids impacts to wetlands through trenchless installation of pipelines beneath wetlands and waters. In the first instance, the Raw Water Pipelines will be installed beneath the pond located on the Raw Water Pipeline site using trenchless technology. Exhibit S.30, page 23. Based upon the approved wetland delineation, the pond is a water of the state and is surrounded by a jurisdictional wetland. See Exhibit U.20c, Attachment 1, Figure 5c. Therefore, installing the pipeline through trenchless technology beneath the pond also avoids impact to the surrounding wetland. The second instance is along the Finished Water Pipeline alignment where the Finished Water Pipeline will be installed beneath a culvert that crosses Cotrell Road in the SEC-w zone using trenchless technology. See N.55, page 11. The culvert carries Beaver Creek water, an area delineated as one of the Project's waters. See Exhibit U.20c, Attachment 1, Figure 5b.

While the pipeline installation is a construction activity, project opponents raised concerns related to indirect impacts on wetlands from permanent Project features. The most specific comments related to permanent features related to 1) the presence of pipelines beneath the pond and wetland on the on the Raw Water Pipeline site following the trenchless installation of the pipelines during construction, (Exhibit N.48, pages 18-19; Exhibit U.16, pages 1-3) and (2) the retention of the hardened structure placed over an existing farm road between two of the delineated wetlands on the same property (Exhibit U.16, pages 1-30). These more specific comments are addressed separately below.

(1) Raw Water Pipelines

As explained above, the Raw Water Pipeline will be installed beneath an agricultural pond located on the Raw Water Pipeline site using trenchless technology. CCPO/PHNA and others raise concerns about the impacts of the Raw Water Pipeline on waters and wetlands located on the Raw Water Pipeline site. The majority of the comments from CCPO/PHNA related exclusively to construction activities. *See* Exhibit N.43, pages 14-16. Others assumed there had not been a wetland delineation to determine the location or extent of wetlands surrounding the ponds. *See* Exhibit N.48, pages 18-19. However, as explained by Brad Phelps from Jacob Engineering, the engineering group working on the Raw Water Pipeline, the depth of the pond and the location of the delineated wetlands surrounding the ponds were both considered during development of the pipeline boring plan:

> The permanent installation of the pipelines in this area includes an outer steel casing installed a minimum of six feet below the deepest point of the pond/wetlands. The pipeline carrying the raw water to the filtration facility is then placed inside the steel casing. The pond/wetlands sit above an impermeable soil layer that allows it to store water. That impermeable soil layer will not be pierced by installation of the casing or pipeline inside of it. Use of a tunneled casing and grout sealing the annulus outside of the casing further establishes that there will be no pathway or connection between the water in the pond/wetlands and pipelines. [] The pipeline installation will be 11 feet below the ground surface (wetland), and laterally the construction entry and exit points ("pits") will be 20 feet from the top of the bank on the east side and 50 feet away to the west side. Both the pits will be well outside the delineated wetland area.

Exhibit S.30, pages 23-24; *See also* Exhibit S.30, page 23 figure. Mr. Phelps also explains that the materials and methods used during construction will protect the wetland once the pipeline is installed, "[o]nce the pipe is installed in the casing, the annulus space between the piping and the casing will also be filled with grout, which further prevents flow paths of water under the pond/wetlands from escaping through and around the casing and pipe." Exhibit S.30, page 24.

The use of trenchless technology to avoid impacts to the pond and surrounding wetlands was discussed with the state and federal agencies with regulatory authority over wetlands. As explained in Exhibit S.30:

> According to Anita Smyth, Sr. Professional Wetland Scientist: project engineers and natural resources professionals consulted together to evaluate design alternatives to avoid natural resources impacts at the raw water alignment site. Boring underneath was identified as the only option that avoided direct impacts. Project engineers and geologists determined that six feet of separation was sufficient to protect the wetland

> from being dewatered by the construction activities. This approach was discussed with The Streamlining Committee members, which included representatives from the US Army Corps of Engineers (USACE) and Oregon Department of State Lands (DSL). The agency staff indicated they were satisfied that the boring option avoided impacts to wetlands and other Waters of the state and this design proceeded through the USACE and DSL permit application processes. No comments were received during the agencies' review indicating the proposal was insufficient to avoid impacts or that significant risk remained unaddressed in the application.

Exhibit S.30, page 24. Ian and Lauren Courter point out that compliance with DSL does not serve as surrogate for compliance with MCC 39.7515(B). Exhibit U.16, page 2. While the Courter's do not explain the reasoning supporting the statement, it is presumably because the DSL regulations have a tiered approach that starts with avoidance, but allows for minimization and mitigation. *See* OAR 141-085-0680. However, in this case DSL and Corps staff indicated that they were satisfied that the boring option avoids impacts to wetlands and waters of the state. Therefore, the agency conclusions are relevant to and support a finding of compliance with MCC 39.7515(B).

Mr. Phelps concludes, and I find, based on the assessment of the design team and agency approval, no adverse effect to wetlands, waters of the state, or other natural resources will result from the boring activities. I further find that the record supports the conclusion that based upon the fill used between the piping and the casing and the separation distance between bottom of the pond and the pipeline that presence of the pipeline will not adversely affect the wetland or pond.

(2) Raw Water Site Road Structure

Prior to commencement of construction, the Raw Water Pipeline site included an unimproved dirt farm access road that bisected the property, and a portion of the road was located between the delineated wetlands surrounding two ponds/waters on the property. Exhibit S.33, page 1; Exhibit S.30, page 16. As explained in response to concerns about impacts to wetlands and waters on the site from construction staging, "[p]re-construction, the wetlands had always been separated by a farm access road with property owner installed culverts that prevented the pond from overflowing onto the farm road." Exhibit S.30, page 16. The farm road and existing culverts that allow water to flow between the wetland and pond areas on either side of the road were protected by requiring the contractor to install a hardened road surface over the existing road. Exhibit S.30, pages 16-17. Exhibit S.30 provides the following description of the structure:

> The hardened road structure, located between the two wetlands, protects the existing farm road and culverts and maintains the existing drainage for the pond throughout construction. Protective steel plates have been installed on the road over the culvert areas, with a layer of gravel wrapped in geotextile placed atop the steel plates. The wrapping prevents gravel from entering the wetlands. The wrapped gravel encases an internal layer of gravel, which is then covered by timber crane mats, and a final plywood sheeting as the driving surface. The plywood surfacing is approximately 12 feet wide and 100 feet long, all covering the existing road. A wood curb on both sides of the road surface prevents traffic from entering the pond or wetlands.

Exhibit S.30, page 17. As further explained, in a memorandum prepared by Anita Smyth to address concerns about wetland impacts generally, the protect team has advised leaving the structure in place, in part to improve and stabilize a road surface that pre-construction was prone to sediment migration into the pond and wetlands. Exhibit S.22, page 2. Ms. Smyth further explains, "[l]eaving the structure will not impact hydrology on either side of the roadway; the water enters from offsite and the current flow of water through the culverts will remain unaffected."

included the following summary points:

- The construction-related alteration of the roadway widened the drive surface to 12 feet but did not impact the pond or wetlands.
- Construction of the equipment access preserved the existing culverts and stabilized a road surface prone to sediment migration into the pond and wetlands.
- The structure utilizes impact-minimizing measures such as wrapping gravel in geotextile fabric to avoid creation and dispersal of fines that could migrate into the waterway, and use of non-pressure-treated lumber. Wattles and silt fence add additional protection.
- Restoration of the dirt road to pre-construction conditions would likely result in impacts to the pond and wetlands. In contrast, retention allows the road surface and road prism to remain undisturbed while reducing the sedimentation compared to the original road surface. Silt fencing will remain until vegetation is established, then removed.
- The culverts are protected, and the erosion control measures installed during construction are not changing the rate of water flow into or out of the pond or wetlands. The effect of the erosion control measures on the precise rate or location of water flow to the wetlands during construction is minimal, affecting only runoff from the road itself, and will not have a long-term impact on the surrounding wetlands or ponds.
- Post-construction, the structure does not alter the hydrology of the pond or wetland; the water entering from offsite is unaffected and the flow through the culverts was never altered by construction activities. Restoration will stabilize disturbed soil and improve native vegetation functions adjacent to the roadway.

The entire Raw Water Pipeline site will be restored and seeded once construction on the site is complete and before filtration facility operation. See Exhibit U.20b, updated Raw Water Pipeline Proposed Conditions Plan LU-200. Additionally, as described in Exhibit U.20b, the following vegetation will be planted around the wetland and pond area once construction of the raw water pipeline is complete:

- Forest Shrub Mix: Bare root native shrubs with native understory seeding;
- A specific seed mix for SEC seeding;
- Filter strip seeding; and
- Slough sedge (*Carex obnupta*) and tufted hairgrass (*Deschampsia cespitosa*) container plantings immediately next to the road.

The seed mixes and wetland plantings will establish quickly and provide both habitat and filtration benefits at the edge of the resource immediately following construction of the raw water pipeline and prior to facility operation.

Exhibit U.20b, page 3; *See also* U.20b attachment Wetland Enhancement at 36910 SE Lusted Road. As depicted on the plan and explained in Ms. Smyths memo at Exhibit S.33, 93 one-gallon containers of herbaceous and shrub species native to wetlands will be planted on the south side of the structure

adjacent to and within the wetland area and 70 will be planted between the structure and the wetland to the north, totaling 163 new wetland plantings. The forest shrub mix will be planted adjacent to the wetland boundaries and a strip of SEC seeding will provide additional transition to the larger pasture seeding areas. To further address wetland and habitat concerns, 5 red alder and 5 Western red cedar trees will be planted in the wetland area located north of the road. Ms. Smyth confirms, "[t]he trees are anticipated to contribute new habitat functions to this area, including shading, perching and nesting habitat, allochthanous inputs supporting insects and the salmonid food chain, and other functions." Exhibit U.20b, page 3. All planting types and locations are depicted on the updated plan at Exhibit U.20b, page 4.

The Courters raised concerns that mitigation plantings proposed to off-set construction impacts will not instantaneously restore functional wetland conditions, claiming a temporal gap between impact and ecological recovery. Exhibit S.22, page 2. While the comment seemed to be mostly directed at the 83 square feet of temporary construction impacts to the wetland along Dodge Park Boulevard, Ms. Smyth provided the following clarifying response relative to the Raw Water Pipeline site:

> In response to alleged impacts to wetland soil and hydrology functions at the raw water pipeline alignment. As addressed in the memo included in Exhibit S.33, no wetlands were impacted at this location. The construction access stabilized an existing road to create a drive surface that can support the design equipment used to construct the project. The pre-existing road surface did not contain wetland soil and the construction of the road did not alter the adjacent soil within wetlands. Water inflow into the pond and the adjacent wetland and culvert function were not impacted by building the construction access and will not be impacted by leaving the hardened surface in place once construction is complete. Consistent with my conclusion in the memo at S.33, taking into consideration the pre-construction condition of the road and the wetland enhancements described above, leaving the construction road in place post-construction will not adversely affect the wetland and pond functions or the habitat within and surrounding the adjacent wetland and ponds.

Exhibit U.20b, pages 3-4. In their final response submittal related to the Raw Water Pipeline site, the Courters first claim that there was not a sufficient baseline inventory of wetland vegetation and wildlife on the site. Exhibit U.16, page 2. These issues are addressed in Section IV.D.10. The Courters further raise concerns that existing species populations, including the northern red legged frog, have been affected by habitat disturbance including impacts of noise and vibrations from the road, particularly siting the construction time period from late winter to early spring of 2025. U.16, page 2. For the reasons established above, impacts from construction activities are not a relevant consideration for a finding of compliance with MCC 39.7515(B). The Courters further claim that stating the structure is made of untreated wood and provides gaps for small animals to pass through is insufficient because it "fails to acknowledge the significant transformation from a minimally used dirt farm road, once access only by occasional tactors, to heavily modified, semi-permanent structure with much greater ecological impact." Exhibit U.16, pages 2-3. The Courter's, however, provide no evidentiary basis for the claim that the structure will have greater ecological impact. In contrast, the expert testimony summarized above concludes that the structure itself will stabilize a road prone to sediment migration, will maintain wetland hydrology and function, and will not adversely affect the habitat within and surrounding the adjacent wetlands and ponds. In terms of the road usage, there is no evidence in the record to support the Courter's claim that it was a minimally used road accessed only by occasional tractors. Moreover,

the record does establish that the road will only be used once a month by PWB. Exhibit U.20b, page 5. Therefore, if the pre-construction use by the landowner was minimal, the post-construction use of the structure would also be expected to be minimal.

I find that a detailed, multi-season inventory of specific species that occupy the ponds and surrounding wetlands on the Raw Water Pipeline site is not necessary to conclude that the post-construction, operating project (which includes the presence of the subsurface pipeline, a structured road segments between two protected wetland areas, and an average of one vehicle trip by PWB staff per month) is not needed to conclude that the operating protect will not adversely affect the wildlife habitat in and surrounding the pond and wetlands. Further, taking into consideration the pre-construction condition of the dirt farm road and limited vegetative buffer in comparison to the combined habitat benefits of a protective and stabilizing structure between the wetlands with slots to permit protected passage for amphibians and small mammals, wetland plantings between the travel surface and the adjacent wetlands, and additional tree planting in the wetlands, I find that the presence of hardened road between wetlands and waters on the Raw Water Pipeline will not adversely affect the wetland and pond functions or the wildlife habitat within and surrounding the adjacent wetlands and ponds.

f. Pre- and Post- Construction Wildlife Habitat Conclusion

PWB's habitat enhancement plan includes the following elements by Project area:

<u>Filtration Facility:</u>

- Minimum Tree plantings: (00-LU-306)
    - 3306 native trees total
    - 582 native ball & burlap trees
- Native shrubs (00-LU-306)[73]

Outside of Filtration Facility fence (00-LU-306)

- 3 new habitat areas across 38.6 acres:
    - Savanna/Oak Woodland
    - Wooded/Shrubby Buffer (including 13 areas with hedgerow function)
    - Grassland
- 2 expanded habitat areas:
    - Riparian Forest (+1.7 acres)
    - Upland Foerst (+1 acre)
- Manual/mechanical removal of invasive English ivy and English holly across 5.8 acres of existing upland forest (00-LU0-306)
- Log/brush piles – 7 minimum (00-LU-306)
- Bat boxes – 4 minimum (00-LU-306)

[73] As provided in in the Table in Exhibit S.22, page 13, PWB has committed to planting 46,477 native shrubs across the Filtration Facility site, the Raw Water Pipeline site, the Carpenter Lane properties, and the Dodge Park right-of-way. That number will be higher with the addition of the additional right-of-way plantings. Compliance with the planting details of each individual planting plan as required by conditions of approval will ensure that those shrubs are planted in the respective areas.

- Rock piles – 2 minimum (l00-LU-306)
- Migration/wildlife movement corridors

Raw Water Pipelines

- 163 wetland plantings (LU-200)
- 10 native trees in the wetland (LU-200)
- Protective structure over existing farm road

Finished Water Pipelines

- Alternating forb and woody clusters – approximately 146,000 square feet on Dodge Park Boulevard (00-LU-413)

Right-of-Way Plantings

- Alternating forb and woody clusters (00-LU-413)

Cotrell Pond Property
.65 acres wetland habitat (Exhibit U.20a, Attachment 1)

- 1.7 acres riparian forest
- 2.2 upland enhancement
- 1.6 acres meadow enhancement

I find that the evidence in the record, including, but not limited to the planting comparisons in Section VIII.D.5.ee.i(2), supports the conclusion that the habitat enhancements identified above are likely and reasonably certain to succeed.

Overall, and taking into consideration all of the testimony and evidence presented on both sides related to the wildlife habitat across the four Project areas under the pre-construction use and the wildlife habitat across the four Project areas under the post-construction use, and taking into consideration the conditions of approval, I find the wildlife habitat value of the Project areas under the post-construction use will be higher and therefore, the Project will not adversely affect the natural resource of wildlife habitat. This conclusion is fully supported by, but does not exclusively rely on upon the HEP conclusion that the post-construction Project will result in positive wildlife habitat units when compared to the wildlife habitat in the pre-construction Project areas. I further find that the post-construction wildlife habitat value of the Project areas will be higher than the pre-construction value on day one of the Filtration Facility operation based upon the size and location of the habitat areas; the volume, size and diversity of the plantings; and the non-vegetative habitat enhancements depicted on the landscape plan and required by conditions of approval. I also find that a conclusion that the post-construction wildlife habitat value of the Project areas will be higher than the pre-construction value on day one is not necessary to meet the MCC 39.7515(B) approval criterion, and that based upon the substantial evidence in the record, over time, the wildlife habitat value of the Project areas will not only be higher than the pre-construction wildlife habitat value, but will be significantly higher.

6. Indirect Impacts on Habitat

a. Light

The Habitat impact Analysis prepared by ESA evaluated the potential impact of light from both the Filtration Facility and the Intertie on wildlife habitat areas outside of the respective fence line for each facility. Exhibit N.56, pages 15-16 and pages 21-22. The lighting plan for the Filtration Facility was designed to meet or exceed Multnomah County Dark Sky lighting standards. The lighting plan is described in detail in Land Use Light Report (Exhibit A.47) the Impacts of Lighting at the Bull Run Filtration Facility memorandum (Exhibit A.47). The facility is designed with two primary lighting modes: full brightness and dimmed. (Exhibit J.70, page 1). The default lighting condition during nighttime hours will be dimmed mode with full light output triggered manually or via motion sensor when needed for a task. (Exhibit N.56, 15). Exhibit N.56 includes Figures 1 and 2 from Exhibit J.70 that depict the relative location and intensity of lighting within the Filtration Facility site under the two lighting scenarios. (Exhibit N.56, page 16). As depicted under either scenario the light at grade is primarily contained within the Filtration Facility fence directly adjacent to the facility and has limited, if any, spill outside of the fence line into the surrounding habitat areas. As explained in detail in Exhibit J.70, all exterior fixtures meet or are below maximum Backlight-Uplight-Glare (B-U-G) ratings required for LEED certification, meaning that all exterior fixtures use warm light to a maximum color temperature of 3000K and none of the exterior light will create "upplight" which causes artificial sky glow. Exhibit J.70. The lighting at the Filtration Facility will also be limited in duration. Lighting will automatically turn off when sufficient day-light is available, non-essential building façade and landscape lighting will also turn off between midnight and 6:00 am, and all other lighting will be reduced to 50% from midnight to 6:00 am and when there is no activity for longer than 15 minutes. Exhibit J.70, page 5. The lighting plan for the Intertie site also uses sharp cutoff lighting to direct lighting to the developed interior of the site. Exhibit A.63. As depicted in the figure from A.63 included in the Habitat Impact Analysis, the directed light effectively avoid illumination of both the area outside of the fence line and the interior landscaped edge of the site. Exhibit N.56, page 22.

Several commenters raised general concerns about adverse effects from the Filtration Facility on surrounding wildlife species. See Exhibit S.10; Exhibit S.11. The specific concern raised in a section of Exhibit S.11 nighttime operations will flood the site with artificial light. Citing a study on birds the comment claims that light intrusion will disrupt wildlife behavior of birds, rodents, and amphibians. Exhibit S.10, page 2. The comment also cites a study that indicates that excessive outdoor light is affecting wildlife and weakens the forest and riparian environment.

As ESA explained in a response to the comment, because of the design of the lighting system described above, the Filtration Facility will not 1) flood the site with light; 2) will not cause light intrusion into wildlife areas or result in excessive outdoor light; and 3) the light will be directed down so that even in instances when full light is needed, it will not illuminate the surrounding forest or riparian areas.

CCPO/PHNA also raised a concern about operational lighting at the facility. However, the concern is based upon the erroneous premise that "the plant will be illuminated around the clock with high intensity lighting. This artificial light will spill into adjacent areas, washing out night skies and disrupting nocturnal behavior." Exhibit N.43, page 61. The comment demonstrates a lack of familiarity with the project specific lighting plans identified above. As explained in the reports in the record and as described above, the Filtration Facility will not be illuminated around the clock with high-intensity lighting, or even

around the clock at all. The light from the Filtration facility will also not spill into adjacent areas or wash out night skies. Because the conclusion that the lighting will disrupt nocturnal wildlife behavior appears to be premised on these inaccurate statements, I find that the conclusion is not credible.

I agree that the evidence in the record supports the conclusion that the lighting systems for Filtration Facility and Intertie sites have been designed to avoid impacts to areas outside of the fence lines surrounding those facilities. Therefore, I find that the Project lights will not adversely affect wildlife habitat.

b. Noise

The Habitat Impacts Analysis prepared by ESA evaluated the potential impact of noise generated by the Project on wildlife habitat areas. Noise generated at the Filtration Facility will include water treatment equipment, water pumps, delivery trucks, and ventilation equipment. Exhibit J.69, page 1. As explained in the Habitat Impact Analysis, and in the project noise studies at Exhibits J.69 and A.49, PWB consultants modeled two noise generation scenarios at the Filtration Facility. The first evaluates the sound generated by mechanical equipment during normal facility operation. Exhibit J.69, pages 9-10. As further explained, in the Bull Run Facility Operational Noise Response, this evaluation estimated the highest possible noise levels of normal operation by including all non-emergency equipment operating simultaneously. Exhibit J.69, page 1. The second scenario evaluates the sound generated by the facility with all mechanical equipment operating simultaneously, including the emergency generator and the fire pumps. Exhibit J.69, pages 11-12. As noted, while the emergency equipment needs periodic testing, the emergency generators and fire pump are not expected to be tested at the same time. J.69, page 12. The figures included in the original report had sound contour lines to 50 dBA at the low end. J.69, pages 10 and 12. An updated visual of the modeling for both scenarios with dBA contour lines to 45 dBA were includes in Exhibit U.20c, Figures 1 and 2. The updated figure indicates sound levels from normal facility operations beyond the facility fence will be at or under 45 dBA (Figure 1). As depicted in the figure, the normal operation sound on the majority of the habitat areas outside of the fence line will be below 45 dBA.[74] A few exceptions include a small area north of Carpenter Lane; a relatively small area that extends beyond the property line to the west; and a relatively small area of the savanna / oak woodland that is modeled to be within the 45 to 50 dBA sound contours. Exhibit U.20c, page 6, Figure 1. The sound levels within the onsite habitat areas closest to the facility fence will have levels above 50 dBa when all equipment is operating simultaneously. Exhibit U.20c, page 7, Figure 2. However, the emergency generators will only operate for periodic testing (typically once a month for approximately 30 minutes) during daytime hours when background sound levels are higher. Exhibit U.20c, page 6-7. Additionally, as noted above, the figure depicts sound generation when the fire pumps and emergency generators are running simultaneously, which is not an expected situation for equipment testing. Therefore, the sound levels during emergency generator testing will be less than shown in the figure.

Two additional considerations for evaluating whether the sound generated by the filtration facility could adversely affect surrounding wildlife habitat are identified in the record. First, it is necessary to understand the existing background noise in the area. Noise generated in the area includes farm

[74] For comparison, 45 dBA is approximately the sound level of a refrigerator hum. Exhibit N.56, page 21.

equipment, large trucks, irrigations pumps, and ventilation equipment serving farms, businesses, and residents. Exhibit J.69, page 1. Table 1 in Exhibit U.20c compares daytime and nighttime sound levels for normal operations to measured background sound levels at 6 points at the Filtration Facility site perimeter. Filtration Facility sound levels in close proximity to the filtration facility fence line will be below daytime background levels and will be at or below the median nighttime background levels. Even in the event emergency generators were needed for facility operation, and all sound generating systems were operating simultaneously, the sound modeling indicates that predicted sound levels are near or below daytime background levels at the perimeter of the site, including those points closest to the filtration facility fence. Even emergency sound levels are within the range of background nighttime levels at all points except point 1 at the northwest corner of the site, the area furthest away from the largest habitat areas. Exhibit U.20c, page 5.

Second, because determination of an adverse effect to wildlife habitat requires a comparison of the habitat before construction of the project to the finished, operating project, it is also necessary to understand the noise generation occurring at the former commercial nursery operation. As ESA explained in Exhibit U.20c:

> The periodic and infrequent sound levels exceeding 50 dBa on portions of the on-site habitat areas will be less disruptive to the wildlife habitat than the more frequent and louder noise sources operating throughout the site when the commercial nursery was operating. Pre-construction conditions included various levels of noise from farming operations including tractors, trucks, and workers in close proximity to habitat areas, including within the SEC area in the southwest corner of the site near the riparian forest. Most of the filtration facility site was leased by Surface Nursery. Testimony submitted by Surface Nursery during the original land use proceeding confirmed, "[tractors and other farm equipment are part of accepted farm practices and normal operation at Surface." (Exhibit I.31, pg 3) The testimony further indicates that when tractor work is being performed there are typically 1-4 tractors operating in a field for less than 4 hours at a time. While there are likely variations among tractor models, sound generated by a tractor typically ranges from 80 to 100 dBa.

Exhibit U.20c, page 7.

Several commenters raise general concerns about constant noise created by the Filtration Facility having an effect on wildlife in the area. *See eg* Exhibit N.4; Exhibit N.33; Exhibit N.41; Exhibit S.11. One commenter referenced machinery noise and the constant hum of industrial operations and stated that type of industrial noise is known to displace wildlife, especially migratory birds and sensitive species like owls and deer. Exhibit N.45, page 2. Another commenter suggested that equipment and vehicles at the Filtration Facility site will create continuous noise that will "significantly degrade wildlife." Exhibit S.10, pages 1-2. The commenter then references as study about the effect of highway noise on birds and another about the effects of noise pollution on all taxonomic groups of animals. S.10, page 1.

Notably, none of the comments acknowledge the noise studies in the record or cite any specific sound level known to cause adverse effects on wildlife habitat generally or even specific species. The level of sound, however, is directly relevant when considering potential effects on wildlife. As ESA explains, the 45 dBA sound contour for the updated figures was selected because it has relevance in studies of the impact of sound on wildlife generally, and birds in particular:

> The distance of the 45 dBA sound contour from the filtration facility is highlighted because some studies show birds will change their song behavior at noise levels of 45 dBA. A male bird's ability to attract a mate and defend a territory can be hampered by a noisy environment. Although the impact on reproductive success is uncertain, one study showed sound levels of 45 dBA caused 2 species of vireos to change song frequency and length (Francis et al. 2011a) and another study showed song frequency changes in two flycatcher species at sound levels of 45 dBA (Francis et al. 2011b). Adverse impacts to birds are more apparent when sound levels are above 55 dBA. For example, a reduction in the abundance of lekking greater sage-grouse occurs at 55 dBA (Blickley et al., 2012a; Blickley et al., 2012b); House sparrows (Passer domesticus) showed a reduction of breeding fitness at 68 dBA (Schroeder et al., 2012); and the interactions of 5 avian species were altered at 60 dBA (Francis et al., 2009). The fact that a majority of the enhanced habitat outside the facility fence will be below 45 dBA indicates the sound from facility operation will not have an adverse effect on wildlife habitat areas either within or adjacent to the site.

Exhibit U.20c, page 6. Conservatively, this conclusion only considers the sound generated by the Filtration Facility and does not factor in the existing background noise or consider the pre-construction noise generated through active field management by the former commercial nursery operator.

One comment from Paul Willis raises a specific concern about the volume of the emergency generators, noting that the generators at the Filtration Facility site will have a 75 dba enclosure, and suggesting that means the volume will be louder. Exhibit S.16, page 2. Mr. Willis suggests that the emergency generators need to run regularly and the "unusual" noise will be disruptive to fish, fowl, and wildlife. First, as explained in Exhibit U.20c, the emergency generators will not be operated without the sound enclosure. Second, ESA addresses the emergency testing concerns, stating:

> The noise levels generated when the emergency generator is periodically tested will be moderately higher within portions of the on-site habitat closest to the filtration facility fence line. However, those levels will only occur once a month for a short period of time, in contrast to the more regular and intense noise generating activities of the previous nursery use. Additionally, individuals within a species that are more noise-sensitive will have ample space outside the fenced facility, but still within the property, to find quiet microsites (< 45 dBA) in order to successfully feed, rest and reproduce. For these reasons, the sound generated by the filtration facility under all operating conditions will not adversely affect wildlife habitat.

Exhibit U.20c, page 8. Some commenters identify vehicles at the filtration facility site as another source of noise that they contend will adversely affect wildlife. Exhibit N.45, page 2. Vehicle trips will include employee vehicles for a maximum of 10 employees per shift and an average of 9 truck trips per day, and employee vehicles and trucks will be limited to the fenced Filtration Facility area. Exhibit N.56, page 14. As documented in the record and described above in Section VI, the previous commercial nursery operation also had regular truck and vehicle presence in addition to tractor operation across the site. As explained by ESA, "[i]n addition to the past uses, the filtration facility site will continue to be located in an area surrounded by active nurseries, roads, and residential uses. Many of the animals in the area are expected to be at least somewhat habituated to human and machine generated noises." Exhibit U.20c, page 7.

The CCPO/PHNA include a general statement that elk are highly sensitive to noise which can lead to abandonment or rerouting of traditional migratory corridors. Exhibit N.43, page 58. However, as with all other comments, there is no reference to the level of noise required for Elk impacts. Moreover, that statement is followed by a discussion of construction noise, and the only reference CCPO/PHNA makes to noise under the "ultimate use" heading refences diminished natural tranquility, not impacts to wildlife. The noise considerations during Project construction are addressed in Section X.CC below.

ESA concludes, and I find that the sound generating by the Filtration Facility under all operating conditions will not adversely affect wildlife habitat.

c. Vibration

The Habitat Impact Analysis at Exhibit N.56 addresses the potential for impacts from the vibration of equipment required for Filtration Facility operation. As explained in the analysis, the equipment that could generate vibration will be mounted with appropriate mass and base isolation to limited vibration. Exhibit N.56, page 17. The mounting prolongs the life of the equipment and also limited the areas where vibration can be perceived to those areas immediately adjacent to the equipment, or more specifically, within the same interior room or closer than 10 feet away if outdoors. Exhibit N.56, page 17. As a result vibrations from the operation of the Filtration Facility will not be perceived outside of the Filtration Facility fence line. I find based on the evidence in the record that the operating Project will not create vibrations that would adversely affect wildlife.

d. Ozone Odor

One commenter raised a concern about the use of ozone at the Filtration Facility, and stated, "[w]ildlife have a keen sense of smell and will avoid the area with the presence of ozone." Exhibit S.16, pg. 2. As ESA explained in a response to the comment ozonation as a water treatment process is no longer part of the baseline filtration facility project. Exhibit U.20c, page 15. If ozone were implemented in the future, at all times ozone would be confined to a closed system equipped with sensors and automatic shutoffs to prevent ozone from being discharged into the atmosphere. Exhibit U.20c, page 15. As a result ozone odor would not be detectible in wildlife habitat areas surrounding the Filtration Facility. ESA concluded, and I find, that wildlife in the vicinity of the Filtration Facility, including species with a keen sense of smell, would not be adversely affected or deterred by ozone generation within the facility's closed system.

e. Vehicle Collisions

Several commenters raised concerns that vehicles traveling to and from the operating facility will run over animals in the area, and that heavier traffic bars wildlife movement. See Exhibit S.2, page 1; Exhibit S.10, page 2. ESA explained that the risk of vehicle collisions already exists for wildlife traveling across existing rights-of-way in the project area and the Project is not creating new right-of-way area. Exhibit U.20c. As further noted by ESA,

> The hedgerow area along Dodge Park Boulevard that was removed along the finished water pipeline alignment provided inconsistent stretches of habitat directly adjacent to the travel lanes. As discussed in the Habitat Impact Analysis, proximity created additional hazards for any wildlife using the habitat and limited habitat connectivity. In

> contrast, the wildlife areas PWB has committed to creating on the filtration facility site include hedgerow function in safer locations through wooded/shrubby buffers around the perimeter of the facility, thus improving habitat connectivity both on and through the site to the adjoining riparian and forest habitat areas.

Exhibit U.20c, page 9. ESA further explains that the shrub and forb hedgerow that will be placed in the Finished Water Pipeline alignment along Dodge Park Boulevard will provide habitat for insects and small birds and mammals, but the lower hedge will be less attractive to larger animals more prone to vehicle strikes. Exhibit U.20c, page 9; *See also* H24j, page 2 (testimony related to bear struck by a vehicle). Finally, as discussed in detail in Section VI.K, the record indicates that that the nursery use also created regular traffic in the area, including large farm equipment and buses.

If find that these comments largely raise concerns about harm to wildlife as opposed to wildlife habitat and therefore are not relevant to this proceeding. In the alternative, I find that considering both the vehicle activity of the pre-construction use and the changes along the Dodge Park right-of-way, the vehicle traffic associated with the Project will not adversely affect wildlife habitat.

f. Chemical Exposure

Several commenters raised concerns that use of industrial chemicals at the Filtration Facility would pose risks to nearby wildlife, and that even with best practices in place the potential for the release of chemicals cannot be entirely eliminated. *See* Exhibit N.45, page 3. The risk of chemical release during Filtration Facility is addressed in Section IX.L, and for the reasons set forth in that section, I conclude that use of chemicals at the Project will not adversely affect wildlife habitat or wildlife habitat areas.

g. Human presence

Several commenters raise concerns about the impact of workers and human presence generally impacting are wildlife habitat. *See* Exhibit S.11, page 1. The Habitat Impact Analysis addresses human presence at the Filtration Facility site. Exhibit N.56, page 14. The Filtration Facility will operate 24 hours a day, 7 days a week, but human presence and activity, including vehicle trips, will primarily be limited to the fenced Filtration Facility area. Periodic patrols and facility checks and occasional maintenance will occur on the perimeter road outside of the Filtration Facility fence. No more than 10 employees will be present at the Filtration Facility Site per shift pursuant to land use conditions of approval. The Filtration Facility will generate an average of 9 truck trips per day for deliveries and hauling. Both employees' vehicles and trucks will enter and exit the Filtration Facility via the primary entrance from Carpenter Lane on the north edge of the Filtration Facility site, the portion so the site furthest away from the primary habitat areas further south and east.

As detailed, in Section VI the pre-construction nursery use was a high intensity commercial operation that included regular presence of farm workers, vehicles, and farm equipment through the nursery fields covering the filtration facility site.

In comparing the location and intensity of human activity necessary for the pre-construction commercial nursery use to the post-construction filtration facility use, I find that human presence associated with the operating Project will not adversely affect wildlife habitat.

h. Sandy Wild and Scenic River Designation

CCPO/PHNA identifies Wild and Scenic River designations for the Sandy River in a regulatory section of their prehearing document and makes references to the proximity of the area in other sections of the document. Exhibit N.43, pages 7-9, 17, 35-36, 39. ESA responded and concluded that neither the state nor federal laws apply to this project located outside of the designated areas. I agree, and I fully incorporate into this decision, as findings of the County, the Response provided at Exhibit S.32, page 24, Figure 9 on page 25, and Figure 10 on page 26.

i. Diesel Particulate Matter

The Courters claimed that low level of diesel particulate matter or other pollutants have "a potential to accumulate or impact nearby systems (e.g. ruparian buffers, wildlife corridors)" Exhibit S.24, page 1. Noting that the primary response to the air quality issues raised by the Courters was provided in N.61, ESA provided the following response:

> As explained in detail in the air quality memo, DPM's very fine particles have long atmospheric residence times on the order of days to weeks, allowing them to be transported tens to hundreds of kilometers from their source as they disperse in the atmosphere. These characteristics mean that DPM has only nominal deposition in proximity of where it is released. Additionally, the mass fraction of toxic constituents in DPM is minuscule, meaning that even less of the quantity of DPM that is deposited has actual toxicological properties. Additionally, human health risks associated with DPM exposure are based on long-term exposure (typically 30 years) and averaging periods (typically 70 years) at a fixed location where sensitive receptors may be present for extended duration (e.g., residences). Given that wildlife is typically more transient and would not be exposed to project DPM concentrations for such extended periods of time, any such effects on wildlife would not be enough to be "adverse." Finally, as noted in ESA's air quality response, predevelopment conditions involved activities (e.g., diesel-powered tractors) that generated DPM at the site. Any corresponding change in DPM emissions would be a net change, further reducing the magnitude of the project's less than adverse effect. For these reasons, DPM from truck trip to and from the filtration facility will not adversely affect onsite or surrounding wildlife habitat.

Exhibit U.20c, page 15.

I agree with ESA's conclusion and find that for the reasons set forth above and in Section IX.W of these findings, I find that diesel and other particulate matter from the operating Project will not adversely affect wildlife habitat.

E. "Ecologically and Scientifically Significant Natural Areas"

While none of the wetlands within the project area are Multnomah County mapped Goal 5 resources, wetlands could have been considered an ecologically and scientifically natural area. Wetlands and comments related to post-construction wetland impacts are comprehensively addressed in Wildlife Section VIII.D.5.e.iii above.

IX. The Operating Project Will Not Adversely Affect Natural Resources – Other Topics (Not in 1977 Natural Resources Policy)

A. Agricultural Natural Resources

1. Experts

The applicant's agricultural expert is Mr. Bruce Prenguber. Mr. Prenguber's resume is in Exhibit A.155 and he was found to be qualified as an expert by the prior Hearings Officer.

Notably, Mr. Prenguber's experience specifically includes at least two past analyses for the Oregon Association of Nurseries. Exhibit A.155, C.V. page 10. This undermines the Oregon Association of Nurseries arguments, through their attorneys at Jordan Ramis, that Mr. Prenguber does not qualify as an expert. Exhibit W.2a, pages 6-7. It is obvious from their past employment of Mr. Prenguber that, if he had been hired by the Oregon Association of Nurseries, they would trust his expertise.

Moreover, Mr. Prenguber is not a mere "agricultural economist" who knows nothing about practical farming or about farming in this area specifically.

As Mr. Prenguber explains in Exhibit J.87, page 26:

> "As far as having no knowledge of the Oregon nursery industry, I have talked to as many of the farmers in the Surrounding Lands as I could identify and reach for discussions. Since many of the farmers in the Surrounding Lands are nurseries, especially those close to the filtration facility and pipeline construction areas, I emphasized study and understanding of their operations. Many of my conversations were in person and were lengthy. Farmers were willing to share extensive knowledge which I gained in this process. Additionally, I have spoken to agronomists, crop scientists, extension specialists in agriculture, and other experts with specific expertise in nursery plant production."
>
> "Furthermore, I have been a consulting agricultural economist my entire career and I have an extensive practical knowledge of farming which started in my youth with a farm upbringing. This knowledge has been supplemented by nearly three years [as of 2023] of study of the nursery industry. I am qualified to analyze and provide my professional

> opinion on the Oregon ornamental nursery industry, particularly in the area of the Surrounding Lands."
>
> "As further evidence of my understanding of the nursery industry, I would point out that [no farmer] has [] objected to any of the accepted farm practices I stated in detail in my Operations Report."

It is quite notable that the 57 pages of described accepted farm practices in Exhibit A.33 have not been subject to criticism from opponents. In particular, the eight pages of Nursery Related Accepted Farm Practices in Section 10.1 have not been subject to criticism. As did the prior Hearings Officer, I find that Mr. Prenguber is qualified by education and experience to render an expert opinion on the topics he addresses in the record.

2. Soils, Not Agricultural Use, are Natural Resources

To begin, it is necessary to examine what might be an "agricultural natural resource" relevant to this proceeding. As Mr. Prenguber explains, there are a number of "inputs to farming (sunlight, labor, seeds, tissue culture, fertilizers, pesticides, feed, machinery, etc.)." Exhibit S.36, page 3. A number of these are not materials produced by nature – such as labor, fertilizers, and machinery. Moreover, based on his extensive past study of "farming in east Multnomah and north Clackamas counties since 2020 for the Project design development and land use permit applications" and his analysis of "14 potential sources of externality impacts on farming" from the Project, among many other things summarized at Exhibit N.63, pages 3-4, Mr. Prenguber provided his expert conclusion that "there is no possibility that the Project will impact the availability of … inputs to farming" other than soil. Exhibit S.36, page 3. Mr. Prenguber also notes that impacts to water could be an agricultural input issue, however, that topic is covered in Biohabitats reports (and in these findings, by the extensive analysis above), and there was no assertion that water as an agricultural input, as somehow distinct from a stand-alone natural resource, would be adversely affected by the Project. No one challenged Mr. Prenguber's conclusion that there would not be adverse impacts related to agricultural inputs other than soils nor proposed other categories of agricultural inputs that they would consider natural resources. Therefore, for the Project, I find that this discussion is appropriately confined to soils as a natural resource and I readopt my findings regarding water above to the extent a reviewing court finds that is needed to fully address this asserted natural resource.

"Soils provide crop producing capacity and are one input for agricultural production." Exhibit N.63, page 4. "Agriculture relies on soil, but that does not make the agricultural interest in utilizing soil for agricultural operations the relevant lens for evaluating an adverse effect on soil as a natural resource. Instead, agriculture's use of soil may cause an adverse effect on soil." Exhibit N.63, page 2. For this reason, natural resources such as wildlife habitat "are set apart from agricultural operations, particularly as agricultural operations can have negative impacts on those wildlife and aquatic habitats, particularly through the use of pesticides and fertilizers." Exhibit N.63, page 2. The agricultural use of soils is also set apart from "natural resources" by the "[s]ignificant human intervention with large amounts of inputs" required for the agricultural use. Consider a hypothetical natural resource of diamonds. The diamonds in the ground, in their natural state, are the natural resources. The diamond ring that ultimately is produced after significant human intervention is not. For agricultural use of soil, the soil "is modified with many additives to produce the robust plants that quickly reach salable size and then are extracted

from the soil. The added materials to the soil are fertilizers, pesticides, herbicides, rodenticides, soil amendments, and seeds/seedlings in order to be utilized for crop or livestock production." Exhibit S.36, page 2. "The soil itself is often modified with subsurface tile to allow drainage. The soil is also modified by regular compaction by heavy farm equipment during field operations that include plowing, disking, mowing, pruning, harvesting, and more." Exhibit S.36, page 2. For nursery uses specifically, soil is removed with the salable plants: "[p]lants are harvested by both the bareroot method, and by ball and burlap (b&b). Both harvest methods remove soil with the plants; the b&b method removes more soil with the root ball." Exhibit S.36, page 2.[75]

There is a reoccurring theme in public testimony where various commenters conflate the *use* of soils as a resource with the resource *itself*. *See*, *e.g.*, Exhibit U.15, page 1 ("agriculture itself is designated a natural resource"); Exhibit W.3a, page 10n3 ("farm and forest uses" are natural resources). However, the words "natural resources" in MCC 39.7515(B) focus on the materials produced by nature (the "resources") that humans can use, not the use itself. Ms. Richter provides proposed findings that the "inclusion of **agricultural soils** within natural resource protections is further evidenced in 2016 Plan Policy 2.45, which … provides: 'Support the siting and development of community facilities … while avoiding adverse impacts on **farm and forest practices[.]**'". Exhibit W.3a, page 6 (emphasis added). However, Ms. Richter's proposed findings that "agricultural soils" are included in "natural resources" not only relies on a policy that could not have been within the knowledge of the drafters of the words "natural resources" 40 years earlier, but also relies on a policy that says "farm and forest practices" – not "agricultural soils" or even "agricultural lands". I note that there is no *Baker* conflict between my interpretation of "natural resources" in the intent of the drafters (including soil, but not solely for agricultural use) and 2016 MCCP Plan 2.45. Not only are "practices" not possibly a "resource," but adverse impacts on farm and forest practices are also addressed by a separate approval criterion, MCC 39.7515(C).

Jordan Ramis points to ORS 215.243(1) as providing context that must be considered (although without explaining why that statute is relevant *PGE/Gaines* context). Exhibit W.2, page 4. However, ORS 215.243(1) provides that "Open land **used for agricultural use** is an efficient means of conserving natural resources." That is, rather than, as Jordan Ramis proposes, indicating that "open land used for agricultural use **is a** natural resource," Exhibit W.2, page 4 (internal quotation marks omitted), ORS 215.243(1) only indicates that agricultural use is one way – an "efficient" way – of conserving natural resources, like the soil of open lands. The statute does not say that the agricultural use of those soils is the reason they are natural resources.

Importantly, the soils used for agriculture also have "many other uses, even within farms. Farmers, on their own farmland, erect buildings, build private roads, bury irrigation pipes and electrical lines, place underground storage tanks, and much more." Exhibit S.36, page 3. Even opponents made comments that "soils that support the growth of plants is a phenomenon of itself" separate from agriculture,

[75] In this discussion, Mr. Prenguber also provides his rationale and conclusion that agricultural lands and soils are not "a functioning natural system" under the 2016 MCCP glossary definition of "natural resources". In various responses, opponents of the project provide their rationale and conclusions that agricultural lands or soils are functioning natural systems. As I have rejected the 2016 MCCP glossary definition as being directly applicable to this proceeding, I do not discuss this aspect of comments in the record.

Exhibit N.33, page 2, and that the soils "support[] crops, wildlife, pollinators, and rural heritage." Exhibit N.34, page 1.

This concept is best described in the materials provided by the Oregon Association of Nurseries (an opponent of the Project) from the US Department of Agriculture:[76]

> "Soils play multiple roles in the quality of life throughout the world. Soils are not only the resource for food production, but they are the support for our structures, the medium for waste disposal, they maintain our playgrounds, distribute and store water and nutrients, and support our environment."

Exhibit U.24, page 8. Each of these "multiple roles" that soil serves is a manner in which humans can use the natural resource – human use being, as explained in the interpretation section above, the focus of the definitions and context of the term "natural resources." "Agriculture does not have an exclusive right to use those soils, particularly in areas like those of the project that are not located in Exclusive Farm Use zoning." Exhibit S.36, page 3. That is, while soils are a natural resource, I find that they must be viewed as a natural resource with all these human use purposes in mind, in addition to being an input in the process of producing crops for agriculture.

3. Community Service Uses Are Not Prohibited on Agricultural Lands

One of the many roles of soils identified by the Oregon Association of Nurseries from the US Department of Agriculture is that soils "are the support for our structures[.]" Exhibit U.24, page 8. The soils under the structures of the Project will serve this natural resource function and therefore cannot be said to be adversely affected. Another of the many roles of soils identified by the US Department of Agriculture is that soils "support our environment." Exhibit U.24, page 8. The soils under the more than 47 acres of restored habitat areas proposed as part of the Project will serve this natural resource function, and therefore cannot be said to be adversely affected.

Jordan Ramis, on behalf of the Oregon Association of Nurseries, proposes findings that MCC 39.7515(B) would only allow a "community service use [to] be approved on a property that was previously developed with a non-farm use such that there are not remaining natural resources that would be adversely affected by" the proposal. Exhibit W.2a, page 3. However, as explained above, even if "developed with a non-farm use," the soils are still natural resources that can be used for that non-farm use. In fact, Jordan Ramis's own proposed findings point to the US Department of Agriculture explanation that soil "supports biodiversity and habitat and promotes the growth of plants, animals, and microorganisms" (a non-farm habitat use that will be part of the Project) and soil "provides physical stability and support … providing an anchoring support for human structures" (a non-farm structural use that will be part of the Project). Exhibit W.2a, pages 5-6.

[76] The Hearings Officer adopts Jordan Ramis's proposed findings that "these federal reports are credible expert testimony, because they were written by scientists employed by the Soil Science Division staff of the United States Department of Agriculture." Exhibit W.2a, page 6.

a. Context in Ordinance 148

Moreover, interpreting the term "natural resources" to inherently and absolutely prohibit a community service use on lands that have most recently been used for agriculture would be contrary to the context under *PGE/Gaines*. First, as has been explained, *PGE/Gaines* context "includes other provisions of the same statute[.]" *Wetherell v. Douglas Cty.*, 342 Or 666, 678, 160 P3d 614, 620 (2007). For this standard, that refers to the other provisions of the ordinance – Ord. 148, enacted on September 6, 1977 – that inserted the six words of MCC 39.7515(B) into Multnomah County Code. Ord. 148 is provided in its entirety in Exhibit S.37, starting at PDF page 218.

There are two key pieces of context in Ord. 148 that make clear that "will not adversely affect natural resources" was not intended by the drafters to prohibit the siting of community service uses on agricultural lands, even on high value agricultural lands.

First, in the same section of code, from the start, when handwritten in as an amendment, the approval criterion "will not adversely affect natural resources" in subsection b. was followed immediately by subsection "c. will not conflict with farm or forest uses in the area."

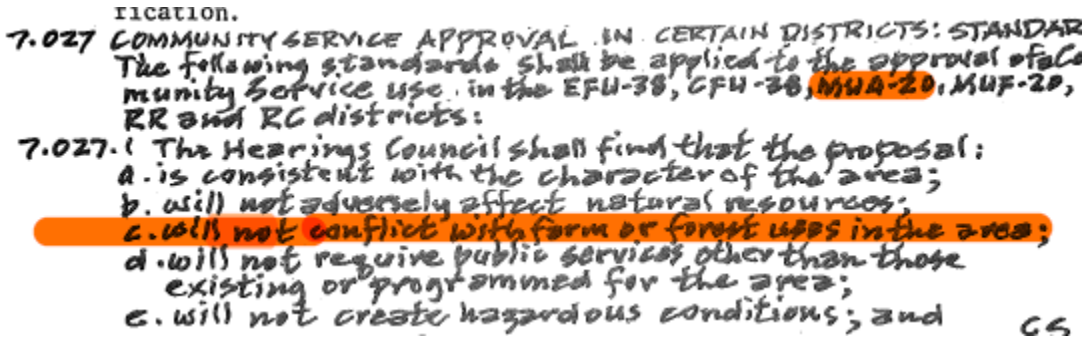

rication.
7.027 COMMUNITY SERVICE APPROVAL IN CERTAIN DISTRICTS: STANDARDS
The following standards shall be applied to the approval of a Community Service use in the EFU-38, CFU-38, MUA-20, MUF-20, RR and RC districts:
7.027.1 The Hearings Council shall find that the proposal:
A. is consistent with the character of the area;
b. will not adversely affect natural resources;
c. will not conflict with farm or forest uses in the area;
d. will not require public services other than those existing or programmed for the area;
e. will not create hazardous conditions; and

Exhibit S.37, PDF page 183.

Given that the natural *resources* approval criterion was immediately followed by an approval criterion providing protection for farm *uses*,[77] it cannot be that the drafters intended the use of soils specifically as a farm input (as opposed to use for a habitat or structural support use, for example) to be swept into the ambit of the definition of the words "natural resources."

Second, Jordan Ramis, on behalf of the Oregon Association of Nurseries, proposes findings that the 1977 Comp. Plan "restricts uses that are similar to the proposed community service uses" – then providing a block quote from the 1977 Comp Plan that "rural planned developments, cottage industries, limited

[77] Today, MCC 39.7515(C) has been amended to mirror the language in state law that protects "accepted farm practices" – a more precise term to refer to farm uses intended to be protected. See Exhibit L.1, page 122. LUBA upheld the prior Hearings Officer's determination that the Project will not " (1) force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; nor (2) significantly increase the cost of accepted farm or forest practices on surrounding land devoted to farm or forest use." That determination cannot be challenged in this remand.

rural service commercial and tourist commercial" should be conditional uses on "Agricultural Capability Class I, II, or III" lands. Exhibit W.2a, page 4. First, standing alone, Jordan Ramis provides no support for its assertion that the proposed Project is "similar to" something like "tourist commercial".

More importantly, Jordan Ramis ignores that the actual code in Ord. 148 (adopted the same day as the 1977 Comp. Plan and as implementation of the 1977 Comp. Plan) does not place Community Service Uses in the same grouping as "tourist commercial" that is restricted to non-high value farmland.

The explicit restriction in the code of which uses can and cannot be placed on high value agricultural soils makes abundantly clear that "will not adversely affect natural resources" was not intended by the drafters to prohibit the siting of *community service uses* on agricultural lands, even on high value agricultural lands. Exhibit S.37, PDF page 238.

3.133.3 CONDITIONAL USES

The following uses may be permitted when found by the Hearings Council to satisfy the applicable ordinance standards:

a. Community Service Uses pursuant to the provisions of Section 7.00;

....

c. The following Conditional Uses may be permitted on lands not predominantly of Agricultural Capability Class I, II, or III soils:

1. Rural planned developments for single-family residences as provided in Section 7.10; and

2. Pursuant to the provisions of Section 7.50:

(a) Cottage industries;

(b) Limited rural service commercial uses, such as local stores, shops, offices, repair services, and similar uses; and

(c) Tourist commercial uses such as restaurants, gas stations, motels, guest ranches, and similar uses.

Exhibit S.37, PDF page 238.

On the same page of Ord. 148 where subsection a. allows Community Service Uses, subsection c. specifies Conditional Uses "permitted on lands not predominantly of Agricultural Capability Class I, II, or III soils" – including those in the block quote from the 1977 Comp Plan provided by Jordan Ramis. Exhibit S.37, PDF page 238. The 1977 Board – on that same page of Ord. 148 – did not subject subsection a. "Community Service Uses" to that standard.

The MUA-20 provisions in Ord. 148 are very clear that there are some conditional uses that are restricted to non-agricultural lands (that is, lands without high value Class I, II, or III soils), such as single-family residences and tourist commercial, and that others, including Community Service Uses like the Project, the "commercial processing of agricultural products," and "commercial dog kennels" are not constrained by the type of soils on the property where the use is proposed. This context provides a clear understanding that the 1977 Board did not intend to prohibit Community Service Uses (or commercial process of agricultural products, etc.) on lands with high value Class I, II, or III soils merely because the land contained such soils. If the intent of the 1977 Board was to prohibit Community Service Uses like the Project on sites, like the Filtration Facility site, where there are farmable lands of Class I, II, or III soils, they would have put the words "Community Service Uses" lower on the page, in subsection c. The Board knew how to prevent construction of uses on high value agricultural land when that was the intended result. *See Bert Brundige, LLC v. Dep't of Revenue*, 368 Or 1, 3, 485 P3d 269 (2021) (quoting PGE, 317 Or at 611) ("the use of a term in one section of a statute and not in another is evidence of a purposeful omission").

b. Legislative History

There is additional evidence in the audio legislative history that the drafters knew that, by rezoning areas to MUA-20, those lands would potentially be used for non-farm uses. For example, 1000 Friends (Mr. Stacey) testifies that, "there is agricultural land in farm use on the east side of the urban growth boundary and it is still our belief that Multiple Use Agriculture as a designation of those lands makes a difference as opposed to Exclusive Farm Use. I can identify one difference … the ownership patterns in addition to the lotting patterns … those roughly between the Gresham city limits and the edge of the Sandy River Gorge where the MUA district ends. I [did an analysis of ownership and lotting], and the difference from MUA and EFU for those parcels is the difference between 45 large parcels that will remain available for farm use, and 153 outright permitted residential sites." Exhibit S.37a, Minute 22:36. That is, for this specific area where the Project is proposed to be located ("roughly between the Gresham city limits and the edge of the Sandy River Gorge where the MUA district ends"), there was a discussion about how the "difference from MUA and EFU for those parcels is the difference between … remain[ing] available for farm use, and [in MUA,]" non-farm residential uses. While this discussion does not directly apply in this case, it does indicate that the drafters knew of the risk of non-farm uses being sited on agricultural lands and made a careful legislative balancing decision in placing some uses in subsection c. (and prohibiting them on high value soils) and placing Community Service Uses in subsection a. (and not subjecting them to that requirement).

c. Responses to Additional Proposed Findings

Both Ms. Richter and Jordan Ramis suggest that *West Hills* held that displacement of forestry uses was an adverse effect on natural resources and that such a conclusion controls the outcome of this case, which will displace agricultural uses on the Project sites. However, *West Hills* does not change my conclusion that the 1977 Board did not intend to prohibit the use of agricultural lands for community service uses. If they had wanted to, they would have put it lower on the same page, in subsection c. As Ms. Richter points out in her letter, "No party in West Hills disputed that the elimination of lands suitable for timber production to accommodate the landfill was not a natural resource that would suffer adverse effect." Exhibit W.3, page 2. That is to say, no one raised it. There is no conclusion to be drawn from a lack of analysis of this issue. *West Hills* does not evaluate the legislative history nor even do a

textual analysis of the term "natural resources" using dictionary definitions. The question presented here simply was not in front of LUBA in that case.

Ms. Richter also argues that the policy for the MUA area in the 1977 Comp. Plan controls the result here. Exhibit W.2a, page 11. First, the comprehensive plan is not as valuable of context as the provisions of Ordinance 148 – adopted the same day as the 1977 Comp Plan – which implemented the comprehensive plan and (on the same page) placed some uses like single family houses into a category that prohibits placement on high value soils, and placed this use, and other Community Service Uses, into a category that does not. Second, the policy for the Multiple Use Agriculture Area Classification is not to the contrary. Yes, it provides that the code adopted pursuant to the plan (that is, Ordinance 148) should "conserve the agricultural lands" and "encourage" using "non-agricultural lands for other uses" – but those other uses include residential development and Ordinance 148 clearly implemented that direction from the comprehensive plan. As with Jordan Ramis, Ms. Richter simply ignores the implementing code where the drafters made a careful legislative balance of what uses would and would not be allowed on agricultural lands, and points instead to provisions of the 1977 Comp Plan that are consistent with that legislative balance in Ordinance 148.

d. Conclusion

Based on the foregoing analysis, I find that Mr. Prenguber's analysis is appropriately limited to "off-site 'agricultural resources', which include only those outside of the Project areas (including the filtration facility site and pipelines and other easement areas necessary for the Project)." Exhibit N.63, pages 2-3. I find that so limiting the analysis to off-site agricultural resources is appropriate.

I also find in the alternative that, to the extent the analysis does include on-site soils which have in the past been used for agriculture, those soils continue to serve natural resource functions as support for structures and for providing habitat, and that the soils have not been adversely affected in their ability to provide those functions, and therefore the on-site soils will not be adversely affected by the Project.

4. Removal of On-Site Soils

A slightly different question is presented by comments in the record concerning soils that have been removed from Project areas and taken to other properties. It is notable that, within the same document (Exhibit N.43), CCPO/PHNA argue both that the soils from the Filtration Facility site are, on the one hand, "contaminated" and "solid waste containing hazardous substances," page 34, and, on the other hand, "renewable, high-value Agricultural soils", page 63. Regardless, I find that the excavation and removal of soils from Project sites is a construction activity and impact required for the construction of the Project and therefore outside the scope of this remand.

I also note that the contaminated soils removed from the Project sites will continue to serve natural resource functions pursuant to DEQ's Beneficial Use Determination (BUD) process. The BUD allows a farmer to apply the minimally contaminated soils on their field in a manner that "involves mixing with non-contaminated soils to reduce the aggregate level of pollution below DEQ levels of concern." Exhibit U.20.e, page 2. The BUD authorizes beneficial reuse by the farmer "to develop the land for farm use" by the soil from the Project being "blended with existing topsoil so that the land could be used to grow grasses and other agricultural crops." Exhibit S.34, pages 2-3. While, as opponents point out, Exhibit W.2a, page 9, Exhibit W.3a, page 34, the number of agricultural acres will not increase as a result of the

blended topsoil, it will make the receiving farm more productive. "The addition of this soil will improve the productive capacity of a sizeable farm field and, through mixing with other soils, residual pesticide concentrations will be lower in the blended soils and below DEQ levels of concern. Amending topsoil for long-term soil improvement is a widely used best management practice to increase the productivity of lower quality soil to boost results and a conservation measure (particularly here, where the alternative is sending the soil to a landfill)." Exhibit U.20.e, pages 8-9.

In their proposed findings, both Ms. Richter and Jordan Ramis carefully state that "there is no evidence in the record that the relocated topsoil is actually being used for agricultural production[.]" Exhibit W.2a, page 9; Exhibit W.3a, page 34. The present tense voice used in that statement is key, and refers to commenters' assertions that the farmer receiving the soils did not conduct soil blending this past winter (2024-2025). However, as discussed further in the construction soils management discussion in Section X.B.e below, the applicant's contaminated soil expert, explained that "[n]ot mixing the soil immediately does not in and of itself constitute a failure to comply that would trigger revocation of the BUD. Waiting until a time period of dryer weather to complete mixing could be viewed as equally protective by minimizing the movement of soil facilitated by rainfall or surface water flow. This could be why, as [Exhibit N.42, page 34] notes, 'DEQ staff indicated that mixing would be conducted in the spring' and that 'no … action was taken' by DEQ in response to this commentor's complaints to DEQ" that the mixing had not yet occurred. Exhibit S.34, page 4. Therefore, the fact that the mixing had not yet occurred is not evidence that the soils will not be used, in the future, for agricultural purposes. Indeed, there is evidence in the record that DEQ is tracking this issue and that, If they are not blended, DEQ would take action to remedy it.

Commenters argue that Project area soils "are a limited resource we should not permanently remove when better options are available." Exhibit S.3, page 1. There are fundamentally two options for the contaminated soils: (1) beneficial reuse under a BUD or (2) transport to a landfill (BUDs are one tool DEQ has developed to "to identify opportunities to divert contaminated materials from landfills to provide for a beneficial reuse" Exhibit S.34, page 4). The applicant chose beneficial reuse. "This continued use of the soil for farming is the 'better option', as referred to by these commenters." Exhibit U.20.e, page 2. I find that choosing beneficial reuse of soils over transportation to a landfill does not adversely affect the soils as a natural resource.

5. Off-Site Soils Are Not Adversely Affected

Mr. Prenguber explains that his prior 2023 "Compatibility Study … reviews potential impacts on farming during Project operations. The Project's potential effects on farming are considered in detail. This includes all possible externalities of the Project, including noise, vibration, odor, light and glare, air quality, and water quantity and quality (see particularly Exhibit A.33, Section 12, pages 97 to 105, for the filtration facility, and Section 17, pages 118 to 123, for the pipelines). The Compatibility Study analysis determined that the proposed Project, considering all potential externalities and sensitivities of the proposed use, was not incompatible with farming in the Surrounding Lands. The Multnomah County Hearings Officer accepted this analysis in their final decision (Case File T3-2022-16220, page 21, Decision of the Hearings Officer)." After having "reviewed the updated materials being submitted into the record in this remand proceeding" Mr. Prenguber "conclude[s] that [his] prior analysis and conclusions in the reports [in the 2023 record] are still accurate" and that "[a] careful review of all of the externalities previously reviewed in [the 2023] reports clearly indicates that there are no external impacts on the soil or other agricultural inputs by operating the Project." Exhibit N.63, pages 5-6. Accordingly, Mr.

Prenguber concludes, and I now find, that "the Project operations will not adversely affect off-site agricultural resources."

6. Other Asserted Impacts to Farmland

a. Dust and Chemicals

Ms. Swinford states that "nearby farmland or grazing land will be affected. Dust from construction traffic and plant operations can coat crops or soil, and any chemical drift or accidental spill (e.g. herbicides, treatment chemicals) can contaminate fields." Exhibit S.10, page 2. Mr. Swinford also claims that "agricultural lands may be weakened due to … dust[.]" Exhibit S.11, page 1.

Mr. Prenguber responded, and I find:

> "Regarding dust from filtration plant operations that 'coat crops or soil,' this has been addressed in [the] Agricultural Compatibility Study. The buildings and impervious surfaces will inherently hold dust to a minimum. The landscape plan uses ground cover mulch and extensive plantings to also reduce dust. These are ideal ways to avoid dust creation. (See Exhibit A.33, pages 100-101.) That prior analysis is equally applicable to the 'will not adversely affect natural resource' criterion, particularly given the incredible amount of dust generated by the pre-construction agricultural use of this site."
>
> "Neither Ms. Swinford nor other opponents have explained how dust generated from facility operations would be higher than the dust generated from pre-construction activity and could reach the level of an adverse impact. On the contrary, the operating Project will produce very little dust, especially in comparison to dust from the nursery farm operations. Farm vehicles and heavy equipment travel on dirt roads at field edges and move through fields that often have little or no ground cover between the crop rows. Therefore, farm vehicles and equipment regularly create airborne dust. (See Exhibit I.82 Attachment 27: Video of Truck Driving on Existing Farm Road on Portland Water Bureau Property on Carpenter Lane.)"
>
> "A condition of approval from the 2023 decision memorializes the PWB commitment to manage the filtration facility site without herbicides or other chemicals. This will be an improvement over pre-construction conditions, where nurseries use a range of farm chemicals in field operations. In the case of bareroot and ball & burlap nursery tree production, chemicals include herbicides, pesticides, and rodenticides. Most of these chemicals are commonly applied by spray application. Soil fumigation before new plantings is also an accepted farm practice by these nurseries (see Exhibit A.33., D.1 Agricultural Compatibility Study, pages 34 – 37)."

Exhibit U.20.e, pages 3-4. As to the use of chemicals in treatment of water at the Filtration Facility, I have addressed this in my findings in Section XI.D, which are equally applicable to the concern raised by Ms. Swinford and Mr. Swinford.

b. Altered Drainage Patterns

This is addressed in my findings in Section VIII.C.2.c.xi (under "Fish Habitat Areas") above.

c. Microclimate

Finally, Mr. Swinford claims that "agricultural lands may be weakened due to … microclimate alteration[.]" Exhibit S.11, page 1.

Mr. Prenguber responded, and I find:

> "[T]he localized effect of microclimate would have imperceptibly small influence over crop growing conditions even for farms near the filtration facility site. Air temperature, precipitation, and wind speed/direction are determined principally by macro-climatic conditions. Storms and winds from the Pacific Ocean, in combination with the influence of the Cascade Mountain Range, and site elevation are the dominant influences. The SEC zone with mature trees and dense ground vegetation toward the Sandy River follows along the northeast section of the Project site for about one-half mile. This is an effective, natural windbreak that moderates wind from the Sandy River valley and is unchanged from pre-development to post-development. None of these natural phenomena are impacted by the presence of the Project."
>
> "Furthermore, the filtration facility design features that include low profile buildings, ecoroofs, extensive landscaping with plantings, six dry detention ponds, and the considerable open space, all work against there being any adverse change to microclimate at and near the filtration facility site. Together, these features function to weigh against adverse changes in local temperature, humidity, and wind patterns. For example, the proposed landscaping introduces dense areas of native plants, which increases transpiration and contributes to maintaining relative humidity levels. This helps stabilize temperature and moisture levels critical for plant health in adjacent nursery farming. Air flow in the post-development condition will be minimally altered with berms to be located along the facility's perimeter. This will slightly reduce wind at neighboring nurseries when wind is coming off the filtration site, which is advantageous for nurseries where high winds can damage crops. Overall, there is no reason to believe there will be adverse impacts on air temperature, precipitation, humidity, or wind (that is, any adverse impacts on microclimate) at nearby nurseries due to the operation of the filtration facility, in fact, these factors may be improved by the project."

Exhibit U.20.e, pages 7-8.

7. Conclusion

Overall, I find that the Project will not adversely affect soils or other agricultural resources that a reviewing court may find are considered natural resources under MCC 39.7515(B).

B. Forests

The potential for the Project to adversely affect forests is addressed above related to wildlife habitat areas. "Forestry" – one use of forests – is a use, not a resource within the scope of MCC 39.7515(B). Exhibit A.37 (D.3 Forestry Compatibility Study) extensively addresses forestry surrounding the Project and in general concludes that it is too far away to be subject to any impacts. Accordingly, for all the reasons addressed above related to wildlife habitat areas, and additionally for the reasons provided in Exhibit A.37, I find that the Project will not adversely affect forests or forestry natural resources.

C. Air Quality (AQ)

1. Experts

The applicant provided expert testimony from Mr. Phil Gleason of Environmental Science Associates (ESA). As explained in his resume in Exhibit N.66, Mr. Gleason is a senior technical analyst who specializes in air quality and greenhouse gas evaluations and has expertise in preparing human health risk assessments, including from individual, site specific development projects. Mr. Gleason holds a B.S. in Atmospheric Science from University of California, Davis, and his experience includes acting as the "Lead AQ and GHG Analyst" for multiple large scale projects, including a large public project for a recycled water facility. I find that Mr. Gleason is qualified by education and experience to provide an expert opinion related to air quality, greenhouse gasses, and topics related to those topics.

No other party to the proceeding purported to, or is evidenced to, have provided expert testimony on this topic.

2. Facts and Conclusions

Mr. Gleason submitted an "Operational Air Quality Analysis" into the record before the hearing as Exhibit N.61 (the "**AQ Analysis**"). The AQ Analysis was prepared "to estimate and evaluate operational air quality emissions associated with the" Project. Exhibit N.61, pg. 1. Overall, Mr. Gleason concludes, and I find, that "the Project's operational emissions would not have the potential to adversely affect air quality natural resources." *Id.* That conclusion applies to air quality generally as well as "to the Project's capacity to adversely affect local flora and fauna based on AQ emissions from the Project." Exhibit S.35, page 4.

The project's potential to impact air quality has to do with any potential externalities, which in the AQ context are broadly called "emissions". The only potential sources of Project emissions are:

- **"Mobile Sources**: On-road vehicles would generate exhaust from fuel combustion and fugitive dust emissions from tire wear, brake wear, and road dust. On-road vehicle activity associated with the Project includes employee commutes, vendor deliveries, off-haul of residual solids, and on- and off-site trips made by PWB's fleet based out of the Filtration Facility." Exhibit N.61, pg. 2.

- **"Emergency Backup Generators (eBUGs):** The Project would include a total of three (3) diesel-fueled eBUGs. Two (2) of these eBUGs would be located at the Filtration Facility and one (1)

eBUG would be located at the Intertie. These engines would be periodically tested and maintained (through standard Operations and Maintenance [O&M]) to ensure reliability in the event of an emergency. The eBUGs would generate exhaust emissions during testing and emergency operation." Exhibit N.61, pg. 3.

- **"Dry Chemical Transfer:** Filtration Facility operation would require salt and soda ash for water treatment purposes. These dry chemicals would be transferred to the Filtration Facility via truck and pneumatically loaded into storage silos immediately east of the Filtration Facility's chemical storage building. Dry chemical transfer would generate fugitive dust emissions, although these emissions would be almost entirely abated by emission control devices (bag filters) installed on each of the silos." Exhibit N.61, pg. 3.

a. Criteria Air Pollutants

i. Background on Air Quality Measurement

The Environmental Protection Agency (EPA) and Oregon Department of Environmental Quality (ODEQ) have established Primary and Secondary National Ambient Air Quality Standards (NAAQS). Exhibit S.35, page 5. There are six "criteria pollutants" established by the Clean Air Act that are regulated through the NAAQS: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb). Exhibit N.61, page 2. The Primary NAAQS "are designed to protect public health, including sensitive populations such as children, the elderly, and individuals with respiratory or heart conditions[.]" Exhibit S.35, page 5. "Secondary NAAQS are intended to protect public welfare (including animals, crops, and vegetation) from harmful effects of air pollution." Exhibit S.35, page 5. "The concentration limits specified in the Secondary NAAQS are either the same or less stringent than the Primary NAAQS (i.e., the Secondary NAAQS would be exceeded at either the same time or after the Primary NAAQS)." Exhibit S.35, page 5.

An assessment of AQ can be made by "measuring and monitoring pollutant concentrations in the ambient air and comparing these concentrations to National AAQS and Oregon AAQS." Exhibit N.61, page 2. Based on those comparisons, regions are then classified for each AQ pollutant into categories of classification which can generally be described as: Attainment (if below the AAQS), Maintenance (if below the AAQS now, but was above the AAQS in the past), Nonattainment (AAQS exceeded, and must develop strategies, plans, and control measures in response), and Unclassified (data incomplete). The project is located in an area with "maintenance" designations for O_3 and CO under the NAAQS and Oregon AAQS and with "attainment" or "unclassified" for all other criteria air pollutants. Exhibit N.61, page 2.

Mr. Gleason explains that there are no "formal numeric thresholds for evaluating whether a project's criteria air pollutant emissions may adversely affect natural resources[.]" Exhibit N.61, page 3. For that reason, "to assess whether the Project could adversely affect natural resources from an air quality standpoint, the Project's criteria air pollutant emissions are compared [in ESA's analysis] against the *De Minimis Thresholds*[.]" Exhibit N.61, page 3. The *De Minimis Thresholds* "are used to assess whether project[s] … could interfere with a state's plan to meet or maintain national air quality standards. If a project's emissions are below the *De Minimis Thresholds*, these emissions are considered to be too small to cause or contribute to a violation of the National AAQS." Exhibit N.61, page 3. The *De Minimis Thresholds* are based on the Primary NAAQS. Exhibit S.35, page 5. As explained above, the Secondary

NAAQS are intended to protect public welfare, including animals, crops, and vegetation, from harmful effects of air pollution. That is, the Seconary NAAQS represent a threshold at which EPA would consider a project as having the potential to adversely affect natural resources, such a local flora and fauna. Exhibit S.35, page 4. "The concentration limits specified in the Secondary NAAQS are either the same or less stringent than the Primary NAAQS (i.e., the Secondary NAAQS would be exceeded at either the same time or after the Primary NAAQS)." Exhibit S.35, page 5. As explained further below, the project's emissions are too small to cause or contribute to a violation of the Primary NAAQS, which is a more stringent standard than the Secondary NAAQS that is designed to be protective of natural resources.

Mr. Gleason clarified that his comparisons of the Project emissions to the NAAQS and *De Minimis Thresholds* was not used in ESA's analysis to argue that compliance with the NAAQS and *De Minimis Thresholds* equates to compliance with MCC 39.7515(B). Exhibit U.20.f, page 9. Instead, Mr. Gleason explains, and I find, the use of the *De Minimis Thresholds* is an appropriate approach for assessing whether the Project's criteria air pollutant emissions have the potential to adversely affect natural resources. ESA used the *De Minimis Thresholds* "as objective reference points to evaluate the potential for adverse effects. This is particularly appropriate, because the *De Minimis Thresholds* are established by the EPA through a process grounded in extensive scientific evidence and public health research." Exhibit U.20.f, page 9. The scientific evidence and public health research process to determine the pollutant-specific *De Minimis Thresholds* is explained in Exhibit U.20.f, and includes "a comprehensive review of peer-reviewed health and atmospheric science literature, risk assessments, and exposure modeling" with the process "overseen by the Clean Air Scientific Advisory Committee (CASAC), a federally chartered independent panel of scientists established under the Clean Air Act to provide expert advice to the EPA Administrator on the technical basis for NAAQS and related regulatory mechanisms" in order to ensure that the *De Minimis Thresholds* reflect the best available science and remain protective of both public health (primary standards) and public welfare (which includes natural resources). Exhibit U.20.f, page 9. Overall, the regulatory standards included in ESA's Project-specific analysis – including the *De Minimis Thresholds*, NAAQS, and LSTs (described below) – provide appropriate evidentiary, performance-based thresholds on which ESA could base an objective analysis of the Project's capacity to adversely affect natural resources. Exhibit U.20.f, page 13.

ii. Analysis of Project AQ Emissions

Mr. Gleason provided Table 1, replicated below, which "presents the Project's annual operational criteria air pollutant emissions, which were estimated by ESA using information contained in the land use record and data supplied by the PWB and Project Design Team." Based on that project information, Mr. Gleason derived emissions estimates from standardized sources such as EPA tools, with a detailed explanation of activity and how emissions were estimated provided in Attachment 1 to Exhibit N.61. Exhibit N.61, page 3.

TABLE 1
ANNUAL PROJECT OPERATIONAL CRITERIA POLLUTANT EMISSIONS

Emission Source	Criteria Air Pollutant (tons per Year)					
	NOx	VOC	CO	SOx	$PM_{2.5}$[a]	PM_{10}[a]
Mobile Sources	0.65	0.08	3.23	0.00	0.22	1.18
eBUGs[b]	8.06	0.41	1.52	0.01	0.21	0.21
Standard O&M[b]	*1.04*	*0.05*	*0.20*	*0.00*	*0.03*	*0.03*
Emergency Use[b]	*7.02*	*0.36*	*1.32*	*0.01*	*0.19*	*0.19*
Dry Chemical Transfer[c]	--	--	--	--	0.01	0.01
Total[d]	**8.71**	**0.49**	**4.75**	**0.02**	**0.44**	**1.41**
De Minimis Threshold	100	100	100	100[e]	100[e]	100[e]
De Minimis Threshold Exceeded?	No	No	No	No	No	No

SOURCE: Developed by ESA, 2025; see Attachment 1.

ACRONYMS: NOx = oxides of nitrogen; VOC = volatile organic compounds; CO = carbon monoxide; SOx = oxides of sulfur; $PM_{2.5}$ = particulate matter with a diameter of less than 2.5 microns; PM_{10} = particulate matter with a diameter of less than 10 microns.

NOTES:

a. Includes PM emissions from vehicle exhaust, tire- and brake-wear, on- and off-road fugitive dust, and fugitive dust from material transfer.

b. The total emissions estimates for the eBUGs include emissions from two activities: 1) standard O&M and 2) emergency use. The values shown in italics are subtotals that collectively comprise the values shown in the "eBUG Operation: Total" row.

c. The fugitive dust emissions from dry chemical transfer would be almost entirely abated by emission control devices (bag filters) installed on each of the silos.

d. The Project area is designated as "attainment" for SOx, $PM_{2.5}$, and PM_{10}. Quantitative *De Minimis Thresholds* are only identified for areas with a designation of "maintenance" or "nonattainment." The 100 tons per year thresholds identified for these pollutants was conservatively based on the values that would be applicable if the Project were in a "maintenance" designation for these pollutants.

e. The Project's various emissions sources may not sum to the totals presented in this row due to rounding accounted for in the Excel workbook used to estimate emissions.

Exhibit N.61, page 4.

Table 1 shows that the Project's AQ emissions are substantially below the *De Minimis Thresholds* and would not have the potential to interfere with Primary or Secondary AAQS attainment, and therefore would not have the potential to adversely affect natural resources, such as flora and fauna or forests or agricultural lands. Exhibit S.35, page 5; Exhibit U.20.f, page 6.

Mr. Gleason made numerous conservative assumptions, with the effect that the Table 1 analysis *overestimates* Project emissions or compares Project emission to a more stringent standard than would be applied by ODEQ or the EPA. These conservative assumptions include:

- "[T]he emissions inventory for this Project includes all direct operational emissions, even those occurring out of state, based on trip origins and destinations. That is, all on-road vehicle activity was included as part of the Project for this analysis, even when the distance traveled is large and the entire trip may not be solely attributable to the Project (e.g., vendor deliveries from California that may serve other customers, as well)." Exhibit N.61, page 4. Including all emissions, rather than just those in the project area,[78] is more conservative than how ODEQ or

[78] One commenter indicated that "caking agent" (coagulant aid) will be delivered to the Project on a truck "from a port in San Diego, having come from overseas." Exhibit S.2, page 1. As Mr. Gleason explained, and I agree, the

the EPA would do this evaluation, because those regulators would be looking at emissions broken down into "geographic areas[,] typically defined by county or metropolitan statistical areas" and only comparing emissions in each geographic area against the threshold. Exhibit N.61, page 4. Additionally, the analysis made the conservative assumption that included all emissions from all truck trips – including out of state trips. This was a conservative assumption because, "given the distance between out-of-state chemical vendors and the Facility site, it is unlikely that these vendors would send a truck that only delivers chemicals to the Facility." Exhibit U.20.F, page 3. Making the reasonable assumption of a shared load "would reduce the quantity of trucking emissions directly attributable to the Project (i.e., if a chemical vendor delivery trip served two clients in Oregon, it could be appropriate to proportion the AQ emissions generated by the trip 50/50 between the end users)." Exhibit U.20.F, page 3. Although reasonable, ESA made the more conservative assumption that did not account for any shared loads that may occur, instead allocating 100 percent of emissions to the Project in its analysis. Exhibit U.20.F, page 3.

- Mr. Gleason analyzed all criteria air pollutants, regardless of whether ODEQ or the EPA would consider the analysis applicable to those pollutants based on the "maintenance", "attainment", "nonattainment", or "unclassified" category of the geographic region in which the project is located. Exhibit N.61, pages 4-5.
- Mr. Gleason assumed all vehicles would be powered by gasoline or diesel, when in reality some of the project associated vehicles will be electric, given the current and projected fleet profile. Exhibit N.61, page 5.
- Mr. Gleason assumed and accounted for in his analysis a full week of eBUG emissions above and beyond what would be associated with standard maintenance and testing activities. That is, Mr. Gleason accounted for a multi-day power outage as a conservative worst-case analysis. Exhibit N.61, page 5.
- Mr. Gleason overestimated dust emissions from gravel surfaces by using an "unpaved" standard that identifies adding gravel as a dust control mechanism. Exhibit N.61, page 5.

Even including all these conservative assumptions and overestimates of emissions, Mr. Gleason concludes, and I find, that the Project would not have the potential to adversely affect natural resources.

iii. "Localized" Impacts of AQ Emissions

Ian and Lauren Courter, the commenters in Exhibit S.24, criticized ESA's air quality analysis based on the *De Minimis Thresholds* as not being "localized" in the manner they believe is required by MCC 39.7515(B). Exhibit S.24, page 1.

Mr. Gleason explained, and I find, that AQ is appropriately analyzed on a regional basis. The *De Minimis Thresholds* focus on regional AQ goals to "ensure attainment across entire geographic areas, not just at a single receptor or location. Air quality conditions and corresponding effects (from a criteria air

emissions from the truck trip from California was included in the AQ emissions analysis, but it would not have been appropriate to include emissions from oceangoing vessels (OGV) because those emissions are attributable to the vendor / importer as the "Project's chemical demands would not necessitate an additional OGV/barge trip, and the Project is not proposing to directly import chemicals from overseas." Exhibit U.20.F, page 3.

pollutant standpoint) are primarily a regional concern. Unlike other sources of environmental degradation that can be limited to a small area (e.g., an oil spill that has defined boundaries), AQ effects are observed over a broader scale and are influenced by wind and atmospheric conditions, as well as pollutant formation and transport." Exhibit U.20.f, page 10.

Additionally, it was appropriate for ESA's expert analysis to focus on regional effects rather than localized effects "given the manner in which criteria air pollutants form and disperse[.]" Exhibit U.20.f, page 11. "Many criteria air pollutants (e.g., O_3 and $PM_{2.5}$) form and disperse over large areas, thereby contributing to regional concentrations, not just localized hotspots. For example, O_3 (from precursors – i.e., NOx and VOC) accumulates over several hours, depending on emission rates and meteorological conditions, meaning that NOx and VOC emissions generated by the Project would have ample time and space before O_3 accumulates (CARB, 2005). These temporal and geographic considerations provide evidence that O_3 concentrations generated by Project emission sources (i.e., through the emittance of O_3 precursors) would not be realized so much on a localized scale, but rather more broadly on a regional- and state-wide scale (i.e., after pollutants have dispersed into the atmosphere)." Exhibit U.20.f, page 10.

Nonetheless, to further refute and respond to the commenter's claims that the *De Minimis Thresholds* do not address localized effects, ESA prepared a supplemental analysis of the capacity of Project emissions to adversely affect AQ at nearby sensitive receptor locations. Exhibit U.20.f, page 11. The supplemental analysis uses the Localized Significance Thresholds (LSTs) adopted by the South Coast Air Quality Management District (SCAQMD) in California, which "represent the maximum NOx, CO, PM10, and PM2.5 emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent and applicable NAAQS or California AAQS (CAAQS)." Exhibit U.20.f, page 11. The LSTs "serve as a conservative test when applied in regions like Multnomah County" because of Multnomah County's "cleaner air, lower baseline pollutant levels, and more favorable dispersion conditions" compared to the region of California that SCAQMD has jurisdiction over and because the CAAQS are "generally more stringent (i.e., the pollutant concentration standards are lower) than the NAAQS[.]" Exhibit U.20.f, page 11. Accordingly, even the "least stringent LSTs from SCAQMD provide a health- and natural resource-protective objective screening tool for evaluating localized, operational AQ-related effects." Exhibit U.20.f, page 11. Mr. Gleason provided a comparison of the Project's AQ emissions against the LSTs in Table 1 of Exhibit U.20.f, on page 12. That analysis shows that Project AQ emissions would not exceed the LSTs, further demonstrating that Project AQ emissions would not have the potential to have a localized adverse effect on natural resources (even if the Project were to be constructed in Southern California, which suffers from some of the most degraded AQ conditions in the nation). Exhibit U.20.f, page 12.

Notably, the LSTs provide both the "localized" project-level assessment, as well as a cumulative assessment of Project effects, as the LSTs were developed to include an evaluation of "the emission levels at which a Project's individual emissions would be cumulatively considerable." Exhibit U.20.f, page 16. "The Project would not exceed the LSTs, supporting the conclusion that the Project would not have an adverse, cumulative effect on natural resources. The Project's criteria air pollutant emissions would not have the potential to adversely affect natural resources on a short-, long-term, or cumulative basis." Exhibit U.20.f, page 16.

iv. Additional Evidence Supporting Conclusion of No Adverse Effect

As explained above, the Project's emissions would be too small to cause or contribute to a violation of the Secondary NAAQS (protective of the public welfare, including animals, crops, and vegetation) and too small to cause or contribute to a violation of the Primary NAAQS (a more stringent standard protective of public health, including sensitive populations, and on which the *De Minimis Thresholds* are based.) Exhibit S.35, page 4; Exhibit N.61, page 4. As shown in Table 1, the project is not only technically below the *De Minimis Thresholds* – it is far below that threshold, with the highest project emissions at just 8.71 out of 100.

The applicant's air quality expert, Mr. Gleason, provided additional evidence in addition to being far below the *De Minimis Thresholds* to substantiate the conclusion that the Project's AQ emissions would not adversely affect natural resources. First, "Air quality pollutants typically remain suspended in the atmosphere for several hours to days, depending on their size and weight, and disperse in accordance with local meteorological conditions. This allows ample time for dispersion, reducing the already low pollutant concentrations from Project emission sources to levels that would have a negligible effect" particularly considering the further reduction of concentrations at the point of deposition[79] such that overall, there is a negligible effect on flora, and, by extension, natural resources more broadly, such as habitats made up of flora and other natural resources that could be impacted by air quality or deposition of emissions. Exhibit S.35, page 5.

Additional evidence supporting the conclusion of no adverse effect on natural resources is that the highest pollutant concentrations from Project emission sources would primarily be located inside the fenced area of the Facility, in proximity of the sources themselves. The distance from Project emission sources to the areas where wildlife (or for that matter, other natural resources) could be located allows time and space for dispersion, reducing already low pollutant emissions the further they travel from the source. Exhibit S.35, page 5. This supports the conclusion that air pollutant concentrations from Project-related emissions would be substantially reduced at offsite or outside the fence locations where natural resources may be present.

The air quality emissions from the Project – already far below the *De Minimis Thresholds* at levels that would have a negligible effect on natural resources – are also offset by the inclusion in the Project of "more than 3,000 trees, which would affect AQ through the direct removal of air pollutants, including surface-level ozone (O3), sulfur dioxide (SO2), and nitrogen oxides (NOx)[.]" Exhibit S.35, page 5. The EPA recognizes trees as a natural mechanism for extracting pollutants from the air[.] A recent meta-analysis of global field studies found that vegetation can reduce ambient concentrations of particulate matter (PM) by roughly 16–27 percent, NO_x by 14–36 percent, and SO_2 by 20–48 percent, under various conditions in an urban setting[.]" Exhibit S.35, page 5. Accordingly, the vegetation planted by the Project would extract AQ emissions from the Project (as well as other sources) contributing to air quality conditions in the vicinity of the Project. Exhibit S.35, page 6.

[79] "Deposition is the process where air pollutants, both gases and particles, are transferred from the atmosphere to the Earth's surface." Exhibit S.35, page 5/

v. Pre-Construction Use PM

The "Project post-development conditions are likely to improve AQ conditions from a PM10 standpoint compared to pre-development conditions." Exhibit U.20.f., page 17.

"Windblow fugitive dust from agricultural operations (e.g., tilling, plowing, and vehicle travel on dirt roads) contains a much larger proportion of coarse particulate matter (i.e., PM_{10}), with some of the dust being comprised of particulates that are even greater in size than PM10. These heavier dust particles (i.e., PM_{10} and PM greater than 10 microns) rapidly settle out of the atmosphere due to gravity – typically depositing on surfaces or waters within minutes to hours of becoming airborne – and usually fall to the ground within a relatively short distance of their source as a result (EPA, 1997). Field measurements and analysis conducted by researchers confirm that a significant fraction of windblown dust drops out very close to its origin. For example, in one study, roughly one-third of the suspended dust from an eroding farm field was found to deposit within the first few hundred meters downwind of the field (Hagen et al., 2006)." Exhibit U.20.f., page 17.

"Consequently, agricultural activities are a major contributor to localized PM deposition in rural areas – the coarse, soil-derived particles tend to accumulate on nearby fields, waters, and surfaces rather than travel long distances. In many rural regions (such as California's Central Valley), windblown dust from farming operations dominates PM mass in the local air, which underscores how most of the dust generated by agricultural activities is confined to the vicinity of its source(s) due to rapid deposition (Adebiyi et al., 2025)." Exhibit U.20.f., page 17.

"In contrast, very little PM would be generated by the Project under post-development conditions. Most vehicle travel occurring at the Facility would happen on paved surfaces, and unpaved roads at the Facility site would be comprised of gravel." Exhibit U.20.f., page 17. Adding gravel to a dirt road is a recognized control mechanism to reduce fugitive dust emissions. Exhibit N.61, page 5. "The Project's other sources that would generate PM10 emissions would do so on an infrequent basis (e.g., routine O&M of the eBUGs and dry chemical silo filling), and those emissions would not be substantial compared to those associated with typical agricultural operations." Exhibit U.20.f., page 17.

vi. Conclusion on Criteria Air Pollutants

Overall, the Project's AQ emissions will not adversely affect natural resources because they will have only a negligible effect – as evidenced by being substantially below the *De Minimis Thresholds* – and because even those negligible effects are offset by the inclusion in the Project of more than 3,000 trees and other vegetation planted by the Project, which will extract and offset AQ emissions from the Project.

b. Diesel Particulate Matter (DPM)

Commenters raised concerns that diesel particulate matter (DPM) from Project sources could have the potential to adversely affect natural resources. For example, in Exhibit S.24, page 1, the Courters argue that "Low levels of diesel particulate matter or other pollutants have the potential to accumulate or impact nearby natural systems (e.g. riparian buffers, wildlife corridors) and rural communities when evaluated on a long-term or cumulative basis." It is correct that DPM is evaluated for "chronic disease

risks" based on "prolonged, cumulative exposure" rather than "short-term or acute risks." Exhibit N.61, page 5n7.

Mr. Gleason reviewed the Project DPM emissions in his expert analyses, and he concludes, and I find, that DPM emissions from the Project would not adversely affect natural resources for the reasons that follow.

i. Toxic Constituents of DPM

Mr. Gleason explains, and I find: "While DPM does contain toxic constituents (including polycyclic aromatic hydrocarbons [PAHs], trace metals [e.g., arsenic, nickel, chromium], and VOCs [e.g., formaldehyde, acrolein]), these pollutants make up only a small portion of total particulate mass. A detailed chemical analysis of particulate emissions from heavy-duty diesel engines found that approximately 82% of DPM is carbon based, with trace inorganic elements comprising around 6%, and PAHs accounting for just 0.03% of total mass (Jin et al., 2014)." Exhibit U.20.f, page 16.

"DPM is primarily composed of very fine particles, with over 90% of DPM being comprised of PM that is less than 1 micron (µm) in diameter, falling well within the PM2.5 size range (CARB, ND). Because these particles are so small, they have long atmospheric residence times on the order of days to weeks, allowing them to be transported tens to hundreds of kilometers from their source as they disperse in the atmosphere (EPA, 1997). These characteristics mean that very little of the DPM emitted by sources settles to the ground or on waters in the vicinity of where it is released; instead, most DPM stays airborne and disperses over a broad area before eventually depositing via dry deposition, dilution, or rainfall at locations farther away. This limited deposition of DPM in the immediate vicinity of its emission source is a direct result of its fine particle size and prolonged suspension in air (EPA, 1997). Furthermore, as mentioned in the preceding paragraph, the mass fraction of toxic constituents in DPM is minuscule, meaning that even less of the quantity of DPM that is deposited has actual toxicological properties." Exhibit U.20.f, page 16.

"Given the low amount of overall Project DPM emissions, the low mass fraction of toxic constituents in DPM, slow deposition of PM2.5 over rural surfaces, and that fine PM (i.e., DPM in this context) has only nominal deposition in proximity of where it is released, Project DPM emissions would not result in an adverse effect on natural systems or natural resources." Exhibit U.20.f, page 16.

ii. Mobile Emissions Sources

Mr. Gleason evaluated all mobile emissions sources as part of his analysis, as explained at Exhibit N.61, pg. 2. The majority of Project DPM emissions would be from diesel-fueled vehicle trips (i.e., vendor deliveries and haul truck trips) which would be widely dispersed off site. Exhibit N.61, pages 5-6. The eBUGs area also a source of DPM emissions from the Project – they are addressed in the next section of findings.

Because of the "mobile" nature of these sources, only a minor fraction of emissions would occur at or in the immediate vicinity of the Project area – as most of that travel is not in the project area. Exhibit N.61, pages 5-6. Thus, the actual quantity of Project DPM emissions generated at and in the immediate vicinity of the Filtration Facility would be a very minor fraction of the particulate matter (PM) emissions shown in Table 1 of Exhibit N.61. Exhibit U.20.f, page 13.

There is, of course, no specific screening criteria for sources (e.g., the number of heavy-duty truck trips generated by a project) provided in MCC 39.7515(B). Nor does ODEQ have established screening criteria that would apply. However, there are "various resources [that] exist in California that provide insights and context as to what level of activity could generate an adverse condition and affect natural resources." Exhibit N.61, page 6. Those resources are the California Air Resources Board (CARB) *Air Quality and Land Use Handbook: A Community Health Perspective* and the *Air Quality and Greenhouse Guidelines* issued by the City and County of San Francisco (SF). The CARB recommends "that siting new sensitive land uses (e.g., residences) should be avoided within 1,000 feet of distribution centers generating more than 100 (heavy-duty) truck trips per day (CARB, 2005)." Exhibit N.61, page 6. The SF resource "establishes risk-based, trip-generation screening criteria" that characterizes projects that generate 175 trucks a day or less as "minor, low-impact sources that do not pose a significant health impact even in combination with other nearby sources." Exhibit N.61, page 6.

As shown in Table 2 of Exhibit N.61, neither of these thresholds are exceeded by the Project. Instead, the project average one-way trips are *just 9.3*, well under the CARB criterion of 100 trips and the SF Criterion of 350 trips (doubled to account for standard's use of round trips). Exhibit N.61, page 6. The fact that the project is so substantially below these thresholds provides evidence and context for the finding that project activity could not generate DPM at a level that would create an adverse air quality condition or adversely affect natural resources.

iii. eBUGs

"The Filtration Facility eBUGs would be located on the interior of the Filtration Facility site, adjacent to the main electrical complex and northern electrical complex. The main electrical complex and northern electrical complex are located approximately 1,700 and 875 feet from the nearest sensitive receptor locations (i.e., residences), respectively. These distances are large enough that DPM emissions from the Filtration Facility's eBUGs are anticipated to have ample time and space to disperse (i.e., become less concentrated). DPM emissions from the Intertie's eBUG (which is much smaller and generates substantially fewer emissions than those at the Filtration Facility) would similarly disperse in a rapid manner, away from the nearest sensitive receptor location (approximately 415 feet from the Intertie's electrical building). At both the Filtration Facility and Intertie, prevailing winds from the northwest would disperse DPM emissions away from sensitive receptor locations." Exhibit N.61, pages 6-7.

Additionally, the eBUGs do not exceed the applicable screening threshold for the Cleaner Air Oregon Program (CAO Program) to trigger further review. Exhibit N.61, page 7. Mr. Gleason provided an explanation of the regulatory process the Project's eBUGs would undergo while seeking AQ permits through the CAO Program. However, Mr. Gleason clarifies that the "conclusion in Exhibit N.61 – that the Project would not adversely affect natural resources – was not based on regulatory compliance with the CAO Program. [H]owever, the CAO Program does establish a quantitative threshold that serves as a nexus for correlating the Project's DPM emissions to risks that could be considered to adversely affect natural resources." Exhibit U.20.f, page 14.

The CAO Program regulatory process requires that new sources, including the eBUGs, be assessed to determine if DPM emissions exceed a screening threshold. Exhibit N.61, page 7. The screening threshold referred to is part of a larger, tiered framework approach that "includes a Toxics Lowest Achievable Emission Rate (TLAER) cancer risk threshold that is the same quantitative threshold used by other AQ regulatory entities for determining whether a project could have an adverse effect[.] Projects

that exceed this threshold are required to implement mitigation through emission controls or other means. Projects that are below this threshold are not required to implement measures to reduce emissions or corresponding risks. Therefore, this threshold is an appropriate performance standard on which ESA's analysis and conclusions can be based." Exhibit U.20.f, page 14.

Mr. Gleason explains, and I find, that the Project's eBUGs will not "generate such quantities of DPM emissions that would result in an adverse effect on natural resources." Exhibit U.20.f, page 15. "For example, ODEQ issued an AQ permit for a data center involving the operation of 49 eBUGs in Hillsboro, and the sources at that facility were located approximately 850 feet from the nearest sensitive receptor (compared to the Facility's two eBUGs that are 1,700 and 875 feet from the nearest sensitive receptors …). Each generator at the Hillsboro facility met EPA Tier II certification standards (i.e., the same engine tier as the eBUGs proposed for the Facility) and was approximately 3,000 kW in size (147,000 kW of total facility capacity)[.] The Hillsboro data center involved substantially more DPM-generating activity than that proposed by the Project, and that facility did not exceed the TLAER quantitative threshold. This example illustrates that EPA Tier II certified eBUGs (even 49 of them together, though the Project only has two) have the capacity to remain below the TLAER threshold." Exhibit U.20.f, page 15. eBUGs that meet EPA standards simply are not the type of operational activity that have the potential to generate DPM that would result in an adverse effect on natural resources. As Mr. Gleason explains, projects that do have that potential "typically include industrial facilities involving the following types of land uses and activities: metal plating and finishing, fiberglass and composite manufacturing, asphalt and roofing plants, wood preserving facilities, foundries and metal casting operations, concrete batch plants, plastic and foam manufacturing, etc." Exhibit U.20.f, pages 14-15.

iv. Cumulative Adverse Effects

Mr. Gleason explains, and I find, that "in order for a Project to have a cumulative adverse effect on natural resources from DPM emissions, the Project would need to be within a DPM-burdened area. These types of DPM-burdened areas typically include neighborhoods adjacent to major DPM generating activities, such as: ports, large industrial sources (e.g., refineries), rail yards, distribution center clusters (e.g., high density of warehouses), and freeways / highways that have a high volume of diesel trucks. In contrast, the Project is located within a rural area that generally experiences clean air, as evidenced by the region having 'attainment' and 'maintenance' designations for criteria air pollutants (see pg. 2; [Exhibit N.61]). Tractors, trucks, and other sources of DPM in the vicinity of the Project do not involve the same level of activity (or generate comparable DPM emissions) as the aforementioned sources that would cause the Project's individual effects to be cumulatively considerable. The Project's DPM emissions would not result in a cumulative adverse effect on natural resources."

v. Pre-Construction Use

Air quality characteristics of the pre-construction use starts with farm workers and managers commuting to work. "Surface Nursery employees work, on average, 8-9 hours a day Monday through Friday with occasional Saturdays, year-round. A typical workday is from 7am to 4:30pm but shifts to earlier times when operationally necessary. The nursery is closed on Sundays. We employ on average 50 employees." Exhibit I.31, page 2.

The vice president of Surface Nursery explained that employees transport tractors, equipment, trees, and supplies to the field locations. Exhibit I.31, page 3. Surface Nursery also states: "On any given day, roughly 50 employees travel in 4 buses to 7 locations within a 3-mile radius." Exhibit D.6, page 1.

"Trips between the main farm and off-site fields range from 1 to 10 round trips or more, and involve tractors, pickups, and our employee farm buses." Exhibit I.31, page 4. Travel between the main farm and off-site work locations takes place multiple times a day and throughout the entire year. He explains that he and the nursery foremen go between sites "multiple times a day to check in with crews, repair equipment, deliver supplies, or for several other reasons." Exhibit I.31, page 3.

Surface testified that tractors are operated on its fields during a normal 8-9 hour workday for less than 4 hours at a time. "Tractors move across the fields through the row, turn around at the end of the row, and travel back to the opposite direction." Exhibit I.31, page 4. Surface Nursery explained that "Tractors and other farm equipment are a part of accepted farm practices and normal farming operation at Surface. When tractor work is being performed, there is typically 1-4 tractors operating in the field." Exhibit I.31, page 3.

Finally, Surface Nursery "exports approximately 95 percent of its products to other states." Exhibit I.31, page 2.

vi. DPM Conclusion

Overall, based on the reasons above and other analysis in the exhibits cited, Mr. Gleason concludes, and I find, that Project DPM emissions will be limited and would not adversely affect natural resources on a short-term, long-term, or cumulative basis.

Additionally, the Project's addition of "significant additional riparian habitat areas around Johnson Creek … will have an enhanced ability to filter pollutants, including DPM's, that are produced from a variety of sources in the area. DPMs and other AQ emissions from the project will not adversely affect aquatic habitat or water quality." Exhibit U.20.a, page 36.

c. Greenhouse Gasses (GHG) and Energy Consumption

Commenters argue that the pre-construction farmland was "a natural carbon sink (when managed sustainably)" meaning that it "absorbs more carbon dioxide (CO_2) than it gives off" and that the replacement of farmland with the project "forces the existing land to switch to a carbon source" instead of a carbon sink, thereby "contributing to climate change." Exhibit N.43, page 28. Commenters relatedly raised concerns that the project will be "incredibly fuel dependent while operating[.]" Exhibit S.2, page 1.

I find that the project will not adversely affect natural resources through climate change or otherwise through GHG emissions or energy consumption.

CO_2 is different from criteria air pollutants discussed above – it is not regulated by EPA or ODEQ, because CO_2 is not an air quality concern. Exhibit S.35, page 2. Instead, CO_2 is a GHG, related to global climate change. *Id.* Based on the expert reports provided by Mr. Gleason, I make the following findings.

First, it is unlikely that the pre-construction agricultural use of the site acted as a carbon sink. The commenter raising this concern indicates that "farmland acts as a carbon sink *(when managed sustainably)*[.]" Exhibit N.43, page 28. The evidence in the record shows that this property was not "managed sustainably." As explained by the applicant's agricultural expert, Mr. Prenguber, the farming at the Filtration Facility site was "intensive" which had "significantly diminished ability to perform carbon sequestration[.]" Exhibit S.36, page 7. Rather than "managed sustainably", the site was organized in long rows of single species that were planted and staked close together to maximize inventory." Exhibit N.56, page 11. "Nursery use of inputs such as farm chemicals, fertilizers, tractors and fuel, and irrigation water are among the highest of all field grown crops." Exhibit U.20.e, page 10.

Additionally, there were existing emission sources at the site (e.g., off-road equipment usage and vehicle trips) that partially or fully offset any carbon sequestration provided by the trees from the site's pre-development use. Exhibit S.35, page 2. Agricultural operations at the site involved CO_2 generating activities, including, but not limited to: tractor operation, worker commutes via bus and passenger vehicles, haul and vendor trucks for material import and goods export, sprayers used to apply fertilizers and chemicals, water conveyance and distribution for irrigation, and other assorted equipment use for tending to the fields. Exhibit S.35, page 3. Many of these pieces of off-road equipment were powered by diesel fuel. On- and off-road vehicles, as well as the imbedded CO_2 emissions in the electricity used to convey and distribute water to the crops, contributed to CO_2 emissions at the site under pre-construction conditions. Exhibit S.35, page 3. Finally, any carbon sequestration value credited to the site under pre-construction conditions would have been attributable to young trees that were planted as seedlings and raised for about three to five years before being harvested. Exhibit S.35, page 3. Young plants grow faster and fix (i.e., sequester) CO_2 more rapidly per unit of biomass compared to more mature trees; however, tree pruning (a standard practice in agricultural operations, particularly for ornamental nursery trees like those raised previously at this site) removes leaf vegetation, which inhibits photosynthesis and reduces the rate of carbon sequestration. Exhibit S.35, page 3. Overall, it is unlikely that the pre-construction agricultural use of the site acted as a carbon sink, particularly because it was not sustainably managed and because the site also generated CO_2 emissions that otherwise partially or fully offset any quantity of CO_2 being sequestered at the site.

Second, the Project has a sustainable design that minimizes CO_2 emissions and energy consumption and decrease reliance on non-renewable sources of energy, consistent with PWB's Net Zero strategy. Exhibit S.35, page 2; Exhibit U.20.F, page 2. For example, one of the considerations that went into the Facility's site selection was that its unique geographic location accommodates untreated water conveyance to the Facility via gravity, instead of pumping the water to the Facility. Exhibit S.35, page 3; Exhibit U.20.F, page 2. Pumping water to the facility would have increased electricity use from the Project under post-development conditions (and generated indirect CO_2 emissions through the pumping's energy consumption). Exhibit S.35, page 3. Additionally, consistent with Strategy 4 of PWB's Net Zero Strategy, the Project would not include natural gas-fired boilers, which would have produced CO2 emissions during fuel combustion. Exhibit S.35, page 3; Exhibit U.20.f, page 2. Instead, the Project has been designed to treat water via mechanical and chemical means, and the machines used during this process would be powered by electricity. Exhibit S.35, page 3. Portland General Electric (PGE), who would supply the electricity for the project, is and will be subject to Oregon legislative and regulatory mandates to reduce GHG emissions associated with that electricity. Exhibit S.35, page 3. For example, House Bill (HB) 2021 "Clean Electricity by 2040" requires PGE to reduce GHG emissions to 80 percent below baseline emissions by 2030, 90 percent by 2035, and 100 percent by 2040. Exhibit S.35, page 3. As opposed to using natural gas, the Project has been designed to use electricity as a fuel source for typical day-to-day

operations, which would allow the Project to benefit from these legislative requirements and reduce the Project's carbon footprint as electricity supplied to the Project becomes cleaner (i.e., less GHG intensive) over time. Exhibit S.35, page 3. Similarly, the Project has been designed to reduce GHG emissions from PWB's vehicle fleet and provides electric vehicle (EV) parking spaces at the Filtration Facility as part of PWB's *Net Zero* Strategy to accommodate the planned electrification of their vehicle fleet. Exhibit S.35, page 4; Exhibit U.20.F, page 2. "PWB is in the process of converting their vehicle fleet to electric vehicles[.]" Exhibit A.4, pages 48-49. Transitioning to electric vehicles will also allow the Project to benefit from the legislative requirements to step down GHG emissions over time and overall will reduce the Project's carbon footprint. Exhibit S.35, page 4. Additionally, the amount of electricity that PWB needs to source from the grid (PGE) will be reduced by installing a rooftop solar array that generates renewable electricity for the administration building and reduces associated GHG emissions. Exhibit S.35, page 4; Exhibit U.20.F, page 2. While energy consumption and GHG emissions associated with electricity are a necessary component of almost every land use development, the Project has been designed in a sustainable manner to reduce energy consumption over the near- and long-term, and the emissions associated with the Project's energy demands would not adversely affect natural resources. Exhibit U.20.F, page 2.

The project will also sequester CO_2, as the Project includes the planting of more than 3,000 trees and establishment of other permanent vegetation, offsetting any CO_2 necessary for the project operations. Exhibit S.35, page 4. That vegetation planted for the project would continue to sequester CO_2 at the site over the life of the project. Exhibit S.35, page 2.

Finally, the effects of global climate change are the result of worldwide GHG emissions. Exhibit S.35, page 4. Individual projects of certain sizes, like the one proposed, do not generate enough GHG emissions to meaningfully influence global climate change or have an adverse effect on natural resources, such as ecosystem resiliency or biodiversity. Exhibit S.35, page 2, 4. This is true regardless of the site's pre- or post-development capacity to act as a carbon sink or source. Exhibit S.35, page 2.

Overall, Mr. Gleason concludes, and I find, that: (1) activities associated with the prior agricultural use either partially or fully offset any carbon sequestration provided at the site through equipment use and other GHG emission sources; (2) the Project's design, consistent with PWB's long-term *Net Zero* strategy, includes numerous sustainability measures that increase the Project's energy efficiency, decrease reliance on non-renewable sources of energy, provides on-site renewable energy generation, and provides EV chargers for electrifying the PWB fleet; and (3) the Project would plant vegetation that reestablishes carbon sequestration at the site under post-development conditions to offset any GHG emissions; and (4) individual projects of certain sizes, like the one proposed, do not generate enough GHG emissions to meaningfully influence or affect global climate change. Therefore, the project would not adversely affect natural resources by emission of GHGs or energy consumption.

Ms. Richter proposes findings that "[w]hether a project will not 'meaningfully affect' climate change is not meeting the strict no adverse effect standard." Exhibit W.3a, page 33. However, I found above that in this context, the phrase "adversely affect" means the Project will cause a change that produces actual harm to natural resources that is more than *de minimis*. A change that is not "meaningful" is not harmful or more than *de minimis*. This standard is met.

i. Microclimate Alteration / "Localized" Impacts

One commenter raised a concern that "[f]orests and agricultural lands may be weakened due to … microclimate alteration" caused by the Project. Exhibit S.11, page 1. It is unclear in what regard the commenter is suggesting that the Project would adversely affect forests or agricultural lands from a microclimate alteration standpoint. As Mr. Gleason explains, and I find: "From a GHG perspective, the Project would not have the capacity to result in any such adverse [microclimate] changes." Exhibit U.20.f, page 6. As I found in the previous section, the effects of global climate change are the result of worldwide GHG emissions. This Project will not generate enough GHG emissions to meaningfully affect or influence global climate change or result in any microclimate alterations that could adversely affect forests, agricultural lands, or any other natural resources. Nor will the Project's GHG (or, for that matter, AQ) emissions separately affect natural resources in an adverse manner. Exhibit U.20.f, page 6.

This same analysis and conclusion addresses "localized" impacts of CO_2 emissions raised in Exhibit U.17. Unlike air quality pollutants that cause local smog or acid rain, CO_2 emissions do not cause local harm but instead contribute to global climate change, with effects distributed worldwide regardless of the source of emissions. Hypothetically, elevated CO_2 levels could even stimulate plant growth in a local area, but such localized biological responses do not change the fundamentally global nature of the problem. This illustrates that CO_2 emissions are a global issue, rather than a local one.

d. Water Treatment Chemicals and Air Quality

Commenters are concerned that "The Plant's operation will introduce chemicals used in water treatment into the air" which will "negatively affect the local flora and fauna," and that the potential for "vaporization into the atmosphere cannot be entirely eliminated[.]" Exhibit N.45, page 3.

This concern was addressed by Mr. Gleason and I agree with his conclusion and find that any Project emissions related to water treatment chemicals would not adversely affect natural resources. First, the chemicals proposed for water filtration activities at the site "are either non-volatile or have very low volatility, meaning that they would not readily vaporize as suggested by the commenter" in Exhibit N.45. Exhibit S.35, page 6. Furthermore, as more thoroughly explained in Section IX.D, "these water treatment chemicals would be contained within storage vessels, pipelines, and machinery at the Facility meeting industry best practice standards. The chemicals would not be openly stored in an outdoor environment, which dramatically minimizes their capacity to become airborne through other, non-vaporization means." Exhibit S.35, page 6. ESA's Operational AQ Analysis (Exhibit N.61) included fugitive dust emissions from dry chemical transfer (a different physical process than vaporization) in its overall analysis of the potential for AQ emissions from the project to adversely affect natural resources, shown in Table 1 from Exhibit N.61 above. Overall, Mr. Gleason concludes, and I find, that the Project would not vaporize water treatment chemicals, nor would AQ emissions from water treatment chemicals through any physical process adversely affect natural resources. Exhibit S.35, page 6.

One commenter had specific concerns about the use of ozone (O_3) as part of the Project. Exhibit S.16, page 2. Ozonation as a water treatment process at the Filtration Facility is no longer part of the baseline Project, but the Filtration Facility has been designed to accommodate O3 treatment as part of a future enhancement or expansion and so it is being considered in this land use review. Exhibit U.20.f, page 8. As Mr. Gleason explains, and I find, "[a]ny ozonation system installed as part of future activities would be subject to environmental laws at the time that it is proposed and equipped with sensors and

automatic shut offs that prevent O_3 from being directly emitted into the atmosphere by the Project. … Ozone injection contemplated as a future water treatment process would occur within a sealed concrete basin, kept under negative pressure to prevent gas in the headspace from escaping, and converted to molecular oxygen (O_2) via a catalyst prior to atmospheric discharge[.]" Exhibit U.20.f, page 8. The Project will not emit O_3 and therefore any O_3 used at the Filtration Facility in a future enhancement or expansion will not adversely affect natural resources, nor generate odors from O_3, another of the Exhibit S.16 commenter's concerns.

D. Chemical Use in Operation of Filtration Facility

Commenters in the record expressed concerns about the use of chemicals during operation of the Filtration Facility. For example, in Exhibit N.4 (Susan & John Swinford), they are concerned that: "Water treatment processes often involve the use of chemicals such as chlorine and coagulants, which, if improperly managed, could affect groundwater and soil quality." *See also* Exhibit S.15, pages 1-2 ("contaminants can seep into the aquifer and affect the quality of water in springs and surrounding ecosystems"). Ms. Swinford repeated this concern in Exhibit S.10, explaining further that "Filtration plants routinely use toxic chemicals (e.g. chlorine, coagulants, fluorosilicic acid,[80] ammonia). Any routine release or spill risks contamination of adjacent waterways and wetlands." In Exhibit N.33 (Courter), the commentor is similarly concerned that "When construction is completed and the plant is up and running there will be chemicals on site that could end up in that same overflow water" (intending to reference the water going to the flow spreader above Johnson Creek, incorrectly referencing the overflow basin waters, as explained in Section VIII.C.2.c.vi.

1. Expert Testimony

This topic has been evaluated from different angles by multiple experts on the applicant team. I find each author of the reports referenced in this section to be qualified to provide expert testimony in their field.

No opponent has purported to provide expert testimony on this topic nor provided evidence that they are qualified by education or experience to render an expert opinion on this topic.

2. Facts and Conclusions

First, the Water Bureau has a *long* history – more than 95 years – of safely handling water treatment process chemicals. Exhibit U.20.h, page 2. The Water Bureau is charged with delivering clean, safe, and reliable water to nearly 1 million people. To complete that mission and comply with federal and state drinking water regulations, it is necessary to treat the water that comes from the Bull Run Reservoirs with chemicals that provide disinfection and corrosion control. That is a job that the Water Bureau has been doing in east Multnomah County for decades – first at the Headworks Facility at the Bull Run reservoirs and, since 1992, at the Lusted Hill Treatment Facility located approximately a half a mile from

[80] "The comment inaccurately states that the Filtration Facility will use fluorosilicic acid – PWB has no plans to add this, or any other fluoridation chemical, at the Facility." Exhibit U.20.h, page 2.

the proposed Filtration Facility. Exhibit L.1, page 200. "Portland began adding chlorine to Bull Run water in 1929 to disinfect against waterborne bacteria and viruses, and ammonia in 1957 to help the disinfectant last. Corrosion control treatment was added using sodium hydroxide in 1997 and now soda ash and carbon dioxide since 2022 to adapt to changing science and regulations to further reduce lead leaching from some home plumbing." Exhibit I.74, pg. 1, The Headworks facility currently uses gaseous chlorine for disinfection and has safely done so for more than 95 years. Exhibit L.1, page 200.

Second, the Water Bureau will employ best management practices to ensure the safe storage and handling of chemicals used at the Filtration Facility, which will allow the Water Bureau to avoid adverse impacts on natural resources from treatment chemicals. Exhibit U.20.h, page 2. As described in Exhibit I.87 (Supplemental Information about Chemical Safety), the Filtration Facility will have multiple engineered safety features, including physical separation of chemicals, monitoring and alarm systems, and secondary containment for chemical transfer and storage areas. The chemicals to be used at the Filtration Facility are identified in the facility Hazard Materials Management Plan (HMMP) which is in the record as Exhibit I.59.[81] The HMMP was subject to public scrutiny during the 2023 land use proceedings as well as a detailed, third-party review by an expert, Performance Based Fire Protection Engineering. Exhibit I.91, Appendix D (Fire Safety Report). Feedback from the public and the expert were incorporated into the revised HMMP at Exhibit I.59.[82] The HMMP includes a Hazardous Materials Operation Plan that identifies: (1) the hazardous material storage areas and compliance with separation and containment; (2) details regarding the facility design and protocols to be used during chemical deliveries to minimize the risk of spills and safely contain and clean spills if they were to occur; (3) description of the chemical storage areas and the containment and piping features to prevent chemical release; and (4) special safety features and standards related to the facility's ozone system. Exhibit I.59, pgs. 5-11. The HMMP also includes a Hazardous Materials Emergency Response Plan that details recordkeeping requirements, including routine inspections, as well as operator requirements during or following an emergency. Exhibit I.59, pgs. 11 – 13. The HMMP complies with the International Building Code (IBC) and the International Fire Code (IFC). Exhibit I.58. Compliance with the HMMP is required by a condition of approval in the 2023 HO Decision, page 84.

Third, there will not be any "routine release" or "typical … discharges" of treatment chemicals from the Filtration Facility as stated by Ms. Swinford in Exhibit S.10, pages 1-2. Exhibit U.20.h, page 2. The Filtration Facility will be a "zero liquid discharge facility, meaning that no process water (be it untreated Bull Run water, finished water after processing or liquid wastes) will be discharged to Johnson Creek. Overflow basins are on site to contain process water when operational conditions warrant diversion from the main treatment process. Water sent to the overflow basins is then processed back through the

[81] Mr. Ciecko provided testimony that indicates that Carollo, the company that was involved in preparation of the HMMP, was named in a lawsuit related to an accident at a water treatment plant. Exhibit E.9, pg. 26 (Ciecko). As explained in a response from legal counsel for Carollo, Carollo was dismissed from the insurance carrier generated lawsuit without any payment or settlement. Exhibit J.78.

[82] The Fire Safety Report noted that four of the materials identified in the original HMMP as corrosive do not meet the definition of corrosive under the Oregon Structural Specialty Code definition and can be downgraded to irritants (a non-regulated category). I.91, pg. 6 (Fire Safety Report). The Water Bureau elected to leave the conservative classifications in place in the HMIS as an additional safety measure.

facility." Exhibit U.20.a, page 7. Any leaks or overflows are contained within the closed-loop process. Exhibit U.20.h, page 2.

Fourth, the design and operations plan for the Filtration Facility prioritize safety and implement industry best practices in the handling of treatment chemicals, which will allow the Water Bureau to avoid adverse impacts on natural resources from treatment chemicals. Exhibit U.20.h, page 2. "The design of chemical delivery, storage and dosing systems follows IBC building codes, NFPA fire codes, and industry best practices. Throughout the design process, consultant and PWB staff engaged in focused efforts on improving the safety of construction, operations and maintenance, using safety as a primary criterion in decision-making processes. These efforts included formal Hazard and Operability (HAZOP) review workshops with PWB operations and safety staff following Occupational Safety Health Administration (OSHA) guidelines for process safety management." Exhibit H.3, Attachment 7, pg. 2 (Protection Strategy). "Chemical deliveries to the site will follow routes through the site which do not require trucks to back up. Separate delivery zones are provided for acidic and basic chemicals to reduce the risk that chemicals that react with each other could come into contact. Loading areas are covered and are provided with separate catchment and containment areas. Within the Chemical Building, six separate containment areas are provided for chemical storage tanks and feed equipment. These containment areas are designed to hold the volume of the single largest tank in the containment area plus twenty minutes of sprinkler flow, while allowing two inches of freeboard." Exhibit H.3, Attachment 7, pg. 2 (Protection Strategy). Redundant safety features have been included in the design of (1) the unloading bays at the chemical building and ozone generation building, (2) the chemical storage area, and (3) the chemical pipes. Exhibit I.59, pgs. 7-8 (Revised HMMP). The HMMP also describes the monitoring protocol and frequencies for each of the hazardous materials used at the site, which include, but are not limited to visual inspections, alarms, concertation sensors, and containment sumps. Exhibit I.59, Table 2 (Revised HMMP).

Fifth, the Water Bureau's highly trained and dedicated facility operators will handle treatment chemicals at the Filtration Facility to avoid adverse impacts on natural resources. Exhibit U.20.h, page 2. Portland Water Bureau facilities are staffed by highly trained and dedicated facility operators.[83] "Water Bureau operators are trained to use safety procedures, engineering controls, and personal protective measures to minimize risk of any incident requiring emergency response. These measures include standard safety and emergency response training in First Aid, Incident Command System, confined space entry, and Hazardous Waste Operations and Emergency Response (HAZWOPER)." Exhibit I.74, pg. 4 (Operation Supplement). "As part of current Water Bureau practices, operators take a 24-hour OSHA HAZWOPER training when hired and then an 8-hour refresher course annually. Operators receive training at the HAZWOPER "technician" level which prepares individuals to respond to releases or potential releases for the purpose of stopping the release. The courses include exercises based on potential realistic scenarios that could be encountered at the facility." Exhibit I.74, pg. 4 (Operation Supplement).

[83] The General Manager of West Slope Water District, Mike Grimm, testified at the 2023 hearing that water treatment plant operators are highly trained water professionals, and further stating that, "in addition to their knowledge of water treatment and water treatment processes, treatment plant engineers are designed to be trained in emergency response management, plant mechanics, and critical thinking." Mike Grimm, 2023 Hearing Testimony at 1:05:50. Mr. Grimm further indicated that "water treatment operators take safety and following standard operating procedures very seriously, and they regularly conduct drills and tabletop exercises to test their knowledge and response." *Id.*

Sixth, the Water Bureau will provide for safe transportation of treatment chemicals and will avoid adverse impacts to natural resources from transportation of chemicals by implementing industry best practices. Exhibit U.20.h, page 2. The "filtration facility will see a maximum of 16 chemical delivery trucks entering and exiting the site during a 5-day work week." Exhibit A.31 (Project TIA). "Trucks transporting chemicals to the filtration facility will be subject to applicable DOT, ODOT, Pipeline and Hazardous Materials Safety Administration, U.S. Environmental Protection Agency, Federal Motor Carriers Safety Administration, and other federal, state, and local codes and regulations for safe transportation of chemical products. Chemical delivery truck drivers are trained and follow strict industry standards to ensure safe and effective transfer of chemical year-round. In addition, the Water Bureau's typical chemical vendor contracts include site-specific driver safety training requirements related to safe handling, delivery, unloading operations, and spill prevention." Exhibit I.74, pg. 2 (Operation Supplement). The Water Bureau has policies and procedures in place to ensure compliance with the state and federal requirements.[84] "Certified operators will manage scheduled deliveries and onsite storage of treatment chemicals needed for filtration facility operation. Operators use industry standards and best practices to optimize treatment for seasonal changes in water quality and water demands as well as adjust to external factors such as supply chain considerations or inclement weather that may affect deliveries to the facility." Exhibit I.74, pg. 3 (Operation Supplement).

Information about all of these protections has been provided in the record, particularly in:

- Exhibit H.3 - Attachment 7, pg. 2 (Protection Strategy)
- Exhibit I.58 - Supplemental Information re: HMMP (supersedes E.6)
- Exhibit I.59 - Hazardous Material Management Plan
- Exhibit I.74 - Operation Supplement
- Exhibit I.87 - Supplemental Information about Chemical Safety

These documents demonstrate that PWB will safely store and handle hazardous materials and other materials that may impact natural resources.

Notably, the "prior use of the site carried the same risks of spills (pesticides, herbicides, diesel fuel, etc.), likely with far less secure and safe storage practices." Exhibit U.20.a, page 6.

Given that information in the record, and given that the County has already concluded (and no one appealed LUBA's affirmance of that conclusion) that the chemical use "will not create hazardous conditions" because of all of those factors, I find that the use of chemicals for the Filtration Facility's water treatment will not adversely affect natural resources.

E. Aesthetics

1. Aesthetics Are Not Independent Natural Resources

Ms. Richter proposes findings on "Aesthetic Scenic and Landscape Resources" without any explanation of how she concluded that these were a category of "natural resources" within the scope of MCC

[84] Note this is the exact finding the County made in the Lusted Hill expansion approval for a similar set of chemicals. Exhibit I.72 (Lusted Hill Decision)

39.7515(B). Exhibit W.3a, page 28. As explained above, Ms. Richter's more general *PGE/Gaines* interpretation of the words "natural resources" relies on flawed procedures. She concludes that "it is the dictionary definitions, coupled with the glossary definition, that control" the meaning of "natural resources". Exhibit W.3a, page 7.

However, rather than evaluate the dictionary definition of "natural," the word used in the MCC 39.7515(B), she provides the dictionary definition for the word "nature," a word not found in the MCC 39.7515(B). Ms. Richter also provides the definition for "resources" as **"**available means (as of a country or business) **:** computable wealth (as in money, property, products) **:** immediate and possible sources of revenue."

Ms. Richter concludes that, taken together, "natural resources" are "those living and non-living things that exist in their created form without influence or creation by humans that produce some value." It is unclear how Ms. Richter made the leap to that summarized definition from the definitions she cites. She leaps from "computable wealth" or "sources of revenue" to the far broader term "some value" and, in the next sentence, "serve an economic or aesthetic purpose." Exhibit W.3a, page 5. Although Ms. Richter had indicated that the 2016 MCCP glossary definition should be "coupled with" the dictionary definition, she does not explain how aesthetics are a "functioning natural system" or even "capable of being used for some purpose". Ms. Richter advances no contextual argument to support her claim that natural resources includes "Aesthetic Scenic and Landscape Resources". I find no support, from Ms. Richter's offered interpretation or otherwise, to conclude that the plain meaning of "natural resources" includes "Aesthetic Scenic and Landscape Resources."

While aesthetics play an important role in how people experience and value a place, they are not, in and of themselves, "natural resources." Aesthetics are subjective perceptions shaped by individual values, cultural context, and personal experience. For example, Ms. Richter states "Residents testified enjoying regularly seeing … h[e]rds of elk[.]" Exhibit W.3a, page 28. That may be true, but there is also evidence in the record that farmers actively drive away elk, to the extreme that elk are sometimes hunted and killed by area farmers. Exhibit S.36, page 2. Whose values and cultural context win to define the "aesthetic resource" of the elk, the rural residential homeowners or the farmers?

Although scenic beauty can enhance the enjoyment of natural resources and may be a factor in land use decisions – and indeed was the basis of the design review decisions approving the Project -- it is not a resource that can be quantified, extracted, or conserved in the same way as water or habitat. Treating aesthetics as a "natural resource" risks conflating emotional or cultural responses with physical environmental features.

This problematic subjectivity is reflected in Ms. Richter's introduction paragraph:

> "These resources refer to the features of an environment that contribute to its visual and sensory appeal. These resources **shape how people perceive and experience** a place, particularly in terms of beauty, tranquility and harmony. Aesthetic resources identified in this case include scenic views, landscape patterns, vegetation, wildlife and birds, and the quality of light and sound in the area. The visual and sensory quality enjoyed by people are a natural resource because **they are experienced consequences created by nature often communicated as enjoyment, invigoration, joy and wonder**."

Again, there is no debate that scenic beauty can enhance someone's enjoyment of natural resources ("experienced consequences" or "how people perceive and experience a place" in Ms. Richter's words). But whether or not the natural resources bring "enjoyment, invigoration, joy and wonder" does not make those emotions into a natural resource.

Importantly, rejecting aesthetics as an independent, separate natural resource is consistent with the 1977 Comp. Plan context for interpreting MCC 39.7515(B). In the Natural Resources Policy (Policy 16), the 1977 Comp. Plan states: "The **benefits** gained by the preservation of wildlife habitat range from **aesthetic enhancement** of the landscape to improvement of community health." Page 225. That is, aesthetic value is a benefit derived from the conservation of natural resources, not a resource itself. The distinction is meaningful: natural resources are physical, ecological components of the environment that can be identified, mapped, and managed — such as wetlands, habitat areas, and mineral and aggregate sources. Aesthetics, by contrast, are the result of human interaction with the environment, not the environment itself.

As noted above in Section IV.D.7, defining "natural resources", the SEC overlay designation is what the 1977 Board had in mind to protect "F. Scenic Value, e.g., areas valued for the aesthetic appearance". The 1977 Board directed that the Zoning Article include an overlay zone for protecting aesthetic resources areas. Exhibit S.7, pages 222-223.

Moreover, the next page after Policy 16 in the 1977 Comp. Plan[85] is the "Community Development and Design Process Policies" which are "concerned with … aesthetic quality[.]" Page 227. The Community Development and Design Process Policies provide much more detailed standards by which something as subjective as aesthetics can be judged, such as having a "district identity." Page 227. At least in those specific contexts, there is something to compare to (for example, looking at the current objective characteristics of a district).

Indeed, in the 2023 process, the Project has already been judged against aesthetic tests analogous to district identity. Immediately prior to the language of MCC 39.7515(B) – both in 1977 and today – is the subsection (A) requirement that the Project show that it will be "consistent with the character of the area." The former Hearings Officer found, and LUBA upheld and no opponent appealed, that the Project is consistent with the character of the area, including in the "visual and sensory quality" that Ms. Richter would like to reopen now as an aesthetic natural resource. The fact that the objections Ms. Richter raises have already been resolved through the 2023 process are apparent from her proposed finding that "After development, Carpenter Lane will have lost its serene and pastoral character resulting in an adverse impact." Exhibit W.3a, page 30. The "character" of Carpenter Lane, and the Project's impact on it, have already been resolved by the final determination that the Project meets MCC 39.7515(A). The Project also went through the County design review process (analogous to the Design Process from 1977) and has obtained design review permits that no one challenged at LUBA.

[85] I also find that the comprehensive plan policies in Exhibit V.2 are not context for interpreting the 1977 drafters intent, nor is there any Baker conflict between my analysis here and those provisions or policies of the 2016 MCCP because the 2016 MCCP protects scenic and aesthetic resources using different tools (that is, other than MCC 39.7515(B)), such as an overlay zone that specifically protects viewsheds.

Overall, I find that aesthetics and scenic value are not independent "natural resources" under MCC 39.7515(B). Instead, they are one of the reasons we should value natural resources, and indeed they were one of the reasons the 1977 Board in drafting MCC 39.7515(B) valued natural resources.

In case a reviewing court disagrees, in the alternative I provide the following findings.

2. The Project Will Not Adversely Affect Aesthetic Natural Resources

The Project was designed to (and found by the prior Hearings Officer in the 2023 HO Decision to) relate harmoniously to the natural environment and existing buildings and structures having a visual relationship with the site as presented in Exhibit A.5 (Bull Run Filtration Projects Land Use Applications) in meeting the approved MCC 39.8040 Design Review Criteria:

> *(A) Approval of a final design review plan shall be based on the following criteria:*
>
> *1. Relation of Design Review Plan Elements to Environment.*
>
> *a. The elements of the design review plan shall relate harmoniously to the natural environment and existing buildings and structures having a visual relationship with the site.*

It has been "dispositively resolved on the merits"[86] in the prior proceeding that the Project will "relate harmoniously to the natural environment and existing buildings and structures having a visual relationship with the site[.]" I find that the facts and analysis that underly that prior determinations for the Project on design review also provide clear and sufficient evidence to support my finding that the Project will not adversely affect aesthetic natural resources. It would be odd if the facts and analysis that underly that prior determination did not provide evidence of compliance with MCC 39.7515(B), as it would be difficult to find that the Project simultaneously "relate[s] harmoniously to the natural environment …. having a visual relationship with the" Project and to also "adversely affect" the same thing it relates to harmoniously.

I fully incorporate into this decision, as findings of the County, (1) all of Exhibit A.5 (Filtration Facility Design Review), (2) Exhibit A.4, pages 53-65 (Character of the Area Visual Compatibility), and (3) all of Exhibit A.9 (Pipelines Design Review).

Nevertheless, I summarize here the evidence in the record that supporting my finding that the project will not adversely affect aesthetic natural resources.

a. Filtration Facility Site

The Filtration Facility will be located on a low portion of the site and will be screened by berms, trees, and shrubs. Exhibit A.4, page 67. The Buildings will be less than 35 feet tall, with heights typical of existing two-story homes and nursery buildings in the Project area. Exhibit A.4, page 67. The occupied and most visible buildings will have an off-set gable design, painted a dark blue color (recommended by the Columbia Gorge Commission regulations) to blend in with surrounding homes, farms, and forested areas in the viewshed. Exhibit A.4, page 67. Low-profile utilitarian structures will be screened from off-site views by landforms (especially perimeter berms), trees, and shrubs. Exhibit A.4, page 67. Chemical

[86] *Schatz v. City of Jacksonville*, 113 Or App 675, 680, 835 P2d 923 (1992).

silos will be painted beige green to blend in with the surrounding forested and agricultural landscape. Exhibit A.4, page 67.

The Filtration Facility "blends in with the existing natural environment and rolling hills landscape. The filtration facility layout is clustered on the northwestern portion of the site, stepping down with the natural site contours to the west and south. Many of the filtration facility structures, particularly the process facility structures and treatment basins, are set below or partially below ground to maximize these natural grades and for the gravity flow of the system. For example, the main process train has been combined for site and functional optimization, reducing the overall site impact with the top of basins equal to the grade of the primary site and buildings. The contact time and clearwell basins are completely below ground, with a vegetated roof over them, reducing the visibility of these facilities." Exhibit A.5, page 10.

"The compact filtration facility layout provides wide setbacks of 130 feet or more from neighboring properties and from Carpenter Lane. These wide buffers include dense vegetation and landforms that combine to visually screen filtration facility buildings and functions from surrounding properties." Exhibit A.5, page 11.

Conceptual views from surrounding properties and Bluff Road are shown in Figures 17-20 from Exhibit A.5, inserted below. Note that these visualizations do not include the extensive habitat areas that have been added to the Project during this remand procedure, which would only provide additional screening and buffering and aesthetic value.

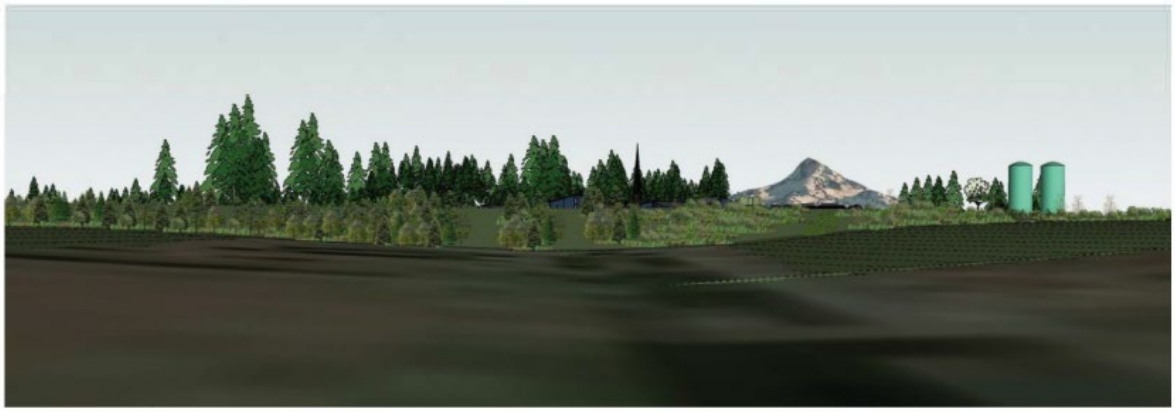


Figure 17. View Looking East Across Filtration Facility from Adjacent Property (Mount Hood placement approximated)

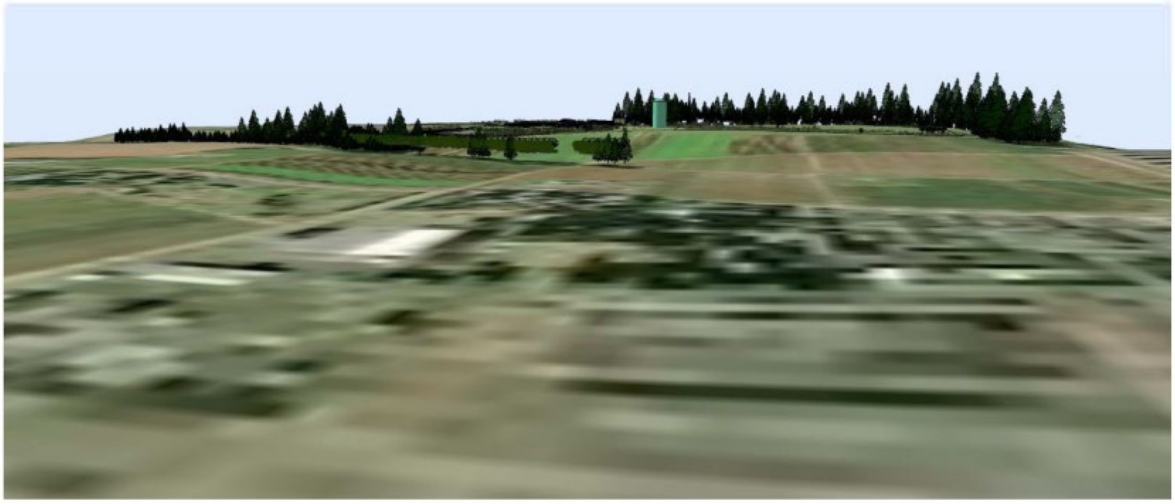


Figure 18. View Looking North Toward Filtration Facility from Bluff Road

Figure 19. Proposed Entrance to Filtration Facility from Carpenter Lane

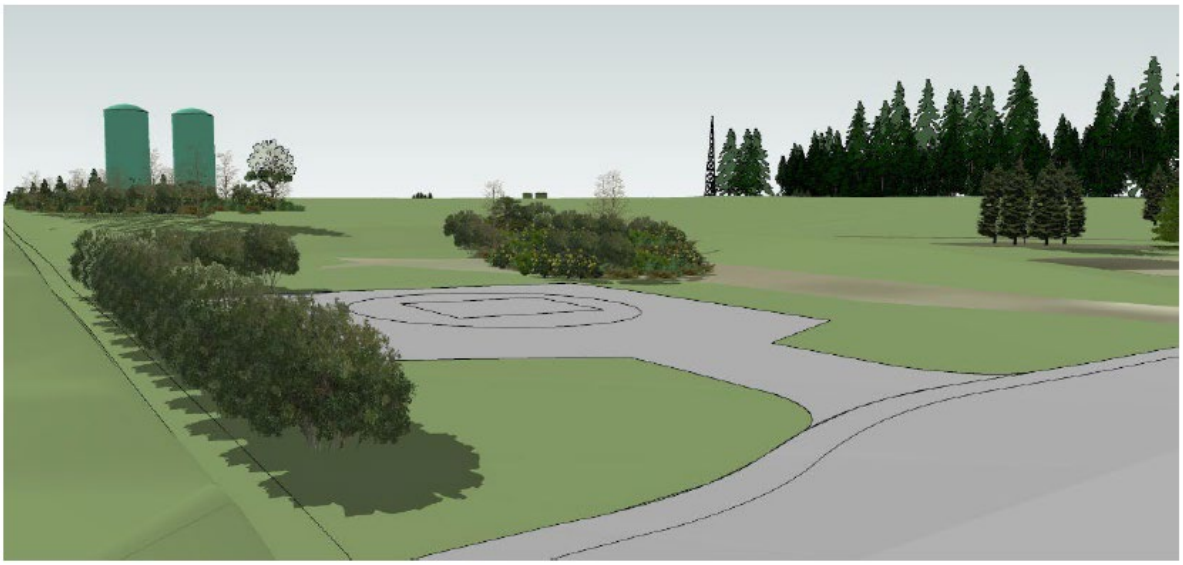


Figure 20. View Looking West across Filtration Facility from SE Corner, Showing Pipeline Access Vault in Grey

"In each of the views looking toward the filtration facility site above, the most visually prominent feature in the landscape is the pair of existing green PHWD tanks, which are adjacent and located to the south of the filtration facility property. … As the views in Figures 17-20 illustrate, the Filtration facility is a lower profile utility facility with more effective screening and buffering than the existing water tanks." Exhibit A.5, page 12.

Overall, I find that the Filtration Facility will not adversely affect aesthetic natural resources.

b. Intertie and Pipelines

The Pipelines will be buried underground. Exhibit A.9, page 1. The subsurface elements of the Pipelines are not visible and therefore do not have any interaction with aesthetic natural resources. The Intertie includes an above-ground electrical building and the Pipelines include appurtenances such as air vents located at intervals along the Pipelines. Exhibit A.9, page 1. Notably, these above ground features are all typical of the existing aesthetics of the area. The Water Bureau's existing facilities in the Project area include three large-diameter water conduits, with appurtenances and interties, that have become part of the aesthetic natural resources of the area. Exhibit A.9, page 1.

The Intertie is designed as a below-grade concrete vault that connects pipelines with valves and interconnections and has a small above-ground electrical building. Exhibit A.9, page 2. Views of the proposed Intertie will primarily be trees, with occasional glimpses of the electrical building if driving down Lusted Road from the west. Overall the site is designed to be low profile, with most facilities set below ground, and substantial landscaping to screen the building from view. Exhibit A.9, page 2. The electrical building is designed with a gable roof to visually complement neighboring residential and agrarian buildings. Exhibit A.9, page 6. The noticeable aesthetic natural resources in the area are tree farms and trees. The Intertie site provides tree buffering to be consistent with, and not adversely affect, these aesthetic natural resources. Exhibit A.9, page 7.

Figure 9. Rendering of View Looking East along Lusted Road

Figure 10. Rendering of View from Lusted Road

Figure 11. Rendering of View South along Existing Driveway

Figure 12. Rendering of View West along Lusted Road

Exhibit A.9, page 8.

The Pipelines appurtenances include air valves, drains, and access ways that function and look like existing Water Bureau infrastructure in the Project area. They will be located at-grade or low to the ground along the Pipelines alignment. Exhibit A.9, page 8.

Figure 13. Existing Drain in Lusted Road ROW

Figure 14. Example of Existing Air Vent and Access Vault (left) within Lusted Road ROW

Exhibit A.9, page 8.

Neither the Pipelines nor the Intertie will adversely affect aesthetic natural resources.

c. Noise

Nor will the Filtration Facility adversely affect acoustic aesthetics in the area. The Filtration Facility was carefully designed to mitigate noise generation through screening, topography, and structural buffering. The same is true of the Pipelines and Intertie. Exhibit A.65 Acoustical Analysis Finish Water Intertie. The Filtration Facility Exterior Noise Analysis (Exhibit A.49) was prepared by acoustical engineers at the Greenbusch Group, and "evaluated the highest noise levels generated by simultaneous operation of all equipment, including those with intermittent operation." Exhibit J.69, page 1. This evaluation was a worst-case scenario including emergency equipment operation. In reality, the "loudest equipment at the Facility is used only intermittently" and the emergency equipment is only operated for periodic testing, other than in an actual emergency. But, even in an emergency, and even with all the intermittent equipment operating simultaneously, "noise levels at the facility property line during operation will be within or below the range of current ambient sounds levels, and the type of noise generated by the facility will be similar to noises currently existing within the study area". Exhibit J.69, page 2. I fully incorporate into this decision, as findings of the County, Exhibit L.1, pages 66 (starting at "3. Project Noise Will Be "below measurements of ambient noise" and Confirmed With a Condition") and continuing through page 71 ("Overall, the filtration facility and site have been carefully designed to not create noise above ambient levels and will have no noise impact on the character of the area.").

Based on all of that evidence, I find that the Project will not adversely affect acoustic aesthetics in the area.

d. Light

Nor will the Project adversely affect dark skies or lighting aesthetics in the area. Unlike area lighting that is often unshielded, the proposed lighting will not extend beyond Filtration Facility site boundaries and will have no impact on surrounding uses or dark skies. The Filtration Facility is purposefully located in a lower elevation portion of the site and buffered by landscaping, and all Filtration Facility lighting is shielded. Facility lighting was carefully designed to not extend beyond the boundary of the site (Exhibit A.47, pages 2-3, Attachment B); nor will it travel upward and add to existing area light pollution (Exhibit J.70, page 5). I fully incorporate into this decision, as findings of the County, Exhibit L.1, pages 71 (starting at "4. Project Lighting Will Not Extend Beyond Site Boundaries or Impact Dark Skies") and continuing through the end of page 84 ("The Water Bureau has no concerns with this condition of approval."). Based on all of that evidence, I find that the Project will not adversely affect acoustic aesthetics in the area.

e. Wildlife

As explained in Section XI, wildlife that may have been displaced by construction will return to the area and be supported by the Project's extensive habitat enhancement. Therefore, I do not find that the Project will adversely affect aesthetic natural resources related to the sounds and sights and other joys of wildlife in the area, including elk, bobcats, cougars, owls, beavers, eagles, hawks, deer, coyote mentioned by Ms. Richter.

f. Air

Mr. Swinford asserted that the "filtration facility … would result in dust [and?] visual degradation[.]" Exhibit S.11, page 1. To the extent that the dust and visual degradation are held to be linked in that comment, the applicant's air expert explained, and I now find that, as to air quality: "the Secondary

NAAQS also protect against decreased visibility, thereby addressing the commenter's visual degradation and scenic value concerns from an AQ perspective (EPA, 2017). Accordingly, the Project would not result in visual degradation or adversely affect natural resources with regard to scenic value, nearby forests, or agricultural lands." Exhibit U.20, page 6.

g. Scenic Byway

Opponents are particularly concerned that a one-mile stretch of Dodge Park Blvd. has been aesthetically adversely affected by the removal of the hedgerow. Exhibit W.3a, page 29. However, I find that the replacement shrubs will not be different than right-of-way shoulder areas along much of area roads, which include extensive areas without trees. Accordingly, I find that any adverse effect on aesthetic natural resources from removal of trees or other vegetation from right of way areas is therefore below the *de minimus* threshold and does not violate MCC 39.7515(B). I additionally fully incorporate into this decision, as findings of the County, Exhibit U.20.i (Response to Comments Regarding Scenic Byway). I additionally find that trees and vegetation in the right of way – because it is an area specifically designated for the public use, including for utility facilities like the Pipelines – are not aesthetic natural resources to be protected under MCC 39.7515(B).

h. Conclusion

Overall, for the reasons set forth above, I conclude that the Project will not adversely affect aesthetic natural resources.

X. Construction Activities & Effects

I find that concerns and facts addressed in this Section X are related to construction activities or the impacts of construction activities – which I find, and LUBA has held, as explained above in Section IV.C, are outside the scope of the "use" subject to MCC 39.7515(B) and therefore outside the scope of this proceeding. In addition to this Section X, a summary of construction activities is provided in Exhibit H.3, Attachment 4.

Nevertheless, there is extensive evidence in the record related to construction activities and impacts of construction activities, and I endeavor to set forth here what I find to be true, in case there is any question by a reviewing court or by the parties in the future whether I found a certain activity to be construction (and not subject to MCC 39.7515(B)) or the "use" subject to MCC 39.7515(B). Additionally, and in the alternative, for the reasons that follow and particularly because of their inherently temporary nature as construction activities, I find that the construction activities and associated effects are not "adverse" within the meaning of "adversely affect" in MCC 39.7515(B) intended by the drafters.

From Project inception, the Water Bureau has been working to put safety first, both for the community and workers, and to limit community disruption during construction. These extensive efforts include robust and ongoing community outreach, honoring commitments in

the Good Neighbor Agreement,[87] identifying planned pipeline routes with community input, early engagement of consultants to inform practices to reduce disruptions, such as to agricultural users of surrounding lands, and extensive traffic analyses.

As documented below, the Water Bureau has worked diligently to address all construction-related concerns, both from the community directly and raised in this record. We are not aware of any project in Multnomah County (or elsewhere) that has prepared this extent of documentation and planning related to temporary construction activities during a land use review, and we hope that the efforts to directly address community concerns in this public forum evidence the Water Bureau's commitment to limiting community disruption as much as possible during construction.

A. Construction Water Management

1. Regulation of Construction Water Quality and Erosion Control

The Water Bureau must obtain two necessary permits for ground disturbing activities during construction. First, the Project has obtained an NPDES Construction Discharge Stormwater Permit 1200-CA permit from DEQ. Second, the Water Bureau has also obtained an Erosion and Sediment Control (ESC) Permit from Multnomah County. Exhibit U.20.d, Attachment A, Exhibit E. These permits both provide agency and County review of construction plans and practices in order to maintain water quality and prevent erosion.

DEQ issued a 1200-CA coverage letter for the Project on June 14, 2023. Exhibit I.99. The permit has detailed requirements and standards for construction. Among other things, the 1200-CA permit requires:

- Implementation of any sediment controls prior to construction activities in that portion of the site. (Section 13.1.3)
- Management strategies throughout the project to meet and match the needs of each phase of construction. (Section 13.1.3)
- Protection of riparian areas, vegetation, trees and associated root zones, and vegetated buffer zones. (Section 13.2.1)
- Prevent soil compaction. (Section 13.2.12)
- Control all stormwater discharges, including peak flowrates and total stormwater volume to prevent channel and streambank erosion. (Section 13.2.16)
- Implement pollution prevention controls. (Section 13.3)
- Control discharges to meet all applicable water quality standards. (Section 14.1)

[87] Opponents point out that the neighbors who had collaborated on drafting the Good Neighbor Agreement and giving feedback on ways to limit community disruption refused to sign the document, as, they argue, the project should just be moved somewhere not in their neighborhood. Regardless, the Water Bureau has and will honor its commitments made under the document and in that public process. Additional information about the extensive public engagement and the text of the Good Neighbor commitments is summarized in Exhibit A.27 and Exhibit A.29.

To show compliance with these requirements, an applicant submits an Erosion and Sediment Control Plan (ESCP) that must meet the three objectives: (1) implementation of best management practices (BMPs) in accordance with appropriate, recognized, and generally accepted engineering practices to prevent erosion and sedimentation, and to identify, reduce, eliminate, or prevent contamination of stormwater and water pollution from construction activities; (2) preventing violations of water quality standards and meet technology based effluent limitations; and (3) controlling peak flow rates and velocities of stormwater. (Section 15.2). The site must be monitored by a certified professional to ensure stormwater controls are properly installed, check for visible erosion and sedimentation, and complete any necessary maintenance, corrective actions, or stabilization measures. (Section 17.4). An extensive list of monitoring requirements is provided in Section 17.6.

The Multnomah County ESC permit requirements mirror many of the 1200-CA permit requirements. Notably, the Multnomah County ESC permit requires:

- Stormwater drainage control measurements are designed to perform as described in the most recent edition of the City of Portland Erosion and Sediment Control Manual and the City of Portland Stormwater Management Manual. MCC 39.6225(7).
- Ground disturbing activity shall be done in a manner which will minimize soil erosion, stabilize the soil as quickly as practicable, and expose the smallest practical area at any one time during construction. MCC 39.6225(8).
- Whenever feasible, natural vegetation shall be retained, protected, and supplemented. MCC 39.6225(11).
- Disposed spoil material or stockpiled topsoil shall be prevented from eroding into water bodies by applying mulch or other protective covering; or by location at a sufficient distance from water bodies or by other sediment reduction measures. MCC 39.6225(19).

ESCP plan sheets for both the filtration facility and the pipelines were submitted into the record during the 2023 proceedings of this matter. Exhibits 100, 101, and 102. Those plans were approved and the ESC Permit approval is provided in Exhibit U.20.d., Attachment A, Exhibit E.

In the 2023 proceedings in this case, these requirements were memorialized in a condition of approval that requires the Water Bureau to obtain any necessary permits from DEQ and from Multnomah County (the ESC Permit) prior to ground disturbing activities. This includes all DEQ stormwater permits identified under the 1200-CA and an ESCP for the entire Project.

2. Runoff From Intertie Site During Construction

Commenters express concern about adverse impacts to Beaver Creek related to construction activities such as the Intertie site being "packed and graveled, so it is no longer permeable" and "muddy water running off [the Intertie] site and down the road into Beaver Creek." Exhibit N.10 (Meacham), page 2. Similarly, another commenter provided testimony that "several field tile lines are directing runoff into Beaver Creek, located across from the Lusted Road Pipeline intertie. This runoff has resulted in increased silt downstream, clogging culverts and clouding the streams and adjacent ponds." Exhibit N.41, page 1; *see also* Exhibit N.43 (CCPO/PHCA) ("overland flow is leaving the site, east flowing and downhill on SE Lusted Road, subsequently entering the north fork of Beaver Creek. Uncontrolled runoff is thereby adding increased sedimentation into Beaver Creek."); Exhibit N.53, page 1 ("I have noticed significant flooding and silt deposit find their way into the North Fork of Beaver Creek. … In years past, I

have never seen the creek go over its banks or its the roads that are on my property. This year the creek was over the road and banks for close to a month straight. The amount of silt that I have seen come into the property both from the bottom of Lusted road, which flooded three times this year, and though the drainage creek across the street from the site is very alarming. The drainage creek will run muddy brown for days after a rain event.").

The issue that caused the described construction runoff issue from the Intertie site "was short term and has been resolved." Exhibit S.31, page 8.

The Intertie site drainage issue "is a pre-existing issue, as this location has a history of flooding and continues to receive runoff from the larger farm parcels above the site immediately to the south." Exhibit S.30, Page 3. As shown in the map below, the Intertie site (shown on the map as the "Project Area") is only a very small portion of the area that drains to this northeast corner.

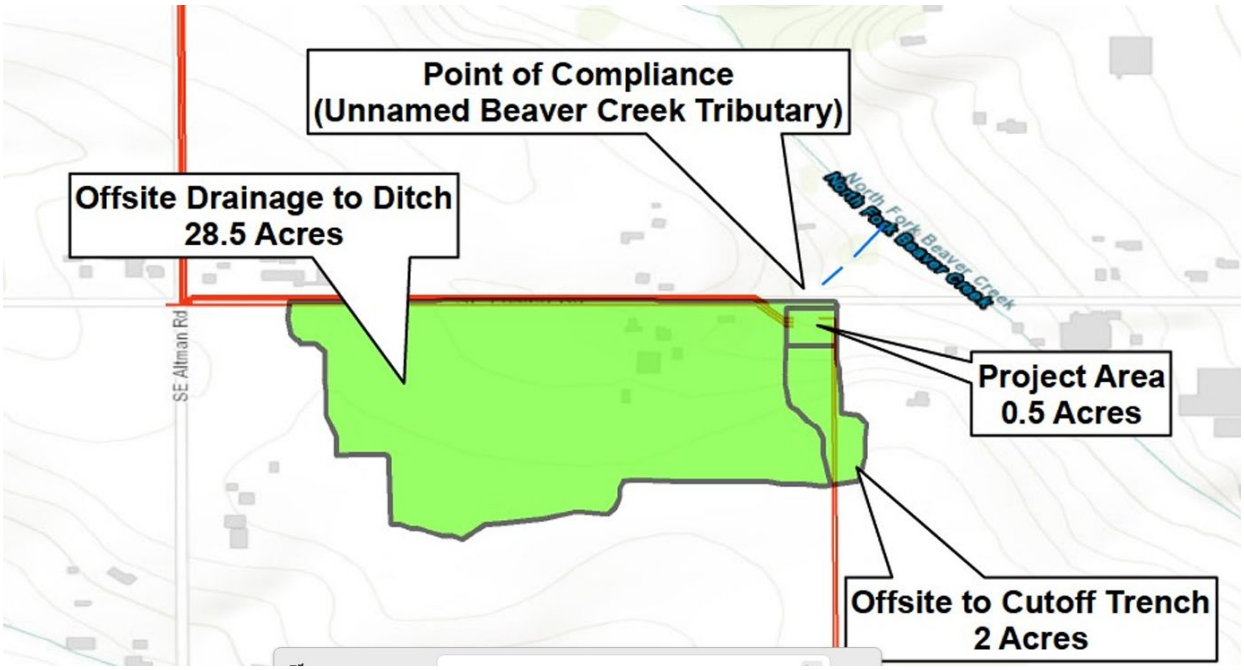


Exhibit A.75, PDF page 24 (Appendix A Offsite Drainage Map).

Because of this large area and existing site drainage issues, the landowner had installed a "drainage collection and disposal system … to address the runoff issues[.]" Exhibit S.30, pages 3-4. The applicant provided extensive details regarding the landowner's system, the significant turbidity in runoff from the pre-construction condition (agricultural field), construction stormwater management improvements, the issue in February 2025 when the contractor damaged existing unmapped clay drainage tiles, the resulting water discharge from the agricultural drain tile system (believed to have been previously clogged) that emerged above ground around the same time as large rain events, flowing east down Lusted road, and creating the temporary ponding mentioned by commentators. Exhibit S.30, pages 3-7. The applicant then describes what was done to remedy the issue, including installation of a temporary drain line from the broken drain tile area, installation of silt fencing, straw waddles, and straw bales to slow and filter overland surface flows, adding a berm to redirect water back to the water management system, and passing all water through sediment filter bags. Exhibit S.30, pages 8-12. A heavy rain event

at one point overwhelmed the improved collection system – this is the photo in Exhibit N.10 from March 21 – but that photo just shows the berm catching the stormwater, preventing the water from existing the Intertie site to go down Lusted road to the east, and instead pumped the water back to the catch basin as intended and into the culvert system. Exhibit S.30, page 10.

Photo 12: Taken March 24, 2025, showing clear water from the sump pump and 6" HDPE line filtered through sediment filter bags prior to entering the catch basin and discharging to the culvert across SE Lusted Rd

Exhibit S.30, page 11.

Notably, "[t]hroughout the storm events, daily water quality sampling was completed and test results collected during this time showed the turbidity of water leaving the site (664 and 774 Nephelometric Turbidity Unit [NTU]) via the catch basin remained in compliance with Oregon Department of Environmental Quality (DEQ) discharge parameters and did not exceed the 10% of the baseline reading (790 and 862 NTU) of other waters going into Beaver Creek. In fact, turbidity samples have consistently shown that the water leaving the [Intertie] site with the adjustments made to the pre-construction collection system is providing treatment well within DEQ's discharge parameters of not exceeding 10% of the baseline reading for turbidity." Exhibit S.30, page 10. If and when construction commences after the remand, and prior to excavation of the vault area for the Intertie and associated dewatering, further improvements to the Intertie water management system will be installed. Exhibit S.30, pages 12-13. As of the close of the record, the draft Environmental Management Plan (EMP) has been submitted and is being reviewed by DEQ. Exhibit S.30, page 12.

"Overall, the excess water events at the [Intertie] site described in this and other comments have been resolved and will not occur again as effective water management systems are now in place (see Photos 6-10 [of Exhibit S.30]) and will continue to be in place under the EMP approved by DEQ. Therefore, this was a limited construction impact that is not relevant to compliance with MCC 39.7515(B)." Exhibit S.30, page 13.

Biohabitats reviewed the Pipeline team's explanation in Exhibit S.30 of the described construction runoff issue from the Intertie site and concluded, and I find, that "the event described involved short term

concentrated flows that caused minor sedimentation into the upper reaches of Beaver Creek and will not have a long-term adverse effect on natural resources (including Beaver Creek) that extends beyond the construction period." Exhibit S.31, page 8.

3. Construction Water Management (Especially Regarding the Flow Spreader)

Many commenters provided evidence into the record regarding concerns related to the construction water management system, and in particular the construction flow spreader's impacts to Johnson Creek. The most extensive explanation from commenters is found at Exhibit N.43 (CCPO/PHCA), pages 21-22, and highlights concerns about when "groundwater was being pumped from the construction site into the creek at a rate of approximately 1 million gallons per day[.]"

a. Water Quality

During construction, the areas that will become the Filtration Facility's overflow basins are being used "to collect and store water for processing before being discharged. Pumping is being used in the construction water management system to move the water collected in the basins through a treatment system before discharge." Exhibit S.29, page 7. "The water in the basins is a combination of stormwater and groundwater from the shallow perched groundwater around the excavations[.]" Exhibit S.29, page 9. As noted, pumping is being used to move water collected in the basins, but it is inaccurate to say that the construction is pumping groundwater from the local aquifer (as CCPO/PHCA stated in Exhibit N.43, page 11). Exhibit S.29, page 9.

b. Past Operation of Construction Flow Spreader

Many commenters expressed concerns that the operations of the construction flow spreader has adversely affected Johnson Creek. For example, one commenter states that "The daily pumping of around a million gallons of groundwater, overflow pond water and storm water thru a Flow Spreader into Johnson Creek adversely affects and alters the ecosystem of the Creek." Exhibit N.28, page 2.[88] Commenters focus on the use of the flow spreader to remove groundwater "to dewater deep excavation pits—some exceeding 20 feet in depth—for construction of facility infrastructure." Exhibit S.14 (Brooks), page 1. Other comments relevant to this topic are found in Exhibit N.6 (Courter) ("PWB started pumping one million gallons of ground water per day at the site and dumping it into Johnson Creek"); Exhibit N.14 (describing videos "of water being pumped and disbursed all over the ground and entering Johnson Creek");[89] Exhibit N.43, page 21 (CCPO/PHCA stating that "residents observed a

[88] Another commenter states "The creek is usually about 6 to 8 inches deep and clear. It is now running at about 2 feet and very muddy and has been so for several weeks." Exhibit N.67, page 1. Biohabitats explains that "it is highly unlikely that this portion of the Johnson Creek watershed runs clear and 6 to 8 inches deep throughout the winter and during heavy rain events that may occur at any time of year. The upper portion of the watershed is primarily agricultural land that regularly contributes high levels of sediment into the creek due to lack of effective measures to reduce sediment inputs (e.g., riparian buffers, upland vegetative cover)." Exhibit S.31, page 17.

[89] Note that the commenter in these videos represents that there is sedimentation in the water, but she has just walked through those areas, kicking up mud that did not come out of the flow spreader.

substantial volume of water being discharged into Johnson Creek" and that "groundwater was being pumped from the construction site").

"The water handling during construction consists of a system that collects, treats, and discharges water … include[ing] handling both stormwater and perched groundwater seeping into excavations" necessary for construction. Exhibit S.29, page 2. Under DEQ permitting and regulations, the construction water has been discharged towards Johnson Creek via a construction version of the flow spreader. Exhibit S.29, pages 2, 6. The construction flow spreader is "a temporary version of the flow spreader [that] was installed by the contractor for construction activity" and does not reflect the final design of the flow spreader in Exhibit N.59. Exhibit U.20.h, page 9. That said, PWB is committed to establishing the final design of the flow spreader, including the extensive riparian plantings, much earlier in the construction period, as explained in further below.

PWB does not dispute that there was a short time period "when the flow spreader was not functioning as designed for construction. Because of permitting delays, there was not enough time between construction of the flow spreader and the commencement of discharge to have planting established below the flow spreader. Instead, a section of rip rap was placed below the flow spreader to protect against erosion. The rip rap was improperly placed, resulting in a concentration of discharge for a period of time. The issue was identified and remedied with submersible pumps and other Best Management Practices." Exhibit U.20.h, pages 3-4. The corrections to the functioning of the construction flow spreader were done under the guidance of DEQ after DEQ issued a "Warning Letter with Opportunity to Correct" to PWB. Exhibit S.29, final page of PDF. "The Water Bureau proposed, and DEQ approved, corrections and process improvements to address the temporary issue." Exhibit S.29, page 3. The Warning Letter has been closed out and no further action is required related to this issue.[90] The project is in compliance with the 1200-CA permit. Exhibit U.20.h, page 4.

After reviewing Exhibit S.29 (the first open record period stormwater/groundwater memo), and based on Biohabitats' further conversations with the Project team, it is Biohabitats' expert opinion, and I find, that "the past operations of the flow spreader and construction water management system at the filtration facility generally – including the short time period when the flow spreader was not functioning as designed (see [Exhibit S.29, page 6]) and issues with sediment transport noted by commentors and shown in videos provided in the record (see [Exhibit S.29, pages 2-4]) will not have a long-term adverse effect on natural resources (including Johnson Creek) that extends beyond the construction period." Exhibit S.31, page 2. Biohabitats explains, and I find, that this conclusion is supported by the following facts:

- "The removal of shallow perched groundwater does not have a long-term impact that will extend beyond construction. Post construction, the shallow perched groundwater conditions

[90] Note that, even if these activities were part of the "use" subject to MCC 39.7515(B), "In land use permit applications, evidence of prior land use violations is not generally considered as grounds for a denial, at least where there are no specific standards authorizing denial for such reasons. … Such evidence of prior [DEQ] violation does not show there will be repeated violations nor is it proper to punish the applicant for previous acts if an enforcement agency has already done so." *Stephens v. Multnomah County*, 10 Or LUBA 147, 152 (1984). Multnomah County does not now – and did not at the time of the *Stephens* case that arose in Multnomah County – have "specific standards authorizing denial" on the basis of a prior DEQ violations.

will revert to preconstruction drainage patterns and will be driven by surficial recharge (precipitation)." Exhibit S.29, page 2.

- "[W]ater has been discharged towards Johnson Creek as regulated and permitted by the Oregon Department of Environmental Quality (DEQ). Issues with sediment transport noted by commentors and shown in videos provided in the record were also reviewed by DEQ. The Water Bureau proposed, and DEQ approved, corrections and process improvements to address the temporary issue. The DEQ approval letter is attached to [Exhibit S.29]. Those DEQ-approved corrections and process improvements have been implemented at the construction site." Exhibit S.29, pages 2-3.
- "Prior to water being discharged from the flow spreader, it goes through a treatment system that reduces sediment/turbidity to a level approved by DEQ." Exhibit S.31, page 3. Water quality testing was implemented as one of the DEQ process improvements proposed to address the flow spreader issue and "water quality samples taken from Johnson Creek show no exceedance of DEQ's standard for turbidity, which allows up to a 10% cumulative increase in downstream turbidities." Exhibit S.29, page 3.
- "[T]he Filtration Facility site makes up only a small portion (about 11%) of the Johnson Creek watershed that feeds the reach of Johnson Creek adjacent to the Filtration Facility site … Accordingly, the overall impact of the construction-related flows from the DEQ-reviewed event, relative to total flow at Johnson Creek in a storm event, was small." Exhibit S.29, page 3.
- "Overall, flow spreader events involved short-term concentrated flows that caused minor erosion and sedimentation in Johnson Creek." Exhibit S.31, page 3.
- "The amount of sediment contributed to Johnson Creek in the pre-developed condition (a farm field) would be far more than occurred because of the temporary flow spreader construction-related flows. Similarly, the prior agricultural use of the property led to rapid changes in stream flows (flashy flows) associated with turbid runoff that did not have the chance to infiltrate into the ground as it otherwise would in a natural landscape." Exhibit S.31, page 3.
- "The long-term effects from the temporary flow spreader construction-related flows are negligible in comparison to the long-term benefits the project will have of reducing erosion and sediment loading that occurred with pre-development agricultural land use. There may have been short term impacts to water quality associated with turbidity and sedimentation, but they were not of the level that would lead to direct or long term adverse impacts. It is unlikely that water temperature in Johnson Creek was impacted by the short-term release of stormwater and groundwater as it occurred at a time of year when contributing flow would be similar in temperature as water in Johnson Creek." Exhibit S.31, page 3.

Additionally, any erosion or sedimentation "was minor in comparison with the amount of sediment introduced by the prior agricultural use into the creek during high intensity storm events that regularly occur during winter months in the region. Prior agricultural use of the Filtration Facility site and surrounding watershed area had no stormwater systems in place to reduce erosion and sedimentation to prevent adverse impacts to the creek. As a result, continual inputs of sediment have contributed to the current condition of aquatic habitat in Johnson Creek and the species that rely on that habitat for survival." Exhibit U.20.a., page 34.

A slightly different concern raised by commenters is that the "[d]ewatering of perched aquifers" has resulted "in reduced groundwater baseflow and thermal instability in" Johnson Creek. Exhibit S.21 (Courters), page 6. The Courters state "these impacts are not speculative" but cite to no source or study

conducted to reach their conclusion. First, dewatering of perched aquifers has a negligible effect on groundwater baseflow to Johnson Creek. As explained by the applicant's groundwater experts, and as I find, "[p]erched groundwater from the project site is not a significant source of groundwater baseflow and thermal input in Johnson Creek." Exhibit U.20.g, page 15. The United States Geologic Survey Fact Sheet (Exhibit U.20.a, Attachment 2), "indicates that the direction of groundwater flow in the northern boundary of the Johnson Creek Basin is not towards Johnson Creek but out of the drainage basin towards the Sandy River. Since the Filtration Facility is located along the northern border of the basin, at the extreme eastern edge of the Springwater Formation and the edge of the Sandy River canyon, groundwater flow from the site into the Sandy River canyon diverts Springwater Formation groundwater away from the Johnson Creek basin. Therefore, the project site does not provide enough groundwater baseflow to affect Johnson Creek. Thus, dewatering during construction will not have an adverse effect on the baseflow or thermal stability of the creek." Exhibit U.20.g, page 16.

Second, as the groundwater from dewatering has been sent to Johnson Creek, if anything it would have a beneficial effect on Johnson Creek temperatures, as groundwater would "serve to cool stormwater from the site and reduce thermal loading in Johnson Creek." Exhibit U.20.a, page 36; Exhibit U.20.a, Attachment 2 (USGS Fact Sheet), page 4 ("groundwater discharge cools the stream").

c. Future Operation of Construction Flow Spreader

The construction groundwater "dewatering" activity is temporary, and in fact the necessary groundwater has "now largely been drained, so the quantity of water removed from excavations will be lower [going forward] than during the initial construction period." Exhibit U.20.a, page 8; Exhibit S.29, page 3. For this reason, the construction water management system will primarily be managing stormwater going forward, along with dewatering flows from recharge of these lenses, "which will follow the same pattern as precipitation events." Exhibit S.29, page 3.

After reviewing Exhibit S.29 (the first open record period stormwater/groundwater memo), and based on Biohabitats' further conversations with the Project team, it is Biohabitats' expert opinion, and I find, that: "going forward (if or when construction resumes after this remand proceeding) the flow spreader, and construction stormwater management system at the filtration facility site more generally, will not have an adverse effect on natural resources (including Johnson Creek)." Exhibit S.31, page 4. Biohabitats explains, and I find, that this conclusion is supported by the following facts:

- Testing of water quality samples taken from Johnson Creek to ensure no exceedance of DEQ's standard for turbidity "will continue for the duration of the construction of the facility site." Exhibit S.29, page 3.
- The Filtration Facility site "construction water management systems will be further modified for improved performance (that is, beyond what DEQ has required)" as follows:
    - "Two points of discharge will be employed – the current discharge at the flow spreader (Point of Discharge #2) and the culvert discharge on the western property line (Point of Discharge #1) – with up to a maximum of approximately 500 gpm (1.1 cfs) discharged to each location. This maximum can be maintained up to the 25-year recurrence, 24-hour duration storm event. Discharge from the flow spreader will generally correlate with the timing of runoff from precipitation events. [T]hese discharge rates are significantly lower than the pre-development 2-year storm event peak discharge rates [which is the most restrictive flow control requirement in the MCDCM] – 17% of the 2-year event at

Point of Discharge #1 and 24% of the 2-year event at Point of Discharge #2." Exhibit S.29, page 3.

  - "[T]he flow control requirements outlined in the Multnomah County Design and Construction Manual (MCDCM) align with the flow control performance standards in the Portland Bureau of Environmental Services Stormwater Management Manual (SWMM) that are designed to address potential hydromodification (the alteration of natural flow patterns that results in the degradation of a stream) impacts by limiting the postdevelopment flow to 50% of the pre-development flow for design storm events (beginning with the 2-year design storm). These construction stormwater discharge rates will be well below that standard." Exhibit S.29, page 3.

- PWB will "remove the rip rap and instead establish the plantings described in Exhibit N.59 [the permanent flow spreader design] below the flow spreader." Exhibit S.29, page 6.
  - "This removal of the rip rap and installation of plantings includes grading the slope below the flow spreader to be level and not concentrate flows." Exhibit S.31, page 4. "This will be done during the next available window appropriate for plantings (for example, that is generally winter for bare root plants)" and PWB will "provide irrigation during the establishment period." Exhibit S.29, page 6. "The drain rock directly below the flow spreader described in Exhibit N.59 will be installed along with establishment of the plantings." Exhibit S.31, page 5. "Establishment of the plantings will involve adaptive management, which may include the use of coir fabric mats or other groundcover that will prevent erosion and sediment transport while plants are established and/or a temporary perforated pipe flow spreader below the areas where vegetation is actively being established." Exhibit S.29, page 6.
- "Overall, this strategy will establish the ultimate flow spreader design, including the extensive riparian plantings[,] much earlier in the construction period" allowing additional time so that the operational (post-construction) flow spreader will benefit from significantly more established plantings. Exhibit S.29, page 6.
- "The lenses of perched groundwater have now largely been drained, so the quantity of water removed from excavations will be lower than during the initial construction period. Recharge of these lenses, and therefore future dewatering flows, will follow the same pattern as precipitation events." Exhibit S.31, page 5.
- PWB has committed to increasing the rate of inspections of the performance of the flow spreader to daily in order to rapidly identify and respond to any new issues as soon as possible. Exhibit S.31, page 5.
- "Over the past few years, the Water Bureau has embarked on a planting program within the SEC zone in the southwest corner of the Filtration Facility site, with the objective of creating an area that functions as a riparian forest even while construction is ongoing, providing both habitat and water quality protection. This work will be ongoing during the construction period." Exhibit S.29, page 4.

"As the permanent stormwater facilities are completed," including the flow spreader as well as other aspects of the system, "they will be put into use and follow the operations described in Exhibit N.58 *Filtration Facility Site Stormwater Drainage Report*." Exhibit S.29, pages 3-4.

d. Groundwater is Not Contaminated

Commenters expressed concerns that groundwater was contaminated in the same way that surface soils are contaminated. Groundwater at the Filtration Facility site was tested to evaluate the potential for pesticide contaminants of concern to be present in water discharged from the construction dewatering system. Exhibit S.29, page 2. None of the contaminants of concern were detected in the testing. Exhibit S.29, page 2.

B. Construction Management of Pesticide Contaminated Soils

Commenters expressed concerns that the construction activity of management of pre-existing contaminated soils will adversely affect natural resources. For example, in Exhibit N.43, CCPO/PHCA express concerns that soil samples from the Filtration Facility site show levels of DDT, DDE, and Dieldrin above DEQ clean fill levels, that these pesticides have detrimental effects on wildlife, particularly birds, and are linked to human health adverse effects. Exhibit N.43, page 34. CCPO/PHCA is concerned particularly about construction activity that involves the "transport [to] and deposit [of] the contaminated soil" at "a 29-acre Clackamas County farm property owned by T&K Sester Family LLC located at Clackamas County Parcel No. 00603617, Map and Tax Lot 2S3E03 03302," referred to by the parties as the "***Gramor Property***". *See* Exhibit S.34, page 1; Exhibit N.43, page 34. CCPO/PHNA argue that transportation of the soils to the Gramor Property "during the wettest months of the year … created a high risk of uncontrolled movement of contaminated sediments" and that the contaminated soil was not blended / disced / mixed in with the existing Gramor Property soils as required by DEQ. Exhibit S.43, page 34. CCPO/PHNA also states that DEQ did not take regulatory action that CCPO/PHNA believes should have been taken, such as revocation of the Beneficial Use Determination ("***BUD***") that allowed placement of the soils on the Gramor Property.

It is notable that, within the same document (Exhibit N.43), CCPO/PHNA argue both that the soils from the Filtration Facility site are, on the one hand, "contaminated" and "solid waste containing hazardous substances," page 34, and, on the other hand, "renewable, high-value Agricultural soils", page 63.

1. Expert Testimony

As explained above in Section VIII.C.3, the applicant provided expert testimony from Mr. Dennis Terzian RG, Principal Geologist at PBS, who I find to be qualified to provide an expert opinion on contaminated soils, how they have been managed by the Project, and the potential for the soils or management of soils to adversely affect natural resources. No other party to the proceeding purported to, or is evidenced to, have provided expert testimony on this topic.

2. Background

This background section is additive to what I have already found above in Section VIII.C.3.

The "excavation, movement, and stockpiling of soil are part of construction activities and are not a permanent component of the proposed land use of these properties." Exhibit U.20.d, page 1. "Placement of soil with low levels of contamination, similar to what has been or will be placed on the Gramor Property, is a regular occurrence on many properties across Oregon. DEQ has developed tools

(including beneficial use determinations) to identify opportunities to divert contaminated materials from landfills to provide for a beneficial reuse. The requirements of the BUD are conservative to ensure that potential risk to human or ecological receptors does not occur." Exhibit S.34, page 4. DEQ considered evidence of the "potential effect on ecological receptors and the potential for contaminated soil to migrate to natural resources" and concurred with the determination of risk (or lack thereof) and approved by BUD. Exhibit U.20.d., pages 1-2.

As explained by DEQ in the Beneficial Use Determination (BUD) for the Filtration Facility Site (BUD 20240906, provided at pages 5-15 of Exhibit S.34): "Beneficial use of solid waste is a sustainability practice that may involve using an industrial waste in a manufacturing process to make another product or using a waste as a substitute for construction materials. The environmental benefits of substituting industrial waste materials for virgin materials includes conserving energy, reducing the need to extract natural resources and reducing demand for disposal facilities. Oregon Administrative Rules (OAR) 340-093-0260-0290 establish standing beneficial uses and a process for DEQ review of case-specific beneficial use proposals. Under these rules, DEQ may issue a beneficial use determination as an alternative to a disposal permit for proposals that meet the rule criteria. If approved, once a beneficial use determination is issued, DEQ no longer regulates the waste as a solid waste as long as the waste is used in accordance with the approved beneficial use determination." Exhibit S.34, page 5.

3. Construction Activities of Contaminated Soil Management at Filtration Facility Site

The applicant's management of excavated soil from the Project with contamination above clean fill standards has been and will be under DEQ standards and permitting. Exhibit N.62, page 2. The expert consultant, PBS, and the applicant applied "to DEQ for two Beneficial Use Determinations (BUDs) for the Filtration Facility Site (BUD 20240906, dated April 3, 2024, and updated September 6, 2024) and Pipeline Sites (BUD 20240418, dated May 7, 2024, and updated September 6, 2024) that would allow for permanent management of the excavated material in a controlled manner." Exhibit N.62, page 2. The BUDs[91] allowed multiple options for beneficial reuse, including permanent placement of the material at the Filtration Facility site or "beneficial reuse of the soils at an agricultural property located several miles east of the [filtration facility] site in Damascus, in Clackamas County" Exhibit N.62, page 2. As noted above, the Damascus property, "a 29-acre Clackamas County farm property owned by T&K Sester Family

[91] Opponents of the project suggest that contaminate levels are more concerning than described by DEQ because of the use of a "Tier 2" BUD instead of a "Tier 1" BUD. Exhibit N.43, page 34 ("Despite PWB and the Department of Environmental Quality (DEQ) referring to the soil as only slightly contaminated, DEQ required a Tier 2 Beneficial Use Determination (BUD), a classification used for solid waste containing hazardous substances at significantly higher concentrations than comparable raw materials or commercial products."). "However, any proposed reuse of soil that contains hazardous substances at any concentration would typically either be processed by DEQ as Tier 2 or Tier 3 BUD and the majority of BUDs issued by DEQ since inception of this program have been Tier 2 BUDs. Tier 1 BUDs are generally reserved for material that would be considered to be a solid waste but does not contain hazardous substances or is an in-kind replacement for a similar product. An example of this would be BUD-20180410, issued in June 2018 for Intel Corporation and Safety Clean related to Ammonium Sulfate bulk liquid solution that was approved for reuse in fertilizer manufacturing as an alternative to the fertilizer manufacturer purchasing a similar new product from a chemical manufacturer." Exhibit S.34, pages 1-2. Therefore, the use of a Tier 2 BUD does not provide evidence that the Project will adversely affect natural resources.

LLC located at Clackamas County Parcel No. 00603617, Map and Tax Lot 2S3E03 03302," is referred to by the parties as the "***Gramor Property***" and will be referred to in that manner in this decision. *See* Exhibit S.34, page 1; Exhibit N.43, page 34. The owner and operator of the Gramor Property is T&K Sester Family LLC ("***T&K Sester***").

For the Filtration Facility site, the applicant elected off-site beneficial reuse for agriculture at the Gramor Property rather than permanently stockpiling the materials at the Filtration Facility site. Exhibit N.62, page 2. The BUD-approved beneficial reuse is for "blended topsoil" at the Gramor Property. Exhibit S.34, page 7. In order to approve the BUD, DEQ had to, and did, conclude that "the proposed beneficial use will not create an adverse impact to public health, safety, welfare, or the environment[.]" Exhibit S.34, page 11. Contributing to that conclusion from DEQ is that these are only slightly contaminated soils, in that "exceedances are minor for those above clean fill values." Exhibit S.34, page 12.

The applicant's "contractors generated approximately 120,000 cubic yards of soil[92] pursuant to the BUDs in June and July 2024 by removing the upper 18 inches of soil from 66 acres of the [Filtration Facility site] in areas of planned development. The soil was then collected in a managed stockpile that was reshaped for long-term erosion control and hydroseeded." Exhibit S.34, page 2. The management of the stockpile during construction was and will be done under DEQ 1200CA permit requirements. A 1200CA permit "provides direction to the permittee on protection of water quality using established controls and practices detailed in the permit, including stockpile management and erosion control measures." Exhibit U.20.d, page 3. For example, the stockpile shall be "managed to prevent, at all times, windblown dust, runoff and soil erosion, releases to the environment or nuisance conditions." Exhibit S.34, page 12. As a part of protecting the environment, the stockpile has been "placed above the regional groundwater table." Exhibit S.34, page 6.

"T & K Sester commenced transporting this soil to the Gramor Property in December 2024." Exhibit S.34, page 2. Once T&K Sester transported the soil off the Filtration Facility site, it was no longer part of the Project, as explained further below.

Mr. Prenguber, the applicant's agricultural expert, has examined the construction management of contaminated soils and concluded that it will not have an adverse effect on soils or any other agricultural resource. Exhibit U.20.e, page 9. I agree and so find, particularly in light of the fact that the reuse of this soil in this manner is an "established practice of reducing contamination of farm soil by mixing it with existing farm soil to increase the overall soil productivity and follow soil conservation practices." Exhibit U.20.e, page 9.

[92] Note that there is some confusion in the record about the quantity of soils managed by PWB's construction activities. Mr. Terzian explains: "The larger volume of 192,000 cubic yards referred to in the BUD was an estimated maximum volume of soil that *could* require management and included 160,000 cubic yards at the Filtration Facility and 32,000 cubic yards in the areas of the Pipeline Sites. The *actual* volume of soil requiring management and transport to the Gramor Property was approximately 120,000 cubic yards[.]" Exhibit U.20.d, page 2 (emphasis in original).

a. Pre-Construction Use

Mr. Ciecko objects that Mr. Terzian "hypothesizes that contaminated soils were migrating to the headwaters of Johnson Cr. as result of the previous agricultural use of the land. However, there is no evidence to support this hypothesis such as sediment samples taken from the creek prior to the commencement of excavation." Exhibit S.20, page 2. Ms. Richter proposes similar findings: "There is no evidence, such as air samples or water samples taken from Johnson Creek prior to excavation, to suggest that the contaminated soils were migrating or otherwise affecting groundwater or nearby riparian resources." Exhibit W.3a, page 30.

These statements imply that "sediment samples taken from the creek" or "air samples or water samples" would be the only "evidence" that could show that in the pre-construction condition contaminated soils were migrating to Johnson Creek. This is inaccurate. There is abundant evidence that contaminated soils from this and other agricultural properties in the area migrated to Johnson Creek in the pre-construction condition. *See* Section VI above. Perhaps most on point is the memorandum titled "Hydrology of Johnson Creek Basin, a Mixed-Use Drainage Basin in the Portland, Oregon, Metropolitan Area" from the United States Geological Survey provided as Attachment 2 to Exhibit U.20.a. The USGS report specifically explains that "High flow in Johnson Creek typically mobilizes sediment and sediment-borne contaminants, **including organochlorine pesticides**. Upper-basin characteristics, such as more rainfall and runoff, greater slopes, a network of roads and ditches associated with agricultural and rural-residential land uses, and a relative **abundance of sources of sediment and sediment-borne contaminants**, make management of runoff in the upper part of the basin important to the ecological health of the entire basin." Exhibit U.20.a, Attachment 2, page 4 (bolding added). Concentrations of pesticides were found by USGS to be largest "at the most upstream sampling site, suggesting that **agricultural activities were the primary source**." Exhibit U.20.a, Attachment 2, page 4.

Additionally, there is expert testimony in the record from Mr. Prenguber that "I personally was on the filtration facility site when Surface Nursery and R&H were leasing and managing the land for their crop production. I observed heavy farm vehicles compacting soil and saw exposed soil and muddy conditions – all of which are typical features of commercial nursery operations in the area." Exhibit U.20.e, Page 10. As Mr. Alsbury of Biohabitats explains, "The conditions described by Mr. Prenguber are typical of the former use of the property and surrounding agricultural lands that contributed to high levels of fine sediment to Johnson Creek. The evidence clearly shows that a detrimental impact has occurred and will continue to occur unless surrounding agricultural practices are improved by considering their direct impacts to aquatic and semi-aquatic resources in Johnson Creek." Exhibit U.20.a, page 20. Similarly, the soils expert explains that the prior use of the site for agriculture "regularly included periods of active soil working that would have the potential to generate dust and runoff from plowing and similar working of soil and rainfall runoff. Publicly available historic imagery available in both Google Maps Street View and Google Maps historical aerial photograph coverage of the property depicted large portions of the site with exposed soil that was not mitigated for erosion." Exhibit U.20.d, page 4.

Overall, there is abundant evidence that contaminated soils from this and other agricultural properties in the area migrated to Johnson Creek in the pre-construction condition.

b. 2024 DEQ Warning Letter; DEQ Withdrawal of Warning Letter; and Approval of Stockpile Management Plan.

Mr. Ciecko provided testimony in Exhibit S.20 expressing concerns that off-site migration of contaminated soils placed in a stockpile has occurred as part of construction activities. Exhibit S.20, page 3. Mr. Terzian explains, and I find:

> [P]hotographs attached to Mr. Ciecko's submittal show erosion control measures in use at the construction site, including silt fences and the establishment of grass seed on stockpiles. Both of these measures are common tools used at construction sites to minimize erosion. In response to public complaints in July 2024, PWB worked with DEQ to develop a Stockpile Management Plan (attached as Attachment C) with specific details of the methods for stockpile management to supplement the already DEQ-approved Erosion and Sediment Control Plan (ESCP). The Stockpile Management Plan and letter from PWB to DEQ dated July 5, 2024 (attached [to Exhibit U.20.d] as Attachment C), detailing a response to DEQ's June 14, 2024, warning letter (included [with Exhibit U.20.d] as Exhibit A to the Attachment B letter), explain the additional measures that were taken by PWB and their contractors to improve erosion control measures. As a response to these actions, DEQ withdrew the warning letter in a July 16, 2024 "Withdrawal of 2024-WLOTC-6786" letter, attached [to Exhibit U.20.d] as Attachment B. DEQ reviewed and approved the stockpile management plan (Attachment C [to Exhibit U.20.d]) and confirmed that all corrective actions mentioned in the Withdrawal letter have been complied with and the "project is in compliance with the 1200-CA permit and DEQ requirements." Attachment D." Exhibit U.20.d, page 3.

Moreover, even if these were not construction activities outside of the scope of the "use" subject to MCC 39.7515(B), it would still be the case that:

> "In land use permit applications, **evidence of prior land use violations is not generally considered as grounds for a denial,** at least where there are no specific standards authorizing denial for such reasons. … Such evidence of prior [DEQ] violation does not show there will be repeated violations nor is it proper to punish the applicant for previous acts if an enforcement agency has already done so."

Stephens v. Multnomah County, 10 Or LUBA 147, 152 (1984). Multnomah County does not now – and did not at the time of the *Stephens* case that arose in Multnomah County – have "specific standards authorizing denial" on the basis of a prior DEQ violation. Here, the *Stephens* case carries even more persuasive weight, as **there was no violation** – DEQ withdrew the Warning Letter and worked with PWB to provide additional information on what standards are being applied to temporary stockpiles. PWB has done so, and, as confirmed by DEQ in a formal letter issued as recently as possible in this land use proceeding, May 15, 2025, the Project "is in compliance with the 1200-CA and DEQ requirements." Exhibit U.20.d, Attachment D (last page of PDF).

4. The Gramor Property Is Not Part of the Project

At the outset of this discussion, I note that I find that the applicant is not responsible for the Gramor Property. "PWB does not own or legally control, in any manner, the Gramor Property." Exhibit U.20.d, page 3. Ms. Richter's proposed findings include a variety of asserted actions that she attributes to the

Water Bureau where that is not supported by the record. The Water Bureau did not "deposit[]" or otherwise handle (or mishandle) soils at the Gramor Property. Exhibit U.20.d, page 4. Instead, "T & K Sester … transport[ed] this soil to the Gramor Property," Exhibit S.34, page 2, and, once T&K Sester transported the soil off the Filtration Facility site, T&K Sester became "the responsible party for the received materials for all purposes" and was obligated to "comply with all applicable laws, ordinances, rules, regulations, orders or other requirements of government authorities." Exhibit U.20.d, page 3.

The alternative to beneficial reuse under a BUD for this soil is that it be transported to a landfill (BUDs are one tool DEQ has developed to "to identify opportunities to divert contaminated materials from landfills to provide for a beneficial reuse" Exhibit S.34, page 4).

Ms. Richter proposes findings that the Water Bureau is responsible for "any adverse impact … regardless of where these effects take place" and regardless of "ownership or control[.]" Exhibit W.3a, page 32. This is an overly broad theory of what can be found to have been caused by the Project. Consider this hypothetical: If a landfill received this material and then had a degraded liner that allowed leachate (contaminated liquid from decomposing waste) to seep into the soil and groundwater, no one would argue that management of the liner of the landfill was part of the Project that is subject to this land use review. Management of the landfill liner is clearly too attenuated from the scope of the Project and too outside the control of the applicant to be considered part of the Project. Similarly, management by T&K Sester of its farm property – particularly where that farm property is not even located in Multnomah County where I as a Hearings Officer have jurisdiction – is not part of the Project that is subject to this land use review.

T&K Sester[93] submitted to DSL, and obtained concurrence from DSL on, a Topsoil Placement Plan prepared by T&K Sester's environmental consultants, Sound Ecological Endeavors, LLC, and Evren Northwest. Exhibit S.34, page 3; Exhibit U.20.d, page 4. T&K Sester is the only one with the ability or responsibility to design, implement, and comply with the Topsoil Placement Plan and other applicable requirements related to the placement of soil on the Gramor Property. Exhibit S.34, page 3; Exhibit U.20.d, page 4. Moreover, evidence in the record shows that DEQ considers T&K Sester to be the responsible party for the Gramor Property, in that the PEN (described below) was issued to T&K Sester without PWB even being initially informed. Exhibit S.34, page 4.

For that reason, it would not be appropriate for PWB or PBS to sample stormwater at the Gramor property (as suggested by Ms. Richter in her proposed findings at page 31) – indeed PWB or PBS *would be trespassing* if they did so. Whether or not DEQ should sample stormwater at the Gramor property is a matter for Mr. Ciecko to bring up with DEQ – as the record shows that he has, on multiple occasions. This land use process is not the correct forum for Mr. Ciecko to complain about his disagreements with DEQ about how DEQ should be managing T&K Sester's management of the Gramor Property.

[93] This is another area where Ms. Richter incorrectly ascribes actions to the Water Bureau: at Exhibit W.3a, page 31 the proposed findings state that "PWB 'advised' DEQ" regarding soil management mixing. This is untrue, as it is T&K Sester who prepared, submitted, and obtained concurrence on the Topsoil Placement Plan.

5. Summary of Gramor Property Construction Activities

The BUD authorizes beneficial reuse by T&K Sester "to develop the land for farm use" by the soil from the Project being "blended with existing topsoil so that the land could be used to grow grasses and other agricultural crops." Exhibit S.34, pages 2-3. That beneficial reuse was determined in studies completed by T&K Sester (studies with which DEQ concurred) to be unlikely to affect ecological receptors. Exhibit S.34, page 2. DEQ specifically considered the proposed beneficial reuse of the contaminated soil "as blended topsoil at [the Gramor Property] farm owned by T&K Sester Family LLC" and concluded that "[a]s the location has been used for agricultural purpose[s] most recently, it does not provide suitable habitat or resources for threatened or endangered species. The proposed placement and reuse of contaminated soils is ***not anticipated to adversely affect*** any plant or wildlife species." Exhibit S.34, page 2 (emphasis added). Additionally, T&K Sester's professional environmental consultants (Sound Ecological Endeavors, LLC and Evren Northwest) completed a wetland delineation finding that wetlands were not present in the portion of the Gramor Property on which T&K Sester proposed to place imported soil, and the Department of State Lands (DSL) concurred with that conclusion. Exhibit S.34, page 3.

There is also evidence in the record related to T&K Sester's interactions with regulatory agencies. Prior to T&K Sester accepting soils from the filtration facility site, the Oregon Department of Agriculture (ODA) identified conditions at the Gramor Property that indicated concerns related to erosion and sediment runoff. Exhibit S.34, page 3. That concern was identified by ODA in an email on November 25, 2024. Exhibit S.34, page 3. Later that same day, November 25, ODA sent a follow-up email with pictures showing "identified soil and water measures implemented by the property owner [T&K Sester] at the site shortly after notification of ODA's concerns" and, in ODA's words, "showing the immediate concerns have been addressed." Exhibit S.34, page 3. "Again, this determination that concerns had been addressed was prior to the transport of soils by T & K Sester from the Filtration Facility Site on December 5, 2024." Exhibit S.34, page 3.

Subsequent to the November 25, 2024 review by ODA (concluding that "concerns have been addressed"), ODA "determined that the activity of placement of soil at the Gramor Property was not regulated by ODA" on December 9, 2024. Exhibit S.34, page 3. "T&K Sester contractors began transporting soil from the Filtration Facility Site to the Gramor Property on December 5, 2024, and continued until January 10, 2025. PWB halted transportation activities when PWB learned that a pre-enforcement notice (PEN) had been issued by DEQ for the Gramor Property due to conducting earthwork activity without first obtaining a 1200-C permit. This was related to ODA determining that they did not have regulatory jurisdiction. If ODA has jurisdiction, DEQ does not, and a 1200-C permit is not required. For that reason, a 1200-C permit was not required when T&K Sester commenced transport of soils on December 5, 2024 (at the time, ODA was still exercising jurisdiction, including determination that concerns were addressed on November 25, 2024). T&K Sester has said that they did not realize, until told by DEQ, that ODA's determination that ODA did not have jurisdiction on December 9, 2024 meant that DEQ did have jurisdiction and that a 1200-C permit was now required." Exhibit S.34, page 4. "In the PEN, DEQ provided specific deadline requirements for the property to come into compliance, including obtaining a 1200-C permit, performing soil stabilization, and implementing erosion control measures. T&K Sester met all of DEQ's deadlines and requirements in the PEN. T&K Sester received a 1200-C permit on February 6, 2025, and transport of soil to the Gramor Property resumed on February 7, 2025." Exhibit S.34, page 4.

Opponents assert that "DEQ eventually acknowledged that the soil was not handled as required but failed to take corrective action." Exhibit N.43, page 34. The soil expert, Mr. Terzian, states that he "is not aware of any communication from DEQ that the soil 'was not handled as required.'" Exhibit S.34, page 4. Instead, it appears that the commenter in Exhibit N.43 contacted DEQ with complaints about T&K Sester not immediately mixing the contaminated soils in with other soils on the Gramor Property. Ms. Richter proposes findings about "the fact that … PWB (or Sester) are currently in violation of DEQ conditions expressly requiring the discing of soils upon deposit[.]" Exhibit W.3a, page 32. First, PWB is not capable of being in violation of DEQ conditions at the Gramor Property, as T&K Sester is the responsible party for all DEQ (and all other) matters at that property. Furthermore, as explained by the contaminated soil expert, "Not mixing the soil immediately does not in and of itself constitute a failure to comply that would trigger revocation of the BUD. Waiting until a time period of dryer weather to complete mixing could be viewed as equally protective by minimizing the movement of soil facilitated by rainfall or surface water flow. This could be why, as [Exhibit N.42, page 34] notes, 'DEQ staff indicated that mixing would be conducted in the spring' and that 'no … action was taken' by DEQ in response to this commentor's complaints to DEQ." Exhibit S.34, page 4.

As noted above, the contaminated soil expert explains that DEQ's BUD requirements "are conservative to ensure that potential risk to human or ecological receptors does not occur. In this case, use of the Gramor Property as a tree farm or similar agricultural use is anticipated to include management of the property in a manner that will minimize movement of surface soil from the property. As the property owner, T&K Sester has the obligation to comply with all applicable laws and regulations related to use and management of the soil. As revealed in the N.43 comment, DEQ has acted when necessary by issuing a pre-enforcement notice to the responsible party to make certain that T&K Sester has all necessary permits for its use and management of the soil." Exhibit S.34, page 4. It is clear that DEQ considers T&K Sester to be the responsible party for management of the soils at the Gramor Property, as evidenced by DEQ's issuance of the PEN to T&K Sester and not to PWB.

Moreover, even if PWB were the responsible party for management of soils at the Gramor Property, and even if that management of soils were in Multnomah County, and even if these were not clearly construction activities outside of the scope of the "use" subject to MCC 39.7515(B), it would still be the case that:

> "In land use permit applications, **evidence of prior land use violations is not generally considered as grounds for a denial,** at least where there are no specific standards authorizing denial for such reasons. … Such evidence of prior [DEQ] violation does not show there will be repeated violations nor is it proper to punish the applicant for previous acts if an enforcement agency has already done so."

Stephens v. Multnomah County, 10 Or LUBA 147, 152 (1984). Multnomah County does not now – and did not at the time of the *Stephens* case that arose in Multnomah County – have "specific standards authorizing denial" on the basis of a prior DEQ violations. T & K Sester did have a confusion about permitting requirements at the Gramor Property when ODA (which had previously been exercising jurisdiction) abruptly stopped exercising jurisdiction. But T&K Sester met all DEQ requirements, once notified of them, on the timelines provided by DEQ. Nothing related to the Gramor Property provides a basis for denial of the Permit approvals.

6. Oxbow Property

Ms. Richter proposes findings that "PWB … has plans to deposit soils on … the Oxbow property located in Multnomah County." Exhibit W.3a, page 30. However, this "is false. The PWB nor any of its contractors have agreements with the owner of the Oxbow Property to dispose of fill there. No fill from the project has been taken to the Oxbow Property." Exhibit S.36, page 8. Therefore, it is inappropriate to adopt Ms. Richter's proposed findings that "PWB [has] failed to take an corrective action" at the Oxbow property related to DEQ enforcement matters there. Exhibit W.3a, page 31. PWB is not the property owner, is not the responsible party for DEQ matters, has not taken any fill to the Oxbow Property, and has no agreements (and neither do its contractors) to dispose of fill there.

7. Summary of Pipelines Construction Activity Related to Contaminated Soils

"Although placement of [contaminated] excavated material on road shoulders … was one of the allowed uses of this soil under the DEQ approved Beneficial Use Determination (BUD), the pipelines contractor decided to remove any excavated contaminated material and transport it to a nonhazardous Resource Conservation and Recovery Act (RCRA) subtitle D disposal facility." Exhibit U.20.d, page 2. Any necessary stockpiling on road shoulders before transport to the disposal facility will be managed under PWB's 1200-CA permit. Exhibit U.20.d, page 3. "The 1200-CA permit provides direction to the permittee on protection of water quality using established controls and practices detailed in the permit, including stockpile management and erosion control measures." Exhibit U.20.d, page 3. Those erosion control measures include requirements that the stockpile be "managed to prevent, at all times, windblown dust, runoff and soil erosion, releases to the environment or nuisance conditions" and "placed above the regional groundwater table." Exhibit U.20.d, page 3.

"Soils and other materials used to restore the pipeline construction areas will only be clean fill. Therefore, removal of contaminated soils from the pipeline alignments will result in a lower risk to surrounding natural resources and the project will positively (rather than adversely) affect natural resources related to contaminated soils." Exhibit U.20.d, page 2.

C. Construction Noise

The applicant has provided several exhibits related to temporary construction noise and mitigation:

- Exhibit A.172 Acoustic Baseline Measurement
- Exhibit I.75 Construction Supplemental Information, page 1
- Ex J.82 Acoustics and Nighttime Generator Sound Levels

The Water Bureau's noise control best practices have been and will be implemented during construction. For example, "no equipment will be used that has unmuffled exhausts and all equipment will comply with pertinent standards of the U.S. Environmental Protection Agency (EPA); stationary equipment will be located as far from nearby private properties as possible; practices pertaining to dump trucks will limit avoidable practices that generate excess noise such as compression brakes; and the contractor will construct temporary or portable acoustic barriers around stationary construction

noise sources if required (for example, such barriers are [shown in Photo 16, page 19 of Exhibit S.30] near the raw water tunnel portal in the raw water pipelines easement and could be used around generators or other stationary equipment when located close to the property boundary)." Exhibit I.75 Construction Supplemental Information, page 1. Noise control will be verified with a sound level meter. Exhibit I.75 Construction Supplemental Information, page 1.

Sound barriers will be used at the generators to further reduce the potential for noise. These generators are needed during the beginning of construction before permanent electricity is installed at the site. Exhibit J.39 ("for an estimated 6 months until PGE could get power to the property."). Exhibit J.82 discusses the sound attenuating enclosures for each generator and models the success of those noise mitigation strategies. As shown by the modeling in Exhibit J.82, it is feasible for the contractor to use sound walls or other methods to ensure that the nighttime noise level during construction meets the County's noise ordinance nighttime standard (50 dBa). For reference, 60-70 dBA is normal speech at the source. Exhibit A.4 (1.A Filtration Facility CUP Narrative), page 32. Moreover, noise control will be verified with a sound level meter. Exhibit I.75 Construction Supplemental Information, page 1.

D. Construction Air Quality (AQ)

1. Construction Emissions

Considerations related to emissions during construction are summarized in Exhibit I.75 (Construction Supplemental Information), pages 2-3, and provided below:

> The City of Portland participates in the Clean Air Construction (CAC) Program which aims to reduce sources of diesel emissions on construction projects by implementing a standard set of requirements.
>
> Contractors working on the Bull Run Filtration Projects will need to certify that all applicable diesel equipment and vehicles are registered and in compliance with the CAC Program or have a valid exemption. Compliant equipment and vehicles will be issued a decal to keep displayed.
>
> Contractors will need to take the following steps to reduce unnecessary diesel equipment idling, unless exempted:
>
> - All nonroad diesel equipment must shut down after five minutes of inactivity, and
> - all nonroad diesel equipment shall have decals/prompts visible to the operator to remind them to shut down the equipment after five minutes of inactivity, and
> - contractors will post "Five Minute Limit" signs in high foot traffic areas of the job site, visible to workers, and
> - contractors will ensure all diesel equipment operators are aware of the policy.
>
> In addition, contractors will need to meet the CAC Program diesel engine requirements unless exempted and pursue engine retrofits or install emission control devices to reduce diesel particulate matter. Qualifying emission control devices must capture diesel particulate matter at a level of 85 percent or greater. These requirements apply to diesel-powered nonroad

> construction equipment greater than 25 horsepower and to all on-road diesel dump trucks and concrete mixers.

Commenters are concerned that "thousands of tons of CO2 emissions from construction equipment" had a significant natural resource impact. Exhibit N.43, page 5. However, Mr. Gleason explained, and I find, that "CO_2 emissions from construction activities are short-term and confined to the temporary construction period. The effects of global climate change are the result of worldwide GHG emissions. Individual projects of certain sizes, like the one proposed, do not generate enough GHG emissions to meaningfully affect or influence global climate change, nor would the Project's CO2 emissions separately affect natural resources in an adverse manner." Exhibit S.35, pages 1-2, 8.

2. Construction Dust Management

Related Exhibits:

- Exhibits. I.100-I.102 (Full Erosion and Sediment Control Plans)
- Exhibit H.3 (Pre-Hearing Statement), Attachment 8 (Dust Control Plans)
- Exhibit I.75 (Construction Supplemental Information), pages 1-2
- Exhibit J.81 (Dust Management Supplemental Information)

Dust will be effectively controlled during construction. Exhibit H.3, Attachment 8 provides the dust control plans for operation and construction of the filtration facility. These plans are also summarized in Exhibit I.75 (Construction Supplemental Information), pages 1-2.

For example, at the Filtration Facility site, speeds will be limited, water trucks will operate continuously through the dry season to wet gravel roads and stockpiles as needed (while not applying so much as to create runoff), wheel wash facilities can control track-out which could otherwise contribute to dust in the surrounding area, stockpiles will be watered or covered to prevent dust releases, and various other strategies. For Pipeline construction, the contractors will also follow similar best-practices dust management procedures, which include wetting the work area, temporary aggregate access roads, sweeping paved roads, loading and unloading on the downwind side of stockpile and minimizing drop heights, and wheel wash facilities as needed. Exhibit I.75 (Construction Supplemental Information), pages 1-2.

The Dust Control Plans are not just arbitrary plans. They are "industry-standard dust suppression … because they **have proven effective for dust suppression at construction sites**." Exhibit J.81 (Dust Management Supplemental Information), page 1.

E. Construction Chemical Management

Related to hazardous materials management, Exhibit I.75, page 4 explains:

> Only materials directly related to construction activities will be permitted on site. These materials will include but not be limited to diesel fuel, equipment lubricants, hydraulic fluids, paint, and other materials specified for incorporation into the filtration facility construction. Use, transport, and storage of all such materials will be in full accordance with applicable regulations. Any material classified with a hazardous rating will be stored and used in full

compliance with its respective Safety Data Sheet as required by Occupation Safety and Health Administration.

Fuels, for example, will be stored in a covered, polyethylene-lined containment basin. Next to the basin will be shallow, reinforced concrete depressed slabs to allow for transfer of fuel to and from the fuel tanks. The lube truck will park on this slab overnight to establish further containment during off-hours. During the day, the lube truck will fuel and service construction equipment. Other materials such as oils, grease drums, and waste oil will be stored in container vans and have pans for secondary containment.

After the filtration facility is built, but prior to coming fully online, there will be a startup phase for the treatment process when the treatment chemicals that will be part of operation will be onsite. These chemicals will be managed with the same procedures for safe handling and storage as during the operations phase.

F. Construction Ground Water Protection

1. Aquifers and Wells

As explained above in Section VIII.B.2, "[c]onstruction activities such as the facility site excavations and raw water shaft and tunnel excavations are shallow relative to the deep aquifer within the Troutdale Formation where nearby water wells source their water from." Exhibit U.20.g, page 10.

Commenters have raised concerns that construction, and particularly construction of the Raw Water Pipeline tunnel and shaft, will "cause: - Fracturing or compaction of aquifer-bearing units. - Contamination of well water through mobilization of surface pollutants. - Permanent lowering of groundwater elevation, reducing long-term well productivity." Exhibit S. 14, page 3.

As explained by the applicant's groundwater experts,

> "Fracturing or compaction" of the Troutdale Formation aquifer where the nearby wells source their water from will not occur because the wells are offset from the construction work and their screened intervals (i.e., where the aquifer water is allowed to enter the well) are a minimum of approximately 80 to 130 feet below the base of the raw water shaft and tunnels, which are the deepest excavations for the project. The distances and depth of the wells are too far from the construction work areas to result in damage. For the same reason (that even the deepest project construction excavations are located well above the deep Troutdale Formation aquifer), the project is not capable of "lowering … groundwater elevation, reducing long-term well productivity" as this commenter claims.
>
> The vast majority of the raw water pipeline tunnel and vertical shaft will be constructed by mechanically excavating, rather than drilling or blasting. For less than 40 vertical feet of the construction of the vertical shaft, insignificant levels of ground vibrations will be induced by blasting basalt rock anticipated at 150-feet below the ground surface. However, the use of blasting and the resultant

> vibrations are too low and too far away to cause an impact to area wells. The predicted construction blasting vibrations at the well locations are less than 0.05 inches per second, which is far less than would impact a home's lathe and plaster wall. The typical threshold for blasting vibrations to protect sensitive structures with lathe and plaster walls is 0.5 inches per second, approximately 10 times greater than what is predicted at the closest wells. Furthermore, the wells are constructed with well steel casing, a material that is tolerant to vibration without damage.
>
> The project will not cause "contamination of well water through mobilization of surface pollutants" because the construction activities are located above the deep Troutdale Formation aquifer where nearby wells source their water from.
>
> Lowering of groundwater during construction is a temporary condition and only affects groundwater within the Springwater Formation. Post-construction, the Springwater Formation groundwater will be recharged quickly (over a few wet months, rather than over decades, as explained above). For area wells, which are all located in the deep aquifer within the Troutdale Formation, there will not be any short-term nor long-term impacts from construction or operation of the project.

Exhibit U.20.g, page 10.

Additional information related to the extensive investigations performed by the Project to ensure protection of area wells and groundwater during construction can be found at Exhibits I.61 through I.65.

Opponents asserted that construction would impact wells and ground water in the area. The Project's engineers examined this concern and concluded that construction will not impact groundwater wells.

- A detailed examination was done of the raw water tunneling work. There, the "predicted vibrations at the wells … are less than 0.05 inches per second. For comparison, the typical threshold for blasting vibrations to protect sensitive structures with lathe and plaster is 0.5 inches per second, approximately 10 times greater than what is predicted at the closest wells. Furthermore, the wells are constructed with well steel casing, a material that is tolerant to vibration without damage." Exhibit I.64 (Raw Water Pipeline Wells), page 8.
- Construction of the Filtration Facility itself "will include excavations of up to depths of 20- to 30-feet below ground surface" whereas "wells are greater than 400 feet below ground surface (bgs) with considerable separation from surface activities related to the Project. Exhibit I.63 (Filtration Facility Wells), page 1. From filtration facility construction itself, the strongest vibrations from the project are predicted at less than 0.004 inches per second, over 100 times less than the sensitive structures threshold. Exhibit I.63 (Filtration Facility Wells), page 2.
- The Finished Water Pipelines have relatively shallow excavations of about 20 feet. Exhibit I.65 (Finished Water Pipeline Soil and Wells), page 3. The closest well is 100 feet away on the surface and there are two that are 300 feet away on the surface. Every other well is substantially further from the alignment. *Id.* pages 2-3. The vibratory compactors, used intermittently, would have the largest vibration from either open cut and trenchless installation. Those would produce about 0.2 inches per second of vibration at about 30-40 feet away, well below the sensitive

> structures threshold even without taking into consideration the screened intervals being privately 80 to 100 feet below the invert of the pipelines. *Id.* at 4.

Therefore, construction vibrations will not impact the performance of private wells because the distances and depth of the wells is too far from the construction work areas to result in damage. No vibration will come close to the sensitive structures threshold where damage may be possible, and wells are not a sensitive structure -- they are constructed with well steel casing, a material that is tolerant to vibration without damage.

A slightly different concern was expressed that the use of concrete or grout in the pipeline construction process would contaminate or otherwise interfere with ground water. Contractors for both the raw and finished water pipelines confirmed that the materials used to fill the space around the tunnel pipes will be isolated. Where open cut installation is used, the isolation is similar to a house foundation installation. Where trenchless installation is used, steel casing is installed first, then the water pipe inside of that steel casing, and the space between the two (the "annular space") is then filled – allowing the steel to completely contain the grout. Exhibit I.61 (Finished Water Pipelines Use of Concrete). For the raw water tunnel, similarly, full perimeter steel sets and timber lagging contain the materials used to fill the annular space. Exhibit I.62 (Raw Water Tunnel Use of Concrete).

a. The "mound of dirt"

Cris Courter is concerned that "the tremendous mound of dirt which forms a huge hill of earth" – a soil stockpile related to construction – will harm "an immense aquifer deep under" ground in some, unspecified way. Exhibit N.6, page 1. This is not the case. "The construction-related mound of dirt is not a permanent feature. The post-construction grading and topography will be as shown on proposed project plans. Excavation, movement, or mounding of soils during construction will have no long-term impact on the fundamental structure or the function of either the Springwater or Troutdale aquifers. Instead, the Troutdale Formation (where water wells in the area source water from) will be entirely unaffected by the project – as it is separated from the Springwater and any project areas by a consolidated layer of approximately 200 feet of sandstone – and the surface level groundwater of the Springwater will continue to cycle, recharging and draining water in soils in the area in the same way as under pre-construction conditions." Exhibit S.29, page 5.

b. Flora Do Not Get Water from Aquifer

The Courters are concerned that trees and flora "get their water from this aquifer", referring, incorrectly albeit understandably,[94] to the perched groundwater that has been dewatered from excavations for construction as an aquifer. This is an incorrect understanding of how groundwater in the area works. "The trees and flora mentioned in the comment obtain water from water infiltrating through the soil. … [S]urface vegetation is obtaining water that is infiltrating through the Springwater Formation from precipitation events. Surface vegetation (including trees) at the site do not obtain water from groundwater aquifers directly and therefore the removal of some groundwater from the site during construction will not have an adverse effect on the trees and flora." Exhibit S.29, page 5.

[94] A "point of clarification is that … [t]he elevation of the perched water is dependent on the distribution of unconsolidated geologic material and is not considered an aquifer." Exhibit U.20.g, page 14.

2. Seeps and Springs

a. Filtration Facility Site & Raw Water Pipelines

Commenters provided testimony that springs near the Filtration Facility site are being "altered by [the Project construction's] need to pump water [and] are now drying up." Exhibit N.33, page 2. Similarly, Ms. Hart commented that "Construction can change the natural flow groundwater, leading to the drying up of springs and altering their discharge rates. This affects the ecosystems that depend on these water sources." Exhibit S.15, page 1.

First, as explained by Ms. Hart, it is when "the perched groundwater reaches a point where the pressure is sufficient, or if the impermeable layer is breached or sloped, the water flows out to the surface. This outflow is typically where a spring may form." Exhibit S.15, page 1. As is detailed above in Section VII.B.2, "the shallow perched groundwater (and deeper groundwater in the Springwater Formation) will continue to cycle, recharging and draining water in the same way as under pre-construction conditions. Accordingly, any seeps or springs where water flows out to the surface from the groundwater in the Springwater Formation will not be adversely affected by the project." Exhibit U.20.g, page 13.

Furthermore, as explained by the applicant's groundwater experts:

> Depending on the nature and depth of the geologic materials feeding springs, the change in elevation from the source (precipitation) to the spring, and varying meteorological conditions, some springs are ephemeral (do not flow consistently year-round) and would not provide a year-round reliable source of water. There are significant topographic features that also contribute to the nature and seasonal variability of springs formed by groundwater. These include swales and slopes. Since the project site is located at the extreme eastern edge of the Springwater Formation (the western edge of the Sandy River canyon), natural groundwater flow from the site predominantly is towards the steep canyon wall. That is, as this commenter explains, the perched groundwater flows out to the surface where the perched area is "breached or sloped" in the areas of the Sandy River canyon. The project will not impact the canyon wall. Accordingly, seeps and springs in the area of the project will continue to be driven by the recharge and cycling of Springwater Formation groundwater, in the same way as under pre-construction conditions. The project will not adversely affect area seeps or springs.

The Courters' concerns about their specific spring (Exhibit N.33) are addressed in Exhibit S.29, page 8.

Biohabitats reviewed the information provided by the groundwater experts and concluded, and I find, "that any impacts on springs will not have a long-term adverse effect on natural resources that extends beyond the construction period." Exhibit S.31, page 10.

b. Finished Water Pipelines

Commenters expressed concerns about the "springs that feed into Beaver Creek" and asked for assurances that "these springs … will not be disrupted by … pipeline construction." Exhibit N.15, page 1.

The Pipelines design team "explains that, in part because groundwater is found only below the bottom of the excavated depth of the pipeline installation, the pipeline installation and later operation will not change groundwater flows or reduce the flow from existing springs into Beaver Creek. Accordingly, [Biohabitats concludes and I find] there will be no construction impact … nor long term impact that could adversely affect natural resources in the area." Exhibit S.31, page 9.

G. Construction Farm Area Flooding

The CCPO/PHCA argue that the Project has "impact[ed] farm operations and agricultural resources in a significant way" because of flooding near the improved farm road above the Finished Water Pipeline alignment where it crosses north from Dodge Park Blvd to the Intertie at Altman road. Exhibit N.43, page 20. "According to Surface Nursery, operators (including the neighboring farm, Ekstrom Nursery) experienced unprecedented flooding causing the inability to operate and access farmland, destruction of seedlings, and unworkable soils for farming." Exhibit N.43, page 20.

The applicant explains that this "was a short-term event that was resolved within a week[.]" Exhibit S.30, page 20. Notably, no commenter, CCPO/PHCA or otherwise, disagreed with that statement and the description of PWB's immediate response to the issue when they had the opportunity in the second open record period. A full description of PWB's response is provided at Exhibit S.30, pages 20 – 21. Both times that PWB received a notice of an issue, it was resolved either the same day or the next day. PWB has not received notice nor observed any additional ponding or other issues at this location since the issues were resolved. Exhibit S.30, pages 20 – 21. This was a limited construction impact related to construction activities that are not relevant to compliance with MCC 39.7515(B).

H. Construction - Wetlands

1. Expert Testimony

a. Applicant's Experts

The applicant provided expert testimony related to wetlands, including wetland function, vegetation, and habitat, from Anita Smyth of Winterbrook Planning. Mark Havekost provided expert testimony on groundwater and surface water issues related to pipeline installation on the Raw Water Pipeline.

Anita Smyth's resume is provided in Exhibit A.155. Ms. Smyth of Winterbrook is a Senior Professional Wetland Scientist and has a Master's Degree in Environmental Science from Oregon State University. Ms. Smyth has over 25 years of professional science experience with emphasis on environmental inventories and permitting of projects with potential impacts to ecologically sensitive areas. She has executed numerous studies of wetlands, riparian corridors, and wildlife habitats, including wetland inventories and riparian habitat assessments for several Oregon cities. Overall, I find that Ms. Smyth is qualified by education and experience to provide the expert testimony she has provided in this case, particularly related to wetland areas.

Mark Havekost, PE Delve Underground (resume at Exhibit S.38) is a Principal engineer with a background in civil and geotechnical engineering. He has 30 years of U.S and international experience in the planning, design, and construction of water, wastewater, transportation, and hydropower

infrastructure, along with significant U.S. and international experience in the underground industry, concentrating on tunnel design and geotechnical engineering. He has experience using trenchless, tunneling, and shaft construction methods to address unique challenges related to access, routing, subsurface conditions, hydraulic performance, corrosion, and seismic resiliency. Mr. Havekost has a Master of Science degree in Civil and Geotechnical Engineering from the University of California, Berkeley, a Bachelor of Science degree in Civil Engineering from California Polytechnic State University-San Luis Obispo, a Master of Engineering (MEng) from the University of California, Berkely, and is a registered civil engineer in Oregon.

b. Opponents' Experts

None of the project opponents submitting comments testimony related to wetland impacts have education or other qualifications necessary to qualify as an expert on wetland function or hydrology.

2. Raw Water Pipeline Wetland and Waters

The CCPO/PHNA pre-hearing submittal raises concerns about what they term irreparable effects to surface water at the raw water pipeline. Exhibit N.43, pages 16. At the time it appears that they believed the hardened road structure was placed on top of, and thus directly impacted, a wetland. A memorandum prepared by Anita Smyth provided a response to comments related to claimed wetland impacts on the Raw Water Pipeline site that clarified that the existing farm road was located between two wetlands and die not impact the delineated ponds or wetlands. Exhibit S.33, pages 1-2. In response, Ian and Lauren Courter state that the memorandum does not address trenching and pipeline placement through wetlands. Exhibit U.16, page 1. The statement is accurate because the pipeline will not be trenched through the wetland located on the Raw Water Pipeline site. Instead, as discussed in detail in Section VIII.D.5.e above, the Raw Water Pipeline will be installed below the pond and surrounding wetlands using trenchless technology. Based upon the Courter's later reference to the DSL application for authorization of Temporary Impacts to Nontidal Wetlands, Ecosystem Restoration and Water Way Habitat Restoration included with Exhibit S.33, it appears that the Courters may not understand the location of the temporary impact area referenced. The "adverse impacts" listed is the Courter's response at U.16, page 1 appear to be taken from a memorandum dated December 20, 2023 from Anita Smyth to Melinda Butterfield that provide a supplemental narrative for a requested General Authorization Permit ("GA Permit Memo"). Exhibit S.33, pages 10-13. The Project Description on page 2 of the GA Permit states, "[t]he proposed action is to construct a segment of finished water pipeline along the right-of-way of SE Dodge Park Boulevard" (emphasis added). Exhibit S.33, page 11. As depicted in the referenced Appendix A.4, the temporary impact area is located directly north of Dodge Park Boulevard and not on the Raw Water Pipeline site located a significant distance east of Dodge Park Boulevard. Exhibit S.33, page 18. Therefore, the actions the Courters attribute to the Raw Water Pipeline site in Exhibit U.16 are actually occurring during construction of the Finished Water Pipeline along Dodge Park. Those temporary impacts are addressed in the memorandum from Ms. Smyth in Exhibit N.57 and in the section below.

The Courters also state that the memorandum prepared by Ms. Smyth at Exhibit S.33 failed to address the "full scope of construction activity." Exhibit U.16, page 1. That is accurate, as the stated purpose of the memorandum at Exhibit S.33 is to address the hardened structure placed over an existing farm road during construction and to address the benefit of the structure to the wetland over pre-construction conditions. The structure is addressed in the wetland section above related to the operating Project. The

Courters also claim that "any construction" in or near sensitive wetland areas will cause lasting impacts, including soil compaction, disruption of natural hydrology, and long-term ecological degradation, and further contend, without any further explanation or evidence, that "heavy equipment, construction mats, and gravel does permanently alter subsurface conditions and drainage patterns." Exhibit U.16, page 1. *See also* Exhibit N.43, pages 14-16 (claiming long-term impacts as a result of construction activities on the Raw Water Pipeline, including changes in drainage patterns due to construction staging and activities).

The evidence in the record contradicts the broad claims. First, for the reasons set forth above, there will be no construction in the wetland. The figure included in Exhibit S.33, page 56 that does depict the Raw Water Pipeline shows the limit of disturbance outside of the delineated wetland areas. As confirmed in the memo from Ms. Smyth at Exhibit U.20b, the City of Portland Public Works Inspector, confirmed that the locations of the regulatory boundary of the pond and wetlands were located by surveyors prior to installation of erosion control measures and the construction of the bridge to ensure those activities occurred in uplands. Exhibit U.20b, page 2. Second, the entire construction area will be restored and replanted once the construction activity on the site is complete.

The entire construction area will also be replanted consistent with the updated Raw Water Pipeline Proposed Conditions Plan (LU-200) attached to Exhibit U.20b. As provided in the general sheet notes on the plan, "all work areas will be restored to existing grade." The Raw Water Pipeline Erosion and Sediment Control Final Stabilization Plan (RWP-CE-1005) includes additional notes which include the following directives:

- Contractor to re-grade disturbance area from pipeline construction to match existing grade, where not otherwise shown on drawing.
- upon project completion remove gravel surfacing from all staging areas and restore topsoil and seed.

Exhibit I.101, page 7. Finally, Mark Havekost with Delve Underground addresses comments from the Courters related to hydrology at the Raw Water Pipeline site, and explains, " Surface water runoff from the Dodge Park Road slope (Sandy River canyon wall) from precipitation also contributes flow to the site and pond, however this source of surface water runoff will not be adversely affected by the project construction or operations and the site will be restored to pre-construction drainage conditions coming off the Sandy River canyon wall." Exhibit U.20g, page 16. Mr. Havekost further concludes, "[t]he surface wetland along the finished water pipelines is supplied by sheet flow and shallow concentrated flow from a culvert under Dodge Park Boulevard. Runoff from the Dodge Park Road slope also contributes flow. Flow paths disrupted by construction will be restored under post development conditions, including sheet flow, drainage ditches, and shallow concentrated flow.

Commenters also raised concerns about adverse impacts to animals that are located in or around the pond at the time the Raw Water Pipeline boring and tunneling occurs. However, each of those comments relate to harm to individual animals present at the time of construction activity. As addressed in Section VIII.5.e.iv above, the presence of the pipeline a minimum of 6 feet below the bottom on the pond will not adversely affect pond or surrounding wetland hydrology or value as wildlife habitat.

The testimony related to the Raw Water Pipeline is limited to construction impact related to construction activities that are not relevant to compliance with MCC 39.7515(B).

3. Dodge Park Wetland

As explained, above and in the Bull Run Filtration Project- Wetland Evaluation memorandum prepared by Ms. Smyth, the Project successfully avoids permanent impacts to delineated wetlands or waters of the state. Exhibit N.57, page 1. While temporary wetland impacts were not avoided entirely, they were reduced to a single location between the toe of Dodge Park Boulevard Roadway embankment and an area of active agriculture use. Exhibit N.57, page 1. Ms. Smyth describes the temporary impact area in her memo as follows:

The Courters challenged conclusion that the wetland impacts along Dodge Park will be temporary. Notably, it is not just Ms. Smyth that concludes that the wetland impacts are temporary. DSL issued a General Authorization for "Temporary impacts to Nontidal Wetlands" for the Dodge Park wetland construction work on April 2, 2024. Exhibit S.33, pages 5-9. A supplemental narrative for the General Authorization prepared by Ms. Smyth and submitted to DSL explains:

> At the August 15, 2023 Streamlining Committee Meeting, Melinda Butterfield, Aquatic Resource Coordinator for DSL, raised the question of whether the impact would truly be temporary; specifically whether the project activities could create a drainage effect, reducing the area of the wetland in the future. This question was addressed in a memorandum to DSL dated September 23, 2023. In summary, due to the topographic position of the project and the measures taken in the engineering of the backfill material, the project activities are highly unlikely to create a drainage or dewatering effect that would result in a permanent wetland impact by reducing hydrology.

Exhibit S.33, page 11. The supplemental narrative confirms that Ms. Butterfield sent an email agreeing that it appeared the impacts would be temporary and the project may qualify for the General Authorization granted. Exhibit S.33.

The Courters continued to have concerns about the length of time it would take to for the establishment of wetland vegetation, soil structure, and hydrologic function, contending there would be a "substantial temporal gap between impact and ecological recovery, during which wetland function and biodiversity would be impaired." Exhibit S.22, page 2. Ms. Smyth provided the following response to each category identified:

> In terms of vegetation impact and restoration, there is no woody vegetation in the area of impact. The dominant species in the area to be disturbed is *Phalaris arundinacea* (commonly known as reed canarygrass), designated a noxious/invasive species by the Oregon Department of Agriculture, City of Portland, and the Multnomah County Natural Resources Conservation Service. Per NWP-2024-102 and 64845-GA (Exhibit S.33), PWB will re-establish native herbaceous vegetation in the 83 square feet, which will provide increased biodiversity and habitat function compared with a monospecific stand of an invasive species. The reseeding will occur in the fall after pipeline installation and prior to filtration facility operation. Germination will happen within days of appropriate conditions (fall rains), with the seedling development continuing over weeks to several months. The reference in the comment to wetland plantings taking years or decades is not applicable to this

> wetland. There is no expected temporal loss of habitat function from the disturbance of *Phalaris arundinacea*.
>
> In terms of project impact to soil structure, the disturbance area is located in an area of intensive agricultural use. The soil at this location is already routinely subject to seasonal disturbance from discing and tilling as well as compaction from light trucks and equipment used to harvest. The construction excavation will temporarily disturb the soil, but the pre-disturbance contours will be replaced and trenching measures will restore the pre-disturbance permeability and drainage, per Corps and DSL request and as stated in NWP-2024-102 and 64845-GA (Exh. S.33). Preconstruction agricultural activities are anticipated to resume in this area following construction.
>
> Regarding hydrology, the water source for the wetland at Dodge Park Boulevard is surface water runoff from adjacent uplands and direct precipitation. Per Corps and DSL request and as stated in NWP-2024-102 and 64845-GA (Exh.S.33), the pipeline construction will occur during dry conditions. The work area will be isolated per stormwater Best Management Practices (BMPs) presented in the permit application to prevent the export of sediment to Beaver Creek downstream. Following installation, soil contours and permeability will be restored to predevelopment conditions for groundwater recharge and stormwater attenuation. The native herbaceous vegetation that will be planted following pipeline installation establishes quickly and will provide long-term soil stability once established. BMPs protect stability during the short period required for vegetation establishment described above. Because the work will happen in the dry season, no temporal loss of hydrologic function will occur. For these collective reasons, there will not be a long-term adverse effect to wetland function or habitat following the pipeline construction period.

Exhibit U.20b, pages 2-3. In terms of the habitat value and function of the Dodge Park wetland, the CCPO/PHNA's Adverse Effects report includes identifies the benefits of wetlands to invertebrates and specific amphibians. Exhibit N.43, pg 41. ESA responded by appropriately identifying the only wetland impact that will occur during project construction, explaining that as provided at Exhibit N.57 the small roadside wetland dominated by invasive reed-canarygrass. ESA concludes, "none of the amphibians noted in testimony were identified or would be expected to reside or breed in this highly disturbed habitat." Exhibit S.32, page 28.

I. Wildlife Displacement

Many commenters have raised concerns about the displacement of either specific animals or wildlife in general during Project construction. There are many reports of not seeing or hearing wildlife in the area either at the same level as pre-construction or at all. *See* Exhibits N.6, N.8, N.10, N.18, N.19, N.41, N.47, N.52, N.53. This includes several claims of wildlife being absent from back yards or known migration pathways. There is also some conflicting evidence in the record indicating the presence of wildlife within the Filtration Facility area during the active construction window. Construction at the main Filtration Facility site commenced on or about November 12, 2024 and the LUBA remand was issued on January

22, 2025. Exhibit S.30, page 3; Exhibit M.4. A video shown during the hearing included images from a trail cams at various points in "Lusted Woods" located east of the Project. Exhibit R.4. The following animals (followed by the date and video timestamp) were visible on clips from the video that were dated after November 12, 2024 but before January 22, 2025: 2 elk (11/22/2024 -0:46); bobcat (1/18/2025 – 1:16); unknown (12/21/2024 – 2:13).

A few commenters express concerns that displacement is or will be permanent. *See* Exhibit N.19; Exhibit N.52. There is also some testimony that include reports of wildlife returning after the remand order. See Exhibit N.18, page 2 (noting now that construction has slowed, we "have seen a slow return of coyotes" and "glowing eyes have returned to the road"); Exhibit N.47, page 1 (reference to wildlife slowly returning after remand order). A number of avian surveys conducted after the remand order provide evidence of an active bird presence in the area. A 30 minute survey of the Filtration Facility site conducted on February 12, 2025 documented 7 bird species and 16 individuals, and a roughly 4 hour survey on April 22, 2025 documented 25 bird species and 94 individuals, including 11 white crowned sparrows. Exhibit S.22, Exhibit 2.

In a response to the concerns about the displacement being permanent, ESA provided examples of wildlife returning after construction, including construction of a wildlife crossings over highways in Canada and Washington State. Several subsequent comments took this as an attempt to compare the wildlife crossings in those locations to the Project, but as the response indicated, it was "intended as an example of wildlife returning to areas disturbed by construction." Exhibit S.22, page 5. Mr. Smith in particular responded that the comparison was not relevant because the habitat on either side of the roadways remained intact, concluding "[t]his is not the situation at the filtration project site where all the habitat has been destroyed." Exhibit U.19, page 7. As discussed at length above, that statement is not accurate because the upland forest to the east and the Johnson Creek corridor to the southwest have been preserved during construction, and following construction the unfenced habitat areas on the Filtration Facility site will facilitate wildlife passage.

Finally, in her proposed findings Ms. Richter references the testimony related to wildlife displacement. In the response she seemingly suggests that comparing the "level of natural resource activity on the water filtration pipeline properties before the development and the level of natural resource activity in the general area after" is the necessary comparison. Exhibit W.3a, page 20. As established above, I find that the correct interpretation of "natural resource" for purposes of MCC 39.7515(B) is wildlife habitat and not wildlife or individual animals. Unlike wildlife or individual animals, wildlife habitat does not engage in activity. Even if wildlife were a natural resource for purposes of MCC 39.7515(B), Ms. Richter's hypothetical is still incorrect because it is not tethered to a specific adverse effect in the post-construction review.

XI. Conclusion

I find that the record demonstrates that the Project will not adversely affect any category of natural resources, and therefore complies with MCC 39.7515(B).

Accordingly, I reapprove, with conditions, the applications for Community Service Conditional Use Permit for Utility Facility (Filtration Facility), Community Service Conditional Use Permit for Utility Facility (Pipelines), Community Service Conditional Use Permit for Radio Transmission Tower (Communication Tower), Review Use for Utility Facility (Pipeline – EFU), Design Review (Filtration Facility, Pipelines, Communication Tower, Intertie Site), Significant Environmental Concern for Wildlife Habitat (Lusted Rd Pipeline, Raw Water Pipeline), Geologic Hazard (Raw Water Pipeline), and Lot of Record Verifications.

Multnomah County

Lisa Estrin <lisa.m.estrin@multco.us>

Applicant's Final Remand Submission -- T3-2022-16220

1 message

Zoee Powers <zpowers@radlerwhite.com> Tue, Jun 3, 2025 at 11:46 AM
To: "lup-hearings@multco.us" <lup-hearings@multco.us>
Cc: Lisa Estrin <lisa.m.estrin@multco.us>, Renee France <rfrance@radlerwhite.com>, "Peters, David" <David.Peters@portlandoregon.gov>, Zoee Powers <zpowers@radlerwhite.com>

External Sender - Be Suspicious of Attachments, Links, and Requests for Payment or Login Information.

Multnomah County Staff,

At this link, please find the applicant's final submissions into the record for T3-2022-16220 on remand:

https://radlerwhite.sharefile.com/d-sf05e65292a9e47d08d68bfe4443c5b38

Thank you for your time and attention to this matter, today and over the last few months,

Zoee Lynn Powers

Partner

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