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Date: May 19, 2025
To: Ms. Liz Fancher, Multnomah County Hearings Officer
From: Bruce Prenguber, M.S., Agricultural Economist
Subject: Second Open Record Period Response to Public Comments on Agriculture and Agricultural Lands

This memorandum responds to Multnomah County land use review public comments received during the first open record period (after the public Remand Hearing on April 16, 2025, until noon, May 5, 2025), that address farming, farmland, or farmed soils. In this document, Project refers to the operation of the Portland Water Bureau (PWB) Filtration Facility and the operation of the proposed raw and finished water pipelines, including the intertie and all other pipelines appurtenances.

Responses to First Open Record Period Written Testimony

Exhibit S.3 Amy Houchen comments - April 17, 2025; Exhibit S.4 Wesley Ward comments – April 18, 2025

Comment (unpaginated; first page of comments): "Continued work and ultimate operation of this facility as scoped would cause irreparable harm to nearly 95 acres of agricultural natural resources, and LUBA has determined that the county failed to consider how the building process would affect these."

Response – This comment references construction activity, and as such is outside the scope of this remand proceeding. Furthermore, farmland for the use of farmers exclusively is not a natural resource (see Exhibit S.36, pages 1-2, Agricultural Land is Not a Functioning Natural Resource) and farming is not the "natural state" of the

land (see Exhibit S.36, pages 2-3, The Natural State of the Land & Many Uses of Soil). Also, the size of the property is implied to be uniquely large, but this is a misrepresentation (see Exhibit S.36, page 4, Farm Field Size is Not Unique).

Comment (unpaginated; first page of comments): "The area is rich with some of the world's best soils, which are a limited resource we should not permanently remove when better options are available."

Response – Soil removal is part of Project construction, which is outside the scope of this remand proceeding. Furthermore, in the construction process, PWB has taken action to keep the excavated topsoil in beneficial farm use as explained in Exhibit S.34. Even though the soil at the filtration site was minimally contaminated with farm chemicals exceeding Oregon DEQ clean fill limits, PWB has allowed another farmer to apply this high-quality soil on their field in accordance with DEQ regulations and permitting for beneficial reuse that involves mixing with non-contaminated soils to reduce the aggregate level of pollution below DEQ levels of concern. This continued use of the soil for farming is the "better option", as referred to by these commenters.

Exhibit S.5 Guy Meacham comments - April 18, 2025

Comment (unpaginated; first page of comments): "[D]uring the PWB presentation questions were asked about the placement of the pipeline and if it was along right of ways. PWB answered that the half mile section between Dodge Park Blvd. and Lusted Road was along an existing farm road. While this is correct, I think it's important to note that there was no right of way here and a strip of land many times wider than the road was compulsorily purchased from the land owner."

Response – This comment references construction period pipeline activity, and as such is outside the scope of this remand proceeding.

However, I will address the two aspects of this comment. First, statements about the pipeline being in right of way were always in reference to the PWB's carefully defined pipeline routes placed in public road right-of-way to the extent possible. It has never been stated that there was existing public right-of-way in the area between Dodge Park Blvd. and Lusted Road – along the finished water pipelines – or between Lusted Road and the Filtration Facility – for the raw water pipeline, which are outside public road rights of way. 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 area.

The comment also states, "a strip of land many times wider than the road was compulsorily purchased from the land owner." The land required for pipeline construction and later for pipeline operations are the minimum width needed for the physical requirements of excavation and placing the large diameter pipe and later operations and maintenance of the pipe. I discussed PWB's efforts to minimize the footprint of the pipeline easement area in my farm impact analysis in the Agricultural Compatibility Report, Exhibit A.33, pages 138-140, and during the 2023 open record periods, in Exhibit I.80, pages 40-41. Furthermore, PWB has a detailed soil restoration plan to return all farmable land to high productive crop growing capability (see Exhibit A.33. D.2 Agricultural Soils Restoration Plan). This soil restoration plan is included as a condition of approval for the Project (see T3-2022-16220 Hearings Officer's Decision, page 85).

Exhibit S.10 Susan Swinford comments - April 30, 2025

Comment page 2: Agricultural Resource Impacts "The MCCP definition specifically includes 'agricultural resources' multco.us. 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."

Response – Regarding construction traffic, this is a construction activity and is outside the scope of this remand.

Regarding dust from filtration plant operations that "coat crops or soil," this has been addressed in my 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).

Regarding the use of treatment chemicals during filtration operations, the PWB has years of experience with safe handling of chemicals and will follow a hazardous materials management plan for the Project (see Exhibit A.33, D.1 Agricultural Compatibility Study, pages 104-105). The measures that PWB will employ to ensure the safe storage and handling of chemicals used at the filtration facility have already been entered into the record. I have reviewed these materials:

- 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 has a long history – more than 95 years – of safely handling water treatment process chemicals.
- 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.
- 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.

- 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.
- 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.

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 these factors, I conclude that chemical use in the filtration facility process will not adversely affect any agricultural properties in the area – through soil or otherwise.

Comment page 2: "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)."

Response – 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 S.11 John Swinford comments – May 1, 2025

Comment page 1: "1. The Use Will Adversely Affect Functioning Natural Systems Forests and agricultural lands may be weakened due to edge effects, hydrologic disruption, dust, and microclimate alteration caused by the facility's presence and activity."

"These impacts amount to loss of quality and capability in the affected natural systems, meeting the definition of 'environmental degradation' the County's land use system is designed to prevent."

Response – First, see Exhibit S.36, Agricultural Land is Not a Functioning Natural System. As I have discussed in Exhibit S.36, farmland and farmed soils fail to be a functioning natural system. 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. 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.

Second, the commenter broadly names effects ("edge effects, hydrologic disruption, dust, and microclimate alteration") with no description of how they cause changes to agricultural lands.

It is unclear what is meant by "edge effects." This requires further explanation in order to respond.

Hydrologic disruption refers to interference with the water cycle. Surface water movement has been discussed in the response to Exhibit S.10 above, regarding hydromodification and points of discharge. I have explained that stormwater drainage from the PWB filtration facility to the farm to the west will have no

negative impact on the farm. No other farms are impacted by surface water drainage from this site.

Regarding groundwater hydrologic disruption, there is no evidence that the irrigation wells near the filtration site will be adversely impacted. Exhibit I.63, page 1, determined that wells in the surrounding area are 400 feet or deeper from the ground surface, while the depth of excavations at the filtration site are just 20 to 30 feet below the ground surface. Additionally, there is considerable distance between the wells and the Project. Finally, all well casings are steel, and are tolerant of vibration. For these reasons, it was determined that the Project would not have any adverse impacts on the irrigation wells. For the same reasons, the wells in the vicinity of the finished water pipelines were also found to have no adverse impacts.

Exhibit I.64 addresses the potential for groundwater impacts along the full length of the raw water pipeline from the conduit connection, the tunnel portal, horizontal pipeline, and the vertical shaft. All sections of the raw water pipeline were found to be above the level of groundwater. Also, due to the distance separating the pipelines from wells and the steel well casings, no adverse impacts were identified.

Regarding dust impacts, I have addressed this in response to a previous comment in Exhibit S.10.

Microclimate was also claimed by the commenter to be altered by the Project and have a degrading effect on agricultural lands. However, the 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.

Comment page 2: "3. The Adverse Effects Are Not Temporary-They are Inherent to the Use. Unlike construction-related disturbances, which are temporary, the negative impacts associated with the operation of the facility will persist for decades. The noise, activity, lighting, vehicular access, chemical storage, and runoff will all become permanent features of the landscape, continuously affecting the areas ecological balance and reducing the function and resilience of its natural systems."

Response – Again, see Exhibit S.36, Agricultural Land is Not a Functioning Natural System. Second, all of the externalities named (and others) are addressed in my Compatibility Report in the 2023 proceeding (see Exhibit A.33, Agricultural Compatibility Study, pages 97 – 105). I have reviewed my prior research in light of the "will not adversely affect natural resources" standard and, for the same reasons stated therein, I conclude that none of these externalities will adversely affect agricultural soils or other agricultural inputs because none of the project externalities have the potential to adversely affect farm soils or other inputs used by nearby farmers.

Exhibit S.16 Paul Willis comments – May 4, 2025

Comment (unpaginated; first page of comments): "Rural Reserve is so designated to '…protect valuable farmland,' with soil that is considered to be a natural resource … that is being destroyed and removed, and thus adversely affected by the siting and operation of PWB's water filtration plant."

Response – The topsoil is not being destroyed but instead is being put to re-use at another agricultural property. DEQ determined that the soil on the filtration facility site had residual farm chemical contamination, but it could be beneficially applied to another farm field (see Exhibit S.34). 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 S.20 Charles Ciecko comments – May 5, 2025

Comment (unpaginated; first page of comments): "One of the defects with the Terzian Report is the assumption that relocating the contaminated soils to different sites removes the obligation to consider the impacts at the deposit locations including the construction site, county road right-of-ways, or the property owned by T&K Sester Farms, LLC located in Clackamas County (Gramor Property). Just pushing the contamination elsewhere does cannot satisfy the adverse effect concern when the evidence to date shows that these stockpiles are having a negative impact on natural resources."

Response – The excavation and removal of soil at the filtration facility site is a construction activity and as such is outside the scope of the remand proceedings.

Additionally, Mr. Ciecko acknowledges in this document that the farmed soils on the filtration facility site are contaminated with DDT, DDE, and Dieldrin. He also accurately states that the concentrations are above the Oregon DEQ standard for use as clean fill.

Considering the information in the memorandum concurrently provided into the record by Mr. Dennis Terzian, PBS, and dated May 19, 2025, with my memorandum, I conclude that the Project's management of these soils under DEQ guidance will not have an adverse effect on soils or any other agricultural resource. This conclusion is based on the action of PWB and another area farmer to use the 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 S.21 Ian Courter comments – May 5, 2025

Comment page 3: "The Cottrell CPO and PHCA Remand Report shows that:

- Agricultural land at the site were low-intensity[.]"

Response – It is inaccurate to characterize agricultural land at the site, which was in nursery production, as low-intensity. I have previously explained that nursery production is highly intensive (see Exhibit S.36, pages 1- 2). Nursery use of inputs such as farm chemicals, fertilizers, tractors and fuel, and irrigation water are among the highest of all field grown crops. 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 high-density plantings are plainly seen in Mr. Courter's photos in Figure 1 on page 4. The nurseries are not managed as peaceful, quiet, open land with abundant habitat for animals, birds, and insects, as this comment implies.

Comment page 3: "Biohabitats uses site photos that are intended to distort perceptions of pre-construction conditions. It was dishonest for them to use photos classified as "pre-construction," though they were taken long after the farmers were evicted from the land (December 2021) and the property was allowed to lie fallow."

Response – Biohabitats' site photos do not distort pre-construction conditions but several photos in Mr. Courter's Exhibit do distort the pre-construction conditions, as described in a later response and in Biohabitats' memorandum concurrently provided into the record with my memorandum, and dated May 19, 2025. The photo showing bare nursery ground adjacent to the SEC-WR overlay in Exhibit N.55, page 7, was taken in February 2020 while the land was in active farm use. This land was fallow during the high-rainfall winter months with no planted ground cover.

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.

Comment page 4: "In contrast, actual pre-construction photos show productive farmland, planted with nursery stock and cover crops."

Response – Figures 1 and 2 on page 4, 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.

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.

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 me 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 S.21 on page 3 claims that it is "factually incorrect" that Biohabitats "frames existing agricultural land use as the primary source of habitat degradation in the area[.]" But the evidence on exposed soil and water runoff alone (summarized above) illustrates the massive impact that the commercial agricultural nursery industry in this area has on surrounding habitat, even just from the rotavating of soil that is left bare. I also provide this evidence in response to the comment that "Creek sections adjacent to agriculture were in better condition than" they will be with the project (what the commenter characterizes as "industrial runoff and stormwater discharge"), Exhibit S.21, page 3. I will leave to Biohabitats' memorandum to discuss the condition of Johnson Creek – but I can say with certainty that the runoff from this site in agricultural use was significantly higher than it will be when the entire site is either planted with native plants and habitat areas or managed by a stormwater system that removes sedimentation from waters before leaving the site. This text also responds to Exhibit S.25, as noted below.

Exhibit S.25 Cottrell Community Planning Organization, Pleasant Home Community Association comments – May 5, 2025

Comment page 2, first bullet point:

- "Under normal nursery operations, when soils are not being used for nursery production, Surface Nursery planted bare soil with cover crop such as barley and rye to ensure productive soils for future plantings and control run-off and erosion."

Response – First, see the response to Exhibit S.21 above – while there were times when "soils [were] not being used for nursery production" that Surface Nursery planted cover crops, that was not always the case, and the extensive areas of bare soil between rows of crops cannot be ignored. In contrast, the post-construction filtration facility site will have extensive native landscaping and habitat areas that are not periodically entirely removed and rotavated.

Second, in only a few cases do the photos in Exhibit S.25 by CCPO/PHCA support the statement that "Surface Nursery planted bare soil with cover crop."

The first photo on page 2 above the caption stating "Filtration Site from SE Carpenter Lane looking south, August 2007" shows in the foreground only a small patch of cover crop, and even that is poorly maintained and shows significant exposure of bare ground. The photo is too low quality to discern the areas between crop rows, but they appear bare.

The second photo on page 2 is consistent with my summary above that describes bare land between rows of crops.

The caption for the first photo on page 3 notes that it was taken in 2019 from "Bluff Road looking north." The Pleasant Home Water District towers can be seen on the horizon. Those Pleasant Home Water District towers are at the very southern end of the filtration facility site. Nothing north of the Pleasant Home Water District towers can be seen in this photo. Therefore, this is not even a photo of the filtration facility site. Likewise, the second photo on page 3 also says in the caption that it was taken from Bluff Road in 2019 and shows none of the nursery land at the PWB property. Erroneously the caption states "No bare ground shown on proposed Filtration Site" – though the photo does show bare land between rows of crops on the Surface's "nursery land in foreground".

Notably, the aerial imagery of the entire filtration facility site for the same month of July 2019 on Exhibit S.25, page 11, does show the actual conditions of nursery

activity. The photo evidence displays substantial blocks of bare land area in many areas of the nursery use of the PWB property.

The two photos side by side at the bottom of page 3 of Exhibit S.25 show cover-cop planting between rows at a location "on … property … adjacent to," but not on, the filtration facility site. 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.

The first photo on page 4 of Exhibit S.25 purportedly shows cover crop plantings between the rows, but in fact shows just the opposite. There is no cover crop in the ground between the plant rows. Apparently, the nursery crop itself is mistakenly thought to be a cover crop. The second photo on page 4 of Exhibit S.25 (caption top of page 5), shows freshly rotovated soil in the space between crop rows. Moreover, the page 4 photos themselves identify the location as being "on … property … adjacent to," but not on, the filtration facility site.

The photo evidence presented by CCPO/PHCA confirms that, in most cases, the nursery crops at the filtration facility site had bare ground between the rows and at times entire areas of fields were left bare in between being used for nursery crops. I observed this in the nursery field at the PWB site as well as other nursery fields.

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. This is true of the images on page 5 (August 2002), page 6 (August 2005), page 7 (August 2010), page 9 (July 2013), and page 11 (July 2019).