Bull Run Filtration Projects
Land Use Applications

Applications Narrative Guide

Section 1.B: Filtration Facility
Design Review Application Narrative

Exhibit A.5

Filtration Facility

Contents

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Applicable Appendices

The following appendices are particularly relevant to and support the findings and conclusions in this section:

- Appendix A.1 Filtration Facility Drawing Set (Site Plans A.1.a, Architectural A.1b, and Civil Engineering A.1c)
- Appendix B. Public Engagement
- Appendix C.1 Transportation Impact Analysis (TIA)
- Appendix D Agricultural and Forestry Compatibility Studies
- Appendix E Filtration Facility Impact Studies (Visual, Noise, Light, Air Quality, Dust, Vibration, Odor, Hazardous Materials, Johnson Creek)
- Appendix H.1 Stormwater Report
- Appendix L Service Provider Letters (Sheriff, Fire Districts, PGE, Ziply, Recycling, Septic, Water, Stormwater Certificates)

Relation to Other Narrative Sections

This Section 1.B provides background information, findings, and analysis demonstrating that the filtration facility meets applicable Design Review (DR) criteria found in MCC 39.8000 through 39.8050. Parking, dark sky lighting, and sign regulations follow the DR standards.

This section builds on information provided in the **Introduction** and **Section 1.A Filtration Facility Conditional Use Narrative**. The findings in Section 1.B complement the findings in **Section 1.A**. Defined terms used in this Section 1.B are provided in the overall application **Introduction**.

Introduction to Design Review

The applicable Design Review (DR) standards of MCC 39.8000 through 39.8050 are reviewed in this section. The purpose of DR is to "promote functional, safe, innovative and attractive site development compatible with the natural and human-made environment" (MCC 39.8000).[1] The proposed filtration facility meets this purpose through thoughtful design strategies that were informed by a two-year public engagement process.

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.*

Response: The responses to this DR criterion overlap with the CUP criterion related to compatibility with the "surrounding area" addressed in **Section 1.A**. The visual character of the area is described in the **Introduction**, the **Section 1 Overview**, and **Section 1.A**. Appendix O.1 documents additional nursery and agricultural operations, forested areas, residential homesites, and public facilities in the area.

This Section 1.B focuses on environmental and built features with "a visual relationship" with the filtration facility site. Figure 1 illustrates the viewshed for the filtration facility site. Representative natural features and buildings and structures within this area are described in the following pages (2-6). This is followed by a discussion of the key elements of the filtration facility DR plan.

The design of the filtration facility was achieved through a review of the architectural and rural context of the area, a public outreach process which engaged neighbors and community members and obtained feedback from the Site Advisory Group, and internal workshops with Water Bureau stakeholders. Additional resources consulted include the design guidelines contained in the Columbia River Gorge Commission's *Building in the Scenic Area, Scenic Resources Implementation Handbook*[2] and the Institute for Sustainable Infrastructure's *Envision Sustainable Infrastructure Framework*.

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1 The purpose statement broadly describes the overall purpose of the Design Review regulations. The purposes statement is not itself an approval criterion that must be satisfied for Design Review approval.

2 Multnomah County Planning staff recommended following the Handbook guidelines where appropriate. However, the Handbook Guidelines are not directly applicable to the Design Review for the filtration facility.

Natural Environment

The natural environment is characterized by rolling hills with grades sloping gently down from the site to the west and south. The landscape is a combination of agricultural (nursery) fields interspersed with rural residential areas with lawns and gardens. A forested bluff drops off steeply to the northeast of the site, approximately 275 vertical feet, before leveling off at a rural residential area along Lusted Road. East of Lusted Road, a second steep bluff drops another 275 feet to the Sandy River.

Johnson Creek tributaries are located to the west and southwest of the site; the tributary to the southwest is forested while the tributary to the west is channelized through farmland. The vegetation on the bluff and forest areas is predominantly native, while the farm and residential landscape is a mix of ornamental and native species. Both forest and landscaped areas include evergreen and deciduous plants.

The forested bluff to the northeast visually screens the filtration facility site from rural residential areas near Lusted Road. Natural vegetation and topography screen areas north of Dodge Park Boulevard from the site. The forested creek corridor southwest of the site screens views from areas along Cottrell Road and Bluff Road near the Cottrell/Bluff intersection. Figure 1 is a viewshed map illustrating areas with views to site (yellow), areas with vegetation and topographic screening (orange line), and representative buildings and structures (red view wedges).

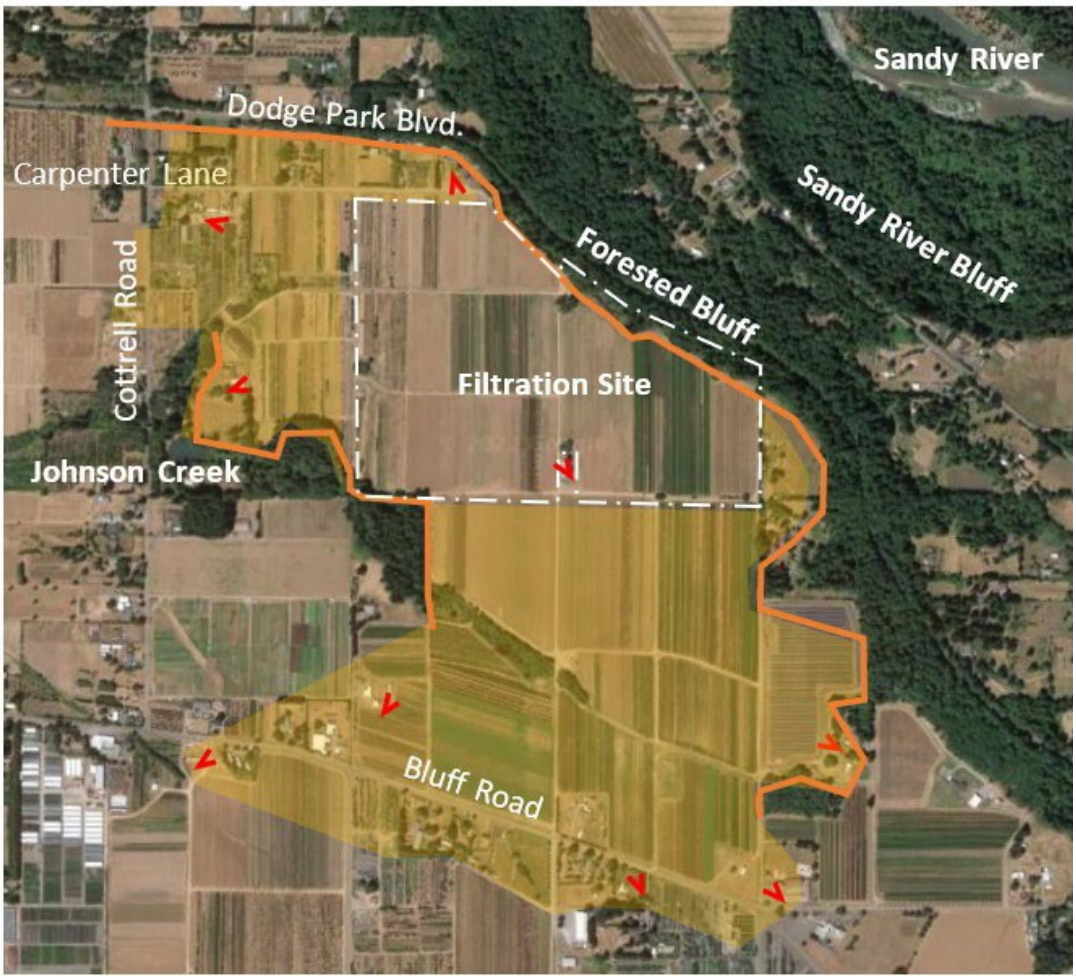

Figure 1. Site Viewshed with Natural Vegetation and Topographic Screening

The buildings and structures that have a visual relationship with the site include residential dwellings to the north, south, east, and west of the site, agricultural buildings to the west and south, a school to the south (the Oregon Trail Academy), and the Pleasant Home Water District (PHWD) water tanks at the southern border of the site.

Residential Buildings

A variety of residential buildings are found in the filtration facility viewshed. Design themes include:

- Varied residential building ages, designs, and sizes.
- Rural homes typically have gable roofs, plentiful windows, and are painted a neutral color.
- Homes include one, and two-story designs with rectangular footprints and with horizontal or vertical siding.
- Rural homesites often include accessory structures such as garages, barns, workshops, and other outbuildings with metal siding and gable or shed roofs that often are brightly colored and visible from public roads or neighboring properties.
- Some homesites also have outdoor vehicle and equipment storage areas that are visible from public roads or neighboring properties.

Figures 2 through 5 present representative images of dwellings with views to the site along Carpenter Lane, Cottrell Road, Bluff Road, and Proctor Road.[3]

Figure 2 shows a two-story residence on Carpenter Lane with characteristic gable roofs. It has horizontal siding and a neutral color scheme that blends in with the surrounding landscape. The homesite also includes a manufactured home with gable roof and a large shop with metal siding (yellow) and gable roof, and outdoor storage areas visible from the street.

Figure 2. Residence and Accessory Buildings on Carpenter Lane

[3] Representative images were copied from either Google Street View, Redfin.com, Trulia.com, or Zillow.com.

Figure 3 shows characteristic gable roofs of both residence and accessory structure. The 1-½ story home has a neutral color scheme. The accessory structure is large (2,400 sf) and resembles many of the nursery buildings in the area in terms of its utilitarian design and white/off-white exterior.

Figure 3. Residence and Accessory Structure on Bluff Road

Figure 4 shows a single-story residence with gable roofs and vertical siding that is painted a neutral color that blends in with surrounding landscape. The property also contains an accessory dwelling with metal siding and gable and shed roofs.

Figure 4. Residence and Accessory Structure on Proctor Road

Figure 5 shows a single-story home with gable roof that is painted a neutral color. The property contains a large accessory building with (metal) gable roof. The home is set back 500 feet from Cottrell Road and is fully screened from the road by trees.

Figure 5. Residence and Accessory Structure on Cottrell Road

Agricultural Buildings

A variety of agricultural buildings are also found in the filtration facility viewshed. Agricultural design themes include:

- Farm buildings have a variety of sizes and uses, including farm residences, storage, loading, greenhouses, offices, and garages.
- Farm buildings typically have simple forms with rectangular footprints and uniform cladding patterns.
- Buildings have a variety of gable and pitched roofs, including offset gable roofs.
- Materials include wood or metal siding and typically light-colored metal roofs.
- Farm building color schemes vary, with some painted white while others are natural wood or neutral colors.
- Buildings, outdoor vehicle and equipment storage areas, and shipping and receiving areas are often visible from public roads.

In Figure 6, a traditional gambrel-roof barn is bordered by a variety of farm outbuildings, all painted white. The outbuildings have gable or shed roofs and are wood- or metal-clad structures used for storage, office, and other nursery functions. The nursery has a large shipping and receiving area between the farm buildings and Carpenter Lane, with semi-trailer trucks and farm vehicles visible from the road.

Figure 6. Agricultural Buildings and Loading Areas on Carpenter Lane

Figure 7 shows an older, 6,000 sf wood-frame farm building with offset gable roof. The building has a metal roof and horizontal wood siding on the east façade, vertical wood siding on the north, and metal siding on the west. This is one of several farm buildings associated with a large farm operation in the area.

Figure 7. Agricultural Building on Bluff Road

Figure 8 shows a cluster of farm buildings, residence, and covered walkways set back from Bluff Road. The wood-frame farm buildings have gable roofs with wood siding and metal roofs. The color scheme is predominantly red with some white walls. The PHWD tanks are visible to the right in the image.

Figure 8. Agricultural Building Cluster on Bluff Road

Public Facility Buildings and Structures

Public facility buildings and structures with a visual relationship with the site include a school and water storage towers to the south of the site.

Educational facilities in the area include one school—the Oregon Trail Academy—within view and to the south of the filtration facility site. Figure 9 shows the school building cluster on Proctor Road. The buildings have a mix of gabled, pitched, and flat roofs and wood and brick siding. The color scheme is generally a neutral tone with some more brightly painted areas. There is some landscaping on the property but the school, drop off, and parking areas are largely unscreened from the public rights-of-way (Bluff Road, Proctor Road, and 362nd Ave.)

Figure 9. School Buildings on Proctor Road

The PHWD has two water storage tanks on a parcel to the south of and abutting the filtration facility site. Figure 10 shows the large cylindrical towers approximately 90 feet tall. Both tanks are painted teal. A chain link fence topped with barbed wire encloses the base of the tanks. The tanks are visible from roads and properties more than a half mile to the south and west.

Figure 10. Pleasant Home Water District Towers

Filtration Facility Design

Filtration facility buildings are designed to blend in with existing farm and forest land and incorporate design themes based on the characteristics of residential, agricultural, and public facility buildings summarized above within the filtration facility viewshed. The architectural design of the filtration facility uses the rolling hills theme influenced by Pacific Northwest and Agrarian architectural styles to relate the building forms to the natural environment and local buildings and structures in the area. The agrarian, rolling hills design theme is exemplified in the building rooflines, façades, and materials. Though local building types, styles, and functions are varied, the facility design team drew on public input, County design guidelines, and careful observation of the local environment and buildings to develop a harmonious design where the various facilities have common design styles and architectural treatments.

Figure 11. Filtration Facility Clustered on Western Half of Site

The proposed filtration facility achieves this design goal in the following ways:

- A unified campus to house a variety of building functions, clustered on the site to leave land for potential future agricultural, open space, or other uses, and to improve efficiency of the filtration process (see Figure 11 above).
- Primary buildings incorporate an agrarian design with offset gable roofs (like the farm building shown in Figure 7, and the combination of gable and shed rooflines found in residential buildings).
- Secondary buildings and integrated walkway canopies match the shed roofs common to many local accessory buildings.
- Use of simple forms that relate to the natural environment and existing nearby buildings, including rectangular footprints and uniform cladding types.
- Use of materials such as metal (typical of farm and exterior storage structures) and natural wood (typical of many nearby dwellings).
- Use of neutral, earth-toned colors to blend in with surrounding nursery fields and forested areas, similar to most nearby homes, public facilities, and some local nursery structures.
- Buildings with heights that are typical of the one, and two-story dwellings, farm buildings, and the nearby school.
- Buildings designed for human occupancy with plentiful windows, typical of most nearby dwellings.
- Use of an integrated horizontal and vertical cladding style, reflecting features of local building design and the landscape.

Figure 12 shows the clustered campus layout and proposed building designs. Detailed building plans are shown in the architectural drawings in Appendix A.1b.

Figure 12. Low-profile Facility with Compact Layout, Earth-toned Colors, and Wide Landscaped Buffers

The filtration facility will be a low profile set of buildings and related structures designed to discreetly function in the surrounding natural and built environment setting. Wide landscaped buffers will minimize views of the filtration facility from off-site. Filtration facility structures will be clustered which is a characteristic feature of nearby farm operation centers and homesites.

Filtration facility buildings include the following features:

- Proposed building materials include simple, clean metal cladding with standing seam metal roofs, reflecting the metal siding and roofs of local farm buildings and accessory structures.
- Wood elements, common in local farm and residential buildings, are integrated at the administrative building's entry area and roof overhang soffits and as structural components of primary buildings (Figure 12).
- Proposed exterior material finishes will have dark earth-tone colors (blue primary siding color) to integrate the filtration facility visually into the local landscape, borrowing a theme from most local residential and some agrarian buildings, and following the Columbia River Gorge Design Guidelines (Figures 13-14).
- Strategic placement of windows and glazing will provide daylight, minimize glare to neighboring properties, and reduce light pollution. Bird-safe glazing will be used where appropriate.

Figure 13. View of Administration Building

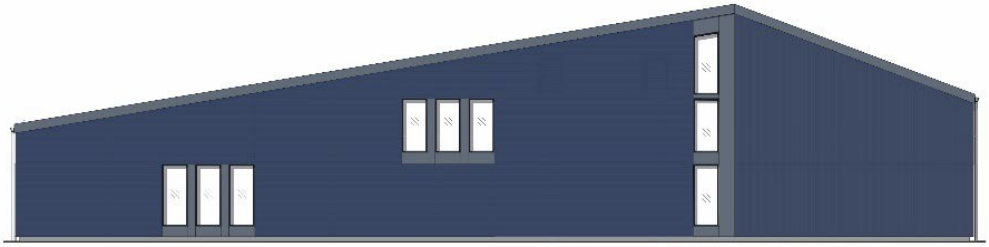

Figure 14. Color and Material Palette

Figure 15 shows the massing and cladding strategies for the primary buildings. The first diagram shows the offset gable roof concept, reflecting local farm buildings and the combination of gable and shed rooflines found in residential buildings. The second diagram shows the horizontal and vertical cladding pattern, integrating features of both farm and residential buildings nearby.

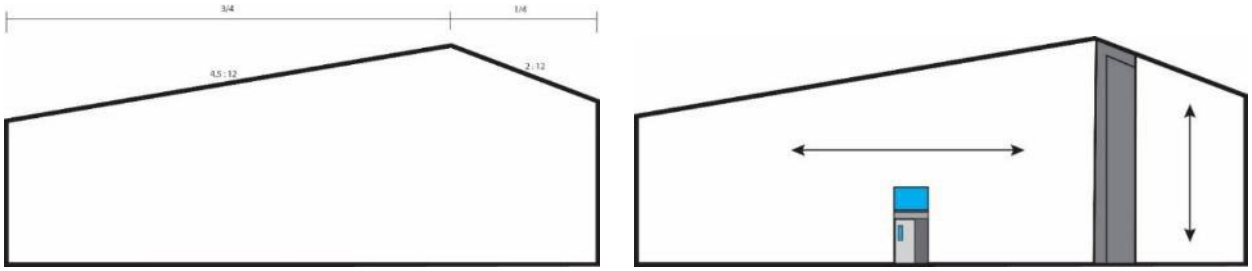

Figure 15. Design Diagrams Outlining Proposed Massing and Cladding Strategies, Direction Arrows Indicating Orientation of Metal Panels

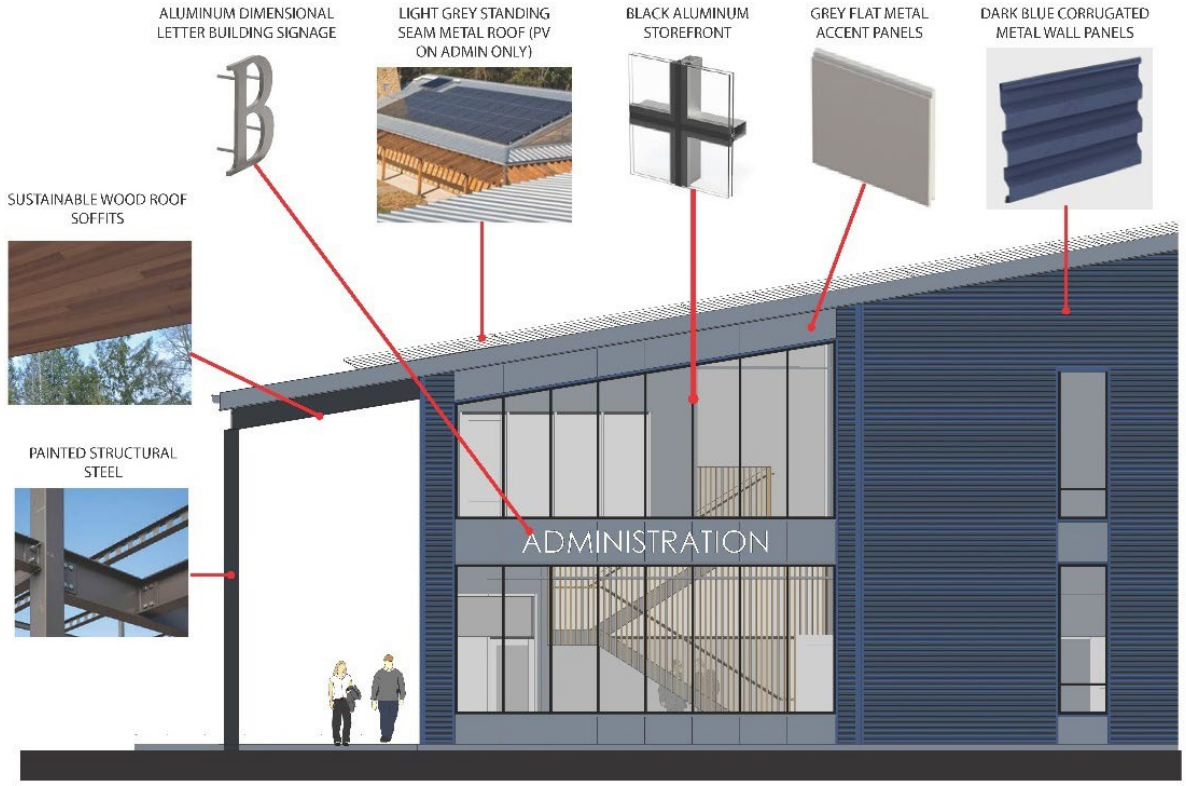

Figure 16. Annotated Elevation of Administration Building with Wood Soffits, Metal Cladding, Scaled Windows

The architectural and landscape design for 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.

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. These screening elements also help to filter any light and noise transmitted from the filtration facility (see studies in Appendix E.2 and E.3). Conceptual views from surrounding properties and Bluff Road are shown in Figures 17-20.

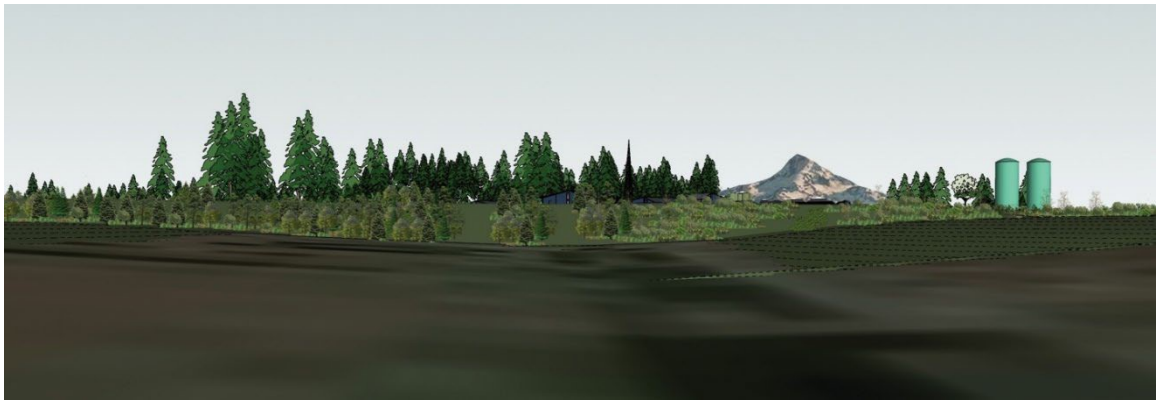

Figure 17. View Looking East Across Filtration Facility from Adjacent Property (Mount Hood placement approximated)

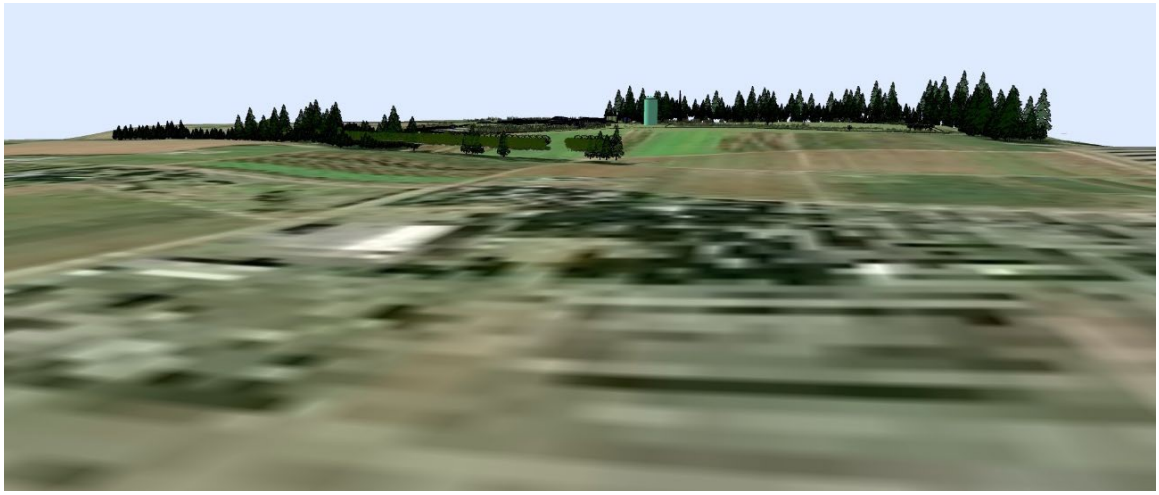

Figure 18. View Looking North Toward Filtration Facility from Bluff Road

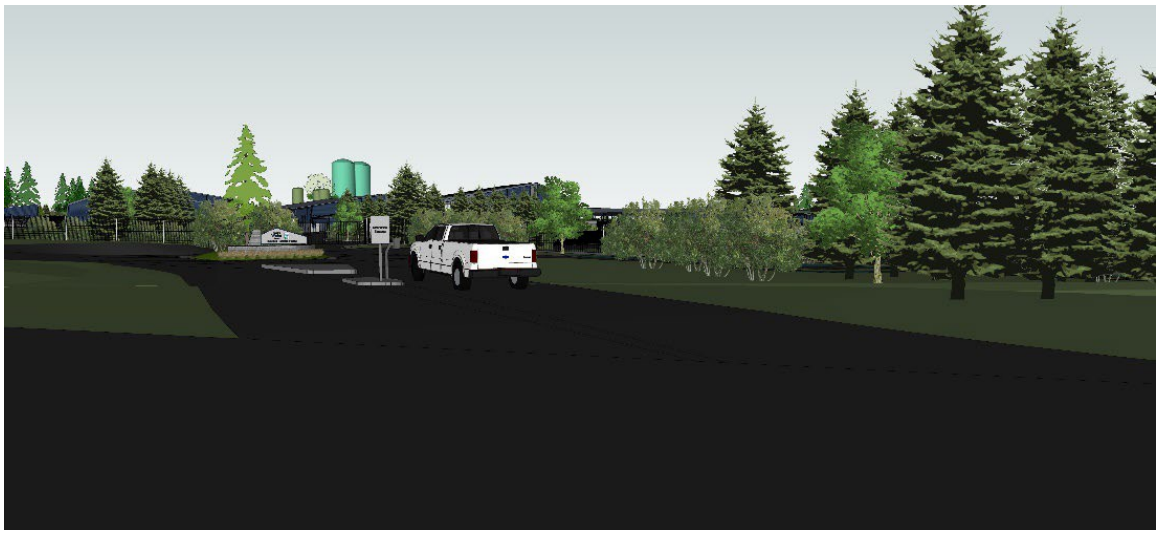

Figure 19. Proposed Entrance to Filtration Facility from Carpenter Lane

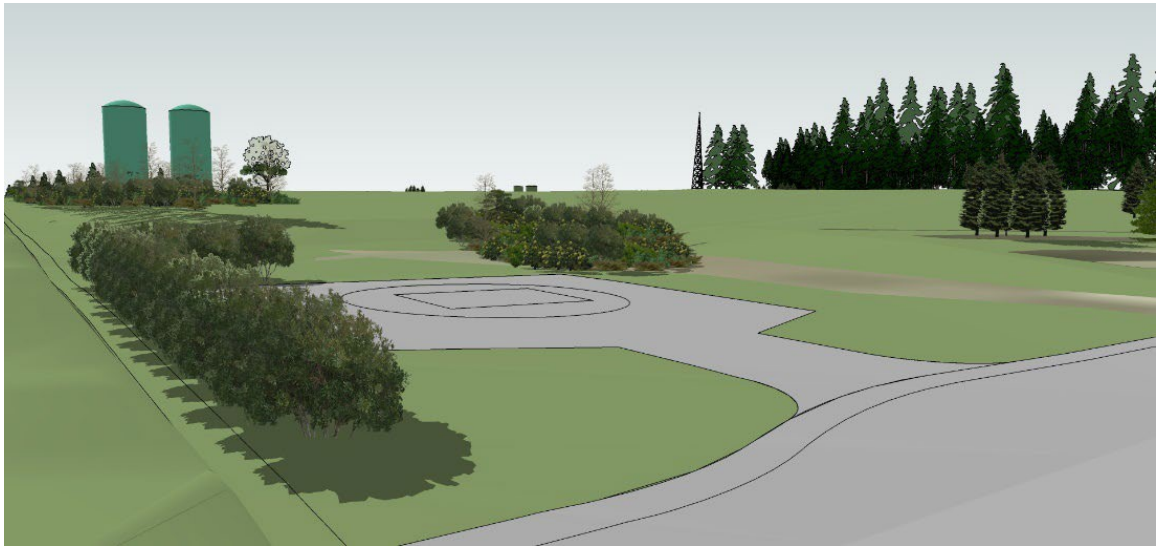

Figure 20. View Looking West across Filtration Facility from SE Corner, Showing Pipeline Access Vault in Grey

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. When originally permitted, these towers were found by the County Hearings Officer to "*relate harmoniously to the natural environment and existing buildings and structures"* in the area and to meet the other applicable approval criteria for DR (Appendix O.3, Case No. T3-2013-2935). 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.

The filtration facility buildings are one- and two-story structures, designed to be consistent with the height of nearby farm, residential, and school buildings. Buildings are set in a depression and step down in height from the center to the edges of the site, from the two-story administration and dewatering buildings to the Pleasant Home Pump Station to the northwest. All buildings comply with the overall or average-gable height code limits, and are buffered from off-site views by elevated landforms planted with trees and shrubs.

Design concepts for site landscaping were developed through a collaborative process with Water Bureau staff and informed by community feedback and study of the surrounding area. Through this process, the following landscape design goals were implemented:

- Preserve the local natural environment, including the forest and tree grove to the northeast of the site and the Johnson Creek riparian area to the southwest
- Create a landscape design that borrows from and is consistent with the surrounding natural environment of rolling hills
- Screen views of the filtration facility from the neighbors and visitor viewpoints while preserving distant views beyond the site from surrounding properties
- Support sustainability goals, including those outlined in the City of Portland's Green Building Policy
- Create a healthy environment for employees and visitors
- Create a landscape which is maintainable and cost-effective to manage into the future
- Preserve existing topsoil and use landscape restoration to prevent erosion, stabilize slopes, and manage stormwater

These goals are achieved through a range of strategies designed to evoke the agricultural character of the surrounding community, control views into the site, and facilitate maintenance. Several related strategies are outlined in the Water Bureau's Site Advisory Group Summary (Appendix B.2), including use of native plantings and incorporating areas of meadow and stands of trees. Landscape strategies include:

- A planting scheme based on the local landscape character and designed to blend in with the surrounding farm and forest landscape. Swaths of evergreen and deciduous trees surrounding seasonally mown meadows reflect the rolling hills seen in surrounding nurseries. In the core facility area, the landscape takes on a more refined character with a managed appearance similar to the managed residential landscapes near the filtration facility.
- All planned site improvements entirely avoid and preserve forested areas and riparian areas near the site (Figure 1).
- The filtration facility is sited to take advantage of the existing topography, set generally at a lower elevation on the west side of the site (below the site's ridgetop to the east).
- Topsoil will be preserved, salvaged, held, and reused on the eastern part of the site to maximize viable soil for potential agricultural use in the future.
- Stormwater amenities will be vegetated and distributed throughout the filtration facility to provide the most effective treatment and to help soften the built edges.
- Landscape plantings provide screening while maintaining view corridors to Mount Hood.
- Security fencing is set back and screened with landscaping to be less visible from neighboring properties and public rights of way.

As described above and in **Section 1.A**, in addition to fields and forests, traditional barns, and well-maintained homes, the visual character of the immediate area is also defined by unscreened nursery operations, semi-trailer truck loading facilities, and unscreened utilitarian residential storage structures

and outdoor storage areas. The filtration facility design proposes dense screening and wide setbacks intended to minimize views of and into the filtration facility.

By incorporating design feedback from community members, characteristics of surrounding properties and landscapes, and extensive visual buffering consistent with scenic area design guidelines and area landscaping and natural features, the elements of the filtration facility DR plan will relate harmoniously with the natural environment and existing buildings and structures that have a visual relationship with the site.

> *b. The elements of the design review plan should promote energy conservation and provide protection from adverse climatic conditions, noise, and air pollution.*

Response: The project incorporates a range of sustainability strategies that promote energy conservation and provide greater reliability than other, more conventional alternatives. One of the key elements of the design is maintaining the use of gravity flow to convey water from the Bull Run Watershed through the filtration facility and on to local customers and Portland (Figure 21). Using gravity rather than electric pumping has significant benefits, including greater water supply reliability in the event of a power loss from a natural disaster, lower construction and operating costs, lower onsite pump noise, and minimizing the system's carbon footprint.

Figure 21. Diagram of gravity flow from Bull Run to Portland

The filtration facility is also designed to comply with the City of Portland's Green Building Policy and to follow the Envision Sustainable Infrastructure Framework and other industry sustainability guidelines. These sustainability strategies align with the community values that have informed project decision-making. Sustainability was one of the values used during planning and design development to evaluate alternatives, select best-suited treatment technologies, and determine design criteria.

Project sustainability and energy conservation strategies include:

- Use gravity to reduce electric power needs
- Right-size treatment processes to minimize overbuilding; plan for future expansion
- Align design with the Energy Trust of Oregon's Path to Net Zero incentive program
- Certify the administration buildings to a Leadership in Energy and Environmental Design® (LEED) version 4 Building Design and Construction: New Construction Gold level targeted
- Use Version 3 of the Envision Sustainable Infrastructure Framework with goal of achieving Envision Certified status for the facility and pipelines

- Use vegetated roofs to cover the clearwell and reduce impervious area
- Provide photovoltaic systems on the roof of the administration building to offset energy use and help achieve energy use intensity (EUI) goals for LEED credit
- Use of low-carbon concrete to reduce the filtration facility's carbon footprint
- Use sustainably harvested wood products for structure and finishes where appropriate
- Install electric vehicle charging stations
- Provide radiant panel heating and cooling system for the administration building to lower energy and HVAC needs
- Avoid fossil fuels for heating and cooling by using renewable electric systems to reduce the filtration facility's carbon footprint

The design incorporates durable, long-lasting, low-maintenance, and environmentally conscious materials that achieve efficiency goals and optimize occupant health and comfort. Table 1 provides a material and color palette describing these choices.

Table 1. Material and Color Palette

Illustration	Material	Color	Notes
	Standing seam metal roof panel	Light grey most buildings, lighter color on administration building	High solar reflectance index, higher on administration building for LEED compliance. Local metal buildings primarily white/grey roofs.
	Corrugated metal panel siding, primary building cladding	Dark blue	Fire resistant, durable/long lasting, low maintenance, follows Columbia Gorge design guideline recommendation
	Flat metal panel siding, secondary accent building cladding	Medium grey	Fire resistant, durable/long lasting, low maintenance
	Storefront glazing systems	Black aluminum, light grey tinted dual glazing	Low-e, insulated, daylight control, operable windows in offices, bird-friendly horizontal etching on select areas
	Painted exposed structural elements	Dark grey/blue	Columns, roof rafters, beams, on select areas
	Vegetated roof, water basin	Green, grass planting	Buried clearwell with vegetated cover

In addition, the filtration facility is designed to protect against adverse climatic conditions in multiple ways.

- The filtration facility layout takes advantage of the existing protective tree line along the site's northeast edge.
- Covered entry areas and roof forms provide shelter from the rainfall, east winds, and winter weather experienced in the area. Roofs include snow and ice guards at eaves. Major operator and exterior walkway areas at basins and primary buildings are covered by walkway canopies. Primary building entrances include door canopies.
- Buildings are clad primarily in metal panels and standing seam metal roofs, protecting them from wildfire.
- The administration building is designed with enhanced outdoor air filtration for protection against airborne particles.
- The site is designed to address a 25-year storm event, exceeding local stormwater requirements.
- Tree plantings in parking areas will provide shade and lower the heat island effect.

Additionally, one of the primary benefits of the project is enhanced resilience of the Bull Run water supply. The new filtration treatment process will help address turbidity (suspended sediment in water) and other potential water quality impacts to the Bull Run from a fire, landslide, large storm, volcanic event, or other natural disaster.

The filtration facility includes noise reducing measures that are designed to contain noise on site, and to meet or exceed local noise ordinances, as described in the Exterior Noise Analysis, Appendix E.3. Where feasible, mechanical equipment has been located inside buildings. Filtration facility processes that emit noise will generally be located within buildings or buffered through building walls, acoustic louvers, sound walls, and enclosures. These same measures provide protection from adverse noise for staff and visitors. In addition, landscape buffers, landforms, and large setbacks between the filtration facility and adjacent properties are designed to keep sound from traveling beyond property lines, meeting and exceeding code requirements.

As described in Appendix E.4 (Air Quality, Dust and Vibration Memo), there is no significant source of dust or air pollution produced by filtration facility operations. The proposed vegetative buffers, landforms and wide setbacks help to limit potential dust and air pollution from off site. The Water Bureau is committed to protecting the rights of adjacent agriculture operators and will record a covenant recognizing the rights of adjacent property owners to use accepted farm or forest practices on those lands. The administration building will incorporate MERV 13 filters into its HVAC systems to filter outside air to ensure high air quality for occupants.

For these reasons, the filtration facility DR plan promotes energy conservation and provides protection from adverse climatic conditions, noise, and air pollution.

> *c. Each element of the design review plan shall effectively, efficiently, and attractively serve its function. The elements shall be on a human scale, interrelated, and shall provide spatial variety and order.*

Response: To develop the design concepts, the project team focused on the siting, orientation, and functionality of the administration building, which is the most people-focused and public-facing building at the filtration facility. This building separates the public realm from the process area of the filtration facility. Process buildings, located behind the secondary security fence, are designed with functionality in mind. In developing the "rolling hills" concept, the project team considered design elements preferred by the community such as integration with the landscape, use of warm natural materials, simple forms with a modern update, and shed and gable roof design elements.

The administration building, as the "front door" of the facility and in the public realm, is designed to serve operators, engineers, and visitors. The functions of the administration building include reception, offices, conference room, control room, and water quality analysis room. The building roof form set the pattern for the rest of the facilities onsite. The human-scaled doors, windows, and wood accents help to provide spatial variety and order. The building signage, warm wood soffited exterior area and lobby entry canopy act as wayfinding elements for those arriving, and bring a particular Pacific Northwest feel to the building. With an integrated stormwater detention area and the small-scaled box rib metal panels, the attractive human-scale of the exterior is apparent upon arrival (Figure 22). The south facing courtyard of the administration building brings vegetation and scale to the spaces for operators (Figure 23).

Figure 22. Human-scaled Architectural Design at Occupied Administration Building

Figure 23. Operator's Courtyard at Administration Building, Behind Security Fence

Set in the public realm at the front of the filtration facility, the administration building is designed with attractive, human scale features that reflect its function and sets the tone for the rest of the filtration facility design. Other structures, set in the "back yard" behind the security fence, are also designed to serve their function in an attractive, effective, and efficient manner: the utilitarian and process needs of the filtration facility.

The maintenance building marks the transition to the secure process area of the filtration facility. It relates to the administration building in form but with a different function. The space is used daily by staff and operators, for meeting and for work, with each space designed to meet its function based on ceiling heights, daylighting, and access. Canopied entrances, small-scale metal box rib panels, façade articulation, and appropriate glazing help create an integrated, human-scale environment.

Figure 24. Architectural Design for Maintenance Building

Outside of the public realm and internal to the campus, the filtration facility includes process buildings, such as a series of basins, canopied walkways, and ancillary structures. The process buildings are utilitarian structures that reflect their function: serving the programmatic and functional water treatment requirements of the filtration facility. Their design is utilitarian but remains consistent with the primary (non-process) buildings: the process buildings use the same design language as the administration and maintenance buildings, and leverage the same material palette, including canopies at person entries, small-scale panels, and appropriate glazing/daylighting for operators working in the spaces.

Four chemical storage silos are located behind the chemical building, efficiently serving their storage function. They are painted green to blend in with the surrounding landscape, and will be barely visible from the north, west, east, and south of the site. These 50-foot tanks will be screened by site perimeter vegetation and berms, and, as shown in Figures 17-20, will be dwarfed by existing 90-foot PHWD water tanks. The main process basins have walkway canopies for operator safety, guardrails, and several buildings at grade (Figure 27).

Additional design features that convey the human scale of the filtration facility include:

- Process functions broken into separate building envelopes to avoid overly large facilities
- Sidewalks along building edges and at entries (Circulation Plan, Sheet LU-305, Appendix A.1a)
- Signage, exterior lighting, and wayfinding to assist people circulation and safety (Appendix A.1a, Signage Plan, Sheet LU-403, and Lighting Plan, Sheets E-322 through E-333 and GEN-E-140 through 142)
- Variety of metal panels: colored flat panels at entries; horizontal box rib on exteriors to relate to the horizontal nature of the landscape of the site; vertical box rib and vertical ridge band cladding that relate to the vertical nature of trees in the landscape (combination horizontal and vertical cladding is also found on some farm buildings in the surrounding area)
- Daylighting is provided with simple glazed areas that relate to the roof ridge, building structure, circulation zones, and floor levels
- Local vegetated stormwater detention areas that provide fine-grain scale

Figure 25. Chemical Building

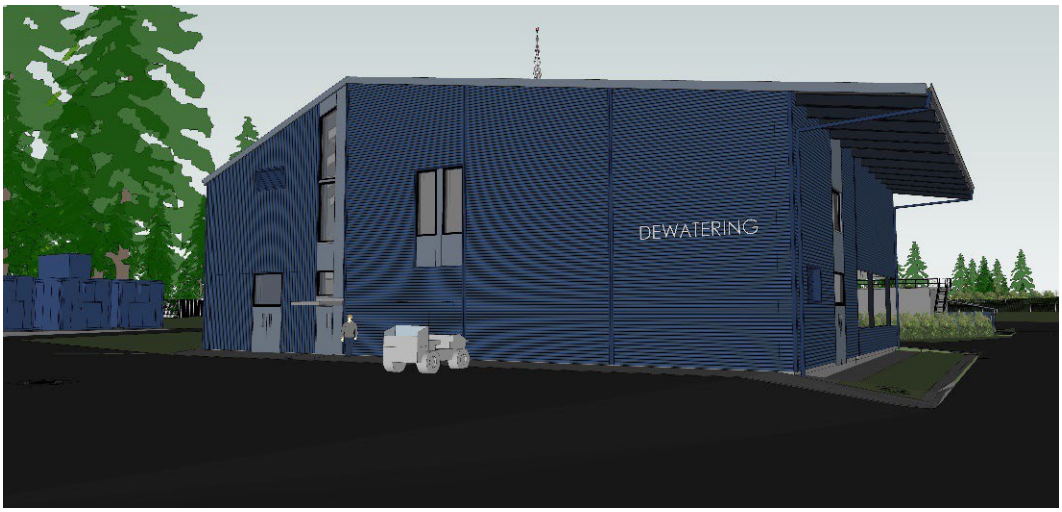

Figure 26. Dewatering Building

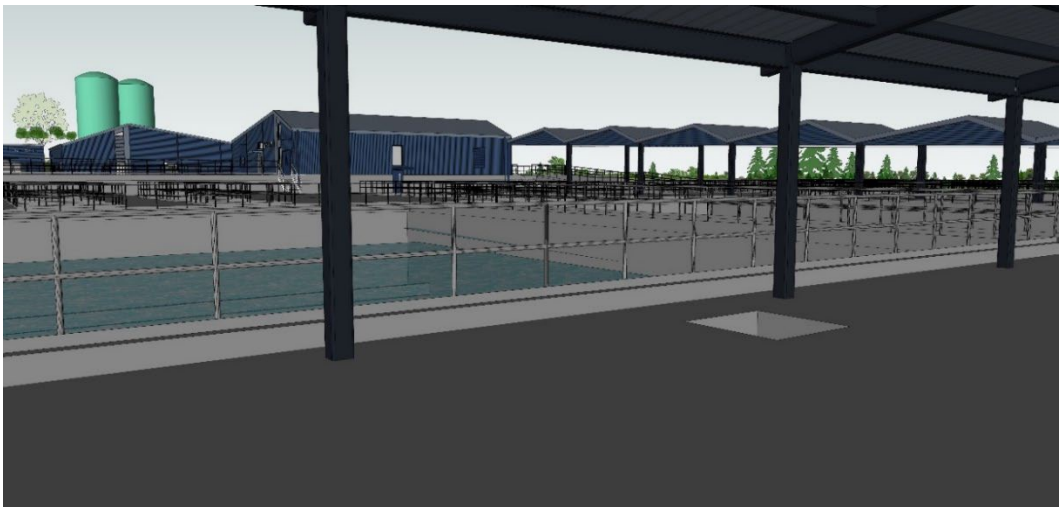

Figure 27. Process Basins from Under Walkway Canopy, Looking Southwest

For the reasons described above, each element of the filtration facility architectural design effectively, efficiently, and attractively serves its function, and the elements are human-scaled, interrelated, and provide spatial variety and order.

2. Safety and Privacy

The design review plan shall be designed to provide a safe environment, while offering appropriate opportunities for privacy and transitions from public to private spaces.

Response: The filtration facility is a secure facility and not open to the general public. Buildings and structures associated with the filtration facility operations will be clustered to create a compact footprint with a perimeter fence for safety and security (Figure 28). Landscaped buffers will be included around the perimeter of the site to provide privacy and screen views of the filtration facility from adjacent properties and rights-of-way. The face of the filtration facility is turned to Carpenter Lane, with directional and entry signage. The driveway entrance includes a checkpoint and entry gate setback approximately 150 feet from Carpenter Lane (Figure 29), with a turnaround area for vehicles that are not authorized to enter, as shown on Figure 36. The curved, tree-lined entry drive provides a transition from the public realm leading up to the administration building to the interior (private) space within the security fence.

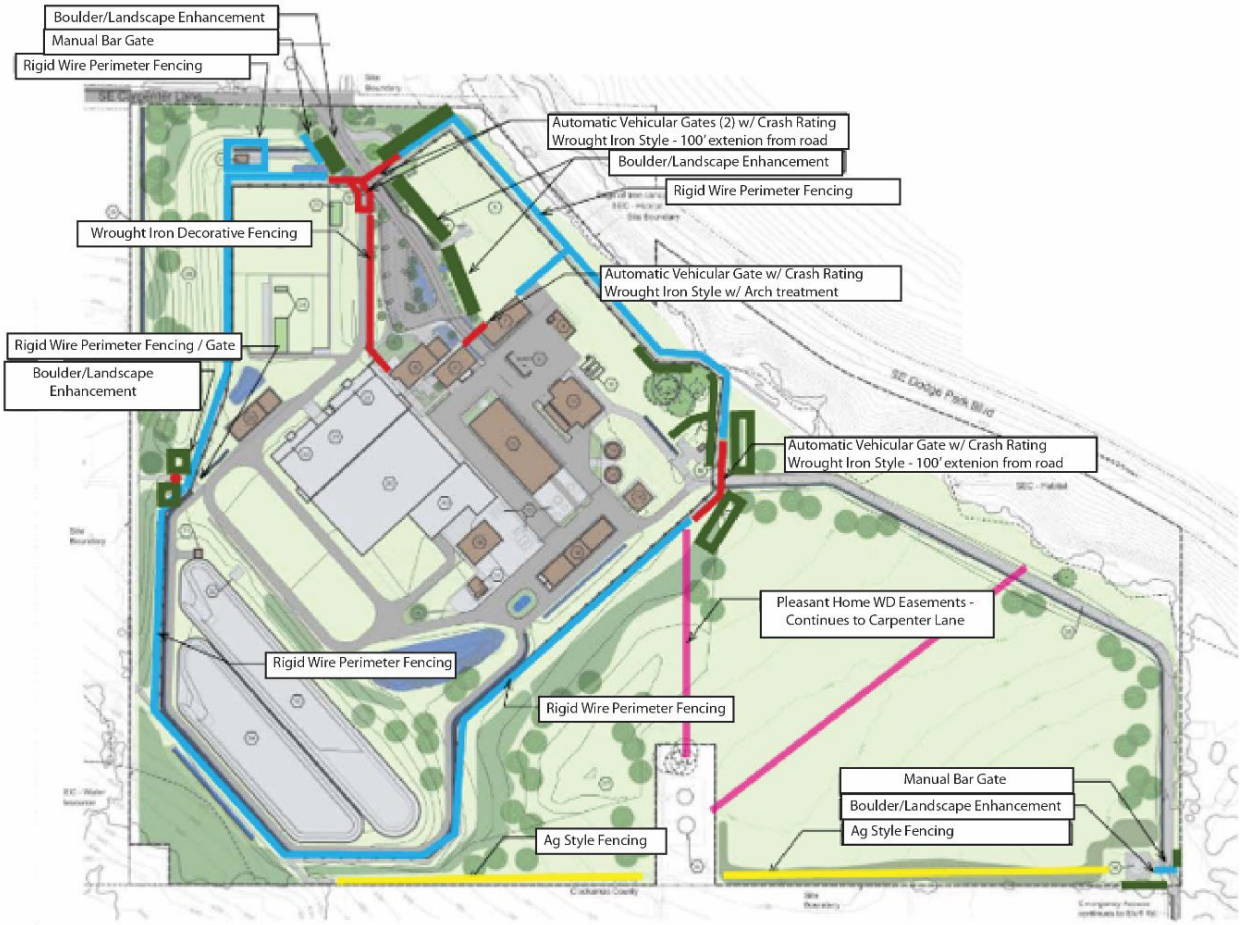

Figure 28. Site Security Diagram

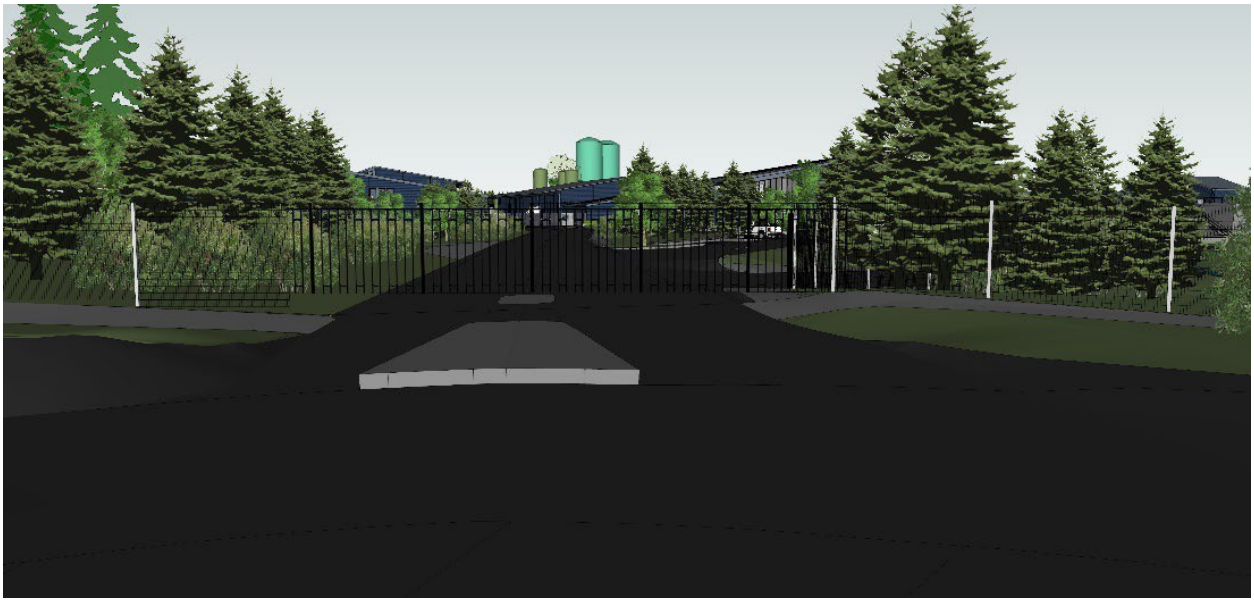

Figure 29. Entry Gate off Carpenter Lane

The administration building offers a welcoming reception area and flex space for staff and visitors to the filtration facility. Another entry gate separates the administration building (public realm) from the actual filtration facility, providing a second line of security (Figure 28). Security of the filtration facility will be provided by the Water Bureau's security team who already oversees the other facilities in the area, including the Lusted Hill Treatment Facility (LHTF) and the Sandy River Station, using fencing, infrared cameras, and patrols along a fence line gravel road.

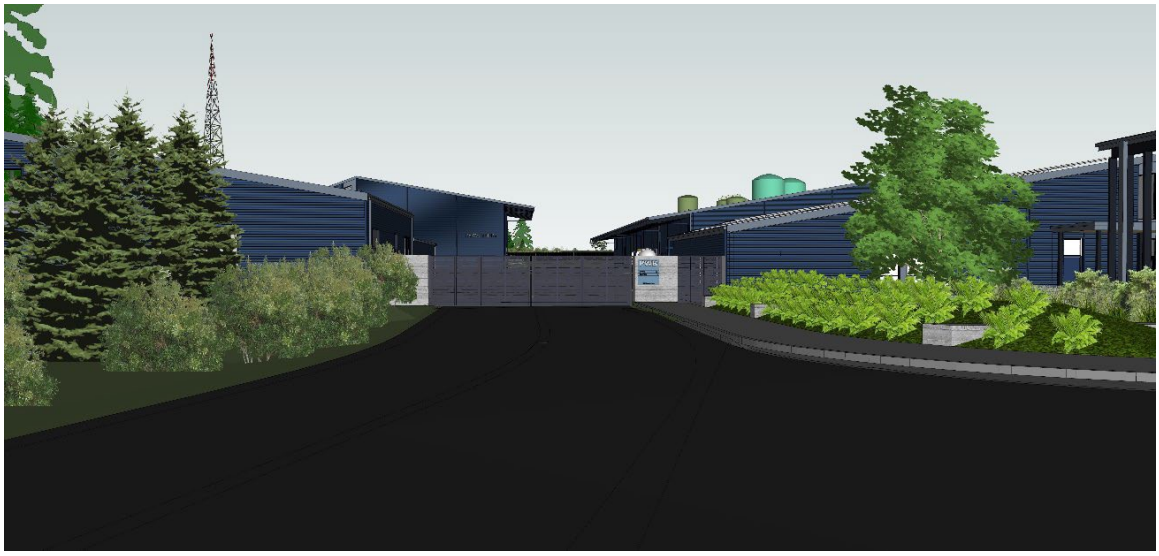

Figure 30. Facility Gate at Administration and Maintenance Buildings

Additional safety and security features include:

- Visibility via reception area or control room cameras between the administration building, the front gates, the parking area, and site circulation.
- Visual screening from perimeter right of way to discourage encroachment
- Clear wayfinding and site lighting for safe circulation for pedestrians and vehicles
- Building security provisions such as door access controls/card readers, cameras, and physical barriers, such as operable doors to the porch area
- Exterior lobby area at administration building separated from interior secure building and process areas, in the event of groups not able to visit internal spaces
- Planned tour visits only, no "pop-in" visits by the public
- Secure "back of house" areas for staff that provide multiple lines of security between them and visitors
- Secure, gated parking area for fleet vehicles, separate from visitor and staff parking area
- Emergency eyewash showers in filtration facility areas where potential hazards exist for operators

For these reasons, the filtration facility DR plan is designed to provide a safe environment, while offering appropriate opportunities for privacy and transitions from public to private spaces.

3. Special Needs of Handicapped

Where appropriate, the design review plan shall provide for the special needs of handicapped persons, such as ramps for wheelchairs and braille signs.

Response: The filtration facility is designed to be ADA compatible for publicly accessed areas such as the administration building, with additional measures to provide for inclusivity such as room and building signage with braille, accessible walkway ramps, handicapped parking locations, ADA-accessible public and staff restrooms and locker rooms, accessible interpretive signage, and an administration building elevator. Certain public tour areas have been designated and provided with ADA compatible guardrails and handrails. ADA-accessible pathways are illustrated in Figure 31.

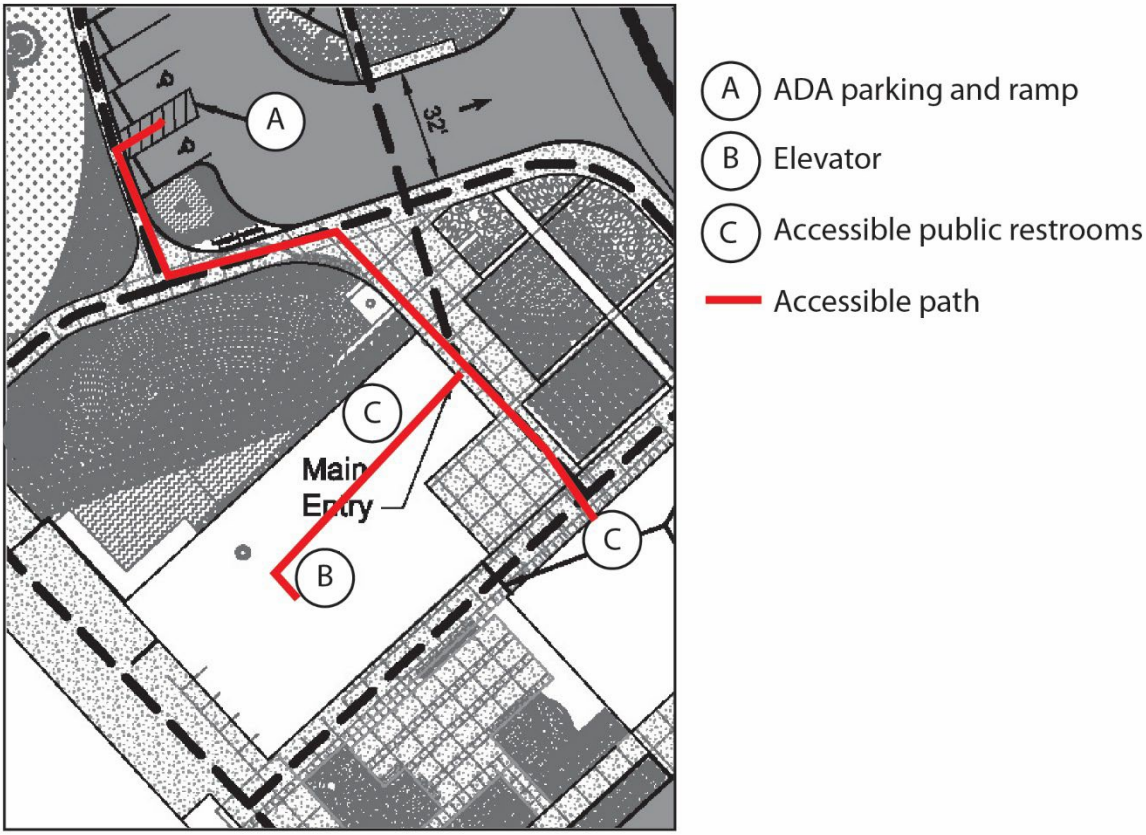

Figure 31. ADA Areas at Parking and Administration Building

Like other Water Bureau facilities, and other water treatment facilities in general, the filtration facility is generally not open to the public and most operator spaces are governed by OSHA requirements. Operator duties require a variety of physical tasks, so not all operator spaces are fully ADA accessible. Provisions for accessibility in process spaces are provided where possible, such as ADA compliant stairs, ramps, and fully accessible water quality lab and control room spaces.

4. Preservation of Natural Landscape

The landscape and existing grade shall be preserved to the maximum practical degree, considering development constraints and suitability of the landscape or grade to serve their functions. Preserved trees and shrubs shall be protected during construction.

Response: While most of the filtration facility site was historically cleared and converted to agricultural use, the primary natural landscape on the site consists of a large, forested area along the frontage of Dodge Park Boulevard which drops down steeply to the northeast. This existing forest vegetation is designated as a Significant Environmental Concern-Habitat (SEC-h) area. The other important natural feature is Johnson Creek, which is located off site but has a SEC-Water Resource (SEC-wr) buffer that extends onto the filtration facility site in the southwest corner (Figure 32).

Figure 32. Filtration Facility Site Natural Landscape and SEC Overlays

These existing natural landscape areas on and adjacent to the site will be fully protected. The filtration facility site layout maintains wide buffers from the steep forested bluff to the northeast and Johnson Creek to the southwest. In addition, a grove of trees in the north-central part of the site will be preserved. To the east of the site, the raw water conduits connecting to the site from Lusted Road will be tunneled approximately 150 feet below SEC forested habitat area, avoiding all impacts to the protected natural landscape in this area. Native plantings are proposed to be used throughout the site to enhance habitat values and incorporate pollinators (an idea raised by community members). As

documented in Appendix H.1, the site design also includes stormwater management to match current normal stormwater flows and manage runoff during both normal and large storm events. Stormwater will be filtered through a series of vegetated planters, swales, and basins that will detain water and protect water quality, exceeding local stormwater requirements.

The natural topography and elevation of the site is incorporated into the filtration facility design, allowing it to remain a gravity fed system from the Bull Run headworks. Grading is necessary to develop the basins and structures. However, the grading strategy was developed to accommodate the process needs and to optimize the site layout within existing topography with respect to the hydraulic profile. Filtration facility components have been designed to step down with the natural landform of the site, from an upper area at 715-foot elevation to lower areas to the west and southwest near 690-foot elevation, where the main process facilities are sunken into the landform. The stepped layout reaches the lower areas to the west and southwest where overflow basins and stormwater facilities are located. New landforms proposed at the edges of the filtration facility are designed to serve multiple functions, including site buffering and screening, while complementing and staying in scale with the natural and built features of the site. Existing trees and vegetation will be retained and protected as shown in the Landscape Plans (Sheets LU-306 and LU-404, Appendix A.1a).

Much of the eastern portion of the site will be returned to its existing rolling hills character and is planned to be available for potential future uses such as agriculture or open space. Topsoil will be salvaged from across the site, protected during construction, and then reused on the eastern part of the site to maximize viable soil for potential agricultural use in the future.

For these reasons, the landscape and existing grade will be preserved to the maximum practical degree, considering development constraints and suitability of the landscape or grade to serve their functions. As documented in the Landscape Plans (Sheets LU-306 and LU-404, Appendix A.1.a), preserved trees and shrubs will be protected during construction.

5. Pedestrian and Vehicular Circulation and Parking

> *The location and number of points of access to the site, the interior circulation patterns, the separations between pedestrians and moving and parked vehicles, and the arrangement of parking areas in relation to buildings and structures, shall be designed to maximize safety and convenience and shall be harmonious with proposed and neighboring buildings and structures.*

Response: The layout of the site and circulation patterns were designed specifically to address worker safety as it relates to filtration facility operations. Buildings will be connected by pedestrian accessways, some of which are covered for protection from inclement weather (Figure 27 and Circulation Plan, Sheet LU-305, Appendix A.1a). Pedestrian accessways and sidewalks are clearly identified to reduce conflicts with vehicle circulation areas.

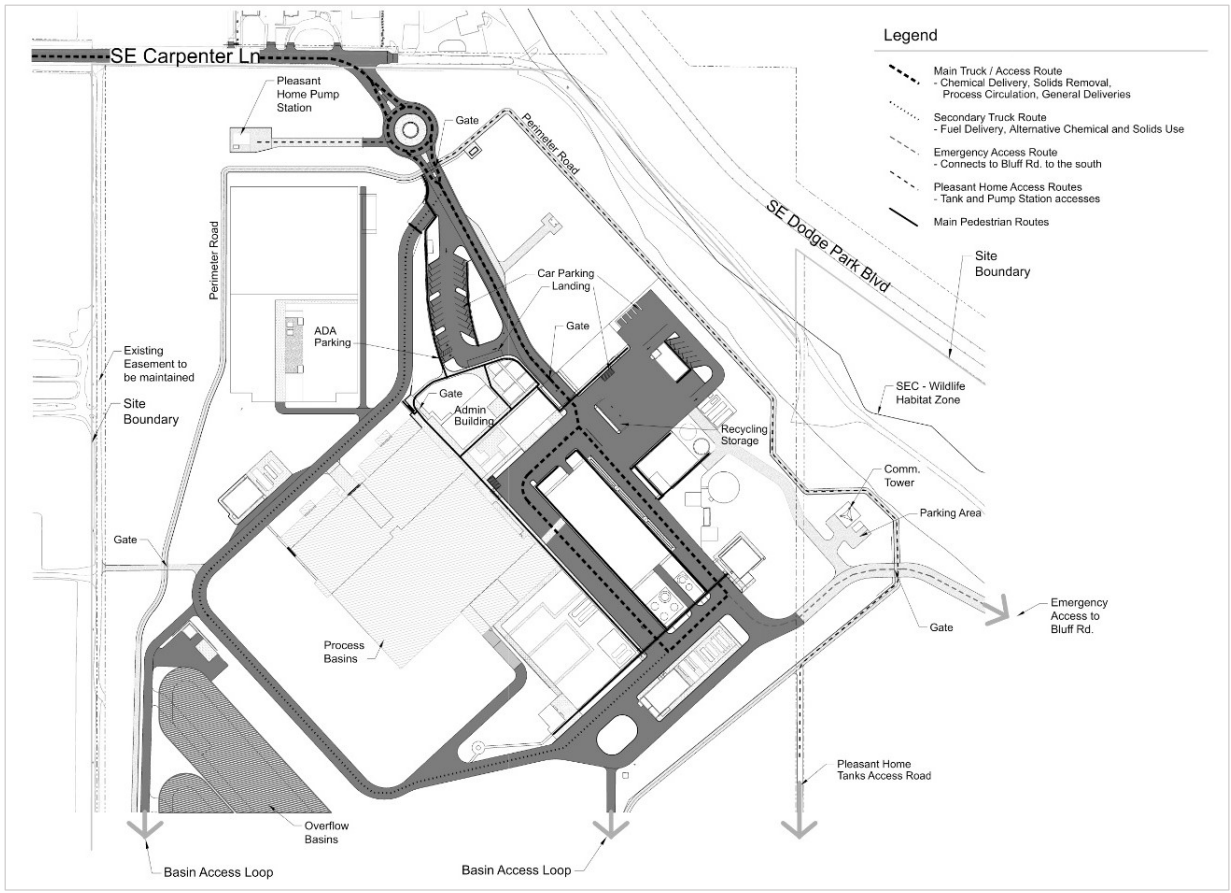

Figure 33. Circulation Plan

Pedestrian and vehicle circulation and parking are shown in Figure 33. The primary access is proposed from Carpenter Lane; a second, emergency access is proposed to connect to Bluff Road in Clackamas County. These access points are designed, in consultation with county engineers, to meet the applicable sight distance and access standards of each county. Both access points connect to internal circulation areas that provide clear parking and traffic flow patterns. Parking is located near the entrance to the filtration facility, with ample landscaping and sidewalk areas to provide maximum pedestrian safety and reduce potential conflicts between pedestrians and vehicles. General deliveries will use the loading zone at the main entrance to the administration building. Parts deliveries will use the loading zone at the maintenance facility. Lab deliveries and pickups for testing offsite will use the loading zone south of the administration building near the courtyard. Filtration facility parking areas will meet all accessibility requirements and guidelines, as documented later in this section. All stormwater in parking areas is planned to be surface drained to vegetated stormwater facilities to help enhance the pedestrian experience.

Given the size of the site and secure nature of the filtration facility, there are no neighboring buildings or structures that interact with the proposed parking and circulation areas. Vegetative buffers will screen the filtration facility from adjacent uses and all visitors will be required to enter through the main entrance.

For these reasons, pedestrian and vehicular access, circulation, and parking has been designed to maximize safety and convenience and to be harmonious with proposed and neighboring buildings and structures.

6. Drainage

Surface drainage and stormwater systems shall be designed so as not to adversely affect neighboring properties or streets. Systems that insure that surface runoff volume after development is no greater than before development shall be provided on the lot.

Response: Stormwater facilities, as described in the Stormwater Report in Appendix H.1 and shown on Stormwater Plans (Appendix A.1a, Sheets LU-307, LU-404, LU-407-408, GEN-C-920 and 923), are designed to handle a 25-year storm event and ensure surface runoff volumes after development are no greater than prior to development. These measures exceed County stormwater drainage standards of MCC 39.6235. The Water Bureau has provided a completed stormwater certificate (Appendix H.4a) demonstrating that water generated from new impervious surfaces will be managed on site, meeting the above objectives.

Through public outreach efforts, the Water Bureau learned that there are existing drainage issues with stormwater runoff to the adjacent property to the west. The project design team has worked with the property owner to develop a plan that will reduce runoff while supporting beneficial drainage patterns for stormwater used for irrigation of agricultural products. The proposal results in an improvement in stormwater management for the site and surrounding properties over existing conditions.

For these reasons, the surface drainage and stormwater systems have been designed so as not to adversely affect neighboring properties or streets. Surface runoff volumes after development will not exceed pre-development runoff.

7. Buffering and Screening

Areas, structures and facilities for storage, machinery and equipment, services (mail, refuse, utility wires, and the like), loading and parking, and similar accessory areas and structures shall be designed, located, buffered or screened to minimize adverse impacts on the site and neighboring properties.

Response: As shown on the Site Plan (Sheets LU-302 and 306, Appendix A.1a), the filtration facility will be clustered on the site with wide setbacks of more than 130 feet from neighboring properties to the south, east and west. Setbacks of more than 130 feet are also planned from Carpenter Lane to the north. These wide setbacks allow sufficient space for berms and landscaping to buffer adjacent properties from sound and views from the site. Site visualizations in Figures 17 -20 illustrate the buffering effect. Berms are located to the west and south of the facility with vegetative screening of various heights. Three types of vegetative screening are proposed: low screening, high screening, and tree/shrub clusters.

All plants outside of the administration and process areas will be native species typically found in surrounding forested areas, as listed on the Landscape Plans (Sheets LU-306 and 404, Appendix A.1a). The plants used for screening will range in initial height from two to eight feet and include a mix of trees and shrubs planted in clusters or individually. A variety of evergreen and deciduous trees will also be planted throughout the site to provide additional screening.

The variety in plant size and species will create a natural look and minimize visual impacts of the filtration facility when viewed from adjacent properties or roadways. The planting scheme is designed to ensure that the filtration facility will be visually screened while still allowing view corridors from the west of the site to Mount Hood.

Interior landscaping, shown on the Landscape Plan (Sheet LU-306, Appendix A.1a), will be used to minimize visual impacts onsite, especially in the public facing areas near the parking lot and main entrance to the facility. Additionally, landscaping provides a natural element to the building layout, enhances the visual aesthetic of the facility for operators and visitors, and dampens noise.

Figure 34. View of Site from NW Corner of Property at Carpenter Lane, Showing Buffering with Vegetation Screening and Berms

Throughout the public outreach process, discussions were held with the Site Advisory Group and neighbors about preferred levels of buffering and screening techniques, and the outcome of those discussions are reflected in the site layout and landscaping plan. Vegetated screening was strongly favored by participants, including incorporating the use of native plants and pollinator species. Integrating landform shaping (berms) was identified as a supporting screening strategy. These features have been incorporated into the design as illustrated in Figure 34 and described in the preceding findings. Storage, equipment, service, and other accessory areas are buffered and screened by placement in low areas internal to the site, and behind berms and dense landscaping. The filtration facility is tightly clustered to reduce the operational footprint and maximize areas for perimeter screening and continued agricultural use on site. The overall effect of proposed site buffering and screening is to minimize adverse impacts on the site and neighboring properties.

8. Utilities

All utility installations above ground shall be located so as to minimize adverse impacts on the site and neighboring properties.

Response: All utilities installed to serve the filtration facility will be underground, as shown on the Utility Plan (Sheet LU-303, Appendix A.1a). Existing overhead powerlines are located along the north side of Carpenter Lane and in a PGE easement along the west property line of the site. No development is proposed within the existing PGE easement area and the overhead powerlines will remain in their current location.

9. Signs and Graphics

The location, texture, lighting, movement, and materials of all exterior signs, graphics or other informational or directional features shall be compatible with the other elements of the design review plan and surrounding properties.

Response: Three exterior signs are proposed near the entrance to the filtration facility: an address sign, a directional sign, and an entry sign (Figures 35 and 36, and Sheet LU-403, Appendix A.1a). The address sign is located at the driveway entrance, south of Carpenter Lane. It is a two- by three-foot unlighted sign showing the facility address, as required by the Gresham Fire District.

A directional sign is located along the entry drive, approximately 50 feet south of Carpenter Lane. This three- by two-foot sign will identify the filtration facility name, address, and visitors to the administration building.

The facility entry sign is a monument sign located at the entry roundabout, approximately 100 feet from Carpenter Lane. This three- by eight-foot sign will be oriented horizontally on the planted roundabout. The sign will be a painted metal panel showing the Water Bureau name, Water Bureau logo, and the filtration facility name. Sign lighting will conform with code requirements.

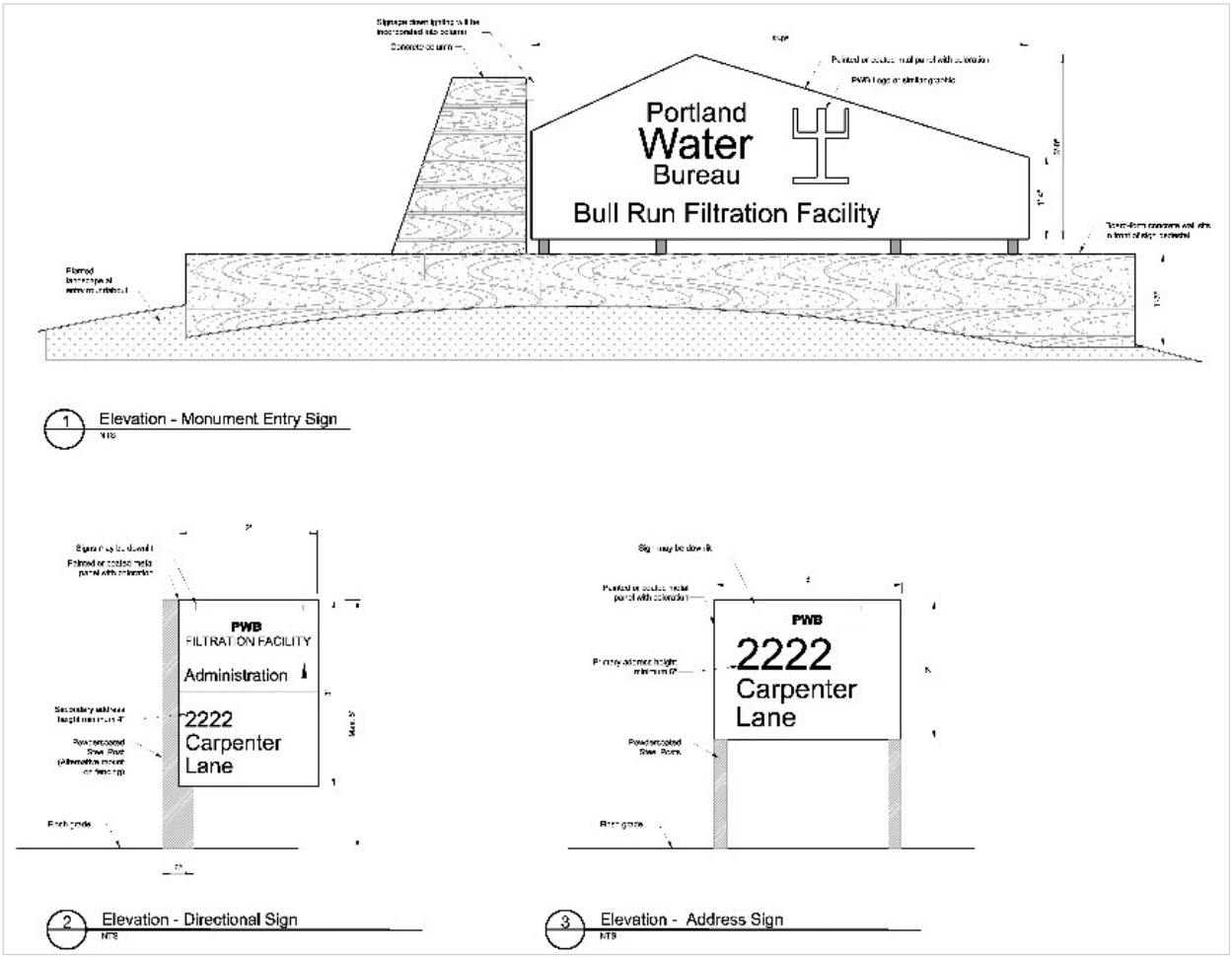

Figure 35. Proposed Filtration Facility Signage

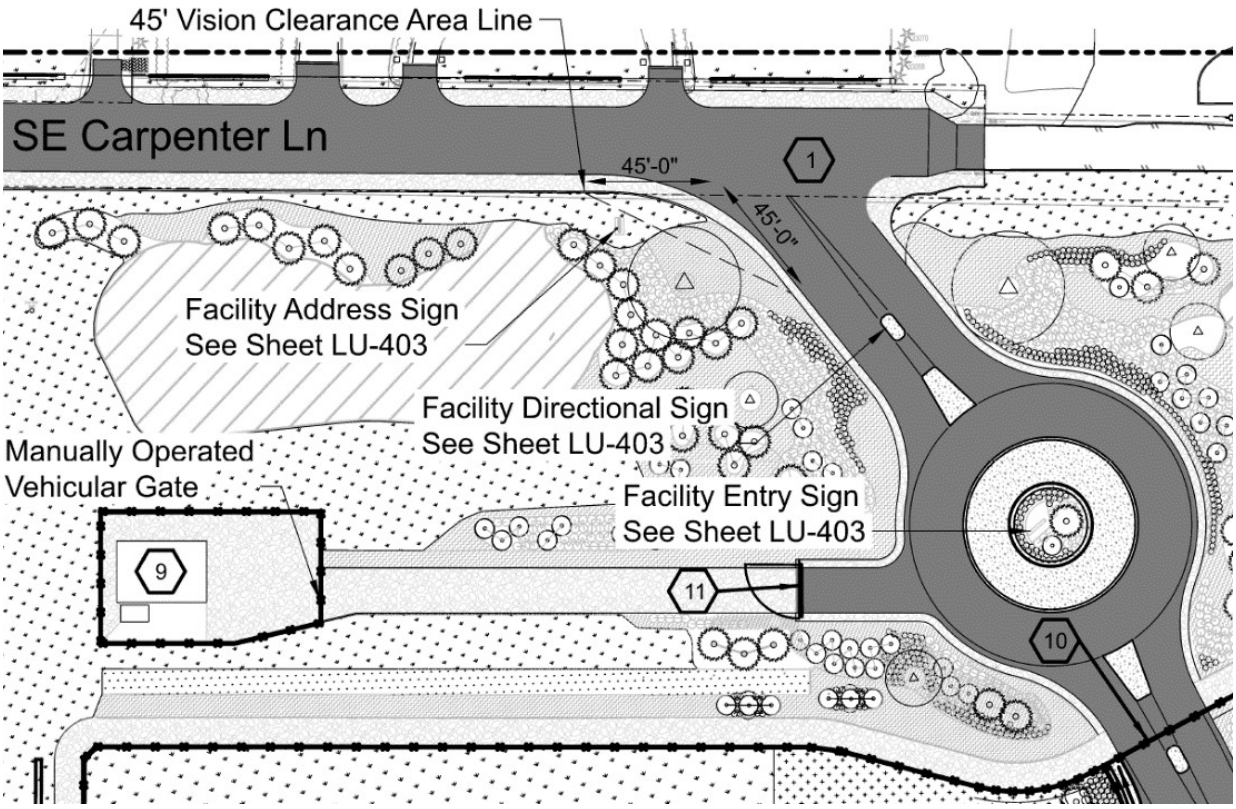

Figure 36. Proposed Exterior Sign Locations

(B) Guidelines designed to assist applicants in developing design review plans may be adopted by the Planning Commission.

Response: No DR guidelines have been adopted, according to County planning staff (August 18, 2022).

MCC 39.8045 Required Minimum Standards

Standards A and B apply to residential developments and therefore do not apply to this proposal. The responses to key standards in this section refer to Figures 37 and 38, below. Additional supporting information is contained on the site plans in Appendix A.1a (see for example Sheets LU-305 and 306).

Figure 37. Parking and Landscape Plan

(C) Required Landscape Areas

The following landscape requirements are established for developments subject to design review plan approval:

1. *A minimum of 15% of the development area shall be landscaped; provided, however, that computation of this minimum may include areas landscaped under subpart 3 of this subsection.*

Response: The filtration facility development area is 91.17 acres, requiring 13.68 acres of landscaping. The landscape plan in Figure 38 shows 56.82 acres of landscaped area, or 62 percent of development area, meeting this requirement. The existing forest on the site provides an additional 6.14 acres of landscaping.

Figure 38. Site Landscaping

2. *All areas subject to the final design review plan and not otherwise improved shall be landscaped.*

Response: As shown on the landscape plan (Sheet LU-306, Appendix A.1a) and Figure 38, the areas not improved for the filtration facility use will be landscaped with trees, screening vegetation, or vegetative ground cover.

3. *The following landscape requirements shall apply to parking and loading areas:*

   a. *A parking or loading area providing ten or more spaces shall be improved with defined landscaped areas totaling no less than 25 square feet per parking space.*

Response: The proposed parking areas contain 35 spaces plus an additional bus parking area, which requires 900 sf of landscaping to meet this standard.[4] The landscaped area around the parking area has 1,385 sf of landscaping, as shown on the Parking and Landscape Plan, Figure 37 and Sheet LU-306, Appendix A.1a.

[4] Two additional spaces are provided at the Communications Tower and addressed in **Section 1.C**.

b. A parking or loading area shall be separated from any lot line adjacent to a street by a landscaped strip at least 10 feet in width, and any other lot line by a landscaped strip at least 5 feet in width.

c. A landscaped strip separating a parking or loading area from a street shall contain:

1. Street trees spaces as appropriate to the species, not to exceed 50 feet apart, on the average;

2. Low shrubs, not to reach a height greater than 3'0", spaced no more than 5 feet apart, on the average; and

3. Vegetative ground cover.

Response: As shown on the Parking and Landscape Plan in Figure 37 and Sheets LU-305 and 306, Appendix A.1a, the parking area has wide landscaped areas of more than 100 feet separating it from streets and lot lines, exceeding the standard. The trees are a mix of ornamental and native species well suited to the site with a spacing of less than 50 feet. Low shrubs are provided at a spacing of 5 feet, with ground cover applied to the remaining landscaped areas.

d. Landscaping in a parking or loading area shall be located in defined landscaped areas which are uniformly distributed throughout the parking or loading area.

Response: The Parking and Landscape Plan (Figure 37 and Sheets LU-400 and 402, Appendix A.1a) shows defined landscaped areas uniformly distributed and containing a mix of interior trees and shrubs, as well as perimeter landscaping.

e. A parking landscape area shall have a width of not less than 5 feet.

Response: All proposed parking landscape areas are minimum of 5-feet wide, as shown on Sheet LU-400, Appendix A.1a.

4. Provision shall be made for watering planting areas where such care is required.

5. Required landscaping shall be continuously maintained.

Response: Landscaping will be watered until established. Once plants are established, supplemental irrigation will be provided for the ornamental (interior) plantings as shown on Sheets LU-306, 400, and 402, Appendix A.1a. Maintenance and care specifications provided in the Landscape Plan will ensure that landscaping will be continuously maintained.

6. Maximum height of tree species shall be considered when planting under overhead utility lines.

Response: The only overhead utility lines on the property are in the PGE easement along the west property line. No trees are proposed under these overhead utility lines.

7. Landscaped means the improvement of land by means such as contouring, planting, and the location of outdoor structures, furniture, walkways and similar features.

Response: The landscaped areas are shown on the Landscape Plans in Sheets LU-306, 400, and 402, Appendix A.1a. and Figure 38. Overall, proposed site landscaping far exceeds code requirements.

Parking, Loading, Circulation, and Access

This section reviews the applicable standards of MCC 39.6500 through 39.6600.

MCC 6560 Access

A. Where a parking or loading area does not abut directly on a public street or private street approved under Part 9 of this Chapter, there shall be provided an unobstructed driveway not less than 20 feet in width for two-way traffic, leading to a public street or approved private street. Traffic directions therefore shall be plainly marked.

Response: The proposed entry drive shown on Figure 37 is 35-feet wide to allow for two-way traffic leading to the street. Traffic markings are included the Site Plans Sheets LU-400 and 402, Appendix A.1a.

MCC 39.6565 Dimensional Standards

A. Parking spaces shall meet the following requirements:

1. *At least 70% of the required off-street parking spaces shall have a minimum width of nine feet, a minimum length of 18 feet, and a minimum vertical clearance of six feet, six inches.*
2. *Up to 30% of the required off-street parking spaces may have a minimum width of eight-and-one-half feet, a minimum length of 16 feet, and a vertical clearance of six feet if such spaces are clearly marked for compact car use.*
3. *For parallel parking, the length of the parking space shall be 23 feet.*
4. *Space dimensions shall be exclusive of access drives, aisles, ramps or columns.*

Response: A shown on the Site Plans in Sheets LU-400, and 402, Appendix A.1a., all proposed off-street parking spaces are minimum 10 by 19-feet, meeting these standards. There is a bus parking (parallel) space that is 65 feet long.

B. Aisle width shall be not less than:

1. *25 feet for 90 degree parking,*
2. *20 feet for less than 90 degree parking, and*
3. *12 feet for parallel parking.*
4. *Angle measurements shall be between the center line of the parking space and the center line of the aisle.*

Response: Parking lot aisles and widths are shown on the on the Site Plans in Sheets LU-400, and 402, Appendix A.1a, and Figure 37. All parking is less than 90-degree parking and the aisle widths are a minimum 20-feet wide. Parking area 1 aisle is 23.5 ft. wide and area 2 aisle is 20 ft. wide.

C. Loading spaces shall meet the following requirements:

1.

Base Zone	Minimum Width	Minimum Depth
All	12 Feet	25 Feet

2. Minimum vertical clearance shall be 13 feet.

Response: The six loading areas are shown on Figure 39 and have been designed specifically for the filtration facility needs. The dimensions of the loading areas are 12 by 25 feet (Sheet LU-400, Appendix A.1a). The bus loading area is 12.5 by 65 feet. All loading areas have a minimum of 15 feet of vertical clearance.

MCC 39.6570 Improvements

A. Surfacing

1. Except as otherwise provided in this section, all areas used for parking, loading or maneuvering of vehicles, including the driveway, shall be surfaced with at least two inches of blacktop on a four-inch crushed rock base or at least six inches of Portland cement, unless a design providing additional load capacity is required by the fire service provider.

Response: The proposed parking areas are paved and meet the cited surfacing standards. A paving section is provided on Sheets LU-405 and 406, Appendix A.1a. Gresham Fire District (Appendix L.10) has indicated that the emergency access road must support fire apparatus weighing 75,000 lbs. and the road design exceeds this standard as documented in Appendix J.1.

2. The Approval Authority may permit and authorize a deviation from the surfacing standard in paragraph (A)(1)…

Response: No deviation from the standard is needed or proposed.

3. Notwithstanding paragraph (A)(1) of this section, parking fields for intermittent uses such as special events associated with public parks, sporting events, and the like may be surfaced with gravel, grass or both and spaces may be unmarked if the parking of vehicles is supervised. Grass fields used for parking shall be maintained so that grass is kept short and watered to minimize fire risk and reduce dust.

Response: There are no grass or gravel parking fields proposed.

B. Curbs and Bumper Rails

1. All areas used for parking, loading, and maneuvering of vehicles shall be physically separated from public streets or adjoining property by required landscaped strips or yards or in those cases where no landscaped area is required, by curbs, bumper rails or other permanent barrier against unchanneled motor vehicle access or egress.

2. The outer boundary of a parking or loading area shall be provided with a bumper rail or curbing at least four inches in height and at least three feet from the lot line or any required fence except as provided in (3) below.

Response: The perimeter of the filtration facility is substantially landscaped and buffered from public streets and adjoining properties, as described in the DR findings above. Parking and loading areas are provided with 4-inch wheelstops (bumper rails allowing for stormwater passage) as shown on Sheet LU-400, Appendix A.1a.

3. *Except for development within the RC, BRC, SRC, PH-RC, OR, OCI and all CFU zones, the outer boundary of a parking or loading area with fewer than four required parking spaces may use a five foot wide landscape strip or yard planted with a near-continuous number of shrubs and/or trees. If the outer boundary of the parking area is within 50 feet of a dwelling on an adjacent parcel, the plant materials shall create a continuous screen of at least four feet in height except at vision clearance areas where it shall be maintained at three feet in height.*

Response: The parking area has more than four spaces. There are no parking areas proposed within 50 feet of a dwelling on an adjacent parcel. This standard does not apply.

C. *Marking - All areas for the parking and maneuvering of vehicles shall be marked in accordance with the approved plan required under MCC 39.6515, and such marking shall be continually maintained. Except for development within the RC, BRC, SRC, PH-RC, OR, or OCI zones, a graveled parking area with fewer than four required parking spaces is exempt from this requirement.*

Response: Markings for vehicle maneuvering and parking areas are shown on Sheet LU-400, Appendix A.1.a, consistent with plan requirements under MCC 39.6515. The marking will be maintained as part of the site maintenance.

D. *Drainage - All areas for the parking and maneuvering of vehicles shall be graded and drained to provide for the disposal of all surface water on the lot.*

Response: Drainage patterns are shown on the Grading Plan (Sheet LU-304, Appendix A.1a), and stormwater management for parking and maneuvering areas is discussed in detail in the Stormwater Report in **Appendix H.1**.

E. *Covered Walkways - Covered walkway structures for the shelter of pedestrians only, and consisting solely of roof surfaces and necessary supporting columns, posts and beams, may be provided. Such structures shall meet the setback, height and other requirements of the base zone which apply.*

Response: No covered walkways are proposed in parking areas. All covered walkways proposed at the facility meet the development standards of the MUA-20 zone.

MCC 39.6580 Design Standards: Setbacks

A. *Any required yard which abuts upon a street lot line shall not be used for a parking or loading space, vehicle maneuvering area or access drive other than a drive connecting directly to a street perpendicularly. […]*

Response: As shown on the Site Plan in Sheet LU-302, Appendix A.1a, all yards abutting street lot lines will only include landscaping and buffering and do not include parking, loading, or other vehicle maneuvering areas except for the entry drive that connects directly to Carpenter Lane.

C. A required yard which abuts a street lot line shall not be paved, except for walkways which do not exceed 12 feet in total width and not more than two driveways which do not exceed the width of their curb cuts for each 150 feet of street frontage of the lot. […]

Response: As shown on the Site Plan in Sheet LU-302, Appendix A.1a, the yards abutting street lines are landscaped and do not include pavement, except for the driveway necessary for site access.

MCC 39.6585 Landscape and Screening Requirements

A. The landscaped areas requirements of MCC 39.8045 (C) (3) to (7) shall apply to all parking, loading or maneuvering areas which are within the scope of design standards stated in MCC 39.6555 (A).

Response: The required minimum standards of MCC 39.8045 are addressed above.

MCC 39.6590 Minimum Required Off-Street Parking Spaces

(A) The following Residential Uses […]

(B) The following Public and Semi-Public Buildings and Uses shall have at least the number of off-street parking spaces indicated: […]

(C) The following Retail and Office Uses shall have at least the number of off-street parking spaces indicated: (I) Store, Supermarket, and Personal Service Shop - One space for each 400 square feet of gross floor area. (2) Service and Repair Shop - One space for each 600 square feet of gross floor area. (3) Bank or Office, including Medical and Dental - One space for each 300 square feet of gross floor area. (4) Restaurant, Coffee Shop, Tavern or Bar - One space for each 100 square feet of gross floor area. (5) Mortuary - One space for each four chapel seats or eight feet of bench length.

(D) The following Commercial Recreation Uses […]

(E) The following Manufacturing and Storage Uses shall have at least the number of off-street parking spaces indicated: (I) Manufacturing - One space for each two employee positions on the largest shift, or one space for each 800 square feet of non-storage gross floor area, whichever is greater. (2) Storage - One space for each 5,000 square feet of storage area for the first 20,000 square feet, plus one additional space for each additional 50,000 square feet.

(F) Unspecified Uses. Any use not specifically listed above shall have the off-street parking space requirements of the listed use or uses deemed most nearly equivalent by the Planning Director.

Response: The proposed filtration facility is not specifically listed in subsections (A) – (E) above, and therefore is an "unspecified use" per subsection (F) above. Like the LHTF, the filtration facility is a community service use (public utility) that treats raw water to improve water quality for public health reasons. The LHTF is located at 6704 Cottrell Road, less than a mile from the filtration facility site. Thus, the proposed water filtration facility use is like the Lusted Hill Treatment Facility (LHTF) in terms of its use characteristics, and related parking and loading needs.

In approving the CU permit for the LHTF (Appendix O.3, Case File T3-2019-11784), the hearings officer relied on the staff report (pages 45-46) in making the determination that office and storage uses together are the most nearly equivalent to the LHTF use for purposes of estimating parking needs. Relevant text from the staff report is quoted below:

> *MCC Section 39.6590 provides standards for minimum required off-street parking spaces. A WTF use is not specifically listed and provided a standard, and this was discussed in the pre-application conference. As explained by County Staff, the WTF use most closely resembles (a) warehouse industrial (or "storage") for most of the facility and (b) office for the operator-occupied office portion.*
>
> *"Storage" requires "one space for each 5,000 square feet of storage area for the first 20,000 square feet, plus one additional space for each additional 50,000 square feet. "Office requires "One space for each 300 square feet of gross floor area." […]*
>
> *It would not be typical or reasonable to assign additional parking need to utility structures such as the proposed generator, propane tank, electrical enclosure, soda ash silos, CO2 storage tank, or pump station. The proposed chemical building contains approximately 1,600 square feet that can be classified as similar to industrial storage.*

Like the LHTF, the filtration facility also includes utilitarian structures that do not generate parking demand. Like the LHTF, the filtration facility includes both office space (in the administration building) and storage space for chemicals and equipment (in the remaining buildings). These uses in combination represent the "most nearly equivalent uses" for determining parking needs at the filtration facility.

The filtration facility buildings (exclusive of utilitarian processing structures) have a gross floor area of approximately 88,702 gross sf. The administration building has 14,018 gross sf of office space and the remaining storage buildings have 74,764 gross sf.

Based on these gross square-footage numbers, the code would require 46.7 office parking spaces and 5.1 storage parking spaces. Per MCC 39.6550(B):

> *When a unit or measurement determining the number of required off-street parking or off-street loading spaces results in a requirement of a fractional space, any fraction up to and including one-half shall be disregarded, and any fraction over one-half shall require one off-street parking or off-street loading space.*

Adding the number of required parking spaces (46.7 office spaces plus 5.1 storage spaces = 51.8 total parking spaces); rounding up yields a total of 52 parking spaces. However, as discussed in detail below, a facility-specific parking analysis supports an exception to reduce the number of required parking spaces.

MCC 39.6595 Minimum Required Offstreet Loading Spaces

Section (G) allows the Planning Director to determine the most nearly equivalent use(s):

> *"(G) Unspecified Uses. Any use not specifically listed above shall have the loading space requirements of the listed use or uses deemed most nearly equivalent by the Planning Director."*

Based on the same proportion of office to storage space used to determine parking needs:

- Section (A) requires two loading spaces for office space ranging from 5,000 to 24,999 gross sf and
- Section (B) requires two loading spaces for storage space ranging from 40,000 to 99,999 sf.

The total comes to a minimum of four required loading spaces. Each loading space must be 12-feet wide by 24-feet long.

As documented in the TIA (Appendix C.1, page 19), loading space needs were developed through collaboration with Water Bureau staff including operators and were based on anticipated truck deliveries and solids removal, and visitors arriving by van or bus. Based on this analysis, six loading spaces are needed (two related to office space needs and four related to storage space needs), all of which meet the minimum loading area dimensions of 12 feet wide and 25 feet long:

- the bus drop-off area in front of the administration building (which can also function as a delivery loading area for the administration building),
- a delivery area near the maintenance building,
- a delivery area behind the administration building,
- two delivery areas next to the chemical building, and
- a solids removal area next to the dewatering building.

MCC 39.6600 Exceptions From Required Off-Street Parking Or Loading Spaces

In the County's pre-application conference notes (Appendix O.2a, PA 2022-15566, page 19), County staff confirmed that the use type is not specifically listed and recommended the Water Bureau conduct a parking study:

> *The County recommends a Parking Study be completed and submitted as part of the application to support the number of parking spaces ultimately proposed. The Parking Study should also discuss the loading spaces required for Unspecified Uses [MCC 39.6595(G)].*

The facility-specific parking and loading studies in the TIA (Appendix C.1) determined a need for 32 parking spaces and six loading spaces. Because only four loading spaces are required, a loading area exception is not needed. The facility-specific parking analysis supports requesting an exception to the number of required parking spaces based on the gross square footage of equivalent office and storage space uses.

> *(A) The Planning Director may grant an exception with or without conditions for up to 30% of the required number of off- street parking or loading spaces, upon a finding by the Director that there is substantial evidence that the number of spaces required is inappropriate or unneeded for the particular use, based upon:*
>
> *(l) A history of parking or loading use for comparable developments; (2) The age, physical condition, motor vehicle ownership or use characteristics or other circumstances of residents, users or visitors of the use; or*

The parking and loading area study included in the TIA (Appendix C.1) demonstrates that only 32 parking spaces and three loading spaces are needed to accommodate employees, visitors, fleet vehicles, and deliveries for the filtration facility use. The exception is also supported by the parking and loading use analysis for the nearby LHTP development described above.

(3) The availability of alternative transportation facilities; and

Most filtration facility employees commute from the Portland region to the filtration facility. It is reasonable to assume that at least two employees in each shift will carpool. Two dedicated carpool spaces are provided behind the security fence next to fleet vehicle parking.

(4) That there will be no resultant onstreet parking or loading or interruptions or hazards to the movement of traffic, pedestrians or transit vehicles.

Based on the parking study, 32 spaces are more than sufficient to accommodate the 26 employees (in three shifts) plus visitors and six loading spaces are sufficient to meet filtration facility delivery and bus loading and visitor needs.

Based on the above, it is reasonable to reduce the required number of parking spaces by 30 percent. The 30 percent reduction allowed per MCC 39.6600(A) above still requires 36 (36.3) parking spaces—four more than the 32 spaces determined in the TIA parking study. Therefore, after the reduction, the filtration facility will require four additional parking spaces for a total of 36 spaces.

Figure 39 shows the location of the 36 parking spaces and six loading spaces.

- 26 parking spaces are provided in front of the administration building.
- 10 parking spaces are provided for employees and fleet vehicles within the fenced area behind the administration building.
- Six loading spaces are provided: five behind the fence and one in front of the administration building.

The parking study makes clear that 32 parking spaces are more than sufficient to accommodate all parking on site. By providing an additional four spaces, the site design ensures that there will be no potential for overflow parking on the street. The design also incorporates a wide and more than 300-foot-long entry drive with built-in turnaround to allow the safe and uninterrupted movement of traffic or pedestrians.[5]

[5] There is no transit service to the site.

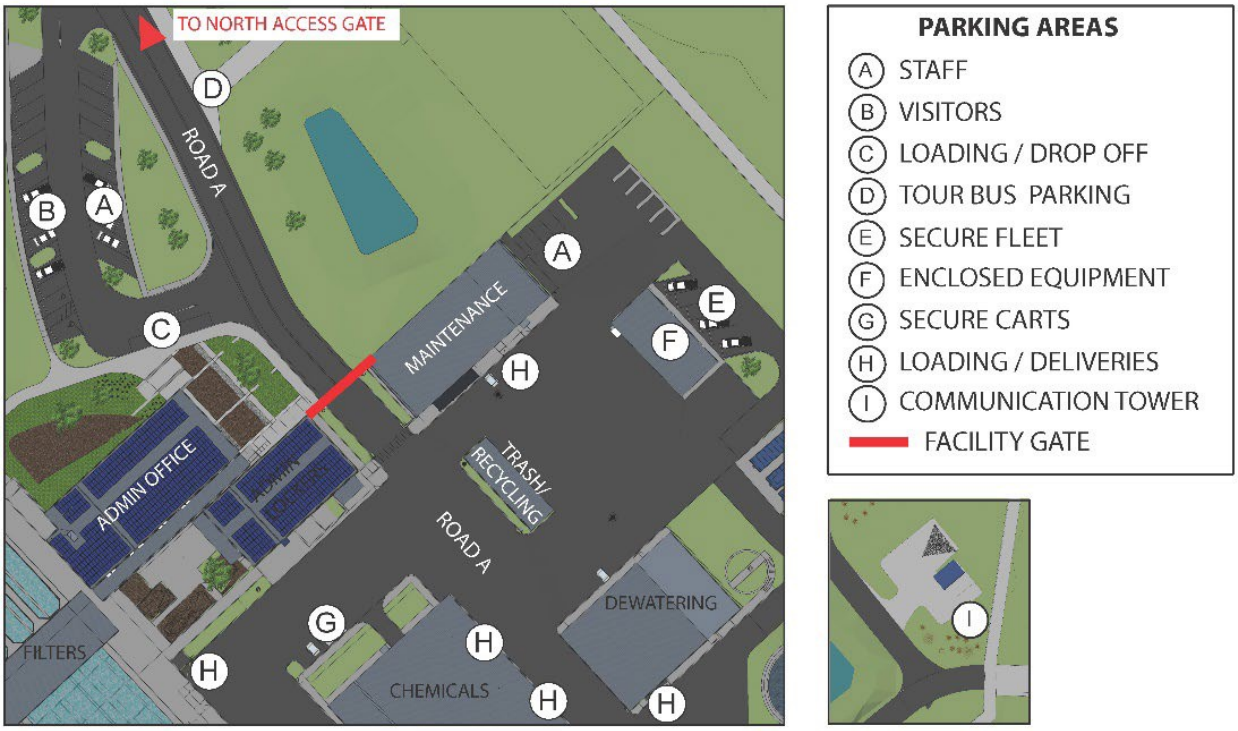

Figure 39. Parking and Loading Plan

Signs

The filtration facility signage includes entry and directional signage (Figures 35 and 36). The applicable standards are reviewed below.

MCC 39.6720 Exempt Signs

The following signs are exempt from the provisions of this Subpart, but may be subject to other portions of the County Zoning Code:

A. Signs not oriented or intended to be legible from a right-of-way, private road or other private property; […]

Response: Signs proposed within the filtration facility for building identification, wayfinding, and information purposes are not intended to be legible from a right-of-way, roadway, or adjacent property. The only signs visible from the roadway are shown on Figure 35 and are intended to identify the address, name and location of the filtration facility, direct visitors and deliveries, and a monument sign.

MCC 39.6745 Signs Generally

For all uses and sites in all zones except the LM, C-3 and MR-4 zones, the following types, numbers, sizes and features of signs are allowed. All allowed signs must also be in conformance with the sign development regulations of MCC 39.6780 through MCC 39.6820.

A. The following standards apply to Free Standing Signs:

1. *Allowable Area - Free standing signs are allowed .25 square feet of sign face area per linear foot of site frontage, up to a maximum of 40 square feet.*
2. *Number - One free standing sign is allowed per site frontage.*
3. *Height - The maximum height of a free standing sign is 16 feet.*
4. *Extension into the Right-Of-Way - Free standing signs may not extend into the right-of-way.*

Response: As shown on Figures 35 and 36, there are two proposed directional signs at the entrance, which are addressed in the findings under subsection D, below. The proposed filtration facility entry sign is a free-standing sign located at the entry roundabout, approximately 100 feet from Carpenter Lane.

The site frontage is approximately 800 feet, so the maximum sign area allowed under A.1 would be 40 square feet. The entry sign is three- by eight-feet, or 24 square feet, meeting this standard. There is one entry sign. The height of the sign is five feet including base. The sign is located on the Water Bureau property and does not extend into the ROW.

B. The following standards apply to Signs Attached to Buildings.

Response: Not applicable.

C. Sign Features. Permanent signs may have the following features:

1. *Signs may be indirectly illuminated downward onto the sign face.*
2. *Electronic message centers are not allowed.*
3. *Flashing signs are not allowed.*
4 *Rotating signs are not allowed.*
5. *Moving parts are not allowed.*

Response: The entry sign at the roundabout will be indirectly illuminated downward onto the sign face, as shown in Figure 35. No electronic messages, flashing or rotating signs, or signs with moving parts are proposed. As demonstrated below, the illuminated sign will comply with County Dark Sky Lighting standards (MCC 39.6850).

D. Additional Signs Allowed. In addition to the sign amounts allowed based on the site and building frontages, the following signs are allowed in all base zones for all usages:

1. *Directional signs pursuant to MCC 39.6805…*

Response: Figures 35 and 36 show two directional signs, one containing the property address and the other showing the direction to the administration building.

MCC 39.6780 Sign Placement

A. Placement. All signs and sign structures shall be erected and attached totally within the site except when allowed to extend into the right-of-way.

B. Frontages. Signs allowed based on the length of one site frontage may not be placed on another site frontage. Signs allowed based on a primary building frontage may be placed on a secondary building frontage.

Response: The entry sign is within the site and next to the designated (Carpenter Lane) frontage.

C. Vision Clearance Areas.

1. No sign may be located within a vision clearance area as defined in subsection (C) (2) below. No support structure(s) for a sign may be located in a vision clearance area unless the combined total width is 12 inches or less and the combined total depth is 12 inches or less.

2. Location of vision clearance Areas - Vision clearance areas are triangular shaped areas located at the intersection of any combination of rights-of-way, private roads, alleys or driveways. The sides of the triangle extend 45 feet from the intersection of the vehicle travel area (See MCC 39.6820 Figure 2). The height of the vision clearance area is from three feet above grade to ten feet above grade.

Response: No sign is located within the vision clearance area, as shown on Figure 36.

D. Vehicle Area Clearances. When a sign extends over a private area where vehicles travel or are parked, the bottom of the sign structure shall be at least 14 feet above the ground. Vehicle areas include driveways, alleys, parking lots, and loading and maneuvering areas.

E. Pedestrian Area Clearances. When a sign extends over private sidewalks, walkways or other spaces accessible to pedestrians, the bottom of the sign structure shall be at least 8-l/2 feet above the ground.

Response: No sign extends over vehicle or pedestrian areas.

F. Required Yards and Setbacks. Signs may be erected in required yards and setbacks.

G. Parking Areas.

Response: The address sign is in the front yard. No parking area signs are visible from the right-of-way; they are therefore exempt.

Exterior Lighting

This section reviews the proposed exterior lighting. Outdoor lights are required for security and worker and vehicle safety. Supporting documentation for compliance with lighting standards is provided in Appendix E.2, Exterior Lighting Analysis.

MCC 39.6850 Dark Sky Lighting Standards

A. The purpose of the Dark Sky Lighting Standards in this Section is to protect and promote public health, safety and welfare by preserving the use of exterior lighting for security and the nighttime use and enjoyment of property while minimizing the obtrusive aspects of exterior lighting uses that degrade the nighttime visual environment and negatively impact wildlife and human health.

B. The following exterior lighting is exempt from the requirements of paragraph (C) of this section […]

Response: The exterior lighting proposed at the filtration facility meets the applicable standards of Subsection C below.

C. The following standards apply to all new exterior lighting supporting a new, modified, altered, expanded, or replaced use approved through a development permit and to all existing exterior lighting on property that is the subject of a development permit approval for enlargement of a building by more than 400 square feet of ground coverage.

1. The light source (bulbs, lamps, etc.) must be fully shielded with opaque materials and directed downwards. "Fully shielded" means no light is emitted above the horizontal plane located at the lowest point of the fixture's shielding. Shielding must be permanently attached.

2. The lighting must be contained within the boundaries of the Lot of Record on which it is located. To satisfy this standard, shielding in addition to the shielding required in paragraph (C)(1) of this section may be required.

Response: Proposed exterior lighting will be fully shielded and directed downwards as shown in the Exterior Lighting Analysis (Appendix E.2) and noted in the Exterior Lighting Plan table (Sheets GEN-E-140 through 142, Appendix A.1a).[6] The plan shows the location and shield types of proposed fixtures. Exterior lights will be a sharp cut-off type and designed to prevent light trespass outside the facility site.

As documented in Appendix E.2 Exterior Lighting Analysis, when all the lights are energized, there is no light trespass outside of the boundary of the filtration facility property.

[6] Not that submerged lights needed for process monitoring of the filtration facility are exempt from this standard (MCC 39.6850(B)(13)) and have a different design. Despite being exempt, the underwater lighting is designed to ensure that the filtration facility lighting will be contained within the boundaries of the filtration facility site, as shown in Appendix E.2.